Clinton River
Auburn Hills

GR	851.100	151.000	851.800	156.000	853.000	161.000	856.000	270.000	858.000	330.000
GR	860.000	360.000	862.000	380.000	864.000	400.000	866.000	425.000	868.000	465.000
GR	870.000	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	44.045	0.000	0.000	0.000	90.000	90.000	90.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	75.000	0.000	205.000	0.000	0.000	0.000	0.000
X1	44.062	0.000	0.000	0.000	90.000	90.000	90.000	0.000	.100	0.000
X3	0.000	0.000	0.000	98.000	0.000	183.000	0.000	0.000	0.000	0.000
X1	44.069	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	109.000	0.000	174.000	0.000	0.000	0.000	0.000
X1	44.076	0.000	0.000	0.000	39.000	39.000	39.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	118.000	0.000	163.000	0.000	0.000	0.000	0.000
X1	44.077	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	120.000	0.000	163.000	0.000	0.000	0.000	0.000
X1	44.078	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	121.000	0.000	162.000	0.000	0.000	0.000	0.000
X1	44.079	16.000	400.000	440.000	2.000	2.000	2.000	0.000	0.000	0.000
GR	879.300	0.000	868.200	100.000	865.100	200.000	864.600	300.000	865.200	400.000
GR	853.200	400.000	852.800	410.000	852.700	415.000	851.700	420.000	851.200	430.000
GR	852.400	435.000	852.700	440.000	865.100	440.000	862.500	540.000	869.000	540.000
GR	873.200	740.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.033	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	44.080	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	0.000	879.300	0.000	100.000	858.200	0.000	200.000	865.100	0.000
BT	300.000	864.600	0.000	400.000	865.200	862.600	440.000	865.100	862.500	540.000
BT	862.600	0.000	640.000	869.000	0.000	740.000	873.200	0.000	0.000	0.000
X1	44.087	0.000	0.000	0.000	46.000	46.000	46.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.120	.120	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	44.088	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	44.089	23.000	385.000	424.000	4.000	4.000	4.000	0.000	-.600	0.000
X3	0.000	0.000	0.000	380.000	0.000	430.000	0.000	0.000	0.000	0.000
GR	870.000	0.000	868.000	10.000	866.000	20.000	864.000	30.000	862.000	50.000
GR	860.000	65.000	858.000	95.000	856.000	215.000	854.500	385.000	853.800	390.000
GR	853.400	399.000	853.300	404.000	852.300	409.000	851.800	419.000	853.000	424.000
GR	856.000	430.000	858.000	490.000	860.000	510.000	862.000	550.000	864.000	620.000
GR	866.000	710.000	868.000	790.000	870.000	870.000	0.000	0.000	0.000	0.000
X1	44.090	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	370.000	0.000	440.000	0.000	0.000	0.000	0.000
X1	44.099	0.000	0.000	0.000	31.000	66.000	45.000	0.000	.100	0.000
X3	0.000	0.000	0.000	325.000	0.000	485.000	0.000	0.000	0.000	0.000
X1	44.107	0.000	0.000	0.000	31.000	65.000	45.000	0.000	.100	0.000
X3	0.000	0.000	0.000	230.000	0.000	530.000	0.000	0.000	0.000	0.000
X1	44.124	0.000	0.000	0.000	63.000	131.000	90.000	0.000	.100	0.000
X3	0.000	0.000	0.000	190.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	44.160	23.000	385.000	424.000	135.000	273.000	190.000	0.000	0.000	0.000
GR	870.000	0.000	868.000	10.000	866.000	20.000	864.000	30.000	862.000	50.000
GR	860.000	65.000	858.000	95.000	856.000	215.000	854.500	385.000	853.800	390.000
GR	853.400	399.000	853.300	404.000	852.300	409.000	851.800	419.000	853.000	424.000
GR	856.000	430.000	858.000	490.000	860.000	510.000	862.000	550.000	864.000	620.000
GR	866.000	710.000	868.000	790.000	870.000	870.000	0.000	0.000	0.000	0.000

X1	44.274	31.000	825.000	950.000	600.000	600.000	600.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	720.000	0.000	1070.000	0.000	0.000	0.000	0.000
GR	881.200	0.000	878.900	70.000	875.900	170.000	869.800	270.000	866.300	370.000
GR	861.500	470.000	860.400	570.000	859.800	670.000	859.700	770.000	856.200	825.000
GR	854.200	830.000	852.700 LOW	840.000	853.600	850.000	855.700	855.000	856.700 HIGH	883.000
GR	854.900	918.000	854.400	920.000	854.400	930.000	854.400	940.000	854.400	945.000
GR	856.000	950.000	856.300	970.000	855.800	1070.000	856.400	1170.000	859.200	1270.000
GR	860.200	1370.000	862.900	1470.000	865.400	1570.000	868.900	1670.000	871.100	1770.000
GR	874.600	1870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	44.311	90.000	843.700	952.500	195.000	195.000	195.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	723.000	0.000	1073.000	0.000	0.000	0.000	0.000
GR	880.500	0.000	877.900	29.000	877.100	58.100	876.300	87.200	875.300	116.300
GR	874.200	145.400	873.000	174.500	871.400	203.600	869.900	232.700	868.500	261.800
GR	867.300	290.900	866.400	320.000	865.500	349.100	864.600	378.200	863.500	407.300
GR	862.400	436.400	861.300	465.500	860.700	494.600	860.400	523.700	860.200	552.800
GR	860.000	581.800	860.000	610.900	860.000	640.000	859.900	669.100	859.900	698.200
GR	860.000	727.300	860.000	756.400	860.100	785.500	859.000	814.600	857.800	843.700
GR	856.300	847.300	855.500	851.000	854.800	854.600	854.400 LOW	858.200	854.400 LOW	861.500
GR	854.500	865.400	855.600	869.100	855.700	872.700	855.600	876.300	855.500	879.900
GR	855.600	883.600	855.700	887.200	855.800	890.800	855.900	894.400	855.800	898.100
GR	855.600	901.700	855.500	905.300	855.300	908.900	855.200	912.600	855.100	916.200
GR	855.000	919.800	854.900	923.400	854.500 LOW	927.100	854.600	930.700	854.900	934.300
GR	855.100	937.900	855.300	941.600	855.600	945.200	856.000	948.800	857.200 HIGH	952.500
GR	857.400	981.600	857.400	1010.800	857.400	1040.000	857.400	1069.100	857.600	1098.300
GR	857.800	1127.400	858.000	1156.600	858.600	1185.800	859.300	1214.900	860.000	1244.100
GR	860.400	1273.300	860.700	1302.400	861.000	1331.600	861.400	1360.800	862.000	1389.900
GR	862.700	1419.100	863.300	1448.300	863.900	1477.400	864.600	1506.600	865.200	1535.800
GR	866.100	1564.900	867.000	1594.100	868.000	1623.300	868.800	1652.400	869.500	1681.600
GR	870.200	1710.800	871.100	1739.900	872.200	1759.100	873.300	1798.300	874.500	1827.500
X1	44.348	90.000	862.500	955.000	195.000	195.000	195.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	772.000	0.000	1047.000	0.000	0.000	0.000	0.000
GR	879.900	0.000	875.600	29.700	874.900	59.400	874.200	89.200	873.000	118.900
GR	871.600	148.700	870.200	178.400	868.800	208.100	867.500	237.900	866.300	267.600
GR	865.300	297.400	864.500	327.100	863.700	356.800	862.900	386.600	862.100	416.300
GR	861.300	446.100	860.500	475.800	860.000	505.600	859.900	535.300	859.700	565.000
GR	859.700	594.800	859.800	624.500	860.000	654.300	860.000	684.000	860.100	713.700
GR	860.200	743.500	860.300	773.200	860.600	803.000	860.100	832.700	859.500	862.500
GR	858.200	865.500	857.300	868.600	856.500	871.700	856.000	874.800	855.700	877.900
GR	855.400	881.000	855.900	884.000	855.700	887.100	855.300	890.200	855.000	893.300
GR	855.100	896.400	855.100	899.400	855.200	902.500	855.200	905.600	855.100	908.700
GR	855.000	911.800	855.000	914.900	854.900	917.900	854.900	921.000	854.800	924.100
GR	854.800	927.200	854.900	930.300	854.800	933.400	854.900	936.400	855.400	939.500
GR	855.800	942.600	856.300	945.700	856.800	948.800	857.400	951.900	858.500	955.000
GR	858.700	982.600	858.700	1010.300	858.800	1038.000	858.900	1066.600	859.200	1093.300
GR	859.500	1120.900	859.700	1148.600	860.100	1176.300	860.700	1203.900	861.200	1231.600
GR	861.500	1259.300	861.800	1286.900	862.000	1314.600	862.300	1342.300	862.600	1369.900
GR	863.300	1397.600	863.800	1425.300	864.200	1452.900	864.800	1480.600	865.300	1508.300
GR	866.000	1535.900	866.700	1563.600	867.600	1591.300	868.400	1618.900	869.200	1646.600
GR	869.900	1674.300	870.900	1701.900	872.000	1729.600	873.200	1757.300	874.400	1785.000
X1	44.385	90.000	881.200	957.500	195.000	195.000	195.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	830.000	0.000	1005.500	0.000	0.000	0.000	0.000
GR	879.300	0.000	873.300	30.300	872.700	-0.700	872.100	91.100	870.700	121.500
GR	869.100	151.900	867.500	182.300	866.100	212.700	865.100	243.100	864.200	273.400
GR	863.300	303.800	862.600	334.200	861.900	364.600	861.300	395.000	860.700	425.400
GR	860.200	455.800	859.600	486.200	859.400	516.500	859.300	546.900	859.200	577.300
GR	859.400	607.700	859.700	638.100	859.900	668.500	860.100	698.900	860.300	729.300
GR	860.400	759.600	860.700	790.000	861.100	820.400	861.100	850.800	861.100	881.200
GR	860.000	883.700	859.100	886.300	858.300	888.800	857.500	891.400	857.000	893.900
GR	856.400	896.500	856.100	899.000	855.600	901.500	855.000	904.100	854.500	906.600
GR	854.500	909.200	854.500	911.700	854.500	914.200	854.500	916.800	854.400	919.300
GR	854.400	921.900	854.500	924.400	854.500	926.900	854.500	929.500	854.500	932.000
GR	854.700	934.600	854.900	937.100	855.000	939.700	855.200	942.200	855.900	944.700

GR	859.900	983.600	860.100	1009.800	860.300	1036.000	860.500	1062.100	860.900	1088.300
GR	861.100	1114.400	861.300	1140.600	861.700	1166.800	862.000	1192.900	862.400	1219.100
GR	862.700	1245.300	862.900	1271.400	863.100	1297.600	863.300	1323.800	863.600	1349.900
GR	863.900	1376.100	864.200	1402.300	864.500	1428.400	864.900	1454.600	865.400	1480.800
GR	865.900	1506.900	866.400	1533.100	867.300	1559.300	868.000	1585.400	868.800	1611.600
GR	869.600	1637.800	870.700	1663.900	871.900	1690.100	873.100	1716.300	874.300	1742.500
* AC										
X1	44.422	25.000	900.000	960.000	195.000	195.000	195.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	885.000	0.000	965.000	0.000	0.000	0.000	0.000
GR	878.700	0.000	871.000	30.000	870.000	100.000	863.900	200.000	861.600	300.000
GR	859.700	400.000	858.800	500.000	858.800	600.000	860.200	700.000	860.900	800.000
GR	862.800	900.000	856.000	915.000	854.000	920.000	853.800	930.000	854.300	940.000
GR	855.500	948.000	861.100	960.000	861.300	1000.000	862.800	1100.000	863.600	1200.000
GR	864.300	1300.000	864.800	1400.000	866.100	1500.000	869.200	1600.000	874.200	1700.000
NC	.060	.060	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	44.437	13.000	100.000	140.000	79.000	79.000	79.000	0.000	0.000	0.000
GR	877.300	0.000	876.400	100.000	853.300	100.000	853.300	120.000	852.800	130.000
GR	853.300	140.000	875.800	140.000	874.200	200.000	873.100	300.000	872.300	400.000
GR	871.500	500.000	870.600	600.000	870.100	700.000	0.000	0.000	0.000	0.000
* AD										
X1	44.438	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	0.000	877.300	0.000	100.000	876.400	871.500	140.000	875.800	870.700
BT	200.000	874.200	0.000	300.000	873.100	0.000	400.000	872.300	0.000	500.000
BT	871.500	0.000	600.000	870.600	0.000	700.000	870.100	0.000	0.000	0.000
X1	44.445	0.000	0.000	0.000	43.000	43.000	43.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X1	44.446	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	44.455	0.000	0.000	0.000	54.000	54.000	54.000	0.000	0.000	0.000
* AE										
X1	44.456	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	0.000	877.300	0.000	100.000	876.400	871.700	140.000	875.800	871.100
BT	200.000	874.200	0.000	300.000	873.100	0.000	400.000	872.300	0.000	500.000
BT	871.500	0.000	600.000	870.600	0.000	700.000	870.100	0.000	0.000	0.000
X1	44.464	0.000	0.000	0.000	43.000	43.000	43.000	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
QT	4.000	2000.000	2630.000	3010.000	4360.000	0.000	0.000	0.000	0.000	0.000
X1	44.465	0.000	0.000	0.000	1.000	1.000	1.000	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	44.483	12.000	130.000	191.000	99.000	99.000	99.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	80.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.000	0.000	864.000	65.000	862.000	105.000	860.000	130.000	858.000	135.000
GR	856.100	151.000	853.200	165.000	852.600	176.000	854.700	186.000	858.900	186.000
GR	858.500	191.000	865.000	210.000	0.000	0.000	0.000	0.000	0.000	0.000
* AF										
X1	44.595	19.000	318.000	373.000	590.000	590.000	590.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	781.000	0.000	0.000	0.000	0.000
GR	865.600	0.000	865.300	106.000	864.400	212.000	863.000	314.000	856.600	334.000
GR	852.300	347.000	851.700	358.000	855.400	368.000	856.600	368.000	858.300	373.000
GR	858.200	418.000	858.200	468.000	857.900	505.000	857.000	540.000	856.200	698.000
GR	858.400	705.000	860.800	728.000	864.500	743.000	864.700	781.000	0.000	0.000
NC	.090	.090	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	44.731	22.000	500.000	538.000	726.000	726.000	726.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000
GR	863.300	0.000	862.800	100.000	861.700	200.000	862.400	300.000	861.500	400.000
GR	859.800	500.000	852.600	500.000	850.300	505.000	848.900	508.000	849.100	508.500
GR	851.100	515.000	855.600	519.000	860.300	519.000	860.100	521.000	855.600	521.000
GR	850.100	530.000	852.000	538.000	859.100	538.000	860.600	638.000	860.300	738.000
GR	860.900	838.000	863.100	938.000	0.000	0.000	0.000	0.000	0.000	0.000
* AG										
X1	44.732	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	550.000	0.000	0.000	0.000	0.000

N

X

I-75 N.B.

Y

I-75 S.B.

Z

AA

AA

AB

AC

AD

AE

	* AG										
X1	44.732	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	550.000	0.000	0.000	0.000	0.000	
BT	17.000	0.000	863.300	0.000	100.000	862.800	0.000	200.000	861.700	0.000	
BT	300.000	862.400	0.000	400.000	861.500	0.000	500.000	859.800	858.300	505.000	VAUGHN BRIDGE
BT	850.300	858.800	508.000	860.700	859.200	508.500	862.700	859.300	515.000	862.300	
BT	860.800	520.000	861.700	860.200	530.000	860.400	858.900	538.000	859.100	857.600	
BT	638.000	860.600	0.000	739.000	860.300	0.000	858.000	860.900	0.000	938.000	
BT	863.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	44.736	0.000	0.000	0.000	18.000	18.000	18.000	0.000	0.000	0.000	
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000	VAUGHN BRIDGE
X1	44.737	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	550.000	0.000	0.000	0.000	0.000	
NC	.090	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	* AA										
X1	44.930	13.000	760.000	789.000	1024.000	1024.000	1024.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	425.000	0.000	0.000	0.000	0.000	0.000	0.000	
GR	869.000	0.000	868.000	30.000	868.000	100.000	866.000	150.000	864.000	290.000	
GR	862.000	325.000	859.800	660.000	859.600	760.000	858.900	765.000	854.300	770.000	
GR	855.600	775.000	856.900	779.000	867.300	789.000	0.000	0.000	0.000	0.000	
QT	4.000	2410.000	3460.000	3950.000	5440.000	0.000	0.000	0.000	0.000	0.000	
	* AI										
X1	45.057	33.000	1325.000	1370.000	670.000	670.000	670.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	1220.000	0.000	1570.000	0.000	0.000	0.000	0.000	
GR	859.500	0.000	870.000	50.000	871.100	125.000	869.600	225.000	870.300	325.000	
GR	870.100	425.000	866.500	525.000	866.700	625.000	869.000	725.000	870.300	825.000	
GR	869.700	895.000	861.400	925.000	860.800	1025.000	861.600	1125.000	862.700	1225.000	
GR	862.400	1325.000	859.700	1327.000	857.900	1335.000	857.200	1345.000	857.100	1355.000	
GR	857.100	1365.000	859.200	1368.000	861.700	1370.000	862.600	1425.000	864.700	1470.000	
GR	865.400	1525.000	867.100	1625.000	868.900	1725.000	865.400	1925.000	864.800	1925.000	
GR	863.700	2025.000	864.800	2125.000	865.400	2145.000	0.000	0.000	0.000	0.000	
X1	45.076	21.000	600.000	650.000	100.000	100.000	100.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	0.000	0.000	950.000	0.000	863.900	863.900	0.000	
GR	871.900	0.000	870.900	100.000	869.600	200.000	869.200	300.000	868.500	400.000	
GR	867.600	500.000	867.600	580.000	860.100	600.000	857.800	610.000	856.600	620.000	
GR	856.600	640.000	858.400	650.000	866.700	670.000	865.900	700.000	865.400	800.000	
GR	865.400	900.000	864.800	1000.000	864.400	1100.000	864.800	1200.000	864.500	1300.000	
GR	865.600	1370.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
SR	0.000	1.860	2.500	0.000	50.000	0.000	2-0.000	0.000	856.600	856.600	AUBURN ROAD (WEST)
	* AJ										
X1	45.098	0.000	0.000	0.000	64.000	64.000	64.000	0.000	0.000	0.000	
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	0.000	0.000	950.000	0.000	864.500	864.500	0.000	
BT	9.000	535.000	867.600	0.000	600.000	867.600	860.100	600.000	867.600	863.200	
BT	650.000	867.200	862.700	650.000	867.200	858.400	700.900	865.900	0.000	800.000	
BT	865.400	0.000	900.000	865.400	0.000	950.000	865.100	0.000	0.000	0.000	
NC	.060	.060	.045	.500	1.000	0.000	0.000	0.000	0.000	0.000	
	* AK										
X1	45.238	32.000	800.000	859.000	794.000	794.000	794.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	650.000	0.000	950.000	0.000	0.000	0.000	0.000	
GR	884.500	0.000	880.300	15.000	876.800	100.000	873.000	200.000	872.200	300.000	
GR	869.700	400.000	868.300	500.000	867.600	600.000	867.500	700.000	866.000	800.000	
GR	859.800	805.000	857.600	815.000	858.400	825.000	858.300	835.000	859.200	845.000	
GR	859.800	852.000	864.100	859.000	864.100	900.000	865.000	1000.000	865.800	1100.000	
GR	865.200	1200.000	864.200	1300.000	863.800	1400.000	863.400	1500.000	863.500	1600.000	
GR	863.800	1700.000	864.600	1800.000	866.900	1900.000	866.300	2000.000	865.900	2100.000	
GR	866.200	2200.000	866.600	2300.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	45.252	32.000	900.000	934.000	75.000	75.000	75.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	0.000	0.000	1015.000	0.000	866.500	866.500	0.000	
GR	884.200	0.000	880.900	100.000	878.200	200.000	874.800	300.000	872.600	400.000	

Clinton River
Auburn Hills

44.09	9.52	[illegible]							
3080.	119.	2828.	133.	34.	325.	41.	422.	84.	852.40
1.29	3.50	8.70	3.25	.120	.055	.120	.040	851.20	380.00
.006189	4.	4.	4.	3	0	1	0.00	50.00	430.00

3470 ENCROACHMENT STATIONS= 370.0 440.0 TYPE= 1 TARGET= 70.000

44.09	10.12	861.32	0.00	0.00	861.99	.67	.05	.13	853.90
3080.	320.	2498.	262.	110.	349.	102.	422.	84.	852.40
1.29	2.90	7.16	2.57	.120	.055	.120	.040	851.20	370.00
.003817	10.	10.	10.	2	0	1	0.00	70.00	440.00

3470 ENCROACHMENT STATIONS= 325.0 485.0 TYPE= 1 TARGET= 160.000

44.10	10.74	862.04	0.00	0.00	862.23	.20	.10	.14	854.00
3080.	851.	1692.	538.	466.	373.	357.	423.	84.	852.50
1.30	1.82	4.54	1.50	.120	.055	.120	.040	851.30	325.00
.001409	31.	45.	66.	2	0	1	0.00	160.00	485.00

3470 ENCROACHMENT STATIONS= 280.0 530.0 TYPE= 1 TARGET= 250.000

44.11	10.80	862.20	0.00	0.00	862.31	.11	.05	.03	854.10
3080.	1158.	1371.	551.	802.	375.	493.	425.	85.	852.60
1.30	1.44	3.66	1.10	.120	.055	.120	.040	851.40	280.00
.000905	31.	45.	65.	2	0	1	0.00	250.00	530.00

3470 ENCROACHMENT STATIONS= 190.0 870.0 TYPE= 1 TARGET= -190.000

44.12	10.83	862.33	0.00	0.00	862.38	.05	.06	.02	854.20
3080.	1554.	1083.	443.	1413.	376.	529.	429.	85.	852.70
1.32	1.10	2.88	.84	.120	.055	.120	.040	851.50	190.00
.000562	63.	90.	131.	1	0	1	0.00	381.60	571.60
44.16	10.63	862.43	0.00	0.00	862.47	.04	.09	.01	854.50
3080.	1779.	932.	368.	1999.	369.	503.	439.	87.	853.00
1.35	.89	2.53	.73	.120	.055	.120	.041	851.80	45.66
.000443	135.	190.	273.	2	0	1	0.00	519.55	565.21

3470 ENCROACHMENT STATIONS= 720.0 1070.0 TYPE= 1 TARGET= 350.000

VALLEY SECTION AB

44.27	9.99	862.69	0.00	0.00	862.75	.05	.27	.01	859.20
3080.	272.	2075.	732.	409.	949.	795.	473.	93.	856.00
1.45	.66	2.19	.92	.120	.055	.120	.041	852.70	720.00
.000445	600.	600.	600.	2	0	1	0.00	350.00	1070.00

3470 ENCROACHMENT STATIONS= 723.0 1073.0 TYPE= 1 TARGET= 350.000

44.31	8.39	862.79	0.00	0.00	862.87	.08	.11	.01	857.80
3080.	286.	2146.	648.	394.	806.	651.	482.	95.	857.20
1.47	.73	2.66	1.00	.120	.055	.120	.041	854.40	723.00
.000681	195.	195.	195.	0	0	1	0.00	350.00	1073.00

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	ALOBL	ALCH	ALOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 772.0 1047.0 TYPE= 1 TARGET= 275.000

44.35	8.12	862.92	0.00	0.00	863.09	.16	.13	.04	859.50
3080.	216.	2410.	454.	246.	667.	389.	429.	96.	858.50
1.49	.88	3.61	1.17	.120	.055	.120	.041	854.80	772.00
.001303	195.	195.	195.	2	0	1	0.00	275.00	1047.00

3470 ENCROACHMENT STATIONS= 830.0 1008.0 TYPE= 1 TARGET= 178.000

44.39	8.78	863.18	0.00	0.00	863.53	.35	.35	.10	861.10
3080.	109.	2742.	228.	186.	545.	164.	494.	97.	859.80
1.50	1.03	5.03	1.39	.120	.055	.120	.042	854.40	830.00
.002599	195.	195.	195.	2	0	1	0.00	178.00	1008.00

3470 ENCROACHMENT STATIONS= 885.0 965.0 TYPE= 1 TARGET= 80.000

VALLEY SECTION AC

44.42	9.87	863.67	0.00	0.00	864.42	.75	.69	.20	862.80
3080.	13.	3045.	21.	15.	438.	13.	497.	98.	861.10
1.51	.89	6.99	1.65	.120	.055	.120	.042	853.60	885.00
.005097	195.	195.	195.	2	0	1	0.00	80.00	965.00

44.44	11.00	863.80	0.00	0.00	864.61	.22	.16	.05	876.40
3080.	0.	3080.	0.	0.	425.	0.	498.	98.	875.80
1.51	0.00	7.25	0.00	.060	.025	.060	.042	852.80	100.00
.001118	79.	79.	79.	2	0	1	0.00	40.00	140.00

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 870.10 MAX ELLC= 871.50

BRIDGE SECTION AD

NORTH BOUND I-75 BRIDGE

44.44	11.00	863.80	0.00	0.00	864.62	.82	.00	.00	876.40
3080.	0.	3080.	0.	0.	425.	0.	498.	98.	875.80
1.51	0.00	7.25	0.00	.060	.025	.060	.042	852.80	100.00
.001117	1.	1.	1.	0	0	1	0.00	40.00	140.00

I-75 N.B

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 870.10 MAX ELLC= 871.50

44.45	11.06	863.86	0.00	0.00	864.67	.81	.05	.00	87?.?0
3080.	0.	3080.	0.	0.	427.	0.	498.	98.	875.80
1.51	0.00	7.21	0.00	.060	.025	.060	.042	852.80	100.00
.001102	43.	43.	43.	0	0	1	0.00	40.00	140.00

44.45	11.06	863.86	0.00	0.00	864.67	.81	.00	.00	876.40
3080.	0.	3080.	0.	0.	427.	0.	498.	98.	875.80
1.51	0.00	7.21	0.00	.060	.025	.060	.042	852.80	100.00
.001102	1.	1.	1.	0	0	1	0.00	40.00	140.00

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	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
44.46	11.13	863.93	0.00	0.00	864.73	.80	.06	.00	876.40
3080.	0.	3080.	0.	0.	430.	0.	499.	98.	875.80
1.52	0.00	7.16	0.00	.060	.025	.060	.041	852.80	100.00
.001078	54.	54.	54.	2	0	1	0.00	40.00	140.00

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 870.10 MAX ELLC= 871.70

BRIDGE SECTION AE

I-75

SOUTH BOUND I-75 BRIDGE

44.46	11.14	863.94	0.00	0.00	864.73	.80	.00	.00	876.40
3080.	0.	3080.	0.	0.	430.	0.	499.	98.	875.80
1.52	0.00	7.16	0.00	.060	.025	.060	.041	852.80	100.00
.001078	1.	1.	1.	0	0	1	0.00	40.00	140.00

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 870.10 MAX ELLC= 871.70

44.46	11.19	863.99	0.00	0.00	864.78	.79	.05	.00	876.40
3080.	0.	3080.	0.	0.	432.	0.	499.	98.	875.80
1.52	0.00	7.13	0.00	.060	.025	.060	.041	852.80	100.00
.001064	43.	43.	43.	0	0	1	0.00	40.00	140.00

Y

44.47	11.25	864.05	0.00	0.00	864.79	.74	.00	.01	876.40
3010.	0.	3010.	0.	0.	435.	0.	499.	98.	875.80
1.52	0.00	6.92	0.00	.060	.025	.060	.041	852.80	100.00
.000999	1.	1.	1.	2	0	1	0.00	40.00	140.00

3470 ENCROACHMENT STATIONS= 80.0 210.0 TYPE= 1 TARGET= -80.000

44.48	12.07	864.67	0.00	0.00	865.01	.34	.13	.12	860.00
3010.	171.	2774.	65.	143.	568.	56.	501.	98.	853.50
1.52	1.20	4.89	1.16	.080	.040	.080	.041	852.60	80.00
.000941	99.	99.	99.	2	0	1	0.00	129.03	209.03

3280 CROSS SECTION 44.60 EXTENDED .54 FEET

3470 ENCROACHMENT STATIONS= .0 781.0 TYPE= 1 TARGET= 781.999

VALLEY SECTION AF

Z

44.60	13.53	865.23	0.00	0.00	865.25	.02	.14	.10	863.00
3010.	46.	865.	2099.	204.	525.	2812.	530.	104.	858.50
1.69	.23	1.65	.75	.080	.040	.080	.041	851.70	113.59
.000107	590.	590.	590.	1	0	1	0.00	667.41	781.00

3280 CROSS SECTION 44.73 EXTENDED 2.26 FEET

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 3470 ENCROACHMENT STATIONS=          .0       550.0  TYPE=     1  TARGET=      549.999
      44.73     16.46    865.36      0.00      0.00    865.42      .06       .15       .02    859.80
       3010.     1520.     1392.      97.     1684.      510.      74.      578.      114.    859.10
       1.80       .90      2.73      1.31      .090      .050      .090      .042    348.90       .00
    .000559      726.      726.      726.         2         0         1      0.00    550.00    550.00

 3280 CROSS SECTION      44.73 EXTENDED       2.29 FEET

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

 NORMAL BRIDGE,NRD=17 MIN ELTRD=  859.10 MAX ELLC=  860.80

 3470 ENCROACHMENT STATIONS=          .0       550.0  TYPE=     1  TARGET=      549.999

                  BRIDGE SECTION AG

                  VAN HORN BRIDGE

      44.73     16.49    865.39      0.00      0.00    865.43      .03       .00       .01    859.60
       3010.     1996.      887.      127.     1702.      447.      74.      578.      114.    859.10
       1.80      1.17      1.98      1.70      .090      .050      .090      .042    348.90       .00
    .000932         1.        1.        1.         2         0         1   -63.62    550.00    550.00

 3280 CROSS SECTION      44.74 EXTENDED       2.31 FEET

 NORMAL BRIDGE,NRD=17 MIN ELTRD=  859.10 MAX ELLC=  860.80

 3470 ENCROACHMENT STATIONS=          .0       550.0  TYPE=     1  TARGET=      549.999
      44.74     16.51    865.41      0.00      0.00    865.45      .03       .02       .00    859.80
       3010.     1999.      884.      127.     1709.      448.      75.      579.      114.    859.10
       1.81      1.17      1.97      1.70      .090      .050      .090      .042    348.90       .00
    .000923        18.       18.       18.         0         0         1   -63.62    550.00    550.00

 3280 CROSS SECTION      44.74 EXTENDED       2.31 FEET

 3470 ENCROACHMENT STATIONS=          .0       550.0  TYPE=     1  TARGET=      549.999
      44.74     16.50    865.40      0.00      0.00    865.46      .06       .00       .01    859.80
       3010.     1533.     1380.      97.     1709.      511.      75.      579.      114.    859.10
       1.81       .90      2.70      1.30      .090      .050      .090      .042    348.90       .00
    .000542         1.        1.        1.         0         0         1      0.00    550.00    550.00

 3470 ENCROACHMENT STATIONS=       425.0       789.0  TYPE=     1  TARGET=     -425.000

                  VALLEY SECTION AH

      44.93     11.66    865.96      0.00      0.00    866.01      .05       .55       .00    859.60
       3010.     2285.      725.        0.     1891.      234.        0.      631.      125.  100000.00
       1.98      1.21      3.10      0.00      .090      .040      .060      .042    354.30    425.00
    .000530     1024.     1024.     1024.         2         0         1      0.00    362.71    787.71
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3010.	2285.	725.	0.	1491.	234.	0.	631.	125.	100000.00	
1.98	1.21	3.10	0.00	.090	.040	.060	.042	854.30	425.00	
.000530	1024.	1024.	1024.	2	0	1	0.00	352.71	787.71	

3280 CROSS SECTION 45.06 EXTENDED 1.03 FEET

3470 ENCROACHMENT STATIONS= 1220.0 1570.0 TYPE= 1 TARGET= 350.000

VALLEY SECTION AI

45.06	9.33	866.43	0.00	0.00	866.78	.35	.62	.15	862.40
3950.	671.	2292.	987.	407.	384.	466.	657.	130.	861.70
2.02	1.65	5.97	2.12	.090	.040	.060	.042	857.10	1220.00
.001638	670.	670.	670.	2	0	1	0.00	350.00	1570.00

3265 DIVIDED FLOW

3280 CROSS SECTION 45.08 EXTENDED .82 FEET

3470 ENCROACHMENT STATIONS= .0 950.0 TYPE= 1 TARGET= 949.999

45.08	9.82	866.42	0.00	0.00	867.17	.75	.19	.20	860.10
3950.	84.	3380.	485.	53.	452.	320.	659.	131.	858.40
2.03	1.59	7.47	1.52	.090	.040	.060	.042	855.60	583.15
.002172	100.	100.	100.	2	0	1	0.00	355.65	950.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.86	2.50	0.00	50.00	0.00	280.00	0.00	856.60	856.60

3280 CROSS SECTION 45.09 EXTENDED 1.57 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TW	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	ATN	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
872.17	867.17	0.00	2127.	1827.	280.	863.20	863.10	30.00

3470 ENCROACHMENT STATIONS= .0 950.0 TYPE= 1 TARGET= 949.999

BRIDGE SECTION AJ

AUBURN ROAD BRIDGE (WEST)

45.09	10.57	867.17	0.00	0.00	867.65	.48	.48	0.00	860.10
3950.	90.	3058.	802.	67.	490.	545.	661.	132.	858.40

44.045	2660.000	859.424	.892	.110	0.000	107.117	-4.008	90.000
44.045	3080.000	860.055	.631	.098	0.000	110.962	-7.853	90.000
44.045	4490.000	861.612	1.557	.079	0.000	129.999	-26.890	90.000
44.062	2050.000	858.720	0.000	.098	0.000	81.099	0.000	90.000
44.062	2660.000	859.516	.796	.092	0.000	84.999	-3.900	90.000
44.062	3080.000	860.132	.616	.077	0.000	84.999	-3.900	90.000
44.062	4490.000	861.643	1.511	.031	0.000	84.999	-3.900	90.000
44.069	2050.000	858.763	0.000	.043	0.000	64.999	0.000	40.000
44.069	2660.000	859.549	.786	.033	0.000	64.999	-.000	40.000
44.069	3080.000	860.149	.601	.017	0.000	64.999	-.000	40.000
44.069	4490.000	861.607	1.458	-.036	0.000	64.999	-.000	40.000
44.076	2050.000	858.729	0.000	-.035	0.000	44.999	0.000	39.000
44.076	2660.000	859.465	.736	-.084	0.000	44.999	-.000	39.000
44.076	3080.000	860.025	.560	-.124	0.000	44.999	-.000	39.000
44.076	4490.000	861.321	1.296	-.286	0.000	44.999	-.000	39.000
44.077	2050.000	858.724	0.000	-.005	0.000	42.999	0.000	5.000
44.077	2660.000	859.452	.728	-.013	0.000	42.999	-.000	5.000
44.077	3080.000	860.007	.555	-.019	0.000	42.999	-.000	5.000
44.077	4490.000	861.279	1.273	-.042	0.000	42.999	-.000	5.000
44.078	2050.000	858.692	0.000	-.031	0.000	40.999	0.000	3.000
44.078	2660.000	859.405	.713	-.047	0.000	40.999	-.000	3.000
44.078	3080.000	859.948	.543	-.058	0.000	40.999	-.000	3.000
44.078	4490.000	861.166	1.218	-.113	0.000	40.999	-.000	3.000
44.079	2050.000	858.532	0.000	-.160	0.000	40.000	0.000	2.000
44.079	2660.000	859.188	.655	-.215	0.000	40.000	0.000	2.000
44.079	3080.000	859.701	.514	-.247	0.000	40.000	0.000	2.000
44.079	4490.000	860.744	1.043	-.422	0.000	40.000	0.000	2.000
44.080	2050.000	858.540	0.000	.003	0.000	40.000	0.000	1.000
44.080	2660.000	859.198	.658	.010	0.000	40.000	0.000	1.000
44.080	3080.000	859.713	.515	.012	0.000	40.000	0.000	1.000
44.080	4490.000	860.764	1.051	.019	0.000	40.000	0.000	1.000
44.087	2050.000	858.829	0.000	.289	0.000	40.000	0.000	46.000
44.087	2660.000	859.614	.786	.416	0.000	40.000	0.000	46.000
44.087	3080.000	860.196	.582	.483	0.000	40.000	0.000	46.000
44.087	4490.000	861.775	1.579	1.011	0.000	40.000	0.000	46.000
44.088	2050.000	858.835	0.000	.007	0.000	40.000	0.000	1.000
44.088	2660.000	859.623	.788	.009	0.000	40.000	0.000	1.000
44.088	3080.000	860.206	.583	.009	0.000	40.000	0.000	1.000
44.088	4490.000	861.788	1.582	.013	0.000	40.000	0.000	1.000
44.089	2050.000	859.113	0.000	.278	0.000	49.999	0.000	4.000
44.089	2660.000	860.052	.939	.429	0.000	49.999	-.000	4.000
44.089	3080.000	860.724	.672	.518	0.000	49.999	-.000	4.000
44.089	4490.000	862.699	1.975	.911	0.000	49.999	-.000	4.000
44.090	2050.000	859.496	0.000	.383	0.000	69.999	0.000	10.000
44.090	2660.000	860.569	1.073	.517	0.000	69.999	-.000	10.000
44.090	3080.000	861.325	.756	.601	0.000	69.999	-.000	10.000
44.090	4490.000	863.567	2.243	.868	0.000	69.999	-.000	10.000
44.099	2050.000	860.027	0.000	.531	0.000	159.999	0.000	45.000
44.099	2660.000	861.217	1.190	.648	0.000	159.999	-.000	45.000
44.099	3080.000	862.035	.818	.710	0.000	159.999	-.000	45.000
44.099	4490.000	864.485	2.450	.918	0.000	159.999	-.000	45.000
44.107	2050.000	860.171	0.000	.144	0.000	241.261	0.000	45.000
44.107	2660.000	861.375	1.203	.158	0.000	249.999	-8.738	45.000
44.107	3080.000	862.199	.824	.164	0.000	249.999	-8.738	45.000
44.107	4490.000	864.673	2.474	.188	0.000	249.999	-8.738	45.000
44.124	2050.000	860.305	0.000	.134	0.000	331.960	0.000	90.000

44.107	2660.000	861.375	1.203	.188	0.000	249.999	-8.738	45.000
44.107	3080.000	862.199	.824	.164	0.000	249.999	-8.738	45.000
44.107	4490.000	864.673	2.474	.188	0.000	249.999	-8.738	45.000
44.124	2050.000	860.305	0.000	.134	0.000	331.960	0.000	90.000
44.124	2660.000	861.505	1.199	.130	0.000	355.965	-24.006	90.000
44.124	3080.000	862.326	.821	.127	0.000	381.396	-49.437	90.000
44.124	4490.000	864.799	2.474	.127	0.000	470.470	-147.511	90.000
44.160	2050.000	860.434	0.000	.129	0.000	456.931	0.000	190.000
44.160	2660.000	861.622	1.188	.117	0.000	489.592	-32.661	190.000
44.160	3080.000	862.434	.813	.109	0.000	519.551	-62.620	190.000
44.160	4490.000	864.891	2.457	.092	0.000	634.560	-177.629	190.000
44.274	2050.000	860.790	0.000	.356	0.000	349.999	0.000	600.000
44.274	2660.000	861.916	1.126	.295	0.000	349.999	-.000	600.000
44.274	3080.000	862.693	.777	.259	0.000	349.999	-.000	600.000
44.274	4490.000	865.078	2.385	.187	0.000	349.999	-.000	600.000
44.311	2050.000	860.916	0.000	.127	0.000	349.999	0.000	195.000
44.311	2660.000	862.021	1.105	.105	0.000	349.999	-.000	195.000
44.311	3080.000	862.786	.764	.093	0.000	349.999	-.000	195.000
44.311	4490.000	865.147	2.362	.069	0.000	349.999	-.000	195.000
44.348	2050.000	861.127	0.000	.211	0.000	274.999	0.000	195.000
44.348	2660.000	862.185	1.057	.164	0.000	274.999	-.000	195.000
44.348	3080.000	862.924	.739	.138	0.000	274.999	-.000	195.000
44.348	4490.000	865.238	2.314	.090	0.000	274.999	-.000	195.000
44.385	2050.000	861.519	0.000	.392	0.000	177.999	0.000	195.000
44.385	2660.000	862.490	.971	.305	0.000	177.999	-.000	195.000
44.385	3080.000	863.177	.687	.253	0.000	177.999	-.000	195.000
44.385	4490.000	865.388	2.211	.150	0.000	177.999	-.000	195.000
44.422	2050.000	862.171	0.000	.651	0.000	63.611	0.000	195.000
44.422	2660.000	863.062	.891	.572	0.000	79.999	-16.388	195.000
44.422	3080.000	863.668	.606	.491	0.000	79.999	-16.388	195.000
44.422	4490.000	865.658	1.990	.271	0.000	79.999	-16.388	195.000
44.437	2050.000	862.367	0.000	.197	0.000	40.000	0.000	79.000
44.437	2660.000	863.209	.842	.147	0.000	40.000	0.000	79.000
44.437	3080.000	863.799	.590	.131	0.000	40.000	0.000	79.000
44.437	4490.000	865.692	1.893	.033	0.000	40.000	0.000	79.000
44.438	2050.000	862.368	0.000	.001	0.000	40.000	0.000	1.000
44.438	2660.000	863.211	.842	.002	0.000	40.000	0.000	1.000
44.438	3080.000	863.801	.590	.002	0.000	40.000	0.000	1.000
44.438	4490.000	865.694	1.893	.002	0.000	40.000	0.000	1.000
44.445	2050.000	862.405	0.000	.037	0.000	40.000	0.000	43.000
44.445	2660.000	863.261	.856	.050	0.000	40.000	0.000	43.000
44.445	3080.000	863.858	.597	.057	0.000	40.000	0.000	43.000
44.445	4490.000	865.775	1.918	.082	0.000	40.000	0.000	43.000
44.446	2050.000	862.406	0.000	.001	0.000	40.000	0.000	1.000
44.446	2660.000	863.262	.856	.001	0.000	40.000	0.000	1.000
44.446	3080.000	863.859	.597	.001	0.000	40.000	0.000	1.000
44.446	4490.000	865.778	1.918	.002	0.000	40.000	0.000	1.000
44.455	2050.000	862.451	0.000	.045	0.000	40.000	0.000	54.000
44.455	2660.000	863.324	.873	.062	0.000	40.000	0.000	54.000
44.455	3080.000	863.934	.610	.075	0.000	40.000	0.000	54.000
44.455	4490.000	865.885	1.951	.108	0.000	40.000	0.000	54.000
44.456	2050.000	862.452	0.000	.001	0.000	40.000	0.000	1.000
44.456	2660.000	863.325	.873	.001	0.000	40.000	0.000	1.000
44.456	3080.000	863.936	.610	.001	0.000	40.000	0.000	1.000

44.456	4490.000	865.887	1.951	.002	0.000	-40.000	0.000	1.000
44.464	2050.000	862.488	0.000	.036	0.000	40.000	0.000	43.000
44.464	2660.000	863.374	.886	.049	0.000	40.000	0.000	43.000
44.464	3080.000	863.991	.616	.055	0.000	40.000	0.000	43.000
44.464	4490.000	865.965	1.974	.078	0.000	40.000	0.000	43.000
44.465	2000.000	862.524	0.000	.035	0.000	40.000	0.000	1.000
44.465	2630.000	863.400	.877	.026	0.000	40.000	0.000	1.000
44.465	3010.000	864.050	.650	.059	0.000	40.000	0.000	1.000
44.465	4360.000	866.084	2.034	.119	0.000	40.000	0.000	1.000
44.483	2000.000	862.828	0.000	.304	0.000	115.225	0.000	99.000
44.483	2630.000	863.899	1.071	.498	0.000	126.783	-11.583	99.000
44.483	3010.000	864.665	.767	.616	0.000	129.033	-13.808	99.000
44.483	4360.000	867.133	2.467	1.049	0.000	129.999	-14.774	99.000
44.595	2000.000	863.313	0.000	.485	0.000	443.706	0.000	590.000
44.595	2630.000	864.458	1.145	.559	0.000	538.377	-94.672	590.000
44.595	3010.000	865.230	.772	.564	0.000	667.406	-223.700	590.000
44.595	4360.000	867.708	2.479	.576	0.000	780.998	-337.292	590.000
44.731	2000.000	863.452	0.000	.139	0.000	549.998	0.000	726.000
44.731	2630.000	864.598	1.146	.140	0.000	549.998	-.000	726.000
44.731	3010.000	865.359	.760	.129	0.000	549.998	-.000	726.000
44.731	4360.000	867.802	2.443	.093	0.000	549.998	-.000	726.000
44.732	2000.000	863.508	0.000	.056	0.000	549.998	0.000	1.000
44.732	2630.000	864.645	1.137	.046	0.000	549.998	-.000	1.000
44.732	3010.000	865.394	.750	.036	0.000	549.998	-.000	1.000
44.732	4360.000	867.819	2.424	.017	0.000	549.998	-.000	1.000
44.736	2000.000	863.549	0.000	.042	0.000	549.998	0.000	18.000
44.736	2630.000	864.669	1.119	.024	0.000	549.998	-.000	18.000
44.736	3010.000	865.411	.743	.017	0.000	549.998	-.000	18.000
44.736	4360.000	867.827	2.416	.006	0.000	549.998	-.000	18.000
44.737	2000.000	863.532	0.000	-.017	0.000	549.998	0.000	1.000
44.737	2630.000	864.653	1.121	-.015	0.000	549.998	-.000	1.000
44.737	3010.000	865.399	.746	-.012	0.000	549.998	-.000	1.000
44.737	4360.000	867.821	2.422	-.006	0.000	549.998	-.000	1.000
44.930	2000.000	864.344	0.000	.812	0.000	361.150	0.000	1024.000
44.930	2630.000	865.316	.971	.662	0.000	362.090	-.940	1024.000
44.930	3010.000	865.956	.640	.556	0.000	362.706	-1.557	1024.000
44.930	4360.000	868.183	2.227	.362	0.000	363.999	-2.849	1024.000
45.057	2410.000	864.895	0.000	.551	0.000	265.335	0.000	670.000
45.057	3460.000	865.845	.949	.529	0.000	331.159	-65.824	670.000
45.057	3950.000	866.432	.587	.476	0.000	349.999	-84.664	670.000
45.057	5440.000	868.507	2.075	.324	0.000	349.999	-84.664	670.000
45.076	2410.000	864.987	0.000	.092	0.000	78.903	0.000	100.000
45.076	3460.000	865.855	.868	.011	0.000	324.307	-245.405	100.000
45.076	3950.000	866.419	.564	-.013	0.000	355.663	-276.761	100.000
45.076	5440.000	868.522	2.103	.015	0.000	553.203	-474.300	100.000
45.088	2410.000	865.967	0.000	.981	0.000	336.479	0.000	64.000
45.088	3460.000	866.768	.800	.912	0.000	367.805	-31.327	64.000
45.088	3950.000	867.173	.406	.754	0.000	368.862	-32.383	64.000
45.088	5440.000	868.729	1.556	.207	0.000	583.374	-246.835	64.000
45.238	2410.000	867.044	0.000	1.077	0.000	209.615	0.000	794.000
45.238	3460.000	868.093	1.049	1.326	0.000	289.999	-80.384	794.000
45.238	3950.000	868.513	.420	1.340	0.000	289.999	-80.384	794.000
45.238	5440.000	869.698	1.185	.969	0.000	289.999	-80.384	794.000
45.252	2410.000	867.173	0.000	.128	0.000	59.598	0.000	75.000
45.252	3460.000	868.247	1.074	.153	0.000	106.162	-46.564	75.000

CLINTON RIVER

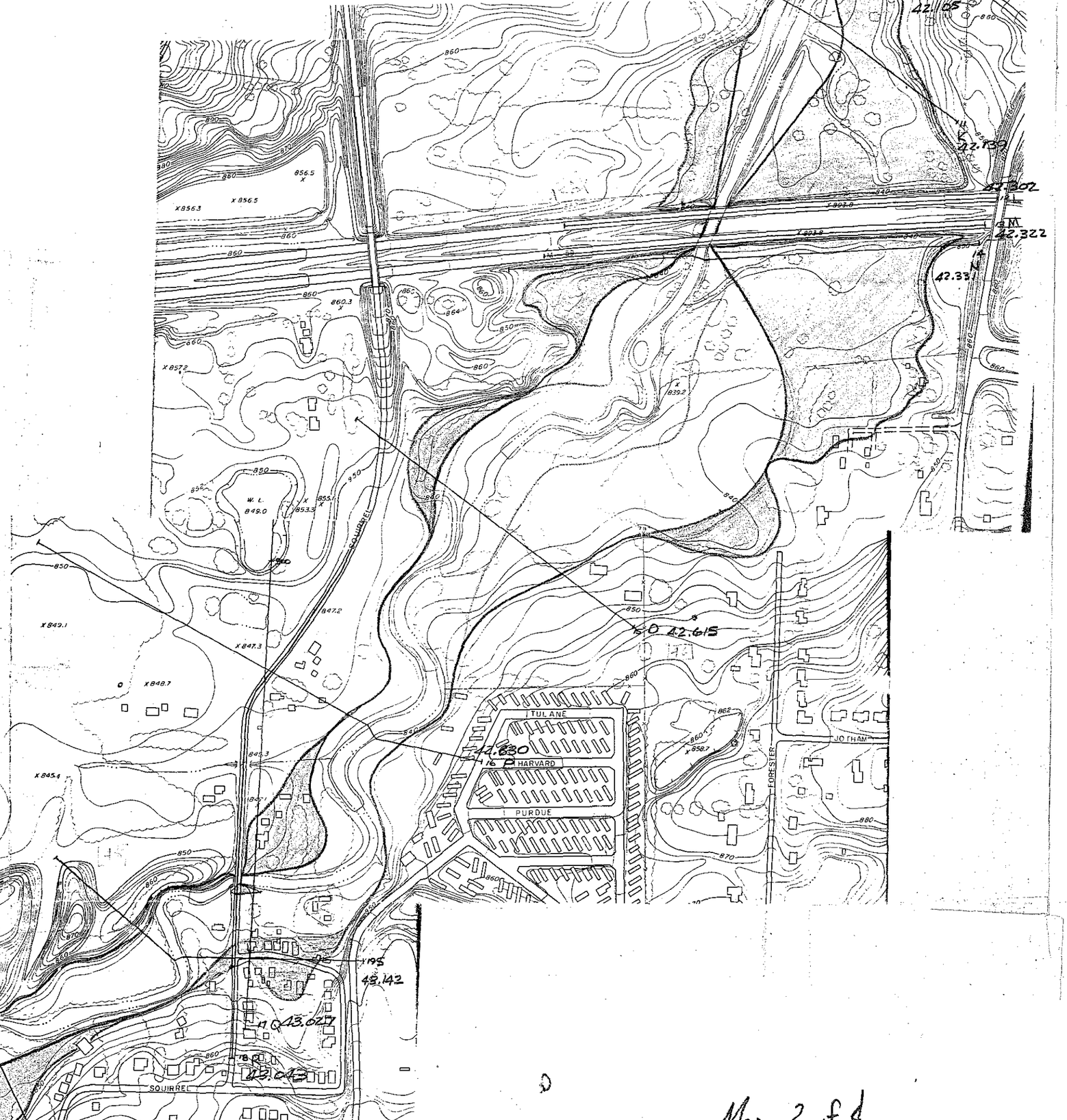
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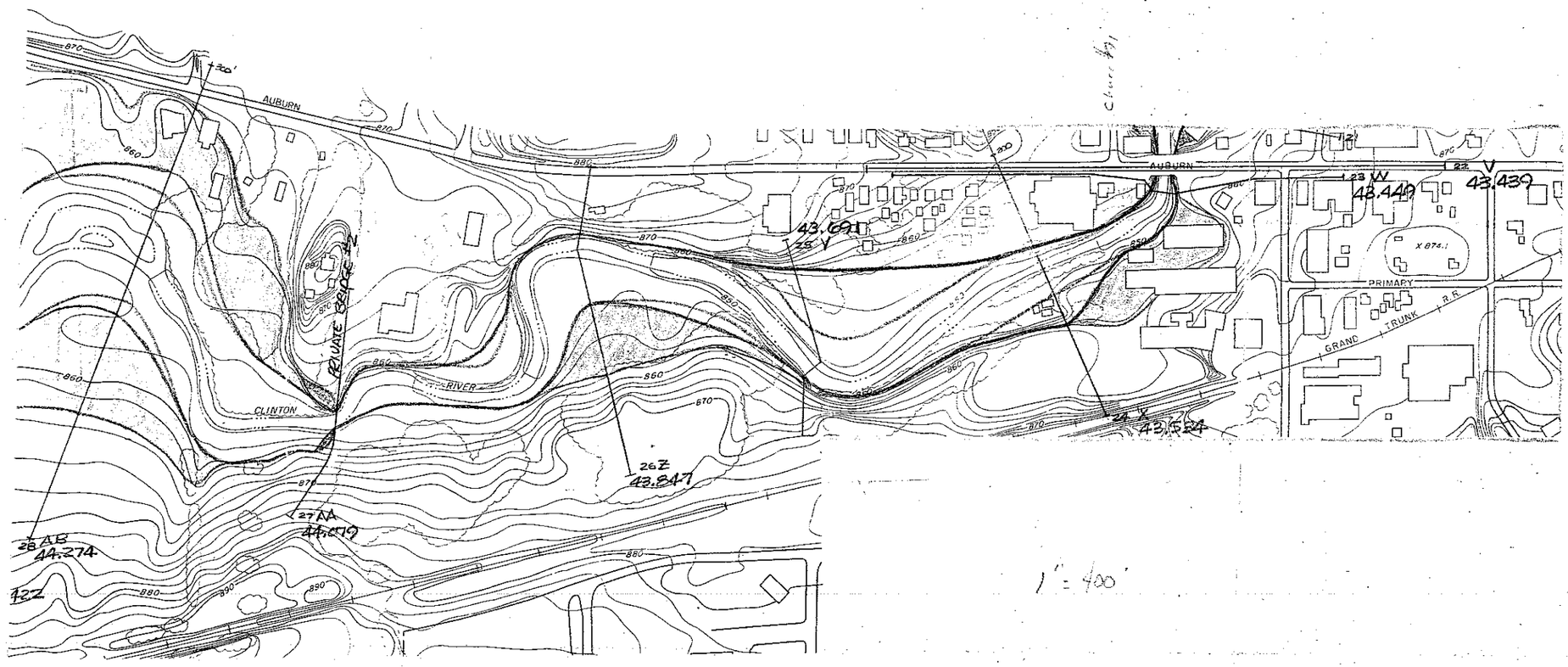
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SCALE: 1" = 400'

A - PROFILE IDENTIFICATION
43.109 - SECTION NO. (RIVER MILE)
20 - FIELD CROSS SECTION NO.
I—I - CROSS SECTION LOCATION
FLOODWAY BOUNDARY (MATERIAL)
FLOODWAY FRINGE
FLOODWAY BOUNDARY (ENCROACHMENT)



Map 2 of 4



1" = 400'

Map 3 of 4

Auburn Hills
(Formerly Pontiac Twp)
Clinton River

GR	850.200	0.000	849.500	65.000	848.300	165.000	847.100	265.000	846.000	365.000
GR	844.800	465.000	844.500	525.000	834.000	565.000	830.500	565.000	830.800	575.000
GR	831.100	580.000	829.700	590.000	829.300	595.000	828.500	605.000	829.300	618.000
GR	834.000	618.000	842.800	658.000	842.700	665.000	842.000	765.000	841.400	865.000
GR	841.200	965.000	841.100	1065.000	841.300	1165.000	841.700	1265.000	842.300	1365.000
GR	843.400	1465.000	844.700	1565.000	846.100	1665.000	0.000	0.000	0.000	0.000
SB	0.000	1.790	2.500	0.000	53.000	0.000	463.000	0.000	828.500	828.500
X1	42.302	0.000	0.000	0.000	42.000	42.000	42.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	838.800	842.700	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	842.700	842.700	0.000
BT	23.000	0.000	850.200	0.000	65.000	849.500	0.000	165.000	848.300	0.000
BT	265.000	847.100	0.000	365.000	846.000	0.000	465.000	844.800	0.000	525.000
BT	844.500	0.000	565.000	844.300	834.000	565.000	844.300	838.800	618.000	843.700
BT	838.200	618.000	843.700	834.000	658.000	842.800	0.000	665.000	842.700	0.000
BT	765.000	842.000	0.000	865.000	841.400	0.000	965.000	841.200	0.000	1065.000
BT	841.100	0.000	1165.000	841.300	0.000	1265.000	841.700	0.000	1365.000	842.300
BT	0.000	1465.000	843.400	0.000	1565.000	844.700	0.000	1665.000	846.100	0.000
X1	42.314	26.000	600.000	653.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.000	842.000	0.000
GR	850.600	0.000	849.400	100.000	848.400	200.000	847.200	300.000	846.000	400.000
GR	845.000	500.000	844.700	560.000	833.000	600.000	829.300	610.000	829.900	620.000
GR	829.700	630.000	830.000	640.000	829.700	653.000	833.000	653.000	843.100	693.000
GR	843.000	700.000	842.400	800.000	842.200	900.000	841.900	1000.000	841.900	1100.000
GR	842.300	1200.000	842.800	1300.000	843.500	1400.000	844.400	1500.000	845.500	1600.000
GR	847.100	1700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.790	2.500	0.000	53.000	0.000	466.000	0.000	829.300	829.300
X1	42.322	0.000	0.000	0.000	42.000	42.000	42.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	838.800	844.000	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	844.000	844.000	0.000
BT	21.000	0.000	850.600	0.000	100.000	849.400	0.000	200.000	848.400	0.000
BT	300.000	847.200	0.000	400.000	846.000	0.000	500.000	845.000	0.000	600.000
BT	844.500	833.000	600.000	844.500	838.800	653.000	844.000	838.300	653.000	844.000
BT	833.000	700.000	843.000	0.000	800.000	842.400	0.000	900.000	842.200	0.000
BT	1000.000	841.900	0.000	1100.000	841.900	0.000	1200.000	842.300	0.000	1300.000
BT	842.800	0.000	1400.000	843.500	0.000	1500.000	844.400	0.000	1600.000	845.500
BT	0.000	1700.000	847.100	0.000	0.000	0.000	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	42.331	27.000	700.000	767.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	657.000	0.000	810.000	0.000	0.000	0.000	0.000
GR	849.600	0.000	843.800	100.000	841.600	200.000	843.800	300.000	835.400	400.000
GR	838.600	500.000	839.900	600.000	839.400	665.000	837.400	700.000	831.400	711.000
GR	831.300	734.000	829.700	737.000	828.900	745.000	828.400	755.000	835.400	767.000
GR	836.300	800.000	836.100	900.000	835.600	1000.000	835.600	1100.000	835.400	1200.000
GR	835.500	1300.000	835.900	1400.000	837.100	1500.000	837.100	1600.000	844.500	1700.000
GR	845.400	1800.000	849.900	1835.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.369	18.000	240.000	305.000	200.000	350.000	200.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	120.000	0.000	845.000	0.000	0.000	0.000	0.000
GR	844.000	0.000	842.000	10.000	840.000	40.000	838.000	80.000	836.000	140.000
GR	834.000	195.000	832.600	240.000	831.500	251.000	829.600	274.000	829.400	277.000
GR	829.300	285.000	829.200	295.000	834.000	305.000	836.000	340.000	838.000	725.000
GR	840.000	1000.000	842.000	1050.000	844.000	1240.000	0.000	0.000	0.000	0.000
X1	42.450	25.000	390.000	457.000	450.000	400.000	425.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	25.000	846.000	45.000	844.000	60.000	842.000	85.000
GR	840.000	100.000	838.000	110.000	836.000	130.000	834.000	390.000	833.000	401.000
GR	831.700	424.000	831.500	427.000	831.200	435.000	831.000	445.000	832.000	457.000
GR	834.000	462.000	836.000	467.000	836.000	492.000	838.000	557.000	840.000	667.000
GR	842.000	855.000	844.000	1050.000	846.000	1230.000	848.000	1340.000	850.000	1455.000
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.615	26.000	530.000	612.000	875.000	875.000	875.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	385.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	856.500	0.000	851.900	30.000	851.600	140.000	851.600	155.000	842.300	205.000
GR	841.400	230.000	839.300	330.000	839.500	430.000	837.200	530.000	835.200	537.000

M-59

Oakland County
FTS
↓ XSEC

BG

BH

Auburn Hills
(Formerly Pontiac Twp)
Clinton River

X3	0.000	0.000	0.000	385.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	856.500	0.000	851.900	30.000	851.600	140.000	851.600	155.000	842.300	205.000
GR	841.400	230.000	839.300	330.000	839.500	430.000	837.200	530.000	835.200	537.000
GR	835.000	545.000	835.000	555.000	834.800	565.000	834.900	575.000	834.600	585.000
GR	834.600	595.000	834.900	605.000	837.100	612.000	837.500	630.000	837.200	730.000
GR	838.300	830.000	841.000	930.000	845.700	1030.000	848.500	1130.000	852.500	1230.000
GR	855.500	1330.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.704	20.000	225.000	297.000	500.000	430.000	466.000	0.000	0.000	0.000
GR	847.500	0.000	846.000	140.000	844.000	180.000	842.000	210.000	840.000	225.000
GR	835.900	232.000	835.700	240.000	835.500	250.000	835.600	260.000	835.300	270.000
GR	835.700	280.000	835.600	290.000	837.800	297.000	838.000	350.000	840.000	410.000
GR	842.000	500.000	844.000	585.000	846.000	670.000	848.000	710.000	850.000	735.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.830	29.000	1500.000	1550.000	670.000	670.000	670.000	0.000	0.000	0.000
GR	847.600	0.000	848.100	100.000	847.500	200.000	849.100	300.000	852.700	400.000
GR	852.800	500.000	850.100	600.000	847.600	700.000	846.100	800.000	846.200	900.000
GR	845.900	1000.000	846.800	1040.000	847.100	1100.000	850.200	1200.000	847.900	1300.000
GR	842.100	1400.000	840.700	1500.000	837.700	1505.000	836.500	1515.000	836.000	1525.000
GR	837.000	1535.000	837.800	1540.000	838.600	1550.000	844.200	1600.000	847.900	1675.000
GR	850.800	1750.000	853.400	1800.000	854.200	1900.000	856.100	1950.000	0.000	0.000
X1	42.939	19.000	560.000	607.000	572.000	572.000	572.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	845.300	0.000	846.000	40.000	846.000	125.000	844.000	220.000	842.000	560.000
GR	838.100	563.000	836.000	570.000	837.200	580.000	839.000	590.000	839.300	600.000
GR	840.000	607.000	842.000	660.000	844.000	700.000	846.000	710.000	848.000	730.000
GR	850.000	740.000	852.000	750.000	854.000	770.000	855.000	800.000	0.000	0.000
X1	42.966	16.000	770.000	817.000	100.000	260.000	145.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	665.000	0.000	950.000	0.000	0.000	0.000	0.000
GR	846.400	0.000	846.000	120.000	844.000	265.000	842.000	750.000	841.000	770.000
GR	838.100	773.000	836.000	780.000	837.200	790.000	839.000	800.000	839.300	810.000
GR	841.000	817.000	842.000	830.000	844.000	880.000	846.000	950.000	848.000	975.000
GR	850.000	990.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.983	32.000	1500.000	1547.000	89.000	89.000	89.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1415.000	0.000	1715.000	0.000	0.000	0.000	0.000
GR	845.800	0.000	846.200	100.000	845.000	200.000	846.300	300.000	847.500	400.000
GR	848.200	500.000	849.500	600.000	846.600	700.000	850.800	800.000	847.100	900.000
GR	844.600	1000.000	844.900	1100.000	845.300	1200.000	846.500	1300.000	845.700	1400.000
GR	842.600	1500.000	838.100	1503.000	836.000	1510.000	837.200	1520.000	839.000	1530.000
GR	839.300	1540.000	844.400	1547.000	844.500	1560.000	844.600	1570.000	844.700	1585.000
GR	844.800	1595.000	844.800	1600.000	845.400	1700.000	846.600	1800.000	848.500	1900.000
GR	854.600	2000.000	859.700	2100.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.998	0.000	0.000	0.000	75.000	77.000	77.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1445.000	0.000	1730.000	0.000	0.000	0.000	0.000
NC	.030	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	43.027	34.000	1500.000	1547.000	157.000	157.000	157.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1500.000	0.000	1755.000	0.000	0.000	0.000	0.000
GR	845.800	0.000	846.200	100.000	845.000	200.000	846.300	300.000	847.500	400.000
GR	848.200	500.000	849.500	600.000	846.600	700.000	850.800	800.000	847.100	900.000
GR	844.600	1000.000	844.900	1100.000	845.300	1200.000	846.500	1300.000	845.700	1400.000
GR	842.600	1500.000	838.100	1503.000	836.000	1510.000	837.200	1520.000	839.000	1530.000
GR	839.300	1540.000	844.400	1547.000	844.500	1560.000	844.600	1570.000	900.000	1570.000
GR	900.000	1585.000	844.700	1585.000	844.800	1595.000	844.800	1600.000	845.400	1700.000
GR	846.600	1800.000	848.500	1900.000	854.600	2000.000	859.700	2100.000	0.000	0.000
NC	.050	.050	.025	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	43.037	30.000	1500.000	1530.500	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	0.000	0.000	845.800	845.800	0.000
GR	848.900	0.000	848.500	100.000	848.300	200.000	847.900	300.000	847.600	400.000
GR	847.400	500.000	847.000	600.000	846.400	700.000	846.300	800.000	846.100	900.000
GR	846.200	1000.000	846.200	1200.000	846.900	1300.000	847.100	1400.000	844.300	1485.000
GR	837.900	1500.000	838.500	1505.000	837.900	1510.000	837.100	1520.000	836.900	1525.000
GR	837.300	1530.500	846.000	1550.000	846.300	1585.000	845.900	1600.000	845.800	1700.000
GR	847.100	1800.000	849.500	1900.000	853.600	2000.000	858.600	2100.000	862.600	2200.000

BH

BI

GR	847.400	500.000	847.000	600.000	846.400	700.000	846.300	800.000	846.100	900.000	
GR	846.200	1000.000	846.200	1200.000	846.900	1300.000	847.100	1400.000	844.300	1485.000	
GR	837.900	1500.000	838.500	1505.000	837.900	1510.000	837.100	1520.000	836.900	1525.000	
GR	837.300	1530.500	846.000	1550.000	846.300	1585.000	845.900	1600.000	845.800	1700.000	
GR	847.100	1800.000	849.500	1900.000	853.600	2000.000	858.600	2100.000	862.600	2200.000	
SB	0.000	1.590	2.500	0.000	30.500	0.000	236.000	0.000	836.900	836.900	SQUIRREL ROAD
X1	43.043	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000	
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X3	10.000	0.000	0.000	1500.000	0.000	1770.000	0.000	845.800	845.800	0.000	BJ
BT	20.000	0.000	848.900	0.000	100.000	848.500	0.000	200.000	848.300	0.000	
BT	300.000	847.900	0.000	400.000	847.600	0.000	500.000	847.400	0.000	600.000	
BT	847.000	0.000	700.000	846.400	0.000	800.000	846.300	0.000	900.000	846.100	
BT	0.000	1000.000	846.200	0.000	1200.000	846.200	0.000	1300.000	846.900	0.000	
BT	1400.000	847.100	0.000	1500.000	848.000	837.900	1500.000	848.000	845.500	1530.500	
BT	847.700	845.200	1530.500	847.700	837.300	1600.000	845.900	0.000	1700.000	845.800	
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
NC	.040	.060	.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	43.047	19.000	60.000	106.000	25.000	25.000	25.000	0.000	-.700	0.000	
X3	0.000	0.000	0.000	0.000	0.000	300.000	0.000	0.000	0.000	0.000	
GR	860.000	0.000	858.000	15.000	856.000	20.000	854.000	30.000	852.000	35.000	
GR	850.000	40.000	848.000	47.000	846.000	54.000	844.000	60.000	839.000	70.000	
GR	837.800	75.000	837.700	80.000	838.400	90.000	839.000	96.000	842.000	106.000	
GR	844.000	206.000	846.000	291.000	848.000	401.000	850.000	461.000	0.000	0.000	
X1	43.057	0.000	0.000	0.000	50.000	90.000	50.000	0.000	.300	0.000	
X3	0.000	0.000	0.000	0.000	0.000	320.000	0.000	0.000	0.000	0.000	
X1	43.071	0.000	0.000	0.000	75.000	115.000	75.000	0.000	.400	0.000	
X3	0.000	0.000	0.000	0.000	0.000	340.000	0.000	0.000	0.000	0.000	
X1	43.142	25.000	600.000	650.000	375.000	150.000	375.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	0.000	0.000	810.000	0.000	0.000	0.000	0.000	
GR	863.000	0.000	850.500	50.000	850.100	150.000	850.000	250.000	851.600	340.000	BK
GR	860.500	387.000	859.900	408.000	842.500	450.000	842.900	550.000	842.900	600.000	
GR	840.900	610.000	839.700	615.000	839.600	620.000	840.300	630.000	840.900	636.000	
GR	847.700	650.000	845.200	750.000	847.100	850.000	847.700	950.000	846.800	1050.000	
GR	847.000	1150.000	851.000	1250.000	851.500	1274.000	858.100	1302.000	859.200	1350.000	
X1	43.207	24.000	270.000	320.000	200.000	345.000	345.000	0.000	0.000	0.000	
GR	860.000	0.000	858.000	25.000	856.000	40.000	854.000	42.000	852.000	55.000	
GR	850.000	65.000	848.000	85.000	846.000	98.000	844.000	120.000	843.000	270.000	
GR	841.100	280.000	839.900	285.000	839.800	290.000	840.500	300.000	841.100	306.000	
GR	844.000	320.000	846.000	335.000	848.000	350.000	850.000	375.000	852.000	410.000	
GR	854.000	430.000	856.000	455.000	858.000	470.000	860.000	495.000	0.000	0.000	
NC	.060	.060	.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	43.314	16.000	75.000	112.000	565.000	475.000	565.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	0.000	0.000	245.000	0.000	0.000	0.000	0.000	BL
GR	868.900	0.000	843.500	45.000	843.100	50.000	842.900	65.000	843.100	75.000	
GR	840.200	85.000	840.800	95.000	843.300	105.000	845.900	112.000	845.700	200.000	
GR	847.400	300.000	846.000	400.000	845.900	440.000	855.700	470.000	853.300	500.000	
GR	860.800	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	43.354	23.000	225.000	255.000	210.000	210.000	210.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	0.000	0.000	313.000	0.000	0.000	0.000	0.000	
GR	860.000	0.000	858.000	12.000	856.000	30.000	854.000	50.000	852.000	70.000	
GR	850.000	85.000	848.000	120.000	846.000	190.000	845.500	225.000	845.100	227.000	
GR	842.400	230.000	842.200	235.000	842.300	245.000	842.800	252.000	845.100	255.000	
GR	846.000	280.000	848.000	290.000	850.000	530.000	852.000	540.000	854.000	550.000	
GR	856.000	565.000	858.000	580.000	860.000	600.000	0.000	0.000	0.000	0.000	
X1	43.369	0.000	0.000	0.000	76.000	76.000	76.000	0.000	.700	0.000	
X3	0.000	0.000	0.000	0.000	0.000	294.000	0.000	0.000	0.000	0.000	

	X1	43.369	0.000	0.000	0.000	76.000	76.000	76.000	0.000	.700	0.000
	X3	0.000	0.000	0.000	0.000	0.000	294.000	0.000	0.000	0.000	0.000
	X1	43.383	0.000	0.000	0.000	77.000	77.000	77.000	0.000	.700	0.000
	X3	0.000	0.000	0.000	0.000	0.000	260.000	0.000	0.000	0.000	0.000
	NC	.040	.040	.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	43.398	23.000	260.000	290.000	77.000	77.000	77.000	0.000	0.000	0.000
	X3	0.000	0.000	0.000	219.000	0.000	333.000	0.000	0.000	0.000	0.000
	GR	862.400	0.000	861.900	60.000	861.400	75.000	859.100	82.000	859.100	92.000
	GR	858.000	130.000	853.600	145.000	852.500	160.000	847.600	260.000	845.300	262.000
	GR	844.500	265.000	844.300	270.000	844.400	280.000	844.900	287.000	847.200	290.000
	GR	849.300	360.000	852.200	460.000	852.200	490.000	858.900	510.000	858.700	560.000
	GR	859.700	660.000	862.400	760.000	864.300	820.000	0.000	0.000	0.000	0.000
	X1	43.407	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.300	0.000
	X3	0.000	0.000	0.000	230.000	0.000	320.000	0.000	0.000	0.000	0.000
	NC	.040	.040	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	43.417	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.300	0.000
	X3	0.000	0.000	0.000	243.000	0.000	308.000	0.000	0.000	0.000	0.000
	X1	43.421	0.000	0.000	0.000	25.000	25.000	25.000	0.000	.200	0.000
	X3	0.000	0.000	0.000	249.000	0.000	302.000	0.000	0.000	0.000	0.000
	X1	43.424	0.000	0.000	0.000	13.000	13.000	13.000	0.000	.100	0.000
	X3	0.000	0.000	0.000	247.000	0.000	293.000	0.000	0.000	0.000	0.000
	X1	43.426	24.000	900.000	940.000	12.000	12.000	12.000	0.000	0.000	0.000
	X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	853.700	853.700	0.000
	GR	870.300	0.000	868.300	100.000	866.300	200.000	864.100	300.000	862.000	400.000
	GR	859.900	500.000	858.600	600.000	857.600	700.000	857.400	800.000	857.700	880.000
	GR	848.700	900.000	847.800	912.000	846.100	920.000	845.200	930.000	847.200	940.000
	GR	857.700	960.000	857.600	1000.000	858.700	1100.000	860.600	1200.000	864.400	1300.000
	GR	866.500	1400.000	868.300	1500.000	868.900	1600.000	868.900	1800.000	0.000	0.000
	SB	0.000	1.980	2.500	0.000	40.000	0.000	263.000	0.000	845.200	845.200
	X1	43.439	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
	X2	0.000	0.000	1.000	853.400	858.000	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	857.400	857.400	0.000
	BT	21.000	0.000	870.300	0.000	100.000	868.300	0.000	200.000	866.300	0.000
	BT	300.000	864.100	0.000	400.000	862.000	0.000	500.000	859.900	0.000	600.000
	BT	858.600	0.000	700.000	857.600	0.000	800.000	857.400	0.000	900.000	857.800
	BT	848.700	900.000	857.800	853.400	940.000	857.800	853.400	940.000	857.800	847.200
	BT	1000.000	857.600	0.000	1100.000	858.700	0.000	1200.000	860.600	0.000	1300.000
	BT	864.400	0.000	1400.000	866.500	0.000	1500.000	868.300	0.000	1600.000	868.900
	BT	0.000	1800.000	868.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NC	.090	.090	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	QT	4.000	2050.000	2660.000	3080.000	4490.000	0.000	0.000	0.000	0.000	0.000
	X1	43.445	22.000	800.000	872.000	30.000	30.000	30.000	0.000	.100	0.000
	X3	0.000	0.000	0.000	786.000	0.000	886.000	0.000	0.000	0.000	0.000
	GR	868.200	0.000	866.800	100.000	864.600	200.000	862.800	300.000	860.300	400.000
	GR	858.800	500.000	857.700	600.000	857.000	700.000	857.000	800.000	847.600	829.000
	GR	846.300	835.000	844.900	843.000	846.400	850.000	847.600	858.000	855.900	872.000
	GR	857.800	900.000	858.800	1000.000	861.300	1070.000	862.300	1100.000	865.600	1200.000
	GR	865.900	1300.000	868.400	1400.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	43.449	22.000	800.000	872.000	20.000	20.000	20.000	0.000	0.000	0.000
	X3	0.000	0.000	0.000	766.000	0.000	906.000	0.000	0.000	0.000	0.000
	GR	868.200	0.000	866.800	100.000	864.600	200.000	862.800	300.000	860.300	400.000
	GR	858.800	500.000	857.700	600.000	857.000	700.000	857.000	800.000	847.600	829.000
	GR	846.300	835.000	844.900	843.000	846.400	850.000	847.600	858.000	855.900	872.000
	GR	857.800	900.000	858.800	1000.000	861.300	1070.000	862.300	1100.000	865.600	1200.000
	GR	865.900	1300.000	868.400	1400.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	43.497	13.000	0.000	63.000	255.000	255.000	255.000	0.000	0.000	0.000
	X3	0.000	0.000	0.000	0.000	0.000	140.000	0.000	0.000	0.000	0.000
	GR	890.000	0.000	848.400	10.000	847.200	24.000	846.500	35.000	846.600	45.000

BM

AUBURN ROAD

BN

BO

[redacted]

	X3	0.000	0.000	0.000	219.000	0.000	333.000	0.000	0.000	0.000	0.000
	GR	862.400	0.000	861.900	60.000	861.400	75.000	859.100	82.000	859.100	92.000
	GR	858.000	130.000	853.600	145.000	852.500	160.000	847.600	260.000	845.300	262.000
	GR	844.500	265.000	844.300	270.000	844.400	280.000	844.900	287.000	847.200	290.000
	GR	849.300	360.000	852.200	460.000	852.200	490.000	858.900	510.000	858.700	560.000
	GR	859.700	660.000	862.400	760.000	864.300	820.000	0.000	0.000	0.000	0.000
	X1	43.407	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.300	0.000
	X3	0.000	0.000	0.000	230.000	0.000	320.000	0.000	0.000	0.000	0.000
	NC	.040	.040	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	43.417	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.300	0.000
	X3	0.000	0.000	0.000	243.000	0.000	308.000	0.000	0.000	0.000	0.000
	X1	43.421	0.000	0.000	0.000	25.000	25.000	25.000	0.000	.200	0.000
	X3	0.000	0.000	0.000	249.000	0.000	302.000	0.000	0.000	0.000	0.000
	X1	43.424	0.000	0.000	0.000	13.000	13.000	13.000	0.000	.100	0.000
	X3	0.000	0.000	0.000	247.000	0.000	293.000	0.000	0.000	0.000	0.000
	X1	43.426	24.000	900.000	940.000	12.000	12.000	12.000	0.000	0.000	0.000
	X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	853.700	853.700	0.000
	GR	870.300	0.000	868.300	100.000	866.300	200.000	864.100	300.000	862.000	400.000
	GR	859.900	500.000	858.600	600.000	857.600	700.000	857.400	800.000	857.700	880.000
	GR	848.700	900.000	847.800	912.000	846.100	920.000	845.200	930.000	847.200	940.000
	GR	857.700	960.000	857.600	1000.000	858.700	1100.000	860.600	1200.000	864.400	1300.000
	GR	866.500	1400.000	868.300	1500.000	868.900	1600.000	868.900	1800.000	0.000	0.000
	SB	0.000	1.980	2.500	0.000	40.000	0.000	263.000	0.000	845.200	845.200
	X1	43.439	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
	X2	0.000	0.000	1.000	853.400	858.000	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	857.400	857.400	0.000
	BT	21.000	0.000	870.300	0.000	100.000	868.300	0.000	200.000	866.300	0.000
	BT	300.000	864.100	0.000	400.000	862.000	0.000	500.000	859.900	0.000	600.000
	BT	858.600	0.000	700.000	857.600	0.000	800.000	857.400	0.000	900.000	857.800
	BT	848.700	900.000	857.800	853.400	940.000	857.800	853.400	940.000	857.800	847.200
	BT	1000.000	857.600	0.000	1100.000	858.700	0.000	1200.000	860.600	0.000	1300.000
	BT	864.400	0.000	1400.000	866.500	0.000	1500.000	868.300	0.000	1600.000	868.900
	BT	0.000	1800.000	868.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NC	.090	.090	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	QT	4.000	2050.000	2660.000	3080.000	4490.000	0.000	0.000	0.000	0.000	0.000
	X1	43.445	22.000	800.000	872.000	30.000	30.000	30.000	0.000	.100	0.000
	X3	0.000	0.000	0.000	786.000	0.000	886.000	0.000	0.000	0.000	0.000
	GR	868.200	0.000	866.800	100.000	864.600	200.000	862.800	300.000	860.300	400.000
	GR	858.800	500.000	857.700	600.000	857.000	700.000	857.000	800.000	847.600	829.000
	GR	846.300	835.000	844.900	843.000	846.400	850.000	847.600	858.000	855.900	872.000
	GR	857.800	900.000	858.800	1000.000	861.300	1070.000	862.300	1100.000	865.600	1200.000
	GR	865.900	1300.000	868.400	1400.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	43.449	22.000	800.000	872.000	20.000	20.000	20.000	0.000	0.000	0.000
	X3	0.000	0.000	0.000	766.000	0.000	906.000	0.000	0.000	0.000	0.000
	GR	868.200	0.000	866.800	100.000	864.600	200.000	862.800	300.000	860.300	400.000
	GR	858.800	500.000	857.700	600.000	857.000	700.000	857.000	800.000	847.600	829.000
	GR	846.300	835.000	844.900	843.000	846.400	850.000	847.600	858.000	855.900	872.000
	GR	857.800	900.000	858.800	1000.000	861.300	1070.000	862.300	1100.000	865.600	1200.000
	GR	865.900	1300.000	868.400	1400.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	43.497	13.000	0.000	63.000	255.000	255.000	255.000	0.000	0.000	0.000
	X3	0.000	0.000	0.000	0.000	0.000	140.000	0.000	0.000	0.000	0.000
	GR	890.000	0.000	848.400	10.000	847.200	24.000	846.500	35.000	846.600	45.000
	GR	846.200	55.000	847.200	63.000	850.000	105.000	852.000	120.000	854.000	140.000
	GR	856.000	290.000	857.000	335.000	890.000	335.000	0.000	0.000	0.000	0.000
	NC	.090	.090	.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	43.534	23.000	540.000	600.000	195.000	195.000	195.000	0.000	0.000	0.000
	X3	0.000	0.000	0.000	470.000	0.000	0.000	0.000	0.000	0.000	0.000
	GR	851.500	0.000	852.200	75.000	854.200	100.000	861.300	200.000	861.700	240.000
	GR	861.700	300.000	860.300	400.000	857.600	510.000	857.600	510.000	849.400	540.000

AUBURN ROAD

BN

BO

GR	856.000	290.000	857.000	335.000	890.000	335.000	0.000	0.000	0.000	0.000
NC	.090	.090	.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	43.534	23.000	540.000	600.000	195.000	195.000	195.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	470.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	851.500	0.000	852.200	75.000	854.200	100.000	861.300	200.000	861.700	240.000
GR	861.700	300.000	860.300	400.000	857.600	510.000	857.600	510.000	849.400	540.000
GR	848.200	554.000	847.500	565.000	847.600	575.000	847.200	585.000	848.200	593.000
GR	852.000	600.000	852.300	700.000	858.300	800.000	859.100	900.000	860.500	1000.000
GR	862.400	1053.000	872.500	1069.000	873.500	1077.000	0.000	0.000	0.000	0.000
X1	43.598	22.000	265.000	348.000	340.000	340.000	340.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	860.000	0.000	858.000	20.000	856.000	60.000	854.000	175.000	852.000	225.000
GR	850.000	265.000	850.200	295.000	849.000	309.000	848.300	320.000	848.400	330.000
GR	848.000	340.000	849.000	348.000	850.000	370.000	852.000	382.000	854.000	400.000
GR	856.000	410.000	858.000	420.000	860.000	430.000	860.000	475.000	860.000	630.000
GR	862.000	650.000	864.000	670.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.080	.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	43.691	17.000	420.000	510.000	490.000	490.000	490.000	0.000	0.000	0.000
GR	872.100	0.000	866.700	77.000	857.700	100.000	853.800	200.000	852.600	300.000
GR	852.700	400.000	852.900	420.000	849.700	430.000	849.300	440.000	849.200	450.000
GR	849.100	460.000	849.200	470.000	849.400	480.000	862.500	510.000	868.200	600.000
GR	873.200	700.000	876.200	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	43.742	26.000	115.000	175.000	270.000	270.000	270.000	0.000	0.000	0.000
GR	870.000	0.000	868.000	15.000	866.000	20.000	864.000	28.000	862.000	32.000
GR	860.000	48.000	858.000	52.000	856.000	60.000	854.000	95.000	852.000	115.000
GR	850.200	125.000	849.800	135.000	849.700	145.000	849.600	155.000	849.700	165.000
GR	849.900	175.000	852.000	205.000	854.000	225.000	856.000	280.000	858.000	315.000
GR	860.000	335.000	862.000	360.000	864.000	400.000	866.000	430.000	868.000	465.000
GR	870.000	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	43.847	15.000	166.000	266.000	550.000	550.000	550.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	441.000	0.000	0.000	0.000	0.000
GR	880.000	0.000	877.000	166.000	852.100	225.000	851.000	236.000	851.400	246.000
GR	850.700	256.000	851.700	261.000	852.900	266.000	854.400	366.000	854.400	466.000
GR	855.700	566.000	859.100	666.000	866.900	766.000	869.900	866.000	871.000	966.000
X1	43.903	24.000	220.000	256.000	300.000	125.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	355.000	0.000	0.000	0.000	0.000
GR	868.000	0.000	866.000	80.000	864.000	110.000	862.000	130.000	860.000	135.000
GR	858.000	155.000	856.000	180.000	854.000	200.000	852.000	210.000	851.600	220.000
GR	851.100	231.000	851.500	241.000	850.800	251.000	851.800	256.000	852.000	261.000
GR	854.000	426.000	856.000	456.000	858.000	556.000	860.000	586.000	862.000	606.000
GR	864.000	616.000	866.000	634.000	868.000	640.000	870.000	655.000	0.000	0.000
X1	43.979	21.000	360.000	401.000	200.000	400.000	400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	215.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.000	0.000	866.000	20.000	864.000	40.000	862.000	60.000	860.000	80.000
GR	858.000	190.000	856.000	335.000	854.000	350.000	852.400	360.000	851.300	371.000
GR	851.700	381.000	851.000	391.000	852.000	396.000	853.200	401.000	854.000	410.000
GR	856.000	460.000	858.000	495.000	860.000	520.000	862.000	530.000	864.000	585.000
GR	866.000	615.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	44.027	21.000	120.000	161.000	255.000	255.000	255.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	230.000	0.000	0.000	0.000	0.000
GR	890.000	0.000	865.000	0.000	864.000	25.000	862.000	60.000	860.000	95.000
GR	858.000	105.000	856.000	110.000	852.200	120.000	851.100	131.000	851.500	141.000
GR	851.100	151.000	851.800	156.000	853.000	161.000	856.000	270.000	858.000	330.000
GR	860.000	360.000	862.000	380.000	864.000	400.000	866.000	425.000	868.000	465.000
GR	870.000	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BP

Auburn Hills - Clinton River 10-, 50-, 100-, 500-yr profiles

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CW	HV	HL	OLOSS	QCH	DEPTH	TOPWID
42.14	75.00	0.00	0.00	827.50	2150.00	837.41	.16	.05	.02	1924.90	9.91	150.00
42.14	75.00	0.00	0.00	827.50	2800.00	839.22	.15	.03	.02	2336.39	11.72	150.00
42.14	75.00	0.00	0.00	827.50	3200.00	840.61	.14	.03	.03	2558.49	13.11	150.00
42.14	75.00	0.00	0.00	827.50	4650.00	843.14	.17	.02	.04	3506.68	15.64	150.00
42.23	475.00	0.00	0.00	828.10	2150.00	837.71	.15	.29	.00	1944.04	9.61	150.00
42.23	475.00	0.00	0.00	828.10	2800.00	839.45	.15	.23	.00	2387.47	11.35	150.00
42.23	475.00	0.00	0.00	828.10	3200.00	840.79	.14	.18	.00	2626.09	12.69	150.00
42.23	475.00	0.00	0.00	828.10	4650.00	843.31	.17	.17	.01	3606.81	15.21	150.00
42.30	344.00	0.00	0.00	828.50	2150.00	837.91	.38	.19	.23	2150.00	9.41	53.00
42.30	344.00	0.00	0.00	828.50	2800.00	839.61	.45	.17	.29	2800.00	11.11	53.00
42.30	344.00	0.00	0.00	828.50	3200.00	840.93	.45	.14	.31	3200.00	12.43	53.00
42.30	344.00	0.00	0.00	828.50	4650.00	843.40	.20	.09	.02	3099.68	14.90	935.57
42.30	42.00	842.70	838.80	828.50	2150.00	837.93	.38	.02	.00	2150.00	9.43	53.00
42.30	42.00	842.70	838.80	828.50	2800.00	840.24	.40	.57	0.00	2800.00	11.74	53.00
42.30	42.00	842.70	838.80	828.50	3200.00	841.87	.39	.87	0.00	3200.00	13.37	53.00
42.30	42.00	842.70	838.80	828.50	4650.00	843.41	.19	.01	0.00	3088.72	14.91	937.04
42.31	60.00	0.00	0.00	829.30	2150.00	837.97	.41	.03	.02	2150.00	8.67	53.00
42.31	60.00	0.00	0.00	829.30	2800.00	840.26	.41	.03	.02	2800.00	10.96	53.00
42.31	60.00	0.00	0.00	829.30	3200.00	841.89	.40	.02	.02	3200.00	12.59	53.00
42.31	60.00	0.00	0.00	829.30	4650.00	843.43	.29	.01	.10	3502.21	14.13	935.20
42.32	42.00	844.00	838.80	829.30	2150.00	837.99	.40	.02	.00	2150.00	8.69	53.00
42.32	42.00	844.00	838.80	829.30	2800.00	840.28	.37	.59	0.00	2800.00	11.66	53.00
42.32	42.00	844.00	838.80	829.30	3200.00	842.86	.34	.91	0.00	3200.00	13.56	53.00
42.32	42.00	844.00	838.80	829.30	4650.00	843.14	.70	.12	0.00	4650.00	13.84	53.00
42.33	50.00	0.00	0.00	828.40	2150.00	838.25	.28	.04	.07	1994.82	9.85	124.82
42.33	50.00	0.00	0.00	828.40	2800.00	841.24	.15	.02	.11	2598.05	12.84	153.00
42.33	50.00	0.00	0.00	828.40	3200.00	843.22	.11	.01	.12	2970.62	14.82	153.00
42.33	50.00	0.00	0.00	828.40	4650.00	843.90	.20	.02	.28	3000.83	15.50	153.00
42.37	200.00	0.00	0.00	829.20	2150.00	838.65	.06	.10	.10	1281.10	9.45	310.00
42.37	200.00	0.00	0.00	829.20	2800.00	841.46	.03	.04	.00	1643.02	12.26	310.00
42.37	200.00	0.00	0.00	829.20	3200.00	843.38	.02	.03	.01	1908.13	14.18	310.00
42.37	200.00	0.00	0.00	829.20	4650.00	844.18	.04	.04	.00	2841.88	14.98	310.00
42.45	425.00	0.00	0.00	831.00	2150.00	838.78	.07	.13	.02	1183.44	7.78	300.00
42.45	425.00	0.00	0.00	831.00	2800.00	841.51	.04	.05	.01	1588.58	10.51	300.00
42.45	425.00	0.00	0.00	831.00	3200.00	843.41	.03	.03	.01	1875.19	12.41	300.00
42.45	425.00	0.00	0.00	831.00	4650.00	844.23	.08	.05	.01	2842.47	13.23	300.00
42.62	875.00	0.00	0.00	834.60	2150.00	838.67	.20	.08	.07	1193.34	4.07	293.58
42.62	875.00	0.00	0.00	834.60	2800.00	841.78	.12	.05	.03	1598.48	7.14	300.00
42.62	875.00	0.00	0.00	834.60	3200.00	843.54	.08	.03	.02	1885.09	8.94	300.00
42.62	875.00	0.00	0.00	834.60	4650.00	844.43	.12	.03	.01	2852.37	9.83	300.00

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
42.70	466.00	0.00	0.00	835.30	2150.00	840.58	.36	1.12	.08	1762.09	5.28	215.37
42.70	466.00	0.00	0.00	835.30	2800.00	842.15	.24	.41	.12	2033.40	6.85	298.53
42.70	466.00	0.00	0.00	835.30	3200.00	843.74	.14	.20	.07	2052.38	8.44	389.83
42.70	466.00	0.00	0.00	835.30	4650.00	844.69	.19	.27	.07	2772.31	9.39	448.29
42.83	670.00	0.00	0.00	836.00	2150.00	842.62	.58	2.03	.22	1776.93	6.62	194.78
42.83	670.00	0.00	0.00	836.00	2800.00	843.44	.55	1.29	.31	2084.98	7.44	216.19
42.83	670.00	0.00	0.00	836.00	3200.00	844.42	.39	.69	.25	2121.86	8.42	244.55
42.83	670.00	0.00	0.00	836.00	4650.00	845.49	.45	.80	.26	2743.39	9.49	284.67
42.94	572.00	0.00	0.00	836.00	2150.00	844.39	.23	1.25	.17	1350.95	8.39	251.96
42.94	572.00	0.00	0.00	836.00	2800.00	845.06	.24	1.16	.15	1596.37	9.06	255.29
42.94	572.00	0.00	0.00	836.00	3200.00	845.55	.24	.91	.07	1716.69	9.55	257.77
42.94	572.00	0.00	0.00	836.00	4650.00	846.69	.28	.95	.08	2224.60	10.69	266.93
42.97	145.00	0.00	0.00	836.00	2150.00	844.62	.27	.23	.04	1459.71	8.62	236.69
42.97	145.00	0.00	0.00	836.00	2800.00	845.29	.29	.23	.04	1735.63	9.29	260.23
42.97	145.00	0.00	0.00	836.00	3200.00	845.77	.28	.22	.04	1869.79	9.77	276.94
42.97	145.00	0.00	0.00	836.00	4650.00	846.92	.32	.23	.04	2386.82	10.92	293.00
42.98	89.00	0.00	0.00	836.00	2150.00	844.81	.69	.19	.43	2022.39	8.81	173.84
42.98	89.00	0.00	0.00	836.00	2800.00	845.49	.77	.20	.48	2442.59	9.49	292.58
42.98	89.00	0.00	0.00	836.00	3200.00	845.95	.70	.18	.42	2582.66	9.95	300.00
42.98	89.00	0.00	0.00	836.00	4650.00	847.09	.65	.18	.33	3108.14	11.09	300.00
43.00	77.00	0.00	0.00	836.00	2150.00	845.30	.51	.21	.09	1921.49	9.30	230.34
43.00	77.00	0.00	0.00	836.00	2800.00	846.09	.50	.21	.13	2233.61	10.09	285.00
43.00	77.00	0.00	0.00	836.00	3200.00	846.43	.52	.20	.09	2419.98	10.43	285.00
43.00	77.00	0.00	0.00	836.00	4650.00	847.41	.58	.20	.04	3044.66	11.41	285.00
43.03	157.00	0.00	0.00	836.00	2150.00	845.71	.53	.41	.02	2030.87	9.71	218.77
43.03	157.00	0.00	0.00	836.00	2800.00	846.49	.54	.40	.04	2380.10	10.49	240.00
43.03	157.00	0.00	0.00	836.00	3200.00	846.84	.56	.41	.04	2580.45	10.84	240.00
43.03	157.00	0.00	0.00	836.00	4650.00	847.85	.63	.44	.06	3240.84	11.85	240.00
43.04	50.00	0.00	0.00	836.90	2150.00	845.30	1.29	.12	.23	2150.00	8.40	30.50
43.04	50.00	0.00	0.00	836.90	2800.00	846.10	1.27	.12	.22	2487.10	9.20	198.73
43.04	50.00	0.00	0.00	836.90	3200.00	846.38	1.51	.13	.29	2804.27	9.48	237.87
43.04	50.00	0.00	0.00	836.90	4650.00	847.58	1.49	.14	0.00	3440.81	10.68	320.11
43.04	40.00	845.80	845.50	836.90	2150.00	845.31	1.29	0.00	0.00	2150.00	8.41	30.50
43.04	40.00	845.80	845.50	836.90	2800.00	846.10	1.27	0.00	0.00	2487.10	9.20	198.73
43.04	40.00	845.80	845.50	836.90	3200.00	846.38	1.51	0.00	0.00	2804.27	9.48	237.87
43.04	40.00	845.80	845.50	836.90	4650.00	847.58	1.49	.14	0.00	3440.81	10.68	320.11
43.05	25.00	0.00	0.00	837.00	2150.00	845.32	.12	.02	.18	1350.97	8.42	251.96
43.05	25.00	0.00	0.00	837.00	2800.00	846.10	.14	.02	.11	1612.18	9.20	255.29
43.05	25.00	0.00	0.00	837.00	3200.00	846.64	.15	.03	.14	1845.49	9.64	257.77
43.05	25.00	0.00	0.00	837.00	4650.00	847.44	.19	.03	.13	2183.78	10.44	266.93

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
43.06	50.00	0.00	0.00	837.30	2150.00	846.64	.14	.04	.01	1290.63	9.34	269.65
43.06	50.00	0.00	0.00	837.30	2800.00	847.41	.15	.04	.00	1537.15	10.11	272.33
43.06	50.00	0.00	0.00	837.30	3200.00	847.87	.16	.04	.00	1673.89	10.57	273.95
43.06	50.00	0.00	0.00	837.30	4650.00	849.11	.20	.05	.00	2180.01	11.81	278.27
43.07	75.00	0.00	0.00	837.70	2150.00	846.69	.17	.07	.01	1349.81	8.99	277.67
43.07	75.00	0.00	0.00	837.70	2800.00	847.46	.18	.07	.01	1593.10	9.76	291.12
43.07	75.00	0.00	0.00	837.70	3200.00	847.92	.18	.07	.01	1724.15	10.22	292.75
43.07	75.00	0.00	0.00	837.70	4650.00	849.17	.22	.08	.01	2209.79	11.47	297.09
43.14	375.00	0.00	0.00	839.60	2150.00	847.00	.08	.21	.01	684.95	7.40	341.21
43.14	375.00	0.00	0.00	839.60	2800.00	847.76	.09	.20	.01	818.07	8.16	372.69
43.14	375.00	0.00	0.00	839.60	3200.00	848.21	.09	.18	.01	898.35	8.61	373.79
43.14	375.00	0.00	0.00	839.60	4650.00	849.47	.11	.18	.01	1192.01	9.87	376.81
43.21	345.00	0.00	0.00	839.80	2150.00	847.12	.10	.14	.01	874.57	7.32	252.47
43.21	345.00	0.00	0.00	839.80	2800.00	847.87	.11	.13	.01	1059.95	8.07	263.22
43.21	345.00	0.00	0.00	839.80	3200.00	848.32	.12	.13	.01	1151.76	8.52	272.17
43.21	345.00	0.00	0.00	839.80	4650.00	849.56	.15	.12	.01	1517.86	9.76	300.18
43.31	565.00	0.00	0.00	840.20	2150.00	847.54	.39	.62	.09	1251.45	7.34	207.15
43.31	565.00	0.00	0.00	840.20	2800.00	848.26	.40	.59	.09	1476.11	8.06	208.43
43.31	565.00	0.00	0.00	840.20	3200.00	848.68	.40	.56	.08	1605.24	8.48	209.18
43.31	565.00	0.00	0.00	840.20	4650.00	849.90	.45	.55	.09	2078.35	9.70	211.35
43.35	210.00	0.00	0.00	842.20	2150.00	848.02	.96	.88	.17	1446.03	5.82	173.32
43.35	210.00	0.00	0.00	842.20	2800.00	848.72	.87	.79	.14	1642.90	6.52	205.62
43.35	210.00	0.00	0.00	842.20	3200.00	849.13	.82	.74	.13	1745.48	6.93	212.74
43.35	210.00	0.00	0.00	842.20	4650.00	850.35	.75	.66	.09	2109.09	8.15	230.65
43.37	76.00	0.00	0.00	842.90	2150.00	848.56	1.11	.60	0.00	1490.64	5.66	164.26
43.37	76.00	0.00	0.00	842.90	2800.00	849.10	1.16	.54	0.00	1750.25	6.20	181.02
43.37	76.00	0.00	0.00	842.90	3200.00	849.37	1.21	.52	.12	1905.55	6.47	185.72
43.37	76.00	0.00	0.00	842.90	4650.00	850.51	1.13	.42	.11	2324.14	7.61	205.64
43.38	77.00	0.00	0.00	843.60	2150.00	849.48	1.21	.65	0.00	1370.67	5.88	141.38
43.38	77.00	0.00	0.00	843.60	2800.00	849.98	1.36	.66	0.00	1634.88	6.38	150.21
43.38	77.00	0.00	0.00	843.60	3200.00	850.26	1.44	.66	0.00	2075.66	6.66	155.11
43.38	77.00	0.00	0.00	843.60	4650.00	851.15	1.68	.62	0.00	2476.86	7.55	170.56
43.40	77.00	0.00	0.00	844.30	2150.00	850.51	.68	.45	.08	1310.98	6.21	115.00
43.40	77.00	0.00	0.00	844.30	2800.00	851.08	.79	.47	.08	1575.01	6.78	115.00
43.40	77.00	0.00	0.00	844.30	3200.00	851.38	.87	.49	.08	1708.94	7.08	115.00
43.40	77.00	0.00	0.00	844.30	4650.00	852.22	1.20	.55	.08	2204.87	7.92	115.00
43.41	50.00	0.00	0.00	844.60	2150.00	850.57	.95	.25	.08	1484.09	5.97	90.00
43.41	50.00	0.00	0.00	844.60	2800.00	851.08	1.18	.27	.12	1777.16	6.48	90.00
43.41	50.00	0.00	0.00	844.60	3200.00	851.33	1.34	.29	.14	1928.15	6.73	90.00
43.41	50.00	0.00	0.00	844.60	4650.00	851.98	2.04	.36	.23	2498.63	7.38	90.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCN	DEPTH	TOPWID
43.42	50.00	0.00	0.00	844.90	2150.00	850.54	1.76	.29	0.00	1777.93	5.64	65.00
43.42	50.00	0.00	0.00	844.90	2800.00	851.26	2.04	.31	0.00	2208.51	6.36	65.00
43.42	50.00	0.00	0.00	844.90	3200.00	851.63	2.23	.33	0.00	2470.94	6.73	65.00
43.42	50.00	0.00	0.00	844.90	4650.00	852.89	2.84	.38	0.00	3389.84	7.99	65.00
43.42	25.00	0.00	0.00	845.10	2150.00	850.81	1.96	.15	0.00	1863.02	5.71	53.00
43.42	25.00	0.00	0.00	845.10	2800.00	851.49	2.30	.15	0.00	2343.38	6.49	53.00
43.42	25.00	0.00	0.00	845.10	3200.00	852.00	2.54	.15	0.00	2637.90	6.90	53.00
43.42	25.00	0.00	0.00	845.10	4650.00	853.42	3.23	.15	0.00	3672.81	8.32	53.00
43.42	13.00	0.00	0.00	845.20	2150.00	851.04	2.13	.08	0.00	1955.45	5.84	46.00
43.42	13.00	0.00	0.00	845.20	2800.00	851.85	2.55	.08	0.00	2481.22	6.65	46.00
43.42	13.00	0.00	0.00	845.20	3200.00	852.33	2.78	.08	0.00	2799.13	7.13	46.00
43.42	13.00	0.00	0.00	845.20	4650.00	853.99	3.54	.08	0.00	3932.81	8.69	46.00
43.43	12.00	0.00	0.00	845.20	2150.00	851.27	2.27	.08	0.00	2150.00	6.07	40.00
43.43	12.00	0.00	0.00	845.20	2800.00	852.13	2.70	.08	0.00	2800.00	6.93	40.00
43.43	12.00	0.00	0.00	845.20	3200.00	852.63	2.95	.08	0.00	3200.00	7.43	40.00
43.43	12.00	0.00	0.00	845.20	4650.00	854.07	3.66	.07	0.00	4230.47	8.87	85.01
43.44	70.00	858.00	853.40	845.20	2150.00	852.62	1.34	.32	.09	2150.00	7.42	40.00
43.44	70.00	858.00	853.40	845.20	2800.00	853.23	1.39	.78	0.00	2800.00	9.83	40.00
43.44	70.00	858.00	853.40	845.20	3200.00	854.00	1.18	1.60	0.00	3200.00	10.80	40.00
43.44	70.00	858.00	853.40	845.20	4650.00	857.78	1.08	1.74	0.00	3932.07	12.58	325.19
43.45	30.00	0.00	0.00	845.00	2050.00	853.18	.90	.09	.04	2050.00	8.18	55.14
43.45	30.00	0.00	0.00	845.00	2660.00	854.95	.78	.06	.06	2660.00	9.95	63.61
43.45	30.00	0.00	0.00	845.00	3080.00	856.66	.61	.04	.06	3079.11	11.66	80.55
43.45	30.00	0.00	0.00	845.00	4490.00	858.03	.89	.04	.02	4464.86	13.03	100.00
43.45	27.00	0.00	0.00	844.90	2050.00	853.32	.82	.05	.01	2050.00	8.42	56.31
43.45	27.00	0.00	0.00	844.90	2660.00	855.04	.74	.03	.02	2660.00	10.14	64.51
43.45	20.00	0.00	0.00	844.90	3080.00	856.71	.59	.02	.03	3079.60	11.81	82.32
43.45	20.00	0.00	0.00	844.90	4490.00	858.11	.84	.03	.01	4462.18	13.21	140.00
43.50	255.00	0.00	0.00	846.20	2050.00	854.29	.25	.26	.06	1718.59	8.00	131.39
43.50	255.00	0.00	0.00	846.20	2660.00	856.77	.26	.20	.06	2148.18	9.57	131.77
43.50	255.00	0.00	0.00	846.20	3080.00	857.25	.24	.15	.04	2437.62	11.05	132.13
43.50	255.00	0.00	0.00	846.20	4490.00	858.83	.36	.18	.06	3463.60	12.63	136.81
43.53	195.00	0.00	0.00	847.20	2050.00	854.33	.33	.18	.06	1888.24	7.13	96.96
43.53	195.00	0.00	0.00	847.20	2660.00	855.99	.29	.14	.01	2343.00	8.79	100.78
43.53	195.00	0.00	0.00	847.20	3080.00	857.35	.24	.11	.02	2680.32	10.15	100.10
43.53	195.00	0.00	0.00	847.20	4490.00	859.00	.31	.13	.06	3816.18	11.80	100.00
43.60	340.00	0.00	0.00	848.00	2050.00	854.98	.13	.04	.02	1888.24	6.78	100.00
43.60	340.00	0.00	0.00	848.00	2660.00	856.58	.13	.01	.02	2343.00	8.38	100.00
43.60	340.00	0.00	0.00	848.00	3080.00	857.71	.11	.02	.01	2680.32	9.71	100.00
43.60	340.00	0.00	0.00	848.00	4490.00	859.42	.15	.04	.02	3816.18	11.42	100.00

00BREAK00

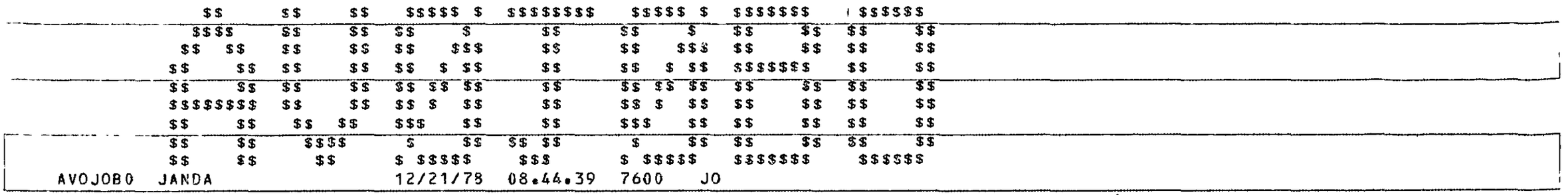
1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP & CITY OF ROCHESTER

3) WATERCOURSE: CLINTON RIVER

4) DOCUMENT TYPE: 10 YR ENCROACHED

00BREAK00



AVON TOWNSHIP / CITY OF ROCHESTER F.I.S.

JOB NO. 5850-01/37

CLINTON RIVER

MULTIPLE PROFILES FOR ENCROACHED FLOODWAY

SOIL CONSERVATION AND ENGINEERING, INC. 12-28-78

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      CITY OF ROCHESTER/AVON TOWNSHIP F.I.S. - JOB NO. 5850-07/01
T2      10-YEAR FLOW
T3      CLINTON RIVER - PROJECT MANAGER, JOHN EMIG

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -1.       2.        0.        0.  0.000000      0.00      0.0       0.   673.330     0.000

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

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    38.000    40.000    41.000    42.000    43.000     1.000     8.000    10.000    12.000     3.000

    33.000     4.000    25.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .035      .045      .040      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     4.000  4520.000  6970.000  7870.000 10800.000     0.000     0.000     0.000     0.000     0.000
NH     4.000      .050   198.000      .070   222.000      .035   277.000      .050   760.000     0.000

          VALLEY SECTION A - SECTION 31.557 FROM SHELBY TWP. F.I.S.

X1    31.557    22.000   198.000   277.000     0.000     0.000     0.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   189.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   686.600     0.000   670.600    43.000   670.700    60.000   673.900   110.000   673.500   160.000
GR   678.800   181.000   679.600   189.000   678.600   198.000   664.600   222.000   664.200   223.000
GR   661.800   232.000   662.900   243.000   663.100   251.000   663.000   258.000   666.400   267.000
GR   671.500   277.000   673.000   360.000   672.500   460.000   674.000   560.000   673.200   660.000
GR   674.200   723.000   685.000   760.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     4.000  4470.000  6890.000  7780.000 10700.000     0.000     0.000     0.000     0.000     0.000

X1    31.566     0.000     0.000     0.000    50.000    50.000    50.000     0.000      .100     0.000
X3     0.000     0.000     0.000   189.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .050      .045      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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VALLEY SECTION B

X1	31.725	23.000	600.000	700.000	590.000	825.000	840.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	225.000	0.000	690.000	0.000	0.000	0.000	0.000
GR	682.600	0.000	681.700	57.000	673.800	100.000	673.400	200.000	674.100	300.000
GR	675.000	400.000	675.000	500.000	674.900	600.000	674.900	600.000	666.900	610.000
GR	665.100	620.000	664.400	630.000	664.400	640.000	665.600	650.000	666.800	660.000
GR	667.300	670.000	668.100	683.000	675.400	700.000	677.300	733.000	675.900	800.000
GR	677.400	900.000	678.200	1000.000	683.800	1100.000	0.000	0.000	0.000	0.000
NC	.030	.030	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	31.745	0.000	0.000	0.000	100.000	110.000	109.000	0.000	.900	0.000
X3	0.000	0.000	0.000	250.000	0.000	660.000	0.000	0.000	0.000	0.000
NC	.030	.030	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AVON ROAD BRIDGE - D/S FACE - BRIDGE IS LOCATED JUST NORTHEAST OF THE INTERSECTION OF AVON AND DEQUINDRE ROADS.

X1	31.746	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	250.000	0.000	660.000	0.000	0.000	0.000	0.000
SB	0.000	1.580	3.040	0.000	41.730	0.000	492.400	0.000	665.600	665.300
NC	.070	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AVON ROAD BRIDGE - U/S FACE - SECTION C. BRIDGE IS LOCATED JUST NORTHEAST OF THE INTERSECTION OF AVON AND DEQUINDRE ROADS.

X1	31.752	23.000	700.000	744.000	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	677.400	677.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	270.000	0.000	744.000	0.000	0.000	0.000	0.000
BT	7.000	270.000	679.100	0.000	300.000	678.200	0.000	400.000	677.200	0.000
BT	500.000	677.000	0.000	600.000	677.500	0.000	700.000	679.400	677.000	744.000
BT	679.400	677.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.000	136.000	681.200	200.000	678.200	300.000
GR	675.000	400.000	675.000	500.000	675.000	600.000	675.000	700.000	665.700	700.000
GR	666.200	705.000	666.400	710.000	666.300	715.000	666.400	720.000	666.100	725.000
GR	665.700	730.000	665.600	735.000	665.600	740.000	665.700	744.000	679.400	744.000
GR	680.000	800.000	681.100	900.000	683.900	1000.000	0.000	0.000	0.000	0.000
NC	.090	.090	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	31.753	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	270.000	0.000	744.000	0.000	0.000	0.000	0.000
OT	4.000	4370.000	6730.000	7630.000	10460.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.070	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D

X1	31.829	20.000	754.000	804.000	160.000	540.000	400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	290.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.100	136.000	681.400	177.000	676.200	230.000
GR	675.600	254.000	677.600	354.000	675.600	454.000	675.400	524.000	673.300	554.000
GR	673.900	654.000	671.000	754.000	667.800	758.000	667.200	764.000	667.400	774.000
GR	667.300	784.000	666.800	800.000	671.000	804.000	672.400	854.000	680.800	954.000
X1	31.936	56.000	356.000	476.000	330.000	580.000	568.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.100	136.000	682.100	156.000	682.700	256.000
GR	683.100	356.000	673.600	356.000	672.800	361.000	671.700	366.000	671.300	368.000
GR	671.200	369.000	670.800	371.000	670.700	376.000	670.100	380.000	670.000	381.000
GR	669.400	386.000	669.900	391.000	669.800	392.000	669.800	393.000	669.600	396.000
GR	669.700	401.000	669.000	404.000	668.800	405.000	668.600	406.000	668.500	411.000
GR	668.300	416.000	668.100	417.000	667.400	421.000	668.100	426.000	668.000	428.000
GR	667.900	429.000	667.800	431.000	668.100	436.000	668.700	440.000	668.800	441.000
GR	669.200	446.000	669.600	451.000	669.700	452.000	669.700	453.000	669.900	456.000
GR	669.900	461.000	669.800	464.000	669.700	465.000	669.700	466.000	670.700	471.000
GR	671.500	476.000	683.600	476.000	684.100	556.000	684.600	656.000	685.300	756.000
GR	685.700	856.000	685.900	956.000	686.100	1056.000	686.400	1156.000	686.800	1256.000
GR	687.400	1356.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE - SECTION E

X1	31.937	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	.950	1.660	2.690	0.000	97.780	9.000	1154.100	0.000	667.400	667.400

PENN-CENTRAL RAILROAD BRIDGE - U/S FACE - SECTION E

X1	31.940	74.000	356.000	476.000	15.000	15.000	15.000	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
BT	34.000	0.000	687.200	0.000	100.000	683.300	0.000	136.000	682.100	0.000
BT	156.000	682.100	0.000	256.000	682.700	0.000	356.000	683.100	679.800	368.000
BT	683.200	679.900	369.000	683.200	679.900	380.000	683.200	679.900	381.000	683.200
BT	679.900	392.000	683.300	680.000	393.000	683.300	680.000	404.000	683.300	680.000
BT	405.000	683.300	680.000	416.000	683.400	680.100	417.000	683.400	680.100	428.000
BT	683.400	680.100	429.000	683.400	680.100	440.000	683.500	680.200	441.000	683.500
BT	680.200	452.000	683.500	680.200	453.000	683.500	680.200	464.000	683.600	680.300
BT	465.000	683.600	680.300	476.000	683.600	680.400	556.000	684.100	0.000	656.000
BT	684.600	0.000	756.000	685.300	0.000	856.000	685.700	0.000	956.000	685.900
BT	0.000	1056.000	686.100	0.000	1156.000	686.400	0.000	1256.000	686.800	0.000
BT	1356.000	687.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.100	136.000	682.100	156.000	682.700	256.000
GR	683.100	356.000	673.600	356.000	672.800	361.000	671.700	366.000	671.300	368.000

GR	679.900	568.000	679.900	569.000	671.200	569.000	670.000	571.000	670.700	576.000
GR	670.100	380.000	679.900	380.000	679.900	381.000	670.000	381.000	669.400	386.000
GR	669.900	391.000	669.800	392.000	680.000	392.000	680.000	393.000	669.800	393.000
GR	669.600	396.000	669.700	401.000	669.000	404.000	680.000	404.000	680.000	405.000
GR	668.800	405.000	668.600	406.000	668.500	411.000	668.300	416.000	680.100	416.000
GR	680.100	417.000	668.100	417.000	667.400	421.000	668.100	426.000	668.000	428.000
GR	680.100	428.000	680.100	429.000	667.900	429.000	667.800	431.000	668.100	436.000
GR	668.700	440.000	680.200	440.000	680.200	441.000	668.800	441.000	669.200	446.000
GR	669.600	451.000	669.700	452.000	680.200	452.000	680.200	453.000	669.700	453.000
GR	669.900	456.000	669.900	461.000	669.800	464.000	680.300	464.000	680.300	465.000
GR	669.700	465.000	669.700	466.000	670.700	471.000	671.500	476.000	683.600	476.000
GR	684.100	556.000	684.600	656.000	685.300	756.000	685.700	856.000	685.900	956.000
GR	686.100	1056.000	686.400	1156.000	686.800	1256.000	687.400	1356.000	0.000	0.000
NC	.050	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	31.941	56.000	356.000	476.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.100	136.000	682.100	156.000	682.700	256.000
GR	683.100	356.000	673.600	356.000	672.800	361.000	671.700	366.000	671.300	368.000
GR	671.200	369.000	670.800	371.000	670.700	376.000	670.100	380.000	670.000	381.000
GR	669.400	386.000	669.900	391.000	669.800	392.000	669.800	393.000	669.600	396.000
GR	669.700	401.000	669.000	404.000	668.800	405.000	668.600	406.000	668.500	411.000
GR	668.300	416.000	668.100	417.000	667.400	421.000	668.100	426.000	668.000	428.000
GR	667.900	429.000	667.800	431.000	668.100	436.000	668.700	440.000	668.800	441.000
GR	669.200	446.000	669.600	451.000	669.700	452.000	669.700	453.000	669.900	456.000
GR	669.900	461.000	669.800	464.000	669.700	465.000	669.700	466.000	670.700	471.000
GR	671.500	476.000	683.600	476.000	684.100	556.000	684.600	656.000	685.300	756.000
GR	685.700	856.000	685.900	956.000	686.100	1056.000	686.400	1156.000	686.800	1256.000
GR	687.400	1356.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.060	242.000	.040	322.000	.070	617.000	.045	673.000	.060
NH	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	31.997	27.000	242.000	322.000	300.000	320.000	308.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	673.000	0.000	0.000	0.000	0.000
GR	702.500	0.000	701.000	42.000	698.100	130.000	680.600	173.000	680.000	202.000
GR	677.100	242.000	674.900	262.000	672.300	272.000	671.300	282.000	669.500	292.000
GR	670.900	302.000	672.800	312.000	674.600	318.000	678.300	322.000	680.000	322.000
GR	680.000	333.000	681.100	339.000	680.800	342.000	676.600	442.000	677.400	542.000
GR	676.600	617.000	674.900	623.000	675.000	640.000	675.000	642.000	685.000	673.000
GR	681.300	742.000	684.100	781.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.060	202.000	.030	242.000	.020	322.000	.070	617.000	.045
NH	675.000	.070	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

YATES MILL DAM = U/S FACE, FIXED CREST CONCRETE AND TIMBER DAM,

80 FT. LONG - SECTION F. BECAUSE OF DAM SUBMERGENCE AND THE RELATIVE

DAM LENGTH RELATIVE TO TOP WIDTH, DAM WAS TREATED AS A NORMAL VALLEY

SECTIO..

X1	31.998	21.000	242.000	322.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	673.000	0.000	0.000	0.000	0.000
GR	702.500	0.000	701.000	42.000	698.100	130.000	680.600	173.000	680.000	202.000
GR	679.800	242.000	676.200	242.000	676.300	322.000	680.000	322.000	680.000	333.000
GR	681.100	339.000	680.800	342.000	676.600	442.000	677.400	542.000	676.600	617.000
GR	674.900	623.000	675.000	640.000	675.000	642.000	685.000	673.000	681.300	742.000
GR	684.100	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

YATES MILL DAM - U/S FACE. FIXED CREST CONCRETE AND TIMBER DAM.

80 FT. LONG - SECTION F. BECAUSE OF DAM SUBMERGENCE AND THE RELATIVE

DAM LENGTH RELATIVE TO TOP WIDTH, DAM WAS TREATED AS A NORMAL VALLEY

SECTION.

X1	31.999	21.000	242.000	322.000	6.000	6.000	6.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	673.000	0.000	0.000	0.000	0.000
GR	702.500	0.000	701.000	42.000	698.100	130.000	680.600	173.000	680.000	202.000
GR	679.800	242.000	676.200	242.000	676.300	322.000	680.000	322.000	680.000	333.000
GR	681.100	339.000	680.800	342.000	676.600	442.000	677.400	542.000	676.600	617.000
GR	674.900	623.000	675.000	640.000	675.000	642.000	685.000	673.000	681.300	742.000
GR	684.100	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.060	202.000	.030	242.000	.040	322.000	.070	617.000	.045
NH	673.000	.060	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	32.000	27.000	242.000	322.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	673.000	0.000	0.000	0.000	0.000
GR	702.500	0.000	701.000	42.000	698.100	130.000	680.600	173.000	680.000	202.000
GR	677.100	242.000	674.900	262.000	672.300	272.000	671.300	282.000	669.500	292.000
GR	670.900	302.000	672.800	312.000	674.600	318.000	678.300	322.000	680.000	322.000
GR	680.000	333.000	681.100	339.000	680.800	342.000	676.600	442.000	677.400	542.000
GR	676.600	617.000	674.900	623.000	675.000	640.000	675.000	642.000	685.000	673.000
GR	681.300	742.000	684.100	781.000	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
QT	4.000	4280.000	6580.000	7490.000	10230.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION G

X1	32.125	34.000	413.000	491.000	760.000	330.000	660.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	757.000	0.000	0.000	0.000	0.000
GR	695.700	0.000	684.700	17.000	679.400	33.000	678.800	121.000	679.400	231.000
GR	680.300	381.000	678.900	413.000	676.700	431.000	674.100	441.000	673.100	451.000
GR	671.300	461.000	672.700	471.000	674.600	481.000	676.400	487.000	680.100	491.000
GR	679.000	591.000	678.000	671.000	680.700	681.000	681.100	691.000	680.900	740.000
GR	686.000	757.000	680.600	776.000	678.800	797.000	684.700	813.000	685.800	827.000

GR	684.700	731.000	681.000	843.000	687.000	865.000	696.000	891.000	681.700	923.000
GR	687.300	991.000	689.900	1091.000	691.700	1191.000	694.300	1239.000	0.000	0.000
NC	.075	.065	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION H

X1	32.237	35.000	809.000	866.000	350.000	580.000	593.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	385.000	0.000	881.000	0.000	0.000	0.000	0.000
GR	693.500	0.000	685.500	20.000	681.600	36.000	679.600	177.000	680.200	326.000
GR	680.000	426.000	681.100	536.000	681.200	666.000	680.500	766.000	679.800	809.000
GR	676.600	812.000	675.800	816.000	675.100	826.000	674.300	836.000	674.700	846.000
GR	675.500	856.000	677.000	862.000	681.100	866.000	686.000	881.000	680.400	917.000
GR	687.500	938.000	682.100	958.000	682.100	966.000	682.800	1066.000	682.600	1166.000
GR	683.100	1266.000	682.500	1366.000	686.000	1466.000	685.100	1566.000	686.500	1666.000
GR	685.400	1766.000	687.100	1866.000	688.500	1966.000	689.300	2035.000	692.500	2044.000

X1	32.275	27.000	342.000	425.000	200.000	200.000	200.000	0.000	-3.400	0.000
X3	0.000	0.000	0.000	200.000	0.000	648.000	0.000	0.000	0.000	0.000
GR	699.900	0.000	688.900	25.000	681.700	49.000	681.500	125.000	682.600	225.000
GR	683.400	325.000	682.700	342.000	679.100	344.000	678.600	352.000	678.200	363.000
GR	678.300	372.000	678.800	382.000	679.700	392.000	680.800	396.000	683.000	425.000
GR	681.500	525.000	682.900	616.000	695.400	648.000	696.100	725.000	694.900	818.000
GR	692.300	825.000	693.600	925.000	695.600	960.000	683.000	984.000	684.400	1001.000
GR	690.700	1012.000	692.300	1025.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	4130.000	6330.000	7260.000	9840.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION I

X1	32.530	27.000	342.000	425.000	950.000	880.000	1350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	648.000	0.000	0.000	0.000	0.000
GR	699.900	0.000	688.900	25.000	681.700	49.000	681.500	125.000	682.600	225.000
GR	683.400	325.000	682.700	342.000	679.100	344.000	678.600	352.000	678.200	363.000
GR	678.300	372.000	678.800	382.000	679.700	392.000	680.800	396.000	683.000	425.000
GR	681.500	525.000	682.900	616.000	695.400	648.000	696.100	725.000	694.900	818.000
GR	692.300	825.000	693.600	925.000	695.600	960.000	683.000	984.000	684.400	1001.000
GR	690.700	1012.000	692.300	1025.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.085	.070	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION J

X1	32.845	26.000	354.000	433.000	1660.000	1200.000	1660.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	685.000	0.000	0.000	0.000	0.000
GR	699.300	0.000	686.800	54.000	685.900	154.000	685.600	254.000	685.700	354.000
GR	681.800	382.000	681.400	389.000	681.400	396.000	681.000	404.000	681.000	411.000
GR	680.700	419.000	680.900	427.000	681.000	432.000	683.800	433.000	684.800	454.000
GR	686.500	554.000	686.800	654.000	687.900	754.000	686.900	854.000	686.900	915.000

GR	694.000	936.000	687.700	952.000	687.100	9_2.000	699.200	1007.000	698.600	1029.000
GR	703.900	1054.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	3910.000	5970.000	6940.000	9310.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION K - LEFT OVERBANK ADJUSTED TO ELIMINATE INEFFECTIVE

FLOW AREA OF DITCH NEXT TO GRAND TRUNK WESTERN RAILROAD

X1	33.137	30.000	948.000	1016.000	1120.000	1350.000	1540.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1016.000	0.000	0.000	0.000	0.000
GR	702.300	0.000	701.800	4.000	692.700	18.000	692.700	100.000	692.700	166.000
GR	690.800	266.000	689.800	366.000	690.400	394.000	694.800	422.000	695.400	466.000
GR	695.200	566.000	694.700	588.000	689.500	622.000	688.100	666.000	687.900	766.000
GR	687.700	866.000	687.800	948.000	685.800	958.000	685.200	966.000	685.000	976.000
GR	684.300	986.000	683.500	956.000	684.000	1001.000	685.800	1006.000	696.500	1016.000
GR	695.400	1026.000	688.300	1044.000	689.700	1066.000	687.700	1113.000	701.800	1166.000
QT	4.000	3870.000	5900.000	6870.000	9200.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE WITH STONEY CREEK

X1	33.263	18.000	948.000	1006.000	520.000	525.000	670.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	760.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	703.800	500.000	691.200	500.000	691.000	622.000	699.600	666.000	689.400	766.000
GR	689.200	866.000	689.300	948.000	687.300	958.000	686.700	966.000	686.500	976.000
GR	685.800	986.000	685.000	996.000	685.500	1001.000	687.300	1006.000	689.300	1006.000
GR	689.600	1106.000	689.200	1206.000	696.000	1530.000	0.000	0.000	0.000	0.000
NC	.050	.080	.045	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	3.000	.042	91.000	.060	384.000	.090	591.000	0.000	0.000	0.000
QT	4.000	3450.000	5030.000	5670.000	7990.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION L

X1	33.421	23.000	0.000	91.000	750.000	650.000	830.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	384.000	0.000	0.000	0.000	0.000
GR	704.700	0.000	701.700	4.000	688.500	28.000	687.500	51.000	687.100	61.000
GR	686.900	71.000	687.000	81.000	688.400	87.000	691.200	91.000	691.500	191.000
GR	691.100	291.000	689.700	365.000	694.900	375.000	696.400	384.000	694.900	393.000
GR	690.500	403.000	690.400	419.000	693.900	431.000	690.900	443.000	691.700	491.000
GR	697.600	553.000	701.700	566.000	713.700	591.000	0.000	0.000	0.000	0.000
NC	.050	.080	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION M

X1	33.610	21.000	232.000	305.000	1060.000	1010.000	1000.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	226.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	707.100	0.000	698.900	199.000	704.700	226.000	703.900	232.000	691.100	255.000

GR	690.000	262.000	695.000	272.000	695.700	279.000	689.300	284.000	690.800	300.000
GR	695.500	305.000	695.400	359.000	694.100	459.000	694.300	494.000	693.600	559.000
GR	695.700	664.000	700.900	679.000	701.300	786.000	701.200	828.000	705.200	844.000
GR	714.400	859.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.220	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	33.679	20.000	486.000	541.000	430.000	340.000	369.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	486.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	706.500	0.000	703.900	86.000	703.100	186.000	702.300	286.000	700.800	386.000
GR	695.200	486.000	691.100	491.000	689.300	502.000	689.500	509.000	690.000	520.000
GR	690.600	528.000	691.500	535.000	694.400	541.000	693.300	586.000	695.700	686.000
GR	695.200	743.000	695.000	760.000	696.400	786.000	698.100	846.000	711.600	886.000
NC	.090	.190	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE.

X1	33.680	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	486.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.520	2.780	0.000	34.500	0.000	331.200	0.000	689.300	689.300
NC	.090	.325	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PENN-CENTRAL RAILROAD BRIDGE - U/S FACE - SECTION N.

X1	33.683	30.000	1000.000	1056.000	15.000	15.000	15.000	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
BT	16.000	0.000	709.100	0.000	100.000	708.700	0.000	200.000	708.500	0.000
BT	300.000	708.300	0.000	400.000	708.200	0.000	500.000	707.800	0.000	600.000
BT	706.700	0.000	700.000	706.400	0.000	800.000	705.300	0.000	900.000	704.500
BT	0.000	1000.000	703.500	698.900	1045.000	703.200	698.600	1100.000	702.700	0.000
BT	1200.000	702.300	0.000	1300.000	701.600	0.000	1365.000	701.200	0.000	0.000
GR	709.100	0.000	708.700	100.000	708.500	200.000	708.300	300.000	708.200	400.000
GR	707.800	500.000	706.700	600.000	706.400	700.000	705.300	800.000	704.500	900.000
GR	703.500	1000.000	691.900	1000.000	692.400	1005.000	692.600	1010.000	692.400	1015.000
GR	692.300	1020.000	691.900	1025.000	690.800	1030.000	690.000	1035.000	689.500	1040.000
GR	689.300	1045.000	691.500	1050.000	694.400	1056.000	693.300	1100.000	695.700	1200.000
GR	695.200	1258.000	695.000	1275.000	696.400	1300.000	698.100	1361.000	701.200	1365.000
NC	.050	.400	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	33.684	22.000	486.000	541.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	486.000	0.000	851.000	0.000	0.000	0.000	0.000
GR	706.500	0.000	703.900	86.000	703.100	186.000	702.300	286.000	700.800	386.000
GR	695.200	486.000	691.100	491.000	689.300	502.000	689.500	509.000	690.000	520.000
GR	690.600	528.000	691.500	535.000	694.400	541.000	693.300	586.000	695.700	686.000
GR	695.200	743.000	692.900	748.000	692.900	753.000	695.000	760.000	696.400	786.000
GR	698.100	846.000	711.600	886.000	0.000	0.000	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
QT	4.000	3330.000	4830.000	5490.000	7680.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION O.

X1	33.721	22.000	486.000	541.000	240.000	160.000	199.000	0.000	0.000	0.000
GR	708.300	0.000	705.700	86.000	704.900	186.000	704.100	286.000	702.600	386.000
GR	697.000	486.000	692.900	491.000	691.100	502.000	691.300	509.000	691.800	520.000
GR	692.400	528.000	693.300	535.000	696.200	541.000	695.100	586.000	697.500	686.000
GR	697.000	743.000	694.700	748.000	694.700	753.000	696.800	760.000	698.200	786.000
GR	699.900	846.000	713.400	886.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.055	250.000	.075	348.000	.050	430.000	.085	1230.000	0.000

VALLEY SECTION P

X1	33.816	32.000	348.000	430.000	400.000	980.000	500.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	900.000	0.000	0.000	0.000	0.000
GR	715.500	0.000	713.900	15.000	707.800	21.000	708.200	48.000	706.000	100.000
GR	712.100	124.000	704.100	142.000	701.900	200.000	700.600	300.000	700.500	348.000
GR	695.900	353.000	695.500	369.000	694.900	374.000	693.900	386.000	693.600	396.000
GR	693.600	400.000	694.400	405.000	694.200	415.000	695.000	426.000	699.100	430.000
GR	700.900	500.000	700.300	544.000	699.200	600.000	697.500	700.000	701.900	715.000
GR	702.400	800.000	703.000	900.000	703.800	1000.000	702.900	1100.000	707.900	1200.000
GR	709.000	1210.000	716.500	1230.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.085	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	3180.000	4590.000	5280.000	7320.000	0.000	0.000	0.000	0.000	0.000

X1	33.995	0.000	0.000	0.000	800.000	580.000	950.000	0.000	3.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	740.000	0.000	0.000	0.000	0.000
X1	34.033	0.000	0.000	0.000	200.000	200.000	200.000	0.000	.700	0.000
X3	0.000	0.000	0.000	0.000	0.000	590.000	0.000	0.000	0.000	0.000

VALLEY SECTION Q

X1	34.071	28.000	573.000	636.000	150.000	300.000	200.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	425.000	0.000	750.000	0.000	0.000	0.000	0.000
GR	716.000	0.000	710.400	21.000	710.700	38.000	710.300	73.000	708.600	173.000
GR	707.300	273.000	706.400	373.000	705.100	473.000	704.700	495.000	703.100	573.000
GR	699.600	577.000	699.800	585.000	698.600	593.000	698.700	602.000	698.300	613.000
GR	698.200	623.000	699.600	632.000	703.300	636.000	704.800	673.000	703.000	758.000
GR	704.200	853.000	704.900	904.000	699.500	910.000	699.700	932.000	704.100	939.000
GR	704.400	971.000	709.400	985.000	718.400	1033.000	0.000	0.000	0.000	0.000
NC	.050	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34.090	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.200	0.000
X3	0.000	0.000	0.000	435.000	0.000	730.000	0.000	0.000	0.000	0.000

X1	34.156	0.000	0.000	0.000	350.000	350.000	350.000	0.000	.500	0.000
X3	0.000	0.000	0.000	475.000	0.000	655.000	0.000	0.000	0.000	0.000
QT	4.000	3060.000	4400.000	5110.000	7030.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION R

X1	34.353	20.000	100.000	241.000	1010.000	880.000	1040.000	0.000	0.000	0.000
GR	727.000	0.000	714.000	36.000	712.900	70.000	713.900	100.000	715.700	153.000
GR	702.900	180.000	701.100	183.000	700.600	187.000	700.400	193.000	701.200	200.000
GR	701.300	207.000	701.800	213.000	711.000	241.000	711.100	300.000	708.800	500.000
GR	711.900	635.000	710.900	735.000	715.000	980.000	716.000	1123.000	727.400	1145.000
NC	.060	.045	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION S

X1	34.513	18.000	0.000	84.000	670.000	750.000	840.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	135.000	0.000	0.000	0.000	0.000
GR	737.600	0.000	720.600	12.000	707.300	33.000	704.700	41.000	704.900	44.000
GR	705.800	51.000	706.300	60.000	706.700	70.000	706.900	80.000	708.900	84.000
GR	710.700	109.000	712.200	184.000	713.300	284.000	713.900	384.000	716.200	696.000
GR	716.000	844.000	721.100	1024.000	722.800	1030.000	0.000	0.000	0.000	0.000

X1	34.522	23.000	585.000	661.000	50.000	50.000	50.000	0.000	-.900	0.000
X3	0.000	0.000	0.000	520.000	0.000	690.000	0.000	0.000	0.000	0.000
GR	726.300	0.000	722.800	100.000	720.900	140.000	714.400	168.000	714.200	200.000
GR	712.400	300.000	712.800	400.000	712.700	500.000	713.300	585.000	707.200	600.000
GR	706.600	610.000	706.300	615.000	705.900	625.000	705.900	630.000	706.000	635.000
GR	706.000	645.000	705.800	650.000	707.400	653.000	712.400	661.000	713.200	700.000
GR	715.600	800.000	716.300	896.000	721.700	990.000	0.000	0.000	0.000	0.000
NH	7.000	.050	120.000	.040	140.000	.050	160.000	.090	585.000	.045
NH	661.000	.050	880.000	.035	990.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION T

X1	34.645	23.000	585.000	661.000	625.000	700.000	650.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	670.000	0.000	0.000	0.000	0.000
GR	727.500	0.000	724.000	100.000	722.100	140.000	715.600	168.000	715.400	200.000
GR	713.600	300.000	714.000	400.000	713.900	500.000	714.500	585.000	708.400	600.000
GR	707.800	610.000	707.500	615.000	707.100	625.000	707.100	630.000	707.200	635.000
GR	707.200	645.000	707.000	650.000	708.600	653.000	713.600	661.000	714.400	700.000
GR	715.800	800.000	717.500	896.000	722.900	990.000	0.000	0.000	0.000	0.000

X1	34.698	0.000	0.000	0.000	275.000	270.000	280.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	360.000	0.000	710.000	0.000	0.000	0.000	0.000

FORM 1727 - 8 PER NEST PRINTED IN U.S.A.

QT	4.000	2900.000	4150.000	4880.000	6650.000	0.000	0.000	0.000	0.0 0	0.000

CONFLUENCE WITH PAINT CREEK

X1	34.725	0.000	0.000	0.000	135.000	130.000	140.000	0.000	.600	0.000
X3	0.000	0.000	0.000	385.000	0.000	690.000	0.000	0.000	0.000	0.000
QT	4.000	2530.000	3425.000	3825.000	5600.000	0.000	0.000	0.000	0.000	0.000
X1	34.751	0.000	0.000	0.000	135.000	135.000	140.000	0.000	.600	0.000
X3	0.000	0.000	0.000	410.000	0.000	665.000	0.000	0.000	0.000	0.000
X1	34.804	0.000	0.000	0.000	275.000	265.000	280.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	565.000	0.000	670.000	0.000	0.000	0.000	0.000
X1	34.857	0.000	0.000	0.000	270.000	265.000	280.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	535.000	0.000	835.000	0.000	0.000	0.000	0.000
X1	34.906	0.000	0.000	0.000	250.000	245.000	260.000	0.000	1.100	0.000
X3	0.000	0.000	0.000	587.000	0.000	665.000	0.000	0.000	0.000	0.000
NH	5.000	.025	60.000	.045	220.000	.060	353.000	.045	410.000	.060
NH	775.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION U

X1	34.910	19.000	353.000	410.000	20.000	20.000	20.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	530.000	0.000	0.000	0.000	0.000
GR	727.200	0.000	727.100	42.000	726.000	100.000	727.100	200.000	722.300	300.000
GR	721.500	336.000	719.000	353.000	715.200	359.000	719.800	370.000	713.800	380.000
GR	713.900	385.000	713.700	390.000	713.000	396.000	714.600	400.000	721.000	410.000
GR	722.700	500.000	723.600	600.000	725.300	700.000	731.100	775.000	0.000	0.000
NC	.075	.075	.038	.300	.500	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION V - DIRECTLY UNDER ROCHESTER ROAD BRIDGE

X1	35.037	68.000	430.000	472.000	625.000	650.000	670.000	0.000	0.000	0.000
GR	736.200	0.000	736.000	33.000	734.400	66.000	750.000	66.000	750.000	70.000
GR	734.400	70.000	731.400	116.000	750.000	116.000	750.000	120.000	731.400	120.000
GR	730.200	166.000	750.000	166.000	750.000	170.000	730.200	170.000	729.000	216.000
GR	750.000	216.000	750.000	220.000	729.000	220.000	728.200	256.000	729.300	286.000
GR	750.000	286.000	750.000	290.000	729.300	290.000	728.900	351.000	750.000	351.000
GR	750.000	355.000	728.900	355.000	729.200	415.000	750.000	416.000	750.000	420.000
GR	729.200	420.000	725.900	430.000	718.900	431.000	718.300	435.000	717.300	440.000
GR	716.700	445.000	716.400	450.000	716.100	455.000	716.900	460.000	717.900	470.000
GR	718.200	471.000	729.100	472.000	729.300	486.000	750.000	486.000	750.000	490.000

GR	729.800	490.000	732.000	536.000	730.000	555.000	750.000	540.000	732.000	540.000
GR	733.800	586.000	750.000	586.000	750.000	593.000	733.800	590.000	734.500	636.000
GR	750.000	636.000	750.000	640.000	736.500	647.000	735.500	686.000	750.000	686.000
GR	750.000	590.000	735.500	690.000	736.900	735.000	751.000	736.000	750.000	740.000
GR	739.900	740.000	736.900	772.000	737.900	808.000	0.000	0.000	0.000	0.000
X1	35.068	29.000	430.000	472.000	170.000	200.000	169.000	0.000	0.000	0.000
GR	735.800	0.000	735.600	33.000	734.000	68.000	731.000	118.000	729.800	168.000
GR	728.600	218.000	727.800	256.000	728.900	288.000	728.500	353.000	728.800	418.000
GR	725.500	430.000	718.500	431.000	717.900	435.000	716.900	440.000	716.300	445.000
GR	716.000	450.000	715.700	455.000	716.500	460.000	717.500	470.000	717.800	471.000
GR	728.700	472.000	729.400	488.000	731.600	538.000	733.400	588.000	734.100	638.000
GR	735.100	688.000	736.500	738.000	736.500	772.000	737.500	808.000	0.000	0.000
NC	.030	.030	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DIVERSION STREET BRIDGE - D/S FACE - SECTION W

X1	35.069	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	0.000	1.820	3.020	0.000	28.270	0.000	248.800	0.000	715.600	715.700
NC	.050	.080	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DIVERSION STREET BRIDGE - U/S FACE - SECTION W

X1	35.076	22.000	478.000	514.000	37.000	37.000	37.000	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	0.000	0.000	0.000	306.000	0.000	606.000	0.000	0.000	0.000	0.000
BT	8.000	306.000	728.500	0.000	378.000	727.700	0.000	478.000	727.900	724.400
BT	478.000	731.200	724.400	514.000	731.200	724.400	514.000	727.800	724.400	578.000
BT	728.500	0.000	606.000	729.100	0.000	0.000	0.000	0.000	0.000	0.000
GR	739.800	0.000	736.600	78.000	732.100	178.000	728.800	278.000	728.500	306.000
GR	727.700	378.000	723.600	478.000	719.300	478.000	718.700	483.000	718.400	488.000
GR	718.000	493.000	717.500	498.000	716.700	503.000	716.000	508.000	715.600	514.000
GR	722.500	514.000	728.500	578.000	729.100	608.000	730.600	678.000	733.800	778.000
GR	735.900	878.000	736.400	903.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.090	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	35.077	24.000	234.000	298.000	1.000	1.000	1.000	0.000	-.900	0.000
X3	0.000	0.000	0.000	80.000	0.000	380.000	0.000	0.000	0.000	0.000
GR	735.300	0.000	728.300	21.000	727.900	34.000	726.100	134.000	726.900	149.000
GR	723.600	234.000	717.600	243.000	716.700	250.000	716.500	255.000	716.600	260.000
GR	717.000	264.000	717.300	269.000	717.400	274.000	717.400	279.000	717.300	285.000
GR	717.300	290.000	722.900	298.000	722.500	334.000	722.500	434.000	722.500	534.000
GR	723.400	634.000	725.200	734.000	724.800	781.000	734.700	799.000	0.000	0.000

VALLEY SECTION X

X1	35.152	24.000	234.000	29..000	410.000	380.000	399.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	149.000	0.000	380.000	0.000	0.000	0.000	0.000
GR	737.900	0.000	730.900	21.000	730.500	34.000	728.700	134.000	729.500	149.000
GR	726.200	234.000	720.200	243.000	719.300	250.000	719.100	255.000	719.200	260.000
GR	719.600	266.000	719.900	269.000	720.000	274.000	720.000	279.000	719.900	285.000
GR	719.900	290.000	725.500	298.000	725.100	334.000	725.100	436.000	725.100	534.000
GR	726.000	634.000	727.800	734.000	727.400	781.000	737.300	799.000	0.000	0.000
NH	4.000	.090	270.000	.035	293.000	.047	347.000	.055	651.000	0.000

VALLEY SECTION Y

X1	35.266	23.000	293.000	347.000	610.000	600.000	600.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	282.000	0.000	600.000	0.000	0.000	0.000	0.000
GR	738.900	0.000	734.300	18.000	733.800	95.000	729.700	160.000	726.700	268.000
GR	731.500	282.000	730.100	293.000	722.300	303.000	720.300	307.000	720.100	310.000
GR	720.500	315.000	720.500	320.000	720.500	325.000	720.400	330.000	720.500	335.000
GR	720.500	338.000	722.500	343.000	725.000	347.000	725.400	391.000	725.800	495.000
GR	727.900	588.000	731.100	535.000	738.600	651.000	0.000	0.000	0.000	0.000
NC	.060	.090	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	35.323	90.000	352.200	405.500	260.000	300.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	340.100	0.000	565.000	0.000	0.000	0.000	0.000
GR	739.000	0.000	737.000	12.100	735.300	24.200	735.200	36.400	735.000	48.500
GR	734.900	60.700	734.700	72.800	734.600	85.000	734.500	97.100	734.400	109.300
GR	734.100	121.400	733.600	133.600	733.100	145.700	732.600	157.900	732.200	170.000
GR	731.800	182.100	731.300	194.300	731.200	206.400	731.100	218.600	731.200	230.700
GR	731.300	242.900	730.200	255.000	729.800	267.200	729.300	279.300	729.000	291.500
GR	728.600	303.600	728.300	315.800	729.300	327.900	731.500	340.100	730.400	352.200
GR	729.200	354.000	727.900	355.700	726.700	357.500	725.500	359.300	724.200	361.100
GR	723.200	362.800	722.500	364.600	721.900	366.400	721.700	368.200	721.700	369.900
GR	721.800	371.700	721.900	373.500	721.900	375.300	721.900	377.000	721.900	378.800
GR	721.900	380.600	721.800	382.400	721.800	384.100	721.800	385.900	721.700	387.700
GR	721.700	389.500	721.800	391.200	721.900	393.000	722.000	394.800	722.000	396.600
GR	722.600	398.300	723.200	400.100	723.800	401.900	724.800	403.700	726.000	405.500
GR	726.200	415.800	726.300	426.100	726.500	436.500	726.600	446.800	726.700	457.200
GR	726.800	467.500	726.800	477.800	726.900	488.200	726.900	498.500	726.900	508.900
GR	727.000	519.200	727.000	529.500	727.100	539.900	727.100	550.200	727.200	560.600
GR	727.300	570.900	727.500	581.300	727.700	591.600	727.800	601.900	728.000	612.300
GR	728.400	622.600	728.800	633.000	729.000	643.300	729.200	653.600	729.700	664.000
GR	730.100	674.300	730.600	684.700	731.100	695.000	734.700	705.400	739.900	715.700

X1	35.379	90.000	411.500	464.000	260.000	305.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	540.000	0.000	0.000	0.000	0.000
GR	739.200	0.000	737.600	14.100	736.400	28.300	736.200	42.500	735.900	56.700
GR	735.700	70.900	735.500	85.100	735.300	99.300	735.200	113.500	735.100	127.700
GR	734.800	141.800	734.400	156.000	734.000	170.200	733.700	184.400	733.500	198.600
GR	733.300	212.800	733.200	227.000	733.200	241.200	733.100	255.400	733.600	269.600
GR	734.000	283.700	732.100	297.900	731.600	312.100	731.100	326.300	730.600	340.500

GR	730.200	354.700	729.800	360.900	730.500	383.100	731.600	397.300	730.800	411.500
GR	729.700	413.200	728.600	415.000	727.600	416.700	726.500	418.400	725.400	420.200
GR	724.600	421.900	724.000	423.700	723.500	425.400	723.300	427.200	723.300	428.900
GR	723.300	430.700	723.400	432.400	723.400	434.200	723.400	435.900	723.300	437.700
GR	723.300	439.400	723.200	441.200	723.200	442.900	723.100	444.700	723.100	446.400
GR	723.100	448.200	723.200	449.900	723.400	451.700	723.500	453.400	723.600	455.200
GR	724.000	456.900	724.500	458.700	725.000	460.400	725.800	462.200	727.100	464.000
GR	727.300	474.500	727.500	485.000	727.700	495.600	728.000	506.100	728.100	516.700
GR	728.100	527.200	728.200	537.800	728.200	548.300	728.300	558.900	728.300	569.400
GR	728.400	580.000	728.400	590.500	728.500	601.100	728.500	611.600	728.500	622.200
GR	728.600	632.700	728.700	643.300	728.800	653.800	728.900	664.400	729.000	674.900
GR	729.500	685.500	730.200	696.000	730.200	706.600	730.300	717.100	730.600	727.700
GR	730.900	738.200	731.200	748.800	731.500	759.300	735.700	769.900	741.300	780.500
X1	35.436	90.000	470.700	522.500	260.000	300.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	575.000	0.000	0.000	0.000	0.000
GR	739.400	0.000	738.300	16.200	737.400	32.400	737.200	48.600	736.900	64.900
GR	736.600	81.100	736.300	97.300	736.000	113.600	735.900	129.800	735.700	146.000
GR	735.500	162.300	735.200	178.500	735.000	194.700	734.800	211.000	734.900	227.200
GR	734.900	243.400	734.900	259.700	735.100	275.900	735.200	292.100	736.000	308.400
GR	736.800	324.600	734.100	340.800	733.400	357.100	732.800	373.300	732.200	389.500
GR	731.800	405.800	731.400	422.000	731.400	438.200	731.800	454.500	731.100	470.700
GR	730.200	472.400	729.300	474.100	728.400	475.900	727.500	477.600	726.700	479.300
GR	726.000	481.000	725.600	482.800	725.200	484.500	724.900	486.200	724.900	487.900
GR	724.900	489.700	724.900	491.400	724.800	493.100	724.800	494.800	724.800	496.600
GR	724.700	498.300	724.600	500.000	724.600	501.700	724.500	503.500	724.400	505.200
GR	724.500	506.900	724.700	508.600	724.900	510.400	725.000	512.100	725.100	513.800
GR	725.400	515.500	725.800	517.300	726.100	519.000	726.700	520.700	728.200	522.500
GR	728.400	533.200	728.700	544.000	729.000	554.700	729.300	565.500	729.400	576.200
GR	729.500	587.000	729.500	597.800	729.600	608.500	729.600	619.300	729.700	630.000
GR	729.700	640.800	729.800	651.500	729.800	662.300	729.900	673.100	729.900	683.800
GR	729.900	694.600	729.900	705.300	729.900	716.100	730.000	726.900	730.000	737.600
GR	730.600	748.400	731.600	759.100	731.500	769.900	731.500	780.600	731.600	791.400
GR	731.700	802.200	731.700	812.900	731.800	823.700	736.600	834.400	742.700	845.200
X1	35.455	0.000	0.000	0.000	80.000	100.000	100.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	630.000	0.000	0.000	0.000	0.000
NC	.050	.075	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 2

X1	35.493	27.000	530.000	581.000	180.000	200.000	200.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	818.000	0.000	0.000	0.000	0.000
GR	739.600	0.000	738.700	30.000	736.700	130.000	735.900	230.000	737.300	330.000
GR	736.700	338.000	740.900	360.000	736.300	380.000	734.100	430.000	731.500	530.000
GR	727.700	539.000	726.600	545.000	726.400	550.000	726.300	555.000	726.000	560.000
GR	725.800	565.000	726.500	570.000	727.000	575.000	727.500	579.000	729.300	581.000
GR	730.800	630.000	731.300	730.000	731.000	807.000	733.100	818.000	732.900	830.000

GR	732.200	890.000	744.100	910.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.090	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	35.527	90.000	498.000	555.500	185.000	145.000	180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	343.400	0.000	760.000	0.000	0.000	0.000	0.000
GR	741.400	0.000	739.600	17.100	738.900	34.300	738.600	51.500	738.300	68.600
GR	738.000	85.800	737.700	103.000	737.500	120.200	737.300	137.300	737.200	154.500
GR	737.100	171.700	736.900	188.800	736.800	206.000	736.800	223.200	737.000	240.400
GR	737.000	257.500	737.100	274.700	738.200	291.900	737.500	309.100	737.900	326.200
GR	738.500	343.400	735.600	360.600	734.700	377.700	734.100	394.900	733.700	412.100
GR	733.300	429.300	733.000	446.400	732.700	463.600	732.300	480.800	732.000	498.000
GR	731.200	499.900	730.400	501.800	729.600	503.700	729.100	505.600	728.500	507.500
GR	728.200	509.400	727.900	511.400	727.700	513.300	727.500	515.200	727.400	517.100
GR	727.300	519.000	727.300	520.900	727.200	522.900	727.200	524.800	727.100	526.700
GR	727.000	528.600	726.900	530.500	726.900	532.400	726.800	534.400	726.800	536.300
GR	726.800	538.200	727.000	540.100	727.200	542.000	727.400	543.900	727.500	545.900
GR	727.700	547.800	727.900	549.700	728.500	551.600	729.500	553.500	731.300	555.500
GR	731.300	566.000	731.400	576.400	731.500	586.900	731.800	597.400	732.000	607.900
GR	732.100	618.400	732.100	628.900	732.200	639.400	732.300	649.900	732.600	660.400
GR	732.900	670.900	733.100	681.400	733.300	691.900	733.300	702.400	733.300	712.900
GR	733.300	723.400	733.300	733.900	733.300	744.400	733.300	754.900	733.200	765.400
GR	733.800	775.900	734.800	786.400	734.700	796.900	734.600	807.400	734.600	817.900
GR	734.800	828.400	735.000	838.900	735.200	849.400	739.500	859.900	744.700	870.500
X1	35.561	90.000	466.000	530.000	190.000	145.000	180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	743.300	0.000	740.200	16.000	739.300	32.100	739.100	48.200	738.900	64.200
GR	738.600	80.300	738.400	96.400	738.200	112.400	738.100	128.500	738.000	144.600
GR	737.900	160.600	737.800	176.700	737.700	192.800	737.700	208.800	737.800	224.900
GR	737.600	241.000	737.500	257.100	739.500	273.100	737.700	289.200	737.400	305.300
GR	737.400	321.300	735.000	337.400	734.200	353.500	733.800	369.500	733.500	385.600
GR	733.300	401.700	733.100	417.700	732.900	433.800	732.700	449.900	732.600	466.000
GR	731.700	468.100	730.800	470.200	730.000	472.300	729.600	474.500	729.200	476.600
GR	728.900	478.700	728.800	480.900	728.600	483.000	728.400	485.100	728.400	487.300
GR	728.300	489.400	728.200	491.500	728.100	493.700	728.100	495.800	728.000	497.900
GR	727.900	500.100	727.900	502.200	727.900	504.300	727.800	506.500	727.800	508.600
GR	727.800	510.700	728.000	512.900	728.100	515.000	728.200	517.100	728.400	519.300
GR	728.600	521.400	728.700	523.500	729.800	525.700	731.200	527.800	733.300	530.000
GR	733.000	540.000	732.800	550.000	732.800	560.000	733.100	570.100	733.200	580.100
GR	733.300	590.100	733.400	600.200	733.500	610.200	733.600	620.200	734.100	630.300
GR	734.700	640.300	735.000	650.300	735.300	660.400	735.500	670.400	735.500	680.400
GR	735.500	690.500	735.500	700.500	735.500	710.500	735.500	720.600	735.500	730.600
GR	735.900	740.600	736.500	750.700	736.500	760.700	736.500	770.700	736.700	780.800
GR	737.200	790.800	737.700	800.800	738.200	810.900	741.500	820.900	745.400	831.000
X1	35.595	90.000	434.000	504.500	185.000	145.000	180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	330.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	745.200	0.000	740.800	14.900	739.600	29.900	739.500	44.800	739.400	59.800

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GR	739.500	74.000	739.100	89.700	739.000	104.700	738.900	119.700	738.800	134.600
GR	738.700	149.600	738.600	164.600	738.600	179.500	738.500	194.500	738.500	209.500
GR	738.200	224.400	737.900	239.400	740.800	254.400	738.000	269.300	736.900	284.300
GR	736.300	299.300	734.500	314.200	733.600	329.200	733.500	344.200	733.400	359.100
GR	733.300	374.100	733.300	389.100	733.200	404.000	733.200	419.000	733.100	434.000
GR	732.100	436.300	731.100	438.700	730.400	441.000	730.100	443.300	729.800	445.700
GR	729.700	448.000	729.600	450.400	729.500	452.700	729.400	455.100	729.300	457.400
GR	729.200	459.800	729.200	462.100	729.100	464.500	729.000	466.800	728.800	469.200
GR	728.800	471.500	728.800	473.900	728.800	476.200	728.800	478.600	728.800	480.900
GR	728.800	483.300	728.900	485.600	729.000	488.000	729.100	490.300	729.200	492.700
GR	729.400	495.000	729.600	497.400	731.000	499.700	733.000	502.100	735.300	504.500
GR	734.800	514.000	734.300	523.600	734.100	533.100	734.300	542.700	734.400	552.300
GR	734.500	561.800	734.600	571.400	734.700	581.000	734.900	590.500	735.600	600.100
GR	736.400	609.700	736.900	619.200	737.300	628.800	737.600	638.400	737.600	647.900
GR	737.600	657.500	737.700	667.100	737.700	676.600	737.700	686.200	737.700	695.800
GR	738.000	705.300	738.300	714.900	738.300	724.500	738.300	734.000	738.800	743.600
GR	739.600	753.200	740.400	762.700	741.300	772.300	743.500	781.900	746.000	791.500
NC	.050	.085	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AA

X1	35.629	24.000	402.000	479.000	190.000	145.000	180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	236.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	747.100	0.000	740.100	17.000	739.800	102.000	739.300	202.000	737.900	220.000
GR	742.200	236.000	737.300	253.000	733.100	302.000	733.700	402.000	730.800	409.000
GR	730.600	412.000	730.400	422.000	730.200	432.000	729.700	442.000	729.900	452.000
GR	729.900	462.000	730.500	472.000	737.300	479.000	735.400	502.000	736.200	562.000
GR	738.500	581.000	739.700	602.000	740.300	702.000	746.700	752.000	0.000	0.000
NC	.055	.080	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AB

X1	35.800	22.000	380.000	426.000	530.000	850.000	900.000	0.000	0.000	0.000
GR	748.000	0.000	743.500	31.000	742.700	80.000	743.000	111.000	741.900	180.000
GR	743.300	190.000	738.500	230.000	736.100	280.000	735.900	380.000	733.000	388.000
GR	732.600	390.000	731.800	395.000	730.400	400.000	729.800	405.000	729.800	410.000
GR	730.900	415.000	732.500	420.000	738.100	426.000	737.000	480.000	738.500	580.000
GR	738.700	598.000	748.200	622.000	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

VALLEY SECTION AC

X1	35.980	17.000	214.000	288.000	820.000	920.000	950.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	127.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	745.700	0.000	738.300	24.000	738.700	100.000	739.000	200.000	739.200	214.000
GR	733.800	222.000	733.800	228.000	734.400	234.000	734.500	239.000	735.100	246.000
GR	735.400	253.000	735.300	259.000	734.300	264.000	734.000	270.000	734.000	273.000
GR	736.700	276.000	749.500	288.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	36.045	0.000	0.000	0.000	270.000	430.000	369.000	0.000	.200	0.000
X3	0.000	0.000	0.000	214.000	0.000	283.000	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

GRAND TRUNK WESTERN RAILROAD BRIDGE - D/S FACE - SECTION AD

X1	36.046	39.000	1000.000	1069.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	744.800	600.000	745.200	700.000	745.700	800.000	746.100	900.000	746.400	1000.000
GR	740.000	1000.000	738.000	1005.000	736.400	1010.000	736.300	1011.000	735.700	1015.000
GR	735.100	1020.000	734.900	1022.000	734.900	1023.000	734.700	1025.000	734.600	1030.000
GR	734.400	1034.000	734.500	1035.000	734.400	1040.000	734.900	1045.000	734.700	1046.000
GR	734.500	1047.000	734.000	1050.000	734.300	1055.000	735.100	1058.000	735.300	1059.000
GR	735.600	1060.000	737.100	1065.000	736.800	1069.000	746.600	1069.000	746.700	1100.000
GR	747.000	1200.000	747.300	1300.000	747.800	1400.000	748.300	1500.000	748.900	1600.000
GR	749.700	1700.000	750.500	1800.000	751.200	1900.000	751.900	2000.000	0.000	0.000
SB	.950	1.720	2.690	0.000	58.370	5.000	501.700	0.000	734.000	734.000

GRAND TRUNK WESTERN RAILROAD BRIDGE - D/S FACE - SECTION AD

X1	36.048	49.000	1000.000	1069.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	743.400	745.000	0.000	0.000	0.000	0.000	0.000
BT	17.000	600.000	744.800	0.000	700.000	745.200	0.000	800.000	745.700	0.000
BT	900.000	746.100	0.000	1000.000	746.400	743.400	1035.000	746.500	743.400	1069.000
BT	746.600	743.400	1100.000	746.700	0.000	1200.000	747.000	0.000	1300.000	747.300
BT	0.000	1400.000	747.800	0.000	1500.000	748.300	0.000	1600.000	748.900	0.000
BT	1700.000	749.700	0.000	1800.000	750.500	0.000	1900.000	751.200	0.000	2000.000
BT	751.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	744.800	600.000	745.200	700.000	745.700	800.000	746.100	900.000	746.400	1000.000
GR	740.000	1000.000	738.000	1005.000	736.400	1010.000	743.400	1010.000	743.400	1011.000
GR	736.300	1011.000	735.700	1015.000	735.100	1020.000	734.900	1022.000	743.400	1022.000
GR	743.400	1023.000	734.900	1023.000	734.700	1025.000	734.600	1030.000	734.400	1034.000
GR	743.400	1034.000	743.400	1035.000	734.500	1035.000	734.400	1040.000	734.900	1045.000
GR	734.700	1046.000	743.400	1046.000	743.400	1047.000	734.500	1047.000	734.000	1050.000
GR	734.300	1055.000	735.100	1058.000	743.400	1058.000	743.400	1059.000	735.300	1059.000
GR	735.600	1060.000	737.100	1065.000	736.800	1069.000	746.600	1069.000	746.700	1100.000
GR	747.000	1200.000	747.300	1300.000	747.800	1400.000	748.300	1500.000	748.900	1600.000
GR	749.700	1700.000	750.500	1800.000	751.200	1900.000	751.900	2000.000	0.000	0.000
NC	.090	.050	.045	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	36.049	17.000	214.000	288.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	214.000	0.000	283.000	0.000	0.000	0.000	0.000
GR	745.900	0.000	738.500	24.000	738.900	100.000	739.200	200.000	739.400	214.000
GR	734.000	222.000	734.000	228.000	734.600	234.000	734.700	239.000	735.300	246.000
GR	735.600	253.000	735.500	259.000	734.500	264.000	734.200	270.000	734.200	273.000
GR	736.900	276.000	749.700	288.000	0.000	0.000	0.000	0.000	0.000	0.000

FORM 140 CO PRINTED BY NOTARY MANIFOLD FORMS

X1	36.060	20.000	619.000	678.000	50.000	50.000	50.000	0.000	-2.500	0.000
X3	0.000	0.000	0.000	571.000	0.000	740.000	0.000	0.000	0.000	0.000
GR	761.100	0.000	752.600	78.000	749.400	178.000	747.600	278.000	747.400	363.000
GR	742.300	376.000	741.600	478.000	742.200	578.000	743.200	619.000	737.300	623.000
GR	736.600	628.000	736.900	633.000	737.000	638.000	738.200	643.000	738.900	653.000
GR	740.100	661.000	742.300	678.000	742.800	778.000	743.200	848.000	749.800	878.000
NC	.075	.055	.045	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	4.000	2520.000	3400.000	3800.000	5570.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AS

X1	36.257	20.000	619.000	678.000	980.000	700.000	1049.000	0.000	0.000	0.000
GR	761.100	0.000	752.600	78.000	749.400	178.000	747.600	278.000	747.400	363.000
GR	742.300	376.000	741.600	478.000	742.200	578.000	743.200	619.000	737.300	623.000
GR	736.600	628.000	736.900	633.000	737.000	638.000	738.200	643.000	738.900	653.000
GR	740.100	661.000	742.300	678.000	742.800	778.000	743.200	848.000	749.800	878.000

X1	36.316	90.000	495.500	553.500	335.000	295.000	310.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	720.000	0.000	0.000	0.000	0.000
GR	760.500	0.000	758.700	17.000	756.900	34.100	755.100	51.200	753.700	68.300
GR	753.100	85.400	752.600	102.500	752.000	119.600	751.400	136.600	751.000	153.700
GR	750.500	170.800	749.800	187.900	749.100	205.000	748.400	222.100	748.000	239.200
GR	747.700	256.200	747.600	273.300	747.500	290.400	743.600	307.500	743.400	324.600
GR	743.300	341.700	743.100	358.800	742.900	375.800	742.900	392.900	743.000	410.000
GR	743.100	427.100	743.200	444.200	743.300	461.300	743.700	478.400	744.100	495.500
GR	741.800	497.400	739.500	499.300	739.200	501.200	738.800	503.200	738.600	505.100
GR	738.100	507.000	738.100	509.000	738.100	510.900	738.100	512.800	738.200	514.800
GR	738.600	516.700	739.000	518.600	739.100	520.600	739.200	522.500	739.300	524.400
GR	739.400	526.400	739.500	528.300	739.800	530.200	740.000	532.200	740.300	534.100
GR	740.500	536.000	740.700	538.000	740.900	539.900	741.300	541.800	741.700	543.800
GR	742.100	545.700	742.500	547.600	743.000	549.600	743.400	551.500	743.800	553.500
GR	744.100	564.800	744.200	576.100	744.400	587.400	744.500	598.700	744.600	610.000
GR	744.600	621.300	744.500	632.700	744.500	644.000	744.500	655.300	744.400	666.600
GR	744.400	677.900	744.400	689.200	744.400	700.600	744.400	711.900	744.400	723.200
GR	744.400	734.500	744.500	745.800	744.500	757.100	744.600	768.500	744.600	779.800
GR	744.600	791.100	744.700	802.400	744.800	813.700	744.900	825.000	745.100	836.400
GR	745.900	847.700	747.200	859.000	748.600	870.300	749.800	881.600	751.000	893.000

X1	36.376	90.000	372.000	429.000	340.000	295.000	315.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000
GR	759.900	0.000	758.600	12.800	757.300	25.600	756.000	38.400	755.100	51.300
GR	754.600	64.100	754.200	76.900	753.700	89.700	753.300	102.600	752.900	115.400
GR	752.300	128.200	751.300	141.100	750.300	153.900	749.300	166.700	748.500	179.500
GR	747.900	192.400	747.800	205.200	747.700	218.000	745.000	230.800	744.800	243.700
GR	744.600	256.500	744.400	269.300	744.300	282.200	744.200	295.000	744.200	307.800
GR	744.300	320.600	744.400	333.500	744.500	346.300	744.800	359.100	745.100	372.000
GR	743.400	373.800	741.700	375.700	741.300	377.600	741.000	379.500	740.600	381.400

FORM 1415-GB PRINTED BY ROTARY MANIFOLD, OHMS
UNITED PRINTING

GR	739.400	383.500	739.400	385.200	739.300	387.100	739.500	389.000	739.300	390.700
GR	739.600	392.800	739.900	394.700	739.900	396.600	740.000	398.500	740.100	400.400
GR	740.100	402.300	740.200	404.200	740.500	406.100	740.700	408.000	741.000	409.900
GR	741.100	411.800	741.300	413.700	741.400	415.600	741.800	417.500	742.400	419.400
GR	743.000	421.300	743.600	423.200	744.200	425.100	744.800	427.000	745.400	429.000
GR	745.900	444.900	746.200	460.900	746.400	476.800	746.600	492.800	746.800	508.800
GR	746.700	524.700	746.600	540.700	746.500	556.700	746.400	572.600	746.300	588.600
GR	746.200	604.600	746.100	620.500	746.000	636.500	746.100	652.500	746.100	668.400
GR	746.100	684.400	746.100	700.400	746.200	716.300	746.200	732.300	746.200	748.300
GR	746.300	764.200	746.400	780.200	746.600	796.200	746.700	812.100	747.000	828.100
GR	747.900	844.100	749.100	860.000	750.400	876.000	751.400	892.000	752.200	908.000
NH	4.000	.050	248.500	.015	259.600	.040	304.500	.050	923.000	0.000
X1	36.434	90.000	248.500	304.500	335.000	295.000	310.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	395.000	0.000	0.000	0.000	0.000
GR	759.300	0.000	758.500	8.500	757.800	17.100	757.000	25.700	756.400	34.200
GR	756.100	42.800	755.800	51.400	755.400	59.900	755.100	68.500	754.800	77.100
GR	754.100	85.600	752.800	94.200	751.500	102.800	750.200	111.300	749.000	119.900
GR	748.100	128.500	748.000	137.100	747.800	145.600	746.400	154.200	746.200	162.800
GR	746.000	171.300	745.800	179.900	745.600	188.500	745.400	197.000	745.500	205.600
GR	745.500	214.200	745.600	222.700	745.700	231.300	745.800	239.900	746.000	248.500
GR	745.000	250.300	743.900	252.200	743.500	254.000	743.100	255.900	742.600	257.800
GR	740.800	259.600	740.700	261.500	740.600	263.400	740.400	265.200	740.500	267.100
GR	740.600	269.000	740.800	270.800	740.800	272.700	740.800	274.600	740.800	276.400
GR	740.900	278.300	741.000	280.200	741.200	282.000	741.400	283.900	741.600	285.800
GR	741.700	287.600	741.800	289.500	741.900	291.400	742.300	293.200	743.100	295.100
GR	743.900	297.000	744.700	298.800	745.400	300.700	746.200	302.600	747.000	304.500
GR	747.700	325.100	748.100	345.700	748.400	366.300	748.800	386.900	749.000	407.500
GR	748.800	428.100	748.700	448.800	748.500	469.400	748.300	490.000	748.200	510.600
GR	748.000	531.200	747.800	551.800	747.700	572.500	747.700	593.100	747.700	613.700
GR	747.800	634.300	747.800	654.900	747.800	675.500	747.900	696.200	747.900	716.800
GR	748.000	737.400	748.200	758.000	748.300	778.600	748.500	799.200	749.000	819.900
GR	749.900	840.500	751.000	861.100	752.200	881.700	752.900	902.300	753.400	923.000
X1	36.465	0.000	0.000	0.000	170.000	145.000	159.000	0.000	.600	0.000
X3	0.000	0.000	0.000	179.000	0.000	364.000	0.000	0.000	0.000	0.000
X1	36.474	0.000	0.000	0.000	55.000	50.000	52.000	0.000	.200	0.000
X3	0.000	0.000	0.000	192.000	0.000	351.000	0.000	0.000	0.000	0.000
X1	36.484	0.000	0.000	0.000	55.000	50.000	52.000	0.000	.200	0.000
X3	0.000	0.000	0.000	205.000	0.000	338.000	0.000	0.000	0.000	0.000
NH	5.000	.030	41.000	.050	125.000	.015	136.000	.040	180.000	.050
NH	938.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	98.000	205.000	98.000	230.000	0.000

VALLEY SECTION AF

X1	36.494	23.000	125.000	180.000	55.000	50.000	52.000	0.000	0.000	0.000
GR	758.700	0.000	756.700	41.000	748.500	63.000	746.700	100.000	747.000	125.000
GR	744.900	134.000	742.200	136.000	741.600	142.000	741.700	147.000	741.600	151.000
GR	741.700	156.000	742.400	162.000	742.400	168.000	746.600	180.000	749.500	200.000
GR	751.300	300.000	750.400	400.000	749.400	500.000	749.500	600.000	749.600	700.000
GR	750.500	800.000	754.500	900.000	754.600	938.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	103.000	200.000	103.000	250.000	0.000
X1	36.498	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	108.000	195.000	108.000	270.000	0.000
X1	36.502	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	113.000	190.000	113.000	290.000	0.000
X1	36.506	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	118.000	185.000	118.000	310.000	0.000
X1	36.509	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	123.000	180.000	123.000	330.000	0.000
X1	36.513	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	128.000	175.000	128.000	350.000	0.000
X1	36.517	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	133.000	170.000	133.000	370.000	0.000
X1	36.521	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	135.000	168.000	135.000	379.000	0.000
X1	36.522	0.000	0.000	0.000	10.000	10.000	9.000	0.000	.020	0.000
NC	.030	.030	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	135.000	168.000	135.000	380.000	0.000

AVON ROAD BRIDGE - D/S FACE - SECTION AG. BRIDGE IS LOCATED JUST EAST OF INTERSECTION OF AVON AND LIVERNOIS ROADS.

X1	36.523	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	0.000	1.790	3.020	0.000	30.580	0.000	348.600	0.000	742.100	741.900

FORM 140 REPRINTED BY ROYAL MINUTE OLD FORMS

ET	0.000	6.10	6.100	6.100	8.100	300.000	335.000	300.000	545.000	0.000

AVON ROAD BRIDGE - U/S FACE - SECTION AG. BRIDGE IS LOCATED JUST

EAST OF INTERSECTION OF AVON AND LIVERNOIS ROADS.

X1	36.535	18.000	300.000	333.000	70.000	70.000	70.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	754.600	755.000	0.000	0.000	0.000	0.000	0.000
BT	11.000	0.000	759.800	0.000	100.000	758.200	0.000	180.000	757.000	0.000
BT	200.000	756.900	0.000	300.000	755.800	753.500	300.000	756.200	753.500	333.000
BT	755.600	753.000	333.000	755.000	753.000	400.000	754.400	0.000	500.000	753.500
BT	0.000	545.000	753.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	759.800	0.000	758.200	100.000	757.000	180.000	756.900	200.000	755.800	300.000
GR	743.200	300.000	743.600	305.000	742.500	310.000	742.100	315.000	742.600	320.000
GR	742.600	325.000	742.500	330.000	742.400	333.000	749.100	333.000	750.000	353.000
GR	751.800	453.000	750.900	545.000	753.000	545.000	0.000	0.000	0.000	0.000
NC	.040	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	134.000	169.000	134.000	380.000	0.000

X1	36.536	23.000	125.000	180.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	759.200	0.000	757.200	41.000	749.000	63.000	747.200	100.000	747.500	125.000
GR	745.400	134.000	742.700	136.000	742.100	142.000	742.200	147.000	742.100	151.000
GR	742.200	156.000	742.900	162.000	742.900	168.000	749.100	180.000	750.000	200.000
GR	751.800	300.000	750.900	400.000	749.900	500.000	750.000	600.000	750.100	700.000
GR	751.000	800.000	755.000	900.000	755.100	938.000	0.000	0.000	0.000	0.000
NC	.040	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	129.000	189.000	129.000	380.000	0.000

X1	36.538	0.000	0.000	0.000	5.000	20.000	10.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	119.000	224.000	119.000	380.000	0.000

X1	36.542	0.000	0.000	0.000	10.000	35.000	20.000	0.000	-.100	0.000
ET	0.000	6.100	6.100	6.100	8.100	109.000	259.000	109.000	380.000	0.000

X1	36.546	0.000	0.000	0.000	10.000	35.000	20.000	0.000	0.000	0.000

X1	36.564	21.000	281.000	347.000	40.000	150.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	520.000	0.000	0.000	0.000	0.000
GR	758.500	0.000	757.500	124.000	750.300	133.000	750.100	200.000	748.100	281.000
GR	744.600	295.000	744.500	291.000	742.800	292.000	751.800	297.000	742.000	301.000
GR	742.200	307.000	742.700	312.000	743.200	317.000	743.500	323.000	744.600	328.000
GR	748.300	347.000	750.200	400.000	750.900	500.000	755.300	520.000	755.000	600.000
GR	757.200	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.045	.045	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PRINTED BY ROTARY MANIFOLD FORMS

LIVERNOIS ROAD BRIDGE - D/S FACE

X1	36.565	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	520.000	0.000	0.000	0.000	0.000
SB	0.000	1.700	3.040	0.000	29.320	0.000	316.700	0.000	741.600	741.800

LIVERNOIS ROAD BRIDGE - U/S FACE - SECTION AH

X1	36.573	25.000	591.000	657.000	47.000	47.000	47.000	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	0.000	0.000	0.000	535.000	0.000	835.000	0.000	0.000	0.000	0.000
BT	8.000	535.000	755.300	0.000	602.500	754.400	752.400	602.500	755.000	752.400
BT	636.500	754.500	751.900	636.500	754.000	751.900	688.600	753.700	0.000	774.700
BT	754.100	0.000	835.000	754.900	0.000	0.000	0.000	0.000	0.000	0.000
GR	763.900	0.000	762.400	86.100	761.000	172.200	759.800	258.200	758.400	344.300
GR	757.000	435.500	750.100	443.000	749.900	510.000	747.900	591.000	744.400	598.000
GR	744.300	601.000	742.500	602.000	741.600	602.500	741.600	605.800	742.300	611.100
GR	741.800	615.400	742.600	619.700	743.500	624.000	743.900	628.300	744.200	632.700
GR	744.200	636.500	748.100	657.000	750.000	710.000	750.700	810.000	754.900	835.000
NH	7.000	.020	58.000	.060	133.000	.035	281.000	.015	291.000	.035
NH	297.000	.042	347.000	.045	700.000	0.000	0.000	0.000	0.000	0.000

X1	36.574	21.000	281.000	347.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	220.000	0.000	520.000	0.000	0.000	0.000	0.000
GR	758.300	0.000	757.300	124.000	750.100	133.000	749.900	200.000	747.900	281.000
GR	744.400	288.000	744.300	291.000	742.600	292.000	741.600	297.000	741.800	301.000
GR	742.000	307.000	742.500	312.000	743.000	317.000	743.600	323.000	744.400	328.000
GR	748.100	347.000	750.000	400.000	750.700	500.000	754.800	520.000	754.800	600.000
GR	757.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.020	58.000	.060	133.000	.035	281.000	.015	291.000	.035
NH	297.000	.042	347.000	.045	700.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AI

X1	36.636	21.000	281.000	347.000	310.000	325.000	329.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000
GR	759.500	0.000	758.500	124.000	751.300	133.000	751.100	200.000	749.100	281.000
GR	745.600	288.000	745.500	291.000	743.800	292.000	742.800	297.000	743.000	301.000
GR	743.200	307.000	743.700	312.000	744.200	317.000	744.800	323.000	745.600	328.000
GR	749.300	347.000	751.200	400.000	751.900	500.000	756.000	520.000	756.000	600.000
GR	758.200	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.080	210.000	.050	332.000	.045	382.000	.075	600.000	.050
NH	882.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2490.000	3355.000	3750.000	5500.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AJ

X1	36.939	22.000	332.000	382.000	1010.000	950.000	1600.000	0.000	0.000	0.000
GR	765.100	0.000	760.700	32.000	752.600	82.000	753.000	182.000	753.800	282.000
GR	750.600	332.000	747.800	337.000	746.900	342.000	746.600	352.000	746.100	362.000
GR	746.500	372.000	747.800	377.000	750.700	382.000	751.600	482.000	752.900	582.000
GR	753.300	664.000	761.400	677.000	762.000	782.000	766.800	838.000	766.900	862.000
GR	762.000	872.000	763.300	882.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.075	150.000	.050	350.000	.080	654.000	.042	710.000	.075
NH	825.000	.045	1125.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AK

X1	37.300	26.000	654.000	710.000	1380.000	1640.000	1890.000	0.000	0.000	0.000
GR	769.000	0.000	761.500	25.000	756.500	45.000	755.700	125.000	755.400	225.000
GR	754.400	325.000	753.200	425.000	753.900	525.000	753.200	625.000	752.900	654.000
GR	751.500	659.000	750.700	665.000	749.500	675.000	749.400	685.000	749.400	695.000
GR	750.800	705.000	751.200	709.000	753.500	710.000	753.800	725.000	755.200	803.000
GR	764.000	825.000	760.200	848.000	763.000	861.000	763.500	925.000	764.400	1025.000
GR	769.100	1125.000	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

VALLEY SECTION AL

X1	37.692	23.000	530.000	595.000	1420.000	1420.000	2090.000	0.000	0.000	0.000
GR	775.700	0.000	762.200	45.000	761.400	60.000	758.900	160.000	757.900	260.000
GR	756.700	360.000	758.900	460.000	757.600	530.000	753.400	534.000	753.300	540.000
GR	753.000	550.000	753.000	560.000	752.800	580.000	752.400	590.000	756.600	595.000
GR	754.800	660.000	756.300	707.000	771.700	760.000	772.700	820.000	774.600	838.000
GR	770.200	849.000	770.900	860.000	772.600	980.000	0.000	0.000	0.000	0.000
NC	.090	.080	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2470.000	3320.000	3710.000	5445.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AM

X1	38.174	29.000	624.000	674.000	2275.000	2150.000	2540.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	777.400	0.000	772.900	100.000	771.300	200.000	770.300	249.000	770.300	300.000
GR	767.700	400.000	764.800	500.000	756.200	600.000	765.800	624.000	762.700	629.000
GR	761.200	640.000	761.500	650.000	762.200	660.000	762.900	669.000	765.100	674.000
GR	765.500	700.000	767.800	770.000	774.400	800.000	775.500	900.000	774.700	1000.000
GR	775.500	1100.000	775.800	1200.000	775.900	1300.000	774.800	1400.000	775.900	1500.000
GR	777.200	1600.000	782.300	1684.000	784.200	1693.000	784.800	1700.000	0.000	0.000

X1	38.183	0.000	0.000	0.000	30.000	50.000	50.000	0.000	.100	0.000
X3	0.000	0.000	0.000	375.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	38.255	23.000	613.000	667.000	220.000	370.000	380.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	167.000	0.000	667.000	0.000	0.000	0.000	0.000
GR	781.700	0.000	776.000	30.000	773.000	67.000	767.700	167.000	767.700	267.000
GR	767.100	367.000	767.200	467.000	766.700	567.000	765.200	613.000	763.100	619.000
GR	762.100	637.000	762.200	647.000	762.800	657.000	763.200	664.000	765.400	667.000
GR	765.700	722.000	776.400	739.000	777.400	767.000	777.300	867.000	776.300	967.000
GR	775.600	1013.000	777.800	1067.000	779.000	1167.000	0.000	0.000	0.000	0.000
X1	38.391	29.000	624.000	674.000	620.000	580.000	670.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	800.000	0.000	0.000	0.000	0.000
GR	779.800	0.000	775.300	100.000	773.700	200.000	772.700	249.000	772.700	300.000
GR	770.100	400.000	767.200	500.000	768.600	600.000	768.200	624.000	765.100	629.000
GR	763.600	640.000	763.900	650.000	764.600	660.000	765.300	669.000	767.500	674.000
GR	767.900	700.000	770.200	770.000	776.800	800.000	777.900	900.000	777.100	1000.000
GR	777.900	1100.000	778.200	1200.000	778.300	1300.000	777.200	1400.000	778.300	1500.000
GR	779.600	1600.000	784.700	1684.000	786.600	1693.000	787.200	1700.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AN

X1	38.467	23.000	613.000	667.000	330.000	370.000	400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	784.100	0.000	778.400	30.000	775.400	67.000	770.100	167.000	770.100	267.000
GR	769.500	367.000	769.600	467.000	769.100	567.000	767.600	613.000	765.500	619.000
GR	764.500	637.000	764.600	647.000	765.200	657.000	765.600	664.000	767.800	667.000
GR	768.100	722.000	778.800	739.000	779.800	767.000	779.700	867.000	778.700	967.000
GR	778.000	1013.000	780.200	1067.000	781.400	1167.000	0.000	0.000	0.000	0.000
X1	38.520	0.000	0.000	0.000	220.000	330.000	280.000	0.000	.600	0.000
X3	0.000	0.000	0.000	70.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	38.566	0.000	0.000	0.000	90.000	320.000	240.000	0.000	.500	0.000
X3	0.000	0.000	0.000	120.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	38.660	26.000	398.000	460.000	430.000	250.000	500.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	365.000	0.000	775.000	0.000	0.000	0.000	0.000
GR	781.400	0.000	779.500	60.000	780.000	160.000	778.200	260.000	776.700	365.000
GR	771.500	373.000	770.400	398.000	769.000	400.000	768.900	405.000	768.900	410.000
GR	768.700	415.000	768.700	420.000	768.700	425.000	768.300	430.000	767.700	435.000
GR	767.100	440.000	766.600	445.000	768.200	457.000	771.500	460.000	770.900	560.000
GR	771.100	620.000	771.700	745.000	771.700	805.000	779.400	860.000	781.400	892.000
GR	782.500	965.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	8.000	.060	398.000	.045	460.000	.070	620.000	.085	745.000	.070
NH	805.000	.050	876.000	.020	908.000	.050	965.000	0.000	0.000	0.000

PRINTED IN U.S.A.

VALLEY SECTION AO

X1	38.827	26.000	398.000	460.000	810.000	870.000	880.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	500.000	0.000	0.000	0.000	0.000
GR	782.700	0.000	780.800	60.000	781.300	160.000	779.500	260.000	778.000	365.000
GR	772.800	373.000	771.700	398.000	770.300	400.000	770.200	405.000	770.200	410.000
GR	770.000	415.000	770.000	420.000	770.000	425.000	769.600	430.000	769.000	435.000
GR	768.400	440.000	767.900	445.000	769.500	457.000	772.800	460.000	772.200	560.000
GR	772.400	620.000	773.000	745.000	773.000	805.000	780.700	860.000	782.700	892.000
GR	783.800	965.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	38.836	0.000	0.000	0.000	50.000	80.000	50.000	0.000	-.100	0.000
X3	0.000	0.000	0.000	375.000	0.000	490.000	0.000	0.000	0.000	0.000
NC	.100	.100	.040	0.000	0.000	1.000	0.000	0.000	0.000	0.000
X1	38.840	17.000	390.000	450.000	20.000	30.000	19.000	0.000	0.000	0.000
GR	778.900	355.000	773.200	390.000	770.000	400.000	768.100	400.000	768.500	405.000
GR	768.500	410.000	767.800	415.000	768.100	420.000	768.300	425.000	768.100	430.000
GR	767.800	435.000	768.100	439.300	770.000	439.300	773.200	450.000	778.800	500.000
GR	779.000	600.000	779.800	650.000	0.000	0.000	0.000	0.000	0.000	0.000

CROOKS ROAD BRIDGE - D/S FACE - SECTION AP

X1	38.841	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.100	.100	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.820	3.020	0.000	37.610	0.000	312.200	0.000	767.800	767.800

CROOKS ROAD BRIDGE - U/S FACE - SECTION AP

X1	38.848	0.000	0.000	0.000	44.000	44.000	44.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	8.000	355.000	778.900	0.000	400.000	778.700	770.000	400.000	778.700	776.100
BT	439.300	778.800	776.100	439.300	778.800	770.000	500.000	778.800	0.000	600.000
BT	779.000	0.000	650.000	779.800	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2460.000	3305.000	3690.000	5420.000	0.000	0.000	0.000	0.000	0.000
X1	38.849	0.000	0.000	0.000	1.000	1.000	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	38.906	30.000	938.000	1000.000	330.000	270.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	790.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	777.300	0.000	778.100	100.000	779.400	200.000	778.500	300.000	777.900	390.000
GR	778.600	450.000	774.400	490.000	772.500	590.000	772.900	690.000	773.300	795.000

GR	772.700	895.000	771.800	938.000	770.300	942.000	770.100	945.000	770.200	950.000
GR	769.200	955.000	769.300	960.000	769.700	965.000	769.200	970.000	769.500	975.000
GR	769.100	980.000	769.000	985.000	769.900	990.000	774.000	1000.000	773.400	1100.000
GR	773.600	1160.000	774.200	1285.000	774.200	1345.000	781.900	1400.000	783.900	1432.000
X1	38.972	0.000	0.000	0.000	210.000	470.000	350.000	0.000	1.400	0.000
X3	0.000	0.000	0.000	540.000	0.000	1270.000	0.000	0.000	0.000	0.000
X1	39.040	0.000	0.000	0.000	200.000	350.000	360.000	0.000	1.400	0.000
X3	0.000	0.000	0.000	710.000	0.000	1180.000	0.000	0.000	0.000	0.000

VALLEY SECTION AQ

X1	39.123	29.000	938.000	1000.000	300.000	450.000	439.000	0.000	0.000	0.000
GR	781.800	0.000	782.600	100.000	783.900	200.000	783.000	300.000	782.400	390.000
GR	783.100	450.000	778.900	490.000	777.000	590.000	777.400	690.000	777.800	795.000
GR	777.200	895.000	776.300	938.000	774.800	942.000	774.600	945.000	774.700	950.000
GR	773.700	955.000	773.800	960.000	774.200	965.000	773.700	970.000	774.000	975.000
GR	773.600	980.000	773.500	985.000	774.400	990.000	784.600	1000.000	788.100	1090.000
GR	789.000	1190.000	789.300	1290.000	789.500	1390.000	793.700	1405.000	0.000	0.000
NC	.090	.065	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	39.153	0.000	0.000	0.000	140.000	170.000	159.000	0.000	-.800	0.000
X3	0.000	0.000	0.000	535.000	0.000	0.000	0.000	0.000	0.000	0.000

HAMLIN ROAD BRIDGE - D/S FACE

X1	39.154	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	535.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.980	0.000	44.280	0.000	287.800	0.000	772.400	772.700
NC	.090	.065	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

HAMLIN ROAD BRIDGE - U/S FACE - SECTION AR

X1	39.160	25.000	1116.000	1161.500	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	778.900	779.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	13.000	700.000	780.200	0.000	723.000	779.800	0.000	823.000	779.000	0.000
BT	923.000	780.300	0.000	1023.000	781.200	0.000	1123.000	782.500	780.000	1161.500
BT	783.100	780.500	1223.000	784.200	0.000	1323.000	785.300	0.000	1423.000	786.400
BT	0.000	1523.000	788.300	0.000	1623.000	791.700	0.000	1723.000	797.000	0.000
GR	780.200	700.000	777.200	700.000	775.900	768.000	776.300	868.000	776.700	973.000
GR	776.100	1073.000	775.200	1116.000	773.700	1120.000	773.500	1123.000	772.800	1123.000
GR	772.500	1128.000	772.900	1133.000	772.400	1138.000	772.400	1143.000	772.600	1148.000
GR	772.700	1153.000	773.500	1158.000	774.200	1161.500	783.100	1161.500	784.200	1223.000

GR	785.500	1323.000	786.400	1423.000	788.300	1523.000	791.700	1623.000	797.000	1723.000
NC	.090	.065	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	39.161	29.000	938.000	1000.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	535.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	780.700	0.000	781.500	100.000	782.800	200.000	781.900	300.000	781.300	390.000
GR	782.000	450.000	777.800	490.000	775.900	590.000	776.300	690.000	776.700	795.000
GR	776.100	895.000	775.200	938.000	773.700	942.000	773.500	945.000	773.600	950.000
GR	772.600	955.000	772.700	960.000	773.100	965.000	772.600	970.000	772.900	975.000
GR	772.500	980.000	772.400	985.000	773.300	990.000	783.500	1000.000	787.000	1090.000
GR	787.900	1190.000	788.200	1290.000	788.400	1390.000	792.600	1405.000	0.000	0.000
NH	5.000	.050	100.000	.090	258.000	.047	300.000	.075	800.000	.050
NH	1088.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2340.000	3270.000	3655.000	5370.000	0.000	0.000	0.000	0.000	0.000
X1	39.241	19.000	258.000	300.000	400.000	390.000	425.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	650.000	0.000	0.000	0.000	0.000
GR	791.200	0.000	789.300	100.000	783.700	175.000	778.100	200.000	778.400	258.000
GR	775.600	261.000	774.300	270.000	773.700	280.000	774.200	290.000	774.800	298.000
GR	777.100	300.000	778.700	400.000	778.000	500.000	779.600	600.000	779.800	700.000
GR	780.600	800.000	784.400	900.000	786.400	1000.000	794.100	1088.000	0.000	0.000
X1	39.321	0.000	0.000	0.000	400.000	390.000	425.000	0.000	1.400	0.000
X3	0.000	0.000	0.000	0.000	0.000	500.000	0.000	0.000	0.000	0.000

VALLEY SECTION AS

X1	39.403	19.000	258.000	300.000	400.000	390.000	429.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	650.000	0.000	0.000	0.000	0.000
GR	794.000	0.000	792.100	100.000	786.500	175.000	780.900	200.000	781.200	258.000
GR	778.400	261.000	777.100	270.000	776.500	280.000	777.000	290.000	777.600	298.000
GR	779.900	300.000	781.500	400.000	780.800	500.000	782.400	600.000	782.600	700.000
GR	783.400	800.000	787.200	900.000	789.200	1000.000	796.900	1088.000	0.000	0.000
NC	.090	.050	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AT

X1	39.571	21.000	411.000	455.000	880.000	970.000	890.000	0.000	0.000	0.000
GR	790.100	0.000	782.700	15.000	782.300	55.000	781.600	155.000	782.300	255.000
GR	781.900	355.000	782.300	411.000	778.900	419.000	776.700	430.000	776.000	435.000
GR	776.500	445.000	779.000	454.000	783.600	455.000	786.100	555.000	786.100	655.000
GR	790.700	755.000	793.800	790.000	791.900	855.000	790.900	955.000	792.500	1055.000
GR	796.700	1123.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	39.641	0.000	0.000	0.000	360.000	280.000	370.000	0.000	1.700	0.000

X1	39.711	0.000	0.000	0.000	365.000	280.000	370.000	0.000	1.700	0.000
X1	39.781	0.000	0.000	0.000	360.000	280.000	370.000	0.000	1.700	0.000
X1	39.852	0.000	0.000	0.000	365.000	285.000	370.000	0.000	1.600	0.000
X1	39.922	0.000	0.000	0.000	360.000	280.000	370.000	0.000	1.700	0.000
X1	39.992	0.000	0.000	0.000	365.000	280.000	370.000	0.000	1.700	0.000
X3	0.000	0.000	0.000	50.000	0.000	650.000	0.000	0.000	0.000	0.000
NH	4.000	.080	100.000	.055	434.000	.042	495.000	.070	694.000	0.000

VALLEY SECTION AU

X1	40.062	21.000	434.000	495.000	365.000	285.000	370.000	0.000	0.000	0.000
GR	806.800	0.000	803.900	37.000	799.900	91.000	798.300	100.000	794.400	169.000
GR	793.100	268.000	792.300	361.000	791.200	434.000	789.400	439.000	788.600	444.000
GR	788.200	449.000	788.200	454.000	788.100	459.000	787.800	464.000	788.000	469.000
GR	788.300	474.000	788.800	477.000	791.100	478.000	803.300	495.000	803.800	594.000
GR	804.500	694.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.050	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AV

X1	40.200	22.000	343.000	395.000	300.000	910.000	730.000	0.000	0.000	0.000
GR	806.800	0.000	803.900	37.000	799.900	91.000	798.300	100.000	794.400	169.000
GR	794.400	169.000	795.800	243.000	794.400	325.000	792.400	343.000	790.400	347.000
GR	790.100	354.000	789.900	359.000	789.600	364.000	789.700	369.000	789.700	374.000
GR	789.300	379.000	789.700	383.000	790.600	387.000	793.100	395.000	793.500	451.000
GR	805.900	469.000	807.900	472.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	40.349	0.000	0.000	0.000	700.000	590.000	789.000	0.000	2.100	0.000
X3	0.000	0.000	0.000	180.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.463	0.000	0.000	0.000	540.000	450.000	600.000	0.000	1.600	0.000
X3	0.000	0.000	0.000	288.000	0.000	398.000	0.000	0.000	0.000	0.000
X1	40.501	0.000	0.000	0.000	180.000	150.000	200.000	0.000	.500	0.000
X3	0.000	0.000	0.000	338.000	0.000	398.000	0.000	0.000	0.000	0.000

X1	40.510	16.000	125.000	195.000	50.000	40.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	133.000	0.000	168.000	0.000	0.000	0.000	0.000
GR	810.400	0.000	803.600	20.000	803.500	25.000	797.100	125.000	794.900	128.000
GR	793.900	133.000	793.900	140.000	793.800	145.000	793.600	155.000	793.600	165.000
GR	794.300	175.000	795.000	178.000	799.200	195.000	803.600	225.000	809.400	250.000
GR	811.600	260.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2155.000	2810.000	3210.000	4665.000	0.000	0.000	0.000	0.000	0.000

X1	40.512	15.000	125.000	195.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	140.000	0.000	169.300	0.000	0.000	0.000	0.000
GR	810.400	0.000	803.600	20.000	803.500	25.000	797.100	125.000	794.900	128.000
GR	793.900	133.000	793.900	140.000	793.800	145.000	793.600	155.000	793.600	165.000
GR	794.300	175.000	795.000	178.000	799.200	195.000	803.600	225.000	809.400	250.000
NC	.030	.030	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ADAMS ROAD BRIDGE - DOWNSTREAM FACE

X1	40.513	14.000	300.000	329.300	1.000	1.000	1.000	0.000	0.000	0.000
BT	7.000	0.000	819.200	0.000	100.000	816.800	0.000	200.000	815.400	0.000
BT	300.000	815.500	813.600	329.300	815.700	813.800	400.000	817.000	0.000	500.000
BT	820.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	819.200	0.000	816.800	100.000	815.400	200.000	815.500	300.000	794.400	300.000
GR	794.800	305.000	795.000	310.000	793.600	315.000	794.500	320.000	795.000	325.000
GR	795.500	329.300	815.700	329.300	817.000	400.000	820.000	500.000	0.000	0.000

ADAMS ROAD BRIDGE - U/S FACE - SECTION AW

X1	40.519	14.000	300.000	329.300	34.000	34.000	34.000	0.000	0.000	0.000
BT	7.000	0.000	819.200	0.000	100.000	816.800	0.000	200.000	815.400	0.000
BT	300.000	815.500	813.600	329.300	815.700	813.800	400.000	817.000	0.000	500.000
BT	820.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	819.200	0.000	816.800	100.000	815.400	200.000	815.500	300.000	794.500	300.000
GR	794.900	305.000	795.100	310.000	793.700	315.000	794.600	320.000	795.100	325.000
GR	795.600	329.300	815.700	329.300	817.000	400.000	820.000	500.000	0.000	0.000
NC	.040	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	40.520	15.000	125.000	195.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	139.000	0.000	170.000	0.000	0.000	0.000	0.000
GR	810.500	0.000	803.700	20.000	803.600	25.000	797.200	125.000	795.000	128.000
GR	794.000	133.000	794.000	140.000	793.900	145.000	793.700	155.000	793.700	165.000
GR	794.400	175.000	795.100	178.000	799.300	195.000	803.700	225.000	809.500	250.000

X1	40.521	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	129.000	0.000	180.000	0.000	0.000	0.000	0.000

FORM 1495-CD PRINTED BY ROTARY LITHO/ FORMS

X1	40.531	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	0.000
X3	0.000	0.000	0.000	79.000	0.000	230.000	0.000	0.000	0.000	0.000
X1	40.568	0.000	0.000	0.000	190.000	210.000	200.000	0.000	.800	0.000
X1	40.644	0.000	0.000	0.000	380.000	430.000	400.000	0.000	1.500	0.000

VALLEY SECTION AX

X1	40.727	16.000	125.000	195.000	420.000	475.000	439.000	0.000	0.000	0.000
GR	814.700	0.000	807.900	20.000	807.800	25.000	801.400	125.000	799.200	128.000
GR	798.200	133.000	798.200	140.000	798.100	145.000	797.900	155.000	797.900	165.000
GR	798.600	175.000	799.300	178.000	803.500	195.000	807.900	225.000	813.700	250.000
GR	815.900	260.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.841	0.000	0.000	0.000	380.000	400.000	420.000	0.000	2.000	0.000
X1	40.888	0.000	0.000	0.000	380.000	400.000	420.000	0.000	2.000	0.000
NC	.070	.070	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AY

X1	40.968	20.000	118.000	163.000	380.000	400.000	420.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	690.000	0.000	0.000	0.000	0.000
GR	831.700	0.000	812.300	47.000	809.600	100.000	807.900	118.000	805.000	122.000
GR	803.900	133.000	803.900	140.000	804.000	149.000	804.500	155.000	804.700	161.000
GR	807.700	163.000	808.500	200.000	809.000	300.000	810.400	400.000	810.700	500.000
GR	810.200	600.000	811.000	700.000	814.300	800.000	823.700	880.000	824.800	900.000
NC	.070	.070	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AZ

X1	41.093	21.000	73.000	133.000	830.000	1.000	660.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	690.000	0.000	0.000	0.000	0.000
GR	826.300	0.000	814.300	17.000	810.000	43.000	808.800	73.000	804.800	77.000
GR	804.600	90.000	804.600	99.000	804.700	108.000	805.500	117.000	806.500	130.000
GR	809.600	133.000	809.500	217.000	809.900	317.000	809.000	417.000	810.400	517.000
GR	810.700	617.000	810.200	717.000	811.000	817.000	814.300	917.000	823.700	997.000
GR	824.800	1017.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.080	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE WITH GALLOWAY CREEK

X1	41.405	13.000	300.000	381.000	1640.000	1530.000	1650.000	0.000	0.000	0.000
GR	830.000	0.000	820.000	40.000	812.300	300.000	809.700	314.000	809.500	333.000
GR	808.400	342.000	808.200	349.000	808.300	356.000	808.400	366.000	808.200	376.000
GR	810.400	381.000	820.000	705.000	830.000	915.000	0.000	0.000	0.000	0.000
OT	4.000	2150.000	2800.000	3200.000	4650.000	0.000	0.000	0.000	0.000	0.000

10 50 100YR

VALLEY SECTION BA - SECTION 40.763 FROM PONTIAC TOWNSHIP F.I.S.

X1	41.460	18.000	469.000	550.000	290.000	270.000	290.000	0.000	0.000	0.000
GR	830.200	0.000	827.500	50.000	823.500	150.000	821.600	250.000	818.800	350.000
GR	815.200	450.000	813.100	469.000	810.500	483.000	810.300	502.000	809.200	511.000
GR	809.000	518.000	809.100	525.000	809.200	535.000	809.000	545.000	811.200	550.000
GR	816.700	650.000	821.700	690.000	831.100	750.000	0.000	0.000	0.000	0.000
NC	.100	.100	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BB - SECTION 41.019 FROM PONTIAC TOWNSHIP F.I.S.

X1	41.710	19.000	400.000	491.000	1120.000	1150.000	1320.000	0.000	0.000	0.000
GR	832.700	0.000	825.200	100.000	825.400	150.000	823.000	200.000	820.200	300.000
GR	817.800	400.000	814.000	402.000	813.300	410.000	815.300	418.000	815.700	438.000
GR	814.600	458.000	812.300	470.000	811.200	480.000	811.900	485.000	813.600	490.000
GR	814.700	491.000	817.000	500.000	819.900	560.000	834.500	590.000	0.000	0.000
NC	.062	.090	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BC - SECTION 41.161 FROM PONTIAC TOWNSHIP F.I.S.

X1	41.866	17.000	110.000	197.000	710.000	850.000	820.000	0.000	0.000	0.000
GR	836.200	0.000	834.500	17.000	821.300	55.000	817.900	110.000	816.100	120.000
GR	815.400	133.000	815.700	145.000	815.400	155.000	815.300	165.000	815.200	175.000
GR	814.900	185.000	815.800	190.000	819.700	197.000	821.200	210.000	822.300	310.000
GR	825.400	410.000	836.500	470.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	41.918	90.000	98.700	180.200	225.000	280.000	277.000	0.000	0.000	0.000
GR	838.200	0.000	837.700	3.400	837.100	6.800	836.600	10.200	836.100	13.600
GR	835.200	17.000	834.000	20.400	832.700	23.800	831.500	27.200	830.300	30.600
GR	829.100	34.000	827.800	37.400	826.600	40.800	825.400	44.200	824.100	47.600
GR	823.300	51.000	822.900	54.400	822.500	57.800	822.100	61.200	821.800	64.600
GR	821.500	68.100	821.300	71.500	821.000	74.900	820.800	78.300	820.500	81.700
GR	820.300	85.100	820.000	88.500	819.800	91.900	819.500	95.300	819.300	98.700
GR	818.700	101.400	818.200	104.100	817.600	106.800	817.200	109.600	816.900	112.300
GR	816.700	115.000	816.600	117.700	816.500	120.400	816.500	123.100	816.500	125.900
GR	816.600	128.600	816.600	131.300	816.500	134.000	816.500	136.700	816.400	139.400
GR	816.400	142.200	816.400	144.900	816.400	147.600	816.400	150.300	816.400	153.000
GR	816.300	155.700	816.300	158.500	816.200	161.200	816.200	163.900	816.200	166.600
GR	816.200	169.300	816.700	172.000	817.400	174.800	819.000	177.500	820.500	180.200
GR	821.400	188.500	821.800	196.800	821.900	205.200	822.000	213.500	822.100	221.800

GR	822.500	230.100	822.500	238.500	822.800	246.800	823.100	255.100	823.400	263.400
GR	823.600	271.800	823.900	280.100	824.200	288.400	824.700	296.700	825.100	305.100
GR	825.500	313.400	825.900	321.700	826.300	330.000	826.700	338.400	827.100	346.700
GR	827.500	355.000	827.900	363.300	828.300	371.700	829.400	380.000	830.900	388.300
GR	832.400	396.600	833.800	405.000	835.300	413.300	836.800	421.600	838.300	430.000
X1	41.971	90.000	87.500	163.500	225.000	280.000	278.000	0.000	0.000	0.000
GR	840.300	0.000	839.600	3.000	838.900	6.000	838.200	9.000	837.600	12.000
GR	836.600	15.000	835.500	18.100	834.400	21.100	833.200	24.100	832.100	27.100
GR	830.900	30.100	829.800	33.100	828.600	36.200	827.500	39.200	826.400	42.200
GR	825.500	45.200	824.900	48.200	824.300	51.200	823.700	54.300	823.300	57.300
GR	823.100	60.300	822.800	63.300	822.500	66.300	822.300	69.300	822.000	72.400
GR	821.700	75.400	821.500	78.400	821.200	81.400	821.000	84.400	820.700	87.500
GR	820.100	90.000	819.500	92.500	818.900	95.000	818.500	97.600	818.100	100.100
GR	817.800	102.600	817.700	105.200	817.600	107.700	817.500	110.200	817.500	112.800
GR	817.600	115.300	817.600	117.800	817.500	120.400	817.400	122.900	817.400	125.400
GR	817.500	128.000	817.500	130.500	817.500	133.000	817.500	135.600	817.500	138.100
GR	817.500	140.600	817.400	143.200	817.400	145.700	817.400	148.200	817.500	150.800
GR	817.500	153.300	817.900	155.800	818.500	158.400	819.900	160.900	821.400	163.500
GR	822.000	171.000	822.400	178.600	822.500	186.100	822.600	193.600	822.800	201.200
GR	822.900	208.700	823.400	216.300	823.800	223.800	824.300	231.400	824.700	238.900
GR	825.100	246.500	825.600	254.000	826.100	261.600	826.600	269.100	827.100	276.700
GR	827.700	284.200	828.200	291.800	828.700	299.300	829.300	306.900	829.800	314.400
GR	830.300	322.000	830.900	329.500	831.400	337.100	832.400	344.600	833.700	352.200
GR	835.000	359.700	836.300	367.300	837.600	374.800	838.900	382.400	840.200	390.000
X1	42.023	90.000	76.200	146.700	225.000	280.000	277.000	0.000	0.000	0.000
GR	842.300	0.000	841.500	2.600	840.700	5.200	839.800	7.800	839.000	10.500
GR	838.100	13.100	837.000	15.700	836.000	18.400	834.900	21.000	833.900	23.600
GR	832.800	26.200	831.700	28.900	830.700	31.500	829.600	34.100	828.600	36.800
GR	827.700	39.400	826.900	42.000	826.100	44.600	825.300	47.300	824.900	49.900
GR	824.600	52.500	824.300	55.200	824.100	57.800	823.800	60.400	823.500	63.100
GR	823.200	65.700	823.000	68.300	822.700	70.900	822.400	73.600	822.100	76.200
GR	821.500	78.600	820.900	80.900	820.300	83.200	819.700	85.600	819.200	87.900
GR	818.800	90.300	818.700	92.600	818.700	95.000	818.600	97.300	818.600	99.700
GR	818.500	102.000	818.500	104.400	818.400	106.700	818.400	109.100	818.500	111.400
GR	818.500	113.800	818.600	116.100	818.700	118.500	818.700	120.800	818.600	123.200
GR	818.600	125.500	818.600	127.900	818.500	130.200	818.600	132.600	818.700	134.900
GR	818.900	137.300	819.100	139.600	819.500	142.000	820.800	144.300	822.300	146.700
GR	822.700	153.500	822.900	160.300	823.100	167.000	823.200	173.800	823.400	180.600
GR	823.600	187.300	824.200	194.100	824.800	200.900	825.400	207.700	826.100	214.400
GR	826.700	221.200	827.300	228.000	827.900	234.800	828.600	241.500	829.200	248.300
GR	829.900	255.100	830.500	261.900	831.200	268.600	831.800	275.400	832.500	282.200
GR	833.200	289.000	833.800	295.700	834.500	302.500	835.500	309.300	836.500	316.100
GR	837.600	322.800	838.700	329.600	839.800	336.400	840.900	343.200	842.000	350.000
NC	.120	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BD - SECTION 41.336 FROM PONTIAC TOWNSHIP F.I.S.

X1	42.076	14.000	65.000	130.000	225.000	280.000	278.000	0.000	0.000	0.000
GR	844.400	0.000	826.700	41.000	823.600	65.000	820.000	77.000	819.700	85.000
GR	819.400	95.000	819.900	105.000	819.700	115.000	820.600	126.000	823.200	130.000
GR	824.200	165.000	833.300	235.000	837.200	265.000	843.900	310.000	0.000	0.000
X1	42.086	0.000	0.000	0.000	50.000	48.000	52.000	0.000	.100	0.000
X1	42.096	0.000	0.000	0.000	51.000	48.000	52.000	0.000	.200	0.000
X1	42.106	90.000	85.000	150.000	51.000	48.000	53.000	0.000	0.000	0.000
GR	844.100	0.000	843.100	2.900	842.200	5.800	841.200	8.700	840.300	11.700
GR	839.300	14.600	838.400	17.500	837.400	20.500	836.500	23.400	835.500	26.300
GR	834.700	29.300	833.900	32.200	833.100	35.100	832.300	38.100	831.400	41.000
GR	830.600	43.900	829.800	46.800	829.000	49.800	828.100	52.700	827.700	55.600
GR	827.400	58.600	827.000	61.500	826.700	64.400	826.400	67.400	826.100	70.300
GR	825.800	73.200	825.500	76.200	825.200	79.100	824.800	82.000	824.500	85.000
GR	823.800	87.100	823.100	89.300	822.500	91.400	821.800	93.600	821.100	95.800
GR	820.600	97.900	820.500	100.100	820.300	102.300	820.200	104.400	820.100	106.600
GR	820.000	108.800	819.900	110.900	819.800	113.100	819.800	115.300	819.900	117.400
GR	819.900	119.600	820.100	121.800	820.200	123.900	820.300	126.100	820.300	128.300
GR	820.300	130.400	820.300	132.600	820.200	134.800	820.300	136.900	820.400	139.100
GR	820.500	141.300	820.700	143.400	821.100	145.600	822.300	147.800	823.700	150.000
GR	823.800	157.000	824.000	164.100	824.200	171.200	824.400	178.300	824.600	185.400
GR	825.000	192.500	825.800	199.500	826.500	206.600	827.200	213.700	828.000	220.800
GR	828.700	227.900	829.500	234.900	830.200	242.000	831.000	249.100	831.700	256.200
GR	832.500	263.300	833.200	270.400	833.900	277.400	834.700	284.500	835.400	291.600
GR	836.200	298.700	836.900	305.800	837.700	312.900	838.500	319.900	839.300	327.000
GR	840.100	334.100	841.000	341.200	841.800	348.300	842.600	355.400	843.500	362.500
X1	42.135	90.000	105.000	170.000	163.000	144.000	158.000	0.000	0.000	0.000
GR	843.900	0.000	842.900	3.600	842.000	7.200	841.000	10.800	840.100	14.400
GR	839.200	18.100	838.200	21.700	837.300	25.300	836.400	28.900	835.400	32.500
GR	834.800	36.200	834.100	39.800	833.400	43.400	832.700	47.000	832.100	50.600
GR	831.400	54.300	830.700	57.900	830.000	61.500	829.300	65.100	828.900	68.700
GR	828.600	72.400	828.200	76.000	827.900	79.600	827.500	83.200	827.200	86.800
GR	826.900	90.500	826.500	94.100	826.200	97.700	825.800	101.300	825.500	105.000
GR	824.800	107.100	824.000	109.300	823.300	111.400	822.600	113.600	821.800	115.800
GR	821.200	117.900	821.100	120.100	820.900	122.300	820.800	124.400	820.600	126.600
GR	820.500	128.800	820.300	130.900	820.300	133.100	820.200	135.300	820.200	137.400
GR	820.300	139.600	820.400	141.800	820.600	143.900	820.800	146.100	820.900	148.300
GR	820.900	150.400	820.900	152.600	820.800	154.800	820.800	156.900	820.800	159.100
GR	820.900	161.300	821.000	163.400	821.700	165.600	822.900	167.800	824.200	170.000
GR	824.400	178.100	824.600	186.300	824.800	194.500	825.000	202.600	825.300	210.800
GR	825.700	218.900	826.500	227.100	827.200	235.300	827.900	243.400	828.600	251.600
GR	829.300	259.800	830.000	267.900	830.700	276.100	831.400	284.300	832.100	292.400
GR	832.800	300.600	833.500	308.800	834.200	316.900	834.900	325.100	835.600	333.300

GR	836.300	341.400	837.000	34..000	837.800	337.800	.38.300	365.900	83..300	374.100
GR	840.000	382.300	840.800	390.400	841.500	398.600	842.300	406.800	843.000	415.000

X1	42.165	90.000	125.000	190.000	162.000	144.000	157.000	0.000	0.000	0.000
GR	843.600	0.000	842.700	4.300	841.800	8.600	840.800	12.900	839.900	17.200
GR	839.000	21.500	838.100	25.800	837.200	30.100	836.300	34.400	835.300	38.700
GR	834.800	43.100	834.300	47.400	833.700	51.700	833.200	56.000	832.700	60.300
GR	832.100	64.600	831.600	68.900	831.100	73.200	830.500	77.500	830.100	81.800
GR	829.800	86.200	829.400	90.500	829.000	94.800	828.700	99.100	828.300	103.400
GR	827.900	107.700	827.600	112.000	827.200	116.300	826.800	120.600	826.500	125.000
GR	825.700	127.100	824.900	129.300	824.100	131.500	823.400	133.600	822.600	135.800
GR	821.900	137.900	821.700	140.100	821.500	142.300	821.300	144.400	821.100	146.600
GR	820.900	148.800	820.800	150.900	820.700	153.100	820.700	155.300	820.600	157.400
GR	820.600	159.600	820.800	161.800	821.000	163.900	821.200	166.100	821.400	168.300
GR	821.500	170.400	821.400	172.600	821.300	174.800	821.300	176.900	821.200	179.100
GR	821.200	181.300	821.400	183.400	822.300	185.600	823.400	187.800	824.700	190.000
GR	824.900	199.200	825.100	208.500	825.300	217.700	825.500	226.900	825.900	236.200
GR	826.500	245.400	827.200	254.700	827.800	263.900	828.500	273.200	829.200	282.400
GR	829.900	291.700	830.500	300.900	831.200	310.200	831.900	319.400	832.500	328.700
GR	833.200	337.900	833.900	347.200	834.500	356.400	835.200	365.700	835.800	374.900
GR	836.500	384.200	837.200	393.400	837.800	402.700	838.500	411.900	839.200	421.200
GR	839.900	430.400	840.600	439.700	841.300	448.900	842.000	458.200	842.600	467.500
NC	.120	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BE - SECTION 41.459 FROM PONTIAC TOWNSHIP F.I.S.

X1	42.195	13.000	145.000	210.000	163.000	143.000	158.000	0.000	0.000	0.000
GR	843.400	0.000	835.300	45.000	827.500	145.000	822.600	158.000	821.300	170.000
GR	821.000	180.000	822.200	190.000	821.500	203.000	825.200	210.000	826.200	255.000
GR	831.800	345.000	837.800	445.000	842.300	520.000	0.000	0.000	0.000	0.000

X1	42.244	90.000	171.200	231.700	200.000	212.000	260.000	0.000	0.000	0.000
GR	843.900	0.000	842.800	5.900	841.800	11.800	840.800	17.700	839.700	23.600
GR	838.700	29.500	837.700	35.400	836.800	41.300	836.000	47.200	835.100	53.100
GR	834.600	59.000	834.100	64.900	833.700	70.800	833.200	76.700	832.700	82.600
GR	832.300	88.500	831.800	94.400	831.300	100.300	830.900	106.200	830.600	112.100
GR	830.200	118.100	829.900	124.000	829.500	129.900	829.200	135.800	828.800	141.700
GR	828.500	147.600	828.100	153.500	827.800	159.400	827.400	165.300	827.100	171.200
GR	826.300	173.200	825.500	175.200	824.700	177.200	823.900	179.300	823.200	181.300
GR	822.500	183.300	822.300	185.300	822.100	187.300	821.900	189.500	821.700	191.400
GR	821.500	193.400	821.400	195.400	821.300	197.400	821.300	199.400	821.300	201.400
GR	821.200	203.500	821.500	205.500	821.800	207.500	822.100	209.500	822.400	211.500
GR	822.600	213.500	822.600	215.600	822.600	217.600	822.500	219.600	822.500	221.600
GR	822.400	223.600	822.600	225.600	823.600	227.700	824.700	229.700	825.700	231.700
GR	825.900	241.400	826.100	251.100	826.200	260.800	826.400	270.600	826.800	280.300
GR	827.300	290.000	827.700	299.700	828.200	309.400	828.600	319.100	829.100	328.900
GR	829.500	338.600	830.000	348.300	830.400	358.000	830.800	367.700	831.200	377.400
GR	831.700	387.200	832.100	396.900	832.500	406.600	833.000	416.300	833.400	426.000

GR	835.900	435.700	834.400	445.500	834.900	455.200	835.400	464.900	836.500	474.600
GR	837.900	484.300	839.200	494.000	840.600	503.800	842.000	513.500	843.400	523.200
X1	42.294	90.000	197.500	253.500	200.000	213.000	260.000	0.000	0.000	0.000
GR	844.400	0.000	843.200	6.800	842.000	13.600	840.900	20.400	839.700	27.200
GR	838.500	34.000	837.400	40.800	836.600	47.600	835.800	54.400	834.900	61.200
GR	834.400	68.100	833.800	74.900	833.300	81.700	832.700	88.500	832.200	95.300
GR	831.600	102.100	831.000	108.900	830.500	115.700	830.100	122.500	829.800	129.300
GR	829.500	136.200	829.200	143.000	828.800	149.800	828.500	156.600	828.200	163.400
GR	827.900	170.200	827.600	177.000	827.300	183.800	827.000	190.600	826.700	197.500
GR	825.900	199.300	825.200	201.200	824.400	203.000	823.600	204.900	823.000	206.800
GR	822.500	208.600	822.300	210.500	822.100	212.400	821.900	214.200	821.700	216.100
GR	821.600	218.000	821.600	219.800	821.500	221.700	821.500	223.600	821.500	225.400
GR	821.500	227.300	821.800	229.200	822.100	231.000	822.500	232.900	822.800	234.800
GR	823.100	236.600	823.300	238.500	823.300	240.400	823.300	242.200	823.300	244.100
GR	823.300	246.000	823.500	247.800	824.400	249.700	825.400	251.600	826.300	253.500
GR	826.400	262.600	826.500	271.700	826.600	280.700	826.800	289.800	827.000	298.900
GR	827.300	308.000	827.600	317.100	827.900	326.200	828.100	335.300	828.400	344.400
GR	828.600	353.500	828.800	362.600	829.100	371.700	829.300	380.800	829.500	389.900
GR	829.800	399.000	830.000	408.100	830.200	417.200	830.500	426.300	830.800	435.400
GR	831.100	444.500	831.500	453.600	831.900	462.700	832.200	471.800	833.900	480.900
GR	836.000	490.000	838.100	499.100	840.200	508.200	842.300	517.300	844.500	526.500
X1	42.343	90.000	223.700	275.200	200.000	212.000	260.000	0.000	0.000	0.000
GR	844.900	0.000	843.600	7.700	842.300	15.400	841.000	23.100	839.600	30.800
GR	838.300	38.500	837.100	46.200	836.300	54.000	835.600	61.700	834.800	69.400
GR	834.100	77.100	833.500	84.800	832.900	92.500	832.200	100.300	831.600	108.000
GR	830.900	115.700	830.300	123.400	829.700	131.100	829.200	138.800	829.000	146.500
GR	828.700	154.300	828.400	162.000	828.200	169.700	827.900	177.400	827.700	185.100
GR	827.400	192.800	827.100	200.600	826.900	208.300	826.600	216.000	826.300	223.700
GR	825.600	225.400	824.800	227.100	824.100	228.800	823.400	230.600	822.800	232.300
GR	822.500	234.000	822.300	235.700	822.100	237.400	821.900	239.100	821.800	240.900
GR	821.700	242.600	821.700	244.300	821.700	246.000	821.700	247.700	821.700	249.400
GR	821.700	251.200	822.100	252.900	822.500	254.600	822.900	256.300	823.200	258.000
GR	823.600	259.700	823.900	261.500	824.000	263.200	824.100	264.900	824.100	266.600
GR	824.200	268.300	824.400	270.000	825.200	271.800	826.000	273.500	826.900	275.200
GR	826.900	283.700	827.000	292.200	827.000	300.600	827.100	309.100	827.200	317.600
GR	827.400	326.100	827.500	334.600	827.600	343.100	827.600	351.500	827.600	360.000
GR	827.700	368.500	827.700	377.000	827.800	385.500	827.800	394.000	827.900	402.400
GR	827.900	410.900	827.900	419.400	828.000	427.900	828.000	436.400	828.100	444.900
GR	828.400	453.300	828.600	461.800	828.800	470.300	829.100	478.800	831.200	487.300
GR	834.100	495.800	836.900	504.200	839.800	512.700	842.700	521.200	845.500	529.700

VALLEY SECTION BF - SECTION 41.630 FROM PONTIAC TOWNSHIP F.I.S.

X1	42.392	14.000	250.000	297.000	200.000	213.000	260.000	0.000	0.000	0.000
GR	845.500	0.000	837.000	50.000	828.600	150.000	826.000	250.000	822.800	257.000
GR	821.900	265.000	822.000	275.000	824.700	285.000	825.200	292.000	827.500	297.000

GR	827.500	550.000	825.500	450.000	826.000	488.000	846.700	553.000	0.000	0.000
X1	42.451	90.000	224.500	271.500	275.000	243.000	313.000	0.000	0.000	0.000
GR	845.200	0.000	843.900	7.700	842.700	15.400	841.200	23.200	839.700	30.900
GR	838.300	38.700	836.900	46.400	836.000	54.100	835.100	61.900	834.200	69.600
GR	833.300	77.400	832.500	85.100	831.800	92.800	831.200	100.600	830.500	108.300
GR	829.900	116.100	829.300	123.800	828.800	131.600	828.500	139.300	828.300	147.000
GR	828.100	154.800	828.000	162.500	827.800	170.300	827.600	178.000	827.500	185.700
GR	827.300	193.500	827.100	201.200	827.000	209.000	826.800	216.700	826.600	224.500
GR	825.800	226.000	825.000	227.600	824.100	229.100	823.500	230.700	823.200	232.300
GR	823.000	233.800	822.900	235.400	822.700	237.000	822.600	238.500	822.500	240.100
GR	822.500	241.700	822.500	243.200	822.500	244.800	822.500	246.400	822.500	247.900
GR	822.500	249.500	822.900	251.100	823.200	252.600	823.500	254.200	823.900	255.800
GR	824.200	257.300	824.500	258.900	824.600	260.500	824.700	262.000	824.700	263.600
GR	824.800	265.200	825.200	266.700	826.000	268.300	826.800	269.900	827.700	271.500
GR	827.700	279.500	827.800	287.600	827.900	295.600	828.000	303.700	828.100	311.800
GR	828.200	319.800	828.200	327.900	828.100	336.000	828.000	344.000	827.800	352.100
GR	827.700	360.200	827.600	368.200	827.500	376.300	827.300	384.400	827.200	392.400
GR	827.100	400.500	827.000	408.600	826.800	416.600	826.700	424.700	826.700	432.800
GR	826.800	440.800	826.800	448.900	826.900	457.000	827.000	465.000	829.500	473.100
GR	832.900	481.200	836.200	489.200	839.600	497.300	843.000	505.400	846.300	513.500
X1	42.496	45.000	490.000	537.000	206.000	183.000	234.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	587.000	0.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	50.000	836.000	80.000	834.000	95.000	832.000	110.000
GR	832.000	145.000	832.000	150.000	830.000	170.000	827.200	490.000	826.300	491.500
GR	825.300	493.100	824.400	494.600	823.900	496.200	823.600	497.800	823.500	499.300
GR	823.300	500.900	823.200	502.500	823.100	504.000	823.000	505.600	823.000	507.200
GR	823.000	508.700	823.000	510.300	822.900	511.900	823.000	513.400	823.100	515.000
GR	823.200	516.600	823.500	518.100	823.700	519.700	823.900	521.300	824.100	522.800
GR	824.300	524.400	824.400	526.000	824.400	527.500	824.400	529.100	824.400	530.700
GR	825.000	532.200	825.900	533.800	826.800	535.400	827.800	537.000	830.000	652.000
GR	832.000	657.000	834.000	672.000	836.000	682.000	838.000	697.000	840.000	712.000
X1	42.510	90.000	199.000	246.000	69.000	61.000	78.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	80.000	0.000	325.000	0.000	0.000	0.000	0.000
GR	844.900	0.000	843.800	6.800	842.800	13.700	841.400	20.500	839.900	27.400
GR	838.400	34.300	837.100	41.100	836.000	48.000	834.900	54.800	833.800	61.700
GR	832.700	68.600	831.800	75.400	831.200	82.300	830.600	89.200	830.000	96.000
GR	829.400	102.900	829.100	109.700	828.700	116.600	828.500	123.500	828.400	130.300
GR	828.300	137.200	828.200	144.100	828.100	150.900	828.000	157.800	827.800	164.600
GR	827.700	171.500	827.600	178.400	827.500	185.200	827.400	192.100	827.300	199.000
GR	826.400	200.500	825.400	202.100	824.500	203.600	824.000	205.200	823.700	206.800
GR	823.600	208.300	823.400	209.900	823.300	211.500	823.200	213.000	823.100	214.600
GR	823.100	216.200	823.100	217.700	823.100	219.300	823.000	220.900	823.100	222.400
GR	823.100	224.000	823.300	225.600	823.600	227.100	823.800	228.700	824.000	230.300
GR	824.200	231.800	824.400	233.400	824.500	235.000	824.500	236.500	824.500	238.100
GR	824.500	239.700	825.100	241.200	826.000	242.800	826.900	244.400	827.900	246.000

GR	828.000	254.200	828.200	262.500	828.400	270.700	828.500	279.000	828.700	287.300
GR	828.900	295.500	829.000	303.800	828.900	312.100	828.800	320.300	828.700	328.600
GR	828.600	336.900	828.500	345.100	828.500	353.400	828.400	361.700	828.300	369.900
GR	828.200	378.200	828.100	386.500	828.000	394.700	827.900	403.000	827.900	411.300
GR	827.900	419.500	828.000	427.800	828.000	436.100	828.100	444.300	830.400	452.600
GR	833.600	460.900	836.700	469.100	839.800	477.400	842.900	485.700	846.000	494.000

X1	42.570	90.000	173.500	220.500	275.000	244.000	313.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	165.000	0.000	310.000	0.000	0.000	0.000	0.000
GR	844.500	0.000	843.800	5.900	842.900	11.900	841.500	17.900	840.100	23.900
GR	838.600	29.900	837.200	35.800	835.900	41.800	834.700	47.800	833.400	53.800
GR	832.200	59.800	831.100	65.800	830.500	71.700	830.000	77.700	829.500	83.700
GR	829.000	89.700	828.800	95.700	828.600	101.700	828.500	107.600	828.500	113.600
GR	828.400	119.600	828.400	125.600	828.300	131.600	828.300	137.600	828.200	143.500
GR	828.200	149.500	828.100	155.500	828.100	161.500	828.000	167.500	828.000	173.500
GR	826.900	175.000	825.900	176.600	824.800	178.100	824.400	179.700	824.200	181.300
GR	824.100	182.800	824.000	184.400	823.900	186.000	823.800	187.500	823.700	189.100
GR	823.700	190.700	823.700	192.200	823.600	193.800	823.600	195.400	823.600	196.900
GR	823.700	198.500	823.800	200.100	824.000	201.600	824.100	203.200	824.200	204.800
GR	824.300	206.300	824.400	207.900	824.400	209.500	824.300	211.000	824.300	212.600
GR	824.200	214.200	825.000	215.700	826.000	217.300	827.000	218.900	828.000	220.500
GR	828.300	228.900	828.600	237.400	828.800	245.800	829.100	254.300	829.400	262.800
GR	829.600	271.200	829.800	279.700	829.800	288.200	829.700	296.600	829.600	305.100
GR	829.600	313.600	829.500	322.000	829.400	330.500	829.400	339.000	829.300	347.400
GR	829.200	355.900	829.200	364.400	829.100	372.800	829.100	381.300	829.100	389.800
GR	829.100	398.200	829.100	406.700	829.100	415.200	829.200	423.600	831.400	432.100
GR	834.200	440.600	837.100	449.000	840.000	457.500	842.900	466.000	845.600	474.500
NC	.120	.090	.050	.500	1.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BG - SECTION 41.879 FROM PONTIAC TOWNSHIP F.I.S.

X1	42.629	16.000	148.000	195.000	275.000	244.000	312.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	111.000	0.000	221.000	0.000	0.000	0.000	0.000
GR	844.300	0.000	843.200	10.000	830.500	55.000	828.600	76.000	828.700	148.000
GR	825.000	153.000	824.500	160.000	824.200	170.000	824.500	180.000	824.000	189.000
GR	828.300	195.000	830.700	255.000	830.300	355.000	830.300	405.000	842.500	445.000
GR	845.300	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

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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

CLINTON RIVER - PROJECT

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
31.557	0.00	0.00	661.80	4520.00	673.33	11.53	.87	0.00	674.20	0.00	332.74	736.27
31.557	0.00	0.00	661.80	6970.00	675.29	13.49	.58	0.00	675.87	0.00	523.06	1686.03
31.557	0.00	0.00	661.80	7870.00	675.79	13.99	.54	0.00	676.33	0.00	525.63	1948.20
31.557	0.00	0.00	661.80	10800.00	677.13	15.33	.48	0.00	677.61	0.00	532.52	2657.16
31.566	0.00	0.00	661.90	4470.00	673.50	11.60	.82	.01	674.32	2.00	349.66	758.79
31.566	0.00	0.00	661.90	6890.00	675.37	13.47	.58	.00	675.95	2.00	522.93	1672.65
31.566	0.00	0.00	661.90	7780.00	675.86	13.96	.54	.00	676.40	2.00	525.47	1932.20
31.566	0.00	0.00	661.90	10700.00	677.19	15.29	.48	.00	677.67	2.00	532.32	2636.90
31.725	0.00	0.00	664.40	4470.00	675.37	10.97	.42	.12	675.80	2.98	465.00	1051.48
31.725	0.00	0.00	664.40	6890.00	676.70	12.30	.47	.03	677.17	2.98	465.00	1667.87
31.725	0.00	0.00	664.40	7780.00	677.09	12.69	.48	.02	677.57	2.98	465.00	1847.59
31.725	0.00	0.00	664.40	10700.00	678.26	13.86	.51	.01	678.77	2.98	465.00	2392.28
31.745	0.00	0.00	665.30	4470.00	675.24	9.94	1.26	.42	676.50	8.26	135.72	511.74
31.745	0.00	0.00	665.30	6890.00	676.68	11.38	1.07	.30	677.75	8.26	410.00	951.47
31.745	0.00	0.00	665.30	7780.00	677.15	11.85	.89	.20	678.04	8.26	410.00	1143.18
31.745	0.00	0.00	665.30	10700.00	678.40	13.10	.69	.09	679.08	8.26	410.00	1658.24
31.746	0.00	0.00	665.30	4470.00	675.25	9.95	1.26	.00	676.51	0.00	136.30	512.44
31.746	0.00	0.00	665.30	6890.00	676.68	11.38	1.07	.00	677.76	0.00	410.00	950.83
31.746	0.00	0.00	665.30	7780.00	677.15	11.85	.89	.00	678.04	0.00	410.00	1144.08
31.746	0.00	0.00	665.30	10700.00	678.40	13.10	.69	.00	679.09	0.00	410.00	1656.18
31.752	677.50	677.40	665.60	4470.00	675.15	9.55	1.92	.33	677.06	8.33	348.63	409.56
31.752	677.50	677.40	665.60	6890.00	678.32	12.72	.69	0.00	679.01	8.33	448.02	1710.22
31.752	677.50	677.40	665.60	7780.00	678.74	13.14	.69	0.00	679.43	8.33	462.12	1902.71
31.752	677.50	677.40	665.60	10700.00	679.68	14.08	.79	0.00	680.47	8.33	474.00	2343.87

31.753	0.00	0.00	665.60	4470.00	676.11	10.51	1.18	.22	677.29	0.00	578.35	7.505
31.753	0.00	0.00	665.60	6890.00	678.27	12.67	.79	.05	679.06	0.00	446.30	1687.22
31.753	0.00	0.00	665.60	7780.00	678.69	13.09	.80	.06	679.49	0.00	460.28	1877.21
31.753	0.00	0.00	665.60	10700.00	679.60	14.00	.94	.08	680.54	0.00	474.00	2308.58
31.829	0.00	0.00	666.80	4370.00	677.96	11.16	.15	.31	678.11	3.00	630.20	2485.79
31.829	0.00	0.00	666.80	6730.00	679.52	12.72	.17	.19	679.68	3.00	648.73	3480.86
31.829	0.00	0.00	666.80	7630.00	679.94	13.14	.18	.19	680.12	3.00	653.78	3756.90
31.829	0.00	0.00	666.80	10460.00	681.05	14.25	.22	.22	681.27	3.00	664.00	4487.45

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	31.936	0.00	0.00	667.40	4370.00	678.31	10.91	.28	.06	678.58	1.06	120.00	1038.18
	31.936	0.00	0.00	667.40	6730.00	679.85	12.45	.47	.15	680.32	1.06	120.00	1224.03
	31.936	0.00	0.00	667.40	7630.00	680.28	12.88	.56	.19	680.84	1.06	120.00	1275.49
	31.936	0.00	0.00	667.40	10460.00	681.39	13.99	.86	.32	682.25	1.06	120.00	1408.61
	31.937	0.00	0.00	667.40	4370.00	678.31	10.91	.28	.00	678.58	0.00	120.00	1038.35
	31.937	0.00	0.00	667.40	6730.00	679.86	12.46	.47	.00	680.33	0.00	120.00	1224.12
	31.937	0.00	0.00	667.40	7630.00	680.29	12.89	.56	.00	680.84	0.00	120.00	1275.57
	31.937	0.00	0.00	667.40	10460.00	681.39	13.99	.86	.00	682.25	0.00	120.00	1408.60
	31.940	682.10	680.40	667.40	4370.00	678.34	10.94	.32	0.00	678.66	0.00	111.00	961.21
	31.940	682.10	680.40	667.40	6730.00	680.22	12.82	.51	0.00	680.73	0.00	119.00	1171.85
	31.940	682.10	680.40	667.40	7630.00	680.83	13.43	.58	0.00	681.41	0.00	120.00	1244.78
	31.940	682.10	680.40	667.40	10460.00	682.51	15.11	.80	0.00	683.32	0.00	221.55	1472.01
	31.941	0.00	0.00	667.40	4370.00	678.41	11.01	.27	.02	678.68	0.00	120.00	1050.20
	31.941	0.00	0.00	667.40	6730.00	680.33	12.93	.43	.03	680.76	0.00	120.00	1281.18
	31.941	0.00	0.00	667.40	7630.00	680.95	13.55	.49	.03	681.44	0.00	120.00	1355.30
	31.941	0.00	0.00	667.40	10460.00	682.66	15.26	.69	.03	683.35	0.00	250.19	1602.71
	31.997	0.00	0.00	669.50	4370.00	678.70	9.20	.61	.17	679.31	6.82	363.87	930.17
	31.997	0.00	0.00	669.50	6730.00	680.81	11.31	.38	.01	681.20	6.82	483.27	1811.07
	31.997	0.00	0.00	669.50	7630.00	681.56	12.06	.34	.05	681.89	6.82	491.71	2173.46
	31.997	0.00	0.00	669.50	10460.00	683.57	14.07	.27	.13	683.85	6.82	502.89	3174.65
*	31.998	0.00	0.00	674.90	4370.00	679.04	4.14	1.21	.30	680.25	5400.00	350.74	775.34
	31.998	0.00	0.00	674.90	6730.00	680.50	5.60	1.02	.32	681.52	5400.00	468.19	1352.77
	31.998	0.00	0.00	674.90	7630.00	681.33	6.43	.80	.23	682.13	5400.00	490.42	1752.23
	31.998	0.00	0.00	674.90	10460.00	683.42	8.52	.57	.15	684.00	5400.00	502.06	2791.70
	31.999	0.00	0.00	674.90	4370.00	679.68	4.78	.73	.14	680.42	0.00	368.00	1005.77
	31.999	0.00	0.00	674.90	6730.00	680.58	5.68	.97	.01	681.55	0.00	474.12	1387.41
	31.999	0.00	0.00	674.90	7630.00	681.35	6.45	.80	.00	682.14	0.00	490.47	1756.58
	31.999	0.00	0.00	674.90	10460.00	683.43	8.53	.57	.00	684.00	0.00	502.09	2794.71
	32.000	0.00	0.00	669.50	4370.00	680.38	10.88	.20	.16	680.58	-5400.00	458.31	1603.57
	32.000	0.00	0.00	669.50	6730.00	681.52	12.02	.25	.22	681.77	-5400.00	491.47	2152.48
	32.000	0.00	0.00	669.50	7630.00	682.06	12.56	.25	.16	682.31	-5400.00	494.48	2419.42
	32.000	0.00	0.00	669.50	10460.00	683.88	14.38	.23	.10	684.11	-5400.00	504.61	3330.64
	32.125	0.00	0.00	671.30	4280.00	681.15	9.85	.32	.06	681.47	2.73	713.15	1553.14
	32.125	0.00	0.00	671.30	6580.00	682.32	11.02	.28	.02	682.60	2.73	720.54	2387.43
	32.125	0.00	0.00	671.30	7490.00	682.80	11.50	.26	.01	683.06	2.73	723.58	2733.56
	32.125	0.00	0.00	671.30	10230.00	684.44	13.14	.20	.01	684.64	2.73	733.98	3926.84
	32.237	0.00	0.00	674.30	4280.00	682.43	8.13	.64	.16	683.07	5.06	485.06	1115.43
	32.237	0.00	0.00	674.30	6580.00	683.38	9.08	.70	.21	684.07	5.06	487.99	1581.10

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32.237	0.00	0.00	674.30	7490.00	683.75	.45	.70	.22	684.44	5.06	489.12	1761.31
32.237	0.00	0.00	674.30	10230.00	685.04	10.74	.61	.20	685.66	5.06	493.07	2396.53
32.275	0.00	0.00	674.80	4280.00	683.42	8.62	.11	.16	683.52	2.50	426.02	2022.47
32.275	0.00	0.00	674.80	6580.00	684.42	9.62	.17	.16	684.59	2.50	428.61	2453.88
32.275	0.00	0.00	674.80	7490.00	684.78	9.98	.19	.15	684.97	2.50	429.52	2607.56
32.275	0.00	0.00	674.80	10230.00	685.89	11.09	.25	.11	686.14	2.50	432.37	3086.41

DO NOT FOLD OR PUNCH THIS MANIFOLD FORM

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	32.530	0.00	0.00	678.20	4130.00	684.78	6.58	.21	.05	684.99	2.52	582.05	1630.90
	32.530	0.00	0.00	678.20	6330.00	685.94	7.74	.22	.03	686.16	2.52	588.92	2313.57
	32.530	0.00	0.00	678.20	7260.00	686.35	8.15	.23	.02	686.58	2.52	591.34	2555.61
	32.530	0.00	0.00	678.20	9840.00	687.49	9.29	.25	.00	687.74	2.52	597.98	3225.27
	32.845	0.00	0.00	680.70	4130.00	688.16	7.46	.24	.02	688.40	1.51	636.86	1676.40
	32.845	0.00	0.00	680.70	6330.00	689.11	8.41	.28	.03	689.38	1.51	640.97	2283.89
	32.845	0.00	0.00	680.70	7260.00	689.47	8.77	.29	.03	689.76	1.51	642.58	2523.28
	32.845	0.00	0.00	680.70	9840.00	690.42	9.72	.31	.03	690.74	1.51	646.64	3129.36
	33.137	0.00	0.00	683.50	3910.00	690.87	7.37	.23	.00	691.10	1.82	532.95	1381.82
	33.137	0.00	0.00	683.50	5970.00	691.85	8.35	.25	.01	692.11	1.82	597.76	1933.09
	33.137	0.00	0.00	683.50	6940.00	692.22	8.72	.27	.01	692.49	1.82	621.81	2153.66
	33.137	0.00	0.00	683.50	9310.00	693.10	9.60	.28	.01	693.38	1.82	808.23	2788.46
	33.263	0.00	0.00	685.00	3870.00	692.10	7.10	.19	.01	692.29	2.24	584.22	1587.04
	33.263	0.00	0.00	685.00	5900.00	693.06	8.06	.21	.01	693.27	2.24	629.95	2169.69
	33.263	0.00	0.00	685.00	6870.00	693.44	8.44	.23	.01	693.67	2.24	648.26	2415.27
	33.263	0.00	0.00	685.00	9200.00	694.27	9.27	.26	.01	694.53	2.24	687.38	2963.51
	33.421	0.00	0.00	686.90	3450.00	693.58	6.68	.25	.03	693.83	2.29	353.73	1100.79
	33.421	0.00	0.00	686.90	5030.00	694.51	7.61	.28	.03	694.79	2.29	357.19	1429.25
	33.421	0.00	0.00	686.90	5670.00	694.88	7.98	.29	.03	695.17	2.29	358.57	1562.01
	33.421	0.00	0.00	686.90	7990.00	695.77	8.87	.37	.06	696.15	2.29	365.45	1883.38
	33.610	0.00	0.00	688.70	3450.00	696.40	7.70	.47	.11	696.87	1.80	420.54	976.01
	33.610	0.00	0.00	688.70	5030.00	697.31	8.61	.46	.09	697.77	1.80	424.79	1359.91
	33.610	0.00	0.00	688.70	5670.00	697.63	8.93	.47	.09	698.10	1.80	426.31	1497.35
	33.610	0.00	0.00	688.70	7990.00	698.71	10.01	.48	.05	699.18	1.80	431.33	1957.12
	33.679	0.00	0.00	689.30	3450.00	697.51	8.21	.82	.17	698.33	1.63	339.28	1068.52
	33.679	0.00	0.00	689.30	5030.00	698.39	9.09	1.19	.36	699.58	1.63	360.86	1378.04
	33.679	0.00	0.00	689.30	5670.00	698.69	9.39	1.34	.44	700.03	1.63	361.75	1487.16
	33.679	0.00	0.00	689.30	7990.00	699.64	10.34	1.86	.69	701.50	1.63	364.57	1832.17
	33.680	0.00	0.00	689.30	3450.00	697.51	8.21	.82	.00	698.34	0.00	339.41	1069.78
	33.680	0.00	0.00	689.30	5030.00	698.39	9.09	1.20	.00	699.59	0.00	360.87	1379.47
	33.680	0.00	0.00	689.30	5670.00	698.69	9.39	1.34	.00	700.04	0.00	361.76	1488.62
	33.680	0.00	0.00	689.30	7990.00	699.64	10.34	1.87	.00	701.51	0.00	364.58	1833.44
*	33.683	701.20	698.90	689.30	3450.00	696.75	7.45	2.74	.96	699.49	0.00	312.55	259.86
	33.683	701.20	698.90	689.30	5030.00	702.16	12.86	.58	0.00	702.75	0.00	365.00	2715.90
	33.683	701.20	698.90	689.30	5670.00	702.58	13.28	.67	0.00	703.25	0.00	365.00	2866.14
	33.683	701.20	698.90	689.30	7990.00	703.28	13.98	1.15	0.00	704.43	0.00	365.00	3121.09
	33.684	0.00	0.00	689.30	3450.00	699.70	10.40	.47	.68	700.17	0.00	364.72	1875.56
	33.684	0.00	0.00	689.30	5030.00	702.27	12.97	.51	.02	702.77	0.00	365.00	2815.21

33.684	0.00	0.00	689.30	5670.00	702.70	13.40	.08	.03	703.28	0. 0	365.00	2772.51
33.684	0.00	0.00	689.30	7990.00	703.51	14.21	.98	.05	704.48	0.00	365.00	3268.24
33.721	0.00	0.00	691.10	3330.00	700.30	9.20	.17	.09	700.47	9.05	420.11	1539.39
33.721	0.00	0.00	691.10	4830.00	702.92	11.82	.10	.12	703.02	9.05	490.54	2715.97
33.721	0.00	0.00	691.10	5490.00	703.45	12.35	.11	.14	703.56	9.05	527.57	2986.68
33.721	0.00	0.00	691.10	7680.00	704.78	13.68	.13	.25	704.91	9.05	659.80	3761.80

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
33.816	0.00	0.00	693.60	3330.00	701.22	7.62	.30	.07	701.52	5.00	460.41	1068.09
33.816	0.00	0.00	693.60	4830.00	703.38	9.78	.14	.02	703.53	5.00	739.14	2366.60
33.816	0.00	0.00	693.60	5490.00	703.91	10.31	.13	.01	704.04	5.00	753.00	2758.92
33.816	0.00	0.00	693.60	7680.00	705.26	11.66	.12	.00	705.38	5.00	760.61	3782.99
33.995	0.00	0.00	696.80	3180.00	703.65	6.85	.51	.10	704.16	3.37	310.67	750.27
33.995	0.00	0.00	696.80	4590.00	704.58	7.78	.56	.21	705.14	3.37	473.31	1143.07
33.995	0.00	0.00	696.80	5280.00	704.98	8.18	.55	.21	705.54	3.37	506.35	1344.49
33.995	0.00	0.00	696.80	7320.00	706.14	9.34	.49	.18	706.62	3.37	567.38	1972.70
34.033	0.00	0.00	697.50	3180.00	704.27	6.77	.76	.12	705.03	3.50	182.66	501.64
34.033	0.00	0.00	697.50	4590.00	705.16	7.66	.98	.21	706.14	3.50	340.60	750.91
34.033	0.00	0.00	697.50	5280.00	705.52	8.02	1.04	.24	706.55	3.50	368.38	878.90
34.033	0.00	0.00	697.50	7320.00	706.53	9.03	1.04	.27	707.57	3.50	409.31	1278.25
34.071	0.00	0.00	698.20	3180.00	705.15	6.95	.76	.00	705.90	3.50	280.40	609.99
34.071	0.00	0.00	698.20	4590.00	706.41	8.21	.63	.11	707.04	3.50	325.00	1009.37
34.071	0.00	0.00	698.20	5280.00	706.84	8.64	.63	.12	707.47	3.50	325.00	1147.01
34.071	0.00	0.00	698.20	7320.00	707.73	9.53	.73	.09	708.46	3.50	325.00	1436.36
34.090	0.00	0.00	698.40	3180.00	705.83	7.43	.51	.07	706.34	2.00	295.00	711.28
34.090	0.00	0.00	698.40	4590.00	706.89	8.49	.50	.04	707.39	2.00	295.00	1023.38
34.090	0.00	0.00	698.40	5280.00	707.29	8.89	.51	.04	707.81	2.00	295.00	1142.48
34.090	0.00	0.00	698.40	7320.00	708.22	9.82	.60	.04	708.82	2.00	295.00	1416.79
34.156	0.00	0.00	698.90	3180.00	706.89	7.99	.44	.02	707.33	1.43	180.00	696.55
34.156	0.00	0.00	698.90	4590.00	707.84	8.94	.58	.04	708.42	1.43	180.00	867.80
34.156	0.00	0.00	698.90	5280.00	708.25	9.35	.64	.06	708.89	1.43	180.00	940.49
34.156	0.00	0.00	698.90	7320.00	709.23	10.33	.84	.12	710.08	1.43	180.00	1117.92
34.353	0.00	0.00	700.40	3060.00	709.91	9.51	.68	.12	710.59	1.44	217.74	523.95
34.353	0.00	0.00	700.40	4400.00	711.11	10.71	.68	.05	711.80	1.44	473.83	894.26
34.353	0.00	0.00	700.40	5110.00	711.57	11.17	.65	.00	712.22	1.44	565.36	1125.78
34.353	0.00	0.00	700.40	7030.00	712.75	12.35	.45	.12	713.20	1.44	686.33	1886.43
34.513	0.00	0.00	704.70	3060.00	713.16	8.46	.60	.03	713.76	5.12	111.25	520.72
34.513	0.00	0.00	704.70	4400.00	714.29	9.59	.78	.05	715.07	5.12	113.03	646.75
34.513	0.00	0.00	704.70	5110.00	714.70	10.00	.90	.13	715.61	5.12	113.68	693.88
34.513	0.00	0.00	704.70	7030.00	715.37	10.67	1.37	.46	716.74	5.12	114.75	770.78
34.522	0.00	0.00	704.90	3060.00	713.54	8.64	.41	.06	713.95	4.00	170.00	672.96
34.522	0.00	0.00	704.90	4400.00	714.79	9.89	.50	.08	715.29	4.00	170.00	887.20
34.522	0.00	0.00	704.90	5110.00	715.31	10.41	.55	.10	715.86	4.00	170.00	975.29
34.522	0.00	0.00	704.90	7030.00	716.38	11.48	.74	.19	717.12	4.00	170.00	1156.57
34.645	0.00	0.00	707.00	3060.00	715.01	8.01	.45	.02	715.45	3.23	448.15	847.26
34.645	0.00	0.00	707.00	4400.00	716.29	9.29	.37	.04	716.66	3.23	504.97	1471.89

FORM 1429 - GR PRINTED BY ROTARY MANIFOLD FORMS
PRINTED IN U.S.A.

34.645	0.00	0.00	707.00	5110.00	718.87	9.87	.35	.08	719.21	3.23	507.10	1104.35
34.645	0.00	0.00	707.00	7030.00	718.20	11.20	.32	.12	718.52	3.23	513.17	2441.09
34.698	0.00	0.00	708.20	3060.00	715.78	7.58	.63	.09	716.41	4.29	350.00	599.94
34.698	0.00	0.00	708.20	4400.00	716.87	8.67	.64	.13	717.51	4.29	350.00	981.45
34.698	0.00	0.00	708.20	5110.00	717.39	9.19	.63	.14	718.02	4.29	350.00	1161.95
34.698	0.00	0.00	708.20	7030.00	718.62	10.42	.63	.15	719.25	4.29	350.00	1594.24

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	34.725	0.00	0.00	708.80	2900.00	716.35	7.55	.59	.01	716.94	4.29	305.00	566.48
	34.725	0.00	0.00	708.80	4150.00	717.35	8.55	.66	.01	718.01	4.29	305.00	872.39
	34.725	0.00	0.00	708.80	4880.00	717.83	9.03	.70	.03	718.53	4.29	305.00	1018.63
	34.725	0.00	0.00	708.80	6650.00	719.00	10.20	.73	.05	719.73	4.29	305.00	1376.68
	34.751	0.00	0.00	709.40	2530.00	716.95	7.55	.46	.04	717.41	4.29	255.00	538.59
	34.751	0.00	0.00	709.40	3425.00	717.99	8.59	.49	.05	718.48	4.29	255.00	804.03
	34.751	0.00	0.00	709.40	3825.00	718.52	9.12	.47	.07	719.00	4.29	255.00	940.89
	34.751	0.00	0.00	709.40	5600.00	719.52	10.12	.65	.02	720.17	4.29	255.00	1194.47
	34.804	0.00	0.00	710.60	2530.00	717.76	7.16	.56	.05	718.32	4.29	84.16	425.56
	34.804	0.00	0.00	710.60	3425.00	718.72	8.12	.72	.11	719.44	4.29	105.00	521.20
	34.804	0.00	0.00	710.60	3825.00	719.17	8.57	.77	.15	719.94	4.29	105.00	568.11
	34.804	0.00	0.00	710.60	5600.00	720.25	9.65	1.19	.27	721.45	4.29	105.00	681.98
	34.857	0.00	0.00	711.80	2530.00	718.77	6.97	.60	.02	719.37	4.29	92.67	410.33
	34.857	0.00	0.00	711.80	3425.00	719.80	8.00	.70	.01	720.51	4.29	207.90	570.85
	34.857	0.00	0.00	711.80	3825.00	720.28	8.48	.69	.03	720.97	4.29	242.47	679.85
	34.857	0.00	0.00	711.80	5600.00	721.99	10.19	.58	.18	722.57	4.29	300.00	1165.74
	34.906	0.00	0.00	712.90	2530.00	719.79	6.89	.62	.01	720.41	4.23	78.00	402.09
	34.906	0.00	0.00	712.90	3425.00	720.80	7.90	.80	.05	721.60	4.23	78.00	480.87
	34.906	0.00	0.00	712.90	3825.00	721.20	8.30	.88	.10	722.08	4.23	78.00	511.50
	34.906	0.00	0.00	712.90	5600.00	722.53	9.63	1.31	.37	723.84	4.23	78.00	616.01
	34.910	0.00	0.00	713.00	2530.00	719.50	6.50	1.45	.41	720.95	5.00	58.13	262.95
	34.910	0.00	0.00	713.00	3425.00	720.41	7.41	1.84	.52	722.25	5.00	65.76	319.50
	34.910	0.00	0.00	713.00	3825.00	720.77	7.77	2.02	.57	722.78	5.00	68.65	342.70
*	34.910	0.00	0.00	713.00	5600.00	722.73	9.73	1.98	.33	724.71	5.00	212.03	596.75
	35.037	0.00	0.00	716.10	2530.00	724.54	8.44	1.11	.10	725.65	4.63	41.39	298.73
	35.037	0.00	0.00	716.10	3425.00	725.90	9.80	1.44	.12	727.34	4.63	41.71	355.32
	35.037	0.00	0.00	716.10	3825.00	726.44	10.34	1.59	.13	728.03	4.63	43.39	378.23
	35.037	0.00	0.00	716.10	5600.00	727.77	11.67	2.58	.30	730.35	4.63	47.53	438.43
	35.068	0.00	0.00	715.70	2530.00	725.56	9.86	.78	.10	726.34	-2.37	41.96	358.06
	35.068	0.00	0.00	715.70	3425.00	727.10	11.40	1.02	.13	728.11	-2.37	47.66	426.64
	35.068	0.00	0.00	715.70	3825.00	727.71	12.01	1.12	.14	728.84	-2.37	49.96	456.71
	35.068	0.00	0.00	715.70	5600.00	730.50	14.80	.97	.48	731.47	-2.37	374.22	1110.94
	35.069	0.00	0.00	715.70	2530.00	725.57	9.87	.77	.00	726.34	0.00	41.96	358.13
	35.069	0.00	0.00	715.70	3425.00	727.11	11.41	1.01	.00	728.12	0.00	47.67	426.76
	35.069	0.00	0.00	715.70	3825.00	727.73	12.03	1.11	.00	728.84	0.00	50.00	457.23
	35.069	0.00	0.00	715.70	5600.00	731.31	15.61	.35	.19	731.66	0.00	418.53	1433.12
	35.076	727.70	724.40	715.60	2530.00	727.86	12.26	.36	0.00	728.22	-2.70	207.66	748.97
	35.076	727.70	724.40	715.60	3425.00	729.02	13.42	.36	0.00	729.38	-2.70	298.43	1053.01

35.076	727.70	724.40	715.60	3825.00	729.57	13.97	.07	0.00	729.74	-2.70	300.00	1155.56
35.076	727.70	724.40	715.60	5600.00	731.61	16.01	.28	0.00	731.89	-2.70	300.00	1827.99
35.077	0.00	0.00	715.60	2530.00	728.25	12.65	.06	.09	728.31	0.00	300.00	1765.33
35.077	0.00	0.00	715.60	3425.00	729.40	13.80	.07	.09	729.47	0.00	300.00	2109.62
35.077	0.00	0.00	715.60	3825.00	729.75	14.15	.07	.09	729.83	0.00	300.00	2214.33
35.077	0.00	0.00	715.60	5600.00	731.86	16.26	.09	.06	731.95	0.00	300.00	2847.58

FORM 145 - FOR PRINTED BY NOTARY HAND OLD TOPIC

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SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
35.152	0.00	0.00	719.10	2530.00	728.32	9.22	.25	.10	728.57	8.77	200.51	810.79
35.152	0.00	0.00	719.10	3425.00	729.47	10.37	.29	.11	729.75	8.77	230.15	1058.55
35.152	0.00	0.00	719.10	3825.00	729.82	10.72	.31	.12	730.13	8.77	231.00	1140.58
35.152	0.00	0.00	719.10	5600.00	731.93	12.83	.30	.11	732.24	8.77	231.00	1628.28
35.266	0.00	0.00	720.10	2530.00	729.10	9.00	.10	.04	729.21	1.67	305.72	1144.17
35.266	0.00	0.00	720.10	3425.00	730.25	10.15	.10	.06	730.35	1.67	308.15	1495.10
35.266	0.00	0.00	720.10	3825.00	730.63	10.53	.11	.06	730.73	1.67	311.14	1612.79
35.266	0.00	0.00	720.10	5600.00	732.62	12.52	.11	.06	732.73	1.67	318.00	2243.50
35.323	0.00	0.00	721.70	2530.00	729.37	7.67	.37	.13	729.74	5.33	211.26	746.21
35.323	0.00	0.00	721.70	3425.00	730.46	8.76	.38	.14	730.84	5.33	213.49	977.57
35.323	0.00	0.00	721.70	3825.00	730.84	9.14	.40	.14	731.23	5.33	217.59	1057.93
35.323	0.00	0.00	721.70	5600.00	732.75	11.05	.41	.15	733.16	5.33	224.90	1486.36
35.379	0.00	0.00	723.10	2530.00	730.25	7.15	.66	.14	730.91	4.67	156.62	498.50
35.379	0.00	0.00	723.10	3425.00	731.25	8.15	.70	.16	731.96	4.67	208.16	680.24
35.379	0.00	0.00	723.10	3825.00	731.62	8.52	.72	.16	732.34	4.67	228.50	760.43
35.379	0.00	0.00	723.10	5600.00	733.38	10.28	.63	.11	734.01	4.67	307.80	1197.86
35.436	0.00	0.00	724.40	2530.00	731.63	7.23	.72	.03	732.35	4.33	151.52	459.09
35.436	0.00	0.00	724.40	3425.00	732.55	8.15	.81	.05	733.36	4.33	194.98	624.01
35.436	0.00	0.00	724.40	3825.00	732.89	8.49	.84	.06	733.73	4.33	204.21	692.25
35.436	0.00	0.00	724.40	5600.00	734.33	9.93	.86	.11	735.19	4.33	235.57	1010.94
35.455	0.00	0.00	724.90	2530.00	732.32	7.42	.50	.07	732.82	5.00	225.25	616.00
35.455	0.00	0.00	724.90	3425.00	733.33	8.43	.49	.09	733.83	5.00	257.53	860.24
35.455	0.00	0.00	724.90	3825.00	733.70	8.80	.50	.10	734.20	5.00	267.48	956.96
35.455	0.00	0.00	724.90	5600.00	735.11	10.21	.51	.11	735.62	5.00	292.26	1356.01
35.493	0.00	0.00	725.80	2530.00	733.18	7.38	.27	.07	733.45	4.50	352.61	897.41
35.493	0.00	0.00	725.80	3425.00	734.14	8.34	.23	.08	734.37	4.50	388.83	1252.28
35.493	0.00	0.00	725.80	3825.00	734.50	8.70	.22	.08	734.72	4.50	397.00	1393.52
35.493	0.00	0.00	725.80	5600.00	735.87	10.07	.21	.09	736.08	4.50	428.18	1959.66
35.527	0.00	0.00	726.80	2530.00	733.54	6.74	.59	.16	734.13	5.56	341.16	592.52
35.527	0.00	0.00	726.80	3425.00	734.41	7.61	.52	.15	734.94	5.56	374.11	905.29
35.527	0.00	0.00	726.80	3825.00	734.75	7.95	.50	.14	735.25	5.56	383.31	1033.62
35.527	0.00	0.00	726.80	5600.00	736.08	9.28	.44	.11	736.52	5.56	402.22	1555.91
35.561	0.00	0.00	727.80	2530.00	734.34	6.54	.52	.02	734.87	5.56	283.82	585.99
35.561	0.00	0.00	727.80	3425.00	735.05	7.25	.56	.02	735.61	5.56	314.95	796.36
35.561	0.00	0.00	727.80	3825.00	735.35	7.55	.56	.03	735.91	5.56	327.74	891.75
35.561	0.00	0.00	727.80	5600.00	736.54	8.74	.53	.05	737.08	5.56	445.87	1372.62
35.595	0.00	0.00	728.80	2530.00	735.12	6.32	.41	.03	735.53	5.56	259.76	615.68
35.595	0.00	0.00	728.80	3425.00	735.79	6.99	.48	.02	736.27	5.56	272.43	797.26

FORM 147-GR PRINTED BY ROTARY MANIFOLD FOTUS
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35.595	0.00	0.00	728.80	3825.00	736.06	7.26	.30	.02	736.36	5.56	275.60	969.52
35.595	0.00	0.00	728.80	5600.00	737.11	8.31	.60	.03	737.71	5.56	294.23	1167.82
35.629	0.00	0.00	729.70	2530.00	735.79	6.09	.27	.04	736.06	5.00	240.62	682.75
35.629	0.00	0.00	729.70	3425.00	736.51	6.81	.31	.05	736.82	5.00	292.02	879.73
35.629	0.00	0.00	729.70	3825.00	736.80	7.10	.33	.05	737.12	5.00	301.43	964.13
35.629	0.00	0.00	729.70	5600.00	737.91	8.21	.38	.06	738.29	5.00	325.21	1315.60

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
35.800	0.00	0.00	729.80	2530.00	738.09	8.29	.52	.12	738.61	.11	313.33	591.24
35.800	0.00	0.00	729.80	3425.00	738.76	8.96	.52	.11	739.28	.11	370.31	822.03
35.800	0.00	0.00	729.80	3825.00	739.02	9.22	.52	.10	739.55	.11	373.11	917.64
35.800	0.00	0.00	729.80	5600.00	740.02	10.22	.53	.07	740.55	.11	384.02	1297.92
35.980	0.00	0.00	733.80	2530.00	741.23	7.43	.39	.04	741.61	4.21	153.25	605.28
35.980	0.00	0.00	733.80	3425.00	741.96	8.16	.50	.01	742.46	4.21	153.93	716.62
35.980	0.00	0.00	733.80	3825.00	742.24	8.44	.55	.01	742.79	4.21	154.20	761.05
35.980	0.00	0.00	733.80	5600.00	743.34	9.54	.77	.12	744.11	4.21	155.22	930.25
36.045	0.00	0.00	734.00	2530.00	742.08	8.08	.50	.06	742.57	.57	66.85	447.80
36.045	0.00	0.00	734.00	3425.00	742.94	8.94	.71	.11	743.65	.57	67.67	506.19
36.045	0.00	0.00	734.00	3825.00	743.28	9.28	.81	.13	744.09	.57	67.98	529.23
36.045	0.00	0.00	734.00	5600.00	744.58	10.58	1.27	.25	745.85	.57	69.00	618.04
36.046	0.00	0.00	734.00	2530.00	742.09	8.09	.49	.00	742.58	.00	69.00	452.61
36.046	0.00	0.00	734.00	3425.00	742.97	8.97	.69	.01	743.66	.00	69.00	514.02
36.046	0.00	0.00	734.00	3825.00	743.32	9.32	.79	.01	744.11	.00	69.00	537.87
36.046	0.00	0.00	734.00	5600.00	744.64	10.64	1.23	.01	745.87	.00	69.00	628.90
36.048	745.00	743.40	734.00	2530.00	742.17	8.17	.56	0.00	742.72	0.00	64.00	423.00
36.048	745.00	743.40	734.00	3425.00	743.52	9.52	.70	0.00	744.22	0.00	69.00	510.84
36.048	745.00	743.40	734.00	3825.00	744.13	10.13	.74	0.00	744.87	0.00	69.00	552.80
36.048	745.00	743.40	734.00	5600.00	745.64	11.64	1.03	0.00	746.67	0.00	257.15	739.96
36.049	0.00	0.00	734.00	2530.00	742.29	8.29	.47	.03	742.75	0.00	57.05	462.07
36.049	0.00	0.00	734.00	3425.00	743.67	9.67	.59	.03	744.26	0.00	68.34	555.26
36.049	0.00	0.00	734.00	3825.00	744.27	10.27	.64	.03	744.91	0.00	68.91	596.83
36.049	0.00	0.00	734.00	5600.00	745.66	11.66	1.02	.00	746.68	0.00	69.00	692.23
36.060	0.00	0.00	734.10	2530.00	742.55	8.45	.36	.03	742.91	2.00	169.00	630.74
36.060	0.00	0.00	734.10	3425.00	744.13	10.03	.32	.08	745.44	2.00	169.00	898.13
36.060	0.00	0.00	734.10	3825.00	744.80	10.70	.31	.10	745.11	2.00	169.00	1011.84
36.060	0.00	0.00	734.10	5600.00	746.60	12.50	.38	.19	746.98	2.00	169.00	1317.15
36.257	0.00	0.00	736.60	2520.00	744.63	8.03	.11	.08	745.74	2.38	484.40	1285.55
36.257	0.00	0.00	736.60	3400.00	745.62	9.02	.09	.07	745.71	2.38	491.39	1766.09
36.257	0.00	0.00	736.60	3800.00	746.11	9.51	.08	.07	746.20	2.38	494.88	2009.10
36.257	0.00	0.00	736.60	5570.00	747.81	11.21	.08	.09	747.88	2.38	602.35	2889.25
36.316	0.00	0.00	738.10	2520.00	745.15	7.05	.35	.12	745.50	4.84	419.30	781.00
36.316	0.00	0.00	738.10	3400.00	746.00	7.90	.27	.09	746.27	4.84	423.00	1136.74
36.316	0.00	0.00	738.10	3800.00	746.43	8.33	.24	.08	746.66	4.84	424.90	1320.48
36.316	0.00	0.00	738.10	5570.00	748.02	9.92	.18	.05	748.21	4.84	481.82	2020.59
36.376	0.00	0.00	739.30	2520.00	746.38	7.08	.53	.09	746.91	3.81	251.11	583.96
36.376	0.00	0.00	739.30	3400.00	746.96	7.66	.60	.17	747.56	3.81	328.52	756.32

36.376	0.00	0.00	739.30	5800.00	747.23	7.75	.60	.18	747.84	3.81	529.88	850.37
36.376	0.00	0.00	739.30	5570.00	748.54	9.24	.51	.16	749.05	3.81	371.16	1301.30
36.434	0.00	0.00	740.40	2520.00	747.48	7.08	.71	.09	748.19	3.55	170.87	459.71
36.434	0.00	0.00	740.40	3400.00	748.10	7.70	.86	.13	748.96	3.55	217.41	577.71
36.434	0.00	0.00	740.40	3800.00	748.36	7.96	.92	.16	749.27	3.55	236.58	633.33
36.434	0.00	0.00	740.40	5570.00	749.38	8.98	1.03	.26	750.41	3.55	277.85	907.54

PUNCHED PRINTED BY ROTARY MANIFOLD FORMS

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	36.465	0.00	0.00	741.00	2520.00	747.95	6.95	.84	.06	748.79	3.77	135.96	405.88
	36.465	0.00	0.00	741.00	3400.00	748.60	7.60	1.04	.09	749.64	3.77	161.47	500.40
	36.465	0.00	0.00	741.00	3800.00	748.85	7.85	1.13	.11	749.98	3.77	177.34	543.70
	36.465	0.00	0.00	741.00	5570.00	749.80	8.80	1.46	.21	751.25	3.77	185.00	717.62
	36.474	0.00	0.00	741.20	2520.00	748.12	6.92	.91	.04	749.03	3.85	122.06	380.24
	36.474	0.00	0.00	741.20	3400.00	748.75	7.55	1.17	.06	749.92	3.85	146.18	463.55
	36.474	0.00	0.00	741.20	3800.00	749.01	7.81	1.27	.07	750.28	3.85	159.00	502.29
	36.474	0.00	0.00	741.20	5570.00	749.92	8.72	1.72	.13	751.64	3.85	159.00	647.72
	36.484	0.00	0.00	741.40	2520.00	748.28	6.88	1.01	.05	749.29	3.85	107.84	351.40
	36.484	0.00	0.00	741.40	3400.00	748.93	7.53	1.30	.07	750.23	3.85	131.77	427.39
	36.484	0.00	0.00	741.40	3800.00	749.18	7.78	1.43	.08	750.61	3.85	133.00	460.88
	36.484	0.00	0.00	741.40	5570.00	750.07	8.67	2.01	.14	752.08	3.85	133.00	579.35
	36.494	0.00	0.00	741.60	2520.00	748.47	6.87	1.10	.05	749.58	3.85	81.76	322.33
	36.494	0.00	0.00	741.60	3400.00	749.10	7.50	1.50	.10	750.60	3.85	93.11	376.37
	36.494	0.00	0.00	741.60	3800.00	749.33	7.73	1.69	.13	751.03	3.85	98.31	398.78
*	36.494	0.00	0.00	741.60	5570.00	750.34	8.74	2.36	.18	752.71	3.85	132.00	518.80
	36.498	0.00	0.00	741.64	2520.00	748.57	6.93	1.11	.00	749.68	2.00	76.86	317.59
	36.498	0.00	0.00	741.64	3400.00	749.20	7.56	1.53	.01	750.73	2.00	89.55	370.29
	36.498	0.00	0.00	741.64	3800.00	749.44	7.80	1.73	.02	751.17	2.00	94.88	392.40
*	36.498	0.00	0.00	741.64	5570.00	750.55	8.91	2.35	.01	752.90	2.00	147.00	527.80
	36.502	0.00	0.00	741.68	2520.00	748.66	6.98	1.11	.00	749.78	2.00	71.97	313.00
	36.502	0.00	0.00	741.68	3400.00	749.30	7.62	1.55	.01	750.85	2.00	86.00	363.87
	36.502	0.00	0.00	741.68	3800.00	749.55	7.87	1.75	.01	751.30	2.00	87.00	385.16
*	36.502	0.00	0.00	741.68	5570.00	750.69	9.01	2.38	.02	753.07	2.00	153.67	524.24
	36.506	0.00	0.00	741.72	2520.00	748.79	7.07	1.09	.01	749.89	2.00	68.66	310.27
	36.506	0.00	0.00	741.72	3400.00	749.49	7.77	1.50	.01	750.99	2.00	77.00	362.15
	36.506	0.00	0.00	741.72	3800.00	749.75	8.03	1.70	.01	751.45	2.00	77.00	381.68
	36.506	0.00	0.00	741.72	5570.00	752.42	10.70	1.12	.38	753.55	2.00	177.00	797.20
	36.509	0.00	0.00	741.76	2520.00	748.91	7.15	1.10	.00	750.01	2.00	65.18	305.76
	36.509	0.00	0.00	741.76	3400.00	749.62	7.86	1.53	.01	751.15	2.00	67.00	353.42
	36.509	0.00	0.00	741.76	3800.00	749.88	8.12	1.74	.02	751.62	2.00	67.00	371.33
	36.509	0.00	0.00	741.76	5570.00	752.48	10.72	1.17	.02	753.64	2.00	192.00	794.55
	36.513	0.00	0.00	741.80	2520.00	749.03	7.23	1.10	.00	750.13	2.00	57.00	301.74
	36.513	0.00	0.00	741.80	3400.00	749.75	7.95	1.56	.01	751.30	2.00	57.00	342.81
	36.513	0.00	0.00	741.80	3800.00	750.01	8.21	1.79	.03	751.80	2.00	57.00	357.43
	36.513	0.00	0.00	741.80	5570.00	752.54	10.74	1.19	.01	753.73	2.00	207.00	798.64
	36.517	0.00	0.00	741.84	2520.00	749.10	7.26	1.21	.06	750.31	2.00	47.00	284.95
	36.517	0.00	0.00	741.84	3400.00	749.79	7.95	1.78	.11	751.57	2.00	47.00	317.38

36.517	0.00	0.00	741.84	3800.00	750.04	8.20	2.07	.14	752.11	2.00	47.00	32.3.
36.517	0.00	0.00	741.84	5570.00	752.71	10.87	1.11	.02	753.83	2.00	222.00	827.20
36.521	0.00	0.00	741.88	2520.00	749.03	7.15	1.55	.22	750.68	2.00	37.00	244.54
36.521	0.00	0.00	741.88	3400.00	749.61	7.73	2.53	.37	752.14	2.00	37.00	266.31
36.521	0.00	0.00	741.88	3800.00	749.80	7.92	3.00	.47	752.80	2.00	37.00	273.49
36.521	0.00	0.00	741.88	5570.00	752.78	10.90	1.15	.02	753.93	2.00	237.00	834.77

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	36.522	0.00	0.00	741.90	2520.00	748.93	7.03	2.02	.19	750.95	2.22	33.00	220.70
	36.522	0.00	0.00	741.90	3400.00	749.40	7.50	3.21	.34	752.61	2.22	33.00	236.46
*	36.522	0.00	0.00	741.90	3800.00	749.67	7.77	3.73	.37	753.40	2.22	33.00	245.05
	36.522	0.00	0.00	741.90	5570.00	752.81	10.91	1.16	.00	753.97	2.22	244.00	838.93
	36.523	0.00	0.00	741.90	2520.00	748.95	7.05	2.02	.00	750.96	0.00	33.00	221.00
	36.523	0.00	0.00	741.90	3400.00	750.25	8.35	2.57	.19	752.82	0.00	33.00	264.43
	36.523	0.00	0.00	741.90	3800.00	751.19	9.29	2.57	.35	753.76	0.00	33.00	295.31
	36.523	0.00	0.00	741.90	5570.00	753.60	11.70	.56	.18	754.16	0.00	245.00	1030.99
	36.535	755.00	754.60	742.10	2520.00	749.81	7.71	1.78	.07	751.60	2.86	33.00	235.13
	36.535	755.00	754.60	742.10	3400.00	751.30	9.20	2.22	.11	753.52	2.86	33.00	284.60
	36.535	755.00	754.60	742.10	3800.00	752.05	9.95	2.35	.07	754.40	2.86	33.00	309.02
*	36.535	755.00	754.60	742.10	5570.00	752.81	10.71	3.73	1.59	756.54	2.86	245.00	371.25
	36.536	0.00	0.00	742.10	2520.00	750.49	8.39	1.27	.15	751.76	0.00	35.00	278.47
	36.536	0.00	0.00	742.10	3400.00	752.12	10.02	1.59	.19	753.71	0.00	35.00	335.62
	36.536	0.00	0.00	742.10	3800.00	752.89	10.79	1.71	.19	754.60	0.00	35.00	362.59
	36.536	0.00	0.00	742.10	5570.00	757.22	15.12	.33	1.02	757.56	0.00	246.00	1883.36
	36.538	0.00	0.00	742.10	2520.00	751.38	9.28	.61	.20	751.99	0.00	60.00	411.89
	36.538	0.00	0.00	742.10	3400.00	753.34	11.24	.68	.27	754.02	0.00	60.00	529.46
	36.538	0.00	0.00	742.10	3800.00	754.22	12.12	.70	.30	754.93	0.00	60.00	582.44
	36.538	0.00	0.00	742.10	5570.00	757.47	15.37	.15	.05	757.62	0.00	251.00	2000.88
	36.542	0.00	0.00	742.00	2520.00	751.67	9.67	.41	.06	752.09	-5.00	105.00	540.05
	36.542	0.00	0.00	742.00	3400.00	753.75	11.75	.59	.09	754.14	-5.00	105.00	758.26
	36.542	0.00	0.00	742.00	3800.00	754.67	12.67	.38	.10	755.05	-5.00	105.00	855.10
	36.542	0.00	0.00	742.00	5570.00	757.48	15.48	.15	.00	757.63	-5.00	261.00	2132.85
	36.546	0.00	0.00	742.00	2520.00	751.82	9.82	.32	.03	752.14	0.00	150.00	642.51
	36.546	0.00	0.00	742.00	3400.00	753.94	11.94	.26	.04	754.20	0.00	150.00	959.33
	36.546	0.00	0.00	742.00	3800.00	754.87	12.87	.24	.04	755.11	0.00	150.00	1098.92
	36.546	0.00	0.00	742.00	5570.00	757.52	15.52	.13	.01	757.65	0.00	271.00	2243.88
	36.564	0.00	0.00	741.80	2520.00	752.12	10.32	.16	.05	752.27	-2.00	265.94	971.10
	36.564	0.00	0.00	741.80	3400.00	754.19	12.39	.11	.05	754.29	-2.00	276.03	1531.78
	36.564	0.00	0.00	741.80	3800.00	755.10	13.30	.09	.04	755.20	-2.00	280.00	1786.96
	36.564	0.00	0.00	741.80	5570.00	757.59	15.79	.10	.01	757.69	-2.00	280.00	2483.04
	36.565	0.00	0.00	741.80	2520.00	752.11	10.31	.17	.01	752.28	0.00	265.94	971.17
	36.565	0.00	0.00	741.80	3400.00	754.18	12.38	.11	.00	754.30	0.00	276.03	1531.88
	36.565	0.00	0.00	741.80	3800.00	755.10	13.30	.10	.00	755.20	0.00	280.00	1787.05
	36.565	0.00	0.00	741.80	5570.00	757.59	15.79	.10	.00	757.69	0.00	280.00	2483.12
	36.573	753.70	752.40	741.60	2520.00	751.97	10.37	.53	.18	752.51	-4.26	282.56	470.39
	36.573	753.70	752.40	741.60	3400.00	755.42	13.82	.06	0.00	755.48	-4.26	300.00	2025.94

PRINTED BY ROTARY MANIFOLD FORMS

36.573	753.70	752.40	741.60	5500.00	757.43	14.55	.06	0.00	756.00	-4.26	300.00	2101.71
36.573	753.70	752.40	741.60	5570.00	757.94	16.34	.08	0.00	758.02	-4.26	300.00	2782.01
36.574	0.00	0.00	741.60	2520.00	752.54	10.94	.10	.13	752.64	0.00	288.98	1205.55
36.574	0.00	0.00	741.60	3400.00	755.42	13.82	.06	.00	755.48	0.00	300.00	2055.50
36.574	0.00	0.00	741.60	3800.00	755.94	14.34	.06	.00	756.00	0.00	300.00	2211.26
36.574	0.00	0.00	741.60	5570.00	757.94	16.34	.08	.00	758.02	0.00	300.00	2811.56

FORM 1401-GB PRINTED BY MOTARY MANIFOLD FORMS
PRINTED IN U.S.A.

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
36.636	0.00	0.00	742.80	2520.00	752.63	9.83	.17	.04	752.80	3.65	268.66	910.67
36.636	0.00	0.00	742.80	3400.00	755.46	12.66	.08	.01	755.54	3.65	272.20	1676.55
36.636	0.00	0.00	742.80	3800.00	755.98	13.18	.08	.01	756.06	3.65	272.85	1818.09
36.636	0.00	0.00	742.80	5570.00	757.98	15.18	.10	.01	758.08	3.65	275.35	2366.93
36.939	0.00	0.00	746.10	2490.00	753.88	7.78	.22	.02	754.09	2.06	590.80	1078.45
36.939	0.00	0.00	746.10	3355.00	755.86	9.74	.07	.00	755.90	2.06	606.04	2250.95
36.939	0.00	0.00	746.10	3750.00	756.34	10.24	.06	.01	756.40	2.06	609.96	2556.92
36.939	0.00	0.00	746.10	5500.00	758.31	12.21	.05	.02	758.36	2.06	625.27	3773.20
37.300	0.00	0.00	749.40	2490.00	756.18	6.78	.10	.03	756.28	1.75	728.13	1556.85
37.300	0.00	0.00	749.40	3355.00	756.86	7.46	.09	.01	756.96	1.75	763.59	2071.89
37.300	0.00	0.00	749.40	3750.00	757.23	7.83	.09	.01	757.31	1.75	765.97	2351.81
37.300	0.00	0.00	749.40	5500.00	758.87	9.47	.06	.01	758.93	1.75	776.65	3619.07
37.692	0.00	0.00	752.40	2490.00	758.67	6.27	.23	.06	758.89	1.44	508.27	985.85
37.692	0.00	0.00	752.40	3355.00	759.17	6.77	.26	.08	759.43	1.44	568.10	1268.14
37.692	0.00	0.00	752.40	3750.00	759.36	6.96	.27	.09	759.64	1.44	576.09	1373.46
37.692	0.00	0.00	752.40	5500.00	760.29	7.89	.28	.11	760.57	1.44	616.63	1929.98
38.174	0.00	0.00	761.20	2470.00	767.03	5.83	.78	.28	767.80	3.46	323.80	579.59
38.174	0.00	0.00	761.20	3320.00	767.70	6.50	.76	.25	768.45	3.46	366.82	808.45
38.174	0.00	0.00	761.20	3710.00	767.97	6.77	.74	.23	768.71	3.46	370.78	909.73
38.174	0.00	0.00	761.20	5445.00	768.77	7.57	.84	.28	769.61	3.46	374.41	1207.32
38.183	0.00	0.00	761.30	2470.00	767.65	6.35	.48	.09	768.13	2.00	357.18	754.69
38.183	0.00	0.00	761.30	3320.00	768.24	6.94	.51	.07	768.75	2.00	388.66	977.54
38.183	0.00	0.00	761.30	3710.00	768.46	7.16	.53	.06	768.99	2.00	397.53	1061.36
38.183	0.00	0.00	761.30	5445.00	769.29	7.99	.62	.07	769.90	2.00	401.28	1390.83
38.255	0.00	0.00	762.10	2470.00	768.85	6.75	.17	.09	769.01	2.11	500.00	1074.14
38.255	0.00	0.00	762.10	3320.00	769.44	7.34	.16	.10	769.60	2.11	500.00	1372.93
38.255	0.00	0.00	762.10	3710.00	769.68	7.58	.16	.11	769.85	2.11	500.00	1494.05
38.255	0.00	0.00	762.10	5445.00	770.60	8.50	.18	.13	770.78	2.11	500.00	1954.34
38.391	0.00	0.00	763.60	2470.00	770.14	6.54	.26	.05	770.40	2.24	369.48	822.68
38.391	0.00	0.00	763.60	3320.00	770.69	7.09	.28	.06	770.97	2.24	394.71	1032.63
38.391	0.00	0.00	763.60	3710.00	770.92	7.32	.28	.06	771.20	2.24	404.51	1123.75
38.391	0.00	0.00	763.60	5445.00	771.81	8.21	.31	.07	772.13	2.24	443.06	1503.64
38.467	0.00	0.00	764.50	2470.00	771.02	6.52	.16	.03	771.18	2.25	486.65	1074.79
38.467	0.00	0.00	764.50	3320.00	771.58	7.08	.17	.03	771.75	2.25	487.53	1345.08
38.467	0.00	0.00	764.50	3710.00	771.81	7.31	.17	.03	771.98	2.25	487.89	1456.98
38.467	0.00	0.00	764.50	5445.00	772.71	8.21	.20	.03	772.90	2.25	489.32	1895.28
38.520	0.00	0.00	765.10	2470.00	771.46	6.36	.18	.01	771.64	2.14	573.64	1053.49
38.520	0.00	0.00	765.10	3320.00	772.01	6.91	.18	.00	772.19	2.14	584.89	1371.82

38.520	0.00	0.00	765.10	3710.00	772.24	7.14	.17	.00	772.41	2.14	589.60	1507.05
38.520	0.00	0.00	765.10	5445.00	773.14	8.04	.18	.01	773.32	2.14	608.08	2048.08
38.566	0.00	0.00	765.60	2470.00	771.85	6.25	.21	.01	772.06	2.08	571.27	987.17
38.566	0.00	0.00	765.60	3320.00	772.36	6.76	.20	.01	772.56	2.08	581.93	1287.56
38.566	0.00	0.00	765.60	3710.00	772.57	6.97	.21	.02	772.77	2.08	586.14	1407.72
38.566	0.00	0.00	765.60	5445.00	773.42	7.82	.21	.02	773.63	2.08	603.68	1917.80

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
38.660	0.00	0.00	766.60	2470.00	772.89	6.29	.24	.02	773.13	2.00	404.13	840.94
38.660	0.00	0.00	766.60	3320.00	773.35	6.75	.27	.03	773.62	2.00	404.85	1028.87
38.660	0.00	0.00	766.60	3710.00	773.55	6.95	.28	.04	773.83	2.00	405.16	1109.81
38.660	0.00	0.00	766.60	5445.00	774.34	7.74	.33	.06	774.67	2.00	406.36	1428.42
38.827	0.00	0.00	767.90	2470.00	775.37	7.47	.41	.09	775.79	1.48	130.96	551.69
38.827	0.00	0.00	767.90	3320.00	776.05	8.15	.55	.14	776.60	1.48	131.99	640.30
38.827	0.00	0.00	767.90	3710.00	776.32	8.42	.61	.17	776.93	1.48	132.41	676.02
38.827	0.00	0.00	767.90	5445.00	777.35	9.45	.91	.29	778.26	1.48	133.99	812.69
38.836	0.00	0.00	767.80	2470.00	775.52	7.72	.41	.00	775.93	-2.00	115.00	541.59
38.836	0.00	0.00	767.80	3320.00	776.21	8.41	.57	.01	776.78	-2.00	115.00	621.75
38.836	0.00	0.00	767.80	3710.00	776.49	8.69	.64	.01	777.13	-2.00	115.00	653.87
38.836	0.00	0.00	767.80	5445.00	777.55	9.75	.98	.04	778.53	-2.00	115.00	775.43
38.840	0.00	0.00	767.80	2470.00	775.44	7.64	.68	.13	776.12	0.00	93.79	403.90
38.840	0.00	0.00	767.80	3320.00	776.08	8.28	.98	.21	777.06	0.00	103.39	466.66
38.840	0.00	0.00	767.80	3710.00	776.33	8.53	1.12	.24	777.45	0.00	107.15	492.98
38.840	0.00	0.00	767.80	5445.00	777.24	9.44	1.80	.41	779.04	0.00	120.96	597.48
38.841	0.00	0.00	767.80	2470.00	775.45	7.65	.68	.00	776.12	0.00	93.83	404.15
38.841	0.00	0.00	767.80	3320.00	776.08	8.28	.98	.00	777.06	0.00	103.43	466.95
38.841	0.00	0.00	767.80	3710.00	776.33	8.53	1.12	.00	777.46	0.00	107.20	493.27
38.841	0.00	0.00	767.80	5445.00	777.25	9.45	1.80	.00	779.05	0.00	120.97	597.54
38.848	778.70	776.10	767.80	2470.00	776.78	8.98	.43	0.00	777.22	0.00	114.00	543.23
38.848	778.70	776.10	767.80	3320.00	778.60	10.80	.46	0.00	779.06	0.00	141.39	775.29
38.848	778.70	776.10	767.80	3710.00	779.00	11.20	.52	0.00	779.51	0.00	244.38	842.39
38.848	778.70	776.10	767.80	5445.00	779.78	11.98	.87	0.00	780.65	0.00	293.53	1051.78
38.849	0.00	0.00	767.80	2460.00	776.79	8.99	.42	.00	777.22	0.00	114.08	543.79
38.849	0.00	0.00	767.80	3305.00	778.63	10.83	.44	.01	779.07	0.00	141.77	778.88
38.849	0.00	0.00	767.80	3690.00	779.03	11.23	.49	.01	779.52	0.00	246.84	849.92
38.849	0.00	0.00	767.80	5420.00	779.86	12.06	.81	.02	780.67	0.00	295.00	1077.12
38.906	0.00	0.00	769.00	2460.00	777.46	8.46	.05	.11	777.50	4.00	410.00	1915.58
38.906	0.00	0.00	769.00	3305.00	779.27	10.27	.04	.12	779.31	4.00	410.00	2659.53
38.906	0.00	0.00	769.00	3690.00	779.74	10.74	.04	.13	779.78	4.00	410.00	2850.21
38.906	0.00	0.00	769.00	5420.00	781.00	12.00	.06	.22	781.06	4.00	410.00	3366.38
38.972	0.00	0.00	770.40	2460.00	777.57	7.17	.03	.00	777.61	4.00	730.00	2360.75
38.972	0.00	0.00	770.40	3305.00	779.35	8.95	.02	.01	779.37	4.00	730.00	3659.03
38.972	0.00	0.00	770.40	3690.00	779.82	9.42	.02	.01	779.84	4.00	730.00	3999.76
38.972	0.00	0.00	770.40	5420.00	781.11	10.71	.03	.01	781.14	4.00	730.00	4939.80
39.040	0.00	0.00	771.80	2460.00	777.68	5.88	.25	.11	777.92	3.89	470.00	971.52
39.040	0.00	0.00	771.80	3305.00	779.40	7.60	.10	.04	779.50	3.89	470.00	1788.19

39.040	0.00	0.00	771.80	3690.00	779.86	8.06	.10	.04	779.96	3.89	470.00	2004.63
39.040	0.00	0.00	771.80	5420.00	781.15	9.35	.11	.04	781.26	3.89	470.00	2607.49
39.123	0.00	0.00	773.50	2460.00	778.75	5.25	.38	.07	779.13	3.87	496.42	817.24
39.123	0.00	0.00	773.50	3305.00	779.80	6.30	.20	.05	780.00	3.87	513.85	1349.17
39.123	0.00	0.00	773.50	3690.00	780.21	6.71	.18	.04	780.39	3.87	518.17	1561.38
39.123	0.00	0.00	773.50	5420.00	781.47	7.97	.16	.02	781.63	3.87	531.37	2221.03
38.972	0.00	0.00	770.40	2460.00	777.57	7.17	.03	.00	777.61	4.00	730.00	2360.75
38.972	0.00	0.00	770.40	3305.00	779.35	8.95	.02	.01	779.37	4.00	730.00	3659.03
38.972	0.00	0.00	770.40	3690.00	779.82	9.42	.02	.01	779.84	4.00	730.00	3999.76
38.972	0.00	0.00	770.40	5420.00	781.11	10.71	.03	.01	781.14	4.00	730.00	4939.80
39.040	0.00	0.00	771.80	2460.00	777.68	5.88	.25	.11	777.92	3.89	470.00	971.52
39.040	0.00	0.00	771.80	3305.00	779.40	7.60	.10	.04	779.50	3.89	470.00	1788.19

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SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
39.153	0.00	0.00	772.70	2460.00	779.31	6.61	.15	.07	779.46	-5.03	460.60	1431.35
39.153	0.00	0.00	772.70	3305.00	780.06	7.36	.16	.01	780.22	-5.03	461.33	1774.91
39.153	0.00	0.00	772.70	3690.00	780.41	7.71	.16	.00	780.58	-5.03	461.67	1934.26
39.153	0.00	0.00	772.70	5420.00	781.62	8.92	.19	.01	781.81	-5.03	462.87	2497.17
39.154	0.00	0.00	772.70	2460.00	779.32	6.62	.15	.00	779.46	0.00	460.60	1432.44
39.154	0.00	0.00	772.70	3305.00	780.06	7.36	.16	.00	780.22	0.00	461.33	1775.59
39.154	0.00	0.00	772.70	3690.00	780.42	7.72	.16	.00	780.58	0.00	461.68	1939.38
39.154	0.00	0.00	772.70	5420.00	781.62	8.92	.19	.00	781.81	0.00	462.86	2496.56
39.160	779.00	778.90	772.40	2460.00	780.28	7.88	.15	0.00	780.43	-8.33	461.50	1988.28
39.160	779.00	778.90	772.40	3305.00	780.99	8.59	.18	0.00	781.17	-8.33	461.50	2314.23
39.160	779.00	778.90	772.40	3690.00	781.24	8.84	.20	0.00	781.45	-8.33	461.50	2431.82
39.160	779.00	778.90	772.40	5420.00	782.14	9.74	.30	0.00	782.45	-8.33	461.50	2849.33
39.161	0.00	0.00	772.40	2460.00	780.37	7.97	.08	.02	780.45	0.00	461.93	2056.92
39.161	0.00	0.00	772.40	3305.00	781.10	8.70	.10	.03	781.20	0.00	462.65	2395.00
39.161	0.00	0.00	772.40	3690.00	781.37	8.97	.11	.03	781.48	0.00	462.91	2518.92
39.161	0.00	0.00	772.40	5420.00	782.34	9.94	.15	.04	782.49	0.00	463.86	2967.66
39.241	0.00	0.00	773.70	2340.00	780.58	6.88	.16	.04	780.74	3.06	461.08	1116.90
39.241	0.00	0.00	773.70	3270.00	781.35	7.65	.16	.03	781.51	3.06	464.52	1472.88
39.241	0.00	0.00	773.70	3655.00	781.64	7.94	.16	.03	781.79	3.06	465.79	1605.29
39.241	0.00	0.00	773.70	5370.00	782.68	8.98	.18	.01	782.86	3.06	470.44	2093.27
39.321	0.00	0.00	775.10	2340.00	781.56	6.46	.33	.09	781.89	3.29	309.22	762.75
39.321	0.00	0.00	775.10	3270.00	782.26	7.16	.36	.10	782.62	3.29	312.35	980.36
39.321	0.00	0.00	775.10	3655.00	782.53	7.43	.37	.10	782.89	3.29	313.53	1063.18
39.321	0.00	0.00	775.10	5370.00	783.55	8.45	.42	.12	783.97	3.29	318.09	1385.64
39.403	0.00	0.00	776.50	2340.00	783.02	6.52	.24	.03	783.26	3.26	459.47	950.90
39.403	0.00	0.00	776.50	3270.00	783.71	7.21	.23	.04	783.94	3.26	462.56	1269.41
39.403	0.00	0.00	776.50	3655.00	783.97	7.47	.23	.04	784.20	3.26	463.71	1389.40
39.403	0.00	0.00	776.50	5370.00	785.00	8.50	.23	.06	785.24	3.26	468.31	1869.83
39.571	0.00	0.00	776.00	2340.00	784.75	8.75	.12	.03	784.87	-.56	490.32	1399.08
39.571	0.00	0.00	776.00	3270.00	785.45	9.45	.14	.03	785.58	-.56	519.56	1750.44
39.571	0.00	0.00	776.00	3655.00	785.71	9.71	.14	.03	785.85	-.56	530.43	1886.18
39.571	0.00	0.00	776.00	5370.00	786.72	10.72	.15	.02	786.87	-.56	661.54	2500.40
39.641	0.00	0.00	777.70	2340.00	785.33	7.63	.36	.12	785.69	4.59	442.90	872.60
39.641	0.00	0.00	777.70	3270.00	786.05	8.35	.34	.10	786.39	4.59	473.54	1206.74
39.641	0.00	0.00	777.70	3655.00	786.32	8.62	.33	.09	786.65	4.59	484.71	1334.06
39.641	0.00	0.00	777.70	5370.00	787.33	9.63	.32	.08	787.65	4.59	527.03	1843.49
39.711	0.00	0.00	779.40	2340.00	786.79	7.39	.48	.06	787.27	4.59	441.35	767.38
39.711	0.00	0.00	779.40	3270.00	787.42	8.02	.47	.07	787.88	4.59	459.39	1049.61

39.711	0.00	0.00	779.40	5370.00	788.56	9.16	.45	.07	789.02	4.59	507.67	1605.17
39.781	0.00	0.00	781.10	2340.00	788.52	7.42	.46	.01	788.99	4.59	441.42	782.40
39.781	0.00	0.00	781.10	3270.00	789.11	8.01	.47	.00	789.58	4.59	459.22	1047.77
39.781	0.00	0.00	781.10	3655.00	789.33	8.23	.47	.01	789.80	4.59	468.18	1146.64
39.781	0.00	0.00	781.10	5370.00	790.18	9.08	.49	.02	790.66	4.59	503.83	1558.86

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	39.852	0.00	0.00	782.70	2340.00	790.19	7.49	.43	.01	790.62	4.32	441.57	811.16
	39.852	0.00	0.00	782.70	3270.00	790.80	8.10	.43	.01	791.23	4.32	462.76	1086.60
	39.852	0.00	0.00	782.70	3655.00	791.02	8.32	.43	.01	791.46	4.32	472.04	1189.78
	39.852	0.00	0.00	782.70	5370.00	791.86	9.16	.46	.01	792.32	4.32	507.17	1599.03
	39.922	0.00	0.00	784.40	2340.00	791.80	7.40	.48	.02	792.27	4.59	441.37	772.66
	39.922	0.00	0.00	784.40	3270.00	792.41	8.01	.47	.02	792.88	4.59	459.11	1046.65
	39.922	0.00	0.00	784.40	3655.00	792.63	8.23	.47	.02	793.10	4.59	468.45	1149.65
	39.922	0.00	0.00	784.40	5370.00	793.48	9.08	.48	.01	793.97	4.59	504.12	1562.45
	39.992	0.00	0.00	786.10	2340.00	793.52	7.42	.48	.00	794.01	4.59	404.96	751.50
	39.992	0.00	0.00	786.10	3270.00	794.14	8.04	.49	.01	794.63	4.59	422.44	1003.25
	39.992	0.00	0.00	786.10	3655.00	794.36	8.26	.50	.01	794.86	4.59	431.30	1097.76
	39.992	0.00	0.00	786.10	5370.00	795.20	9.10	.53	.02	795.74	4.59	465.17	1477.38
	40.062	0.00	0.00	787.80	2340.00	794.86	7.06	.20	.08	795.06	4.59	322.31	826.44
	40.062	0.00	0.00	787.80	3270.00	795.51	7.71	.23	.08	795.74	4.59	334.68	1039.20
	40.062	0.00	0.00	787.80	3655.00	795.74	7.94	.25	.08	795.98	4.59	339.15	1118.25
	40.062	0.00	0.00	787.80	5370.00	796.63	8.83	.39	.07	796.93	4.59	356.19	1428.61
	40.200	0.00	0.00	789.30	2340.00	796.07	6.77	.32	.06	796.39	2.05	315.24	685.25
	40.200	0.00	0.00	789.30	3270.00	796.74	7.44	.36	.06	797.10	2.05	328.18	902.72
	40.200	0.00	0.00	789.30	3655.00	796.99	7.69	.37	.06	797.36	2.05	332.86	983.54
	40.200	0.00	0.00	789.30	5370.00	797.92	8.62	.44	.07	798.36	2.05	350.77	1303.26
	40.349	0.00	0.00	791.40	2340.00	798.03	6.63	.38	.03	798.41	2.66	274.53	606.16
	40.349	0.00	0.00	791.40	3270.00	798.76	7.36	.42	.03	799.18	2.66	275.59	806.01
	40.349	0.00	0.00	791.40	3655.00	799.02	7.62	.44	.03	799.46	2.66	275.97	878.54
	40.349	0.00	0.00	791.40	5370.00	800.03	8.63	.51	.04	800.55	2.66	277.43	1158.18
	40.463	0.00	0.00	793.00	2340.00	799.88	6.88	.64	.13	800.52	2.67	110.00	420.58
	40.463	0.00	0.00	793.00	3270.00	800.68	7.68	.86	.22	801.54	2.67	110.00	508.60
	40.463	0.00	0.00	793.00	3655.00	800.96	7.96	.95	.26	801.92	2.67	110.00	539.99
	40.463	0.00	0.00	793.00	5370.00	802.04	9.04	1.38	.43	803.42	2.67	110.00	658.23
	40.501	0.00	0.00	793.50	2340.00	800.63	7.13	.76	.06	801.38	2.50	60.00	349.26
	40.501	0.00	0.00	793.50	3270.00	801.52	8.02	1.12	.13	802.64	2.50	60.00	402.95
	40.501	0.00	0.00	793.50	3655.00	801.84	8.34	1.28	.16	803.12	2.50	60.00	422.04
	40.501	0.00	0.00	793.50	5370.00	803.02	9.52	2.04	.33	805.06	2.50	60.00	493.03
	40.510	0.00	0.00	793.60	2340.00	800.58	6.98	1.48	.36	802.06	2.00	35.00	239.62
	40.510	0.00	0.00	793.60	3270.00	801.31	7.71	2.35	.62	803.67	2.00	35.00	265.54
	40.510	0.00	0.00	793.60	3655.00	801.55	7.95	2.77	.75	804.31	2.00	35.00	273.81
*	40.510	0.00	0.00	793.60	5370.00	802.74	9.14	4.51	1.23	807.25	2.00	35.00	315.16
	40.512	0.00	0.00	793.60	2155.00	800.54	6.94	1.80	.16	802.33	0.00	29.30	200.41
	40.512	0.00	0.00	793.60	2810.00	801.46	7.86	2.37	.01	803.83	0.00	29.30	227.42

	40.512	0.00	0.00	793.60	3210.00	801.65	8.05	2.96	.10	804.59	0.00	29.30	232.45
	40.512	0.00	0.00	793.60	4665.00	802.95	9.35	4.60	.05	807.55	0.00	29.30	270.93
*	40.513	815.40	813.80	793.60	2155.00	800.12	6.52	2.79	.50	802.90	0.00	29.30	160.81
*	40.513	815.40	813.80	793.60	2810.00	801.18	7.58	3.33	.48	804.51	0.00	29.30	191.99
*	40.513	815.40	813.80	793.60	3210.00	801.79	8.19	3.63	.34	805.42	0.00	29.30	209.88
*	40.513	815.40	813.80	793.60	4565.00	803.84	10.24	4.64	.02	808.48	0.00	29.30	270.00

	SECNO	ELTRO	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	40.519	815.40	813.80	793.70	2155.00	801.91	8.21	1.63	.35	803.54	2.94	29.30	210.50
	40.519	815.40	813.80	793.70	2810.00	803.23	9.53	1.97	.41	805.21	2.94	29.30	249.21
*	40.519	815.40	813.80	793.70	3210.00	803.99	10.29	2.17	.44	806.16	2.94	29.30	271.30
*	40.519	815.40	813.80	793.70	4665.00	806.49	12.79	2.85	.54	809.33	2.94	29.30	344.49
	40.520	0.00	0.00	793.70	2155.00	802.83	9.13	.92	.21	803.76	0.00	31.00	279.71
	40.520	0.00	0.00	793.70	2810.00	804.30	10.60	1.16	.24	805.46	0.00	31.00	325.02
	40.520	0.00	0.00	793.70	3210.00	805.13	11.43	1.30	.26	806.43	0.00	31.00	350.83
	40.520	0.00	0.00	793.70	4665.00	807.89	14.19	1.78	.32	809.66	0.00	31.00	436.27
	40.521	0.00	0.00	793.70	2155.00	803.67	9.97	.30	.19	803.97	0.00	51.00	491.50
	40.521	0.00	0.00	793.70	2810.00	805.35	11.65	.37	.24	805.72	0.00	51.00	577.56
	40.521	0.00	0.00	793.70	3210.00	806.32	12.62	.41	.27	806.72	0.00	51.00	626.77
	40.521	0.00	0.00	793.70	4665.00	809.52	15.82	.54	.37	810.06	0.00	51.00	789.72
	40.531	0.00	0.00	793.90	2155.00	803.96	10.06	.10	.06	804.06	4.00	146.27	924.75
	40.531	0.00	0.00	793.90	2810.00	805.73	11.83	.10	.08	805.83	4.00	151.00	1189.12
	40.531	0.00	0.00	793.90	3210.00	806.74	12.84	.10	.09	806.84	4.00	151.00	1341.74
	40.531	0.00	0.00	793.90	4665.00	810.10	16.20	.11	.13	810.21	4.00	151.00	1849.46
	40.568	0.00	0.00	794.70	2155.00	804.04	9.34	.11	.01	804.15	4.00	186.67	885.54
	40.568	0.00	0.00	794.70	2810.00	805.80	11.10	.09	.00	805.89	4.00	212.95	1243.76
	40.568	0.00	0.00	794.70	3210.00	806.81	12.11	.09	.00	806.90	4.00	220.31	1463.58
	40.568	0.00	0.00	796.70	4665.00	810.19	15.49	.08	.01	810.26	4.00	244.78	2248.24
	40.644	0.00	0.00	796.20	2155.00	804.27	8.07	.19	.04	804.46	3.75	158.14	666.41
	40.644	0.00	0.00	796.20	2810.00	805.94	9.74	.16	.03	806.11	3.75	195.82	963.58
	40.644	0.00	0.00	796.20	3210.00	806.93	10.73	.14	.03	807.07	3.75	210.22	1164.01
	40.644	0.00	0.00	796.20	4665.00	810.25	14.05	.11	.02	810.36	3.75	234.45	1907.04
	40.727	0.00	0.00	797.90	2155.00	804.81	6.91	.33	.07	805.14	3.87	132.22	498.71
	40.727	0.00	0.00	797.90	2810.00	806.29	8.39	.28	.06	806.58	3.87	165.50	719.49
	40.727	0.00	0.00	797.90	3210.00	807.19	9.29	.25	.06	807.45	3.87	185.72	877.71
	40.727	0.00	0.00	797.90	4665.00	810.38	12.48	.16	.03	810.54	3.87	222.96	1544.56
	40.841	0.00	0.00	799.90	2155.00	805.90	6.00	.52	.10	806.43	4.76	111.92	388.31
	40.841	0.00	0.00	799.90	2810.00	807.01	7.11	.51	.11	807.52	4.76	136.81	526.22
	40.841	0.00	0.00	799.90	3210.00	807.75	7.85	.47	.11	808.22	4.76	153.30	632.85
	40.841	0.00	0.00	799.90	4665.00	810.60	10.70	.30	.07	810.90	4.76	210.06	1159.33
	40.888	0.00	0.00	801.90	2155.00	807.71	5.81	.58	.03	808.30	4.76	107.70	367.69
	40.888	0.00	0.00	801.90	2810.00	808.49	6.59	.66	.08	809.14	4.76	124.90	456.83
	40.888	0.00	0.00	801.90	3210.00	808.98	7.08	.67	.10	809.65	4.76	135.96	521.10
	40.888	0.00	0.00	801.90	4665.00	811.13	9.23	.55	.12	811.67	4.76	184.18	865.03
	40.968	0.00	0.00	803.90	2155.00	809.83	5.93	.70	.06	810.53	4.76	264.24	457.11
	40.968	0.00	0.00	803.90	2810.00	810.50	6.60	.63	.01	811.13	4.76	446.23	667.45

40.968	0.00	0.00	803.90	3210.00	810.91	7.01	.52	.05	811.43	4.76	614.05	89.70
40.968	0.00	0.00	803.90	4665.00	812.42	8.52	.23	.10	812.65	4.76	643.29	1849.38
41.093	0.00	0.00	804.60	2155.00	811.52	6.92	.10	.18	811.63	1.06	656.23	1353.05
41.093	0.00	0.00	804.60	2810.00	811.99	7.39	.11	.16	812.09	1.06	659.02	1656.19
41.093	0.00	0.00	804.60	3210.00	812.18	7.58	.12	.12	812.29	1.06	660.17	1782.52
41.093	0.00	0.00	804.60	4665.00	812.99	8.39	.13	.03	813.11	1.06	665.06	2317.95

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
41.405	0.00	0.00	808.20	2155.00	813.62	5.42	.40	.15	814.02	2.18	234.56	562.88
41.405	0.00	0.00	808.20	2810.00	814.16	5.96	.50	.20	814.66	2.18	270.56	697.57
41.405	0.00	0.00	808.20	3210.00	814.47	6.27	.55	.22	815.01	2.18	291.37	784.14
41.405	0.00	0.00	808.20	4665.00	815.35	7.15	.72	.30	816.07	2.18	351.32	1069.50
41.460	0.00	0.00	809.00	2150.00	814.28	5.28	.51	.05	814.79	2.76	147.78	439.20
41.460	0.00	0.00	809.00	2800.00	814.87	5.87	.63	.07	815.50	2.76	163.66	530.03
41.460	0.00	0.00	809.00	3200.00	815.19	6.19	.71	.08	815.90	2.76	172.38	583.81
41.460	0.00	0.00	809.00	4650.00	816.13	7.13	.98	.13	817.10	2.76	215.42	766.28
41.710	0.00	0.00	811.20	2150.00	818.12	6.92	.51	.00	818.63	1.67	136.22	400.69
41.710	0.00	0.00	811.20	2800.00	818.81	7.61	.61	.01	819.42	1.67	179.63	510.84
41.710	0.00	0.00	811.20	3200.00	819.20	8.00	.66	.02	819.86	1.67	203.68	584.74
41.710	0.00	0.00	811.20	4650.00	820.42	9.22	.79	.05	821.21	1.67	268.83	877.09
41.866	0.00	0.00	814.90	2150.00	820.31	5.41	.43	.02	820.74	4.51	131.31	441.39
41.866	0.00	0.00	814.90	2800.00	821.00	6.10	.52	.03	821.52	4.51	148.45	537.90
41.866	0.00	0.00	814.90	3200.00	821.38	6.48	.57	.03	821.96	4.51	171.79	597.54
41.866	0.00	0.00	814.90	4650.00	822.55	7.65	.71	.02	823.26	4.51	266.61	859.89
41.918	0.00	0.00	816.20	2150.00	820.96	4.76	.62	.10	821.58	4.69	108.91	353.07
41.918	0.00	0.00	816.20	2800.00	821.64	5.44	.75	.11	822.39	4.69	127.03	432.46
41.918	0.00	0.00	816.20	3200.00	822.01	5.81	.81	.12	822.83	4.69	152.52	483.65
41.918	0.00	0.00	816.20	4650.00	823.15	6.95	1.02	.15	824.17	4.69	204.16	690.13
41.971	0.00	0.00	817.40	2150.00	821.99	4.59	.77	.07	822.76	4.32	98.29	314.12
41.971	0.00	0.00	817.40	2800.00	822.64	5.24	.93	.09	823.57	4.32	130.08	386.02
41.971	0.00	0.00	817.40	3200.00	823.00	5.60	1.02	.10	824.01	4.32	148.86	436.44
41.971	0.00	0.00	817.40	4650.00	824.10	6.70	1.28	.13	825.38	4.32	176.11	616.37
42.023	0.00	0.00	818.40	2150.00	823.23	4.83	.84	.04	824.07	3.61	109.16	304.13
42.023	0.00	0.00	818.40	2800.00	823.87	5.47	1.02	.04	824.89	3.61	130.62	382.94
42.023	0.00	0.00	818.40	3200.00	824.23	5.83	1.11	.05	825.34	3.61	138.28	430.63
42.023	0.00	0.00	818.40	4650.00	825.32	6.92	1.41	.07	826.73	3.61	159.51	593.30
42.076	0.00	0.00	819.40	2150.00	824.68	5.28	.84	.00	825.52	3.60	111.97	323.61
42.076	0.00	0.00	819.40	2800.00	825.34	5.94	1.01	.00	826.36	3.60	122.22	401.41
42.076	0.00	0.00	819.40	3200.00	825.70	6.30	1.12	.00	826.82	3.60	127.81	446.71
42.076	0.00	0.00	819.40	4650.00	826.82	7.42	1.47	.03	828.29	3.60	144.40	598.82
42.086	0.00	0.00	819.50	2150.00	825.12	5.62	.70	.04	825.82	1.92	117.33	363.44
42.086	0.00	0.00	819.50	2800.00	825.83	6.33	.84	.05	826.67	1.92	128.30	450.77
42.086	0.00	0.00	819.50	3200.00	826.21	6.71	.93	.06	827.14	1.92	134.31	501.88
42.086	0.00	0.00	819.50	4650.00	827.45	7.95	1.20	.08	828.65	1.92	149.68	676.40
42.096	0.00	0.00	819.70	2150.00	825.36	5.66	.68	.01	826.05	3.85	118.11	369.43
42.096	0.00	0.00	819.70	2800.00	826.08	6.38	.82	.01	826.90	3.85	129.13	457.67

42.096	0.00	0.00	819.70	3200.00	826.47	6.77	.91	.01	827.38	3.85	135.17	509.36
42.096	0.00	0.00	819.70	4650.00	827.73	8.03	1.17	.01	828.89	3.85	150.45	687.96
42.106	0.00	0.00	819.80	2150.00	825.61	5.81	.66	.01	826.27	1.89	122.65	377.19
42.106	0.00	0.00	819.80	2800.00	826.35	6.55	.79	.01	827.13	1.89	137.17	473.72
42.106	0.00	0.00	819.80	3200.00	826.76	6.96	.85	.02	827.62	1.89	145.48	532.35
42.106	0.00	0.00	819.80	4650.00	828.11	8.31	1.04	.04	829.15	1.89	169.24	744.59

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
42.135	0.00	0.00	820.20	2150.00	826.27	6.07	.63	.01	826.90	2.53	127.97	393.82
42.135	0.00	0.00	820.20	2800.00	827.03	6.83	.74	.01	827.76	2.53	144.37	496.51
42.135	0.00	0.00	820.20	3200.00	827.45	7.25	.80	.02	828.25	2.53	154.36	559.32
42.135	0.00	0.00	820.20	4650.00	828.80	8.60	.97	.02	829.77	2.53	184.01	787.67
42.165	0.00	0.00	820.60	2150.00	826.88	6.28	.60	.01	827.48	2.55	130.69	407.51
42.165	0.00	0.00	820.60	2800.00	827.64	7.04	.70	.01	828.35	2.55	149.80	512.99
42.165	0.00	0.00	820.60	3200.00	828.07	7.47	.76	.01	828.83	2.55	161.32	579.28
42.165	0.00	0.00	820.60	4650.00	829.42	8.82	.92	.02	830.34	2.55	195.11	822.48
42.195	0.00	0.00	821.00	2150.00	827.45	6.45	.60	.00	828.05	2.53	129.95	411.44
42.195	0.00	0.00	821.00	2800.00	828.21	7.21	.70	.00	828.91	2.53	151.37	518.05
42.195	0.00	0.00	821.00	3200.00	828.63	7.63	.76	.00	829.39	2.53	163.55	584.45
42.195	0.00	0.00	821.00	4650.00	829.96	8.96	.93	.01	830.89	2.53	202.33	830.00
42.244	0.00	0.00	821.20	2150.00	828.37	7.17	.49	.03	828.86	.77	163.97	486.87
42.244	0.00	0.00	821.20	2800.00	829.16	7.96	.57	.04	829.73	.77	194.06	629.26
42.244	0.00	0.00	821.20	3200.00	829.60	8.40	.61	.05	830.21	.77	212.18	718.66
42.244	0.00	0.00	821.20	4650.00	831.01	9.81	.70	.07	831.71	.77	268.19	1055.44
42.294	0.00	0.00	821.50	2150.00	829.04	7.54	.44	.01	829.48	1.15	224.03	579.22
42.294	0.00	0.00	821.50	2800.00	829.87	8.37	.48	.03	830.35	1.15	273.72	783.95
42.294	0.00	0.00	821.50	3200.00	830.33	8.83	.49	.03	830.82	1.15	302.60	920.47
42.294	0.00	0.00	821.50	4650.00	831.79	10.29	.51	.06	832.30	1.15	360.25	1406.97
42.343	0.00	0.00	821.70	2150.00	829.69	7.99	.29	.04	829.98	.77	349.94	893.85
42.343	0.00	0.00	821.70	2800.00	830.55	8.85	.28	.06	830.83	.77	364.45	1200.24
42.343	0.00	0.00	821.70	3200.00	831.01	9.31	.29	.06	831.29	.77	371.99	1368.94
42.343	0.00	0.00	821.70	4650.00	832.43	10.73	.30	.06	832.73	.77	393.22	1915.02
42.392	0.00	0.00	821.90	2150.00	830.18	8.28	.13	.05	830.31	.77	365.88	1309.15
42.392	0.00	0.00	821.90	2800.00	830.99	9.09	.15	.04	831.14	.77	377.36	1612.39
42.392	0.00	0.00	821.90	3200.00	831.44	9.54	.15	.04	831.59	.77	383.62	1781.34
42.392	0.00	0.00	821.90	4650.00	832.84	10.94	.18	.04	833.02	.77	403.30	2331.54
42.451	0.00	0.00	822.50	2150.00	830.45	7.95	.18	.02	830.62	1.92	366.36	1183.66
42.451	0.00	0.00	822.50	2800.00	831.25	8.75	.18	.02	831.44	1.92	377.37	1483.63
42.451	0.00	0.00	822.50	3200.00	831.70	9.20	.19	.02	831.88	1.92	384.17	1651.88
42.451	0.00	0.00	822.50	4650.00	833.09	10.59	.21	.02	833.30	1.92	402.26	2201.38
42.496	0.00	0.00	822.90	2150.00	830.68	7.78	.29	.06	830.97	1.71	287.00	932.21
42.496	0.00	0.00	822.90	2800.00	831.47	8.57	.32	.07	831.78	1.71	287.00	1157.04
42.496	0.00	0.00	822.90	3200.00	831.90	9.00	.33	.07	832.23	1.71	287.00	1281.89
42.496	0.00	0.00	822.90	4650.00	833.28	10.38	.39	.09	833.67	1.71	287.00	1679.96
42.510	0.00	0.00	823.00	2150.00	830.77	7.77	.37	.04	831.14	1.28	237.78	749.29
42.510	0.00	0.00	823.00	2800.00	831.55	8.55	.41	.05	831.96	1.28	245.00	938.68

42.510	0.00	0.00	823.00	5200.00	831.9[illegible]	8.9[illegible]	.43	.05	832.41	1.28	265.00	1044.59
42.510	0.00	0.00	823.00	6650.00	833.34	10.34	.52	.07	833.86	1.28	265.00	1376.85
42.570	0.00	0.00	823.60	2150.00	831.31	7.71	.49	.06	831.80	1.92	145.00	534.77
42.570	0.00	0.00	823.60	2800.00	832.09	8.49	.60	.09	832.68	1.92	145.00	647.38
42.570	0.00	0.00	823.60	3200.00	832.51	8.91	.66	.11	833.17	1.92	145.00	709.17
42.570	0.00	0.00	823.60	4650.00	833.86	10.26	.87	.18	834.73	1.92	145.00	903.25

SECNO	ELTRD	ELLC	ELMIN	Q	CHSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
42.629	0.00	0.00	824.00	2150.00	832.17	8.17	.38	.05	832.55	1.28	110.00	558.65
42.629	0.00	0.00	824.00	2800.00	833.02	9.02	.48	.06	833.50	1.28	110.00	652.37
42.629	0.00	0.00	824.00	3200.00	833.48	9.48	.54	.06	834.03	1.28	110.00	703.49
42.629	0.00	0.00	824.00	4650.00	834.93	10.93	.77	.05	835.70	1.28	110.00	862.67

SUMMARY OF ERRORS

CAUTION SECNO= 31.998 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 31.998 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 31.998 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 33.683 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 33.683 PROFILE= 1 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 34.910 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 34.910 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 36.494 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 36.494 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 36.498 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 36.498 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 36.502 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 36.502 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 36.522 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 36.522 PROFILE= 3 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 36.535 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 36.535 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 40.510 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 40.510 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 40.513 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 40.513 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 40.513 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 40.513 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 40.513 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 40.513 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 40.513 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 40.513 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 40.513 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 40.515 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 40.519 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 40.519 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP & CITY OF ROCHESTER

3) WATERCOURSE: ~~RIVER~~ CLINTON RIVER

4) DOCUMENT TYPE: 100 YR ENCROACHED

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


T1      CITY OF ROCHESTER/AVON TOWNSHIP F.I.S. - JOB NO. 5850-07/01
T2      100-YEAR FLOW
T3      CLINTON RIVER - PROJECT MANAGER, JOHN EMIG

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -10.       4.         0.         0.  0.000000       0.00 .       0.0        0.   675.790      0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      3.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

*PROF 3

CCHV=    .300 CEHV=    .500
1490 NH CARD USED
*SECNO 31.557
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      189.0      760.0  TYPE=       1  TARGET=     -189.000

          VALLEY SECTION A - SECTION 31.557 FROM SHELBY TWP. F.I.S.

      31.56      13.99     675.79       0.00     675.79     676.33       .54       0.00       0.00     678.60
     7870.         0.       5230.      2640.         0.      741.      1207.         0.         0.      671.50
       0.00       0.00       7.05       2.19      0.000       .035       .050      0.000     661.80     202.82
    .001391         0.         0.         0.          0          0          0       0.00     525.63     728.45

*SECNO 31.566

3470 ENCROACHMENT STATIONS=      189.0      760.0  TYPE=       1  TARGET=     -189.000
      31.57      13.96     675.86       0.00       0.00     676.40       .54       .07        .00     678.70
     7780.         0.       5194.      2586.         0.      739.      1193.         2.         1.      671.60
       .00       0.00       7.03       2.17      0.000       .035       .050       .039     661.90     202.87
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.001585	50.	50.	50.	0	0	0	0.00	525.47	725.54

*SECNO 31.725

3470 ENCROACHMENT STATIONS= 225.0 690.0 TYPE= 1 TARGET= 465.000

VALLEY SECTION B

31.73	12.69	677.09	0.00	0.00	677.57	.48	1.15	.02	674.90
7780.	1927.	5853.	0.	920.	928.	0.	36.	9.	100000.00
.05	2.09	6.31	0.00	.050	.040	.045	.041	664.40	225.00
.001478	590.	840.	825.	2	0	0	0.00	465.00	690.00

*SECNO 31.745

3470 ENCROACHMENT STATIONS= 250.0 660.0 TYPE= 1 TARGET= 410.000

31.75	11.85	677.15	0.00	0.00	678.04	.89	.26	.20	675.80
7780.	2589.	5191.	0.	541.	602.	0.	39.	10.	100000.00
.05	4.79	8.62	0.00	.030	.050	.030	.042	665.30	250.00
.005011	100.	109.	110.	2	0	0	0.00	410.00	660.00

*SECNO 31.746

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

3470 ENCROACHMENT STATIONS= 250.0 660.0 TYPE= 1 TARGET= 410.000

AVON ROAD BRIDGE - D/S FACE - BRIDGE IS LOCATED JUST NORTHEAST OF THE

INTERSECTION OF AVON AND DEQUINDRE ROADS.

31.75	11.85	677.15	0.00	0.00	678.04	.89	.01	.00	675.80
7780.	2593.	5187.	0.	542.	603.	0.	39.	10.	100000.00
.05	4.79	8.61	0.00	.030	.050	.030	.042	665.30	250.00
.005001	1.	1.	1.	0	0	0	0.00	410.00	660.00

SPECIAL BRIDGE

SB	XK	XKOR	COFD	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.58	3.04	0.00	41.73	0.00	492.40	0.00	665.60	665.30

PRINTED BY ROTARY MANIFOLD FORMS

*SECNO 31.752
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
683.28	678.93	0.00	3107.	4740.	492.	492.	677.40	677.50

3470 ENCROACHMENT STATIONS= 270.0 744.0 TYPE= 1 TARGET= 474.000

AVON ROAD BRIDGE - U/S FACE - SECTION C. BRIDGE IS LOCATED JUST

NORTHEAST OF THE INTERSECTION OF AVON AND DEQUINDRE ROADS.

31.75	13.14	678.74	0.00	0.00	679.43	.69	1.39	0.00	675.00
7780.	3093.	4687.	0.	1342.	560.	0.	41.	10.	100000.00
.05	2.30	8.36	0.00	.070	.035	.050	.042	665.60	281.88
.002258	36.	36.	36.	3	0	3	0.00	462.12	744.00

*SECNO 31.753

3470 ENCROACHMENT STATIONS= 270.0 744.0 TYPE= 1 TARGET= 474.000

31.75	13.09	678.69	0.00	0.00	679.49	.80	.00	.06	675.00
7780.	2840.	4940.	0.	1319.	558.	0.	41.	10.	100000.00
.05	2.15	8.85	0.00	.090	.040	.090	.042	665.60	283.72
.003322	1.	1.	1.	2	0	0	0.00	460.28	744.00

*SECNO 31.829

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 290.0 954.0 TYPE= 1 TARGET= -290.000

VALLEY SECTION D

31.83	13.14	679.94	0.00	0.00	680.12	.18	.45	.19	671.00
7630.	3073.	3101.	1456.	2387.	620.	751.	58.	13.	671.00
.08	1.29	5.00	1.94	.100	.042	.070	.045	666.80	290.00
.000753	160.	400.	540.	2	0	0	0.00	653.78	943.78

*SECNO 31.936

31.94	12.88	680.28	0.00	0.00	680.84	.56	.53	.19	683.10
7630.	0.	7630.	0.	0.	1275.	0.	84.	17.	683.60
.11	0.00	5.98	0.00	.100	.042	.070	.045	667.40	356.00

.001451	330.	568.	580.	2	0	0	0.00	120.00	476.00

*SECNO 31.937

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

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE - SECTION E

31.94	12.89	680.29	0.00	0.00	680.84	.56	.00	.00	683.10
7630.	0.	7630.	0.	0.	1276.	0.	84.	17.	683.60
.11	0.00	5.98	0.00	.035	.042	.035	.045	667.40	356.00
.001450	1.	1.	1.	0	0	0	0.00	120.00	476.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	1.66	2.69	0.00	97.78	9.00	1154.10	0.00	667.40	667.40

*SECNO 31.940
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
681.41	681.00	.08	0.	7630.	1154.	1154.	680.40	682.10

PENN-CENTRAL RAILROAD BRIDGE - U/S FACE - SECTION E

31.94	13.43	680.83	0.00	0.00	681.41	.58	.57	0.00	683.10
7630.	0.	7630.	0.	0.	1245.	0.	84.	17.	683.60
.11	0.00	6.13	0.00	.035	.042	.035	.045	667.40	356.00
.005114	15.	15.	15.	2	0	0	0.00	120.00	476.00

*SECNO 31.941

31.94	13.55	680.95	0.00	0.00	681.44	.49	.00	.03	683.10
7630.	0.	7630.	0.	0.	1355.	0.	84.	17.	683.60
.11	0.00	5.63	0.00	.050	.040	.080	.045	667.40	356.00
.001089	1.	1.	1.	2	0	0	0.00	120.00	476.00

1490 NH CARD USED

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PRINTED IN U.S.A.

*SEC.O 31.997

3470 ENCROACHMENT STATIONS= .0 673.0 TYPE= 1 TARGET= 672.999

32.00	12.06	681.56	0.00	0.00	681.89	.34	.41	.05	677.10
7630.	291.	4044.	3295.	158.	678.	1337.	97.	19.	680.00
.13	1.84	5.96	2.46	.060	.040	.063	.044	669.50	170.64
.001597	300.	308.	320.	2	0	0	0.00	491.71	662.34

1490 NH CARD USED
*SECNO 31.998

3470 ENCROACHMENT STATIONS= .0 673.0 TYPE= 1 TARGET= 672.999

YATES MILL DAM - D/S FACE. FIXED CREST CONCRETE AND TIMBER DAM,

80 FT. LONG - SECTION F. BECAUSE OF DAM SUBMERGENCE AND THE RELATIVE

DAM LENGTH RELATIVE TO TOP WIDTH, DAM WAS TREATED AS A NORMAL VALLEY

SECTION.

32.00	6.43	681.33	0.00	0.00	682.13	.80	.00	.23	679.80
7630.	203.	3921.	3505.	88.	406.	1258.	97.	19.	680.00
.13	2.31	9.65	2.79	.035	.020	.063	.044	674.90	171.21
.002169	1.	1.	1.	2	0	0	0.00	490.42	661.62

*SECNO 31.999

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

3470 ENCROACHMENT STATIONS= .0 673.0 TYPE= 1 TARGET= 672.999

YATES MILL DAM - U/S FACE. FIXED CREST CONCRETE AND TIMBER DAM,

80 FT. LONG - SECTION F. BECAUSE OF DAM SUBMERGENCE AND THE RELATIVE

DAM LENGTH RELATIVE TO TOP WIDTH, DAM WAS TREATED AS A NORMAL VALLEY

SECTION.

PRINTED IN U.S.A.

32.00	6.45	681.35	0.00	0.00	682.14	.80	.01	.00	679.80
7630.	205.	3919.	3506.	88.	407.	1261.	97.	19.	680.00
.13	2.32	9.63	2.78	.035	.020	.063	.044	674.90	171.18
.002154	6.	6.	6.	0	0	0	0.00	490.47	661.65

1490 NH CARD USED
*SECNO 32.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= .0 673.0 TYPE= 1 TARGET= 672.999

32.00	12.56	682.06	0.00	0.00	682.31	.25	.00	.16	677.10
7630.	600.	3723.	3308.	194.	718.	1507.	97.	19.	680.00
.13	3.09	5.18	2.19	.033	.040	.063	.044	669.50	169.41
.001119	1.	1.	1.	3	0	0	0.00	494.48	663.89

*SECNO 32.125

3470 ENCROACHMENT STATIONS= .0 757.0 TYPE= 1 TARGET= 756.999

VALLEY SECTION G

32.13	11.50	682.80	0.00	0.00	683.06	.26	.74	.01	678.90
7490.	2410.	3536.	1545.	1294.	623.	816.	129.	27.	680.10
.17	1.86	5.67	1.89	.070	.040	.070	.044	671.30	22.74
.001526	760.	660.	330.	3	0	0	0.00	723.58	746.33

*SECNO 32.237

3470 ENCROACHMENT STATIONS= 385.0 881.0 TYPE= 1 TARGET= 496.000

VALLEY SECTION H

32.24	9.45	683.75	0.00	0.00	684.44	.70	1.17	.22	679.80
7490.	3413.	4059.	18.	1287.	463.	11.	153.	33.	681.10
.19	2.65	8.76	1.70	.075	.042	.065	.045	674.30	385.00
.004061	350.	593.	580.	2	0	0	0.00	489.12	874.12

*SECNO 32.275

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 200.0 648.0 TYPE= 1 TARGET= 448.000

32.28	9.98	684.78	0.00	0.00	684.97	.19	.38	.15	679.30

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7490.	1430.	5196.	2856.	748.	686.	1173.	165.	35.	679.60
.21	1.92	4.66	2.43	.075	.042	.065	.045	674.80	200.00
.001079	200.	200.	200.	2	0	0	0.00	429.52	629.52

*SECNO 32.530

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

3470 ENCROACHMENT STATIONS= .0 648.0 TYPE= 1 TARGET= 647.999

VALLEY SECTION I

32.53	8.15	686.35	0.00	0.00	686.58	.23	1.59	.02	682.70
7260.	2796.	2922.	1542.	1219.	534.	803.	223.	47.	683.00
.30	2.29	5.47	1.92	.075	.042	.090	.047	678.20	33.50
.002079	950.	1350.	880.	3	0	0	0.00	591.34	624.84

*SECNO 32.845

3470 ENCROACHMENT STATIONS= .0 685.0 TYPE= 1 TARGET= 684.999

VALLEY SECTION J

32.85	8.77	689.47	0.00	0.00	689.76	.29	3.15	.03	685.70
7260.	1962.	3442.	1856.	1085.	586.	853.	311.	68.	683.80
.41	1.81	5.87	2.18	.085	.042	.070	.046	680.70	42.42
.001978	1660.	1660.	1200.	2	0	0	0.00	642.58	685.00

*SECNO 33.137

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 1016.0 TYPE= 1 TARGET= 1015.999

VALLEY SECTION K - LEFT OVERBANK ADJUSTED TO ELIMINATE INEFFECTIVE

FLOW AREA OF DITCH NEXT TO GRAND TRUNK WESTERN RAILROAD

33.14	8.72	692.22	0.00	0.00	692.49	.27	2.73	.01	687.80
6940.	4336.	2604.	0.	1718.	436.	0.	378.	85.	100000.00
.51	2.52	5.97	0.00	.065	.040	.070	.046	683.50	191.50
.002144	1120.	1540.	1350.	1	0	0	0.00	621.81	1012.00

*SECNO 33.263

3470 ENCROACHMENT STATIONS= 760.0 1530.0 TYPE= 1 TARGET= -760.000

CONFLUENCE WITH STONEY CREEK

33.26	8.44	693.44	0.00	0.00	693.67	.23	1.17	.01	689.30
6870.	2011.	2305.	2554.	781.	401.	1233.	407.	93.	689.30
.55	2.58	5.75	2.07	.065	.040	.070	.046	685.00	760.00
.001926	520.	670.	525.	2	0	0	0.00	648.26	1408.26

CCHV= .300 CEHV= .500
1490 NH CARD USED
*SECNO 33.421

3470 ENCROACHMENT STATIONS= .0 384.0 TYPE= 1 TARGET= -383.999

VALLEY SECTION L

33.42	7.98	694.88	0.00	0.00	695.17	.29	1.47	.03100000.00	
5670.	0.	2730.	2940.	0.	493.	1069.	440.	101.	691.20
.60	0.00	5.54	2.75	.065	.042	.060	.047	686.90	16.39
.002075	750.	830.	650.	2	0	0	0.00	358.57	374.97

*SECNO 33.610

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

3470 ENCROACHMENT STATIONS= 226.0 859.0 TYPE= 1 TARGET= -226.000

VALLEY SECTION M

33.61	8.93	697.63	0.00	0.00	698.10	.47	2.84	.09	703.90
5670.	0.	2972.	2698.	0.	414.	1084.	475.	110.	695.50
.66	0.00	7.19	2.49	.050	.045	.080	.046	688.70	243.26
.004062	1060.	1000.	1010.	2	0	0	0.00	426.31	669.57

*SECNO 33.679

3301 HV CHANGED MORE THAN HVINS

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3470 ENCROACHMENT STATIONS= 486.0 886.0 TYPE= 1 TARGET= -486.000

33.68	9.39	698.69	0.00	0.00	700.03	1.34	1.50	.44	695.20
5670.	0.	4552.	1118.	0.	440.	1048.	487.	113.	694.40
.67	0.00	10.36	1.07	.090	.035	.220	.046	689.30	486.00
.004270	430.	369.	340.	2	0	0	0.00	361.75	847.75

*SECNO 33.680

3470 ENCROACHMENT STATIONS= 486.0 886.0 TYPE= 1 TARGET= -486.000

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE.

33.68	9.39	698.69	0.00	0.00	700.04	1.34	.00	.00	695.20
5670.	0.	4558.	1112.	0.	440.	1049.	487.	113.	694.40
.67	0.00	10.36	1.06	.090	.030	.190	.046	689.30	486.00
.003140	1.	1.	1.	0	0	0	0.00	361.76	847.76

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.52	2.78	0.00	34.50	0.00	331.20	0.00	689.30	689.30

*SECNO 33.683

3280 CROSS SECTION 33.68 EXTENDED 1.39 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
705.61	700.75	0.00	1079.	4604.	331.	331.	698.90	701.20

PENN-CENTRAL RAILROAD BRIDGE - U/S FACE - SECTION N.

33.68	13.28	702.58	0.00	0.00	703.25	.67	3.22	0.00	703.50
5670.	0.	4568.	1102.	0.	623.	2244.	488.	113.	694.40
.67	0.00	7.34	.49	.090	.025	.325	.046	689.30	1000.00
.000796	15.	15.	15.	2	0	3	0.00	365.00	1365.00

*SECNO 33.684

3470 ENCROACHMENT STATIONS= 480.0 851.0 TYPE= 1 TARGET= 365.000

	33.68	13.40	702.70	0.00	0.00	703.28	.58	.00	.03	695.20
	5670.	0.	4526.	1144.	0.	660.	2313.	488.	113.	694.40
	.67	0.00	6.86	.49	.090	.035	.400	.046	689.30	486.00
	.001186	1.	1.	1.	2	0	0	0.00	365.00	851.00

*SECNO 33.721

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

	33.72	12.35	703.45	0.00	0.00	703.56	.11	.14	.14	697.00
	5490.	361.	2257.	2872.	390.	603.	1994.	500.	115.	696.20
	.69	.93	3.75	1.44	.080	.042	.080	.046	691.10	328.97
	.000487	240.	199.	160.	2	0	0	0.00	527.57	856.53

1490 NH CARD USED

*SECNO 33.816

3470 ENCROACHMENT STATIONS= .0 900.0 TYPE= 1 TARGET= 899.999

VALLEY SECTION P

	33.82	10.31	703.91	0.00	0.00	704.04	.13	.47	.01	700.50
	5490.	578.	2828.	2084.	481.	736.	1542.	551.	127.	699.10
	.77	1.20	3.84	1.35	.073	.050	.085	.045	693.60	146.99
	.000951	400.	500.	980.	2	0	0	0.00	753.00	900.00

*SECNO 33.995

3470 ENCROACHMENT STATIONS= .0 740.0 TYPE= 1 TARGET= 739.999

	34.00	8.18	704.98	0.00	0.00	705.54	.55	1.29	.21	703.70
	5280.	178.	3875.	1228.	114.	562.	668.	585.	137.	702.30
	.81	1.56	6.89	1.84	.050	.042	.085	.045	696.80	208.29
	.003088	800.	950.	580.	2	0	0	0.00	506.35	714.63

*SECNO 34.033

3470 ENCROACHMENT STATIONS= .0 590.0 TYPE= 1 TARGET= 589.999

	34.03	8.02	705.52	0.00	0.00	706.55	1.04	.77	.24	704.40
	5280.	166.	4722.	392.	91.	548.	240.	590.	139.	703.00
	.82	1.82	8.62	1.64	.050	.042	.085	.045	697.50	221.62

.0u4996	200.	200.	200.	2	0	0	0.00	568.58	590.00

*SECNO 34.071

3470 ENCROACHMENT STATIONS= 425.0 750.0 TYPE= 1 TARGET= 325.000

VALLEY SECTION Q

34.07	8.64	706.84	0.00	0.00	707.47	.63	.80	.12	703.10
5280.	1034.	3627.	619.	340.	484.	323.	596.	140.	703.30
.83	3.04	7.49	1.92	.050	.042	.085	.045	698.20	425.00
.003139	150.	200.	300.	3	0	0	0.00	325.00	750.00

*SECNO 34.090

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

3470 ENCROACHMENT STATIONS= 435.0 730.0 TYPE= 1 TARGET= 295.000

34.09	8.89	707.29	0.00	0.00	707.81	.51	.30	.04	703.30
5280.	1135.	3406.	739.	364.	501.	278.	598.	141.	703.50
.83	3.12	6.80	2.66	.050	.045	.060	.045	698.40	435.00
.002845	100.	100.	100.	2	0	0	0.00	295.00	730.00

*SECNO 34.156

3470 ENCROACHMENT STATIONS= 475.0 655.0 TYPE= 1 TARGET= 180.000

34.16	9.35	708.25	0.00	0.00	708.89	.64	1.02	.06	703.80
5280.	1246.	3816.	218.	338.	529.	73.	607.	143.	704.00
.85	3.69	7.21	2.97	.050	.045	.060	.045	698.90	475.00
.002970	350.	350.	350.	2	0	0	0.00	180.00	655.00

*SECNO 34.353

3265 DIVIDED FLOW

VALLEY SECTION R

34.35	11.17	711.57	0.00	0.00	712.22	.65	3.32	.00	713.90
5110.	0.	4082.	1028.	0.	570.	556.	630.	151.	711.00
.89	0.00	7.17	1.85	.050	.045	.060	.045	700.40	161.72
.003629	1010.	1040.	880.	1	0	0	0.00	565.36	774.86

*SECNO 34.513

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

VALLEY SECTION S

34.51	10.00	714.70	0.00	0.00	715.61	.90	3.26	.13100000.00	
5110.	0.	3867.	1243.	0.	474.	220.	647.	157.	708.90
.92	0.00	8.16	5.66	.060	.045	.045	.045	704.70	21.31
.004384	670.	840.	750.	2	0	0	0.00	113.68	135.00

*SECNO 34.522

3470 ENCROACHMENT STATIONS= 520.0 690.0 TYPE= 1 TARGET= 170.000

34.52	10.41	715.31	0.00	0.00	715.86	.55	.15	.10	712.40
5110.	491.	4280.	339.	205.	669.	102.	648.	157.	711.50
.93	2.40	6.40	3.32	.060	.045	.045	.045	704.90	520.00
.002179	50.	50.	50.	2	0	0	0.00	170.00	690.00

1490 NH CARD USED

*SECNO 34.645

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

3470 ENCROACHMENT STATIONS= .0 670.0 TYPE= 1 TARGET= 669.999

VALLEY SECTION T

34.65	9.87	716.87	0.00	0.00	717.21	.35	1.29	.06	714.50
5110.	1523.	3522.	64.	1109.	627.	29.	668.	162.	713.60
.97	1.37	5.62	2.26	.090	.045	.050	.045	707.00	162.54
.001830	625.	650.	700.	2	0	0	0.00	507.46	670.00

*SECNO 34.698

3470 ENCROACHMENT STATIONS= 360.0 710.0 TYPE= 1 TARGET= 350.000

34.70	9.19	717.39	0.00	0.00	718.02	.63	.67	.14	715.70
5110.	755.	4073.	282.	484.	575.	103.	677.	165.	714.80
.98	1.56	7.08	2.75	.090	.045	.050	.045	708.20	360.00
.003256	275.	280.	270.	2	0	0	0.00	350.00	710.00

*SECNO 34.725

3470 ENCROACHMENT STATIONS= 385.0 690.0 TYPE= 1 TARGET= 305.000

CONFLUENCE WITH PAINT CREEK

34.73	9.03	717.83	0.00	0.00	718.53	.70	.47	.03	716.30
4880.	606.	4101.	174.	394.	563.	62.	681.	166.	715.40
.99	1.54	7.28	2.81	.090	.045	.050	.045	708.80	385.00
.003549	135.	140.	130.	2	0	0	0.00	305.00	690.00

*SECNO 34.751

3470 ENCROACHMENT STATIONS= 410.0 665.0 TYPE= 1 TARGET= 255.000

34.75	9.12	718.52	0.00	0.00	719.00	.47	.40	.07	716.90
3825.	455.	3351.	19.	360.	571.	10.	684.	167.	716.00
.99	1.26	5.87	1.89	.090	.045	.050	.045	709.40	410.00
.002266	135.	140.	135.	2	0	0	0.00	255.00	665.00

*SECNO 34.804

3470 ENCROACHMENT STATIONS= 565.0 670.0 TYPE= 1 TARGET= 105.000

34.80	8.57	719.17	0.00	0.00	719.94	.77	.80	.15	718.10
3825.	24.	3760.	41.	23.	528.	17.	688.	168.	717.20
1.01	1.05	7.12	2.43	.090	.045	.050	.045	710.60	565.00
.003688	275.	280.	265.	2	0	0	0.00	105.00	670.00

*SECNO 34.857

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

3470 ENCROACHMENT STATIONS= 535.0 835.0 TYPE= 1 TARGET= 300.000

34.86	8.48	720.28	0.00	0.00	720.97	.69	1.00	.03	719.30
3825.	61.	3582.	181.	58.	522.	100.	692.	169.	718.40
1.02	1.06	6.86	1.81	.090	.045	.050	.045	711.80	535.00
.003489	270.	280.	265.	3	0	0	0.00	242.47	777.47

*SECNO 34.906

3470 ENCROACHMENT STATIONS= 587.0 665.0 TYPE= 1 TARGET= 78.000

34.91	8.30	721.20	0.00	0.00	722.08	.88	1.01	.10100000.00	
3825.	0.	3811.	14.	0.	505.	7.	696.	170.	719.50
1.03	0.00	7.55	2.19	.090	.045	.050	.045	712.90	587.00
.004367	250.	260.	245.	1	0	0	0.00	78.00	665.00

1490 NH CARD USED
*SECNO 34.910

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 200.0 530.0 TYPE= 1 TARGET= 330.000

VALLEY SECTION U

34.91	7.77	720.77	0.00	0.00	722.78	2.02	.14	.57	719.00
3825.	27.	3798.	0.	11.	332.	0.	696.	170.	721.00
1.03	2.51	11.44	0.00	.060	.045	.060	.045	713.00	340.99
.012248	20.	20.	20.	3	0	0	0.00	68.65	409.64

CCHV= .300 CEHV= .500
*SECNO 35.037

VALLEY SECTION V - DIRECTLY UNDER ROCHESTER ROAD BRIDGE

35.04	10.34	726.44	0.00	0.00	728.03	1.59	5.12	.13	725.90
3825.	0.	3825.	0.	0.	378.	0.	702.	171.	729.10
1.05	.58	10.12	0.00	.075	.038	.075	.045	716.10	428.36
.005220	625.	670.	650.	2	0	0	0.00	43.39	471.76

*SECNO 35.068

35.07	12.01	727.71	0.00	0.00	728.84	1.12	.66	.14	725.50
3825.	10.	3815.	0.	9.	448.	0.	703.	171.	728.70
1.05	1.15	8.52	0.00	.075	.038	.075	.045	715.70	421.95
.003065	170.	169.	200.	2	0	0	0.00	49.96	471.91

*SECNO 35.069

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

DIVERSION STREET BRIDGE - D/S FACE - SECTION W

35.07	12.03	727.73	0.00	0.00	728.84	1.11	.00	.00	725.50
3825.	24.	3801.	0.	9.	448.	0.	703.	171.	728.70
1.05	2.63	8.48	0.00	.030	.035	.030	.045	715.70	421.91
.002574	1.	1.	1.	1	0	0	0.00	50.00	471.91

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	3.02	0.00	28.27	0.00	248.80	0.00	715.60	715.70

*SECNO 35.076

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
734.41	728.55	0.00	1731.	2095.	249.	249.	724.40	727.70

3470 ENCROACHMENT STATIONS= 306.0 606.0 TYPE= 1 TARGET= 300.000

DIVERSION STREET BRIDGE - U/S FACE - SECTION W

35.08	13.77	729.37	0.00	0.00	729.74	.37	.89	0.00	723.60
3825.	947.	2510.	368.	464.	428.	264.	704.	171.	722.50
1.05	2.04	5.87	1.39	.050	.035	.080	.045	715.60	306.00
.001017	37.	37.	37.	2	0	4	0.00	300.00	606.00

*SECNO 35.077

3470 ENCROACHMENT STATIONS= 80.0 380.0 TYPE= 1 TARGET= 300.000

35.08	14.15	729.75	0.00	0.00	729.83	.07	.00	.09	722.70
3825.	980.	2199.	646.	741.	812.	661.	704.	171.	722.00
1.05	1.32	2.71	.98	.050	.045	.090	.045	715.60	80.00
.000244	1.	1.	1.	2	0	0	0.00	300.00	380.00

*SECNO 35.152

3470 ENCROACHMENT STATIONS= 149.0 380.0 TYPE= 1 TARGET= 231.000

VALLEY SECTION X

35.15	10.72	729.82	0.00	0.00	730.13	.31	.19	.13	726.20
3825.	277.	2952.	596.	168.	593.	380.	719.	173.	725.50
1.08	1.65	4.98	1.57	.050	.045	.090	.045	719.10	149.00
.001258	410.	399.	380.	2	0	0	0.00	231.00	380.00

1490 .H CARD USED
*SECNO 35.266

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3470 ENCROACHMENT STATIONS=      282.0      600.0  TYPE=      1  TARGET=      318.000

             VALLEY SECTION Y

      35.27      10.53     730.63       0.00       0.00     730.73       .11        .55        .06     730.10
      3825.         0.       1576.      2248.         1.       471.      1141.       738.       177.      725.00
       1.15        .46       3.35       1.97       .035       .047       .055       .045     720.10     288.86
   .000690       610.       600.       600.          2          0          0       0.00     311.14     600.00
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*SECNO 35.323

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   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=      340.1      565.0  TYPE=      1  TARGET=      224.900
      35.32       9.14     730.84       0.00       0.00     731.23       .40        .35        .14     730.40
      3825.         0.       2486.      1338.         1.       409.       648.       747.       179.      726.00
       1.16        .44       6.08       2.07       .060       .045       .090       .045     721.70     347.41
   .002434       260.       300.       300.          2          0          0       0.00     217.59     565.00
```

*SECNO 35.379

```
3470 ENCROACHMENT STATIONS=      200.0      540.0  TYPE=      1  TARGET=      340.000
      35.38       8.52     731.62       0.00       0.00     732.34       .72        .95        .16     730.80
      3825.       166.       2894.      765.        93.       375.       292.       754.       180.      727.10
       1.18       1.79       7.71       2.62       .060       .045       .090       .045     723.10     311.50
   .004232       260.       300.       305.          2          0          0       0.00     228.50     540.00
```

*SECNO 35.436

```
3470 ENCROACHMENT STATIONS=      200.0      575.0  TYPE=      1  TARGET=      375.000
      35.44       8.49     732.89       0.00       0.00     733.73       .84       1.33        .06     731.10
      3825.       218.       3005.      602.       111.       368.       213.       759.       182.      728.20
       1.19       1.97       8.16       2.82       .060       .045       .090       .045     724.40     370.78
   .004713       260.       300.       300.          2          0          0       0.00     204.21     575.00
```

*SECNO 35.455

```
3470 ENCROACHMENT STATIONS=         .0      630.0  TYPE=      1  TARGET=      629.999
      35.46       8.80     733.70       0.00       0.00     734.20       .50        .37        .10     731.60
      3825.       254.       2579.      991.       143.       384.       430.       760.       182.      728.70
```

1.19	1.79	6.72	2.30	.060	.045	.090	.045	724.90	562.52
.003018	80.	100.	100.	3	0	0	0.00	267.48	630.00

*SECNO 35.493

3470 ENCROACHMENT STATIONS= .0 818.0 TYPE= 1 TARGET= 817.999

VALLEY SECTION Z

35.49	8.70	734.50	0.00	0.00	734.72	.22	.44	.08	731.50
3825.	297.	1895.	1634.	171.	375.	847.	766.	184.	729.30
1.21	1.73	5.05	1.93	.050	.045	.075	.045	725.80	421.00
.001706	180.	200.	200.	2	0	0	0.00	397.00	818.00

*SECNO 35.527

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

3470 ENCROACHMENT STATIONS= 343.4 760.0 TYPE= 1 TARGET= 416.600

35.53	7.95	734.75	0.00	0.00	735.25	.50	.40	.14	732.00
3825.	404.	2627.	795.	186.	390.	458.	770.	185.	731.30
1.22	2.17	6.74	1.74	.060	.045	.090	.045	726.80	376.69
.003379	185.	180.	145.	2	0	0	0.00	383.31	760.00

*SECNO 35.561

3470 ENCROACHMENT STATIONS= 200.0 831.0 TYPE= 1 TARGET= -200.000

35.56	7.55	735.35	0.00	0.00	735.91	.56	.62	.03	732.60
3825.	618.	2839.	367.	249.	414.	228.	774.	187.	733.30
1.23	2.48	6.85	1.61	.060	.045	.090	.045	727.80	335.07
.003729	190.	180.	145.	2	0	0	0.00	327.74	662.80

*SECNO 35.595

3470 ENCROACHMENT STATIONS= 330.0 791.5 TYPE= 1 TARGET= -330.000

35.60	7.26	736.06	0.00	0.00	736.56	.50	.64	.02	733.10
3825.	797.	2851.	177.	285.	445.	140.	778.	188.	735.30
1.24	2.80	6.41	1.26	.060	.045	.090	.045	728.80	330.00
.003401	185.	180.	145.	2	0	0	0.00	275.60	605.60

*SECNO 35.629

5265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 236.0 752.0 TYPE= 1 TARGET= -236.000

VALLEY SECTION AA

35.63	7.10	736.80	0.00	0.00	737.12	.33	.51	.05	733.70
3825.	1283.	2483.	59.	419.	472.	73.	781.	189.	737.30
1.25	3.06	5.26	.81	.050	.045	.085	.045	729.70	258.88
.002369	190.	180.	145.	2	0	0	0.00	301.43	566.92

*SECNO 35.800

VALLEY SECTION AB

35.80	9.22	739.02	0.00	0.00	739.55	.52	2.33	.10	735.90
3825.	1277.	2251.	297.	389.	316.	214.	797.	194.	738.10
1.29	3.29	7.13	1.39	.055	.045	.080	.045	729.80	225.69
.003939	530.	900.	850.	1	0	0	0.00	373.11	598.80

*SECNO 35.980

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

3470 ENCROACHMENT STATIONS= 127.0 288.0 TYPE= 1 TARGET= -127.000

VALLEY SECTION AC

35.98	8.44	742.24	0.00	0.00	742.79	.55	3.23	.01	739.20
3825.	750.	3075.	0.	289.	472.	0.	814.	200.	100000.00
1.33	2.60	6.51	0.00	.070	.045	.070	.045	733.80	127.00
.003190	820.	950.	920.	2	0	0	0.00	154.20	281.20

*SECNO 36.045

3470 ENCROACHMENT STATIONS= 214.0 283.0 TYPE= 1 TARGET= 69.000

36.05	9.28	743.28	0.00	0.00	744.09	.81	1.17	.13	739.40
3825.	0.	3825.	0.	0.	529.	0.	819.	201.	100000.00
1.34	0.00	7.23	0.00	.070	.045	.070	.045	734.00	214.00
.003703	270.	349.	430.	2	0	0	0.00	67.98	281.98

*SECNO 36.046

GRAND TRUNK WESTERN RAILROAD BRIDGE - D/S FACE - SECTION AD

36.05	9.32	743.32	0.00	0.00	744.11	.79	.00	.01	746.40
3825.	0.	3825.	0.	0.	538.	0.	819.	201.	746.60
1.35	0.00	7.11	0.00	.040	.040	.040	.045	734.00	1000.00
.002893	1.	1.	1.	2	0	0	0.00	69.00	1069.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	1.72	2.69	0.00	58.37	5.00	501.70	0.00	734.00	734.00

*SECNO 36.048
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
744.87	744.36	.15	0.	3825.	502.	502.	743.40	745.00

GRAND TRUNK WESTERN RAILROAD BRIDGE - U/S FACE - SECTION AD

36.05	10.13	744.13	0.00	0.00	744.87	.74	.77	0.00	746.40
3825.	0.	3825.	0.	0.	553.	0.	820.	201.	746.60
1.35	0.00	6.92	0.00	.040	.040	.040	.045	734.00	1000.00
.006902	16.	16.	16.	2	0	0	0.00	69.00	1069.00

CCHV= .300 CEHV= .500
*SECNO 36.049

3470 ENCROACHMENT STATIONS= 214.0 283.0 TYPE= 1 TARGET= 69.000

36.05	10.27	744.27	0.00	0.00	744.91	.64	.00	.03	739.40
3825.	0.	3825.	0.	0.	597.	0.	820.	201.	100000.00
1.35	0.00	6.41	0.00	.090	.045	.050	.045	734.00	214.00
.002581	1.	1.	1.	2	0	0	0.00	68.91	282.91

*SECNO 36.060

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= 571.0 740.0 TYPE= 1 TARGET= 169.000

36.06	10.70	744.80	0.00	0.00	745.11	.31	.10	.10	740.70
3825.	387.	2480.	958.	225.	487.	301.	820.	201.	739.80
1.35	1.72	5.10	3.19	.090	.045	.050	.045	734.10	571.00
.001545	50.	50.	50.	2	0	0	0.00	169.00	740.00

CCHV= .300 CEHV= .500
*SECNO 36.257

VALLEY SECTION AE

36.26	9.51	746.11	0.00	0.00	746.20	.08	1.02	.07	743.20
3800.	1420.	1375.	1005.	1002.	416.	592.	852.	208.	742.30
1.47	1.42	3.31	1.70	.075	.045	.055	.045	736.60	366.31
.000802	980.	1049.	700.	2	0	0	0.00	494.88	861.19

*SECNO 36.316

3470 ENCROACHMENT STATIONS= .0 720.0 TYPE= 1 TARGET= 719.999

36.32	8.33	746.43	0.00	0.00	746.66	.24	.39	.08	744.10
3800.	1227.	1889.	684.	615.	367.	338.	864.	211.	743.80
1.49	1.99	5.14	2.03	.075	.045	.055	.045	738.10	295.10
.002201	335.	310.	295.	2	0	0	0.00	424.90	720.00

*SECNO 36.376

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

36.38	7.95	747.25	0.00	0.00	747.84	.60	1.00	.18	745.10
3800.	1062.	2545.	193.	400.	346.	105.	873.	214.	745.40
1.51	2.66	7.36	1.85	.075	.045	.055	.045	739.30	220.12
.004755	340.	315.	295.	2	0	0	0.00	329.88	550.00

1490 NH CARD USED
*SECNO 36.434

3470 ENCROACHMENT STATIONS= .0 395.0 TYPE= 1 TARGET= 394.999

36.43	7.96	748.36	0.00	0.00	749.27	.92	1.27	.16	746.00
3800.	836.	2918.	46.	262.	340.	32.	878.	216.	747.00
1.52	3.19	8.59	1.44	.050	.040	.050	.045	740.40	126.13
.003439	335.	310.	295.	1	0	0	0.00	236.58	362.71

*SECNO 36.465

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

```
3470 ENCROACHMENT STATIONS=      179.0      364.0  TYPE=      1  TARGET=      185.000
    36.47      7.85    748.85      0.00      0.00    749.98      1.13        .60        .11    746.60
    3800.      658.     3101.      40.       183.      334.      27.       880.       216.     747.60
     1.53      3.60      9.28      1.51      .050      .040      .050      .045    741.00    179.00
  .004099       170.      159.      145.         2         0         0      0.00    177.34    356.34

*SECNO 36.474

3470 ENCROACHMENT STATIONS=      192.0      351.0  TYPE=      1  TARGET=      159.000
    36.47      7.81    749.01      0.00      0.00    750.28      1.27        .23        .07    746.80
    3800.      540.     3222.      38.       146.      332.      24.       881.       217.     747.80
     1.53      3.69      9.71      1.55      .050      .040      .050      .045    741.20    192.00
  .004548        55.       52.       50.         2         0         0      0.00    159.00    351.00

*SECNO 36.484

3470 ENCROACHMENT STATIONS=      205.0      338.0  TYPE=      1  TARGET=      133.000
    36.48      7.78    749.18      0.00      0.00    750.61      1.43        .25        .08    747.00
    3800.      420.     3344.      36.       109.      330.      22.       881.       217.     748.00
     1.53      3.84     10.13      1.68      .050      .040      .050      .045    741.40    205.00
  .004983        55.       52.       50.         2         0         0      0.00    133.00    338.00

1490 NH CARD USED
*SECNO 36.494

3470 ENCROACHMENT STATIONS=       98.0      205.0  TYPE=      1  TARGET=      107.000

          VALLEY SECTION AF

    36.49      7.73    749.33      0.00    748.47    751.03      1.69        .29        .13    747.00
    3800.      278.     3515.       7.        67.      326.       6.       882.       217.     748.60
     1.53      4.13     10.80      1.19      .050      .040      .050      .045    741.60     98.00
  .006124        55.       52.       50.         2         0         0      0.00     98.31    196.31

*SECNO 36.498

3470 ENCROACHMENT STATIONS=      103.0      200.0  TYPE=      1  TARGET=       97.000
    36.50      7.80    749.44      0.00    748.57    751.17      1.73        .12        .02    747.04
    3800.      222.     3569.       9.        56.      329.       7.       882.       217.     748.64
     1.53      3.99     10.83      1.26      .050      .040      .050      .045    741.64    103.00
  .006056        20.       20.       20.         0         0         0      0.00     94.88    197.88

*SECNO 36.502
```

SEC NO	DEPTH	C SEL	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	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 108.0 195.0 TYPE= 1 TARGET= 87.000

36.50	7.87	749.55	0.00	748.66	751.30	1.75	.12	.01	747.08
3800.	172.	3616.	12.	44.	333.	8.	882.	217.	748.68
1.53	3.92	10.85	1.50	.050	.040	.050	.045	741.68	108.00
.005970	20.	20.	20.	1	0	0	0.00	87.00	195.00

*SECNO 36.506

3470 ENCROACHMENT STATIONS= 113.0 190.0 TYPE= 1 TARGET= 77.000

36.51	8.03	749.75	0.00	748.79	751.45	1.70	.14	.01	747.12
3800.	143.	3640.	17.	32.	341.	8.	882.	217.	748.72
1.53	4.42	10.66	2.17	.050	.040	.050	.045	741.72	113.00
.007782	20.	20.	20.	2	0	0	0.00	77.00	190.00

*SECNO 36.509

3470 ENCROACHMENT STATIONS= 118.0 185.0 TYPE= 1 TARGET= 67.000

36.51	8.12	749.88	0.00	748.91	751.62	1.74	.15	.02	747.16
3800.	79.	3709.	12.	19.	347.	5.	883.	217.	748.76
1.53	4.09	10.69	2.34	.050	.040	.050	.045	741.76	118.00
.007658	20.	20.	20.	0	0	0	0.00	67.00	185.00

*SECNO 36.513

3470 ENCROACHMENT STATIONS= 123.0 180.0 TYPE= 1 TARGET= 57.000

36.51	8.21	750.01	0.00	749.03	751.80	1.79	.15	.03	747.20
3800.	16.	3784.	0.	6.	352.	0.	883.	217.	100000.00
1.53	2.91	10.76	0.00	.050	.040	.050	.045	741.80	123.00
.007820	20.	20.	20.	2	0	0	0.00	57.00	180.00

*SECNO 36.517

3470 ENCROACHMENT STATIONS= 128.0 175.0 TYPE= 1 TARGET= 47.000

36.52	8.20	750.04	0.00	749.10	752.11	2.07	.17	.14100000.00	
3800.	0.	3800.	0.	0.	329.	0.	883.	217.	100000.00
1.53	0.00	11.54	0.00	.050	.040	.050	.045	741.84	128.00
.009248	20.	20.	20.	2	0	0	0.00	47.00	175.00

*SECNO 36.521

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 133.0 170.0 TYPE= 1 TARGET= 37.000

36.52	7.92	749.80	0.00	749.03	752.80	3.00	.23	.47	100000.00
3800.	0.	3800.	0.	0.	273.	0.	883.	217.	100000.00
1.53	0.00	13.89	0.00	.050	.040	.050	.045	741.88	133.00
.014207	20.	20.	20.	2	0	0	0.00	37.00	170.00

*SECNO 36.522

3301 HV CHANGED MORE THAN HVINS

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 135.0 168.0 TYPE= 1 TARGET= 33.000

36.52	7.77	749.67	749.67	748.93	753.40	3.73	.15	.37	100000.00
3800.	0.	3800.	0.	0.	245.	0.	883.	217.	100000.00
1.54	0.00	15.51	0.00	.050	.040	.050	.045	741.90	135.00
.019019	10.	9.	10.	3	8	0	0.00	33.00	168.00

*SECNO 36.523

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 135.0 168.0 TYPE= 1 TARGET= 33.000

AVON ROAD BRIDGE - D/S FACE - SECTION AG. BRIDGE IS LOCATED JUST

EAST OF INTERSECTION OF AVON AND LIVERNOIS ROADS.

36.52	9.29	751.19	0.00	748.95	753.76	2.57	.01	.35	100000.00
3800.	0.	3800.	0.	0.	295.	0.	883.	217.	100000.00

1.54	0.00	12.87	0.00	.030	.035	.030	.045	741.90	135.00
.008508	1.	1.	1.	10	0	0	0.00	33.00	168.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	3.02	0.00	30.58	0.00	348.60	0.00	742.10	741.90

*SECNO 36.535

6070,LOW FLOW BY NORMAL BRIDGE

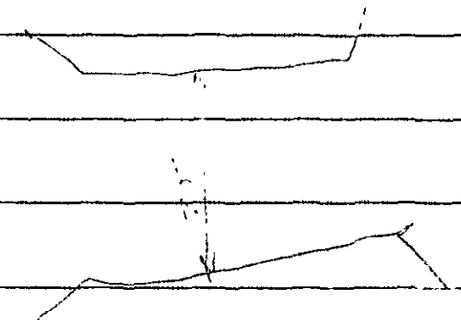
EGPRS= 0.000 EGLWC= 754.108 ELLC= 754.600 PCWSE= 751.191 ELTRD= 755.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 755.00 MAX ELLC= 754.60

3470 ENCROACHMENT STATIONS= 300.0 333.0 TYPE= 1 TARGET= 33.000

AVON ROAD BRIDGE - U/S FACE - SECTION A6. BRIDGE IS LOCATED JUST

EAST OF INTERSECTION OF AVON AND LIVERNOIS ROADS.



36.54	9.95	752.05	0.00	749.81	754.40	2.35	.57	.07	755.80
3800.	0.	3800.	0.	0.	309.	0.	884.	217.	100000.00
1.54	0.00	12.30	0.00	.030	.035	.030	.045	742.10	300.00
.007728	70.	70.	70.	4	0	0	0.00	33.00	333.00

*SECNO 36.536

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 134.0 169.0 TYPE= 1 TARGET= 35.000

36.54	10.79	752.89	0.00	750.49	754.60	1.71	.01	.19	100000.00
3800.	0.	3800.	0.	0.	363.	0.	884.	217.	100000.00
1.54	0.00	10.48	0.00	.040	.040	.100	.045	742.10	134.00
.006222	1.	1.	1.	3	0	0	0.00	35.00	169.00

*SECNO 36.538

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	EXDST
3470 ENCROACHMENT STATIONS=		129.0	189.0	TYPE=	1	TARGET=		60.000	
36.54	12.12	754.22	0.00	751.38	754.93	.70	.03	.30100000.00	
3800.	0.	3675.	125.	0.	538.	44.	884.	217.	749.10
1.54	0.00	6.83	2.82	.040	.040	.050	.045	742.10	129.00
.001883	5.	10.	20.	3	0	0	0.00	60.00	189.00

*SECNO 36.542

3470 ENCROACHMENT STATIONS=		119.0	224.0	TYPE=	1	TARGET=		105.000	
36.54	12.67	754.67	0.00	751.67	755.05	.38	.03	.10	747.40
3800.	109.	3167.	524.	44.	597.	214.	884.	217.	749.00
1.54	2.48	5.30	2.45	.040	.040	.050	.045	742.00	119.00
.000913	10.	20.	35.	2	0	0	0.00	105.00	224.00

*SECNO 36.546

3470 ENCROACHMENT STATIONS=		109.0	259.0	TYPE=	1	TARGET=		150.000	
36.55	12.87	754.87	0.00	751.82	755.11	.24	.02	.04	747.40
3800.	335.	2710.	755.	121.	608.	370.	885.	217.	749.00
1.54	2.77	4.46	2.04	.040	.040	.050	.045	742.00	109.00
.000631	10.	20.	35.	2	0	0	0.00	150.00	259.00

*SECNO 36.564

3470 ENCROACHMENT STATIONS=		240.0	520.0	TYPE=	1	TARGET=		280.000	
36.56	13.30	755.10	0.00	752.12	755.20	.09	.04	.04	748.10
3800.	527.	2113.	1160.	266.	712.	809.	888.	218.	748.30
1.55	1.98	2.97	1.43	.040	.040	.050	.045	741.80	240.00
.000281	40.	100.	150.	2	0	0	0.00	280.00	520.00

*SECNO 36.565

3470 ENCROACHMENT STATIONS=		240.0	520.0	TYPE=	1	TARGET=		280.000	
LIVERNOIS ROAD BRIDGE - D/S FACE									
36.57	13.30	755.10	0.00	752.11	755.20	.10	.00	.00	748.10
3800.	427.	2199.	1174.	266.	712.	809.	888.	218.	748.30
1.55	1.60	3.09	1.45	.045	.035	.045	.045	741.80	240.00
.000233	1.	1.	1.	0	0	0	0.00	280.00	520.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.70	3.04	0.00	29.32	0.00	316.70	0.00	741.60	741.80

*SECNO 36.573

3280 CROSS SECTION 36.57 EXTENDED 1.04 FEET

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

. PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
758.90	755.00	0.00	1963.	1847.	317.	317.	752.40	753.70

3470 ENCROACHMENT STATIONS= 535.0 835.0 TYPE= 1 TARGET= 300.000

LIVERNOIS ROAD BRIDGE - U/S FACE - SECTION AH

36.57	14.33	755.93	0.00	751.97	756.00	.06	.80	0.00	747.90
3800.	570.	1948.	1281.	411.	769.	1002.	891.	218.	748.10
1.56	1.39	2.53	1.28	.045	.035	.045	.045	741.60	535.00
.000143	47.	47.	47.	2	0	3	0.00	300.00	835.00

1490 NH CARD USED

*SECNO 36.574

3470 ENCROACHMENT STATIONS= 220.0 520.0 TYPE= 1 TARGET= 300.000

36.57	14.34	755.94	0.00	752.54	756.00	.06	.00	.00	747.90
3800.	729.	1903.	1168.	444.	780.	987.	891.	218.	748.10
1.56	1.64	2.44	1.18	.035	.040	.045	.045	741.60	220.00
.000121	1.	1.	1.	0	0	0	0.00	300.00	520.00

1490 NH CARD USED

*SECNO 36.636

3470 ENCROACHMENT STATIONS= .0 400.0 TYPE= 1 TARGET= 399.999

VALLEY SECTION AI

36.64	15.1.	755.98	0.00	752.63	756.06	.08	.05	.01	749.10
3800.	1423.	1966.	411.	811.	704.	304.	905.	220.	749.30
1.60	1.76	2.79	1.35	.035	.040	.045	.045	742.80	127.15
.000184	310.	329.	325.	0	0	0	0.00	272.85	400.00

1490 NH CARD USED
*SECNO 36.939

VALLEY SECTION AJ

36.94	10.24	756.34	0.00	753.88	756.40	.06	.33	.01	750.60
3750.	1023.	1319.	1407.	898.	458.	1201.	963.	231.	750.70
1.80	1.14	2.88	1.17	.060	.045	.069	.045	746.10	58.92
.000415	1010.	1600.	950.	2	0	0	0.00	609.96	668.88

1490 NH CARD USED
*SECNO 37.300

VALLEY SECTION AK

37.30	7.83	757.23	0.00	756.18	757.31	.09	.90	.01	752.90
3750.	2069.	1378.	302.	1690.	390.	271.	1050.	255.	753.50
2.01	1.22	3.53	1.11	.072	.042	.075	.045	749.40	42.10
.000784	1380.	1890.	1640.	2	0	0	0.00	765.97	808.06

*SECNO 37.692

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

37.69	6.96	759.36	0.00	758.67	759.64	.27	2.23	.09	757.60
3750.	672.	2129.	950.	541.	399.	434.	1117.	278.	756.60
2.14	1.24	5.34	2.19	.080	.045	.080	.045	752.40	141.45
.002492	1420.	2090.	1420.	3	0	0	0.00	576.09	717.54

*SECNO 38.174

3470 ENCROACHMENT STATIONS= 400.0 1700.0 TYPE= 1 TARGET= -400.000

VALLEY SECTION AM

38.17	6.77	767.97	767.51	767.03	768.71	.74	8.84	.23	765.80

3710.	304.	2575.	351.	407.	281.	162.	117.	312.	765.10
2.25	2.11	8.45	2.17	.090	.042	.080	.045	761.20	400.00
.005943	2275.	2540.	2150.	13	12	0	0.00	370.78	770.78

*SECNO 38.183

3470 ENCROACHMENT STATIONS=			375.0	1700.0	TYPE=	1	TARGET=	-375.000	
38.18	7.16	768.46	0.00	767.65	768.99	.53	.22	.06	765.90
3710.	1090.	2215.	405.	561.	300.	200.	1179.	303.	765.20
2.25	1.94	7.38	2.03	.090	.042	.080	.045	761.30	375.00
.004144	30.	50.	50.	3	0	0	0.00	397.53	772.53

*SECNO 38.255

3470 ENCROACHMENT STATIONS=			167.0	667.0	TYPE=	1	TARGET=	500.000	
38.26	7.58	769.68	0.00	768.85	769.85	.16	.75	.11	765.20
3710.	2072.	1638.	0.	1123.	371.	0.	1187.	305.	100000.00
2.28	1.84	4.42	0.00	.060	.045	.060	.045	762.10	167.00
.001560	220.	380.	370.	2	0	0	0.00	500.00	667.00

*SECNO 38.391

3470 ENCROACHMENT STATIONS=			300.0	800.0	TYPE=	1	TARGET=	500.000	
38.39	7.32	770.92	0.00	770.14	771.20	.28	1.29	.06	768.20
3710.	1470.	1749.	491.	601.	308.	215.	1206.	312.	767.50
2.33	2.45	5.68	2.28	.060	.045	.060	.045	763.60	368.73
.002724	620.	670.	580.	2	0	0	0.00	404.51	773.24

*SECNO 38.467

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

3470 ENCROACHMENT STATIONS=			240.0	1167.0	TYPE=	1	TARGET=	-240.000	
VALLEY SECTION AN									
38.47	7.31	771.81	0.00	771.02	771.98	.17	.75	.03	767.60
3710.	1560.	1621.	529.	878.	356.	223.	1216.	315.	767.80
2.36	1.78	4.55	2.37	.060	.045	.060	.045	764.50	240.00
.001582	330.	400.	370.	2	0	0	0.00	487.89	727.89

*SECNO 38.520

3470 ENCROACHMENT STATIONS= 70.0 1167.0 TYPE= 1 TARGET= -70.000

38.52	7.14	772.24	0.00	771.46	772.41	.17	.43	.00	768.20
3710.	1599.	1604.	506.	948.	347.	213.	1225.	318.	768.40
2.38	1.69	4.63	2.38	.060	.045	.060	.045	765.10	138.02
.001693	220.	280.	330.	2	0	0	0.00	589.60	727.62

*SECNO 38.566

3470 ENCROACHMENT STATIONS= 120.0 1167.0 TYPE= 1 TARGET= -120.000

38.57	6.97	772.57	0.00	771.85	772.77	.21	.35	.02	768.70
3710.	1522.	1677.	511.	868.	338.	202.	1230.	320.	768.90
2.40	1.75	4.97	2.52	.060	.045	.060	.045	765.60	141.21
.002021	90.	240.	320.	2	0	0	0.00	586.14	727.35

*SECNO 38.660

3470 ENCROACHMENT STATIONS= 365.0 775.0 TYPE= 1 TARGET= 410.000

38.66	6.95	773.55	0.00	772.89	773.83	.28	1.02	.04	770.40
3710.	176.	1816.	1718.	68.	329.	713.	1241.	324.	771.50
2.43	2.57	5.53	2.41	.060	.045	.060	.046	766.60	369.84
.003174	430.	500.	250.	2	0	0	0.00	405.16	775.00

1490 NH CARD USED

*SECNO 38.827

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

VALLEY SECTION AO

38.83	8.42	776.32	0.00	775.37	776.93	.61	2.93	.17	771.70
3710.	402.	2897.	412.	111.	419.	145.	1259.	330.	772.80
2.47	3.61	6.91	2.83	.060	.045	.070	.046	767.90	367.59
.003578	810.	880.	870.	2	0	0	0.00	132.41	500.00

*SECNO 38.836

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

3470 ENCROACHMENT STATIONS= 375.0 490.0 TYPE= 1 TARGET= 115.000

38.84	8.69	776.49	0.00	775.52	777.13	.64	.19	.01	771.60
3710.	353.	3028.	329.	101.	436.	117.	1260.	330.	772.70
2.47	3.50	6.94	2.82	.060	.045	.070	.046	767.80	375.00

.005422	50.	50.	80.	2	0	0	0.00	115.00	490.00

*SECNO 38.840

38.84	8.53	776.33	0.00	775.44	777.45	1.12	.08	.24	773.20
3710.	40.	3612.	58.	30.	419.	44.	1260.	330.	773.20
2.47	1.33	8.62	1.33	.100	.040	.100	.046	767.80	370.79
.004468	20.	19.	30.	2	0	0	0.00	107.15	477.94

*SECNO 38.841

CROOKS ROAD BRIDGE - D/S FACE - SECTION AP

38.84	8.53	776.33	0.00	775.45	777.46	1.12	.00	.00	773.20
3710.	40.	3612.	58.	30.	419.	44.	1260.	330.	773.20
2.47	1.33	8.61	1.33	.100	.040	.100	.046	767.80	370.77
.004462	1.	1.	1.	0	0	0	0.00	107.20	477.96

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	3.02	0.00	37.61	0.00	312.20	0.00	767.80	767.80

*SECNO 38.848

3280 CROSS SECTION 38.85 EXTENDED .10 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
780.32	777.47	0.00	428.	3311.	312.	312.	776.10	778.70

CROOKS ROAD BRIDGE - U/S FACE - SECTION AP

38.85	11.20	779.00	0.00	776.78	779.51	.52	2.06	0.00	773.20
3710.	102.	3457.	152.	103.	579.	160.	1261.	330.	773.20
2.47	.99	5.97	.95	.100	.035	.100	.046	767.80	355.00
.001065	44.	44.	44.	2	0	0	0.00	244.38	599.38

*SECNO 38.849

38.85	11.23	779.03	0.00	776.79	779.52	.49	.00	.01	773.20
3690.	116.	3401.	173.	104.	581.	164.	1261.	330.	773.20
2.47	1.11	5.85	1.05	.100	.040	.100	.046	767.80	355.00
.001333	1.	1.	1.	2	0	0	0.00	246.84	601.84

*SECNO 38.906

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/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 1200.0 TYPE= 1 TARGET= 410.000

38.91	10.74	779.74	0.00	777.46	779.78	.04	.12	.13	771.80
3690.	1097.	1407.	1186.	1028.	603.	1219.	1273.	332.	774.00
2.53	1.07	2.33	.97	.070	.040	.070	.045	769.00	790.00
.000195	330.	300.	270.	2	0	0	0.00	410.00	1200.00

*SECNO 38.972

3470 ENCROACHMENT STATIONS= 540.0 1270.0 TYPE= 1 TARGET= 730.000

38.97	9.42	779.82	0.00	777.57	779.84	.02	.06	.01	773.20
3690.	1798.	972.	920.	2210.	522.	1268.	1299.	336.	775.40
2.61	.81	1.86	.73	.070	.040	.070	.045	770.40	540.00
.000151	210.	350.	470.	2	0	0	0.00	730.00	1270.00

*SECNO 39.040

3470 ENCROACHMENT STATIONS= 710.0 1180.0 TYPE= 1 TARGET= 470.000

39.04	8.06	779.86	0.00	777.68	779.96	.10	.08	.04	774.60
3690.	1358.	1553.	779.	948.	438.	619.	1318.	340.	776.80
2.65	1.43	3.55	1.26	.070	.040	.070	.045	771.80	710.00
.000692	200.	360.	350.	1	0	0	0.00	470.00	1180.00

*SECNO 39.123

VALLEY SECTION AQ

39.12	6.71	780.21	0.00	778.75	780.39	.18	.39	.04	776.30
3690.	2107.	1583.	0.	1229.	333.	0.	1332.	344.	784.60
2.68	1.71	4.76	0.00	.070	.040	.070	.046	773.50	477.53
.001698	300.	439.	450.	2	0	0	0.00	518.17	995.70

*SECNO 39.153

3470 ENCROACHMENT STATIONS= 535.0 1405.0 TYPE= 1 TARGET= -535.000

39.15	7.71	780.41	0.00	779.31	780.58	.16	.19	.00	775.50
3690.	1934.	1756.	0.	1544.	391.	0.	1338.	346.	783.80
2.70	1.25	4.50	0.00	.090	.035	.065	.045	772.70	535.00
.000965	140.	159.	170.	1	0	0	0.00	461.67	996.67

*SECNO 39.154

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

3470 ENCROACHMENT STATIONS= 535.0 1405.0 TYPE= 1 TARGET= -535.000

HAMLIN ROAD BRIDGE - D/S FACE

39.15	7.72	780.42	0.00	779.32	780.58	.16	.00	.00	775.50
3690.	1936.	1754.	0.	1548.	391.	0.	1338.	346.	783.80
2.70	1.25	4.48	0.00	.090	.035	.065	.045	772.70	535.00
.000958	1.	1.	1.	0	0	0	0.00	461.68	996.68

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.98	0.00	44.28	0.00	287.80	0.00	772.40	772.70

*SECNO 39.160
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
784.50	780.28	0.00	1840.	1851.	288.	288.	778.90	779.00

3470 ENCROACHMENT STATIONS= 700.0 1723.0 TYPE= 1 TARGET= -700.000

HAMLIN ROAD BRIDGE - U/S FACE - SECTION AR

39.16	8.84	781.24	0.00	780.28	781.45	.20	.87	0.00	775.20
3690.	1807.	1883.	0.	2056.	376.	0.	1340.	346.	783.10
2.70	.88	5.00	0.00	.090	.020	.065	.045	772.40	700.00

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.000539	36.	36.	36.	2	0	4	0.00	461.50	1161.50

*SECNO 39.161

3470 ENCROACHMENT STATIONS= 535.0 1405.0 TYPE= 1 TARGET= -535.000

39.16	8.97	781.37	0.00	780.37	781.48	.11	.00	.03	775.20
3690.	1975.	1715.	0.	2053.	466.	0.	1340.	346.	783.50
2.70	.96	3.68	0.00	.090	.030	.065	.045	772.40	535.00
.000391	1.	1.	1.	2	0	0	0.00	462.91	997.91

1490 NH CARD USED

*SECNO 39.241

3470 ENCROACHMENT STATIONS= 60.0 650.0 TYPE= 1 TARGET= 590.000

39.24	7.94	781.64	0.00	780.58	781.79	.16	.29	.03	778.40
3655.	333.	1383.	1939.	224.	296.	1085.	1359.	350.	777.10
2.74	1.48	4.68	1.79	.090	.047	.075	.045	773.70	184.21
.001739	400.	425.	390.	2	0	0	0.00	465.79	650.00

*SECNO 39.321

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

39.32	7.43	782.53	0.00	781.56	782.89	.37	1.00	.10	779.80
3655.	367.	1785.	1503.	188.	275.	601.	1371.	354.	778.50
2.77	1.96	6.50	2.50	.090	.047	.075	.045	775.10	186.47
.003715	400.	425.	390.	2	0	0	0.00	313.53	500.00

*SECNO 39.403

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

3470 ENCROACHMENT STATIONS= .0 650.0 TYPE= 1 TARGET= 649.999

VALLEY SECTION AS

39.40	7.47	783.97	0.00	783.02	784.20	.23	1.26	.04	781.20
3655.	315.	1512.	1827.	191.	276.	923.	1383.	357.	779.90
2.80	1.66	5.47	1.98	.090	.047	.075	.045	776.50	186.29
.002611	400.	429.	390.	2	0	0	0.00	463.71	650.00

*SECNO 39.571

VALLEY SECTION AT

39.57	9.71	785.71	0.00	784.75	785.85	.14	1.62	.03	782.30
3655.	2044.	1512.	99.	1452.	345.	89.	1417.	368.	783.60
2.90	1.41	4.38	1.11	.090	.045	.050	.045	776.00	8.90
.001302	880.	890.	970.	3	0	0	0.00	530.43	539.33

*SECNO 39.641

39.64	8.62	786.32	0.00	785.33	786.65	.33	.71	.09	784.00
3655.	1779.	1853.	22.	1016.	297.	21.	1430.	372.	785.30
2.92	1.75	6.23	1.08	.090	.045	.050	.045	777.70	11.11
.003218	360.	370.	280.	2	0	0	0.00	484.71	495.82

*SECNO 39.711

39.71	8.25	787.65	0.00	786.79	788.11	.46	1.39	.07	785.70
3655.	1638.	2009.	8.	871.	281.	9.	1441.	376.	787.00
2.94	1.88	7.14	.95	.090	.045	.050	.045	779.40	11.84
.004544	365.	370.	280.	2	0	0	0.00	469.44	481.29

*SECNO 39.781

39.78	8.23	789.33	0.00	788.52	789.80	.47	1.68	.01	787.40
3655.	1625.	2023.	7.	859.	280.	8.	1450.	380.	788.70
2.96	1.89	7.22	.94	.090	.045	.050	.045	781.10	11.90
.004681	360.	370.	280.	2	0	0	0.00	468.18	480.08

*SECNO 39.852

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
39.85	8.32	791.02	0.00	790.19	791.46	.43	1.64	.01	789.00
3655.	1665.	1980.	10.	895.	284.	10.	1460.	384.	790.30
2.99	1.86	6.97	.98	.090	.045	.050	.045	782.70	11.72
.004278	365.	370.	285.	2	0	0	0.00	472.04	483.75

*SECNO 39.922

39.92	8.23	792.63	0.00	791.80	793.10	.47	1.63	.02	790.70
3655.	1628.	2020.	8.	861.	280.	8.	1470.	388.	792.00
3.01	1.89	7.20	.94	.090	.045	.050	.045	784.40	11.89
.004652	360.	370.	280.	2	0	0	0.00	468.45	480.34

*SECNO 39.992

3470 ENCROACHMENT STATIONS= 50.0 650.0 TYPE= 1 TARGET= 600.000

39.99	8.26	794.36	0.00	793.52	794.86	.50	1.74	.01	792.40
3655.	1580.	2067.	8.	808.	281.	9.	1479.	391.	793.70
3.03	1.96	7.34	.98	.090	.045	.050	.045	786.10	50.00
.004810	365.	370.	280.	2	0	0	0.00	431.30	481.30

1490 NH CARD USED

*SECNO 40.062

VALLEY SECTION AU

40.06	7.94	795.74	0.00	794.86	795.98	.25	1.05	.08	791.20
3655.	1940.	1715.	0.	787.	332.	0.	1488.	395.	803.30
3.05	2.47	5.17	0.00	.055	.042	.050	.045	787.80	145.31
.001896	365.	370.	285.	2	0	0	0.00	339.15	484.46

*SECNO 40.200

VALLEY SECTION AV

40.20	7.69	796.99	0.00	796.07	797.36	.37	1.31	.06	792.40
3655.	786.	2095.	773.	418.	350.	215.	1500.	398.	793.10
3.09	1.88	5.99	3.59	.065	.045	.050	.045	789.30	123.20
.002662	300.	730.	910.	3	0	0	0.00	332.86	456.06

*SECNO 40.349

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= 180.0 472.0 TYPE= 1 TARGET= -180.000

40.35	7.62	799.02	0.00	798.03	799.46	.44	2.07	.03	794.50
3655.	655.	2199.	800.	321.	346.	211.	1516.	403.	795.20
3.13	2.04	6.35	3.79	.065	.045	.050	.045	791.40	180.00
.003032	700.	789.	590.	2	0	0	0.00	275.97	455.97

*SECNO 40.463

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 288.0 398.0 TYPE= 1 TARGET= 110.000

40.46	7.96	800.96	0.00	799.88	801.92	.95	2.20	.26	796.10
3655.	548.	3069.	38.	164.	364.	12.	1525.	405.	796.80

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      3.15      5.35      8.43      5.04      .065      .045      .050      .045    7.3.00    2..0.00
   .005000      540.      600.      450.         2         0         0      0.00    110.00    398.00

 *SECNO 40.501

 3470 ENCROACHMENT STATIONS=     338.0     398.0  TYPE=     1  TARGET=     60.000
     40.50      8.34    801.84      0.00    800.63    803.12      1.28      1.04       .16    796.60
      3655.       79.     3531.       45.       25.      384.       14.     1527.      405.    797.30
      3.16      3.18      9.21      3.29      .065      .045      .050      .045    793.50    338.00
   .005550      180.      200.      150.         2         0         0      0.00     60.00    398.00

 *SECNO 40.510

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     133.0     168.0  TYPE=     1  TARGET=     35.000
     40.51      7.95    801.55      0.00    800.58    804.31      2.77       .45       .75100000.00
      3655.       0.     3655.       0.        0.      274.       0.     1527.      405. 100000.00
      3.16      0.00     13.35      0.00      .065      .045      .050      .045    793.60    133.00
   .017158       50.       50.       40.         2         0         0      0.00     35.00    168.00

 *SECNO 40.512

 3470 ENCROACHMENT STATIONS=     140.0     169.3  TYPE=     1  TARGET=     29.300
     40.51      8.03    801.63      0.00    800.54    804.59      2.96       .18       .10100000.00
      3210.       0.     3210.       0.        0.      232.       0.     1527.      405. 100000.00
      3.16      0.00     13.81      0.00      .065      .045      .050      .045    793.60    140.00
   .019516       10.       10.       10.         2         0         0      0.00     29.30    169.30

 *SECNO 40.513

 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


 3370 NORMAL BRIDGE,NRD=   7 MIN ELTRD=  815.40 MAX ELLC=  813.80

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
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ADAMS ROAD BRIDGE - DOWNSTREAM FACE

40.51	8.19	801.79	801.79	800.12	805.42	3.63	.02	.34	815.50
3210.	0.	3210.	0.	0.	210.	0.	1527.	405.	815.70
3.16	0.00	15.29	0.00	.030	.032	.030	.045	793.60	300.00
.013234	1.	1.	1.	20	15	0	0.00	29.30	329.30

*SECNO 40.519

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 815.40 MAX ELLC= 813.80

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

ADAMS ROAD BRIDGE - U/S FACE - SECTION AW

40.52	10.29	803.99	801.89	801.91	806.16	2.17	.30	.44	815.50
3210.	0.	3210.	0.	0.	271.	0.	1527.	405.	815.70
3.16	0.00	11.83	0.00	.030	.032	.030	.045	793.70	300.00
.006361	34.	34.	34.	24	15	0	0.00	29.30	329.30

*SECNO 40.520

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 139.0 170.0 TYPE= 1 TARGET= 31.000

40.52	11.43	805.13	0.00	802.83	806.43	1.30	.01	.26100000.00	
3210.	0.	3210.	0.	0.	351.	0.	1527.	405.	100000.00
3.16	0.00	9.15	0.00	.040	.045	.060	.045	793.70	139.00
.006210	1.	1.	1.	3	0	0	0.00	31.00	170.00

*SECNO 40.521

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 129.0 180.0 TYPE= 1 TARGET= 51.000

40.52	12.62	806.32	0.00	803.67	806.72	.41	.03	.27100000.00	
3210.	0.	3210.	0.	0.	627.	0.	1528.	405.	100000.00
3.16	0.00	5.12	0.00	.040	.045	.060	.045	793.70	129.00
.001381	10.	10.	10.	2	0	0	0.00	51.00	180.00

*SECNO 40.531

3470 ENCROACH ET STATIO.= 7..0 230.0 TYPE= 1 TARGET= 151.000

40.53	12.84	806.74	0.00	803.96	806.84	.10	.03	.09	797.40
3210.	794.	2232.	185.	362.	817.	163.	1529.	406.	799.50
3.17	2.19	2.73	1.14	.040	.045	.060	.045	793.90	79.00
.000265	50.	50.	50.	2	0	0	0.00	151.00	230.00

*SECNO 40.568

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
0	OLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
40.57	12.11	806.81	0.00	804.04	806.90	.09	.05	.00	798.20
3210.	1036.	2031.	143.	559.	766.	139.	1535.	406.	800.30
3.19	1.86	2.65	1.03	.040	.045	.060	.045	794.70	13.79
.000272	190.	200.	210.	2	0	0	0.00	220.31	234.10

*SECNO 40.644

40.64	10.73	806.93	0.00	804.27	807.07	.14	.15	.03	799.70
3210.	866.	2243.	101.	407.	669.	89.	1547.	408.	801.80
3.23	2.13	3.36	1.14	.040	.045	.060	.045	796.20	17.88
.000523	380.	400.	430.	0	0	0	0.00	210.22	228.10

*SECNO 40.727

VALLEY SECTION AX

40.73	9.29	807.19	0.00	804.81	807.45	.25	.32	.06	801.40
3210.	658.	2494.	57.	262.	569.	47.	1557.	410.	803.50
3.26	2.51	4.38	1.23	.040	.045	.060	.045	797.90	34.47
.001108	420.	439.	475.	2	0	0	0.00	185.72	220.19

*SECNO 40.841

40.84	7.85	807.75	0.00	805.90	808.22	.47	.66	.11	803.40
3210.	464.	2723.	23.	148.	468.	17.	1564.	412.	805.50
3.28	3.14	5.82	1.34	.040	.045	.060	.045	799.90	57.04
.002537	380.	420.	400.	2	0	0	0.00	153.30	210.34

*SECNO 40.888

40.89	7.08	808.98	0.00	807.71	809.65	.67	1.33	.10	805.40
3210.	353.	2847.	10.	100.	414.	7.	1570.	413.	807.50
3.30	3.53	6.88	1.30	.040	.045	.060	.045	801.90	69.11
.004176	380.	420.	400.	2	0	0	0.00	135.96	205.07

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*SEC O 40.968

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

3470 ENCROACHMENT STATIONS= .0 690.0 TYPE= 1 TARGET= 689.999

VALLEY SECTION AY

40.97	7.01	810.91	0.00	809.83	811.43	.52	1.73	.05	807.90
3210.	107.	2045.	1058.	56.	288.	556.	1576.	417.	807.70
3.32	1.91	7.10	1.90	.070	.045	.070	.045	803.90	74.23
.004199	380.	420.	400.	3	0	0	0.00	614.85	689.09

*SECNO 41.093

3470 ENCROACHMENT STATIONS= .0 690.0 TYPE= 1 TARGET= 689.999

VALLEY SECTION AZ

41.09	7.58	812.18	0.00	811.52	812.29	.12	.74	.12	808.80
3210.	124.	1536.	1551.	98.	411.	1274.	1583.	418.	809.60
3.36	1.27	3.74	1.22	.070	.045	.070	.045	804.60	29.83
.001050	830.	660.	1.	3	0	0	0.00	660.17	690.00

*SECNO 41.405

CONFLUENCE WITH GALLOWAY CREEK

41.41	6.27	814.47	0.00	813.62	815.01	.55	2.50	.22	812.30
3210.	62.	2730.	418.	79.	426.	279.	1630.	435.	810.40
3.44	.79	6.41	1.50	.100	.035	.080	.045	808.20	226.86
.002524	1640.	1650.	1530.	3	0	0	0.00	291.37	518.23

*SECNO 41.460

VALLEY SECTION BA = SECTION 40.763 FROM PONTIAC TOWNSHIP F.I.S.

41.46	6.19	815.19	0.00	814.28	815.90	.71	.80	.08	813.10
3200.	17.	2947.	236.	20.	420.	145.	1634.	437.	811.20
3.45	.85	7.02	1.63	.100	.035	.080	.045	809.00	450.12
.003093	290.	290.	270.	2	0	0	0.00	172.38	622.50

*SECNO 41.710

VALLEY SECTION BB - SECTION 41.019 FROM PONTIAC TOWNSHIP F.I.S.

41.71	8.00	819.20	0.00	818.12	819.86	.66	3.94	.02	817.80
3200.	26.	3078.	96.	41.	464.	80.	1651.	442.	814.70
3.51	.63	6.63	1.20	.100	.035	.100	.045	811.20	341.78
.002934	1120.	1320.	1150.	3	0	0	0.00	203.68	545.46

*SECNO 41.866

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 BC - SECTION 41.161 FROM PONTIAC TOWNSHIP F.I.S.

41.87	6.48	821.38	0.00	820.31	821.96	.57	2.07	.03	817.90
3200.	162.	3028.	9.	98.	486.	14.	1662.	446.	819.70
3.55	1.66	6.23	.67	.062	.035	.090	.045	814.90	54.76
.002218	710.	820.	850.	2	0	0	0.00	171.79	226.55

*SECNO 41.918

41.92	5.81	822.01	0.00	820.96	822.83	.81	.75	.12	819.30
3200.	105.	3083.	11.	51.	419.	14.	1666.	447.	820.50
3.56	2.07	7.37	.79	.062	.035	.090	.045	816.20	62.17
.003465	225.	277.	280.	2	0	0	0.00	152.52	214.69

*SECNO 41.971

41.97	5.60	823.00	0.00	821.99	824.01	1.02	1.08	.10	820.70
3200.	64.	3111.	25.	31.	379.	27.	1668.	447.	821.40
3.57	2.09	8.21	.94	.062	.035	.090	.045	817.40	61.32
.004471	225.	278.	280.	2	0	0	0.00	148.86	210.18

*SECNO 42.023

42.02	5.83	824.23	0.00	823.23	825.34	1.11	1.28	.05	822.10
3200.	42.	3092.	66.	21.	359.	50.	1671.	448.	822.30
3.58	2.03	8.61	1.30	.062	.035	.090	.045	818.40	56.14
.004792	225.	277.	280.	2	0	0	0.00	138.28	194.42

*SECNO 42.076

VALLEY SECTION BD - SECTION 41.336 FROM PONTIAC TOWNSHIP F.I.S.

42.08	6.30	825.70	0.00	824.68	826.82	1.12	1.48	.00	823.60

3200.	17.	3048.	135.	17.	551.	79.	1674.	449.	823.20
3.59	.98	8.69	1.72	.120	.040	.100	.044	819.40	48.73
.005932	225.	278.	280.	2	0	0	0.00	127.81	176.55

*SECNO 42.086

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
42.09	6.71	826.21	0.00	825.12	827.14	.93	.27	.06	823.70
3200.	24.	3010.	166.	25.	378.	99.	1674.	449.	823.30
3.59	.96	7.96	1.68	.120	.040	.100	.044	819.50	45.48
.004505	50.	52.	48.	2	0	0	0.00	134.31	179.78

*SECNO 42.096

42.10	6.77	826.47	0.00	825.36	827.38	.91	.23	.01	823.90
3200.	25.	3005.	170.	26.	382.	102.	1675.	449.	823.50
3.59	.96	7.87	1.67	.120	.040	.100	.044	819.70	45.05
.004350	51.	52.	48.	0	0	0	0.00	135.17	180.21

*SECNO 42.106

42.11	6.96	826.76	0.00	825.61	827.62	.85	.22	.02	824.50
3200.	24.	2970.	206.	23.	387.	122.	1676.	450.	823.70
3.59	1.01	7.68	1.69	.120	.040	.100	.044	819.80	63.79
.004073	51.	53.	48.	2	0	0	0.00	145.48	209.27

*SECNO 42.135

42.14	7.25	827.45	0.00	826.27	828.25	.80	.61	.02	825.50
3200.	18.	2944.	238.	20.	395.	144.	1678.	450.	824.20
3.60	.88	7.45	1.65	.120	.040	.100	.044	820.20	83.82
.003741	163.	158.	144.	2	0	0	0.00	154.36	238.18

*SECNO 42.165

42.17	7.47	828.07	0.00	826.88	828.83	.76	.57	.01	826.50
3200.	11.	2917.	272.	15.	399.	165.	1680.	451.	824.70
3.61	.75	7.31	1.65	.120	.040	.100	.044	820.60	106.00
.003558	162.	157.	144.	1	0	0	0.00	161.32	267.33

*SECNO 42.195

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 BE - SECTION 41.459 FROM PONTIAC TOWNSHIP F.I.S.

42.20	7.63	828.63	0.00	827.45	829.39	.76	.56	.00	827.50
3200.	4.	2906.	290.	8.	397.	179.	1682.	451.	825.20
3.61	.51	7.32	1.62	.120	.040	.100	.044	821.00	130.51
.003621	163.	158.	143.	0	0	0	0.00	163.55	294.06

*SECNO 42.244

42.24	8.40	829.60	0.00	828.37	830.21	.61	.77	.05	827.10
3200.	47.	2773.	380.	54.	415.	250.	1685.	452.	825.70
3.62	.87	6.68	1.52	.120	.040	.100	.044	821.20	128.40
.002583	200.	260.	212.	2	0	0	0.00	212.18	340.58

*SECNO 42.294

42.29	8.83	830.33	0.00	829.04	830.82	.49	.58	.03	826.70
3200.	147.	2562.	491.	147.	410.	364.	1690.	454.	826.30
3.64	1.00	6.25	1.35	.120	.040	.100	.044	821.50	118.57
.002071	200.	260.	213.	2	0	0	0.00	302.60	421.18

*SECNO 42.343

42.34	9.31	831.01	0.00	829.69	831.29	.29	.41	.06	826.30
3200.	293.	2086.	821.	296.	398.	675.	1696.	455.	826.90
3.66	.99	5.24	1.22	.120	.040	.100	.044	821.70	114.53
.001355	200.	260.	212.	2	0	0	0.00	371.99	486.52

*SECNO 42.392

VALLEY SECTION BF - SECTION 41.630 FROM PONTIAC TOWNSHIP F.I.S.

42.39	9.54	831.44	0.00	830.18	831.59	.15	.26	.04	826.00
3200.	418.	1582.	1201.	462.	369.	951.	1704.	457.	827.50
3.68	.90	4.29	1.26	.120	.040	.100	.044	821.90	116.21
.000896	200.	260.	213.	2	0	0	0.00	383.62	499.82

*SECNO 42.451

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	OCH	OROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
42.45	9.20	831.70	0.00	830.45	831.88	.19	.27	.02	826.60
3200.	425.	1703.	1072.	433.	367.	851.	1714.	459.	827.70

3.71	.18	4.64	1.26	.120	.040	.100	.044	822.50	94.16
.001054	275.	313.	243.	2	0	0	0.00	384.17	478.33

*SECNO 42.496

3470 ENCROACHMENT STATIONS= 300.0 587.0 TYPE= 1 TARGET= 287.000

42.50	9.00	831.90	0.00	830.68	832.23	.33	.28	.07	827.20
3200.	883.	2075.	242.	735.	366.	181.	1721.	461.	827.80
3.72	1.20	5.66	1.34	.120	.040	.100	.044	822.90	300.00
.001585	206.	234.	183.	0	0	0	0.00	287.00	587.00

*SECNO 42.510

3470 ENCROACHMENT STATIONS= 80.0 325.0 TYPE= 1 TARGET= 245.000

42.51	8.98	831.98	0.00	830.77	832.41	.43	.13	.05	827.30
3200.	530.	2275.	395.	408.	366.	270.	1723.	461.	827.90
3.73	1.30	6.22	1.46	.120	.040	.100	.044	823.00	80.00
.001912	69.	78.	61.	1	0	0	0.00	245.00	325.00

*SECNO 42.570

3470 ENCROACHMENT STATIONS= 165.0 310.0 TYPE= 1 TARGET= 145.000

42.57	8.91	832.51	0.00	831.31	833.17	.66	.64	.11	828.00
3200.	54.	2665.	480.	38.	376.	295.	1729.	463.	828.00
3.74	1.42	7.09	1.63	.120	.040	.100	.044	823.60	165.00
.002425	275.	313.	244.	2	0	0	0.00	145.00	310.00

CCHV= .500 CEHV= 1.000

*SECNO 42.629

3470 ENCROACHMENT STATIONS= 111.0 221.0 TYPE= 1 TARGET= 110.000

VALLEY SECTION BG - SECTION 41.879 FROM PONTIAC TOWNSHIP F.I.S.

42.63	9.48	833.48	0.00	832.17	834.03	.54	.80	.06	828.70
3200.	311.	2616.	273.	178.	404.	121.	1733.	463.	828.30
3.75	1.75	6.47	2.25	.120	.050	.090	.044	824.00	111.00
.002895	275.	312.	244.	2	0	0	0.00	110.00	221.00

00BREAK00

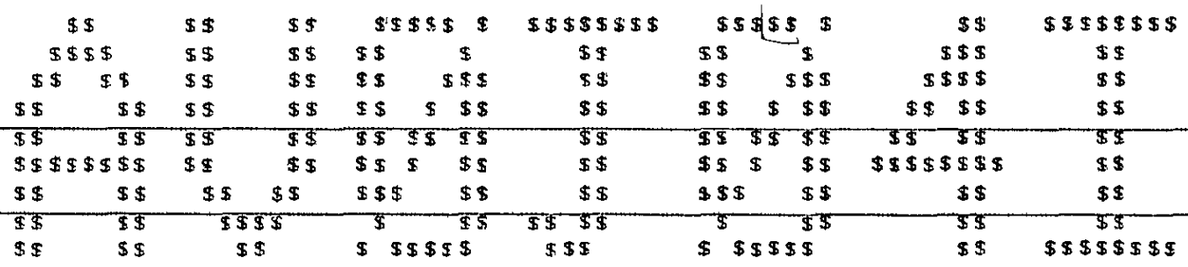
1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP & CITY of ROCHESTER

3) WATERCOURSE: CLINTON RIVER

4) DOCUMENT TYPE: 100 YR. NATURAL

00BREAK00



AVON TOWNSHIP / CITY OF ROCHESTER F.I.S.

JOB NO. 5850-01/07

CLINTON RIVER

100-YEAR NATURAL FLOODWAY

JOHNSON AND ANDERSON, INC. 12-28-78

PRINTED IN U.S.A.

FORM 1411 CO PRINTED BY ROTARY MANIFOLD FORMS.

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

C
T1       CITY OF ROCHESTER/AVON TOWNSHIP F.I.S. - JOB NO. 5850-07701
T2       100-YEAR FLOW
T3       CLINTON RIVER - PROJECT MANAGER, JOHN EMIG

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       -1.       4.         0.         0.  0.000000       0.00       0.0        0.   675.790    0.000
                                                                                      706.84
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
                                                                                                      15
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38.000     40.000     41.000     42.000     43.000      1.000      8.000     10.000     12.000      3.000

     33.000      4.000     25.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC       .035       .045       .040       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000   4520.000   6970.000   7870.000  10800.000      0.000      0.000      0.000      0.000      0.000
NH      4.000       .050     198.000       .070     222.000       .035     277.000       .050     760.000      0.000

                VALLEY SECTION A - SECTION 31.557 FROM SHELBY TWP. F.I.S.

X1     31.557     22.000    198.000    277.000      0.000      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    189.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    686.600      0.000    670.600     43.000    670.700     60.000    673.900    110.000    673.500    160.000
GR    678.800    181.000    679.600    189.000    678.600    198.000    664.600    222.000    664.200    223.000
GR    661.800    232.000    662.900    243.000    663.100    251.000    663.000    258.000    666.400    267.000
GR    671.500    277.000    673.000    360.000    672.500    460.000    674.000    560.000    673.200    660.000
GR    674.200    723.000    685.000    760.000      0.000      0.000      0.000      0.000      0.000      0.000
QT      4.000   4470.000   6890.000   7780.000  10700.000      0.000      0.000      0.000      0.000      0.000

X1     31.566      0.000      0.000      0.000     50.000     50.000     50.000      0.000       .100      0.000
X3      0.000      0.000      0.000    189.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       .050       .045       .040      0.000      0.000      0.000      0.000      0.000      0.000      0.000

                VALLEY SECTION B

X1     31.725     23.000    600.000    700.000    590.000    825.000    840.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    225.000      0.000    690.000      0.000      0.000      0.000      0.000
GR    682.600      0.000    681.700     57.000    673.800    100.000    673.400    200.000    674.100    300.000
GR    675.000    400.000    675.000    500.000    674.900    600.000    674.900    600.000    666.900    610.000
GR    665.100    620.000    664.400    630.000    664.400    640.000    665.600    650.000    666.800    660.000
GR    667.300    670.000    668.100    683.000    675.400    700.000    677.300    733.000    675.900    800.000
GR    677.400    900.000    678.200   1000.000    683.800   1100.000      0.000      0.000      0.000      0.000
NC       .030       .030       .050      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     31.745      0.000      0.000      0.000    100.000    110.000    109.000      0.000       .900      0.000
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X3	0.000	0.000	0.000	250.000	0.000	660.000	0.000	0.000	0.000	0.000
NC	.030	.030	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AVON ROAD BRIDGE - D/S FACE - BRIDGE IS LOCATED JUST NORTHEAST OF THE INTERSECTION OF AVON AND DEQUINDRE ROADS.

X1	31.746	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	250.000	0.000	660.000	0.000	0.000	0.000	0.000
SB	0.000	1.580	3.040	0.000	41.730	0.000	492.400	0.000	665.600	665.300
NC	.070	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AVON ROAD BRIDGE - U/S FACE - SECTION C. BRIDGE IS LOCATED JUST NORTHEAST OF THE INTERSECTION OF AVON AND DEQUINDRE ROADS.

X1	31.752	23.000	700.000	744.000	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	677.400	677.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	270.000	0.000	744.000	0.000	0.000	0.000	0.000
BT	7.000	270.000	679.100	0.000	300.000	678.200	0.000	400.000	677.200	0.000
BT	500.000	677.000	0.000	600.000	677.500	0.000	700.000	679.400	677.000	744.000
BT	679.400	677.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.000	136.000	681.200	200.000	678.200	300.000
GR	675.000	400.000	675.000	500.000	675.000	600.000	675.000	700.000	665.700	700.000
GR	666.200	705.000	666.400	710.000	666.300	715.000	666.400	720.000	666.100	725.000
GR	665.700	730.000	665.600	735.000	665.600	740.000	665.700	744.000	679.400	744.000
GR	680.000	800.000	681.100	900.000	683.900	1000.000	0.000	0.000	0.000	0.000
NC	.090	.090	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	31.753	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	270.000	0.000	744.000	0.000	0.000	0.000	0.000
QT	4.000	4370.000	6730.000	7630.000	10460.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.070	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D

X1	31.829	20.000	754.000	804.000	160.000	540.000	400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	290.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.100	136.000	681.400	177.000	676.200	230.000
GR	675.600	254.000	677.600	354.000	675.600	454.000	675.400	524.000	673.300	554.000
GR	673.900	654.000	671.000	754.000	667.800	758.000	667.200	764.000	667.400	774.000
GR	667.300	784.000	666.800	800.000	671.000	804.000	672.400	854.000	680.800	954.000

X1	31.936	56.000	356.000	476.000	330.000	580.000	568.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.100	136.000	682.100	156.000	682.700	256.000
GR	683.100	356.000	673.600	356.000	672.800	361.000	671.700	366.000	671.300	368.000
GR	671.200	369.000	670.800	371.000	670.700	376.000	670.100	380.000	670.000	381.000
GR	669.400	386.000	669.900	391.000	669.800	392.000	669.800	393.000	669.600	396.000
GR	669.700	401.000	669.000	404.000	668.800	405.000	668.600	406.000	668.500	411.000
GR	668.300	416.000	668.100	417.000	667.400	421.000	668.100	426.000	668.000	428.000
GR	667.900	429.000	667.800	431.000	668.100	436.000	668.700	440.000	668.800	441.000
GR	669.200	446.000	669.600	451.000	669.700	452.000	669.700	453.000	669.900	456.000
GR	669.900	461.000	669.800	464.000	669.700	465.000	669.700	466.000	670.700	471.000
GR	671.500	476.000	683.600	476.000	664.100	556.000	684.600	656.000	685.300	756.000
GR	685.700	856.000	685.900	956.000	686.100	1056.000	686.400	1156.000	686.800	1256.000
GR	687.400	1356.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE - SECTION E

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XT	31.957	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	.950	1.660	2.690	0.000	97.780	9.000	1154.100	0.000	667.400	667.400

PENN-CENTRAL RAILROAD BRIDGE - U/S FACE - SECTION E

X1	31.940	74.000	356.000	476.000	15.000	15.000	15.000	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
BT	34.000	0.000	687.200	0.000	100.000	683.300	0.000	136.000	682.100	0.000
BT	156.000	682.100	0.000	256.000	682.700	0.000	356.000	683.100	679.800	368.000
BT	683.200	679.900	369.000	683.200	679.900	380.000	683.200	679.900	381.000	683.200
BT	679.900	392.000	683.300	680.000	393.000	683.300	680.000	404.000	683.300	680.000
BT	405.000	683.300	680.000	416.000	683.400	680.100	417.000	683.400	680.100	428.000
BT	683.400	680.100	429.000	683.400	680.100	440.000	683.500	680.200	441.000	683.500
BT	680.200	452.000	683.500	680.200	453.000	683.500	680.200	464.000	683.600	680.300
BT	465.000	683.600	680.300	476.000	683.600	680.400	556.000	684.100	0.000	656.000
BT	684.600	0.000	756.000	685.300	0.000	856.000	685.700	0.000	956.000	685.900
BT	0.000	1056.000	686.100	0.000	1156.000	686.400	0.000	1256.000	686.800	0.000
BT	1356.000	687.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.100	136.000	682.100	156.000	682.700	256.000
GR	683.100	356.000	673.600	356.000	672.800	361.000	671.700	366.000	671.300	368.000
GR	679.900	368.000	679.900	369.000	671.200	369.000	670.800	371.000	670.700	376.000
GR	670.100	380.000	679.900	380.000	679.900	381.000	670.000	381.000	669.400	386.000
GR	669.900	391.000	669.800	392.000	680.000	392.000	680.000	393.000	669.800	393.000
GR	669.600	396.000	669.700	401.000	669.000	404.000	680.000	404.000	680.000	405.000
GR	668.800	405.000	668.600	406.000	668.500	411.000	668.300	416.000	680.100	416.000
GR	680.100	417.000	668.100	417.000	667.400	421.000	668.100	426.000	668.000	428.000
GR	680.100	428.000	680.100	429.000	667.900	429.000	667.800	431.000	668.100	436.000
GR	668.700	440.000	680.200	440.000	680.200	441.000	668.800	441.000	669.200	446.000
GR	669.600	451.000	669.700	452.000	680.200	452.000	680.200	453.000	669.700	453.000
GR	669.900	456.000	669.900	461.000	669.800	464.000	680.300	464.000	680.300	465.000
GR	669.700	465.000	669.700	466.000	670.700	471.000	671.500	476.000	683.600	476.000
GR	684.100	556.000	684.600	656.000	685.300	756.000	685.700	856.000	685.900	956.000
GR	686.100	1056.000	686.400	1156.000	686.800	1256.000	687.400	1356.000	0.000	0.000
NC	.050	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	31.941	56.000	356.000	476.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	687.200	0.000	683.300	100.000	682.100	136.000	682.100	156.000	682.700	256.000
GR	683.100	356.000	673.600	356.000	672.800	361.000	671.700	366.000	671.300	368.000
GR	671.200	369.000	670.800	371.000	670.700	376.000	670.100	380.000	670.000	381.000
GR	669.400	386.000	669.900	391.000	669.800	392.000	669.800	393.000	669.600	396.000
GR	669.700	401.000	669.000	404.000	668.800	405.000	668.600	406.000	668.500	411.000
GR	668.300	416.000	668.100	417.000	667.400	421.000	668.100	426.000	668.000	428.000
GR	667.900	429.000	667.800	431.000	668.100	436.000	668.700	440.000	668.800	441.000
GR	669.200	446.000	669.600	451.000	669.700	452.000	669.700	453.000	669.900	456.000
GR	669.900	461.000	669.800	464.000	669.700	465.000	669.700	466.000	670.700	471.000
GR	671.500	476.000	683.600	476.000	684.100	556.000	684.600	656.000	685.300	756.000
GR	685.700	856.000	685.900	956.000	686.100	1056.000	686.400	1156.000	686.800	1256.000
GR	687.400	1356.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.060	242.000	.040	322.000	.070	617.000	.045	673.000	.060
NH	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	31.997	27.000	242.000	522.000	300.000	320.000	308.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	673.000	0.000	0.000	0.000	0.000
GR	702.500	0.000	701.000	42.000	698.100	130.000	680.600	173.000	680.000	202.000
GR	677.100	242.000	674.900	262.000	672.300	272.000	671.300	282.000	669.500	292.000
GR	670.900	302.000	672.800	312.000	674.600	318.000	678.300	322.000	680.000	322.000
GR	680.000	333.000	681.100	339.000	680.800	342.000	676.600	442.000	677.400	542.000
GR	676.600	617.000	674.900	623.000	675.000	640.000	675.000	642.000	685.000	673.000
GR	681.300	742.000	684.100	781.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.060	202.000	.030	242.000	.020	322.000	.070	617.000	.045
NH	675.000	.070	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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YATES MILL DAM - U/S FACE. FIXED CREST CONCRETE AND TIMBER DAM,
80 FT. LONG - SECTION F. BECAUSE OF DAM SUBMERGENCE AND THE RELATIVE
DAM LENGTH RELATIVE TO TOP WIDTH, DAM WAS TREATED AS A NORMAL VALLEY
SECTION.

X1	31.998	21.000	242.000	322.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	673.000	0.000	0.000	0.000	0.000
GR	702.500	0.000	701.000	42.000	698.100	130.000	680.600	173.000	680.000	202.000
GR	679.800	242.000	676.200	242.000	676.300	322.000	680.000	322.000	680.000	353.000
GR	681.100	339.000	680.800	342.000	676.600	442.000	677.400	542.000	676.600	617.000
GR	674.900	623.000	675.000	640.000	675.000	642.000	685.000	673.000	681.300	742.000
GR	684.100	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

YATES MILL DAM - U/S FACE. FIXED CREST CONCRETE AND TIMBER DAM,
80 FT. LONG - SECTION F. BECAUSE OF DAM SUBMERGENCE AND THE RELATIVE
DAM LENGTH RELATIVE TO TOP WIDTH, DAM WAS TREATED AS A NORMAL VALLEY
SECTION.

X1	31.999	21.000	242.000	322.000	6.000	6.000	6.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	673.000	0.000	0.000	0.000	0.000
GR	702.500	0.000	701.000	42.000	698.100	130.000	680.600	173.000	680.000	202.000
GR	679.800	242.000	676.200	242.000	676.300	322.000	680.000	322.000	680.000	353.000
GR	681.100	339.000	680.800	342.000	676.600	442.000	677.400	542.000	676.600	617.000
GR	674.900	623.000	675.000	640.000	675.000	642.000	685.000	673.000	681.300	742.000
GR	684.100	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.060	202.000	.030	242.000	.040	322.000	.070	617.000	.045
NH	673.000	.060	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	32.000	27.000	242.000	322.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	673.000	0.000	0.000	0.000	0.000
GR	702.500	0.000	701.000	42.000	698.100	130.000	680.600	173.000	680.000	202.000
GR	677.100	242.000	674.900	262.000	672.300	272.000	671.300	282.000	669.500	292.000
GR	670.900	302.000	672.800	312.000	674.600	318.000	678.300	322.000	680.000	322.000
GR	680.000	333.000	681.100	339.000	680.800	342.000	676.600	442.000	677.400	542.000
GR	676.600	617.000	674.900	623.000	675.000	640.000	675.000	642.000	685.000	673.000
GR	681.300	742.000	684.100	781.000	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
QT	4.000	4280.000	6580.000	7490.000	10230.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION G

X1	32.125	34.000	413.000	491.000	760.000	330.000	660.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	863.000	0.000	0.000	0.000	0.000
GR	695.700	0.000	684.700	17.000	679.400	33.000	678.800	121.000	679.400	231.000
GR	680.300	381.000	678.900	413.000	676.700	431.000	674.100	441.000	673.100	451.000
GR	671.300	461.000	672.700	471.000	674.600	481.000	676.400	487.000	680.100	491.000
GR	679.000	591.000	678.000	671.000	680.700	681.000	681.100	691.000	680.900	740.000
GR	686.000	757.000	680.600	776.000	678.800	797.000	684.700	813.000	685.800	827.000
GR	684.700	831.000	681.600	845.000	687.600	863.000	686.000	891.000	681.700	923.000
GR	687.300	991.000	689.900	1091.000	691.700	1191.000	694.300	1259.000	0.000	0.000
NC	.075	.065	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION H

X1	32.237	35.000	809.000	866.000	350.000	580.000	593.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	385.000	0.000	938.000	0.000	0.000	0.000	0.000

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GR	693.500	0.000	685.300	20.000	681.600	58.000	679.500	177.000	680.200	329.000
GR	680.000	426.000	681.100	536.000	681.200	666.000	680.500	766.000	679.800	809.000
GR	676.600	812.000	675.800	816.000	675.100	826.000	674.300	836.000	674.700	846.000
GR	675.500	856.000	677.000	862.000	681.100	866.000	686.000	881.000	680.400	917.000
GR	687.500	938.000	682.100	958.000	682.100	966.000	682.800	1066.000	682.600	1166.000
GR	683.100	1266.000	682.500	1366.000	686.000	1466.000	685.100	1566.000	686.500	1666.000
GR	685.400	1766.000	687.100	1866.000	688.500	1966.000	689.300	2035.000	692.500	2044.000
X1	32.275	27.000	342.000	425.000	200.000	200.000	200.000	0.000	-3.400	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	699.900	0.000	688.900	25.000	681.700	49.000	681.500	125.000	682.600	225.000
GR	683.400	325.000	682.700	342.000	679.100	344.000	678.600	352.000	678.200	363.000
GR	678.300	372.000	678.800	382.000	679.700	392.000	680.800	396.000	683.000	425.000
GR	681.500	525.000	682.900	616.000	695.400	648.000	696.100	725.000	694.900	818.000
GR	692.300	825.000	693.600	925.000	695.600	960.000	683.000	984.000	684.400	1001.000
GR	690.700	1012.000	692.300	1025.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.075	.090	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	4130.000	6330.000	7260.000	9840.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION I

X1	32.530	27.000	342.000	425.000	950.000	880.000	1350.000	0.000	0.000	0.000
GR	699.900	0.000	688.900	25.000	681.700	49.000	681.500	125.000	682.600	225.000
GR	683.400	325.000	682.700	342.000	679.100	344.000	678.600	352.000	678.200	363.000
GR	678.300	372.000	678.800	382.000	679.700	392.000	680.800	396.000	683.000	425.000
GR	681.500	525.000	682.900	616.000	695.400	648.000	696.100	725.000	694.900	818.000
GR	692.300	825.000	693.600	925.000	695.600	960.000	683.000	984.000	684.400	1001.000
GR	690.700	1012.000	692.300	1025.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.085	.070	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION J

X1	32.845	26.000	354.000	433.000	1660.000	1200.000	1660.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	685.000	0.000	0.000	0.000	0.000
GR	699.300	0.000	686.800	54.000	685.900	154.000	685.600	254.000	685.700	354.000
GR	681.800	382.000	681.400	389.000	681.400	396.000	681.000	404.000	681.000	411.000
GR	680.700	419.000	680.900	427.000	681.000	432.000	683.800	433.000	684.800	454.000
GR	686.500	554.000	686.800	654.000	687.900	754.000	686.900	854.000	686.900	915.000
GR	694.000	936.000	687.700	952.000	667.100	982.000	699.200	1007.000	698.600	1029.000
GR	703.900	1054.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	3910.000	5970.000	6940.000	9310.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION K - LEFT OVERBANK ADJUSTED TO ELIMINATE INEFFECTIVE
FLOW AREA OF DITCH NEXT TO GRAND TRUNK WESTERN RAILROAD

X1	33.137	30.000	948.000	1016.000	1120.000	1350.000	1540.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1016.000	0.000	0.000	0.000	0.000
GR	702.300	0.000	701.800	4.000	692.700	18.000	692.700	100.000	692.700	166.000
GR	690.800	266.000	689.800	366.000	690.400	394.000	694.800	422.000	695.400	466.000
GR	695.200	566.000	694.700	588.000	689.500	622.000	688.100	666.000	687.900	766.000
GR	687.700	866.000	687.800	948.000	685.800	958.000	685.200	966.000	685.000	976.000
GR	684.300	986.000	683.500	996.000	684.000	1001.000	685.800	1006.000	696.500	1016.000
GR	695.400	1026.000	688.300	1044.000	689.700	1066.000	687.700	1113.000	701.800	1166.000
QT	4.000	3870.000	5900.000	6870.000	9200.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE WITH STONEY CREEK

X1	33.263	18.000	948.000	1006.000	520.000	525.000	670.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	760.000	0.000	0.000	0.000	0.000	0.000	0.000

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GR	703.800	500.000	691.200	500.000	671.000	822.000	675.100	886.000	689.400	780.000
GR	689.200	866.000	689.300	948.000	687.300	958.000	686.700	966.000	686.500	976.000
GR	685.800	986.000	685.000	996.000	685.500	1001.000	687.300	1006.000	689.300	1006.000
GR	689.600	1106.000	689.200	1206.000	696.000	1530.000	0.000	0.000	0.000	0.000
NC	.050	.080	.045	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	3.000	.042	91.000	.060	384.000	.090	591.000	0.000	0.000	0.000
OT	4.000	3450.000	5030.000	5570.000	7990.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION L

X1	33.421	23.000	0.000	91.000	750.000	650.000	830.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	384.000	0.000	0.000	0.000	0.000
GR	704.700	0.000	701.700	4.000	688.500	28.000	687.500	51.000	687.100	61.000
GR	686.900	71.000	687.000	81.000	688.400	87.000	691.200	91.000	691.500	191.000
GR	691.100	291.000	689.700	365.000	694.900	375.000	696.400	384.000	694.900	393.000
GR	690.500	403.000	690.400	419.000	693.900	431.000	690.900	443.000	691.700	491.000
GR	697.600	553.000	701.700	566.000	713.700	591.000	0.000	0.000	0.000	0.000
NC	.050	.080	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION M

X1	33.610	21.000	232.000	305.000	1060.000	1010.000	1000.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	226.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	707.100	0.000	698.900	199.000	704.700	226.000	703.900	232.000	691.100	255.000
GR	690.000	262.000	689.500	272.000	688.700	275.000	689.300	284.000	690.800	300.000
GR	695.500	305.000	695.400	359.000	694.100	459.000	694.300	494.000	693.600	559.000
GP	695.700	664.000	700.900	679.000	701.300	786.000	701.200	828.000	705.200	844.000
GR	714.400	859.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.220	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	33.679	20.000	486.000	541.000	430.000	340.000	369.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	486.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	706.500	0.000	703.900	86.000	703.100	186.000	702.300	286.000	700.800	386.000
GR	695.200	486.000	691.100	491.000	689.300	502.000	689.500	509.000	690.000	520.000
GR	690.600	528.000	691.500	535.000	694.400	541.000	693.300	586.000	695.700	686.000
GR	695.200	743.000	695.000	760.000	696.400	786.000	698.100	846.000	711.600	886.000
NC	.090	.190	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE.

X1	33.680	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	486.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.520	2.780	0.000	34.500	0.000	331.200	0.000	689.300	689.300
NC	.090	.325	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PENN-CENTRAL RAILROAD BRIDGE - U/S FACE - SECTION N.

X1	33.683	30.000	1000.000	1056.000	15.000	15.000	15.000	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
BT	16.000	0.000	709.100	0.000	100.000	708.700	0.000	200.000	708.500	0.000
BT	300.000	708.300	0.000	400.000	708.200	0.000	500.000	707.800	0.000	600.000
BT	706.700	0.000	700.000	706.400	0.000	800.000	705.300	0.000	900.000	704.500
BT	0.000	1000.000	703.500	698.900	1045.000	703.200	698.600	1100.000	702.700	0.000
BT	1200.000	702.300	0.000	1300.000	701.600	0.000	1365.000	701.200	0.000	0.000
GR	709.100	0.000	708.700	100.000	708.500	200.000	708.300	300.000	708.200	400.000
GR	707.800	500.000	706.700	600.000	706.400	700.000	705.300	800.000	704.500	900.000
GR	703.500	1000.000	691.900	1000.000	692.400	1005.000	692.600	1010.000	692.400	1015.000
GR	692.300	1020.000	691.900	1025.000	690.800	1030.000	690.000	1035.000	689.500	1040.000
GR	689.300	1045.000	691.500	1050.000	694.400	1056.000	693.300	1100.000	695.700	1200.000
GR	695.200	1258.000	695.000	1275.000	696.400	1300.000	698.100	1361.000	701.200	1365.000
NC	.090	.400	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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X1	33.684	22.000	486.000	541.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	486.000	0.000	851.000	0.000	0.000	0.000	0.000
GR	706.500	0.000	703.900	86.000	703.100	186.000	702.300	286.000	700.800	386.000
GR	695.200	486.000	691.100	491.000	689.300	502.000	689.500	509.000	690.000	520.000
GR	690.600	528.000	691.500	535.000	694.400	541.000	693.500	586.000	695.700	686.000
GR	695.200	743.000	692.900	748.000	692.900	753.000	695.000	760.000	696.400	786.000
GR	698.100	846.000	711.600	886.000	0.000	0.000	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
QT	4.000	3330.000	4830.000	5490.000	7680.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION O.

X1	33.721	22.000	486.000	541.000	240.000	160.000	199.000	0.000	0.000	0.000
GR	708.300	0.000	705.700	86.000	704.900	186.000	704.100	286.000	702.600	386.000
GR	697.000	486.000	692.900	491.000	691.100	502.000	691.300	509.000	691.800	520.000
GR	692.400	528.000	693.300	535.000	696.200	541.000	695.100	586.000	697.500	686.000
GR	697.000	743.000	694.700	748.000	694.700	753.000	696.800	760.000	698.200	786.000
GR	699.900	846.000	713.400	886.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.055	250.000	.075	348.000	.050	430.000	.085	1230.000	0.000

VALLEY SECTION P

X1	33.816	32.000	348.000	430.000	400.000	980.000	500.000	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	715.500	0.000	713.900	15.000	707.800	21.000	708.200	48.000	706.000	100.000
GR	712.100	124.000	704.100	142.000	701.900	200.000	700.600	300.000	700.500	348.000
GR	695.900	353.000	695.500	369.000	694.900	374.000	693.900	386.000	693.600	396.000
GR	693.600	400.000	694.400	405.000	694.200	415.000	695.000	426.000	699.100	430.000
GR	700.900	500.000	700.300	544.000	699.200	600.000	697.500	700.000	701.900	715.000
GR	702.400	800.000	703.000	900.000	703.800	1000.000	702.900	1100.000	707.900	1200.000
GR	709.000	1210.000	716.500	1230.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.085	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	3180.000	4590.000	5280.000	7320.000	0.000	0.000	0.000	0.000	0.000

X1	33.995	0.000	0.000	0.000	800.000	580.000	950.000	0.000	3.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	740.000	0.000	0.000	0.000	0.000

X1	34.033	0.000	0.000	0.000	200.000	200.000	200.000	0.000	.700	0.000
X3	0.000	0.000	0.000	0.000	0.000	590.000	0.000	0.000	0.000	0.000

VALLEY SECTION Q

X1	34.071	28.000	573.000	636.000	150.000	300.000	200.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	425.000	0.000	750.000	0.000	0.000	0.000	0.000
GR	716.000	0.000	710.400	21.000	710.700	38.000	710.300	73.000	708.600	173.000
GR	707.300	273.000	706.400	373.000	705.100	473.000	704.700	495.000	703.100	573.000
GR	699.600	577.000	699.800	585.000	698.600	593.000	698.700	602.000	698.300	613.000
GR	698.200	623.000	699.600	632.000	703.300	636.000	704.600	673.000	703.000	758.000
GR	704.200	853.000	704.900	904.000	699.500	910.000	699.700	932.000	704.100	939.000
GR	704.400	971.000	709.400	985.000	718.400	1033.000	0.000	0.000	0.000	0.000
NC	.050	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34.090	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.200	0.000
X3	0.000	0.000	0.000	435.000	0.000	730.000	0.000	0.000	0.000	0.000

X1	34.156	0.000	0.000	0.000	350.000	350.000	350.000	0.000	.500	0.000
X3	0.000	0.000	0.000	475.000	0.000	655.000	0.000	0.000	0.000	0.000

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QT	4.000	3060.000	2400.000	3110.000	7050.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION R

X1	34.353	20.000	100.000	241.000	1010.000	880.000	1040.000	0.000	0.000	0.000
GR	727.000	0.000	714.000	36.000	712.900	70.000	713.900	100.000	715.700	153.000
GR	702.900	180.000	701.100	183.000	700.600	187.000	700.400	193.000	701.200	200.000
GR	701.300	207.000	701.800	213.000	711.000	241.000	711.100	300.000	708.800	500.000
GR	711.900	635.000	710.900	735.000	715.000	980.000	716.000	1123.000	727.400	1145.000
NC	.060	.045	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION S

X1	34.513	18.000	0.000	84.000	670.000	750.000	840.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	135.000	0.000	0.000	0.000	0.000
GR	737.600	0.000	720.600	12.000	707.300	33.000	704.700	41.000	704.900	44.000
GR	705.800	51.000	706.300	60.000	706.700	70.000	706.900	80.000	708.900	84.000
GR	710.700	109.000	712.200	184.000	713.300	284.000	713.900	384.000	716.200	696.000
GR	716.000	844.000	721.100	1024.000	722.800	1030.000	0.000	0.000	0.000	0.000

X1	34.522	23.000	585.000	661.000	50.000	50.000	50.000	0.000	-.900	0.000
X3	0.000	0.000	0.000	520.000	0.000	690.000	0.000	0.000	0.000	0.000
GR	726.300	0.000	722.800	100.000	720.900	140.000	714.400	168.000	714.200	200.000
GR	712.400	300.000	712.800	400.000	712.700	500.000	713.300	585.000	707.200	600.000
GR	706.600	610.000	706.300	615.000	705.900	625.000	705.900	630.000	706.000	635.000
GR	706.000	645.000	705.800	650.000	707.400	653.000	712.400	661.000	713.200	700.000
GR	714.600	800.000	716.300	896.000	721.700	990.000	0.000	0.000	0.000	0.000
NH	7.000	.050	120.000	.040	140.000	.050	160.000	.090	585.000	.045
NH	661.000	.050	880.000	.035	990.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION T

X1	34.645	23.000	585.000	661.000	625.000	700.000	650.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	670.000	0.000	0.000	0.000	0.000
GR	727.500	0.000	724.000	100.000	722.100	140.000	715.600	108.000	715.400	200.000
GR	713.600	300.000	714.000	400.000	713.900	500.000	714.500	585.000	708.400	600.000
GR	707.800	610.000	707.500	615.000	707.100	625.000	707.100	630.000	707.200	635.000
GR	707.200	645.000	707.000	650.000	708.600	653.000	713.600	661.000	714.400	700.000
GR	715.800	800.000	717.500	896.000	722.900	990.000	0.000	0.000	0.000	0.000

X1	34.698	0.000	0.000	0.000	275.000	270.000	280.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	360.000	0.000	710.000	0.000	0.000	0.000	0.000
QT	4.000	2900.000	4150.000	4880.000	6650.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE WITH PAINT CREEK

X1	34.725	0.000	0.000	0.000	135.000	130.000	140.000	0.000	.600	0.000
X3	0.000	0.000	0.000	385.000	0.000	690.000	0.000	0.000	0.000	0.000
QT	4.000	2530.000	3425.000	3825.000	5600.000	0.000	0.000	0.000	0.000	0.000

X1	34.751	0.000	0.000	0.000	135.000	135.000	140.000	0.000	.600	0.000
X3	0.000	0.000	0.000	410.000	0.000	665.000	0.000	0.000	0.000	0.000

X1	34.804	0.000	0.000	0.000	275.000	265.000	280.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	565.000	0.000	670.000	0.000	0.000	0.000	0.000

X1	34.857	0.000	0.000	0.000	270.000	265.000	280.000	0.000	1.200	0.000

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X3	0.000	0.000	0.000	555.0 0	0.00	855.000	0.000	0.000	0.000	0.000
X1	34.906	0.000	0.000	0.000	250.000	245.000	260.000	0.000	1.100	0.000
X3	0.000	0.000	0.000	587.000	0.000	665.000	0.000	0.000	0.000	0.000
NH	5.000	.025	60.000	.045	220.000	.060	353.000	.045	410.000	.060
NH	775.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION U

X1	34.910	19.000	353.000	410.000	20.000	20.000	20.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	530.000	0.000	0.000	0.000	0.000
GR	727.200	0.000	727.100	42.000	726.000	100.000	727.100	200.000	722.300	300.000
GR	721.500	336.000	719.000	353.000	715.200	359.000	713.800	370.000	713.800	380.000
GR	713.900	385.000	713.700	390.000	713.000	396.000	714.600	400.000	721.000	410.000
GR	722.700	500.000	723.600	600.000	725.300	700.000	731.100	775.000	0.000	0.000
NC	.075	.075	.038	.300	.500	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION V - DIRECTLY UNDER ROCHESTER ROAD BRIDGE

X1	35.037	68.000	430.000	472.000	625.000	650.000	670.000	0.000	0.000	0.000
GR	736.200	0.000	736.000	33.000	734.400	66.000	750.000	66.000	750.000	70.000
GR	734.400	70.000	731.400	116.000	750.000	116.000	750.000	120.000	731.400	120.000
GR	730.200	166.000	750.000	166.000	750.000	170.000	730.200	170.000	729.000	216.000
GR	750.000	216.000	750.000	220.000	729.000	220.000	728.200	256.000	729.300	286.000
GR	750.000	286.000	750.000	290.000	729.300	290.000	728.900	351.000	750.000	351.000
GR	750.000	355.000	728.900	355.000	729.200	416.000	750.000	416.000	750.000	420.000
GR	729.200	420.000	725.900	430.000	718.900	431.000	718.300	435.000	717.300	440.000
GR	716.700	445.000	716.400	450.000	716.100	455.000	716.900	460.000	717.900	470.000
GR	718.200	471.000	729.100	472.000	729.800	486.000	750.000	486.000	750.000	490.000
GR	729.800	490.000	732.000	536.000	750.000	536.000	750.000	540.000	732.000	540.000
GR	733.800	586.000	750.000	586.000	750.000	590.000	733.800	590.000	734.500	636.000
GR	750.000	636.000	750.000	640.000	734.500	640.000	735.500	686.000	750.000	686.000
GR	750.000	690.000	735.500	690.000	736.900	736.000	750.000	736.000	750.000	740.000
GR	736.900	740.000	736.900	772.000	737.900	808.000	0.000	0.000	0.000	0.000

X1	35.068	29.000	430.000	472.000	170.000	200.000	169.000	0.000	0.000	0.000
GR	735.800	0.000	735.600	33.000	734.000	68.000	731.000	118.000	729.800	168.000
GR	728.600	218.000	727.800	256.000	728.900	288.000	728.500	353.000	728.800	418.000
GR	725.500	430.000	718.500	431.000	717.900	435.000	716.900	440.000	716.300	445.000
GR	716.000	450.000	715.700	455.000	716.500	460.000	717.500	470.000	717.800	471.000
GR	728.700	472.000	729.400	488.000	731.600	538.000	733.400	588.000	734.100	638.000
GR	735.100	688.000	736.500	738.000	736.500	772.000	737.500	808.000	0.000	0.000
NC	.030	.030	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DIVERSION STREET BRIDGE - D/S FACE - SECTION W

X1	35.069	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	0.000	1.820	3.020	0.000	28.270	0.000	248.800	0.000	715.600	715.700
NC	.050	.080	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DIVERSION STREET BRIDGE - U/S FACE - SECTION W

X1	35.076	22.000	478.000	514.000	37.000	37.000	37.000	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	0.000	0.000	0.000	306.000	0.000	606.000	0.000	0.000	0.000	0.000
BT	8.000	306.000	728.500	0.000	378.000	727.700	0.000	478.000	727.900	724.400
BT	478.000	731.200	724.400	514.000	731.200	724.400	514.000	727.800	724.400	578.000
BT	728.500	0.000	606.000	729.100	0.000	0.000	0.000	0.000	0.000	0.000
GR	739.800	0.000	736.600	78.000	732.100	178.000	728.800	278.000	728.500	306.000
GR	727.700	378.000	723.600	478.000	719.300	478.000	718.700	483.000	718.400	468.000

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GR	718.000	493.000	717.500	[illegible]	716.700	503.000	716.000	508.000	715.600	[illegible]
GR	722.500	514.000	728.500	578.000	729.100	608.000	730.600	678.000	733.800	778.000
GR	735.900	878.000	736.400	903.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.090	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	35.077	24.000	234.000	298.000	1.000	1.000	1.000	0.000	-.900	0.000
X3	0.000	0.000	0.000	80.000	0.000	380.000	0.000	0.000	0.000	0.000
GR	735.300	0.000	728.300	21.000	727.900	34.000	726.100	134.000	726.900	149.000
GR	723.600	234.000	717.600	243.000	716.700	250.000	716.500	255.000	716.600	260.000
GR	717.000	264.000	717.300	269.000	717.400	274.000	717.400	279.000	717.300	285.000
GR	717.300	290.000	722.900	298.000	722.500	334.000	722.500	434.000	722.500	534.000
GR	723.400	634.000	725.200	734.000	724.800	781.000	734.700	799.000	0.000	0.000

VALLEY SECTION X

X1	35.152	24.000	234.000	298.000	410.000	380.000	399.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	149.000	0.000	380.000	0.000	0.000	0.000	0.000
GR	737.900	0.000	730.900	21.000	730.500	34.000	728.700	134.000	729.500	149.000
GR	726.200	234.000	720.200	243.000	719.300	250.000	719.100	255.000	719.200	260.000
GR	719.600	264.000	719.900	269.000	720.000	274.000	720.000	279.000	719.900	285.000
GR	719.900	290.000	725.500	298.000	725.100	334.000	725.100	434.000	725.100	534.000
GR	726.000	634.000	727.800	734.000	727.400	781.000	737.300	799.000	0.000	0.000
NH	4.000	.090	270.000	.035	293.000	.047	347.000	.055	651.000	0.000

VALLEY SECTION Y

X1	35.266	23.000	293.000	347.000	610.000	600.000	600.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	282.000	0.000	600.000	0.000	0.000	0.000	0.000
GR	738.900	0.000	734.300	18.000	733.800	95.000	729.700	160.000	726.700	268.000
GR	731.500	282.000	730.100	293.000	722.300	303.000	720.300	307.000	720.100	310.000
GR	720.500	315.000	720.500	320.000	720.500	325.000	720.400	330.000	720.500	335.000
GR	720.500	338.000	722.500	343.000	725.000	347.000	725.400	391.000	725.800	495.000
GR	727.900	588.000	731.100	635.000	738.600	651.000	0.000	0.000	0.000	0.000
NC	.060	.090	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	35.323	90.000	352.200	405.500	260.000	300.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	340.100	0.000	565.000	0.000	0.000	0.000	0.000
GR	739.000	0.000	737.000	12.100	735.300	24.200	735.200	36.400	735.000	48.500
GR	734.900	60.700	734.700	72.800	734.600	85.000	734.500	97.100	734.400	109.300
GR	734.100	121.400	733.600	133.600	733.100	145.700	732.600	157.900	732.200	170.000
GR	731.800	182.100	731.400	194.300	731.200	206.400	731.100	218.600	731.200	230.700
GR	731.300	242.900	730.200	255.000	729.800	267.200	729.300	279.300	729.000	291.500
GR	728.600	303.600	728.300	315.800	729.300	327.900	731.500	340.100	730.400	352.200
GR	729.200	354.000	727.900	355.700	726.700	357.500	725.500	359.300	724.200	361.100
GR	723.200	362.800	722.500	364.600	721.900	366.400	721.700	368.200	721.700	369.900
GR	721.800	371.700	721.900	373.500	721.900	375.300	721.900	377.000	721.900	378.800
GR	721.900	380.600	721.800	382.400	721.800	384.100	721.800	385.900	721.700	387.700
GR	721.700	389.500	721.800	391.200	721.900	393.000	722.000	394.800	722.000	396.600
GR	722.600	398.300	723.200	400.100	723.800	401.900	724.800	403.700	726.000	405.500
GR	726.200	415.800	726.300	426.100	726.500	436.500	726.600	446.800	726.700	457.200
GR	726.800	467.500	726.800	477.800	726.900	488.200	726.900	498.500	726.900	508.900
GR	727.000	519.200	727.000	529.500	727.100	539.900	727.100	550.200	727.200	560.600
GR	727.300	570.900	727.500	581.300	727.700	591.600	727.800	601.900	728.000	612.300
GR	728.400	622.600	728.800	633.000	729.000	643.300	729.200	653.600	729.700	664.000
GR	730.100	674.300	730.600	684.700	731.100	695.000	734.700	705.400	739.900	715.700
X1	35.379	90.000	411.500	464.000	260.000	305.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	540.000	0.000	0.000	0.000	0.000
GR	739.200	0.000	737.600	14.100	736.400	28.300	736.200	42.500	735.900	56.700
GR	735.700	70.900	735.500	85.100	735.300	99.300	735.200	113.500	735.100	127.700
GR	734.800	141.800	734.400	156.000	734.000	170.200	733.700	184.400	733.500	198.600

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GR	735.300	212.800	735.200	227.000	735.200	241.200	735.100	255.400	735.000	269.600
GR	734.000	283.700	732.100	297.900	731.600	312.100	731.100	326.300	730.600	340.500
GR	730.200	354.700	729.800	368.900	730.300	383.100	731.600	397.300	730.800	411.500
GR	729.700	413.200	728.600	415.000	727.600	416.700	726.500	418.400	725.400	420.200
GR	724.600	421.900	724.000	423.700	723.500	425.400	723.300	427.200	723.300	428.900
GR	723.300	430.700	723.400	432.400	723.400	434.200	723.400	435.900	723.300	437.700
GR	723.300	439.400	723.200	441.200	723.200	442.900	723.100	444.700	723.100	446.400
GR	723.100	448.200	723.200	449.900	723.400	451.700	723.500	453.400	723.600	455.200
GR	724.000	456.900	724.500	458.700	725.000	460.400	725.800	462.200	727.100	464.000
GR	727.300	474.500	727.500	485.000	727.700	495.600	728.000	506.100	728.100	516.700
GR	728.100	527.200	728.200	537.800	728.200	548.300	728.300	558.900	728.300	569.400
GR	728.400	580.000	728.400	590.500	728.500	601.100	728.500	611.600	728.500	622.200
GR	728.600	632.700	728.700	643.300	728.800	653.800	728.900	664.400	729.000	674.900
GR	729.500	685.500	730.200	696.000	730.200	706.600	730.300	717.100	730.600	727.700
GR	730.900	738.200	731.200	748.800	731.500	759.300	735.700	769.900	741.300	780.500
X1	35.436	90.000	470.700	522.500	260.000	300.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	575.000	0.000	0.000	0.000	0.000
GR	739.400	0.000	738.300	16.200	737.400	32.400	737.200	48.600	736.900	64.900
GR	736.600	81.100	736.300	97.300	736.000	113.600	735.900	129.800	735.700	146.000
GR	735.500	162.300	735.200	178.500	735.000	194.700	734.800	211.000	734.900	227.200
GR	734.900	243.400	734.900	259.700	735.100	275.900	735.200	292.100	736.000	308.400
GR	736.800	324.600	734.100	340.800	733.400	357.100	732.800	373.300	732.200	389.500
GR	731.800	405.800	731.400	422.000	731.400	438.200	731.800	454.500	731.100	470.700
GR	730.200	472.400	729.300	474.100	728.400	475.900	727.500	477.600	726.700	479.300
GR	726.000	481.000	725.600	482.800	725.200	484.500	724.900	486.200	724.900	487.900
GR	724.900	489.700	724.900	491.400	724.800	493.100	724.800	494.800	724.800	496.600
GR	724.700	498.300	724.600	500.000	724.600	501.700	724.500	503.500	724.400	505.200
GR	724.500	506.900	724.700	508.600	724.900	510.400	725.000	512.100	725.100	513.800
GR	725.400	515.500	725.800	517.300	726.100	519.000	726.700	520.700	728.200	522.500
GR	728.400	533.200	728.700	544.000	729.000	554.700	729.300	565.500	729.400	576.200
GR	729.500	587.000	729.500	597.800	729.600	608.500	729.600	619.300	729.700	630.000
GR	729.700	640.800	729.800	651.500	729.800	662.300	729.900	673.100	729.900	683.800
GR	729.900	694.600	729.900	705.300	729.900	716.100	730.000	726.900	730.000	737.600
GR	730.600	748.400	731.600	759.100	731.500	769.900	731.500	780.600	731.600	791.400
GR	731.700	802.200	731.700	812.900	731.800	823.700	736.600	834.400	742.700	845.200
X1	35.455	0.000	0.000	0.000	80.000	100.000	100.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	630.000	0.000	0.000	0.000	0.000
NC	.050	.075	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	VALLEY SECTION Z									
X1	35.493	27.000	530.000	581.000	180.000	200.000	200.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	818.000	0.000	0.000	0.000	0.000
GR	739.600	0.000	738.700	30.000	736.700	130.000	735.900	230.000	737.300	330.000
GR	736.700	338.000	740.900	360.000	736.300	380.000	734.100	430.000	731.500	530.000
GR	727.700	539.000	726.600	545.000	726.400	550.000	726.300	555.000	726.000	560.000
GR	725.800	565.000	726.500	570.000	727.000	575.000	727.500	579.000	729.300	581.000
GR	730.800	630.000	731.300	730.000	731.000	807.000	733.100	818.000	732.900	830.000
GR	732.200	890.000	744.100	910.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.090	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	35.527	90.000	498.000	555.500	185.000	145.000	180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	343.400	0.000	760.000	0.000	0.000	0.000	0.000
GR	741.400	0.000	739.600	17.100	738.900	34.300	738.600	51.500	738.300	68.600
GR	738.000	85.800	737.700	103.000	737.500	120.200	737.300	137.300	737.200	154.500
GR	737.100	171.700	736.900	188.800	736.800	206.000	736.800	223.200	737.000	240.400
GR	737.000	257.500	737.100	274.700	738.200	291.900	737.500	309.100	737.900	326.200
GR	738.500	343.400	735.600	360.600	734.700	377.700	734.100	394.900	733.700	412.100
GR	733.300	429.300	733.000	446.400	732.700	463.600	732.300	480.800	732.000	498.000
GR	731.200	499.900	730.400	501.800	729.600	503.700	729.100	505.600	728.500	507.500

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GR	727.200	509.000	727.900	511.400	727.700	513.300	727.500	515.200	727.300	517.100
GR	727.300	519.000	727.300	520.900	727.200	522.900	727.200	524.800	727.100	526.700
GR	727.000	528.600	726.900	530.500	726.900	532.400	726.600	534.400	726.800	536.300
GR	726.800	538.200	727.000	540.100	727.200	542.000	727.400	543.900	727.500	545.900
GR	727.700	547.800	727.900	549.700	728.500	551.600	729.500	553.500	731.300	555.500
GR	731.300	566.000	731.400	576.400	731.500	586.900	731.800	597.400	732.000	607.900
GR	732.100	618.400	732.100	628.900	732.200	639.400	732.300	649.900	732.600	660.400
GR	732.900	670.900	733.100	681.400	733.300	691.900	733.300	702.400	733.300	712.900
GR	733.300	723.400	733.300	733.900	733.300	744.400	733.300	754.900	733.200	765.400
GR	733.800	775.900	734.800	786.400	734.700	796.900	734.600	807.400	734.600	817.900
GR	734.800	828.400	735.000	838.900	735.200	849.400	739.500	859.900	744.700	870.500
X1	35.561	90.000	466.000	530.000	190.000	145.000	180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	743.300	0.000	740.200	16.000	739.300	32.100	739.100	48.200	738.900	64.200
GR	738.600	80.300	738.400	96.400	738.200	112.400	738.100	128.500	738.000	144.600
GR	737.900	160.600	737.800	176.700	737.700	192.800	737.700	208.800	737.800	224.900
GR	737.600	241.000	737.500	257.100	739.500	273.100	737.700	289.200	737.400	305.300
GR	737.400	321.300	735.000	337.400	734.200	353.500	733.800	369.500	733.500	385.600
GR	733.300	401.700	733.100	417.700	732.900	433.800	732.700	449.900	732.600	466.000
GR	731.700	468.100	730.800	470.200	730.000	472.300	729.600	474.500	729.200	476.600
GR	728.900	478.700	728.800	480.900	728.600	483.000	728.400	485.100	728.400	487.300
GR	728.300	489.400	728.200	491.500	728.100	493.700	728.100	495.800	728.000	497.900
GR	727.900	500.100	727.900	502.200	727.900	504.300	727.800	506.500	727.800	508.600
GR	727.800	510.700	728.000	512.900	728.100	515.000	728.200	517.100	728.400	519.300
GR	728.600	521.400	728.700	523.500	729.800	525.700	731.200	527.800	733.300	530.000
GR	733.000	540.000	732.800	550.000	732.800	560.000	733.100	570.100	733.200	580.100
GR	733.300	590.100	733.400	600.200	733.500	610.200	733.600	620.200	734.100	630.300
GR	734.700	640.300	735.000	650.300	735.300	660.400	735.500	670.400	735.500	680.400
GR	735.500	690.500	735.500	700.500	735.500	710.500	735.500	720.600	735.500	730.600
GR	735.900	740.600	736.500	750.700	736.500	760.700	736.500	770.700	736.700	780.800
GR	737.200	790.800	737.700	800.800	738.200	810.900	741.500	820.900	745.400	831.000

X1	35.595	90.000	434.000	504.500	185.000	145.000	180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	330.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	745.200	0.000	740.800	14.900	739.600	29.900	739.500	44.800	739.400	59.800
GR	739.300	74.800	739.100	89.700	739.000	104.700	738.900	119.700	738.800	134.600
GR	738.700	149.600	738.600	164.600	738.600	179.500	738.500	194.500	738.500	209.500
GR	738.200	224.400	737.900	239.400	740.800	254.400	738.000	269.300	736.900	284.300
GR	736.300	299.300	734.500	314.200	733.600	329.200	733.500	344.200	733.400	359.100
GR	733.300	374.100	733.300	389.100	733.200	404.000	733.200	419.000	733.100	434.000
GR	732.100	436.300	731.100	438.700	730.400	441.000	730.100	443.300	729.800	445.700
GR	729.700	448.000	729.600	450.400	729.500	452.700	729.400	455.100	729.300	457.400
GR	729.200	459.800	729.200	462.100	729.100	464.500	729.000	466.800	728.800	469.200
GR	728.800	471.500	728.800	473.900	728.800	476.200	728.800	478.600	728.800	480.900
GR	728.800	483.300	728.900	485.600	729.000	488.000	729.100	490.300	729.200	492.700
GR	729.400	495.000	729.600	497.400	731.000	499.700	733.000	502.100	735.300	504.500
GR	734.800	514.000	734.300	523.600	734.100	533.100	734.300	542.700	734.400	552.300
GR	734.500	561.800	734.600	571.400	734.700	581.000	734.900	590.500	735.600	600.100
GR	736.400	609.700	736.900	619.200	737.300	628.800	737.600	638.400	737.600	647.900
GR	737.600	657.500	737.700	667.100	737.700	676.600	737.700	686.200	737.700	695.800
GR	738.000	705.300	738.300	714.900	738.300	724.500	738.300	734.000	738.800	743.600
GR	739.600	753.200	740.400	762.700	741.300	772.300	743.500	781.900	746.000	791.500
NC	.050	.085	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AA

X1	35.629	24.000	402.000	479.000	190.000	145.000	180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	236.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	747.100	0.000	740.100	17.000	739.800	102.000	739.300	202.000	737.900	220.000
GR	742.200	236.000	737.300	253.000	733.100	302.000	733.700	402.000	730.800	409.000
GR	730.600	412.000	730.400	422.000	730.200	432.000	729.700	442.000	729.900	452.000
GR	729.900	462.000	730.500	472.000	737.300	479.000	735.400	502.000	736.200	562.000

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GR	738.500	581.000	739.700	802.000	740.500	702.000	748.700	752.000	0.000	0.000
NC	.055	.080	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AB

X1	35.800	22.000	380.000	426.000	530.000	850.000	900.000	0.000	0.000	0.000
GR	748.000	0.000	743.500	31.000	742.700	80.000	743.000	111.000	741.900	180.000
GR	743.300	190.000	738.500	230.000	736.100	280.000	735.900	380.000	733.000	388.000
GR	732.600	390.000	731.800	395.000	730.400	400.000	729.800	405.000	729.800	410.000
GR	730.900	415.000	732.500	420.000	738.100	426.000	737.000	480.000	738.500	580.000
GR	738.700	598.000	748.200	622.000	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

VALLEY SECTION AC

X1	35.980	17.000	214.000	288.000	820.000	920.000	950.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	127.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	745.700	0.000	738.300	24.000	738.700	100.000	739.000	200.000	739.200	214.000
GR	733.800	222.000	733.800	228.000	734.400	234.000	734.500	239.000	735.100	246.000
GR	735.400	253.000	735.300	259.000	734.300	264.000	734.000	270.000	734.000	273.000
GR	736.700	276.000	749.500	288.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	36.045	0.000	0.000	0.000	270.000	430.000	349.000	0.000	.200	0.000
X3	0.000	0.000	0.000	214.000	0.000	283.000	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

GRAND TRUNK WESTERN RAILROAD BRIDGE - D/S FACE - SECTION AD

X1	36.046	39.000	1000.000	1069.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	744.800	600.000	745.200	700.000	745.700	800.000	746.100	900.000	746.400	1000.000
GR	740.000	1000.000	738.000	1005.000	736.400	1010.000	736.300	1011.000	735.700	1015.000
GR	735.100	1020.000	734.900	1022.000	734.900	1023.000	734.700	1025.000	734.600	1030.000
GR	734.400	1034.000	734.500	1035.000	734.400	1040.000	734.900	1045.000	734.700	1046.000
GR	734.500	1047.000	734.000	1050.000	734.300	1055.000	735.100	1058.000	735.300	1059.000
GR	735.600	1060.000	737.100	1065.000	736.800	1069.000	746.600	1069.000	746.700	1100.000
GR	747.000	1200.000	747.300	1300.000	747.800	1400.000	748.300	1500.000	748.900	1600.000
GR	749.700	1700.000	750.500	1800.000	751.200	1900.000	751.900	2000.000	0.000	0.000
SB	.950	1.720	2.690	0.000	58.370	5.000	501.700	0.000	734.000	734.000

GRAND TRUNK WESTERN RAILROAD BRIDGE - U/S FACE - SECTION AD

X1	36.048	49.000	1000.000	1069.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	743.400	745.000	0.000	0.000	0.000	0.000	0.000
BT	17.000	500.000	744.800	0.000	700.000	745.200	0.000	800.000	745.700	0.000
BT	900.000	746.100	0.000	1000.000	746.400	743.400	1035.000	746.500	743.400	1069.000
BT	746.600	743.400	1100.000	746.700	0.000	1200.000	747.000	0.000	1300.000	747.300
BT	0.000	1400.000	747.800	0.000	1500.000	748.300	0.000	1600.000	748.900	0.000
BT	1700.000	749.700	0.000	1800.000	750.500	0.000	1900.000	751.200	0.000	2000.000
BT	751.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	744.800	600.000	745.200	700.000	745.700	800.000	746.100	900.000	746.400	1000.000
GR	740.000	1000.000	738.000	1005.000	736.400	1010.000	743.400	1010.000	743.400	1011.000
GR	736.300	1011.000	735.700	1015.000	735.100	1020.000	734.900	1022.000	743.400	1022.000
GR	743.400	1023.000	734.900	1023.000	734.700	1025.000	734.600	1030.000	734.400	1034.000
GR	743.400	1034.000	743.400	1035.000	734.500	1035.000	734.400	1040.000	734.900	1045.000
GR	734.700	1046.000	743.400	1046.000	743.400	1047.000	734.500	1047.000	734.000	1050.000
GR	734.300	1055.000	735.100	1058.000	743.400	1058.000	743.400	1059.000	735.300	1059.000
GR	735.600	1060.000	737.100	1065.000	736.800	1069.000	746.600	1069.000	746.700	1100.000
GR	747.000	1200.000	747.300	1300.000	747.800	1400.000	748.300	1500.000	748.900	1600.000
GR	749.700	1700.000	750.500	1800.000	751.200	1900.000	751.900	2000.000	0.000	0.000
NC	.090	.050	.045	.300	.500	0.000	0.000	0.000	0.000	0.000

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X1	36.049	17.000	214.000	288.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	214.000	0.000	283.000	0.000	0.000	0.000	0.000
GR	745.900	0.000	738.500	24.000	738.900	100.000	739.200	200.000	739.400	214.000
GR	734.000	222.000	734.000	228.000	734.600	234.000	734.700	239.000	735.300	246.000
GR	735.600	253.000	735.500	259.000	734.500	264.000	734.200	270.000	734.200	273.000
GR	736.900	276.000	749.700	288.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.060	20.000	619.000	678.000	50.000	50.000	50.000	0.000	-2.500	0.000
X3	0.000	0.000	0.000	571.000	0.000	740.000	0.000	0.000	0.000	0.000
GR	761.100	0.000	752.600	78.000	749.400	178.000	747.600	278.000	747.400	363.000
GR	742.300	376.000	741.600	478.000	742.200	578.000	743.200	619.000	737.300	623.000
GR	736.600	628.000	736.900	633.000	737.000	638.000	738.200	643.000	738.900	653.000
GR	740.100	661.000	742.300	678.000	742.800	778.000	743.200	848.000	749.800	878.000
NC	.075	.055	.045	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	4.000	2520.000	3400.000	3800.000	5570.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AE

X1	36.257	20.000	619.000	678.000	980.000	700.000	1049.000	0.000	0.000	0.000
GR	761.100	0.000	752.600	78.000	749.400	178.000	747.600	278.000	747.400	363.000
GR	742.300	376.000	741.600	478.000	742.200	578.000	743.200	619.000	737.300	623.000
GR	736.600	628.000	736.900	633.000	737.000	638.000	738.200	643.000	738.900	653.000
GR	740.100	661.000	742.300	678.000	742.800	778.000	743.200	848.000	749.800	878.000
X1	36.316	90.000	495.500	553.500	335.000	295.000	310.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	720.000	0.000	0.000	0.000	0.000
GR	760.500	0.000	758.700	17.000	756.900	34.100	755.100	51.200	753.700	68.300
GR	753.100	85.400	752.600	102.500	752.000	119.600	751.400	136.000	751.000	153.700
GR	750.500	170.800	749.800	187.900	749.100	205.000	748.400	222.100	748.000	239.200
GR	747.700	256.200	747.600	273.300	747.500	290.400	743.600	307.500	743.400	324.600
GR	743.300	341.700	743.100	358.800	742.900	375.800	742.900	392.900	743.000	410.000
GR	743.100	427.100	743.200	444.200	743.300	461.300	743.700	478.400	744.100	495.500
GR	741.800	497.400	739.500	499.300	739.200	501.200	738.800	503.200	738.600	505.100
GR	738.100	507.000	738.100	509.000	738.100	510.900	738.100	512.800	738.200	514.800
GR	738.600	516.700	739.000	518.600	739.100	520.600	739.200	522.500	739.300	524.400
GR	739.400	526.400	739.500	528.300	739.800	530.200	740.000	532.200	740.300	534.100
GR	740.500	536.000	740.700	538.000	740.900	539.900	741.300	541.800	741.700	543.800
GR	742.100	545.700	742.500	547.600	743.000	549.600	743.400	551.500	743.800	553.500
GR	744.100	564.800	744.200	576.100	744.400	587.400	744.500	598.700	744.600	610.000
GR	744.600	621.300	744.500	632.700	744.500	644.000	744.500	655.300	744.400	666.600
GR	744.400	677.900	744.400	689.200	744.400	700.600	744.400	711.900	744.400	723.200
GR	744.400	734.500	744.500	745.800	744.500	757.100	744.600	768.500	744.600	779.800
GR	744.600	791.100	744.700	802.400	744.800	813.700	744.900	825.000	745.100	836.400
GR	745.900	847.700	747.200	859.000	748.600	870.300	749.800	881.600	751.000	893.000
X1	36.376	90.000	372.000	429.000	540.000	295.000	315.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000
GR	759.900	0.000	758.600	12.800	757.300	25.600	756.000	38.400	755.100	51.300
GR	754.600	64.100	754.200	76.900	753.700	89.700	753.300	102.600	752.900	115.400
GR	752.300	128.200	751.300	141.100	750.300	153.900	749.300	166.700	748.500	179.500
GR	747.900	192.400	747.800	205.200	747.700	218.000	745.000	230.800	744.800	243.700
GR	744.600	256.500	744.400	269.300	744.300	282.200	744.200	295.000	744.200	307.800
GR	744.300	320.600	744.400	333.500	744.500	346.300	744.600	359.100	745.100	372.000
GR	743.400	373.800	741.700	375.700	741.300	377.600	741.000	379.500	740.600	381.400
GR	739.400	383.300	739.400	385.200	739.300	387.100	739.300	389.000	739.300	390.900
GR	739.600	392.800	739.900	394.700	739.900	396.600	740.000	398.500	740.100	400.400
GR	740.100	402.300	740.200	404.200	740.500	406.100	740.700	408.000	741.000	409.900
GR	741.100	411.800	741.300	413.700	741.400	415.600	741.800	417.500	742.400	419.400
GR	743.000	421.300	743.600	423.200	744.200	425.100	744.600	427.000	745.400	429.000
GR	745.900	444.900	746.200	460.900	746.400	476.800	746.600	492.800	746.800	508.800
GR	746.700	524.700	746.600	540.700	746.500	556.700	746.400	572.600	746.300	588.600

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GR	746.200	60..800	746.100	20.500	746.000	656.500	746.100	32.500	746.100	60. 00
GR	746.100	684.400	746.100	700.400	746.200	716.300	746.200	732.300	746.200	748.300
GR	746.300	764.200	746.400	780.200	746.600	796.200	746.700	812.100	747.000	828.100
GR	747.900	844.100	749.100	860.000	750.400	876.000	751.400	892.000	752.200	908.000
NH	4.000	.050	248.500	.015	259.600	.040	304.500	.050	923.000	0.000
X1	36.434	90.000	248.500	304.500	335.000	295.000	310.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	395.000	0.000	0.000	0.000	0.000
GR	759.300	0.000	758.500	8.500	757.800	17.100	757.000	25.700	756.400	34.200
GR	756.100	42.800	755.800	51.400	755.400	59.900	755.100	68.500	754.800	77.100
GR	754.100	85.600	752.800	94.200	751.500	102.800	750.200	111.300	749.000	119.900
GR	748.100	128.500	748.000	137.100	747.800	145.600	746.400	154.200	746.200	162.800
GR	746.000	171.300	745.800	179.900	745.600	188.500	745.400	197.000	745.500	205.600
GR	745.500	214.200	745.600	222.700	745.700	231.300	745.800	239.900	746.000	248.500
GR	745.000	250.300	743.900	252.200	743.500	254.000	743.100	255.900	742.600	257.800
GR	740.800	259.600	740.700	261.500	740.600	263.400	740.400	265.200	740.500	267.100
GR	740.600	269.000	740.800	270.800	740.800	272.700	740.800	274.600	740.800	276.400
GR	740.900	278.300	741.000	280.200	741.200	282.000	741.400	283.900	741.600	285.800
GR	741.700	287.600	741.800	289.500	741.900	291.400	742.300	293.200	743.100	295.100
GR	743.900	297.000	744.700	298.800	745.400	300.700	746.200	302.600	747.000	304.500
GR	747.700	325.100	748.100	345.700	748.400	366.300	748.800	386.900	749.000	407.500
GR	748.800	428.100	748.700	448.800	748.500	469.400	748.300	490.000	748.200	510.600
GR	748.000	531.200	747.800	551.800	747.700	572.500	747.700	593.100	747.700	613.700
GR	747.800	634.300	747.800	654.900	747.800	675.500	747.900	696.200	747.900	716.800
GR	748.000	737.400	748.200	758.000	748.300	778.600	748.500	799.200	749.000	819.900
GR	749.900	840.500	751.000	861.100	752.200	881.700	752.900	902.300	753.400	923.000
X1	36.465	0.000	0.000	0.000	170.000	145.000	159.000	0.000	.600	0.000
X3	0.000	0.000	0.000	179.000	0.000	364.000	0.000	0.000	0.000	0.000
X1	36.474	0.000	0.000	0.000	55.000	50.000	52.000	0.000	.200	0.000
X3	0.000	0.000	0.000	192.000	0.000	351.000	0.000	0.000	0.000	0.000
X1	36.484	0.000	0.000	0.000	55.000	50.000	52.000	0.000	.200	0.000
X3	0.000	0.000	0.000	205.000	0.000	338.000	0.000	0.000	0.000	0.000
NH	5.000	.030	41.000	.050	125.000	.015	136.000	.040	180.000	.050
NH	938.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	98.000	205.000	98.000	230.000	0.000

VALLEY SECTION AF

X1	36.494	23.000	125.000	180.000	55.000	50.000	52.000	0.000	0.000	0.000
GR	758.700	0.000	756.700	41.000	748.500	63.000	746.700	100.000	747.000	125.000
GR	744.900	134.000	742.200	136.000	741.600	142.000	741.700	147.000	741.600	151.000
GR	741.700	156.000	742.400	162.000	742.400	168.000	748.600	180.000	749.500	200.000
GR	751.300	300.000	750.400	400.000	749.400	500.000	749.500	600.000	749.600	700.000
GR	750.500	800.000	754.500	900.000	754.600	938.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	103.000	200.000	103.000	250.000	0.000
X1	36.498	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	108.000	195.000	108.000	270.000	0.000
X1	36.502	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	113.000	190.000	113.000	290.000	0.000
X1	36.506	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	118.000	185.000	118.000	310.000	0.000

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X1	36.509	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	123.000	180.000	123.000	330.000	0.000
X1	36.513	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	128.000	175.000	128.000	350.000	0.000
X1	36.517	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	133.000	170.000	133.000	370.000	0.000
X1	36.521	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.040	0.000
ET	0.000	6.100	6.100	6.100	8.100	135.000	168.000	135.000	379.000	0.000
X1	36.522	0.000	0.000	0.000	10.000	10.000	9.000	0.000	.020	0.000
NC	.030	.030	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	135.000	168.000	135.000	380.000	0.000

AVON ROAD BRIDGE - D/S FACE - SECTION AG. BRIDGE IS LOCATED JUST EAST OF INTERSECTION OF AVON AND LIVERNOIS ROADS.

X1	36.523	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	0.000	1.790	3.020	0.000	30.580	0.000	348.600	0.000	742.100	741.900
ET	0.000	6.100	6.100	6.100	8.100	300.000	333.000	300.000	545.000	0.000

AVON ROAD BRIDGE - U/S FACE - SECTION AG. BRIDGE IS LOCATED JUST EAST OF INTERSECTION OF AVON AND LIVERNOIS ROADS.

X1	36.535	18.000	300.000	333.000	70.000	70.000	70.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	754.600	755.000	0.000	0.000	0.000	0.000	0.000
BT	11.000	0.000	759.800	0.000	100.000	758.200	0.000	180.000	757.000	0.000
BT	200.000	756.900	0.000	300.000	755.800	753.500	300.000	756.200	753.500	333.000
BT	755.600	753.000	333.000	755.000	753.000	400.000	754.400	0.000	500.000	753.500
BT	0.000	545.000	753.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	759.800	0.000	758.200	100.000	757.000	180.000	756.900	200.000	755.800	300.000
GR	743.200	300.000	743.600	305.000	742.500	310.000	742.100	315.000	742.600	320.000
GR	742.600	325.000	742.500	330.000	742.400	333.000	749.100	333.000	750.000	353.000
GR	751.800	453.000	750.900	545.000	753.000	545.000	0.000	0.000	0.000	0.000
NC	.040	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	134.000	169.000	134.000	380.000	0.000
X1	36.536	23.000	125.000	180.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	759.200	0.000	757.200	41.000	749.000	63.000	747.200	100.000	747.500	125.000
GR	745.400	134.000	742.700	136.000	742.100	142.000	742.200	147.000	742.100	151.000
GR	742.200	156.000	742.900	162.000	742.900	168.000	749.100	180.000	750.000	200.000
GR	751.800	300.000	750.900	400.000	749.900	500.000	750.000	600.000	750.100	700.000
GR	751.000	800.000	755.000	900.000	755.100	938.000	0.000	0.000	0.000	0.000
NC	.040	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	129.000	189.000	129.000	380.000	0.000
X1	36.538	0.000	0.000	0.000	5.000	20.000	10.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	119.000	224.000	119.000	380.000	0.000
X1	36.542	0.000	0.000	0.000	10.000	35.000	20.000	0.000	-.100	0.000
ET	0.000	6.100	6.100	6.100	8.100	109.000	259.000	109.000	380.000	0.000

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X1	36.546	0.000	0.000	0.000	10.000	35.000	20.000	0.000	0.000	0.000
X1	36.564	21.000	281.000	347.000	40.000	150.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	520.000	0.000	0.000	0.000	0.000
GR	758.500	0.000	757.500	124.000	750.300	133.000	750.100	200.000	748.100	281.000
GR	744.600	288.000	744.500	291.000	742.800	292.000	741.800	297.000	742.000	301.000
GR	742.200	307.000	742.700	312.000	743.200	317.000	743.800	323.000	744.600	328.000
GR	748.300	347.000	750.200	400.000	750.900	500.000	755.000	520.000	755.000	600.000
GR	757.200	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.045	.045	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

LIVERNOIS ROAD BRIDGE - D/S FACE

X1	36.565	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	520.000	0.000	0.000	0.000	0.000
SB	0.000	1.700	3.040	0.000	29.320	0.000	316.700	0.000	741.600	741.800

LIVERNOIS ROAD BRIDGE - U/S FACE - SECTION AH

X1	36.573	25.000	591.000	657.000	47.000	47.000	47.000	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	0.000	0.000	0.000	535.000	0.000	835.000	0.000	0.000	0.000	0.000
BT	8.000	535.000	755.300	0.000	602.500	754.400	752.400	602.500	755.000	752.400
BT	636.500	754.500	751.900	636.500	754.000	751.900	688.600	753.700	0.000	774.700
BT	754.100	0.000	835.000	754.900	0.000	0.000	0.000	0.000	0.000	0.000
GR	763.900	0.000	762.400	86.100	761.000	172.200	759.800	258.200	758.400	344.300
GR	757.000	435.500	750.100	443.000	749.900	510.000	747.900	591.000	744.400	598.000
GR	744.300	601.000	742.600	602.000	741.600	602.500	741.600	606.800	742.300	611.100
GR	741.800	615.400	742.600	619.700	743.500	624.000	743.900	628.300	744.200	632.700
GR	744.200	636.500	748.100	657.000	750.000	710.000	750.700	810.000	754.900	835.000
NH	7.000	.020	58.000	.060	133.000	.035	281.000	.015	291.000	.035
NH	297.000	.042	347.000	.045	700.000	0.000	0.000	0.000	0.000	0.000

X1	36.574	21.000	281.000	347.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	220.000	0.000	520.000	0.000	0.000	0.000	0.000
GR	758.300	0.000	757.300	124.000	750.100	133.000	749.900	200.000	747.900	281.000
GR	744.400	288.000	744.300	291.000	742.600	292.000	741.600	297.000	741.800	301.000
GR	742.000	307.000	742.500	312.000	743.000	317.000	743.600	323.000	744.400	328.000
GR	748.100	347.000	750.000	400.000	750.700	500.000	754.800	520.000	754.800	600.000
GR	757.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.020	58.000	.060	133.000	.035	281.000	.015	291.000	.035
NH	297.000	.042	347.000	.045	700.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AI

X1	36.636	21.000	261.000	347.000	310.000	325.000	329.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000
GR	759.500	0.000	758.500	124.000	751.300	133.000	751.100	200.000	749.100	281.000
GR	745.600	288.000	745.500	291.000	743.800	292.000	742.800	297.000	743.000	301.000
GR	743.200	307.000	743.700	312.000	744.200	317.000	744.800	323.000	745.600	328.000
GR	749.300	347.000	751.200	400.000	751.900	500.000	756.000	520.000	756.000	600.000
GR	758.200	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.080	210.000	.050	332.000	.045	382.000	.075	600.000	.050
NH	882.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2490.000	3355.000	3750.000	5500.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AJ

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XT	36.959	22.000	332.000	382.000	1010.000	950.000	1800.00	0.000	0.000	0.000
GR	765.100	0.000	760.700	32.000	752.600	82.000	753.000	182.000	753.800	282.000
GR	750.600	332.000	747.800	337.000	746.900	342.000	746.600	352.000	746.100	362.000
GR	746.500	372.000	747.800	377.000	750.700	382.000	751.600	482.000	752.900	582.000
GR	753.300	664.000	761.400	677.000	762.000	782.000	766.800	838.000	766.900	862.000
GR	762.000	872.000	763.300	882.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.075	150.000	.050	350.000	.080	654.000	.042	710.000	.075
NH	825.000	.045	1125.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AK

X1	37.300	26.000	654.000	710.000	1380.000	1640.000	1890.000	0.000	0.000	0.000
GR	769.000	0.000	761.500	25.000	756.500	45.000	755.700	125.000	755.400	225.000
GR	754.400	325.000	753.200	425.000	753.900	525.000	753.200	625.000	752.900	654.000
GR	751.500	659.000	750.700	665.000	749.500	675.000	749.400	685.000	749.400	695.000
GR	750.800	705.000	751.200	709.000	753.500	710.000	753.800	725.000	755.200	803.000
GR	764.000	825.000	760.200	848.000	763.000	861.000	763.500	925.000	764.400	1025.000
GR	769.100	1125.000	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

VALLEY SECTION AL

Bank Station

X1	37.692	23.000	530.000	595.000	1420.000	1420.000	2090.000	0.000	0.000	0.000
GR	775.700	0.000	762.200	45.000	761.400	60.000	758.900	160.000	757.900	260.000
GR	756.700	360.000	758.900	460.000	757.600	530.000	753.400	534.000	753.300	540.000
GR	753.000	550.000	753.000	560.000	752.800	580.000	752.400	590.000	756.600	595.000
GR	754.800	660.000	756.300	707.000	771.700	760.000	772.700	820.000	774.600	838.000
GR	770.200	849.000	770.900	860.000	772.600	980.000	0.000	0.000	0.000	0.000
NC	.090	.080	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2470.000	3320.000	3710.000	5445.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AM

X1	38.174	29.000	624.000	674.000	2275.000	2150.000	2540.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	777.400	0.000	772.900	100.000	771.300	200.000	770.300	249.000	770.300	300.000
GR	767.700	400.000	764.800	500.000	766.200	600.000	765.800	624.000	762.700	629.000
GR	761.200	640.000	761.500	650.000	762.200	660.000	762.900	669.000	765.100	674.000
GR	765.500	700.000	767.800	770.000	774.400	800.000	775.500	900.000	774.700	1000.000
GR	775.500	1100.000	775.800	1200.000	775.900	1300.000	774.800	1400.000	775.900	1500.000
GR	777.200	1600.000	782.300	1684.000	784.200	1693.000	784.800	1700.000	0.000	0.000

X1	38.183	0.000	0.000	0.000	30.000	50.000	50.000	0.000	.100	0.000
X3	0.000	0.000	0.000	375.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	38.255	23.000	613.000	667.000	220.000	370.000	380.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	167.000	0.000	667.000	0.000	0.000	0.000	0.000
GR	781.700	0.000	776.000	30.000	773.000	67.000	767.700	167.000	767.700	267.000
GR	767.100	367.000	767.200	467.000	766.700	567.000	765.200	613.000	763.100	619.000
GR	762.100	637.000	762.200	647.000	762.800	657.000	763.200	664.000	765.400	667.000
GR	765.700	722.000	776.400	739.000	777.400	767.000	777.300	867.000	776.300	967.000
GR	775.600	1013.000	777.800	1067.000	779.000	1167.000	0.000	0.000	0.000	0.000

X1	38.391	29.000	624.000	674.000	620.000	580.000	670.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	800.000	0.000	0.000	0.000	0.000
GR	779.800	0.000	775.300	100.000	773.700	200.000	772.700	249.000	772.700	300.000
GR	770.100	400.000	767.200	500.000	768.600	600.000	768.200	624.000	765.100	629.000
GR	763.600	640.000	763.900	650.000	764.600	660.000	765.300	669.000	767.500	674.000
GR	767.900	700.000	770.200	770.000	776.800	800.000	777.900	900.000	777.100	1000.000

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GR	777.900	1100.000	778.200	1200.000	778.300	1300.000	779.200	1400.000	782.300	1500.000
GR	779.600	1600.000	784.700	1684.000	786.600	1693.000	787.200	1700.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AN

X1	38.467	23.000	613.000	667.000	330.000	370.000	400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	784.100	0.000	778.400	30.000	775.400	67.000	770.100	167.000	770.100	267.000
GR	769.500	367.000	769.600	467.000	769.100	567.000	767.600	613.000	765.500	619.000
GR	764.500	637.000	764.600	647.000	765.200	657.000	765.600	664.000	767.800	667.000
GR	768.100	722.000	778.800	739.000	779.800	767.000	779.700	867.000	778.700	967.000
GR	778.000	1013.000	780.200	1067.000	781.400	1167.000	0.000	0.000	0.000	0.000
X1	38.520	0.000	0.000	0.000	220.000	330.000	280.000	0.000	.600	0.000
X3	0.000	0.000	0.000	70.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	38.566	0.000	0.000	0.000	90.000	320.000	240.000	0.000	.500	0.000
X3	0.000	0.000	0.000	120.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	38.660	26.000	398.000	460.000	430.000	250.000	500.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	365.000	0.000	775.000	0.000	0.000	0.000	0.000
GR	781.400	0.000	779.500	60.000	780.000	160.000	778.200	260.000	776.700	365.000
GR	771.500	373.000	770.400	398.000	769.000	400.000	768.900	405.000	768.900	410.000
GR	768.700	415.000	768.700	420.000	768.700	425.000	768.300	430.000	767.700	435.000
GR	767.100	440.000	766.600	445.000	768.200	457.000	771.500	460.000	770.900	560.000
GR	771.100	620.000	771.700	745.000	771.700	805.000	779.400	860.000	781.400	892.000
GR	782.500	965.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	8.000	.060	398.000	.045	460.000	.070	620.000	.085	745.000	.070
NH	805.000	.050	876.000	.020	908.000	.050	965.000	0.000	0.000	0.000

VALLEY SECTION AO

X1	38.827	26.000	398.000	460.000	810.000	870.000	880.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	500.000	0.000	0.000	0.000	0.000
GR	782.700	0.000	780.800	60.000	781.300	160.000	779.500	260.000	778.000	365.000
GR	772.800	373.000	771.700	398.000	770.300	400.000	770.200	405.000	770.200	410.000
GR	770.000	415.000	770.000	420.000	770.000	425.000	769.600	430.000	769.000	435.000
GR	768.400	440.000	767.900	445.000	769.500	457.000	772.800	460.000	772.200	560.000
GR	772.400	620.000	773.000	745.000	773.000	805.000	780.700	860.000	782.700	892.000
GR	783.800	965.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	38.836	0.000	0.000	0.000	50.000	80.000	50.000	0.000	-.100	0.000
X3	0.000	0.000	0.000	375.000	0.000	490.000	0.000	0.000	0.000	0.000
NC	.100	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	38.840	17.000	390.000	450.000	20.000	30.000	19.000	0.000	0.000	0.000
GR	778.900	355.000	773.200	390.000	770.000	400.000	768.100	400.000	768.500	405.000
GR	768.500	410.000	767.800	415.000	768.100	420.000	768.300	425.000	768.100	430.000
GR	767.800	435.000	768.100	439.300	770.000	439.300	773.200	450.000	778.800	500.000
GR	779.000	600.000	779.800	650.000	0.000	0.000	0.000	0.000	0.000	0.000

CROOKS ROAD BRIDGE - D/S FACE - SECTION AP

X1	38.841	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.100	.100	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.820	3.020	0.000	37.610	0.000	312.200	0.000	767.800	767.800

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CROOKS ROAD BRIDGE - U/S FACE - SECTION AP

X1	38.848	0.000	0.000	0.000	44.000	44.000	44.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	8.000	(355.000	778.900	0.000)	(400.000	778.700	770.000)	(400.000	778.700	776.100)
BT	(439.300	778.800	776.100)	(439.300	778.800	770.000)	(500.000	778.800	0.000)	(600.000
BT	779.000	0.000)	(650.000	779.800	0.000)	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2460.000	3305.000	3690.000	5420.000	0.000	0.000	0.000	0.000	0.000

X1	38.849	0.000	0.000	0.000	1.000	1.000	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	38.906	30.000	938.000	1000.000	330.000	270.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	790.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	777.300	0.000	778.100	100.000	779.400	200.000	778.500	300.000	777.900	390.000
GR	778.600	450.000	774.400	490.000	772.500	590.000	772.900	690.000	773.300	795.000
GR	772.700	895.000	771.800	938.000	770.300	942.000	770.100	945.000	770.200	950.000
GR	769.200	955.000	769.300	960.000	769.700	965.000	769.200	970.000	769.500	975.000
GR	769.100	980.000	769.000	985.000	769.900	990.000	774.000	1000.000	773.400	1100.000
GR	773.600	1160.000	774.200	1285.000	774.200	1345.000	781.900	1400.000	783.900	1432.000

X1	38.972	0.000	0.000	0.000	210.000	470.000	350.000	0.000	1.400	0.000
X3	0.000	0.000	0.000	540.000	0.000	1270.000	0.000	0.000	0.000	0.000

X1	39.040	0.000	0.000	0.000	200.000	350.000	360.000	0.000	1.400	0.000
X3	0.000	0.000	0.000	710.000	0.000	1180.000	0.000	0.000	0.000	0.000

VALLEY SECTION AQ

X1	39.123	29.000	938.000	1000.000	300.000	450.000	439.000	0.000	0.000	0.000
GR	781.800	0.000	782.600	100.000	783.900	200.000	783.000	300.000	782.400	390.000
GR	783.100	450.000	778.900	490.000	777.000	590.000	777.400	690.000	777.800	795.000
GR	777.200	895.000	776.300	938.000	774.800	942.000	774.600	945.000	774.700	950.000
GR	773.700	955.000	773.800	960.000	774.200	965.000	773.700	970.000	774.000	975.000
GR	773.600	980.000	773.500	985.000	774.400	990.000	784.600	1000.000	788.100	1090.000
GR	789.000	1190.000	789.300	1290.000	789.500	1390.000	793.700	1405.000	0.000	0.000
NC	.090	.065	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	39.153	0.000	0.000	0.000	140.000	170.000	159.000	0.000	-.800	0.000
X3	0.000	0.000	0.000	535.000	0.000	0.000	0.000	0.000	0.000	0.000

HAMLIN ROAD BRIDGE - D/S FACE

X1	39.154	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	535.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.980	0.000	44.280	0.000	287.800	0.000	772.400	772.700
NC	.090	.065	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

HAMLIN ROAD BRIDGE - U/S FACE - SECTION AR

X1	39.160	25.000	1116.000	1161.500	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	778.900	779.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	13.000	700.000	780.200	0.000	723.000	779.800	0.000	823.000	779.000	0.000
BT	923.000	780.300	0.000	1023.000	781.200	0.000	1123.000	782.500	780.000	1161.500
BT	783.100	780.500	1223.000	784.200	0.000	1323.000	785.300	0.000	1423.000	786.400

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BT	0.000	1523.000	780.300	0.000	1623.000	791.700	0.000	1723.000	797.700	0.000
GR	780.200	700.000	777.200	700.000	775.900	768.000	776.300	868.000	776.700	973.000
GR	776.100	1073.000	775.200	1116.000	773.700	1120.000	773.500	1123.000	772.800	1123.000
GR	772.500	1128.000	772.900	1133.000	772.400	1138.000	772.400	1143.000	772.600	1148.000
GR	772.700	1153.000	773.500	1158.000	774.200	1161.500	783.100	1161.500	784.200	1223.000
GR	785.300	1323.000	786.400	1423.000	788.300	1523.000	791.700	1623.000	797.000	1723.000
NC	.090	.065	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	39.161	29.000	938.000	1000.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	535.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	780.700	0.000	781.500	100.000	782.800	200.000	781.900	300.000	781.300	390.000
GR	782.000	450.000	777.800	490.000	775.900	590.000	776.300	690.000	776.700	795.000
GR	776.100	895.000	775.200	938.000	773.700	942.000	773.500	945.000	773.600	950.000
GR	772.600	955.000	772.700	960.000	773.100	965.000	772.600	970.000	772.900	975.000
GR	772.500	980.000	772.400	985.000	773.500	990.000	783.500	1000.000	787.000	1090.000
GR	787.900	1190.000	788.200	1290.000	788.400	1390.000	792.600	1405.000	0.000	0.000
NH	5.000	.050	100.000	.090	258.000	.047	300.000	.075	800.000	.050
NH	1088.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2340.000	3270.000	3655.000	5370.000	0.000	0.000	0.000	0.000	0.000
X1	39.241	19.000	258.000	300.000	400.000	390.000	425.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	650.000	0.000	0.000	0.000	0.000
GR	791.200	0.000	789.300	100.000	783.700	175.000	778.100	200.000	778.400	258.000
GR	775.600	261.000	774.300	270.000	773.700	280.000	774.200	290.000	774.800	298.000
GR	777.100	300.000	778.700	400.000	778.000	500.000	779.600	600.000	779.800	700.000
GR	780.600	800.000	784.400	900.000	786.400	1000.000	794.100	1088.000	0.000	0.000
X1	39.321	0.000	0.000	0.000	400.000	390.000	425.000	0.000	1.400	0.000
X3	0.000	0.000	0.000	0.000	0.000	500.000	0.000	0.000	0.000	0.000

VALLEY SECTION AS

X1	39.403	19.000	258.000	300.000	400.000	390.000	429.000	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	794.000	0.000	792.100	100.000	786.500	175.000	780.900	200.000	781.200	258.000
GR	778.400	261.000	777.100	270.000	776.500	280.000	777.000	290.000	777.600	298.000
GR	779.900	300.000	781.500	400.000	780.800	500.000	782.400	600.000	782.600	700.000
GR	783.400	800.000	787.200	900.000	789.200	1000.000	796.900	1088.000	0.000	0.000
NC	.090	.050	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AT

X1	39.571	21.000	411.000	455.000	880.000	970.000	890.000	0.000	0.000	0.000
GR	790.100	0.000	782.700	15.000	782.300	55.000	781.600	155.000	782.300	255.000
GR	781.900	355.000	782.300	411.000	778.900	419.000	776.700	430.000	776.000	435.000
GR	776.500	445.000	779.000	454.000	783.600	455.000	786.100	555.000	786.100	655.000
GR	790.700	755.000	793.800	790.000	791.900	855.000	790.900	955.000	792.500	1055.000
GR	796.700	1123.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	39.641	0.000	0.000	0.000	360.000	280.000	370.000	0.000	1.700	0.000
X1	39.711	0.000	0.000	0.000	365.000	280.000	370.000	0.000	1.700	0.000
X1	39.781	0.000	0.000	0.000	360.000	280.000	370.000	0.000	1.700	0.000
X1	39.852	0.000	0.000	0.000	365.000	285.000	370.000	0.000	1.600	0.000

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X1	39.922	0.000	0.000	0.000	360.000	280.000	370.000	0.000	1.700	0.000
X1	39.992	0.000	0.000	0.000	365.000	280.000	370.000	0.000	1.700	0.000
X3	0.000	0.000	0.000	50.000	0.000	650.000	0.000	0.000	0.000	0.000
NH	4.000	.080	100.000	.055	434.000	.042	495.000	.070	694.000	0.000

VALLEY SECTION AU

X1	40.062	21.000	434.000	495.000	365.000	285.000	370.000	0.000	0.000	0.000
GR	806.800	0.000	803.900	37.000	799.900	91.000	798.300	100.000	794.400	169.000
GR	793.100	268.000	792.300	361.000	791.200	434.000	789.400	439.000	788.600	444.000
GR	788.200	449.000	788.200	454.000	788.100	459.000	787.800	464.000	788.000	469.000
GR	788.300	474.000	788.800	477.000	791.100	478.000	803.300	495.000	803.800	594.000
GR	804.500	694.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.050	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AV

X1	40.200	22.000	343.000	395.000	300.000	910.000	730.000	0.000	0.000	0.000
GR	806.800	0.000	803.900	37.000	799.900	91.000	798.300	100.000	794.400	169.000
GR	794.400	169.000	795.800	243.000	794.400	325.000	792.400	343.000	790.400	347.000
GR	790.100	354.000	789.900	359.000	789.600	364.000	789.700	369.000	789.700	374.000
GR	789.300	379.000	789.700	383.000	790.600	387.000	793.100	395.000	793.500	451.000
GR	805.900	469.000	807.900	472.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.349	0.000	0.000	0.000	700.000	590.000	789.000	0.000	2.100	0.000
X3	0.000	0.000	0.000	180.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.463	0.000	0.000	0.000	540.000	450.000	600.000	0.000	1.600	0.000
X3	0.000	0.000	0.000	288.000	0.000	398.000	0.000	0.000	0.000	0.000
X1	40.501	0.000	0.000	0.000	180.000	150.000	200.000	0.000	.500	0.000
X3	0.000	0.000	0.000	338.000	0.000	398.000	0.000	0.000	0.000	0.000
X1	40.510	16.000	125.000	195.000	50.000	40.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	133.000	0.000	168.000	0.000	0.000	0.000	0.000
GR	810.400	0.000	803.600	20.000	803.500	25.000	797.100	125.000	794.900	128.000
GR	793.900	133.000	793.900	140.000	793.800	145.000	793.600	155.000	793.600	165.000
GR	794.300	175.000	795.000	178.000	799.200	195.000	803.600	225.000	809.400	250.000
GR	811.600	260.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	2155.000	2810.000	3210.000	4665.000	0.000	0.000	0.000	0.000	0.000
X1	40.512	15.000	125.000	195.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	140.000	0.000	169.300	0.000	0.000	0.000	0.000
GR	810.400	0.000	803.600	20.000	803.500	25.000	797.100	125.000	794.900	128.000
GR	793.900	133.000	793.900	140.000	793.800	145.000	793.600	155.000	793.600	165.000
GR	794.300	175.000	795.000	178.000	799.200	195.000	803.600	225.000	809.400	250.000
NC	.030	.030	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ADAMS ROAD BRIDGE - DOWNSTREAM FACE

X1	40.513	14.000	300.000	329.300	1.000	1.000	1.000	0.000	0.000	0.000
BT	7.000	0.000	819.200	0.000	100.000	816.800	0.000	200.000	815.400	0.000
BT	300.000	815.500	813.600	329.300	815.700	813.600	400.000	817.000	0.000	500.000
BT	820.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	819.200	0.000	816.800	100.000	815.400	200.000	815.500	300.000	794.400	300.000

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GR	794.800	305.000	795.000	310.000	795.800	315.000	794.300	320.000	795.000	325.000
GR	795.500	329.300	815.700	329.300	817.000	400.000	820.000	500.000	0.000	0.000

ADAMS ROAD BRIDGE - U/S FACE - SECTION AW

X1	40.519	14.000	300.000	329.300	54.000	54.000	54.000	0.000	0.000	0.000
BT	7.000	0.000	819.200	0.000	100.000	816.800	0.000	200.000	815.400	0.000
BT	300.000	815.500	813.600	329.300	815.700	813.800	400.000	817.000	0.000	500.000
BT	820.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	819.200	0.000	816.800	100.000	815.400	200.000	815.500	300.000	794.500	300.000
GR	794.900	305.000	795.100	310.000	793.700	315.000	794.600	320.000	795.100	325.000
GR	795.600	329.300	815.700	329.300	817.000	400.000	820.000	500.000	0.000	0.000
NC	.040	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	40.520	15.000	125.000	195.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	139.000	0.000	170.000	0.000	0.000	0.000	0.000
GR	810.500	0.000	803.700	20.000	803.600	25.000	797.200	125.000	795.000	128.000
GR	794.000	133.000	794.000	140.000	793.900	145.000	793.700	155.000	793.700	165.000
GR	794.400	175.000	795.100	178.000	799.300	195.000	803.700	225.000	809.500	250.000

X1	40.521	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	129.000	0.000	180.000	0.000	0.000	0.000	0.000

X1	40.531	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	0.000
X3	0.000	0.000	0.000	79.000	0.000	230.000	0.000	0.000	0.000	0.000

X1	40.568	0.000	0.000	0.000	190.000	210.000	200.000	0.000	.800	0.000

X1	40.644	0.000	0.000	0.000	380.000	430.000	400.000	0.000	1.500	0.000

VALLEY SECTION AX

X1	40.727	16.000	125.000	195.000	420.000	475.000	439.000	0.000	0.000	0.000
GR	814.700	0.000	807.900	20.000	807.800	25.000	801.400	125.000	799.200	128.000
GR	798.200	133.000	798.200	140.000	798.100	145.000	797.900	155.000	797.900	165.000
GR	798.600	175.000	799.300	178.000	803.500	195.000	807.900	225.000	813.700	250.000
GR	815.900	260.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	40.841	0.000	0.000	0.000	380.000	400.000	420.000	0.000	2.000	0.000

X1	40.888	0.000	0.000	0.000	380.000	400.000	420.000	0.000	2.000	0.000
NC	.070	.070	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AY

X1	40.968	20.000	118.000	163.000	380.000	400.000	420.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	690.000	0.000	0.000	0.000	0.000
GR	831.700	0.000	812.300	47.000	809.600	100.000	807.900	118.000	805.000	122.000
GR	803.900	133.000	803.900	140.000	804.000	149.000	804.500	155.000	804.700	161.000
GR	807.700	163.000	808.500	200.000	809.000	300.000	810.400	400.000	810.700	500.000
GR	810.200	600.000	811.000	700.000	814.300	800.000	823.700	880.000	824.800	900.000
NC	.070	.070	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION AZ

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X1	.1.095	21.000	75.000	155.000	850.000	1.000	860.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	690.000	0.000	0.000	0.000	0.000
GR	826.300	0.000	814.300	17.000	810.000	43.000	808.800	73.000	804.800	77.000
GR	804.600	90.000	804.600	99.000	804.700	108.000	805.500	117.000	806.500	130.000
GR	809.600	133.000	809.500	217.000	809.900	317.000	809.000	417.000	810.400	517.000
GR	810.700	617.000	810.200	717.000	811.000	817.000	814.300	917.000	823.700	997.000
GR	824.800	1017.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.080	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE WITH GALLOWAY CREEK

X1	41.405	13.000	300.000	381.000	1640.000	1530.000	1650.000	0.000	0.000	0.000
GR	830.000	0.000	820.000	40.000	812.300	300.000	809.700	314.000	809.500	333.000
GR	808.400	342.000	808.200	349.000	808.300	356.000	808.400	366.000	808.200	376.000
GR	810.400	381.000	820.000	705.000	830.000	915.000	0.000	0.000	0.000	0.000
QT	4.000	2150.000	2800.000	3200.000	4650.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BA - SECTION 40.763 FROM PONTIAC TOWNSHIP F.I.S.

X1	41.460	18.000	469.000	550.000	290.000	270.000	290.000	0.000	0.000	0.000
GR	830.200	0.000	827.500	50.000	823.500	150.000	821.600	250.000	818.800	350.000
GR	815.200	450.000	813.100	469.000	810.500	483.000	810.300	502.000	809.200	511.000
GR	809.000	518.000	809.100	525.000	809.200	535.000	809.000	545.000	811.200	550.000
GR	816.700	650.000	821.700	690.000	831.100	750.000	0.000	0.000	0.000	0.000
NC	.100	.100	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BB - SECTION 41.019 FROM PONTIAC TOWNSHIP F.I.S.

X1	41.710	19.000	400.000	491.000	1120.000	1150.000	1320.000	0.000	0.000	0.000
GR	832.700	0.000	825.200	100.000	825.400	150.000	823.000	200.000	820.200	300.000
GR	817.800	400.000	814.000	402.000	813.300	410.000	815.300	418.000	815.700	438.000
GR	814.600	458.000	812.300	470.000	811.200	480.000	811.900	485.000	813.600	490.000
GR	814.700	491.000	817.000	500.000	819.900	560.000	834.500	590.000	0.000	0.000
NC	.062	.090	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BC - SECTION 41.161 FROM PONTIAC TOWNSHIP F.I.S.

X1	41.866	17.000	110.000	197.000	710.000	850.000	820.000	0.000	0.000	0.000
GR	836.200	0.000	834.500	17.000	821.300	55.000	817.900	110.000	816.100	120.000
GR	815.400	133.000	815.700	145.000	815.400	155.000	815.300	165.000	815.200	175.000
GR	814.900	185.000	815.800	190.000	819.700	197.000	821.200	210.000	822.300	310.000
GR	825.400	410.000	836.500	470.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	41.918	90.000	98.700	180.200	225.000	280.000	277.000	0.000	0.000	0.000
GR	838.200	0.000	837.700	3.400	837.100	6.800	836.600	10.200	836.100	13.600
GR	835.200	17.000	834.000	20.400	832.700	23.800	831.500	27.200	830.300	30.600
GR	829.100	34.000	827.800	37.400	826.600	40.800	825.400	44.200	824.100	47.600
GR	823.300	51.000	822.900	54.400	822.500	57.800	822.100	61.200	821.800	64.600
GR	821.500	68.100	821.300	71.500	821.000	74.900	820.800	78.300	820.500	81.700
GR	820.300	85.100	820.000	88.500	819.800	91.900	819.500	95.300	819.300	98.700
GR	818.700	101.400	818.200	104.100	817.600	106.800	817.200	109.600	816.900	112.300
GR	816.700	115.000	816.600	117.700	816.500	120.400	816.500	123.100	816.500	125.900
GR	816.600	128.600	816.600	131.300	816.500	134.000	816.500	136.700	816.400	139.400
GR	816.400	142.200	816.400	144.900	816.400	147.600	816.400	150.300	816.400	153.000
GR	816.300	155.700	816.300	158.500	816.200	161.200	816.200	163.900	816.200	166.600
GR	816.200	169.300	816.700	172.000	817.400	174.800	819.000	177.500	820.500	180.200
GR	821.400	188.500	821.800	196.800	821.900	205.200	822.000	213.500	822.100	221.800
GR	822.300	230.100	822.500	238.500	822.800	246.800	823.100	255.100	823.400	263.400
GR	823.600	271.800	823.900	280.100	824.200	288.400	824.700	296.700	825.100	305.100
GR	825.500	313.400	825.900	321.700	826.300	330.000	826.700	338.400	827.100	346.700
GR	827.500	355.000	827.900	363.300	828.300	371.700	829.400	380.000	830.900	388.300

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GR	852.400	396.600	835.600	403.000	833.300	413.500	836.80	421.600	836.500	430.000
X1	41.971	90.000	87.500	163.500	225.000	280.000	278.000	0.000	0.000	0.000
GR	840.300	0.000	839.600	3.000	838.900	6.000	838.200	9.000	837.600	12.000
GR	836.600	15.000	835.500	18.100	834.400	21.100	833.200	24.100	832.100	27.100
GR	830.900	30.100	829.800	33.100	828.600	36.200	827.500	39.200	826.400	42.200
GR	825.500	45.200	824.900	48.200	824.300	51.200	823.700	54.300	823.300	57.300
GR	823.100	60.300	822.800	63.300	822.500	66.300	822.300	69.300	822.000	72.400
GR	821.700	75.400	821.500	78.400	821.200	81.400	821.000	84.400	820.700	87.500
GR	820.100	90.000	819.500	92.500	818.900	95.000	818.500	97.600	818.100	100.100
GR	817.800	102.600	817.700	105.200	817.600	107.700	817.500	110.200	817.500	112.800
GR	817.600	115.300	817.600	117.800	817.500	120.400	817.400	122.900	817.400	125.400
GR	817.500	128.000	817.500	130.500	817.500	133.000	817.500	135.600	817.500	138.100
GR	817.500	140.600	817.400	143.200	817.400	145.700	817.400	148.200	817.500	150.800
GR	817.500	153.300	817.900	155.800	818.500	158.400	819.900	160.900	821.400	163.500
GR	822.000	171.000	822.400	178.600	822.500	186.100	822.600	193.600	822.800	201.200
GR	822.900	208.700	823.400	216.300	823.800	223.800	824.300	231.400	824.700	238.900
GR	825.100	246.500	825.600	254.000	826.100	261.600	826.600	269.100	827.100	276.700
GR	827.700	284.200	828.200	291.800	828.700	299.300	829.300	306.900	829.800	314.400
GR	830.300	322.000	830.900	329.500	831.400	337.100	832.400	344.600	833.700	352.200
GR	835.000	359.700	836.300	367.300	837.600	374.800	838.900	382.400	840.200	390.000
X1	42.023	90.000	76.200	146.700	225.000	280.000	277.000	0.000	0.000	0.000
GR	842.300	0.000	841.500	2.600	840.700	5.200	839.800	7.800	839.000	10.500
GR	838.100	13.100	837.000	15.700	836.000	18.400	834.900	21.000	833.900	23.600
GR	832.800	25.200	831.700	28.900	830.700	31.500	829.600	34.100	828.600	36.800
GR	827.700	39.400	826.900	42.000	826.100	44.600	825.300	47.300	824.900	49.900
GR	824.600	52.500	824.300	55.200	824.100	57.800	823.800	60.400	823.500	63.100
GR	823.200	65.700	823.000	68.300	822.700	70.900	822.400	73.600	822.100	76.200
GR	821.500	78.600	820.900	80.900	820.300	83.200	819.700	85.600	819.200	87.900
GR	818.800	90.300	818.700	92.600	818.700	95.000	818.600	97.300	818.600	99.700
GR	818.500	102.000	818.500	104.400	818.400	106.700	818.400	109.100	818.500	111.400
GR	818.500	113.800	818.600	116.100	818.700	118.500	818.700	120.800	818.600	123.200
GR	818.600	125.500	818.600	127.900	818.500	130.200	818.600	132.600	818.700	134.900
GR	818.900	137.300	819.100	139.600	819.500	142.000	820.800	144.300	822.300	146.700
GR	822.700	153.500	822.900	160.300	823.100	167.000	823.200	173.800	823.400	180.600
GR	823.600	187.300	824.200	194.100	824.800	200.900	825.400	207.700	826.100	214.400
GR	826.700	221.200	827.300	228.000	827.900	234.800	828.600	241.500	829.200	248.300
GR	829.900	255.100	830.500	261.900	831.200	268.600	831.800	275.400	832.500	282.200
GR	833.200	289.000	833.800	295.700	834.500	302.500	835.500	309.300	836.500	316.100
GR	837.600	322.800	838.700	329.600	839.800	336.400	840.900	343.200	842.000	350.000
NC	.120	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BD - SECTION 41.336 FROM PONTIAC TOWNSHIP F.I.S.

X1	42.076	14.000	65.000	130.000	225.000	280.000	278.000	0.000	0.000	0.000
GR	844.400	0.000	826.700	41.000	823.600	65.000	820.000	77.000	819.700	85.000
GR	819.400	95.000	819.900	105.000	819.700	115.000	820.600	126.000	823.200	130.000
GR	824.200	165.000	833.300	235.000	837.200	265.000	843.900	310.000	0.000	0.000
X1	42.086	0.000	0.000	0.000	50.000	48.000	52.000	0.000	.100	0.000
X1	42.096	0.000	0.000	0.000	51.000	48.000	52.000	0.000	.200	0.000
X1	42.106	90.000	85.000	150.000	51.000	48.000	53.000	0.000	0.000	0.000
GR	844.100	0.000	843.100	2.900	842.200	5.800	841.200	8.700	840.300	11.700
GR	839.300	14.600	838.400	17.500	837.400	20.500	836.500	23.400	835.500	26.300
GR	834.700	29.300	833.900	32.200	833.100	35.100	832.300	38.100	831.400	41.000
GR	830.600	43.900	829.800	46.800	829.000	49.800	828.100	52.700	827.700	55.600
GR	827.400	58.600	827.000	61.500	626.700	64.400	826.400	67.400	826.100	70.300

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GR	823.300	75.200	823.300	79.200	823.200	79.100	823.300	82.000	82[illegible]	85.000
GR	823.800	87.100	823.100	89.300	822.500	91.400	821.800	93.600	821.100	95.800
GR	820.600	97.900	820.500	100.100	820.300	102.300	820.200	104.400	820.100	106.600
GR	820.000	108.800	819.900	110.900	819.800	113.100	819.800	115.300	819.900	117.400
GR	819.900	119.600	820.100	121.800	820.200	123.900	820.300	126.100	820.300	128.300
GR	820.300	130.400	820.300	132.600	820.200	134.800	820.300	136.900	820.400	139.100
GR	820.500	141.300	820.700	143.400	821.100	145.600	822.300	147.800	823.700	150.000
GR	823.800	157.000	824.000	164.100	824.200	171.200	824.400	178.300	824.600	185.400
GR	825.000	192.500	825.800	199.500	826.500	206.600	827.200	213.700	828.000	220.800
GR	828.700	227.900	829.500	234.900	830.200	242.000	831.000	249.100	831.700	256.200
GR	832.500	263.300	833.200	270.400	833.900	277.400	834.700	284.500	835.400	291.600
GR	836.200	298.700	836.900	305.800	837.700	312.900	838.500	319.900	839.300	327.000
GR	840.100	334.100	841.000	341.200	841.800	348.300	842.600	355.400	843.500	362.500
X1	42.135	90.000	105.000	170.000	163.000	144.000	158.000	0.000	0.000	0.000
GR	843.900	0.000	842.900	3.600	842.000	7.200	841.000	10.800	840.100	14.400
GR	839.200	18.100	838.200	21.700	837.300	25.300	836.400	28.900	835.400	32.500
GR	834.800	36.200	834.100	39.800	833.400	43.400	832.700	47.000	832.100	50.600
GR	831.400	54.300	830.700	57.900	830.000	61.500	829.300	65.100	828.900	68.700
GR	828.600	72.400	828.200	76.000	827.900	79.600	827.500	83.200	827.200	86.800
GR	826.900	90.500	826.500	94.100	826.200	97.700	825.800	101.300	825.500	105.000
GR	824.800	107.100	824.000	109.300	823.300	111.400	822.600	113.600	821.800	115.800
GR	821.200	117.900	821.100	120.100	820.900	122.300	820.800	124.400	820.600	126.600
GR	820.500	128.800	820.300	130.900	820.300	133.100	820.200	135.300	820.200	137.400
GR	820.300	139.600	820.400	141.800	820.600	143.900	820.800	146.100	820.900	148.300
GR	820.900	150.400	820.900	152.600	820.800	154.800	820.800	156.900	820.800	159.100
GR	820.900	161.300	821.000	163.400	821.700	165.600	822.900	167.800	824.200	170.000
GR	824.400	178.100	824.600	186.300	824.800	194.500	825.000	202.600	825.300	210.800
GR	825.700	218.900	826.500	227.100	827.200	235.300	827.900	243.400	828.600	251.600
GR	829.300	259.800	830.000	267.900	830.700	276.100	831.400	284.300	832.100	292.400
GR	832.800	300.600	833.500	308.800	834.200	316.900	834.900	325.100	835.600	333.300
GR	836.300	341.400	837.000	349.600	837.800	357.800	838.500	365.900	839.300	374.100
GR	840.000	382.300	840.800	390.400	841.500	398.600	842.300	406.800	843.000	415.000
X1	42.165	90.000	125.000	190.000	162.000	144.000	157.000	0.000	0.000	0.000
GR	843.600	0.000	842.700	4.300	841.800	8.600	840.800	12.900	839.900	17.200
GR	839.000	21.500	838.100	25.800	837.200	30.100	836.300	34.400	835.300	38.700
GR	834.800	43.100	834.300	47.400	833.700	51.700	833.200	56.000	832.700	60.300
GR	832.100	64.600	831.600	68.900	831.100	73.200	830.500	77.500	830.100	81.800
GR	829.800	86.200	829.400	90.500	829.000	94.800	828.700	99.100	828.300	103.400
GR	827.900	107.700	827.600	112.000	827.200	116.300	826.800	120.600	826.500	125.000
GR	825.700	127.100	824.900	129.300	824.100	131.500	823.400	133.600	822.600	135.800
GR	821.900	137.900	821.700	140.100	821.500	142.300	821.300	144.400	821.100	146.600
GR	820.900	148.800	820.800	150.900	820.700	153.100	820.700	155.300	820.600	157.400
GR	820.600	159.600	820.800	161.800	821.000	163.900	821.200	166.100	821.400	168.300
GR	821.500	170.400	821.400	172.600	821.300	174.800	821.300	176.900	821.200	179.100
GR	821.200	181.300	821.400	183.400	822.300	185.600	823.400	187.800	824.700	190.000
GR	824.900	199.200	825.100	208.500	825.300	217.700	825.500	226.900	825.900	236.200
GR	826.500	245.400	827.200	254.700	827.600	263.900	828.500	273.200	829.200	282.400
GR	829.900	291.700	830.500	300.900	831.200	310.200	831.900	319.400	832.500	328.700
GR	833.200	337.900	833.900	347.200	834.500	356.400	835.200	365.700	835.800	374.900
GR	836.500	384.200	837.200	393.400	837.800	402.700	838.500	411.900	839.200	421.200
GR	839.900	430.400	840.600	439.700	841.300	448.900	842.000	458.200	842.600	467.500
NC	.120	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BE - SECTION 41.459 FROM PONTIAC TOWNSHIP F.I.S.

X1	42.195	13.000	145.000	210.000	163.000	143.000	158.000	0.000	0.000	0.000
GR	843.400	0.000	835.300	45.000	827.500	145.000	822.600	158.000	821.300	170.000
GR	821.000	180.000	822.200	190.000	821.500	203.000	825.200	210.000	826.200	255.000
GR	831.800	345.000	837.800	445.000	842.300	520.000	0.000	0.000	0.000	0.000

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X1	42.244	90.000	171.200	231.700	200.000	212.000	260.000	0.000	.000	0.000
GR	843.900	0.000	842.800	5.900	841.800	11.800	840.800	17.700	839.700	23.600
GR	838.700	29.500	837.700	35.400	836.800	41.300	836.000	47.200	835.100	53.100
GR	834.600	59.000	834.100	64.900	833.700	70.800	833.200	76.700	832.700	82.600
GR	832.300	88.500	831.800	94.400	831.300	100.300	830.900	106.200	830.600	112.100
GR	830.200	118.100	829.900	124.000	829.500	129.900	829.200	135.800	828.800	141.700
GR	828.500	147.600	828.100	153.500	827.800	159.400	827.400	165.300	827.100	171.200
GR	826.300	173.200	825.500	175.200	824.700	177.200	823.900	179.300	823.200	181.300
GR	822.500	183.300	822.300	185.300	822.100	187.300	821.900	189.300	821.700	191.400
GR	821.500	193.400	821.400	195.400	821.300	197.400	821.500	199.400	821.300	201.400
GR	821.200	203.500	821.500	205.500	821.800	207.500	822.100	209.500	822.400	211.500
GR	822.600	213.500	822.600	215.600	822.600	217.600	822.500	219.600	822.500	221.600
GR	822.400	223.600	822.600	225.600	823.600	227.700	824.700	229.700	825.700	231.700
GR	825.900	241.400	826.100	251.100	826.200	260.800	826.400	270.600	826.800	280.300
GR	827.300	290.000	827.700	299.700	828.200	309.400	828.600	319.100	829.100	328.900
GR	829.500	338.600	830.000	348.300	830.400	358.000	830.800	367.700	831.200	377.400
GR	831.700	387.200	832.100	396.900	832.500	406.600	833.000	416.300	833.400	426.000
GR	833.900	435.700	834.400	445.500	834.900	455.200	835.400	464.900	836.500	474.600
GR	837.900	484.300	839.200	494.000	840.600	503.800	842.000	513.500	843.400	523.200
X1	42.294	90.000	197.500	253.500	200.000	213.000	260.000	0.000	0.000	0.000
GR	844.400	0.000	843.200	6.800	842.000	13.600	840.900	20.400	839.700	27.200
GR	838.500	34.000	837.400	40.800	836.600	47.600	835.800	54.400	834.900	61.200
GR	834.400	68.100	833.800	74.900	833.300	81.700	832.700	88.500	832.200	95.300
GR	831.600	102.100	831.000	108.900	830.500	115.700	830.100	122.500	829.800	129.300
GR	829.500	136.200	829.200	143.000	828.800	149.800	828.500	156.600	828.200	163.400
GR	827.900	170.200	827.600	177.000	827.300	183.800	827.000	190.600	826.700	197.500
GR	825.900	199.300	825.200	201.200	824.400	203.000	823.600	204.900	823.000	206.800
GR	822.500	208.600	822.300	210.500	822.100	212.400	821.900	214.200	821.700	216.100
GR	821.600	218.000	821.600	219.800	821.500	221.700	821.500	223.600	821.500	225.400
GR	821.500	227.300	821.800	229.200	822.100	231.000	822.500	232.900	822.800	234.800
GR	823.100	236.600	823.300	238.500	823.300	240.400	823.300	242.200	823.300	244.100
GR	823.300	246.000	823.500	247.800	824.400	249.700	825.400	251.600	826.300	253.500
GR	826.400	262.600	826.500	271.700	826.600	280.700	826.800	289.800	827.000	298.900
GR	827.300	308.000	827.600	317.100	827.900	326.200	828.100	335.300	828.400	344.400
GR	828.600	353.500	828.800	362.600	829.100	371.700	829.300	380.800	829.500	389.900
GR	829.800	399.000	830.000	408.100	830.200	417.200	830.500	426.300	830.800	435.400
GR	831.100	444.500	831.500	453.600	831.900	462.700	832.200	471.800	833.900	480.900
GR	836.000	490.000	838.100	499.100	840.200	508.200	842.300	517.300	844.500	526.500
X1	42.343	90.000	223.700	275.200	200.000	212.000	260.000	0.000	0.000	0.000
GR	844.900	0.000	843.600	7.700	842.300	15.400	841.000	23.100	839.600	30.800
GR	838.300	38.500	837.100	46.200	836.300	54.000	835.600	61.700	834.800	69.400
GR	834.100	77.100	833.500	84.800	832.900	92.500	832.200	100.300	831.600	108.000
GR	830.900	115.700	830.300	123.400	829.700	131.100	829.200	138.800	829.000	146.500
GR	828.700	154.300	828.400	162.000	828.200	169.700	827.900	177.400	827.700	185.100
GR	827.400	192.800	827.100	200.600	826.900	208.300	826.600	216.000	826.300	223.700
GR	825.600	225.400	824.800	227.100	824.100	228.800	823.400	230.600	822.800	232.300
GR	822.500	234.000	822.300	235.700	822.100	237.400	821.900	239.100	821.800	240.900
GR	821.700	242.600	821.700	244.300	821.700	246.000	821.700	247.700	821.700	249.400
GR	821.700	251.200	822.100	252.900	822.500	254.600	822.900	256.300	823.200	258.000
GR	823.600	259.700	823.900	261.500	824.000	263.200	824.100	264.900	824.100	266.600
GR	824.200	268.300	824.400	270.000	825.200	271.800	826.000	273.500	826.900	275.200
GR	826.900	283.700	827.000	292.200	827.000	300.600	827.100	309.100	827.200	317.600
GR	827.400	326.100	827.500	334.600	827.600	343.100	827.600	351.500	827.600	360.000
GR	827.700	368.500	827.700	377.000	827.800	385.500	827.800	394.000	827.900	402.400
GR	827.900	410.900	827.900	419.400	828.000	427.900	828.000	436.400	828.100	444.900
GR	828.400	453.300	828.600	461.800	828.800	470.300	829.100	478.800	831.200	487.300
GR	834.100	495.800	836.900	504.200	839.800	512.700	842.700	521.200	845.500	529.700

VALLEY SECTION BF = SECTION 41.630 FROM PONTIAC TOWNSHIP F.I.S.

X1	42.392	14.000	250.000	297.000	200.000	213.000	260.000	0.000	0.000	0.000

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GR	845.300	0.000	837.000	50.000	828.800	130.000	826.000	290.000	822.800	297.000
GR	821.900	265.000	822.000	275.000	824.700	285.000	825.200	292.000	827.500	297.000
GR	827.500	350.000	825.500	450.000	826.000	488.000	846.700	533.000	0.000	0.000
X1	42.451	90.000	224.500	271.500	275.000	243.000	313.000	0.000	0.000	0.000
GR	845.200	0.000	843.900	7.700	842.700	15.400	841.200	23.200	839.700	30.900
GR	838.300	38.700	836.900	46.400	836.000	54.100	835.100	61.900	834.200	69.600
GR	833.300	77.400	832.500	85.100	831.800	92.800	831.200	100.600	830.500	108.300
GR	829.900	116.100	829.300	123.800	828.800	131.600	828.500	139.300	828.300	147.000
GR	828.100	154.600	828.000	162.500	827.800	170.300	827.600	178.000	827.500	185.700
GR	827.300	193.500	827.100	201.200	827.000	209.000	826.800	216.700	826.600	224.500
GR	825.800	226.000	825.000	227.600	824.100	229.100	823.500	230.700	823.200	232.300
GR	823.000	233.800	822.900	235.400	822.700	237.000	822.600	238.500	822.500	240.100
GR	822.500	241.700	822.500	243.200	822.500	244.800	822.500	246.400	822.500	247.900
GR	822.500	249.500	822.900	251.100	823.200	252.600	823.500	254.200	823.900	255.800
GR	824.200	257.300	824.500	258.900	824.600	260.500	824.700	262.000	824.700	263.600
GR	824.800	265.200	825.200	266.700	826.000	268.300	826.800	269.900	827.700	271.500
GR	827.700	279.500	827.800	287.600	827.900	295.600	828.000	303.700	828.100	311.800
GR	828.200	319.800	828.200	327.900	828.100	336.000	828.000	344.000	827.800	352.100
GR	827.700	360.200	827.600	368.200	827.500	376.300	827.300	384.400	827.200	392.400
GR	827.100	400.500	827.000	408.600	826.800	416.600	826.700	424.700	826.700	432.800
GR	826.800	440.800	826.800	448.900	826.900	457.000	827.000	465.000	829.500	473.100
GR	832.900	481.200	836.200	489.200	839.600	497.300	843.000	505.400	846.300	513.500
X1	42.496	45.000	490.000	537.000	206.000	183.000	234.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	587.000	0.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	50.000	836.000	80.000	834.000	95.000	832.000	110.000
GR	832.000	145.000	832.000	150.000	830.000	170.000	827.200	490.000	826.300	491.500
GR	825.300	493.100	824.400	494.600	823.900	496.200	823.600	497.800	823.500	499.300
GR	823.300	500.900	823.200	502.500	823.100	504.000	823.000	505.600	823.000	507.200
GR	823.000	508.700	823.000	510.300	822.900	511.900	823.000	513.400	823.100	515.000
GR	823.200	516.600	823.500	518.100	823.700	519.700	823.900	521.300	824.100	522.800
GR	824.300	524.400	824.400	526.000	824.400	527.500	824.400	529.100	824.400	530.700
GR	825.000	532.200	825.900	533.800	826.800	535.400	827.800	537.000	830.000	652.000
GR	832.000	657.000	834.000	672.000	836.000	682.000	838.000	697.000	840.000	712.000
X1	42.510	90.000	199.000	246.000	69.000	61.000	78.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	80.000	0.000	325.000	0.000	0.000	0.000	0.000
GR	844.900	0.000	843.800	6.800	842.800	13.700	841.400	20.500	839.900	27.400
GR	838.400	34.300	837.100	41.100	836.000	48.000	834.900	54.800	833.800	61.700
GR	832.700	68.600	831.800	75.400	831.200	82.300	830.600	89.200	830.000	96.000
GR	829.400	102.900	829.100	109.700	828.700	116.600	828.500	123.500	828.400	130.300
GR	828.300	137.200	828.200	144.100	828.100	150.900	828.000	157.800	827.800	164.600
GR	827.700	171.500	827.600	178.400	827.500	185.200	827.400	192.100	827.300	199.000
GR	826.400	200.500	825.400	202.100	824.500	203.600	824.000	205.200	823.700	206.800
GR	823.600	208.300	823.400	209.900	823.300	211.500	823.200	213.000	823.100	214.600
GR	823.100	216.200	823.100	217.700	823.100	219.300	823.000	220.900	823.100	222.400
GR	823.100	224.000	823.300	225.600	823.600	227.100	823.800	228.700	824.000	230.300
GR	824.200	231.800	824.400	233.400	824.500	235.000	824.500	236.500	824.500	238.100
GR	824.500	239.700	825.100	241.200	826.000	242.800	826.900	244.400	827.900	246.000
GR	828.000	254.200	828.200	262.500	828.400	270.700	828.500	279.000	828.700	287.300
GR	828.900	295.500	829.000	303.800	828.900	312.100	828.800	320.300	828.700	328.600
GR	828.600	336.900	828.500	345.100	828.500	353.400	828.400	361.700	828.300	369.900
GR	828.200	378.200	828.100	386.500	828.000	394.700	827.900	403.000	827.900	411.300
GR	827.900	419.500	828.000	427.800	828.000	436.100	828.100	444.300	830.400	452.600
GR	833.600	460.900	836.700	469.100	839.800	477.400	842.900	485.700	846.000	494.000
X1	42.570	90.000	173.500	220.500	275.000	244.000	313.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	165.000	0.000	310.000	0.000	0.000	0.000	0.000
GR	844.500	0.000	843.800	5.900	842.900	11.900	841.500	17.900	840.100	23.900
GR	838.600	29.900	837.200	35.800	835.900	41.800	834.700	47.800	833.400	53.800
GR	832.200	59.800	831.100	65.800	830.500	71.700	830.000	77.700	829.500	83.700

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GR	829.000	89.700	828.800	95.700	828.600	101.700	828.500	107.600	828.500	113.600
GR	828.400	119.600	828.400	125.600	828.300	131.600	828.300	137.600	828.200	143.500
GR	828.200	149.500	828.100	155.500	828.100	161.500	828.000	167.500	828.000	173.500
GR	826.900	175.000	825.900	176.600	824.800	178.100	824.400	179.700	824.200	181.300
GR	824.100	182.800	824.000	184.400	823.900	186.000	823.800	187.500	823.700	189.100
GR	823.700	190.700	823.700	192.200	823.600	193.800	823.600	195.400	823.600	196.900
GR	823.700	198.500	823.800	200.100	824.000	201.600	824.100	203.200	824.200	204.800
GR	824.300	206.300	824.400	207.900	824.400	209.500	824.300	211.000	824.300	212.600
GR	824.200	214.200	825.000	215.700	826.000	217.300	827.000	218.900	828.000	220.500
GR	828.300	228.900	828.600	237.400	828.800	245.800	829.100	254.300	829.400	262.800
GR	829.600	271.200	829.800	279.700	829.800	288.200	829.700	296.600	829.600	305.100
GR	829.600	313.600	829.500	322.000	829.400	330.500	829.400	339.000	829.300	347.400
GR	829.200	355.900	829.200	364.400	829.100	372.800	829.100	381.300	829.100	389.800
GR	829.100	398.200	829.100	406.700	829.100	415.200	829.200	423.600	831.400	432.100
GR	834.200	440.600	837.100	449.000	840.000	457.500	842.900	466.000	845.600	474.500
NC	.120	.090	.050	.500	1.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION BG = SECTION 41.879 FROM PONTIAC TOWNSHIP F.I.S.

X1	42.629	16.000	148.000	195.000	275.000	244.000	312.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	111.000	0.000	221.000	0.000	0.000	0.000	0.000
GR	844.300	0.000	843.200	10.000	830.500	55.000	828.600	76.000	828.700	148.000
GR	825.000	153.000	824.500	160.000	824.200	170.000	824.500	180.000	824.000	189.000
GR	828.300	195.000	830.700	255.000	830.300	355.000	830.300	405.000	842.500	445.000
GR	845.300	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

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FORM 1411.GU PRINTED BY ROTARY MANIFOLD FORMS.

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*PROF 1

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 31.557
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      189.0      760.0  TYPE=      1  TARGET=     -189.000

            VALLEY SECTION A - SECTION 31.557 FROM SHELBY TWP. F.I.S.

      31.56     13.99    675.79      0.00    675.79    676.33      .54      0.00      0.00    678.60
      787.0.       0.      5230.     2640.       0.      741.     1207.       0.        0.     671.50
       0.00      0.00      7.05      2.19     0.000      .035      .050     0.000    661.80    202.82
    .001391        0.        0.        0.         0         0         0      0.00    525.63    728.45

*SECNO 31.566

3470 ENCROACHMENT STATIONS=      189.0      760.0  TYPE=      1  TARGET=     -189.000
      31.57     13.96    675.86      0.00      0.00    676.40      .54       .07       .00    678.70
      7780.        0.      5194.     2586.       0.      739.     1193.       2.        1.     671.60
        .00      0.00      7.03      2.17     0.000      .035      .050      .039    661.90    202.87
    .001385       50.       50.       50.         0         0         0      0.00    525.47    728.34


*SECNO 31.725

3470 ENCROACHMENT STATIONS=      225.0      690.0  TYPE=      1  TARGET=      465.000

            VALLEY SECTION B

      31.73     12.69    677.09      0.00      0.00    677.57      .48      1.15       .02    674.90
      7780.     1927.      5853.        0.      920.      928.        0.       36.        9. 100000.00
        .05      2.09      6.31      0.00      .050      .040      .045      .041    664.40    225.00
    .001478       590.      840.      825.         2         0         0      0.00    465.00    690.00

*SECNO 31.745

3470 ENCROACHMENT STATIONS=      250.0      660.0  TYPE=      1  TARGET=      410.000
      31.75     11.85    677.15      0.00      0.00    678.04      .89       .26       .20    675.80
      7780.     2589.      5191.        0.      541.      602.        0.       39.       10. 100000.00
        .05      4.79      8.62      0.00      .030      .050      .030      .042    665.30    250.00
    .005011       100.      109.      110.         2         0         0      0.00    410.00    660.00


*SECNO 31.746
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/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      660.0  TYPE=      1  TARGET=      410.000

            AVON ROAD BRIDGE - D/S FACE - BRIDGE IS LOCATED JUST NORTHEAST OF THE
```

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INTERSECTION OF AVON AND DEQUINDRE ROADS.

31.75	11.85	677.15	0.00	0.00	678.04	.89	.01	.00	675.80
7780.	2593.	5187.	0.	542.	603.	0.	39.	10.	100000.00
.05	4.79	8.61	0.00	.030	.050	.030	.042	665.30	250.00
.005001	1.	1.	1.	0	0	0	0.00	410.00	660.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCRD	ELCHD
	0.00	1.58	3.04	0.00	41.73	0.00	492.40	0.00	665.60	665.30

*SECNO 31.752
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
683.28	678.93	0.00	3107.	4740.	492.	492.	677.40	677.50

3470 ENCROACHMENT STATIONS= 270.0 744.0 TYPE= 1 TARGET= 474.000

AVON ROAD BRIDGE - U/S FACE - SECTION C. BRIDGE IS LOCATED JUST

NORTHEAST OF THE INTERSECTION OF AVON AND DEQUINDRE ROADS.

31.75	13.14	678.74	0.00	0.00	679.43	.69	1.39	0.00	675.00
7780.	3093.	4687.	0.	1342.	560.	0.	41.	10.	100000.00
.05	2.30	8.36	0.00	.070	.035	.050	.042	665.60	281.88
.002258	36.	36.	36.	3	0	3	0.00	462.12	744.00

*SECNO 31.753

3470 ENCROACHMENT STATIONS= 270.0 744.0 TYPE= 1 TARGET= 474.000

31.75	13.09	678.69	0.00	0.00	679.49	.80	.00	.06	675.00
7780.	2840.	4940.	0.	1319.	558.	0.	41.	10.	100000.00
.05	2.15	8.85	0.00	.090	.040	.090	.042	665.60	283.72
.003322	1.	1.	1.	2	0	0	0.00	460.28	744.00

*SECNO 31.829

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 290.0 954.0 TYPE= 1 TARGET= -290.000

VALLEY SECTION D

31.83	13.14	679.94	0.00	0.00	680.12	.18	.45	.19	671.00
7630.	3073.	3101.	1456.	2387.	620.	751.	58.	13.	671.00
.08	1.29	5.00	1.94	.100	.042	.070	.045	666.80	290.00
.000753	160.	400.	540.	2	0	0	0.00	653.78	943.78

*SECNO 31.936

31.94	12.88	680.28	0.00	0.00	680.84	.56	.53	.19	683.10
7630.	0.	7630.	0.	0.	1275.	0.	84.	17.	683.60
.11	0.00	5.98	0.00	.100	.042	.070	.045	667.40	356.00

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.001451	550.	568.	560.	2	0	0	0.00	120.00	476.00

*SECNO 31.937

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

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE - SECTION E

31.94	12.89	680.29	0.00	0.00	680.84	.56	.00	.00	683.10
7630.	0.	7630.	0.	0.	1276.	0.	84.	17.	683.60
.11	0.00	5.98	0.00	.035	.042	.035	.045	667.40	356.00
.001450	1.	1.	1.	0	0	0	0.00	120.00	476.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	1.66	2.69	0.00	97.78	9.00	1154.10	0.00	667.40	667.40

*SECNO 31.940
PRESSURE FLOW

EGPRS	EGLWC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
681.41	681.00	.08	0.	7630.	1154.	1154.	680.40	682.10

PENN-CENTRAL RAILROAD BRIDGE - U/S FACE - SECTION E

31.94	13.43	680.83	0.00	0.00	681.41	.58	.57	0.00	683.10
7630.	0.	7630.	0.	0.	1245.	0.	84.	17.	683.60
.11	0.00	6.13	0.00	.035	.042	.035	.045	667.40	356.00
.005114	15.	15.	15.	2	0	0	0.00	120.00	476.00

*SECNO 31.941

31.94	13.55	680.95	0.00	0.00	681.44	.49	.00	.03	683.10
7630.	0.	7630.	0.	0.	1355.	0.	84.	17.	683.60
.11	0.00	5.63	0.00	.050	.040	.080	.045	667.40	356.00
.001089	1.	1.	1.	2	0	0	0.00	120.00	476.00

1490 NH CARD USED
*SECNO 31.997

3470 ENCROACHMENT STATIONS= .0 673.0 TYPE= 1 TARGET= 672.999

32.00	12.06	681.56	0.00	0.00	681.89	.34	.41	.05	677.10
7630.	291.	4044.	3295.	158.	678.	1337.	97.	19.	680.00
.13	1.84	5.96	2.46	.060	.040	.063	.044	669.50	170.64
.001597	300.	308.	320.	2	0	0	0.00	491.71	662.34

=420

1490 NH CARD USED
*SECNO 31.998

3470 ENCROACHMENT STATIONS= .0 673.0 TYPE= 1 TARGET= 672.999

YATES MILL DAM - D/S FACE. FIXED CREST CONCRETE AND TIMBER DAM,

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80 FT. LONG - SECTION F. BECAUSE OF DAM SUBMERGENCE AND THE RELATIVE

DAM LENGTH RELATIVE TO TOP WIDTH, DAM WAS TREATED AS A NORMAL VALLEY

SECTION.

32.00	6.43	681.33	0.00	0.00	682.13	.80	.00	.23	679.80
7630.	203.	3921.	3505.	88.	406.	1258.	97.	19.	680.00
.13	2.31	9.65	2.79	.035	.020	.063	.044	674.90	171.21
.002169	1.	1.	1.	2	0	0	0.00	490.42	661.62

*SECNO 31.999

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

3470 ENCROACHMENT STATIONS= .0 673.0 TYPE= 1 TARGET= 672.999

YATES MILL DAM - U/S FACE. FIXED CREST CONCRETE AND TIMBER DAM,

80 FT. LONG - SECTION F. BECAUSE OF DAM SUBMERGENCE AND THE RELATIVE

DAM LENGTH RELATIVE TO TOP WIDTH, DAM WAS TREATED AS A NORMAL VALLEY

SECTION.

32.00	6.45	681.35	0.00	0.00	682.14	.80	.01	.00	679.80
7630.	205.	3919.	3506.	88.	407.	1261.	97.	19.	680.00
.13	2.32	9.63	2.78	.035	.020	.063	.044	674.90	171.18
.002154	6.	6.	6.	0	0	0	0.00	490.47	661.65

1490 NH CARD USED
*SECNO 32.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= .0 673.0 TYPE= 1 TARGET= 672.999

32.00	12.56	682.06	0.00	0.00	682.31	.25	.00	.16	677.10
7630.	600.	3723.	3308.	194.	718.	1507.	97.	19.	680.00
.13	3.09	5.18	2.19	.033	.040	.063	.044	669.50	169.41
.001119	1.	1.	1.	3	0	0	0.00	494.48	663.89

*SECNO 32.125

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 863.0 TYPE= 1 TARGET= 862.999

VALLEY SECTION G

32.13	11.49	682.79	0.00	0.00	683.04	.25	.73	.00	678.90

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7.90.	2358.	3.71.	1661.	1290.	823.	91..	150.	27.	660.10
.17	1.83	5.58	1.82	.070	.040	.070	.044	671.30	22.77
.001477	760.	660.	330.	2	0	0	0.00	771.96	848.56

*SECNO 32.237

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 385.0 938.0 TYPE= 1 TARGET= 553.000

VALLEY SECTION H

32.24	9.42	683.72	0.00	0.00	684.40	.68	1.14	.22	679.80
7490.	3347.	4022.	121.	1275.	462.	62.	154.	34.	681.10
.19	2.63	8.71	1.95	.075	.042	.065	.045	674.30	385.00
.004037	350.	593.	580.	2	0	0	0.00	520.20	926.82

*SECNO 32.275

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 200.0 1025.0 TYPE= 1 TARGET= -200.000

32.28	9.94	684.74	0.00	0.00	684.92	.18	.37	.15	679.30
7490.	1397.	3120.	2973.	742.	682.	1278.	164.	36.	679.60
.21	1.88	4.57	2.33	.075	.042	.065	.045	674.80	200.00
.001046	200.	200.	200.	2	0	0	0.00	462.73	1007.53

*SECNO 32.530

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 I

32.53	8.09	686.29	0.00	0.00	686.52	.23	1.57	.03	682.70
7260.	2756.	2909.	1595.	1198.	528.	847.	226.	48.	683.00
.30	2.30	5.51	1.88	.075	.042	.090	.047	678.20	33.71
.002133	950.	1350.	880.	3	0	0	0.00	617.50	1004.29

*SECNO 32.845

3470 ENCROACHMENT STATIONS= .0 685.0 TYPE= 1 TARGET= 684.999

VALLEY SECTION J

32.85	8.76	689.46	0.00	0.00	689.75	.29	3.21	.03	685.70
7260.	1958.	3450.	1852.	1079.	585.	848.	314.	70.	683.80
.41	1.81	5.90	2.18	.085	.042	.070	.046	680.70	42.50
.002004	1660.	1660.	1200.	3	0	0	0.00	642.50	685.00

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3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 1016.0 TYPE= 1 TARGET= 1015.999

VALLEY SECTION K - LEFT OVERBANK ADJUSTED TO ELIMINATE INEFFECTIVE

FLOW AREA OF DITCH NEXT TO GRAND TRUNK WESTERN RAILROAD

33.14	8.73	692.23	0.00	0.00	692.50	.27	2.74	.01	687.80
6940.	4340.	2600.	0.	1724.	437.	0.	381.	87.	100000.00
.51	2.52	5.95	0.00	.065	.040	.070	.046	683.50	190.91
.002126	1120.	1540.	1350.	0	0	0	0.00	622.54	1012.01

*SECNO 33.263

3470 ENCROACHMENT STATIONS= 760.0 1530.0 TYPE= 1 TARGET= -760.000

CONFLUENCE WITH STONEY CREEK

33.26	8.44	693.44	0.00	0.00	693.67	.23	1.16	.01	689.30
6870.	2011.	2305.	2554.	781.	401.	1233.	410.	95.	689.30
.55	2.58	5.75	2.07	.065	.040	.070	.046	685.00	760.00
.001928	520.	670.	525.	2	0	0	0.00	648.21	1408.21

CCHV= .300 CEHV= .500
1490 NH CARD USED
*SECNO 33.421

3470 ENCROACHMENT STATIONS= .0 384.0 TYPE= 1 TARGET= 383.999

VALLEY SECTION L

33.42	7.98	694.88	0.00	0.00	695.17	.29	1.47	.03	100000.00
5670.	0.	2730.	2940.	0.	493.	1069.	442.	103.	691.20
.60	0.00	5.54	2.75	.065	.042	.060	.047	686.90	16.39
.002075	750.	830.	650.	2	0	0	0.00	358.57	374.97

*SECNO 33.610

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

3470 ENCROACHMENT STATIONS= 226.0 859.0 TYPE= 1 TARGET= -226.000

VALLEY SECTION M

33.61	8.93	697.63	0.00	0.00	698.10	.47	2.84	.09	703.90
5670.	0.	2972.	2698.	0.	414.	1084.	477.	112.	695.50
.66	0.00	7.19	2.49	.050	.045	.080	.046	688.70	243.26
.004062	1060.	1000.	1010.	2	0	0	0.00	426.31	669.57

*SECNO 33.679

3301 HV CHANGED MORE THAN HVINS

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3470 ENCROACHMENT STATIONS= 486.0 886.0 TYPE= 1 TARGET= -486.000

33.68	9.39	698.69	0.00	0.00	700.03	1.34	1.50	.44	695.20
5670.	0.	4552.	1118.	0.	440.	1048.	489.	115.	694.40
.67	0.00	10.36	1.07	.090	.035	.220	.046	689.30	486.00
.004270	430.	369.	340.	2	0	0	0.00	361.75	847.75

*SECNO 33.680

3470 ENCROACHMENT STATIONS= 486.0 886.0 TYPE= 1 TARGET= -486.000

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE.

33.68	9.39	698.69	0.00	0.00	700.04	1.34	.00	.00	695.20
5670.	0.	4558.	1112.	0.	440.	1049.	489.	115.	694.40
.67	0.00	10.36	1.06	.090	.030	.190	.046	689.30	486.00
.003140	1.	1.	1.	0	0	0	0.00	361.76	847.76

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.52	2.78	0.00	34.50	0.00	331.20	0.00	689.30	689.30

*SECNO 33.683

3280 CROSS SECTION 33.68 EXTENDED 1.39 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
705.61	700.75	0.00	1079.	4604.	331.	331.	698.90	701.20

PENN-CENTRAL RAILROAD BRIDGE - D/S FACE - SECTION N.

33.68	13.28	702.58	0.00	0.00	703.25	.67	3.22	0.00	703.50
5670.	0.	4568.	1102.	0.	623.	2244.	490.	115.	694.40
.67	0.00	7.34	.49	.090	.025	.325	.046	689.30	1000.00
.000796	15.	15.	15.	2	0	3	0.00	365.00	1365.00

*SECNO 33.684

3470 ENCROACHMENT STATIONS= 486.0 851.0 TYPE= 1 TARGET= 365.000

33.68	13.40	702.70	0.00	0.00	703.28	.58	.00	.03	695.20
5670.	0.	4526.	1144.	0.	660.	2313.	490.	115.	694.40
.67	0.00	6.86	.49	.090	.035	.400	.046	689.30	486.00
.001186	1.	1.	1.	2	0	0	0.00	365.00	851.00

*SECNO 33.721

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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VALLEY SECTION O.

33.72	12.35	703.45	0.00	0.00	703.56	.11	.14	.14	697.00
5490.	361.	2257.	2872.	390.	603.	1994.	502.	117.	696.20
.70	.93	3.75	1.44	.080	.042	.080	.046	691.10	328.97
.000487	240.	199.	160.	2	0	0	0.00	527.57	856.53

1490 NH CARD USED
*SECNO 33.816

3470 ENCROACHMENT STATIONS= .0 1000.0 TYPE= 1 TARGET= 999.999

VALLEY SECTION P

33.82	10.31	703.91	0.00	0.00	704.04	.13	.47	.01	700.50
5490.	576.	2819.	2095.	481.	736.	1593.	554.	130.	699.10
.77	1.20	3.83	1.31	.073	.050	.085	.045	693.60	147.00
.000945	400.	500.	980.	2	0	0	0.00	853.00	1000.00

*SECNO 33.995

3470 ENCROACHMENT STATIONS= .0 740.0 TYPE= 1 TARGET= 739.999

34.00	8.18	704.98	0.00	0.00	705.54	.56	1.28	.21	703.70
5280.	176.	3878.	1226.	113.	562.	666.	589.	140.	702.30
.81	1.55	6.90	1.84	.050	.042	.085	.045	696.80	208.74
.003102	800.	950.	580.	2	0	0	0.00	505.87	714.61

*SECNO 34.033

3470 ENCROACHMENT STATIONS= .0 590.0 TYPE= 1 TARGET= 589.999

34.03	8.02	705.52	0.00	0.00	706.55	1.04	.78	.24	704.40
5280.	165.	4724.	391.	91.	548.	239.	594.	142.	703.00
.82	1.82	8.62	1.64	.050	.042	.085	.045	697.50	221.85
.005006	200.	200.	200.	2	0	0	0.00	368.15	590.00

*SECNO 34.071

3470 ENCROACHMENT STATIONS= 425.0 750.0 TYPE= 1 TARGET= 325.000

VALLEY SECTION Q

34.07	8.64	706.84	0.00	0.00	707.47	.63	.80	.12	703.10
5280.	1034.	3627.	619.	340.	484.	323.	599.	144.	703.30
.83	3.04	7.49	1.92	.050	.042	.085	.045	698.20	425.00
.003138	150.	200.	300.	3	0	0	0.00	325.00	750.00

*SECNO 34.090

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

3470 ENCROACHMENT STATIONS= 435.0 730.0 TYPE= 1 TARGET= 295.000

34.09	8.90	707.30	0.00	0.00	707.81	.51	.30	.04	703.30
5280.	1135.	3406.	739.	364.	501.	278.	602.	145.	703.50
.83	3.12	6.80	2.66	.050	.045	.060	.045	698.40	435.00
.002845	100.	100.	100.	2	0	0	0.00	295.00	730.00

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*SECNO 34.156

3470 ENCROACHMENT STATIONS= 475.0 655.0 TYPE= 1 TARGET= 180.000

34.16	9.35	708.25	0.00	0.00	708.89	.64	1.02	.06	703.80
5280.	1246.	3816.	218.	338.	529.	73.	610.	146.	704.00
.85	3.69	7.21	2.97	.050	.045	.060	.045	698.90	475.00
.002970	350.	350.	350.	2	0	0	0.00	180.00	655.00

*SECNO 34.353

3265 DIVIDED FLOW

VALLEY SECTION R

34.35	11.17	711.57	0.00	0.00	712.22	.65	3.32	.00	713.90
5110.	0.	4082.	1028.	0.	570.	556.	633.	154.	711.00
.90	0.00	7.17	1.85	.050	.045	.060	.045	700.40	161.72
.003629	1010.	1040.	860.	1	0	0	0.00	565.36	774.86

*SECNO 34.513

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

VALLEY SECTION S

34.51	10.00	714.70	0.00	0.00	715.61	.90	3.26	.13100000.00	
5110.	0.	3867.	1243.	0.	474.	220.	650.	160.	708.90
.93	0.00	8.16	5.66	.060	.045	.045	.045	704.70	21.31
.004384	670.	840.	750.	2	0	0	0.00	113.68	135.00

*SECNO 34.522

3470 ENCROACHMENT STATIONS= 520.0 690.0 TYPE= 1 TARGET= 170.000

34.52	10.41	715.31	0.00	0.00	715.86	.55	.15	.10	712.40
5110.	491.	4280.	339.	205.	669.	102.	651.	161.	711.50
.93	2.40	6.40	3.32	.060	.045	.045	.045	704.90	520.00
.002179	50.	50.	50.	2	0	0	0.00	170.00	690.00

1490 NH CARD USED

*SECNO 34.645

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	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	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= .0 670.0 TYPE= 1 TARGET= 669.999

VALLEY SECTION T

34.65	9.87	716.87	0.00	0.00	717.21	.35	1.29	.06	714.50
5110.	1523.	3522.	64.	1109.	627.	29.	671.	166.	713.60
.97	1.37	5.62	2.26	.090	.045	.050	.045	707.00	162.54
.001830	625.	650.	700.	2	0	0	0.00	507.46	670.00

*SECNO 34.698

3470 ENCROACHMENT STATIONS= 360.0 710.0 TYPE= 1 TARGET= 350.000

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34.70	9.19	717.39	0.00	0.00	718.02	.63	.87	.15	715.70
5110.	755.	4073.	282.	484.	575.	103.	680.	168.	714.80
.98	1.56	7.08	2.75	.090	.045	.050	.045	708.20	360.00
.003256	275.	280.	270.	2	0	0	0.00	350.00	710.00

*SECNO 34.725

3470 ENCROACHMENT STATIONS= 385.0 690.0 TYPE= 1 TARGET= 305.000

CONFLUENCE WITH PAINT CREEK

34.73	9.03	717.83	0.00	0.00	718.53	.70	.47	.03	716.30
4880.	606.	4101.	174.	394.	563.	62.	684.	169.	715.40
.99	1.54	7.28	2.81	.090	.045	.050	.045	708.80	385.00
.003549	135.	140.	130.	2	0	0	0.00	305.00	690.00

*SECNO 34.751

3470 ENCROACHMENT STATIONS= 410.0 665.0 TYPE= 1 TARGET= 255.000

34.75	9.12	718.52	0.00	0.00	719.00	.47	.40	.07	716.90
3825.	455.	3351.	19.	360.	571.	10.	687.	170.	716.00
1.00	1.26	5.87	1.89	.090	.045	.050	.045	709.40	410.00
.002266	135.	140.	135.	2	0	0	0.00	255.00	665.00

*SECNO 34.804

3470 ENCROACHMENT STATIONS= 565.0 670.0 TYPE= 1 TARGET= 105.000

34.80	8.57	719.17	0.00	0.00	719.94	.77	.80	.15	718.10
3825.	24.	3760.	41.	23.	528.	17.	692.	171.	717.20
1.01	1.05	7.12	2.43	.090	.045	.050	.045	710.60	565.00
.003688	275.	280.	265.	2	0	0	0.00	105.00	670.00

*SECNO 34.857

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

3470 ENCROACHMENT STATIONS= 535.0 835.0 TYPE= 1 TARGET= 300.000

34.86	8.48	720.28	0.00	0.00	720.97	.69	1.00	.03	719.30
3825.	61.	3582.	181.	58.	522.	100.	696.	172.	718.40
1.02	1.06	6.86	1.81	.090	.045	.050	.045	711.80	535.00
.003489	270.	280.	265.	3	0	0	0.00	242.47	777.47

*SECNO 34.906

3470 ENCROACHMENT STATIONS= 587.0 665.0 TYPE= 1 TARGET= 78.000

34.91	8.30	721.20	0.00	0.00	722.08	.88	1.01	.10100000.00	
3825.	0.	3811.	14.	0.	505.	7.	699.	173.	719.50
1.03	0.00	7.55	2.19	.090	.045	.050	.045	712.90	587.00
.004367	250.	260.	245.	1	0	0	0.00	76.00	665.00

1490 NH CARD USED

*SECNO 34.910

3301 HV CHANGED MORE THAN HVINS

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3470 ENCROACHMENT STATIONS= 200.0 550.0 TYPE= 1 TARGET= 550.000

VALLEY SECTION U

34.91	7.77	720.77	0.00	0.00	722.78	2.02	.14	.57	719.00
3825.	27.	3798.	0.	11.	332.	0.	699.	173.	721.00
1.03	2.51	11.44	0.00	.060	.045	.060	.045	713.00	340.99
.012248	20.	20.	20.	3	0	0	0.00	68.65	409.64

CCHV= .300 CEHV= .500

*SECNO 35.037

VALLEY SECTION V - DIRECTLY UNDER ROCHESTER ROAD BRIDGE

35.04	10.34	726.44	0.00	0.00	728.03	1.59	5.12	.13	725.90
3825.	0.	3825.	0.	0.	378.	0.	705.	174.	729.10
1.05	.58	10.12	0.00	.075	.038	.075	.045	716.10	428.36
.005220	625.	670.	650.	2	0	0	0.00	43.39	471.76

*SECNO 35.068

35.07	12.01	727.71	0.00	0.00	728.84	1.12	.66	.14	725.50
3825.	10.	3815.	0.	9.	448.	0.	707.	174.	728.70
1.05	1.15	8.52	0.00	.075	.038	.075	.045	715.70	421.95
.003065	170.	169.	200.	2	0	0	0.00	49.96	471.91

*SECNO 35.069

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

DIVERSION STREET BRIDGE - D/S FACE - SECTION W

35.07	12.03	727.73	0.00	0.00	728.84	1.11	.00	.00	725.50
3825.	24.	3801.	0.	9.	448.	0.	707.	174.	728.70
1.05	2.63	8.48	0.00	.030	.035	.030	.045	715.70	421.91
.002574	1.	1.	1.	1	0	0	0.00	50.00	471.91

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	3.02	0.00	28.27	0.00	248.80	0.00	715.60	715.70

*SECNO 35.076

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
734.41	728.55	0.00	1731.	2095.	249.	249.	724.40	727.70

3470 ENCROACHMENT STATIONS= 306.0 606.0 TYPE= 1 TARGET= 300.000

DIVERSION STREET BRIDGE - U/S FACE - SECTION W

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35.08	13.77	729.37	0.00	0.00	729.74	.37	.89	0.00	723.60
3825.	947.	2510.	368.	464.	428.	264.	707.	175.	722.50
1.06	2.04	5.87	1.39	.050	.035	.080	.045	715.60	306.00
.001017	37.	37.	37.	2	0	4	0.00	300.00	606.00

*SECNO 35.077

3470 ENCROACHMENT STATIONS= 80.0 380.0 TYPE= 1 TARGET= 300.000

35.08	14.15	729.75	0.00	0.00	729.83	.07	.00	.09	722.70
3825.	980.	2199.	646.	741.	812.	661.	707.	175.	722.00
1.06	1.32	2.71	.98	.050	.045	.090	.045	715.60	80.00
.000244	1.	1.	1.	2	0	0	0.00	300.00	380.00

*SECNO 35.152

3470 ENCROACHMENT STATIONS= 149.0 380.0 TYPE= 1 TARGET= 231.000

VALLEY SECTION X

35.15	10.72	729.82	0.00	0.00	730.13	.31	.19	.12	726.20
3825.	277.	2952.	596.	168.	593.	380.	723.	177.	725.50
1.08	1.65	4.98	1.57	.050	.045	.090	.045	719.10	149.00
.001258	410.	399.	380.	2	0	0	0.00	231.00	380.00

1490 NH CARD USED

*SECNO 35.266

3470 ENCROACHMENT STATIONS= 282.0 600.0 TYPE= 1 TARGET= 318.000

VALLEY SECTION Y

35.27	10.53	730.63	0.00	0.00	730.73	.11	.55	.06	730.10
3825.	0.	1576.	2248.	1.	471.	1141.	742.	181.	725.00
1.15	.46	3.35	1.97	.035	.047	.055	.045	720.10	288.86
.000690	610.	600.	600.	2	0	0	0.00	311.14	600.00

*SECNO 35.323

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= 340.1 565.0 TYPE= 1 TARGET= 224.900

35.32	9.14	730.84	0.00	0.00	731.23	.40	.35	.14	730.40
3825.	0.	2486.	1338.	1.	409.	648.	751.	183.	726.00
1.17	.44	6.08	2.07	.060	.045	.090	.045	721.70	347.41
.002434	260.	300.	300.	2	0	0	0.00	217.59	565.00

*SECNO 35.379

3470 ENCROACHMENT STATIONS= 200.0 540.0 TYPE= 1 TARGET= 340.000

35.38	8.52	731.62	0.00	0.00	732.34	.72	.95	.16	730.80
3825.	166.	2894.	765.	93.	375.	292.	757.	184.	727.10
1.18	1.79	7.71	2.62	.060	.045	.090	.045	723.10	311.50
.004232	260.	300.	305.	2	0	0	0.00	228.50	540.00

*SECNO 35.436

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3470 ENCROACHMENT STATIONS=      200.0      575.0  TYPE=      1  TARGET=      375.000
    35.44      8.49    732.89      0.00      0.00    733.73       .84       1.33       .06    731.10
    3825.       218.     3005.      602.      111.      368.      213.       762.      185.     728.20
     1.19       1.97      8.16      2.82      .060      .045      .090       .045    724.40    370.78
  .004713       260.       300.      300.         2         0         0       0.00    204.21    575.00

*SECNO 35.455

3470 ENCROACHMENT STATIONS=        .0      630.0  TYPE=      1  TARGET=      629.999
    35.46      8.80    733.70      0.00      0.00    734.20       .50        .37       .10    731.60
    3825.       254.     2579.      991.      143.      384.      430.       764.      186.     728.70
     1.20       1.79      6.72      2.30      .060      .045      .090       .045    724.90    362.52
  .003018         80.       100.      100.         3         0         0       0.00    267.48    630.00

*SECNO 35.493

3470 ENCROACHMENT STATIONS=        .0      818.0  TYPE=      1  TARGET=      817.999

            VALLEY SECTION 2

    35.49      8.70    734.50      0.00      0.00    734.72       .22        .44       .08    731.50
    3825.       297.     1895.     1634.      171.      375.      847.       769.      187.     729.30
     1.21       1.73      5.05      1.93      .050      .045      .075       .045    725.80    421.00
  .001706       180.       200.      200.         2         0         0       0.00    397.00    818.00

*SECNO 35.527

   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=      343.4      760.0  TYPE=      1  TARGET=      416.600
    35.53      7.95    734.75      0.00      0.00    735.25       .50        .40       .14    732.00
    3825.       404.     2627.      795.      186.      390.      458.       774.      189.     731.30
     1.22       2.17      6.74      1.74      .060      .045      .090       .045    726.80    376.69
  .003379       185.       180.      145.         2         0         0       0.00    383.31    760.00

*SECNO 35.561

3470 ENCROACHMENT STATIONS=      200.0      831.0  TYPE=      1  TARGET=     -200.000
    35.56      7.55    735.35      0.00      0.00    735.91       .56        .62       .03    732.60
    3825.       618.     2839.      367.      249.      414.      228.       777.      190.     733.30
     1.23       2.48      6.85      1.61      .060      .045      .090       .045    727.80    335.07
  .003729       190.       180.      145.         2         0         0       0.00    327.74    662.80

*SECNO 35.595

3470 ENCROACHMENT STATIONS=      330.0      791.5  TYPE=      1  TARGET=     -330.000
    35.60      7.26    736.06      0.00      0.00    736.56       .50        .64       .02    733.10
    3825.       797.     2851.      177.      285.      445.      140.       781.      191.     735.30
     1.24       2.80      6.41      1.26      .060      .045      .090       .045    728.80    330.00
  .003401       185.       180.      145.         2         0         0       0.00    275.60    605.60

*SECNO 35.629

3265 DIVIDED FLOW
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3470 ENCROACHMENT STATIONS= 236.0 752.0 TYPE= 1 TARGET= -236.000

VALLEY SECTION AA

35.63	7.10	736.60	0.00	0.00	737.12	.33	.51	.05	733.70
3825.	1283.	2483.	59.	419.	472.	73.	785.	192.	737.30
1.25	3.06	5.26	.81	.050	.045	.085	.045	729.70	258.88
.002369	190.	180.	145.	2	0	0	0.00	301.43	566.92

*SECNO 35.800

VALLEY SECTION AB

35.80	9.22	739.02	0.00	0.00	739.55	.52	2.33	.10	735.90
3825.	1277.	2251.	297.	389.	316.	214.	801.	198.	738.10
1.29	3.29	7.13	1.39	.055	.045	.080	.045	729.80	225.69
.003939	530.	900.	850.	1	0	0	0.00	373.11	598.80

*SECNO 35.980

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= 127.0 288.0 TYPE= 1 TARGET= -127.000

VALLEY SECTION AC

35.98	8.44	742.24	0.00	0.00	742.79	.55	3.23	.01	739.20
3825.	750.	3075.	0.	289.	472.	0.	818.	203.	100000.00
1.33	2.60	6.51	0.00	.070	.045	.070	.045	733.80	127.00
.003190	820.	950.	920.	2	0	0	0.00	154.20	281.20

*SECNO 36.045

3470 ENCROACHMENT STATIONS= 214.0 283.0 TYPE= 1 TARGET= 69.000

36.05	9.28	743.28	0.00	0.00	744.09	.81	1.17	.13	739.40
3825.	0.	3825.	0.	0.	529.	0.	823.	204.	100000.00
1.35	0.00	7.23	0.00	.070	.045	.070	.045	734.00	214.00
.003703	270.	349.	430.	2	0	0	0.00	67.98	281.98

*SECNO 36.046

GRAND TRUNK WESTERN RAILROAD BRIDGE - D/S FACE - SECTION AD

36.05	9.32	743.32	0.00	0.00	744.11	.79	.00	.01	746.40
3825.	0.	3825.	0.	0.	538.	0.	823.	204.	746.60
1.35	0.00	7.11	0.00	.040	.040	.040	.045	734.00	1000.00
.002893	1.	1.	1.	2	0	0	0.00	69.00	1069.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	1.72	2.69	0.00	58.37	5.00	501.70	0.00	734.00	734.00

*SECNO 36.048
PRESSURE FLOW

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EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
744.87	744.36	.15	0.	3825.	502.	502.	743.40	745.00

GRAND TRUNK WESTERN RAILROAD BRIDGE - U/S FACE - SECTION AD

36.05	10.13	744.13	0.00	0.00	744.87	.74	.77	0.00	746.40
3825.	0.	3825.	0.	0.	553.	0.	823.	204.	746.60
1.35	0.00	6.92	0.00	.040	.040	.040	.045	734.00	1000.00
.006902	16.	16.	16.	2	0	0	0.00	69.00	1069.00

CCHV= .300 CEHV= .500
*SECNO 36.049

3470 ENCROACHMENT STATIONS= 214.0 283.0 TYPE= 1 TARGET= 69.000

36.05	10.27	744.27	0.00	0.00	744.91	.64	.00	.03	739.40
3825.	0.	3825.	0.	0.	597.	0.	823.	204.	100000.00
1.35	0.00	6.41	0.00	.090	.045	.050	.045	734.00	214.00
.002581	1.	1.	1.	2	0	0	0.00	68.91	282.91

*SECNO 36.060

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

3470 ENCROACHMENT STATIONS= 571.0 740.0 TYPE= 1 TARGET= 169.000

36.06	10.70	744.60	0.00	0.00	745.11	.31	.10	.10	740.70
3825.	387.	2480.	958.	225.	487.	301.	824.	204.	739.80
1.35	1.72	5.10	3.19	.090	.045	.050	.045	734.10	571.00
.001545	50.	50.	50.	2	0	0	0.00	169.00	740.00

CCHV= .300 CEHV= .500
*SECNO 36.257

VALLEY SECTION AE

36.26	9.51	746.11	0.00	0.00	746.20	.08	1.02	.07	743.20
3800.	1420.	1375.	1005.	1002.	416.	592.	856.	211.	742.30
1.47	1.42	3.31	1.70	.075	.045	.055	.045	736.60	366.31
.000802	980.	1049.	700.	2	0	0	0.00	494.88	861.19

*SECNO 36.316

3470 ENCROACHMENT STATIONS= .0 720.0 TYPE= 1 TARGET= 719.999

36.32	8.33	746.43	0.00	0.00	746.66	.24	.39	.08	744.10
3800.	1227.	1889.	684.	615.	367.	338.	868.	214.	743.80
1.50	1.99	5.14	2.03	.075	.045	.055	.045	738.10	295.10
.002201	335.	310.	295.	2	0	0	0.00	424.90	720.00

*SECNO 36.376

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

36.38	7.95	747.25	0.00	0.00	747.84	.60	1.00	.18	745.10
3800.	1062.	2545.	193.	400.	346.	105.	876.	217.	745.40

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1.51	2.66	7.56	1.85	.015	.015	.055	.045	75.50	220.12
.004755	340.	315.	295.	2	0	0	0.00	329.88	550.00

1490 NH CARD USED
*SECNO 36.434

3470 ENCROACHMENT STATIONS= .0 395.0 TYPE= 1 TARGET= 394.999

36.43	7.96	748.36	0.00	0.00	749.27	.92	1.27	.16	746.00
3800.	836.	2918.	46.	262.	340.	32.	881.	219.	747.00
1.52	3.19	8.59	1.44	.050	.040	.050	.045	740.40	126.13
.003439	335.	310.	295.	1	0	0	0.00	236.58	362.71

*SECNO 36.465

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

3470 ENCROACHMENT STATIONS= 179.0 364.0 TYPE= 1 TARGET= 185.000

36.47	7.85	748.85	0.00	0.00	749.98	1.13	.60	.11	746.60
3800.	658.	3101.	40.	183.	334.	27.	884.	220.	747.60
1.53	3.60	9.28	1.51	.050	.040	.050	.045	741.00	179.00
.004099	170.	159.	145.	2	0	0	0.00	177.34	356.34

*SECNO 36.474

3470 ENCROACHMENT STATIONS= 192.0 351.0 TYPE= 1 TARGET= 159.000

36.47	7.81	749.01	0.00	0.00	750.28	1.27	.23	.07	746.80
3800.	540.	3222.	38.	146.	332.	24.	884.	220.	747.80
1.53	3.69	9.71	1.55	.050	.040	.050	.045	741.20	192.00
.004548	55.	52.	50.	2	0	0	0.00	159.00	351.00

*SECNO 36.484

3470 ENCROACHMENT STATIONS= 205.0 338.0 TYPE= 1 TARGET= 133.000

36.48	7.78	749.18	0.00	0.00	750.61	1.43	.25	.08	747.00
3800.	420.	3344.	36.	109.	330.	22.	885.	220.	748.00
1.53	3.84	10.13	1.68	.050	.040	.050	.045	741.40	205.00
.004983	55.	52.	50.	2	0	0	0.00	133.00	338.00

1490 NH CARD USED
*SECNO 36.494

3470 ENCROACHMENT STATIONS= 98.0 205.0 TYPE= 1 TARGET= 107.000

VALLEY SECTION AF

36.49	7.73	749.33	0.00	0.00	751.03	1.69	.29	.13	747.00
3800.	278.	3515.	7.	67.	326.	6.	885.	221.	748.60
1.53	4.13	10.80	1.19	.050	.040	.050	.045	741.60	98.00
.006124	55.	52.	50.	2	0	0	0.00	98.31	196.31

*SECNO 36.498

3470 ENCROACHMENT STATIONS= 103.0 200.0 TYPE= 1 TARGET= 97.000

36.50	7.80	749.44	0.00	0.00	751.17	1.73	.12	.02	747.04
3800.	222.	3569.	9.	56.	329.	7.	885.	221.	748.64
1.53	3.99	10.83	1.26	.050	.040	.050	.045	741.64	103.00

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.006050	20.	20.	20.	0	0	0	0.00	94.86	177.88

*SECNO 36.502

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= 108.0 195.0 TYPE= 1 TARGET= 87.000

36.50	7.87	749.55	0.00	0.00	751.30	1.75	.12	.01	747.08
3800.	172.	3616.	12.	44.	333.	8.	886.	221.	748.68
1.53	3.92	10.85	1.50	.050	.040	.050	.045	741.68	108.00
.005970	20.	20.	20.	1	0	0	0.00	87.00	195.00

*SECNO 36.506

3470 ENCROACHMENT STATIONS= 113.0 190.0 TYPE= 1 TARGET= 77.000

36.51	8.03	749.75	0.00	0.00	751.45	1.70	.14	.01	747.12
3800.	143.	3640.	17.	32.	341.	8.	886.	221.	748.72
1.54	4.42	10.66	2.17	.050	.040	.050	.045	741.72	113.00
.007782	20.	20.	20.	2	0	0	0.00	77.00	190.00

*SECNO 36.509

3470 ENCROACHMENT STATIONS= 118.0 185.0 TYPE= 1 TARGET= 67.000

36.51	8.12	749.88	0.00	0.00	751.62	1.74	.15	.02	747.16
3800.	79.	3709.	12.	19.	347.	75.	886.	221.	748.76
1.54	4.09	10.69	2.34	.050	.040	.050	.045	741.76	118.00
.007658	20.	20.	20.	0	0	0	0.00	67.00	185.00

*SECNO 36.513

3470 ENCROACHMENT STATIONS= 123.0 180.0 TYPE= 1 TARGET= 57.000

36.51	8.21	750.01	0.00	0.00	751.80	1.79	.15	.03	747.20
3800.	16.	3784.	0.	6.	352.	0.	886.	221.	100000.00
1.54	2.91	10.76	0.00	.050	.040	.050	.045	741.80	123.00
.007820	20.	20.	20.	2	0	0	0.00	57.00	180.00

*SECNO 36.517

3470 ENCROACHMENT STATIONS= 128.0 175.0 TYPE= 1 TARGET= 47.000

36.52	8.20	750.04	0.00	0.00	752.11	2.07	.17	.14	100000.00
3800.	0.	3800.	0.	0.	329.	0.	886.	221.	100000.00
1.54	0.00	11.54	0.00	.050	.040	.050	.045	741.84	128.00
.009248	20.	20.	20.	2	0	0	0.00	47.00	175.00

*SECNO 36.521

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 133.0 170.0 TYPE= 1 TARGET= 37.000

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36.52	7.72	749.80	0.00	0.00	752.80	3.00	.23	.37100000.00	
3800.	0.	3800.	0.	0.	273.	0.	886.	221.	100000.00
1.54	0.00	13.89	0.00	.050	.040	.050	.045	741.88	133.00
.014207	20.	20.	20.	2	0	0	0.00	37.00	170.00

*SECNO 36.522

3301 HV CHANGED MORE THAN HVINS

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 135.0 168.0 TYPE= 1 TARGET= 33.000

36.52	7.77	749.67	749.67	0.00	753.40	3.73	.15	.37100000.00	
3800.	0.	3800.	0.	0.	245.	0.	886.	221.	100000.00
1.54	0.00	15.51	0.00	.050	.040	.050	.045	741.90	135.00
.019019	10.	9.	10.	3	8	0	0.00	33.00	168.00

*SECNO 36.523

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 135.0 168.0 TYPE= 1 TARGET= 33.000

AVON ROAD BRIDGE - D/S FACE - SECTION AG. BRIDGE IS LOCATED JUST

EAST OF INTERSECTION OF AVON AND LIVERNOIS ROADS.

36.52	9.29	751.19	0.00	0.00	753.76	2.57	.01	.35100000.00	
3800.	0.	3800.	0.	0.	295.	0.	886.	221.	100000.00
1.54	0.00	12.87	0.00	.030	.035	.030	.045	741.90	135.00
.008508	1.	1.	1.	10	0	0	0.00	33.00	168.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	3.02	0.00	30.58	0.00	348.60	0.00	742.10	741.90

*SECNO 36.535

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 754.108 ELLC= 754.600 PCWSE= 751.191 ELTRD= 755.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 755.00 MAX ELLC= 754.60

3470 ENCROACHMENT STATIONS= 300.0 333.0 TYPE= 1 TARGET= 33.000

AVON ROAD BRIDGE - U/S FACE - SECTION AG. BRIDGE IS LOCATED JUST

EAST OF INTERSECTION OF AVON AND LIVERNOIS ROADS.

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36.54	9.93	752.03	0.00	0.00	754.40	2.33	.37	.07	755.60
3800.	0.	3800.	0.	0.	309.	0.	887.	221.	100000.00
1.54	0.00	12.30	0.00	.030	.035	.030	.045	742.10	300.00
.007728	70.	70.	70.	4	0	0	0.00	33.00	333.00

*SECNO 36.536

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 134.0 169.0 TYPE= 1 TARGET= 35.000

36.54	10.79	752.89	0.00	0.00	754.60	1.71	.01	.19	100000.00
3800.	0.	3800.	0.	0.	363.	0.	887.	221.	100000.00
1.54	0.00	10.48	0.00	.040	.040	.100	.045	742.10	134.00
.006222	1.	1.	1.	3	0	0	0.00	35.00	169.00

*SECNO 36.538

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 129.0 189.0 TYPE= 1 TARGET= 60.000

36.54	12.12	754.22	0.00	0.00	754.93	.70	.03	.30	100000.00
3800.	0.	3675.	125.	0.	538.	44.	887.	221.	749.10
1.54	0.00	6.83	2.82	.040	.040	.050	.045	742.10	129.00
.001883	5.	10.	20.	3	0	0	0.00	60.00	189.00

*SECNO 36.542

3470 ENCROACHMENT STATIONS= 119.0 224.0 TYPE= 1 TARGET= 105.000

36.54	12.67	754.67	0.00	0.00	755.05	.38	.03	.10	747.40
3800.	109.	3167.	524.	44.	597.	214.	887.	221.	749.00
1.54	2.48	5.30	2.45	.040	.040	.050	.045	742.00	119.00
.000913	10.	20.	35.	2	0	0	0.00	105.00	224.00

*SECNO 36.546

3470 ENCROACHMENT STATIONS= 109.0 259.0 TYPE= 1 TARGET= 150.000

36.55	12.87	754.87	0.00	0.00	755.11	.24	.02	.04	747.40
3800.	335.	2710.	755.	121.	608.	370.	888.	221.	749.00
1.54	2.77	4.46	2.04	.040	.040	.050	.045	742.00	109.00
.000631	10.	20.	35.	2	0	0	0.00	150.00	259.00

*SECNO 36.564

3470 ENCROACHMENT STATIONS= 240.0 520.0 TYPE= 1 TARGET= 280.000

36.56	13.30	755.10	0.00	0.00	755.20	.09	.04	.04	748.10
3800.	527.	2113.	1160.	266.	712.	809.	892.	222.	748.30
1.55	1.98	2.97	1.43	.040	.040	.050	.045	741.80	240.00
.000281	40.	100.	150.	2	0	0	0.00	280.00	520.00

*SECNO 36.565

3470 ENCROACHMENT STATIONS= 240.0 520.0 TYPE= 1 TARGET= 280.000

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LIVERNOIS ROAD BRIDGE - D/S FACE

36.57	13.30	755.10	0.00	0.00	755.20	.10	.00	.00	748.10
3800.	427.	2199.	1174.	266.	712.	809.	892.	222.	748.30
1.55	1.60	3.09	1.45	.045	.035	.045	.045	741.80	240.00
.000233	1.	1.	1.	0	0	0	0.00	280.00	520.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.70	3.04	0.00	29.32	0.00	316.70	0.00	741.60	741.80

*SECNO 36.573
3280 CROSS SECTION 36.57 EXTENDED 1.04 FEET

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
758.90	755.00	0.00	1963.	1847.	317.	317.	752.40	753.70

3470 ENCROACHMENT STATIONS= 535.0 835.0 TYPE= 1 TARGET= 300.000

LIVERNOIS ROAD BRIDGE - U/S FACE - SECTION AH

36.57	14.33	755.93	0.00	0.00	756.00	.06	.80	0.00	747.90
3800.	570.	1948.	1281.	411.	769.	1002.	894.	222.	748.10
1.56	1.39	2.53	1.28	.045	.035	.045	.045	741.60	535.00
.000143	47.	47.	47.	2	0	3	0.00	300.00	835.00

1490 NH CARD USED
*SECNO 36.574

3470 ENCROACHMENT STATIONS= 220.0 520.0 TYPE= 1 TARGET= 300.000

36.57	14.34	755.94	0.00	0.00	756.00	.06	.00	.00	747.90
3800.	729.	1903.	1168.	444.	780.	987.	894.	222.	748.10
1.56	1.64	2.44	1.18	.035	.040	.045	.045	741.60	220.00
.000121	1.	1.	1.	0	0	0	0.00	300.00	520.00

1490 NH CARD USED
*SECNO 36.636

3470 ENCROACHMENT STATIONS= .0 400.0 TYPE= 1 TARGET= 399.999

VALLEY SECTION AI

36.64	13.18	755.98	0.00	0.00	756.06	.08	.05	.01	749.10
3800.	1423.	1966.	411.	811.	704.	304.	909.	224.	749.30
1.60	1.76	2.79	1.35	.035	.040	.045	.045	742.80	127.15
.000184	310.	329.	325.	0	0	0	0.00	272.85	400.00

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1490 NH CARD USED
*SECNO 36.939

VALLEY SECTION AJ

36.94	10.24	756.34	0.00	0.00	756.40	.06	.33	.01	750.60
3750.	1023.	1319.	1407.	898.	458.	1201.	966.	235.	750.70
1.80	1.14	2.88	1.17	.060	.045	.069	.045	746.10	58.92
.000415	1010.	1600.	950.	2	0	0	0.00	609.96	668.88

1490 NH CARD USED
*SECNO 37.300

VALLEY SECTION AK

37.30	7.83	757.23	0.00	0.00	757.31	.09	.90	.01	752.90
3750.	2069.	1378.	302.	1690.	390.	271.	1053.	258.	753.50
2.02	1.22	3.53	1.11	.072	.042	.075	.045	749.40	42.10
.000784	1380.	1890.	1640.	2	0	0	0.00	765.97	808.06

*SECNO 37.692

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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 AL

37.69	6.96	759.36	0.00	0.00	759.64	.27	2.23	.09	757.60
3750.	672.	2129.	950.	541.	399.	434.	1120.	281.	756.60
2.14	1.24	5.34	2.19	.080	.045	.080	.045	752.40	141.45
.002492	1420.	2090.	1420.	3	0	0	0.00	576.09	717.54

*SECNO 38.174

3470 ENCROACHMENT STATIONS= 400.0 1700.0 TYPE= 1 TARGET= -400.000

VALLEY SECTION AM

38.17	6.77	767.97	767.51	0.00	768.71	.74	8.84	.23	765.80
3710.	984.	2375.	351.	467.	281.	162.	1181.	306.	765.10
2.25	2.11	8.45	2.17	.090	.042	.080	.045	761.20	400.00
.005943	2275.	2540.	2150.	13	12	0	0.00	370.78	770.78

*SECNO 38.183

3470 ENCROACHMENT STATIONS= 375.0 1700.0 TYPE= 1 TARGET= -375.000

38.18	7.16	768.46	0.00	0.00	768.99	.53	.22	.06	765.90
3710.	1090.	2215.	405.	561.	300.	200.	1182.	306.	765.20
2.25	1.94	7.38	2.03	.090	.042	.080	.045	761.30	375.00
.004144	30.	50.	50.	3	0	0	0.00	397.53	772.53

*SECNO 38.255

3470 ENCROACHMENT STATIONS= 167.0 667.0 TYPE= 1 TARGET= 500.000

38.26	7.58	769.68	0.00	0.00	769.85	.16	.75	.11	765.20
3710.	2072.	1638.	0.	1123.	371.	0.	1190.	309.	100000.00
2.28	1.84	4.42	0.00	.060	.045	.060	.045	762.10	167.00

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.001560	220.	380.	370.	2	0	0	.00	500.00	00.00

*SECNO 38.391

3470 ENCROACHMENT STATIONS= 300.0 800.0 TYPE= 1 TARGET= 500.000

38.39	7.32	770.92	0.00	0.00	771.20	.28	1.29	.06	768.20
3710.	1470.	1749.	491.	601.	308.	215.	1209.	315.	767.50
2.33	2.45	5.68	2.28	.060	.045	.060	.045	763.60	368.73
.002724	620.	670.	580.	2	0	0	0.00	404.51	773.24

*SECNO 38.467

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

3470 ENCROACHMENT STATIONS= 240.0 1167.0 TYPE= 1 TARGET= -240.000

VALLEY SECTION AN

38.47	7.31	771.81	0.00	0.00	771.98	.17	.75	.03	767.60
3710.	1560.	1621.	529.	878.	356.	223.	1219.	319.	767.80
2.36	1.78	4.55	2.37	.060	.045	.060	.045	764.50	240.00
.001582	330.	400.	370.	2	0	0	0.00	487.89	727.89

*SECNO 38.520

3470 ENCROACHMENT STATIONS= 70.0 1167.0 TYPE= 1 TARGET= -70.000

38.52	7.14	772.24	0.00	0.00	772.41	.17	.43	.00	768.20
3710.	1599.	1604.	506.	948.	347.	213.	1228.	322.	768.40
2.39	1.69	4.63	2.38	.060	.045	.060	.045	765.10	138.02
.001693	220.	280.	330.	2	0	0	0.00	589.60	727.62

*SECNO 38.566

3470 ENCROACHMENT STATIONS= 120.0 1167.0 TYPE= 1 TARGET= -120.000

38.57	6.97	772.57	0.00	0.00	772.77	.21	.35	.02	768.70
3710.	1522.	1677.	511.	868.	338.	202.	1233.	324.	768.90
2.40	1.75	4.97	2.52	.060	.045	.060	.045	765.60	141.21
.002021	90.	240.	320.	2	0	0	0.00	586.14	727.35

*SECNO 38.660

3470 ENCROACHMENT STATIONS= 365.0 775.0 TYPE= 1 TARGET= 410.000

38.66	6.95	773.55	0.00	0.00	773.83	.28	1.02	.04	770.40
3710.	176.	1816.	1718.	68.	329.	713.	1244.	328.	771.50
2.43	2.57	5.53	2.41	.060	.045	.060	.046	766.60	369.84
.003174	430.	500.	250.	2	0	0	0.00	405.16	775.00

1490 NH CARD USED

*SECNO 38.827

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

VALLEY SECTION AO

38.83	8.42	776.32	0.00	0.00	776.93	.61	2.93	.17	771.70
3710.	402.	2897.	412.	111.	419.	145.	1262.	333.	772.80

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2.47	3.01	6.91	2.83	.060	.0[illegible]3	.070	.046	[illegible]	[illegible]
.003578	810.	880.	870.	2	0	0	0.00	132.41	500.00

*SECNO 38.836

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

3470 ENCROACHMENT STATIONS= 375.0 490.0 TYPE= 1 TARGET= 115.000

38.84	8.69	776.49	0.00	0.00	777.13	.64	.19	.01	771.60
3710.	353.	3028.	329.	101.	436.	117.	1263.	333.	772.70
2.47	3.50	6.94	2.82	.060	.045	.070	.046	767.80	375.00
.003422	50.	50.	80.	2	0	0	0.00	115.00	490.00

*SECNO 38.840

38.84	8.53	776.33	0.00	0.00	777.45	1.12	.08	.24	773.20
3710.	40.	3612.	58.	30.	419.	44.	1263.	333.	773.20
2.47	1.33	8.62	1.33	.100	.040	.100	.046	767.80	370.79
.004468	20.	19.	30.	2	0	0	0.00	107.15	477.94

*SECNO 38.841

CROOKS ROAD BRIDGE - D/S FACE - SECTION AP

38.84	8.53	776.33	0.00	0.00	777.46	1.12	.00	.00	773.20
3710.	40.	3612.	58.	30.	419.	44.	1263.	333.	773.20
2.47	1.33	8.61	1.33	.100	.040	.100	.046	767.80	370.77
.004462	1.	1.	1.	0	0	0	0.00	107.20	477.96

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	3.02	0.00	37.61	0.00	312.20	0.00	767.80	767.80

*SECNO 38.848
3280 CROSS SECTION 38.85 EXTENDED .10 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
780.32	777.47	0.00	428.	3311.	312.	312.	776.10	778.70

CROOKS ROAD BRIDGE - U/S FACE - SECTION AP

38.85	11.20	779.00	0.00	0.00	779.51	.52	2.06	0.00	773.20
3710.	102.	3457.	152.	103.	579.	160.	1264.	334.	773.20
2.47	.99	5.97	.95	.100	.035	.100	.046	767.80	355.00
.001065	44.	44.	44.	2	0	0	0.00	244.38	599.36

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*SECNO 38.849
3280 CROSS SECTION 38.85 EXTENDED .13 FEET

38.85	11.23	779.03	0.00	0.00	779.52	.49	.00	.01	773.20
3690.	116.	3401.	173.	104.	581.	164.	1264.	334.	773.20
2.47	1.11	5.85	1.05	.100	.040	.100	.046	767.80	555.00
.001333	1.	1.	1.	2	0	0	0.00	246.84	601.84

*SECNO 38.906

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/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 1200.0 TYPE= 1 TARGET= 410.000

38.91	10.74	779.74	0.00	0.00	779.78	.04	.12	.13	771.80
3690.	1097.	1407.	1186.	1028.	603.	1219.	1277.	336.	774.00
2.53	1.07	2.33	.97	.070	.040	.070	.045	769.00	790.00
.000195	330.	300.	270.	2	0	0	0.00	410.00	1200.00

*SECNO 38.972

3470 ENCROACHMENT STATIONS= 540.0 1270.0 TYPE= 1 TARGET= 730.000

38.97	9.42	779.82	0.00	0.00	779.84	.02	.06	.01	773.20
3690.	1798.	972.	920.	2210.	522.	1268.	1302.	340.	775.40
2.62	.81	1.86	.73	.070	.040	.070	.045	770.40	540.00
.000151	210.	350.	470.	2	0	0	0.00	730.00	1270.00

*SECNO 39.040

3470 ENCROACHMENT STATIONS= 710.0 1180.0 TYPE= 1 TARGET= 470.000

39.04	8.06	779.86	0.00	0.00	779.96	.10	.08	.04	774.60
3690.	1358.	1553.	779.	948.	438.	619.	1321.	344.	776.80
2.65	1.43	3.55	1.26	.070	.040	.070	.045	771.80	710.00
.000692	200.	360.	350.	1	0	0	0.00	470.00	1180.00

*SECNO 39.123

VALLEY SECTION AO

39.12	6.71	780.21	0.00	0.00	780.39	.18	.39	.04	776.30
3690.	2107.	1583.	0.	1229.	333.	0.	1336.	348.	784.60
2.68	1.71	4.76	0.00	.070	.040	.070	.046	773.50	477.53
.001698	300.	439.	450.	2	0	0	0.00	518.17	995.70

*SECNO 39.153

3470 ENCROACHMENT STATIONS= 535.0 1405.0 TYPE= 1 TARGET= -535.000

39.15	7.71	780.41	0.00	0.00	780.58	.16	.19	.00	775.50
3690.	1934.	1756.	0.	1544.	391.	0.	1342.	349.	783.80
2.70	1.25	4.50	0.00	.090	.035	.065	.045	772.70	535.00
.000965	140.	159.	170.	1	0	0	0.00	461.67	996.67

*SECNO 39.154

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

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SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT COD K TOP ID ENDST

3470 ENCROACHMENT STATIONS= 535.0 1405.0 TYPE= 1 TARGET= -535.000

HAMLIN ROAD BRIDGE - D/S FACE

39.15	7.72	780.42	0.00	0.00	780.58	.16	.00	.00	775.50
3690.	1936.	1754.	0.	1548.	391.	0.	1342.	349.	783.80
2.70	1.25	4.48	0.00	.090	.035	.065	.045	772.70	535.00
.000958	1.	1.	1.	0	0	0	0.00	461.68	996.68

SPECIAL BRIDGE

SB	XK	XKOR	COFO	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.98	0.00	44.28	0.00	287.80	0.00	772.40	772.70

*SECNO 39.160

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
784.50	780.28	0.00	1840.	1851.	288.	288.	778.90	779.00

3470 ENCROACHMENT STATIONS= 700.0 1723.0 TYPE= 1 TARGET= -700.000

HAMLIN ROAD BRIDGE - U/S FACE - SECTION AR

39.16	8.84	781.24	0.00	0.00	781.45	.20	.87	0.00	775.20
3690.	1807.	1883.	0.	2056.	376.	0.	1343.	350.	783.10
2.70	.88	5.00	0.00	.090	.020	.065	.045	772.40	700.00
.000339	36.	36.	36.	2	0	4	0.00	461.50	1161.50

*SECNO 39.161

3470 ENCROACHMENT STATIONS= 535.0 1405.0 TYPE= 1 TARGET= -535.000

39.16	8.97	781.37	0.00	0.00	781.48	.11	.00	.03	775.20
3690.	1975.	1715.	0.	2053.	466.	0.	1343.	350.	783.50
2.70	.96	3.68	0.00	.090	.030	.065	.045	772.40	535.00
.000391	1.	1.	1.	2	0	0	0.00	462.91	997.91

1490 NH CARD USED

*SECNO 39.241

3470 ENCROACHMENT STATIONS= 60.0 650.0 TYPE= 1 TARGET= 590.000

39.24	7.94	781.64	0.00	0.00	781.79	.16	.29	.03	778.40
3655.	333.	1383.	1939.	224.	296.	1085.	1362.	354.	777.10
2.74	1.48	4.68	1.79	.090	.047	.075	.045	773.70	184.21
.001739	400.	425.	390.	2	0	0	0.00	465.79	650.00

*SECNO 39.321

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

39.32	7.43	782.53	0.00	0.00	782.89	.37	1.00	.10	779.80
3655.	367.	1785.	1503.	188.	275.	601.	1375.	358.	778.50
2.77	1.96	6.50	2.50	.090	.047	.075	.045	775.10	186.47
.003715	400.	425.	390.	2	0	0	0.00	313.53	500.00

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*SECNO 39.403

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= .0 800.0 TYPE= 1 TARGET= 799.999

VALLEY SECTION AS

39.40	7.45	783.95	0.00	0.00	784.15	.20	1.21	.05	781.20
3655.	299.	1445.	1911.	189.	275.	1082.	1387.	362.	779.90
2.80	1.58	5.24	1.77	.090	.047	.075	.045	776.50	186.37
.002406	400.	429.	390.	2	0	0	0.00	613.63	800.00

*SECNO 39.571

VALLEY SECTION AT

39.57	9.64	785.64	0.00	0.00	785.79	.15	1.62	.01	782.30
3655.	2033.	1530.	93.	1424.	342.	83.	1422.	374.	783.60
2.90	1.43	4.47	1.12	.090	.045	.050	.045	776.00	9.04
.001374	880.	890.	970.	3	0	0	0.00	527.47	536.52

*SECNO 39.641

39.64	8.58	786.28	0.00	0.00	786.63	.34	.74	.10	784.00
3655.	1763.	1872.	20.	997.	295.	19.	1435.	378.	785.30
2.92	1.77	6.34	1.07	.090	.045	.050	.045	777.70	11.20
.003360	360.	370.	280.	0	0	0	0.00	482.74	493.94

*SECNO 39.711

39.71	8.25	787.65	0.00	0.00	788.11	.46	1.43	.06	785.70
3655.	1639.	2008.	8.	871.	281.	9.	1446.	382.	787.00
2.94	1.88	7.13	.95	.090	.045	.050	.045	779.40	11.84
.004540	365.	370.	280.	2	0	0	0.00	469.49	481.33

*SECNO 39.781

39.78	8.23	789.33	0.00	0.00	789.80	.47	1.68	.01	787.40
3655.	1625.	2022.	7.	859.	280.	8.	1455.	386.	788.70
2.97	1.89	7.22	.94	.090	.045	.050	.045	781.10	11.90
.004678	360.	370.	280.	2	0	0	0.00	468.21	480.11

*SECNO 39.852

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

39.85	8.32	791.02	0.00	0.00	791.46	.43	1.64	.01	789.00
3655.	1664.	1980.	10.	895.	284.	10.	1465.	390.	790.30
2.99	1.86	6.97	.98	.090	.045	.050	.045	782.70	11.72
.004279	365.	370.	285.	2	0	0	0.00	472.02	483.74

*SECNO 39.922

39.92	8.23	792.63	0.00	0.00	793.10	.47	1.63	.02	790.70

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3655.	1626.	2020.	8.	801.	280.	8.	1473.	395.	792.00
3.01	1.89	7.20	.94	.090	.045	.050	.045	784.40	11.89
.004651	360.	370.	280.	2	0	0	0.00	468.45	480.34

*SECNO 39.992

3470 ENCROACHMENT STATIONS=			50.0	650.0	TYPE=	1	TARGET=	600.000	
39.99	8.26	794.36	0.00	0.00	794.86	.50	1.74	.01	792.40
3655.	1580.	2067.	8.	808.	281.	9.	1484.	397.	793.70
3.03	1.96	7.34	.98	.090	.045	.050	.045	786.10	50.00
.004810	365.	370.	280.	2	0	0	0.00	431.29	481.29

1490 NH CARD USED

*SECNO 40.062

VALLEY SECTION AU

40.06	7.94	795.74	0.00	0.00	795.98	.25	1.05	.08	791.20
3655.	1940.	1715.	0.	787.	332.	0.	1493.	400.	803.30
3.06	2.47	5.17	0.00	.055	.042	.050	.045	787.80	145.31
.001896	365.	370.	285.	2	0	0	0.00	339.15	484.46

*SECNO 40.200

VALLEY SECTION AV

40.20	7.69	796.99	0.00	0.00	797.36	.37	1.31	.06	792.40
3655.	786.	2095.	773.	418.	350.	215.	1506.	404.	793.10
3.09	1.88	5.99	3.59	.065	.045	.050	.045	789.30	123.20
.002662	300.	730.	910.	3	0	0	0.00	332.86	456.06

*SECNO 40.349

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

3470 ENCROACHMENT STATIONS=			180.0	472.0	TYPE=	1	TARGET=	-180.000	
40.35	7.62	799.02	0.00	0.00	799.46	.44	2.07	.03	794.50
3655.	655.	2199.	800.	321.	346.	211.	1521.	408.	795.20
3.13	2.04	6.35	3.79	.065	.045	.050	.045	791.40	180.00
.003032	700.	789.	590.	2	0	0	0.00	275.97	455.97

*SECNO 40.463

3301 HV CHANGED MORE THAN HVINS

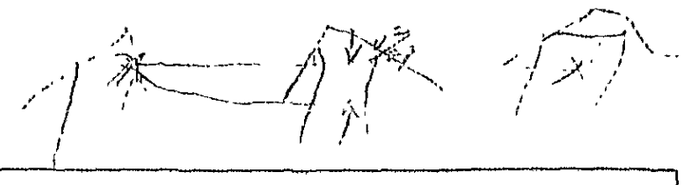
3470 ENCROACHMENT STATIONS=			288.0	398.0	TYPE=	1	TARGET=	110.000	
40.46	7.96	800.96	0.00	0.00	801.92	.95	2.20	.26	796.10
3655.	548.	3069.	38.	164.	364.	12.	1530.	411.	796.80
3.15	3.35	8.43	3.04	.065	.045	.050	.045	793.00	288.00
.005000	540.	600.	450.	2	0	0	0.00	110.00	398.00

*SECNO 40.501

3470 ENCROACHMENT STATIONS=			338.0	398.0	TYPE=	1	TARGET=	60.000	
40.50	8.34	801.84	0.00	0.00	803.12	1.28	1.04	.16	796.60

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3.16	3.18	9.21	3.29	.065	.045	.050	.045	793.50	338.00
.005550	180.	200.	150.	2	0	0	0.00	60.00	398.00



*SECNO 40.510

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 153.0 168.0 TYPE= 1 TARGET= 35.000

40.51	7.95	801.55	0.00	0.00	804.31	2.77	.45	.75100000.00	
3655.	0.	3655.	0.	0.	274.	0.	1532.	411.	100000.00
3.16	0.00	13.35	0.00	.065	.045	.050	.045	793.60	133.00
.017158	50.	50.	40.	2	0	0	0.00	35.00	168.00

*SECNO 40.512

3470 ENCROACHMENT STATIONS= 140.0 169.3 TYPE= 1 TARGET= 29.300

40.51	8.03	801.63	0.00	0.00	804.59	2.96	.18	.10100000.00	
3210.	0.	3210.	0.	0.	232.	0.	1532.	411.	100000.00
3.16	0.00	13.81	0.00	.065	.045	.050	.045	793.60	140.00
.019516	10.	10.	10.	2	0	0	0.00	29.30	169.30

*SECNO 40.513

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

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 815.40 MAX ELLC= 813.80

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

ADAMS ROAD BRIDGE - DOWNSTREAM FACE

40.51	8.19	801.79	801.79	0.00	805.42	3.63	.02	.34	815.50
3210.	0.	3210.	0.	0.	210.	0.	1532.	411.	815.70
3.16	0.00	15.29	0.00	.030	.032	.030	.045	793.60	300.00
.013234	1.	1.	1.	20	15	0	0.00	29.30	329.50

*SECNO 40.519

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 815.40 MAX ELLC= 813.80

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

ADAMS ROAD BRIDGE - U/S FACE - SECTION AW

40.52	10.29	803.99	801.89	0.00	806.16	2.17	.30	.44	815.50
3210.	0.	3210.	0.	0.	271.	0.	1533.	411.	815.70
3.16	0.00	11.83	0.00	.030	.032	.030	.045	793.70	300.00
.006361	34.	34.	34.	24	15	0	0.00	29.30	329.30

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*SECNO 40.520

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=		139.0	170.0	TYPE=	1	TARGET=	31.000		
40.52	11.43	805.13	0.00	0.00	806.43	1.30	.01	.26100000.00	
3210.	0.	3210.	0.	0.	351.	0.	1533.	411.	100000.00
3.16	0.00	9.15	0.00	.040	.045	.060	.045	793.70	139.00
.006210	1.	1.	1.	3	0	0	0.00	31.00	170.00

*SECNO 40.521

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=		129.0	180.0	TYPE=	1	TARGET=	51.000		
40.52	12.62	806.32	0.00	0.00	806.72	.41	.03	.27100000.00	
3210.	0.	3210.	0.	0.	627.	0.	1533.	411.	100000.00
3.16	0.00	5.12	0.00	.040	.045	.060	.045	793.70	129.00
.001381	10.	10.	10.	2	0	0	0.00	51.00	180.00

*SECNO 40.531

3470 ENCROACHMENT STATIONS=		79.0	230.0	TYPE=	1	TARGET=	151.000		
40.53	12.84	806.74	0.00	0.00	806.84	.10	.03	.09	797.40
3210.	794.	2232.	185.	362.	817.	163.	1534.	411.	799.50
3.17	2.19	2.73	1.14	.040	.045	.060	.045	793.90	79.00
.000265	50.	50.	50.	2	0	0	0.00	151.00	230.00

*SECNO 40.568

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	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	IDC	ICONT	CORAR	TOPWID	ENDST
40.57	12.11	806.81	0.00	0.00	806.90	.09	.05	.00	798.20
3210.	1036.	2031.	143.	559.	766.	139.	1540.	412.	800.30
3.19	1.86	2.65	1.03	.040	.045	.060	.045	794.70	13.79
.000272	190.	200.	210.	2	0	0	0.00	220.31	234.10

*SECNO 40.644

40.64	10.73	806.93	0.00	0.00	807.07	.14	.15	.03	799.70
3210.	866.	2243.	101.	407.	669.	89.	1552.	414.	801.80
3.23	2.13	3.36	1.14	.040	.045	.060	.045	796.20	17.88
.000523	380.	400.	430.	0	0	0	0.00	210.22	228.10

*SECNO 40.727

VALLEY SECTION AX

40.73	9.29	807.19	0.00	0.00	807.45	.25	.32	.00	801.40
3210.	658.	2494.	57.	262.	569.	47.	1562.	416.	803.50
3.26	2.51	4.38	1.23	.040	.045	.060	.045	797.90	34.47
.001108	420.	439.	475.	2	0	0	0.00	185.72	220.19

*SECNO 40.841

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40.64	7.85	807.75	0.00	0.00	808.22	.47	.58	.11	805.50
3210.	464.	2723.	23.	148.	468.	17.	1569.	418.	805.50
3.28	3.14	5.82	1.34	.040	.045	.060	.045	799.90	57.04
.002537	380.	420.	400.	2	0	0	0.00	153.30	210.34

*SECNO 40.888

40.89	7.08	808.98	0.00	0.00	809.65	.67	1.33	.10	805.40
3210.	353.	2847.	10.	100.	414.	7.	1575.	419.	807.50
3.30	3.53	6.88	1.30	.040	.045	.060	.045	801.90	69.11
.004176	380.	420.	400.	2	0	0	0.00	135.96	205.07

*SECNO 40.968

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

3470 ENCROACHMENT STATIONS= .0 690.0 TYPE= 1 TARGET= 689.999

VALLEY SECTION AY

40.97	7.01	810.91	0.00	0.00	811.43	.52	1.73	.05	807.90
3210.	107.	2045.	1058.	56.	288.	556.	1581.	423.	807.70
3.32	1.91	7.10	1.90	.070	.045	.070	.045	803.90	74.23
.004199	380.	420.	400.	3	0	0	0.00	614.85	689.09

*SECNO 41.093

3470 ENCROACHMENT STATIONS= .0 690.0 TYPE= 1 TARGET= 689.999

VALLEY SECTION AZ

41.09	7.58	812.18	0.00	0.00	812.29	.12	.74	.12	808.80
3210.	124.	1536.	1551.	98.	411.	1274.	1588.	424.	809.60
3.37	1.27	3.74	1.22	.070	.045	.070	.045	804.60	29.83
.001050	830.	660.	1.	3	0	0	0.00	660.17	690.00

*SECNO 41.405

CONFLUENCE WITH GALLOWAY CREEK

41.41	6.27	814.47	0.00	0.00	815.01	.55	2.50	.22	812.30
3210.	62.	2730.	418.	79.	426.	279.	1635.	441.	810.40
3.44	.79	6.41	1.50	.100	.035	.080	.045	808.20	226.86
.002524	1640.	1650.	1530.	3	0	0	0.00	291.37	518.23

*SECNO 41.460

VALLEY SECTION BA - SECTION 40.763 FROM PONTIAC TOWNSHIP F.I.S.

41.46	6.19	815.19	0.00	0.00	815.90	.71	.80	.08	813.10
3200.	17.	2947.	236.	20.	420.	145.	1639.	443.	811.20
3.46	.85	7.02	1.63	.100	.035	.080	.045	809.00	450.12
.003093	290.	290.	270.	2	0	0	0.00	172.36	622.50

*SECNO 41.710

VALLEY SECTION BB - SECTION 41.019 FROM PONTIAC TOWNSHIP F.I.S.

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41.71	8.00	819.20	0.00	0.00	819.86	.66	3.94	.02	817.80
3200.	26.	3078.	96.	41.	464.	80.	1656.	448.	814.70
3.51	.63	6.63	1.20	.100	.035	.100	.045	811.20	341.78
.002934	1120.	1320.	1150.	3	0	0	0.00	203.68	545.46

*SECNO 41.866

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 BC - SECTION 41.161 FROM PONTIAC TOWNSHIP F.I.S.

41.87	6.48	821.38	0.00	0.00	821.96	.57	2.07	.03	817.90
3200.	162.	3028.	9.	98.	486.	14.	1667.	451.	819.70
3.55	1.66	6.23	.67	.062	.035	.090	.045	814.90	54.76
.002218	710.	820.	850.	2	0	0	0.00	171.79	226.55

*SECNO 41.918

41.92	5.81	822.01	0.00	0.00	822.83	.81	.75	.12	819.30
3200.	105.	3083.	11.	51.	419.	14.	1671.	452.	820.50
3.56	2.07	7.37	.79	.062	.035	.090	.045	816.20	62.17
.003465	225.	277.	280.	2	0	0	0.00	152.52	214.69

*SECNO 41.971

41.97	5.60	823.00	0.00	0.00	824.01	1.02	1.08	.10	820.70
3200.	64.	3111.	25.	31.	379.	27.	1673.	453.	821.40
3.57	2.09	8.21	.94	.062	.035	.090	.045	817.40	61.32
.004471	225.	278.	280.	2	0	0	0.00	148.86	210.18

*SECNO 42.023

42.02	5.83	824.23	0.00	0.00	825.34	1.11	1.28	.05	822.10
3200.	42.	3092.	66.	21.	359.	50.	1676.	454.	822.30
3.58	2.03	8.61	1.30	.062	.035	.090	.045	818.40	56.14
.004792	225.	277.	280.	2	0	0	0.00	138.28	194.42

*SECNO 42.076

VALLEY SECTION BD - SECTION 41.336 FROM PONTIAC TOWNSHIP F.I.S.

42.08	6.30	825.70	0.00	0.00	826.82	1.12	1.48	.00	823.60
3200.	17.	3048.	135.	17.	351.	79.	1679.	455.	823.20
3.59	.98	8.69	1.72	.120	.040	.100	.044	819.40	48.73
.005932	225.	278.	280.	2	0	0	0.00	127.81	176.55

*SECNO 42.086

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

42.09	6.71	826.21	0.00	0.00	827.14	.93	.27	.06	823.70
3200.	24.	3010.	166.	25.	378.	99.	1680.	455.	823.30
3.59	.96	7.96	1.68	.120	.040	.100	.044	819.50	45.48
.004505	50.	52.	48.	2	0	0	0.00	134.31	179.78

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*SECNO 42.096

42.10	6.77	826.47	0.00	0.00	827.38	.91	.23	.01	823.90
3200.	25.	3005.	170.	26.	382.	102.	1680.	455.	823.50
3.59	.96	7.87	1.67	.120	.040	.100	.044	819.70	45.05
.004350	51.	52.	48.	0	0	0	0.00	135.17	180.21

*SECNO 42.106

42.11	6.96	826.76	0.00	0.00	827.62	.85	.22	.02	824.50
3200.	24.	2970.	206.	23.	387.	122.	1681.	456.	823.70
3.60	1.01	7.68	1.69	.120	.040	.100	.044	819.80	63.79
.004073	51.	53.	48.	2	0	0	0.00	145.48	209.27

*SECNO 42.135

42.14	7.25	827.45	0.00	0.00	828.25	.80	.61	.02	825.50
3200.	18.	2944.	238.	20.	395.	144.	1683.	456.	824.20
3.60	.88	7.45	1.65	.120	.040	.100	.044	820.20	83.82
.003741	163.	158.	144.	2	0	0	0.00	154.36	238.18

*SECNO 42.165

42.17	7.47	828.07	0.00	0.00	828.83	.76	.57	.01	826.50
3200.	11.	2917.	272.	15.	399.	165.	1685.	457.	824.70
3.61	.75	7.31	1.65	.120	.040	.100	.044	820.60	106.00
.003558	162.	157.	144.	1	0	0	0.00	161.32	267.33

*SECNO 42.195

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 BE - SECTION 41.459 FROM PONTIAC TOWNSHIP F.I.S.

42.20	7.63	828.63	0.00	0.00	829.39	.76	.56	.00	827.50
3200.	4.	2906.	290.	8.	397.	179.	1687.	457.	825.20
3.61	.51	7.32	1.62	.120	.040	.100	.044	821.00	130.51
.003621	163.	158.	143.	0	0	0	0.00	163.55	294.06

*SECNO 42.244

42.24	8.40	829.60	0.00	0.00	830.21	.61	.77	.05	827.10
3200.	47.	2773.	380.	54.	415.	250.	1690.	458.	825.70
3.63	.87	6.68	1.52	.120	.040	.100	.044	821.20	128.40
.002583	200.	260.	212.	2	0	0	0.00	212.18	340.58

*SECNO 42.294

42.29	8.83	830.33	0.00	0.00	830.82	.49	.58	.03	826.70
3200.	147.	2562.	491.	147.	410.	364.	1695.	459.	826.30
3.64	1.00	6.25	1.35	.120	.040	.100	.044	821.50	118.57
.002071	200.	260.	213.	2	0	0	0.00	302.60	421.18

*SECNO 42.343

42.34	9.31	831.01	0.00	0.00	831.29	.29	.41	.06	826.30
3200.	293.	2086.	821.	296.	398.	675.	1701.	461.	826.90
3.66	.99	5.24	1.22	.120	.040	.100	.044	821.70	114.53
.001355	200.	260.	212.	2	0	0	0.00	371.99	486.52

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*SECNO 42.392

VALLEY SECTION BF - SECTION 41.630 FROM PONTIAC TOWNSHIP F.I.S.

42.39	9.54	831.44	0.00	0.00	831.59	.15	.26	.04	826.00
3200.	418.	1582.	1201.	462.	369.	951.	1709.	463.	827.50
3.68	.90	4.29	1.26	.120	.040	.100	.044	821.90	116.21
.000896	200.	260.	213.	2	0	0	0.00	383.62	499.82

*SECNO 42.451

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	FLMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
42.45	9.20	831.70	0.00	0.00	831.88	.19	.27	.02	826.60
3200.	425.	1703.	1072.	433.	367.	851.	1719.	465.	827.70
3.71	.98	4.64	1.26	.120	.040	.100	.044	822.50	94.16
.001054	275.	313.	243.	2	0	0	0.00	384.17	478.33

*SECNO 42.496

3470 ENCROACHMENT STATIONS= 300.0 587.0 TYPE= 1 TARGET= 287.000

42.50	9.00	831.90	0.00	0.00	832.23	.33	.28	.07	827.20
3200.	883.	2075.	242.	735.	366.	181.	1726.	467.	827.80
3.72	1.20	5.66	1.34	.120	.040	.100	.044	822.90	300.00
.001585	206.	234.	183.	0	0	0	0.00	287.00	587.00

*SECNO 42.510

3470 ENCROACHMENT STATIONS= 80.0 325.0 TYPE= 1 TARGET= 245.000

42.51	8.98	831.98	0.00	0.00	832.41	.43	.13	.05	827.30
3200.	530.	2275.	395.	408.	366.	270.	1728.	467.	827.90
3.73	1.30	6.22	1.46	.120	.040	.100	.044	823.00	80.00
.001912	69.	78.	61.	1	0	0	0.00	245.00	325.00

*SECNO 42.570

3470 ENCROACHMENT STATIONS= 165.0 310.0 TYPE= 1 TARGET= 145.000

42.57	8.91	832.51	0.00	0.00	833.17	.66	.64	.11	828.00
3200.	54.	2665.	480.	38.	376.	295.	1734.	469.	828.00
3.74	1.42	7.09	1.63	.120	.040	.100	.044	823.60	165.00
.002425	275.	313.	244.	2	0	0	0.00	145.00	310.00

CCHV= .500 CEHV= 1.000

*SECNO 42.629

3470 ENCROACHMENT STATIONS= 111.0 221.0 TYPE= 1 TARGET= 110.000

VALLEY SECTION BG - SECTION 41.879 FROM PONTIAC TOWNSHIP F.I.S.

42.63	9.48	833.48	0.00	0.00	834.03	.54	.80	.06	828.70
3200.	311.	2616.	273.	178.	404.	121.	1738.	469.	828.30
3.76	1.75	6.47	2.25	.120	.050	.090	.044	824.00	111.00
.002895	275.	312.	244.	2	0	0	0.00	110.00	221.00

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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP & CITY OF ROCHESTER

3) WATERCOURSE: PAINT CREEK

4) DOCUMENT TYPE: 100 YR NATURAL

00BREAK00

```
      HFC2 RELEASE DATED JUN  1 UPDATED AUG 1 77
      ERROR CORR -  01.02
      MODIFICATIONS -  50.51.52.53
*********************************************************************
T1      AVCM TAPE - 900 DEPTH FIG 5350-01.07-1
T2      100 BYTE FIELD
T3      PRINT CHECK
*********************************************************************
J1  ICH=CH     IOD        ULNV       IDIR       STRT       METRIC     HVIS       J          JSTL       FO
          0.         5.         0.         F.  3.000000    F.LC       J.5          .0    71.20J     3.000
J2  ERRC       TELOT      PREVS      ASECM      LOBER      FU         ALLCC                 CL 16      STRICE
          3.000      0.000     -1.000      0.000      0.000      3.000      0.000      0.000      3.000      3.000
*********************************************************************
*********************************************************************
*********************************************************************
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*PROF 3

CCHV= .700 CEHV= .500

*SECNO .000

SECNO	DEPTH	CWSEL	CRTWS	WSELK	EG	HV	KL	FLOSS	INFL CLN
0	CLOB	OCH	ORSO	ALOB	ACH	PROP	WTL	TOT	LOSS/VELHT
TIME	VLOB	VCH	VRSO	XNL	XNLM	WTS	WTN	FLOIN	PSTA
SLOPE	FLOBL	XLC	XLOSR	INRIAL	IOC	ICONT	CONAR	TORNID	INDST

3AZO ENCROACHMENT STATIONS= 503.3 995.0 TWSC= 1 TABLE= -513.00

0.00	7.40	716.20	0.00	716.20	716.35	.67	0.79	0.00	714.60
1745.	193.	1552.	0.	208.	261.	1.	7.	1.	711.43
0.00	.25	5.56	0.00	.130	.027	.540	0.001	203.16	503.10
.002401	0.	1.	0.	.0	0	0	0.00	144.42	50.742

*SECNO 16..900

3AZO ENCROACHMENT STATIONS= 540.0 995.0 TWSC= 1 TABLE= -513.00

143.00	0.70	716.50	0.10	0.00	717.10	.10	.4.	.1.	71..4.
1745.	70.	1575.	0.	79.	22..	..	1.	0.	711.4.
.01	.8.	7.03	.0.00	.12.	.0..	.0.0	.0..	7..3.	5.0.3.
.004306	143.	143.	14..	2	0	.	0.00	105.17	45.37

*SEC.. 2..000

3AZO ENCROACHMENT STATIO.S= ..5.. ..0.. TWSC= 1 TABLE= -513.00

VALLEY SECTION 01 STOR

236.00	.31	717.11	.01	0.01	717.14	1.65	.92	.12	713.10
1745.	74.	1751.	1.	2..	21..	..	3.	1.	.10.41
.01	.43	1.03	.0.00	.13.	.03.	.0.0	.0.2	11.0	2.0.
.005909	143.	143.	14..	<	.	0	0.0.	36.39	34.90

*SECNO 355.000

3301 HV CHANGED FROM THAN HWI S

355.00	5.00	718.10	0.00	0.00	718.57	.47	.35	.17	716.10
1745.	0.	1745.	0.	0.	31..	0.	..	1.	7.0.1
.01	0.00	5.54	0.00	.130	.02.	.0.9	.007	213.21	.30.3.
.002571	0..	5 .	.0.	0	.	0	0.01	43.0.	9.5.30

*SECNO 35..000

SECNO	DEPTH	CWSEL	CRTWS	WSELK	EG	HV	KL	FLOSS	INFL CLN
0	CLOB	OCH	ORSO	ALOB	ACH	PROP	WTL	TOT	LOSS/VELHT
TIME	VLOB	VCH	VRSO	XNL	XNLM	WTS	WTN	FLOIN	PSTA
SLOPE	FLOBL	XLC	XLOSR	INRIAL	IOC	ICONT	CONAR	TORNID	INDST

I.TO NORMAL DEPTH= .0 MI. FLOW= 7..7. AH RATE= 7.07.

45..11	5.91	71..11	.0.11	.0..	2..0.	.0.7	..	..	.0.0
1745.	0.	1745.	1.	0.	2..	6.	..	1.	7.4.6.
.01	0.00	5.49	.0.03	.130	.02.	.0.3	.007	113.2.	.10.10
.00033.	1.	1.	1.	1	.	.	0.0.	15.1.	15.01

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*SECNO 373.000

3370 NORMAL BRIDGE,*RD= 21 MIN ELTRD= 724.1 MAX ELLE= 726.75

BRIDGE SECTION IN GROUND TRUNK - WEST-BOUND LANE

373.00	5.93	718.13	1.00	0.00	718.50	.46	.02	.00	.24.10
1745.	0.	1745.	0.	0.	321.	0.	.	1.	.25.60
.04	0.00	5.47	0.01	.130	.0	.141	.13.	718.21	.10.10
.003 .0	1.	1.	1.	1		0	0.00	0.0	.0.0

*SECNO 374.000

376.00	5.93	718.15	1.00	0.10	718.50	.4m	.0.	.00	.24.10
1745.	0.	1745.	0.	0.	321.	0.	.	1.	725.60
.04	0.00	5.47	0.01	.130	.0..	.14.	.0..	718.2.	.10.10
.003.135	1.	1.	1.	1	0		0.00	.5.0.	.0.0

*SECNO 37..000

378.00	5.33	718.02	0.10	0.11	718.07	.05	.01	.07	.25.00
1745.	0.	1745.	0.	0.	321.	0.	0.	1.	.25.0.
.0	0.00	5.21	0.00	.045	.0..	.057	.03.	718.20	1.0.0.
.003.0	0.	0.	0.	2		0	0.01	.. .1	2.1.11

*SEC.O 3..000

.5.00	5.1.	718.0.	0.00	0.00	718.0.	.00	.0.	.00	.25.00
1.45.	0.	1745.	0.	0.	.1..	0.	0.	1.	.25.0.
.0.	0.00	.0.1.	0.00	.045	.0.4	.05.	.0..	718.21	2.5..
.00305.	5.	5.	5.	1	0	0	0.00	5.0.7	211.41

*SECNO 6.1.000

SECNO	DEPTH	CHORD	CTRS	WIDTH	FS	HD	AI	FLOW	FLOW
0	3121	0RH	1300	4000	4GH	4.2.		1.0	1.7121.12.1
TIDE	VLOB	VOS	VRT.	VAL	ARCH	XTR	TS	LAIN	SCTA
SLOPE	XLOJL	XLCH	VLOSE	ITRIAL	IDC	FLOAT	COMAR	TOP.IE.	E.DST

4.3.00	5.63	715.0.	.00	0.0.	71..	1.0.	.0.	.0.	.0.0.
.1745.	1.	1745.	0.	1	32..	1.	0.	1.	.25..
.0.	0.10	.0.24	.0.00	.045	.0..	.057	.035	712.60	11.0..
.005815	40.	43.	.0.	2	0	0	0.00	2..34	1.5.0.

*SECNO 8.V.000

VALLEY SECTION BJ SECT.C

889.00	.0.40	720.5.	1.01	0.01	721.04	.76	2.05	.1.	2.1.20
1745.	0.	1745.	0.	0.	321.	0.	0.	1.	725.0.
.05	0.00	5.17	0.00	.05.	.035	.037	.045	712.10	11.0..
.003474	200.	4.6.	200.	2	0	0	1.00	5.0..	111.41

*SECNO 899.000

899.00	6.32	720.51	0.00	0.00	721.2.	.10	.06	.10	729.10
1745.	0.	1745.	0.	0.	28..	0.	0.	1.	725.70
.04	0.00	7.10	0.00	.045	.0..	.057	.035	714.50	11.0.7
.003645	10.	10.	10.	2	0	0	1.00	55.05	170.42

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*SECNO 909.000

3470 ENCROACHMENT STATIONS= 119.0 155.0 TYPE= 1 TARGET= 55.000

909.00	5.27	720.57	0.00	0.00	721.32	.75	.04	.0010000.30	
1745.	0.	1745.	0.	0.	251.	0.	0.	2. 1000000.04	
.04	0.00	6.96	0.00	.045	.056	.057	.130	714.50	155.30
.003501	20.	11.	10.	1	0	0	6.00	0.70	1.20

*SECNO 919.000

3470 ENCROACHMENT STATIONS= 116.0 167.0 TYPE= 1 TARGET= 0.000

919.00	6.29	720.59	0.00	0.00	721.36	.77	.04	.0010000.30	
1745.	0.	1745.	0.	0.	265.	0.	0.	2. 1000000.	
.04	0.00	7.12	0.00	.045	.056	.057	.130	714.50	155.55
.003656	10.	10.	10.	1	0	0	6.00	31.50	167.00

*SECNO 929.000

SECNO	SLOPE	CHORD	CROSS	ISTLN	IB	NV	NL	FLOOR	3A 4 PLN
0	SLOPE	UCH	3RD	ALGS	ACS	A.D.	NSL	INA	LOW/RIGHT
TIME	VLOS	VCH	VRDI	ANL	XNCH	3.R	DTA	FL IN	ESTA
SLOPE	XLOSL	XLCH	ALOST	ITRIAL	ZOC	JCOAT	COSAR	TRAJID	WIDST

3470 ENCROACHMENT STATIONS= 113.0 165.0 TYPE= 1 TARGET= 0.000

929.00	5.18	720.55	0.01	0.00	721.65	.05	.11	.0011000.30	
1745.	0.	1745.	0.	0.	251.	0.	0.	2. 1000000.00	
.04	0.00	7.41	0.00	.045	.056	.057	.134	714.50	155.00
.003901	10.	10.	10.	2	0	0	6.07	0.60	168.06

*SECNO 939.000

3470 ENCROACHMENT STATIONS= 113.0 162.0 TYPE= 1 TARGET= 0.000

939.00	5.07	720.57	0.00	0.00	721.32	.75	.04	.0010000.30	
1745.	0.	1745.	0.	0.	251.	0.	0.	2. 1000000.04	
.04	0.00	7.56	0.00	.045	.056	.057	.130	714.50	155.30
.004684	10.	10.	10.	2	0	0	6.06	0.70	162.00

*SECNO 949.000

949.00	5.56	721.06	0.00	0.00	721.61	.55	.11	.11	725.00
1745.	0.	1745.	0.	0.	270.	0.	0.	0.	725.00
.04	0.00	6.34	0.00	.045	.054	.057	.036	714.50	310.00
.002667	6.	6.	6.	2	0	0	6.00	42.00	342.00

*SECNO 949.000

3470 NORMAL BRIDGE,NO= 13 MIN CLEAR= 726.50 MAX FLLC= 725.19

949.00	5.56	721.06	0.00	0.00	721.61	.55	.00	.01	725.00
1745.	0.	1745.	0.	0.	270.	0.	0.	0.	725.00
.04	0.00	6.34	0.00	.045	.054	.057	.036	714.50	310.00
.0006..	1.	1.	1.	1	0	0	6.00	1.00	342.00

*SECNO 5 2..0

3470 NORMAL BRIDGE,NO= 13 MIN CLEAR= 726.50 MAX FLLC= 725.19

BRIDGE SECTION 24 SECOND STREET BRIDGE OVER

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987.00	5.60	721.17	0.00	0.00	721.71				
1745.	0.	1745.	0.	0.	227.				
.06	0.00	0.00	0.00	.045	.113	.057	.034	719.50	
.000677	63.	63.	63.	2	1		0.00	12.00	

#SECNO 9 1.700

3401 DV CHANGES MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
0	QLOB	QCH	QKOO	ALOB	ACH	AROA	WOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VKOO	XNL	XMCH	XMC	XTI	ELMIN	SSTA
SLOPE	XLOOL	XLCH	XLOOR	ITRIAL	EOC	ICOUNT	CDIAG	TOPWID	HDST

3685 40 TRIALS ATTEMPTED WSEL,CWSEL
1683 PROPABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

965.00	3.37	721.57	721.57	1.00	725.45	1.00	.70	.43	725.41
1745.	0.	1745.	0.	0.	15.	1.	7.	3.	725.41
.04	0.00	11.05	0.00	.033	.025	.042	.034	717.80	720.30
.01435	1.	1.	1.	2	12	1	0.00	12.30	552.30

#SECNO 995.000

3401 DV CHANGES MORE THAN HVINS

3685 40 TRIALS ATTEMPTED WSEL,CWSEL

3670 INCR ACHIEVE STATIONS=		155.7	210.0	TYP.=	1	TABLE T=		0.00	
995.00	5.11	722.93	721.57	1.00	725.32	.91	.71	.45	725.41
1745.	0.	1745.	0.	0.	225.	0.	5.	2.	720.30
.0	0.00	7.03	0.00	.033	.035	.042	.033	717.80	720.70
.005672	7.	7.	7.	2	1	1	0.00	55.00	410.00

#SECNO 1037.000

1037.00	5.15	723.13	0.00	0.00	724.61	.80	.74	.32	725.60
1745.	0.	1745.	0.	0.	221.	0.	6.	2.	720.50
.06	0.00	7.10	0.00	.033	.035	.042	.034	717.00	721.00
.005111	62.	62.	62.	2	1	1	0.00	0.00	552.50

#SECNO 1187.000

1187.00	5.67	724.17	0.00	0.00	724.93	.72	.76	.07	725.10
1745.	0.	1745.	0.	0.	254.	0.	7.	2.	720.31
.09	0.00	6.77	0.00	.033	.035	.042	.036	717.50	720.90
.004092	150.	150.	150.	2	1	1	0.00	0.00	551.50

#SECNO 1337.000

1337.00	5.21	724.91	.00	0.00	725.66	.67	.59	.11	725.60
1765.	0.	1765.	0.	0.	245.	0.	9.	2.	720.51
.05	0.00	6.58	0.00	.033	.035	.042	.036	716.01	720.56
.003695	150.	150.	150.	2	1	1	0.00	0.00	203.20

#SECNO 1456.000

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
0	QLOB	QCH	QKOO	ALOB	ACH	AROA	WOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VKOO	XNL	XMCH	XMC	XTI	ELMIN	SSTA
SLOPE	XLOOL	XLCH	XLOOR	ITRIAL	EOC	ICOUNT	CDIAG	TOPWID	HDST

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1486.00	5.86	725.38	0.00	0.00	726.12	.15	.54	.01	734.10	
1745.	0.	1745.	0.	0.	271.	0.	5.	2.	731.00	
.06	0.00	6.45	0.00	.033	.035	.042	.034	71.56	139.42	
.003515	149.	149.	149.	1	0	0	0.01	55.02	105.46	

*SECNO 1535.000

1535.00	5.30	725.30	0.00	0.00	726.05	.05	.32	.11	7.7.30
1745.	0.	1745.	0.	0.	2[illegible]	0.	5.	2.	7[illegible]
.06	0.00	7.52	0.00	.033	.035	.042	.034	719.70	100.00
.005979	49.	49.	49.	2	0	0	0.00	56.66	103.04

*SECNO 1536.000

3265 DIVIDED FLOW

3370 NORMAL DEPTH= 14 MAN ELTRD= 737.91 MAX FLOW= 722.77

1536.00	5.29	725.40	0.01	0.00	726.06	1.05	.07	.13	7[illegible]
1745.	0.	1745.	0.	0.	219.	0.	5.	2.	730.90
.06	0.00	8.25	0.00	.033	.035	.042	.034	719.70	100.00
.002715	1.	1.	1.	2	0	1	0.00	56.94	101.55

*SECNO 1536.001

3265 DIVIDED FLOW

3370 NORMAL DEPTH= 14 MAN ELTRD= [illegible] MAX FLOW= [illegible]

DRIVER SECTION 35 PENN-CENTRAL Route BRIDGE #1 [illegible]

1536.00	5.42	725.62	0.07	0.00	726.51	.10	.11	.01	7[illegible]
1745.	0.	1745.	0.	0.	2[illegible]	0.	5.	2.	[illegible]
.06	0.00	7.29	0.01	.033	.035	.042	.034	71.25	139.41
.001336	28.	28.	28.	1	1	1	1.10	57.47	103.47

*SECNO 1565.000

1565.00	5.29	725.93	0.00	0.00	726.05	.03	.10	.01	7[illegible]
1745.	1.	1745.	0.	0.	2[illegible]	0.	5.	2.	7[illegible]
.06	0.00	6.58	1.00	.033	.035	.042	.034	719.70	139.40
.006497	1.	1.	1.	3	0	0	0.01	55.16	103.84

*SECNO 1570.000

SECNO	DEPTH	CLSEL	CRANS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
O	ORDB	ORH	ORDR	ALOB	ALH	ALOU	VOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VROH	[illegible]	[illegible]	[illegible]	UTS	FLOWN	STA
SLOPE	ALOBL	ALCH	FLOPR	LT FAC	LOC	LOFLT	CORAR	TOFLOD	ENIST

1[illegible]	[illegible]	726.1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1745.	0.	1745.	0.	0.	2[illegible]	0.	5.	2.	[illegible]
.0[illegible]	0.00	5.[illegible]	[illegible]	.050	.035	.042	.034	[illegible]	139.31
.0[illegible]	5.	[illegible]	[illegible]	5.	1	[illegible]	0.00	[illegible]	[illegible]

*SECNO 1[illegible]

1592.00	6.12	726.12	0.00	0.01	726.[illegible]	.10	.08	.12	7[illegible]
1745.	1.	1745.	0.	0.	2[illegible]	0.	1[illegible]	2.	[illegible]
.0[illegible]	0.00	7.[illegible]	[illegible]	.050	.036	.050	.134	72.[illegible]	139.41

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.004603	22.	22.	22.	2	1	6	0.00	5.56	191.93

*SECNO 1614.000

1614.00	5.31	726.01	0.00	0.00	727.31	3.27	.13	.24	728.90
1745.	0.	1745.	1.	0.	1743.	2.	10.	3.	227.10
.03	0.00	5.06	0.00	.051	.031	.113	.024	721.21	161.06
.009031	22.	22.	22.	2	1	0	0.00	45.45	196.04

*SECNO 1665.000

1665.00	5.59	726.59	0.00	0.00	727.10	1.48	.45	.01	728.58
1745.	0.	1745.	0.	0.	1743.	0.	11.	3.	227.10
.07	.03	9.65	0.00	.049	.032	.030	.035	720.00	150.95
.009250	52.	52.	52.	2	1	0	0.00	45.47	196.32

*SECNO 1713.000

1713.00	5.51	726.37	0.00	0.00	726.87	1.40	.61	.01	727.49
1745.	0.	1745.	0.	0.	1743.	0.	11.	3.	227.10
.07	0.00	9.71	0.00	.051	.033	.030	.034	721.21	153.44
.009460	52.	52.	52.	2	1	0	0.00	45.39	196.31

*SECNO 1744.000

FCST	DEPTH	CHNEL	CTIME	WIDTH	VEL	HL	L	FLOW	FLOW ELEV
Q	DEP	CSH	DHDT	AREA	AC	A*L	S*	ESP	ELEVATION
TYPE	VLOB	VCH	VROU	AVEL	#SCH	XSEC	ITYP	FLGEN	SSTA
SLOPE	YLOSL	ALCH	ALOBR	CRITIAL	EDC	ECONT	PCWAR	TOPWID	DDQ*
1744.00	5.50	727.17	0.00	1.71	726.57	1.47	.25	.61	728.32
1745.	0.	1745.	1.	1.	1742.	1.	11.	3.	227.05
.07	0.00	9.75	0.10	.050	.035	.030	.036	721.90	154.12
.009477	35.	25.	25.	1	1	0	0.00	45.10	196.30

*SECNO 1770.000

WALL W EJECTED OR STOP

1770.00	5.44	727.36	.00	0.00	72[illegible]	1.[illegible]	.26	.06	[illegible]
1745.	0.	1745.	0.	0.	1743.	0.	11.	3.	[illegible]
.07	0.00	9.91	0.00	.050	.030	.030	.035	721.90	151.64
.010322	25.	25.	25.	1	1	0	0.00	44.41	196.25

*SECNO 1820.000

1820.00	5.43	727.25	0.00	0.00	729.21	1.97	.03	.10	729.31
1745.	0.	1745.	0.	0.	1743.	0.	11.	3.	227.10
.07	0.00	9.91	0.00	.050	.030	.030	.034	721.90	151.64
.010300	85.	50.	17.	1	0	0	0.00	44.62	196.25

*SECNO 1845.000

1845.00	5.40	728.13	0.00	0.00	729.65	1.55	.25	.01	729.90
1745.	0.	1745.	0.	0.	1743.	0.	11.	3.	227.10
.07	0.00	9.99	0.00	.050	.030	.030	.034	722.70	151.58
.010571	42.	25.	9.	1	0	0	0.00	44.65	196.23

*SECNO 1870.000

1870.00	5.35	728.45	0.00	1.00	729.94	1.55	.27	.11	730.20
1745.	0.	1745.	0.	0.	1743.	0.	11.	3.	227.05
.07	0.00	10.12	0.00	.050	.030	.030	.034	723.00	151.79
.010559	41.	25.	9.	1	0	0	0.00	44.41	196.21

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*SECNO 1895.000

SECNO	DEPTH	CNSEL	CRDS	*SELK	ZG	HV	VL	*LOSS	TAIL ELEV
D	OLDD	OCH	ORDD	ALDB	ACH	ARDB	VOL	T&A	LEFT/RIGHT
TIME	VLDB	VCH	VRDD	XNL	XNCH	XLK	LTD	FIWIN	ESTA
SLOPE	XLDBL	XLCH	XLDBD	ITRIAL	FOC	ZDRIF	CORAD	TRIMID	FWEST
1895.00	5.75	728.95	0.00	0.00	730.20	1.21	.24	.03	721.90
1745.	0.	1745.	0.	0.	170.	0.	11.	2.	730.11
.07	0.00	9.20	0.00	.000	.000	.000	.000	723.20	150.21
.005414	42.	25.	8.	4	0	0	0.00	0.00	195.41

*SECNO 1919.000

1919.00	5.62	729.12	0.00	0.00	730.51	1.29	.21	.04	722.40
1745.	0.	1745.	0.	0.	194.	0.	11.	3.	730.00
.07	0.00	9.40	0.00	.000	.000	.000	.000	723.30	150.71
.006134	42.	24.	0	0	0	0	0.00	65.86	190.34

*SECNO 1931.000

1931.00	5.63	729.22	0.00	0.00	730.52	1.29	.11	.10	722.30
1745.	0.	1745.	0.	0.	186.	0.	11.	3.	730.51
.11	0.00	9.64	0.00	.000	.000	.000	.000	723.60	150.54
.000102	12.	12.	12.	0	0	0	0.00	65.46	190.44

*SECNO 1944.000

1944.00	5.70	729.40	0.00	0.00	730.71	1.29	.11	.03	722.40
1745.	0.	1745.	0.	0.	192.	0.	11.	2.	730.21
.07	0.00	9.60	0.00	.000	.000	.000	.000	723.70	150.80
.000103	12.	12.	12.	2	0	0	0.00	65.62	190.63

*SECNO 1956.000

1956.00	5.74	729.54	0.00	0.00	730.92	1.30	.10	.05	722.61
1745.	0.	1745.	0.	0.	215.	0.	11.	2.	730.40
.07	0.00	9.63	0.00	.000	.000	.000	.000	722.90	150.85
.009005	12.	12.	12.	2	0	0	0.00	65.72	190.85

*SECNO 1982.000

SECNO	DEPTH	CNSEL	CRDS	*SELK	ZG	HV	VL	*LOSS	TAIL ELEV
D	OLDD	OCH	ORDD	ALDB	ACH	ARDB	VOL	T&A	LEFT/RIGHT
TIME	VLDB	VCH	VRDD	XNL	XNCH	XLK	LTD	FIWIN	ESTA
SLOPE	XLDBL	XLCH	XLDBD	ITRIAL	FOC	ZDRIF	CORAD	TRIMID	FWEST
1982.00	5.80	729.80	0.00	0.00	731.01	1.29	.10	.03	722.70
1745.	0.	1745.	0.	0.	170.	0.	11.	2.	730.60
.07	0.00	9.73	0.00	.000	.000	.000	.000	723.10	150.95
.007601	6.	6.	6.	0	0	0	0.00	65.51	190.85

*SECNO 1996.000

1996.00	5.80	729.80	0.00	0.00	731.01	1.29	.10	.03	722.70
1745.	0.	1745.	0.	0.	170.	0.	11.	2.	730.60
.07	0.00	9.73	0.00	.000	.000	.000	.000	723.10	150.95
.007601	6.	6.	6.	0	0	0	0.00	65.51	190.85

*SECNO 1996.000

3301 HV CHANGE MORE THAN .VIVS

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0425 OVERPACK AREA ABSORBED FOR-EFFECTIVE,FLL-A= 7.600 L[illegible]= [illegible]

19.9.00	6.67	730.61	.0.00	0.00	729.17	.04	.11	.1	345.00
1745.	0.	1745.	0.	0.	203.	1.	11.	3.	1.4.30
.03	0.00	6.50	.0.00	.051	.010	.036	.12.	[illegible]	.3.0.00
.000738	3.	..	3.	2	0	1	6.3.	.2.0.	162.63

SPECIAL BRIDGE

SS AK	ANDO	LOPO	PPLES	T C	[illegible]	DAT A	[illegible]	FLOPIS	FLO-2
1.00	1.52	.1.1.	0.00	3.2..	1.0.00	0.2.0.	0.00	.7.4.1.2	[illegible]

*SECNO 2730.000

0070.LOW FLOW AT NORMAL BRIDGE

ELEVS= 0.000 ZELWS= 731.27 ZLLS= 2.1.000 ZTWS= [illegible] TLOS= 7.4.0

9370 NORMAL BRIDGE,NRO= 2 WSEL ESTD= 734.01 MAX ZLLS= 732.30

0425 OVERPACK AREA ABSORBED FOR-EFFECTIVE,FLL-A= [illegible] L[illegible]= [illegible]

BRIDGE SECTION OF UNIVERSITY STREET BRIDGE SECT=

2030.00	5.57	730.17	.0.10	1.00	137.32	.24	.17	.4	.5.1
1745.	0.	1715.	0.	0.	3.1.	0.	1..	5.	1.4..
.01	1.10	[illegible]	[illegible]	.030	.013	.0.7	.0 1	[illegible]	[illegible]
.009716	0..	1..	1..	2	0	1	0.01	[illegible]	262.00

*SEC.C 2051.000

20. 1.01	6.42	736.73	[illegible]	0.04	736.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1745.	[illegible]	17 5.	0.	[illegible]	2.1.	[illegible]	1 [illegible]	[illegible]	[illegible]
.05	0.00	6.54	0.00	.065	.037	.057	.033	726.33	[illegible]
.002413	5..	30.	[illegible]	2	0	1	0.10	54.09	124.50

*SECNO 2629.000

SECNO	[illegible]	WLSEL	TELOS	NS-CH	VC	HV	I	PLOSS	[illegible]
0	QLOB	QCH	QRCH	ALOB	ACH	ARCH	VOL	TIA	LEFT/RIGHT
TIME	VLOB	VCH	VRO	VOL	ARCH	[illegible]	ITH	L TIN	QCTA
SLOPE	XLOBL	XLCH	FLOER	ITTIAL	IFC	ICONT	CORAR	TOTVOL	[illegible]

2629.01	2.64	7.2.15	.0.00	0.01	[illegible]	1.04	1.38	.3	[illegible]
1745.	0.	1745.	..	0.	215.	0.	1..	3.	7.2.37
.04	0.00	[illegible]	0.00	.045	.037	.057	.1.4	72L.7L	72.05
.006335	34..	34..	4..	2	[illegible]	0	0.01	54.59	1[illegible]

*SECNO 2779.001

VALLEY SECTION AB SECT=

2779.00	5.5.	736.58	0.00	0.10	735.65	1.15	2.23	.04	7[illegible]
1745.	0.	1745.	0.	0.	213.	3.	15.	4.	3.9.7.
.10	0.00	8.22	3.00	.045	.2.3	.057	.[illegible]	[illegible]	[illegible]
.00.625	349.	349.	349.	2	1	0	0.10	59.23	1.5.15

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*SECNO 3603.000

3203.00	5.87	737.17	1.00	0.00	732.03	.19	2.55	.05	745.75
1745.	0.	1745.	0.	0.	234.	1.	10.	4.	744.50
.12	0.00	7.44	0.00	.023	.037	.01	.195	731.30	128.67
.005439	425.	425.	425.	2	0	1	0.00	50.20	127.95

*SECNO 3627.000

VALLEY SECTION 05 SECT.I

3628.00	5.55	739.65	1.00	0.00	740.29	.63	2.26	.03	742.20
1745.	0.	1745.	0.	0.	25.	0.	20.	5.	744.30
.14	0.00	7.30	0.00	.021	.017	.01	.199	730.50	129.48
.005117	425.	425.	425.	2	0	1	0.00	50.53	128.10

*SECNO 3699.000

3699.00	5.49	739.99	1.01	0.00	740.34	.13	.30	.05	740.33
1745.	0.	1745.	0.	0.	276.	0.	20.	5.	744.93
.14	0.00	5.87	0.00	.021	.017	.01	.211	730.50	129.54
.003596	71.	71.	71.	2	0	1	0.00	5.79	129.03

*SECNO 3724.000

SECNO	OPTP	CAB-L	CR.I.P	VS &R	ICE	AN	L	L.OSS	..W..L.N
0	OLD	ORG	OBJ.	ALD	AVG	ADJ.	ADL	ORG	L I N I
TIME	VLOB	VOH	VRO.	VAL	XSCH	SUB	ITP	TLOSS	BETA
SLOPE	VLOWL	SLCH	SLOB.S	ATYPICAL	ISC	ISW 1	CORAD	TRRSID	BOST

3420 ENCROACHMENT STATIONS= 1.... 17.0 TYPE= 1 TABLE= 4.000

3724.00	5.57	740.07	1.00	0.00	740.73	.66	.10	0.00	0.00
1745.	0.	1745.	0.	0.	20.	0.	20.	5.	0.00
.14	0.00	5.52	0.00	.021	.017	.01	.215	730.50	129.01
.003379	15.	15.	15.	2	1	0	0.00	5.00	129.00

*SECNO 3736.000

3420 ENCROACHMENT STATIONS= 1.... 17.0 TYPE= 1 TABLE= 4.000

3736.00	5.56	740.11	1.00	0.00	740.32	.21	.10	0.00	0.00
1745.	0.	1745.	1.	1.	154.	1.	21.	5.	0.00
.14	0.00	6.02	0.00	.020	.017	.01	.223	730.50	129.48
.003772	12.	12.	12.	2	0	1	0.00	5.00	129.00

*SECNO 3762.000

3420 ENCROACHMENT STATIONS= 1.... 17.0 TYPE= 1 TABLE= 4.000

3762.00	6.57	740.07	0.00	0.00	740.07	.01	.02	0.00	0.00
1745.	0.	1745.	0.	0.	261.	0.	21.	5.	0.00
.14	0.00	7.21	0.00	.020	.017	.01	.055	730.50	129.54
.006162	6.	6.	6.	2	1	1	0.00	5.01	129.03

*SECNO 3748.000

3420 ENCROACHMENT STATIONS= 1.... 17.0 TYPE= 1 TABLE= 4.000

3748.00	5.54	740.04	1.00	0.00	740.05	.01	.02	0.00	0.00
1745.	0.	1745.	1.	1.	28.	1.	21.	5.	0.00
.14	0.00	7.05	0.00	.020	.017	.01	.055	730.50	129.54
.004605	9.	9.	9.	2	1	0	0.00	5.00	129.00

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*SECNO 3746.000

3501 HV CHANGED MORE THAN HVINC

3370 NORMAL BRIDGE.NTC= 12 MI FLTRD= 7A9.00 MAX FILE= 746.00

3745.01	5.56	75.10	735.39	.030	711.51	2.12	.01	.53	7..20	
1745.	0.	1745.	1.	0.	15.	1.	21.	5.	731.11	
.16	0.00	11.41	0.00	.028	.025	.001	.135	732.50	20.00	
.07500	1.	1.	1.	0	19	0	-10.45	29.50	20..50	

48'C.. .510.010

3501 HV CHANGED MORE THAN HVINC

SECNO	DEPTH	CNSEL	CRING	HSFLT	TG	HV	L	CLOSS	JAM ELEV
0	PL04	OCK	OPO.	AL03	AC?	APP.	VOL	TNA	LIFTA(LC.T
TIMT	PL03	VII	VP..	V..	XNC?	ANF	.T.	TLPIN	.ITA
SLOPE.	.L.JL	2LTP	LOCS	ATTEAL	IDT	... T	7AL.9	TOPLC	.IDAT

3370 INTRVAL BRIDGE .NTC= 1 MI FLTRD= 7..00 AX FILE= 7A..00

BRIDGE SECTION 010 ROCK-STEP ROAD BRIDGE SECT.J

3710.00	7.47	740.23	0.00	0.00	743.05	1.13	.07	.22	749.21
1745.	0.	1745.	1.	1.	206.	0.	.1.	7.	21..1
.17	1.00	8.51	..00	.0..	.02.	.1..	.0.5	..46	2..0
.00.01	0..	.1.	.1.	3	1	0	-10.12	-5.50	.1.31

#SEC. .11.000

3711.0	7..5	741.35	.10	0.00	74..9.	.07	.11	.10	75.20
1745.	0.	1745.	0.	0.	7.2.	1.	21.	5.	15.11
.14	0.00	7.25	1.01	.025	.155	.1.1	.135	32..50	21.00
.002542	1.	1.	1.	.	0	0	0..00	39.50	23.50

#SECNO 3..0.000

3710.00	7.81	742.21	.00	0.00	7.2.43	.02	.11	.1.	7.....
1745.	1.	1745.	1.	0.	201.	2.	21.	5.	.47.0.
.15	6.00	6.46	0.00	.07.	.035	.021	.033	736.20	117.13
.001511	4..	4..	4..	2	1	0	0..71	55.15	131.36

#SECNO 3722.00.

3722.00	0..5	742.0.	0.00	0.00	1.2.21	.30	.12	.1.	1..0.
1745.	0.	1745.	0.	0.	2.1.	0.	22.	5.	73..0.
.15	0.00	..0.0	0.00	.02.	.135	.011	.035	735.61	117.03
.602595	126.	5..	1.	2	6	1	0.10	..24	179.35

#SEC.O 3935.000

3935.00	6.77	742.07	0.00	0.00	742.65	.58	.03	.31	74..70
1745.	0.	1745.	0.	0.	25..	0.	22.	5.	744.10
.15	0.00	6.10	0.00	.02.	.035	.021	.035	7.5.15	115.61
.002712	15.	15.	5.	0	0	0	0.01	.5..90	175.51

#SECNO 3947.000

SECNO	DEPTH	CNSEL	CRING	HSFLT	TG	HV	L	CLOSS	JAM ELEV
.0	PL04	.OCK	.OPO.	AL03	AC?	APP..	VOL	TNA	LIFTA(TC..T

TIME	VLOC	VCH	VROC	ACL	ACCH	PWR	NTM	ELEV	STA
SLOPE	XLOCL	XLCN	XLOCR	INTRVAL	ICC	ICONT	CONAR	TOPWID	CNCBT

IAZO ENCROACHMENT STATION=		117.0	175.0	TYPE=	1	TARGET=		5.000	
3947.00	6.57	742.07	0.00	0.00	742.72	.65	.12	.7611000	1.0
1748.	0.	1765.	0.	0.	23.	0.	22.	5.	1.0
.15	0.20	6.44	0.00	.028	.025	.131	.165	1.50	12.52
.003096	15.	12.	5.	2	0	0	0.00	5.00	175.00

*SECNO 5.95.000

3470 ENCROACHMENT STATION=		6.6.0	172.0	TYPE=	1	TARGET=		5.000	
3959.00	6.35	742.05	0.00	0.00	742.52	.77	.30	.6410000	0.0
1745.	0.	1745.	0.	0.	248.	0.	22.	5.	1000000.0
.15	0.00	7.02	0.00	.024	.025	.031	.005	2.50	1.57
.005124	15.	10.	5.	2	0	0	0.00	10.41	172.04

*SECNO 3965.000

3470 ENCROACHMENT STATION=		121.0	173.0	TYPE=	1	TARGET=		.000	
3965.00	6.23	742.13	0.00	0.06	742.59	.46	.12	.6312000	0.
1745.	0.	1745.	0.	0.	33.	0.	22.	5.	1000000.0
.15	0.00	7.04	0.00	.023	.025	.031	.005	2.50	1.56
.004562	0.	5.	2.	2	0	0	0.00	10.06	173.00

*SECNO 3972.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.FLOW.A=						746.00	CHL=	64.00	
3972.00	5.95	741.85	.00	0.00	743.36	1.29	.07	.21	760.40
1745.	0.	1745.	0.	0.	1.1.	0.	23.	5.	1.0.40
.15	0.00	5.12	0.00	.029	.022	.021	.029	2.51	1.00.12
.013654	15.	7.	4.	2	1	1	0.01	45.00	335.11

SPECIAL BRIDGE

SB XK	XKOD	COFA	APLEN	EIC	EJC	EXA	XE	LSKO	LSKD
0.00	1.57	0.10	0.00	0.30	0.01	250.11	0.00	7.50	7.50

*SECNO 3967.000

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS=	0.000	EGLWC=	744.17	ELLT=	742.70	EGLS=	744.45	ELT =	0.0.67

3370 NORMAL BRIDGE.NRD= 9 MIN ELTRD= 749.50 MAX ELLC= 743.70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.FLOW.A= 749.00 CHL= 64.00

BRIDGE SECTION # 1 FLOW-CENTRAL FLOW OF 2 FLOW

3967.00	5.14	742.05	.00	0.01	742.22	1.17	.03	.13	4.0.40
1745.	0.	1745.	0.	0.	0.0.	0.	0.	5.	7.0.00
.15	1.00	6.42	0.00	.032	.042	.021	.015	2.50	1.0.00
.003191	15.	15.	15.	2	1	0	0.01	45.12	445.07

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*SECNO 3[illegible]8.000

SECNO	DEPTH	CHSEL	CRTAB	MSELK	TO	AV	ML	*LOSS	DA K FLOW
0	OLDB	OCH	ORGN	ALOB	ACH	ARAB	VOL	TRA	L STARTLIGHT
TIMG	VLOB	VCH	VRGN	VAL	NUCH	RAC	ITY	FLMIN	STA
SLOPE	XLOBL	XLCH	XLOGN	ITRIAL	EOC	ALOST	ERRAR	TSPUNC	LOST

3470 ENCROACHMENT STATIONS= 122.3 170.0 TYPE= 1 TARGET= 2.000

3938.00	6.74	742.04	.00	0.00	748.35	.72	.10	.161	002.43
1745.	0.	1745.	0.	0.	25b.	ub	32.	5.	1000.40
.15	0.00	5.71	0.01	.061	.03	.059	.035	735.30	1 .10
.001387	1.	1.	1.		J	J	6.10		1[illegible].J

1690 [illegible] CARD USED
*SECNO 3[illegible].0.000

3470 ENCROACHMENT STATIONS= 1 7.0 24[illegible].J TYPE= 1 TARGET= 51.000

3940.30	7.01	742.11	6.01	0.30	748.45	.52	.[illegible]	.1[illegible]	[illegible]
1745.	ub	12.4.	11.	3.	0[illegible]	ub	2[illegible]	5.	2[illegible]
.15	0.00	5.70	1.45	.040	.03[illegible]	.063	.035	735.50	1[illegible].0.
.001217	2.	2.	2.	2			J.01	51.00	2[illegible]

*SEC[illegible] 4[illegible].200

3470 ENCROACHMENT STATIONS= 1[illegible].J 25[illegible] TYPE= 1 TARGET= 71.100

6000.00	7.01	7[illegible].11	J.00	0.00	.43.49	.[illegible]	.12	.24	7[illegible]
1745.	11[illegible]	1562.	14.	4[illegible]	7[illegible]	6[illegible]	2[illegible]	5.	7[illegible]
.15	2.49	5.14	2.01	.041	.[illegible]	.051	.[illegible]	7[illegible]	[illegible]
.001[illegible]	10.	11.	10.			1	J.01	71.00	2[illegible]

*SECNO 405[illegible].000

3470 ENCROACHMENT STATIONS= 1[illegible].1 295.1 TYPE= 1 TARGET= 1[illegible]

6057.00	0.7[illegible]	743.[illegible]	1.0[illegible]	0.02	103.5[illegible]	.[illegible]	.11	.15	2[illegible]
1745.	364.	1[illegible]21.	201.	132.	3[illegible].	16[illegible]	[illegible]	[illegible]	2[illegible]
.19	2.54	4.24	[illegible].45	.[illegible]40	.0[illegible]	.[illegible].	.0[illegible]5	7[illegible].30	1[illegible].00
.001131	[illegible]	[illegible]	6[illegible]	[illegible]	0	[illegible]	J.00	1[illegible].0.	1[illegible].10

*SECNO 405[illegible].000

3470 ENCROACHMENT STATIONS= 125.0 324.0 TYPE= 1 TARGET= 1[illegible]

6062.00	6.36	743.[illegible]	J.00	0.00	763.61	.22	.[illegible]	.30	7[illegible]
1745.	447.	1172.	130.	122.	47[illegible]	95.	[illegible]	5.	2[illegible]
.16	2.45	4.25	1.21	.[illegible]4	.0[illegible]	.05[illegible]	.[illegible]5	7[illegible].[illegible]	1[illegible].J[illegible]
.001294	25.	25.	25.	0	1	1	J.00	3[illegible].1[illegible]	J[illegible].[illegible]

*SECNO 4077.000

SECNO	DEPTH	CHSEL	CRTAB	MSELK	TO	AV	ML	*LOSS	DA K FLOW
0	OLDB	OCH	ORGN	ALOB	ACH	ARAB	VOL	TRA	L STARTLIGHT
TIMG	VLOB	VCH	VRGN	VAL	NUCH	RAC	ITY	FLMIN	STA
SLOPE	XLOBL	XLCH	XLOGN	ITRIAL	EOC	ALOST	ERRAR	TSPUNC	LOST

3470 ENCROACHMENT STATIONS= 110.0 [illegible]35.J TYPE= 1 TARGET= 225.000

4077.00	6.10	743.40	J.00	0.J.	[illegible]4.54	.24	.72	.01	[illegible]
1745.	47[illegible].	1[illegible].	101.	1[illegible].	[illegible].	79.	[illegible]	[illegible]	[illegible]
.16	2.46	4.56	1.29	.[illegible]	.[illegible]	.05[illegible]	.[illegible]	7[illegible].30	1[illegible].J[illegible]
.001531	15.	15.	15.	J	J	J	0.0[illegible]	1[illegible].J[illegible]	[illegible]

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*SECNO 4105.000

5470 ENCROACHMENT STATION= 73.0 357.0 TYPE= 1 TARGET= 230.000

4109.00	5.76	743.46	0.00	0.00	743.59	.25	.03	.00	743.50
1745.	566.	1122.	77.	227.	293.	61.	23.	6.	761.90
.16	2.41	4.71	1.33	.040	.033	.058	.035	737.70	78.30
.001797	12.	23.	22.	1	1	1	0.00	215.47	215.47

*SECNO 4141.000

4141.00	5.26	743.66	0.50	0.00	743.80	.36	.03	.16	741.89
1745.	495.	1108.	79.	195.	214.	40.	26.	5.	741.40
.16	2.50	5.66	1.33	.040	.033	.060	.035	736.30	57.13
.004775	12.	23.	22.	2	1	1	0.01	327.21	215.30

*SECNO 4173.000

4173.01	4.71	743.41	1.00	0.00	746.01	.57	.11	.15	741.50
1745.	341.	1345.	91.	122.	187.	21.	34.	5.	741.10
.16	2.69	6.02	2.37	.040	.041	.061	.036	735.21	52.65
.005913	12.	23.	22.	2	0	0	0.10	215.19	215.15

*SECNO 4139.000

SECNO	DEPTH	CWSEL	CRITS	WS-LK	EC	VV	H	LOSS	BANK ELEV
0	OLDJ	QCH	QTOT	ALOB	ALCH	AROB	VOL	ZL	LEFT/RIGHT
TIME	VLOB	VCH	VROB	ITRL	ITRIAL	IDC	ICONT	CONVG	ERR
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CONVG	TOPWID	WDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

4139.09	6.57	743.67	743.67	0.00	746.31	.71	.19	.02	741.61
1745.	319.	1301.	46.	117.	175.	20.	24.	5.	757.80
.1	2.52	7.47	2.45	.040	.033	.044	.045	740.83	5.11
.000811	5.	19.	36.	2	1	1	0.00	314.25	215.04

*SECNO 4205.000

SECNO	DEPTH	CWSEL	CRITS	JSELK	EC	VV	AL	LOSS	BANK ELEV
0	OLOB	QCH	QTOT	ALOB	ALCH	AROB	VOL	ZL	LEFT/RIGHT
TIME	VLOB	VCH	VROB	ITRL	ITRIAL	IDC	ICONT	CONVG	ERR
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CONVG	TOPWID	WDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

VALLEY SECTION EXP CONTROL

4205.00	4.80	743.20	743.89	0.00	746.51	.78	.19	.06	742.36
1745.	290.	1611.	45.	308.	182.	13.	24.	6.	742.61
.16	2.59	7.27	2.45	.041	.041	.040	.035	735.27	54.16
.006945	1.	1.	2.	2	2	1	0.07	21.16	27.36

*SECNO 4605.000

3470 ENCROACHMENT STATION= 117.0 33.00 TYPE= 1 TARGET= .101

4605.00	5.22	745.12	.00	0.00	745.62	.39	.13	.01	741.41
1745.	1.0.	1358.	81.	118.	311.	1.0.	23.	4.	741.11
.17	2.36	6.17	2.31	.040	.033	.042	.025	7.51	113.11
.005522	150.	203.	220.	1	1	0	0.04	15.63	215.55

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*SECNO 4455.003

3670 ENCROACHMENT STATION 3= 127.0 213.0 TYPE= 1 TARGET= 183.000

4455.00	5.18	745.26	.00	0.00	745.35	.57	.19	.05	752.90
1745.	261.	83.5.	.7.	89.	213.	.1.	25.	7.	747.50
.18	2.9.	6.45	.40	.064	.03.	.047	.035	7.1.10	141.0.
.006224	37.	53.	43.	2	0	0	0.00	131.61	20.6.5

*SECNO 4505.000

3670 ENCROACHMENT STATION 3= 142.0 301.0 TYPE= 1 TARGET= 252.000

4505.00	5.17	745.47	.00	0.00	746.07	.11	.21	.05	752.10
1745.	244.	1425.	.1.	72.	181.	.1.	23.	7.	743.51
.1	5.11	6.72	.40	.064	.03.	.040	.035	241.63	76.1.0
.008441	33.	50.	55.	1	1	6	0.30	150.62	202.02

*SECNO 4605.000

3670 ENCROACHMENT STATION 3= 16.0 225. TYPE= 1 TARGET= 1.000

4605.00	5.15	745.89	0.00	0.00	746.55	.06	.04	.05	741.51
1745.	130.	1466.	99.	51.	230.	.5.	27.	7.	743.90
.15	3.57	6.9.	2.51	.060	.03.	.040	.035	241.71	151.00
.004243	75.	100.	110.	1		0	0.30	2.1.00	27.01

*SECNO 4 5.000

SECNO	DEPTH	CLSTL	CRIBS	JSTLK	ES	VV	HL	CLOSS	BACK ELEV
F	QUAL	DEV	QBO3	ALC3	AL1	AR21	VOL	TRP	LEFT/RIGHT
1.3	VLC4	VC4	VR23	.CL	RADI	.7	HT.	EL.EV	SEGA
SLOPE	.L.AL	SLCH	ALOSR	RT.33	IQ3	ELS.T	.OTHP		

3470 ENCROACHMENT STATION 3= 182.0 260.0 TYPE= 1 TARGET= 27.000

4[illegible]	5.23	745.1.	.0.1	0.03	746.2.	.25	.17	.05	752.71
1745.	111.	1597.	.0.	.1.	.18.	.3.	23.	7.	748.10
.18	3.20	7.1.	.040	.051	.0..	.040	.035	241.56	[illegible]
.004907	60.	80.	110.	2	0	0	1.00	77.09	201.10

*SECNO 4 95.000

3.01 HV CHANGED MORE THAN #VALS

4595.00	5.95	746.05	0.00	0.00	747.12	.17	.07	.15	753.00
1745.	537.	995.	117.	206.	261.	70.	28.	7.	745.20
.19	3.15	4.12	1.41	.040	.03.	.040	.035	241.00	96.89
.001250	30.	31.	39.	2	0	0	0.01	265.34	207.10

*SECNO 4725.000

3.01 HV CHANGED MORE THAN #VALS

4725.00	5.66	745.51	0.00	0.00	747.05	1.05	.07	.40	753.70
1745.	0.	1745.	0.	0.	29..	0.	20.	0.	745.00
.19	1.00	0.38	0.00	.040	.032	.040	.035	241.10	201.10
.005107	30.	30.	30.	2	0	0	0.01	42.54	200.00

*SECNO 4726.000

3265 DIVIDED FLOW

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3370 NORMAL BRIDGE,WID= 12 MIN FLTRD= 746.00 MAX ELEV= 748.50

4726.00	5.43	746.52	0.00	0.00	747.02	1.15	.00	.00	750.00
1745.	0.	1745.	0.	0.	203.	0.	28.	5.	754.00
.19	0.00	0.61	0.00	.043	.022	.067	.135	741.10	261.24
.003336	1.	1.	1.	2	0	2	1.00	47.00	309.00

*SECNO 4734.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,WID= 12 MIN FLOW= 745.80 MAX ELEV= 751.51

PARK ROAD BRIDGE #1 SECTION C12-A SECT=

4734.00	5.58	746.52	1.36	0.00	747.7.	1.11	.00	.01	7.0.1L
1745.	0.	1745.	0.	0.	207.	0.	21.	0.	749.45
.19	0.00	5.45	0.00	.040	.022	.160	.005	741.10	261.05
.003167	0.	0.	0.	2	1	0	0.00	47.25	309.00

*SECNO 4735.000

SECNO	DEPTH	CHSEL	CRLEN	MSELR	E	D	I	QLS	LEFT/RIGHT
0	OLD3	OC1	ORDS	AL13	ACH	A.D.	VOL	TIA	
TIME	VL13	VC4	VR10	AVE	XSCH	A.2	ATC	TLOIN	TOTA
SLOPE	XL20L	XLCH	VLOBR	LXLIAL	IDC	IEC.I	CFRAC	XCENTD	TST

4735.20	5.05	746.43	.00	.00	747.28	1.1.	.00	.00	.00
1745.	0.	1745.	0.	0.	210.	0.	25.	0.	747.80
.19	0.00	0.12	0.00	.043	.022	.062	.015	741.10	260.71
.005909	1.	1.	1.	2	1	1	1.00	48.25	309.00

*SECNO 5104.000

3695 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELEV= 751.40 ELEV= 751.50

5104.00	5.65	745.75	1.30	0.00	746.17	1.01	.25	.19	751.41
1745.	0.	1745.	0.	0.	1..	0.	2..	0.	751.50
.20	0.00	2.54	0.00	.043	.0..	.0.2	.015	741.11	2.0..
.013690	358.	3.6.	3.6.	3	1	1	0.00	0.77	3.1.77

*SECNO 5156.000

3695 OVER-ANK AREA ASSUMED NON-EFFECTIVE,ELEV= 752.10 ELEV= 752.11

5156.00	5.63	750.43	750.43	0.06	751.0.	1.43	.06	.01	752.10
1745.	0.	1745.	0.	0.	19.	0.	20.	0.	752.00
.20	0.00	6.30	0.00	.0.1	.025	.0.2	.0.5	744.0	2.0.0
.01.510	3..	5..	4..	4	1	1	0.01	0.7.	2.0.76

*SECNO 520 .000

3695 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELEV= 752.7 ELEV= 752.5

5204.00	0.15	751.45	0.01	0.00	75..5	1.0.	.50	.1.	2.2.0.
1745.	0.	1745.	0.	0.	2.5.	0.	3..	0.	752.5.
.20	0.00	3.34	0.00	.0.0	.0.5	.0.2	.035	745.40	2.0.2.
.00.49.	3..	5..	5..	1	1	0	0.0.	7.10	270.00

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*SECND 5259.001

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 752.60 ELRTA= .00

5259.00	6.73	751.62	0.01	0.00	752.17	1.14	.91	.10	753.43
1745.	0.	1745.	0.	0.	295.	0.	33.	33.	75.87
.20	0.00	6.13	0.00	.062	.026	.15	.035	76.10	10.00
.010660	51.	51.	51.	5	0	0	0.00	00.00	251.37

SPECIAL UNIFORM

SS	XR	XK M	COEF	ADLEN	BTC	PHP	IAFTA	A	ELCHD	ELCHD
	0.00	1.53	2.40	0.00	27.20	0.00	249.33	0.00	745.10	745.10

*SECND 5[illegible]

5020.[illegible] ELD [illegible] NORMAL DEPTH=

FCPRS= 753.071 TOLEC= 753.172 ELLC= 752.800 HCRIT= 751.031 ELTD= 752.400

SECNO	DEPTH	CWTL	CHAN	WS AR	VC	HV	HL	ELPRS	BANK SL
0	XLO=	CCH	070	ALOH	AS=	[illegible]	PL	749	LEFT(ISHT
TIME	VLOB	VCH	VTH	A L	AXCH	A R	HT	L CH	RGTA
SLOPE	ALPSL	SICS	.10E-6	INIA	ITR	IC T	CCLAR	[illegible]	[illegible]

3[illegible] NORMAL DEPTH,NOD= 1. MAN EL(1)= 752.49 AA= TLLC= 753.16

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= .53.60 ELRTA= .00

FAST FOOT BRIDGE NO. 2 SECTION NO. 1--A SECT.

5255.00	.63	752.57	.01	0.00	.[illegible]	.5	.12	.15	[illegible]
1745.	0.	1745.	0.	0.	291.	0.	[illegible]	0.	73.5
.20	0.00	7.41	1.00	.062	.027	.062	.035	76.10	[illegible]
.004507	10.	1.	10.	[illegible]	[illegible]	0	-.45	70.00	[illegible]

*SECND 5 70.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 753.60 ELRTA= .00

5270.00	.64	752.56	1.00	1.00	753.40	.74	.31	.10	[illegible]
1745.	0.	1745.	0.	0.	297.	0.	[illegible]	1.	75.00
.20	0.00	7.15	.00	.062	.025	.062	.035	76.10	[illegible]
.006331	1.	1.	1.	1	1	1	0.00	70.00	51[illegible]

*SECND 5475.101

3470 ENCROACHMENT STATIONS= 600.0 875.0 IWID= 1 TARGET= [illegible]

VALLEY SECTION #13 SECT.0

5475.00	6.74	753.74	0.01	0.01	754.24	.50	.74	.10	75[illegible]
1745.	20.	1715.	0.	13.	301.	0.	0.	0.	[illegible]
.21	1.67	5.23	0.00	.061	.015	.062	.033	747.02	[illegible]
.002367	203.	203.	203.	2	3	3	0.00	53.01	562.36

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*SECNO 5303.000

3301 HV CHANGED MORE THAN HVINS

5303.00	5.33	756.62	0.00	0.00	756.18	1.55	1.42	.50	753.30
1745.	14.	1721.	0.	5.	17.	0.	44.	1.	757.20
.23	2.11	10.03	0.00	.000	.005	.002	.035	750.30	647.50
.010036	330.	350.	0.	0	0	0	1.70	51.01	49.70

SPECIAL BRIDGE

SB	XK	XKOR	COFO	RCLE	TMC	JNF	DATA	9=	FLCHL	FLCHR
	0.00	1.54	2.20	0.	1.10					

*SECNO 5307.000
PRESSURE AND AIR FLOW

PARK POST BRIDGE #3 BRIDGE SECT. #3-A SECT. D.

EGRDS	EGLAC	AP	QWTIP	QTS	DATA	TRAPEZOID AREA	LLC	FLTOT
756.62	756.18	0.00	7.	1732.	755.	234.	755.00	756.20

5307.00	5.02	735.25	1.30	1.10	754.01	1.11	.47	1.00	752.07
1745.	12.	1731.	3.	11.	201.	4.	3.	1.	757.51
.22	2.13	8.51	1.10	.041	.035	.042	.035	748.39	343.65
.005990	4.	4.	3.	2	1	2	1.71	55.35	2 5.01

*SECNO 6095.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DELTA	CASEL	CRITS	WSELK	TG	AP	VB	CLOSS	A K SLOPE
3	CLOS	QCM	CLOS	ALPS	ACS	GAMA	WDL	TAB	LATTICE
TIP	VLOS	VCM	VSTA	.UL	XMCM	FAC	.TI	1.WW	DATA
SLOPE	XLOAL	XLCA	OLSAD	DeTAL	ADC	LOS T	ADAS	FRAC	TAT

6095.00	5.12	737.12	1.11	1.01	757.2.	.01	.1.	.22	754.91
1745.	127.	1591.	0.	7.	30.	1.	2.	1.	7.10
.23	1.45	5.27	1.10	.031	.015	.005	.036	7.0.31	2.2.55
.001999	230.	205.	28.	2	0	0	2.00	1.1.12	542.15

*SECNO 61 7.000

6107.00	6.70	757.35	1.00	0.00	757.74	.03	.20	.02	754.40
1745.	104.	1617.	0.	5.	21.	1.	2.	1.	75.00
.24	1.55	5.47	1.01	.040	.025	.003	.35	75.150	2.6.15
.002210	138.	9..	5..	3	1	0	0.00	16.1.25	542.02

*SECNO 6371.000

3420 ENCROACHMENT STATION= 1.0.1 545. TYP = 1 TAB Ts = 1.0.0.0

6371.00	3.51	753.11	0.00	0.00	753.51	.25	.57	.0.	752.71
1745.	495.	731.	523.	127.	157.	151.	1..	81.	7.3.47
.2.	3.55	6.57	3.52	.041	.1. 0	.041	.003	751.21	3.6.52
.013094	21..	.219.	21..				0.00	1...05.	1.1.09

*SECNO 6372.000

3420 ENCROACHMENT STATION S= 2.0.0 545.0 TYP = 1 TAB Ts= 1.0.0.0

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63.2.00	6.83	758.13	1.09	6.03	758.24	.24	.00	.00	758.24	
1765.	509.	534.	593.	138.	557.	151.	-2.	11.	152.41	
.26	3.03	4.36	5.35	.042	.054	.134	7.130	230.12	224.38	
.003671	1.	1.	1.	1	1	1	1.00	230.12	6?6.14	

SPECIAL BRIDGE

SB	XK	XKOR	COPO	EDLEN	BMC	BUP	DARCA	SP	ELCHD	ELCHD
	0.00	1.00	2.00	0.00	<1.80	0.00	110.00	0.00	751.30	751.30

*SECNO 65.5.000
PRESSURE AND VEL. FLOW

ERRA	EGLNC		1=10	OPR	EARCA	TRAPEZOID A-A	ELLC	ELTRL
7?4.3?	75?.??	1.??	?0?1.	?1?.	115.	115.	15?.??	?57.?4

3470 ENCROACHMENT STATIONS= 200.0 545.0 TYPE= 1 TARGET= -?5?.??

PARK ROAD BRIDGE . D. A SECTION NO. 1.-1 T.C.= 1

63.5.00	7.71	754.11	0.00	1.01	75?.16	.1?	.?5	1.00	15?.?0	
1745.	5?1.	655.	5?1.	245.	11?.	?4.?.	-?.	11.	???.?1	
.?1	?.?1	?.?5	?.?5	.01?	.?1?	.1??	.?24	?5.?1	51?.13	
.001110	?2.	1.0	1.0	1	0	1	?.10	?37.?3	6?1.62	

CC-V= .100 CF-V= .?00

*SECNO 6565.001

3?05 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	DWSEL	CRI S	WSELK	TC	HV	VLOB	ELCHS	PAVE ELEV
0	VLOB	CCH	SMDI	ALOB	ARL	ATOB	WSP	TOP WIDTH	ENERGY GRD
TIME	VLOB	VCH	VRCH	WSL	AMCH	AWP	EPS	FLAIR	SSTA
SLOPE	KLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 200.0 545.0 TYPE= 1 TARGET= 25.000

6585.00	5.41	759.11	0.00	0.00	759.75	.64	.05	.15	757.20	
1745.	308.	113?.	253.	172.	15?.	157.	41.	11.	?57.50	
.27	1.39	?.?2	1.62	.139	.025	.10?	1.34	752.70	35?.5?	
.006702	?16.	200.	150.	1	1	1	0.00	?50.?1	635.0?	

SPECIAL BRIDGE

SB	XK	XKOR	COPO	EDLEN	BMC	BUP	DARCA	SP	ELCHD	ELCHD
	0.00	1.74	2.00	1.10	2?1.30	0.00	110.00	0.10	75?.??	75?.??

*SECNO 6591.000

32 5 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	SGL.C	XQ	SUBSP	CPW	DARFA	TRAPEZOID AREA	ZLLC	ELTRD
761.65	759.39	0.00	546.	1300.	1.0.	7.0.	759.01	766.65

3470 ENCROACHMENT STATIONS= 400.0 652.0 TYPE= 1 TARGET= 652.000

DAM SECTION #14 PARK DAM SELECT

6521.00	7.25	759.95	0.00	0.00	760.01	.20	.55	0.00	757.21
1745.	345.	1137.	503.	256.	194.	223.	61.	13.	757.50
.27	1.27	5.86	3.19	.100	.021	.100	.036	752.70	400.00
.002039	50.	50.	50.	2	0	0	0.00	251.50	552.00

*SECNO 6641.000

3470 ENCROACHMENT STATIONS= .0 241.0 TYPE= 1 TARGET= 240.599

6641.00	7.30	760.18	0.00	0.00	760.21	.20	.05	.02	755.51
1745.	765.	1230.	501.	111.	119.	132.	41.	13.	757.01
.2.	2.35	4.01	1.24	.035	.032	.035	.01.	752.70	20.59
.001662	50.	50.	50.	1	1	1	0.01	251.44	601.01

*SECNO 6675.000

3470 ENCROACHMENT STATIONS= .0 1.2.0 TYPE= 1 TARGET= 1.0.0

6875.00	5.34	759.24	0.00	0.00	760.11	.05	.0.	.01	252.11
1745.	224.	1515.	5.	75.	25..	11.	45.	16.	757.01
.25	2.02	5.67	.03	.035	.032	.023	.015	752.70	22.45
.001452	230.	234.	123.	2	1	0	0.01	141.25	170.54

*SECNO 7110.000

3470 ENCROACHMENT STATIONS= .0 251.0 TYPE= 1 TARGET= 1 4.0.5

VALLEY SECTION #14-A SELECT

7110.00	5.50	760.00	0.15	1.11	761.27	.20	.53	.11	251.10
1745.	154.	1591.	0.	50.	231.	0.	47.	15.	757.01
.30	1.09	5.07	0.00	.025	.032	.025	.035	752.70	23.03
.102989	270.	345.	123.	2	1	1	0.01	82.57	102.45

*SECNO 7335.100

SECNO	DEPTH	CNSTL	CRITS	USFLW	.C	.V	NL	XLOSS	BANK ELEV
0	OLDB	OLD	ORDB	ALOS	ACH	AL.2	VOL	TRA	LEFT/RIGHT
TIME	VLDB	VCH	VRCH	ARA	.CHH	1.0	.TL	TLOSS	STA
SLOPE	XLOOL	XLCH	.LOCR	INITIAL	DOC	ICOUT	CONTRO	TOPWID	.WOA1

3470 ENCROACHMENT STATIONS= 11.0 11.0 TYPE= 1 TARGET= 1.0.0

7335.00	5.52	761.02	1.00	0.01	762.11	.05	.02	.00	251.00
1745.	47.	1653.	1.	1..	224.	1.	4.	1..	757.01
.11	3.02	7.55	.01	.034	.02.	.01.5	.1.5	715.40	37.30
.003644	260.	225.	11..	1	1	1	1.00	55.71	1.0.1

*SECNO 7567.000

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3470 ENCROACHMENT STATIONS= 57.1 705.0 TYPE= 1 TARGET= 49.00

7360.00	5.25	761.25	0.00	0.00	762.75	0.00	0.0	0.0	75.00	
1745.	0.	1745.	0.	0.	2000.	0.	63.	15.	1100000.00	
.31	0.00	7.78	0.00	.039	.042	.039	.035	750.00	57.00	
.004500	40.	25.	5.	2	0	0	0.00	60.00	105.00	

*SECNO 7372.000

3470 ENCROACHMENT STATIONS= 59.0 105.0 TYPE= 1 TARGET= 49.00

7372.00	5.07	761.37	0.00	0.00	762.37	1.30	.00	.00	0.00	
1745.	0.	1745.	0.	0.	1900.	0.	63.	15.	1100000.00	
.31	0.00	7.79	0.00	.035	.042	.035	.035	750.00	60.00	
.001600	25.	1.	1.	2	1	0	0.00	30.00	120.00	

*SECNO 7376.000

3471 ENCROACHMENT STATIONS= 51.0 101.0 TYPE= 1 TARGET= 49.00

7372.00	6.67	761.37	0.00	0.00	762.37	1.30	.00	.00	0.00	
1745.	0.	1745.	0.	0.	1900.	0.	63.	15.	1100000.00	
.31	0.00	9.79	0.00	.035	.042	.035	.035	750.00	60.00	
.002277	36.	36.	36.	2	0	0	0.00	30.00	60.00	

*SECNO 7384.001

7386.00	6.75	760.55	.00	0.00	762.55	1.95	.05	.05	107.70	
1745.	0.	1745.	0.	0.	2000.	0.	63.	15.	750.00	
.31	0.00	10.21	0.00	.035	.042	.035	.035	750.00	60.00	
.004681	15.	5.	5.	2	0	0	0.00	30.00	45.00	

*SECNO 7385.000

SECNO	DEPTH	CHSIL	CRIDS	JCBLK	FG	HV	HL	CLASS	BASE FLOW
0	FLOW	QCH	QRD	ALOC	ACC	ARCH	VOL	TWA	LEFT/RIGHT
TIME	VLCY	VCH	VRD	INL	RADCH	SEA	JT	FLOW	RATIO
SLOPE	ELCHL	ELCH	ELCRD	TRIAL	CO	CPILOT	COMBO	TYPE	WGT

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 766.01 MAX ELLC= 767.70

7383.00	4.75	760.85	.00	0.00	762.00	1.75	.00	.00	0.00	
1745.	0.	1745.	0.	0.	1900.	0.	63.	15.	1100000.	
.31	0.00	10.32	0.00	.035	.042	.035	.035	750.00	60.00	
.003005	1.	1.	1.	0	0	0	0.00	30.00	45.00	

*SECNO 7421.000

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 766.09 MAX ELLC= 767.70

BRIDGE SECTION AT LUDLOW STREET OUTLET SECTION

7421.00	5.17	761.27	0.00	0.00	762.77	1.67	.04	.04	0.70	
1745.	0.	1745.	0.	0.	1700.	0.	64.	15.	750.00	
.31	0.00	9.79	0.00	.039	.010	.035	.035	750.00	60.00	
.102277	36.	36.	36.	2	0	0	0.00	30.00	60.00	

CCHV= .300 CCHHV= .300

*SECNO 7422.000

7422.00	5.17	761.27	.00	0.00	762.76	1.49	.00	.00	707.70
1745	0.	1745.	0.	0.	1700.	1.	63.	15.	750.00

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.21	0.00	9.20	0.00	.035	.032	.005	.035	756.10	190.00
.007250	1.	1.	1.	0	0	0	0.00	30.50	430.50

*SECNO 7424.000

3470 ENCROACHMENT STATIONS=		192.0	235.0	TYPE=	1	TARGET=		45.000	
7424.00	5.20	751.30	1.80	0.00	762.70	1.67	.01	.00	2.0.30
1745.	1i.	1754.	0.	4.	177.	2.	AG.	15.	10.00.16
.31	3.26	9.30	0.00	.035	.032	.015	.035	756.10	192.10
.007121	2.	2.	2.	1	0	0	0.00	33.00	205.00

*SECNO 7430.000

3470 ENCROACHMENT STATIONS=		190.0	237.0	TYPE=	1	TARGET=		47.000	
7426.00	5.80	761.00	0.00	0.00	752.95	1.03	.01	.14	20.0.00
1745.	78.	1717.	0.	5.	210.	0.	43.	15.	100300.06
.31	3.29	9.10	0.00	.035	.032	.015	.035	756.10	190.00
.004122	2.	2.	2.	1	1	0	0.00	47.50	207.00

*SECNO 7429.000

SECNO	DEPTH	CROSS	COORDS	MSELK	CC	HW	SL	CLOSS	BACK CLEV
0	OLDS	QC4	QRO.	ALD3	ACM	[illegible]	LOL	"AA	L-FT/1.1941
TIME	VLOR	VC4	VRO.	.VL	ARC1	[illegible]	ITO	"L.C.1	0574
SLOPE	.VL.1	.LO=	.TOTAL	TOC	1.1.1	TOTAL	TOF.20		.0557

3470 ENCROACHMENT STATIONS=		1.7.0	24J.0	TYP.=	1	TA.G.T=		5.4.0	
7424.00	5.10	762.21	1.00	0.00	7.8.00	.81	.11	.07	7.1.30
1745.	69.	1.1..	..	55.	2..	..	..	1..	1.1.1.1
.31	3.20	7.29	1.04	.035	.032	.005	.035	756.10	11T.00
.003075	3.	..	..	3	.	0	..	.0.00	.50.07

*SECNO 7434.009

3470 ENCROACHMENT STATIONS=		182.0	245.9	TYP.=	1	TARGET=		50.000	
7434.00	5.29	752.39	0.00	0.00	753.65	.97	.01	.05	7.0.00
1745.	78.	1.6..	3.	25.	25..	1.	6..	15.	1.1.50
.31	3.02	1.17	1.49	.035	.0..	.005	.035	7.6.1.	1.2.00
.002462	5.	5.	5.	.	.	.	0.00	..	245.16

*SECNO 7447.000

3470 ENCROACHMENT STATIONS=		1.0.0	25..	TYP.=	1	TA.. T=		.0.0	
7447.00	5.51	762.51	.0.10	0.00	7.1.15	.32	.01	.02	25..51
1745.	130.	15...	20.	45.	25..	15.	1..	15.	2.1.1
.31	2.60	6.02	1.19	.035	.0..	.005	.035	756.00	190.00
.001636	19.	19.	19.	3	6	1	0.00	40.00	251.00

*SECNO 7473.000

VALLEY SECTION 31 % CT=0

7424.00	3.06	762.07	.01	0.02	763.11	.51	.05	.11	15.84
1745.	11..	159..	.0.	23.	268.	2..	5..	15.	2.1.1..
.31	2.22	5.1.	1.73	.0.5	.0..	0.15	.035	75.0.01	1..20
.001214	2..	2..	2..	1	1	0	.0..	1.1.1.	25.0.1

1470 NP CARD USED .

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*SECNO 3023.000

VALLEY SECTION 417 STA 1.

3023.00	5.83	764.00	0.00	0.00	764.04	.86	1.47	.05	7.04
1745.	0.	1745.	0.	0.	272.	0.	52.	15.	2.50
.35	0.00	6.81	.36	.035	.002	.17	.035	75.83	1.03
.001610	15.	55.	.01	2	0		.10	7.55	31.59

*SECNO 3200.000

SECNO	DEPTH	CUSEL	CPLUS	MSLES	EG	SW	SB	TLESS	BANK FLEN
0	OLOW	FOU	DUTY	ALOP	ASH	ASO	LOW	TYP	CTF*2/SUM
TYP	TLOW	WSU	WU	CAL	.CH	.CU	UT	L EN	.016
SLOPE	BLOW	0025	.0105	TTEA	3EG	.CUT	CO.63	70.70	1.231

8230.00	5.03	764.82	1.00	0.06	205.15	.06	.53	.02	2.04
1745.	1.	1745.	1.	0.	3.6.	04.	54.	12.	1.60
.15	0.00	6.55	1.00	.032	.01	.037	.035	75.03	1.01
.001327	1.0.	12.	.00.	.	0	0	.00	1.52	419.05

*SECNO 3.21.000

3265 LIMITED FLOW

3271 NORMAL BRIDGE.NO= 16 MIN FLTRO= 767.41 MAX FLLC= 756.41

1.21.00	5.71	764.79	1.00	0.03	205.13	.06	.10	.01	7.00
1745.	0.	1745.	0.	0.	272.	0.	54.	12.	1.60
.15	0.01	6.55	1.03	.035	.002	.17	.035	75.20	1.03
.001137	1.	1.	1.	1	0	0	0.00	1.55	419.05

*SECNO 3.11.000

3265 DIVIDER FLOW

3270 NORMAL BRIDGE.NO= 1. MIN FLTRO= 767.60 MAX FLLC= 756.40

BOTTOM SECTION WITH PRIVATE BRIDGE STA 1.

3211.00	5.10	764.30	0.00	0.00	765.14	.04	.01	.00	767.60
1745.	0.	1745.	0.	0.	272.	0.	54.	12.	247.40
.35	0.00	6.51	.10	.030	.017	.030	.035	75.03	1.07
.001132	10.	10.	11.	0	0	0	0.01	75.59	419.05

*SECNO 3211.000

3212.00	5.13	764.45	1.00	0.10	765.35	.02	.00	.01	767.60
1745.	1.	1745.	1.	1.	272.	1.	54.	12.	767.60
.35	0.10	6.53	0.00	.035	.01	.037	.035	75.00	1.07
.001299	1.	1.	1.	2	1	0	0.01	2.04	419.05

*SECNO 8211.000

3270 ENCROACHMENT STATIONS= 241.0 478.0 TYPE= 1 TARGET= 07.00

8211.00	5.57	764.27	0.00	0.00	765.51	.04	.15	.11000	0.00
1745.	1.	1745.	0.	1.	253.	0.	54.	17.	1000.60
.35	0.00	6.30	.00	.035	.033	.17	.035	75.20	1.00
.004227	50.	50.	100.	2	1	1	0.00	1.30	419.05

*SECNO 8330.000

SECNO	DEPTH	CWSEL	CRWS	WS-LK	CS	AV	AL	CLOSS	JAM ELEV
O	OLOB	OCH	ORCB	ALOB	ACH	AROA	VOL	TIA	LEFT/RIGHT
TIME	VLOB	VCH	VRCH	XNL	XNCH	KCH	XTH	FLOIN	STA
SLOPE	XLOBL	YLOH	ALOCH	STRIAL	IDC	JCO.T	CORAR	TOPWID	INVST
8330.00	5.65	706.95	0.00	0.00	765.10	.85	.24	.05	767.80
1265.	0.	1265.	0.	0.	171.	0.	56.	17.	758.11
.35	0.00	7.54	0.00	.035	.045	.037	.035	758.39	5.00
.005016	1.	1.	1.	2	1	0	0.01	2.02	2.00

*SECNO 8331.000

3265 DIVIDED FLOW

3320 NORMAL BRIDGE.NO= 25 MIN FLOOD= 770.80 MAX FLOO= 780.11

8331.00	5.58	766.14	0.00	0.00	765.17	1.01	.01	.01	7 7.00
1265.	0.	1265.	0.	0.	157.	0.	55.	17.	7 3.11
.35	0.01	5.97	0.01	.033	.027	.037	.035	758.39	5.00
.004401	1.	1.	1.	2	1	0	0.00	2.01	2.01

*SECNO 8365.010

3265 DIVIDED FLOW

3370 NORMAL BRIDGE.NO= 25 MIN FLOOD= 770.80 MAX FLOO= 780.10

BRIDGE SECTION WITH PIER-CENTRAL RAIL BRIDGE WAY-CFS=

8345.00	5.62	765.10	0.00	0.00	765.00	.01	.00	.03	7 7.00
1265.	0.	1265.	0.	0.	165.	0.	55.	17.	7 3.11
.35	0.00	7.64	0.00	.035	.027	.037	.035	758.39	5.00
.005691	10.	10.	10.	2	1	0	0.01	2.02	2.00

*SECNO 8365.000

8346.00	6.05	765.33	.00	0.00	765.17	.02	.01	.0	7 7.00
1265.	0.	1265.	0.	0.	151.	0.	55.	17.	7 3.11
.35	0.00	6.56	0.00	.070	.035	.110	.045	758.30	5.00
.004852	1.	1.	1.	2	1	0	0.01	2.00	2.01

*SECNO 8395.000

3470 ENCROACHMENT STATION= .0 15.0 TYP = 1 TABLE= 5.000

8395.00	5.55	765.06	0.00	0.00	765.11	.01	.01	.01	7 5.51
1265.	0.	1265.	0.	0.	157.	0.	55.	17.	7 3.11
.35	.30	5.01	1.31	.07	.05	.113	.035	7 3.10	77.55
.004691	49.	49.	49.				0.01	.02	750.00

*SECNO 8445.000

SECNO	DEPTH	CWSEL	CRWS	WS-LK	CS	AV	AL	CLOSS	JAM ELEV
O	OLOB	OCH	ORCB	ALOB	ACH	AROA	VOL	TIA	LEFT/RIGHT
TIME	VLOB	VCH	VRCH	XNL	XNCH	KCH	XTH	FLOIN	STA
SLOPE	XLOBL	YLOH	ALOCH	STRIAL	IDC	JCO.T	CORAR	TOPWID	INVST

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VALLEY SECTION 495 SECT=7

3448.00	6.94	765.64	765.36	0.00	756.73	.30	.50	.12	765.20	
1265.	0.	1130.	79.	0.	152.	[illegible]	55.	10.	[illegible]	
.3	0.00	7.10	[illegible]	.076	.134	.110	.135	[illegible]	[illegible]	
.007333	55.	53.	5[illegible]	2	1.	[illegible]	[illegible]	122.13	219.[illegible]	

*SECNO 8560.000

8560.00	5.22	736.52	0.00	0.00	757.20	.47	.54	.32	719.50	
1295.	1.	1355.	171.	3.	165.	17.	210.	11.	158.4[illegible]	
.3	.1	5.3[illegible]	[illegible].82	.076	.102	[illegible]	.005	[illegible].1[illegible]	[illegible].36	
.002712	2.	[illegible]	[illegible]				1.11	[illegible].5[illegible]	[illegible].8[illegible]	

*SECNO 8033.000

3470 ENCROACHMENT STATION= .8 50.00 TYPE= 1 TARGET= [illegible].35

5633.30	5.07	767.17	[illegible].10	0.00	[illegible].00	.42	[illegible]	.01	7[illegible].[illegible]	
1265.	17.	4057.	181.	25.	151.	17[illegible]	250.	13.	734.21	
.37	.70	5.5[illegible]	1.01	.070	.02[illegible]	.103	.035	741.30	120.[illegible]	
.002950	93.	[illegible]	[illegible]3.	[illegible]	[illegible]	[illegible]	0.10	761.02	681.[illegible]	

*SECNO [illegible].00

3470 ENCROACHMENT STATION= .0 50.00 TYPE= 1 TARGET= 667.[illegible]

[illegible].00	[illegible].00	767.76	[illegible].0	0.00	7[illegible].[illegible]	[illegible].7	[illegible].30	[illegible].2	7[illegible].3[illegible]	
12[illegible].	11.	1622.	[illegible]2.	31.	195.	173.	54.	17.	[illegible].[illegible]	
.71	[illegible].00	5.44	[illegible].03	.074	[illegible].[illegible]	.106	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	
.00[illegible]	25[illegible].	[illegible].3[illegible]	[illegible]3.		[illegible]		[illegible].21	[illegible].[illegible]	59.[illegible]	

*SECNO 500.000

3470 ENCROACHMENT STATION= .0 [illegible].0 TYPE= 1 TARGET= [illegible].[illegible]

[illegible].00	[illegible].[illegible]	76[illegible].[illegible]	[illegible].[illegible]	0.00	7[illegible].[illegible]	[illegible]	[illegible].[illegible]	[illegible]	[illegible].[illegible]	
1245.	213.	910.	145.	154.	100.	175.	70.	20.	[illegible].7[illegible]	
.29	1.14	4.[illegible]	.52	.[illegible]9	.[illegible]8	.110	.035	[illegible].10	20[illegible].[illegible]	
.002055	165.	1[illegible]5.	1[illegible]5.	[illegible]			[illegible].03	[illegible].32	[illegible].2[illegible]	

1490 [illegible] CARD [illegible]

*SECNO 913[illegible].000

SECNO	DEPTH	CLSEL	CRICS	HSELK	L3	HH	HL	SLOPES	BANK SLEV
0	OLOD	FCN	Q70.	ALOB	ACH	AE2H	VOL	TOA	LEFT/RIGHT
TIME	VLOB	VC.	VT7.	AAL	K.CH	JD7	JT.	LIOY	AREA
SLOPE	XLOBL	XLCH	.LOCR	ITTIDL	ICC	TLCNT	CORAT	TW.BD	LOT

3470 ENCROACHMENT STATIONS= .1 [illegible].0 TYPE= 1 TARGET= [illegible].55

VALLEY SECTION 820 SECT=7

9156.00	6.16	763.66	0.00	0.00	708.97	.54	.50	.04	7[illegible].30	
1265.	211.	570.	84.	265.	131.	129.	52.	22.	7[illegible].20	
.40	.80	5.35	.65	.110	.035	.110	.035	7[illegible].50	[illegible].72	
.002303	185.	1[illegible]5.	165.	2	0	0	0.20	[illegible].50	7[illegible].[illegible]	

1490 NH CARD USED

*SECNO 9755.000

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3470 ENCROACHMENT STATIONS= 110.0 500.0 TYPE= 1 TARGET= 770.000

VALLEY SECTION #21 SECT.AA

9755.00	4.98	770.21	0.00	0.00	770.97	.51	1.77	.15	764.10
1265.	94.	1171.	0.	106.	150.	0.	57.	26.	771.33
.42	.56	6.51	1.00	.421	.035	.111	.155	765.30	101.10
.003432	600.	567.	720.	2	1	1	0.00	738.00	65.14

#SECNO 9995.000

3470 ENCROACHMENT STATIONS= .0 300.0 TYPE= 1 TARGET= 771.000

VALLEY SECTION #22 SECT.A1

9995.00	5.38	771.43	0.00	0.00	771.08	.45	.56	.05	770.00
1245.	5.	1237.	25.	17.	220.	60.	0.	32.	771.11
.44	.30	5.47	1.10	.150	.035	.073	.033	765.16	697.54
.003232	360.	240.	180.	2	1	1	0.00	734.05	66.21

#SECNO 10615.000

VALLEY SECTION L 1 SECT.A2

10615.00	3.65	772.15	1.10	0.00	771.00	.7	1.	.0	770.00
1265.	0.	816.	451.	0.	119.	341.	73.	39.	771.00
.50	0.00	5.16	1.45	.056	.037	.050	.005	736.73	115.41
.001432	600.	620.	840.	1	1	0	0.10	751.27	55.04

#SECNO 10 15.000

10015.00	5.15	773.45	0.00	0.00	773.71	.20	.24	.04	772.91
1265.	0.	5.6.	231.	0.	13>.	283.	77.	31.	711.91
.51	0.00	6.75	1.54	.051	.017	.150	.135	717.22	81.31
.002051	240.	271.	240.	2	1	1	0.01	7..	3.5.1

#SECNO 11015.000

SECNO	DEPT-	CHS L	CRITS	USTLK	LG	HW	HL	CLOSS	PANK FLOW
0	OLOJ	OCH	OBOE	ALLJ	AC.	ARCH	VOL	TUA	ADEPTSIENT
TYPE	VLTO	VCH	VATO	CF.	(.CH	...	IT.	L ZH	CATA
SLOPE	ZLTOL	ZLCO	ZLOGG	ST:CAL	ISC	ICC.T	CONAB	TOTCIP	...

3470 ENCROACHMENT STATIONS= .0 200.0 TYPE= 1 TARGET= 500.000

11015.00	5.98	773.52	.00	0.01	774.24	.47	.51	.05	773.50
1263.	0.	774.	291.	0.	179.	1..	79.	32.	.72.30
.5.	0.00	5.65	1.72	.15.	.01.	....	.045	7.7..	135.5.
.002316	240.	240.	200.	2	1	0	0.00	13>.68	55>.00

#SECNO 11235.000

3470 ENCLOACHMENT STATIC.S= .0 20..0 TYPE= 1 TA..ET= 3.5..

11235.00	5.09	774.45	.00	0.00	775.17	.53	.77	.10	774.21
1265.	0.	11.2.	.3.	0.	17..	5.1.	...	33.	.72.21
.5.	0.00	6..0	1.60	.65.	.01.	.150	.025	75..5.	11..72
.0.4.1	2.0.	3.1.	.20.	.	.	0	0..0	..31	20..00

#SECNO 11250.000

3470 ENCROACHMENT STATIONS= .0 190.0 TYPE= 1 TARGET= 772.900

112±0.00	±.09	774.59	0.01	0.00	775.30	.±3	.13	.02	778.21
1265.	0.	1184.	1.	0.	14..	4..	91.	3..	7.. .29
.52	0.00	5.45	±.00	.050	.037	.1 51	.035	708.31	116.20
.003059	25.	25.	25.	2	1	0	0.00	7±.74	163.3.

*STCN: 112 A.000

112.4.01	0.55	775.35	±.00	0.01	775.±5	.±4	.13	.12	774.70
1265.	0.	12.5.	0.	0.	22±.	1.	.1.	5±.	7..1
.54	0.00	3.73	0.00	.050	.037	.053	.035	708.70	227.50
.001137	24.	24.	24.	2	0	0	0.00	05.3±	293.12

*SECA 112'5.001

3245 DIVIDED FLO

3.70 NORMAL BRIDGE.IRD= 12 SCL ELTRD= 77..60 AR CLLL= 77..11

11E 5.00	±.54	775.24	1.01	1.01	7±5.47	.32	.1.	.01	7..1.
1265.	0.	1205.	0.	0.	329.	0.	4..	2±.	77..10
.53	0.00	3..5	0.00	.051	.0±7	.15±	.035	708.70	2±7.5J
.000954	1.	1.	1.	0	0	0	0.00	0..73	..9.62

*SECAD 11.7(.00)

3245 DIVIDED FL.

SECTO	DEPTH	COSEL	CELNS	VELOC	FR	HW	EL	FLOWS	A.K L.J
0	.LOW	NC-	ORDN	ALTO	ATM	..TS	EL	TWA L RT/RIGHT	
TI E	WID	WSA	ASO	XR.	T.20	..2	(TO	L.IN	I TR
SLOPE	FLO L	ALCH	VLOHR	.TIJAL	IDC	ICO.T	COVER	TCPUS)	.MD=T

3.70 NORMAL BRIDGE.IRD= 12 SCL ELTRD= 77..60 AR CLLC= 77..11

BRIDGE SECTION 0:6 TELKEW ROAD BRIDGE SECT.AD

11314.00	5.57	775.37	0.00	0.01	775.5.	.±3	.12	.00	77.70
12 5.	0.	12.3.	0.	0.	22..	0.	11.	2..	7..1.
.51	0.00	1.24	0.00	.051	.017	.059	.135	7..70	62.03
.000943	29.	2..	29.	1	0	1	0.00	05.70	293.03

*SECND 11.15.000

11315.01	5.59	775..9	..07	0.00	775.59	.21	.08	.30	77 .1.
1265.	0.	13.5.	0.	0.	2..5.	0.	89.	.2.	7..10
.54	0.00	3.70	0.00	.120	.035	.166	.035	7..70	227.50
.000992	1.	1.	1.	2	0	0	0.00	0.52	29.02

*SECND 11.46.00

3470 ENCROACHMENT STATIONS= 130.0 400.0 TRPL= 1 TARGET= -1.8.300

11364.00	5.53	775.53	0.30	0.70	775.57	.24	.05	.1.	772.46
1265.	91.	982.	142.	130.	22..	104.	87.	2..	773.59
.56	.70	4.43	1.27	.120	.03.	.040	.035	708.00	1.6.3.
.301250	70.	49.	30.	1	0	0	0.00	1.7.11	.99.11

*SECND 11435.000

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3270 ENCROACHMENT STATIONS= 145.0 ΔCJ.0 TYP= 1 TARGET= -1.5E.00

VALLEY SECTION #25 SECT.AT

11435.00	5.99	775.39	0.00	J.CO	775.70	.32	.09	.04	775.30
1265.	73.	1024.	164.	98.	207.	89.	32.	26.	173.40
.55	.72	4.75	1.33	.120	.035	.156	.032	7.1.40	145.00
.001717	120.	71.	1.	1	0	F	0.10	15.2.	251.20

*SECNO 11521.000

3470 ENCROACHMENT STATIONS=			148.0	231.0	TYPE=	1	TARGET=	111.00	
11521.00	0.01	775.51	J.00	0.00	775.88	.3.	.1?	.01	7.1.00
1265.	56.	1027.	136.	69.	221.	4..	3?.	1?.	172.51
.55	.50	4.95	1.08	.120	.035	.049	.0.5	7.3.30	100.00
.001631	100.	1..	1.	0	0	0	0.01	11.00	231.01

*SECNO 11570.000

SECNO	DEPTH	CHSEL	CHORD	WSELK	EG	HW	VEL	FLOSS	LAMP LEV
0	OLDE	DCH	CRO!	ALPH	ACH	ATW	VOL	TWA	LEFT/RIGHT
TIME	VLOB	URH	UTH	XBL	BACH	AWP	UTI	ELMIN	BETA
SLOPE	XLOBL	XLCH	FLOLB	FTIAL	IMC	COUT	COEAR	TOPWID	.BST

11570.00	0.2.	775.50	.1.0	0.00	775.12	.0..	.1.7	.1.	7.1.1.
1265.	0.	1265.	1.	1.	231.	0.	1..	34.	7.0.00
.55	0.00	5.67	0.00	.120	.035	.040	.033	7.1.30	462.50
.003697	20.	64.	1.	2	0	0	0.01	12.10	551.40

*SECNO 11571.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE.NO= 12 MIN FLOD= 771.10 MAX FLOW= 773.70

11571.00	0.25	775.55	1.00	0.00	775.15	.51	.07	.02	775.90
1265.	0.	1265.	0.	0.	2.1.	1.	1..	34.	7.1.00
.55	0.00	5.67	0.00	.120	.035	.040	.035	7.1.30	482.50
.003375	1.	1.	1.	1	0	1	0.01	1.1.01	551.51

*SECNO 11614.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE.NO= 13 MIN FLOW= 771.1 MAX FLOW= 7.1.71

BRIDGE SECTION #25 BRIDGES FOR FLOOD STATION.AT

11614.00	1.65	775.75	1.00	0.00	1.0.1.	1.4.	1.7	.02	771.90
1255.	0.	1215.	1.	0.	2.1.	0.	1..	3..	1.7.01
.5.	1.00	5.1.	1.00	.120	.127	.040	.023	7.1.30	432.50
.002142	65.	4..	62.	2	1	0	0.0	1.1.	355.04

1.15.00

11.15.01	0.51	775.11	1.01	1.1.	1.0.2.	.1.	.02	.1	7.1.0.
1265.	0.	1215.	0.	0.	250.	1.	1..	34.	7.1.00
.5.	0.00	5.0.	0.00	.050	.024	.043	.023	7.1.1	431.50
.003274	1.	1.	1.	2	1	1	0.00	1.1.34	551.44

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*SECNO 11044.000

3470 ENCROACHMENT STATIONS= 250.0 360.0 TYPE= 1 TABLE T= -10.000

11044.00	6.26	776.04	0.00	0.00	776.54	.58	.10	.1	776.64
1265.	0.	1265.	0.	0.	0.	28.	1.	44.	1265.00
.51	.08	4.30	.06	.056	.024	.1	.35	7.1	.19
.001407	45.	69.	59.	2	0	1	.10	17.1	1.09

*SECNO 11748.000

SECNO	DEPT	CHSLL	CHORD	WSLP	FR	N	K	ELEV	ADJ K ELEV
0	ELEV	CRV	RAD	SLOPE	ACT	ADJ	VOL	INV	LEFT RIGHT
TIME	LL	LR	WIDE	L	R	CHN	WT	FLOW	LITE
SLOPE	SLOPE	SLOPE	SLOPE	INITIAL	IOC	IOCNT	CODAD	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 50.0 54.0 TYPE= 1 TABLE T= -5.000

VALLEY SECTION #27 S-CT-AC

11752.00	6.18	776.16	0.00	0.00	776.75	.57	.2	.16	776.91
1265.	3.	1265.	0.	0.	0.	0.	54.	54.	547.30
.5	0.30	.05	1.0	.050	.021	.048	.335	771.20	.5 .17
.003.2	150.	134.	124.	2	0	1	1.10	20.03	30.18

1490 UX CARD USED

*SECNO 12132.000

VALLEY SECTION #28 S-CT-AC

12132.00	5.55	777.25	0.00	0.00	777.50	.24	.2	.1	776.60
12.3	0.	1265.	0.	0.	325.	0.	0.	35.	.82.10
.1	.01	3.19	.00	.059	.024	.059	.335	771.0	20.11
.001.99	351.	346.	160.	2	0	1	1.00	.0.75	27.16

*SECNO 12232.000

12232.00	5.64	777.54	0.00	0.00	777.78	.17	.11	.0.	777.90
1265.	0.	1265.	0.	0.	59.	0.	0.	59.	7.1.01
.60	0.00	1.01	0.00	.051	.031	.046	.335	771.10	19.30
.000935	110.	100.	110.	2	1	1	0.00	0.75	26.47

*SECNO 12361.000

12361.00	5.26	777.55	0.00	0.00	777.85	.29	.3	.1.	750.51
1265.	0.	1265.	0.	0.	20.	0.	0.	20.	7.1.01
.61	0.00	4.39	0.00	.051	.051	.043	.335	770.0	95.37
.003002	65.	65.	65.	0	1	1	0.00	0.75	13.51

*SECNO 12512.000

3265 DIVIDER FLOW

3370 NORMAL BRIDGE.ORD= 12 MIN SLTRD= 743.30 MAX FLOC= 775.00

12252.00	5.42	777.52	0.00	0.00	777.00	.0	.1	.0.	760.90
1265.	0.	1265.	0.	0.	26.	0.	0.	.5.	7.1.0
.60	0.00	4.23	0.00	.050	.027	.043	.335	770.90	95.57
.001678	1.	1.	1.	2	0	0	0.00	57.15	157.50

*SECNO 12293.000

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	CRINS	WSELK	FS	HV	JL	XLOSS	BANK SLOPE
0	0L00	0CH	0402	ALOB	ACH	AROB	VOL	TYP	LEFT/RIGHT
TIME	VL00	VCH	VR00	VOL	ACH	[illegible]	HT	WIDTH	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	ICH	[illegible]	CHAN	ROUGH	DIST

3370 NORMAL DEPTH=3.80 MI. ELTRD= 0.00 MAX ELL= 757.00

BRIDGE SECTION M29 OPIVEWAY BRIDGE SECT.AI

12293.00	6.65	777.55	0.00	0.00	777.55	0.00	0.00	0.00	0.00
1265.	0.	1265.	0.	0.	1265.	0.	0.	35.	771.00
.060	0.000	4.0	0.00	.0350	.0177	.0000	.0135	771.00	55.20
.001061	1.0	1.0	1.0	1	1	1	1.00	37.17	1552.50

*SECNO 12294.000

12294.00	6.75	777.55	0.00	0.00	777.55	0.	0.00	0.00	0.00
1265.	0.	1265.	0.	0.	1265.	0.	0.	35.	771.00
.060	0.00	4.0	0.00	.0350	.0177	.0000	.0135	771.00	55.20
.001305	1.0	1.0	1.0	1	1	1	0.00	37.26	1552.51

*SECNO 12340.000

3270 ENCROACHMENT STATIONS= 0.00 1 ITYP= 1 INCL IS 0.00

12360.01	6.59	777.02	0.00	0.00	777.02	0.0	0.00	0.00	777.02
1265.	0.	1265.	0.	0.	1265.	0.	0.	35.	771.00
.060	0.00	4.55	0.00	.0350	.0177	.0000	.0135	771.00	55.20
.000772	70.	1.	1.	1	0	1	1.00	37.26	771.00

*SECNO 12356.001

12356.00	6.59	777.69	0.00	0.00	777.23	0.54	0.00	0.17	777.10
1265.	0.	1265.	0.	0.	1265.	0.	0.	35.	771.00
.061	0.00	5.27	0.00	.0350	.0181	.0000	.0135	771.00	55.20
.000422	70.	1.	1.	1	0	1	1.00	37.26	771.00

*SECNO 12357.001

3265 DIVIDED FLOW

3370 NORMAL BRIDGE DEPTH= 19 MIN. ELTRD= 782.00 MAX ELL= 762.10

12337.00	6.54	777.66	0.12	0.00	777.23	0.43	0.00	0.00	0.00
1265.	0.	1265.	0.	0.	1265.	0.	0.	35.	771.00
.061	0.00	5.21	0.00	.0353	.0181	.0000	.0135	771.00	55.20
.000322	1.	1.	1.	1	0	1	1.00	37.26	771.00

*SECNO 1.00.000

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	CRINS	WSELK	FS	HV	JL	XLOSS	BANK SLOPE
0	0L00	0CH	0R00	ALOB	ACH	AROB	JOL	TYP	LEFT/RIGHT
TIME	VL00	VCH	VR00	VOL	ACH	AROB	HT	WIDTH	SSTA

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SLOPE	XLOSL	XLCH	XLOSR	IRIAL	IDC	ICONT	CONAR	TOPWID	CNOST

3870 NORMAL BRIDGE,NBO= 0. MIN FLTSC= 762.60 MAX FLLC= 783.10

BRIDGE SECTION 000 REAR-CENTRAL FWD. DRIVE TO SECT.AA

12400.00	6.31	777.71	0.00	0.00	775.30	.59	.04	.00	7[illegible]
1265.	0.	1265.	0.	0.	203.	0.	39.	25.	7.1.9[illegible]
.61	1.00	0.16	.00	.050	.027	.141	.025	771.71	5[illegible]
.002[illegible]	13.	1[illegible]	13.	1	1	1	0.00	41.30	7[illegible]

*SECNO 1.601.000

12401.00	6.72	777.87	1.00	0.00	774.35	.61	.00	.72	7[illegible]
1265.	0.	1265.	1.	1.	221.	0.	52.	25.	221.80
.7	0.00	5.72	1.00	.050	.134	.142	.025	773.17	561.01
.[illegible]	1.	1.	1.	1	1	1	0.00	12.44	54.[illegible]

*SECNO 12650.000

3870 TACAN EQUIPMENT STATION= 2.70 GRAD.= TYPE= 1 TACAN ELEV= 772.000

12650.00	7.14	778.7	0.11	0.00	776.50	.19	.05	.12	77.30
12[illegible]	0.	12[illegible]	0.	1.	1[illegible]	0.	10.	25.	[illegible]
.61	.23	2.50	0.00	.050	.034	.116	.025	771.21	27[illegible]
.000572	55.	6[illegible]	55.	1	1	3	0.00	105.61	27[illegible]

*SECNO 13[illegible]

VALLEY SECTION 0 1 SECT.AK

12[illegible]	5.1[illegible]	778.56	0.00	0.00	77[illegible]	.55	.41	.11	776.20
1265.	7[illegible]	1121.	00.	50.	22[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
.64	1.41	5.03	.[illegible]	.05[illegible]	.[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]
.001696	210.	4[illegible]	5[illegible]	[illegible]	[illegible]	[illegible]	0.01	11[illegible]	[illegible]

*SECNO 135[illegible].000

135[illegible].00	5.7[illegible]	774.90	.00	0.00	7[illegible]	.[illegible]	[illegible]	.13	7[illegible]
12[illegible].	50.	11[illegible]	53.	61.	23[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
.[illegible]	1.49	5.05	.03	.05[illegible]	.[illegible]	.[illegible]	.035	7[illegible]	11[illegible]
.002383	692.	692.	692.	[illegible]	[illegible]	[illegible]	0.00	139.67	.54.[illegible]

*SECNO 14123.100

SECNO	DEPTH	CuSCL	CONTR	*SCLR	CG	RV	RL	PLOSS	*ANK ELEV
2	OLOR	OCH	ORDR	ALOR	ALH	ALOR	OUL	T&O	LEFTRT AT
TIME	VLOR	VCH	VRDR	XIL	RRCM	NUR	UTO	*LOEN	SSTAT
SLOPE	XLOSL	XLCH	XLOSR	STRIAL	IDC	ICONT	CONAR	TOPWID	CNOST

BRIDGE SECTION AREA PRIVATE BRIDGE SECT.AL

14123.00	5.33	781.33	0.10	0.30	781.93	.30	1.41	.07	782.30
1265.	0.	1257.	8.	0.	201.	10.	101.	Alo.	777.67
.70	0.00	6.24	.89	.050	.134	.679	.025	775.50	501.27
.002915	538.	538.	538.	2	0	1	0.00	55.14	51[illegible]

SPECIAL BRIDGE

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SS	XW	YMOR	COEF	RDLEN	BAC	BAP	AREA	SS	ELCHO	ELCHD
	0.00	1.53	2.90	0.00	.5.20	0.00	151.10	0.00	775.50	775.50

*SECNO 14125.000
PRESSURE AND WEIR FLOW

EGPOS	EGLIC	HI	QWEIR	QOL	DADIA	TRAPEZOID AREA	ELev	ELTRD
763.00	792.19	0.00	59.	1225.	151.	151.	731.50	791.52

3470 ENCROACHMENT STATIO S= .* 761.0 TYPE= 1 TABLE= 775.00

14128.00	0.35	782.50	0.00	0.01	782.50	.36	.96	0.00	782.50	
1265.	0.	1155.	110.	0.	135.	65.	101.	60.	777.03	
.70	0.00	6.12	1.58	.050	.034	.025	.035	179.50	1.60	
.002141	5.	3.	5.	4	4	4	3.03	5.16	511.00	

1490 NEW CARD USED
*SECNO 14275.000

WALL Y SECTION 1.0 SELAF

14274.01	.45	792.79	1.01	1.00	792.29	.40	.3.	.43	.00
1265.	0.	1340.	75.	0.	225.	1.	102.	60.	750.70
.71	0.03	5.51	1.44	.050	.150	.050	.035	776.60	6.54
.002265	150.	150.	150.	2	0	0	0.00	5.35	522.00

*SECNO 14404.000

3470 ENCROACHMENT STATIO S= 0.0 355.0 TYPE= 1 TABLE= 5.010

14903.00	2.45	794.25	1.00	0.01	796.81	.53	1.52	.45	7.60	
1265.	0.	1265.	0.	0.	210.	0.	105.	41.	5.20	
.74	0.00	5.01	0.00	.130	.054	.151	.135	777.00	1.35	
.002	5.5.	5.5.	1.5.	3	1	1	1.15	3.52	3.01	

*SECNO 15528.000

3470 ENCROACHMENT STATIO S= 00.0 ARE= TYPE= 1 TABLE= 1.0.0

VALLEY SECTION E.S S CT.AM

15525.00	5.55	785.05	1.01	0.00	1.5.7	.42	.35	.20	7.7.29	
1265.	0.	1141.	324.	0.	35.0	2.0.	199.	62.	.36.10	
.79	0.01	4.01	.85	.121	.026	.191	.035	777.10	31.01	
.210496	425.	1.5.	1.5.				1.10	3.1.3.	6.2.1	

*SEGLD 15.65.000

SECND	DEPTH	CUSTL	CRLIS	JSELR	E	HV	L	CLOSS	JOIN FLOW
0	SLOP	OCH	QRT	ALT	AC	APP	VOL	TUR	L TRTARIL T
TYPE	VEL	VLC	VRC	USE			TIM	CARIN	TY
SLOPS	XLOBL	YLCH	XLOWR	ATRIAN	ILC		SPLAT	TOPWID	SIDES

3470 ENCROACHMENT STATIO S= .00.0 475.. TYPE= 1 TABLE= 17.0.0

15465.00	.71	786.11	1.00	0.00	795.11	.42	.45	.1.	7.64	
1265.	0.	1116.	113.	0.	221.	15..	111.	63.	795..	
.01	0.00	5.24	.65	.12.	.054	.12C	.35	778.30	1.51.	
.001C	137.	137.	137.			0	0.11	154.17	4.45.00	

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*SECNO 1 .01.000

3470 ENCROACHMENT STATIONS= .00.0 400.0 TYPE= 1 TABLET= 100.00

16303.04	7.13	725.69	3.06	0.00	767.29	.30	.25	.10	79.54	
1295.	0.	1251.	14.	1.	390.	.20	.11	.05	706.50	
.02	0.00	5.45	.09	.125	.132	.126	.038	750.51	.01	
.002946	33.	34.	3.	2	0	0.00	33.08	40.00		

*SECNO 16532.000

3470 ENCROACHMENT STATIONS= .00.1 400.7 TYPE= 1 TABLET= 100.00

16533.00	5.02	757.73	.00.01	0.00	7.7.27	.25	1.05	.01	.05.00	
1255.	1.	1251.	5.	0.	10.	.21.	1.11.	.45.	757.70	
.02	0.00	4.50	.02	.120	.033	.020	.055	780.70	31.00	
.000329	337.	337.	.2.	2	1	0	0.00	.2.7	430.00	

*SECNO 1.24.350

VALLEY SECTION #35 SECTION

15274.00	7.44	748.96	.00	0.00	7.5.51	.10	.51	.10	7.5.01	
1205.	43.	713.	1.4.	3.0.	171.	.1.	1.4.	.47.	7.0.00	
.1	1.01	4.13	1.53	.001	.01	.051	.033	1.1.4.	1.7.00	
.001074	325.	350.	23.	1	0	1	1.10	2.3.59	501.15	

*SECNO 17433.000

3470 ENCROACHMENT STATIONS= .00.1 .01.8 TYPE= 1 TABLET= 100.00

17433.00	5.12	729.58	0.00	0.00	750.00	.20	.25	.10	7.7.20	
1295.	168.	977.	140.	97.	156.	72.	12..	4..	704.81	
.01	1.52	5.25	1.95	.080	.035	.050	.035	7.0.70	41.00	
.007100	1.	554.	40..	1	0	1	0.00	321.00	431.00	

1490 W4 CARD USED

*SECNO 17533.000

SECNO	DEPTH	CNSEL	CRWDS	WSELR	SB	AR	EL	VLOSS	HA.R LEV
0	WLOB	WDP	WPC	ALT	ACP		WOL	TIP	LIFTA-IENT
TIP	WLOT	WCP	WPC	ANL	SMCP	.06	WTH	CL.I.	DATA
SLOPE	WLCHL	WLCH	LOSS	STRIAL	XDC	LP.T	CODAR	TOCLAD	CMENT

3470 ENCROACHMENT STATIONS= 115.0 200.0 TYPE= 1 TABLET= 0.000

VALLEY SECTION #35 SECTION

17533.00	5.73	709.76	0.10	0.00	790.56	.50	.30	.04	1.7.50	
1160.	96.	948.	90.	50.	155.	24.	135.	48.	715.70	
.90	1.55	6.65	1.95	.030	.150	.350	.035	796.90	110.00	
.703339	10.	100.	120.	1	1	1	0.10	57.01	20.10	

*SECNO 17533.000

17533.00	2.03	790.52	0.00	0.00	790.56	.24	.22	.10	7.3.00	
1160.	0.	1140.	0.	0.	295.	0.	145.	55.	732.70	
.90	0.00	5.94	0.00	.030	.152	.350	.035	790.20	0.0.61	
.001735	25.	5..	75.	2	1	1	0.10	30.00	0.0.60	

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SPECIAL BRIDGE

SB	XK	XIOR	COFQ	DTLEN	BWC	BUP	DATCA	SF	ELCHU	ELCHD
	.90	2.15	2.90	0.00	34.90	4.20	213.70	.970	793.30	783.20

HSECNO 17593.000
PRESSURE FLOW

FGPRS	EGLOC	HB	OMEIN	OPR	OAREA	TRAPEZOID AREA	ELLC	ELTRD
791.31	790.59	.03	0.	1130.	213.	213.	78....	792.00

3465 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLSA= 792.60 ELRCA= 792.67

BRIDGE SECTION NO. PENN-CENTRAL BRIDGE 45 SECT.AT

17593.00	7.67	791.13	0.00	0.00	791.11	.17	.75	.....	....
1160.	0.	1160.	0.	0.	368.	0.	14..	5..	792.70
.90	0.00	3.33	.00	.761	.352	.352	.035	.03.50	801.00
.001018	10.	10.	10.	2	1	1	0.00	..00	0.0..

HSECNO 1.012.010

3470 ENCROACHMENT STATION= .0 3.2.0 TYP= 1 TARG= 51P.....

18012.00	8.00	791.20	0.00	0.00	791.7.	.0.	..1.	.03	....
1160.	9.	5.4.	5.5.	.82.	1.1.	468.	5.1.	51.	792.0
.90	.40	3.13	1.15	.000	.000	.451	.035	0	80.21
.100047	3.0.	63..	0.1.	...	...	1	0.01	..2.52	5.....1

HSECNO 18195.000

3470 ENCROACHMENT STATION= .0 4.2.0 TYP= 1 TARG= 5.0.....

18195.00	3.12	7.1.92	0.00	0.00	792.1.	.0.	..2.	..0.	1.51
1160.	9.	5.5.	5.5.	.23.	1.2.	375.	13..	56.	792.00
.90	.41	3.10	1.15	.030	.036	.053	.035	780.00	80.30
.000936	35.	154.	160.	...	...	1	0.00	4.5.05	507.00

HSECNO 18255.030

SECNO	DEPTH	CWS.L	CRI.S	WSELK	EG	HV	HL	ELJES	BANK STA
Q	CLOT	DCH	CRDC	ALOB	ACT	ARDC	VOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XCL	NOCS	NUM	WTT	ELKIN	SSTA
SLOPE	ALOBL	ALCH	ALOBR	ITRIAL	JDC	ICONS	CDIAM	T...IC	...IST

3470 ENCROACHMENT STATION= .0 4.2.0 TYP= 1 TARGET= 551.0...

18256.00	9.11	792.01	0.00	0.00	792.11	.13	.17	.03	791.31
1160.	11.	511.	574.	2..	1.2.	403.	13..	55.	191..0
1.00	.42	2.17	1.16	.000	.35.	.050	.035	....1.	3..49
.000135	1..	...	110.	...	...	1	1.00	413.0.	..2.1.

HSECNO 18...0.000

3470 ENCROACHMENT STATION= .0 4.2.0 TYP= 1 TARGET= 5.....

18320.00	3.07	7.4.17	.0.1	0.0.0	7.2.1.	.1.1	..1.	..1.	1.1..0
1160.	10.	5.3.	5.7.	24.	193.	5.4.	159.	55.	791.81
1.01	.42	3.0.	1.20	.080	.035	.050	.035	7.6.00	46.15
.000190	3.	...	1.1.	1	...	1	0.10	1...0.3	4.7.01

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1200 YR CARD USED
*SECNO 18501.000

3470 ENCROACHMENT STATION 5= .0 422.7 TYPE= 1 FACTOR= 671.999

18501.00	1.11	792.13	.101	0.00	792.31	.10	.05	.20	1.1
1150.	16.	805.	515.	20.	342.	120.	150.	5..	790.96
1.02	.60	4.23	.20	.060	.040	.120	.035	790.0	1.14
.001667	0.	61.	100.	1	0	0	0.00	1.2.05	622.60

*SECNO 18555.010

3470 ENCR ACHMENT STATION= .0 422.7 TYPE= 1 FACTOR= 671.999

18565.00	6.25	792.49	0.10	0.00	792.65	.20	.25	.06	791.60
1150.	21.	820.	301.	32.	139.	51.	164.	5L.	791.10
1.04	.65	4.17	.75	.080	.040	.120	.035	714.25	25.35
.001572	25.	166.	191.	2	1	1	0.00	1.1.01	1.3.01

*SECNO 18750.010

3470 ENCROACHMENT STATION 5= .0 426.7 TYPE= 1 FACTOR= 671.999

18750.01	5.37	792.77	0.00	0.00	795.62	.23	.75	.00	791.21
1140.	27.	81..	21..	30.	2.4.	371.	1.7.	.1.	1 1..
1.05	.35	4.51	.10	.010	.040	.120	.1.5	130.40	1.1.12
.001726	25.	165.	200.	1	1	1	0.00	224.36	2.5.10

*SECNO 1.0.0.0.

SECNO	DIFF=	C.BCL	CREWS	.ITER	YB	YV	I	ELEV	IA S TA.A
9	QAD	QCR	VPJ.	AL.F	AQH	A.J	WOL	IX	IVIIC1
TIME	VLOB	VCM	VRJ	SNL	ENCH	XOR	STJ	CLTIM	SSTA
SLOPE	ALOBL	YLCH	YLOJD	TTRIAL	FDC	ICD F	CO.AR	TUPUI	UNDST

3470 ENCROACHMENT STATION= .0 171.0 TYPE= 1 TA.CTOR= 771.60

VALLEY SECTION 3.7 .CTo.F

19120.00	3.7.	793.63	0.00	0.00	7.1.72	.31	. .	.13	7.1.07
1140.	44.	10.5.	70.	9..	319.	...	181.	...	.3..
1.1.	.93	4.12	.10	.031	.0..	.120	.035	1.4.1	1.4..
.001751	50.	371.	500.	2	1	0	0.00	13.51	1.1.00

*SECNO 19270.000

3470 ENCROACHMENT STATION= .0.0 .70.0 TYPE= 1 TA.CTOR= .0.0.

19270.00	6.05	793.65	0.00	0.00	796.30	.35	.30	.17	7.2.40
1100.	.96.	1056.	36.	27.	15..	3..	152.	...	791.60
1.0.	3.29	5.77	1.15	.040	.0..	.120	.035	7.7.60	.34.0.
.004210	300.	150.	1.	4	2	0	0.30	5..00	4.3...

*SECNO 19320.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 736.00 ELREA= 736.00

19320.00	5.15	793.75	0.00	0.00	796.03	.71	.36	.02	7.7.00
1160.	0.	11...	0.	0.	171.	0.	150.	...	7.2.40
1.09	0.00	5.77	0.00	.040	.123	.120	.035	736.60	3.0.90
.002001	100.	50.	1.	3	1	0	0.30	4..00	4.6.70

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SPECIAL BRIDGE

SS	XK	NKOR	CSPD	ROLEX	BUC	BUP	AREA	SS	FLOW	ELEV
	0.00	1.29	2.90	0.00	55.80	0.00	369.00	0.00	754.01	796.51

*SECNO 19385.000

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLIC= 796.423 ELLC= 795.000 ECWS= 792.755 ELTRD= 792.51

3370 NORMAL BRIDGE,WSEL= 14 MAX ELTRD= 797.54 MAX ELLC= 796.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 797.60 ELOEA= 797.60

BRIDGE SECTION 805 FLOW-CENTRAL B.F. COEF.= 5% SECTION

19385.00	5.62	793.52	0.00	0.00	796.51	.64	.00	.01	797.00
1160.	0.	1160.	0.	0.	173.	0.	153.	52.	797.80
1.09	0.00	4.69	0.00	.060	.023	.020	.035	7 .43	800.30
.003134	15.	15.	15.	1	3	1	1.10	.4.70	425.53

*SECNO 19385.000

3470 ENCROACHMENT STATIONS= 235.0 450.0 TYP.= 1 TARGET= -2 5.000

19385.00	5.22	793.52	0.00	0.00	796.51	.60	.00	.03	796.00
1160.	75.	979.	0.	17.	12.	67.	153.	52.	797.80
1.09	1.41	6.03	1.06	.070	.031	.025	.035	7 .29	800.30
.007913	20.	50.	90.	1	1	1	0.00	16.62	422.00

*SECNO 19462.000

SECNO	DEPTH	CWSEL	CRWS	WS-LK	EG	HO	E	VELHS	IN VEL H
Q	SLOP	QLOB	QCH	ALOB	ACH	AROB	WTD	TIA	LOSS INCR
TIME	VLOB	VCH	VROB	TAL	WSC	WSR	QTO	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	INITIAL	BOC	TOP WID	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 253.0 450.0 TYP.= 1 TARGET= -2 5.000

19462.00	5.05	796.75	0.00	0.00	796.16	.61	.27	.12	796.50
1160.	113.	907.	142.	69.	155.	116.	153.	52.	797.80
1.09	1.72	5.30	1.23	.073	.035	.026	.035	7 .71	800.57
.003204	25.	57.	75.	1	1	1	0.00	13.14	417.71

*SECNO 19499.000

3470 ENCROACHMENT STATIONS= 310.0 410.0 TYP.= 1 TARGET= 5.000

19499.00	5.11	796.14	0.00	0.00	796.34	.67	.11	.12	797.41
1160.	113.	643.	107.	5.	15.	99.	154.	52.	797.80
1.10	1.52	5.00	1.27	.071	.044	.023	.035	7 .36	800.06
.003307	25.	57.	75.	1	1	1	0.00	12.01	413.00

*SECNO 19538.000

3470 ENCROACHMENT STATIONS= 317.0 410.0 TYP.= 1 TARGET= 5.000

VALLEY SECTION #34 SECTION

FORM 1411-03 PRINTED BY ROTARY RAPI OLD FORM

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19603.00	5.85	795.15	0.00	0.00	795.15	1.01	1.01	1.15	795.50
1150.	5.	1151.	0.	3.	1.	0.	154.	22.	1.00
1.13	1.33	0.13	1.30	0.00	0.00	0.00	0.03	0.00	0.00
0.004473	50.	101.	150.	2		0	0.03	0.00	1.30

*SECNO 19.17.003

470 ENCROACHMENT STATIONS=	150.1	3.1	TYPE=	1 TAIL T=	1.01		
19617.00	5.78	795.05	0.00	0.00	795.15	1.10	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	1.	138.	0.	154.	52.	1.00	0.00
1.10	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.00	
0.017540	14.	14.	14.	2	0	1	0.01	0.00	0.00	

*SECNO 19.35.003

19635.00	5.22	795.02	0.00	0.00	796.55	1.03	0.1	0.22	1.00	0.20
1160.	1.	1150.	0.	0.	1150.	0.	154.	52.	1.00	0.20
1.10	0.00	5.93	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.016617	13.	1.	1.	1	0	1	0.00	0.00	0.00	0.00

*SECNO 19.36.010

SECNO	DENT=	CWS=	CRIWS	WSELK	WD	WV	WA	VOL	VA	LATERAL
0	OLD	CON	CRIT	ALOB	ALCH	ACH=	VOL	VA	LATERAL	
TI	VL=	WCH	WD=1	.L	ACH=	0	QT	.L CH	QTA	
0.000	VL=0.0	1.00	0.000	INITIAL	TOP	1.00	0.000	0.00		

3570 NORMAL BRIDGE.RO= 11 MIN ELTRO= 795.01 MAY CALC= 795.00

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.37.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.38.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.39.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.40.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.41.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.42.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.43.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.44.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.45.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.46.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.47.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.48.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.49.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.50.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.51.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.52.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.53.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.54.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.55.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.56.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.57.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.58.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.59.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.60.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.61.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.62.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.63.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.64.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.65.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.66.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.67.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.68.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.69.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.70.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.71.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.72.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.73.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.74.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.75.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.76.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.77.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.78.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.79.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.80.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.81.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.82.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.83.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.84.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.85.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0	1	1.00	0.00	0.00	0.00

*SECNO 19.86.003

19.00	5.23	795.15	0.00	0.00	795.25	1.05	0.1	0.1	0.00	0.00
1150.	0.	1150.	0.	0.	1170.	0.	154.	52.	1.00	0.00
1.10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
0.003526	1.	1.	1.	1	0

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP & CITY OF ROCHESTER

3) WATERCOURSE: PAINT CREEK

4) DOCUMENT TYPE: 100 YR NATURAL

00BREAK00

AVON TWP. - ROCHESTER FTS
J&A FILE NO. 5850-01,07-1
PAINT CREEK
"NATURAL FLOODWAY"
SECT. 14278 - DUTTON ROAD
100 YEAR FLOOD

PRINTED IN U.S.A.
FORM 1411 GD PRINTED BY ROTARY MANIFOLD FORMS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1      AVON TWP. - ROCHESTER FIS 5850-01,07-1
T2      100 YEAR FLOOD - NATURAL FLOODWAY
T3      PAINT CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.       4.        0.        0.  0.000000      0.00      0.0       0.   782.790     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       .120      .046      .035      .300      .500     0.000     0.000     0.000     0.000     0.000
QT      4.000   675.000  1040.000  1265.000  1750.000     0.000     0.000     0.000     0.000     0.000
NH      5.000      .050   200.000      .052   372.000      .050   460.000      .036   504.000      .050
NH    600.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  14278.000    17.000   460.000   504.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    798.300     0.000   795.200   100.000   794.300   200.000   791.600   300.000   788.900   324.000
GR    792.700   345.000   793.400   372.000   792.300   400.000   783.200   460.000   777.100   468.000
GR    776.900   477.000   777.100   486.000   777.100   496.000   776.400   501.000   780.700   504.000
GR    784.900   538.000   785.700   600.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .120      .090      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  14903.000    19.000   311.000   355.000   625.000   625.000   625.000     0.000    -.300     0.000
X3      0.000     0.000     0.000   300.000     0.000   355.000     0.000     0.000     0.000     0.000
GR    783.000     0.000   783.400   100.000   781.700   180.000   781.000   275.000   787.700   300.000
GR    787.200   311.000   779.100   325.000   777.500   330.000   777.500   335.000   777.100   340.000
GR    777.300   345.000   778.700   349.000   784.100   355.000   783.200   400.000   783.700   500.000
GR    784.400   600.000   785.800   700.000   786.700   800.000   791.000   860.000     0.000     0.000

X1  15528.000     0.000     0.000     0.000   625.000   625.000   625.000     0.000      .300     0.000
X3      0.000     0.000     0.000   300.000     0.000   560.000     0.000     0.000     0.000     0.000
NC       .120      .120      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  15865.000     0.000     0.000     0.000   337.000   337.000   337.000     0.000    1.200     0.000
X3      0.000     0.000     0.000   300.000     0.000   550.000     0.000     0.000     0.000     0.000

X1  16201.000     0.000     0.000     0.000   336.000   336.000   336.000     0.000    1.200     0.000
X3      0.000     0.000     0.000   300.000     0.000   450.000     0.000     0.000     0.000     0.000

X1  16538.000     0.000     0.000     0.000   337.000   337.000   337.000     0.000    1.200     0.000
X3      0.000     0.000     0.000   300.000     0.000   480.000     0.000     0.000     0.000     0.000
NC       .080      .050      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  16874.000    18.000   228.000   258.000   336.000   336.000   336.000     0.000    0.000     0.000
GR    791.200     0.000   790.300     9.000   788.000    15.000   786.700   100.000   787.000   200.000
GR    784.800   228.000   783.900   230.000   782.200   235.000   782.000   240.000   781.900   245.000
GR    783.500   250.000   784.400   253.000   786.800   258.000   786.900   293.000   795.400   327.000
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GR	797.600	357.000	799.600	400.000	800.200	450.000	0.000	0.000	0.000	0.000
X1	17433.000	24.000	144.000	176.000	10.000	600.000	559.000	0.000	-.300	0.000
X3	0.000	0.000	0.000	90.000	0.000	231.000	0.000	0.000	0.000	0.000
GR	791.700	0.000	791.400	15.000	787.500	25.000	788.400	100.000	787.500	144.000
GR	785.100	150.000	784.700	155.000	784.400	160.000	784.000	165.000	784.000	170.000
GR	785.200	174.000	788.700	176.000	788.500	200.000	788.200	300.000	788.400	350.000
GR	786.500	358.000	784.800	362.000	784.500	365.000	784.400	420.000	785.400	430.000
GR	788.400	445.000	789.800	450.000	790.000	500.000	792.700	600.000	0.000	0.000
QT	4.000	615.000	950.000	1160.000	1615.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.080	144.000	.036	176.000	.050	300.000	.075	350.000	.050
NH	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17533.000	24.000	144.000	176.000	10.000	120.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	115.000	0.000	206.000	0.000	0.000	0.000	0.000
GR	791.700	0.000	791.400	15.000	787.500	25.000	788.400	100.000	787.500	144.000
GR	785.100	150.000	784.700	155.000	784.400	160.000	784.000	165.000	784.000	170.000
GR	785.200	174.000	788.700	176.000	788.500	200.000	788.200	300.000	788.400	350.000
GR	786.500	358.000	784.800	362.000	784.500	365.000	784.400	420.000	785.400	430.000
GR	788.400	445.000	789.800	450.000	790.000	500.000	792.700	600.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17583.000	0.000	0.000	0.000	1.000	75.000	50.000	0.000	-.700	0.000
X3	0.000	0.000	0.000	127.000	0.000	193.000	0.000	0.000	0.000	0.000
SB	.900	2.150	2.900	0.000	36.900	4.200	213.000	0.000	783.300	783.300
X1	17593.000	37.000	600.000	666.000	10.000	10.000	10.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	789.800	792.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	792.600	792.600	0.000
BT	20.000	0.000	792.000	0.000	100.000	791.100	0.000	200.000	791.500	0.000
BT	300.000	792.000	0.000	400.000	792.300	0.000	500.000	792.400	0.000	600.000
BT	792.600	789.500	615.300	792.600	789.600	616.700	792.600	789.600	632.300	792.700
BT	789.700	633.700	792.700	789.700	649.300	792.700	789.800	650.700	792.700	789.800
BT	666.000	792.700	789.800	700.000	792.700	0.000	800.000	793.400	0.000	900.000
BT	793.900	0.000	1000.000	794.500	0.000	1100.000	795.000	0.000	1200.000	795.600
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	792.000	0.000	791.100	100.000	791.500	200.000	792.000	300.000	792.300	400.000
GR	792.400	500.000	792.600	500.000	786.100	600.000	786.000	605.000	785.200	610.000
GR	784.300	615.300	789.600	615.300	789.600	616.700	784.300	616.700	783.500	620.000
GR	783.300	625.000	783.400	630.000	783.400	632.300	789.700	632.300	789.700	633.700
GR	784.600	633.700	785.100	640.000	785.800	645.000	786.400	649.300	789.800	649.300
GR	789.800	650.700	786.400	650.700	787.600	655.000	788.900	660.000	788.600	666.000
GR	792.700	666.000	792.700	700.000	793.400	800.000	793.900	900.000	794.500	1000.000
GR	795.000	1100.000	795.600	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	18012.000	20.000	78.000	122.000	140.000	600.000	419.000	0.000	-1.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	513.000	0.000	0.000	0.000	0.000
GR	802.800	0.000	792.300	42.000	791.900	78.000	791.300	82.000	787.400	83.000
GR	785.500	87.000	784.700	92.000	785.200	94.000	786.700	96.000	787.400	97.000
GR	788.200	102.000	788.400	107.000	789.700	110.000	791.600	122.000	790.900	222.000
GR	790.900	322.000	792.100	422.000	792.200	522.000	791.100	602.000	795.300	619.000
X1	18196.000	0.000	0.000	0.000	25.000	300.000	184.000	0.000	.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	467.000	0.000	0.000	0.000	0.000
X1	18258.000	0.000	0.000	0.000	8.000	100.000	62.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	452.000	0.000	0.000	0.000	0.000

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X1	18320.000	0.000	0.000	0.000	8.000	100.000	62.000	0.000	.100	0.000
X3	0.000	0.000	0.000	0.000	0.000	437.000	0.000	0.000	0.000	0.000
NH	4.000	.080	78.000	.036	122.000	.120	522.000	.080	619.000	0.000
X1	18381.000	20.000	78.000	122.000	8.000	100.000	61.000	0.000	-.700	0.000
X3	0.000	0.000	0.000	0.000	0.000	422.000	0.000	0.000	0.000	0.000
GR	802.800	0.000	792.300	42.000	791.900	78.000	791.300	82.000	787.400	83.000
GR	785.500	87.000	784.700	92.000	785.200	94.000	786.700	96.000	787.400	97.000
GR	788.200	102.000	788.400	107.000	789.700	110.000	791.600	122.000	790.900	222.000
GR	790.900	322.000	792.100	422.000	792.200	522.000	791.100	602.000	795.300	619.000
X1	18565.000	0.000	0.000	0.000	25.000	300.000	184.000	0.000	.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	343.000	0.000	0.000	0.000	0.000
X1	18750.000	0.000	0.000	0.000	25.000	300.000	185.000	0.000	.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	263.000	0.000	0.000	0.000	0.000
X1	19120.000	0.000	0.000	0.000	50.000	600.000	370.000	0.000	.300	0.000
X3	0.000	0.000	0.000	0.000	0.000	171.000	0.000	0.000	0.000	0.000
NC	.040	.120	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19270.000	17.000	349.000	385.000	300.000	1.000	150.000	0.000	-1.300	0.000
X3	0.000	0.000	0.000	334.000	0.000	400.000	0.000	0.000	0.000	0.000
GR	804.300	0.000	795.500	85.000	793.300	185.000	797.900	285.000	792.400	327.000
GR	793.500	349.000	791.900	353.000	788.900	356.000	789.200	360.000	789.200	365.000
GR	790.000	370.000	790.800	375.000	791.900	378.000	793.000	385.000	793.000	385.000
GR	792.700	420.000	804.500	450.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19320.000	26.000	377.000	425.500	100.000	1.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	796.000	796.000	0.000
GR	802.900	0.000	800.900	77.000	799.500	177.000	798.900	217.000	798.500	277.000
GR	797.900	377.000	793.900	377.000	793.900	377.900	793.900	380.800	789.500	380.800
GR	789.600	387.000	789.400	392.000	789.000	397.000	788.600	402.000	789.100	407.000
GR	790.100	412.000	790.400	417.000	791.500	421.700	793.800	421.700	793.800	424.600
GR	793.800	425.500	797.400	425.500	797.300	477.000	796.700	577.000	796.100	677.000
GR	795.600	767.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.790	2.900	0.000	35.800	0.000	229.000	0.000	788.600	788.600
X1	19335.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	795.000	797.500	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	797.400	797.400	0.000
BT	14.000	0.000	802.900	0.000	77.000	800.900	0.000	177.000	799.500	0.000
BT	217.000	798.900	0.000	277.000	798.500	0.000	377.000	797.900	797.400	377.900
BT	797.900	797.400	377.900	799.100	795.000	424.600	798.900	794.800	424.600	797.600
BT	797.100	425.500	797.600	797.100	477.000	797.300	0.000	577.000	796.700	0.000
BT	677.000	796.100	0.000	767.000	795.600	0.000	0.000	0.000	0.000	0.000
NC	.070	.075	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19385.000	17.000	349.000	385.000	20.000	90.000	50.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	285.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	804.300	0.000	795.500	85.000	793.300	185.000	797.900	285.000	792.400	327.000
GR	793.500	349.000	791.900	353.000	788.900	356.000	789.200	360.000	789.200	365.000
GR	790.000	370.000	790.800	375.000	791.900	378.000	793.000	385.000	793.000	385.000
GR	792.700	420.000	804.500	450.000	0.000	0.000	0.000	0.000	0.000	0.000

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X1	19442.000	0.000	0.000	0.000	25.000	75.000	57.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	285.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19499.000	0.000	0.000	0.000	25.000	75.000	57.000	0.000	.100	0.000
X3	0.000	0.000	0.000	321.000	0.000	413.000	0.000	0.000	0.000	0.000
X1	19603.000	0.000	0.000	0.000	50.000	150.000	104.000	0.000	.100	0.000
X3	0.000	0.000	0.000	347.000	0.000	387.000	0.000	0.000	0.000	0.000
X1	19617.000	0.000	0.000	0.000	14.000	14.000	14.000	0.000	.400	0.000
X3	0.000	0.000	0.000	350.000	0.000	383.000	0.000	0.000	0.000	0.000
X1	19635.000	17.000	403.000	427.000	18.000	18.000	18.000	0.000	0.000	0.000
GR	807.700	0.000	806.400	15.000	801.100	115.000	799.000	215.000	799.200	315.000
GR	800.200	403.000	790.000	403.000	789.800	405.000	789.800	410.000	790.000	415.000
GR	790.200	420.000	791.200	427.000	800.200	427.000	801.000	515.000	803.200	615.000
GR	804.400	715.000	807.200	815.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.025	.025	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19636.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	11.000	0.000	807.700	0.000	15.000	806.400	0.000	115.000	801.100	0.000
BT	215.000	799.000	0.000	315.000	799.200	0.000	403.000	800.200	798.200	427.000
BT	800.200	798.600	515.000	801.000	0.000	615.000	803.200	0.000	715.000	804.400
BT	0.000	815.000	807.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19669.000	0.000	0.000	0.000	33.000	33.000	33.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.070	.075	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19670.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV= .300 CEHV= .500
1490 NH CARD USED
*SECNO 14278.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
14278.00	6.39	782.79	0.00	782.79	783.25	.46	0.00	0.00	783.20
1265.	0.	1240.	25.	0.	225.	18.	0.	0.	780.70
0.00	0.00	5.50	1.44	0.000	.036	.050	0.000	776.40	460.54
.002241	0.	0.	0.	0	0	0	0.00	60.38	520.92

*SECNO 14903.000

3470 ENCROACHMENT STATIONS= 300.0 355.0 TYPE= 1 TARGET= 55.000

14903.00	7.45	784.25	0.00	0.00	784.82	.56	1.51	.05	786.90
1265.	0.	1265.	0.	0.	210.	0.	3.	1.	99999.70
.03	0.00	6.01	0.00	.120	.036	.090	.036	776.80	315.57
.002626	625.	625.	625.	2	0	0	0.00	59.43	355.00

*SECNO 15528.000

3470 ENCROACHMENT STATIONS= 300.0 560.0 TYPE= 1 TARGET= 260.000

15528.00	8.52	785.62	0.00	0.00	785.79	.17	.86	.12	787.20
1265.	0.	954.	311.	0.	254.	409.	10.	3.	784.10
.09	0.00	3.76	.76	.120	.036	.090	.036	777.10	313.72
.000843	625.	625.	625.	2	0	0	0.00	246.27	560.00

*SECNO 15865.000

3470 ENCROACHMENT STATIONS= 300.0 550.0 TYPE= 1 TARGET= 250.000

15865.00	7.63	785.93	0.00	0.00	786.31	.38	.41	.11	788.40
1265.	0.	1136.	129.	0.	217.	219.	14.	5.	785.30
.11	0.00	5.23	.59	.120	.036	.120	.036	778.30	315.27
.001896	337.	337.	337.	2	0	0	0.00	234.73	550.00

*SECNO 16201.000

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

3470 ENCROACHMENT STATIONS= 300.0 450.0 TYPE= 1 TARGET= 150.000

16201.00	7.11	786.61	0.00	0.00	787.19	.58	.79	.10	789.60
1265.	0.	1226.	39.	0.	197.	70.	16.	6.	786.50
.12	0.00	6.22	.56	.120	.036	.120	.036	779.50	316.16
.002960	336.	336.	336.	2	0	0	0.00	135.84	450.00

*SECNO 16538.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 300.0 480.0 TYPE= 1 TARGET= 180.000

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16538.00	6.94	787.64	0.00	0.00	788.27	.63	1.05	.02	790.[illegible]
1265.	0.	1231.	34.	0.	190.	69.	19.	7.	787.70
.14	0.00	6.46	.49	.120	.036	.120	.036	780.70	316.46
.003304	337.	337.	337.	2	0	0	0.00	160.53	480.00

*SECNO 16874.000

16874.00	6.95	788.85	0.00	0.00	789.03	.18	.62	.14	784.80
1265.	417.	727.	121.	412.	168.	78.	22.	9.	786.80
.17	1.01	4.33	1.56	.080	.036	.050	.036	781.90	12.78
.001174	336.	336.	336.	2	0	0	0.00	288.03	300.81

*SECNO 17433.000

3470 ENCROACHMENT STATIONS= 90.0 231.0 TYPE= 1 TARGET= 141.000

17433.00	5.80	789.50	0.00	0.00	789.99	.49	.80	.16	787.20
1265.	146.	982.	137.	96.	155.	70.	25.	10.	788.40
.19	1.53	6.33	1.95	.080	.036	.050	.037	783.70	90.00
.003192	10.	559.	600.	2	0	0	0.00	141.00	231.00

1490 NH CARD USED

*SECNO 17533.000

3470 ENCROACHMENT STATIONS= 115.0 206.0 TYPE= 1 TARGET= 91.000

17533.00	5.76	789.76	0.00	0.00	790.33	.57	.30	.04	787.50
1160.	93.	1000.	67.	57.	154.	36.	26.	10.	788.70
.20	1.63	6.49	1.89	.080	.036	.050	.037	784.00	115.00
.003390	10.	100.	120.	2	0	0	0.00	91.00	206.00

*SECNO 17583.000

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

3470 ENCROACHMENT STATIONS= 127.0 193.0 TYPE= 1 TARGET= 66.000

17583.00	6.76	790.06	0.00	0.00	790.48	.42	.10	.05	786.80
1160.	72.	1024.	64.	53.	186.	36.	26.	10.	788.00
.20	1.37	5.51	1.76	.080	.032	.050	.037	783.30	127.00
.001498	1.	50.	75.	2	0	0	0.00	66.00	193.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	2.15	2.90	0.00	36.90	4.20	213.00	0.00	783.30	783.30

*SECNO 17593.000

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
791.05	790.40	.08	0.	1160.	213.	213.	789.80	792.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 792.60 ELREA= 792.60

17593.00	7.56	790.86	0.00	0.00	791.05	.19	.57	0.00	792.60

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1160.	0.	1160.	0.	0.	330.	0.	26.	10.	792.70	
.20	0.00	3.51	0.00	.080	.032	.050	.037	783.30	600.00	
.001202	10.	10.	10.	2	0	0	0.00	66.00	666.00	

*SECNO 18012.000

3470 ENCROACHMENT STATIONS= .0 513.0 TYPE= 1 TARGET= 512.999

18012.00	7.83	791.53	0.00	0.00	791.64	.11	.56	.02	790.90
1160.	6.	628.	526.	16.	180.	428.	31.	14.	790.60
.25	.37	3.49	1.23	.080	.036	.050	.037	783.70	41.09
.001259	140.	419.	600.	2	0	0	0.00	471.91	513.00

*SECNO 18196.000

3470 ENCROACHMENT STATIONS= .0 467.0 TYPE= 1 TARGET= 466.999

18196.00	7.92	791.82	0.00	0.00	791.92	.10	.28	.00	791.10
1160.	7.	610.	543.	19.	184.	443.	35.	16.	790.80
.28	.40	3.31	1.22	.080	.036	.050	.036	783.90	40.72
.001100	25.	184.	300.	2	0	0	0.00	426.28	467.00

*SECNO 18258.000

3470 ENCROACHMENT STATIONS= .0 452.0 TYPE= 1 TARGET= 451.999

18258.00	8.02	791.92	0.00	0.00	792.01	.09	.08	.00	791.10
1160.	9.	589.	561.	23.	188.	469.	37.	17.	790.80
.29	.41	3.13	1.20	.080	.036	.050	.036	783.90	40.33
.000951	8.	62.	100.	2	0	0	0.00	411.67	452.00

*SECNO 18320.000

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

3470 ENCROACHMENT STATIONS= .0 437.0 TYPE= 1 TARGET= 436.999

18320.00	7.99	791.99	0.00	0.00	792.09	.09	.08	.00	791.20
1160.	9.	600.	552.	21.	187.	449.	38.	18.	790.90
.30	.41	3.21	1.23	.080	.036	.050	.036	784.00	40.46
.001011	8.	62.	100.	1	0	0	0.00	396.54	437.00

1490 NH CARD USED

*SECNO 18381.000

3470 ENCROACHMENT STATIONS= .0 422.0 TYPE= 1 TARGET= 421.999

18381.00	8.04	792.04	0.00	0.00	792.25	.21	.10	.06	791.20
1160.	14.	822.	324.	24.	189.	458.	39.	19.	790.90
.31	.58	4.34	.71	.080	.036	.120	.036	784.00	40.23
.001816	8.	61.	100.	1	0	0	0.00	381.77	422.00

*SECNO 18565.000

3470 ENCROACHMENT STATIONS= .0 343.0 TYPE= 1 TARGET= 342.999

18565.00	8.21	792.41	0.00	0.00	792.62	.20	.37	.00	791.40
1160.	19.	834.	306.	30.	197.	406.	43.	21.	791.10
.32	.65	4.24	.75	.080	.036	.120	.035	784.20	39.57
.001651	25.	184.	300.	2	0	0	0.00	303.43	343.00

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*SECNO 18750.000

3470 ENCROACHMENT STATIONS= .0 263.0 TYPE= 1 TARGET= 262.999

18750.00	8.35	792.75	0.00	0.00	793.00	.26	.36	.03	791.60
1160.	26.	919.	214.	35.	203.	267.	46.	22.	791.30
.34	.75	4.54	.80	.080	.036	.120	.035	784.40	39.02
.001811	25.	185.	300.	2	0	0	0.00	223.98	263.00

*SECNO 19120.000

3470 ENCROACHMENT STATIONS= .0 171.0 TYPE= 1 TARGET= 170.999

19120.00	8.72	793.42	0.00	0.00	793.73	.31	.70	.03	791.90
1160.	46.	1036.	78.	50.	219.	97.	51.	24.	791.60
.36	.92	4.73	.80	.080	.036	.120	.035	784.70	37.54
.001778	50.	370.	600.	2	0	0	0.00	133.46	171.00

*SECNO 19270.000

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

3470 ENCROACHMENT STATIONS= 334.0 400.0 TYPE= 1 TARGET= 66.000

19270.00	6.04	793.64	0.00	0.00	794.29	.65	.40	.17	792.20
1160.	90.	1035.	35.	27.	153.	30.	51.	24.	791.70
.37	3.29	6.78	1.18	.040	.036	.120	.035	787.60	334.00
.004245	300.	150.	1.	2	0	0	0.00	66.00	400.00

*SECNO 19320.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 796.00 ELREA= 796.00

19320.00	5.16	793.76	0.00	0.00	794.47	.72	.14	.03	797.90
1160.	0.	1100.	0.	0.	171.	0.	52.	24.	797.40
.37	0.00	6.79	0.00	.040	.023	.120	.035	788.60	380.80
.002013	100.	50.	1.	2	0	0	0.00	40.90	421.70

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	2.90	0.00	35.80	0.00	229.00	0.00	788.60	788.60

*SECNO 19335.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 794.470 ELLC= 795.000 PCWSE= 793.755 ELTRD= 797.500

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 797.50 MAX ELLC= 795.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 797.40 ELREA= 797.40

19335.00	5.21	793.81	0.00	0.00	794.51	.70	.03	.01	797.90
1160.	0.	1160.	0.	0.	173.	0.	52.	24.	797.40
.37	0.00	6.70	0.00	.040	.023	.120	.035	788.60	380.80
.002147	15.	15.	15.	2	0	0	0.00	44.70	425.50

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*SECNO 19385.000

3470 ENCROACHMENT STATIONS=			285.0	450.0	TYPE=	1	TARGET=	-285.000	
19385.00	5.21	793.91	0.00	0.00	794.78	.87	.19	.09	793.30
1160.	74.	991.	96.	37.	123.	47.	52.	24.	792.80
.38	1.98	8.06	2.04	.070	.036	.075	.035	788.70	313.86
.007983	20.	50.	90.	0	0	0	0.00	109.75	423.61

*SECNO 19442.000

3470 ENCROACHMENT STATIONS=			285.0	450.0	TYPE=	1	TARGET=	-285.000	
19442.00	6.06	794.76	0.00	0.00	795.18	.43	.27	.13	793.30
1160.	119.	899.	143.	69.	153.	80.	52.	25.	792.80
.38	1.72	5.87	1.78	.070	.036	.075	.035	788.70	307.46
.003161	25.	57.	75.	4	0	0	0.00	118.28	425.74

*SECNO 19499.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS=			321.0	413.0	TYPE=	1	TARGET=	92.000	
19499.00	6.12	794.92	0.00	0.00	795.59	.47	.18	.02	793.40
1160.	113.	940.	107.	59.	155.	60.	53.	25.	792.90
.38	1.92	6.06	1.79	.070	.036	.075	.035	788.80	321.00
.003305	25.	57.	75.	2	0	0	0.00	92.00	413.00

*SECNO 19603.000

3470 ENCROACHMENT STATIONS=			347.0	387.0	TYPE=	1	TARGET=	40.000	
19603.00	6.25	795.15	0.00	0.00	795.94	.79	.40	.16	793.50
1160.	5.	1150.	6.	3.	160.	4.	53.	25.	793.00
.39	1.33	7.19	1.36	.070	.036	.075	.035	788.90	347.00
.004469	50.	104.	150.	2	0	0	0.00	40.00	387.00

*SECNO 19617.000

3470 ENCROACHMENT STATIONS=			350.0	383.0	TYPE=	1	TARGET=	33.000	
19617.00	5.78	795.08	0.00	0.00	796.18	1.10	.08	.15100000.00	
1160.	0.	1160.	0.	0.	138.	0.	53.	25.	100000.00
.39	0.00	8.41	0.00	.070	.036	.075	.035	789.30	350.00
.007546	14.	14.	14.	2	0	0	0.00	33.00	383.00

*SECNO 19635.000

19635.00	5.22	795.02	0.00	0.00	796.55	1.53	.16	.22	800.20
1160.	0.	1160.	0.	0.	117.	0.	53.	25.	800.20
.39	0.00	9.93	0.00	.070	.036	.075	.035	789.80	403.00
.010684	18.	18.	18.	2	0	0	0.00	24.00	427.00

*SECNO 19636.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 799.00 MAX ELLC= 798.60									
19636.00	5.23	795.03	0.00	0.00	796.56	1.53	.00	.00	800.20
1160.	0.	1160.	0.	0.	117.	0.	53.	25.	800.20
.39	0.00	9.91	0.00	.025	.018	.025	.035	789.80	403.00
.002659	1.	1.	1.	0	0	0	0.00	24.00	427.00

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*SECNO 19669.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	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	IDC	ICONT	CORAR	TOPWID	ENDST
19669.00	5.55	795.35	0.00	0.00	796.69	1.34	.08	.05	800.20
1160.	0.	1160.	0.	0.	125.	0.	53.	25.	800.20
.39	0.00	9.30	0.00	.025	.018	.025	.035	789.80	403.00
.002207	33.	33.	33.	2	0	0	0.00	24.00	427.00

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 799.00 MAX ELLC= 798.60

*SECNO 19670.000

19670.00	5.55	795.35	0.00	0.00	796.70	1.34	.00	.00	800.20
1160.	0.	1160.	0.	0.	125.	0.	53.	25.	800.20
.39	0.00	9.30	0.00	.070	.036	.075	.035	789.80	403.00
.008825	1.	1.	1.	0	0	0	0.00	24.00	427.00

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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FORM 141: GO PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP &
CITY OF ROCHESTER

3) WATERCOURSE: PAINT CREEK

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

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



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

December 8, 1978

Water Management Division
Michigan Dept. of Natural Resources
Post Office Box 30028
Lansing, Michigan 48909

Attention: Mr. Daniel H. Morgan, Chief
Flood Insurance Unit

Re: Flood Insurance Studies, City of Rochester & Township of Avon
Hydraulic Investigation

Ref: J&A File Nos. 5850-01, 07-1

Gentlemen:

We have completed the hydraulic investigation of Paint Creek in the City of Rochester and the Township of Avon. 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, Paint Creek
2. HEC-2 computer run, natural floodway, 100-year flow, Paint Creek
3. J&A IPLOT of 100-year profile
4. Plan view and profile
5. Hydraulic analysis report and support data

If you have any questions, please call me.

Sincerely,

John J. Emig

John J. Emig, P.E.

JJE/dp
enc.
cc: File (2)

AVON TOWNSHIP FIS
ROCHESTER FIS
PAINT CREEK

J & A File No. 5850-01, 07-1

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
2300 DIXIE HIGHWAY, P. O. BOX 1166
Pontiac, Michigan 48056

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OAKLAND COUNTY, MICHIGAN

HYDRAULIC ANALYSIS

INTRODUCTION

The stream being studied is Paint Creek, flowing through Avon Township and the City of Rochester, Oakland County, Michigan. The study limits for Paint Creek are from its confluence with the Clinton River in Section 14, Avon Township, upstream to the northern corporate limit of the Township in Section 4 at Dutton Road. The flows used in this Hydraulic Analysis were determined using both Brater's Unit Hydrograph-Infiltration Capacity Method and the SCS TR-20 computer program. Hydrographs for each sub-basin were determined by Brater's method and then routed by the SCS TR-20 computer program. The hydrographs at the upstream end of the study limits were provided by Mr. Russell Bauerle of the Soil Conservation Service. These flows 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. Bridges which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. For those bridges which experienced pressure or weir flow for any of the four flows, the "special bridge" routine 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 bridges were located where full cross section flow would be developed out of the influence of the bridge constriction.

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HYDRAULIC ANALYSIS

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.

STARTING POINT

Because the peak times of the Paint Creek and the Clinton River are vastly different, a stage-discharge relationship was developed for the Clinton River at the Paint Creek confluence. The discharges on the Clinton River when Paint Creek yields the peak flows were obtained from the TR-20 Program for each frequency flood. The starting water-surface elevations at the Paint Creek were then found from the stage-discharge relationship for the Clinton River at the Paint Creek confluence.

CROSS SECTION DATA ACQUISITION

Cross section data for Paint Creek was obtained by field survey by JOHNSON & ANDERSON, INC., in DECEMBER, 1977.

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OAKLAND COUNTY, MICHIGAN

HYDRAULIC ANALYSIS

VARIABLES AND COEFFICIENTS

The basis for Manning's "n" value selection came from field inspection and comparison with the photographs and descriptions found on pages 101 to 123 in Open-Channel Hydraulics by Ven Te Chow, as well as with photographs and descriptions found in the Geological Survey Water-Supply Paper 1849, Roughness Characteristics of Natural Channels.

The roughness factors (Manning's "n") were then adjusted to reconstitute the stage-discharge curve for the Paint Creek gage at Rochester. The USGS rating curve for the Rochester gage with plotted points corresponding to four simulated flows and a table comparing the differences in known depths and reconstituted depths are included with this submittal.* In general, the following range of Mannings's "n" values were used.

* appendix D

DESCRIPTION	MANNINGS "n"
1. CHANNEL	
a. Sand bottom with light overhanging brush	0.032 - 0.038
b. Sand bottom with medium overhanging brush	0.040 - 0.047
2. FLOODPLAINS	
a. Grass	0.028
b. Grass with light woods	0.031 - 0.050
c. Light to medium woods - brush	0.055 - 0.070
d. Medium to heavy woods - dense brush	0.075 - 0.130

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HYDRAULIC ANALYSIS

VARIABLES AND COEFFICIENTS (Cont'd)

The contraction and expansion coefficients used ranged from 0.1 - 0.5 and 0.3 - 1.0, respectively. References used in the selection of these values were the HEC-2 Users Manual, Exhibit 2, Page 2, and Open-Channel Hydraulics, Ven Te Chow, Pages 311 and 468.

The loss coefficients used in the HEC-2 "Special Bridge" routine were determined as outlined in Exhibit 2 of the HEC-2 Users Manual. Calculations are included in the Appendix.

FLOODWAY DETERMINATION

The "natural" 100 year floodway was defined by describing the sweep and extent of moving floodwaters. The final floodway was modeled by encroaching the overbanks such that the rise in the water surface above that of the "natural" floodway was not greater than 0.1'. This differentiation of floodways occurs only in the upstream portion of the study, in the area of cross-section AL, station 15528. The "natural" 100 year floodway run from section 14278 to Dutton Road is being submitted, as well as the 10-,50-,100-, and 500-year encroached floodway run. The 1-plots included are from the 100-year encroached floodway run.

Continuity problems may be produced by overly restrictive floodway where weir flow was used in the computations

APPENDIX A

Rochester FIS
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Oakland County, Michigan
5850-01

Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	0	At confluence with Clinton River, cross-section A repeated
	143	143' u/s of confluence with Clinton River, cross-section A repeated
A	286	286' u/s of confluence with Clinton River, field valley section 1
	355	1' d/s of Grand Trunk Western Railroad bridge, cross-section B repeated
	356	d/s face Grand Trunk Western Railroad bridge, cross-section B repeated
B	373	u/s face Grand Trunk Western Railroad bridge, field bridge section 2
	374	1' u/s of Grand Trunk Western Railroad bridge, cross-section B repeated
	378	5' u/s of Grand Trunk Western Railroad bridge, cross-section C repeated
	383	10' u/s of Grand Trunk Western Railroad bridge, cross-section C repeated
	423	50' u/s of Grand Trunk Western Railroad bridge, cross-section C repeated
C	889	55' d/s of Second Street bridge, field valley section 3
	899	45' d/s of Second Street bridge, cross-section C repeated
	909	35' d/s of Second Street bridge, cross-section C repeated
	919	25' d/s of Second Street bridge, cross-section C repeated

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Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	929	15' d/s of Second Street bridge, cross-section C repeated
	939	5' d/s of Second Street bridge, cross-section repeated
	943	1' d/s of Second Street bridge, cross-section D repeated
	944	d/s face Second Street bridge, cross-section D repeated
D	987	u/s face Second Street bridge, field bridge, section 4
	988	1' u/s of Second Street bridge, cross-section D repeated
	995	8' u/s of Second Street bridge, cross-section C repeated
	1037	50' u/s of Second Street bridge, cross-section C repeated
	1187	200' u/s of Second Street bridge, cross-section C repeated
	1337	350' u/s of Second Street bridge, cross-section C repeated
	1486	50' d/s of abandoned Penn-Central Railroad Bridge #1, cross-section C repeated
	1535	1' d/s of abandoned Penn-Central Railroad bridge, #1, cross-section E repeated
	1536	d/s face abandoned Penn-Central Railroad bridge, #1, cross-section E repeated
E	1564	u/s face abandoned Penn-Central Railroad bridge, #1, field bridge section 5

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Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	1565	1' u/s of abandoned Penn-Central Railroad bridge, #1, cross-section E repeated
	1570	6' u/s of Abandoned Penn-Central Railroad bridge, #1, cross-section F repeated
	1614	50' u/s of abandoned Penn-Central Railroad bridge, #1, cross-section F repeated
	1666	102' u/s of abandoned Penn-Central Railroad bridge, #1, cross-section F repeated
	1718	154' u/s of abandoned Penn-Central Railroad bridge, #1, cross-section F repeated
	1744	180' u/s of abandoned Penn-Central Railroad bridge, #1, cross-section F repeated
F	1770	199' d/s of University Street bridge, field valley section 6
	1820	149' d/s of University Street bridge, cross-section F repeated
	1845	124' d/s of University Street bridge, cross-section F repeated
	1870	99' d/s of University Street bridge, cross-section F repeated
	1895	74' d/s of University Street bridge, cross-section F repeated
	1919	50' d/s of University Street bridge, cross-section F repeated
	1931	38' d/s of University Street bridge, cross-section F repeated
	1944	25' d/s of University Street bridge, cross-section F repeated

Rochester FIS
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Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	1956	13' d/s of University Street bridge, cross-section F repeated
	1962	7' d/s of University Street bridge, cross-section F , repeated
	1966	3' d/s of University Street bridge, cross-section F repeated
	1969	d/s face University Street bridge, cross-section G repeated
G	2030	u/s face University Street bridge, field bridge section 7
	2080	50' u/s of University Street bridge, cross-section E repeated
	2429	399' u/s of University Street bridge, cross-section H repeated
H	2778	971' d/s of Rochester Road, field valley section 8
	3203	546' d/s of Rochester Road, cross-section I repeated
I	3628	121' d/s of Rochester Road, field valley section 9
	3699	50' d/s of Rochester Road, cross-section I repeated
	3724	25' d/s of Rochester Road, cross-section I repeated
	3736	13' d/s of Rochester Road, cross-section I repeated
	3742	7' d/s of Rochester Road, cross-section I repeated
	3748	1' d/s of Rochester Road, cross-section J repeated
	3749	d/s face Rochester Road bridge, cross-section J repeated
J	3810	u/s face Rochester Road bridge, field bridge section 10

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Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	3811	1' u/s of Rochester Road, cross-section J repeated
	3860	50' u/s of Rochester Road, cross-section I repeated
	3922	50' d/s of abandoned Penn-Central Railroad bridge #2, cross-section I repeated
	3935	37' d/s of abandoned Penn-Central Railroad bridge #2, cross-section I repeated
	3947	25' d/s of abandoned Penn-Central Railroad bridge #2, cross-section I repeated
	3959	13' d.s of abandoned Penn-Central Railroad bridge #2, cross-section I repeated
	3965	7' d/s of abandoned Penn-Central Railroad bridge #2, cross-section I repeated
	3972	d/s face abandoned Penn-Central Railroad bridge #2, cross-section K repeated
K	3987	u/s face abandoned Penn-Cenral Railroad bridge #2, field bridge section 11
	3988	1' u/s of abandoned Penn-Central bridge #2, cross-section K repeated
	3990	3' u/s of abandoned Penn-Central bridge #2, cross-section L repeated
	4000	13' u/s of abandoned Penn-Central bridge #2, cross-section L repeated
	4037	50' u/s of bridge section K, cross-section L repeated
	4062	75' u/s of bridge section K, cross-section L repeated

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Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	4077	90' u/s of bridge section K, cross-section L repeated
	4109	122' u/s of bridge section K, cross-section L repeated
	4141	154' u/s of bridge section K, cross-section L repeated
	4173	186' u/s of bridge, section K, cross-section L repeated
	4189	202' u/s of bridge section K, cross-section L repeated
L	4205	218' u/s of bridge section K, field valley section 12
	4405	321' d/s of Park foot bridge #1, cross-section L repeated
	4455	271' d/s of Park foot bridge #1, cross-section L repeated
	4505	221' d/s of Park foot bridge #1, cross-section L repeated
	4605	121' d/s of Park foot bridge #1, cross-section L repeated
	4665	61' d/s of Park foot bridge #1, cross-section L repeated
	4695	31' d/s of Park foot bridge #1, cross-section L repeated
	4725	1' d/s of Park foot bridge #1, cross-section M repeated
	4726	d/s face Park foot bridge #1, cross-section M repeated

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Oakland County, Michigan
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Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
M	4734	u/s face Park foot bridge #1, field bridge section 12-A
	4735	1' u/s Park foot bridge #1, cross-section M repeated
N	5473	739' u/s of Park foot bridge #1, field valley section 13
	5517	783' u/s of Park foot bridge #1, cross-section N repeated
	5561	811' d/s of Park foot bridge #2, cross-section N repeated
	5650	722' d/s of Park foot bridge #2, cross-section N repeated
	5827	545' d/s of Park foot bridge #2, cross-section N repeated
	6004	368' d/s of Park foot bridge #2, cross-section N repeated
	6095	277' d/s of Park foot bridge #2, cross-section N repeated
	6187	185' d/s of Park foot bridge #2, cross-section N repeated
	6278	94' d/s of Park foot bridge #2, cross-section N repeated
	6372	d/s face Park foot bridge #2, cross-section O repeated
O	6385	u/s face Park foot bridge #2, field bridge section 13-A
	6585	d/s face Park dam, cross-section P repeated
P	6591	u/s face Park dam, field dam section 14

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Oakland County, Michigan
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Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	6641	50' u/s of Park dam, cross-section Q repeated
	6875	284' u/s of Park dam, cross-section Q repeated
Q	7110	275' d/s of Ludlow Street, field valley Section 14-A
	7335	50' d/s of Ludlow Street, Cross-section Q repeated
	7360	25' d/s of Ludlow Street, cross-section Q repeated
	7372	13' d/s of Ludlow Street, cross-section Q repeated
	7378	7' d/s of Ludlow Street, cross-section Q repeated
	7384	1' d/s of Ludlow Street, cross-section R repeated
	7385	d/s face Ludlow Street bridge, cross-section R repeated
R	7421	u/s face Ludlow Street bridge, field bridge section 15
	7422	1' u/s of Ludlow Street, cross-section R repeated
	7424	3' u/s of Ludlow Street, cross-section S repeated
	7426	5' u/s of Ludlow Street, cross-sections repeated
	7429	8' u/s of Ludlow Street, cross-section S repeated
	7434	13' u/s of Ludlow Street, cross-section S repeated
	7447	26' u/s of Ludlow Street, cross-section S repeated
S	7473	52' u/s of Ludlow Street, field valley Section 16
T	8023	308' d/s of abandoned Penn-Central Railroad bridge #3, field valley section 17
	8200	1' d/s of private bridge, cross-section U repeated
	8201	d/s face private bridge, cross-section U repeated

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Oakland County, Michigan
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Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
U	8211	u/s face private bridge, field bridge section 17-A
	8212	1' u/s of private bridge, cross-section U repeated
	8281	50' d/s of abandoned Penn-Central Railroad bridge #3, cross-section T repeated
	8330	1' d/s of abandoned Penn-Central Railroad bridge #3, cross-section V repeated
	8331	d/s face abandoned Penn-Central Railroad bridge #3, cross-section V repeated
V	8345	u/s face abandoned Penn-Central Railroad bridge #3, field bridge section 18
	8346	1' u/s of abandoned Penn-Central Railroad bridge #3, cross-section V repeated
	8395	50' u/s of abandoned Penn-Central Railroad bridge #3, cross-section W repeated
W	8448	103' u/s of abandoned Penn-Central Railroad bridge #3, field valley section 19
	8633	288' u/s of bridge section V, avsec between cross-sections V & W
	8818	473' u/s of bridge section V, avsec between cross-sections V & W
	9003	658' u/s of bridge section V, avsec between cross-sections V & W
X	9188	843' u/s of bridge section V, field valley section 20
Y	9755	1410' u/s of bridge section V, field valley section 21
Z	9995	1290' d/s of Tienken Road, field valley Section 22
AA	10615	670' d/s of Tienken Road, field valley Section 23

Rochester FIS
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Oakland County, Michigan
5850-01

Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	10815	470' d/s of Tienken Road, cross-section repoeated
	11015	270' d/s of Tienken Road, cross-section AA repeated
	11235	50' d/s of Tienken Road, cross-section AA repeated
	11260	25' d/s of Tienken Road, cross-section AA repeated
	11278	7' d/s of Tienken Road, cross-section AA repeated
	11281	4' d/s of Tienken Road, cross-section AA repeated
	11284	1 d/s of Tienken Road, cross-section AB repeated
	11285	d/s face Tienken Road bridge, cross-section AB repeated
AB	11314	u/s face Tienken Road bridge, field bridge section 24
	11315	1' u/s of Tienken Road, cross-section AB repeated
	11364	50' u/s of Tienken Road, cross-section AC repeated
AC	11435	121' u/s of Tienken Road, field valley section 25
	11521	50' d/s of King's Cove bridge, cross-section AC repeated
	11570	1' d/s of King's Cove bridge, cross-section AD repeated
	11571	d/s face King's Cove bridge, cross-section AD repeated
AD	11614	u/s face King's Cove bridge, field bridge Section 26
	11615	1' u/s of King's Cove bridge, cross-section AD repeated
	11664	50' u/s of King's Cove bridge, cross-section AE repeated

Rochester FIS
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Oakland County, Michigan
5850-01

Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
AE	11788	174' u/s of King's Cove bridge, field valley section 27
AF	12132	150' d/s of driveway bridge, field valley Section 28
	12232	50' d/s of driveway bridge, cross-section AF repeated
	12281	1' d/s of driveway bridge, cross-section AG repeated
	12282	d/s face driveway bridge, cross-section AG repeated
AG	12293	u/s face driveway bridge, field bridge section 29
	12294	1' u/s of driveway bridge, cross-section AG repeated
	12340	47' u/s of driveway bridge, cross-section AF repeated
	12386	1' d/s of abandoned Penn-Central Railroad bridge #4, cross-section AH repeated
	12387	d/s face abandoned Penn-Central Railroad bridge #4, cross-section AH repeated
AH	12400	u/s face abandoned Penn-Central Railroad bridge #4, field bridge section 30
	12401	1' u/s of abandoned Penn-Central Railroad bridge #4, cross-section AH repeated
	12450	50' u/s of bridge section AH, cross-section AF repeated
AI	12893	493' u/s of bridge section AH, field valley section 31
	13585	538' d/s of private bridge, cross-section AI repeated
	14123	d/s face private bridge, cross-section AJ repeated

Rochester FIS
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Oakland County, Michigan
5850-01

Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
AJ	14128	u/s face private bridge, field bridge section 32-A
AK	14278	150' u/s of private bridge, field valley section 32
	14903	775' u/s of private bridge, cross-section AL repeated
AL	15528	1400' u/s of private bridge, field valley section 33
	15865	1737' u/s of private bridge avsec between cross-sections AL & AM
	16201	1382' d/s of bridge section AO, Secno 15865 repeated
	16538	1045' d/s of bridge section AO, Secno 15865 repeated
AM	16874	709' d/s of bridge section AO, field valley section 34
	17433	150' d/s of bridge section AO, cross-section AN repeated
AN	17533	50' d/s of bridge section AO, field valley section 35
	17583	d/s face abandoned Penn-Central Railroad bridge #5, cross-section AO repeated
AO	17593	u/s face abandoned Penn-Central Railroad bridge #5, field bridge section 36
	18012	419' u/s of bridge section AO, cross-section P repeated
	18196	603' u/s of bridge section AO, cross-section AP repeated
	18258	1062' d/s of bridge section AO, cross-section AP repeated
	18320	1000' d/s of bridge section AO, cross-section AP repeated

Rochester FIS
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5850-01

Cross Section Locations

PAINT CREEK

Cross-Section	SECNO	Location & Origin
	18381	939' d/s of bridge section AQ, cross-section AP repeated
	18565	755' d/s of bridge section AQ, cross-section AP repeated
	18750	570' d/s of bridge section AQ, cross-section AP repeated
AP	19120	200' d/s of bridge section AQ, field valley section 37
	19270	50' d/s of bridge section AQ, cross-section AR repeated
	19320	d/s face abandoned Penn-Central Railroad bridge #6, cross-section AQ repeated
AQ	19335	u/s face abandoned Penn-Central Railroad bridge #6, field bridge section 38
	19385	50' u/s of bridge section AP, cross-section AR repeated
	19442	107' u/s of bridge section AP, cross-section AR repeated
	19499	137' d/s of Dutton Road, cross-section AR repeated
AR	19603	33' d/s of Dutton Road, field valley section 39
	19617	19' d/s of Dutton Road, cross-section AR repeated
	19635	1' d/s of Dutton Road, cross-section AS repeated
	19636	d/s face Dutton Road, cross-section as repeated
AS	19669	u/s face Dutton Road, field bridge section 40
	19670	1' u/s of Dutton Road, cross-section as repeated

APPENDIX B

UNIVERSITY STREET BRIDGE

42' Box Culvert

A = 353 sq ft. P = 101 ft.

R = A/P = 3.5

ENTRANCE CONDITION: WINGWALLS 45°

L = 61'

"n" = 0.02

ASSUME:

ΣK_{OR} = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.4

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.02)^2 61}{(3.5)^{4/3}} = \frac{.71}{5.3}$$

$\Sigma K_{OR} = 1.53$

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BY RSM DATE 9-26-78 JOB DESCRIPTION Rochester FIS SHEET ____ OF ____
SUBJECT Bridge Section #11 - Paint Creek JOB NO. 5850-07

Penn-Central R.R. Bridge #2

45' Wooden Bridge

A = 260 Sq Ft. P = 110 Ft.

R = A/P = 2.36

Entrance Condition: Wingwalls @ 15° ±

L = 15'

"n" = 0.023

Assume:

ΣK_{OR} = Exit Loss + Entrance Loss + Friction Loss

Exit Loss = 1.0

Entrance Loss = 0.5

$$K_F = \frac{29.1 n^2 L}{R^{4/3}} = \frac{29.1 (.023)^2 15}{(2.36)^{4/3}} = \frac{.231}{3.14}$$

$\Sigma K_{OR} = 1.57$

Park Foot Bridge

$A = 110\ Ft^2$ $P = 62\ Ft$

$R = A/P = 1.8$

"n" = 0.024

$L = 13'$

ΣK_{OR} = Exit Loss + Entrance Loss + K_F

Assume:

Exit Loss = 1.0

Entrance Loss = 0.5

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.024)^2\,13}{(1.8)^{4/3}} = \frac{0.22}{2.19}$$

$$= 0.10$$

$\Sigma K_{OR} = 1.6$

"C" = 2.9

Penn-Central R.R. Bridge #5

66' wooden bridge

A = 213 sq ft. P = 158 ft.

R = A/P = 1.35

Entrance condition: Parallel wing walls

L = 10'

"n" = 0.032 (increase due to "eddy" loss)

Assume:

KKor = Exit Loss + Entrance Loss + K_F + K_B + K_P

Exit Loss = 1.0

Entrance Loss = 0.7

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.032)^2\, 10}{(1.35)^{4/3}} = \frac{.298}{1.49} = 0.2$$

K_B = 0.20 (Bend loss)

K_P = 0.05 (Pier loss)

KKor = 2.15

"C" = 2.9

PENN-CENTRAL R.R. BRIDGE #6

41' CONCRETE BRIDGE

$A = 229$ SQ. FT. $P = 110$ FT

$R = A/P = 2.08$

ENTRANCE CONDITION: PARALLEL WINGWALLS

$L = 15'$

"n" = 0.023

ASSUME:

ΣK_{OR} = EXIT LOSS + ENTRANCE LOSS + K_F

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.7

$$K_F = \frac{29.1 n^2 L}{R^{4/3}} = \frac{29.1(.023)^2 15}{(2.08)^{4/3}} = \frac{0.231}{2.66}$$

$$= 0.087$$

$\Sigma K_{OR} = 1.79$

"C" = 2.9

APPENDIX C

BS ● PG 2

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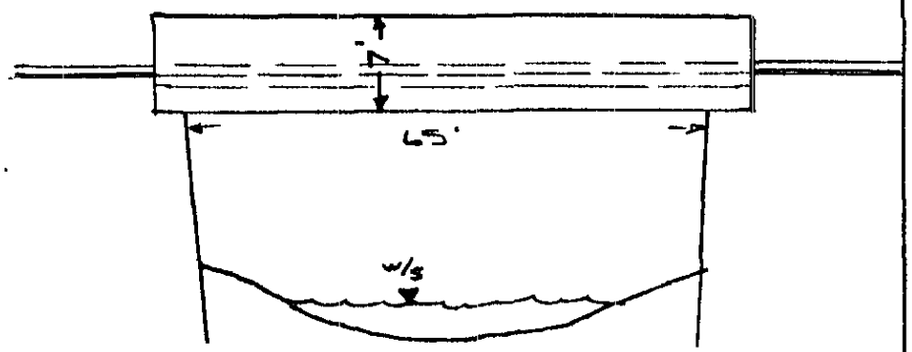
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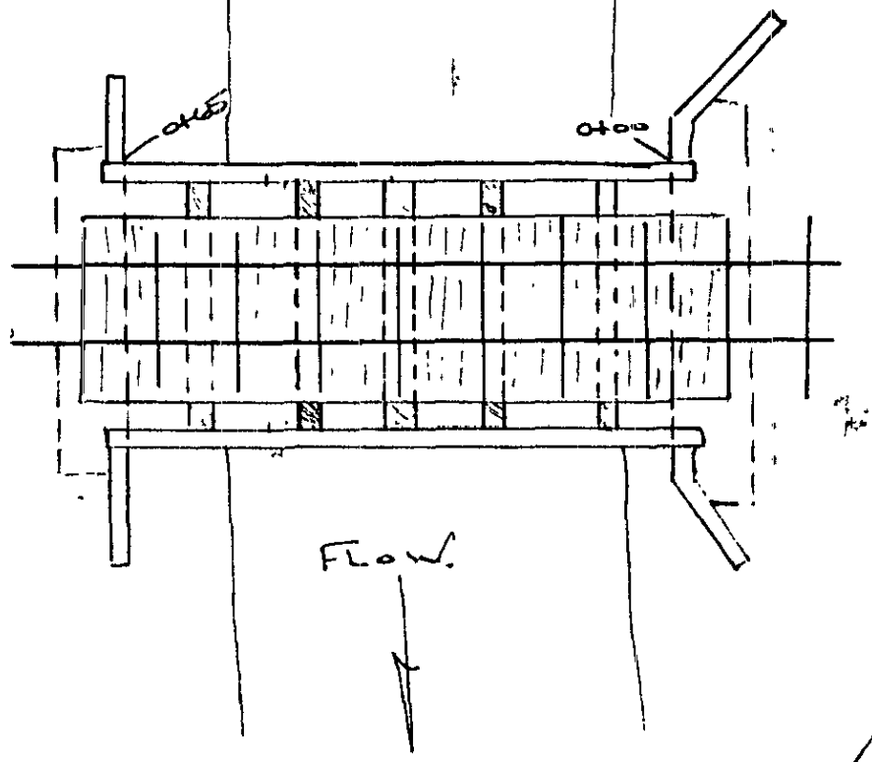
Job Name: ROCHESTER F.I.S.			By: McINNES
Date: 11-3-77	Feature: GT&W RR BRIDGE		Water Course: PAINT CREEK
Remarks: STEEL GIRDER BRIDGE W/WOOD DECK W/CONC ABUTMENTS & WINGWALLS, NATURAL GRAVEL BOTTOM NO DEBRIS			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 712.8	Length: 65'	Width of Deck: 17'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



B.S. 11 PC 4

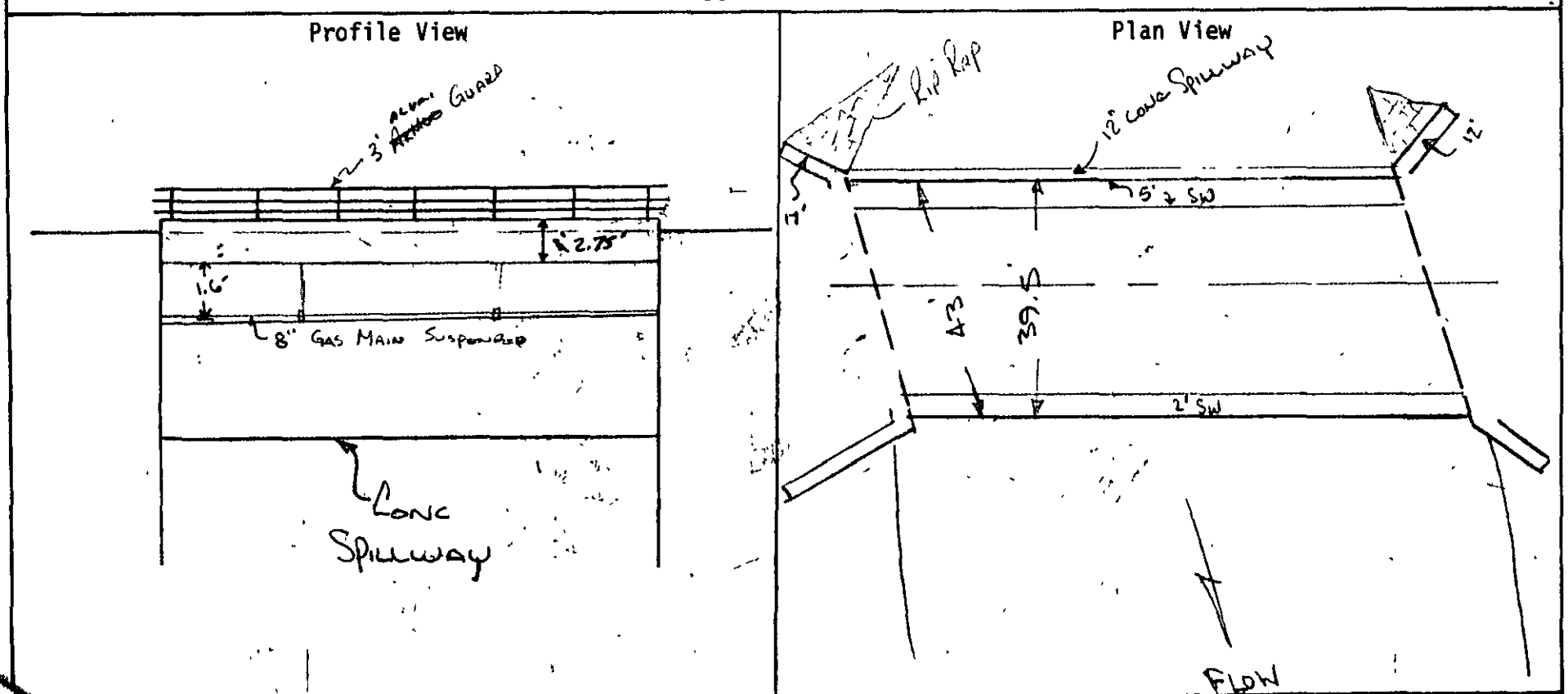
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HYDRAULIC STRUCTURAL DATA

Code No. 3850-07

Job Name: ROCHESTER F.I.S.			By: MC INNES
Date: 11-3-77	Feature: SECOND ST. BRIDGE		Water Course: PAINT CREEK
Remarks: CONC. BOX BEAM BRIDGE W/CONC. ABUTMENTS			
HARD GRAVEL BOTTOM NO DEBRIS			
Width of Piers: —	Pier Shape: —	No. of Piers: NONE	Area:
Water Elevation: 718.1	Length: 46'	Width of Deck: 39.5	Skew: 67°

FIELD SKETCH



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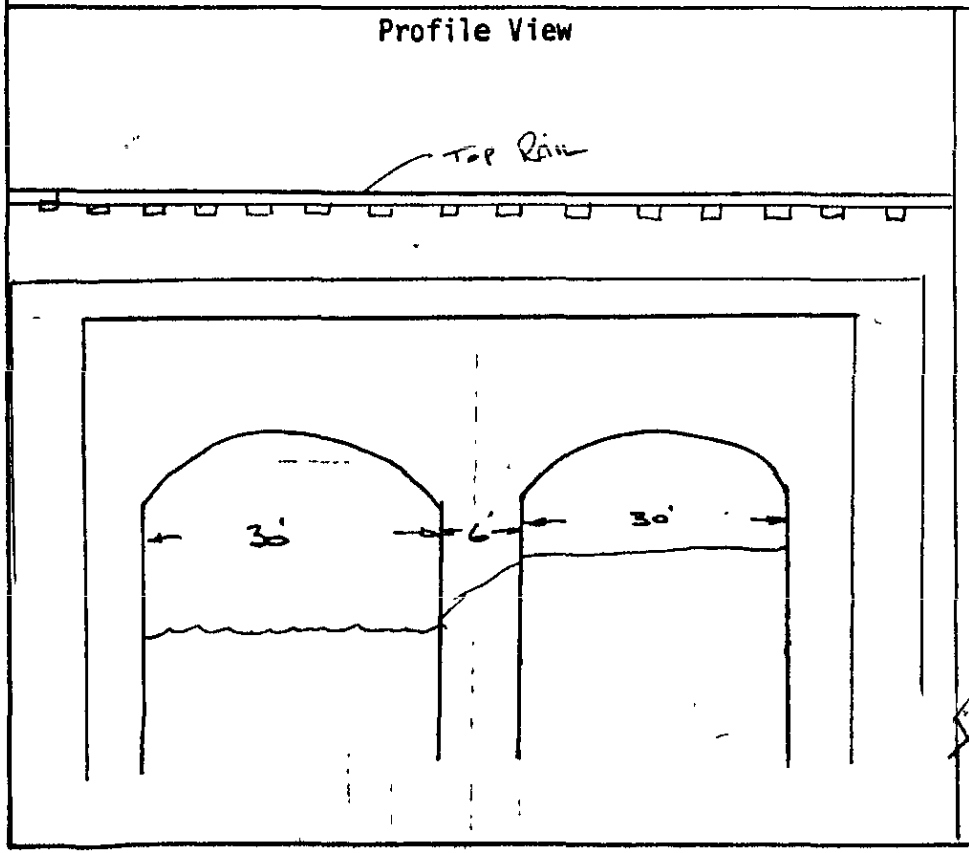
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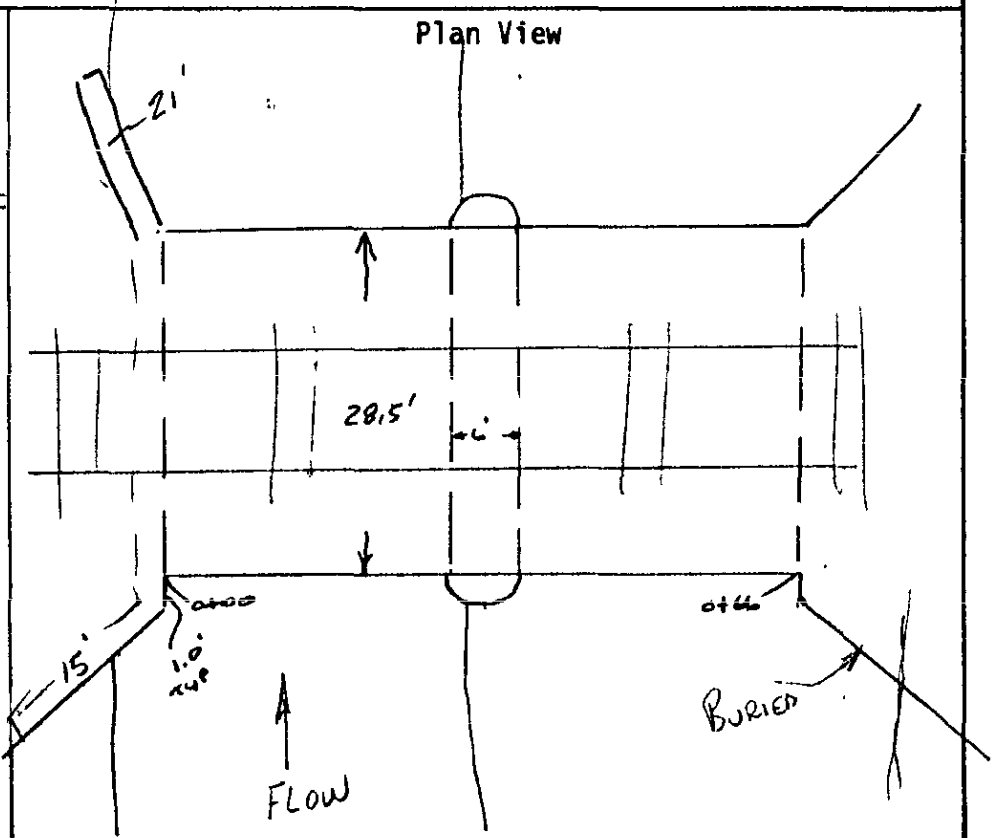
Job Name: ROCHESTER F.I.S.			By: MC INNIS
Date: 11-14-77	Feature: PENN CENTRAL BRIDGE		Water Course: PAINT CREEK
Remarks: CONC. ARCH BRIDGE. HARD BOTTOM GRAVEL, NO WATER IN RT ARCH. NO DEBRIS			
Width of Piers: 6'	Pier Shape: ROUNDED	No. of Piers: 1	Area:
Water Elevation: 721.2	Length: 66'	Width of Deck: 28.5'	Skew: 90°

FIELD SKETCH

Profile View



Plan View



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B.S #11 P.C #7

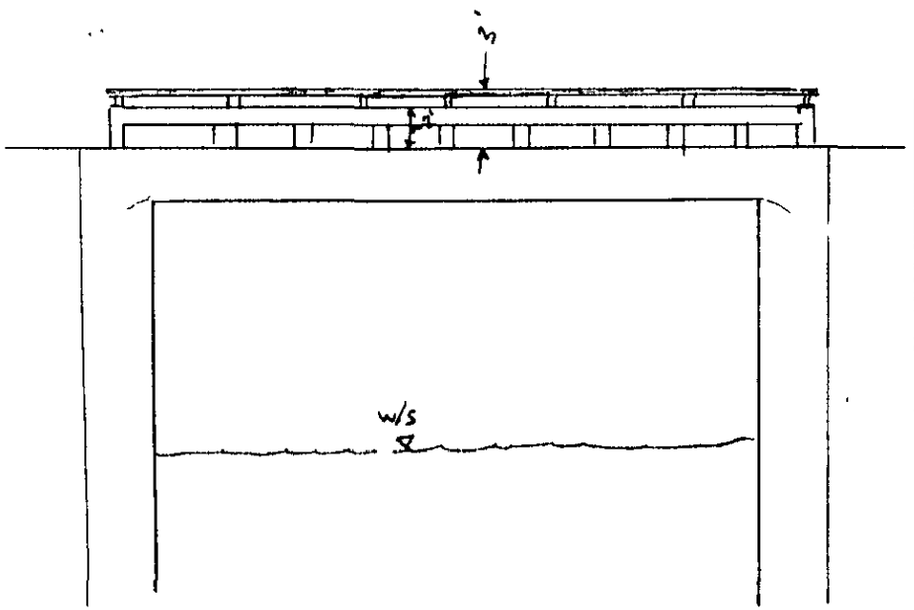
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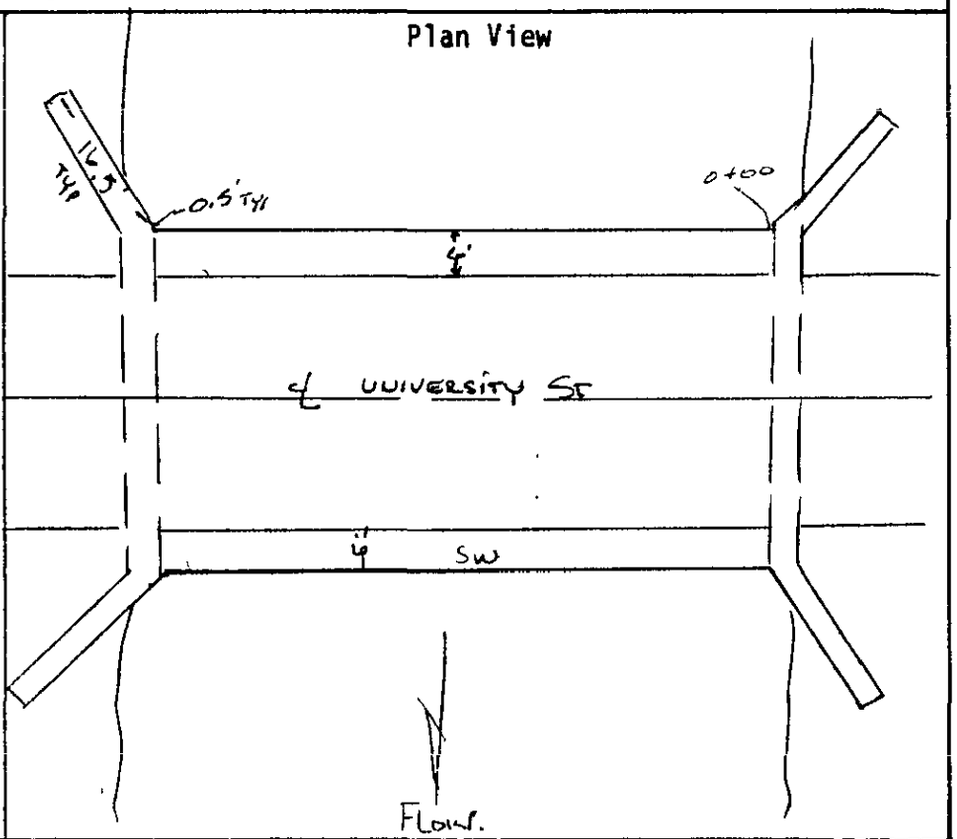
Job Name: ROCHESTER F.I.S.			By: MCINNES
Date: 11-14-77	Feature: UNIVERSITY ST BRIDGE		Water Course: PAINT CREEK
Remarks: CONC BOX BEAM BRIDGE. WITH CONC ABUTMENTS, & CURB SW'S			
CLEAR CHANNEL NO DEBRIS.			
CONC RAILING			
Width of Piers: —	Pier Shape: —	No. of Piers: 0	Area:
Water Elevation: 725.1	Length: 42'	Width of Deck: 61'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



BS PC# 10

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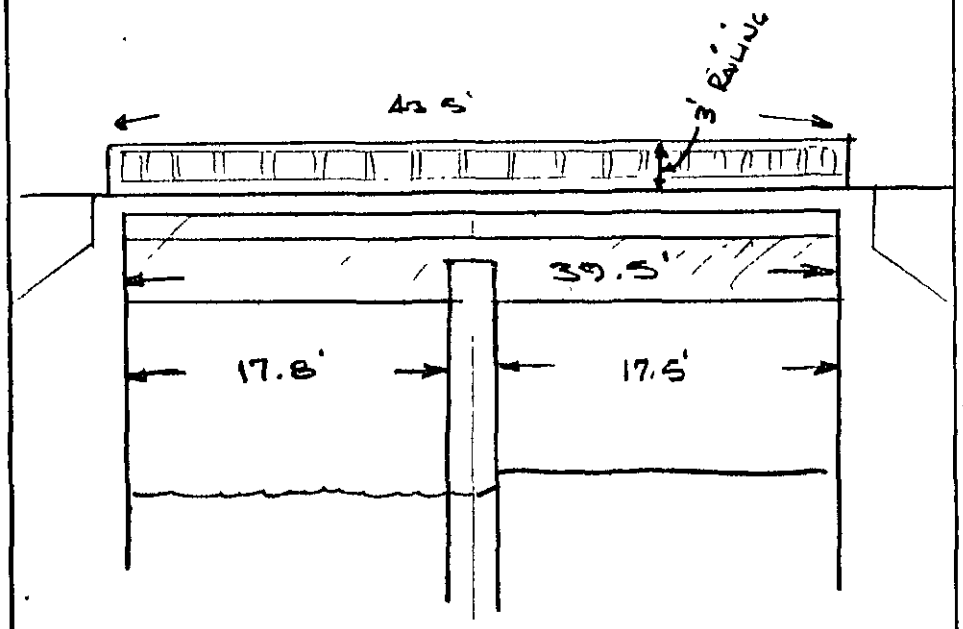
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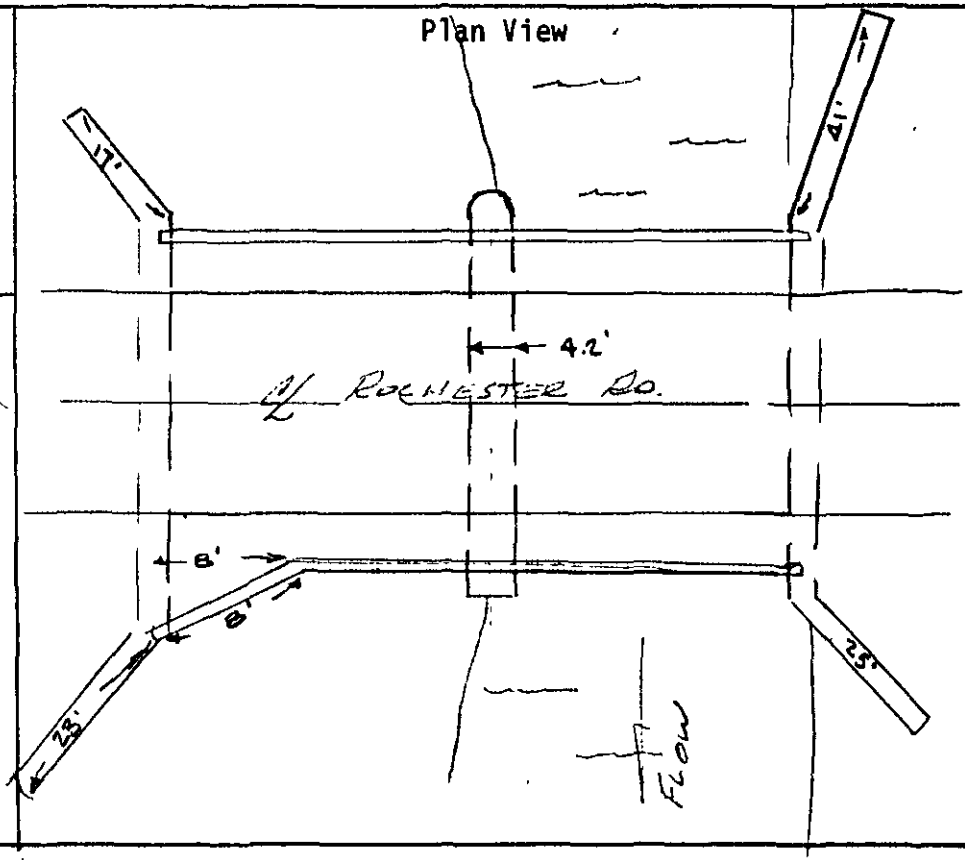
Job Name: ROCHESTER RD.			By: MCINNES
Date: 11-14-77	Feature: ROCHESTER RD M-150		Water Course: PAINT CREEK
Remarks: CONC BEAM BRIDGE WITH CONC ABUTMENTS, PIER & RAILING, CLEAR CHANNEL STONEY BOTTOM. NO DEBRIS ONLY 1/2 OF BRIDGE CHANNEL IS WORKING			
Width of Piers: 4.2'	Pier Shape: UPSTREAM ROUND FACE	No. of Piers: 1	Area:
Water Elevation: 735.3	Length: 39.5'	Width of Deck: 60.6'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



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ES PC 11

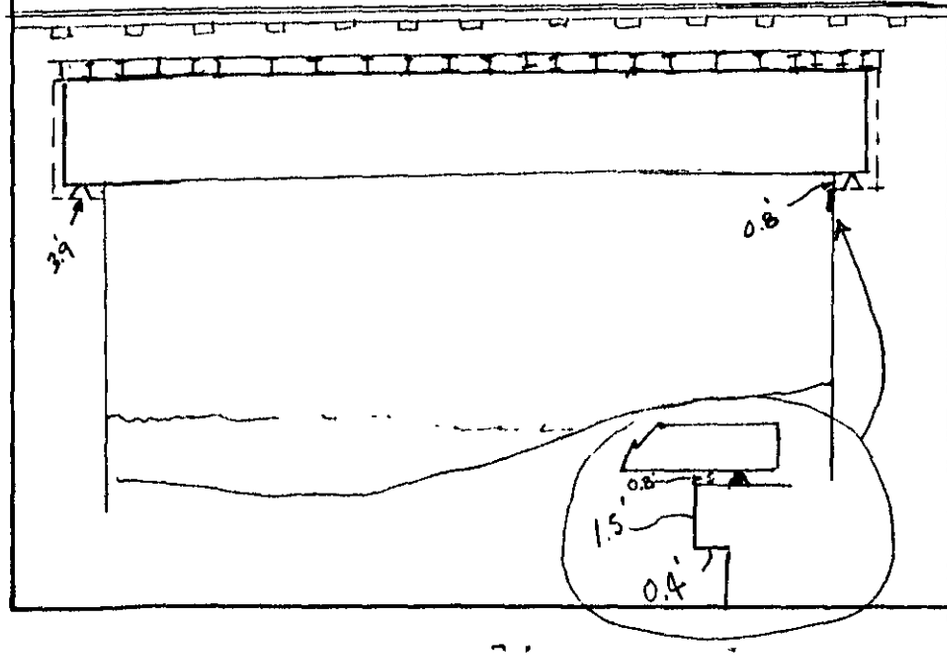
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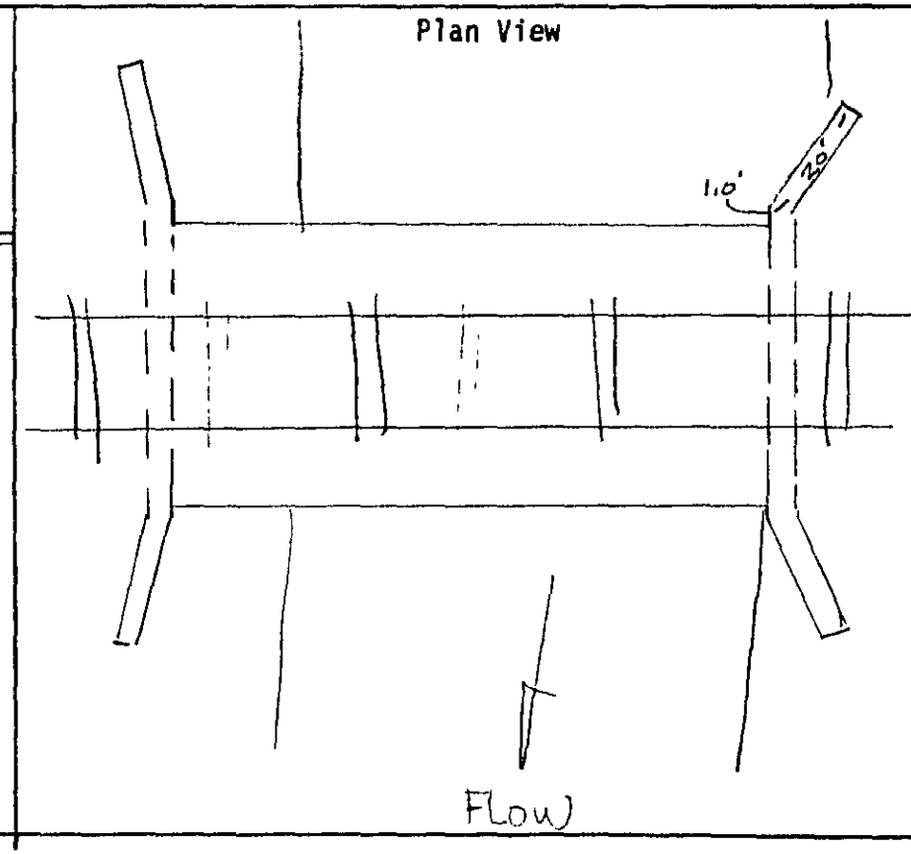
Job Name: ROCHESTER F.I.S.			By: ML INNES
Date: 11-15-77	Feature: PENN CENTRAL RR BRIDGE		Water Course: PAINT CREEK
Remarks: STEEL GIRDER BRIDGE W/CONC ABUTMENTS			
I-BEAM DECK W/RR TIE & BALLAST			
HARD GRAVEL BOTTOM, CLEAR CHANNEL W/O DEBRIS			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 737.5	Length: 45'	Width of Deck: 15'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



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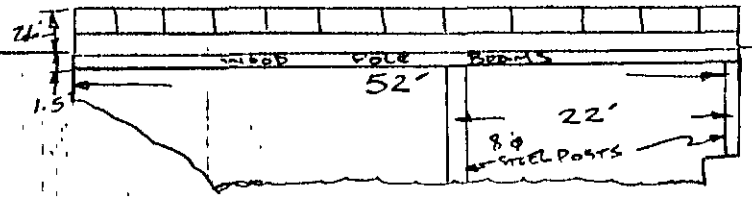
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BS 12-1

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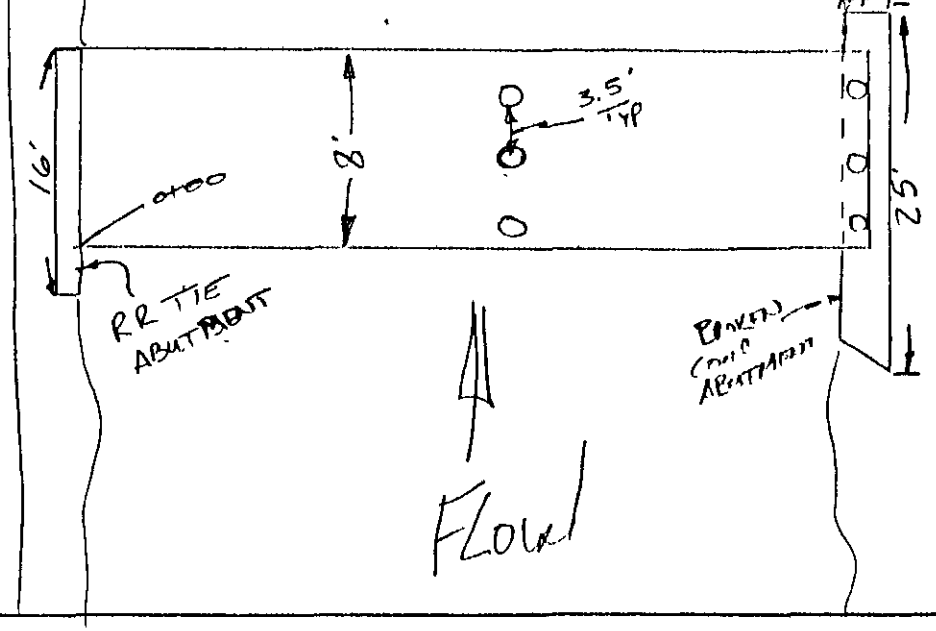
Job Name: City of Rochester FIS			By: JANETTE
Date: 9-8-78	Feature: Foot Bridge 800± West Rochester Rd.		Water Course: Point Creek
Remarks: Wood Pole Beams, 8" ϕ Steel Posts, Plywood Deck			
Wood Hand Rail, Broken Conc Abutments & RR Tie Abutments			
Bottom - Hard, Sandy Med to Small Stones.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 743.00	Length: 52'	Width of Deck: 8'	Skew: 0

FIELD SKETCH

Profile View



Plan View



BS= 13-1

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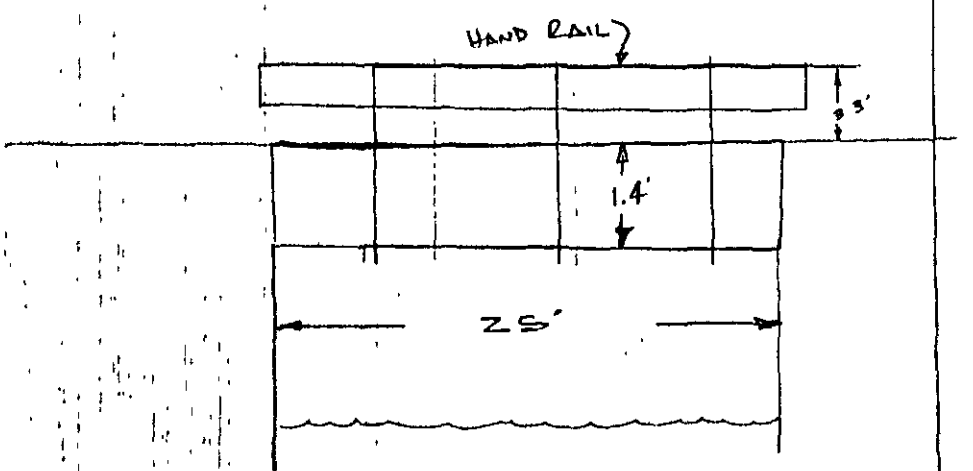
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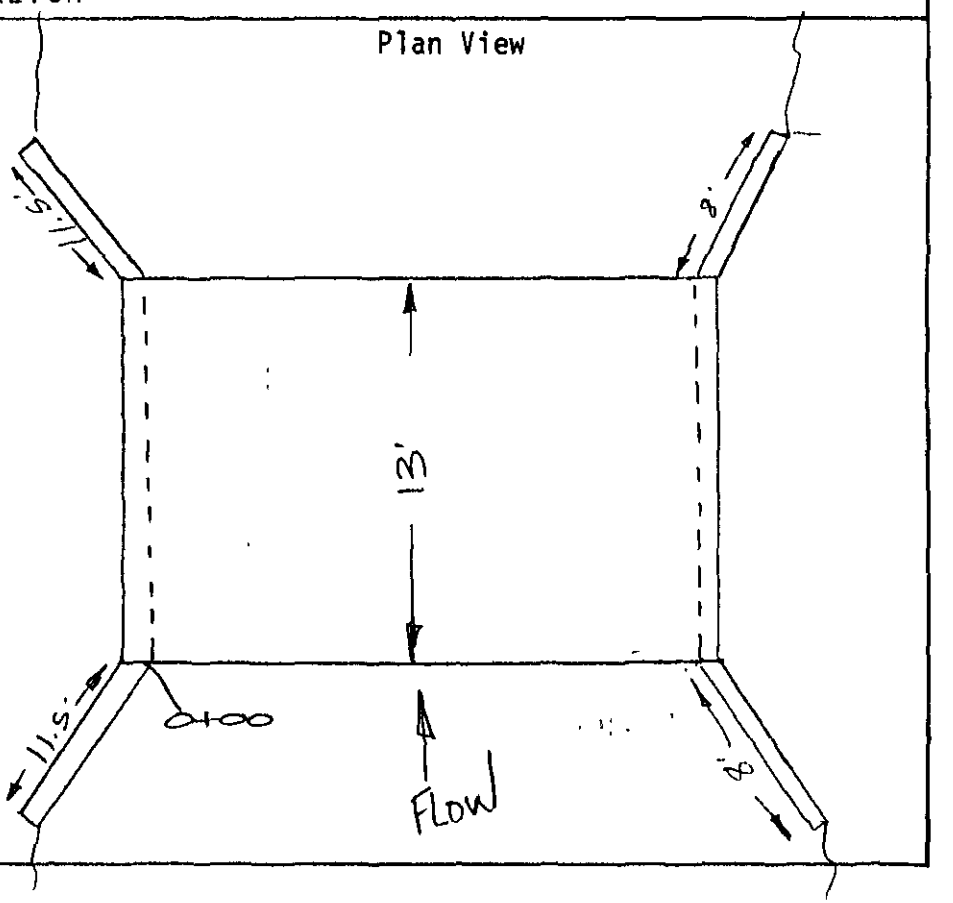
Job Name: ROCHESTER F1S			By: JANETTE
Date: 9-7-78	Feature: FOOT BRIDGE 200'± D/S DAM S/W TWP PARK		Water Course: PAINT CREEK
Remarks: STEEL I-BEAM - WOOD DECK, CONC & STONE ABUTMENTS			
STEEL POST HAND RAILS			
BOTTOM - HARD MED TO SMALL STONES			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation:	Length: 25'	Width of Deck: 13'	Skew: 0

FIELD SKETCH

Profile View



Plan View



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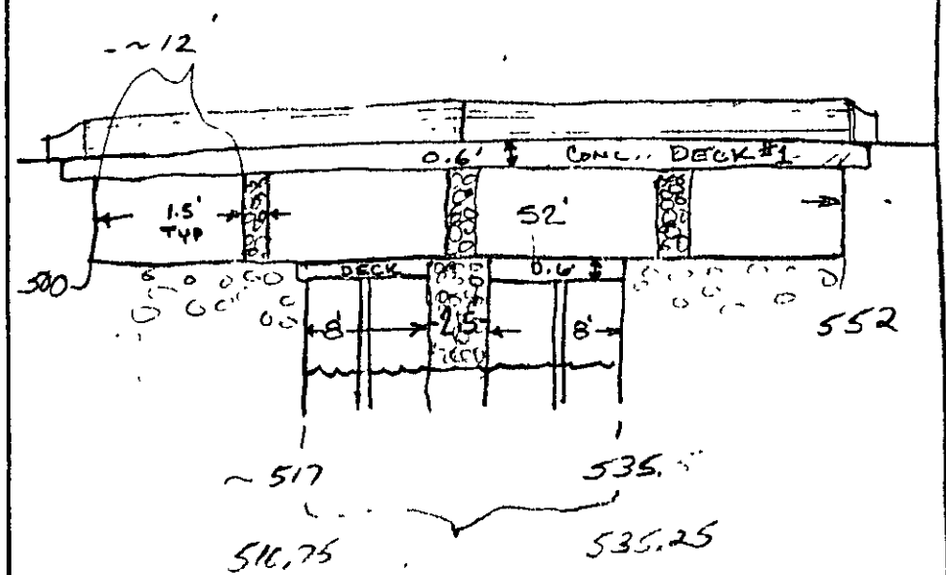
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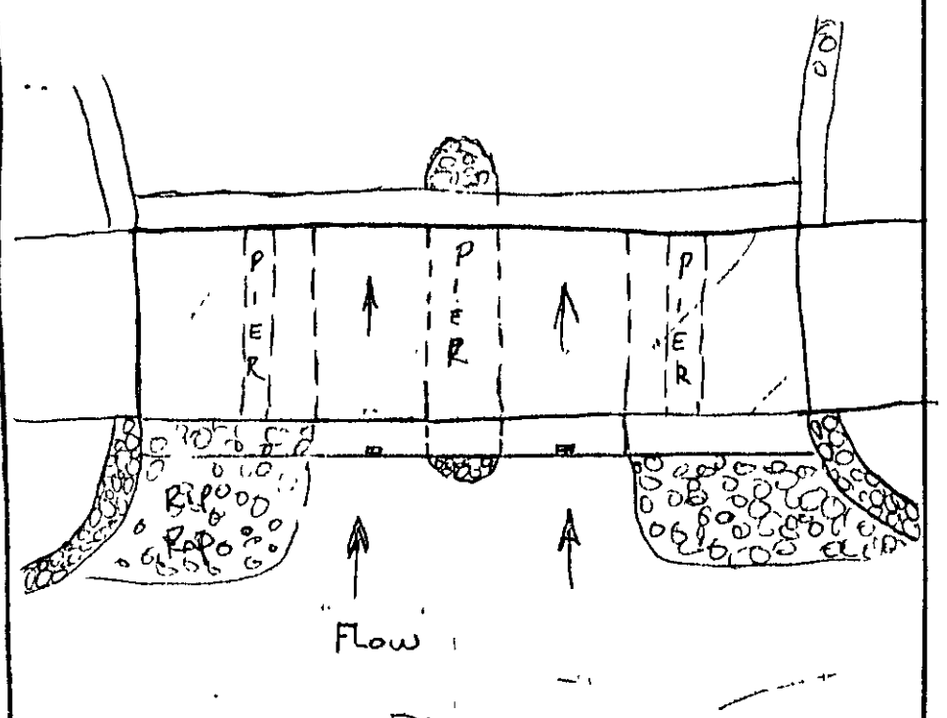
Job Name: ROCHESTER F.I.S.			By: MC INNES
Date: 11-15-77	Feature: PARK DAM		Water Course: PAINT CREEK
Remarks: MASONRY STONE CONSTRUCTION W/2-CONC. DECKS & STONE RETAINING WALLS. 3' HIGH BOARD & PIPE RAILING GRAVEL BOTTOM, CLEAR CHANNEL NO DEBRIS			
Width of Piers: 1.5' & 2.5'	Pier Shape: ROUND	No. of Piers: 3	Area:
Water Elevation: 754.2	Length: 52'	Width of Deck: 6' TOP DECK 9.3' BOTTOM DECK	Skew: 0°

FIELD SKETCH

Profile View



Plan View



B.S P.C. 15

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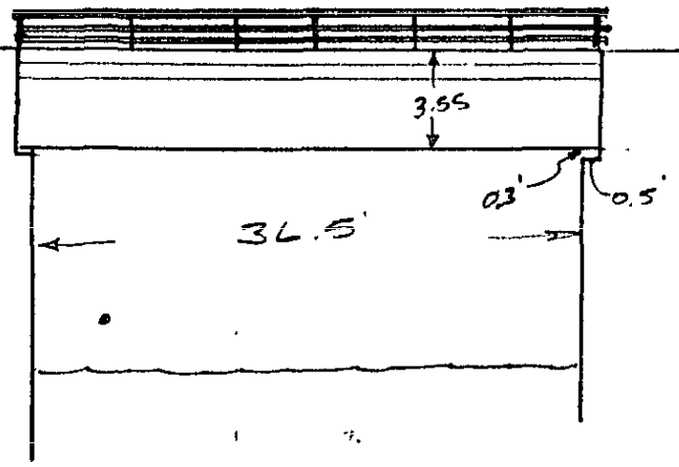
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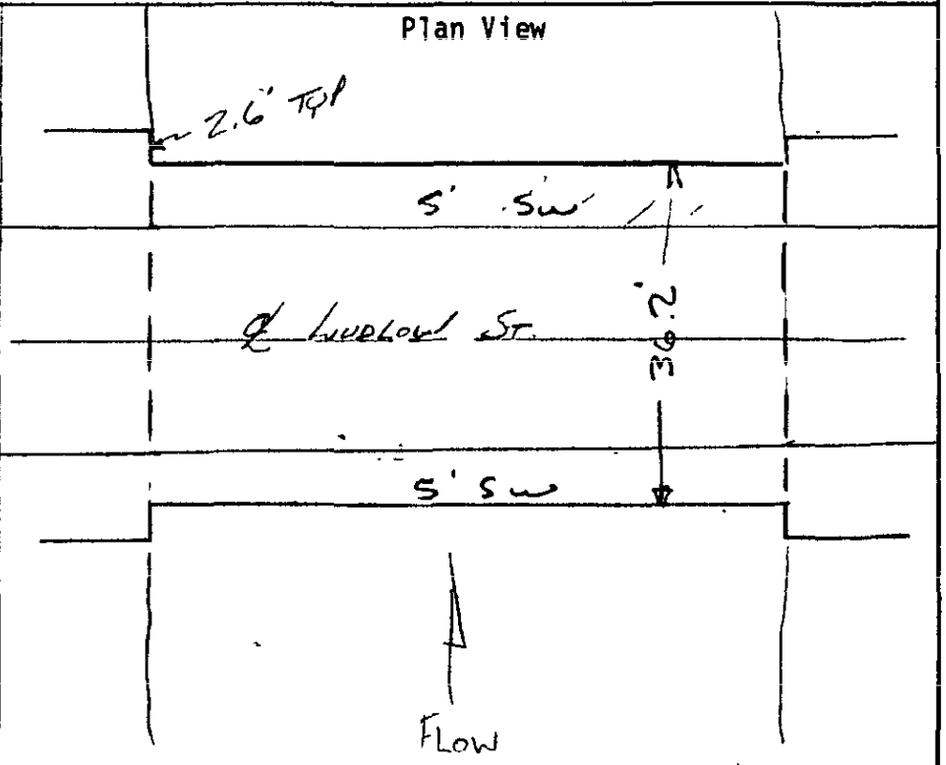
Job Name: ROCHESTER F.I.S.			By: MCINNES
Date: 11-16-77	Feature: LUDLOW ST BRIDGE		Water Course: PAINT CREEK
Remarks: STEEL "I" BEAM & CONC BRIDGE, CONC ABUTMENTS & DECK			
HARD ROCK BOTTOM, CLEAR CHANNEL NO DEBRIS			
STEEL GUARD RAIL			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 757.2	Length: 36.5	Width of Deck: 36.2	Skew: 0°

FIELD SKETCH

Profile View



Plan View



B TYC #18

HYDRAULIC STRUCTURAL DATA

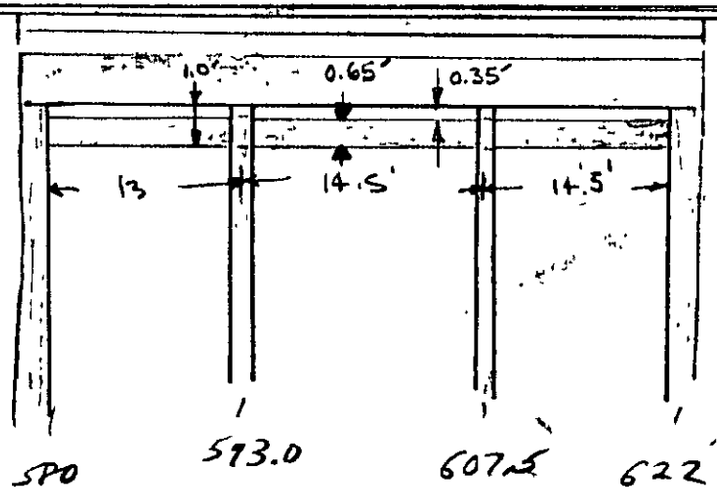
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Code No. 5850-07

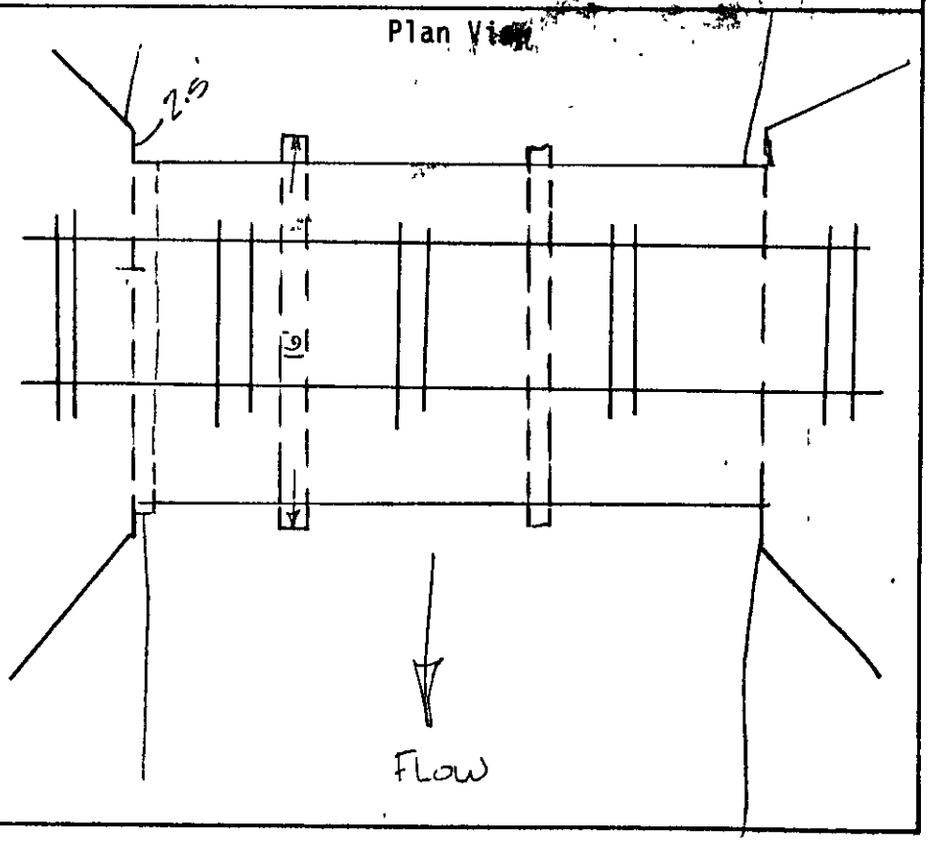
Job Name: Avon Twp. F.I.S			By: McInnes
Date: 11-15-77	Feature: Penn Central RR Bridge		Water Course: Paint Creek
Remarks: Wood Timber Bent Bridge R.R. Tie Deck			
Hard Gravel Bottom, Clear Channel, No Debris			
Wood Abutments			
Width of Piers: 1.3'	Pier Shape: Square	No. of Piers: 2	Area:
Water Elevation: 762.3	Length: 42'	Width of Deck: 14.5	Skew: 0°

FIELD SKETCH

Profile View



Plan View



B.S. PC-11 24

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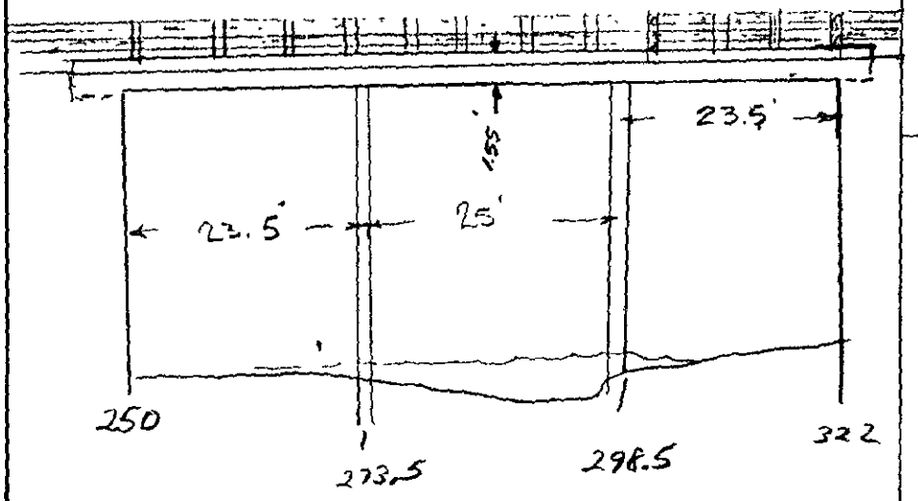
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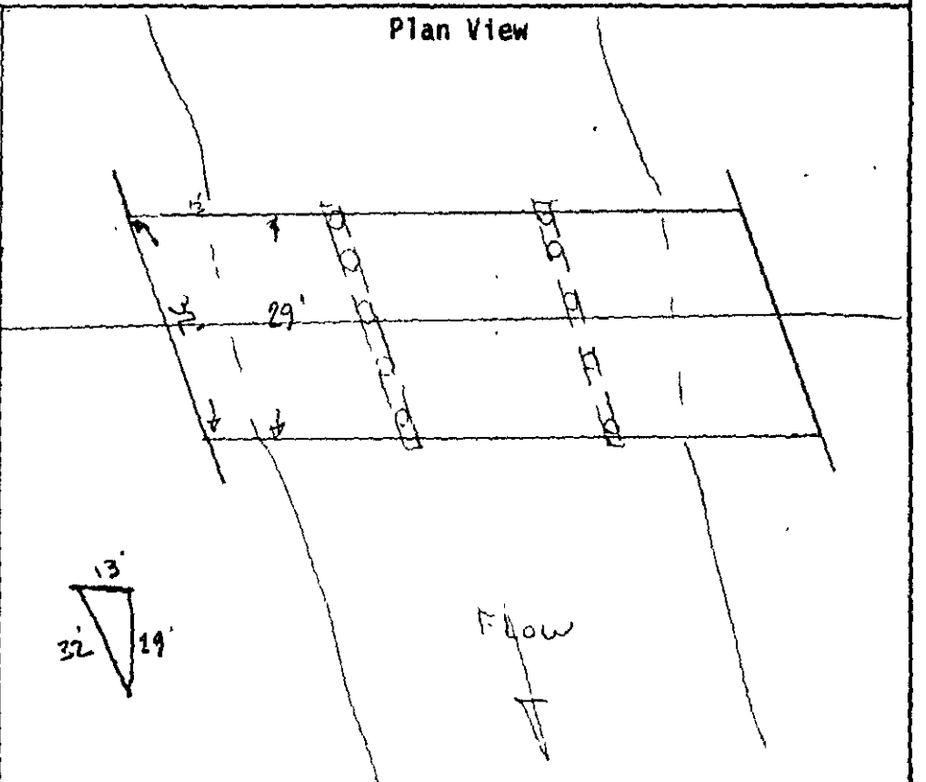
Job Name: Rochester F.I.S. Paint Creek			By: McInnes
Date: 12-14-77	Feature: Tienken Rd Bridge		Water Course: Paint Creek
Remarks: Wood Bent Pile Bridge with Steel Stringers, Conc Deck & Wood with Conc Abutments, 6" High Conc Curbs, 3.2' High Steel Guard Rail. Hard Bottom Gravel. 10% Debris Wood & Limbs			
Width of Piers: 12" Avg	Pier Shape: 12" ϕ Wood	No. of Piers: 2	Area:
Water Elevation: 771.0	Length: 72'	Width of Deck: 29'	Skew:

FIELD SKETCH

Profile View



Plan View



P.C. T3[illegible] 26

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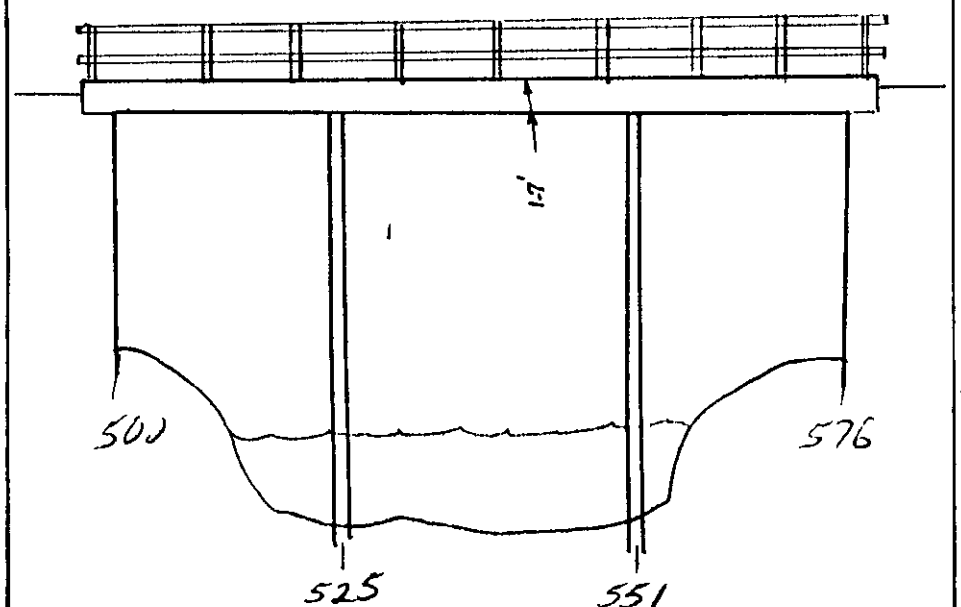
HYDRAULIC STRUCTURAL DATA

Code No. 5850-07

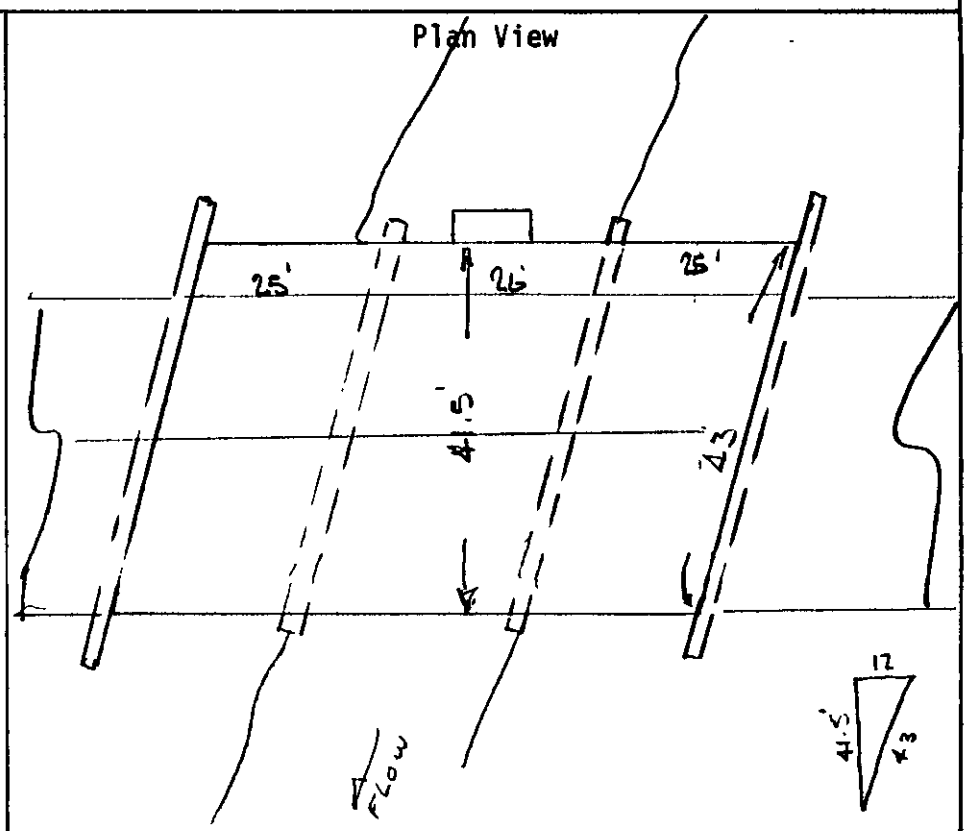
Job Name: AVON TWP F.I.S.			By: MC INNES
Date: 12-[illegible]-77	Feature: KINGS COVE BRIDGE		Water Course: PAINT CREEK
Remarks: WOOD BENT PILE BRIDGE, WITH WOOD DECK & ASPHALT SURFACE			
CLEAR CHANNEL NO DEBRIS HARD SANDY GRAVEL BOTTOM			
5' WOOD S.I.P. UPSTREAM ONLY. 3.3' HIGH WOOD RAILING.			
Width of Piers: 10" AVG	Pier Shape: ROUND	No. of Piers: 2	Area:
Water Elevation: 771.4	Length: 76'	Width of Deck: 41.5	Skew:

FIELD SKETCH

Profile View



Plan View



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WC. Bsn 29

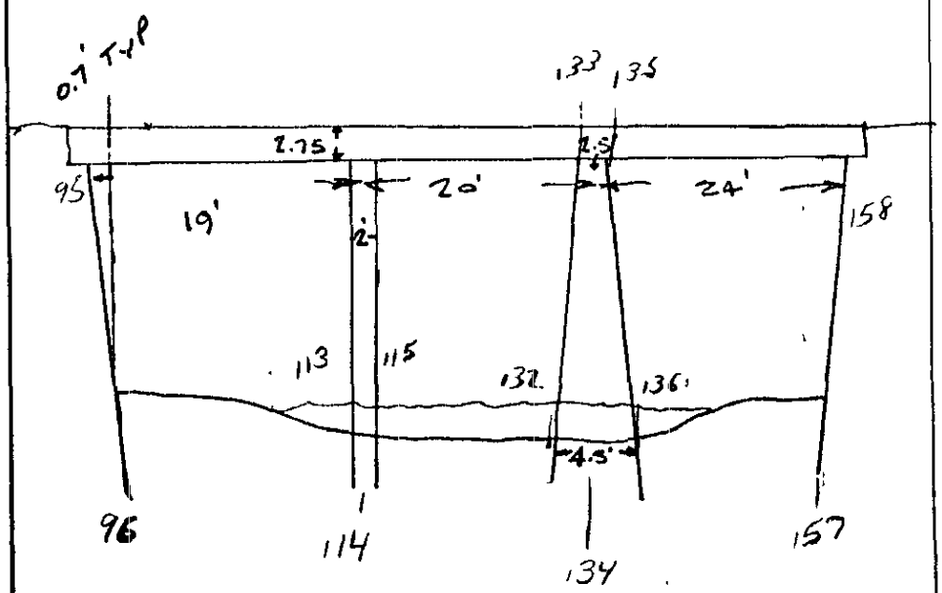
HYDRAULIC STRUCTURAL DATA

Code No. 5850-07

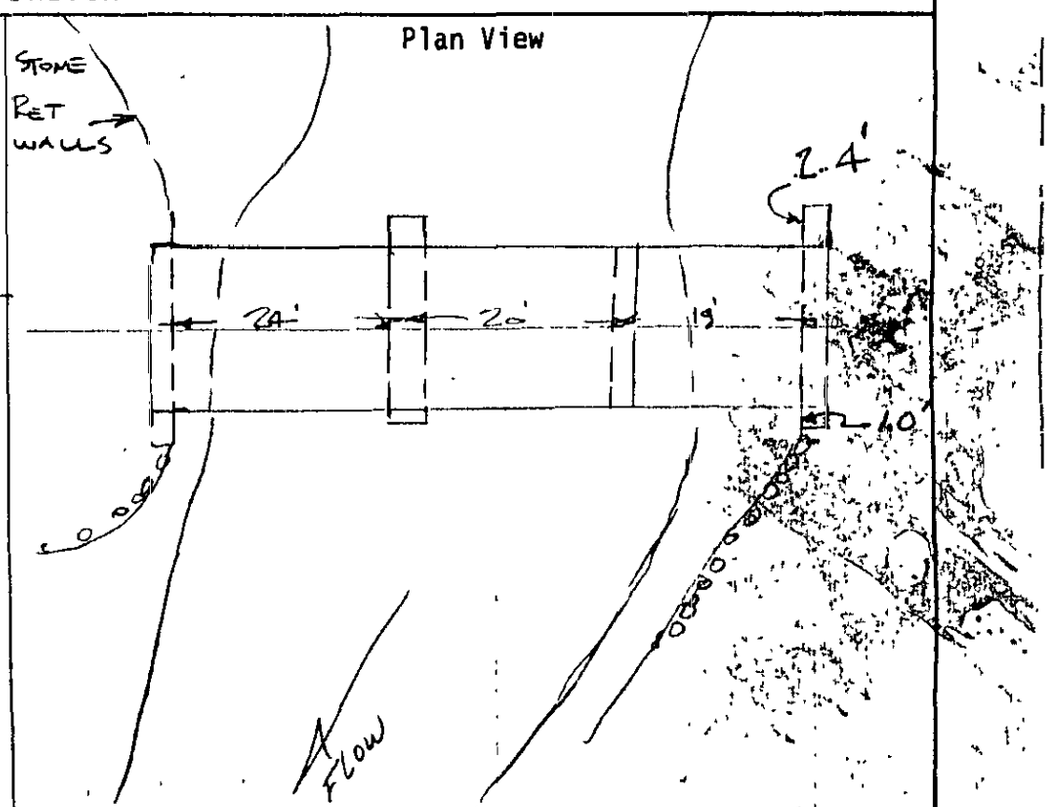
Job Name: AVON TWP F. I. S.			By: MC INNES
Date: 12-15-77	Feature: DRIVE BRIDGE		Water Course: PAINT CREEK
Remarks: CONC BRIDGE WITH CONC PIERS & ABUTMENTS.			
HARD BOTTOM SANDY GRAVEL HEAVY DEBRIS			
TAPERED PIER IS 2.5' WIDE AT LOW CHORD & 4.5' WIDE AT GROUND.			
Width of Piers: 2' 2.5' & 4.5'	Pier Shape: SEE BELOW	No. of Piers: 2	Area:
Water Elevation: 772.7	Length: 63'	Width of Deck: 10.6'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



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B.S.P.C. # 30

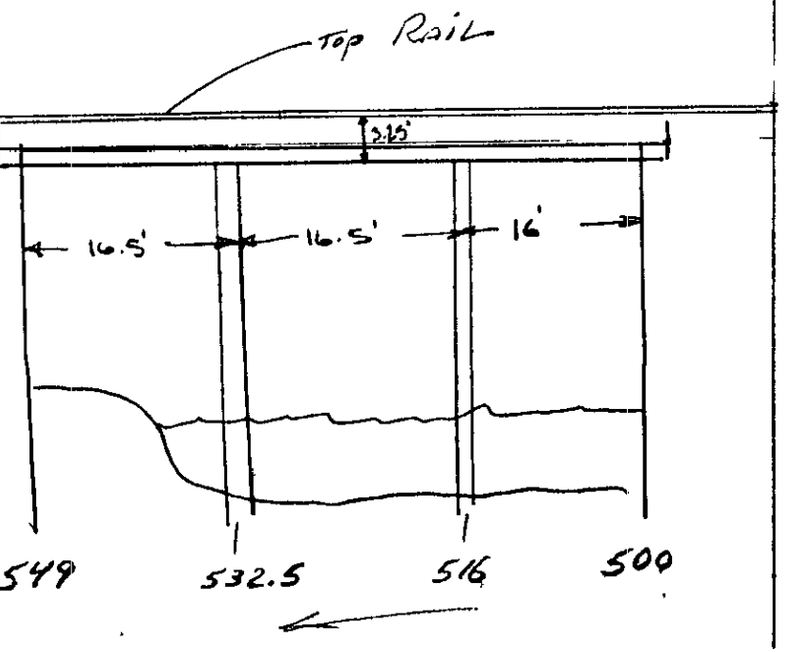
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Code No. 5850-07

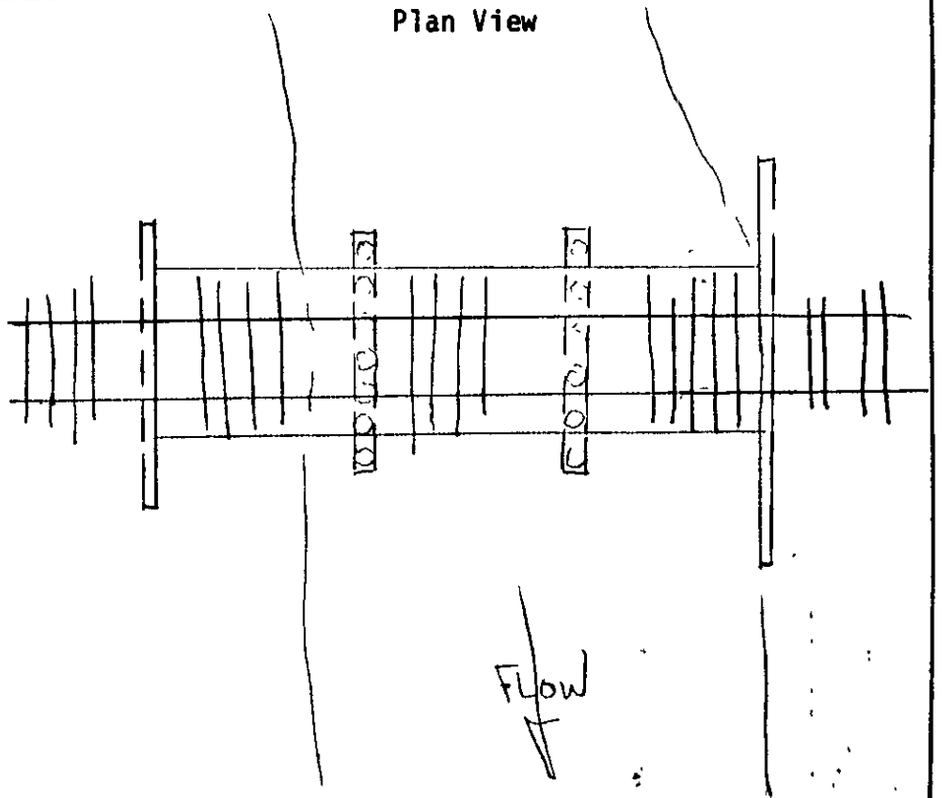
Job Name: Avon Twp F.I.S.			By: McInnes
Date:	Feature: Penn Central R.R. Bridge		Water Course: Paint Creek
Remarks: Bent Pile Timber Bridge with Steel Stringers & Wood Tie Deck & Abutments. Clear Hard Bottom Channel (No Debris)			
Width of Piers: 12" Avg	Pier Shape: 12" ϕ Wood	No. of Piers: 2	Area:
Water Elevation: 779.?	Length: 49'	Width of Deck: 12.7'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



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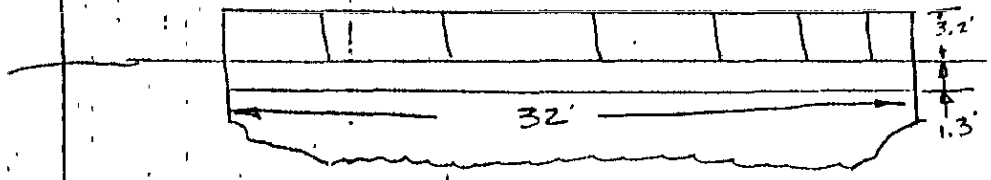
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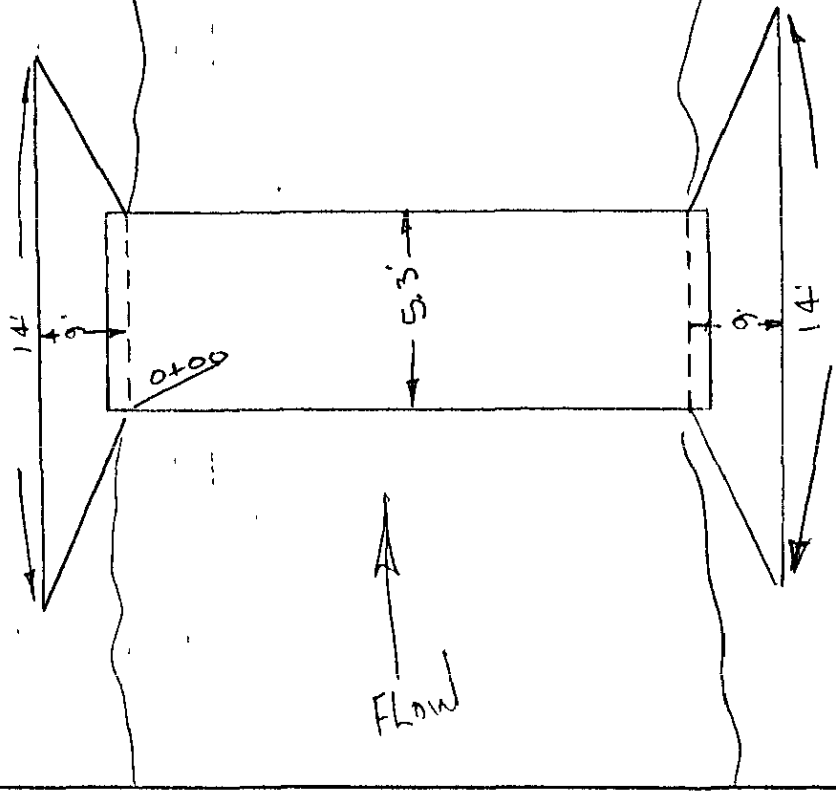
Job Name: CITY OF ROCHESTER FIS BS 32-1			By: JANETTE
Date: 9-8-78	Feature: FOOT BRIDGE		Water Course: PAINT CREEK
Remarks: WOOD FRAME BRIDGE, CONC, ABUTMENTS, WOOD DECK STEEL HAND RAIL			
BOTTOM HARD SAND MED TO SMALL ROCKS.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 777.40	Length: 32'	Width of Deck: 5.3	Skew: —

FIELD SKETCH

Profile View



Plan View



PG. ES-H 36

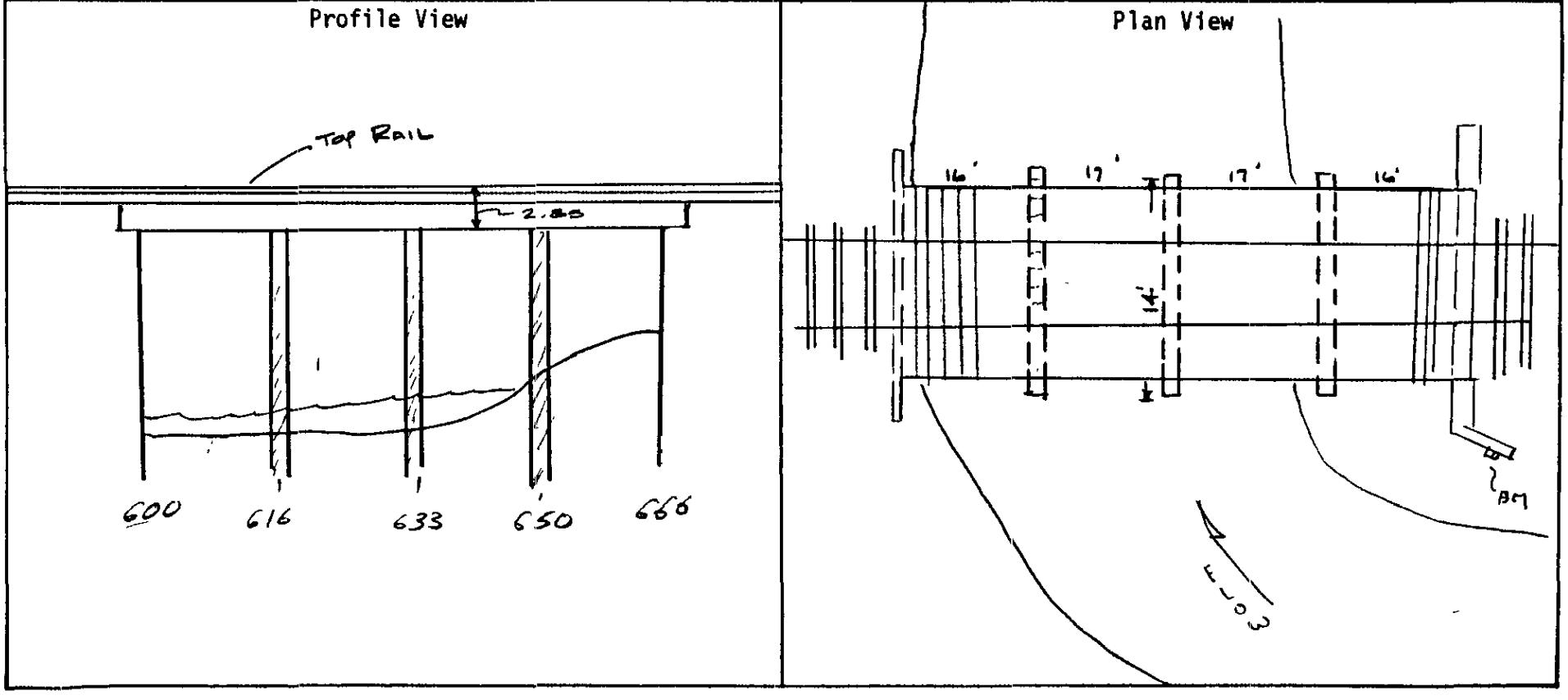
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HYDRAULIC STRUCTURAL DATA

Code No. 5850-07

Job Name: AVON TWP F.I.S.			By: MC INNES
Date: 12-15-77	Feature: PENN CENTRAL BRIDGE 1000'± SOUTH OF DUTTON RD		Water Course: PAINT CREEK
Remarks: BRIDGE IS A WOOD TIMBER BENT BRIDGE WITH WOOD TIG DECK & ABUTMENTS WITH STEEL I-BEAM STRINGERS. CLEAR HARD SANDY GRAVEL BOTTOM			
Width of Piers: 1.4'	Pier Shape: SQUARE	No. of Piers: 3	Area:
Water Elevation: 786.3	Length: 66'	Width of Deck: 10'	Skew: 0°

FIELD SKETCH



P.O. B.S. # 38

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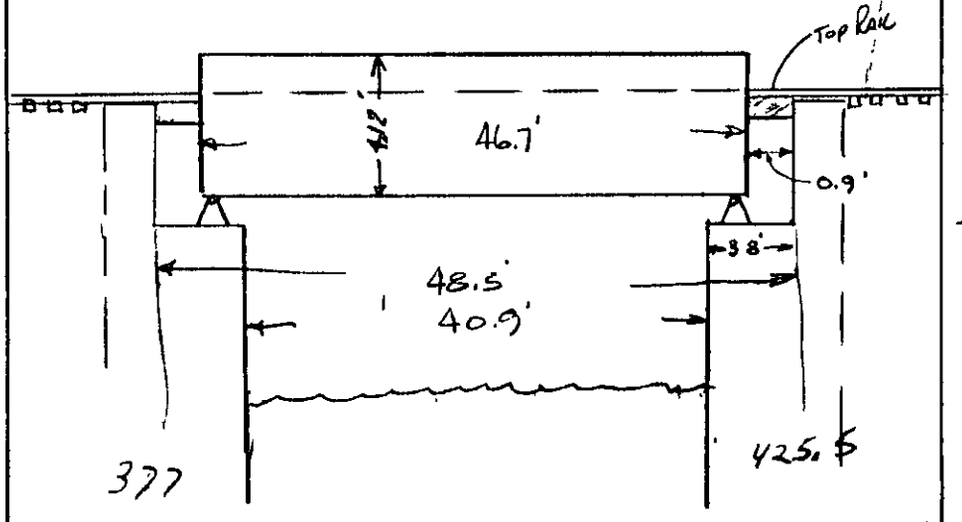
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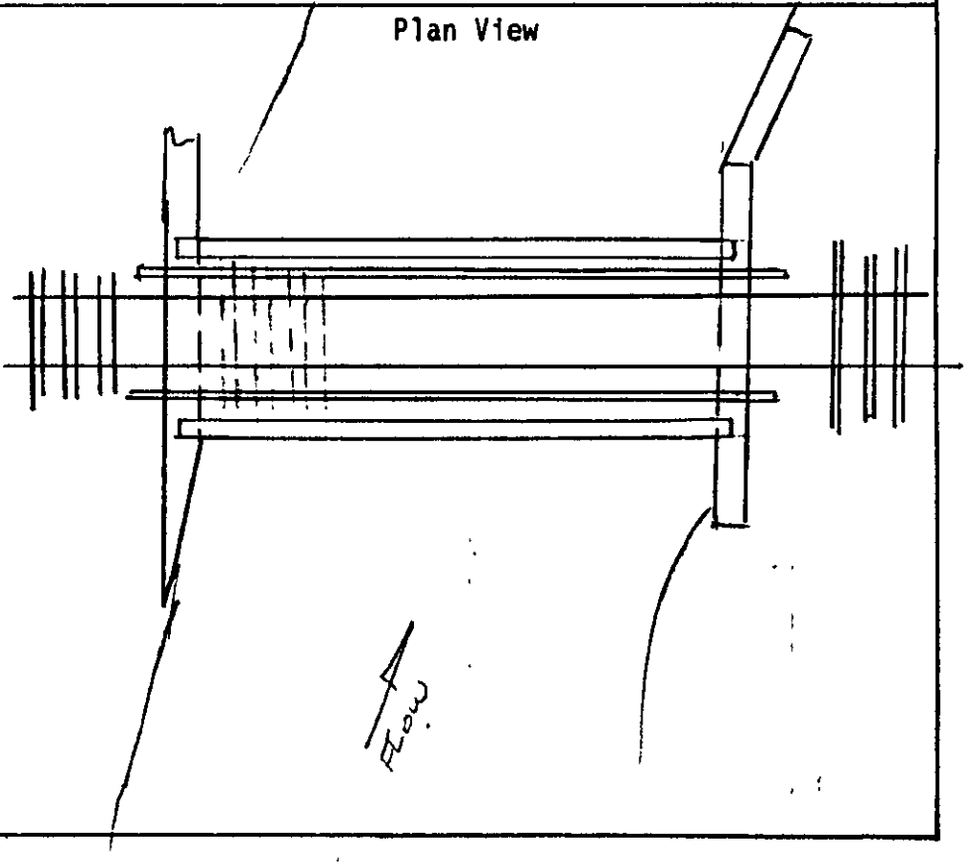
Job Name: Avon Twp F.I.S.			By: McInnes
Date: 12-15-77	Feature: Penn Central Bridge 200' South Dutton Rd		Water Course: Paint Creek
Remarks: Steel Girder Bridge w/wood Tie Deck, Conc Abutments, Clear Channel, Sandy Gravel Bottom. No Debris			
Width of Piers: —	Pier Shape: —	No. of Piers: 0	Area:
Water Elevation: 790.87	Length: See Sketch	Width of Deck: 15.4'	Skew: 0°

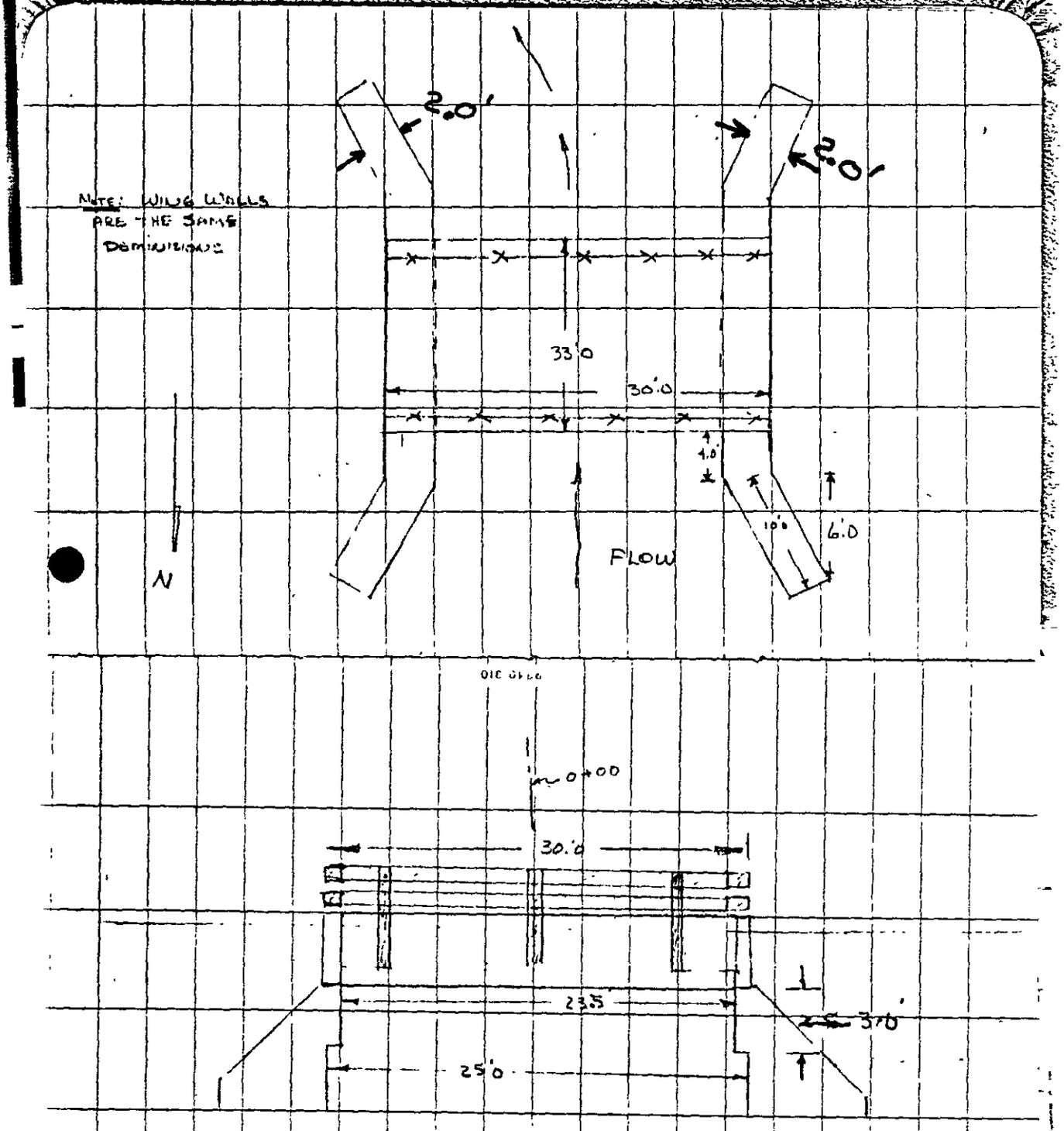
FIELD SKETCH

Profile View



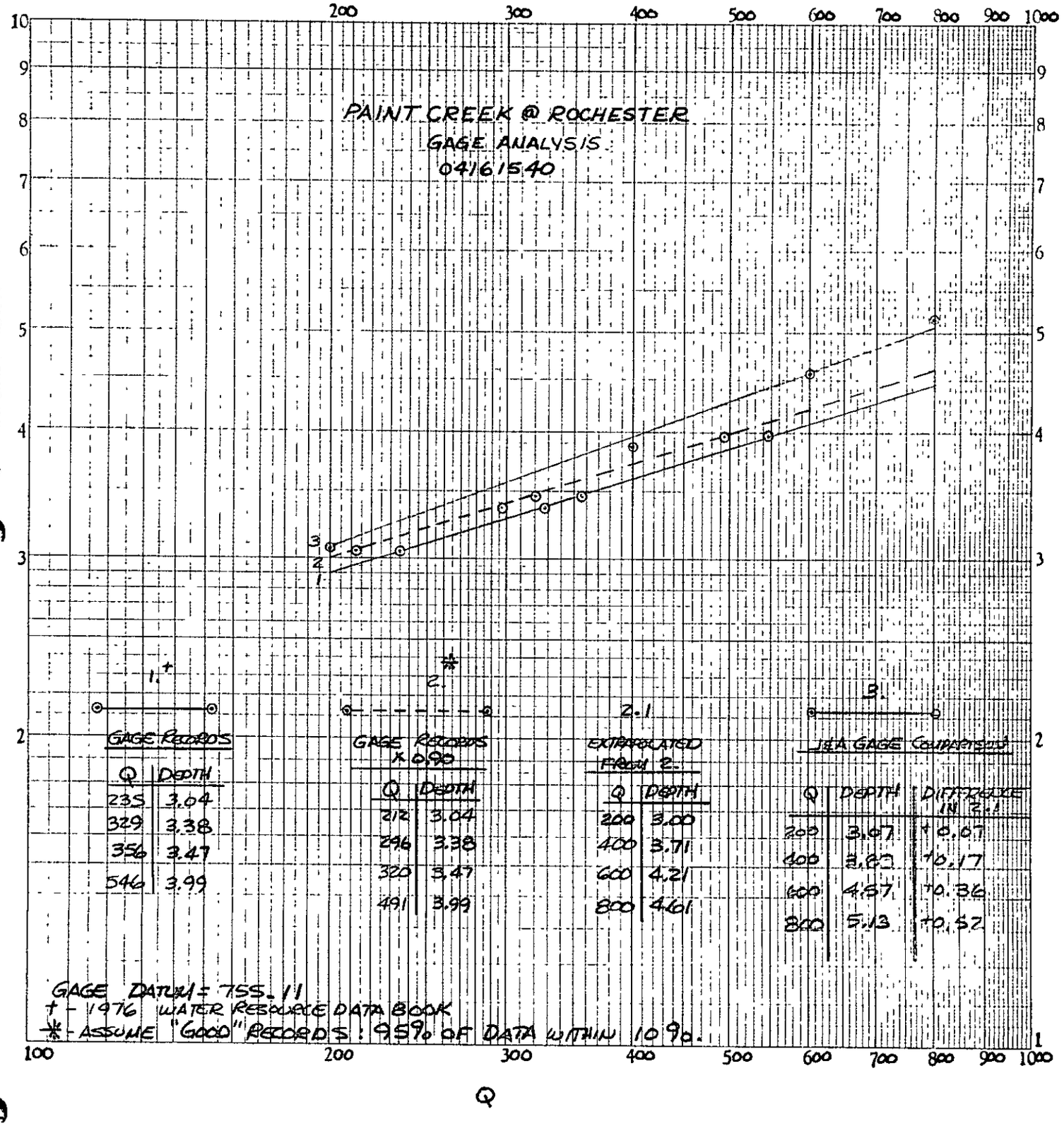
Plan View





DUTTON ROAD
PAINT CREEK

APPENDIX D


PAINT CREEK @ ROCHESTER
GAGE ANALYSIS
04161540
DEPTH
Q
1.†
2.*
2.1
3.
GAGE RECORDS
Q | DEPTH
235 | 3.04
329 | 3.38
356 | 3.47
546 | 3.99
GAGE RECORDS X 0.90
Q | DEPTH
212 | 3.04
296 | 3.38
320 | 3.47
491 | 3.99
EXTRAPOLATED FROM 2.
Q | DEPTH
200 | 3.00
400 | 3.71
600 | 4.21
800 | 4.61
J&A GAGE COMPARISON
Q | DEPTH | DIFFERENCE IN 2.1
200 | 3.07 | +0.07
400 | 3.88 | +0.17
600 | 4.57 | +0.36
800 | 5.13 | +0.52
GAGE DATUM = 755.11
† - 1976 WATER RESOURCE DATA BOOK
* - ASSUME "GOOD" RECORDS: 95% OF DATA WITHIN 10%.

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP & CITY OF ROCHESTER

3) WATERCOURSE: PAINT CREEK

4) DOCUMENT TYPE: SUMMARY : NATURAL

00BREAK00

HEC2 RELEASE DATE: 22D AS OF DATE: AUG1977
ERROR CODE = 01.02
MODIFICATION = 50.51.52.53

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

PAINT CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLOB	XCHAN	XROB	ELMIN	Q	CWSEL	CRIWSE	VCH	TOPWID	AREA	HYDRAD
0.000	0.00	0.00	0.00	706.80	675.00	714.70	0.00	714.55	50.00	0.00	1.07	154.15
0.000	0.00	0.00	0.00	706.80	1205.00	715.40	0.00	714.17	53.45	6.51	6.15	31.27
0.000	0.00	0.00	0.00	706.80	1745.00	716.20	0.00	715.05	55.27	5.96	8.11	35[illegible]
0.000	0.00	0.00	0.00	706.80	2510.00	717.39	0.00	715.25	58.42	10.42	10.37	755.31
143.000	143.00	0.00	0.00	709.80	675.00	716.50	0.00	715.20	54.35	3.59	1.15	182.25
143.000	143.00	0.00	0.00	709.80	1205.00	716.[illegible]	0.00	715.55	57.62	5.52	1.52	229.11
143.000	143.00	0.00	0.00	709.80	1745.00	716.80	0.00	717.31	63.04	7.75	2.17	256.10
143.000	143.00	0.00	0.00	709.80	2510.00	717.01	0.00	716.75	51.77	7.24	3.[illegible]	255.[illegible]
255.000	143.00	0.00	0.00	710.80	675.00	715.[illegible]	0.00	714.[illegible]	53.23	3.00	1.27	167.10
255.000	143.00	0.00	0.00	710.80	1205.00	715.57	0.00	715.15	63.95	6.60	1.86	191.05
355.000	69.00	0.00	0.00	712.20	675.00	716.[illegible]	0.00	715.[illegible]	[illegible]	4.97	1.[illegible]	15[illegible]
355.000	69.00	0.00	0.00	712.20	1205.00	715.[illegible]	0.00	716.47	[illegible]	5.75	2.[illegible]	[illegible]
355.000	69.00	0.00	0.00	712.20	1745.00	716.10	0.00	715.57	25.71	5.50	3.17	344.12
355.000	69.00	0.00	0.00	712.20	2510.00	716.53	0.00	720.15	25.75	6.36	4.10	314.29
356.000	1.00	721.10	720.70	712.20	675.00	716.16	0.00	715.[illegible]	11.69	6.93	1.06	219.52
356.000	1.00	721.10	720.70	712.20	1205.10	717.12	0.00	717.67	3.[illegible]	1.75	1.55	405.71
356.000	1.00	721.10	720.70	712.20	1745.00	717.11	0.00	717.57	3.[illegible]	5.69	2.17	577.24
356.000	1.00	721.10	720.70	712.20	2510.00	717.54	0.10	720.15	9.63	6.36	4.10	615.15
373.000	17.00	721.10	720.71	712.20	675.00	716.37	0.00	716.05	12.54	6.90	1.20	275.52
373.000	17.00	721.10	720.71	712.20	1205.00	717.18	0.00	717.[illegible]	8.64	6.72	2.55	410.15
373.000	17.00	721.10	720.71	712.20	1745.00	718.12	0.00	718.[illegible]	8.[illegible]	6.60	3.19	544.17
373.000	17.00	721.10	720.71	712.20	2510.00	718.58	[illegible]	721.[illegible]	[illegible]	6.36	4.[illegible]	672.15
374.000	1.00	0.00	0.00	712.20	675.00	716.[illegible]	0.00	715.[illegible]	30.11	6.31	1.15	177.66
374.000	1.00	0.00	0.00	712.20	1205.00	717.14	0.00	717.[illegible]	[illegible]	6.73	2.56	254.59
374.000	1.00	0.00	0.00	712.20	1745.00	715.[illegible]	0.00	717.[illegible]	[illegible]	6.47	3.[illegible]	377.67
374.000	1.00	0.00	0.00	712.20	2510.00	715.[illegible]	0.00	720.18	[illegible]	[illegible]	4.12	503.[illegible]
378.000	4.00	0.00	0.00	712.20	675.00	716.21	0.00	716.75	45.[illegible]	5.60	1.25	163.[illegible]
378.000	4.00	0.00	0.00	712.20	1205.00	717.19	0.00	717.[illegible]	30.54	5.54	2.07	216.32
378.000	4.00	0.00	0.00	712.20	1745.00	718.12	0.00	718.67	30.60	6.21	2.[illegible]	314.44
378.000	4.00	0.00	0.00	712.20	2510.00	716.53	0.00	720.[illegible]	28.[illegible]	[illegible]	3.[illegible]	490.13

PRINTED IN U.S.A.

FORM 1411.08 PRINTED BY NOTARY HAND OLD FORMS.

SECND	XLCH	FLTRD	ILLC	ELMIN	I	CUSSL	CRTNS	FC	TRMS	UCH	AREA	●03K
383.000	5.00	0.00	0.00	712.20	575.10	716.26	0.00	716.77	66.01	5.55	150.00	145.07
583.000	5.00	0.00	0.00	712.20	1205.00	717.11	0.00	717.58	30.02	5.52	216.44	217.70
383.000	5.00	0.00	0.00	712.20	1745.00	11 .09	0.00	715.65	10.53	.19	251.75	315.64
383.000	5.00	0.00	0.00	712.20	2010.00	717.55	0.00	720.20	4.11	.21	283.3	491.40
423.000	40.00	0.00	0.00	712.40	575.00	715.25	0.00	717.21	62.01	7.70	136.54	107.27
423.000	40.00	0.00	0.00	712.40	1205.00	717.03	0.00	717.84	53.04	7.32	154.35	156.14
423.000	40.00	0.00	0.00	712.40	1745.00	716.03	0.00	714.04	53.17	6.26	211.36	228.75
423.000	40.00	0.00	0.00	712.40	2010.00	719.67	0.00	720.61	53.77	.05	283.15	354.72
889.000	665.00	0.00	0.00	716.10	575.00	719.05	0.00	717.52	20.21	9.49	137.91	177.04
939.000	665.00	0.00	0.00	716.10	1205.00	719.45	0.00	720.02	13.95	9.10	167.54	206.77
889.000	665.00	0.00	0.00	716.10	1745.00	720.51	0.00	721.34	24.14	8.29	253.35	324.05
889.000	665.00	0.00	0.00	716.10	2010.00	721.10	0.00	722.01	15.08	7.75	283.01	425.31
899.000	10.00	0.00	0.00	716.20	575.00	719.01	0.00	719.57	3.00	3.00	133.00	171.04
899.000	10.00	0.00	0.00	716.20	1205.00	719.44	0.00	720.05	05.05	3.22	163.62	210.97
899.000	10.00	0.00	0.00	716.20	1745.00	720.52	0.00	721.21	05.41	7.00	249.15	339.00
899.000	10.00	0.00	0.00	716.20	2010.00	721.22	0.00	722.15	07.55	7.09	285.01	425.10
909.000	10.00	0.00	0.00	716.20	575.00	719.15	0.00	719.81	01.00	5.55	133.00	174.30
909.000	10.00	0.00	0.00	716.20	1205.00	719.54	0.00	720.01	00.00	5.12	163.00	215.53
909.000	10.00	0.00	0.00	716.20	1745.00	720.57	0.00	721.27	05.01	5.95	250.35	334.07
909.000	10.00	0.00	0.00	716.20	2010.00	721.90	0.00	722.00	05.42	8.04	284.29	432.57
919.000	10.00	0.00	0.00	716.30	575.00	719.15	0.00	719.85	00.00	5.60	132.70	170.50
919.000	10.00	0.00	0.00	716.30	1205.00	719.54	0.00	720.07	05.00	5.35	162.33	201.56
919.000	10.00	0.00	0.00	716.30	1745.00	720.58	0.00	721.28	05.02	5.13	245.15	330.55
919.000	10.00	0.00	0.00	716.30	2010.00	721.90	0.00	722.09	05.97	5.32	313.00	418.07
929.000	10.00	0.00	0.00	716.40	575.00	719.17	0.00	719.70	00.05	5.02	132.50	165.17
929.000	10.00	0.00	0.00	716.40	1205.00	719.59	0.10	720.10	05.00	5.05	160.00	194.45
929.000	10.00	0.00	0.00	716.40	1745.00	720.61	0.00	721.31	05.02	5.01	245.00	327.01
929.000	10.00	0.00	0.00	716.40	2010.00	721.90	0.00	722.12	05.02	5.71	278.00	410.07
939.000	10.00	0.00	0.00	716.50	575.00	719.17	0.00	719.77	49.02	5.19	157.10	193.46
939.000	10.00	0.00	0.00	716.50	1205.00	719.57	0.00	720.01	44.01	5.89	186.02	180.63
939.000	10.00	0.00	0.00	716.50	1745.00	720.57	0.00	721.30	49.05	7.77	270.05	354.06
939.000	10.00	0.00	0.00	716.50	2010.00	721.91	0.00	722.25	58.05	9.51	304.01	459.00
963.000	4.00	0.00	0.00	716.50	575.00	719.53	0.00	719.00	17.01	6.51	211.31	235.01
963.000	4.00	0.00	0.00	716.50	1205.00	719.99	0.10	720.42	31.05	5.22	230.90	269.02
963.000	4.00	0.00	0.00	716.50	1745.00	721.10	0.00	721.00	24.47	6.32	275.84	353.77
963.000	4.00	0.00	0.00	716.50	2010.00	721.45	0.00	722.00	21.15	7.04	303.10	467.15
944.000	1.00	724.60	725.00	716.50	575.00	719.55	0.00	719.00	6.41	4.11	211.20	44.04
944.000	1.00	724.60	725.00	716.50	1205.00	719.96	0.00	720.42	5.42	5.22	250.01	309.24
944.000	1.00	724.60	725.00	716.50	1745.00	721.06	0.00	721.37	5.30	6.33	275.00	365.00
944.000	1.00	724.60	725.00	716.50	2010.00	721.67	0.00	722.34	.71	7.83	303.00	454.15
947.000	41.00	724.60	725.01	716.50	575.00	719.55	0.00	719.91	6.20	4.54	213.01	145.77
947.000	41.00	724.60	725.01	716.50	1205.00	719.72	0.00	720.00	2.54	5.20	2.1.00	312.04
947.000	41.00	724.60	725.00	716.50	1745.00	721.10	0.00	721.71	5.77	5.30	277.10	370.72
947.000	41.00	724.60	725.00	716.50	2010.00	721.45	0.00	722.00	.55	7.71	305.40	462.70

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	SEC.D	HLCH	FLTRD	ALLE	TL'EE	C	F.S.L	CTTMS	TE	SUMMS	WCH	AREA	D.TF
#	995.000	1.00	0.00	1.00	717.00	975.01	720.35	[illegible]	721.10	155.77	9.05	102.52	21.43
#	995.000	1.00	0.00	1.00	717.00	1295.06	720.74	720.45	720.42	[illegible]	[illegible]	[illegible]	13.34
#	995.000	1.00	0.00	1.00	717.00	1745.10	721.57	721.51	721.45	[illegible]	11.08	155.17	145.03
#	995.000	1.00	0.00	0.00	717.00	2510.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	421.44
#	995.000	7.00	0.00	0.00	717.00	975.00	720.93	720.05	721.05	145.01	[illegible]	115.09	[illegible]
#	995.000	7.00	0.00	0.00	717.00	1295.00	721.10	721.11	721.05	137.07	[illegible]	[illegible]	102.45
#	995.000	[illegible]	[illegible]	[illegible]	[illegible]	1745.01	721.11	721.11	[illegible]	[illegible]	[illegible]	[illegible]	135.09
#	995.000	7.00	0.00	0.00	717.00	2510.00	724.73	723.00	725.00	53.37	7.09	130.94	417.10
	1037.000	42.00	0.00	0.00	718.00	975.00	721.75	0.00	[illegible]	[illegible]	[illegible]	[illegible]	111.29
	1037.000	42.00	0.00	0.00	718.00	1295.00	722.11	0.00	722.03	37.90	[illegible]	[illegible]	164.43
	1037.000	42.00	0.00	0.00	718.00	1745.00	722.17	0.00	724.07	31.11	[illegible]	[illegible]	223.21
	1037.000	42.00	0.00	0.00	718.00	2510.00	724.11	0.00	25.09	[illegible]	[illegible]	[illegible]	415.75
	1137.000	150.00	0.00	0.00	718.50	[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]	136.77
	1137.000	150.00	0.01	0.00	718.50	1295.00	723.25	0.00	723.01	37.55	5.97	[illegible]	191.30
	1137.000	150.00	0.00	0.00	718.50	1745.00	724.17	0.00	[illegible]	30.12	6.79	[illegible]	272.77
	1137.000	150.00	0.00	0.00	718.50	2510.00	725.51	0.00	725.14	[illegible]	[illegible]	[illegible]	420.20
	1237.000	150.00	0.00	0.00	719.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	1237.000	150.00	0.00	0.00	719.00	1295.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	1337.000	150.00	0.00	0.00	719.00	1745.00	724.01	0.00	725.45	16.45	0.56	26.02	47.04
	1337.000	150.00	0.00	0.00	719.00	2510.00	726.12	0.00	727.11	24.25	2.30	37.04	65.41
	1437.000	141.00	0.00	0.00	719.50	975.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.71
	1437.000	141.00	0.00	0.00	719.50	1295.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	1437.000	141.00	0.00	0.00	719.50	1745.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	1437.000	141.00	0.00	0.00	719.50	2510.00	727.03	0.00	727.57	24.57	1.25	31.13	49.00
	1537.000	45.00	0.00	0.00	719.70	975.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	151.[illegible]	115.33
	1535.000	45.00	0.00	0.00	719.70	1295.00	[illegible]	[illegible]	[illegible]	[illegible]	0.75	138.15	151.[illegible]
	1535.000	45.00	0.00	0.00	719.70	1745.00	726.50	[illegible]	[illegible]	7.62	[illegible]	225.22	225.37
	1535.000	45.00	0.00	0.00	719.70	2510.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	1636.000	1.00	727.90	722.70	719.70	975.00	724.01	0.00	724.71	26.75	[illegible]	129.45	183.52
	1636.000	1.00	727.90	722.70	719.70	1295.00	725.07	0.00	725.32	20.56	7.65	102.04	233.53
	1636.000	1.00	727.90	722.70	719.70	1745.00	725.70	0.00	726.55	17.15	[illegible]	211.53	274.52
	1636.000	1.00	727.90	722.70	719.70	2510.00	726.73	0.00	726.73	15.24	4.46	445.47	444.04
	1636.000	20.00	727.90	722.70	719.70	975.00	721.20	0.00	724.17	27.42	0.55	146.75	206.84
	1636.000	20.00	727.90	722.70	719.70	1295.00	724.34	0.00	725.42	24.46	2.01	171.97	254.37
	1636.000	21.00	727.90	722.70	719.70	1745.00	725.42	0.00	726.52	23.30	3.79	246.07	361.06
	1636.100	20.00	727.90	722.70	719.70	2510.00	726.35	0.00	727.15	20.46	9.72	2[illegible]	472.[illegible]
	1665.000	1.00	0.00	0.00	719.71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.55	122.17	140.49
	1665.000	1.00	0.00	0.00	719.70	1295.00	726.02	0.00	725.45	57.04	0.01	200.45	175.05
	1665.000	1.00	0.00	0.00	719.70	1745.00	725.07	0.00	726.05	44.71	0.56	255.11	220.22
	1665.000	1.00	0.00	0.00	719.71	2510.00	727.51	0.00	728.21	35.14	2.09	351.14	434.70
	1670.000	5.00	0.00	0.00	719.61	[illegible]	726.32	0.00	[illegible]	[illegible]	4.45	[illegible]	187.02
	1670.000	5.00	0.00	0.00	719.80	1295.01	725.12	0.00	725.59	[illegible]	5.21	130.51	[illegible]
	1670.000	5.00	0.00	0.00	719.01	1745.00	726.19	0.00	726.70	29.65	5.59	240.29	323.20
	1670.000	5.00	0.00	0.00	719.80	2511.00	727.03	0.00	728.38	25.23	3.20	471.27	519.56

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SECND	BLCK	BLTRD	BLLC	BLMIN	D	CMBL	CRING	EE	10K*F	VCM	AREA	*DTR
1592.000	22.00	0.00	0.00	720.00	975.00	726.61	0.00	725.14	42.02	5.10	135.33	149.25
1592.000	22.00	0.00	0.00	720.00	1205.00	725.70	0.10	725.72	44.29	5.34	139.12	131.06
1592.000	22.00	0.00	0.00	720.00	1745.10	726.42	0.10	726.21	45.04	7.13	144.30	207.07
1592.000	22.00	0.00	0.00	720.00	2010.00	727.72	0.11	727.66	45.00	7.53	141.56	213.22
1614.000	22.00	0.00	0.00	720.20	975.00	726.56	0.00	725.03	75.21	7.48	130.32	113.80
1614.000	22.00	0.00	0.00	720.20	1205.00	725.93	0.00	726.36	77.10	8.05	144.72	137.14
1614.000	22.00	0.00	0.00	720.20	1745.00	726.01	0.00	726.27	78.36	9.54	143.01	194.73
1614.000	22.00	0.00	0.00	720.20	2010.00	727.55	0.00	726.97	78.52	9.64	137.85	211.17
1666.000	52.00	0.00	0.00	720.00	975.00	726.91	0.00	725.93	91.11	8.07	140.75	101.25
1666.000	52.00	0.00	0.00	720.00	1205.00	725.19	0.00	726.55	92.82	8.81	140.03	125.07
1665.000	52.00	0.00	0.00	720.00	1745.00	725.98	0.01	727.50	93.50	9.56	142.53	150.45
1665.000	52.00	0.00	0.00	720.00	2010.00	727.55	0.00	729.11	94.32	10.29	144.09	243.87
1715.000	52.00	0.00	0.00	721.30	975.00	726.30	0.00	725.93	98.03	8.24	139.11	100.00
1715.000	52.00	0.00	0.00	721.30	1205.00	725.38	0.00	727.04	98.86	8.66	139.51	124.05
1715.000	52.00	0.00	0.00	721.30	1745.00	726.57	0.00	728.30	99.33	9.30	141.03	179.41
1715.000	52.00	0.00	0.00	721.30	2010.00	727.29	0.00	729.97	97.09	10.62	150.00	207.25
1744.000	3.00	0.00	0.00	721.50	975.00	726.92	0.00	726.05	11.05	8.31	117.11	97.73
1744.000	3.00	0.00	0.00	721.50	1205.00	726.11	0.00	727.38	11.06	8.92	116.92	120.10
1744.000	2.00	0.00	0.00	721.50	1745.00	727.93	0.00	728.57	11.77	9.75	179.10	175.56
1744.000	25.00	0.00	0.00	721.50	2611.01	728.04	0.00	730.26	12.35	11.65	245.11	270.12
1770.000	25.00	0.00	0.00	721.70	975.00	726.[illegible]	0.00	726.75	110.09	8.43	115.01	95.30
1770.000	25.00	0.00	0.00	721.69	1205.00	725.35	0.00	727.[illegible]	110.[illegible]	9.27	126.41	111.14
1770.000	25.00	0.00	0.00	721.69	1745.00	727.[illegible]	0.00	728.[illegible]	111.22	9.91	126.1[illegible]	171.45
1770.000	25.00	0.00	0.00	721.90	2010.00	728.71	0.00	730.21	97.[illegible]	10.80	141.53	264.59
1820.000	50.00	0.00	0.00	722.40	975.00	[illegible]	0.00	727.61	[illegible]11	8.30	117.64	97.[illegible]4
1820.000	50.00	0.00	0.00	722.40	1205.00	[illegible]19	0.00	728.02	[illegible]64	9.63	121.41	120.30
1820.000	50.00	0.00	0.00	722.40	1745.00	727.83	0.00	729.[illegible]	31.[illegible]0	9.96	176.20	172.[illegible]4
1820.000	50.00	0.00	0.00	722.40	2611.00	728.11	0.00	730.71	[illegible]16	10.03	256.53	252.22
1845.000	25.00	0.00	0.00	722.70	975.00	726.04	0.00	727.73	105.70	8.45	114.31	94.[illegible]3
1845.000	25.00	0.00	0.00	722.70	1205.00	727.16	0.00	728.[illegible]	105.77	[illegible]02	123.[illegible]1	117.17
1845.000	25.00	0.00	0.00	722.70	1745.00	727.10	0.00	728.[illegible]	105.71	[illegible]09	178.[illegible]4	169.[illegible]2
1845.000	25.00	0.00	0.00	722.70	2611.[illegible]	728.[illegible]	0.00	730.[illegible]	103.55	11.05	241.[illegible]1	255.[illegible]0
1870.000	25.00	0.00	0.00	723.00	975.00	726.[illegible]	0.00	728.07	117.57	[illegible]63	113.51	92.[illegible]5
1870.000	25.00	0.00	0.00	723.00	1205.00	727.[illegible]	0.00	728.[illegible]	105.98	[illegible]15	131.[illegible]3	114.30
1870.000	25.00	0.00	0.00	723.00	1745.00	728.[illegible]	0.00	729.[illegible]	106.54	10.12	172.[illegible]7	166.[illegible]9
1870.000	25.00	0.00	0.00	723.00	2611.[illegible]	729.[illegible]	0.00	731.[illegible]	107.[illegible]4	11.17	233.[illegible]5	242.[illegible]4
1895.000	25.00	0.00	0.00	723.20	975.00	[illegible]26	0.00	727.[illegible]7	[illegible]4[illegible]	7.[illegible]4	1.[illegible]4[illegible]1	105.[illegible]9
1895.000	25.00	0.00	0.00	723.20	1205.00	727.56	0.00	728.00	53.[illegible]1	[illegible]27	145.72	132.[illegible]1
1895.000	25.00	0.00	0.00	723.20	1745.00	728.45	0.00	730.21	54.[illegible]2	[illegible]21	1[illegible]9.75	190.[illegible]4
1895.000	25.00	0.00	0.00	723.20	2611.00	729.37	0.00	731.02	77.66	10.[illegible]1	[illegible]3.32	254.[illegible]
1919.000	24.00	0.00	0.00	723.50	[illegible]5.00	727.59	0.00	726.[illegible]7	[illegible]0[illegible]	8.15	116.[illegible]3	100.[illegible]7
1919.000	24.00	0.00	0.00	723.50	1205.00	[illegible]13.11	0.00	727.[illegible]3	[illegible]21	[illegible]53	140.[illegible]2	123.49
1919.000	24.00	0.00	0.00	723.50	1745.00	728.12	0.00	730.51	[illegible]54	[illegible]49	184.[illegible]5	1[illegible]2.52
1919.000	24.00	0.00	0.00	723.50	2611.00	[illegible]59	0.00	[illegible]31	[illegible]1	10.35	[illegible]52.51	250.[illegible]3

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FORM 1411 03 PRINTED BY NOTARY MANIFOLD FORMS.

SECND	ALCH	ELTST	ELLC	TLMIN	J	D=EL	CNTLG	TL	TTRNS	SCH	AREA	=DIS
1931.000	12.00	0.00	0.00	723.60	975.00	722.72	0.00	726.74	0.21	5.11	150.51	101.62
1931.000	12.00	0.00	0.00	723.60	1205.00	725.12	0.00	730.35	11.84	5.57	110.57	175.74
1931.000	12.00	0.00	0.00	725.60	1745.00	725.21	0.00	731.12	11.12	5.56	154.16	181.55
1931.000	12.00	0.00	0.00	723.60	2110.00	725.21	0.00	732.21	10.75	10.18	253.02	206.53
1944.000	13.00	0.00	0.00	723.70	975.00	726.53	0.00	731.17	12.32	7.77	145.56	107.48
1944.000	13.00	0.00	0.00	725.70	1205.00	726.65	0.00	726.50	13.11	4.24	146.13	143.00
1944.000	13.00	0.00	0.00	725.70	1745.00	726.44	0.00	730.7	.5	.09	112.37	195.24
1944.000	13.00	0.00	0.00	725.70	2110.00	727.13	0.00	732.41	10.04	11.13	253.20	291.01
1956.000	12.00	0.00	0.00	725.90	975.00	728.19	.0.00	731.02	13.22	0.12	130.36	100.92
1956.000	12.00	0.00	0.00	725.90	1205.00	727.51	0.00	732.05	12.00	0.50	140.43	125.50
1956.000	12.00	0.00	0.00	725.90	1745.00	728.54	0.00	732.97	10.05	0.43	145.12	181.76
1956.000	12.00	0.00	0.00	725.90	2110.00	728.70	0.00	733.54	10.03	10.43	253.51	218.21
1902.000	5.00	0.00	0.00	723.90	975.00	723.22	0.00	728.11	11.16	7.58	143.16	111.14
1902.000	5.00	0.00	0.00	723.90	1205.00	723.74	0.00	728.75	12.36	0.02	150.11	147.72
1962.000	5.00	0.00	0.00	723.90	1745.00	724.80	0.00	729.12	12.31	0.36	156.91	200.15
1902.000	5.00	0.00	0.00	725.90	2110.00	725.29	0.00	730.20	12.79	0.74	273.86	301.11
1980.000	4.00	0.00	0.00	724.00	975.00	723.71	0.00	728.17	13.11	7.00	145.61	108.16
1980.000	4.00	0.00	0.00	724.00	1205.00	723.93	0.00	728.77	13.24	0.22	146.12	133.51
1980.000	4.00	0.00	0.00	724.00	1745.00	724.69	0.00	729.40	12.79	0.10	192.58	194.10
1980.000	4.00	0.00	0.00	725.00	2110.00	725.21	0.00	730.24	12.34	0.96	250.74	297.58
1.9.000	1.00	0.00	0.00	724.10	975.00	728.72	0.00	732.[illegible]	13.[illegible]	1.06	190.05	408.[illegible]
19.9.000	1.00	0.00	0.00	724.00	1205.00	729.54	0.00	732.[illegible]	13.[illegible]	5.51	223.22	435.52
1.5.000	1.00	0.00	0.00	724.00	1205.00	729.11	0.00	732.[illegible]	13.[illegible]	5.51	223.22	342.12
19.9.000	1.00	0.00	0.00	724.00	2110.00	731.17	0.01	732.[illegible]	14.41	6.12	252.03	361.72
1930.000	51.00	734.00	725.00	724.00	975.00	728.02	0.00	72[illegible]	15.56	6.54	231.36	414.01
2030.000	51.00	734.00	725.00	726.00	1205.00	72[illegible]	0.00	[illegible]	15.[illegible]	5.35	252.21	422.77
2030.000	51.00	734.00	725.00	726.00	1745.00	730.[illegible]	0.01	1.[illegible]	14.[illegible]	5.44	287.34	361.32
2030.000	51.00	734.00	725.00	726.00	2110.00	731.40	[illegible]	[illegible]	[illegible]	[illegible]	315.17	95.[illegible]
2080.000	50.00	0.00	0.00	724.30	975.00	728.03 —	0.00	732.[illegible]	13.04	5.40	150.51	160.65
2080.000	50.00	0.00	0.00	726.30	1205.00	729.51	0.00	733.[illegible]	13.91	5.77	218.92	209.72
2080.000	50.00	0.00	0.00	726.30	1745.00	730.73	0.00	734.[illegible]	13.[illegible]	5.54	257.03	200.57
2080.000	50.00	0.00	0.00	726.30	2110.00	731.26	0.00	735.[illegible]	13.[illegible]	5.43	354.[illegible]	445.96
2421.000	349.00	0.00	0.00	726.70	975.00	730.92	0.00	734.[illegible]	13.[illegible]	7.07	157.37	113.01
2429.000	349.00	0.00	0.00	726.70	1205.00	731.05	0.00	735.[illegible]	13.[illegible]	7.43	152.17	154.04
2429.000	349.00	0.00	0.00	726.70	1745.00	732.14	0.00	736.[illegible]	13.[illegible]	7.19	215.51	194.24
2429.000	349.00	0.00	0.00	726.70	2110.00	733.59	0.01	737.[illegible]	13.[illegible]	7.07	252.[illegible]	260.45
2778.000	347.00	0.00	0.00	726.10	975.00	730.[illegible]	0.00	734.[illegible]	13.[illegible]	5.72	145.85	116.[illegible]
2778.000	349.00	0.00	0.00	729.00	1205.00	733.63	0.01	738.23	13.53	7.29	156.80	150.01
2778.000	349.00	0.00	0.00	729.00	1745.00	734.53	0.00	739.43	13.[illegible]	5.23	212.81	214.04
2778.000	349.00	0.00	0.00	729.00	2110.00	735.71	0.01	739.04	13.[illegible]	6.25	282.02	322.05
3203.000	425.00	0.00	0.00	731.20	975.00	735.56	0.00	739.[illegible]	13.[illegible]	4.35	159.[illegible]	127.51
3203.000	425.00	0.00	0.00	731.30	1205.00	736.15	0.00	740.[illegible]	13.[illegible]	6.74	170.[illegible]	169.[illegible]
3203.000	425.00	0.00	0.00	731.30	1745.00	737.17	0.00	738.03	14.23	7.46	233.96	236.60
3203.000	425.00	0.00	0.00	731.30	2110.00	738.51	0.00	739.59	12.48	8.33	313.26	350.24

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SECND	XLCH	ELTRD	PLLC	ELVIN	D	CLSCL	CTRNS	3D	TOWNS	VCH	AREA	●CCK
3623●000	425●00	0●00	0●00	733●50	925●00	7[illegible]	0●00	7[illegible]	49●00	6●01	152●00	139●82
3625●000	425●00	0●00	0●00	733●50	1205●00	7[illegible]	0●00	739●13	53●22	5●46	1[illegible]	161●09
3624●000	425●00	0●00	0●00	733●50	1745●00	7[illegible]	[illegible]	741●37	54●17	7●20	[illegible]	243●05
3628●000	425●00	0●00	0●00	733●50	2010●00	741●74	0●00	741●01	51●[illegible]	6●23	[illegible]	352●[illegible]
3699●000	71●00	0●00	0●00	733●50	975●00	736●49	0●00	738●52	10●12	5●24	146●17	159●41
3699●000	71●00	0●00	0●00	733●50	1215●00	738●20	0●00	739●48	51●12	5●45	212●76	205●00
3699●000	71●00	0●00	0●00	733●50	1745●00	739●80	0●00	74[illegible]	55●[illegible]	[illegible]	[illegible]	277●[illegible]
3699●000	71●00	0●00	0●00	733●50	2510●00	741●[illegible]	0●00	742●1[illegible]	[illegible]	7●61	352●18	475●74
3724●000	25●00	0●00	0●00	733●50	975●00	736●60	0●00	739●10	50●12	5●11	190●20	177●[illegible]
3724●000	25●00	0●00	0●00	733●50	1215●00	738●03	0●00	739●57	51●15	5●56	216●05	215●12
3724●000	25●00	0●00	0●00	733●50	1745●00	741●17	0●00	741●13	52●24	6●58	267●74	309●20
3724●000	25●00	0●00	0●00	733●50	2010●00	741●[illegible]	0●00	742●32	57●71	7●71	305●58	429●73
3735●000	12●00	0●00	0●00	733●50	975●00	7[illegible]	0●00	739●[illegible]	50●[illegible]	5●25	185●[illegible]	172●[illegible]
3735●000	12●00	0●00	0●00	733●50	1215●00	7[illegible]	0●00	739●52	[illegible]	5●39	247●75	210●73
3736●000	12●00	0●00	0●00	733●50	1745●00	739●01	0●00	741●82	57●72	6●92	352●28	364●1[illegible]
3736●000	12●00	0●00	0●00	733●50	2010●00	741●[illegible]	0●00	742●[illegible]	66●[illegible]	[illegible]●39	410●91	390●[illegible]
3742●000	6●0	0●00	0●00	[illegible]	[illegible]	[illegible]	0●00	[illegible]	[illegible]	5●42	179●64	171●[illegible]
3742●000	[illegible]	0●00	0●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3742●000	6●70	0●00	0●00	733●50	1745●00	[illegible]	0●00	[illegible]	61●[illegible]	7●23	241●[illegible]	270●65
3742●000	6●00	0●00	0●00	[illegible]	2511●00	51●[illegible]	0●00	742●[illegible]	51●[illegible]	5●64	295●56	340●39
3745●000	[illegible]	0●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7[illegible]	[illegible]	5●[illegible]	177●[illegible]	1[illegible]
3746●000	5●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	73[illegible]	[illegible]	[illegible]	1[illegible]	151●[illegible]
3749●000	5●00	0●00	0●00	[illegible]	[illegible]	[illegible]	0●00	[illegible]	[illegible]	7●39	[illegible]	[illegible]
3763●000	5●00	0●00	0●00	7[illegible]	2[illegible]	74[illegible]	0●00	742●[illegible]	55●[illegible]	9●65	[illegible]	317●[illegible]
3749●000	1●00	749●00	744●20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	115●[illegible]
3749●000	1●00	749●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	145●[illegible]
3749●000	1●00	749●00	744●20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11●41	152●[illegible]	[illegible]
3749●000	1●00	749●00	744●20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]
3810●000	61●00	749●00	744●20	733●50	975●00	[illegible]	0●00	[illegible]	49●49	[illegible]	1[illegible]	173●55
3810●000	61●00	749●00	744●20	[illegible]	1205●00	[illegible]	0●00	[illegible]	[illegible]	7●65	181●21	[illegible]
3810●000	61●00	749●00	744●20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3810●000	61●00	749●00	744●20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3811●000	1●00	0●00	0●00	733●50	975●00	[illegible]	0●00	[illegible]	[illegible]	[illegible]	1[illegible]	167●[illegible]
3811●000	1●00	0●00	0●00	[illegible]	1205●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3811●000	1●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3811●000	1●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3860●000	5[illegible]●00	[illegible]●00	[illegible]●00	[illegible]	[illegible]	746●55	[illegible]●00	[illegible]	[illegible]	6●60	[illegible]	[illegible]
3860●000	[illegible]	0●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3859●000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3922●000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3922●000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3922●000	[illegible]	0●00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3922●000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

	SELVO	ALCH	ILTE?	ILLC	CLMIA	?	CUSIL	CRILA	"S	TOKAR	VGA	AREA	[illegible]
	3935.000	13.00	0.00	0.00	735.30	1225.00	730.97	0.00	730.65	3.31	5.71	105.05	154.02
	3935.000	13.00	0.00	0.00	735.30	1205.00	730.15	0.00	741.17	15.72	5.91	203.60	104.51
	3935.000	13.00	0.00	0.00	735.30	1745.00	740.07	0.00	746.05	27.15	6.10	405.64	274.72
	3935.000	11.00	0.00	0.00	735.30	2610.00	744.15	0.00	746.05	40.66	6.22	619.71	525.00
	3947.000	12.00	0.00	0.00	735.50	1225.00	730.99	0.00	740.54	15.50	5.07	100.06	144.55
	3947.000	12.00	0.00	0.00	735.50	1205.00	740.68	0.00	741.25	28.22	5.23	193.45	191.49
	3947.000	12.00	0.00	0.00	735.50	1745.00	742.77	0.00	742.72	37.90	6.48	299.37	213.14
	3947.000	12.00	0.00	0.00	735.50	2610.00	744.13	0.00	744.33	21.70	6.75	506.45	515.12
	3959.000	12.00	0.00	0.00	735.70	1225.00	730.00	0.00	741.53	58.53	6.51	142.01	125.67
	3959.000	12.00	0.00	0.00	735.70	1205.00	730.68	0.00	741.38	40.95	6.75	170.12	172.13
	3959.000	12.00	0.00	0.00	735.70	1745.00	732.15	0.00	742.52	34.01	7.32	206.65	218.03
	3959.000	12.00	0.00	0.00	735.70	2611.00	734.09	0.00	744.21	19.04	7.37	334.57	489.29
	3965.000	5.00	0.00	0.00	735.80	1225.00	730.02	0.00	741.54	53.05	7.24	130.51	157.07
	3965.000	5.00	0.00	0.00	735.80	1205.00	730.52	0.00	741.54	53.05	7.24	130.51	157.07
	3965.000	5.00	0.00	0.00	735.80	1745.00	732.02	0.00	742.26	35.62	7.43	203.25	258.91
	3965.000	5.00	0.00	0.00	735.80	2610.00	734.05	0.00	745.01	34.47	7.35	332.32	445.61
	3977.000	7.00	0.00	0.00	735.00	1225.00	730.00	0.00	741.55	52.00	7.01	117.00	116.54
	3977.000	7.00	0.00	0.00	735.00	1205.00	730.00	0.00	741.55	52.00	7.01	117.00	116.54
	3977.000	7.00	0.00	0.00	735.00	1745.00	732.00	0.00	742.14	34.54	7.12	191.39	249.37
	3977.000	7.00	0.00	0.00	735.00	2610.00	734.00	0.00	745.01	34.11	7.21	323.00	531.65
	3987.000	15.00	741.81	765.71	735.05	1225.00	730.72	0.00	741.55	52.00	7.37	116.50	150.27
	3987.000	15.00	740.53	747.70	735.51	1205.00	730.51	0.00	741.54	52.00	7.37	116.50	150.27
	3987.000	15.00	742.04	747.04	735.20	1745.00	732.04	0.00	742.25	34.54	7.43	191.39	249.37
	3987.000	15.00	742.03	747.03	735.46	2610.00	735.51	0.00	745.05	34.11	7.32	322.57	764.70
	3990.000	2.00	0.00	0.00	735.90	1225.00	731.33	0.00	741.55	1.00	4.50	226.00	229.25
	3990.000	2.00	0.00	0.00	735.90	1205.00	731.03	0.00	742.21	1.50	4.55	233.12	272.26
	3990.000	2.00	0.00	0.00	735.90	1745.00	732.01	0.00	743.02	1.00	5.73	307.61	370.41
	3990.000	2.00	0.00	0.00	735.90	2611.00	735.02	0.00	746.02	1.00	5.79	457.15	674.81
	4000.000	10.00	0.00	0.00	736.10	1225.00	731.41	0.00	741.55	15.00	4.13	200.51	246.13
	4000.000	10.00	0.00	0.00	736.10	1205.00	731.05	0.00	742.05	15.00	4.47	259.02	306.67
	4000.000	10.00	0.00	0.00	736.10	1745.00	733.11	0.00	743.04	15.68	5.14	381.32	440.07
	4000.000	10.00	0.00	0.00	736.10	2611.00	736.13	0.00	746.51	5.74	5.02	567.75	15.01
	4037.000	37.00	0.00	0.00	736.60	1225.00	731.53	0.00	741.75	40.00	4.58	172.37	210.42
	4037.000	37.00	0.00	0.00	736.60	1205.00	732.07	0.00	742.32	14.51	4.34	253.16	296.60
	4037.000	37.00	0.00	0.00	736.60	1745.00	733.30	0.00	743.05	11.51	6.24	529.51	516.07
	4037.000	37.00	0.00	0.00	736.60	2611.00	736.45	0.00	746.05	4.24	3.65	837.41	1657.57
	4062.000	25.00	0.00	0.00	737.00	1225.00	731.57	0.00	741.54	30.12	5.05	134.30	175.20
	4062.000	25.00	0.00	0.00	737.00	1205.00	732.05	0.00	742.35	32.23	4.77	215.55	255.54
	4062.000	25.00	0.00	0.00	737.00	1745.00	733.39	0.00	743.01	12.94	4.35	346.11	465.07
	4062.000	25.00	0.00	0.00	737.00	2610.00	736.51	0.00	746.01	3.57	5.09	1151.11	1377.61

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	SECTO	XLCN	ELTRO	TLLC	ELMN	T	CNSIL	CRTNS	EG	TCRMS	VCN	AREA	*01K
	4077.000	15.00	0.00	0.00	737.40	575.00	741.47	0.00	741.95	65.07	5.74	145.00	145.74
	4077.000	15.00	0.00	0.00	737.41	1205.00	742.00	0.00	742.47	20.76	5.30	372.51	317.16
	4377.001	15.00	0.00	0.00	737.51	1745.00	743.41	0.00	743.94	15.89	4.55	368.16	445.05
	4377.001	15.00	0.00	0.00	737.51	2410.00	744.52	0.00	745.02	1.62	3.00	1156.12	1359.24
	4109.000	32.00	0.00	0.00	737.70	575.00	741.34	0.00	742.20	65.26	5.69	164.27	120.57
	4109.000	32.00	0.00	0.00	737.70	1205.00	742.14	0.00	742.75	65.51	5.08	258.54	178.52
	4109.000	32.00	0.00	0.00	737.70	1745.00	743.44	0.00	743.99	17.97	4.71	505.17	411.68
	4109.000	32.00	0.00	0.00	737.70	2410.00	744.54	0.00	745.12	2.47	3.98	1137.11	1400.05
	4141.000	32.00	0.00	0.00	738.20	575.00	741.71	0.00	742.57	105.10	7.53	134.35	99.15
	4141.000	32.00	0.00	0.00	738.20	1205.00	742.15	742.75	743.09	56.05	7.62	164.51	129.30
	4141.000	32.00	0.00	0.00	738.20	1745.00	743.45	0.00	744.00	17.75	5.46	352.75	231.82
	4141.000	32.00	0.00	0.00	738.20	2410.00	744.54	0.00	745.11	2.50	4.01	1136.05	1375.72
	4173.000	32.00	0.00	0.00	738.70	575.00	741.82	0.00	742.68	105.59	6.23	134.44	99.33
*	4173.000	32.00	0.00	0.00	738.70	1205.00	742.35	742.55	743.01	56.13	6.00	164.23	129.64
	4173.000	32.00	0.00	0.00	738.70	1745.00	743.41	0.00	744.04	17.85	5.29	351.53	226.12
	4173.000	32.00	0.00	0.00	738.70	2410.00	744.51	0.00	745.07	2.16	4.15	1102.15	1332.11
*	4185.000	15.00	0.00	0.00	739.00	575.00	741.56	742.24	743.31	121.07	6.44	317.64	234.00
*	4185.000	15.00	0.00	0.00	739.00	1205.00	742.05	742.61	743.01	72.24	7.39	396.51	170.00
*	4189.000	15.00	0.00	0.00	739.00	1745.00	742.57	742.57	743.13	25.19	7.47	822.13	219.00
	4189.000	15.00	0.00	0.00	739.00	2410.00	743.52	0.00	744.58	3.68	5.45	1926.71	1061.52
	4205.000	15.00	0.00	0.00	739.30	575.00	741.77	742.43	743.31	121.32	6.43	156.10	110.43
*	4205.000	15.00	0.00	0.00	739.30	1205.00	742.26	742.85	743.31	72.42	7.39	192.12	120.47
*	4205.000	15.00	0.00	0.00	739.30	1745.00	742.80	742.80	743.85	25.33	7.27	397.65	232.69
	4205.000	15.00	0.00	0.00	739.30	2410.00	743.89	0.00	744.98	3.85	5.35	972.90	966.25
	4405.000	209.30	0.00	0.00	739.90	575.00	741.31	0.00	742.00	1.21	5.15	120.15	169.70
	4605.000	209.30	0.00	0.00	739.90	1205.00	742.27	0.00	743.01	27.21	5.12	130.11	89.20
	4405.000	210.60	0.00	0.00	739.90	1745.00	743.19	0.00	743.73	10.11	4.37	337.15	251.11
	4405.000	210.60	0.00	0.00	739.90	2410.00	744.33	0.00	744.87	13.55	3.64	1156.57	1355.47
	4455.000	50.00	0.00	0.00	740.10	575.00	741.67	0.00	742.51	25.10	5.27	217.04	164.57
	4455.000	51.00	0.00	0.00	740.10	1205.00	742.22	0.00	743.01	1.52	5.40	278.45	214.00
	4455.000	50.01	0.00	0.00	740.10	1745.00	742.82	0.00	743.65	47.36	5.05	354.01	265.50
	4455.000	50.00	0.00	0.00	740.10	2410.00	743.92	0.00	744.74	22.65	5.22	512.67	565.00
	4505.000	50.00	0.00	0.00	740.30	575.00	741.44	0.00	742.05	25.02	5.37	209.13	158.25
	4505.000	50.00	0.00	0.00	740.30	1205.00	742.06	0.00	742.67	24.50	5.59	261.10	204.54
	4505.000	50.00	0.00	0.00	740.30	1745.00	742.67	0.00	743.31	56.10	6.79	320.77	262.53
	4505.000	50.10	0.00	0.00	740.30	2410.00	743.81	0.00	744.90	17.11	6.39	525.91	501.24
	4605.000	100.30	0.00	0.00	740.70	575.00	741.97	0.00	743.04	24.77	5.42	203.21	157.19
	4605.000	100.00	0.00	0.00	740.70	1205.00	742.57	0.00	743.15	33.57	5.33	259.75	194.03
	4605.000	100.30	0.00	0.00	740.70	1745.00	743.19	743.59	744.24	56.45	6.98	295.45	255.70
	4605.000	100.00	0.00	0.00	740.70	2410.00	744.27	0.00	745.33	25.93	7.64	515.46	513.50
	4605.000	50.00	0.00	0.00	740.90	575.00	741.93	0.00	742.81	27.75	5.32	195.13	159.54
	4605.000	50.00	0.00	0.00	740.90	1205.00	742.55	0.00	743.40	27.20	5.42	253.02	1.23.03
	4605.000	0.00	0.00	0.00	740.90	1745.00	743.18	0.00	744.13	57.97	7.23	205.19	267.09
	4605.000	50.00	0.00	0.00	740.90	2410.00	744.27	0.00	745.13	21.42	8.61	542.10	503.23

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FORM 1411-08 PRINTED BY ROTARY MANIFOLD FORMS

	SECND	KLCH	FLTBC	DALC	FLMID	A	CASAL	LATUS	TC	TIMES	VEC	AREA	ALTK
	4655.000	30.00	0.00	0.00	741.00	575.00	745.53	0.00	745.11	24.21	0.51	105.10	100.14
	4695.000	30.00	0.00	0.00	741.00	1205.00	745.55	0.00	746.30	47.54	0.51	170.45	156.37
	4695.000	30.00	0.00	0.00	741.00	1745.00	745.55	0.00	747.11	49.36	0.45	214.45	196.12
	4695.000	30.00	0.00	0.00	741.00	2510.00	745.21	0.00	748.01	70.21	0.75	293.50	225.57
	4725.000	30.00	0.00	0.00	741.10	575.00	745.45	0.00	745.05	37.05	0.54	154.31	151.55
	4725.000	30.00	0.00	0.00	741.10	1205.00	745.17	0.00	746.00	46.46	0.87	175.45	190.12
	4725.000	30.00	0.00	0.00	741.10	1745.00	745.50	0.00	747.05	51.11	0.84	201.15	244.19
	4725.000	30.00	0.00	0.00	741.10	2510.00	745.55	0.00	748.11	57.07	10.50	231.00	339.49
	4725.000	1.00	748.30	748.50	741.10	575.00	745.44	0.00	745.07	23.24	0.37	152.09	102.45
	4725.000	1.00	748.30	748.50	741.10	1205.00	745.45	0.00	746.02	25.47	0.01	171.14	213.25
	4725.000	1.00	748.30	747.50	741.10	1745.00	744.57	0.00	747.00	27.39	0.41	202.74	301.54
	4720.000	1.00	748.30	748.50	741.10	2510.00	747.51	0.00	748.22	34.41	1.25	254.74	415.55
	4734.000	1.00	748.30	748.50	741.10	575.00	745.47	0.00	745.12	23.23	0.54	153.11	203.76
	4734.000	1.00	748.30	748.50	741.10	1205.00	745.39	0.00	746.04	25.15	0.70	172.55	240.37
	4734.000	1.00	748.30	748.50	741.10	1745.00	744.32	0.00	747.01	31.07	0.45	206.51	310.10
	4734.000	1.00	748.30	748.50	741.10	2510.00	747.26	0.00	748.10	39.25	0.74	262.64	413.45
	4735.000	1.00	1.30	0.00	741.10	575.00	745.54	0.00	745.11	23.21	0.49	139.20	142.75
	4735.000	1.00	1.30	0.00	741.10	1205.00	745.37	0.00	746.05	25.05	0.59	1.0.15	170.33
	4735.000	1.00	0.00	0.00	741.10	1745.00	744.76	0.00	747.07	54.49	8.02	217.57	225.45
	4735.000	1.00	0.00	0.00	741.10	2510.00	747.00	0.00	748.01	65.29	9.37	270.55	320.00
	5106.000	30.00	0.00	0.00	744.10	575.00	747.21	748.32	748.00	103.10	0.37	109.52	72.50
	5106.000	30.00	0.00	0.00	744.10	1205.00	748.23	748.21	750.00	153.40	0.54	164.01	97.53
	5106.000	30.00	0.00	0.00	744.10	1745.00	748.25	0.00	751.01	191.00	0.54	192.01	143.14
	5106.000	30.00	0.00	0.00	744.10	2510.00	750.29	0.00	752.00	107.52	0.75	207.75	251.21
	5150.000	52.00	0.00	0.00	744.30	575.00	746.32	0.00	750.21	77.45	0.35	124.55	97.73
	5150.000	52.00	0.00	0.00	744.30	1205.00	748.47	0.00	749.21	102.42	0.54	160.11	117.54
	5150.000	52.00	0.00	0.00	744.30	1745.00	748.13	750.01	751.11	131.10	0.60	191.71	142.11
	5150.000	52.00	0.00	0.00	744.30	2510.00	751.17	0.00	752.17	115.22	0.75	243.01	164.03
	5208.000	52.00	0.00	0.00	745.60	575.00	746.34	0.00	748.17	111.15	0.17	119.22	92.27
	5208.000	52.00	0.00	0.00	745.60	1205.00	750.21	0.00	751.01	112.20	0.75	137.75	113.73
	5208.000	52.00	0.00	0.00	745.60	1745.00	751.00	0.00	752.00	96.52	0.35	159.22	134.07
	5208.000	52.00	0.00	0.00	745.60	2510.00	752.07	0.00	753.13	110.10	10.35	193.12	141.18
	5259.000	51.00	0.00	0.00	746.10	575.00	750.32	750.45	751.55	120.53	0.07	112.20	85.17
	5259.000	51.00	0.00	0.00	746.10	1205.00	750.31	750.81	752.09	118.42	0.02	132.71	110.73
	5259.000	51.00	0.00	0.00	746.10	1745.00	751.03	0.00	752.17	103.01	0.30	147.61	139.01
	5259.000	51.00	0.00	0.00	746.10	2510.00	752.11	752.11	753.13	77.53	0.10	121.47	127.35
	5269.000	10.00	752.40	752.50	746.10	575.00	751.02	0.00	751.35	32.15	0.50	112.17	155.00
	5269.000	10.00	752.40	752.50	746.10	1205.00	751.00	0.00	752.00	42.20	0.19	137.54	134.03
	5269.000	10.00	752.40	752.50	746.10	1745.00	750.53	0.00	752.33	45.02	0.41	165.50	200.08
	5269.000	10.00	752.40	752.50	746.10	2510.00	752.13	752.12	754.00	50.53	0.35	197.36	265.12
	5270.000	1.00	0.00	0.00	746.10	575.00	751.02	0.00	751.35	66.12	0.19	145.20	111.01
	5270.000	1.00	0.00	0.00	746.10	1205.00	751.01	0.00	752.31	70.25	0.15	1.0.22	131.04
	5270.000	1.00	0.00	0.00	746.10	1745.00	752.00	0.00	753.00	63.31	0.35	237.31	219.01
	5270.000	1.00	0.00	0.00	746.10	2510.00	753.15	0.00	754.51	34.65	0.37	278.71	263.07

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FORM 1411-68 PRINTED BY ROTARY MANIFOLD FORMS.

	SECND	XLCH	ELTRD	ELLC	ELMIN	T	DISEL	COINS	%L	TURNS	DCH	PRIA	e01K
	5473.000	203.00	0.00	0.00	747.00	975.00	752.27	0.00	752.51	24.15	1.65	209.77	202.65
	5473.000	203.00	0.00	0.00	747.00	12 5.00	754.71	0.00	753.21	23.25	4.97	212.67	249.73
	5473.000	203.00	0.00	0.00	747.00	1245.00	755.79	0.00	754.85	22.57	5.70	515.47	355.05
	5473.000	393.00	0.00	0.00	747.00	2510.00	75 .59	0.00	755.54	24.21	1.60	5.1.15	542.04
	5803.000	350.00	0.00	0.00	749.30	975.00	753.25	0.00	754.65	116.39	5.38	116.35	91.16
	5803.000	330.00	0.00	0.00	749.30	1205.00	75 .21	0.00	755.01	102.50	8.79	117.20	110.02
	5803.000	350.00	0.00	0.00	749.30	1745.00	755.55	0.00	756.15	103.35	7.05	177.17	174.16
	5803.000	330.00	0.00	0.00	749.30	2510.00	755.57	755.56	757.72	102.91	11.60	2 3.17	250.10
	5807.000	4.00	755.00	755.00	749.30	975.00	753.61	0.00	756.55	20.74	7.70	1 6.09	104.59
	5807.000	4.00	754.00	755.00	749.30	1205.00	753.35	0.00	755.00	18.06	8.86	136.97	113.11
	5807.000	4.00	755.00	755.00	749.30	1745.00	755.29	0.00	756.79	50.90	5.51	612.03	225.47
	5807.000	4.00	75 .00	755.00	749.30	2510.00	75 .55	0.00	757. 4	25.20	10.18	375.26	226.15
	6095.000	2 3.00	0.00	0.00	750.50	975.00	75 .55	0.00	755. 2	21.24	6.10	237.16	110.10
	6095.000	253.00	0.00	0.00	750.50	1205.00	756.14	0.00	756.52	22.79	4.73	245.79	252.60
	6095.000	269.00	0.00	0.00	750.30	1745.00	757.12	0.00	757.52	19.90	5.29	395.10	390.34
	6095.000	2 3.00	0.00	0.00	751.30	2510.00	75 .56	0.00	756.92	11.22	6.81	263.11	272.12
	5137.000	95.00	0.00	0.00	750.00	975.00	75.57	0.00	750.17	25.60	5.01	203.11	1 3.60
	5137.000	52.00	0.00	0.00	750.50	1205.00	755.35	0.00	75 .11	24.03	5.05	2 3.01	2 3.44
	6137.000	42.00	0.00	0.00	750.00	1745.00	752.39	0.00	757.75	21.86	5.64	367.04	370.32
	6137.000	12.00	0.00	0.00	750.50	2510.00	754.74	0.00	75 .01	14.26	5.15	215.51	691.15
	6371.000	21 .00	0.00	0.00	751.30	975.00	75 .32	0.00	75 .14	9.50	.66	241.36	152.00
	6371.000	21 .00	0.00	0.00	751.30	1205.00	757.15	0.00	757.45	4.21	4.51	2 3.09	200.47
	6371.000	219.00	0.00	0.00	751.30	1745.00	2 .. 11	0.00	758. 3	2 .. 1	6.43	6 3.45	31 .30
	6371.000	219.00	0.00	0.00	751.30	2510.00	759.28	0.00	759.62	20.17	5.22	726.03	531.04
	6372.000	1.00	0.00	0.00	751.30	975.00	753.51	0.00	754.15	50.05	4.22	2 1.14	157.32
	6372.000	1.00	0.00	0.00	751.30	1205.00	757.17	0.00	757.63	2 .05	6.27	253.10	1 1.53
	6372.000	1.00	0.00	0.00	751.30	1745.00	75 .19	0.00	75 .56	2 .71	6.36	2 5.07	3. 1. 2
	6372.000	1.00	0.00	0.00	751.30	2510.00	75 .25	0.00	75 .61	2 .05	4.02	7 5.10	51 . .
#	6385.000	13.00	75 .50	755.00	751.30	975.00	75 .02	0.00	75 .12	9.60	2.05	420.70	314.29
	6385.000	13.00	757.50	755.00	751.30	1205.00	75 .60	0.00	75 .51	4.15	2.26	212.06	365.52
	6385.000	13.00	757.50	75 .00	751.30	1745.00	75 .01	0.00	75 .14	11.16	3.02	2 5.09	325.02
	6385.000	13.00	757.50	756.00	751.30	2510.00	756.27	0.00	756 .3	12.61	2.15	305.20	740.55
#	6505.000	200.00	0.00	0.00	752.70	975.00	75 .27	759.27	751.57	72.53	6.09	276.67	116.25
#	6505.000	200.00	0.00	0.00	752.70	1205.00	75 .45	759.60	75 .15	21.14	7.57	321.36	153.77
	6505.000	200.00	0.00	0.00	752.70	1745.00	759.11	0.00	75 .75	2 .12	7.72	6 1.71	21 .15
	6585.000	200.00	0.00	0.00	752.70	2510.00	759.92	0.00	760.52	0.02	6.37	2 7.26	2 7.26
#	6591.000	0.00	0.00	0.00	752.70	975.00	759.39	0.00	759.47	1 .03	5.95	549.29	273.51
	6591.000	0.00	760.05	759.00	752.70	1205.00	759.95	0.00	760.01	2 .37	5.25	5 .22	2 6.42
	6591.000	0.00	760.05	759.00	752.70	1745.00	760.53	0.00	761.23	24.18	7.04	459.21	5 8.25
	5641.000	50.00	0.00	0.00	752.00	975.00	750.64	0.00	75 .55	0.49	4.23	2 2.52	4 9.39
	5641.000	50.00	0.00	0.00	752.00	1205.00	75 .53	0.00	75 .21	5.07	4.23	2 1.53	51 .71
	5641.000	50.00	0.00	0.00	752.00	1745.00	753.18	0.00	753.81	3.99	4.01	5.2.13	075.40
	5641.000	50.00	0.00	0.00	752.00	2510.00	753.16	0.00	754.21	3.02	4.72	726.24	927.21

FORM 1411 OS PRINTED BY ROTARY MANIFOLD FORMS.
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SEC NO	PLCH	ELTRS	ELLS	ELMIN	C	CASEL	CCTLS	TC	TORRS	VLN	AREA	●???
6275.000	256.00	.00	0.00	755.00	.75.00	756.51	0.00	755.72	0.22	2.54	451.00	581.11
6875.000	256.00	0.00	0.00	754.00	1205.00	756.85	0.00	755.93	12.35	6.55	511.14	540.10
6875.000	256.00	0.00	0.00	754.00	1745.00	751.24	0.00	750.52	10.44	5.67	453.41	625.51
6875.000	256.00	0.00	0.00	754.00	2510.00	751.31	0.00	750.7	0.27	1.55	41.41	574.04
7110.000	235.00	0.00	0.00	755.10	.75.00	756.77	0.00	751.63	20.52	5.05	406.35	216.14
7110.000	235.00	0.00	0.00	755.10	1205.00	755.95	0.00	750.84	25.64	5.31	325.70	259.00
7110.000	235.00	0.00	0.00	755.10	1745.00	750.04	0.00	751.61	30.49	0.90	210.45	219.17
7110.000	235.00	0.00	0.00	755.10	2510.00	751.77	0.01	751.25	0.0	.40	255.61	451.08
7335.000	225.00	0.00	0.00	755.90	.75.00	750.16	0.00	750.05	23.21	5.54	176.95	183.50
7335.000	225.00	0.00	0.00	755.90	1205.00	750.49	0.00	751.11	32.39	0.35	104.72	212.05
7335.000	225.00	0.00	0.00	755.90	1745.00	751.22	0.00	750.11	33.64	0.66	64.70	231.45
7335.000	225.00	0.00	0.00	755.90	2510.00	751.45	0.00	750.45	0.0	0.50	132.58	272.05
7360.000	25.00	0.00	0.00	756.00	.75.00	750.0	0.00	750.71	0.22	5.72	1.38.10	144.11
7360.000	25.00	0.00	0.00	756.00	1205.00	750.54	0.00	751.21	30.20	5.54	194.32	200.27
7360.000	25.00	0.00	0.00	756.00	1745.00	751.13	0.00	752.25	35.00	7.43	211.71	250.12
7360.000	25.00	0.00	0.00	756.00	2510.00	752.05	0.00	750.16	0.27	10.14	257.41	334.21
7372.000	12.00	0.00	0.00	756.10	.75.00	750.0	0.00	750.0	0.20	5.32	155.51	101.04
7372.000	12.00	0.00	0.00	756.10	1205.00	750.51	0.00	751.31	0.20	2.40	115.60	157.08
7372.000	12.00	0.00	0.00	756.10	1745.00	751.17	0.00	752.37	5.07	.79	100.49	204.04
7372.000	12.00	0.00	0.00	756.10	2510.00	751.91	0.00	750.57	40.37	11.56	225.91	254.15
7384.000	0.00	0.00	0.00	756.10	.75.00	750.11	0.00	751.13	0.20	0.52	1.5.04	153.25
7384.000	0.00	0.00	0.00	756.10	1205.00	751.69	0.00	751.24	0.20	2.45	111.20	172.64
7384.000	0.00	0.00	0.00	756.10	1745.00	751.30	0.00	751.4	0.20	1.20	1.6.10	216.71
7384.000	0.00	0.00	0.00	756.10	2510.00	751.33	751.53	750.3	111.25	12.31	205.36	265.00

SECND	XLOC	ELTRD	ELLC	ELMIN	Q	CUSEL	CRITS	ES	TOKMS	MCH	AREA	.011
7426.000	2.00	0.00	0.00	756.10	575.10	760.41	0.00	761.05	0.06	0.01	140.70	151.10
7425.000	2.00	0.00	0.00	756.10	1205.00	760.63	0.01	761.69	0.19	0.03	137.97	151.60
7424.000	2.00	0.00	0.00	756.10	1745.10	761.90	0.06	762.93	0.32	0.10	210.30	249.00
7423.000	2.00	0.00	0.00	756.10	2410.00	763.41	0.11	764.67	0.48	0.15	265.24	315.50
7429.000	3.00	0.00	0.00	756.10	575.10	760.53	0.06	761.12	0.23	0.05	150.31	154.20
7429.000	3.00	0.00	0.00	756.10	1205.00	761.03	0.10	761.72	0.42	0.09	176.03	205.25
7429.000	3.00	0.00	0.00	756.10	1745.00	762.20	0.14	763.30	0.75	0.19	207.55	214.60
7429.000	3.00	0.00	0.00	756.10	2410.00	763.36	0.20	764.05	0.76	0.23	252.62	324.00
7434.000	5.00	0.00	0.00	756.10	575.00	760.59	0.06	761.15	0.28	0.04	144.15	147.10
7434.000	5.00	0.00	0.00	756.10	1205.00	761.12	0.09	761.74	0.38	0.08	155.73	211.75
7434.000	5.00	0.00	0.00	756.10	1745.00	762.39	0.13	763.06	0.64	0.17	177.24	253.00
7434.000	5.00	0.00	0.00	756.10	2410.00	763.85	0.18	764.59	1.07	0.30	209.43	314.10
7447.000	13.00	0.00	0.00	756.00	575.00	761.26	0.09	761.90	0.36	0.04	162.19	165.20
7447.000	13.00	0.00	0.00	756.00	1205.00	761.80	0.13	762.48	0.54	0.09	183.50	207.20
7447.000	13.00	0.00	0.00	756.00	1745.00	762.51	0.18	763.25	1.03	0.15	203.52	247.00
7447.000	13.00	0.00	0.00	756.00	2410.00	763.74	0.24	765.02	1.92	0.31	217.77	277.00
7473.000	29.00	0.00	0.00	756.00	575.00	761.37	0.10	762.01	0.34	0.04	166.34	171.50
7473.000	29.00	0.00	0.00	756.00	1205.00	761.92	0.14	762.57	0.49	0.07	187.27	215.50
7473.000	29.00	0.00	0.00	756.00	1745.00	762.67	0.19	763.37	1.00	0.14	209.41	413.50
7473.000	29.00	0.00	0.00	756.00	2410.00	763.86	0.25	765.27	1.84	0.31	217.73	412.20
8043.000	599.00	0.00	0.00	756.00	575.00	761.72	0.10	762.30	0.36	0.05	176.72	184.10
8043.000	599.00	0.00	0.00	756.00	1205.00	762.29	0.15	762.97	0.52	0.09	205.43	175.50
8043.000	599.00	0.00	0.00	756.00	1745.00	763.06	0.21	763.84	0.81	0.14	232.22	262.20
8043.000	599.00	0.00	0.00	756.00	2410.00	764.05	0.27	765.55	1.36	0.25	447.07	502.70
8200.000	177.00	0.00	0.00	756.00	575.00	762.49	0.11	763.04	0.31	0.04	175.75	178.40
8200.000	177.00	0.00	0.00	756.00	1205.00	763.08	0.16	763.74	0.49	0.07	193.11	209.20
8200.000	177.00	0.00	0.00	756.00	1745.00	763.81	0.21	764.57	0.74	0.12	212.59	247.60
8200.000	177.00	0.00	0.00	756.00	2410.00	764.81	0.27	765.83	1.35	0.25	488.10	559.60
8201.000	1.00	757.50	755.40	759.30	575.00	763.65	0.00	765.05	0.31	0.04	272.73	329.70
8201.000	1.00	757.50	755.40	759.30	1205.00	763.81	0.00	764.81	0.00	0.04	306.02	0.00
8201.000	1.00	757.50	755.50	759.30	1745.00	764.19	0.00	765.12	0.47	0.07	311.47	349.10
8201.000	1.00	757.50	755.40	759.30	2410.00	764.79	0.00	765.82	1.29	0.20	436.35	488.30
8211.000	10.00	757.40	755.40	759.00	575.00	763.46	0.00	765.03	0.31	0.04	272.39	330.20
8211.000	10.00	757.40	755.40	759.00	1205.00	763.96	0.00	764.74	0.49	0.08	306.79	338.30
8211.000	10.00	757.40	755.40	759.00	1745.00	764.58	0.00	765.44	0.77	0.12	322.27	382.20
8211.000	10.00	757.40	755.40	759.00	2410.00	765.41	0.00	766.37	1.29	0.20	475.07	572.50
8212.000	1.00	0.00	0.00	759.00	575.00	762.58	0.00	763.14	0.31	0.04	272.17	330.20
8212.000	1.00	0.00	0.00	759.00	1205.00	763.22	0.00	763.96	0.49	0.08	316.17	355.60
8212.000	1.00	0.00	0.00	759.00	1745.00	764.05	0.00	765.13	0.89	0.14	345.12	484.10
8212.000	1.00	0.00	0.00	759.00	2410.00	765.15	0.00	766.57	1.54	0.31	491.05	588.70
8281.000	69.00	0.00	0.00	759.20	575.00	763.48	0.00	764.12	0.44	0.06	303.47	328.70
8281.000	69.00	0.00	0.00	759.20	1205.00	764.08	0.00	764.84	0.64	0.09	332.66	415.30
8281.000	69.00	0.00	0.00	759.20	1745.00	764.77	0.00	765.51	0.90	0.16	359.90	455.40
8281.000	69.00	0.00	0.00	759.20	2410.00	765.77	0.00	766.85	1.61	0.31	459.12	607.17

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FORM 141 GR PRINTED BY ROTARY MANIFOLD FORMS

SEGNO	MECH	ELTEC	ELLE	ELTIR	I	CIRCL	LPIENS	To	MOMOT	VEL	AREA	ATTN
8330.000	69.00	0.00	1.00	755.0	725.00	752.75	0.01	752.20	66.32	8.51	122.01	105.22
8330.000	69.00	0.00	1.00	759.0	1140.0	764.00	0.00	756.1	68.2	9.03	171.15	117.57
8330.000	69.00	1.00	1.00	757.5	1215.00	756.1	0.00	755.3	54.23	8.35	171.15	123.02
8330.000	69.00	1.00	1.00	759.30	1215.01	760.25	0.00	760.17	64.2	7.75	165.72	224.20
8331.000	1.00	770.80	768.10	759.30	975.00	752.75	0.00	760.21	67.9	8.12	162.15	97.54
8331.000	1.00	770.10	708.10	750.30	1040.00	765.10	0.00	752.16	53.11	6.72	157.05	105.00
8331.000	1.00	770.40	758.10	750.30	1215.00	756.36	0.10	755.5	54.05	8.17	156.77	158.05
8331.000	1.00	771.50	768.10	759.30	1215.01	761.15	0.00	757.27	55.15	8.41	157.10	124.32
8345.000	14.00	770.00	758.10	755.30	975.00	753.67	0.00	756.39	67.31	5.77	117.01	105.73
8345.000	14.00	770.00	758.10	759.30	1040.00	756.65	0.00	755.31	62.32	7.45	132.51	133.24
8345.101	14.00	770.50	758.10	755.30	1215.00	758.11	1.00	759.33	54.25	7.06	145.51	171.41
8345.01	14.00	770.17	758.10	754.30	1250.00	758.3.	0.00	757.31	51.46	6.17	134.12	241.24
8345.000	1.00	1.00	1.00	75.10	75.00	1.04	1.00	1.04	1.01	5.11	1.34	1.01
8345.000	1.00	0.00	0.00	759.30	1040.00	758.75	0.00	760.1	52.81	6.40	162.41	143.14
8345.000	1.00	0.00	0.00	759.30	1215.00	765.30	0.00	760.07	50.52	6.51	159.34	151.01
8345.000	1.00	0.10	0.01	759.31	1250.00	759.33	0.00	757.04	46.10	7.24	141.1	205.51
8395.000	4.00	0.10	0.00	760.11	1215.00	1.04.21	0.00	760.1	53.41	8.51	152.17	95.07
8395.001	4.00	0.00	0.01	760.11	1040.00	1.04.1	0.00	760.00	1.04.0	6.52	114.07	141.52
8395.010	4.00	0.10	0.10	760.10	1215.00	765.65	0.10	759.01	48.41	8.59	143.42	165.72
8395.000	4.00	0.00	0.00	760.10	1250.00	767.75	0.00	757.2	47.42	8.61	151.16	209.04
8440.00	5.00	0.00	0.00	760.6	975.00	756.21	0.00	758.21	135.13	7.04	59.1	59.24
8440.00	5.00	0.00	0.00	760.6	1040.00	765.11	0.00	760.11	58.71	8.15	151.17	105.75
8440.00	5.00	0.01	0.00	760.6	1215.00	765.6	0.00	760.7	62.01	7.51	145.01	147.11
8440.10	5.00	0.01	0.01	760.20	1250.00	767.56	0.00	767.21	52.67	8.49	164.25	209.7
8540.010	92.00	0.00	0.00	761.10	975.00	765.67	0.00	765.7	57.2	8.10	157.01	109.74
8540.000	0.00	0.01	0.01	761.10	1040.00	766.31	0.00	765.5	57.2	8.38	145.1	177.2
8540.000	92.00	0.00	0.00	761.10	1215.00	765.6	0.00	765.2	57.2	8.42	156.01	141.1
8540.000	92.00	0.00	0.00	761.11	1250.00	767.77	0.00	767.3	58.1	8.49	161.55	212.4
8433.000	93.00	0.00	0.00	761.10	975.00	765.15	0.00	765.21	55.2	6.90	145.67	116.74
8433.000	93.00	0.00	0.00	761.30	1040.00	766.77	0.00	767.17	58.53	8.50	160.00	184.03
8433.000	93.00	0.00	0.00	761.30	1215.00	767.37	0.00	767.1	59.6.	8.55	149.24	131.00
8433.000	93.00	0.00	0.00	761.30	1250.00	767.96	0.00	767.4	58.50	8.75	148.31	153.57
8815.000	185.00	0.00	0.00	761.70	975.00	766.60	0.00	765.7	61.04	6.30	146.11	121.12
8816.000	185.00	0.00	0.00	761.70	1040.00	767.30	0.00	767.65	62.53	8.35	135.70	191.21
8818.000	185.00	0.00	0.00	761.70	1215.00	767.70	0.00	768.27	57.23	8.44	141.7	206.44
8816.000	185.00	0.00	0.00	761.71	1250.00	768.3	0.00	767.75	55.51	8.50	142.0	235.2
9003.000	185.00	0.00	0.00	762.10	975.00	767.11	0.00	767.59	62.08	6.54	144.77	125.70
9003.000	185.00	0.00	0.00	762.10	1040.00	767.92	0.00	767.62	62.05	6.70	142.01	221.44
9003.000	185.00	0.00	0.00	762.10	1215.00	768.25	0.00	768.56	60.55	6.79	151.55	279.25
9003.000	185.00	0.00	0.00	762.10	1250.00	768.90	0.00	768.15	58.75	6.97	142.17	404.20
9158.000	185.00	0.00	0.00	762.51	975.00	767.50	0.00	767.2	60.04	6.56	143.15	155.1
9158.000	185.00	0.00	0.00	762.50	1040.01	768.21	0.01	768.14	58.29	6.72	142.75	218.20
9188.001	185.00	0.00	0.00	762.50	1215.00	768.64	0.00	768.09	62.05	6.35	144.98	253.02
9188.000	185.00	0.00	0.00	762.50	1250.00	768.22	0.00	768.57	62.45	6.74	145.66	369.27

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FORM 1411-OD PRINTED BY ROTARY MARK OLD FORMS.

SECNO	XLOW	CLTRC	CLLC	CLEEN	D	CUSEL	CRENS	TO	TOKNS	VC..	AREA	.01%
9755.000	567.00	0.00	0.00	765.30	675.00	769.25	1.00	769.58	47.92	5.25	144.39	102.55
9755.000	567.00	0.00	0.30	765.30	1060.00	770.75	1.00	771.50	65.00	5.00	239.10	153.90
9755.000	567.00	0.30	0.30	765.30	1205.01	771.75	1.00	772.00	69.86	5.01	295.13	188.01
9755.000	567.00	0.00	0.30	765.30	1450.00	772.01	1.00	772.33	82.16	7.65	371.08	241.74
9995.000	240.00	0.00	0.00	765.10	675.00	770.20	0.00	770.54	20.75	4.35	154.03	101.72
9995.000	240.00	0.00	0.00	765.10	1060.00	771.27	0.00	771.40	31.09	5.06	242.03	153.35
9995.000	240.00	0.00	0.10	765.10	1205.00	771.61	1.00	771.93	35.52	5.42	306.14	204.02
9995.010	240.00	0.00	0.10	765.10	1750.00	772.09	1.00	772.55	52.00	6.17	521.75	305.37
10615.000	420.00	0.00	0.00	766.70	675.00	771.51	0.00	772.10	20.61	4.15	211.51	149.09
10615.000	420.00	0.00	0.00	766.70	1060.00	772.25	0.00	772.95	15.05	4.12	608.01	430.33
10615.000	420.00	0.00	0.00	766.70	1205.00	772.15	0.01	772.44	14.25	4.10	505.51	357.12
10615.000	420.00	0.00	0.00	766.70	1750.00	772.50	0.00	772.65	12.36	4.09	715.04	499.17
10915.000	200.00	0.00	0.00	767.30	675.00	772.01	0.00	772.00	12.11	4.55	1.5.55	124.01
10915.000	200.00	0.00	0.00	767.30	1060.00	772.82	0.00	772.36	62.00	4.75	344.30	211.07
10915.000	200.00	0.00	0.00	767.30	1205.00	773.65	0.00	773.71	63.51	4.75	434.02	279.11
10915.000	200.00	0.00	0.00	767.30	1750.00	774.15	0.00	774.17	17.51	4.62	614.50	412.25
11015.000	200.00	0.00	0.00	767.90	675.00	772.94	0.00	773.17	12.20	4.79	1 [illegible]	1[illegible].57
11015.000	200.00	0.00	0.00	767.90	1060.00	[illegible]	0.00	[illegible]	[illegible]	5.01	[illegible]	[illegible]
11015.000	200.00	0.00	0.00	767.90	1205.00	773.65	0.00	773.21	63.11	5.45	342.11	223.07
11015.000	200.00	0.00	0.00	767.90	1750.00	774.51	0.00	774.77	17.70	5.69	516.49	333.07
11235.000	220.00	0.00	0.00	768.60	675.00	772.47	0.00	773.13	20.15	5.01	146.62	114.41
11235.000	220.00	0.00	0.00	768.60	1060.00	773.17	0.00	773.71	31.19	5.19	191.05	124.01
11235.000	220.00	0.00	0.00	768.60	1205.00	773.56	0.00	773.92	34.15	5.22	215.22	139.22
11235.000	220.00	0.00	0.00	768.59	1750.00	775.05	0.01	775.33	51.15	7.58	326.27	240.64
11260.000	25.00	0.00	0.00	768.80	675.00	773.58	0.00	774.15	21.90	5.15	142.58	125.42
11300.000	25.00	0.00	0.00	768.80	1060.00	774.32	0.00	774.87	33.10	5.15	194.[illegible]	1[illegible].[illegible]
11300.000	25.00	0.01	0.01	768.80	1205.00	774.60	0.00	775.01	35.10	5.45	213.[illegible]	203.[illegible]
11260.000	25.00	0.00	0.00	768.80	1350.00	775.25	0.00	775.32	41.55	7.55	25.[illegible]	[illegible]
11296.000	24.00	0.01	0.00	768.79	675.00	773.45	0.00	774.03	20.49	5.06	251.[illegible]	237.47
11296.000	24.00	0.00	0.00	768.79	1060.00	774.30	0.01	774.72	32.82	5.30	412.25	330.18
11296.000	24.00	0.01	0.10	768.79	1205.00	774.65	0.01	775.09	34.57	5.73	[illegible]	375.15
11296.000	24.00	0.01	0.00	768.79	1750.00	775.41	0.01	775.[illegible]	51.[illegible]	6.33	[illegible]	450.21
11235.000	1.00	775.50	778.10	768.70	675.00	775.04	0.00	775.34	20.34	5.75	265.56	257.12
11285.000	1.00	775.00	778.10	768.70	1060.00	776.36	0.10	775.02	30.17	5.43	392.04	363.03
11285.000	1.00	775.50	778.10	768.70	1205.00	776.25	0.00	776.02	34.56	5.45	428.22	409.52
11285.000	1.00	775.00	778.10	768.70	1750.00	776.45	0.00	776.54	12.65	6.09	612.51	442.47
11314.000	29.00	775.60	778.10	768.70	675.00	774.36	0.00	775.03	20.15	5.62	3.3[illegible]	365.[illegible]
11314.040	29.00	775.60	778.10	768.70	1060.00	775.27	0.06	775.51	32.64	5.64	525.01	613.61
11314.000	29.00	775.00	778.10	768.70	1205.00	775.39	0.00	775.63	15.31	6.06	375.52	497.47
11315.000	1.00	0.00	0.00	768.70	675.00	773.44	0.00	774.11	19.15	5.03	255.[illegible]	252.47
11315.000	1.00	0.00	0.00	768.70	1060.00	774.[illegible]	0.00	[illegible]	[illegible]	5.21	3[illegible]	[illegible]
11315.000	1.00	0.00	0.00	768.70	1205.00	775.29	0.01	775.02	39.25	5.70	541.[illegible]	601.06
11315.000	1.00	0.00	0.00	768.71	1750.00	776.30	0.01	776.56	12.52	6.64	690.65	493.54

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FORM 1111 OR PRINTED BY ROTARY MULTIFOLD FORMS.

11364.000	63.00	0.00	0.00	705.00	1265.00	2136.87	0.00	776.10	12.00	1.03	242.50	151.05
11364.100	69.00	1.00	1.00	705.00	1245.00	2136.87	0.00	776.10	12.35	4.17	242.50	245.03
11364.000	69.00	0.00	0.00	705.00	1245.00	2136.87	0.00	776.57	12.50	4.22	242.54	247.03
11364.300	69.00	0.00	0.00	705.00	1245.00	2136.87	0.00	776.57	12.75	4.01	242.52	250.19
11435.000	71.00	0.00	0.00	769.40	1265.00	2146.05	0.00	774.56	20.50	6.56	190.52	140.50
11435.000	71.00	0.00	0.00	769.40	1245.00	2146.05	0.00	775.25	17.40	5.71	190.49	134.91
11435.000	71.00	0.00	0.00	769.40	1245.00	2146.05	0.00	775.70	17.13	5.75	190.52	135.53
11435.000	71.00	0.00	0.00	769.40	1245.00	2146.05	0.00	776.32	17.00	5.62	190.52	135.53
11521.000	65.00	0.00	0.00	769.30	1265.00	2146.87	0.00	776.50	16.67	3.51	215.19	177.46
11521.000	65.00	0.00	0.00	769.30	1245.00	2146.87	0.00	775.40	15.04	3.63	203.57	252.96
11521.000	65.00	0.00	0.00	769.30	1245.00	2146.87	0.00	775.51	16.01	4.93	255.43	213.03
11521.000	65.00	0.00	0.00	769.30	1245.00	2146.87	0.00	775.71	17.51	5.20	210.07	215.21
11570.000	63.00	0.00	0.00	769.30	1265.00	2146.87	0.00	775.82	20.46	7.06	157.01	149.05
11570.000	63.00	0.00	0.00	769.30	1245.00	2146.87	0.00	775.15	20.01	6.11	203.72	171.14
11570.000	63.00	0.00	0.00	769.30	1245.00	2146.87	0.00	775.56	20.40	6.47	201.17	200.06
11570.000	63.00	0.00	0.00	769.30	1245.00	2146.87	0.00	776.02	20.07	6.30	204.37	290.58
11571.000	1.00	778.10	778.70	769.50	1265.00	2146.87	0.00	774.63	1.75	5.04	171.04	152.00
11571.000	1.00	778.10	778.70	769.50	1245.00	2146.87	0.00	775.58	1.80	5.11	171.02	147.67
11571.000	1.00	778.10	778.70	769.50	1245.00	2146.87	0.00	776.05	1.75	5.07	252.90	217.70
11571.000	1.00	778.10	778.70	769.50	1245.00	2146.87	0.00	776.32	1.75	5.04	175.43	298.75
11616.000	53.00	778.10	778.70	769.50	1265.00	2146.87	0.00	774.61	1.50	4.32	155.71	155.04
11616.000	53.00	778.10	778.70	769.50	1245.00	2146.87	0.00	775.21	1.49	3.11	154.52	147.25
11616.000	53.00	778.10	778.70	769.50	1245.00	2146.87	0.00	775.84	1.53	3.34	247.19	247.91
11616.000	63.00	778.10	778.70	769.50	1245.00	2146.87	0.00	776.32	1.51	3.10	201.75	324.27
11615.000	1.00	0.00	0.00	769.30	1265.00	2146.87	0.00	776.72	1.21	1.03	1.53	156.15
11615.000	1.00	0.00	0.00	769.30	1245.00	2146.87	0.00	775.79	1.25	1.03	1.54	148.07
11615.000	1.00	0.00	0.00	769.30	1245.00	2146.87	0.00	776.21	1.29	1.04	1.59	140.11
11615.000	1.00	0.00	0.00	769.30	1245.00	2146.87	0.00	776.57	1.29	1.03	1.59	224.39
11664.000	67.00	0.00	0.00	769.30	1265.00	2146.87	0.00	776.02	11.45	4.35	241.27	197.80
11664.000	69.00	0.00	0.00	769.30	1245.00	2146.87	0.00	775.05	1.52	4.01	259.51	253.72
11664.000	69.00	0.00	0.00	769.30	1245.00	2146.87	0.00	776.32	14.00	4.26	242.14	207.24
11664.000	69.00	0.00	0.00	769.30	1245.00	2146.87	0.00	776.72	14.00	4.53	241.49	253.39
11718.000	124.00	0.00	0.00	771.20	1265.00	2136.77	0.00	774.13	20.77	5.11	182.11	102.61
11718.000	124.00	0.00	0.00	771.20	1245.00	2136.77	0.00	775.03	20.07	5.08	183.32	173.15
11718.000	124.00	0.00	0.00	771.20	1245.00	2136.77	0.00	775.75	20.82	5.08	208.90	208.45
11718.000	124.00	0.00	0.00	771.20	1245.00	2136.77	0.00	776.32	20.49	5.24	257.16	220.15
11732.000	36.00	0.00	0.00	771.50	1265.00	2136.87	0.00	774.57	13.00	3.32	215.00	191.01
11732.000	36.00	0.00	0.00	771.50	1245.00	2136.87	0.00	775.14	13.05	3.08	203.21	200.59
11732.000	36.00	0.00	0.00	771.50	1245.00	2136.87	0.00	775.58	13.20	3.09	205.14	257.22
11732.000	36.00	0.00	0.00	771.50	1245.00	2136.87	0.00	776.21	14.21	3.22	415.77	466.34
11732.000	100.00	0.00	0.00	771.10	1265.00	2136.87	0.00	774.18	1.24	3.72	245.54	235.15
11732.000	100.00	0.00	0.00	771.10	1245.00	2136.87	0.00	774.12	1.23	3.16	241.03	242.11
11732.000	100.00	0.00	0.00	771.10	1245.00	2136.87	0.00	777.71	0.35	3.03	379.74	411.24
11732.000	100.00	0.00	0.00	771.10	1245.00	2136.87	0.00	778.31	0.40	3.57	485.24	570.79

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FORM 1611-1 PRINTED BY ROTARY MANIFOLD FORMS

SECND	XLOH	ELTRC	ELLS	ELMIN	C	CUBEL	CRIDS	ES	TOK#S	VC=	AREA	.77K
12231.000	49.00	0.00	0.00	770.90	875.00	776.16	0.00	776.62	5.75	4.57	200.84	156.13
12281.000	49.00	0.00	0.00	770.90	1050.00	777.04	0.00	777.32	25.61	4.97	201.04	198.54
12281.000	49.00	0.00	0.00	770.90	1205.00	777.55	0.00	777.95	30.08	4.81	253.82	220.14
12281.000	49.00	0.00	0.00	770.90	1350.00	778.51	0.00	778.89	32.58	4.76	151.71	104.99
12282.000	1.00	733.30	731.00	770.90	875.00	776.02	0.00	776.24	15.27	3.82	176.40	172.73
12282.000	1.00	733.30	731.00	770.90	1040.00	777.01	0.00	777.32	15.06	4.47	232.42	230.28
12282.000	1.00	733.30	731.00	770.90	1205.00	777.53	0.00	777.82	16.72	4.33	211.18	206.93
12282.000	1.00	733.30	731.00	770.90	1350.00	778.43	0.00	778.73	17.46	5.55	215.13	202.73
12292.000	11.00	743.30	731.00	770.90	875.00	776.04	0.00	776.26	16.93	3.80	177.54	174.62
12293.000	11.00	743.30	731.00	770.90	1040.00	777.03	0.00	777.34	15.59	4.46	238.63	262.59
12292.000	11.00	743.30	731.00	770.90	1205.00	777.55	0.00	777.90	16.53	4.30	253.35	311.63
12293.000	11.00	743.30	731.00	770.90	1350.00	778.44	0.00	778.85	16.51	5.51	240.31	405.62
12296.000	1.00	1.00	0.00	771.91	875.00	776.11	0.00	776.28	13.15	3.71	184.13	181.13
12296.000	1.00	1.00	0.00	770.91	1040.00	777.13	0.00	777.34	12.05	3.91	240.30	292.62
12296.000	1.00	0.00	0.00	770.90	1205.00	777.65	0.00	777.93	13.03	4.23	249.35	350.42
12296.000	1.00	0.00	0.00	770.90	1350.00	778.52	0.00	778.80	13.11	5.87	259.61	466.11
12340.000	46.00	0.00	0.00	771.90	875.00	776.23	0.00	776.45	14.51	4.01	252.00	271.50
12340.000	46.00	0.00	0.00	771.90	1040.00	777.23	0.00	777.45	14.25	5.06	304.00	344.13
12340.000	56.00	0.00	0.00	771.90	1205.00	777.93	0.00	778.00	7.87	5.50	355.25	454.62
12340.000	66.00	0.00	0.00	771.90	1350.00	778.79	0.00	779.06	1.91	6.17	419.77	508.92
12344.000	66.00	0.00	0.00	771.91	875.00	776.17	0.00	776.40	10.14	4.41	152.41	150.40
12344.000	66.00	0.00	0.00	771.91	1040.00	777.17	0.00	777.42	10.01	5.37	193.90	216.57
12384.000	66.00	0.00	0.00	771.91	1205.00	777.81	0.00	778.03	10.08	5.97	215.11	253.96
12384.000	66.00	0.00	0.00	771.91	1350.00	778.63	0.00	779.03	27.00	6.84	255.87	320.50
12387.000	1.00	7.20	7.10	771.90	875.00	776.16	0.00	776.51	21.20	4.87	144.31	142.00
12387.000	1.00	7.20	7.10	771.90	1040.00	777.15	0.00	777.51	4.00	5.47	135.40	202.00
12387.000	1.00	7.20	7.10	771.90	1205.00	777.84	0.00	778.13	25.16	4.21	203.51	270.75
12387.000	1.00	7.20	7.10	771.90	1350.00	778.50	0.00	778.83	3.05	5.24	241.45	335.49
12400.000	13.00	7.20	7.10	771.90	875.00	776.19	0.00	776.53	20.17	4.04	145.34	147.30
12400.000	13.00	7.20	7.10	771.90	1040.00	777.20	0.00	777.49	25.72	5.03	196.77	204.21
12400.000	13.00	7.20	7.10	771.90	1205.00	777.71	0.00	778.03	5.85	6.10	205.92	258.00
12400.000	13.00	7.20	7.10	771.90	1350.00	778.47	0.00	778.80	25.09	7.15	266.74	343.55
12401.000	1.00	1.00	0.00	771.90	875.00	776.25	0.00	776.54	10.97	4.34	155.69	156.57
12401.000	1.00	1.00	0.00	771.90	1040.00	777.30	0.00	777.71	21.52	5.25	198.27	224.17
12401.000	1.00	1.00	0.00	771.90	1205.00	777.82	0.00	778.23	22.26	5.73	220.32	283.53
12401.000	1.00	1.00	0.00	771.90	1350.00	778.69	0.00	779.00	27.24	6.63	243.97	335.29
12450.000	49.00	1.00	1.00	773.20	875.00	776.34	0.00	776.62	1.04	4.37	175.18	164.19
12450.000	49.00	0.00	1.00	771.20	1040.00	777.75	0.00	777.96	5.53	5.07	239.52	325.27
12450.000	49.00	0.00	0.00	771.20	1205.00	778.27	0.00	778.50	5.72	5.80	455.01	526.70
12450.000	49.00	0.00	0.00	771.20	1350.00	778.97	0.00	779.21	5.54	6.08	585.75	764.70
12453.000	663.00	0.00	0.00	772.90	875.00	776.53	0.00	776.85	25.07	4.73	145.21	150.23
12453.000	663.00	0.00	0.00	772.90	1040.00	777.54	0.00	777.86	10.11	5.01	202.17	241.92
12453.000	663.00	0.00	0.00	772.90	1205.00	778.06	0.00	778.37	19.76	5.03	247.15	307.12
12453.000	663.00	0.00	0.00	772.90	1350.00	778.92	0.00	779.23	12.19	6.02	303.00	391.66

FORM 1411-GS PRINTED BY NOTARY MANIFOLD FORMS.
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SE:IO	SLCH	ELTTO	ELLC	SLVII	I	CISEL	CRILS	TO	TJK=9	VL+	AIEA	*OIR
13535.004	662.00	0.00	0.00	774.20	675.00	770.70	0.00	775.02	24.13	4.50	152.10	110.07
13505.003	692.00	0.00	0.00	774.20	20[illegible]	77[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13505.003	692.00	0.00	0.00	776.20	14 5.0[illegible]	[illegible]	0.00	[illegible]	[illegible]	5.55	[illegible]	[illegible]
13505.003	692.00	0.00	0.00	77[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14123.000	558.00	0.00	0.00	775.50	675.00	779.59	0.00	780.3[illegible]	23.06	4.56	146.47	138.96
14123.000	535.00	0.00	0.00	775.50	[illegible]	[illegible]	0.00	[illegible]	[illegible]	5.67	[illegible]	[illegible]
14123.000	53.00	0.00	0.00	775.50	1205.00	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14123.000	538.00	0.00	0.00	775.50	[illegible]	[illegible]	0.00	[illegible]	[illegible]	7.33	[illegible]	[illegible]
14125.000	0.00	701.52	701.50	775.50	0.00	779.96	0.00	780.05	5.07	5.93	1[illegible]	108.07
14125.000	0.00	712.10	701.50	775.50	1340.00	[illegible]	0.00	[illegible]	23.09	[illegible]	[illegible]	206.76
14125.000	0.00	701.52	701.50	775.50	1305.00	[illegible]	0.00	[illegible]	21.41	[illegible]	[illegible]	[illegible]
14125.000	0.00	701.52	701.50	7.5.50	[illegible]	[illegible]	0.00	[illegible]	21.47	[illegible]	[illegible]	[illegible]
14275.000	150.00	0.00	0.00	776.40	[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14275.000	150.00	0.00	0.00	776.40	1.50.00	[illegible]	0.00	[illegible]	[illegible]	5.41	157.38	203.50
14275.000	150.00	0.00	0.00	776.40	12[illegible]	[illegible]	0.00	[illegible]	22.65	5.51	[illegible]	265.96
14275.000	150.00	0.00	0.00	776.40	[illegible]	[illegible]	0.00	[illegible]	21.13	[illegible]	[illegible]	[illegible]
16903.000	525.00	0.00	0.00	776.20	[illegible]	[illegible]	0.00	[illegible]	[illegible]	4.75	[illegible]	140.45
16903.000	525.00	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16903.000	0.00	0.00	0.00	776.20	1405.00	[illegible]	0.00	[illegible]	23.23	0.01	[illegible]	[illegible]
16903.000	525.00	0.00	0.00	776.20	1750.00	[illegible]	0.00	[illegible]	23.51	0.06	[illegible]	[illegible]
15525.000	525.00	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15525.000	525.00	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15525.000	525.00	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15525.000	525.00	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15[illegible].000	337.00	0.00	0.00	[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]	4.55	147.96	150.61
15[illegible].000	337.00	0.00	0.00	778.30	1305.00	[illegible]	0.00	[illegible]	[illegible]	5.17	[illegible]	[illegible]
15[illegible].000	337.00	0.00	0.00	778.30	1205.00	[illegible]	0.00	[illegible]	[illegible]	5.20	[illegible]	[illegible]
15[illegible].000	337.00	0.00	0.00	778.30	[illegible]	[illegible]	0.00	[illegible]	[illegible]	5.39	[illegible]	[illegible]
14201.000	525.00	0.00	0.00	779.50	[illegible]	784.84	0.00	[illegible]	27.57	5.10	152.04	128.25
14201.000	33[illegible].00	0.00	0.00	779.50	1340.00	[illegible]	0.00	[illegible]	[illegible]	5.06	163.45	144.14
14201.000	33[illegible].00	0.00	0.00	77[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]	5.25	[illegible]	[illegible]
14201.000	33[illegible].00	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.06	[illegible]	[illegible]
16538.000	337.00	0.00	0.00	740.70	[illegible]	785.[illegible]	0.00	[illegible]	[illegible]	5.40	125.18	118.45
16538.000	337.00	0.00	0.00	740.70	1040.00	787.11	0.00	787.68	32.35	[illegible]	172.1[illegible]	[illegible]
16538.000	337.00	0.00	0.00	740.70	1405.00	797.72	0.00	788.57	[illegible]	[illegible]	[illegible]	[illegible]
16538.000	337.00	0.00	0.00	740.70	1750.00	738.81	0.00	789.57	[illegible]	[illegible]	[illegible]	[illegible]
16674.000	336.00	0.00	0.00	741.90	[illegible]	786.65	785.49	[illegible]	[illegible]	5.75	155.57	[illegible]
16674.000	336.00	0.00	0.00	741.90	1040.00	788.23	0.00	789.57	15.03	4.57	[illegible]	[illegible]
16674.000	336.00	0.00	0.00	741.90	1205.00	788.96	0.00	789.11	16.74	4.13	[illegible]	[illegible]
16674.000	336.00	0.00	0.00	741.90	1750.00	791.09	0.00	790.29	[illegible]	4.57	[illegible]	[illegible]
17433.000	559.00	0.00	0.00	783.70	[illegible]	778.64	0.00	748.[illegible]	[illegible]	4.75	[illegible]	[illegible]
17433.000	559.00	0.00	0.00	783.70	[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17433.000	559.00	0.00	0.00	783.70	1205.00	789.52	0.00	790.00	31.60	5.25	[illegible]	227.1[illegible]
17433.000	559.00	0.00	0.00	783.70	1751.00	790.63	0.00	790.28	25.62	[illegible]	452.30	[illegible]

FORM 1511-GB PRINTED BY ROTARY MANIFOLD FORMS.
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SECNO	XLCN	ELTRJ	ELLC	ELMIN	Q	CJS&L	CRILS	PD	TOTWS	WCR	AREA	.01R
17533.000	100.00	0.10	0.00	784.80	915.00	791.19	0.30	789.20	23.24	4.60	164.32	140.35
17533.000	100.00	0.30	0.00	784.60	950.00	789.42	0.00	791.01	31.10	5.02	315.05	171.14
17533.000	100.00	0.00	0.00	784.60	1100.00	789.78	0.30	790.34	33.35	5.05	269.03	200.85
17533.000	100.00	0.00	0.00	784.00	1315.00	790.59	0.00	791.85	33.30	5.15	316.05	275.82
17583.000	50.00	0.00	0.00	783.30	915.00	789.21	0.00	789.30	10.76	2.75	123.06	187.69
17583.000	50.00	0.00	0.00	783.30	950.00	789.31	0.00	790.11	15.74	3.55	257.56	259.00
17583.000	50.00	0.00	0.00	783.30	1100.00	790.32	0.00	791.56	17.15	3.94	294.56	276.47
17583.000	50.00	0.00	0.00	783.30	1315.00	791.17	0.00	791.67	17.59	4.43	348.91	364.85
17593.000	10.00	792.60	789.80	783.30	915.00	789.23	0.00	789.34	10.64	2.76	324.41	180.57
17593.000	10.00	792.60	789.80	783.30	950.00	790.62	0.00	790.58	10.82	3.15	391.31	236.76
17593.000	10.00	792.60	789.80	783.30	1100.00	791.15	0.00	791.51	10.16	3.33	14.26	364.07
17593.000	10.00	792.60	789.80	783.30	1315.00	791.90	0.30	792.15	12.77	4.05	2.78	451.27
18012.000	619.00	0.10	0.00	783.20	915.00	790.30	0.30	790.15	4.61	5.54	111.10	51.20
18012.000	619.00	0.00	0.00	783.70	950.00	791.05	0.00	791.22	14.79	4.03	610.30	215.95
18012.000	619.00	0.30	0.00	783.70	1100.00	791.47	0.30	791.70	6.67	3.11	794.30	272.45
18012.000	619.00	0.00	0.00	783.70	1315.00	792.56	0.00	792.50	5.05	2.72	1029.44	327.31
18194.000	154.00	0.00	0.30	783.00	915.00	790.71	0.00	790.00	10.35	2.78	258.05	141.19
18194.000	154.00	0.00	0.00	783.00	950.00	791.62	0.00	791.21	12.80	3.41	5.21	194.44
18194.000	154.00	0.00	0.30	783.00	1100.00	792.07	0.00	792.01	5.38	3.19	390.54	279.58
18194.000	154.00	0.00	0.00	783.00	1315.00	792.80	0.00	792.75	6.39	4.37	1019.10	335.07
18325.000	52.00	0.00	0.00	783.00	915.00	790.66	0.00	791.00	10.35	2.32	216.32	140.17
18325.000	52.00	0.00	0.00	783.00	950.00	791.56	0.00	791.20	10.22	3.15	549.08	191.51
18325.000	52.00	0.00	0.00	783.00	1100.00	792.11	0.00	791.96	2.57	3.57	215.27	301.50
18325.000	52.00	0.00	0.00	783.00	1315.00	792.97	0.00	792.82	2.25	2.85	1616.75	360.37
18381.000	51.00	0.00	0.00	784.00	915.00	791.14	0.00	791.00	10.35	3.51	555.00	149.91
18381.000	51.00	0.00	0.00	784.00	950.00	791.76	0.00	791.20	10.22	3.85	557.01	325.15
18381.000	51.00	0.00	0.00	784.00	1100.00	792.11	0.00	792.06	2.57	4.01	547.05	384.15
18381.000	51.00	0.00	0.00	784.00	1315.00	792.97	0.00	792.82	2.25	3.47	1616.17	413.04
18565.000	184.00	0.00	0.00	784.20	915.00	791.43	0.00	791.00	10.21	2.37	357.47	163.15
18565.000	184.00	0.00	0.00	784.20	950.00	792.00	0.00	792.20	15.06	3.54	518.00	239.54
18565.000	184.00	0.00	0.00	784.20	1100.00	792.45	0.00	792.25	15.73	4.17	1064.08	252.47
18565.000	184.00	0.00	0.00	784.20	1315.00	793.13	0.00	793.01	13.64	4.57	91.17	490.44
18750.000	185.00	0.00	0.00	784.40	915.00	791.52	0.00	791.00	10.20	4.17	462.48	231.07
18750.000	185.00	0.00	0.00	784.40	950.00	792.77	0.00	793.00	17.00	4.50	511.08	270.33
18750.000	185.00	0.00	0.00	784.40	1100.00	793.45	0.00	793.26	13.55	5.05	565.72	324.57
19120.000	37.00	0.00	0.00	784.70	915.00	792.31	0.00	792.00	10.55	4.51	116.51	140.37
19120.000	37.00	0.00	0.00	784.70	950.00	793.21	0.00	793.11	10.41	5.11	311.31	191.31
19120.000	37.00	0.00	0.00	784.70	1100.00	793.63	0.00	793.73	13.51	4.72	317.75	270.46
19120.000	37.00	0.00	0.00	784.70	1315.00	794.15	0.00	794.00	13.65	4.49	446.47	342.40

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FORM 1421 GS PRINTED BY ROTARY MANIFOLD FORMS.

SECND	ALCK	FLTND	FLLC	[illegible]	D	DISEL	CRTDS	FC	TORNS	VC'	AREA	[illegible]
19270.000	150.00	0.00	0.00	737.50	833.00	702.51	0.10	704.92	30.09	3.25	105.01	96.25
19270.000	151.00	0.00	0.00	737.50	953.00	730.27	0.00	703.00	20.41	0.28	105.06	147.46
19270.000	151.00	0.00	0.00	737.50	1103.00	734.05	0.00	704.[illegible]	62.10	1.77	110.[illegible]	177.77
19270.000	151.00	0.00	0.00	737.50	1053.00	736.25	0.01	728.21	65.97	1.34	257.[illegible]	[illegible].00
19320.000	50.00	0.00	0.00	738.50	815.00	702.51	0.00	703.16	18.35	4.36	126.96	162.45
19320.000	50.00	0.00	0.00	738.50	95[illegible].00	705.29	0.00	703.48	17.08	0.09	155.87	224.06
19320.000	50.00	0.00	0.00	738.50	1150.00	730.75	0.00	704.56	20.01	6.77	111.22	259.21
19320.000	50.00	0.00	0.00	738.50	1615.00	704.51	0.00	705.12	20.20	7.05	205.60	312.97
19335.000	15.00	737.50	795.00	738.50	815.00	702.71	0.00	703.07	13.00	4.00	128.00	154.04
19335.000	15.00	737.50	795.00	738.50	953.00	733.43	0.00	703.04	17.05	6.03	157.65	228.05
19335.000	15.00	737.50	795.00	738.50	1153.00	703.52	0.00	704.51	21.46	8.09	173.65	251.11
19335.000	15.00	737.50	795.00	738.50	1515.00	705.19	0.00	705.91	19.07	6.70	207.56	302.33
19385.000	50.00	0.00	0.00	738.50	815.00	702.57	702.57	703.01	9.00	0.17	77.20	52.20
19385.000	50.00	0.00	0.00	738.50	953.00	733.48	703.48	704.50	103.42	0.26	154.02	93.61
19385.000	50.00	0.00	0.00	738.50	1153.00	703.02	0.00	704.73	15.13	0.03	207.03	140.41
19385.000	50.00	0.00	0.00	738.50	1515.00	705.50	0.00	705.15	21.21	0.55	403.05	298.[illegible]
19442.000	57.00	0.00	0.00	738.50	815.00	702.53	0.00	704.[illegible]	22.[illegible]	4.51	101.77	127.50
[illegible].442.000	57.00	0.00	0.00	738.50	953.00	734.[illegible]	0.01	704.[illegible]	[illegible].00	0.25	142.[illegible]	171.42
19442.000	57.00	0.00	0.00	738.50	1150.00	706.75	0.00	705.01	22.00	5.05	200.95	204.[illegible]
19442.000	57.00	0.00	0.00	738.50	1515.00	705.31	0.00	705.32	24.32	5.07	45[illegible].45	327.41
19499.000	57.00	0.00	0.00	738.50	815.00	702.[illegible]	0.00	704.23	23.00	4.56	102.52	127.24
19499.000	57.00	0.00	0.00	738.50	953.00	734.35	0.00	704.35	22.00	5.40	142.25	177.74
19499.000	57.00	0.00	0.00	738.50	1150.00	706.40	0.00	705.30	23.00	5.[illegible]	273.76	201.21
19499.000	57.00	0.00	0.00	738.50	1515.00	705.90	0.00	705.52	21.70	6.47	396.34	301.45
19503.000	104.00	0.00	0.00	738.50	815.00	702.57	0.00	704.17	27.92	4.65	1[illegible].07	116.11
19503.000	104.00	0.00	0.00	738.50	953.00	734.07	0.00	704.[illegible]	27.[illegible]	4.22	155.[illegible]	155.[illegible]
19503.000	104.00	0.00	0.00	738.50	1150.00	705.51	0.00	704.[illegible]	31.70	7.19	197.[illegible]	173.4[illegible]
19503.000	104.00	0.00	0.00	738.50	1515.00	705.[illegible]	0.00	705.[illegible]	24.[illegible]	5.[illegible]	3[illegible].52	234.47
19537.000	34.00	0.00	0.00	738.50	815.00	702.19	0.00	704.00	44.14	3.55	108.50	92.57
19537.000	34.00	0.00	0.00	738.50	953.00	734.32	0.00	704.55	51.25	7.53	129.62	121.36
19537.000	34.00	0.00	0.00	738.50	1150.00	705.14	0.00	[illegible].13	45.52	[illegible].41	137.97	133.51
19537.000	34.00	0.00	0.00	738.50	1515.00	705.47	0.00	[illegible].27	[illegible].22	[illegible].23	156.2[illegible]	173.[illegible]
19585.000	1.00	0.00	0.00	738.50	815.00	702.52	0.00	704.[illegible]	31.41	[illegible].31	87.[illegible]	35.72
19585.000	1.00	0.00	0.00	738.50	953.00	734.01	0.01	704.[illegible]	31.[illegible]	[illegible].51	111.[illegible]	104.57
19585.000	1.00	0.00	0.00	738.50	1153.00	703.07	0.01	704.55	105.37	9.93	116.85	112.[illegible]
19585.000	1.00	0.00	0.00	738.50	1515.00	705.47	0.00	[illegible].[illegible]	[illegible].53	[illegible].[illegible]	152.[illegible]	154.[illegible]
19636.000	1.00	739.00	795.00	738.50	815.00	702.22	0.00	704.[illegible]	23.[illegible]	1.30	87.[illegible]	131.[illegible]
19636.000	1.00	739.00	795.00	738.50	953.00	734.91	0.00	705.04	29.36	5.69	111.84	210.38
19636.000	1.00	739.00	795.00	738.50	1153.00	703.03	0.00	704.[illegible]	25.36	6.91	117.64	224.65
19636.000	1.00	739.00	795.00	738.50	1515.00	705.50	0.00	705.[illegible]	35.[illegible]	13.18	1.2[illegible].0	249.[illegible]
19669.000	33.00	739.00	795.00	738.50	815.00	702.20	0.00	704.53	1[illegible].[illegible]	[illegible].20	69.18	176.05
19669.000	33.00	739.00	793.00	738.50	953.00	734.[illegible]	0.00	704.[illegible]	1.[illegible]	[illegible].20	115.59	[illegible].75
19669.000	33.00	739.00	793.00	738.50	1150.00	705.30	0.00	704.59	22.07	4.20	124.72	240.00
19669.000	33.00	739.00	793.00	738.50	1515.00	705.[illegible]	0.00	705.24	10.55	1.[illegible]	151.75	327.[illegible]

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FORM 1611-GD PRINTED BY ROTARY MANIFOLD FORMS.

PROJECT	CALCS	BY	DATE	CHKD	SHEET	OF

SEQ.NO	BLOCK	SLIND	FLAG	ZENITH	DEPTH
19670.000	1.00	0.00	0.00	739.30	0.00
19670.000	1.00	0.00	0.00	740.90	0.00
19670.000	1.00	0.00	0.00	740.90	0.00

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FORM 1431-D PRINTED IN ROTARY HANDY-FOLD FORMS

PAINT CREEK

SUMMARY PRINTOUT TABLE 151

SPEND	D	CASE	DIFSIP	DIFCON	DIFAIR	PP DIF	ALLOC
0.000	975.00	716.20	0.30	0.00	1.00	91.65	0.00
0.000	1205.00	715.90	1.00	0.00	1.00	13.25	0.00
0.000	1745.00	716.30	.31	0.00	0.00	96.43	0.00
0.000	2610.00	715.10	1.16	0.00	1.00	17.32	.00
143.000	975.00	716.59	0.00	.59	0.00	67.13	1.06
143.000	1205.00	716.06	1.05	.18	0.00	10.11	143.00
143.000	1745.00	715.50	.63	.57	0.00	13.12	143.00
143.000	2610.00	715.04	1.56	.13	0.00	7.31	77.00
286.000	975.00	715.36	1.00	.41	0.00	0.11	143.00
286.000	1205.00	716.47	1.06	.30	0.00	4.55	143.00
286.000	1745.00	717.10	.63	.40	0.00	25.96	143.00
286.000	2610.00	714.32	1.24	.24	0.00	17.32	143.00
355.000	975.00	715.24	0.00	.32	0.00	5.07	.00
355.000	1205.00	717.12	.38	.35	0.00	25.00	.00
355.000	1745.00	718.10	.9	1.30	0.00	95.00	0.00
355.000	2610.00	719.53	1.45	1.21	0.00	25.00	0.00
373.000	975.00	715.24	0.01	.00	0.00	25.00	1.00
373.000	1205.00	717.12	.34	.02	0.00	25.00	17.00
373.000	1745.00	718.10	.9	.02	0.00	7.01	17.00
373.000	2610.00	719.56	1.44	.02	0.00	1.11	1.00
374.000	975.00	715.23	0.00	.00	0.00	55.00	1.00
374.000	1205.00	717.16	.35	.00	0.00	55.00	1.00
374.000	1745.00	718.13	.59	.30	0.00	15.00	1.00
374.000	2610.00	719.51	1.43	.30	0.00	25.00	1.00
377.000	975.00	715.21	0.00	-.07	0.00	57.51	4.00
378.000	1205.00	717.09	.38	-.05	0.00	51.11	4.00
378.000	1745.00	718.07	.38	-.04	0.00	9.61	4.00
378.000	2610.00	719.53	1.43	-.05	0.00	7.17	4.00
383.000	975.00	715.24	.06	.02	0.00	57.55	5.00
383.000	1205.00	717.11	.36	.02	0.00	61.17	5.00
383.000	1745.00	718.09	.99	.02	0.00	25.17	5.00
383.000	2610.00	719.54	1.45	.02	0.00	13.73	5.00
423.000	975.00	715.23	1.00	.00	0.00	55.55	40.00
423.000	1205.00	717.00	.80	-.02	0.00	51.57	40.00
423.000	1745.00	718.03	.94	-.05	0.00	52.36	40.00
423.000	2610.00	719.41	1.39	-.13	0.00	57.71	40.00
889.000	975.00	719.06	0.00	2.73	0.00	45.67	405.00
889.000	1205.00	719.45	.35	2.30	0.00	51.27	405.00
889.000	1745.00	720.50	1.04	2.47	0.00	55.35	405.00
889.000	2610.00	721.65	1.35	2.46	0.00	50.53	405.00

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FORM 1011 99 PRINTED BY ROTARY MANIFOLD FORMS

	SEQNO	S	CNSEL	DIFUSP	LIFUSX	DIFXUS	TIMJID	RLCH
	899.000	975.00	719.01	0.00	.02	0.00	43.44	10.00
	899.000	1205.00	719.44	.39	.02	0.00	50.91	10.00
	899.000	1745.00	720.52	1.06	.02	0.00	56.05	10.00
	899.000	2410.00	721.37	1.25	.02	0.00	50.31	10.00
	909.000	975.00	719.13	0.00	.04	0.00	46.54	10.00
	909.000	1205.00	719.56	.41	.06	0.00	51.21	10.00
	909.000	1745.00	720.57	1.03	.05	0.00	56.79	10.00
	909.000	2410.00	721.40	1.25	.03	0.01	51.21	10.00
	919.000	975.00	719.15	0.00	.02	0.00	45.01	10.00
	919.000	1205.00	719.58	.41	.02	0.00	50.67	10.00
	919.000	1745.00	720.59	1.03	.02	0.00	51.31	10.00
	919.000	2410.00	721.40	1.21	.01	0.00	51.00	10.00
	929.000	975.00	719.17	0.00	.02	0.00	46.70	10.00
	929.000	1205.00	719.59	.41	.02	0.00	47.52	10.00
	929.000	1745.00	720.59	1.02	.01	0.00	44.10	10.00
	929.000	2411.00	721.39	1.25	-.03	0.01	4 .40	10.00
	939.000	975.00	719.17	0.00	.01	0.01	44.54	10.00
	939.000	1205.00	719.57	.40	-.00	0.01	44.20	10.00
	939.000	1745.00	720.57	1.00	-.02	0.00	46.00	10.00
	939.000	2410.00	721.32	1.25	-.07	0.00	44.00	10.00
	963.000	975.00	719.53	0.00	.01	0.00	4 .00	4.00
	963.000	1205.00	719.96	.43	.02	0.00	4 .00	4.00
	963.000	1745.00	721.00	1.07	.01	0.00	4 .00	4.00
	963.000	2410.00	721.63	1.37	.01	0.00	4 .07	4.00
	964.000	975.00	719.53	0.00	.01	0.00	4 .00	1.00
	964.000	1205.00	719.97	.43	.01	0.00	4 .00	1.00
	964.000	1745.00	721.05	1.07	.01	0.00	41.00	1.00
	964.000	2410.00	722.02	1.37	.01	0.00	42.00	1.00
	967.000	975.00	719.55	0.00	.02	0.00	4 .00	43.00
	967.000	1205.00	721.02	.47	.03	0.00	43.00	43.00
	967.000	1745.00	721.10	1.03	.04	0.00	44.00	43.00
	967.000	2410.00	722.03	1.39	.05	0.00	4 .01	43.00
#	988.000	975.00	720.55	0.00	.00	0.00	42.07	1.00
#	988.000	1205.00	721.74	.34	.71	0.00	42.00	1.00
#	988.000	1745.00	721.54	.33	.04	0.00	42.00	1.00
#	988.000	2411.00	722.37	1.10	.24	0.00	4 .00	1.00
#	995.000	975.00	720.41	0.00	.00	0.00	52.00	7.00
#	995.000	1205.00	721.15	.35	.46	0.00	53.94	7.00
#	995.000	1745.00	722.91	1.01	1.54	0.00	55.70	7.00
#	995.000	2410.00	724.73	1.32	.10	0.00	55.00	7.00
	1037.000	975.00	721.43	0.00	.05	.01	51.17	0.00
	1037.000	1205.00	72 .18	.39	.0	0.00	4 .00	4.00
	1037.000	1745.00	723.13	.75	.01	0.00	43.50	42.00
	1037.000	2410.00	725.00	1.00	.05	0.00	4 .17	42.00

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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORM

SPEED	D	CMSEL	DIFMSF	DIFMSR	DIFKLS	TIMSEP	ELEV
1107.000	975.00	722.12	0.00	1.03	0.00	56.62	150.00
1107.000	1205.00	722.26	.64	1.00	0.00	58.72	150.00
1107.000	1745.00	724.17	.91	1.04	0.00	57.30	150.00
1107.000	2610.00	725.61	1.45	.03	0.00	59.72	150.00
1337.000	975.00	725.41	0.00	.59	0.00	57.10	150.00
1337.000	1205.00	726.47	.46	.61	0.00	59.25	150.00
1337.000	1745.00	724.21	.04	.65	0.00	57.00	150.00
1337.000	2610.00	725.18	1.37	.57	0.00	57.00	150.00
1465.000	975.00	725.04	0.00	.56	0.00	57.77	150.00
1465.000	1205.00	724.42	.47	.55	0.00	57.52	150.00
1465.000	1745.00	725.34	.00	.57	0.00	55.02	150.00
1465.000	2610.00	725.72	1.34	.53	0.00	56.24	150.00
1535.000	975.00	726.12	0.00	.13	0.00	55.31	67.00
1535.000	1205.00	726.54	.67	.12	0.00	57.03	66.00
1535.000	1745.00	725.50	.94	.12	0.00	55.24	69.00
1535.000	2610.00	725.42	1.42	.10	0.00	53.20	69.00
1536.000	975.00	726.01	0.00	-.03	0.00	57.11	1.00
1536.000	1205.00	726.47	.45	-.01	0.00	55.27	1.00
1536.000	1745.00	725.40	.93	-.10	0.00	55.99	1.00
1536.000	2610.00	726.86	1.24	-.18	0.00	56.60	1.00
1554.000	975.00	724.23	0.00	.12	0.00	56.03	0.00
1554.000	1205.00	724.65	.41	.10	0.00	57.47	0.00
1554.000	1745.00	725.62	.91	.11	0.00	57.57	0.00
1554.000	2610.00	726.43	1.24	.02	0.00	56.09	0.00
1565.000	975.00	724.63	0.00	.22	0.00	55.65	0.00
1565.000	1205.00	724.52	.51	.22	0.00	57.[illegible]	0.00
1565.000	1745.00	727.01	0.35	.07	0.00	55.54	0.00
1565.000	2610.00	727.53	1.55	.07	0.00	55.19	0.00
1570.000	975.00	724.62	0.00	.19	0.00	55.56	0.00
1570.000	1205.00	725.12	.51	.20	0.00	57.72	0.00
1570.000	1745.00	72[illegible]	[illegible]	.11	0.00	[illegible].27	0.00
1570.000	2610.00	727.58	1.[illegible]	.27	0.00	1[illegible].0	0.00
1592.000	975.00	724.60	0.00	-.11	0.00	5[illegible].24	22.00
1592.000	1205.00	725.10	.50	-.02	0.00	57.07	22.00
1592.000	1745.00	724.12	1.02	-.06	0.00	55.54	22.00
1592.000	2610.00	727.72	1.61	-.11	0.00	1[illegible].72	22.00
1616.000	975.00	724.50	1.00	-.14	0.00	[illegible].73	[illegible]
1616.000	1205.00	725.03	.47	-.06	0.00	51.07	22.00
1616.000	1745.00	725.01	.92	-.11	0.00	49.92	22.00
1616.000	2610.00	727.55	1.56	-.17	0.00	57.20	22.00
1666.000	975.00	724.21	0.00	.36	0.00	[illegible]	54.00
1666.000	1205.00	725.60	.45	.27	0.00	[illegible]	58.00
1666.000	1745.00	725.39	.94	.30	0.00	65.67	52.00
1666.000	2610.00	727.35	1.47	.30	0.00	62.05	52.00

FORM 1411 CU PRINTED BY ROTARY MANIFOLD FORMS.
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SECND	C	CHSEL	DIFLSP	DIFNSX	DIFKMS	TOPHID	KLCH
1216.000	975.00	725.39	0.00	.47	0.00	56.32	52.00
1718.000	1205.00	725.63	.49	.43	0.00	50.29	52.00
1718.000	1745.00	726.87	.99	.43	0.00	45.09	52.00
1718.000	2510.00	728.23	1.41	.42	0.00	57.84	52.00
1744.000	975.00	725.62	0.00	.23	0.00	57.23	26.00
1744.000	1205.00	726.11	.49	.22	0.00	60.56	26.00
1744.000	1745.00	727.10	.99	.23	0.00	63.10	26.00
1744.000	2510.00	728.48	1.38	.20	0.00	57.45	26.00
1770.000	975.00	725.86	0.00	.25	0.00	57.96	26.00
1770.000	1205.00	726.35	.49	.24	0.00	60.24	26.00
1770.000	1745.00	727.34	.99	.24	0.00	56.20	26.00
1770.000	2510.00	728.72	1.38	.22	0.00	57.13	26.00
1820.000	975.00	725.[illegible]	0.00	.56	0.00	14.54	52.00
1820.000	1205.00	726.91	.43	.56	0.00	60.87	52.00
1820.000	1745.00	727.85	.94	.52	0.00	54.42	50.00
1820.000	2510.00	729.18	1.32	.40	0.00	58.05	50.00
1845.000	975.00	725.[illegible]	0.00	.23	0.00	7.11	25.00
1845.000	1205.00	727.11	.49	.23	0.00	1.13	25.00
1845.000	1745.00	728.10	.99	.25	0.00	55.15	25.00
1845.000	2510.00	729.40	1.38	.32	0.00	59.54	25.00
1870.000	975.00	726.51	0.00	.25	0.00	[illegible]	25.00
1870.000	1205.00	727.[illegible]	.49	.25	0.00	[illegible]	25.00
1870.000	1745.00	729.55	.99	.26	0.00	[illegible]	25.00
1870.000	2510.00	72[illegible].64	1.29	.24	0.00	58.51	25.00
1895.000	975.00	727.61	0.00	.30	0.00	15.06	25.00
1895.000	1205.00	727.[illegible]	.53	.29	0.00	61.53	25.00
1895.000	1745.00	72[illegible]	1.01	.30	0.00	55.19	25.00
1895.000	2510.00	729.[illegible]	1.43	.32	0.00	59.25	25.00
1919.000	975.00	727.59	0.00	.13	0.00	9.52	26.00
1919.000	1205.00	728.11	.52	.17	0.00	60.13	26.00
1919.000	1745.00	729.12	1.01	.17	0.00	54.15	26.00
1919.000	2510.00	730.51	1.39	.15	0.00	58.13	26.00
1931.000	975.00	727.71	0.00	.13	0.00	9.57	12.00
1931.000	1205.00	728.22	.51	.11	0.00	60.25	12.00
1931.000	1745.00	729.23	1.01	.11	0.00	54.25	12.00
1931.000	2510.00	730.61	1.39	.10	0.00	58.06	12.00
1944.000	975.00	727.93	0.00	.22	0.00	9.22	12.00
1944.000	1205.00	728.45	.52	.23	0.00	61.01	12.00
1944.000	1745.00	729.69	1.04	.25	0.00	54.42	12.00
1944.000	2512.00	730.[illegible]	1.44	.22	0.00	58.52	12.00
1956.000	975.00	728.09	0.00	.16	0.00	9.52	12.00
1956.000	1205.00	728.61	.51	.16	0.00	61.03	12.00
1956.000	1745.00	729.56	1.00	.15	0.00	55.12	12.00
1956.000	2510.00	730.81	1.38	.15	0.00	57.53	12.00

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SECNO	$	CUSTL	DIFPSF	DIFNSR	DIFRAT	TOTLIT	DLCH
1902.000	975.00	722.22	0.00	.22	0.00	31.56	5.00
1902.000	1205.00	722.74	.52	.24	0.00	41.12	5.00
1902.000	1745.00	726.80	1.05	.23	0.00	45.40	5.00
1902.000	2610.00	731.21	1.41	.23	0.00	51.20	5.00
1966.000	975.00	728.23	0.00	.01	0.00	34.15	5.00
1966.000	1205.00	728.75	.52	.00	0.00	41.54	5.00
1966.000	1745.00	729.30	1.05	.03	0.00	45.37	5.00
1966.000	2610.00	731.21	1.41	.03	0.00	51.56	5.00
1969.000	975.00	728.68	0.00	.75	0.00	42.00	5.00
1969.000	1205.00	729.54	.56	.79	0.00	42.00	5.00
1969.000	1745.00	730.61	1.07	.81	0.00	42.00	5.00
1969.000	2610.00	731.87	1.26	.07	0.00	42.00	5.00
2030.000	975.00	722.02	0.00	.00	0.00	31.00	11.00
2030.000	1205.00	722.53	.57	.05	0.00	42.00	11.00
2030.000	1745.00	730.67	1.05	.96	0.00	42.00	11.00
2030.000	2611.00	731.98	1.45	.19	0.00	42.00	11.00
2058.100	975.00	725.32	0.00	.01	0.00	31.97	27.00
2058.100	1205.00	725.81	.51	.13	0.00	38.42	27.00
2058.100	1745.00	730.73	1.12	.75	0.00	50.00	50.00
2058.100	2610.00	732.24	1.51	.21	0.00	70.57	50.00
2429.000	975.00	730.52	0.00	1.45	.00	66.00	31.00
2429.000	1205.00	731.05	.53	1.44	0.00	54.00	54.00
2429.000	1745.00	732.14	1.09	1.41	0.00	50.00	140.00
2429.000	2610.00	733.54	1.40	1.35	0.00	55.75	140.00
2776.000	975.00	732.91	0.00	2.67	0.00	47.00	539.00
2776.000	1205.00	733.43	.45	2.32	0.00	52.00	539.00
2776.000	1745.00	734.53	.95	2.34	0.00	50.00	539.00
2776.000	2610.00	735.71	1.12	2.11	0.00	32.15	539.00
3203.000	975.00	735.66	0.00	2.65	0.00	50.15	425.10
3203.000	1205.00	736.15	.49	2.72	0.00	52.15	425.10
3203.000	1745.00	737.17	1.02	2.75	0.00	54.25	425.00
3203.000	2610.00	738.51	1.36	2.79	0.00	51.71	425.00
3628.000	975.00	738.68	0.00	2.37	0.00	53.15	425.00
3628.000	1205.00	739.53	.87	2.35	0.00	52.74	425.10
3628.000	1745.00	740.49	.96	2.29	0.00	54.32	425.00
3628.000	2610.00	741.74	1.25	2.23	0.00	51.92	425.00
3699.000	975.00	738.49	0.00	.36	0.00	52.71	71.00
3699.000	1205.00	739.93	.49	.45	0.00	54.71	71.00
3699.000	1745.00	739.99	1.01	.53	0.00	54.70	71.00
3699.000	2610.00	741.33	1.34	.59	0.00	54.20	71.00
3724.000	975.00	738.41	0.00	.11	0.00	51.95	25.00
3724.000	1205.00	739.09	.45	.10	0.00	54.00	25.00
3724.000	1745.00	740.07	.98	.09	0.00	52.10	25.00
3724.000	2610.00	741.38	1.31	.05	0.00	52.00	25.00

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	SECND	Q	LEVEL	DIFUSP	DIFUSY	DIFKIS	TOPWID	WLEV
	3736.000	975.00	736.62	0.00	.02	0.00	51.51	12.00
	3736.000	1205.00	739.41	.65	.02	0.00	45.30	12.00
	3736.000	1745.00	740.06	.97	.00	0.00	43.00	12.00
	3736.000	2610.00	741.35	1.28	-.03	0.00	42.50	12.00
	3742.000	975.00	738.03	0.00	.01	0.00	48.00	6.00
	3742.000	1205.00	739.11	.68	.00	0.00	45.00	6.00
	3742.000	1745.00	740.07	.95	-.01	0.00	45.00	6.00
	3742.000	2610.00	741.32	1.21	-.03	0.00	43.00	6.00
	3748.000	975.00	736.62	0.00	-.00	0.00	40.00	6.00
	3748.000	1205.00	739.10	.68	-.01	0.00	40.00	6.00
	3748.000	1745.00	740.04	.94	-.02	0.00	40.00	6.00
	3748.000	2610.00	741.27	1.23	-.05	0.00	40.00	6.00
	3749.000	975.00	736.25	0.00	-.37	0.00	38.40	1.00
	3749.000	1205.00	738.63	.43	-.42	0.00	39.50	1.00
	3749.000	1745.00	739.49	.31	-.55	0.00	39.50	1.00
*	3749.000	2610.00	740.67	1.18	-.60	0.00	39.50	1.00
	3810.000	975.00	739.19	0.00	.93	0.00	35.50	51.00
	3810.000	1205.00	739.74	.55	1.05	0.00	35.50	51.00
	3810.000	1745.00	740.33	1.19	1.04	0.00	35.50	51.00
	3810.000	2610.00	742.61	1.68	1.94	0.00	35.50	51.00
	3811.000	975.00	739.44	1.00	.27	0.00	35.50	1.00
	3811.000	1205.00	740.03	.41	.32	0.00	42.50	1.00
	3811.000	1745.00	741.35	1.29	.42	0.00	35.50	1.00
	3811.000	2610.00	743.15	1.83	.56	0.00	39.50	1.00
	3850.000	975.00	739.88	0.00	.42	0.00	55.40	49.00
	3850.000	1205.00	740.55	.67	.49	0.00	58.22	49.00
	3860.000	1745.00	742.01	1.46	.65	0.00	54.16	49.00
	3860.000	2610.00	744.11	2.10	.95	0.00	72.52	49.00
	3922.000	975.00	739.93	0.00	.05	0.00	51.56	52.00
	3922.000	1205.00	740.60	.67	.04	0.00	54.34	52.00
	3922.000	1745.00	742.05	1.45	.03	0.00	48.22	52.00
	3922.000	2610.00	744.13	2.08	.03	0.00	65.66	52.00
	3935.000	975.00	739.97	0.00	.04	0.00	51.55	13.00
	3935.000	1205.00	740.63	.66	.03	0.00	54.05	13.00
	3935.000	1745.00	742.07	1.44	.03	0.00	59.90	13.00
	3935.000	2610.00	744.15	2.08	.02	0.00	68.33	13.00
	3947.000	975.00	739.50	0.00	.02	0.00	50.15	12.00
	3947.000	1205.00	740.64	.65	.01	0.00	51.24	12.00
	3947.000	1745.00	742.07	1.43	-.00	0.00	54.03	12.00
	3947.000	2610.00	744.12	2.05	-.02	0.00	52.00	12.00
	3959.000	975.00	740.00	0.00	.01	0.00	43.77	12.00
	3959.000	1205.00	740.64	.64	-.00	0.00	41.17	12.00
	3959.000	1745.00	742.05	1.41	-.02	0.00	51.23	12.00
	3959.000	2610.00	744.09	2.05	-.04	0.00	52.01	12.00

	SECNO	C	CUSEL	DIFUSY	DIFUSX	DIFUTS	TOTHID	XLOH
	3965.000	975.00	739.99	0.00	-.01	0.00	44.63	5.00
	3965.000	1205.00	740.62	.64	-.02	0.01	45.97	5.00
	3965.000	1745.00	742.07	1.40	-.03	0.00	49.00	6.00
	3965.000	2610.00	744.05	2.42	-.04	0.01	49.10	6.00
*	3972.000	975.00	739.99	0.00	.01	0.00	45.00	7.00
*	3972.000	1205.00	740.38	.39	-.24	0.00	45.01	7.00
	3972.000	1745.00	741.85	1.47	-.18	0.00	45.00	7.00
	3972.000	2610.00	743.89	2.74	-.16	0.00	45.00	7.00
	3987.000	975.00	740.75	0.00	.76	0.00	45.00	15.00
	3987.000	1205.00	741.19	.43	.00	0.00	45.00	15.00
	3987.000	1745.00	742.04	.85	.19	0.00	45.00	15.00
	3987.000	2610.00	745.51	3.48	1.62	0.00	45.00	15.00
	3988.000	975.00	741.16	0.00	.40	0.00	46.50	1.00
	3988.000	1205.00	741.85	.69	.46	0.00	47.01	1.00
	3988.000	1745.00	742.64	1.48	.61	0.00	47.00	1.00
	3988.000	2610.00	745.75	3.11	.24	0.00	47.00	1.00
	3990.000	975.00	741.33	0.00	.17	0.00	51.00	2.00
	3990.000	1205.00	741.85	.52	.20	0.00	51.01	2.00
	3990.000	1745.00	742.91	1.06	.27	0.00	51.00	2.00
	3990.000	2610.00	745.13	3.22	.48	0.00	51.00	2.00
	4000.000	975.00	741.41	0.00	.06	0.00	71.00	10.00
	4000.000	1205.00	741.96	.55	.11	0.00	71.00	10.00
	4000.000	1745.00	743.11	1.15	.20	0.00	71.00	10.00
	4000.000	2610.00	746.10	3.04	.25	0.00	71.00	10.00
	4037.000	975.00	741.46	0.00	.05	0.00	126.39	37.00
	4037.000	1205.00	742.07	.61	.11	0.00	126.25	37.00
	4037.000	1745.00	743.36	1.25	.25	0.00	125.00	37.00
	4037.000	2610.00	746.45	3.09	.31	0.00	125.00	37.00
	4062.000	975.00	741.47	0.00	.11	0.00	154.72	25.00
	4062.000	1205.00	742.09	.62	.02	0.00	156.32	25.00
	4062.000	1745.00	743.29	1.20	.13	0.00	177.18	25.00
	4062.000	2611.00	746.51	3.12	.15	0.00	175.00	25.00
	4077.000	975.00	741.47	0.01	-.11	1.00	154.51	15.00
	4077.000	1205.00	742.09	.62	-.00	1.00	156.50	15.00
	4077.000	1745.00	743.40	1.31	.01	0.00	150.06	15.00
	4077.000	2610.00	746.52	3.12	.01	0.00	213.01	15.00
	4109.000	975.00	741.55	0.10	.10	1.00	11.07	32.00
	4109.000	1205.00	742.14	.59	.05	0.00	151.63	32.01
	4109.000	1745.00	743.44	1.30	.09	0.00	215.67	32.01
	4109.000	2610.00	746.55	3.11	.03	0.00	242.25	32.01
	4141.000	975.00	741.70	0.00	.16	0.00	71.07	32.00
	4141.000	1205.00	742.15	.45	.03	0.01	14.45	32.00
	4141.000	1745.00	743.46	1.31	.12	0.00	227.25	32.00
	4141.000	2610.00	746.55	3.09	.02	0.00	241.91	32.00

	SECND	D	CURSEL	DIFFSP	DIFFSR	DIFFRS	TOPLED	ALC4
	4173.000	975.00	742.00	0.00	.00	0.00	52.19	32.00
*	4173.000	1205.00	742.55	.55	.40	1.00	130.00	32.00
	4173.000	1745.00	743.41	.10	-.05	1.00	215.19	32.00
	4173.000	2610.00	745.56	3.10	.01	1.00	345.45	32.00
*	4189.000	975.00	742.24	1.00	.24	1.00	5.64	1.00
*	4189.000	1205.00	742.55	.31	.30	0.00	130.39	15.00
*	4189.000	1745.00	743.67	.81	.26	0.00	214.24	15.00
	4189.000	2610.00	746.50	2.39	-.00	0.00	344.46	15.00
	4205.000	975.00	744.72	1.00	.46	0.00	61.50	16.00
*	4205.000	1205.00	743.05	.14	.24	0.00	130.47	16.00
*	4205.000	1745.00	743.70	.75	.12	0.00	214.72	16.00
	4205.000	2610.00	745.55	2.77	.10	0.00	343.33	16.00
	4405.000	975.00	744.31	0.00	1.01	0.00	151.45	30.00
	4405.000	1205.00	744.77	.46	1.72	1.00	220.15	30.00
	4405.000	1745.00	745.13	.82	1.72	1.00	304.85	30.00
	4405.000	2610.00	746.67	1.55	.10	0.00	197.45	30.00
	4455.000	975.00	744.67	1.00	.16	0.00	155.75	51.00
	4455.000	1205.00	744.81	.12	.12	0.00	164.65	51.00
	4455.000	1745.00	745.23	.53	.14	0.00	151.85	51.00
	4455.000	2610.00	746.73	1.45	.00	0.00	172.52	51.00
	4505.000	975.00	744.64	1.00	.17	0.00	125.04	50.00
	4505.000	1205.00	745.04	.41	.16	0.00	132.55	50.00
	4505.000	1745.00	745.47	.84	.19	0.00	141.58	50.00
	4505.000	2610.00	746.81	1.24	.18	.10	159.00	50.00
	4605.000	975.00	745.00	0.00	.37	0.00	95.53	100.00
	4605.000	1205.00	745.37	.37	.35	0.00	135.18	100.00
	4605.000	1745.00	745.39	.52	.42	0.00	117.00	100.00
	4605.000	2610.00	747.10	1.12	.19	0.00	117.00	100.00
	4665.000	975.00	745.25	0.00	.23	1.00	77.00	60.00
	4665.000	1205.00	745.59	.36	.22	0.00	77.00	60.00
	4665.000	1745.00	746.13	.54	.24	0.00	77.00	60.00
	4665.000	2610.00	747.13	1.00	.12	0.00	77.00	60.00
	4695.000	975.00	745.53	1.00	.21	0.00	211.24	30.00
	4695.000	1205.00	746.00	.52	.47	0.00	222.73	30.00
	4695.000	1745.00	746.95	.95	.82	0.00	242.36	30.00
	4695.000	2610.00	748.30	1.35	1.17	0.00	256.52	30.00
	4725.000	975.00	745.45	0.00	-.19	0.00	55.31	30.00
	4725.000	1205.00	745.87	.42	-.19	0.00	63.25	30.00
	4725.000	1745.00	746.56	.69	-.50	0.00	57.36	30.00
	4725.000	2610.00	747.65	1.09	-.66	0.00	50.29	30.00
	4726.000	975.00	745.46	0.00	-.01	0.00	46.50	1.00
	4726.000	1205.00	745.86	.41	-.01	1.00	45.56	1.00
	4726.000	1745.00	746.53	.66	-.03	0.00	47.06	1.00
	4726.000	2610.00	747.51	1.08	-.01	0.00	49.31	1.00

	SEC'D	S	C/SEL	DIF'SF	DIFHSX	DIFKMS	TOPN.D	RLC'
	4734.000	975.00	745.47	0.00	.03	0.00	44.54	8.00
	4734.000	1205.00	745.89	.42	.03	0.00	45.56	8.00
	4734.000	1745.00	746.62	.73	.08	0.00	47.25	8.00
	4734.000	2610.00	747.76	1.15	.15	0.00	49.36	8.00
	4735.000	975.00	745.53	0.00	.05	0.00	45.40	1.00
	4735.000	1205.00	745.97	.44	.03	0.00	46.48	1.00
	4735.000	1745.00	746.76	.79	.15	0.00	48.29	1.00
	4735.000	2610.00	747.99	1.23	.23	0.00	51.03	1.00
*	5104.000	975.00	747.35	0.00	2.29	0.00	66.36	369.00
*	5104.000	1205.00	748.73	.41	2.26	0.00	51.01	369.00
	5104.000	1745.00	749.76	1.02	2.99	0.00	50.77	69.00
	5104.000	2610.00	750.98	1.22	2.99	0.00	70.00	369.00
	5156.000	975.00	749.53	0.00	1.00	0.00	47.32	52.00
	5156.000	1205.00	749.67	.34	.03	0.00	49.00	52.00
	5156.000	1745.00	750.43	.76	.07	0.00	50.24	52.00
	5156.000	2610.00	751.47	1.04	.69	0.00	70.00	52.00
	5208.000	975.00	749.84	0.00	.51	0.00	47.22	52.00
	5208.000	1205.00	750.21	.37	.54	0.00	48.73	52.00
	5208.000	1745.00	751.45	1.24	1.02	0.00	50.30	52.00
	5208.000	2610.00	752.07	.62	.00	0.00	70.00	52.00
	5259.000	975.00	750.38	0.00	.54	0.00	46.55	51.00
*	5259.000	1205.00	750.81	.43	.00	0.00	46.31	51.00
	5259.000	1745.00	751.83	1.02	.33	0.00	50.39	51.00
*	5259.000	2610.00	753.11	1.28	1.04	0.00	190.39	51.00
	5269.000	975.00	751.02	0.00	.65	0.00	49.14	10.00
	5269.000	1205.00	751.50	.47	.09	0.00	50.91	10.00
	5269.000	1745.00	752.53	1.04	.70	0.00	70.00	10.00
*	5269.000	2610.00	753.13	.60	.03	0.00	70.00	10.00
	5270.000	975.00	751.04	0.00	.02	0.00	49.22	1.00
	5270.000	1205.00	751.51	.47	.01	0.00	37.13	1.00
	5270.000	1745.00	752.56	1.05	.02	0.00	70.00	1.00
	5270.000	2610.00	753.15	.59	.01	0.00	70.00	1.00
	5473.000	975.00	752.27	1.00	1.23	0.00	55.29	203.00
	5473.000	1205.00	752.81	.54	1.20	0.00	72.12	203.00
	5473.000	1745.00	753.74	.93	1.19	0.00	92.06	203.00
	5473.000	2610.00	754.94	1.20	1.80	0.00	237.59	203.00
	5803.000	975.00	753.55	0.00	1.05	0.00	54.31	55.00
	5803.000	1205.00	753.61	.47	1.06	0.00	56.[illegible]	55.00
	5803.000	1745.00	754.67	.92	.61	0.00	91.31	55.00
	5803.000	2610.00	755.57	.92	.62	1.00	97.00	550.00
	5807.000	975.00	753.61	0.00	.06	0.00	45.75	6.00
	5807.000	1205.00	754.05	.44	.14	0.00	47.16	6.00
	5807.000	1745.00	755.28	1.23	.05	0.00	55.49	6.00
	5807.000	2610.00	756.36	1.07	.09	0.00	81.07	6.00

	SECLO	O	CPSEL	DIFISP	DIFUSX	DIFKOS	TOPALT	XLCo
	6395.300	975.00	755.54	1.03	1.42	0.10	54.12	183.00
	6095.300	1205.00	755.14	.50	2.26	0.00	92.58	203.00
	6095.300	1745.00	757.12	.93	1.03	0.10	14[illegible]	[illegible]
	6095.300	2610.00	758.04	1.52	2.29	0.00	224.29	[illegible]
	6187.000	975.00	755.73	0.30	.23	1.00	5[illegible]	[illegible]
	6187.000	1205.00	756.35	.39	.21	0.00	51.86	92.00
	6187.000	1745.00	757.30	.96	.14	0.00	147.29	92.00
	6187.000	2610.00	758.76	1.65	.10	0.01	43.11	92.00
	6371.001	975.00	756.55	0.00	.82	0.00	45.34	219.00
	6371.000	1205.00	757.10	.56	.01	1.10	94.55	215.00
	6371.000	1745.00	758.11	.96	.11	0.00	230.37	219.00
	6371.000	2610.00	759.26	1.17	.55	0.00	253.00	219.00
	6372.000	975.00	756.59	0.00	.01	0.00	85.04	1.00
	6372.100	1205.00	757.17	.58	.01	0.00	94.56	1.00
	6372.700	1745.00	758.13	.97	.02	0.00	230.82	1.00
	6372.000	2610.00	759.29	1.15	.01	0.00	263.56	1.00
*	6385.000	975.00	756.02	0.00	1.43	0.00	236.35	13.00
	6385.000	1205.00	753.41	-.61	1.21	0.06	243.23	13.00
	6385.000	1745.00	759.01	.51	.39	0.00	247.35	[illegible]
	6385.000	2610.00	761.77	1.40	.68	0.00	276.20	[illegible]
*	6585.000	975.00	758.27	0.00	.26	0.00	251.31	20[illegible]
*	6585.000	1205.00	756.46	-.16	.09	0.00	243.76	208.00
	6585.000	1745.00	759.11	.05	.17	0.01	250.21	[illegible]
	6585.000	2610.00	759.92	.11	.15	0.00	255.57	[illegible]
*	6591.000	975.00	758.26	0.00	-.01	0.00	233.59	6.00
	6591.000	1205.00	759.39	1.13	.93	0.00	247.50	[illegible]
	6591.000	1745.01	759.95	.55	.84	0.00	250.56	6.00
	6591.000	2610.00	760.53	.57	.71	0.00	252.[illegible]	[illegible]
	6641.000	975.00	755.64	0.00	1.11	0.00	21[illegible]	50.00
	6641.000	1205.00	759.53	.13	.15	0.00	219.33	50.00
	6641.000	1745.00	760.18	.30	.23	0.00	220.44	50.00
	6641.000	2610.00	760.96	.78	.33	0.00	221.22	50.00
	6875.000	975.00	756.51	0.00	.07	0.10	52.12	235.00
	6875.000	1205.00	755.66	-.15	.00	0.00	8[illegible].10	[illegible].00
	6875.000	1745.00	760.24	.53	.16	0.00	147.85	236.00
	6875.000	2610.00	760.98	.74	.03	0.00	150.72	234.00
	7110.000	975.00	756.70	0.00	.19	0.00	73.19	235.00
	7110.001	1205.00	759.53	.22	.27	0.00	70.29	225.00
	7110.000	1745.00	760.60	.57	.16	0.00	12.57	235.00
	7110.000	2610.00	761.37	.76	.09	0.00	136.19	235.00
	7335.000	975.00	760.16	0.00	.46	0.00	5[illegible].75	225.00
	7335.000	1205.00	760.49	.33	.56	0.00	54.26	225.00
	7335.000	1745.10	761.22	.72	.52	0.00	55.21	225.00
	7335.001	2610.20	762.05	.83	.83	0.00	[illegible].00	225.00

	SECND	D	CUSEL	DIFISP	DIFNSX	DIFKSD	TOFELD	SLCH
	7360.000	975.00	760.21	0.00	.05	0.00	67.65	25.00
	7360.000	1205.00	760.54	.33	.05	0.00	65.15	25.00
	7360.000	1745.00	761.26	.72	.04	0.00	65.00	25.00
	7360.000	2610.00	762.05	.79	-.11	0.00	65.00	25.00
	7372.000	975.00	760.20	0.00	-.02	0.00	45.00	12.00
	7372.000	1205.00	760.51	.31	-.03	0.00	45.00	12.00
	7372.000	1745.00	761.17	.66	-.09	0.00	45.00	12.00
	7372.000	2610.00	761.80	.63	-.25	0.00	43.00	12.00
	7378.000	975.00	760.19	0.00	-.02	0.00	40.00	6.00
	7378.000	1205.00	760.48	.30	-.03	0.00	40.00	6.00
	7378.000	1745.00	761.09	.61	-.03	0.00	40.00	6.00
*	7378.000	2610.00	761.53	.44	-.25	0.00	40.00	6.00
	7384.000	975.00	760.11	0.00	-.07	0.00	36.50	6.00
	7384.000	1205.00	760.37	.26	-.11	0.00	36.50	6.00
	7384.000	1745.00	760.85	.48	-.25	1.00	36.51	6.00
*	7384.000	2610.00	761.79	.94	.25	0.01	36.50	6.00
	7395.000	975.00	760.11	0.00	.00	0.00	36.50	1.00
	7395.000	1205.00	760.37	.25	.01	0.00	36.50	1.00
	7395.000	1745.00	760.85	.48	.03	0.00	36.50	1.00
	7395.000	2610.00	761.81	.95	.02	0.00	36.50	1.00
	7421.000	975.00	760.22	0.00	.11	0.00	36.50	36.00
	7421.000	1205.00	760.53	.31	.15	0.00	36.50	36.00
	7421.000	1745.00	761.27	.74	.42	0.00	36.50	36.00
	7421.000	2610.00	762.72	1.45	.51	0.00	36.50	36.00
	7422.000	975.00	760.22	0.00	.00	0.00	36.51	1.00
	7422.000	1205.00	760.53	.31	.01	0.00	36.50	1.00
	7422.000	1745.00	761.27	.74	.00	0.00	36.50	1.00
	7422.000	2610.00	762.72	1.45	.01	0.00	36.51	1.00
	7424.000	975.00	760.19	0.00	-.03	0.00	65.00	2.00
	7424.000	1205.00	760.51	.32	-.02	0.00	65.00	2.00
	7424.000	1745.00	761.20	.73	.02	0.00	65.00	2.00
	7424.000	2610.00	763.35	2.06	-.03	0.00	65.00	2.00
	7426.000	975.00	760.41	0.00	.21	0.00	67.00	2.00
	7426.000	1205.00	760.82	.42	.32	0.00	67.00	2.00
	7426.000	1745.00	761.90	1.07	.50	0.00	67.00	2.00
	7426.000	2610.00	763.51	1.91	.46	0.00	67.00	2.00
	7429.000	975.00	760.53	0.00	.12	0.00	52.35	3.00
	7429.000	1205.00	761.03	.50	.20	0.00	52.00	3.00
	7429.000	1745.00	762.20	1.17	.30	1.00	52.00	3.00
	7429.000	2610.00	763.16	1.17	.25	0.00	53.00	3.00
	7434.000	975.00	760.59	0.00	.00	0.00	55.25	5.00
	7434.000	1205.00	761.12	.53	.05	0.00	51.31	5.00
	7434.000	1745.00	762.39	1.20	.29	1.00	52.00	5.00
	7434.000	2610.00	764.43	2.05	.25	0.00	52.00	5.00

SECND	C	CJSTL	DIFFSP	DIFFSX	DIFKMS	TIPMID	XLOC
7447.000	975.00	760.73	0.00	.14	0.00	59.62	13.00
7447.000	1205.00	761.26	.53	.16	0.00	70.33	13.00
7447.000	1745.00	762.64	1.35	.21	0.00	100.61	15.00
7447.000	2610.00	765.75	2.15	.35	0.00	8 .00	13.10
7473.000	975.00	760.63	0.00	.11	0.00	61.32	25.00
7473.000	1205.00	761.36	.53	.11	0.00	73.55	25.00
7473.000	1745.00	762.67	1.30	.05	0.00	112.30	26.00
7473.000	2610.00	766.36	2.29	.21	0.00	1 .52	26.00
8023.000	975.00	762.72	0.00	1.06	0.00	75.27	550.00
8023.000	1205.00	763.13	.41	1.12	0.00	86.73	550.00
8023.000	1745.00	764.06	.37	1.33	0.00	1 .66	550.00
8023.000	2610.00	765.55	1.53	.59	0.00	144.77	550.00
8200.000	975.00	763.66	0.00	.74	0.00	78.32	177.00
8200.000	1205.00	765.90	.24	.79	0.00	95.52	177.00
8200.000	1745.00	766.57	.40	.34	0.00	23.57	177.00
8200.000	2610.00	768.10	1.31	.55	0.00	35.00	177.00
8201.000	975.00	763.65	0.00	-.00	0.00	22.05	1.00
8201.000	1205.00	764.00	.35	-.11	0.00	7 .56	1.00
8201.000	1745.00	764.75	.75	-.11	0.00	7 .56	1.00
8201.000	2610.00	766.34	1.59	-.11	0.00	10.00	1.00
8211.000	975.00	763.46	.00	.01	0.00	7 .35	10.00
8211.000	1205.00	764.20	.44	.01	0.00	7 .56	10.00
8211.000	1745.00	765.81	.61	.11	0.00	10.50	10.00
8211.000	2610.00	768.19	1.01	.01	0.00	13.07	10.00
8212.000	975.00	763.68	0.00	.02	0.00	7 .04	1.00
8212.000	1205.00	763.92	.45	.02	0.00	7 .56	1.00
8212.000	1745.00	764.83	.51	.03	0.00	8 .67	1.00
8212.000	2610.00	766.15	1.32	.18	0.00	5 .14	1.00
8281.000	975.00	763.46	0.00	-.01	0.00	6 .50	65.00
8281.000	1205.00	763.68	.64	-.04	0.00	5 .00	65.00
8281.000	1745.00	764.77	.90	-.05	0.00	6 .00	65.00
8281.000	2610.00	766.06	1.29	-.09	0.00	8 .00	1 .00
8330.000	975.00	763.79	0.00	.25	0.00	5 .00	45.00
8330.000	1240.00	764.00	.21	.12	0.00	5 .00	55.00
8330.000	1265.00	764.05	.05	.13	0.00	4 .00	45.00
8330.000	1750.00	765.25	1.20	.17	0.00	4 .00	55.00
8331.000	975.00	763.75	0.00	-.01	0.00	39.50	1.00
8331.000	1240.00	763.89	.15	-.11	0.00	9 .50	1.00
8331.000	1265.00	764.53	.65	-.05	0.00	3 .50	1.00
8331.000	1750.00	766.18	1.30	-.18	0.00	2 .50	1.00
8345.000	975.00	763.87	0.00	.12	0.00	39.50	14.00
8345.000	1041.00	764.65	.53	.55	0.00	4 .50	14.00
8345.000	1265.00	765.10	.65	.22	0.00	9 .50	14.00
8345.000	1750.00	766.33	1.24	.50	0.00	6 .50	14.00

SECNO	D	CUSEL	DIFLSP	DIFNSK	DIFKOS	TOPLJD	LLCH
8346.000	675.00	766.02	0.00	.15	0.00	42.00	1.00
8346.000	1040.00	766.75	.73	.20	0.00	42.00	1.00
8346.000	1265.00	765.38	.63	.23	0.00	42.00	1.00
8346.000	1751.00	766.53	1.24	.29	0.00	42.00	1.00
8395.000	675.00	764.21	0.00	.19	0.00	55.18	45.00
8395.000	1040.00	765.00	.79	.25	0.00	55.25	49.00
8395.000	1265.00	765.66	.56	.29	0.00	72.72	49.00
8395.000	1750.00	767.06	1.41	.64	0.00	91.00	49.00
8448.000	675.00	764.43	0.00	.22	0.00	50.82	55.00
8448.000	1040.00	765.21	.70	.21	0.00	50.55	55.00
8448.000	1265.00	765.84	.63	.18	0.00	132.13	55.00
8448.000	1750.00	767.56	1.72	.50	0.00	696.07	55.00
8540.000	675.00	765.47	0.00	1.04	0.00	90.51	92.00
8540.000	1040.00	765.41	.53	1.20	0.00	17.00	92.00
8540.000	1265.00	766.02	.62	.84	0.00	25.55	92.00
8540.000	1750.00	767.77	.95	.21	0.00	49.01	92.00
8633.000	675.00	765.45	0.00	.37	0.00	95.54	93.00
8633.000	1040.00	766.74	.69	.34	0.00	217.00	93.00
8633.000	1265.00	767.17	.43	.35	0.00	201.02	93.00
8633.000	1750.00	767.96	.79	.10	0.00	302.51	93.00
8818.000	675.00	766.44	0.00	.59	0.00	92.19	165.00
8818.000	1040.00	767.30	.86	.56	0.00	301.31	165.00
8818.000	1265.00	767.70	.40	.53	0.00	353.50	165.00
8818.000	1751.00	769.08	.38	.62	0.00	395.05	165.00
9003.000	675.00	767.13	0.00	.54	0.00	164.59	165.00
9003.000	1040.00	767.42	.29	.62	0.00	370.96	165.00
9003.000	1265.00	768.23	.85	.58	0.00	403.32	165.00
9003.000	1750.00	768.90	.61	.51	0.00	448.09	165.00
9180.000	675.00	767.50	0.00	.47	0.00	210.63	165.00
9180.000	1040.00	768.31	.61	.39	0.00	329.23	165.00
9180.000	1265.00	768.64	.33	.36	0.00	346.86	165.00
9180.000	1750.00	769.22	.59	.33	0.00	391.04	165.00
9755.000	675.00	769.25	0.00	1.75	0.00	101.92	567.00
9755.000	1040.00	769.96	.71	1.65	0.00	159.60	567.00
9755.000	1265.00	770.28	.31	1.54	0.00	152.04	567.00
9755.000	1750.00	770.81	.53	1.59	0.00	152.16	567.00
9995.000	675.00	770.25	0.00	1.75	0.00	56.57	240.00
9995.000	1040.00	771.07	.79	1.71	0.00	105.68	240.00
9995.000	1265.00	771.43	.33	1.15	0.00	124.65	240.00
9995.000	1750.00	772.09	.63	1.20	0.00	187.76	240.00
10615.000	675.00	771.91	0.00	1.62	0.00	165.18	520.00
10615.000	1040.00	772.75	.83	1.61	0.00	245.55	521.00
10615.000	1265.00	773.15	.40	1.72	0.00	251.67	520.00
10615.000	1750.00	773.77	.62	1.80	0.00	295.15	520.00

SECND	Q	CHSEL	DIFWSP	DIFJSX	DIFKJS	TD-JID	K-CH
10815.000	675.00	772.33	0.00	.42	0.00	159.69	200.00
10515.000	1040.00	773.08	.75	.33	0.00	235.81	200.00
10815.000	1265.00	773.45	.37	.10	1.00	245.53	200.00
10815.000	1750.00	774.15	.69	.25	1.00	275.75	200.00
11015.000	675.00	772.84	0.00	.51	1.40	125.00	200.00
11015.000	1040.00	773.55	.70	.46	0.00	138.70	200.00
11015.000	1265.00	773.98	.33	.42	0.00	139.48	200.00
11015.000	1750.00	774.51	.53	.35	0.00	150.45	200.00
11235.000	675.00	773.47	0.00	.63	1.00	53.31	220.00
11235.000	1040.00	774.18	.71	.64	1.00	83.55	220.00
11235.000	1265.00	774.49	.31	.61	0.00	99.28	220.00
11235.000	1750.00	775.05	.56	.55	0.00	120.60	220.00
11260.000	675.00	773.51	0.00	.19	0.00	59.29	25.00
11260.000	1040.00	774.36	.73	.14	0.00	75.47	25.00
11260.000	1265.00	774.68	.32	.13	1.00	86.24	25.00
11260.000	1750.00	775.24	.55	.19	0.00	106.04	25.00
11284.000	675.00	773.05	0.00	.20	1.00	55.52	24.00
11284.000	1040.00	774.16	.90	.68	1.00	55.52	24.00
11284.000	1265.00	775.25	.40	.53	1.00	55.52	24.00
11284.000	1750.00	775.96	.72	.72	0.00	55.52	24.00
11285.000	675.00	773.94	0.00	-.10	0.00	63.70	1.00
11285.000	1040.00	774.84	.91	-.11	0.00	63.70	1.00
11285.000	1265.00	775.24	.40	-.01	0.00	63.70	1.00
11285.000	1750.00	775.95	.71	-.01	0.00	63.70	1.00
11314.000	675.00	773.96	0.00	.02	0.00	63.70	29.00
11314.000	1040.00	774.86	.90	.03	0.00	63.70	29.00
11314.000	1265.00	775.27	.40	.03	0.00	63.70	29.00
11314.000	1750.00	775.99	.72	.06	1.00	63.70	29.00
11315.000	675.00	773.96	0.00	.01	0.00	65.52	1.00
11315.000	1040.00	774.68	.91	.02	0.00	65.52	1.00
11315.000	1265.00	775.29	.61	.02	0.00	65.52	1.00
11315.000	1750.00	776.03	.76	.03	0.00	65.52	1.00
11364.000	675.00	773.97	0.00	-.00	0.00	177.31	49.00
11364.000	1040.00	774.90	.93	.02	0.00	150.11	65.00
11364.000	1265.00	775.33	.43	.06	0.00	161.11	69.00
11364.000	1750.00	776.12	.80	.10	0.00	180.00	49.00
11435.000	675.00	774.05	0.00	.03	0.00	150.16	71.00
11435.000	1040.00	774.96	.91	.06	0.00	152.21	71.00
11435.000	1265.00	775.39	.42	.06	0.00	15 .29	71.00
11435.000	1750.00	776.13	.79	.05	0.00	155.17	71.00
11521.000	675.00	774.27	0.00	.23	0.00	113.00	56.00
11521.000	1040.00	775.10	.83	.14	0.00	113.00	30.00
11521.000	1265.00	775.51	.41	.15	0.00	113.00	56.00
11521.000	1750.00	776.20	.72	.10	1.00	113.00	56.00

SECNO	D	CNSEL	DIFJSP	DIFUSX	LIFKIS	TORQID	XLSH
11570.000	675.00	774.33	0.00	.15	0.00	65.07	49.00
11570.000	1040.00	775.15	.83	.05	0.00	65.59	69.00
11570.000	1265.00	775.56	.40	.05	0.00	72.16	45.00
11570.000	1750.00	776.32	.76	.03	0.00	73.34	89.00
11571.000	675.00	774.02	0.00	-.01	0.00	55.43	1.00
11571.000	1040.00	775.14	.82	-.01	0.00	65.61	1.00
11571.000	1265.00	775.55	.40	-.01	0.00	70.78	1.00
11571.000	1750.00	776.30	.75	-.02	0.00	71.41	1.00
11614.000	675.00	774.42	0.00	.10	0.00	45.06	45.00
11614.000	1040.00	775.32	.90	.18	0.00	55.01	43.00
11614.000	1265.00	775.75	.43	.21	0.00	71.41	53.00
11614.000	1750.00	776.52	.76	.22	0.00	71.41	83.00
11615.000	675.00	774.45	0.00	.04	0.00	47.52	1.00
11615.000	1040.00	775.38	.92	.05	0.00	57.35	1.00
11615.000	1265.00	775.81	.43	.06	0.00	73.34	1.00
11615.000	1750.00	776.59	.78	.07	0.00	73.34	1.00
11654.000	675.00	774.65	0.00	.12	0.00	58.21	69.00
11654.000	1040.00	775.60	.95	.24	0.00	84.11	69.00
11654.000	1265.00	776.09	.49	.29	0.00	84.02	45.00
11654.000	1750.00	776.87	.78	.28	0.00	152.28	65.00
11738.000	675.00	774.77	0.00	.13	0.00	50.52	124.00
11738.000	1040.00	775.73	.96	.13	0.00	59.25	124.00
11738.000	1265.00	776.18	.45	.14	0.00	59.12	104.00
11738.000	1750.00	776.97	.80	.10	0.00	65.45	124.00
12132.000	675.00	775.33	0.00	1.06	0.00	71.17	364.00
12132.000	1040.00	776.43	1.00	1.10	0.00	81.16	344.00
12132.000	1265.00	777.35	.91	1.17	0.00	90.25	344.00
12132.000	1750.00	778.32	.97	1.25	0.00	95.76	344.00
12232.000	675.00	775.00	0.00	.17	0.00	76.00	100.00
12232.000	1040.00	777.02	1.01	.19	0.00	87.75	100.00
12232.000	1265.00	777.54	.52	.19	0.00	94.79	100.00
12232.000	1750.00	778.50	.97	.20	0.00	183.53	100.00
12281.000	675.00	775.04	0.00	.04	0.00	61.45	49.00
12281.000	1040.00	777.04	1.00	.03	0.00	61.17	49.00
12281.000	1265.00	777.56	.51	.02	0.00	61.92	49.00
12281.000	1750.00	778.50	.94	-.01	0.00	62.23	49.00
12282.000	675.00	775.02	0.00	-.02	0.00	54.33	1.00
12282.000	1040.00	777.01	1.00	-.02	0.00	55.15	1.00
12282.000	1265.00	777.52	.51	-.03	0.00	57.19	1.00
12282.000	1750.00	778.45	.93	-.04	0.00	57.66	1.00
12293.000	675.00	775.05	0.00	.02	0.00	5.37	11.00
12293.000	1040.00	777.03	1.00	.02	0.00	55.50	11.00
12293.000	1265.00	777.55	.51	.02	0.00	57.17	11.00
12293.000	1750.00	778.48	.93	.01	0.00	57.52	11.00

FORM 141, COPYRIGHTED BY ROTARY MANIFOLD FORMS

SECMD	D	CASEL	DIFLSP	DIFUSX	DIFKLS	TOPLIP	XLCG
12296.000	675.00	776.11	0.00	.07	0.00	61.46	1.00
12294.000	1040.00	777.13	1.02	.09	0.00	61.50	1.00
12294.000	1265.00	777.65	.52	.11	0.00	61.65	1.00
12294.000	1750.00	778.62	.96	.15	0.00	62.27	1.00
12340.000	675.00	776.23	0.00	.12	0.00	62.29	4.00
12340.000	1040.00	777.26	1.04	.16	0.00	65.00	4.00
12340.000	1265.00	777.80	.56	.15	0.00	65.00	4.00
12340.000	1750.00	778.79	.99	.16	0.00	67.00	4.00
12386.000	675.00	776.13	0.00	-.05	0.00	60.74	4.00
12386.000	1040.00	777.19	1.00	-.04	0.00	61.22	4.00
12386.000	1265.00	777.69	.51	-.11	0.00	62.24	4.00
12386.000	1750.00	778.63	.94	-.16	0.00	63.61	4.00
12387.000	675.00	776.16	0.00	-.01	0.00	59.77	1.00
12387.000	1040.00	777.15	.99	-.12	0.00	59.75	1.00
12387.000	1265.00	777.66	.51	-.11	0.00	61.26	1.00
12387.000	1750.00	778.59	.93	-.06	0.00	62.16	1.00
12400.000	675.00	776.10	0.00	.03	0.00	59.79	13.00
12400.000	1040.00	777.20	1.10	.05	0.00	59.77	13.00
12400.000	1265.00	777.71	.61	.05	0.00	60.31	13.00
12400.000	1750.00	778.67	.96	.07	0.00	62.61	13.00
12401.000	675.00	776.25	0.00	.06	0.00	60.85	1.00
12401.000	1040.00	777.28	1.03	.08	0.00	61.41	1.00
12401.000	1265.00	777.82	.53	.11	0.00	62.62	1.00
12401.000	1750.00	779.11	1.29	.15	0.00	65.99	1.00
12450.000	675.00	776.56	0.00	.31	0.00	61.49	4.00
12450.000	1040.00	777.75	1.18	.40	0.00	60.24	45.00
12450.000	1265.00	778.37	.62	.55	0.00	105.63	45.00
12450.000	1750.00	779.57	1.20	.75	0.00	111.15	45.00
12493.000	675.00	776.90	0.00	.46	0.00	58.43	443.00
12493.000	1040.00	778.06	1.15	.31	0.00	134.03	443.00
12493.000	1265.00	778.16	.61	.29	0.00	146.05	443.00
12493.000	1750.00	779.82	1.66	.25	0.00	253.62	443.00
13565.000	675.00	777.70	0.00	1.00	0.00	50.25	692.00
13565.000	1040.00	778.56	.85	1.00	0.00	100.38	692.00
13565.000	1265.00	779.99	.63	1.35	0.00	139.69	692.00
13565.000	1750.00	780.83	.84	1.01	0.00	150.98	692.00
14123.000	675.00	779.97	0.00	1.25	0.00	62.55	5.00
14123.000	1040.00	780.90	.91	1.04	0.00	51.05	533.00
14123.000	1265.00	781.33	.44	1.31	0.00	55.16	533.00
14123.000	1750.00	782.11	.73	1.25	0.00	62.65	533.00
14128.000	675.00	779.90	0.00	-.09	0.00	65.29	5.00
14128.000	1040.00	781.49	1.59	.59	0.00	54.65	5.00
14128.000	1265.00	782.36	.82	1.03	0.00	55.00	5.00
14128.000	1750.00	783.66	1.11	1.35	0.00	62.65	5.00

SECNO	S	CWSEL	DIFWSP	DIFWSN	DIFKWS	TOPWID	WLCS
14278.000	675.00	730.63	0.00	.73	0.00	50.59	150.00
14278.000	1040.00	781.90	1.35	.50	0.00	52.81	150.00
14278.000	1265.00	782.79	.80	.42	0.00	50.35	150.00
14278.000	1750.00	783.96	1.15	.48	0.00	75.07	150.00
14903.000	675.00	783.39	0.00	1.75	0.00	34.54	525.00
14903.000	1040.00	785.58	1.19	1.60	0.00	33.05	525.00
14903.000	1265.00	784.25	.67	1.47	0.00	39.42	525.00
14903.000	1750.00	785.38	1.13	1.44	0.00	41.77	525.00
15528.000	675.00	783.60	0.00	1.21	0.00	132.55	525.00
15528.000	1040.00	784.84	1.25	1.35	0.00	160.06	525.00
15528.000	1265.00	785.65	.72	1.40	0.00	161.33	525.00
15528.000	1750.00	786.96	1.30	1.59	0.00	163.57	525.00
15865.000	675.00	784.09	0.00	.40	0.00	35.20	337.00
15865.000	1040.00	785.35	1.26	.41	0.00	153.72	337.00
15865.000	1265.00	786.01	.70	.34	0.00	154.17	337.00
15865.000	1750.00	787.26	1.25	.30	0.00	162.03	337.00
16201.000	675.00	784.84	0.00	.75	0.00	33.92	336.00
16201.000	1040.00	786.10	1.26	.75	0.00	152.71	336.00
16201.000	1265.00	786.99	.90	.69	0.00	153.[illegible]	336.00
16201.000	1750.00	787.81	1.12	.55	0.00	155.01	336.00
16538.000	675.00	785.52	0.00	.98	0.00	33.31	397.00
16538.000	1040.00	787.10	1.23	1.01	0.10	51.[illegible]	397.00
16538.000	1265.00	787.72	.52	1.02	0.00	53.97	397.00
16538.000	1750.00	788.81	1.09	1.07	0.00	53.55	397.00
16874.000	675.00	786.25	0.00	1.13	0.00	122.75	336.00
16874.000	1040.00	788.23	1.33	1.11	0.00	234.27	336.00
16874.000	1265.00	788.94	.55	1.22	0.00	288.59	336.00
16874.000	1750.00	790.09	1.15	1.23	0.00	290.20	336.00
17433.000	675.00	788.56	0.01	1.24	0.00	161.00	559.00
17433.000	1040.00	789.14	.43	.35	0.00	161.00	559.00
17433.000	1265.00	789.52	.38	.59	0.00	161.00	559.00
17433.000	1750.00	790.43	.96	.36	0.00	161.00	559.00
17533.000	675.00	784.89	1.00	.23	0.00	91.00	100.00
17533.000	850.00	786.42	.51	.28	0.00	91.00	100.00
17533.000	1160.00	786.78	.35	.20	0.00	91.00	100.00
17533.000	1515.00	790.59	.81	.17	0.00	91.00	100.00
17583.000	515.00	788.21	1.00	.00	0.00	51.33	50.00
17583.000	950.00	789.31	.70	.45	0.00	50.09	50.00
17583.000	1100.00	791.32	.40	.54	0.00	50.00	50.00
17583.000	1515.00	791.13	.32	.54	0.00	79.85	50.00
17593.000	515.00	789.23	0.00	.01	0.00	51.80	10.00
17593.000	950.00	789.42	1.20	.51	0.00	50.00	10.00
17593.000	1100.00	791.13	.71	.32	0.00	50.01	10.00
17593.000	1515.00	791.90	.20	.35	0.00	50.00	10.00

SECND	D	CMSSL	DIFASF	DIFMSX	DIFRUS	TOFMID	XLCM
11012.000	615.00	789.80	0.00	.55	0.00	25.20	515.00
13012.000	950.00	791.05	1.19	.63	0.00	353.56	415.00
14012.000	1160.00	791.71	.65	.57	0.00	472.59	419.00
15012.000	1615.00	792.51	.84	.64	0.00	475.95	419.00
11196.000	615.00	790.28	0.00	.52	0.00	285.20	115.00
16196.000	950.00	791.49	.71	.44	0.00	424.16	134.00
18196.000	1160.00	791.92	.44	.23	0.00	423.69	131.00
18196.000	1615.00	792.69	.76	.15	0.00	426.75	185.00
18256.000	615.00	790.96	0.00	.14	0.00	314.94	62.00
18256.000	950.00	791.56	.61	.12	0.00	418.61	82.00
18256.000	1160.00	792.11	.60	.08	0.00	412.02	82.00
18258.000	1615.00	792.74	.72	.05	0.00	414.92	82.00
18320.000	615.00	791.36	0.00	.10	0.00	314.27	62.00
18320.000	950.00	791.89	.61	.03	0.00	345.34	82.00
18320.000	1160.00	792.07	.22	.02	0.00	345.45	82.00
18320.000	1615.00	792.73	.72	.05	0.00	349.73	82.00
18381.000	615.00	791.14	0.00	.05	0.00	321.26	61.00
18381.000	950.00	791.74	.63	.05	0.00	345.53	81.00
18381.000	1160.00	792.11	.42	.04	0.00	345.05	81.00
18381.000	1615.00	792.71	.72	.02	0.00	346.12	81.00
18565.000	615.00	791.46	0.00	.34	0.00	272.24	186.00
18565.000	950.00	792.10	.69	.27	0.00	302.19	134.00
18565.000	1160.00	792.69	.65	.23	0.00	303.51	187.00
18565.000	1615.00	793.43	.83	.12	0.00	304.33	186.00
18750.000	615.00	791.75	0.00	.28	0.00	191.06	185.00
18750.000	950.00	792.42	.69	.21	0.00	222.15	135.00
18750.000	1160.00	792.77	.45	.32	0.00	224.05	185.00
18750.000	1615.00	793.45	.83	.32	0.00	224.79	185.00
19120.000	615.00	792.30	0.00	.57	0.00	164.01	70.00
19120.000	950.00	793.06	.74	.55	0.00	191.93	70.00
19120.000	1160.00	793.63	.53	.26	0.00	193.51	371.00
19120.000	1615.00	794.16	.72	.55	0.00	195.37	370.00
19270.000	615.00	792.51	0.00	.21	0.00	85.90	150.00
19270.000	950.00	793.27	.75	.22	0.00	56.30	150.00
19270.000	1160.00	793.65	.39	.22	0.00	56.00	150.00
19270.000	1615.00	794.36	.71	.22	0.00	55.00	150.00
19320.000	615.00	792.68	0.00	.17	0.00	60.90	50.00
19320.000	950.00	793.39	.71	.12	0.00	60.90	50.00
19320.000	1160.00	793.76	.38	.11	0.00	60.90	50.00
19320.000	1615.00	794.48	.72	.12	0.00	48.51	50.00
19335.000	615.00	792.71	0.00	.03	0.00	40.30	15.00
19335.000	950.00	793.43	.72	.03	0.00	40.90	15.00
19335.000	1160.00	793.82	.39	.03	0.00	34.70	15.00
19335.000	1615.00	795.15	1.33	.07	0.00	40.50	15.00

	SECNO	Q	CWSEL	DIFLSF	DIFWSX	DIFRLS	TOPWID	ELC-
*	19385.000	615.00	792.57	0.00	-.14	0.00	51.06	50.00
*	19385.000	950.00	793.43	.86	-.00	0.00	104.72	50.00
	19385.000	1160.00	793.92	.49	.10	0.00	109.82	50.00
	19385.000	1615.00	795.58	1.66	.43	0.00	120.24	50.00
	19442.000	615.00	793.85	1.10	1.28	0.00	105.53	57.00
	19442.000	950.00	794.51	.66	1.08	0.00	115.71	57.00
	19442.000	1160.00	794.75	.24	.83	0.00	118.14	57.00
	19442.000	1615.00	795.81	1.05	.25	0.00	128.57	57.00
	19499.000	615.00	793.58	0.00	.13	0.00	92.40	57.00
	19499.000	950.00	794.65	.67	.14	0.00	92.00	57.00
	19499.000	1160.00	794.91	.27	.16	0.00	92.00	57.00
	19499.000	1615.00	795.90	.99	.19	0.00	92.00	57.00
	19603.000	615.00	794.21	0.00	.23	0.00	50.00	104.00
	19603.000	950.00	794.87	.65	.23	0.00	21.10	104.10
	19603.000	1160.00	795.15	.28	.23	0.00	21.10	104.10
	19603.000	1615.00	796.00	.85	.09	0.00	21.00	104.00
	19617.000	615.00	794.19	0.00	-.02	0.00	33.00	16.00
	19617.000	950.00	794.82	.63	-.05	0.00	33.00	16.00
	19617.000	1160.00	795.18	.25	-.07	0.00	33.00	16.00
	19617.000	1615.00	796.87	.81	-.12	0.00	33.00	16.00
	19635.000	615.00	794.22	0.00	.03	0.00	24.00	16.00
	19635.000	950.00	794.81	.59	-.02	0.00	24.00	16.00
	19635.000	1160.00	795.03	.21	-.05	0.00	24.00	16.00
	19635.000	1615.00	795.67	.65	-.21	0.00	24.00	16.00
	19636.000	615.00	794.22	0.00	.00	0.00	24.00	1.00
	19636.000	950.00	794.81	.59	.01	0.00	24.00	1.00
	19636.000	1160.00	795.03	.22	.01	0.00	24.00	1.00
	19636.000	1615.00	795.63	.61	.01	0.00	24.00	1.00
	19662.000	615.00	794.29	1.10	.11	0.00	24.00	33.00
	19669.000	950.00	794.98	.69	.15	0.00	24.00	33.00
	19669.000	1160.00	795.35	.37	.22	0.00	24.00	33.00
	19669.000	1615.00	796.48	1.13	.80	0.00	24.00	33.00
	19670.000	615.00	794.29	0.00	.00	0.00	24.00	1.00
	19670.000	950.00	794.98	.69	.01	0.00	24.00	1.00
	19670.000	1160.00	795.35	.37	.00	0.00	24.00	1.00
	19670.000	1615.00	796.50	1.14	.01	0.00	24.00	1.00

SUMMARY OF ERRORS

CAUTION SECNO= 538.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 538.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 538.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 538.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 538.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 538.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 538.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 538.000 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 538.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 538.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 538.000 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 538.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 595.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 595.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 595.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE USEL
CAUTION SECNO= 595.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 595.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 595.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE USEL
CAUTION SECNO= 595.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE USEL
CAUTION SECNO= 595.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE USEL

CAUTION SECNO= 3749.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3749.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 3972.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3972.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 3972.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE USEL
CAUTION SECNO= 3972.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3972.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 4173.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4173.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 4189.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4189.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4189.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4189.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4189.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4189.000 PROFILE= 3 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 4205.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4205.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4205.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4205.000 PROFILE= 3 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 5194.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5194.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 5194.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5194.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 5256.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5257.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 5256.000 PROFILE= 6 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5256.000 PROFILE= 6 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 5269.000 PROFILE= 6 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5269.000 PROFILE= 6 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 5269.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE USEL

CAUTION SECNO= 6385.000 PROFILE= 1 USEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 6385.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE USEL

CAUTION SECNO= 6585.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 6565.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 6585.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE USEL
CAUTION SECNO= 6585.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 6565.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 6591.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 6591.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 6591.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE USEL

CAUTION SECNO= 7378.000 PROFILE= 6 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7378.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 7384.000 PROFILE= 6 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7384.000 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7384.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE USEL

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 CAUTION  SECNO=19385.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=19385.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=19385.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=19385.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: CLINTON RIVER

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

CLINTON RIVER

Avon Township, Michigan

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JAN 02 1979
WATER MANAGEMENT

Hydraulic Analysis

SECNO Chart

References

Bridge Sketches and Calculations

JOHNSON & ANDERSON, INC.
2300 DIXIE HIGHWAY
PONTIAC, MICHIGAN 48056

5850-01, -07

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HYDRAULIC ANALYSIS

A. Introduction

The Clinton River in the City of Rochester and Avon Township is the subject of this report. The study begins at the Avon/Shelby Township line and continues upstream for approximately 11.1 river miles to the western corporate limits at the Avon/Pontiac Township boundary. Flood Insurance Studies have been completed for the Clinton River both upstream and downstream of the study area, in Pontiac Township and Shelby Township, respectively. The drainage area of the Clinton River at the Avon/Shelby Township line (the downstream end of the study area) is approximately 299 square miles. The major floods on the Clinton River occur during the spring months. The project manager for this study is John Emig.

B. Hydrology

The hydrographs at the upstream end of the study area were obtained from the Pontiac Township Flood Insurance Study done by Johnson & Anderson, Inc. in 1977. The hydrographs for the Clinton River at each sub-reach through Avon Township and the City of Rochester were basically determined by Brater's method; these hydrographs were then routed by the S.C.S. method. In 1977, Johnson & Anderson also finished the Flood Insurance Study for Shelby Township which is downstream of this study. The 100-year flood flow developed through Avon Township at the Avon Township/Shelby Township line is about 2000 cfs less than the upstream flows developed in the Shelby Township study. This 2000 cfs difference is mainly caused by the availability of more detailed information in the reach between Pontiac Township and Shelby Township, particularly in the Paint Creek and Stony Creek basins. With the more detailed information made available by the Avon Township Study, less flow was found downstream of the confluences

of both Paint and Stony Creeks than had been developed in the earlier Pontiac Township/Shelby Township studies. In order to match the flows and water surface profiles at the corporate boundary between Avon Township and Shelby Township, 1000 cfs was recovered between the downstream end of the Avon Township study and Stony Creek, and another 1000 cfs between Stony Creek and Paint Creek by gradually reducing the flows through these two reaches. This technique was reviewed with and approved by the Federal Insurance Administration.

C. Method of Analysis

The flood profiles were calculated by the HEC-2 computer program developed by the U.S. Army Corps of Engineers. All of the bridges on the Clinton River except for the Adams Road bridge have been modelled for the requirements of the special bridge routine. The Adams Road bridge has been modelled for the requirements of the normal bridge routine. Due to the high submergence of the Yates Mill Dam near the downstream end of the study area, this dam has been modelled as a natural valley section. A diversion channel connecting the Yates Cider Mill with the Clinton River (just upstream of the dam) was not considered in the hydraulic analysis; during periods of flooding on the Clinton River, the intake structure for the mill is closed.

D. Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the descriptions in Open-Channel Hydraulics (Reference 1) and Roughness Characteristics of Natural Channels (Reference 2) with photographs and field descriptions taken by survey crews during the period of October 1977 through April 1978, and field reconnaissance trips taken during the spring and summer months of 1978. Aerial photographs of Avon Township and the City of Rochester taken during

April 1977 were also used to determine the roughness coefficients and their extent. These roughness factors were determined assuming that flooding would occur during the spring months. The Manning's "n" for the channel ranges from .035 in areas of riverside parks to .050 in areas where the river cuts through dense woods and brush. The channel bottom consists mainly of hard gravel with some areas of cobbles and boulders. The Manning's "n" for the overbanks ranges from .030 in areas of short grass to .120 in areas of dense woods and brush. The expansion and contraction coefficients chosen for this study were 0.5 and 0.3, respectively.

Weir flow discharge coefficients (COFQ) were chosen from charts published in Hydraulics of Bridge Waterways (Reference 3). The calculations for "XKOR" values used in the special bridge routines are shown on special forms in the back of this booklet.

E. Starting Point

The starting water surface elevations for the 10-, 50-, 100- and 500-year floods were taken from a recently completed Flood Insurance Study of Shelby Township. Section 31.557 from the Shelby Township study, located near the Avon Township/Shelby Township boundary, was chosen as the initial cross section for the Avon Township Flood Insurance Study. The corresponding elevations obtained from the HEC-2 backwater curves for the 10-, 50-, 100- and 500-year floods at Section 31.577 were used as starting water surface elevations for the Avon Township study.

F. Encroachments

In most cases, the encroachments for the 100-year natural floodway were based on a 1:1 convergence into and a 1:4 divergence from bridges or other constrictions. In some reaches of the stream, this method was not feasible due to the severe meandering of the stream. In these

cases, the 100-year natural floodway was based on the sweep and extent of moving floodwaters. Aerial photographs were utilized extensively in the location of encroachments for the hydraulic model of the Clinton River.

Several bridges on the Clinton River were encroached due to the presence of high ground either upstream or downstream of the birdge. They include the bridges at Avon Road (Section C), the Penn-Central Railroad (Section N), Diversion Street (Section W), Livernois Road (AH), Crooks Road (AP), and Hamlin Road (Section AR).

Most of the encroachments were modelled utilizing the X3 card; however, in the area just downstream of the Avon Road bridge (Section AG), encroachments were modelled with an ET card. The ET card was used to allow for a reasonable weir flow model at Avon Road for the 500-year flood.

In most portions of the stream, the Penn-Central and Grand Trunk Western Railroad embankments serve as a natural 100-year floodway encroachment; in the area between Section S and U, the natural 100-year floodway was encroached for the lines of buildings near the banks. For the 100-year encroached floodway, some areas of shallow flow were encroached, including the abandoned canal upstream of the Yates Mill Dam. The canal runs parallel to the abandoned Penn-Central Railroad line, and has been included in the 100-year natural floodway of the Clinton River when it is located on the riverward side of the railroad. The encroachments for the 100-year encroached floodway profile resulted in a rise of less than 0.1 foot in water surface elevation compared to the 100-year natural floodway profile.

G. Past Flooding and High Water Data

The flood of April 6, 1947 is the worst flood known to have occurred in the Clinton River basin near Pontiac and Rochester. However, due

to the lack of data concerning the severity of the flood, the more recent flood of June 25, 1968 is considered to be the modern day flood of record for the area. This flood is the second largest known flood to have occurred on the Clinton River in the study area. High water marks have been published in the report Flood Plain Information, Clinton River and Paint Creek (Reference 4).

High water marks from the June 1968 flood were not used for calibrating Manning's "n" values in the Clinton River due mainly to the uncertainty in extending flows downstream from the Auburn Heights gage, especially with Galloway Creek, Paint Creek and Stony Creek (all major tributaries) contributing flow to the Clinton River in the study area. Also changes in river alignment since 1968 (as explained in the "Special Problems" section of this report) would make calibration very difficult.

The high water marks, however, were plotted at their appropriate locations on the "flood profiles", and compared with the results obtained in the HEC-2 analysis. If the elevations of the high water marks are assigned discharge values comparable to those estimated in the Corps of Engineers' Flood Plain Information report (Reference 4), the high water marks appear to plot somewhat higher than the HEC-2 analysis would indicate. This is most likely due to a combination of factors. In the HEC-2 analysis, Manning's "n" values were chosen based on floods occurring in the early spring, while the flood of 1968 was a summertime event. The isohyetal pattern of this storm also indicates that the Galloway Creek basin received some of the heavier precipitation, and therefore probably contributed a proportionally larger share of the runoff relative to its area to the Clinton River. The HEC-2 analysis also includes a hydraulic model of the recently (1976) completed renovation of the Yates Mill Dam. Part of this dam was washed out in 1975 and has been rebuilt and extended in length by approximately 20 feet. Changes in channel geometry over the past 10

years due to the rapidly changing alignment pattern of the river would also have an effect on the plotting of high water marks.

H. Special Problems

Stream stationing along the Clinton River for previous Flood Insurance studies has been measured from U.S.G.S. Quad sheets of the area. However, during the analysis of the Clinton River in Avon Township and the City of Rochester, it was discovered that major discrepancies existed between the centerline of the Clinton River as shown on the most recent U.S.G.S. Quadrangle maps and recent (1977) aerial photographs taken in the area. Due to continuing changes in the meandering pattern of the Clinton River, some adjustments were necessary to the centerline alignment of the Clinton River, and these changes have been incorporated into the floodway map. These alignment changes resulted in an increase of 0.75 miles in stream length at the Avon Township/Pontiac Township boundary. This will account for the discrepancy in stream stationing noted on the comment cards and in the SECNO table of this report in areas where cross sections for the Avon Township and Pontiac Township Flood Insurance Studies overlap. However, the profiles for the Avon Township Flood Insurance Study still coincide with the previously completed Pontiac Township Flood Insurance study at the corporate boundary.

In the area between Section Q and R, a sanitary sewer covered by fill runs across the southern floodplain of the Clinton River to the sewage treatment plant. The ridge created by the fill causes a severe restriction of flow in the stream at the upstream end of the sewage treatment plant. Based on a field reconnaissance of the area, the "top of ridge" elevation is approximately 6 to 8 feet higher than the floodplain along most portions of the ridge. Since the depth of flow for the 100-year flood is only about two feet in the right (south) overbank area, the ridge would not be overtopped by the overbank flow.

The ridge is oriented in a northeast-southwest direction, thus funneling the flow into the narrow constriction (Section 34.156 in the hydraulic model).

In the hydraulic model of the Clinton River, the Rochester Road (Route 150) bridge has been coded as a valley section. This particular roadway bridge has been built on large concrete piers high above the Clinton River floodplain. No pressure or weir flow would be expected at this bridge during any frequency flood event.

Clinton River
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Cross Section	SECNO	Description
A	31.557	Field valley section from Shelby Township F.I.S.
	31.566	Section A repeated and adjusted for channel invert
B	31.725	Field valley section
	31.745	Section B repeated and adjusted for channel invert
	31.746	Avon Road bridge - downstream face. Section B repeated and adjusted for invert
C	31.752	Avon Road bridge - upstream face
	31.753	Section B repeated and adjusted for channel invert.
D	31.829	Field valley section
	31.936	Section E repeated with bridge piers removed
E	31.937, 31.940	Penn-Central Railroad bridge
	31.941	Section E repeated with bridge piers removed
	31.997	Manufactured section; channel points taken from Section G and adjusted for channel invert. Overbanks taken from Section F with mill channel on left filled to top of bank.
F	31.998, 31.999	Yates Mill dam
	32.000	Manufactured section; channel points taken from Section G and adjusted for channel invert. Overbanks taken from Section F with mill channel on left filled to top of bank.
G	32.125	Field valley section
H	32.237	Field valley section
	32.275	Section I repeated and adjusted for channel invert.
I	32.530	Field valley section
J	32.845	Field valley section

Cross Section	[illegible]	Description
K	33.137	Field valley section
	33.263	Section K repeated and adjusted for channel invert.
L	33.421	Field valley section
M	33.610	Field valley section
	33.679	Section O repeated and adjusted for channel invert. Mill race canal removed from section.
	33.680	Penn-Central Railroad bridge-downstream face; Section O repeated and adjusted for channel invert.
N	33.683	Penn-Central Railroad bridge-upstream face
	33.684	Section O repeated and adjusted for channel invert.
O	33.721	Field valley section
P	33.816	Field valley section
	33.995	Section P repeated and adjusted for channel invert.
	34.033	Section P repeated and adjusted for channel invert.
Q	34.071	Field valley section
	34.090	Section Q repeated and adjusted for channel invert.
	34.156	Section Q repeated and adjusted for channel invert.
R	34.353	Field valley section
S	34.513	Field valley section
	34.516	Section Q repeated and adjusted for channel invert.
	34.522	Section T repeated and adjusted for channel invert.

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Cross Section	SECNO	Description
T	34.645	Field valley section
	34.698	Section T repeated and adjusted for channel invert.
	34.725	Section T repeated and adjusted for channel invert.
	34.751	Section T repeated and adjusted for channel invert.
	34.804	Section T repeated and adjusted for channel invert.
	34.857	Section T repeated and adjusted for channel invert.
	34.906	Section T repeated and adjusted for channel invert.
U	34.910	Field valley section
V	35.037	Field valley section under Rochester Road/Route 150 bridge.
	35.068	Section V repeated and adjusted for channel invert.
	35.069	Downstream face of Diversion Street bridge. Section V repeated and adjusted for channel invert.
W	35.076	Diversion Street bridge-upstream face.
	35.077	Section V repeated and adjusted for channel invert.
X	35.152	Field valley section
Y	35.266	Field valley section
	35.323	Computer-interpolated section using Sections Y and Z as bases for interpolation.
	35.379	Computer-interpolated section using Sections Y and Z as bases for interpolation.
	35.436	Computer-interpolated section using Sections Y and Z as bases for interpolation.
	35.455	Section 35.436 repeated and adjusted for channel invert.

Cross Section	SECNO	Description
Z	35.493	Field valley section
	35.527	Computer-interpolated section using Sections Z and AA as bases for interpolation.
	35.561	Computer-interpolated section using Sections Z and AA as bases for interpolation.
	35.595	Computer-interpolated section using Sections Z and AA as bases for interpolation.
AA	35.629	Field valley section
AB	35.800	Field valley section
AC	35.980	Field valley section
	36.045	Section AC repeated and adjusted for channel invert.
AD	36.046, 36.048	Grand Trunk Western Railroad bridge
	36.049	Section AC repeated and adjusted for channel invert.
	36.060	Section AE repeated and adjusted for channel invert.
AE	36.257	Field valley section
	36.316	Computer-interpolated section using Sections AE and AF as bases for interpolation.
	36.376	Computer-interpolated section using Sections AE and AF as bases for interpolation.
	36.434	Computer-interpolated section using Sections AE and AF as bases for interpolation.
	36.465	Section 36.434 repeated and adjusted for channel invert.
	36.474	Section 36.434 repeated and adjusted for channel invert.
	36.484	Section 36.434 repeated and adjusted for channel invert.

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Cross Section	SECNO	Description
AF	36.494	Field valley section
	36.498	Section AF repeated and adjusted for channel invert.
	36.502	Section AF repeated and adjusted for channel invert.
	36.506	Section AF repeated and adjusted for channel invert.
	36.509	Section AF repeated and adjusted for channel invert.
	36.513	Section AF repeated and adjusted for channel invert.
	36.517	Section AF repeated and adjusted for channel invert.
	36.521	Section AF repeated and adjusted for channel invert.
	36.522	Section AF repeated and adjusted for channel invert.
	36.523	Avon Road bridge - downstream face. Section AF repeated and adjusted for channel invert.
AG	36.535	Avon Road bridge - upstream face. Portion of right overbank taken from Section 36.536.
	36.536	Section AF repeated and adjusted for channel invert.
	36.538	Section AF repeated and adjusted for channel invert.
	36.542	Section AF repeated and adjusted for channel invert.
	36.546*	Section AF repeated and adjusted for channel invert. d/s of new br 1920
	36.564	Section AI repeated and adjusted for channel invert.

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Cross Section	SECNO	Description
	36.565	Livernois Road bridge - downstream face. Section AI repeated and adjusted for channel invert.
AH	36.573	Livernois Road bridge - upstream face. Overbanks taken from Section AI and adjusted for invert.
	36.574	Section AI repeated and adjusted for channel invert.
AI	36.636	Field valley section
AJ	36.939	Field valley section
AK	37.300	Field valley section
AL	37.692	Field valley section
AM	38.174	Field valley section
	38.183	Section AM repeated and adjusted for channel invert.
	38.255	Section AN repeated and adjusted for channel invert.
	38.391	Section AM repeated and adjusted for channel invert.
AN	38.467	Field valley section
	38.520	Section AN repeated and adjusted for channel invert.
	38.566	Section AN repeated and adjusted for channel invert.
	38.660	Section AO repeated and adjusted for channel invert.
AO	38.827	Field valley section
	38.836	Section AO repeated and adjusted for channel invert.
	38.840	Section AP repeated with overbanks adjusted to eliminate ineffective flow area.
	38.841	Crooks Road bridge - downstream face. Section AP repeated with overbanks adjusted to eliminate ineffective flow area.
AP	38.848	Crooks Road bridge - upstream face. Overbanks adjusted to eliminate ineffective flow area.

Cross Section	SECNO	Description
	38.849	Section AP repeated with overbanks adjusted to eliminate ineffective flow area.
	38.906	Manufactured section. Left overbank and channel taken from Section AQ and adjusted for invert; right overbank taken from Section AO and adjusted for invert.
	38.972	Manufactured section. Left overbank and channel taken from Section AQ and adjusted for invert; right overbank taken from Section AO and adjusted for invert.
	39.040	Manufactured section. Left overbank and channel taken from Section AQ and adjusted for invert; right overbank taken from Section AO and adjusted for invert.
AQ	39.123	Field valley section
	39.153	Section AQ repeated and adjusted for channel invert.
	39.154	Downstream face of Hamlin Road bridge; Section AQ repeated and adjusted for channel invert.
AR	39.160	Upstream face of Hamlin Road bridge; channel, bridge and weir information taken from field notes of bridge section. Left overbank area taken from Section AQ.
	39.161	Section AQ repeated and adjusted for channel invert.
	39.241	Section AS repeated and adjusted for channel invert.
	39.321	Section AS repeated and adjusted for channel invert.
AS	39.403	Field valley section
AT	39.571	Field valley section
	39.641	Section AT repeated and adjusted for channel invert.
	39.711	Section AT repeated and adjusted for channel invert.

Cross Section	SECNO	Description
	39.781	Section AT repeated and adjusted for channel invert.
	39.852	Section AT repeated and adjusted for channel invert.
	39.922	Section AT repeated and adjusted for channel invert.
	39.992	Section AT repeated and adjusted for channel invert.
AU	40.062	Field valley section
AV	40.200	Field valley section
	40.349	Section AV repeated and adjusted for channel invert.
	40.463	Section AV repeated and adjusted for channel invert.
	40.501	Section AV repeated and adjusted for channel invert.
	40.510	Section AV repeated and adjusted for channel invert.
	40.512	Section AX repeated and adjusted for channel invert.
AW	40.513, 40.519	Adams Road bridge
	40.520	Section AX repeated and adjusted for channel invert.
	40.521	Section AX repeated and adjusted for channel invert.
	40.531	Section AX repeated and adjusted for channel invert.
	40.568	Section AX repeated and adjusted for channel invert.
	40.644	Section AX repeated and adjusted for channel invert.
AX	40.727	Field valley section

Cross Section	SECNO	Description
	40.841	Section AX repeated and adjusted for channel invert.
	40.888	Section AX repeated and adjusted for channel invert.
AY	40.968	Field valley section
AZ	41.093	Field valley section
	41.405	Manufactured section. Channel taken from Section BA and adjusted for invert; overbanks taken from U.S.G.S. topographic map (10-ft. contours).
BA	41.460	Field valley section 40.763 from Pontiac Township F.I.S.
BB	41.710	Field valley section 41.019 from Pontiac Township F.I.S.
BC	41.866	Field valley section 41.161 from Pontiac Township F.I.S.
	41.918	Computer-interpolated section using Sections BC and BD as bases for interpolation.
	41.971	Computer-interpolated section using Sections BC and BD as bases for interpolation.
	42.023	Computer-interpolated section using Sections BC and BD as bases for interpolation.
BD	42.076	Field valley section 41.336 from Pontiac Township F.I.S.
	42.086	Section BD repeated and adjusted for channel invert.
	42.096	Section BD repeated and adjusted for channel invert.
	42.106	Computer-interpolated section using Sections BD and BE as bases for interpolation.
	42.135	Computer-interpolated section using Sections BD and BE as bases for interpolation.
	42.165	Computer-interpolated section using Sections BD and BE as bases for interpolation.

Cross Section	SECNO	Description
BE	42.195	Field valley section 41.459 from Pontiac Township F.I.S.
	42.244	Computer-interpolated section using Sections BE and BF as bases for interpolation.
	42.294	Computer-interpolated section using Sections BE and BF as bases for interpolation.
	42.343	Computer-interpolated section using Sections BE and BF as bases for interpolation.
BF	42.392	Field valley section 41.630 from Pontiac Township F.I.S.
	42.451	Computer-interpolated section using Sections BF and BG as bases for interpolation.
	42.496	Manufactured section using 2-foot contour maps.
	42.510	Computer-interpolated section using Sections BF and BG as bases for interpolation.
	42.570	Computer-interpolated section using Sections BF and BG as bases for interpolation.
BG	42.629	Field valley section 41.879 from Pontiac Township F.I.S.

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1. Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill, 1959.

2. Barnes, Harry H., Jr., Roughness Characteristics of Natural Channels, Geological Survey Water-Supply Paper, 1849, 1967.

3. U. S. Department of Transportation, Federal Highway Administration, Hydraulics of Bridge Waterways, Hydraulic Design Series, No. 1, 1973.

4. U. S. Army Corps of Engineers, Detroit District; Flood Plain Information - Clinton River and Paint Creek, Oakland County, Michigan, April 1973.

Abrams Aerial Survey, Inc., Lansing, Michigan, Aerial Photography of Avon Township and the City of Rochester, Michigan; Date of Photography-April 1977; Scale of Map: 1" = 1000'.

U. S. Army Corps of Engineers, Hydrologic Engineering Center, Application of the HEC-2 Bridge Routines, Training Document No. 6, June 1974.

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U. S. Department of Interior, Measurement of Peak Discharge at Dams by Indirect Methods, Techniques of Water Resources Investigations of the United States Geological Survey, Book 3, Chapter A5, 1976.

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C-2

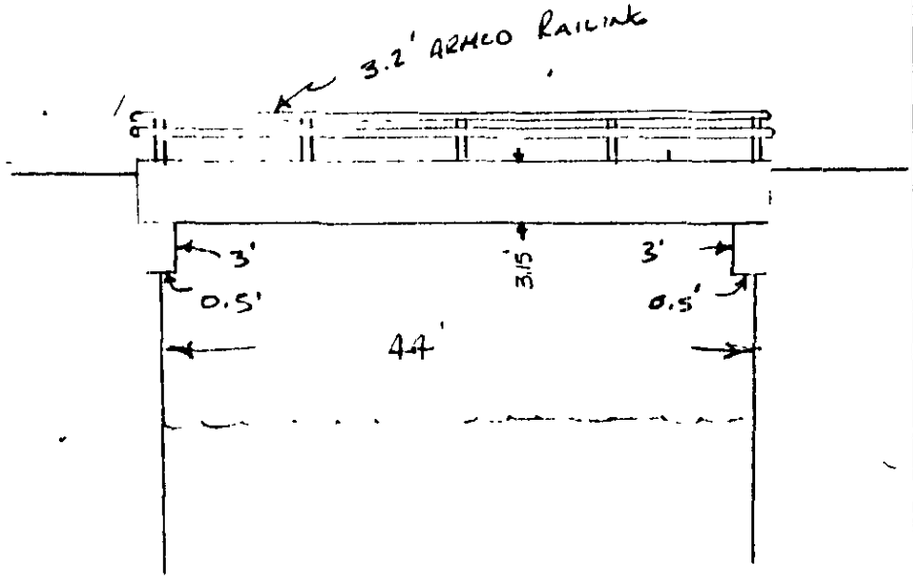
HYDRAULIC STRUCTURAL DATA

Code No. 5253-01

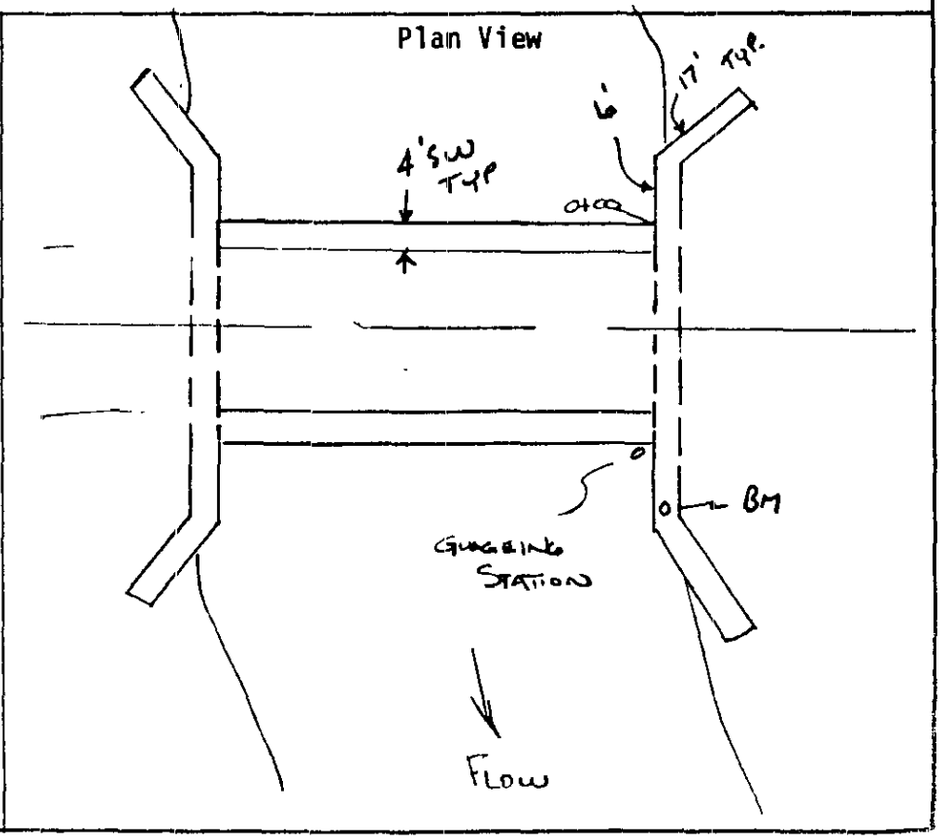
Job Name: AVON F.I.S.			By: McINNES
Date: 11-2-77	Feature: AVON RD & DEQUINDRE ROAD BRIDGE "C"		Water Course: CLINTON RIVER
Remarks: CONC BOX BEAM BRIDGE W/ SHEET PILING BACKWALLS			
CLEAR CHANNEL HARD GRAVEL BOTTOM			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 667.9	Length: 44'	Width of Deck: 36	Skew: 0°

FIELD SKETCH

Profile View



Plan View



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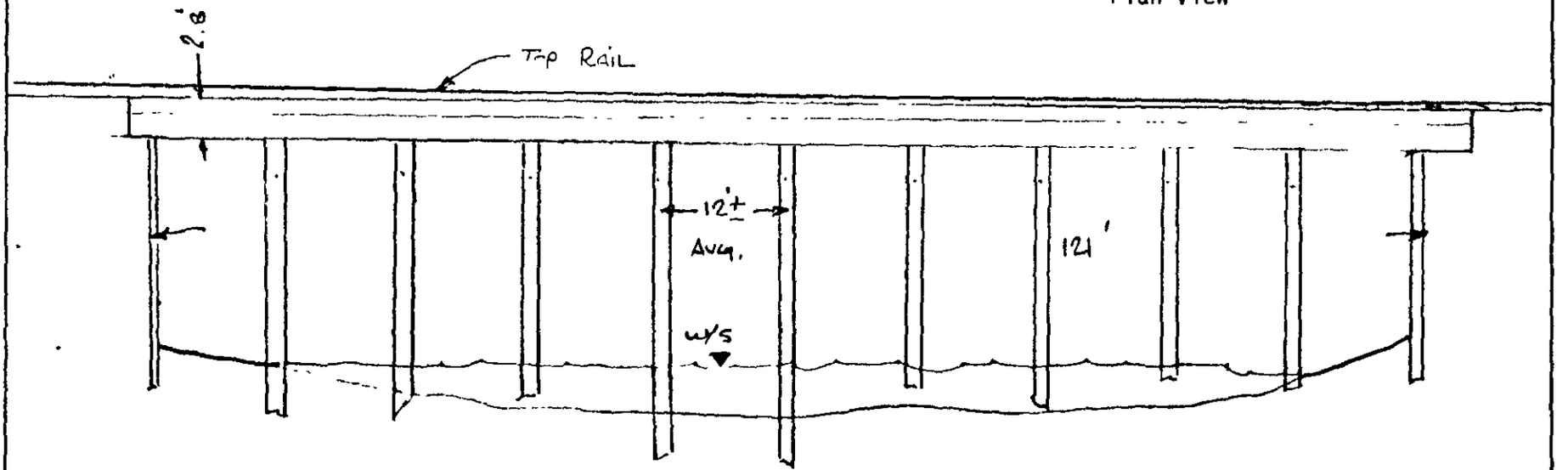
HYDRAULIC STRUCTURAL DATA

Code No. 5850-01

Job Name: Hiram Twp F.I.S.			By: M. Jones
Date: 11-3-77	Feature: Hart's Pile Trestle "E"		Water Course: Clinton River
Remarks: Wood Bent Pile Trestle. W/wood Deck & Abutments. Hard Gravel Bottom w/ wood Debris on Upstream Bents.			
Width of Piers: 12" ϕ	Pier Shape: 12" ϕ Wood	No. of Piers: 9	Area:
Water Elevation: 671.0	Length: 121'	Width of Deck: 14.5'	Skew: 0°

FIELD SKETCH

Profile View



Plan View

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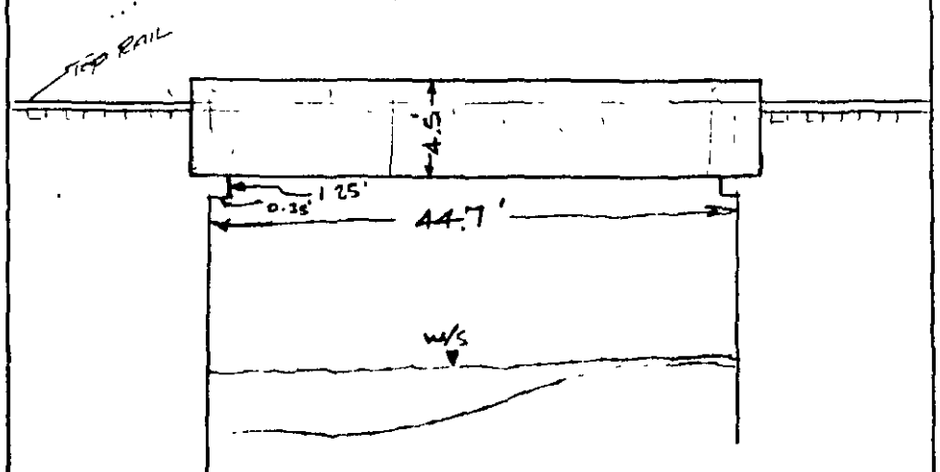
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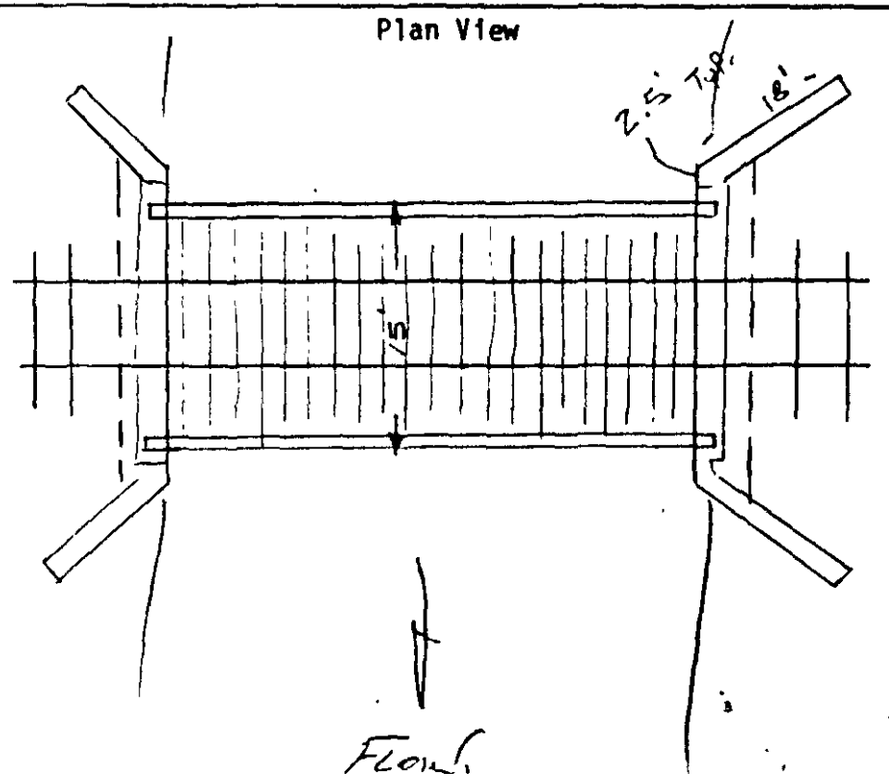
Job Name: AVON TWP F.I.S.			By: MC INNES
Date: 11-4-77	Feature: PENN CENTRAL RR "N"		Water Course: CLINTON RIVER
Remarks: STEEL GIRDER BRIDGE W/WOOD DECK, CONC ABUTMENTS & WINGWALLS			
HARD GRAVEL BOTTOM, CLEAR CHANNEL NO DEBIS			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 692.8	Length: 44.7'	Width of Deck: 15'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



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D.D. 2-21

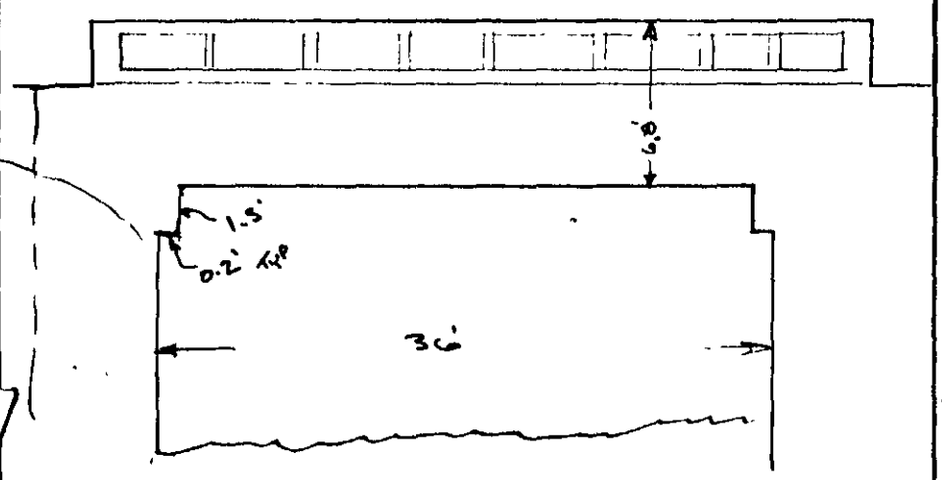
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Code No. 5850-01

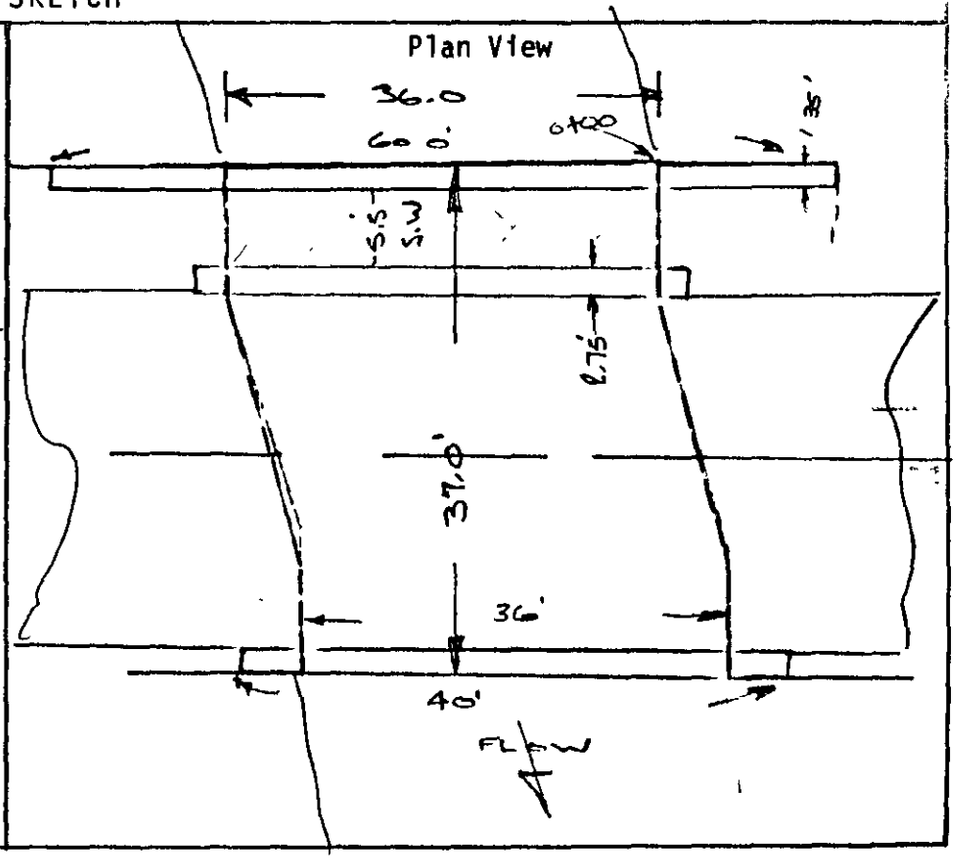
Job Name: Rochester F.I.S "W"			By: McInnes
Date: 11-2-77	Feature: Diversion St Bridge		Water Course: Clinton River
Remarks: Conc Bridge			
Clear Channel, No Debris			
Sandy Hard Bottom			
Width of Piers: —	Pier Shape: 0	No. of Piers: 0	Area: 0
Water Elevation: 719.5	Length: 36.0'	Width of Deck: 37'	Skew: 6°

FIELD SKETCH

Profile View



Plan View



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D-2. C-20

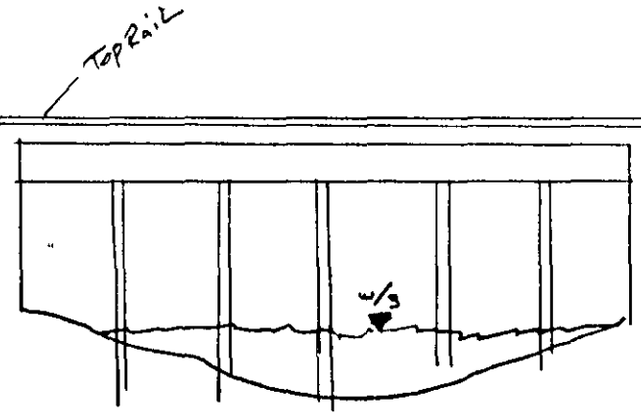
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Code No. 5850-01

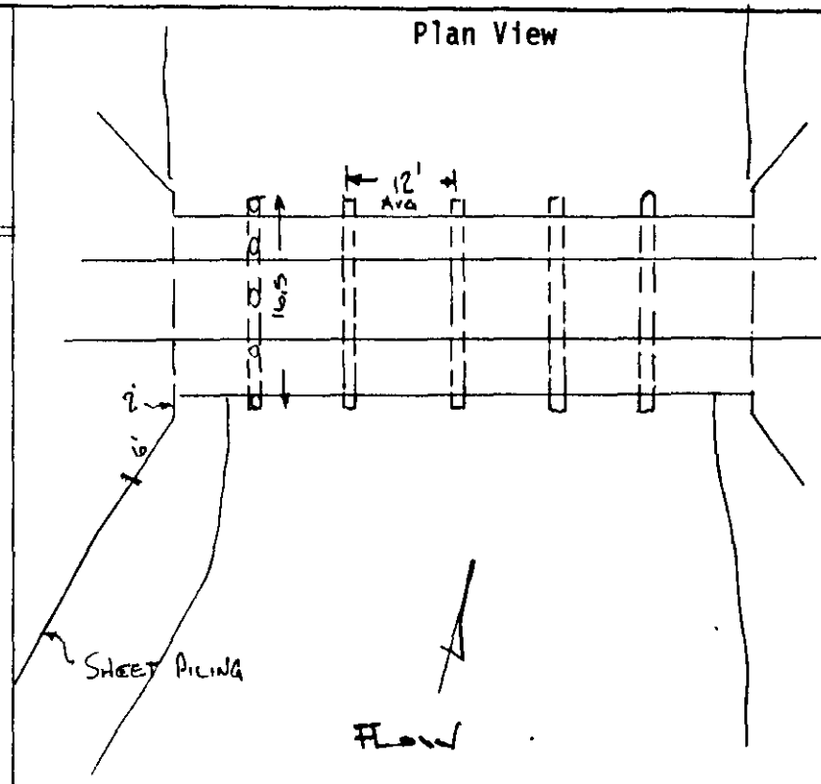
Job Name: AVON TWP F.I.S.			By: MC INNES
Date: 11-4-77	Feature: G.T.W. R.R. BRIDGE "AD" 1500'± NLY AVON RD		Water Course: CLINTON RIVER
Remarks: WOOD BENT PILE BRIDGE W/WOOD DECK & BALLAST DECK & WOOD ABUTMENT, HARD GRAVEL BOTTOM, WITH WOOD DEBRIS UPSTREAM FACE			
Width of Piers: 1' AVG	Pier Shape: 12" ϕ TIMBERS	No. of Piers: 5	Area:
Water Elevation: 736.9	Length: 69'	Width of Deck: 14	Skew: 0°

FIELD SKETCH

Profile View



Plan View



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U. S. L-51

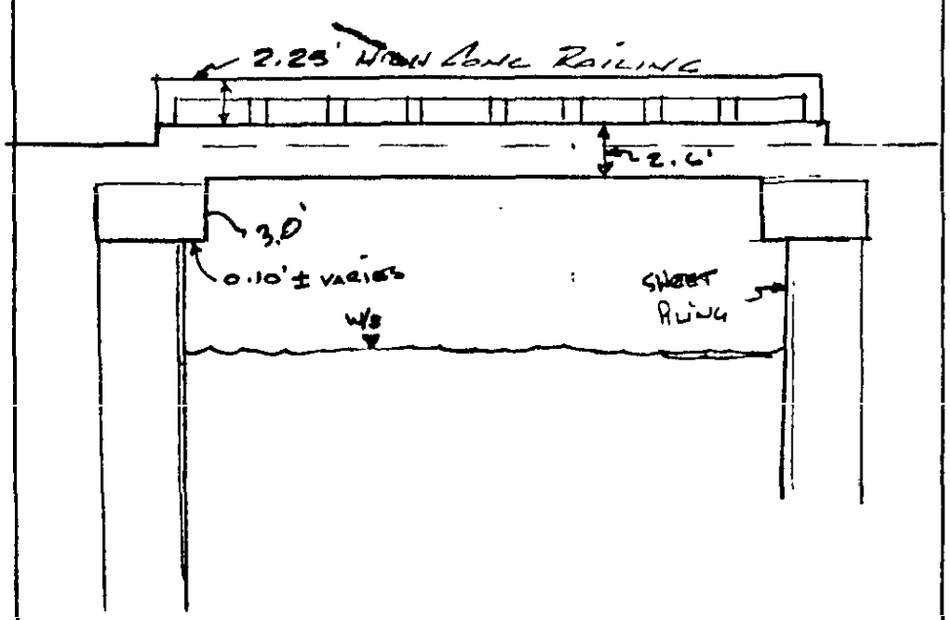
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Code No. SB50-91

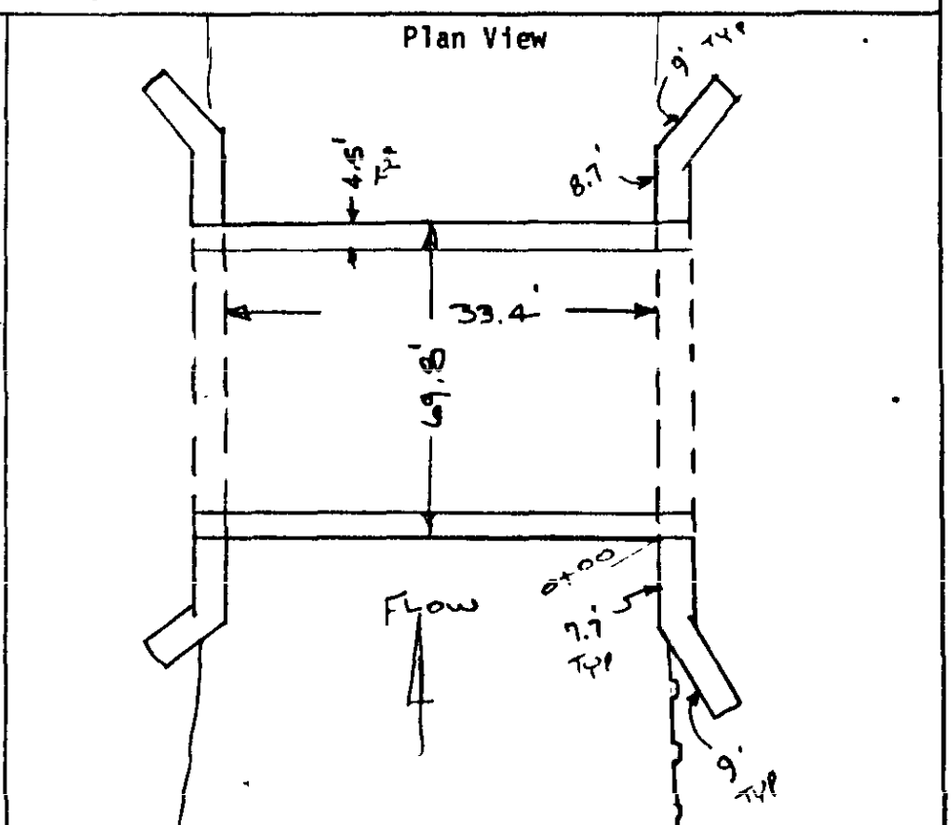
Job Name: AVON TWP ROCHESTER F. I. S.			By: MCINNES
Date:	Feature: AVON RD BRIDGE "AG"		Water Course: CLINTON RIVER
Remarks: CONC BOX BEAM BRIDGE, WITH SHEET PILING BACK WALLS CONC RAILINGS. CLEAR CHANNEL, NO DEBRIS HARD GRAVEL & SAND BOTTOM			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 744.7	Length: 33.4'	Width of Deck: 69.8'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



(25)

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S.S. C-32

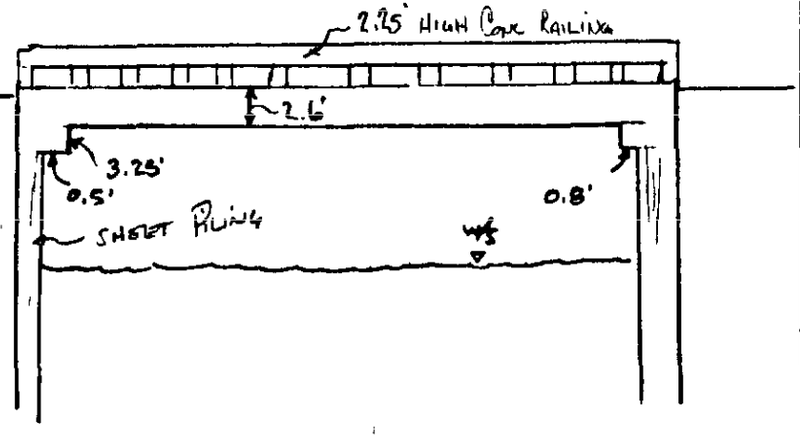
HYDRAULIC STRUCTURAL DATA

Code No. SR50-01

Job Name: AVON TWP. ROCHESTER F.I.S.			By: MC INNES
Date: 10-28-77	Feature: LIVERNOIS RD BRIDGE "AH"		Water Course: CLINTON RIVER
Remarks: CONC T-BEAM BRIDGE, CONC RAILINGS, SHEET PILING BACKWALLS			
CLEAR CHANNEL NO DEBRIS. HARD SANDY & GRAVEL BOTTOM.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation:	Length: 39.5	Width of Deck: 40.4'	Skew: 30°

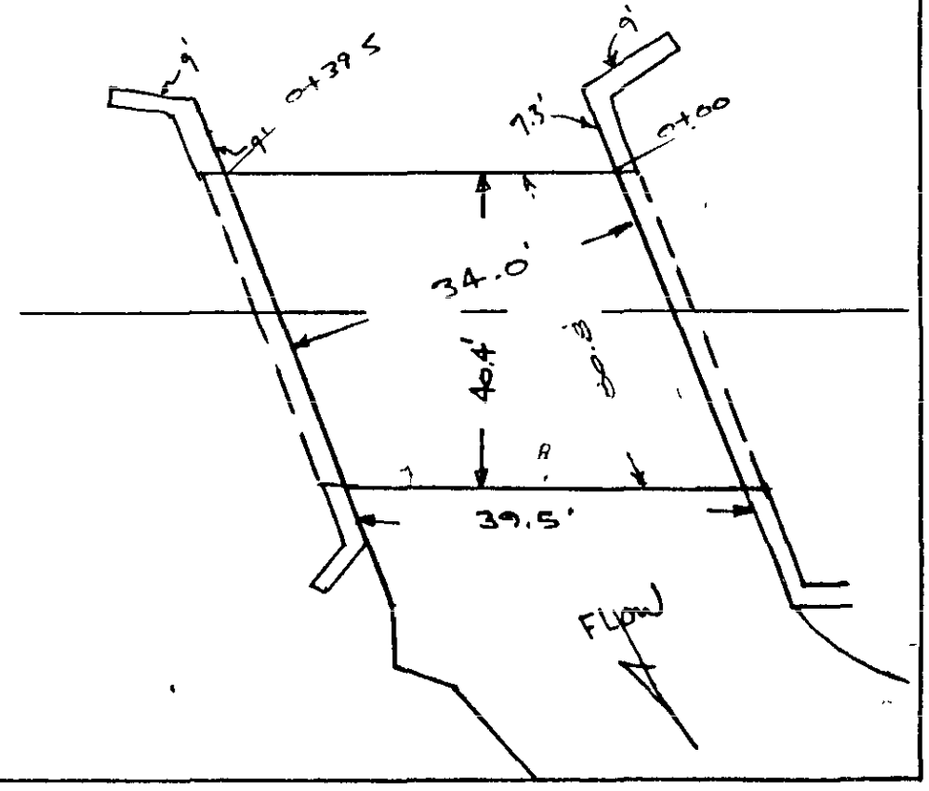
FIELD SKETCH

Profile View



LOOKING DOWNSTREAM

Plan View



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D.S. C-40

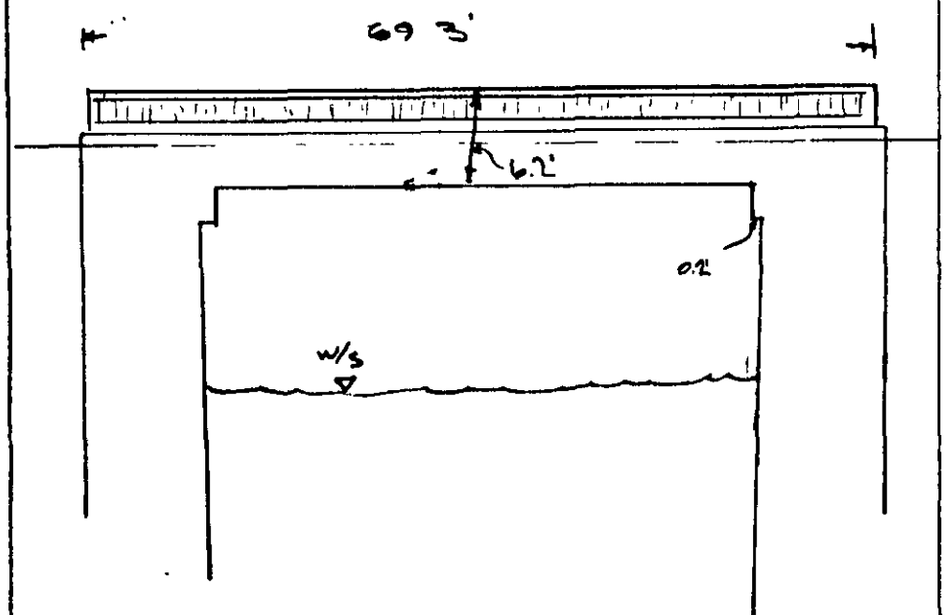
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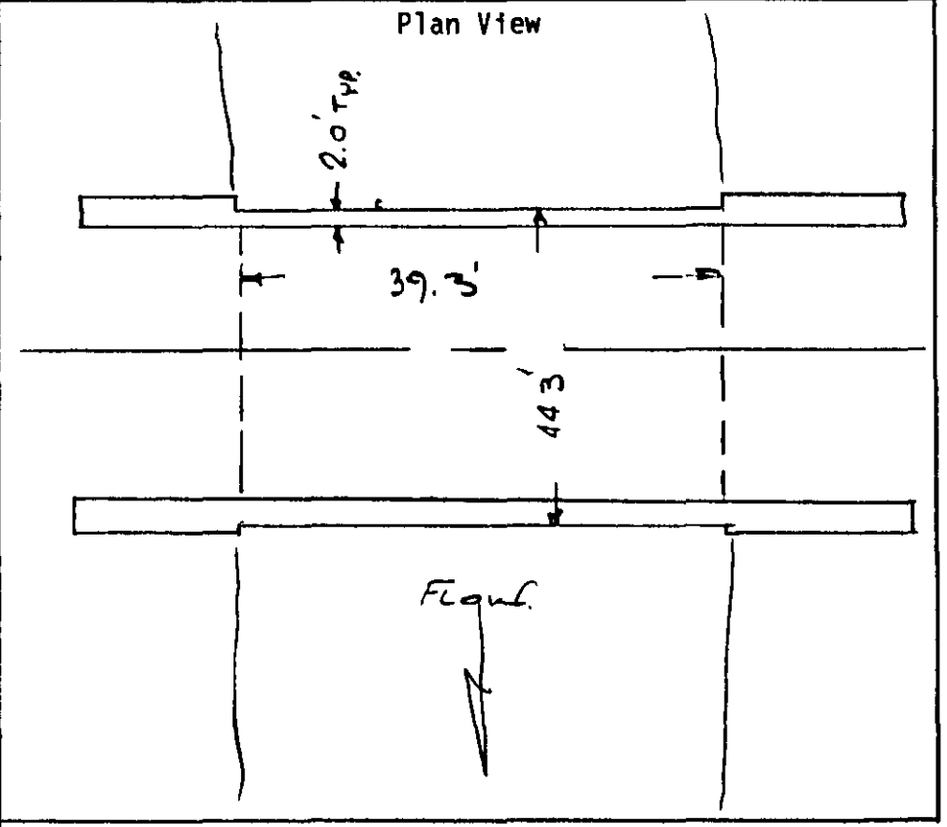
Job Name: Avon Twp. Rochester F.I.S.			By: Mc Innes
Date: 10-28-77	Feature: Crooks Rd Bridge "AP"		Water Course: Clinton River
Remarks: Steel I-Beam Bridge with Conc Abutments & Deck.			
Conc Guard Rails. – Sand Bottom with many Rocks			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 770.9	Length: 39.3'	Width of Deck: 44.3'	Skew: —

FIELD SKETCH

Profile View



Plan View



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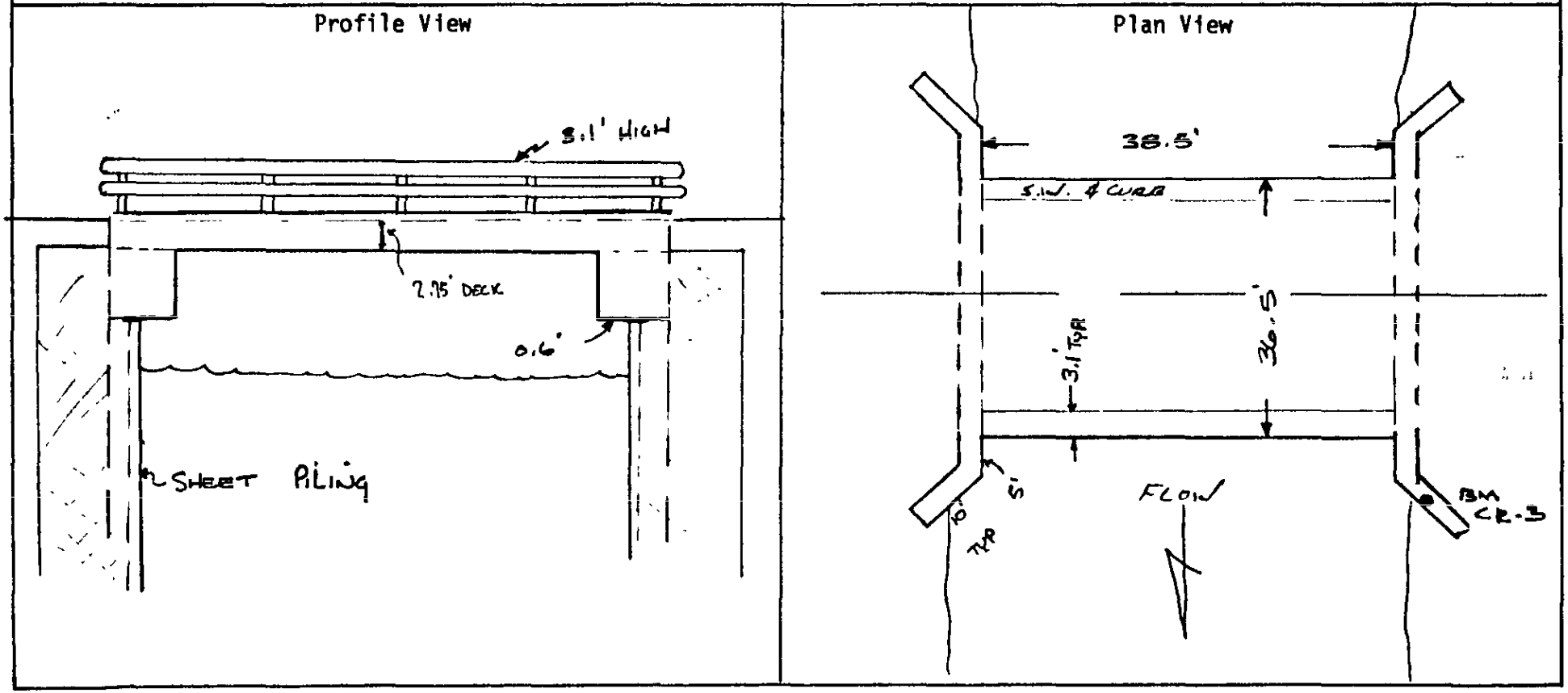
U.D. C-4L

HYDRAULIC STRUCTURAL DATA

Code No. 5850-01

Job Name: AVON TWP ROCHESTER F.I.S.			By: MCINNES
Date: 10-28-77	Feature: HAMLIN RD "AR"		Water Course: CLINTON RIVER
Remarks: CONC. BOX BEAM BRIDGE, CONC W/ING WALLS.			
3.1' HIGH ARMCO GUARD RAILINGS. CONC CURB & S.W.			
5°± DEBRIS IN CHANNEL (TREES-CAR PARTS) HARD STONEY BOTTOM.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 775.7	Length: 38.5'	Width of Deck: 36.5	Skew: 0°

FIELD SKETCH



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B C-47

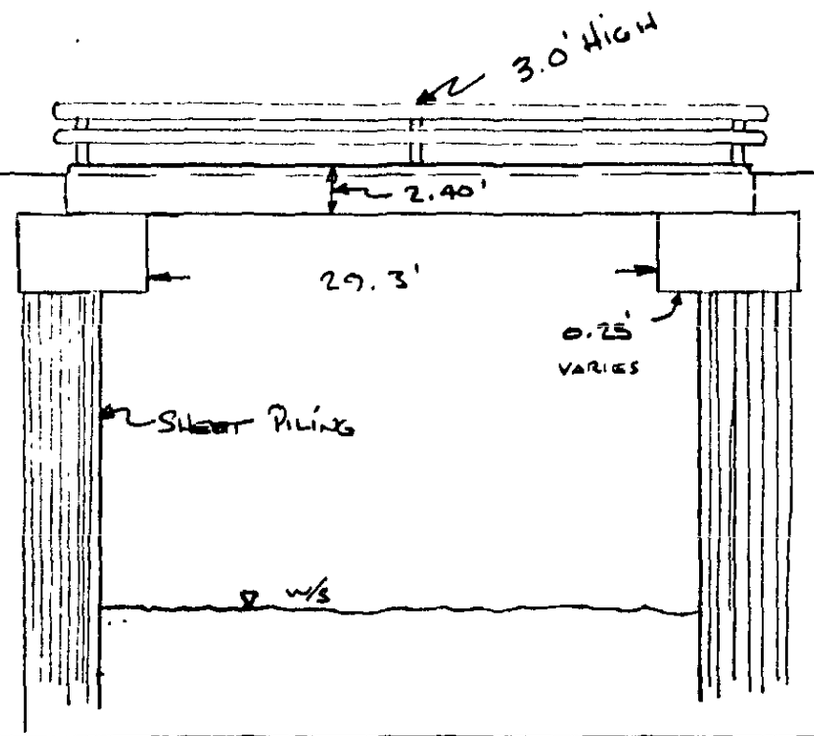
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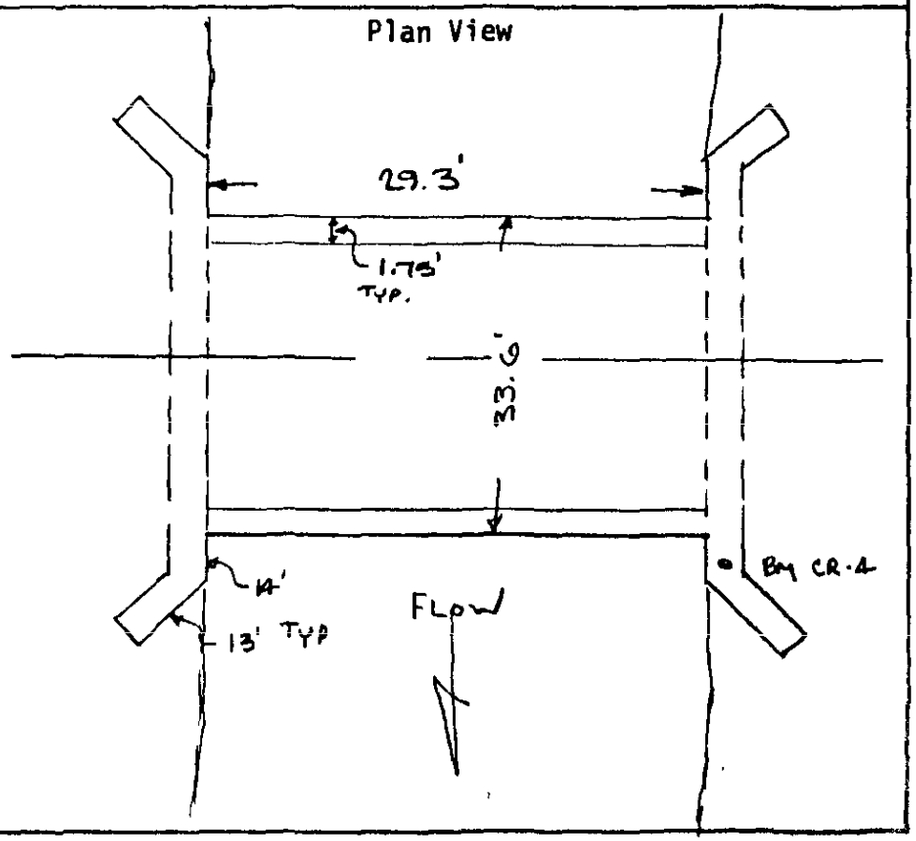
Job Name: AVON TWP – ROCHESTER F.I.S.			By: MC INNES
Date: 10-28-77	Feature: ADAMS RD BRIDGE "AW"		Water Course: CLINTON RIVER
Remarks: CONC BOX BEAM BRIDGE, ARMCO GUARD RAILINGS & SHEET PILING BACK WALL			
CLEAR CHANNEL NO DEBRIS, HARD GRAVEL BOTTOM.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 797.5	Length: 29.3'	Width of Deck: 33.6'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



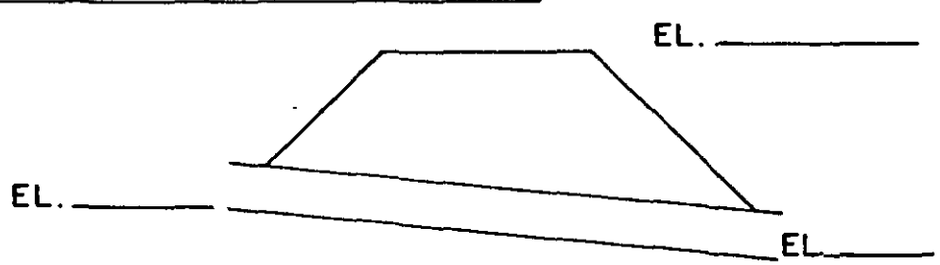
JOB NAME: AVON TOWNSHIP FIS | JOB NO. 5850 | 01 | 1

WATERCOURSE: Clinton River | CULVERT LOCATION: Avon Road - "C"

CULVERT DESCRIPTION: steel & concrete sides, concrete top & gravel bottom; no piers

BY RCD | DATE 6/15/78

WEIR DESCRIPTION: paved roadway



L= 36 ft. A = 492.4 sq. ft. D = _____

WP = 111.0 ft. Ke = 0.4

$\frac{29.1}{R^{4/3}}$ = _____ n = 0.035

So = _____

L = 36 ft.

Sta. | Sta.

CALCULATIONS AND COMMENTS:

VARIABLE "XKOR":

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$K_f = \frac{29.2\,(.035)^2(36)}{(492.4/111.0)^{4/3}}$

$K_f = 0.18$

$K_e = 0.4$ (wingwalls 30°–75° to barrel)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.4 + 0.18 = 1.58$

COEFFICIENT OF DISCHARGE (COFQ)

Avg. 100-yr. head "H" ≈ 1.5 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, P. 27, Fig. 23,

C = 3.04

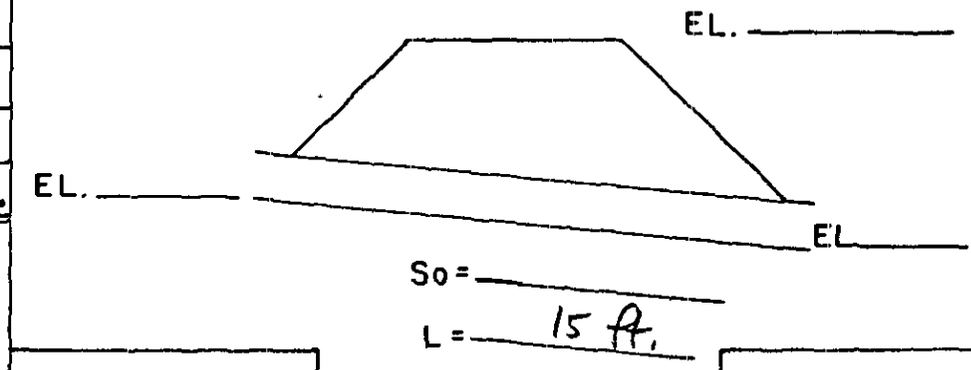
JOB NAME: AVON TOWNSHIP FIS | JOB NO. 5850 | 01 | 1 |

WATERCOURSE: Clinton River | CULVERT LOCATION: Penn-Central RR "E"

CULVERT DESCRIPTION: wooden railroad bridge (abandoned); (9) twin-cylinder piers with connecting diaphrams

BY RCD | DATE 6/15/78

WEIR DESCRIPTION: railroad tracks with wood ties and gravel - good condition in spite of non-use



L = 15 ft. A = 1154.1 sq. ft. D = _____

WP = 430.6 ft. Ke = 0.4

$\frac{29.1}{R^{4/3}}$ = _____ n = 0.042

CALCULATIONS AND COMMENTS: Note: Large amount of debri caught between piers of bridge, but since opening is maintained periodically, assumed channel to be clear of major debris.

PIER SHAPE COEFFICIENT "K" → VARIABLE XK = 0.95

VARIABLE XKOR:

Friction loss $K_f = 29.2\ n^2 L / R^{4/3}$

$K_f = \frac{29.2\ (.042)^2 (15)}{(1154.1/430.6)^{4/3}}$

$K_f = 0.21$

$K_e = 0.4$ (wingwalls @ 30° to 75° to barrel)

XKOR = 1 + Ke + Kf + pier factor

XKOR = 1 + 0.40 + 0.21 + 0.05 = 1.66 ✓

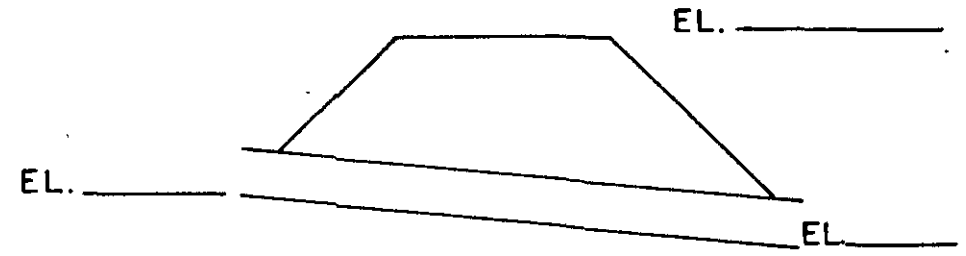
COEFFICIENT OF DISCHARGE (COFQ)

Assume Head (H) = 0.5 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, P. 27, fig. 23,

C = 2.69

JOB NAME: AVON TOWNSHIP F.I.S.	JOB NO.	5850	01	1	
WATERCOURSE: Clinton River	CULVERT LOCATION: Penn-Central RR "N"				
CULVERT DESCRIPTION: steel girder bridge with wood deck and concrete abutments; no piers	BY RCD	DATE 6/15/78			
WEIR DESCRIPTION: railroad tracks with wood ties and gravel - good condition in spite of non-use.					
L= 15 ft. A = 331.2 sq. ft. D = ____					
WP = 106.5 ft. Ke = 0.4					
$\frac{29.1}{R^{4/3}}$ = ____ n = 0.035					



CALCULATIONS AND COMMENTS:

VARIABLE "XKOR"

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$$K_f = \frac{29.2\,(.035)^2(15)}{(331.2/106.5)^{4/3}}$$

$K_f = 0.12$

$K_e = 0.4$ (wingwalls @ 30° to 75° to barrel)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.4 + 0.12 = 1.52$

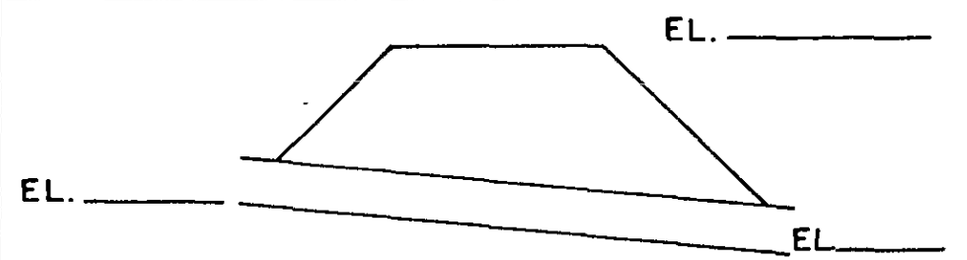
COEFFICIENT OF DISCHARGE (COFQ)

Avg. 100-yr. head "H" ≈ 0.8 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, P. 27, fig. 23,

C = 2.78

JOB NAME: CITY OF ROCHESTER FIS	JOB NO. 5850	01	1	
WATERCOURSE: Clinton River	CULVERT LOCATION: Diversion Street "W"			
CULVERT DESCRIPTION: Concrete bridge with gravel bottom & no piers	BY RCD	DATE 6/15/78		
WEIR DESCRIPTION: paved roadway				



L = 37 ft. A = 248.8 sq ft. D = ____ So = ____

WP = 86.1 ft. Ke = 0.5 L = 37 ft

$\frac{29.1}{R^{4/3}}$ = ____ n = 0.035

Sta. Sta.

CALCULATIONS AND COMMENTS:

VARIABLE XKOR:

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$$K_f = \frac{29.2\,(.035)^2(37)}{(248.8/86.1)^{4/3}}$$

$K_f = 0.32$

$K_e = 0.5$ (headwall parallel to embankment)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.5 + 0.32 = 1.82$

COEFFICIENT OF DISCHARGE (COFQ)

Avg. 100-yr. "H" ≈ 0.5 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, p. 27, fig. 23,

C = 3.02

JOB NAME: AVON TOWNSHIP FIS	JOB NO.	5850	01	1	
WATERCOURSE: Clinton River	CULVERT LOCATION: Grand Trunk Western RR				

CULVERT DESCRIPTION: wooden railroad bridge; (5) twin-cylinder piers with connecting diaphrams

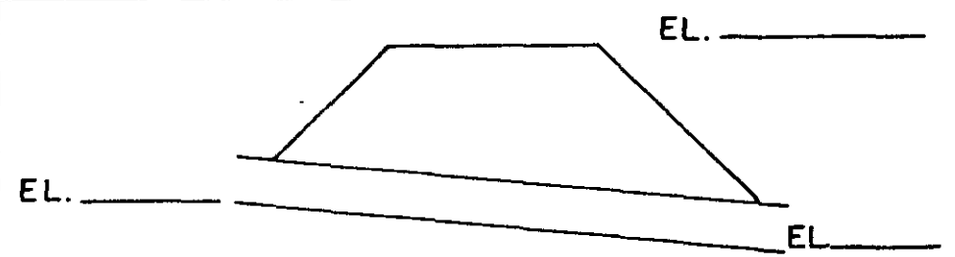
WEIR DESCRIPTION: Railroad tracks with wood ties and gravel

L= 16 ft, A = 501.7 sq. ft, D = _____

WP = 232.2 ft. Ke = 0.4

$\frac{29.1}{R^{4/3}}$ = _____ n = .040

BY | DATE | "AD"



CALCULATIONS AND COMMENTS:

PIER SHAPE COEFFICIENT "K" (VARIABLE "XK") = 0.95

VARIABLE XKOR:

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$K_f = \frac{29.2\,(.040)^2(16)}{(501.7/232.2)^{4/3}}$

$K_f = 0.27$

$K_e = 0.4$ (wingwalls @ 30° to 75° to barrel)

XKOR = 1 + Ke + Kf + pier factor

XKOR = 1 + 0.40 + 0.27 + 0.05 = 1.72

COEFFICIENT OF DISCHARGE (COFQ)

Assume H = 0.5 ft,

From Measurement of Peak Discharge At Dams by Indirect Methods,

P. 27, fig. 23,

C = 2.69

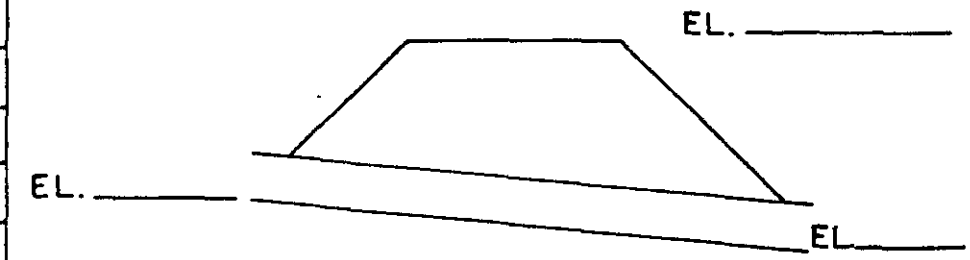
JOB NAME: AVON TOWNSHIP FIS | JOB NO. 5850 | 01 | 1

WATERCOURSE: Clinton River | CULVERT LOCATION: Avon Road "AG"

CULVERT DESCRIPTION: Concrete box beam bridge with sheet piling on sides; gravel bottom, no piers.

BY RCD | DATE 6/15/78

WEIR DESCRIPTION: Paved roadway



L = 70 ft. A = 348.6 sq ft. D = ____

WP = 87.0 ft Ke = 0.4

$\frac{29.1}{R^{4/3}}$ = ____ n = .035

So = ____

L = 70 ft.

Sta. | Sta.

CALCULATIONS AND COMMENTS:

VARIABLE XKOR:

Friction loss $K_f = 29.2 n^2 L / R^{4/3}$

$K_f = \frac{29.2 (.035)^2 (70)}{(348.6/87.0)^{4/3}}$

$K_f = 0.39$

$K_e = 0.4$ (wingwalls @ 30° to 75° to barrel)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.40 + 0.39 = 1.79$

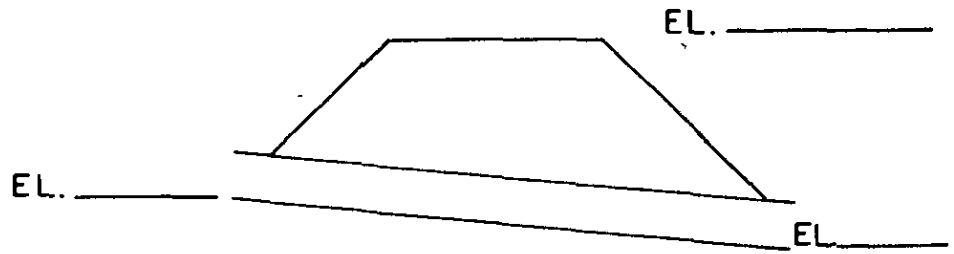
COEFFICIENT OF DISCHARGE (COFQ)

Assume H = 0.5 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, p. 27, fig. 23,

C = 3.02

JOB NAME: AVON TOWNSHIP F.I.S.	JOB NO. 5850	01	1	
WATERCOURSE: Clinton River	CULVERT LOCATION: Livernois Road "AH"			
CULVERT DESCRIPTION: Concrete box beam bridge with sheet piling on sides; gravel bottom, no piers	BY RCD	DATE 6/15/78		
WEIR DESCRIPTION: Paved roadway				



L = 47 ft. A = 316.7 sq.ft. D = ____ So = ____

WP = 86.7 ft. Ke = 0.4 L = 47 ft.

$\frac{29.1}{R^{4/3}}$ = ____ n = .035

Sta. Sta.

CALCULATIONS AND COMMENTS:

VARIABLE XKOR

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$$K_f = \frac{29.2\,(.035)^2(47)}{(316.7/86.7)^{4/3}}$$

$K_f = 0.30$

$K_e = 0.4$ (wingwalls @ 30° to 75° to barrel)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.40 + 0.30 = 1.70$ ✓

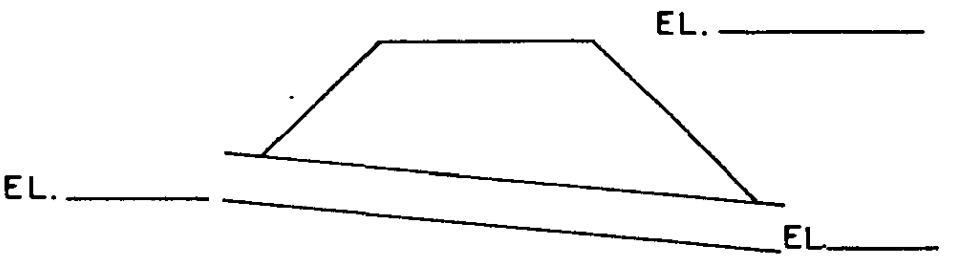
COEFFICIENT OF DISCHARGE (COFQ)

Avg. 100-yr. head (H) = 1.5 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, p. 27, fig. 23,

C = 3.04

JOB NAME: AVON TOWNSHIP FIS	JOB NO. 5850	01	1	
WATERCOURSE: Clinton River	CULVERT LOCATION: Crooks Road "AP"			
CULVERT DESCRIPTION: Steel I-Beam bridge with concrete abutments and deck. Sand and gravel bottom, no piers.	BY RCD	DATE 6/15/78		
WEIR DESCRIPTION: Paved roadway				



L = 44 ft. A = 312.2 sq. ft. D = _____

∴ WP = 94.7 ft. Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = _____ n = .035

So = _____

L = 44 ft.

Sta. Sta.

CALCULATIONS AND COMMENTS:

VARIABLE XKOR:

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$$K_f = \frac{29.2\,(.035)^2(44)}{(312.2/94.7)^{4/3}}$$

$K_f = 0.32$

$K_e = 0.5$ (headwall parallel to embankment)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.50 + 0.32 = \underline{1.82}$ ✓

COEFFICIENT OF DISCHARGE (COFQ)

Avg. 100-year head (H) = 0.5 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods,

P. 27, fig. 23,

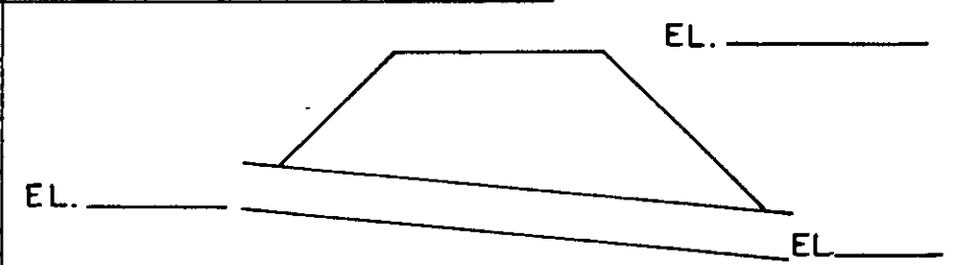
C = 3.02

JOB NAME: AVON TOWNSHIP FIS	JOB NO.	5850	01	1	
WATERCOURSE: Clinton River	CULVERT LOCATION: Hamlin Road "AR"				

CULVERT DESCRIPTION: Concrete box beam bridge; gravel bottom with debris, no piers

BY | DATE

WEIR DESCRIPTION: Hard-packed dirt road surface; assume gravel for "COFQ"



L = 36 ft. A = 287.8 sq. ft. D = _____

WP = 90.6 ft. Ke = 0.4

$\frac{29.1}{R^{4/3}}$ = _____ n = .045

Sta. | Sta.

CALCULATIONS AND COMMENTS:

VARIABLE XKOR:

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$$K_f = \frac{29.2\,(.045)^2(36)}{(287.8/90.6)^{4/3}}$$

$K_f = 0.46$

$K_e = 0.4$ (wingwalls @ 30° to 75° to barrel)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.40 + 0.46 = \underline{1.86}$

COEFFICIENT OF DISCHARGE (COFQ)

Avg. 100-yr. head (H) ≈ 2.0 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, P. 27, fig. 23,

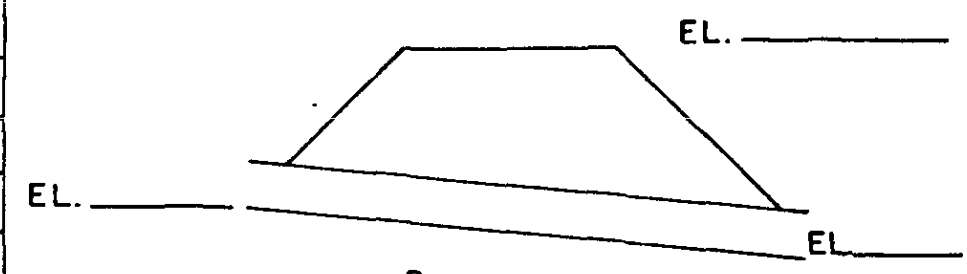
C = 2.98

JOB NAME: AVON TOWNSHIP FIS | JOB NO. 5850 | 01 | / |

WATERCOURSE: Clinton River | CULVERT LOCATION: Adams Road "AW"

CULVERT DESCRIPTION: Concrete box beam bridge with sheet piling on sides & gravel bottom, no piers | BY RCD | DATE 6/15/78

WEIR DESCRIPTION: Paved roadway



L = 34 ft

A = 555.8 sq. ft.
WP = 96.2 ft.
$\frac{29.1}{R^{4/3}}$ = _____

D = _____
Ke = 0.4
n = .032

So = _____
L = 34 ft.

Sta. | Sta.

CALCULATIONS AND COMMENTS:

VARIABLE XKOR:

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$K_f = \dfrac{29.2\,(.032)^2(34)}{(555.8/96.2)^{4/3}}$

$K_f = 0.10$

$K_e = 0.4$ (wingwalls @ 30° to 75° to barrel)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.40 + 0.10 = 1.50$ ✓

COEFFICIENT OF DISCHARGE (COFQ)

Assume H = 0.5 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, p. 27, fig. 23,

C = 3.02

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: GALLOWAY CREEK

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

GALLOWAY CREEK

Avon Township, Michigan

RECFIVED

JAN 02 1979

WATER MANAGEMENT

Hydraulic Analysis

References

SECNO Chart

Bridge Sketches and Calculations

JOHNSON & ANDERSON, INC.
2300 DIXIE HIGHWAY
PONTIAC, MICHIGAN 48056

5850-01, 07

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HYDRAULIC ANALYSIS

A. Introduction

Galloway Creek in Avon Township, Oakland County, Michigan, is the subject of this report. The study begins at the mouth of Galloway Creek (at its confluence with the Clinton River) and continues upstream for approximately 1.6 miles to the western corporate limits of Avon Township. The drainage area of Galloway Creek at the mouth is approximately 19 square miles. The 10-, 50-, 100-, and 500-year flood frequency flows used in this study were computed by the TR-20 computer program developed by the Soil Conservation Service. These discharges were approved by the Michigan Department of Natural Resources on June 13, 1978. The major floods on Galloway Creek occur in the spring months. U.S.G.S. gaging station 4-1611 is located on Galloway Creek within Avon Township, just downstream of a wooden bridge on the property of the Oakland University golf course. A Flood Insurance Study of Galloway Creek in Pontiac Township (the next community upstream of Avon Township) has been completed, and was approved by the Michigan Department of Natural Resources on May 31, 1977. The Galloway Creek elevations for both the Avon Township and Pontiac Township Flood Insurance Studies match at the corporate boundary of the two communites. In the course of the Avon Township study, 200 feet was added to the stream length of Galloway Creek; details can be found in the "Special Problems" section of this report. The project manager for this study is John Emig.

B. Method of Analysis

The flood profiles were calculated by the HEC-2 computer program developed by the U.S. Army Corps of Engineers. The bridge at Butler Road, the stone and mortar arch bridge just upstream of Butler Road, and the bridge at the gaging station were all modelled for the requirements of the special bridge routine; the remaining twin-culvert bridge on the golf course was modelled for the requirements of the normal bridge routine, due to the submergence of this bridge by the 100-year flood.

A logjam and treefall area in the first meander downstream of the U.S.G.S. gaging station has a significant effect on the rating curve at the gage. The main channel has been blocked to varying heights by logs, brush, and debris in the horseshoe-type bend. Due to this logjam, a secondary channel has developed west of the main channel, creating a divided flow situation for low flows. This secondary channel has a large 30-inch tree limb lying across it from bank to bank, causing a pressure flow situation in this channel for higher than average flows. This overhaning limb (or treefall) has been coded into the hydraulic model as a low chord of a bridge. Due to the submergence of the area during the 100-year flood, the entire area has been coded for a normal bridge routine situation. A sketch of the area has been included with the bridge sketches in the back of this booklet.

Galloway Creek was calibrated for Manning's "n" values by comparing a computed backwater curve to a rating curve at the U.S.G.S. gaging station (which was last checked for summer flows in 1974). This was accomplished by taking the present model (developed for spring season Manning's "n") and multiplying all of the Manning's "n" values by 150%. The rating curve obtained from this HEC-2 backwater analysis resulted in elevations about 0.5 foot lower than the U.S.G.S. rating curve. This discrepancy is likely accounted for in the areas of the golf course where the trees have been cleared along the creek or where lakes have been excavated on the course. Since the construction of the golf course began in 1975, none of the improvements included in the current model would have been incorporated into the U.S.G.S. rating curve. (For more information on the channel improvements, see the "Special Problems" section.)

In order to resolve the 0.5 foot difference, the computed backwater curve was analyzed between Section E and the gaging station. For this analysis, the following points were considered:

1) The open area of the golf course and creek (near tee No. 11) was wooded before construction of the course in 1975.

2) Due to the limited head available before overbank flow occurs at the U.S.G.S. control section, only flows of less than 100 cfs were considered in the analysis.

The backwater analysis indicated a major difference in the slope of the energy grade line between the heavily wooded sections of the stream and the open area of the golf course immediately downstream of the gaging station. If the slope developed in the wooded area is projected upstream through the open area of the golf course (as explained in point #1), the rating curves derived at the gage by the two methods match to within 0.1 foot.

C. Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the descriptions in Open-Channel Hydraulics (Reference 1) and Roughness Characteristics of Natural Channels (Reference 2) with photographs and field descriptions taken by survey crews in March, 1978, and field reconnaissance trips taken during the spring months of 1978. Aerial photographs of Avon Township taken in April 1977 were also used to determine the roughness coefficients and their extent. These roughness factors were determined assuming that flooding would occur during the spring months. The Manning's "n" for the channel ranges from 0.040 in areas of open golf course to 0.080 in areas where the channel flows through dense woods. The channel bottom varies from hard gravel (mainly downstream of Butler Road) to muck in the area of the golf course. The Manning's "n" for the overbanks ranges from 0.032 in the short grass fairways and teeing grounds of the golf course to 0.125 in the areas of dense woods and brush. The expansion and contraction coefficients chosen for this study were 0.5 and 0.3, respectively.

Weir flow discharge coefficients (COFQ) were chosen from charts published in Hydraulics of Bridge Waterways (Reference 3). The calculations for XKOR values used in the special bridge routines are shown on forms in the back of this booklet.

D. Starting Point

In order to obtain starting wter surface elevations at the mouth of Galloway Creek, a rating curve was derived for a section on the Clinton River at the Galloway Creek confluence. Based on the TR-20 computer run, the flows on the Clinton River when Galloway Creek has peak flow are 310, 1400, 2625, and 4190

cfs for the 10-, 50-, 100-, and 500-year floods, respectively. Corresponding water surface elevations for these flows were obtained from the rating curve, and used as starting water surface elevations for the backwater analysis of Galloway Creek.

E. Encroachments

Encroachments on Galloway Creek were based on a 1:1 convergence into and a 1:4 expansion from bridges and other natural constrictions. At the Butler Road bridge, the topwidth of weir flow at this bridge is controlled by the culvert opening of the stone and mortar arch bridge just upstream. Varying the encroachment model between Section B and the stone and mortar arch bridge can create significant changes in the hydraulics of the stream.

F. Special Problems

Several changes have been made in the alignment of Galloway Creek during the past 10 years. These alignment changes have been made in conjunction with the construction of sewer lines, water lines, a gas pipline and the golf course itself in the area between the gaging station and Butler Road. The most recent major alignment change was made in 1970, with a new channel being excavated upstream of the stone and mortar arch bridge along the east portion of the floodplain. These changes do not appear on the 1973 photo-revised topographic map of the area. Based on recent aerial photographs of the area, the net effect of the alignment changes is an increase in the channel length of Galloway Creek of about 200 feet between the gaging station and Butler Road. This additional length has been incorporated into the Avon Township hydraulic model of Galloway Creek. Since the stream stationing for the study of Galloway Creek in Pontiac Township was based on the alignment shown on the U.S.G.S. Quad map, the added length is not taken into account for the Pontiac Township study. For sections that are common to the two studies, a comparison of the stream stationing is shown in the table below.

Pontiac Twp. Section		Avon Twp. Section
1.345		1.383
1.402		1.439
1.525		1.562
1.658		1.695
1.600	= Pontiac Twp/Avon Twp corporate boundary =	1.637

One major change in land use has occurred on Galloway Creek in recent years. In 1975, construction began on the Oakland University Golf Course, which straddles Galloway Creek over most of the upstream portion of the study in Avon Township. In addition to the earthmoving and land clearing that occurred during the construction, several lakes were excavated next to the channel of the creek downstream of the gaging station. Since the most recent flow measurements at the gaging station were taken in 1974, the most recent rating curves should reflect the increased channel length of Galloway Creek, but not the golf course improvements in the area.

Information concerning the construction and development of the Oakland University Golf Course area was supplied by Jim Vaughn, golf course superintendent. Mr. Vaughn also furnished information concerning the twin-culvert crossing (Section H) on the golf course, as designed by Giffels-Webster Engineers, Inc. Two-foot contour topography from the design plans for the culverts were used to extend the field cross-section in the overbank areas of Section H.

REFERENCES

1. Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill, 1959

2. Barnes, Harry H., Jr., Roughness Characteristics of Natural Channels, Geological Survey Water-Supply Paper 1849, 1967.

3. U.S. Department of Transportation, Federal Highway Administration, Hydraulics of Bridge Waterways, Hydraulic Design Series, No. 1, 1973.

4. Johnson & Anderson, Hydraulics for the Clinton River, Avon Township Flood Insurance Study, 1978.

5. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Application of the HEC-2 Bridge Routines, Training Document No. 6, June 1974.

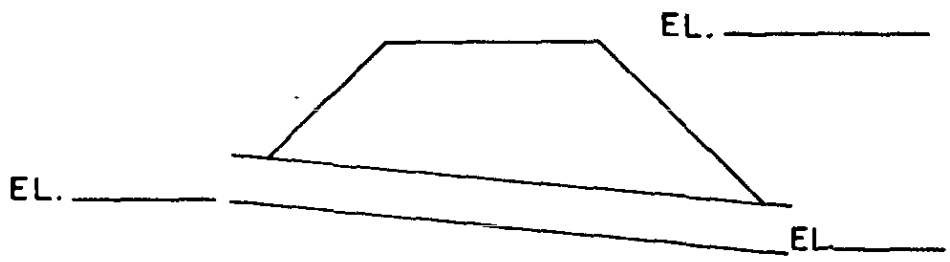
6. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profile Users Manual, 1973.

7. U.S. Department of the Interior, Measurement of Peak Discharge at Dams by Indirect Methods, Techniques of Water-Resources Investigations of the United States Geological Survey, Book 3, Chapter A5, 1976.

Cross Section	Sec. No.	Description
	0.000	Section A repeated and adjusted for invert (at mouth of Galloway Creek)
A	0.062	Field valley section
	0.106	Computer-interpolated section using 0.062 and 0.237 as bases for interpolation
	0.150	Computer-interpolated section using 0.062 and 0.237 as bases for interpolation
	0.193	Computer-interpolated section using 0.062 and 0.237 as bases for interpolation
B	0.237	Field valley section
	0.290	Section B repeated and adjusted for channel invert
	0.291	Butler Road bridge-downstream face; Section 0.290 repeated
C	0.293	Butler Road bridge - upstream face
	0.294	Section D modified at banks and adjusted for channel invert
	0.299	Section D modified at banks
D	0.300, 0.301	Stone and mortar arch bridge for fence just upstream of Butler Road
	0.302	Section D modified at banks
E	0.595	Field valley section
	0.680	Computer-interpolated section using 0.595 and 0.940 as bases for interpolation
	0.765	Computer-interpolated section using 0.595 and 0.940 as bases for interpolation
	0.850	Computer-interpolated section using 0.595 and 0.940 as bases for interpolation
	0.887	Manufactured section based on hand level survey and field reconnaissance

Cross Section	Sec. No.	Description
	0.888	Logjam and treefall area - downstream side. Manufactured section based on a land level survey and field reconnaissance
	0.889	Logjam and treefall area - upstream side. Manufactured section based on a hand level survey and field reconnaissance
	0.890	Manufactured section based on land level survey and field reconnaissance
	0.928	Section F repeated and adjusted for channel invert
F	0.929	Field valley section at concrete control for U.S.G.S. gaging station; extreme right overbank extended using Section G
	0.930	Section F repeated and adjusted for channel invert.
	0.935	Section G modified at banks and adjusted for channel invert
G	0.936, 0.939	Golf course bridge; U.S.G.S. gaging station located just downstream of bridge
	0.940	Section G modified at banks
	1.052	Manufactured section; channel and overbank points based on Section H with an adjustment in invert. Channel points and banks adjusted to eliminate unnecessary culvert points.
	1.163	Manufactured section; channel and overbank points based on Section H with an adjustment in invert. Channel points and banks adjusted to eliminate unnecessary culvert points.
	1.275	Manufactured section; channel and overbank points based on Section H with an adjustment in invert. Channel points and banks adjusted to eliminate unnecessary culvert points.

JOB NAME: AVON TOWNSHIP FIS	JOB NO. 5850	01	1	
WATERCOURSE: Galloway Creek	CULVERT LOCATION: Butler Road			
CULVERT DESCRIPTION: Concrete box culvert with sand & gravel bottom; no piers	BY RCD	DATE 6/15/78		



WEIR DESCRIPTION: Dirt surface road; assume gravel for "COFQ"

L = 14 ft. A = 72.7 sq. ft. D = _____

WP = 38.9 ft. Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = _____ n = .035

CALCULATIONS AND COMMENTS:

VARIABLE XKOR :

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$$K_f = \frac{29.2\,(.035)^2(14)}{(72.7/38.9)^{4/3}}$$

$K_f = 0.22$

$K_e = 0.5$ (headwall parallel to embankment)

XKOR = $1 + K_e + K_f$

XKOR = $1 + 0.5 + 0.22 = 1.72$

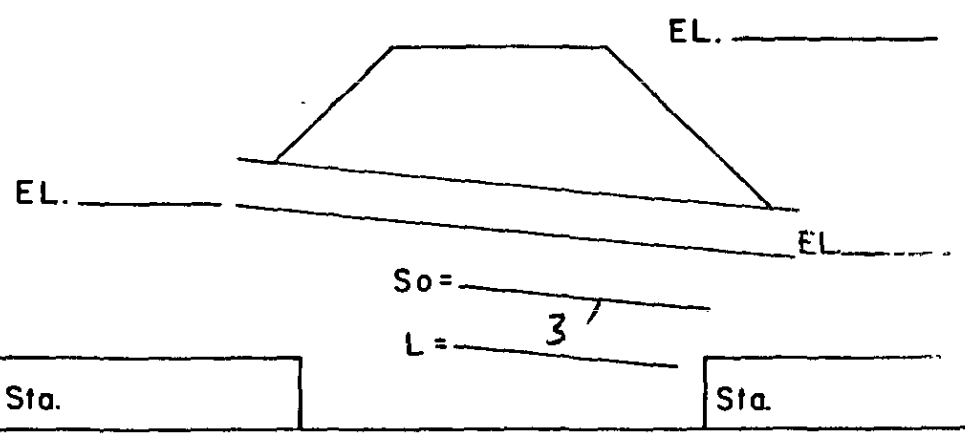
COEFFICIENT OF DISCHARGE (COFQ)

100-yr. weir flow depth (H) ≈ 0.6 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, p. 27, fig. 23,

C = 2.72

JOB NAME: AVON TOWNSHIP FIS	JOB NO. 5850 01 1
WATERCOURSE: Galloway Creek	CULVERT LOCATION: just u/s of Butler Rd
CULVERT DESCRIPTION: Stone and mortar arch culvert for fence.	BY RCD DATE 6/15/78
WEIR DESCRIPTION: Stone and mortar used as anchor for fence; assume gravel for "COFQ"	
L= 3 ft, A = 105.1 sq ft, D = ____	
WP = 49.2 ft, Ke = 0.5	
$\frac{29.1}{R^{4/3}}$ = ____ n = .035	



CALCULATIONS AND COMMENTS:

VARIABLE XKOR :

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$$K_f = \frac{29.2\,(.035)^2(3)}{(105.1/49.2)^{4/3}}$$

$K_f = 0.04$

$K_e = 0.5$ (headwall parallel to embankment)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.50 + 0.04 = 1.54$

COEFFICIENT OF DISCHARGE (COFQ)

Assume H = 0.5 ft,

From Measurement of Peak Discharge At Dams by Indirect Methods, p. 27, fig. 23,

C = 2.69

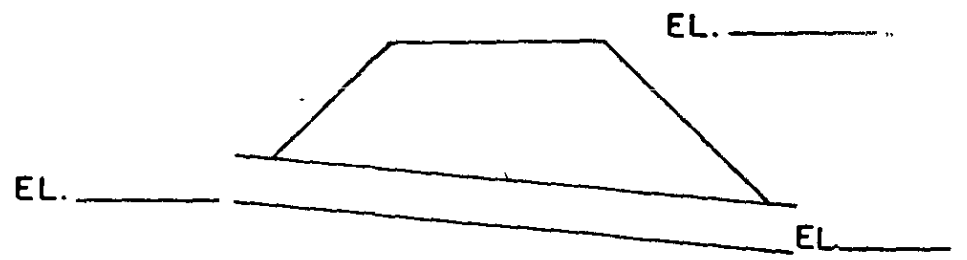
JOB NAME: AVON TOWNSHIP FIS JOB NO. 5850

WATERCOURSE: Galloway Creek CULVERT LOCATION: on golf course

CULVERT DESCRIPTION: Stone and mortar bridge; no piers

BY RCD DATE 6/15/78

WEIR DESCRIPTION: wood planks over creek; gravel overbanks - use gravel for "COFQ"



So = _____

L = 20 ft.

Sta. Sta.

L = 20 ft. A = 80.9 sq. ft. D = _____

∴ WP = 41.2 ft. Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = _____ n = .035

CALCULATIONS AND COMMENTS:

VARIABLE XKOR:

Friction loss $K_f = 29.2\, n^2 L / R^{4/3}$

$K_f = \frac{29.2\,(.035)^2(20)}{(80.9/41.2)^{4/3}}$

$K_f = 0.29$

$K_e = 0.5$ (wingwalls @ 10° to 25° to barrel)

$XKOR = 1 + K_e + K_f$

$XKOR = 1 + 0.50 + 0.29 = 1.79$

COEFFICIENT OF DISCHARGE (COFQ)

Avg. 100-yr. weir flow depth (H) ≈ 0.6 ft.

From Measurement of Peak Discharge At Dams by Indirect Methods, p. 27, fig. 23,

C = 2.72

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

HYDRAULIC STRUCTURAL DATA

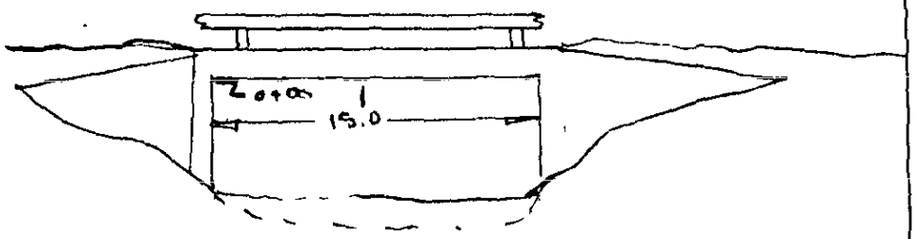
B. # 3

Code No. 5850-01

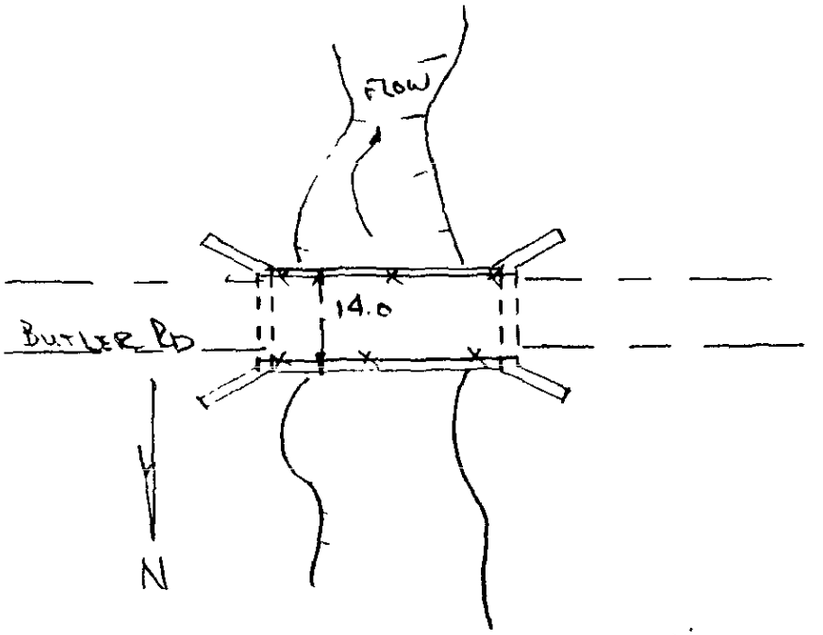
Job Name: AUBURN Twp. F.I.S			By: R. MOSES
Date:	Feature: CONC. BOX CULVERT		Water Course: GALLOWAY CREEK
Remarks: BRIDGE IS ON BUTLER RD			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 815.4	Length: 15.0	Width of Deck: 14.0	Skew: —

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

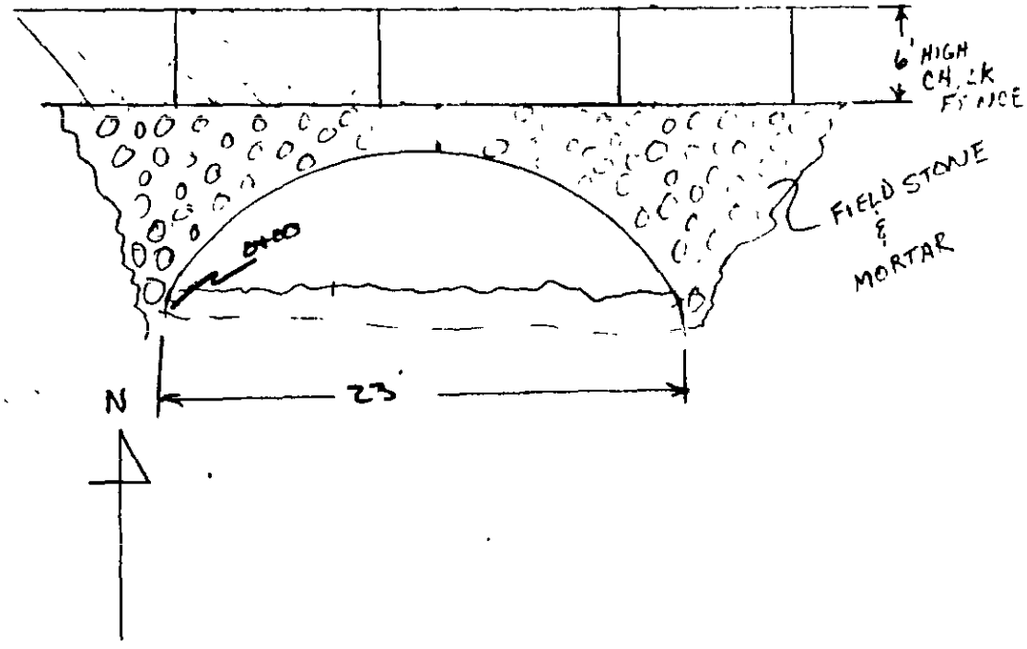
BS 4

Code No. 5850-01

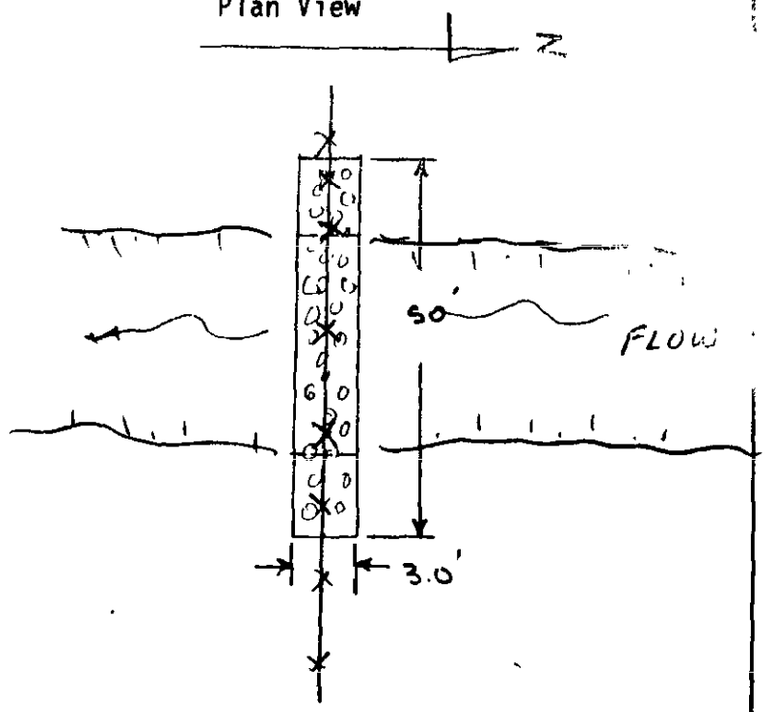
Job Name: AVON TWP. F.I.S.			By: R. MOSES
Date:	Feature: STONE & MOTAR ARCH FOR FENCE		Water Course: GALLOWAY CREEK
Remarks: 30'(±) NORTH OF BUTLER R.D.			
Width of Piers: —	Pier Shape:	No. of Piers: -	Area: -
Water Elevation: 815.5	Length: 50'	Width of Deck: 3'	Skew: 0

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

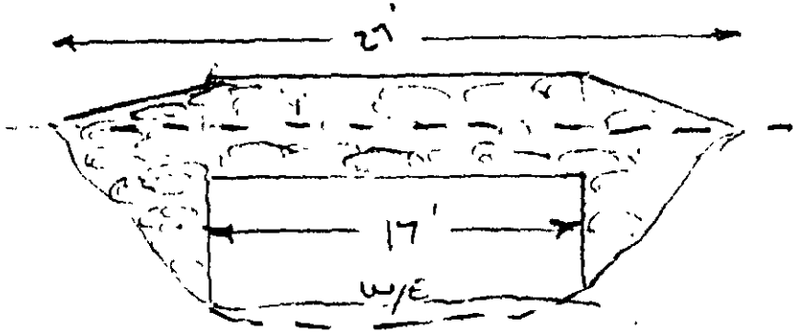
B.S. #6

Code No. 5850-01

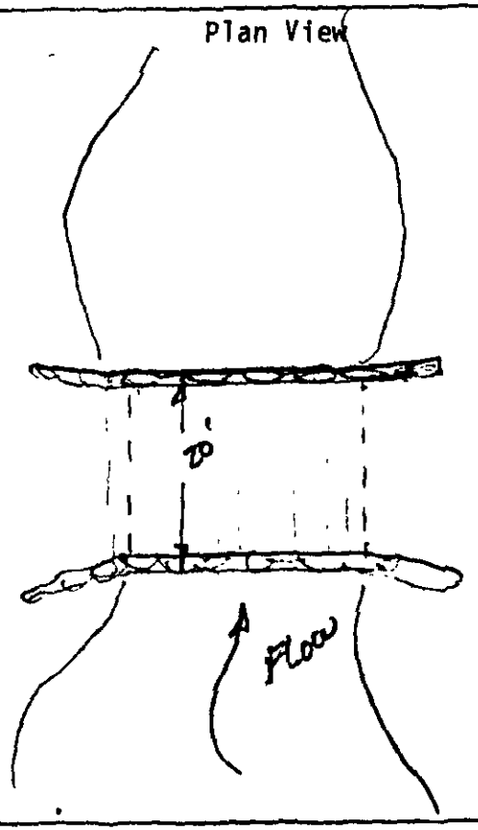
Job Name: AVON TWP. F.I.S		By: R. MOSES	
Date: 3-14-78	Feature: STONE & MORTAR BRIDGE	Water Course: GALLOWAY CREEK	
Remarks: THIS BRIDGE IS IN GOLF COURSE. CHANNEL BOTTOM WAS GRAVEL IN IT & SMALL STONES			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation:	Length: 17'	Width of Deck: 20	Skew: —

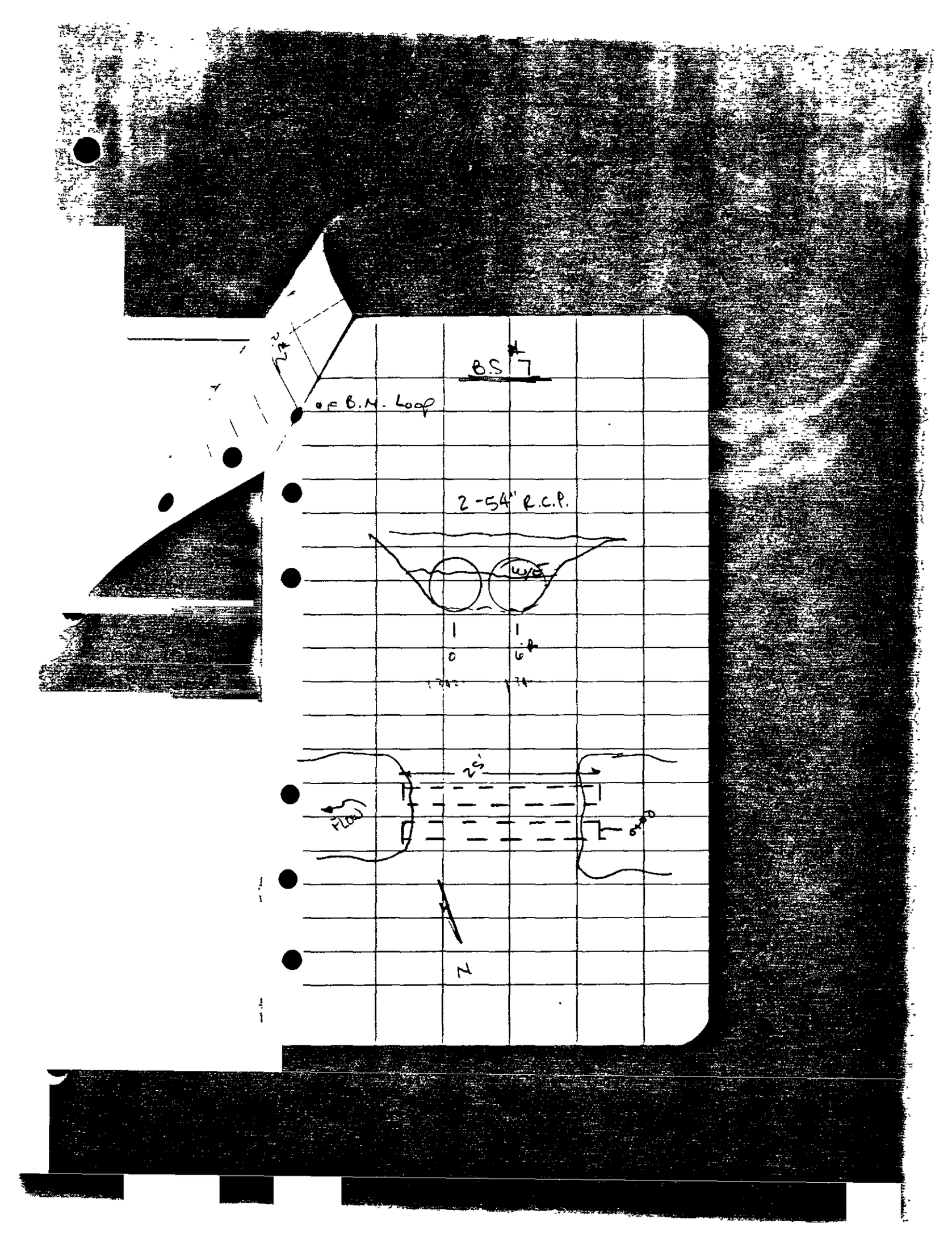
FIELD SKETCH

Profile View



Plan View




B.S 7
of B.N. Loop
2-54" R.C.P.
W/E
0
6
25'
FLOW
N

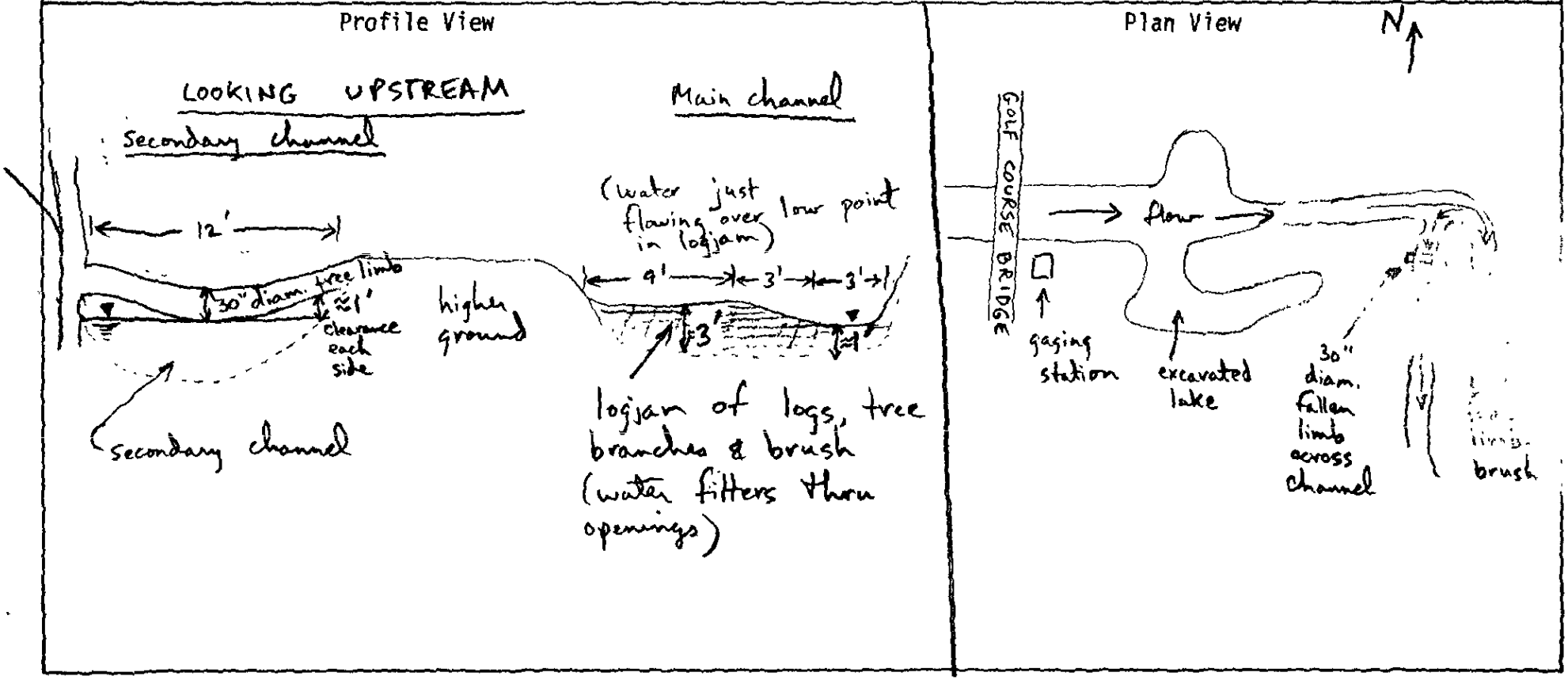
Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. _____

Job Name: AVON TOWNSHIP FIS			By: BOB DAVIS
Date: JUNE 27, 1978	Feature: TREEFALL & LOGJAM AREA dls of GAGING STATION		Water Course: GALLOWAY CREEK
Remarks: Channel bottom relatively hard on dls side of logjam & on upstream side, channel bottom very soft and mushy (like quicksand) from deposition of finer particles in slow moving water (small pool formed dls of logjam)			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck: 3 ft.	Skew:

FIELD SKETCH



00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: GALLOWAY CREEK

4) DOCUMENT TYPE: MULTIPLES PROFILES - ENCROACHED.

00BREAK00

NWQRJOB4 JANDA 12/21/78 08.47.00 7600 JO

AVON TOWNSHIP F.I.S.

JOB NO. 5850-01

GALLOWAY CREEK

MULTIPLE PROFILES FOR ENCROACHED FLOODWAY

JOHNSON AND ANDERSON, INC 12-28-78

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************

C
T1      AVON TOWNSHIP F.I.S. - JOB NO. 5850-01 - PROJECT MANAGER, JOHN EMIG
T2      10-YEAR FLOW
T3      GALLOWAY CREEK - OAKLAND COUNTY, MICHIGAN
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     0         WSEL      FQ
        -1.       2.        0.        0.  0.000000      0.00      0.0       0.    810.400     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
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
       38.000    40.000    41.000    42.000    43.000     1.000     8.000    10.000    12.000     3.000
       33.000     4.000    25.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .100      .100      .055      .300      .500     0.000     0.000     0.000     0.000     0.000
QT      4.000   235.000   444.000   516.000   787.000     0.000     0.000     0.000     0.000     0.000
                VALLEY SECTION A REPEATED AND ADJUSTED FOR CHANNEL INVERT.
X1      0.000    16.000   247.000   267.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    825.500     0.000   816.500    32.000   815.500    47.000   812.500   147.000   813.300   227.000
GR    811.900   247.000   809.400   253.000   808.200   259.000   808.400   265.000   811.700   267.000
GR    811.200   279.000   810.300   289.000   812.100   302.000   816.200   322.000   816.800   347.000
GR    818.800   447.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NH      4.000      .050   227.000      .100   247.000      .055   267.000      .100   447.000     0.000
                VALLEY SECTION A
X1      .062    16.000   247.000   267.000   330.000   330.000   330.000     0.000     0.000     0.000
GR    826.000     0.000   817.000    32.000   816.000    47.000   813.000   147.000   813.800   227.000
GR    812.400   247.000   809.900   253.000   808.700   259.000   808.900   265.000   812.200   267.000
GR    811.700   279.000   810.800   289.000   812.600   302.000   816.700   322.000   817.300   347.000
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GR	819.500	447.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.100	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR INTERPOLATION

X1	.106	90.000	215.200	235.700	240.000	225.000	230.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	480.000	0.000	0.000	0.000	0.000
GR	826.500	0.000	824.400	7.400	822.400	14.800	820.400	22.200	818.800	29.600
GR	818.100	37.100	817.600	44.500	817.200	51.900	816.800	59.300	816.400	66.800
GR	816.100	74.200	815.800	81.600	815.600	89.000	815.400	96.400	815.200	103.900
GR	814.900	111.300	814.700	118.700	814.500	126.100	814.400	133.600	814.500	141.000
GR	814.500	148.400	814.500	155.800	814.600	163.200	814.600	170.700	814.600	178.100
GR	814.600	185.500	814.600	192.900	814.500	200.400	814.000	207.800	813.500	215.200
GR	813.100	215.900	812.700	216.600	812.400	217.200	812.000	217.900	811.800	218.600
GR	811.600	219.300	811.400	220.000	811.200	220.700	811.000	221.300	810.900	222.000
GR	810.800	222.700	810.700	223.400	810.500	224.100	810.400	224.800	810.300	225.400
GR	810.200	226.100	810.100	226.800	810.000	227.500	810.000	228.200	810.000	228.900
GR	810.100	229.500	810.100	230.200	810.200	230.900	810.200	231.600	810.200	232.300
GR	810.300	233.000	810.300	233.600	811.200	234.300	812.100	235.000	813.000	235.700
GR	812.900	244.300	812.800	252.900	812.500	261.500	812.400	270.100	813.000	278.700
GR	813.600	287.400	814.500	296.000	815.400	304.600	816.300	313.200	816.500	321.800
GR	816.500	330.400	816.600	339.000	816.700	347.600	816.700	356.200	816.800	364.800
GR	816.900	373.400	817.100	382.000	817.300	390.600	817.500	399.300	817.700	407.900
GR	817.900	416.500	818.100	425.100	818.300	433.700	818.400	442.300	818.500	450.900
GR	818.700	459.500	819.200	468.100	820.000	476.700	820.900	485.300	821.200	494.000

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR INTERPOLATION

X1	.150	90.000	183.500	204.500	250.000	225.000	230.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	390.000	0.000	0.000	0.000	0.000
GR	827.000	0.000	825.300	6.300	823.700	12.600	822.100	18.900	820.700	25.300
GR	820.100	31.600	819.400	37.900	818.900	44.200	818.400	50.600	817.800	56.900
GR	817.300	63.200	817.100	69.600	816.900	75.900	816.700	82.200	816.500	88.500
GR	816.300	94.900	816.100	101.200	815.900	107.500	815.900	113.800	815.800	120.200
GR	815.800	126.500	815.800	132.800	815.800	139.200	815.700	145.500	815.700	151.800
GR	815.600	158.100	815.600	164.500	815.400	170.800	815.000	177.100	814.600	183.500
GR	814.100	184.200	813.700	184.800	813.200	185.500	812.700	186.200	812.600	186.900
GR	812.400	187.600	812.300	188.300	812.200	189.000	812.100	189.700	812.000	190.400
GR	812.000	191.100	811.900	191.800	811.800	192.500	811.700	193.200	811.600	193.900
GR	811.500	194.600	811.400	195.300	811.300	196.000	811.400	196.700	811.400	197.400
GR	811.500	198.100	811.500	198.800	811.500	199.500	811.600	200.200	811.600	200.900
GR	811.700	201.600	811.800	202.300	812.500	203.000	813.200	203.700	813.900	204.500
GR	813.900	215.700	814.000	226.900	813.800	238.100	813.800	249.300	814.200	260.500
GR	814.500	271.700	815.100	283.000	815.600	294.200	816.100	305.400	816.200	316.600
GR	816.200	327.800	816.100	339.000	816.100	350.300	816.100	361.500	816.100	372.700

GR	816.100	383.900	816.400	395.100	816.700	406.300	817.100	417.600	817.400	428.800
GR	817.700	440.000	817.900	451.200	818.100	462.400	818.200	473.600	818.400	484.900
GR	818.600	496.100	819.400	507.300	821.100	518.500	822.700	529.700	823.100	541.000

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

X1	.193	90.000	151.700	173.200	240.000	225.000	230.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	300.000	0.000	0.000	0.000	0.000
GR	827.500	0.000	826.200	5.200	825.000	10.400	823.800	15.600	822.700	20.900
GR	822.000	26.100	821.200	31.300	820.600	36.600	819.900	41.800	819.200	47.000
GR	818.600	52.300	818.400	57.500	818.200	62.700	818.100	68.000	817.900	73.200
GR	817.700	78.400	817.600	83.700	817.400	88.900	817.300	94.100	817.200	99.400
GR	817.100	104.600	817.000	109.800	817.000	115.100	816.900	120.300	816.800	125.500
GR	816.700	130.800	816.500	136.000	816.300	141.200	816.000	146.500	815.700	151.700
GR	815.200	152.400	814.600	153.100	814.000	153.800	813.500	154.600	813.400	155.300
GR	813.300	156.000	813.300	156.700	813.200	157.400	813.200	158.100	813.200	158.900
GR	813.200	159.600	813.100	160.300	813.000	161.000	812.900	161.700	812.800	162.400
GR	812.800	163.200	812.700	163.900	812.600	164.600	812.700	165.300	812.800	166.000
GR	812.800	166.700	812.900	167.500	812.900	168.200	813.000	168.900	813.100	169.600
GR	813.100	170.300	813.300	171.000	813.800	171.800	814.300	172.500	814.800	173.200
GR	814.900	187.000	815.100	200.800	815.200	214.700	815.300	228.500	815.300	242.300
GR	815.400	256.100	815.600	270.000	815.800	283.800	815.900	297.600	815.900	311.400
GR	815.800	325.300	815.700	339.100	815.600	352.900	815.500	366.700	815.400	380.600
GR	815.400	394.400	815.800	408.200	816.200	422.000	816.600	435.900	817.000	449.700
GR	817.400	463.500	817.800	477.300	817.900	491.200	818.100	505.000	818.300	518.800
GR	818.500	532.600	819.700	546.500	822.100	560.300	824.500	574.100	825.000	588.000
NC	.050	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION B

X1	.237	16.000	120.000	142.000	240.000	225.000	230.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	215.000	0.000	0.000	0.000	0.000
GR	828.000	0.000	819.900	41.000	817.900	100.000	816.900	120.000	814.200	123.000
GR	814.400	128.000	814.000	133.000	814.600	139.000	815.700	142.000	816.800	200.000
GR	815.700	300.000	814.600	400.000	817.600	500.000	818.500	578.000	826.600	620.000
GR	827.000	635.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

X1	.290	0.000	0.000	0.000	250.000	350.000	285.000	0.000	-1.100	0.000
X3	0.000	0.000	0.000	121.000	0.000	150.000	0.000	0.000	0.000	0.000
NC	.035	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BUTLER ROAD BRIDGE - D/S FACE - SECTION 0.290 REPEATED

X1	.291	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	121.000	0.000	150.000	0.000	0.000	0.000	0.000
SB	0.000	1.720	2.720	0.000	15.000	0.000	72.700	0.000	812.900	812.900

BUTLER ROAD BRIDGE - U/S FACE - SECTION C

X1	.293	8.000	142.000	157.000	14.000	14.000	14.000	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	0.000	0.000	0.000	140.000	0.000	169.000	0.000	0.000	0.000	0.000
BT	4.000	142.000	819.500	818.100	142.000	819.500	818.100	157.000	819.500	818.100
BT	157.000	819.500	818.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	821.000	103.000	819.500	142.000	814.400	142.000	812.900	147.000	813.100	152.000
GR	813.100	157.000	819.500	157.000	819.600	198.000	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

SECTION D MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

X1	.294	11.000	130.000	177.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	143.000	0.000	172.000	0.000	0.000	0.000	0.000
GR	826.400	0.000	822.700	42.000	821.200	130.000	815.200	142.000	813.900	148.000
GR	812.900	153.000	813.300	159.000	815.000	165.000	821.400	177.000	822.300	242.000
GR	825.600	304.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION D MODIFIED AT BANKS

X1	.299	11.000	130.000	177.000	30.000	30.000	30.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	142.000	0.000	165.000	0.000	0.000	0.000	0.000
GR	826.000	0.000	822.300	42.000	820.800	130.000	814.800	142.000	813.500	148.000
GR	812.500	153.000	812.900	159.000	814.600	165.000	821.000	177.000	821.900	242.000
GR	825.200	304.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

DOWNSTREAM FACE - SECTION D

X1	.300	13.000	142.000	165.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	826.000	0.000	822.300	42.000	820.800	130.000	821.000	142.000	814.800	142.000
GR	813.500	148.000	812.500	153.000	812.900	159.000	814.600	165.000	821.000	165.000
GR	821.000	177.000	821.900	242.000	825.200	304.000	0.000	0.000	0.000	0.000
SB	0.000	1.540	2.690	0.000	23.000	0.000	105.100	0.000	812.500	812.500

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

UPSTREAM FACE - SECTION D

X1	.501	0.000	0.000	0.000	0.000	0.000	0.000	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
BT	11.000	0.000	826.000	0.000	42.000	822.300	0.000	130.000	820.800	0.000
BT	142.000	821.000	814.800	148.000	821.000	819.100	153.000	821.000	819.700	159.000
BT	821.000	818.700	165.000	821.000	814.600	177.000	821.000	0.000	242.000	821.900
BT	0.000	304.000	825.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION D MODIFIED AT BANKS

X1	.302	11.000	130.000	177.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	142.000	0.000	165.000	0.000	0.000	0.000	0.000
GR	826.000	0.000	822.300	42.000	820.800	130.000	814.800	142.000	813.500	148.000
GR	812.500	153.000	812.900	159.000	814.600	165.000	821.000	177.000	821.900	242.000
GR	825.200	304.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.125	.075	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	225.000	432.000	498.000	762.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION E

X1	.595	14.000	247.000	263.000	1590.000	1570.000	1554.000	0.000	0.000	0.000
GR	834.300	0.000	825.100	83.000	824.200	100.000	821.000	200.000	820.800	247.000
GR	817.100	249.000	814.600	254.000	813.100	262.000	820.900	263.000	819.300	300.000
GR	820.800	400.000	820.800	500.000	826.700	580.000	831.900	600.000	0.000	0.000
NC	.125	.125	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR INTERPOLATION

X1	.680	90.000	284.000	302.700	475.000	415.000	450.000	0.000	0.000	0.000
GR	833.200	0.000	832.500	9.700	831.800	19.500	831.100	29.300	830.300	39.100
GR	829.600	48.900	828.900	58.700	828.200	68.500	827.500	78.300	826.700	88.100
GR	826.000	97.900	825.600	107.700	825.300	117.500	825.000	127.300	824.800	137.100
GR	824.500	146.800	824.300	156.600	824.100	166.400	823.900	176.200	823.700	186.000
GR	823.500	195.800	823.200	205.600	823.000	215.400	822.800	225.200	822.700	235.000
GR	822.700	244.800	822.700	254.600	822.700	264.400	822.600	274.200	822.600	284.000
GR	821.700	284.600	820.700	285.200	819.800	285.800	818.900	286.500	818.500	287.100
GR	818.100	287.700	817.800	288.300	817.500	288.900	817.200	289.600	816.900	290.200
GR	816.500	290.800	816.300	291.400	816.100	292.100	816.000	292.700	816.000	293.300
GR	815.900	293.900	815.900	294.600	815.900	295.200	815.900	295.800	815.900	296.400
GR	815.900	297.100	815.900	297.700	815.900	298.300	815.900	298.900	816.000	299.600
GR	816.100	300.200	816.300	300.800	816.400	301.400	819.400	302.100	822.700	302.700
GR	822.300	313.000	821.900	323.300	821.600	333.500	821.500	343.800	821.600	354.100
GR	821.800	364.400	821.900	374.700	822.000	385.000	822.100	395.200	822.200	405.500
GR	822.400	415.800	822.500	426.100	822.600	436.400	822.700	446.700	822.800	456.900
GR	822.800	467.200	822.900	477.500	822.900	487.800	823.000	498.100	823.100	508.400
GR	823.100	518.600	823.800	528.900	824.400	539.200	825.100	549.500	825.900	559.800

GR	826.600	570.100	827.300	580.300	828.000	590.000	830.000	600.000	832.300	611.200

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR INTERPOLATION

X1	.765	90.000	321.000	342.500	480.000	415.000	450.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	125.000	0.000	542.000	0.000	0.000	0.000	0.000
GR	832.100	0.000	831.600	11.000	831.200	22.100	830.700	33.200	830.200	44.200
GR	829.700	55.300	829.300	66.400	828.800	77.400	828.200	88.500	827.700	99.600
GR	827.100	110.600	826.800	121.700	826.500	132.800	826.200	143.800	826.000	154.900
GR	825.800	166.000	825.600	177.100	825.500	188.100	825.300	199.200	825.200	210.300
GR	825.000	221.300	824.900	232.400	824.700	243.500	824.600	254.500	824.500	265.600
GR	824.500	276.700	824.500	287.700	824.500	298.800	824.500	309.900	824.500	321.000
GR	823.600	321.700	822.600	322.400	821.700	323.100	820.900	323.800	820.300	324.500
GR	819.800	325.200	819.500	326.000	819.100	326.700	818.700	327.400	818.300	328.100
GR	818.000	328.800	817.800	329.500	817.700	330.300	817.600	331.000	817.600	331.700
GR	817.600	332.400	817.600	333.100	817.700	333.800	817.800	334.600	817.900	335.300
GR	818.000	336.000	818.100	336.700	818.300	337.400	818.400	338.100	818.600	338.900
GR	819.000	339.600	819.400	340.300	819.800	341.000	822.000	341.700	824.500	342.500
GR	824.300	351.800	824.000	361.100	823.700	370.400	823.700	379.800	823.800	389.100
GR	823.800	398.400	823.900	407.800	823.900	417.100	824.000	426.400	824.000	435.800
GR	824.200	445.100	824.400	454.400	824.500	463.800	824.600	473.100	824.800	482.400
GR	824.900	491.800	825.000	501.100	825.100	510.400	825.300	519.800	825.400	529.100
GR	825.500	538.400	826.000	547.800	826.600	557.100	827.100	566.400	827.700	575.800
GR	828.400	585.100	829.000	594.400	829.600	603.800	831.100	613.100	832.800	622.500

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR INTERPOLATION

X1	.850	90.000	358.000	382.200	475.000	415.000	449.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	265.000	0.000	482.000	0.000	0.000	0.000	0.000
GR	831.000	0.000	830.800	12.300	830.600	24.600	830.300	37.000	830.100	49.300
GR	829.800	61.700	829.600	74.000	829.400	86.400	829.000	98.700	828.600	111.100
GR	828.200	123.400	827.900	135.700	827.700	148.100	827.400	160.400	827.200	172.800
GR	827.000	185.100	826.900	197.500	826.800	209.800	826.700	222.200	826.600	234.500
GR	826.600	246.800	826.500	259.200	826.400	271.500	826.300	283.900	826.300	296.200
GR	826.300	308.600	826.300	320.900	826.400	333.300	826.400	345.600	826.400	358.000
GR	825.500	358.800	824.600	359.600	823.700	360.400	822.800	361.200	822.100	362.000
GR	821.500	362.800	821.100	363.600	820.700	364.400	820.200	365.200	819.800	366.000
GR	819.400	366.800	819.300	367.600	819.200	368.500	819.200	369.300	819.200	370.100
GR	819.200	370.900	819.300	371.700	819.500	372.500	819.700	373.300	819.900	374.100
GR	820.200	374.900	820.400	375.700	820.600	376.500	820.800	377.300	821.300	378.200
GR	821.900	379.000	822.500	379.800	823.200	380.600	824.700	381.400	826.400	382.200
GR	826.200	390.600	826.100	399.000	825.900	407.300	825.900	415.700	825.900	424.100
GR	825.900	432.500	825.900	440.900	825.900	449.300	825.900	457.600	825.900	466.000
GR	826.000	474.400	826.200	482.800	826.400	491.200	826.600	499.600	826.800	507.900
GR	827.000	516.300	827.200	524.700	827.300	533.100	827.500	541.500	827.700	549.900

GR	827.900	558.200	828.300	566.600	828.700	575.000	82[illegible].10	583.400	[illegible]29.600	591.[illegible]0
GR	830.200	600.200	830.700	608.500	831.200	616.900	832.100	625.300	833.200	633.700
NH	6.000	.090	5.000	.060	11.000	.075	25.000	.125	45.000	.060
NH	57.000	.035	450.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE (ALSO APPLICABLE TO THE FOLLOWING TWO SECTIONS).

X1	.887	11.000	45.000	57.000	220.000	180.000	200.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	135.000	0.000	0.000	0.000	0.000
GR	825.700	0.000	821.400	5.000	821.400	11.000	824.200	20.000	825.700	25.000
GR	825.700	45.000	822.100	45.000	820.400	51.000	822.100	57.000	825.700	57.000
GR	833.800	450.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.090	5.000	.060	8.000	.075	25.000	.125	45.000	.060
NH	57.000	.035	450.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

LOGJAM AND TREEFALL AREA - DOWNSTREAM SIDE. LOGJAM IN MAIN CHANNEL

HAS CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH

TREE LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

X1	.888	12.000	45.000	57.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	135.000	0.000	0.000	0.000	0.000
BT	5.000	45.000	825.700	0.000	45.000	825.700	823.200	51.000	824.700	822.100
BT	57.000	825.700	823.200	57.000	825.700	0.000	0.000	0.000	0.000	0.000
GR	825.700	0.000	822.200	5.000	822.200	8.000	824.200	11.000	824.200	20.000
GR	825.700	25.000	825.700	45.000	822.100	45.000	820.400	51.000	822.100	57.000
GR	825.700	57.000	833.800	450.000	0.000	0.000	0.000	0.000	0.000	0.000

LOGJAM AND TREEFALL AREA - UPSTREAM SIDE. LOGJAM IN MAIN CHANNEL HAS

CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH TREE

LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

X1	.889	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	135.000	0.000	0.000	0.000	0.000
NH	6.000	.090	5.000	.060	11.000	.075	25.000	.125	45.000	.060
NH	57.000	.035	450.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

A..UFACTURED SECTION BASED On HAND LEVEL SU..VEY AnD FIELD

RECONNAISSANCE

X1	.890	11.000	45.000	57.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	135.000	0.000	0.000	0.000	0.000
GR	825.700	0.000	821.400	5.000	821.400	11.000	824.200	20.000	825.700	25.000
GR	825.700	45.000	822.100	45.000	820.400	51.000	822.100	57.000	825.700	57.000
GR	833.800	450.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	7.000	.045	14.000	.040	33.000	.045	38.000	.032
NH	73.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

X1	.928	11.000	7.000	38.000	220.000	190.000	206.000	0.000	0.000	0.000
GR	827.200	0.000	826.000	7.000	822.800	14.000	820.800	23.000	822.600	33.000
GR	824.200	38.000	825.800	53.000	825.800	73.000	827.800	115.000	831.200	215.000
GR	833.800	260.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	7.000	.045	14.000	.020	33.000	.045	38.000	.032
NH	73.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CONCRETE CONTROL IN CHANNEL FOR U.S.G.S. GAGING STATION-SECTION F

X1	.929	11.000	7.000	38.000	3.000	3.000	3.000	0.000	0.000	0.000
GR	827.200	0.000	826.000	7.000	822.800	14.000	822.400	23.000	822.600	33.000
GR	824.200	38.000	825.800	53.000	825.800	73.000	827.800	115.000	831.200	215.000
GR	833.800	260.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	7.000	.045	14.000	.040	33.000	.045	38.000	.032
NH	73.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

X1	.930	11.000	7.000	38.000	3.000	3.000	3.000	0.000	0.000	0.000
GR	827.200	0.000	826.000	7.000	822.800	14.000	820.800	23.000	822.600	33.000
GR	824.200	38.000	825.800	53.000	825.800	73.000	827.800	115.000	831.200	215.000
GR	833.800	260.000	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
QT	4.000	225.000	430.000	496.000	710.000	0.000	0.000	0.000	0.000	0.000

SECTION G MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

X1	.935	18.000	400.000	417.000	33.000	33.000	33.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	830.100	100.000	828.400	200.000	828.200	300.000	828.300	350.000	826.000	400.000
GR	818.700	400.000	818.700	402.000	818.700	404.000	818.800	406.000	818.900	408.000
GR	819.100	409.000	821.300	412.000	821.300	415.000	821.300	417.000	823.600	417.000
GR	827.800	500.000	831.200	600.000	833.800	645.000	0.000	0.000	0.000	0.000

NC	.040	.040	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000

GOLF COURSE BRIDGE - D/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

X1	.936	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.790	2.720	0.000	17.000	0.000	80.900	0.000	820.900	818.700

GOLF COURSE BRIDGE - U/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

X1	.939	12.000	400.000	417.000	20.000	20.000	20.000	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	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	11.000	100.000	830.100	0.000	200.000	828.400	0.000	300.000	828.200	0.000
BT	350.000	828.300	0.000	400.000	828.400	0.000	400.000	830.600	826.600	417.000
BT	830.700	826.700	417.000	828.400	0.000	500.000	827.800	0.000	600.000	831.200
BT	0.000	645.000	833.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	830.100	100.000	828.400	200.000	828.200	300.000	828.300	350.000	826.000	400.000
GR	823.600	400.000	820.900	405.000	821.000	410.000	823.600	417.000	827.800	500.000
GR	831.200	600.000	833.800	645.000	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

SECTION G MODIFIED AT BANKS

X1	.940	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

X1	1.052	14.000	1228.750	1239.250	560.000	575.000	591.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	825.500	140.000	825.500	1228.750	824.000	1228.750	822.950	1229.500	822.500	1231.000
GR	822.200	1237.000	822.600	1238.500	823.700	1239.250	825.200	1239.250	825.500	1245.000
GR	827.500	1390.000	833.500	1405.000	835.500	1430.000	837.500	1483.000	0.000	0.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

X1	1.163	0.000	0.000	0.000	560.000	575.000	591.000	0.000	1.300	0.000
X3	0.000	0.000	0.000	800.000	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
QT	4.000	380.000	570.000	617.000	870.000	0.000	0.000	0.000	0.000	0.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

X1	1.275	14.000	1228.750	1239.250	555.000	575.000	591.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	828.000	140.000	828.000	1228.750	826.500	1228.750	825.450	1229.500	825.000	1231.000
GR	824.700	1237.000	825.100	1238.500	826.200	1239.250	827.700	1239.250	828.000	1245.000
GR	830.000	1390.000	836.000	1405.000	838.000	1430.000	840.000	1483.000	0.000	0.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

GOLF COURSE BRIDGE - D/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

X1	1.276	37.000	1228.750	1239.250	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	10.000	1228.750	831.700	828.000	1229.500	831.700	829.050	1231.000	831.600	829.500
BT	1232.500	831.600	829.050	1233.250	831.600	828.000	1234.750	831.500	828.100	1235.500
BT	831.500	829.150	1237.000	831.500	829.600	1238.500	831.400	829.150	1239.250	831.400
BT	828.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	834.000	0.000	832.000	16.000	830.000	52.000	828.000	110.000	826.000	122.000
GR	826.000	135.000	828.000	140.000	828.000	195.000	828.000	325.000	828.000	385.000
GR	828.000	475.000	828.000	720.000	828.000	953.000	828.000	985.000	828.000	1013.000
GR	828.000	1225.000	831.700	1228.750	828.000	1228.750	826.500	1228.750	825.450	1229.500
GR	825.000	1231.000	825.450	1232.500	826.500	1233.250	828.000	1233.250	827.700	1234.750
GR	826.200	1234.750	825.150	1235.500	824.700	1237.000	825.150	1238.500	826.200	1239.250
GR	827.700	1239.250	831.400	1239.250	828.000	1245.000	830.000	1390.000	836.000	1405.000
GR	838.000	1430.000	840.000	1483.000	0.000	0.000	0.000	0.000	0.000	0.000

GOLF COURSE BRIDGE - U/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

X1	1.280	37.000	1228.750	1239.250	25.000	25.000	25.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	10.000	1228.750	831.700	828.000	1229.500	831.700	829.050	1231.000	831.600	829.500
BT	1232.500	831.600	829.050	1233.250	831.600	828.000	1234.750	831.500	828.100	1235.500

FORM 1A-F...GO PRINTED BY ROTARY MANIFOLD FORMS

BT	831.500	829.150	1237.000	831.500	829.600	1238.500	831.400	829.150	1237.250	831.400
BT	828.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	834.000	0.000	832.000	16.000	830.000	52.000	828.000	110.000	826.000	122.000
GR	826.000	135.000	828.000	140.000	828.000	195.000	828.000	325.000	828.000	385.000
GR	828.000	475.000	828.000	720.000	828.000	953.000	828.000	985.000	828.000	1013.000
GR	828.000	1225.000	831.700	1228.750	828.000	1228.750	826.500	1228.750	825.450	1229.500
GR	825.000	1231.000	825.450	1232.500	826.500	1233.250	828.000	1233.250	828.100	1234.750
GR	826.600	1234.750	825.550	1235.500	825.100	1237.000	825.550	1238.500	826.600	1239.250
GR	828.100	1239.250	831.400	1239.250	828.000	1245.000	830.000	1390.000	836.000	1405.000
GR	838.000	1430.000	840.000	1483.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.052	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

X1	1.281	14.000	1228.750	1239.250	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	828.000	140.000	828.000	1228.750	826.500	1228.750	825.450	1229.500	825.000	1231.000
GR	825.100	1237.000	825.550	1238.500	826.600	1239.250	828.100	1239.250	828.000	1245.000
GR	830.000	1390.000	836.000	1405.000	838.000	1430.000	840.000	1483.000	0.000	0.000
NC	.100	.100	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	430.000	615.000	655.000	920.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 1.345 FROM PONTIAC TWP. FIS

X1	1.383	13.000	405.000	423.000	600.000	500.000	539.000	0.000	0.000	0.000
GR	844.200	0.000	834.500	55.000	831.200	100.000	829.700	137.000	829.200	200.000
GR	829.200	300.000	829.700	405.000	827.400	414.000	827.300	417.000	829.500	423.000
GR	830.000	434.000	838.800	446.000	845.200	452.000	0.000	0.000	0.000	0.000

VALLEY SECTION 1.402 FROM PONTIAC TWP. FIS

X1	1.439	14.000	409.000	427.000	400.000	250.000	300.000	0.000	0.000	0.000
GR	853.000	0.000	847.400	100.000	833.200	200.000	830.200	270.000	830.200	300.000
GR	829.800	400.000	829.600	409.000	827.000	417.000	827.000	420.000	827.600	423.000
GR	829.400	427.000	830.900	500.000	835.400	600.000	846.500	646.000	0.000	0.000

VALLEY SECTION 1.525 FROM PONTIAC TWP. FIS

X1	1.562	22.000	438.000	450.000	600.000	700.000	650.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	650.000	0.000	0.000	0.000	0.000
GR	846.000	0.000	841.300	50.000	838.100	80.000	835.600	150.000	840.000	227.000
GR	836.000	250.000	832.200	273.000	831.400	350.000	832.600	388.000	831.200	421.000
GR	829.800	438.000	828.000	441.000	828.000	446.000	828.800	449.000	831.400	450.000

FORM 1433-GP PRINTED BY ROTARY MANIFOLD FORMS

GR	852.400	487.000	851.500	550.000	852.700	650.000	852.300	750.000	852.600	808.000
GR	840.300	850.000	849.000	886.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.125	665.000	.100	748.000	.050	765.000	.100	1565.000	0.000

VALLEY SECTION 1.658 FROM PONTIAC TWP. FIS

X1	1.695	29.000	748.000	765.000	600.000	800.000	700.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	809.000	0.000	0.000	0.000	0.000
GR	850.200	0.000	845.300	50.000	838.600	155.000	836.100	185.000	835.800	219.000
GR	836.500	265.000	836.300	365.000	835.800	465.000	834.400	565.000	835.600	665.000
GR	834.600	725.000	833.100	731.000	833.300	748.000	831.100	749.000	829.800	754.000
GR	829.600	758.000	830.200	760.000	833.500	765.000	835.800	809.000	835.800	865.000
GR	834.500	965.000	835.300	1065.000	834.000	1103.000	834.700	1165.000	836.800	1265.000
GR	836.100	1365.000	839.400	1465.000	843.100	1527.000	856.200	1565.000	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

FORT ATKINSON GIS PRINTED BY ROTARY MANIFOLD FORMS

*PROF 1

CCHV= .300 CEHV= .500

*SECNO .000

3265 DIVIDED FLOW

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

3720 CRITICAL DEPTH ASSUMED

VALLEY SECTION A REPEATED AND ADJUSTED FOR CHANNEL INVERT.

0.00	2.64	810.84	810.84	810.40	811.66	.82	0.00	0.00	811.90
235.	0.	232.	3.	0.	32.	3.	0.	0.	811.70
0.00	0.00	7.32	1.17	.100	.055	.100	0.000	808.20	249.55
.036290	0.	0.	0.	0	10	0	0.00	26.74	292.87

1490 NH CARD USED

*SECNO .062

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

VALLEY SECTION A

.06	4.68	813.38	0.00	0.00	813.45	.07	1.57	.22	812.40
235.	6.	174.	55.	16.	71.	62.	1.	1.	812.20
.05	.40	2.45	.89	.070	.055	.100	.055	808.70	134.54
.001777	330.	330.	330.	5	0	0	0.00	122.52	305.77

*SECNO .106

3470 ENCROACHMENT STATIONS= .0 480.0 TYPE= 1 TARGET= 479.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.11	3.21	815.91	0.00	0.00	814.02	.11	.54	.02	813.50
235.	1.	181.	53.	1.	60.	57.	1.	1.	813.00
.07	.49	3.01	.93	.060	.055	.100	.055	810.00	209.19
.003346	240.	230.	225.	4	0	0	0.00	81.13	290.32

*SECNO .150

3470 ENCROACHMENT STATIONS= .0 390.0 TYPE= 1 TARGET= 389.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.15	3.49	814.79	0.00	0.00	814.93	.14	.90	.01	814.60
235.	0.	186.	49.	0.	55.	55.	2.	2.	813.90
.09	.35	3.35	.89	.060	.055	.100	.055	811.30	180.49
.004651	250.	230.	225.	2	0	0	0.00	96.63	277.12

*SECNO .193

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= .0 300.0 TYPE= 1 TARGET= 299.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.19	3.27	815.87	0.00	0.00	816.00	.13	1.07	.00	815.70
235.	0.	181.	54.	0.	55.	68.	3.	2.	814.80
.12	.33	3.31	.80	.060	.055	.100	.055	812.60	148.74
.004695	240.	230.	225.	1	0	0	0.00	144.81	293.55

*SECNO .237

3470 ENCROACHMENT STATIONS= .0 215.0 TYPE= 1 TARGET= 214.999

VALLEY SECTION B

.24	2.96	816.96	0.00	0.00	817.13	.17	1.11	.02	816.90
235.	0.	190.	45.	0.	53.	45.	3.	3.	815.70
.14	.02	3.62	1.00	.050	.050	.080	.054	814.00	118.84

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.00495	240.	230.	225.	1	0	0	0.00	96.16	215.00

*SECNO .290

3470 ENCROACHMENT STATIONS= 121.0 150.0 TYPE= 1 TARGET= 29.000

SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

.29	4.77	817.67	0.00	0.00	817.75	.08	.60	.03100000.00	
235.	0.	210.	25.	0.	90.	24.	4.	3.	814.60
.17	0.00	2.33	1.04	.050	.050	.080	.053	812.90	121.00
.001091	250.	285.	350.	3	0	0	0.00	29.00	150.00

*SECNO .291

3470 ENCROACHMENT STATIONS= 121.0 150.0 TYPE= 1 TARGET= 29.000

BUTLER ROAD BRIDGE - D/S FACE - SECTION 0.290 REPEATED

.29	4.78	817.68	0.00	0.00	817.75	.07	.00	.00100000.00	
235.	0.	198.	37.	0.	90.	24.	4.	3.	814.60
.17	0.00	2.19	1.56	.035	.035	.035	.053	812.90	121.00
.000472	1.	1.	1.	0	0	0	0.00	29.00	150.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.72	2.72	0.00	15.00	0.00	72.70	0.00	812.90	812.90

*SECNO .293

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 817.878 ELLC= 818.100 PCWSE= 817.684 ELTRD= 819.500

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 819.50 MAX ELLC= 818.10

3470 ENCROACHMENT STATIONS= 140.0 169.0 TYPE= 1 TARGET= 29.000

BUTLER ROAD BRIDGE - U/S FACE - SECTION C

.29	4.73	817.63	0.00	0.00	817.83	.20	.01	.07	819.50
235.	0.	235.	0.	0.	66.	0.	4.	3.	819.50
.17	0.00	3.58	0.00	.035	.035	.035	.053	812.90	142.00
.001749	14.	14.	14.	2	0	0	0.00	15.00	157.00

*SECNO .294

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

3470 ENCROACHMENT STATIONS= 143.0 172.0 TYPE= 1 TARGET= 29.000

SECTION D MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

.29	4.87	817.77	0.00	0.00	817.86	.09	.00	.03	100000.00
235.	0.	235.	0.	0.	95.	0.	4.	3.	100000.00
.17	0.00	2.46	0.00	.050	.040	.050	.053	812.90	143.00
.000989	1.	1.	1.	2	0	0	0.00	27.19	170.19

*SECNO .299

3470 ENCROACHMENT STATIONS= 142.0 165.0 TYPE= 1 TARGET= 23.000

SECTION D MODIFIED AT BANKS

.30	5.31	817.81	0.00	0.00	817.89	.08	.03	.00	100000.00
235.	0.	235.	0.	0.	101.	0.	4.	3.	100000.00
.18	0.00	2.33	0.00	.050	.040	.050	.052	812.50	142.00
.000771	30.	30.	30.	0	0	0	0.00	23.00	165.00

*SECNO .300

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

DOWNSTREAM FACE - SECTION D

.30	5.31	817.81	0.00	0.00	817.89	.08	.00	.00	821.00
235.	0.	235.	0.	0.	101.	0.	4.	3.	821.00
.18	0.00	2.33	0.00	.040	.035	.040	.052	812.50	142.00
.000588	1.	1.	1.	0	0	0	0.00	23.00	165.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	2.69	0.00	23.00	0.00	105.10	0.00	812.50	812.50

*SECNO .301

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 817.891 ELLC= 819.700 PCWSE= 817.807 ELTRD= 820.800

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 820.80 MAX ELLC= 819.70

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

UPSTREAM FACE - SECTION D

.30	5.29	817.79	0.00	0.00	817.92	.13	.00	.02	821.00
235.	0.	235.	0.	0.	82.	0.	4.	3.	821.00
.18	0.00	2.86	0.00	.040	.035	.040	.052	812.50	142.00
.001168	3.	3.	3.	1	0	0	-18.59	23.00	165.00

*SECNO .302

3470 ENCROACHMENT STATIONS= 142.0 165.0 TYPE= 1 TARGET= 23.000

SECTION D MODIFIED AT BANKS

.30	5.35	817.85	0.00	0.00	817.93	.08	.00	.01100000.00	
235.	0.	235.	0.	0.	102.	0.	4.	3. 100000.00	
.18	0.00	2.31	0.00	.070	.040	.050	.052	812.50	142.00
.000751	1.	1.	1.	2	0	0	0.00	23.00	165.00

*SECNO .595

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 E

.60	7.02	820.12	0.00	0.00	820.22	.10	2.28	.01	820.80
225.	0.	203.	22.	0.	77.	30.	8.	5.	820.90
.36	0.00	2.64	.72	.125	.080	.075	.066	813.10	247.37
.004300	1590.	1554.	1570.	3	0	0	0.00	89.22	354.71

*SECNO .680

3265 DIVIDED FLOW

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.68	5.98	821.88	0.00	0.00	821.98	.10	1.75	.00	822.60
225.	0.	222.	3.	0.	87.	10.	9.	6.	822.70
.40	0.00	2.56	.29	.125	.080	.125	.068	815.90	284.48
.003581	475.	450.	415.	2	0	0	0.00	67.01	372.85

*SECNO .765

3470 ENCROACHMENT STATIONS= 125.0 542.0 TYPE= 1 TARGET= 417.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.77	5.84	823.44	0.00	0.00	823.53	.10	1.56	.00	824.50
225.	0.	225.	0.	0.	90.	0.	10.	7.	824.50
.45	0.00	2.49	0.00	.125	.080	.125	.069	817.60	321.82
.003342	480.	450.	415.	2	0	0	0.00	20.34	342.16

*SECNO .850

3470 ENCROACHMENT STATIONS= 265.0 482.0 TYPE= 1 TARGET= 217.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.85	5.75	824.95	0.00	0.00	825.04	.10	1.51	.00	826.40
225.	0.	225.	0.	0.	91.	0.	11.	7.	826.40
.51	0.00	2.48	0.00	.125	.080	.125	.070	819.20	359.29
.003394	475.	449.	415.	2	0	0	0.00	22.23	381.52

1490 NH CARD USED
*SECNO .887

3265 DIVIDED FLOW

3470 E.CROACH.E.T STATIONS= .0 135.0 TYPE= 1 TARGET= 134.99

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE (ALSO APPLICABLE TO THE FOLLOWING TWO SECTIONS).

.89	5.10	825.50	0.00	0.00	825.57	.06	.51	.01	825.70
225.	119.	106.	0.	62.	51.	0.	11.	7.	825.70
.53	1.94	2.07	0.00	.068	.060	.125	.070	820.40	.23
.001909	220.	200.	180.	2	0	0	0.00	36.12	57.00

1490 NH CARD USED
*SECNO .888

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

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 824.70 MAX ELLC= 823.20

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

LOGJAM AND TREEFALL AREA - DOWNSTREAM SIDE. LOGJAM IN MAIN CHANNEL

HAS CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH

TREE LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

.89	5.04	825.44	0.00	0.00	825.64	.20	.00	.07	825.70
225.	151.	74.	0.	38.	28.	0.	11.	7.	825.70
.53	4.01	2.65	0.00	.070	.060	.125	.070	820.40	.37
.016717	1.	1.	1.	2	0	0	-22.31	35.75	57.00

*SECNO .889

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 824.70 MAX ELLC= 823.20

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

LOGJAM AND TREEFALL AREA - UPSTREAM SIDE. LOGJAM IN MAIN CHANNEL HAS

CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH TREE

LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

.89	5.06	825.46	0.00	0.00	825.73	.26	.06	.03	825.70
225.	172.	53.	0.	38.	21.	0.	11.	7.	825.70
.53	4.50	2.47	0.00	.070	.060	.125	.070	820.40	.33
.020771	3.	3.	3.	0	0	0	-29.20	35.89	57.00

1490 NH CARD USED
*SECNO .890

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE

.89	5.34	825.74	0.00	0.00	825.79	.05	.00	.06	825.70
225.	122.	103.	0.	68.	54.	0.	11.	7.	825.70
.53	1.78	1.92	.02	.068	.060	.035	.070	820.40	.00
.001563	1.	1.	1.	2	0	0	0.00	58.97	58.97

1490 NH CARD USED
*SECNO .928

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

.93	5.14	825.94	0.00	0.00	826.00	.06	.20	.00	826.00
225.	0.	208.	17.	0.	103.	17.	12.	7.	824.20
.56	0.00	2.01	1.01	.032	.045	.032	.071	820.80	7.12
.000666	220.	206.	190.	3	0	0	0.00	68.88	76.00

1490 NH CARD USED

*SECNO .929

CONCRETE CONTROL IN CHANNEL FOR U.S.G.S. GAGING STATION-SECTION F

.93	3.53	825.93	0.00	0.00	826.02	.09	.00	.01	826.00
225.	0.	213.	12.	0.	88.	17.	12.	7.	824.20
.56	0.00	2.42	.74	.032	.044	.032	.071	822.40	7.14
.000357	3.	3.	3.	1	0	0	0.00	68.75	75.88

1490 NH CARD USED

*SECNO .930

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

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

.93	5.17	825.97	0.00	0.00	826.03	.06	.00	.01	826.00
225.	0.	207.	18.	0.	104.	18.	12.	7.	824.20
.56	0.00	1.99	1.00	.032	.045	.032	.071	820.80	7.07
.000647	3.	3.	3.	2	0	0	0.00	69.46	76.53

*SECNO .935

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

SECTION G MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

.94	7.31	826.01	0.00	0.00	826.05	.04	.02	.01	826.00
225.	0.	180.	45.	0.	106.	57.	12.	7.	823.60
.57	0.00	1.70	.78	.040	.040	.040	.070	818.70	400.00
.000346	33.	33.	33.	2	0	0	0.00	64.61	464.61

*SECNO .936

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

GOLF COURSE BRIDGE - D/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

.94	7.31	826.01	0.00	0.00	826.05	.04	.00	.00	826.00
225.	0.	185.	40.	0.	106.	57.	12.	7.	823.60
.57	0.00	1.74	.70	.040	.035	.040	.070	818.70	400.00

.000279	1.	1.	1.	0	0	0	0.00	64.62	464.62

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	2.72	0.00	17.00	0.00	80.90	0.00	820.90	818.70

*SECNO .939

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 826.223 EGLWC= 828.248 ELLC= 826.700 PCWSE= 826.008 ELTRD= 827.800

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 827.80 MAX ELLC= 826.70

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

GOLF COURSE BRIDGE - U/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

.94	5.10	826.00	0.00	0.00	826.07	.07	.01	.01	826.00
225.	0.	166.	59.	0.	70.	57.	12.	7.	823.60
.57	0.00	2.37	1.04	.040	.035	.040	.070	820.90	400.00
.000616	20.	20.	20.	3	0	0	-.00	64.47	464.47

*SECNO .940

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

SECTION G MODIFIED AT BANKS

.94	5.10	826.00	0.00	0.00	826.08	.08	.00	.01	826.00
225.	0.	179.	46.	0.	70.	57.	12.	7.	823.60
.57	0.00	2.56	.80	.080	.050	.080	.070	820.90	400.00
.001469	1.	1.	1.	0	0	0	0.00	64.48	464.48

*SECNO 1.052

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

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.05	4.30	826.50	0.00	0.00	826.51	.01	.41	.02	825.50
225.	163.	50.	12.	430.	42.	43.	16.	11.	825.20
.86	.38	1.21	.27	.080	.050	.080	.068	822.20	800.00
.000416	560.	591.	575.	2	0	0	0.00	517.78	1317.78

*SECNO 1.163

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.16	3.57	827.07	827.07	0.00	827.26	.19	.62	.09	826.80
225.	76.	146.	3.	117.	34.	5.	21.	17.	826.50
.91	.65	4.30	.63	.080	.050	.080	.067	823.50	800.00
.006921	560.	591.	575.	2	13	0	0.00	464.79	1264.79

*SECNO 1.275

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.28	4.15	828.85	0.00	0.00	828.88	.03	1.57	.05	828.00
380.	264.	99.	17.	367.	40.	32.	24.	24.	827.70
1.05	.72	2.48	.52	.080	.050	.080	.065	824.70	800.00
.001847	555.	591.	575.	6	0	0	0.00	507.09	1307.09

*SECNO 1.276

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 831.40 MAX ELLC= 829.60

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

GOLF COURSE BRIDGE - D/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

1.28	4.17	828.87	0.00	0.00	828.88	.01	.00	.00	831.70
380.	318.	47.	15.	366.	31.	28.	24.	24.	831.40
1.05	.87	1.52	.55	.040	.030	.040	.065	824.70	800.00
.000669	1.	1.	1.	1	0	0	-2.43	500.28	1307.45

*SECNO 1.280

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 831.40 MAX ELLC= 829.60

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

GOLF COURSE BRIDGE - U/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

1.28	3.89	828.89	0.00	0.00	828.90	.01	.02	.00	831.70
380.	322.	42.	16.	381.	29.	30.	25.	24.	831.40
1.06	.85	1.46	.53	.040	.030	.040	.065	825.00	800.00
.000602	25.	25.	25.	1	0	0	-2.54	502.81	1309.89

*SECNO 1.281

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/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 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.28	3.88	828.88	0.00	0.00	828.91	.03	.00	.01	828.00
380.	269.	95.	16.	381.	38.	33.	25.	24.	828.10
1.06	.71	2.50	.48	.090	.052	.090	.065	825.00	800.00
.002142	1.	1.	1.	0	0	0	0.00	509.42	1309.42

*SECNO 1.383

VALLEY SECTION 1.345 FROM PONTIAC TWP. FIS

1.38	3.21	830.51	0.00	0.00	830.55	.04	1.64	.01	829.70
430.	315.	109.	6.	318.	40.	9.	30.	30.	829.50
1.17	.99	2.73	.75	.100	.055	.100	.064	827.30	116.95
.003712	600.	539.	500.	4	0	0	0.00	317.75	434.70

*SECNO 1.439

VALLEY SECTION 1.402 FROM PONTIAC TWP. FIS

1.44	4.46	831.46	0.00	0.00	831.51	.05	.95	.01	829.60
430.	180.	172.	78.	218.	63.	99.	33.	32.	829.40
1.23	.83	2.73	.79	.100	.055	.100	.063	827.00	240.65
.002049	400.	300.	250.	1	0	0	0.00	271.74	512.40

*SECNO 1.562

3470 ENCROACHMENT STATIONS= .0 650.0 TYPE= 1 TARGET= 649.999

VALLEY SECTION 1.525 FROM PONTIAC TWP. FIS

1.56	4.86	832.86	0.00	0.00	832.93	.06	1.41	.01	829.80

450.	158.	163.	109.	18[illegible].	52.	169.	39.	37.	831.40
1.34	.84	3.11	.65	.100	.055	.100	.063	828.00	268.98
.002368	600.	650.	700.	3	0	0	0.00	381.02	650.00

1490 NH CARD USED
*SECNO 1.695

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 809.0 TYPE= 1 TARGET= 808.999

VALLEY SECTION 1.658 FROM PONTIAC TWP. FIS

1.70	5.37	834.97	0.00	0.00	835.27	.30	2.23	.12	833.30
430.	63.	350.	17.	67.	72.	21.	44.	41.	833.50
1.39	.94	4.84	.83	.104	.050	.100	.062	829.60	523.87
.004677	600.	700.	800.	2	0	0	0.00	179.89	793.23

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1      AVON TOWNSHIP F.I.S. - JOB NO. 5850-01 - PROJECT MANAGER, JOHN EMIG
T2      50-YEAR FLOW
T3      GALLOWAY CREEK - OAKLAND COUNTY, MICHIGAN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       3.        0.        0.  0.000000      0.00      0.0       0.   812.900   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

*PROF 2

CCHV=    .300 CEHV=    .500
*SECNO .000

3265 DIVIDED FLOW

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

          VALLEY SECTION A REPEATED AND ADJUSTED FOR CHANNEL INVERT.

     0.00      4.70   812.90      0.00   812.90    813.15      .25      0.00      0.00   811.90
     444.      10.    329.      106.      18.       71.       63.       0.        0.     811.70
     0.00      .54      4.61      1.69    .100      .055      .100     0.000   808.20   133.67
  .006223      0.       0.        0.        0         0         0      0.00    126.52   305.90

1490 NH CARD USED
*SECNO .062

          VALLEY SECTION A

      .06      5.44   814.14      0.00      0.00   814.22      .08      1.01      .05   812.40
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444.	95.	244.	105.	105.	56.	95.	2.	1.	812.20
.05	.93	2.83	1.13	.057	.055	.100	.055	808.70	108.80
.001821	330.	330.	330.	3	0	0	0.00	200.74	309.54

*SECNO .106

3470 ENCROACHMENT STATIONS= .0 480.0 TYPE= 1 TARGET= 479.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.11	4.69	814.69	0.00	0.00	814.84	.15	.58	.04	813.50
444.	19.	286.	140.	22.	76.	103.	3.	2.	813.00
.07	.84	3.75	1.36	.060	.055	.100	.055	810.00	119.01
.003769	240.	230.	225.	2	0	0	0.00	178.82	297.83

*SECNO .150

3470 ENCROACHMENT STATIONS= .0 390.0 TYPE= 1 TARGET= 389.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.15	4.31	815.61	0.00	0.00	815.76	.15	.92	.00	814.60
444.	10.	279.	155.	8.	73.	121.	4.	3.	813.90
.09	1.15	3.84	1.29	.060	.055	.100	.055	811.30	157.84
.004261	250.	230.	225.	2	0	0	0.00	136.46	294.29

*SECNO .193

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= .0 300.0 TYPE= 1 TARGET= 299.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.19	3.99	816.59	0.00	0.00	816.72	.13	.95	.01	815.70

444.	8.	256.	181.	7.	70.	159.	5.	4.	814.80
.11	1.05	3.64	1.14	.060	.055	.100	.055	812.60	133.64
.004077	240.	230.	225.	2	0	0	0.00	166.36	300.00

*SECNO .237

3470 ENCROACHMENT STATIONS= .0 215.0 TYPE= 1 TARGET= 214.999

VALLEY SECTION B

.24	3.61	817.61	0.00	0.00	817.81	.21	1.06	.04	816.90
444.	5.	293.	146.	5.	67.	92.	6.	5.	815.70
.13	1.08	4.37	1.59	.050	.050	.080	.054	814.00	105.88
.005290	240.	230.	225.	2	0	0	0.00	109.12	215.00

*SECNO .290

3470 ENCROACHMENT STATIONS= 121.0 150.0 TYPE= 1 TARGET= 29.000

SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

.29	5.69	818.59	0.00	0.00	818.77	.18	.95	.01100000.00	
444.	0.	393.	51.	0.	109.	31.	7.	5.	814.60
.16	0.00	3.59	1.63	.050	.050	.080	.053	812.90	121.00
.002107	250.	285.	350.	2	0	0	0.00	29.00	150.00

*SECNO .291

3470 ENCROACHMENT STATIONS= 121.0 150.0 TYPE= 1 TARGET= 29.000

BUTLER ROAD BRIDGE - D/S FACE - SECTION 0.290 REPEATED

.29	5.72	818.62	0.00	0.00	818.78	.16	.00	.01100000.00	
444.	0.	368.	76.	0.	110.	32.	7.	5.	814.60
.16	0.00	3.34	2.42	.035	.035	.035	.053	812.90	121.00
.000885	1.	1.	1.	2	0	0	0.00	29.00	150.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.72	2.72	0.00	15.00	0.00	72.70	0.00	812.90	812.90

*SECNO .293
PRESSURE AND WEIR FLOW

EGP.S	EGLWC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
819.62	819.09	0.00	2.	443.	73.	78.	818.10	819.50

3470 ENCROACHMENT STATIONS= 140.0 169.0 TYPE= 1 TARGET= 29.000

BUTLER ROAD BRIDGE - U/S FACE - SECTION C

.29	6.33	819.23	0.00	0.00	819.61	.38	.83	0.00	819.50
444.	0.	444.	0.	0.	90.	0.	7.	5.	819.50
.16	0.00	4.95	0.00	.035	.035	.035	.053	812.90	142.00
.002629	14.	14.	14.	2	0	2	0.00	15.00	157.00

*SECNO .294

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

3470 ENCROACHMENT STATIONS= 143.0 172.0 TYPE= 1 TARGET= 29.000

SECTION D MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

.29	6.64	819.54	0.00	0.00	819.68	.14	.00	.07100000.00	
444.	0.	444.	0.	0.	146.	0.	7.	5. 100000.00	
.16	0.00	3.04	0.00	.050	.040	.050	.053	812.90	143.00
.001028	1.	1.	1.	2	0	0	0.00	29.00	172.00

*SECNO .299

3470 ENCROACHMENT STATIONS= 142.0 165.0 TYPE= 1 TARGET= 23.000

SECTION D MODIFIED AT BANKS

.30	7.07	819.57	0.00	0.00	819.72	.15	.03	.00100000.00	
444.	0.	444.	0.	0.	141.	0.	7.	5. 100000.00	
.16	0.00	3.14	0.00	.050	.040	.050	.052	812.50	142.00
.001039	30.	30.	30.	2	0	0	0.00	23.00	165.00

*SECNO .300

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

FORM 1857 - GB PRINTED BY ROTARY MANIFOLD FORMS

DOWNST EA , FACE - SECTION D

.30	7.07	819.57	0.00	0.00	819.72	.15	.00	.00	821.00	
444.	0.	444.	0.	0.	141.	0.	7.	5.	821.00	
.16	0.00	3.14	0.00	.040	.035	.040	.052	812.50	142.00	
.000792	1.	1.	1.	0	0	0	0.00	23.00	165.00	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	2.69	0.00	23.00	0.00	105.10	0.00	812.50	812.50

*SECNO .301
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
819.99	819.72	0.00	0.	444.	105.	166.	819.70	820.80

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

UPSTREAM FACE - SECTION D

.30	7.36	819.86	0.00	0.00	819.99	.14	.27	0.00	821.00
444.	0.	444.	0.	0.	148.	0.	7.	5.	821.00
.16	0.00	3.00	0.00	.040	.035	.040	.052	812.50	142.00
.000696	3.	3.	3.	2	0	0	0.00	23.00	165.00

*SECNO .302

3470 ENCROACHMENT STATIONS= 142.0 165.0 TYPE= 1 TARGET= 23.000

SECTION D MODIFIED AT BANKS

.30	7.36	819.86	0.00	0.00	820.00	.14	.00	.00100000.00	
444.	0.	444.	0.	0.	148.	0.	7.	5.	100000.00
.16	0.00	3.00	0.00	.070	.040	.050	.052	812.50	142.00
.000912	1.	1.	1.	0	0	0	0.00	23.00	165.00

*SECNO .595

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	IT.IAL	IDC	ICO.T	CO.A	TOPWID	ENDST
VALLEY SECTION E									
.60	8.54	821.64	0.00	0.00	821.66	.02	1.63	.04	820.80
432.	13.	163.	256.	41.	101.	305.	18.	12.	820.90
.55	.32	1.61	.84	.125	.080	.075	.066	813.10	180.01
.001217	1590.	1554.	1570.	3	0	0	0.00	331.38	511.39

*SECNO .680

3265 DIVIDED FLOW

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.68	6.71	822.61	0.00	0.00	822.79	.18	1.05	.08	822.60
432.	0.	370.	62.	0.	100.	77.	21.	14.	822.70
.59	.01	3.70	.80	.125	.080	.125	.068	815.90	273.48
.006731	475.	450.	415.	3	0	0	0.00	161.28	437.16

*SECNO .765

3470 ENCROACHMENT STATIONS= 125.0 542.0 TYPE= 1 TARGET= 417.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.77	7.25	824.85	0.00	0.00	824.96	.11	2.15	.02	824.50
432.	9.	355.	68.	25.	120.	105.	23.	16.	824.50
.64	.34	2.96	.65	.125	.080	.125	.069	817.60	235.30
.003642	480.	450.	415.	2	0	0	0.00	251.60	486.89

*SECNO .850

3470 ENCROACHMENT STATIONS= 265.0 482.0 TYPE= 1 TARGET= 217.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.85	7.35	826.55	0.00	0.00	826.69	.14	1.71	.01	826.40
432.	4.	398.	29.	18.	128.	55.	26.	18.	826.40
.68	.26	3.12	.52	.125	.080	.125	.070	819.20	265.00
.004035	475.	449.	415.	2	0	0	0.00	217.00	482.00

1490 NH CARD USED
*SECNO .887

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE (ALSO APPLICABLE TO THE FOLLOWING TWO SECTIONS).

.89	6.71	827.11	0.00	0.00	827.16	.05	.45	.03	825.70
432.	221.	151.	60.	130.	70.	48.	27.	19.	825.70
.71	1.70	2.15	1.25	.073	.060	.035	.071	820.40	.00
.001382	220.	200.	180.	2	0	0	0.00	125.22	125.22

1490 NH CARD USED
*SECNO .888

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= 5 MIN ELTRD= 824.70 MAX ELLC= 823.20

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

LOGJAM AND TREEFALL AREA - DOWNSTREAM SIDE. LOGJAM IN MAIN CHANNEL

HAS CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH

TREE LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

.89	6.70	827.10	0.00	0.00	827.17	.07	.00	.01	825.70
432.	248.	80.	104.	107.	47.	48.	27.	19.	825.70
.71	2.31	1.70	2.18	.078	.060	.035	.071	820.40	.00

FORM 1465.GO PRINTED BY ROTARY MANIFOLD FOR IS

.004256	1.	1.	1.	1	0	0	-25.10	125.11	125.11

*SECNO .889

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 824.70 MAX ELLC= 823.20

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

LOGJAM AND TREEFALL AREA - UPSTREAM SIDE. LOGJAM IN MAIN CHANNEL HAS

CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH TREE

LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

.89	6.71	827.11	0.00	0.00	827.19	.08	.01	.00	825.70
432.	260.	63.	110.	107.	40.	48.	27.	19.	825.70
.71	2.42	1.58	2.29	.078	.060	.035	.071	820.40	.00
.004637	3.	3.	3.	0	0	0	-30.60	125.23	125.23

1490 NH CARD USED
*SECNO .890

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE

.89	6.75	827.15	0.00	0.00	827.20	.05	.00	.01	825.70
432.	219.	149.	63.	132.	71.	51.	27.	19.	825.70
.71	1.67	2.11	1.24	.073	.060	.035	.071	820.40	.00
.001312	1.	1.	1.	2	0	0	0.00	127.40	127.40

1490 NH CARD USED
*SECNO .928
3280 CROSS SECTION .93 EXTENDED .11 FEET

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

FORMS PRINTED BY ROTARY HARRISON FORMS

.93	0.51	827.31	0.00	0.00	827.38	.07	.17	.01	826.00
432.	4.	318.	110.	5.	146.	65.	28.	20.	824.20
.74	.86	2.18	1.69	.032	.045	.032	.071	820.80	0.00
.000559	220.	206.	190.	2	0	0	0.00	104.70	104.70

1490 NH CARD USED
*SECNO .929
3280 CROSS SECTION .93 EXTENDED .11 FEET

CONCRETE CONTROL IN CHANNEL FOR U.S.G.S. GAGING STATION-SECTION F

.93	4.90	827.30	0.00	0.00	827.39	.09	.00	.01	826.00
432.	3.	349.	80.	5.	130.	65.	28.	20.	824.20
.74	.62	2.68	1.23	.032	.043	.032	.071	822.40	0.00
.000296	3.	3.	3.	1	0	0	0.00	104.64	104.64

1490 NH CARD USED
*SECNO .930
3280 CROSS SECTION .93 EXTENDED .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

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

.93	6.54	827.34	0.00	0.00	827.40	.06	.00	.01	826.00
432.	4.	316.	111.	5.	146.	66.	28.	20.	824.20
.74	.86	2.16	1.69	.032	.045	.032	.071	820.80	0.00
.000543	3.	3.	3.	2	0	0	0.00	105.31	105.31

*SECNO .935

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

SECTION G MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

.94	8.67	827.37	0.00	0.00	827.42	.05	.02	.00	826.00
430.	0.	267.	163.	0.	129.	141.	28.	20.	823.60
.74	0.00	2.06	1.16	.040	.040	.040	.071	818.70	400.00
.000418	33.	33.	33.	2	0	0	0.00	91.59	491.59

*SECNO .936

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

GOLF COURSE BRIDGE - D/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

.94	8.67	827.37	0.00	0.00	827.43	.05	.00	.00	826.00
430.	0.	280.	150.	0.	129.	141.	28.	20.	823.60
.74	0.00	2.17	1.06	.040	.035	.040	.071	818.70	400.00
.000352	1.	1.	1.	0	0	0	0.00	91.60	491.60

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	2.72	0.00	17.00	0.00	80.90	0.00	820.90	818.70

*SECNO .939
PRESS FLOW BECAUSE EGLWC OF 829.63 EXCEEDS 1.5 DEPTH
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
828.16	829.63	0.00	10.	421.	81.	99.	826.70	827.80

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

GOLF COURSE BRIDGE - U/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

.94	7.18	828.08	0.00	0.00	828.12	.04	.70	0.00	826.00
430.	0.	209.	221.	0.	105.	199.	28.	20.	823.60
.75	0.00	1.99	1.11	.040	.035	.040	.071	820.90	400.00
.000283	20.	20.	20.	2	0	4	0.00	108.36	508.36

*SECNO .940

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

SECTION G MODIFIED AT BANKS

.94	7.18	828.08	0.00	0.00	828.13	.05	.00	.01	826.00
430.	0.	245.	185.	0.	105.	199.	28.	20.	823.60
.75	0.00	2.33	.93	.080	.050	.080	.070	820.90	400.00
.000794	1.	1.	1.	0	0	0	0.00	108.37	508.37

*SECNO 1.052

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

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.05	6.03	828.23	0.00	0.00	828.23	.00	.09	.02	825.50
430.	336.	36.	58.	1172.	60.	269.	40.	24.	825.20
1.27	.29	.60	.22	.080	.050	.080	.069	822.20	800.00
.000063	560.	591.	575.	2	0	0	0.00	591.83	1391.83

*SECNO 1.163

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.16	4.81	828.31	0.00	0.00	828.31	.01	.08	.00	826.80
430.	334.	64.	32.	646.	47.	92.	55.	32.	826.50
1.52	.52	1.36	.35	.080	.050	.080	.067	823.50	800.00
.000452	560.	591.	575.	2	0	0	0.00	554.16	1354.16

*SECNO 1.275

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.28	4.21	828.91	0.00	0.00	828.97	.06	.63	.02	828.00
570.	403.	140.	27.	391.	41.	36.	63.	39.	827.70
1.62	1.03	3.45	.73	.080	.050	.080	.066	824.70	800.00
.003498	555.	591.	575.	3	0	0	0.00	511.12	1311.12

*SECNO 1.276

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 831.40 MAX ELLC= 829.60

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

GOLF COURSE BRIDGE - D/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

1.28	4.26	828.96	0.00	0.00	828.98	.03	.00	.01	831.70
570.	483.	62.	25.	407.	32.	34.	63.	39.	831.40
1.62	1.19	1.96	.75	.040	.030	.040	.066	824.70	800.00
.001089	1.	1.	1.	2	0	0	-2.72	507.39	1314.31

*SECNO 1.280

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 831.40 MAX ELLC= 829.60

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

GOLF COURSE BRIDGE - U/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

1.28	3.98	828.98	0.00	0.00	829.01	.02	.03	.00	831.70
570.	487.	57.	26.	419.	30.	36.	63.	39.	831.40
1.63	1.16	1.90	.73	.040	.030	.040	.066	825.00	800.00
.001007	25.	25.	25.	2	0	0	-2.80	509.49	1316.33

*SECNO 1.281

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/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 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.28	3.97	828.97	0.00	0.00	829.02	.05	.00	.01	828.00
570.	413.	130.	27.	420.	39.	40.	63.	39.	828.10
1.63	.98	3.32	.67	.090	.052	.090	.066	825.00	800.00
.003672	1.	1.	1.	1	0	0	0.00	515.96	1315.96

*SECNO 1.383

VALLEY SECTION 1.345 FROM PONTIAC TWP. FIS

1.38	3.61	830.91	0.00	0.00	830.95	.04	1.93	.00	829.70
615.	473.	130.	12.	438.	47.	13.	70.	45.	829.50
1.74	1.08	2.75	.88	.100	.055	.100	.064	827.30	106.86
.003009	600.	539.	500.	4	0	0	0.00	328.40	435.26

*SECNO 1.439

VALLEY SECTION 1.402 FROM PONTIAC TWP. FIS

1.44	4.82	831.82	0.00	0.00	831.88	.06	.92	.01	829.60
615.	279.	212.	125.	280.	69.	131.	74.	47.	829.40
1.80	.99	3.05	.95	.100	.055	.100	.064	827.00	232.19
.002237	400.	300.	250.	2	0	0	0.00	288.26	520.45

*SECNO 1.562

3470 ENCROACHMENT STATIONS= .0 650.0 TYPE= 1 TARGET= 649.999

VALLEY SECTION 1.525 FROM PONTIAC TWP. FIS

1.56	5.25	833.25	0.00	0.00	833.30	.05	1.42	.00	829.80
615.	240.	180.	195.	253.	57.	245.	81.	52.	831.40
1.91	.95	3.16	.80	.100	.055	.100	.063	828.00	266.66
.002181	600.	650.	700.	2	0	0	0.00	383.34	650.00

1490 NH CARD USED

*SECNO 1.695

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 809.0 TYPE= 1 TARGET= 808.999

VALLEY SECTION 1.658 FROM PONTIAC TWP. FIS

1.70	5.77	835.37	0.00	0.00	835.73	.36	2.28	.15	833.30
615.	134.	445.	36.	138.	79.	34.	88.	57.	833.50
1.96	.97	5.63	1.07	.108	.050	.100	.062	829.60	495.19
.005602	600.	700.	800.	2	0	0	0.00	273.81	800.91

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


T1      AVON TOWNSHIP F.I.S. - JOB NO. 5850-01 - PROJECT MANAGER, JOHN EMIG
T2      100-YEAR FLOW
T3      GALLOWAY CREEK - OAKLAND COUNTY, MICHIGAN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0.        0.  0.000000      0.00      0.0       0.   814.000     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

*PROF 3

CCHV=    .300 CEHV=    .500
*SECNO .000

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


          VALLEY SECTION A REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      0.00      5.80    814.00      0.00    814.00    814.08      .08      0.00      0.00    811.90
      516.      102.      281.      133.      154.       93.      108.        0.        0.    811.70
      0.00       .67      3.00      1.23      .100      .055      .100     0.000    808.20     97.00
  .001851        0.        0.        0.         0         0         0      0.00    214.27    311.27


1490 NH CARD USED
*SECNO .062

          VALLEY SECTION A

       .06      5.84    814.54      0.00      0.00    814.60      .05       .51       .01    812.40
      516.      163.      239.      115.      160.       94.      110.        3.        2.    812.20
       .05      1.02      2.53      1.04      .056      .055      .100      .055    808.70     95.51
  .001297      330.      330.      330.         2         0         0      0.00    215.98    311.49
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*SECNO .106

3470 ENCROACHMENT STATIONS= .0 480.0 TYPE= 1 TARGET= 479.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.11	4.96	814.96	0.00	0.00	815.09	.14	.45	.04	813.50
516.	48.	302.	166.	49.	82.	120.	4.	3.	813.00
.08	.98	3.69	1.39	.060	.055	.100	.055	810.00	109.85
.003340	240.	230.	225.	2	0	0	0.00	190.54	300.38

*SECNO .150

3470 ENCROACHMENT STATIONS= .0 390.0 TYPE= 1 TARGET= 389.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.15	4.51	815.81	0.00	0.00	815.97	.16	.86	.01	814.60
516.	18.	306.	192.	16.	77.	140.	6.	4.	813.90
.10	1.13	3.98	1.38	.060	.055	.100	.055	811.30	119.70
.004240	250.	230.	225.	2	0	0	0.00	179.15	298.85

*SECNO .193

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= .0 300.0 TYPE= 1 TARGET= 299.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.19	4.18	816.78	0.00	0.00	816.91	.13	.94	.01	815.70
516.	13.	278.	225.	11.	74.	183.	7.	5.	814.80
.12	1.17	3.74	1.23	.060	.055	.100	.055	812.60	126.34
.003978	240.	230.	225.	2	0	0	0.00	173.66	300.00

EQUIPMENT OF PRINTED BY ROTARY MANIFOLD FORMS

*SECNO .237

3470 ENCROACHMENT STATIONS= .0 215.0 TYPE= 1 TARGET= 214.999

VALLEY SECTION B

.24	3.79	817.79	0.00	0.00	818.01	.22	1.05	.05	816.90
516.	10.	324.	183.	8.	71.	105.	8.	5.	815.70
.14	1.26	4.57	1.74	.050	.050	.080	.054	814.00	102.30
.005348	240.	230.	225.	2	0	0	0.00	112.70	215.00

*SECNO .290

3470 ENCROACHMENT STATIONS= 121.0 150.0 TYPE= 1 TARGET= 29.000

SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

.29	5.93	818.83	0.00	0.00	819.06	.22	1.05	.00100000.00	
516.	0.	456.	60.	0.	115.	33.	9.	6.	814.60
.16	0.00	3.98	1.81	.050	.050	.080	.053	812.90	121.00
.002465	250.	285.	350.	2	0	0	0.00	29.00	150.00

*SECNO .291

3470 ENCROACHMENT STATIONS= 121.0 150.0 TYPE= 1 TARGET= 29.000

BUTLER ROAD BRIDGE - D/S FACE - SECTION 0.290 REPEATED

.29	5.97	818.87	0.00	0.00	819.07	.19	.00	.01100000.00	
516.	0.	426.	90.	0.	115.	34.	9.	6.	814.60
.16	0.00	3.69	2.69	.035	.035	.035	.053	812.90	121.00
.001029	1.	1.	1.	2	0	0	0.00	29.00	150.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.72	2.72	0.00	15.00	0.00	72.70	0.00	812.90	812.90

*SECNO .293

3280 CROSS SECTION .29 EXTENDED .09 FEET

PRESSURE AND WEIR FLOW

EGP S	EGL C	HS	Q EIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
820.22	819.45	0.00	20.	499.	73.	78.	818.10	819.50

3470 ENCROACHMENT STATIONS= 140.0 169.0 TYPE= 1 TARGET= 29.000

BUTLER ROAD BRIDGE - U/S FACE - SECTION C

.29	6.79	819.69	0.00	0.00	820.13	.44	1.06	0.00	819.50
516.	0.	514.	2.	0.	97.	2.	9.	6.	819.50
.16	.63	5.32	.71	.035	.035	.035	.052	812.90	140.00
.002828	14.	14.	14.	2	0	2	0.00	29.00	169.00

*SECNO .294

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

3470 ENCROACHMENT STATIONS= 143.0 172.0 TYPE= 1 TARGET= 29.000

SECTION D MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

.29	7.16	820.06	0.00	0.00	820.22	.16	.00	.08100000.00	
516.	0.	516.	0.	0.	161.	0.	9.	6. 100000.00	
.16	0.00	3.21	0.00	.050	.040	.050	.052	812.90	143.00
.001042	1.	1.	1.	2	0	0	0.00	29.00	172.00

*SECNO .299

3470 ENCROACHMENT STATIONS= 142.0 165.0 TYPE= 1 TARGET= 23.000

SECTION D MODIFIED AT BANKS

.30	7.58	820.08	0.00	0.00	820.26	.18	.03	.01100000.00	
516.	0.	516.	0.	0.	153.	0.	9.	6. 100000.00	
.17	0.00	3.37	0.00	.050	.040	.050	.052	812.50	142.00
.001119	30.	30.	30.	2	0	0	0.00	23.00	165.00

*SECNO .300

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

DOW STREA FACE - SECTIO. D

.30	7.58	820.08	0.00	0.00	820.26	.18	.00	.00	821.00
516.	0.	516.	0.	0.	153.	0.	9.	6.	821.00
.17	0.00	3.37	0.00	.040	.035	.040	.052	812.50	142.00
.000853	1.	1.	1.	0	0	0	0.00	23.00	165.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	2.69	0.00	23.00	0.00	105.10	0.00	812.50	812.50

*SECNO .301
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
820.66	820.26	0.00	0.	516.	105.	166.	819.70	820.80

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

UPSTREAM FACE - SECTION D

.30	8.00	820.50	0.00	0.00	820.66	.16	.40	0.00	821.00
516.	0.	516.	0.	0.	163.	0.	9.	6.	821.00
.17	0.00	3.17	0.00	.040	.035	.040	.052	812.50	142.00
.000718	3.	3.	3.	2	0	0	0.00	23.00	165.00

*SECNO .302

3470 ENCROACHMENT STATIONS= 142.0 165.0 TYPE= 1 TARGET= 23.000

SECTION D MODIFIED AT BANKS

.30	8.00	820.50	0.00	0.00	820.66	.16	.00	.00100000.00	
516.	0.	516.	0.	0.	163.	0.	9.	6.	100000.00
.17	0.00	3.17	0.00	.070	.040	.050	.052	812.50	142.00
.000941	1.	1.	1.	0	0	0	0.00	23.00	165.00

*SECNO .595

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	CONAR	TOPWID	EDST
VALLEY SECTION E									
.60	8.94	822.04	0.00	0.00	822.06	.02	1.36	.04	820.80
498.	24.	148.	327.	71.	108.	407.	23.	13.	820.90
.62	.33	1.37	.80	.125	.080	.075	.066	813.10	167.30
.000807	1590.	1554.	1570.	2	0	0	0.00	349.60	516.90

*SECNO .680

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.68	6.85	822.75	0.00	0.00	822.95	.20	.80	.09	822.60
498.	1.	407.	90.	4.	103.	98.	27.	16.	822.70
.66	.22	3.96	.92	.125	.080	.125	.068	815.90	229.52
.007470	475.	450.	415.	2	0	0	0.00	222.89	452.41

*SECNO .765

3470 ENCROACHMENT STATIONS= 125.0 542.0 TYPE= 1 TARGET= 417.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.77	7.48	825.08	0.00	0.00	825.18	.11	2.21	.03	824.50
498.	21.	375.	102.	47.	125.	141.	29.	18.	824.50
.71	.45	3.00	.72	.125	.080	.125	.069	817.60	217.05
.003542	480.	450.	415.	3	0	0	0.00	291.23	508.28

*SECNO .850

3470 ENCROACHMENT STATIONS= 265.0 482.0 TYPE= 1 TARGET= 217.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.85	7.56	826.76	0.00	0.00	826.90	.14	1.70	.02	826.40
498.	16.	431.	51.	38.	133.	77.	32.	21.	826.40

.75	.42	3.24	.65	.12	.080	.125	.070	819.20	265.00
.004126	475.	449.	415.	3	0	0	0.00	217.00	482.00

1490 NH CARD USED
*SECNO .887

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE (ALSO APPLICABLE TO THE FOLLOWING TWO SECTIONS).

.89	6.93	827.33	0.00	0.00	827.38	.05	.46	.03	825.70
498.	245.	163.	90.	140.	73.	64.	33.	21.	825.70
.78	1.76	2.23	1.40	.074	.060	.035	.071	820.40	.00
.001417	220.	200.	180.	2	0	0	0.00	135.00	135.00

1490 NH CARD USED
*SECNO .888

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= 5 MIN ELTRD= 824.70 MAX ELLC= 823.20

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

LOGJAM AND TREEFALL AREA - DOWNSTREAM SIDE. LOGJAM IN MAIN CHANNEL

HAS CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH

TREE LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

.89	6.92	827.32	0.00	0.00	827.39	.07	.00	.01	825.70
498.	266.	84.	148.	117.	50.	64.	33.	21.	825.70
.78	2.27	1.68	2.31	.079	.060	.035	.071	820.40	.00
.003854	1.	1.	1.	1	0	0	-23.10	135.00	135.00

*SECNO .889

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 824.70 MAX ELLC= 823.20

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

LOGJAM AND TREEFALL AREA - UPSTREAM SIDE. LOGJAM IN MAIN CHANNEL HAS

CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH TREE

LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

.89	6.93	827.33	0.00	0.00	827.41	.08	.01	.00	825.70
498.	277.	66.	155.	117.	42.	64.	34.	21.	825.70
.78	2.36	1.56	2.41	.079	.060	.035	.071	820.40	.00
.004162	3.	3.	3.	0	0	0	-30.60	135.00	135.00

1490 NH CARD USED

*SECNO .890

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE

.89	6.97	827.37	0.00	0.00	827.42	.05	.00	.01	825.70
498.	243.	160.	95.	141.	73.	67.	34.	21.	825.70
.78	1.71	2.18	1.41	.074	.060	.035	.071	820.40	.00
.001341	1.	1.	1.	2	0	0	0.00	135.00	135.00

1490 NH CARD USED

*SECNO .928

3280 CROSS SECTION .93 EXTENDED .33 FEET

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

.93	6.73	827.53	0.00	0.00	827.61	.07	.18	.01	826.00
498.	7.	354.	137.	7.	153.	73.	35.	22.	824.20
.81	1.04	2.32	1.89	.032	.044	.032	.071	820.80	0.00

.000601	220.	206.	190.	2	0	0	0.00	109.40	109.40

1490 NH CARD USED
*SECNO .929
3280 CROSS SECTION .93 EXTENDED .33 FEET

CONCRETE CONTROL IN CHANNEL FOR U.S.G.S. GAGING STATION-SECTION F

.93	5.12	827.52	0.00	0.00	827.63	.11	.00	.02	826.00
498.	5.	393.	100.	7.	137.	73.	35.	22.	824.20
.81	.76	2.87	1.38	.032	.043	.032	.071	822.40	0.00
.000321	3.	3.	3.	1	0	0	0.00	109.31	109.31

1490 NH CARD USED
*SECNO .930
3280 CROSS SECTION .93 EXTENDED .36 FEET

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

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

.93	6.76	827.56	0.00	0.00	827.64	.07	.00	.01	826.00
498.	7.	352.	138.	7.	154.	74.	35.	22.	824.20
.81	1.05	2.30	1.88	.032	.044	.032	.071	820.80	0.00
.000584	3.	3.	3.	2	0	0	0.00	110.06	110.06

*SECNO .935

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= =400.000

SECTION G MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

.94	8.91	827.61	0.00	0.00	827.66	.06	.02	.01	826.00
496.	0.	294.	202.	0.	133.	159.	35.	22.	823.60
.82	0.00	2.21	1.27	.040	.040	.040	.071	818.70	400.00
.000465	33.	33.	33.	2	0	0	0.00	96.16	496.16

*SECNO .936

3470 ENCROACH E.T STATIO..S= 400.0 645.0 TYPE= 1 TARGET= -400.000

GOLF COURSE BRIDGE - D/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

.94	8.90	827.60	0.00	0.00	827.66	.06	.00	.00	826.00
496.	0.	310.	186.	0.	133.	159.	35.	22.	823.60
.82	0.00	2.33	1.17	.040	.035	.040	.071	818.70	400.00
.000395	1.	1.	1.	0	0	0	0.00	96.17	496.17

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	2.72	0.00	17.00	0.00	80.90	0.00	820.90	818.70

*SECNO .939
PRESS FLOW BECAUSE EGLWC OF 829.86 EXCEEDS 1.5 DEPTH
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
828.65	829.86	0.00	65.	435.	81.	99.	826.70	827.80

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

GOLF COURSE BRIDGE - U/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

.94	7.46	828.36	0.00	0.00	828.41	.04	.74	0.00	826.00
496.	0.	226.	270.	0.	110.	226.	35.	22.	823.60
.82	0.00	2.05	1.20	.040	.035	.040	.071	820.90	400.00
.000290	20.	20.	20.	2	0	4	0.00	116.56	516.56

*SECNO .940

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

SECTION G MODIFIED AT BANKS

.94	7.46	828.36	0.00	0.00	828.41	.06	.00	.01	826.00
496.	0.	268.	228.	0.	110.	226.	35.	22.	823.60

.02	0.00	2.45	1.01	.080	.050	.080	.071	820.90	400.00
.000831	1.	1.	1.	0	0	0	0.00	116.57	516.57

*SECNO 1.052

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/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 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.05	6.31	828.51	0.00	0.00	828.52	.00	.09	.02	825.50
496.	386.	38.	73.	1292.	63.	311.	48.	27.	825.20
1.33	.30	.60	.23	.080	.050	.080	.069	822.20	800.00
.000060	560.	591.	575.	2	0	0	0.00	592.53	1392.53

*SECNO 1.163

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.16	5.08	828.58	0.00	0.00	828.59	.01	.07	.00	826.80
496.	390.	62.	43.	763.	50.	126.	65.	34.	826.50
1.60	.51	1.26	.34	.080	.050	.080	.067	823.50	800.00
.000354	560.	591.	575.	2	0	0	0.00	573.98	1373.98

*SECNO 1.275

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.28	4.34	829.04	0.00	0.00	829.08	.04	.48	.02	828.00
617.	452.	132.	33.	450.	42.	47.	74.	41.	827.70
1.71	1.01	3.14	.70	.080	.050	.080	.066	824.70	800.00
.002761	555.	591.	575.	2	0	0	0.00	521.03	1321.03

*SECNO 1.276

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 831.40 MAX ELLC= 829.60

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

GOLF COURSE BRIDGE - D/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

1.28	4.37	829.07	0.00	0.00	829.09	.02	.00	.01	831.70
617.	531.	55.	31.	456.	32.	43.	74.	41.	831.40
1.71	1.16	1.69	.73	.040	.030	.040	.066	824.70	800.00
.000901	1.	1.	1.	2	0	0	-3.11	516.05	1322.66

*SECNO 1.280

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 831.40 MAX ELLC= 829.60

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

GOLF COURSE BRIDGE - U/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

1.28	4.09	829.09	0.00	0.00	829.11	.02	.02	.00	831.70
617.	534.	51.	32.	465.	30.	44.	75.	42.	831.40

FORM 14-15 OR PRINTED BY ROTARY MANIFOLD FORMS

1.71	1.15	1.66	.72	.040	.050	.040	.066	825.00	800.00
.000853	25.	25.	25.	2	0	0	-3.23	517.72	1324.27

*SECNO 1.281

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/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 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.28	4.08	829.08	0.00	0.00	829.13	.04	.00	.01	828.00
617.	459.	126.	32.	469.	40.	49.	75.	42.	828.10
1.71	.98	3.13	.66	.090	.052	.090	.066	825.00	800.00
.003118	1.	1.	1.	0	0	0	0.00	524.33	1324.33

*SECNO 1.383

VALLEY SECTION 1.345 FROM PONTIAC TWP. FIS

1.38	3.64	830.94	0.00	0.00	830.98	.04	1.86	.00	829.70
655.	505.	137.	13.	446.	48.	14.	82.	47.	829.50
1.82	1.13	2.87	.93	.100	.055	.100	.064	827.30	106.22
.003243	600.	539.	500.	4	0	0	0.00	329.07	435.29

*SECNO 1.439

VALLEY SECTION 1.402 FROM PONTIAC TWP. FIS

1.44	4.89	831.89	0.00	0.00	831.95	.06	.96	.01	829.60
655.	300.	220.	135.	293.	71.	138.	86.	50.	829.40
1.88	1.03	3.11	.98	.100	.055	.100	.064	827.00	230.56
.002271	400.	300.	250.	2	0	0	0.00	291.45	522.01

*SECNO 1.562

3470 ENCROACHMENT STATIONS= .0 650.0 TYPE= 1 TARGET= 649.999

VALLEY SECTION 1.525 FROM PONTIAC TWP. FIS

1.56	5.33	833.33	0.00	0.00	833.38	.05	1.43	.00	829.80
655.	257.	184.	214.	266.	58.	260.	94.	55.	831.40
1.99	.97	3.18	.82	.100	.055	.100	.063	828.00	266.23
.002170	600.	650.	700.	1	0	0	0.00	383.77	650.00

1490 NH CARD USED
*SECNO 1.695

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 809.0 TYPE= 1 TARGET= 808.999

VALLEY SECTION 1.658 FROM PONTIAC TWP. FIS

1.70	5.85	835.45	0.00	0.00	835.81	.36	2.28	.16	833.30
655.	153.	461.	40.	157.	80.	37.	101.	60.	833.50
2.04	.98	5.73	1.10	.108	.050	.100	.062	829.60	489.41
.005677	600.	700.	800.	2	0	0	0.00	292.72	802.46

FORM 11825 CD PRINTED BY ROTARY MANIFOLD FORMS
PRINTED IN U.S.A.

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1      AVON TOWNSHIP F.I.S. - JOB NO. 5850-01 - PROJECT MANAGER, JOHN EMIG
T2      500-YEAR FLOW
T3      GALLOWAY CREEK - OAKLAND COUNTY, MICHIGAN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.       5.         0.         0.   0.000000       0.00       0.0        0.    815.100    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

*PROF 4

CCHV=    .300 CEHV=    .500
*SECNO .000

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

            VALLEY SECTION A REPEATED AND ADJUSTED FOR CHANNEL INVERT.

       0.00       6.90     815.10       0.00     815.10     815.16       .06       0.00       0.00     811.90
       787.        271.        323.       193.        339.       115.       160.         0.         0.     811.70
       0.00        .80        2.80       1.21        .100       .055       .100      0.000    808.20      60.33
   .001213         0.         0.         0.          0          0          0         0.00     256.30     316.63

1490 NH CARD USED
*SECNO .062

            VALLEY SECTION A

        .06       6.76     815.46       0.00       0.00     815.50       .04        .34        .01     812.40
       787.        372.        263.       153.        313.       113.       153.         5.         2.     812.20
        .06       1.19       2.33       1.00        .055       .055       .100       .055    808.70      65.03
   .000869        330.        330.       330.          2          0          0         0.00     250.92     315.95
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*SECNO .106

3470 ENCROACHMENT STATIONS= .0 480.0 TYPE= 1 TARGET= 479.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.11	5.74	815.74	0.00	0.00	815.85	.10	.31	.03	813.50
787.	196.	345.	246.	141.	98.	173.	7.	3.	813.00
.09	1.39	3.53	1.42	.060	.055	.100	.055	810.00	83.68
.002398	240.	230.	225.	2	0	0	0.00	224.20	307.88

*SECNO .150

3470 ENCROACHMENT STATIONS= .0 390.0 TYPE= 1 TARGET= 389.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.15	5.11	816.41	0.00	0.00	816.56	.15	.69	.02	814.60
787.	90.	376.	321.	65.	90.	224.	9.	5.	813.90
.11	1.38	4.19	1.43	.060	.055	.100	.055	811.30	91.17
.003830	250.	230.	225.	2	0	0	0.00	298.83	390.00

*SECNO .193

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= .0 300.0 TYPE= 1 TARGET= 299.999

COMPUTER-INTERPOLATED SECTION USING 0.062 AND 0.237 AS BASES FOR

INTERPOLATION

.19	4.72	817.32	0.00	0.00	817.47	.14	.90	.00	815.70
787.	48.	358.	381.	34.	86.	251.	11.	6.	814.80
.13	1.42	4.17	1.51	.060	.055	.100	.055	812.60	93.06
.004086	240.	230.	225.	2	0	0	0.00	206.94	300.00

*SECNO .237

3470 ENCROACHMENT STATIONS= .0 215.0 TYPE= 1 TARGET= 214.999

VALLEY SECTION B

.24	4.34	818.34	0.00	0.00	818.60	.26	1.08	.06	816.90
787.	42.	428.	317.	22.	83.	146.	13.	7.	815.70
.15	1.94	5.15	2.17	.050	.050	.080	.054	814.00	86.93
.005494	240.	230.	225.	2	0	0	0.00	128.07	215.00

*SECNO .290

3470 ENCROACHMENT STATIONS= 121.0 150.0 TYPE= 1 TARGET= 29.000

SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

.29	6.73	819.63	0.00	0.00	820.02	.39	1.35	.07100000.00	
787.	0.	692.	95.	0.	131.	40.	14.	7.	814.60
.17	0.00	5.27	2.40	.050	.050	.080	.053	812.90	121.00
.003744	250.	285.	350.	2	0	0	0.00	29.00	150.00

*SECNO .291

3470 ENCROACHMENT STATIONS= 121.0 150.0 TYPE= 1 TARGET= 29.000

BUTLER ROAD BRIDGE - D/S FACE - SECTION 0.290 REPEATED

.29	6.80	819.70	0.00	0.00	820.04	.33	.00	.02100000.00	
787.	0.	645.	142.	0.	133.	40.	14.	7.	814.60
.17	0.00	4.85	3.54	.035	.035	.035	.052	812.90	121.00
.001537	1.	1.	1.	2	0	0	0.00	29.00	150.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.72	2.72	0.00	15.00	0.00	72.70	0.00	812.90	812.90

*SECNO .293

3280 CROSS SECTION .29 EXTENDED 1.71 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
822.83	820.04	0.00	143.	646.	73.	78.	818.10	819.50

3470 ENCROACHMENT STATIONS= 140.0 169.0 TYPE= 1 TARGET= 29.000

BUTLER ROAD BRIDGE - U/S FACE - SECTION C

.29	8.40	821.30	0.00	0.00	821.81	.51	1.77	0.00	819.50
787.	7.	717.	63.	4.	121.	22.	14.	7.	819.50
.17	2.09	5.93	2.92	.035	.035	.035	.052	812.90	140.00
.002605	14.	14.	14.	2	0	2	0.00	29.00	169.00

*SECNO .294

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= 143.0 172.0 TYPE= 1 TARGET= 29.000

SECTION D MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

.29	8.78	821.68	0.00	0.00	821.90	.22	.00	.09100000.00	
787.	0.	787.	0.	0.	208.	0.	14.	7. 100000.00	
.17	0.00	3.79	0.00	.050	.040	.050	.052	812.90	143.00
.001155	1.	1.	1.	2	0	0	0.00	29.00	172.00

*SECNO .299

3470 ENCROACHMENT STATIONS= 142.0 165.0 TYPE= 1 TARGET= 23.000

SECTION D MODIFIED AT BANKS

.30	9.19	821.69	0.00	0.00	821.96	.27	.04	.02100000.00	
787.	0.	787.	0.	0.	190.	0.	15.	7. 100000.00	
.17	0.00	4.13	0.00	.050	.040	.050	.052	812.50	142.00
.001424	30.	30.	30.	2	0	0	0.00	23.00	165.00

*SECNO .300

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

DOWNSTREA. FACE - SECTIO. D

.30	9.26	821.76	0.00	0.00	821.97	.22	.00	.01	821.00	
787.	29.	738.	20.	37.	192.	30.	15.	7.	821.00	
.17	.77	3.85	.68	.040	.035	.040	.052	812.50	73.78	
.000885	1.	1.	1.	2	0	0	0.00	157.98	231.76	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	2.69	0.00	23.00	0.00	105.10	0.00	812.50	812.50

*SECNO .301
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
823.10	821.97	0.00	366.	425.	105.	166.	819.70	820.80

STONE AND MORTAR ARCH BRIDGE FOR FENCE JUST UPSTREAM OF BUTLER ROAD

UPSTREAM FACE - SECTION D

.30	9.46	821.96	0.00	0.00	822.15	.18	.17	0.00	821.00
787.	42.	711.	34.	53.	197.	45.	15.	7.	821.00
.17	.80	3.62	.74	.040	.035	.040	.052	812.50	61.66
.000758	3.	3.	3.	2	0	3	0.00	181.55	243.22

*SECNO .302

3470 ENCROACHMENT STATIONS= 142.0 165.0 TYPE= 1 TARGET= 23.000

SECTION D MODIFIED AT BANKS

.30	9.43	821.93	0.00	0.00	822.18	.25	.00	.03100000.00	
787.	0.	787.	0.	0.	196.	0.	15.	7. 100000.00	
.17	0.00	4.02	0.00	.070	.040	.050	.052	812.50	142.00
.001317	1.	1.	1.	2	0	0	0.00	23.00	165.00

*SECNO .595

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

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PRINTED IN U.S.A.

SLOPE	XLOBL	XLCH	XLOBR	IT IAL	IDC	ICONT	CORA.	TOPWID	E DST
VALLEY SECTION E									
.60	10.17	823.27	0.00	0.00	823.28	.01	1.02	.07	820.80
762.	66.	134.	562.	191.	127.	725.	37.	15.	820.90
.72	.35	1.05	.77	.125	.080	.075	.065	813.10	129.32
.000384	1590.	1554.	1570.	2	0	0	0.00	404.06	533.38

*SECNO .680

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.68	7.72	823.62	0.00	0.00	823.73	.11	.41	.05	822.60
762.	52.	421.	289.	70.	119.	275.	44.	19.	822.70
.77	.75	3.54	1.05	.125	.080	.125	.068	815.90	189.95
.004909	475.	450.	415.	2	0	0	0.00	336.30	526.24

*SECNO .765

3470 ENCROACHMENT STATIONS= 125.0 542.0 TYPE= 1 TARGET= 417.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.77	7.98	825.58	0.00	0.00	825.70	.11	1.96	.00	824.50
762.	78.	461.	223.	109.	136.	233.	49.	22.	824.50
.82	.72	3.39	.96	.125	.080	.125	.069	817.60	178.86
.004060	480.	450.	415.	3	0	0	0.00	361.12	539.98

*SECNO .850

3470 ENCROACHMENT STATIONS= 265.0 482.0 TYPE= 1 TARGET= 217.000

COMPUTER-INTERPOLATED SECTION USING 0.595 AND 0.940 AS BASES FOR

INTERPOLATION

.85	8.23	827.43	0.00	0.00	827.57	.14	1.86	.02	826.40
762.	82.	535.	144.	100.	149.	144.	54.	25.	826.40

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.87	.82	3.58	1.00	.125	.080	.125	.070	819.20	265.00
.004332	475.	449.	415.	2	0	0	0.00	217.00	482.00

1490 NH CARD USED
*SECNO .887

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE (ALSO APPLICABLE TO THE FOLLOWING TWO SECTIONS).

.89	7.60	828.00	0.00	0.00	828.06	.07	.47	.02	825.70
762.	321.	197.	245.	170.	81.	116.	55.	26.	825.70
.89	1.89	2.43	2.11	.076	.060	.035	.071	820.40	.00
.001464	220.	200.	180.	2	0	0	0.00	135.00	135.00

1490 NH CARD USED
*SECNO .888

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 5 MIN ELTRD= 824.70 MAX ELLC= 823.20

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

LOGJAM AND TREEFALL AREA - DOWNSTREAM SIDE. LOGJAM IN MAIN CHANNEL

HAS CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH

TREE LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

.89	7.58	827.98	0.00	0.00	828.08	.10	.00	.02	825.70
762.	321.	94.	347.	147.	58.	116.	55.	26.	825.70
.89	2.19	1.62	2.99	.081	.060	.035	.071	820.40	.00
.002961	1.	1.	1.	1	0	0	-23.10	135.00	135.00

*SEC 0 .8 9

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 824.70 MAX ELLC= 823.20

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

LOGJAM AND TREEFALL AREA - UPSTREAM SIDE. LOGJAM IN MAIN CHANNEL HAS

CREATED A SECONDARY CHANNEL IN AREA OF TREEFALL. LARGE 30-INCH TREE

LIMB LYING ACROSS THIS SECONDARY CHANNEL FROM BANK TO BANK IS

MODELLED AS A LOW CHORD OF A BRIDGE.

.89	7.59	827.99	0.00	0.00	828.09	.11	.01	.00	825.70
762.	330.	76.	356.	147.	50.	116.	55.	26.	825.70
.89	2.24	1.52	3.07	.081	.060	.035	.071	820.40	.00
.003124	3.	3.	3.	0	0	0	-30.60	135.00	135.00

1490 NH CARD USED

*SECNO .890

3470 ENCROACHMENT STATIONS= .0 135.0 TYPE= 1 TARGET= 134.999

MANUFACTURED SECTION BASED ON HAND LEVEL SURVEY AND FIELD

RECONNAISSANCE

.89	7.64	828.04	0.00	0.00	828.11	.07	.00	.01	825.70
762.	317.	194.	251.	172.	81.	120.	55.	26.	825.70
.89	1.85	2.38	2.09	.076	.060	.035	.071	820.40	.00
.001387	1.	1.	1.	2	0	0	0.00	135.00	135.00

1490 NH CARD USED

*SECNO .928

3280 CROSS SECTION .93 EXTENDED 1.02 FEET

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

.93	7.42	828.22	0.00	0.00	828.34	.12	.21	.02	826.00
762.	18.	494.	250.	11.	174.	97.	57.	27.	824.20
.92	1.62	2.84	2.58	.032	.044	.032	.071	820.80	0.00

.000179	220.	206.	190.	2	0	0	0.00	127.45	127.45

1490 NH CARD USED
*SECNO .929
3280 CROSS SECTION .93 EXTENDED 1.00 FEET

CONCRETE CONTROL IN CHANNEL FOR U.S.G.S. GAGING STATION-SECTION F

.93	5.80	828.20	0.00	0.00	828.36	.16	.00	.02	826.00
762.	13.	566.	183.	11.	158.	96.	57.	27.	824.20
.92	1.19	3.58	1.90	.032	.043	.032	.071	822.40	0.00
.000428	3.	3.	3.	2	0	0	0.00	126.84	126.84

1490 NH CARD USED
*SECNO .930
3280 CROSS SECTION .93 EXTENDED 1.07 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

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

.93	7.47	828.27	0.00	0.00	828.38	.11	.00	.01	826.00
762.	19.	491.	252.	12.	175.	98.	57.	27.	824.20
.92	1.62	2.80	2.56	.032	.044	.032	.071	820.80	0.00
.000752	3.	3.	3.	2	0	0	0.00	128.74	128.74

*SECNO .935

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

SECTION G MODIFIED AT BANKS AND ADJUSTED FOR CHANNEL INVERT

.94	9.65	828.35	0.00	0.00	828.42	.07	.02	.01	826.00
710.	0.	354.	356.	0.	146.	224.	57.	27.	823.60
.92	0.00	2.43	1.59	.040	.040	.040	.071	818.70	400.00
.000514	33.	33.	33.	2	0	0	0.00	116.18	516.18

*SECNO .936

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

GOLF COURSE BRIDGE - D/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

.94	9.65	828.35	0.00	0.00	828.42	.07	.00	.00	826.00
710.	0.	378.	332.	0.	146.	224.	57.	27.	823.60
.92	0.00	2.59	1.48	.040	.035	.040	.071	818.70	400.00
.000447	1.	1.	1.	0	0	0	0.00	116.20	516.20

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	2.72	0.00	17.00	0.00	80.90	0.00	820.90	818.70

*SECNO .939
PRESS FLOW BECAUSE EGLWC OF 830.62 EXCEEDS 1.5 DEPTH
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
830.49	830.62	0.00	379.	334.	81.	99.	826.70	827.80

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

GOLF COURSE BRIDGE - U/S FACE - SECTION G. GAGING STATION LOCATED AT

THIS BRIDGE.

.94	7.86	828.76	0.00	0.00	828.82	.06	.40	0.00	826.00
710.	0.	297.	413.	0.	117.	267.	57.	27.	823.60
.92	0.00	2.54	1.55	.040	.035	.040	.071	820.90	400.00
.000420	20.	20.	20.	2	0	4	0.00	128.20	528.20

*SECNO .940

3470 ENCROACHMENT STATIONS= 400.0 645.0 TYPE= 1 TARGET= -400.000

SECTION G MODIFIED AT BANKS

.94	7.85	828.75	0.00	0.00	828.83	.09	.00	.01	826.00
710.	0.	356.	354.	0.	117.	267.	57.	27.	823.60

.92	0.00	3.05	1.63	.000	.050	.080	.071	820.90	400.00
.001238	1.	1.	1.	1	0	0	0.00	128.05	528.05

*SECNO 1.052

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

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.05	6.77	828.97	0.00	0.00	828.97	.00	.11	.03	825.50
710.	548.	48.	114.	1487.	67.	381.	72.	32.	825.20
1.34	.37	.71	.30	.080	.050	.080	.069	822.20	800.00
.000076	560.	591.	575.	2	0	0	0.00	593.67	1393.67

*SECNO 1.163

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.16	5.55	829.05	0.00	0.00	829.05	.01	.08	.00	826.80
710.	559.	71.	79.	963.	55.	194.	93.	39.	826.50
1.59	.58	1.30	.41	.080	.050	.080	.067	823.50	800.00
.000335	560.	591.	575.	2	0	0	0.00	590.61	1390.61

*SECNO 1.275

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.28	4.75	829.45	0.00	0.00	829.48	.03	.42	.01	828.00
870.	673.	134.	63.	622.	46.	85.	105.	47.	827.70
1.71	1.08	2.90	.73	.080	.050	.080	.066	824.70	800.00
.002079	555.	591.	575.	2	0	0	0.00	550.13	1350.13

*SECNO 1.276

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 831.40 MAX ELLC= 829.60

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

GOLF COURSE BRIDGE - D/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

1.28	4.77	829.47	0.00	0.00	829.49	.02	.00	.00	831.70
870.	762.	47.	61.	621.	34.	79.	105.	47.	831.40
1.71	1.23	1.39	.77	.040	.030	.040	.066	824.70	800.00
.000663	1.	1.	1.	1	0	0	-5.84	545.22	1350.78

*SECNO 1.280

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 831.40 MAX ELLC= 829.60

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

GOLF COURSE BRIDGE - U/S FACE - SECTION H. TWIN 54-INCH REINFORCED

CONCRETE PIPES.

1.28	4.48	829.48	0.00	0.00	829.51	.02	.02	.00	831.70
870.	765.	43.	63.	636.	32.	83.	106.	47.	831.40

1.71	1.20	1.55	.76	.040	.030	.040	.066	825.00	800.00
.000618	25.	25.	25.	1	0	0	-6.10	547.77	1353.23

*SECNO 1.281

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

3470 ENCROACHMENT STATIONS= 800.0 1483.0 TYPE= 1 TARGET= -800.000

MANUFACTURED SECTION - CHANNEL AND OVERBANK POINTS BASED ON SECTION H

WITH AN ADJUSTMENT IN INVERT. CHANNEL AND BANKS ADJUSTED TO ELIMINATE

UNNECESSARY CULVERT POINTS.

1.28	4.48	829.48	0.00	0.00	829.51	.03	.00	.01	828.00
870.	676.	131.	62.	637.	44.	88.	106.	47.	828.10
1.71	1.06	2.96	.71	.090	.052	.090	.066	825.00	800.00
.002455	1.	1.	1.	0	0	0	0.00	552.65	1352.65

*SECNO 1.383

VALLEY SECTION 1.345 FROM PONTIAC TWP. FIS

1.38	3.94	831.24	0.00	0.00	831.29	.06	1.77	.01	829.70
920.	725.	175.	20.	533.	53.	17.	115.	53.	829.50
1.81	1.36	3.32	1.15	.100	.055	.100	.064	827.30	99.49
.003766	600.	539.	500.	4	0	0	0.00	336.20	435.69

*SECNO 1.439

VALLEY SECTION 1.402 FROM PONTIAC TWP. FIS

1.44	5.30	832.30	0.00	0.00	832.37	.07	1.07	.01	829.60
920.	444.	270.	206.	369.	78.	179.	120.	56.	829.40
1.86	1.20	3.45	1.15	.100	.055	.100	.064	827.00	220.90
.002454	400.	300.	250.	2	0	0	0.00	310.30	531.20

*SECNO 1.562

3470 ENCROACHMENT STATIONS= .0 650.0 TYPE= 1 TARGET= 649.999

VALLEY SECTION 1.525 FROM PONTIAC TWP. FIS

1.56	5.77	833.77	0.00	0.00	833.82	.05	1.44	.01	829.80
920.	374.	207.	339.	342.	63.	348.	130.	61.	831.40
1.98	1.09	3.29	.97	.100	.055	.100	.063	828.00	263.55
.002058	600.	650.	700.	2	0	0	0.00	386.45	650.00

1490 NH CARD USED
*SECNO 1.695

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 809.0 TYPE= 1 TARGET= 808.999

VALLEY SECTION 1.658 FROM PONTIAC TWP. FIS

1.70	6.27	835.87	0.00	0.00	836.24	.37	2.26	.16	833.30
920.	301.	549.	71.	268.	87.	54.	140.	67.	833.50
2.02	1.12	6.27	1.32	.111	.050	.100	.062	829.60	211.40
.006094	600.	700.	800.	3	0	0	0.00	369.42	809.00

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: GALLOWAY CREEK

4) DOCUMENT TYPE: SUMMARY - ENCROACHED

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

GALLOWAY CREEK - OAKLAND

SUMMARY PRINTOUT

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
*	0.000	0.00	0.00	808.20	235.00	810.84	2.64	.82	0.00	811.66	0.00	26.74	34.33
	0.000	0.00	0.00	808.20	444.00	812.90	4.70	.25	0.00	813.15	0.00	126.52	151.77
	0.000	0.00	0.00	808.20	516.00	814.00	5.80	.08	0.00	814.08	0.00	214.27	355.20
	0.000	0.00	0.00	808.20	787.00	815.10	6.90	.06	0.00	815.16	0.00	256.30	614.02
	.062	0.00	0.00	808.70	235.00	813.38	4.68	.07	.22	813.45	1.52	122.52	148.50
	.062	0.00	0.00	808.70	444.00	814.14	5.44	.08	.05	814.22	1.52	200.74	281.77
	.062	0.00	0.00	808.70	516.00	814.54	5.84	.05	.01	814.60	1.52	215.98	364.82
	.062	0.00	0.00	808.70	787.00	815.46	6.76	.04	.01	815.50	1.52	250.92	578.29
	.106	0.00	0.00	810.00	235.00	813.91	3.91	.11	.02	814.02	5.65	81.13	118.11
	.106	0.00	0.00	810.00	444.00	814.69	4.69	.15	.04	814.84	5.65	178.82	201.05
	.106	0.00	0.00	810.00	516.00	814.96	4.96	.14	.04	815.09	5.65	190.54	250.47
	.106	0.00	0.00	810.00	787.00	815.74	5.74	.10	.03	815.85	5.65	224.20	412.42
	.150	0.00	0.00	811.30	235.00	814.79	3.49	.14	.01	814.93	5.65	96.63	110.59
	.150	0.00	0.00	811.30	444.00	815.61	4.31	.15	.00	815.76	5.65	136.46	201.84
	.150	0.00	0.00	811.30	516.00	815.81	4.51	.16	.01	815.97	5.65	179.15	232.22
	.150	0.00	0.00	811.30	787.00	816.41	5.11	.15	.02	816.56	5.65	298.83	379.10
	.193	0.00	0.00	812.60	235.00	815.87	3.27	.13	.00	816.00	5.65	144.81	122.49
	.193	0.00	0.00	812.60	444.00	816.59	3.99	.13	.01	816.72	5.65	166.36	236.20
	.193	0.00	0.00	812.60	516.00	816.78	4.18	.13	.01	816.91	5.65	173.66	268.93
	.193	0.00	0.00	812.60	787.00	817.32	4.72	.14	.00	817.47	5.65	206.94	371.19
	.237	0.00	0.00	814.00	235.00	816.96	2.96	.17	.02	817.13	6.09	96.16	97.37
	.237	0.00	0.00	814.00	444.00	817.61	3.61	.21	.04	817.81	6.09	109.12	163.88
	.237	0.00	0.00	814.00	516.00	817.79	3.79	.22	.05	818.01	6.09	112.70	183.75
	.237	0.00	0.00	814.00	787.00	818.34	4.34	.26	.06	818.60	6.09	128.07	250.70

.290	0.00	0.00	812.90	235.00	817.67	4.77	.08	.05	817.75	-3.86	29.00	114.63
.290	0.00	0.00	812.90	444.00	818.59	5.69	.18	.01	818.77	-3.86	29.00	140.71
.290	0.00	0.00	812.90	516.00	818.83	5.93	.22	.00	819.06	-3.86	29.00	147.76
.290	0.00	0.00	812.90	787.00	819.63	6.73	.39	.07	820.02	-3.86	29.00	171.00
.291	0.00	0.00	812.90	235.00	817.68	4.78	.07	.00	817.75	0.00	29.00	114.31
.291	0.00	0.00	812.90	444.00	818.62	5.72	.16	.01	818.78	0.00	29.00	141.71
.291	0.00	0.00	812.90	516.00	818.87	5.97	.19	.01	819.07	0.00	29.00	149.04
.291	0.00	0.00	812.90	787.00	819.70	6.80	.33	.02	820.04	0.00	29.00	173.15

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
.293	819.50	818.10	812.90	235.00	817.63	4.73	.20	.07	817.83	.00	15.00	65.70
.293	819.50	818.10	812.90	444.00	819.23	6.33	.38	0.00	819.61	.00	15.00	89.74
.293	819.50	818.10	812.90	516.00	819.69	6.79	.44	0.00	820.13	.00	29.00	99.13
.293	819.50	818.10	812.90	787.00	821.30	8.40	.51	0.00	821.81	.00	29.00	145.99
.294	0.00	0.00	812.90	235.00	817.77	4.87	.09	.03	817.86	0.00	27.19	95.35
.294	0.00	0.00	812.90	444.00	819.54	6.64	.14	.07	819.68	0.00	29.00	145.94
.294	0.00	0.00	812.90	516.00	820.06	7.16	.16	.08	820.22	0.00	29.00	160.88
.294	0.00	0.00	812.90	787.00	821.68	8.78	.22	.09	821.90	0.00	29.00	207.87
.299	0.00	0.00	812.50	235.00	817.81	5.31	.08	.00	817.89	-13.33	23.00	100.98
.299	0.00	0.00	812.50	444.00	819.57	7.07	.15	.00	819.72	-13.33	23.00	141.44
.299	0.00	0.00	812.50	516.00	820.08	7.58	.18	.01	820.26	-13.33	23.00	153.23
.299	0.00	0.00	812.50	787.00	821.69	9.19	.27	.02	821.96	-13.33	23.00	190.33
.300	0.00	0.00	812.50	235.00	817.81	5.31	.08	.00	817.89	0.00	23.00	100.97
.300	0.00	0.00	812.50	444.00	819.57	7.07	.15	.00	819.72	0.00	23.00	141.47
.300	0.00	0.00	812.50	516.00	820.08	7.58	.18	.00	820.26	0.00	23.00	153.26
.300	0.00	0.00	812.50	787.00	821.76	9.26	.22	.01	821.97	0.00	157.98	258.93
.301	820.80	819.70	812.50	235.00	817.79	5.29	.13	.02	817.92	0.00	23.00	82.16
.301	820.80	819.70	812.50	444.00	819.86	7.36	.14	0.00	819.99	0.00	23.00	148.07
.301	820.80	819.70	812.50	516.00	820.50	8.00	.16	0.00	820.66	0.00	23.00	162.94
.301	820.80	819.70	812.50	787.00	821.96	9.46	.18	0.00	822.15	0.00	181.55	294.25
.302	0.00	0.00	812.50	235.00	817.85	5.35	.08	.01	817.93	0.00	23.00	101.87
.302	0.00	0.00	812.50	444.00	819.86	7.36	.14	.00	820.00	0.00	23.00	148.08
.302	0.00	0.00	812.50	516.00	820.50	8.00	.16	.00	820.66	0.00	23.00	162.95
.302	0.00	0.00	812.50	787.00	821.93	9.43	.25	.03	822.18	0.00	23.00	195.83
.595	0.00	0.00	813.10	225.00	820.12	7.02	.10	.01	820.22	.39	89.22	107.38
.595	0.00	0.00	813.10	432.00	821.64	8.54	.02	.04	821.66	.39	331.38	447.15
.595	0.00	0.00	813.10	498.00	822.04	8.94	.02	.04	822.06	.39	349.60	585.58
.595	0.00	0.00	813.10	762.00	823.27	10.17	.01	.07	823.28	.39	404.06	1043.60
.680	0.00	0.00	815.90	225.00	821.88	5.98	.10	.00	821.98	6.22	67.01	97.22
.680	0.00	0.00	815.90	432.00	822.61	6.71	.18	.08	822.79	6.22	161.28	176.87
.680	0.00	0.00	815.90	498.00	822.75	6.85	.20	.09	822.95	6.22	222.89	204.94
.680	0.00	0.00	815.90	762.00	823.62	7.72	.11	.05	823.73	6.22	336.30	463.77
.765	0.00	0.00	817.60	225.00	823.44	5.84	.10	.00	823.53	3.78	20.34	90.24
.765	0.00	0.00	817.60	432.00	824.85	7.25	.11	.02	824.96	3.78	251.60	250.60
.765	0.00	0.00	817.60	498.00	825.08	7.48	.11	.03	825.18	3.78	291.23	312.93
.765	0.00	0.00	817.60	762.00	825.58	7.98	.11	.00	825.70	3.78	361.12	477.83
.850	0.00	0.00	819.20	225.00	824.95	5.75	.10	.00	825.04	3.56	22.23	90.86
.850	0.00	0.00	819.20	432.00	826.55	7.35	.14	.01	826.69	3.56	217.00	200.83

.850	0.00	0.00	819.20	498.00	826.13	7.93	.14	.02	826.90	3.56	217.00	248.71
.850	0.00	0.00	819.20	762.00	827.43	8.23	.14	.02	827.57	3.56	217.00	394.31
.887	0.00	0.00	820.40	225.00	825.50	5.10	.06	.01	825.57	6.00	36.12	112.65
.887	0.00	0.00	820.40	432.00	827.11	6.71	.05	.03	827.16	6.00	125.22	247.91
.887	0.00	0.00	820.40	498.00	827.33	6.93	.05	.03	827.38	6.00	135.00	276.67
.887	0.00	0.00	820.40	762.00	828.00	7.60	.07	.02	828.06	6.00	135.00	366.63

FORM 435 JCB PRINTED BY ROTARY MANIFOLD FORMS
PRINTED IN U.S.A.

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
.888	824.70	823.20	820.40	225.00	825.44	5.04	.20	.07	825.64	0.00	35.75	65.57
.888	824.70	823.20	820.40	432.00	827.10	6.70	.07	.01	827.17	0.00	125.11	202.13
.888	824.70	823.20	820.40	498.00	827.32	6.92	.07	.01	827.39	0.00	135.00	230.99
.888	824.70	823.20	820.40	762.00	827.98	7.58	.10	.02	828.08	0.00	135.00	320.79
.889	824.70	823.20	820.40	225.00	825.46	5.06	.26	.03	825.73	0.00	35.89	59.68
.889	824.70	823.20	820.40	432.00	827.11	6.71	.08	.00	827.19	0.00	125.23	194.94
.889	824.70	823.20	820.40	498.00	827.33	6.93	.08	.00	827.41	0.00	135.00	223.81
.889	824.70	823.20	820.40	762.00	827.99	7.59	.11	.00	828.09	0.00	135.00	313.09
.890	0.00	0.00	820.40	225.00	825.74	5.34	.05	.06	825.79	0.00	58.97	122.16
.890	0.00	0.00	820.40	432.00	827.15	6.75	.05	.01	827.20	0.00	127.40	253.59
.890	0.00	0.00	820.40	498.00	827.37	6.97	.05	.01	827.42	0.00	135.00	282.39
.890	0.00	0.00	820.40	762.00	828.04	7.64	.07	.01	828.11	0.00	135.00	373.12
.928	0.00	0.00	820.80	225.00	825.94	5.14	.06	.00	826.00	1.94	68.88	120.24
.928	0.00	0.00	820.80	432.00	827.31	6.51	.07	.01	827.38	1.94	104.70	215.39
.928	0.00	0.00	820.80	498.00	827.53	6.73	.07	.01	827.61	1.94	109.40	231.75
.928	0.00	0.00	820.80	762.00	828.22	7.42	.12	.02	828.34	1.94	127.45	282.10
.929	0.00	0.00	822.40	225.00	825.93	3.53	.09	.01	826.02	533.33	68.75	104.67
.929	0.00	0.00	822.40	432.00	827.30	4.90	.09	.01	827.39	533.33	104.64	199.98
.929	0.00	0.00	822.40	498.00	827.52	5.12	.11	.02	827.63	533.33	109.31	216.22
.929	0.00	0.00	822.40	762.00	828.20	5.80	.16	.02	828.36	533.33	126.84	265.39
.930	0.00	0.00	820.80	225.00	825.97	5.17	.06	.01	826.03	-533.33	69.46	121.88
.930	0.00	0.00	820.80	432.00	827.34	6.54	.06	.01	827.40	-533.33	105.31	217.52
.930	0.00	0.00	820.80	498.00	827.56	6.76	.07	.01	827.64	-533.33	110.06	234.03
.930	0.00	0.00	820.80	762.00	828.27	7.47	.11	.01	828.38	-533.33	128.74	285.30
.935	0.00	0.00	818.70	225.00	826.01	7.31	.04	.01	826.05	-63.64	64.61	163.40
.935	0.00	0.00	818.70	430.00	827.37	8.67	.05	.00	827.42	-63.64	91.59	270.04
.935	0.00	0.00	818.70	496.00	827.61	8.91	.06	.01	827.66	-63.64	96.16	291.72
.935	0.00	0.00	818.70	710.00	828.35	9.65	.07	.01	828.42	-63.64	116.18	370.26
.936	0.00	0.00	818.70	225.00	826.01	7.31	.04	.00	826.05	0.00	64.62	163.44
.936	0.00	0.00	818.70	430.00	827.37	8.67	.05	.00	827.43	0.00	91.60	270.08
.936	0.00	0.00	818.70	496.00	827.60	8.90	.06	.00	827.66	0.00	96.17	291.77
.936	0.00	0.00	818.70	710.00	828.35	9.65	.07	.00	828.42	0.00	116.20	370.33
.939	827.80	826.70	820.90	225.00	826.00	5.10	.07	.01	826.07	110.00	64.47	126.95
.939	827.80	826.70	820.90	430.00	828.08	7.18	.04	0.00	828.12	110.00	108.36	304.41
.939	827.80	826.70	820.90	496.00	828.36	7.46	.04	0.00	828.41	110.00	116.56	335.79
.939	827.80	826.70	820.90	710.00	828.76	7.86	.06	0.00	828.82	110.00	128.20	384.20
.940	0.00	0.00	820.90	225.00	826.00	5.10	.08	.01	826.08	0.00	64.48	126.98
.940	0.00	0.00	820.90	430.00	828.08	7.18	.05	.01	828.13	0.00	108.37	304.44

.940	0.00	0.00	820.90	4.6.00	828.36	7.46	.00	.01	82[illegible].41	0.00	11[illegible].37	33[illegible].62
.940	0.00	0.00	820.90	710.00	828.75	7.85	.09	.01	828.83	0.00	128.05	383.55
1.052	0.00	0.00	822.20	225.00	826.50	4.30	.01	.02	826.51	2.20	517.78	515.08
1.052	0.00	0.00	822.20	430.00	828.23	6.03	.00	.02	828.23	2.20	591.83	1499.90
1.052	0.00	0.00	822.20	496.00	828.51	6.31	.00	.02	828.52	2.20	592.53	1665.80
1.052	0.00	0.00	822.20	710.00	828.97	6.77	.00	.03	828.97	2.20	593.67	1935.50

FORM 1455-CO PRINTED BY NOTARY MANIFOLD FORMS

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
*	1.163	0.00	0.00	823.50	225.00	827.07	3.57	.19	.09	827.26	2.20	464.79	156.03
	1.163	0.00	0.00	823.50	430.00	828.31	4.81	.01	.00	828.31	2.20	554.16	784.06
	1.163	0.00	0.00	823.50	496.00	828.58	5.08	.01	.00	828.59	2.20	573.98	938.22
	1.163	0.00	0.00	823.50	710.00	829.05	5.55	.01	.00	829.05	2.20	590.61	1211.46
	1.275	0.00	0.00	824.70	380.00	828.85	4.15	.03	.05	828.88	2.03	507.09	439.55
	1.275	0.00	0.00	824.70	570.00	828.91	4.21	.06	.02	828.97	2.03	511.12	467.83
	1.275	0.00	0.00	824.70	617.00	829.04	4.34	.04	.02	829.08	2.03	521.03	538.42
	1.275	0.00	0.00	824.70	870.00	829.45	4.75	.03	.01	829.48	2.03	550.13	753.39
	1.276	831.40	829.60	824.70	380.00	828.87	4.17	.01	.00	828.88	0.00	500.28	424.88
	1.276	831.40	829.60	824.70	570.00	828.96	4.26	.03	.01	828.98	0.00	507.39	472.26
	1.276	831.40	829.60	824.70	617.00	829.07	4.37	.02	.01	829.09	0.00	516.05	530.80
	1.276	831.40	829.60	824.70	870.00	829.47	4.77	.02	.00	829.49	0.00	545.22	733.89
	1.280	831.40	829.60	825.00	380.00	828.89	3.89	.01	.00	828.90	12.00	502.81	439.56
	1.280	831.40	829.60	825.00	570.00	828.98	3.98	.02	.00	829.01	12.00	509.49	484.26
	1.280	831.40	829.60	825.00	617.00	829.09	4.09	.02	.00	829.11	12.00	517.72	540.07
	1.280	831.40	829.60	825.00	870.00	829.48	4.48	.02	.00	829.51	12.00	547.77	750.04
	1.281	0.00	0.00	825.00	380.00	828.88	3.88	.03	.01	828.91	0.00	509.42	452.56
	1.281	0.00	0.00	825.00	570.00	828.97	3.97	.05	.01	829.02	0.00	515.96	498.85
	1.281	0.00	0.00	825.00	617.00	829.08	4.08	.04	.01	829.13	0.00	524.33	558.87
	1.281	0.00	0.00	825.00	870.00	829.48	4.48	.03	.01	829.51	0.00	552.65	769.24
	1.383	0.00	0.00	827.30	430.00	830.51	3.21	.04	.01	830.55	4.27	317.75	366.44
	1.383	0.00	0.00	827.30	615.00	830.91	3.61	.04	.00	830.95	4.27	328.40	498.60
	1.383	0.00	0.00	827.30	655.00	830.94	3.64	.04	.00	830.98	4.27	329.07	507.07
	1.383	0.00	0.00	827.30	920.00	831.24	3.94	.06	.01	831.29	4.27	336.20	603.46
	1.439	0.00	0.00	827.00	430.00	831.46	4.46	.05	.01	831.51	-1.00	271.74	379.65
	1.439	0.00	0.00	827.00	615.00	831.82	4.82	.06	.01	831.88	-1.00	288.26	481.15
	1.439	0.00	0.00	827.00	655.00	831.89	4.89	.06	.01	831.95	-1.00	291.45	501.46
	1.439	0.00	0.00	827.00	920.00	832.30	5.30	.07	.01	832.37	-1.00	310.30	625.94
	1.562	0.00	0.00	828.00	430.00	832.86	4.86	.06	.01	832.93	1.54	381.02	409.19
	1.562	0.00	0.00	828.00	615.00	833.25	5.25	.05	.00	833.30	1.54	383.34	555.82
	1.562	0.00	0.00	828.00	655.00	833.33	5.33	.05	.00	833.38	1.54	383.77	582.84
	1.562	0.00	0.00	828.00	920.00	833.77	5.77	.05	.01	833.82	1.54	386.45	753.23
	1.695	0.00	0.00	829.60	430.00	834.97	5.37	.30	.12	835.27	2.29	179.89	159.95
	1.695	0.00	0.00	829.60	615.00	835.37	5.77	.36	.15	835.73	2.29	273.81	251.05
	1.695	0.00	0.00	829.60	655.00	835.45	5.85	.36	.16	835.81	2.29	292.72	273.95
	1.695	0.00	0.00	829.60	920.00	835.87	6.27	.37	.16	836.24	2.29	369.42	408.73

SU ARY OF E:RURS

CAUTION SECNO= 0.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 1.163 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.163 PROFILE= 1 MINIMUM SPECIFIC ENERGY

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************
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**** 7000 SCOPE 2.1 LVL  221  12/14/78  20.52.16  12/21/78      78355

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=453B

HH.MM.SS CPU SECOND ORIGIN
          08.46.58.MFA. JO    LV461 NOSBE B+W LYNRELEASE447 02/04/78
08.46.59 00000.012 MFZ.      -AVOJ001,T20,STMFZ.   AVON TWP FIS
08.46.59 00000.028 USR.       CHARGE.810-0037-45-78-5801,JANDA,001,D,JANDA.
08.47.00 00000.063 JOB.      -ATTACH,LGO,HEC2N76V2,ID=HEC.
08.47.00 00000.068 MFZ.         PF254 - CYCLE    1 ATTACHED FROM SN=SYSTEM
08.47.00 00000.069 LOD.      -LGO(PL=999999).
08.47.02 00000.892 MFZ.         LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
08.47.02 00000.895 MFZ.         LD603 - EXECUTION INITIATED OS.EXP
08.47.02 00000.896 USR.       FORTRAN LIBRARY 439          08/20/78
08.47.05 00003.152 USR.         STOP
08.47.05 00003.152 USR.          2.255 CP SECONDS EXECUTION TIME
08.47.05 00003.157 MFZ.         RM770 - MAXIMUM ACTIVE FILES                    7
08.47.05 00003.157 MFZ.         RM771 - OPEN/CLOSE CALLS                       30
08.47.05 00003.157 MFZ.         RM772 - DATA TRANSFER CALLS                 6,471
08.47.05 00003.157 MFZ.         RM773 - CONTROL/POSITIONING CALLS              66
08.47.05 00003.157 MFZ.         RM774 - BM DATA TRANSFER CALLS                554
08.47.05 00003.158 MFZ.         RM775 - BM CONTROL/POSITIONING CALLS           69
08.47.05 00003.158 MFZ.         RM776 - QUEUE MANAGER CALLS                   112
08.47.05 00003.158 MFZ.         RM777 - RECALL CALLS                           83
08.47.05 00003.158 MFZ.         BWMSG - NUMBER OF TAPES MOUNTED
08.47.05 00003.159 MFZ.         SRU                    3.401   SEC
08.47.05 00003.159 MFZ.         SCM                   72.379   KWS
08.47.05 00003.159 MFZ.         I/O                    0.083   MW
08.47.05 00003.159 MFZ.         RMS                    0.094   MWS
08.47.05 00003.160 MFZ.         USER                   1.724   SEC
08.47.05 00003.160 MFZ.         JOB                    3.161   SEC
08.47.05 00003.160 MFZ.         SC050 - 000000 SC/LC SWAPS
08.47.05 00003.160 MFZ.       AVOJOB4    AVOJOB4
08.47.05.EJ   END OF JOB
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: STONY CREEK

4) DOCUMENT TYPE: 100-YR ENCROACHED

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR    01,02
  MODIFICATION -  50,51,52,53
**************************************************


T1      AVON TOWNSHIP F.I.S. - JOB NO. 5850-01 - PROJECT MANAGER, JOHN EMIG
T2      100 YEAR FLOOD
T3      STONY CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        4.        0.        0.  0.000000      0.00      0.0       0.  693.130     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
        3.000     0.000     1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV= .300 CEHV= .500
*SECNO .000

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
0.00	8.13	693.13	0.00	693.13	693.14	.01	0.00	0.00	689.00
1215.	339.	360.	516.	651.	275.	846.	0.	0.	688.00
0.00	.52	1.31	.61	.070	.040	.070	0.000	685.00	298.00
.000093	0.	0.	0.	0	0	0	0.00	352.00	650.00

3470 ENCROACHMENT STATIONS= 298.0 650.0 TYPE= 1 TARGET= 352.000

REPEAT OF A, INVERT ADJUSTED

0.00	8.13	693.13	0.00	693.13	693.14	.01	0.00	0.00	689.00
1215.	339.	360.	516.	651.	275.	846.	0.	0.	688.00
0.00	.52	1.31	.61	.070	.040	.070	0.000	685.00	298.00
.000093	0.	0.	0.	0	0	0	0.00	352.00	650.00

1490 NH CARD USED
*SECNO 150.000

3470 ENCROACHMENT STATIONS= 336.0 612.0 TYPE= 1 TARGET= 276.000

VALLEY SECTION A

150.00	6.14	693.14	0.00	0.00	693.19	.06	.03	.02	691.00
1215.	232.	531.	452.	261.	201.	377.	4.	1.	690.00
.02	.89	2.64	1.20	.075	.045	.070	.040	687.00	336.00
.000721	150.	150.	150.	0	0	0	0.00	276.00	612.00

*SECNO 341.000

3470 ENCROACHMENT STATIONS= 383.0 564.0 TYPE= 1 TARGET= 181.000

REPEAT OF A, INVERT ADJUSTED

341.00	6.66	693.26	0.00	0.00	693.35	.09	.14	.01	690.60
1215.	209.	661.	346.	194.	220.	252.	8.	2.	689.60
.05	1.07	3.00	1.37	.075	.045	.070	.041	686.60	383.00
.000824	200.	191.	150.	2	0	0	0.00	181.00	564.00

*SECNO 533.000

3470 ENCROACHMENT STATIONS= 430.0 517.0 TYPE= 1 TARGET= 87.000

REPEAT OF A, INVERT ADJUSTED

533.00	7.29	693.39	0.00	0.00	693.56	.17	.17	.04	690.10
1215.	118.	894.	203.	83.	244.	106.	10.	3.	689.10
.06	1.42	3.66	1.92	.070	.045	.060	.043	686.10	430.00
.001074	200.	192.	150.	0	0	0	0.00	87.00	517.00

*SECNO 582.000

3265 DIVIDED FLOW

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

REPEAT OF B, NO BRIDGE TABLE

582.00	7.35	693.35	0.00	0.00	693.81	.45	.11	.14	702.00
1215.	0.	1215.	0.	0.	225.	0.	10.	3.	702.00
.06	0.00	5.40	0.00	.070	.045	.060	.043	686.00	500.00
.006230	49.	49.	49.	2	0	0	0.00	61.00	566.00

*SECNO 583.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 701.40 MAX ELLC= 695.40

D/S FACE OF GRAND TRUNK WESTERN RAILROAD BRIDGE

ONE CONCRETE PIER, 5.0' WIDE

583.00	7.36	693.36	0.00	0.00	693.81	.45	.00	.00	702.00
1215.	0.	1215.	0.	0.	225.	0.	10.	3.	702.00
.06	0.00	5.39	0.00	.035	.035	.035	.043	686.00	500.00
.003758	1.	1.	1.	0	0	0	0.00	61.00	566.00

*SECNO 600.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 701.40 MAX ELLC= 695.40

U/S FACE OF GRAND TRUNK WESTERN RAILROAD BRIDGE

BRIDGE SECTION B

600.00	7.45	693.45	0.00	0.00	693.88	.43	.06	.01	702.00
1215.	0.	1215.	0.	0.	231.	0.	10.	3.	702.00
.07	0.00	5.27	0.00	.035	.035	.035	.043	686.00	500.00
.003498	17.	17.	17.	0	0	0	0.00	61.00	566.00

*SECNO 601.000

3265 DIVIDED FLOW

REPEAT OF B, NO BRIDGE TABLE

601.00	7.46	693.46	0.00	0.00	693.89	.43	.00	.00	702.00
1215.	0.	1215.	0.	0.	231.	0.	10.	3.	702.00
.07	0.00	5.26	0.00	.070	.045	.060	.043	686.00	500.00
.005749	1.	1.	1.	0	0	0	0.00	61.00	566.00

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FORM 1, 11 OR PRINTED BY ROTARY MANIFOLD FORMS

1490 NH CARD USED
*SECNO 650.000

3470 ENCROACHMENT STATIONS= 276.0 442.0 TYPE= 1 TARGET= 166.000

REPEAT OF C, INVERT ADJUSTED

650.00	7.29	693.99	0.00	0.00	694.07	.07	.08	.11	689.80
1215.	382.	517.	316.	265.	175.	237.	11.	3.	689.70
.07	1.44	2.95	1.33	.065	.045	.065	.043	686.70	276.00
.000703	49.	49.	49.	2	0	0	0.00	166.00	442.00

*SECNO 765.000

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

3470 ENCROACHMENT STATIONS= 264.0 453.0 TYPE= 1 TARGET= 189.000

REPEAT OF C, INVERT ADJUSTED

765.00	5.64	694.04	0.00	0.00	694.26	.23	.12	.08	691.50
1215.	348.	643.	224.	173.	130.	130.	12.	3.	691.40
.08	2.01	4.93	1.72	.065	.045	.064	.044	688.40	264.00
.002900	45.	115.	125.	2	0	0	0.00	189.00	453.00

*SECNO 880.000

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 293.0 424.0 TYPE= 1 TARGET= 131.000

VALLEY SECTION C

880.00	4.74	694.74	694.74	0.00	695.53	.79	.50	.28	693.10
1215.	207.	873.	135.	72.	106.	55.	13.	3.	693.00
.08	2.88	8.22	2.44	.065	.045	.065	.045	690.00	293.00
.010615	45.	115.	125.	20	10	0	0.00	131.00	424.00

*SECNO 1021.000

3470 ENCROACHMENT STATIONS= 328.0 389.0 TYPE= 1 TARGET= 61.000

REPEAT OF C, INVERT ADJUSTED

1021.00	6.20	696.00	0.00	0.00	696.51	.52	.90	.08	692.90
1215.	143.	931.	141.	51.	145.	51.	13.	4.	692.80
.09	2.79	6.41	2.78	.065	.045	.065	.045	689.80	328.00
.004234	125.	141.	170.	2	0	0	0.00	61.00	389.00

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*SECNO 1070.000

REPEAT OF D, NO BRIDGE TABLE

1070.00	6.52	696.22	0.00	0.00	697.02	.79	.37	.14	704.60
1215.	0.	1215.	0.	0.	170.	0.	14.	4.	704.60
.09	0.00	7.14	0.00	.065	.065	.065	.045	689.70	300.00
.016626	49.	49.	49.	2	0	0	0.00	36.50	336.50

*SECNO 1071.000

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 704.60 MAX ELLC= 700.90

D/S FACE OF PARKDALE RD BRIDGE

NO PIERS

1071.00	6.54	696.24	0.00	0.00	697.02	.79	.01	.00	704.60
1215.	0.	1215.	0.	0.	171.	0.	14.	4.	704.60
.09	0.00	7.12	0.00	.030	.032	.030	.045	689.70	300.00
.004003	1.	1.	1.	0	0	0	0.00	36.50	336.50

*SECNO 1100.000

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	FLMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 704.60 MAX ELLC= 702.30

U/S FACE OF PARKDALE RD BRIDGE

BRIDGE SECTION D

1100.00	6.72	696.42	0.00	0.00	697.15	.73	.11	.02	704.60
1215.	0.	1215.	0.	0.	177.	0.	14.	4.	704.60
.09	0.00	6.85	0.00	.030	.032	.030	.044	689.70	300.00
.003546	29.	29.	29.	2	0	0	0.00	36.50	336.50

*SECNO 1101.000

REPEAT OF D, NO BRIDGE TABLE

1101.00	6.73	696.43	0.00	0.00	697.16	.73	.00	.00	704.60
1215.	0.	1215.	0.	0.	178.	0.	14.	4.	704.60
.09	0.00	6.84	0.00	.090	.040	.050	.044	689.70	300.00
.005530	1.	1.	1.	0	0	0	0.00	36.50	336.50

1490 NH CARD USED

*SECNO 1150.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 917.0 1052.0 TYPE= 1 TARGET= 135.000

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99999.00 ELREA= 99999.00

REPEAT OF E, INVERT ADJUSTED

1150.00	7.66	697.36	0.00	0.00	697.39	.03	.03	.21	99999.00
1215.	0.	1215.	0.	0.	896.	0.	14.	4.	99999.00
.10	0.00	1.36	0.00	.090	.050	.050	.044	689.70	917.00
.000186	49.	49.	49.	2	0	0	0.00	135.00	1052.00

*SECNO 1620.000

3470 ENCROACHMENT STATIONS= 930.0 1110.0 TYPE= 1 TARGET= 180.000

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

VALLEY SECTION E

1620.00	6.77	697.47	0.00	0.00	697.49	.03	.10	.00100000.00	
1215.	0.	1215.	0.	0.	893.	0.	24.	6.	100000.00
.20	0.00	1.36	0.00	.090	.046	.050	.043	690.70	930.00
.000257	500.	470.	425.	2	0	0	0.00	180.00	1110.00

*SECNO 1835.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 698.70 ELREA= 698.00

VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

1835.00	4.24	697.54	0.00	0.00	697.63	.09	.10	.03	698.70
1215.	0.	1215.	0.	0.	501.	0.	28.	7.	698.00
.23	0.00	2.42	0.00	.065	.045	.065	.043	693.30	678.50
.001175	215.	215.	190.	2	0	0	0.00	159.03	844.20

*SECNO 2050.000

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	FLMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 493.0 663.0 TYPE= 1 TARGET= 170.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 699.40 ELREA= 697.70

VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

2050.00	3.76	697.86	0.00	0.00	698.02	.16	.36	.04	699.40
1215.	0.	1124.	91.	0.	336.	64.	30.	7.	697.70
.24	0.00	3.34	1.42	.065	.045	.065	.043	694.10	494.99
.002573	215.	215.	190.	2	0	0	0.00	168.01	663.00

*SECNO 2265.000

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3470 ENCROACHMENT STATIONS= 310.0 480.0 TYPE= 1 TARGET= 170.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 700.10 ELREA= 697.40

VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

2265.00	3.62	698.52	0.00	0.00	698.82	.30	.73	.07	700.10
1215.	0.	1012.	203.	0.	215.	112.	31.	8.	697.40
.26	0.00	4.72	1.81	.065	.045	.065	.044	694.90	311.02
.004864	215.	215.	190.	2	0	0	0.00	168.98	480.00

*SECNO 2480.000

3470 ENCROACHMENT STATIONS= 127.0 297.0 TYPE= 1 TARGET= 170.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 701.00 ELREA= 697.40

VALLEY SECTION F

2480.00	4.04	699.84	0.00	0.00	700.33	.49	1.41	.10	701.00
1215.	0.	638.	577.	0.	88.	192.	33.	9.	697.40
.27	0.00	7.21	3.00	.065	.045	.065	.044	695.80	127.23
.010298	215.	215.	190.	3	0	0	0.00	169.77	297.00

*SECNO 3180.000

3470 ENCROACHMENT STATIONS= 127.0 297.0 TYPE= 1 TARGET= 170.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 704.30 ELREA= 700.70

REPEAT OF F, INVERT ADJUSTED

3180.00	4.84	703.94	0.00	0.00	704.14	.19	3.71	.09	704.30
1215.	0.	510.	705.	0.	108.	309.	38.	11.	700.70
.32	0.00	4.70	2.28	.065	.045	.065	.045	699.10	127.07
.003471	570.	700.	640.	4	0	0	0.00	169.93	297.00

*SECNO 3530.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 127.0 297.0 TYPE= 1 TARGET= 170.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 706.00 ELREA= 705.00

MANUFACTURED FROM SECTIONS F AND G

3530.00	4.84	705.64	0.00	0.00	706.50	.85	2.03	.33	706.00
1215.	0.	1209.	6.	0.	163.	5.	40.	12.	705.00
.34	0.00	7.43	1.20	.065	.045	.065	.045	700.80	127.07
.012464	285.	350.	320.	2	0	0	0.00	68.06	195.13

1490 NH CARD USED

*SECNO 3880.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TT F	VLOB	VCH	VROB	XNI	X CH	XNR	"T"	FI TN	SSTA

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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
			REPEAT OF G, INVERT ADJUSTED						
3880.00	5.95	708.45	0.00	0.00	708.82	.37	2.18	.15	705.60
1215.	48.	897.	270.	22.	161.	160.	42.	13.	707.10
.36	2.22	5.56	1.69	.068	.045	.069	.045	702.50	52.03
.003803	285.	350.	320.	2	0	0	0.00	162.42	214.45
*SECNO 4580.000									
			VALLEY SECTION C						
4580.00	5.64	711.44	0.00	0.00	711.93	.49	3.05	.06	708.90
1210.	44.	947.	219.	18.	151.	124.	47.	16.	710.40
.39	2.41	6.29	1.76	.068	.045	.069	.045	705.80	52.53
.005314	570.	700.	640.	3	0	0	0.00	153.72	206.25
*SECNO 5475.000									
			REPEAT OF G, INVERT ADJUSTED						
5475.00	5.58	716.28	0.00	0.00	716.80	.52	4.85	.02	713.80
1210.	43.	958.	209.	18.	149.	118.	53.	19.	715.30
.44	2.45	6.45	1.77	.068	.045	.069	.045	710.70	52.63
.005694	900.	895.	825.	4	0	0	0.00	152.03	204.66
*SECNO 6370.000									

3470 ENCROACHMENT STATIONS= 436.0 538.0 TYPE= 1 TARGET= 102.000

			VALLEY SECTION H						
6370.00	4.71	720.31	0.00	0.00	720.55	.24	3.67	.08	718.00
1210.	34.	1157.	19.	16.	288.	12.	59.	21.	718.40
.50	2.17	4.01	1.60	.055	.045	.065	.045	715.60	436.00
.003130	900.	895.	825.	3	0	0	0.00	102.00	538.00
*SECNO 6477.000									

3470 ENCROACHMENT STATIONS= 450.0 500.0 TYPE= 1 TARGET= 50.000

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

			REPEAT OF H, INVERT ADJUSTED						
6477.00	5.13	720.63	0.00	0.00	721.35	.73	.56	.24	100000.00
1210.	0.	1210.	0.	0.	177.	0.	60.	21.	100000.00
.51	0.00	6.85	0.00	.055	.045	.065	.045	715.50	450.00
.010210	120.	107.	120.	2	0	0	0.00	50.00	500.00
*SECNO 6526.000									

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TI F	VLOB	VCH	VROB	XNI	XNCH	XNR	UT	ELMIN	SSTA

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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

REPEAT OF I, NO BRIDGE TABLE

6526.00	5.25	720.75	0.00	0.00	722.68	1.93	.72	.60	728.70
1210.	0.	1210.	0.	0.	109.	0.	60.	21.	729.20
.51	0.00	11.14	0.00	.055	.045	.065	.045	715.50	400.00
.023089	49.	49.	49.	2	0	0	0.00	24.00	424.00

*SECNO 6527.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 725.80 MAX ELLC= 726.80

D/S FACE OF ROMEO RD. BRIDGE

NO PIERS

6527.00	5.60	721.10	0.00	0.00	722.77	1.67	.01	.08	728.70
1210.	0.	1210.	0.	0.	117.	0.	60.	21.	729.20
.51	0.00	10.37	0.00	.030	.032	.030	.045	715.50	400.00
.009436	1.	1.	1.	10	0	0	0.00	24.00	424.00

*SECNO 6560.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 725.80 MAX ELLC= 726.80

U/S FACE OF ROMEO RD. BRIDGE

BRIDGE SECTION I

6560.00	6.44	721.94	0.00	0.00	723.15	1.21	.24	.14	728.70
1210.	0.	1210.	0.	0.	137.	0.	60.	21.	729.20
.51	0.00	8.83	0.00	.030	.032	.030	.045	715.50	400.00
.005899	33.	33.	33.	3	0	0	0.00	24.00	424.00

*SECNO 6561.000

REPEAT OF I, NO BRIDGE TABLE

6561.00	6.45	721.95	0.00	0.00	723.16	1.21	.01	.00	728.70
1210.	0.	1210.	0.	0.	137.	0.	60.	21.	729.20
.51	0.00	8.81	0.00	.050	.040	.090	.045	715.50	400.00
.009178	1.	1.	1.	0	0	0	0.00	24.00	424.00

*SECNO 6610.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 437.0 537.0 TYPE= 1 TARGET= 100.000

REPEAT OF H, INVERT ADJUSTED

6610.00	7.57	723.47	0.00	0.00	723.54	.07	.04	.34	718.30
1210.	32.	1163.	15.	31.	539.	27.	60.	21.	718.70
52	1.03	2.16	.56	050	0.0	090	045	715.90	437.00

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.000310	49.	49.	49.	2	0	0	0.00	100.00	537.00

*SECNO 6762.000

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= 408.0 498.0 TYPE= 1 TARGET= 90.000

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

6762.00	6.31	723.51	0.00	0.00	723.63	.12	.06	.02	719.60
1210.	27.	1177.	6.	21.	424.	11.	62.	22.	721.50
.53	1.27	2.77	.52	.050	.040	.090	.045	717.20	408.00
.000604	132.	152.	155.	2	0	0	0.00	90.00	498.00

*SECNO 6915.000

3470 ENCROACHMENT STATIONS= 374.0 466.0 TYPE= 1 TARGET= 90.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 722.10 ELREA= 725.40

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

6915.00	5.07	723.57	0.00	0.00	723.92	.35	.18	.12	722.10
1210.	27.	1183.	0.	14.	247.	0.	63.	22.	725.40
.54	1.91	4.79	0.00	.050	.040	.090	.045	718.50	374.00
.003026	132.	153.	155.	0	0	0	0.00	70.92	450.92

*SECNO 7067.000

3304 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 283.0 486.0 TYPE= 1 TARGET= 203.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 724.50 ELREA= 729.30

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

7067.00	4.25	724.05	0.00	0.00	725.22	1.17	.89	.41	724.50
1210.	0.	1210.	0.	0.	140.	0.	64.	22.	729.30
.54	0.00	8.67	0.00	.050	.040	.090	.045	719.80	355.71
.015731	132.	152.	155.	2	0	0	0.00	53.30	409.01

*SECNO 7220.000

3470 ENCROACHMENT STATIONS= 287.0 413.0 TYPE= 1 TARGET= 126.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 727.00 ELREA= 733.30

VALLEY SECTION J

7220.00	5.14	726.24	0.00	0.00	727.49	1.25	2.23	.04	727.00
1210.	0.	1210.	0.	0.	135.	0.	65.	22.	733.30
.55	0.00	8.97	0.00	.050	.040	.090	.044	721.10	328.1?

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.013515	132.	153.	155.	2	0	0	0.00	42.28	370.46

*SECNO 7351.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 320.0 380.0 TYPE= 1 TARGET= 60.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 727.70 ELREA= 734.00

REPEAT OF J, INVERT ADJUSTED

7351.00	6.26	728.06	0.00	0.00	728.72	.66	1.05	.18	727.70
1210.	2.	1208.	0.	2.	185.	0.	65.	22.	734.00
.55	1.04	6.52	0.00	.050	.040	.090	.044	721.80	320.00
.005334	140.	131.	140.	2	0	0	0.00	51.18	371.18

*SECNO 7400.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
0	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

REPEAT OF K, NO BRIDGE TABLE

7400.00	6.33	728.43	0.00	0.00	728.96	.54	.21	.04	733.90
1210.	0.	1210.	0.	0.	206.	0.	65.	23.	734.00
.56	0.00	5.87	0.00	.050	.040	.090	.044	722.10	300.00
.003498	49.	49.	49.	2	0	0	0.00	36.00	336.00

*SECNO 7401.000

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 733.90 MAX ELLC= 731.00

D/S FACE OF TIENKEN RD. BRIDGE

NO PIERS, CONCRETE BRIDGE

7401.00	6.33	728.43	0.00	0.00	728.97	.53	.00	.00	733.90
1210.	0.	1210.	0.	0.	206.	0.	65.	23.	734.00
.56	0.00	5.87	0.00	.030	.035	.030	.044	722.10	300.00
.002673	1.	1.	1.	0	0	0	0.00	36.00	336.00

*SECNO 7430.000

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 733.90 MAX ELLC= 731.00

U/S FACE OF TIENKEN RD. BRIDGE

BRIDGE SECTION K

7430.00	6.43	728.53	0.00	0.00	729.05	.52	.08	.00	733.90
1210.	0.	1210.	0.	0.	209.	0.	65.	23.	734.00
.56	0.00	5.78	0.00	.030	.035	.030	.044	722.10	300.00

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.002551	29.	29.	29.	0	0	0	0.00	36.00	336.00

*SECNO 7431.000

REPEAT OF K, NO BRIDGE TABLE

7431.00	6.84	728.94	0.00	0.00	729.14	.20	.00	.09	733.90
810.	0.	810.	0.	0.	225.	0.	65.	23.	734.00
.56	0.00	3.61	0.00	.100	.038	.100	.044	722.10	300.00
.001092	1.	1.	1.	2	0	0	0.00	36.00	336.00

*SECNO 7480.000

3470 ENCROACHMENT STATIONS= 282.0 418.0 TYPE= 1 TARGET= 136.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 728.40 ELREA= 734.70

REPEAT OF J, INVERT ADJUSTED

7480.00	6.48	728.98	0.00	0.00	729.24	.26	.07	.03	728.40
810.	9.	801.	0.	22.	196.	0.	66.	23.	734.70
.56	.41	4.10	0.00	.100	.038	.100	.044	722.50	282.00
.001776	49.	49.	49.	2	0	0	0.00	89.33	371.33

*SECNO 7880.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 731.00 ELREA= 737.30

REPEAT OF J, INVERT ADJUSTED

7880.00	4.92	730.02	0.00	0.00	730.66	.64	1.23	.19	731.00
810.	0.	810.	0.	0.	126.	0.	67.	23.	737.30
.58	0.00	6.41	0.00	.100	.038	.100	.044	725.10	329.03
.006572	350.	400.	400.	2	0	0	0.00	41.30	370.33

*SECNO 8330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 733.20 ELREA= 746.60

VALLEY SECTION L

8330.00	4.64	732.64	0.00	0.00	733.03	.39	2.30	.07	733.20
810.	0.	810.	0.	0.	161.	0.	69.	24.	746.60
.60	0.00	5.04	0.00	.100	.038	.100	.044	728.00	501.95
.004093	400.	450.	450.	2	0	0	0.00	54.69	556.65

*SECNO 9150.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 737.30 ELREA= 750.70

REPEAT OF I, INVERT ADJUSTED

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9150.00	4.35	736.45	0.00	0.00	736.93	.48	3.86	.04	737.30
810.	0.	810.	0.	0.	145.	0.	72.	25.	750.70
.64	0.00	5.58	0.00	.100	.038	.100	.043	732.10	502.98
.005462	775.	820.	710.	2	0	0	0.00	52.69	555.67

*SECNO 9970.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 741.20 ELREA= 738.60

VALLEY SECTION M

9970.00	3.94	740.14	0.00	0.00	740.55	.41	3.60	.02	741.20
810.	0.	807.	3.	0.	157.	4.	74.	26.	738.60
.69	0.00	5.15	.73	.100	.038	.100	.043	736.20	195.38
.003598	775.	820.	710.	2	0	0	0.00	51.65	247.03

*SECNO 10680.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 745.00 ELREA= 742.40

REPEAT OF M, INVERT ADJUSTED

10680.00	3.39	743.39	0.00	0.00	743.98	.59	3.33	.09	745.00
810.	0.	809.	1.	0.	131.	2.	77.	27.	742.40
.72	0.00	6.17	.72	.100	.038	.100	.042	740.00	196.10
.006388	690.	710.	660.	2	0	0	0.00	49.12	245.22

*SECNO 11390.000

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

3470 ENCROACHMENT STATIONS= 273.0 453.0 TYPE= 1 TARGET= 180.000

VALLEY SECTION N

11390.00	4.00	747.80	0.00	0.00	748.13	.34	4.08	.08	746.90
810.	62.	661.	87.	48.	129.	59.	80.	28.	747.40
.77	1.28	5.11	1.47	.065	.045	.065	.043	743.80	273.00
.005249	690.	710.	660.	4	0	0	0.00	180.00	453.00

*SECNO 12260.000

3470 ENCROACHMENT STATIONS= 273.0 453.0 TYPE= 1 TARGET= 180.000

REPEAT OF N, INVERT ADJUSTED

12260.00	4.12	751.92	0.00	0.00	752.20	.28	4.05	.02	750.90
810.	74.	638.	99.	57.	134.	68.	85.	32.	751.40
.82	1.30	4.75	1.46	.065	.045	.065	.043	747.80	273.00
.004305	785.	870.	800.	4	0	0	0.00	180.00	453.00

*SECNO 13130.000

3470 ENCROACHMENT STATIONS= 330.0 510.0 TYPE= 1 TARGET= 180.000

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VALLEY SECTION O

13130.00	4.09	755.89	0.00	0.00	756.22	.34	3.99	.03	755.10
810.	104.	655.	50.	79.	128.	32.	89.	35.	754.30
.88	1.33	5.13	1.56	.065	.045	.065	.043	751.80	330.00
.005092	785.	870.	800.	2	0	0	0.00	180.00	510.00

1490 NH CARD USED
*SECNO 14000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 760.00 ELREA= 757.40

VALLEY SECTION P

14000.00	6.40	759.00	0.00	0.00	759.27	.27	3.02	.02	760.00
810.	0.	773.	37.	0.	183.	40.	94.	38.	757.40
.94	0.00	4.23	.92	.065	.045	.070	.043	752.60	561.84
.002530	800.	870.	930.	2	0	0	0.00	92.36	654.21

*SECNO 14770.000

REPEAT OF P, INVERT ADJUSTED

14770.00	5.45	761.75	0.00	0.00	762.24	.49	2.86	.11	763.70
810.	0.	805.	5.	0.	142.	6.	97.	39.	761.10
.98	0.00	5.66	.77	.065	.045	.070	.043	756.30	563.63
.005958	675.	770.	800.	2	0	0	0.00	61.19	624.82

*SECNO 15540.000

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

VALLEY SECTION Q

15540.00	4.95	764.95	0.00	0.00	765.20	.25	2.89	.07	763.60
810.	18.	769.	22.	21.	186.	22.	101.	41.	763.30
1.03	.89	4.13	1.02	.065	.045	.065	.043	760.00	103.58
.002576	675.	770.	800.	2	0	0	0.00	103.90	207.48

*SECNO 15902.000

3470 ENCROACHMENT STATIONS= 132.0 183.0 TYPE= 1 TARGET= 51.000

REPEAT OF Q, INVERT ADJUSTED

15902.00	4.55	766.05	0.00	0.00	766.41	.36	1.16	.05	765.10
810.	2.	805.	3.	2.	167.	2.	102.	41.	764.80
1.05	1.07	4.81	1.21	.065	.045	.065	.043	761.50	132.00
.004036	410.	362.	370.	2	0	0	0.00	51.00	183.00

*SECNO 15951.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

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Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	FLMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

REPEAT OF R, NO BRIDGE TABLE

15951.00	4.02	765.72	765.72	0.00	767.65	1.93	.42	.79	770.70
810.	0.	810.	0.	0.	73.	0.	102.	41.	770.70
1.05	0.00	11.15	0.00	.065	.045	.065	.043	761.70	120.00
.029949	49.	49.	49.	3	11	0	0.00	19.00	139.00

*SECNO 15952.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 769.50 MAX ELLC= 769.60

D/S FACE OF WINKLER MILL RD. BRIDGE

NO PIERS

15952.00	4.36	766.56	0.00	0.00	767.86	1.30	.02	.19	770.70
810.	0.	810.	0.	0.	89.	0.	102.	41.	770.70
1.05	0.00	9.14	0.00	.030	.035	.030	.043	761.70	120.00
.010121	1.	1.	1.	10	0	0	0.00	19.00	139.00

*SECNO 15980.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 769.50 MAX ELLC= 769.60

U/S FACE OF WINKLER MILL RD. BRIDGE

BRIDGE SECTION R

15980.00	5.46	767.16	0.00	0.00	768.18	1.02	.24	.08	770.70
810.	0.	810.	0.	0.	100.	0.	102.	41.	770.70
1.05	0.00	8.10	0.00	.030	.035	.030	.043	761.70	120.00
.007163	28.	28.	28.	2	0	0	0.00	19.00	139.00

*SECNO 15981.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	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	IDC	ICONT	CORAR	TOPWID	ENDST

REPEAT OF R, NO BRIDGE TABLE

15981.00	5.47	767.17	0.00	0.00	768.19	1.02	.01	.00	770.70
810.	0.	810.	0.	0.	100.	0.	102.	41.	770.70
1.05	0.00	8.09	0.00	.065	.045	.065	.043	761.70	120.00
.011786	1.	1.	1.	0	0	0	0.00	19.00	139.00

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*SECNO 16030.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 98.0 217.0 TYPE= 1 TARGET= 119.000

REPEAT OF Q, INVERT ADJUSTED

16030.00	6.25	768.45	0.00	0.00	768.56	.10	.10	.27	765.80
810.	64.	683.	63.	67.	248.	66.	103.	41.	765.50
1.06	.95	2.76	.95	.065	.045	.065	.043	762.20	98.00
.000783	49.	49.	49.	2	0	0	0.00	119.00	217.00

*SECNO 16240.000

REPEAT OF Q, INVERT ADJUSTED

16240.00	4.65	768.65	0.00	0.00	768.96	.31	.30	.10	767.60
810.	11.	784.	15.	13.	172.	15.	104.	42.	767.30
1.07	.88	4.54	1.04	.065	.045	.065	.043	764.00	110.20
.003455	150.	210.	185.	2	0	0	0.00	92.56	202.76

*SECNO 16450.000

REPEAT OF Q, INVERT ADJUSTED

WINKLER MILL DAM NOT INCLUDED IN HEC-2

REFER TO HYDRAULIC ANALYSIS REPORT

16450.00	3.73	769.63	0.00	0.00	770.24	.61	1.13	.15	769.50
810.	0.	809.	1.	0.	129.	1.	105.	42.	769.20
1.08	.36	6.27	.81	.065	.045	.065	.043	765.90	131.05
.009683	150.	210.	185.	3	0	0	0.00	50.86	187.92

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00BREAK00

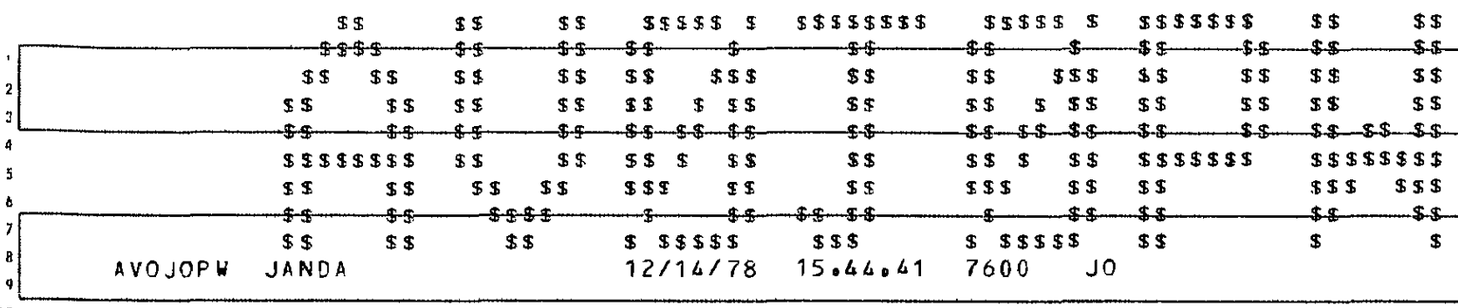
1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: STONY CREEK

4) DOCUMENT TYPE: 100-YR NATURAL

00BREAK00



AVON TWP. FIS 5850-01

Stony Creek

100 - Year Flood - Natural

FORM 1411 GD PRINTED BY ROTARY MANIFOLD FORMS

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**** 7000 SCOPE 2.1 LVL  221  11/11/78  17.42.56  12/14/78      78348

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=453B

HH.MM.SS CPU SECOND ORIGIN
         15.44.57.MFA. JO    LV461 NOSBE B+W LYNRELEASE447 02/04/78

15.44.40 00000.012 MFZ.     -AVOJOQ1,T20,SIMFZ.    AVON TWP FIS
15.44.41 00000.028 USR.      CHARGE.810-0037-45-78-5801,JANDA,001,D,JANDA.
15.44.41 00000.063 JOB.     -ATTACH,LGO,HEC2N76V2,ID=HEC.
15.44.42 00000.069 MFZ.       PF254 - CYCLE    1 ATTACHED FROM SN=SYSTEM
15.44.42 00000.069 LOD.     -LGO(PL=999999).
15.49.05 00000.892 MFZ.       LD610 - FLS REQUIRED TO LOAD - 0027777 OU.EOC
15.49.05 00000.896 MFZ.       LD603 - EXECUTION INITIATED OS.EXP
15.49.05 00000.896 USR.     FORTRAN LIBRARY 439          08/20/78
15.49.09 00002.003 USR.       STOP
15.49.09 00002.003 USR.         1.105 CP SECONDS EXECUTION TIME
15.49.09 00002.007 MFZ.       RM770 - MAXIMUM ACTIVE FILES                    7
15.49.09 00002.008 MFZ.       RM771 - OPEN/CLOSE CALLS                       24
15.49.09 00002.008 MFZ.       RM772 - DATA TRANSFER CALLS                 3,353
15.49.09 00002.008 MFZ.       RM773 - CONTROL/POSITIONING CALLS              48
15.49.09 00002.008 MFZ.       RM774 - BM DATA TRANSFER CALLS                444
15.49.09 00002.008 MFZ.       RM775 - BM CONTROL/POSITIONING CALLS           67
15.49.09 00002.009 MFZ.       RM776 - QUEUE MANAGER CALLS                    96
15.49.09 00002.009 MFZ.       RM777 - RECALL CALLS                           74
15.49.09 00002.009 MFZ.       BWMSG - NUMBER OF TAPES MOUNTED
15.49.09 00002.010 MFZ.       SRU                    2.159  SEC
15.49.09 00002.010 MFZ.       SCM                   40.381  KWS
15.49.09 00002.010 MFZ.       I/O                    0.045  MW
15.49.09 00002.010 MFZ.       RMS                    0.041  MWS
15.49.09 00002.010 MFZ.       USER                   0.821  SEC
15.49.09 00002.011 MFZ.       JOB                    2.012  SEC
15.49.09 00002.011 MFZ.       SC050 - 000114 SC/LC SWAPS
15.49.09 00002.011 MFZ.     AVOJOPW   AVOJOPW
15.49.09.EJ  END OF JOB
AVOJOPW  JANDA                  12/14/78  15.44.41  7600    JO
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S C O P E 2 L O A D M A P LOADER VERSION 1.0 12/14/78 15.49.05 PAGE 1

PROGRAM WILL BE ENTERED AT MAIN (355) SCM LENGTH 64711 LCM LENGTH 0

BLOCK	ADDRESS	LENGTH
/CONTRL/	100	17
MAIN	117	253
/DOUBLE/	372	10
/NAMES/	402	202
H2MAIN	604	15337
ADDPTS	16143	321
BLFLO	16664	1021
BLOCK	17505	261
BWEIR	17766	1427
CARD	21415	2463
CHIMP	24100	1650
DC	25750	706
DONE	26656	60
FLDHAZ	26736	2220
FLODIS	31156	453
BLKDAT.	31631	0
NEAR	31631	16
PRIAH	31647	251
PROF	32120	1142
SCALE	33262	236
SLARA	33520	243
SUMPO	33763	2744
XSEC	36727	1256
YCRIT	40205	122
MAPIT	40327	50
QVAR	40377	24
SAVEIT	40423	24
/STP.END/	40447	1
/FCL.C./	40450	23
/08.IO./	40473	140
Q8NTRY=	40633	1
COMIO=	40634	44
ENDFIL=	40700	45
EOF	40745	20
FECMSK=	40765	41
FLTIN=	41026	156
FLTOUT=	41204	315
FMTAP=	41521	372
FORSYS=	42113	561
FORUTL=	42674	16
GETFIT=	42712	43
INCOM=	42755	256
/IO.BUF./	43233	227
INPB=	43462	324
INPC=	44006	173
KODER=	44201	467
KRAKER=	44670	454
OUTB=	45344	246
/HEADING/	45612	16
/LIN.CNT/	45630	1
OUTC=	45631	1054
OUTCOM=	46705	204

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REWIND=	47111	36
GOTOER=	47147	14
ALOG	47163	77
EXP	47262	102
ITOJ*	47364	52
SORT	47436	46
SYSAID=	47504	1
SYS=1ST	47505	62
XTOY*	47567	55
//	47644	15045

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FORM 1611 CR PRINTED BY ROTARY MANIFOLD FORMS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      AVON TOWNSHIP F.I.S. - JOB NO. 5850-01 - PROJECT MANAGER, JOHN EMIG
T2      100 YEAR FLOOD
T3      STONY CREEK
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
         0.        4.         0.         0.  0.000000       0.00       0.0         0.    693.130     0.000
J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
       -1.000     0.000     -1.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
       38.000    40.000    41.000    42.000     43.000      1.000      8.000     10.000     12.000      3.000
       33.000     4.000    25.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC        .070       .070       .040       .300       .500      0.000      0.000      0.000      0.000      0.000
QT       4.000    665.000   1045.000   1215.000   1695.000      0.000      0.000      0.000      0.000      0.000

                REPEAT OF A, INVERT ADJUSTED
X1       0.000     23.000    455.000    492.000      0.000      0.000      0.000      0.000     -2.000      0.000
X3      10.000      0.000      0.000    298.000      0.000    650.000      0.000      0.000      0.000      0.000
GR     700.700      0.000    687.500     55.000    690.200    155.000    691.400    255.000    690.900    355.000
GR     691.000    455.000    687.000    459.000    687.000    467.000    687.400    473.000    687.500    481.000
GR     687.800    487.000    690.000    492.000    690.300    555.000    688.600    660.000    694.100    680.000
GR     696.000    755.000    693.300    855.000    692.100    955.000    692.100   1055.000    694.100   1155.000
GR     693.300   1182.000    700.100   1255.000    702.000   1280.000      0.000      0.000      0.000      0.000
NH       4.000       .075    455.000       .045    492.000       .070    660.000       .050   1280.000      0.000

                VALLEY SECTION A
X1     150.000      0.000      0.000      0.000    150.000    150.000    150.000      0.000      2.000      0.000
X3      10.000      0.000      0.000    336.000      0.000    612.000      0.000      0.000      0.000      0.000

                REPEAT OF A, INVERT ADJUSTED
X1     341.000      0.000      0.000      0.000    200.000    150.000    191.000      0.000      -.400      0.000
X3      10.000      0.000      0.000    383.000      0.000    564.000      0.000      0.000      0.000      0.000
NC        .070       .060       .045      0.000      0.000      0.000      0.000      0.000      0.000      0.000

                REPEAT OF A, INVERT ADJUSTED
X1     533.000      0.000      0.000      0.000    200.000    150.000    192.000      0.000      -.500      0.000
X3      10.000      0.000      0.000    430.000      0.000    517.000      0.000      0.000      0.000      0.000
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REPEAT OF B, NO BRIDGE TABLE

X1	582.000	23.000	500.000	566.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	701.600	0.000	701.400	100.000	701.400	300.000	701.700	400.000	702.000	500.000
GR	686.400	500.000	686.000	505.000	686.300	510.000	687.900	515.000	689.900	523.000
GR	690.500	530.500	694.000	530.500	694.000	531.000	694.000	535.000	694.000	535.500
GR	690.600	535.500	692.000	566.000	702.000	566.000	702.900	600.000	701.800	700.000
GR	701.500	800.000	701.500	900.000	701.700	1000.000	0.000	0.000	0.000	0.000
NC	.035	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF GRAND TRUNK WESTERN RAILROAD BRIDGE

ONE CONCRETE PIER, 5.0' WIDE

X1	583.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	15.000	0.000	701.600	0.000	100.000	701.400	0.000	300.000	701.400	0.000
BT	400.000	701.700	0.000	500.000	702.000	695.400	531.000	702.000	695.400	531.000
BT	702.000	694.000	535.000	702.000	694.000	535.000	702.000	695.400	566.000	702.000
BT	694.000	600.000	702.900	0.000	700.000	701.800	0.000	800.000	701.500	0.000
BT	900.000	701.500	0.000	1000.000	701.700	0.000	0.000	0.000	0.000	0.000

U/S FACE OF GRAND TRUNK WESTERN RAILROAD BRIDGE

BRIDGE SECTION B

X1	600.000	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.070	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF B, NO BRIDGE TABLE

X1	601.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	4.000	.065	345.000	.045	372.000	.065	450.000	.050	845.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	650.000	19.000	345.000	372.000	49.000	49.000	49.000	0.000	-3.300	0.000
X3	10.000	0.000	0.000	276.000	0.000	442.000	0.000	0.000	0.000	0.000
GR	708.200	0.000	693.700	45.000	691.800	56.000	692.900	145.000	694.100	245.000
GR	693.100	345.000	690.400	352.000	690.100	355.000	690.000	359.000	690.100	363.000
GR	690.500	368.000	693.000	372.000	694.900	445.000	693.800	493.000	698.600	545.000
GR	700.900	645.000	701.000	745.000	702.300	790.000	707.400	845.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	765.000	0.000	0.000	0.000	45.000	125.000	115.000	0.000	1.700	0.000
X3	10.000	0.000	0.000	264.000	0.000	453.000	0.000	0.000	0.000	0.000

VALLEY SECTION C

X1	880.000	0.000	0.000	0.000	45.000	125.000	115.000	0.000	1.600	0.000
X3	10.000	0.000	0.000	293.000	0.000	424.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	1021.000	0.000	0.000	0.000	125.000	170.000	141.000	0.000	-.200	0.000
X3	10.000	0.000	0.000	328.000	0.000	389.000	0.000	0.000	0.000	0.000

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REPEAT OF D, NO BRIDGE TABLE

X1	1070.000	17.000	300.000	336.500	49.000	49.000	49.000	0.000	0.000	0.000
GR	707.600	0.000	704.900	100.000	704.800	200.000	704.600	300.000	690.300	300.000
GR	689.700	305.000	690.000	310.000	690.800	315.000	691.900	320.000	692.300	325.000
GR	693.500	330.000	693.900	336.500	704.600	336.500	705.000	400.000	705.400	500.000
GR	706.100	600.000	709.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.030	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF PARKDALE RD BRIDGE

NO PIERS

X1	1071.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	0.000	707.600	0.000	100.000	704.900	0.000	200.000	704.800	0.000
BT	300.000	704.600	700.900	336.500	704.600	700.900	400.000	705.000	0.000	500.000
BT	705.400	0.000	600.000	706.100	0.000	700.000	709.000	0.000	0.000	0.000

U/S FACE OF PARKDALE RD BRIDGE

BRIDGE SECTION D

X1	1100.000	0.000	0.000	0.000	29.000	29.000	29.000	0.000	0.000	0.000
BT	11.000	0.000	707.600	0.000	100.000	704.900	0.000	200.000	704.800	0.000
BT	300.000	704.600	702.300	300.000	705.600	702.300	336.500	705.600	702.300	336.500
BT	704.600	702.300	400.000	705.000	0.000	500.000	705.400	0.000	600.000	706.100
BT	0.000	700.000	709.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF D, NO BRIDGE TABLE

X1	1101.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	5.000	.090	375.000	.065	775.000	.050	1075.000	.045	1100.000	.050
NH	1275.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	1150.000	23.000	859.000	1110.000	49.000	49.000	49.000	0.000	-1.000	0.000
X3	10.000	0.000	0.000	917.000	0.000	1052.000	0.000	0.000	0.000	0.000
GR	711.600	0.000	708.400	75.000	707.300	175.000	706.500	275.000	704.600	375.000
GR	704.200	475.000	701.900	575.000	698.300	675.000	700.700	775.000	696.200	859.000
GR	694.500	865.000	692.400	875.000	690.700	975.000	693.900	1061.000	696.500	1066.000
GR	696.500	1075.000	693.300	1082.000	692.500	1090.000	693.100	1100.000	693.300	1108.000
GR	694.800	1110.000	704.300	1175.000	710.000	1275.000	0.000	0.000	0.000	0.000

VALLEY SECTION E

X1	1620.000	0.000	0.000	0.000	500.000	425.000	470.000	0.000	1.000	0.000
X3	10.000	0.000	0.000	863.000	0.000	1130.000	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

VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

X1	1835.000	90.000	676.000	844.200	215.000	190.000	215.000	0.000	1.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	711.900	0.000	710.700	23.300	709.500	46.600	708.500	69.900	708.000	93.200
GR	707.500	116.500	706.900	139.800	706.500	163.100	706.200	186.400	706.000	209.700
GR	705.600	233.100	705.200	256.400	704.700	279.700	704.300	303.000	704.200	326.300

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GR	704.100	349.600	703.900	372.900	703.400	396.200	702.800	419.500	702.300	442.800
GR	701.600	466.200	700.700	489.500	699.900	512.800	699.300	536.100	699.800	559.400
GR	700.300	582.700	700.800	606.000	699.800	629.300	698.600	652.600	697.400	676.000
GR	694.800	681.600	693.500	687.200	693.200	692.800	693.100	698.400	693.000	704.000
GR	692.900	709.600	692.800	715.200	692.700	720.800	692.600	726.400	692.500	732.000
GR	692.400	737.600	692.300	743.200	692.200	748.900	692.100	754.500	692.000	760.100
GR	692.000	765.700	692.100	771.300	692.400	776.900	692.600	782.500	692.800	788.100
GR	693.000	793.700	693.300	799.300	693.500	804.900	693.700	810.500	694.000	816.200
GR	694.200	821.800	694.400	827.400	694.700	833.000	696.600	838.600	696.700	844.200
GR	694.500	855.700	694.000	867.200	694.200	878.700	694.500	890.300	694.900	901.800
GR	696.500	913.300	697.300	924.800	698.100	936.300	698.900	947.800	699.800	959.400
GR	700.600	970.900	701.400	982.400	702.300	993.900	703.100	1005.400	703.900	1016.900
GR	704.300	1028.500	704.700	1040.000	705.100	1051.500	705.400	1063.000	705.700	1074.500
GR	706.000	1086.000	706.200	1097.600	706.500	1109.100	706.900	1120.600	707.200	1132.100
GR	707.500	1143.600	707.800	1155.100	708.100	1166.700	708.500	1178.200	710.700	1189.700

VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

X1	2050.000	90.000	493.000	613.500	215.000	190.000	215.000	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
GR	712.300	0.000	711.100	17.000	709.900	34.000	708.900	51.000	708.100	68.000
GR	707.400	84.900	706.700	101.900	706.000	118.900	705.700	135.900	705.500	152.900
GR	705.200	169.900	704.800	186.900	704.400	203.900	704.200	220.900	704.000	237.900
GR	703.900	254.900	703.700	271.900	703.300	288.900	702.900	305.900	702.400	322.900
GR	701.900	339.900	701.300	356.900	700.600	373.900	700.200	390.900	700.500	407.900
GR	700.700	424.900	701.000	441.900	700.300	458.900	699.400	475.900	698.600	493.000
GR	695.500	497.000	694.300	501.000	694.100	505.000	694.000	509.000	693.900	513.000
GR	693.900	517.000	693.800	521.100	693.700	525.100	693.700	529.100	693.600	533.100
GR	693.500	537.100	693.500	541.100	693.400	545.200	693.300	549.200	693.300	553.200
GR	693.300	557.200	693.400	561.200	693.600	565.200	693.700	569.300	693.900	573.300
GR	694.100	577.300	694.300	581.300	694.500	585.300	694.700	589.300	694.900	593.400
GR	695.100	597.400	695.300	601.400	695.500	605.400	696.800	609.400	696.900	613.500
GR	695.600	629.800	695.400	646.200	695.700	662.500	696.000	678.900	696.300	695.300
GR	697.400	711.600	698.100	728.000	698.800	744.400	699.500	760.700	700.100	777.100
GR	700.800	793.500	701.500	809.800	702.200	826.200	702.900	842.600	703.600	858.900
GR	704.000	875.300	704.500	891.700	704.900	908.000	705.100	924.400	705.200	940.800
GR	705.400	957.100	705.500	973.500	705.800	989.900	706.000	1006.200	706.300	1022.600
GR	706.500	1039.000	706.800	1055.300	707.100	1071.700	707.500	1088.100	711.400	1104.500

VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

X1	2265.000	90.000	310.000	382.700	215.000	190.000	215.000	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
GR	712.700	0.000	711.500	10.600	710.300	21.300	709.200	32.000	708.300	42.700
GR	707.300	53.400	706.400	64.100	705.500	74.800	705.200	85.500	705.000	96.200
GR	704.800	106.800	704.500	117.500	704.200	128.200	704.000	138.900	703.800	149.600
GR	703.600	160.300	703.500	171.000	703.200	181.700	702.900	192.400	702.600	203.100
GR	702.200	213.700	701.800	224.400	701.400	235.100	701.100	245.800	701.200	256.500
GR	701.200	267.200	701.200	277.900	700.800	288.600	700.300	299.300	699.800	310.000
GR	696.100	312.400	695.100	314.800	695.000	317.200	695.000	319.600	694.900	322.100
GR	694.900	324.500	694.800	326.900	694.800	329.300	694.700	331.800	694.700	334.200
GR	694.600	336.600	694.600	339.000	694.600	341.500	694.600	343.900	694.600	346.300
GR	694.600	348.700	694.700	351.200	694.800	353.600	694.900	356.000	695.100	358.400
GR	695.200	360.900	695.400	363.300	695.500	365.700	695.700	368.100	695.800	370.600
GR	696.000	373.000	696.100	375.400	696.300	377.800	697.000	380.300	697.100	382.700
GR	696.700	403.900	696.800	425.100	697.200	446.300	697.500	467.600	697.700	488.800
GR	698.400	510.000	698.900	531.200	699.400	552.400	700.000	573.600	700.500	594.900
GR	701.100	616.100	701.600	637.300	702.200	658.500	702.800	679.700	703.300	700.900
GR	703.800	722.200	704.200	743.400	704.600	764.600	704.700	785.800	704.800	807.000
GR	704.800	828.200	704.800	849.500	705.000	870.700	705.200	891.900	705.400	913.100
GR	705.600	934.300	705.800	955.500	706.000	976.800	706.500	998.000	712.100	1019.200
NC	.065	.065	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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VALLEY SECTION F

X1	2480.000	18.000	127.000	152.000	215.000	190.000	215.000	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	713.100	0.000	704.900	31.000	701.000	127.000	696.000	128.000	695.800	136.000
GR	695.800	138.000	696.000	142.000	696.800	148.000	697.400	152.000	698.700	227.000
GR	699.600	327.000	701.200	427.000	702.800	527.000	704.500	627.000	704.200	727.000
GR	704.700	827.000	705.200	907.000	712.900	934.000	0.000	0.000	0.000	0.000

REPEAT OF F, INVERT ADJUSTED

X1	3180.000	0.000	0.000	0.000	570.000	640.000	700.000	0.000	3.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MANUFACTURED FROM SECTIONS F AND G

X1	3530.000	19.000	127.000	180.000	285.000	320.000	350.000	0.000	5.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	713.100	0.000	704.900	31.000	701.000	127.000	696.000	128.000	695.800	136.000
GR	695.800	138.000	696.000	142.000	696.800	148.000	697.400	152.000	700.000	180.000
GR	702.000	227.000	702.000	327.000	702.800	427.000	702.800	527.000	704.500	627.000
GR	704.200	727.000	704.700	827.000	705.200	907.000	712.900	934.000	0.000	0.000
NH	4.000	.068	63.000	.045	97.000	.070	200.000	.065	382.000	0.000

REPEAT OF G, INVERT ADJUSTED

X1	3880.000	14.000	63.000	97.000	285.000	320.000	350.000	0.000	-3.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	726.000	0.000	714.900	47.000	709.900	55.000	708.900	63.000	706.700	65.000
GR	706.300	68.000	705.800	73.000	705.900	78.000	706.400	85.000	710.400	97.000
GR	709.800	163.000	713.600	263.000	714.900	363.000	716.300	382.000	0.000	0.000
QT	4.000	665.000	1040.000	1210.000	1680.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION G

X1	4580.000	0.000	0.000	0.000	570.000	640.000	700.000	0.000	3.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF G, INVERT ADJUSTED

X1	5475.000	0.000	0.000	0.000	900.000	825.000	895.000	0.000	4.900	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.055	.065	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION H

X1	6370.000	22.000	443.000	531.000	900.000	825.000	895.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	436.000	0.000	538.000	0.000	0.000	0.000	0.000
GR	733.700	0.000	732.000	43.000	727.400	61.000	724.200	143.000	721.500	243.000
GR	719.400	343.000	718.000	443.000	716.200	446.000	715.600	452.000	716.100	461.000
GR	718.400	464.000	717.700	469.000	716.300	492.000	716.500	498.000	717.200	505.000
GR	716.700	512.000	716.800	518.000	716.800	528.000	718.400	531.000	719.200	543.000
GR	723.500	643.000	733.700	673.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, INVERT ADJUSTED

X1	6477.000	0.000	0.000	0.000	120.000	120.000	107.000	0.000	-.100	0.000
X3	10.000	0.000	0.000	450.000	0.000	500.000	0.000	0.000	0.000	0.000

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REPEAT OF I, NO BRIDGE TABLE

X1	6526.000	13.000	400.000	424.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	732.800	0.000	727.400	100.000	725.800	200.000	726.300	300.000	728.700	400.000
GR	717.300	400.000	716.400	406.000	715.900	412.000	716.200	418.000	715.500	424.000
GR	729.200	424.000	731.000	500.000	733.600	550.000	0.000	0.000	0.000	0.000
NC	.030	.030	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF ROMEO RD. BRIDGE

NO PIERS

X1	6527.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	8.000	0.000	732.800	0.000	100.000	727.400	0.000	200.000	725.800	0.000
BT	300.000	726.300	0.000	400.000	728.700	726.300	424.000	729.200	726.800	500.000
BT	731.000	0.000	550.000	733.600	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF ROMEO RD. BRIDGE

BRIDGE SECTION I

X1	6560.000	0.000	0.000	0.000	33.000	33.000	33.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.050	.090	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF I, NO BRIDGE TABLE

X1	6561.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

REPEAT OF H, INVERT ADJUSTED

X1	6610.000	22.000	443.000	531.000	49.000	49.000	49.000	0.000	.300	0.000
X3	10.000	0.000	0.000	425.000	0.000	549.000	0.000	0.000	0.000	0.000
GR	733.700	0.000	732.000	43.000	727.400	61.000	724.200	143.000	721.500	243.000
GR	719.400	343.000	718.000	443.000	716.200	446.000	715.600	452.000	716.100	461.000
GR	718.400	464.000	717.700	489.000	716.300	492.000	716.500	498.000	717.200	505.000
GR	716.700	512.000	716.800	518.000	716.800	528.000	718.400	531.000	719.200	543.000
GR	723.500	643.000	733.700	673.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

X1	6762.000	90.000	413.500	492.000	132.000	155.000	152.000	0.000	-.600	-0.000
X3	10.000	0.000	0.000	366.000	0.000	541.000	0.000	0.000	0.000	0.000
GR	735.700	0.000	734.800	14.200	733.800	28.500	732.400	42.700	729.100	57.000
GR	728.400	71.200	727.900	85.500	727.400	99.800	726.900	114.000	726.400	128.300
GR	726.000	142.500	725.500	156.800	725.100	171.100	724.700	185.300	724.200	199.600
GR	723.800	213.800	723.400	228.100	723.000	242.300	721.800	256.000	721.900	270.900
GR	722.100	285.100	721.900	299.400	721.600	313.600	721.300	327.900	721.100	342.200
GR	720.900	356.400	720.700	370.700	720.500	384.900	720.400	399.200	720.200	413.500
GR	716.800	416.100	718.400	418.700	718.100	621.300	718.100	423.900	718.100	426.500
GR	718.200	429.100	719.500	431.800	719.600	434.400	719.500	437.000	719.300	439.600
GR	719.200	442.200	719.100	444.800	719.000	447.500	719.000	450.100	718.900	452.700
GR	718.500	455.300	717.800	457.900	717.800	460.500	717.900	463.200	718.000	465.800
GR	718.200	468.400	718.000	471.000	717.900	473.600	717.900	476.200	718.000	478.900
GR	718.300	481.500	718.900	484.100	719.600	486.700	720.300	489.300	722.100	492.000
GR	722.400	498.200	722.800	504.500	723.000	510.700	723.200	517.000	723.300	523.200
GR	723.500	529.500	723.600	535.800	723.800	542.000	723.900	548.300	724.000	554.500
GR	724.200	560.800	724.400	567.000	724.600	573.300	724.800	579.600	725.000	585.800
GR	725.200	592.100	725.400	598.300	725.600	604.600	725.800	610.900	726.000	617.100
GR	726.200	623.400	726.400	629.600	726.700	635.900	727.200	642.100	728.500	648.400

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GR	729.800	654.700	731.000	660.900	732.300	667.200	733.600	673.400	734.800	679.700

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

X1	6915.000	90.000	384.000	453.000	132.000	155.000	153.000	0.000	-.400	0.000
X3	10.000	0.000	0.000	354.000	0.000	483.000	0.000	0.000	0.000	0.000
GR	737.700	0.000	736.500	13.200	735.200	26.400	733.700	39.700	730.800	52.900
GR	730.000	66.200	729.600	79.400	729.300	92.600	728.900	105.900	728.500	119.100
GR	728.000	132.400	727.600	145.600	727.100	158.800	726.700	172.100	726.200	185.300
GR	725.800	198.600	725.400	211.800	724.900	225.100	722.900	258.300	723.300	251.500
GR	724.200	264.800	723.900	278.000	723.700	291.300	723.400	304.500	723.200	317.700
GR	723.000	331.000	722.800	344.200	722.700	357.500	722.600	370.700	722.500	384.000
GR	721.400	386.200	721.000	388.500	720.700	390.800	720.500	393.100	720.400	395.400
GR	720.300	397.700	721.100	400.000	721.000	402.300	720.800	404.600	720.500	406.900
GR	720.400	409.200	720.300	411.500	720.200	413.800	720.100	416.100	720.100	418.400
GR	719.800	420.700	719.300	423.000	719.300	425.300	719.300	427.600	719.300	429.900
GR	719.300	432.200	719.100	434.500	718.900	436.800	719.100	439.100	719.400	441.400
GR	719.800	443.700	721.100	446.000	722.400	448.300	723.700	450.600	725.800	453.000
GR	726.200	460.700	726.600	468.500	726.800	476.300	726.900	484.100	727.000	491.900
GR	727.100	499.600	727.200	507.400	727.200	515.200	727.300	523.000	727.400	530.800
GR	727.500	538.600	727.700	546.300	727.900	554.100	728.100	561.900	728.300	569.700
GR	728.500	577.500	728.700	585.300	728.900	593.000	729.100	600.800	729.300	608.600
GR	729.600	616.400	729.800	624.200	730.000	632.000	730.500	639.700	731.400	647.500
GR	732.300	655.300	733.200	663.100	734.200	670.900	735.100	678.700	736.000	686.500

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

X1	7067.000	90.000	354.500	414.000	132.000	155.000	152.000	0.000	-.200	0.000
X3	10.000	0.000	0.000	283.000	0.000	486.000	0.000	0.000	0.000	0.000
GR	739.700	0.000	738.200	12.200	736.600	24.400	734.900	36.600	732.500	48.800
GR	731.600	61.100	731.400	73.300	731.100	85.500	730.800	97.700	730.600	110.000
GR	730.100	122.200	729.600	134.400	729.200	146.600	728.700	158.900	728.200	171.100
GR	727.800	183.300	727.300	195.500	726.800	207.800	724.000	220.000	724.800	232.200
GR	726.200	244.400	726.000	256.700	725.700	268.900	725.500	281.100	725.300	293.300
GR	725.200	305.600	725.000	317.800	724.800	330.000	724.800	342.200	724.700	354.500
GR	724.000	356.400	723.600	358.400	723.200	360.400	722.900	362.400	722.700	364.400
GR	722.400	365.300	722.600	368.300	722.400	370.500	722.000	372.300	721.700	374.300
GR	721.500	376.300	721.400	378.200	721.300	380.200	721.300	382.200	721.200	384.200
GR	721.100	386.200	720.800	388.200	720.800	390.100	720.600	392.100	720.500	394.100
GR	720.400	396.100	720.200	398.100	720.000	400.100	720.300	402.000	720.700	404.000
GR	721.300	406.000	723.300	408.000	725.200	410.000	727.200	412.000	729.500	414.000
GR	730.000	423.300	730.400	432.600	730.600	441.900	730.600	451.200	730.600	460.500
GR	730.700	469.800	730.700	479.100	730.700	488.400	730.800	497.700	730.800	507.000
GR	730.800	516.300	731.000	525.600	731.200	535.000	731.400	544.300	731.600	553.600
GR	731.800	562.900	732.000	572.200	732.200	581.500	732.500	590.800	732.700	600.100
GR	732.900	609.400	733.100	618.700	733.300	628.000	733.700	637.300	734.300	646.700
GR	734.900	656.000	735.400	665.300	736.000	674.600	736.600	683.900	737.200	693.200

VALLEY SECTION J

X1	7220.000	10.000	325.000	375.000	132.000	155.000	153.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	287.000	0.000	413.000	0.000	0.000	0.000	0.000
GR	741.800	0.000	733.400	50.000	732.700	100.000	728.900	190.000	724.000	205.000
GR	728.300	220.000	727.000	300.000	727.000	325.000	722.900	342.000	722.600	345.000
GR	722.300	355.000	721.500	360.000	721.100	363.000	722.400	368.000	733.300	375.000
GR	734.400	400.000	734.200	500.000	736.200	600.000	738.400	700.000	0.000	0.000

REPEAT OF J, INVERT ADJUSTED

X1	7351.000	0.000	0.000	0.000	140.000	140.000	131.000	0.000	.700	0.000
X3	10.000	0.000	0.000	320.000	0.000	380.000	0.000	0.000	0.000	0.000

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REPEAT OF K, NO BRIDGE TABLE

X1	7400.000	15.000	300.000	336.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	739.700	0.000	735.700	100.000	733.900	200.000	733.900	300.000	723.600	300.000
~~GR~~	~~722.900~~	~~310.000~~	~~722.400~~	~~320.000~~	~~722.500~~	~~330.000~~	~~722.100~~	~~336.000~~	~~734.000~~	~~336.000~~
GR	734.400	400.000	735.000	500.000	736.200	600.000	737.600	700.000	740.100	800.000
NC	.030	.030	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF TIENKEN RD. BRIDGE

NO PIERS, CONCRETE BRIDGE

~~X1~~	~~7401.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~1.000~~	~~1.000~~	~~1.000~~	~~0.000~~	~~0.000~~	~~0.000~~
BT	12.000	0.000	739.700	0.000	100.000	735.700	0.000	200.000	733.900	0.000
BT	300.000	733.900	731.000	300.000	737.500	731.000	336.000	737.500	730.900	336.000
~~BT~~	~~734.000~~	~~730.900~~	~~400.000~~	~~734.400~~	~~0.000~~	~~500.000~~	~~735.000~~	~~0.000~~	~~600.000~~	~~736.200~~
BT	0.000	700.000	737.600	0.000	800.000	740.100	0.000	0.000	0.000	0.000

U/S FACE OF TIENKEN RD. BRIDGE

~~BRIDGE SECTION K~~

X1	7430.000	0.000	0.000	0.000	29.000	29.000	29.000	0.000	0.000	0.000
~~X2~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~1.000~~	~~0.000~~	~~0.000~~	~~0.000~~
NC	.100	.100	.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	485.000	720.000	810.000	1100.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF K, NO BRIDGE TABLE

X1	7431.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

REPEAT OF J, INVERT ADJUSTED

~~X1~~	~~7480.000~~	~~19.000~~	~~325.000~~	~~375.000~~	~~49.000~~	~~49.000~~	~~49.000~~	~~0.000~~	~~1.400~~	~~0.000~~
X3	10.000	0.000	0.000	282.000	0.000	418.000	0.000	0.000	0.000	0.000
GR	741.800	0.000	733.400	50.000	732.700	100.000	728.900	190.000	724.000	205.000
~~GR~~	~~728.300~~	~~220.000~~	~~727.000~~	~~300.000~~	~~727.000~~	~~325.000~~	~~722.900~~	~~342.000~~	~~722.600~~	~~345.000~~
GR	722.300	355.000	721.500	360.000	721.100	363.000	722.400	368.000	733.300	375.000
GR	734.400	400.000	734.200	500.000	736.200	600.000	738.400	700.000	0.000	0.000

REPEAT OF J, INVERT ADJUSTED

X1	7880.000	0.000	0.000	0.000	350.000	400.000	400.000	0.000	2.600	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION L

X1	8330.000	20.000	500.000	592.000	400.000	450.000	450.000	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~~	~~745.400~~	~~0.000~~	~~736.000~~	~~22.000~~	~~735.100~~	~~50.000~~	~~742.200~~	~~66.000~~	~~732.800~~	~~66.000~~
GR	731.700	100.000	730.500	200.000	735.200	212.000	733.900	251.000	733.700	300.000
GR	731.100	400.000	733.200	500.000	728.400	517.000	729.200	523.000	729.700	528.000
~~GR~~	~~728.200~~	~~533.000~~	~~728.000~~	~~538.000~~	~~729.200~~	~~545.000~~	~~736.600~~	~~570.000~~	~~746.600~~	~~592.000~~

~~REPEAT OF L, INVERT ADJUSTED~~

X1	9150.000	0.000	0.000	0.000	775.000	710.000	620.000	0.000	4.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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VALLEY SECTION M

X1	9970.000	15.000	194.000	242.000	775.000	710.000	820.000	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	778.300	0.000	763.300	25.000	744.800	60.000	740.800	100.000	741.200	194.000
GR	736.600	200.000	736.200	210.000	736.400	220.000	736.800	230.000	736.500	237.000
GR	738.600	242.000	743.200	257.000	743.000	300.000	742.700	354.000	754.500	412.000

REPEAT OF M, INVERT ADJUSTED

X1	10680.000	0.000	0.000	0.000	690.000	660.000	710.000	0.000	3.800	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

VALLEY SECTION N

X1	11390.000	14.000	343.000	383.000	690.000	660.000	710.000	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	761.300	0.000	755.600	43.000	747.700	143.000	747.500	243.000	746.900	343.000
GR	744.400	368.000	743.800	358.000	744.200	368.000	744.500	378.000	747.400	383.000
GR	746.600	443.000	747.000	473.000	752.900	481.000	760.500	493.000	0.000	0.000

REPEAT OF N, INVERT ADJUSTED

X1	12260.000	0.000	0.000	0.000	785.000	800.000	870.000	0.000	4.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.065	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION O

X1	13130.000	17.000	437.000	476.000	785.000	800.000	870.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	771.700	0.000	766.700	37.000	757.400	137.000	755.500	237.000	755.200	337.000
GR	755.100	437.000	752.600	442.000	751.800	452.000	752.000	462.000	752.800	469.000
GR	754.300	476.000	756.600	537.000	760.700	567.000	762.200	637.000	762.600	737.000
GR	765.000	837.000	769.700	913.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.100	210.000	.070	560.000	.045	605.000	.070	703.000	0.000

VALLEY SECTION P

X1	14000.000	16.000	560.000	605.000	800.000	930.000	870.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	772.200	0.000	768.600	60.000	765.100	160.000	763.300	260.000	761.800	360.000
GR	760.200	460.000	760.000	560.000	755.700	568.000	753.500	578.000	752.600	584.000
GR	754.000	590.000	755.300	601.000	757.400	605.000	759.200	660.000	762.400	688.000
GR	772.000	703.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF P, INVERT ADJUSTED

X1	14770.000	0.000	0.000	0.000	675.000	800.000	770.000	0.000	3.700	0.000
NC	.065	.065	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION Q

X1	15540.000	12.000	134.000	181.000	675.000	800.000	770.000	0.000	0.000	0.000
GR	781.600	0.000	767.900	37.000	763.600	134.000	760.700	139.000	760.000	149.000
GR	760.600	159.000	760.900	169.000	761.100	173.000	763.300	181.000	766.600	234.000

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GR	770.200	334.000	776.400	434.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF Q, INVERT ADJUSTED

X1	15902.000	0.000	0.000	0.000	410.000	370.000	362.000	0.000	1.500	0.000
X3	10.000	0.000	0.000	132.000	0.000	183.000	0.000	0.000	0.000	0.000

REPEAT OF R, NO BRIDGE TABLE

X1	15951.000	11.000	120.000	139.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	779.600	0.000	777.800	20.000	770.700	120.000	761.700	120.000	761.900	130.000
GR	762.100	139.000	770.700	139.000	769.500	220.000	770.600	320.000	774.100	420.000
GR	779.100	520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.030	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF WINKLER MILL RD. BRIDGE

NO PIERS

X1	15952.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	8.000	0.000	779.600	0.000	20.000	777.800	0.000	120.000	770.700	769.400
BT	139.000	770.700	769.600	220.000	769.500	0.000	320.000	770.600	0.000	420.000
BT	774.100	0.000	520.000	779.100	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF WINKLER MILL RD. BRIDGE

BRIDGE SECTION R

X1	15980.000	0.000	0.000	0.000	28.000	28.000	28.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.065	.065	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF R, NO BRIDGE TABLE

X1	15981.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

REPEAT OF Q, INVERT ADJUSTED

X1	16030.000	12.000	134.000	181.000	49.000	49.000	49.000	0.000	2.200	0.000
X3	10.000	0.000	0.000	98.000	0.000	217.000	0.000	0.000	0.000	0.000
GR	781.600	0.000	767.900	37.000	763.600	134.000	760.700	139.000	760.000	149.000
GR	760.600	159.000	760.900	169.000	761.100	173.000	763.300	181.000	766.600	234.000
GR	770.200	334.000	776.400	434.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF Q, INVERT ADJUSTED

X1	16240.000	0.000	0.000	0.000	150.000	185.000	210.000	0.000	1.800	0.000

REPEAT OF Q, INVERT ADJUSTED

WINKLER MILL DAM NOT INCLUDED IN HEC-2

REFER TO HYDRAULIC ANALYSIS REPORT

X1	16450.000	0.000	0.000	0.000	150.000	185.000	210.000	0.000	1.900	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV= .300 CEHV= .500

*SECNO .000

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

3470 ENCROACHMENT STATIONS= 298.0 650.0 TYPE= 1 TARGET= 352.000

REPEAT OF A, INVERT ADJUSTED

0.00	8.13	693.13	0.00	693.13	693.14	.01	0.00	0.00	689.00
1215.	339.	360.	516.	651.	275.	846.	0.	0.	688.00
0.00	.52	1.31	.61	.070	.040	.070	0.000	685.00	298.00
.000093	0.	0.	0.	0	0	0	0.00	352.00	650.00

1490 NH CARD USED

*SECNO 150.000

3470 ENCROACHMENT STATIONS= 336.0 612.0 TYPE= 1 TARGET= 276.000

VALLEY SECTION A

150.00	6.14	693.14	0.00	0.00	693.19	.06	.03	.02	691.00
1215.	232.	531.	452.	261.	201.	377.	4.	1.	690.00
.02	.89	2.64	1.20	.075	.045	.070	.040	687.00	336.00
.000721	150.	150.	150.	0	0	0	0.00	276.00	612.00

*SECNO 341.000

3470 ENCROACHMENT STATIONS= 383.0 564.0 TYPE= 1 TARGET= 181.000

REPEAT OF A, INVERT ADJUSTED

341.00	6.66	693.26	0.00	0.00	693.35	.09	.14	.01	690.60
1215.	209.	661.	346.	194.	220.	252.	8.	2.	689.60
.05	1.07	3.00	1.37	.075	.045	.070	.041	686.60	383.00
.000824	200.	191.	150.	2	0	0	0.00	181.00	564.00

*SECNO 533.000

3470 ENCROACHMENT STATIONS= 430.0 517.0 TYPE= 1 TARGET= 87.000

REPEAT OF A, INVERT ADJUSTED

533.00	7.29	693.39	0.00	0.00	693.56	.17	.17	.04	690.10
1215.	118.	894.	203.	83.	244.	106.	10.	3.	689.10
.06	1.42	3.66	1.92	.070	.045	.060	.043	686.10	430.00
.001074	200.	192.	150.	0	0	0	0.00	87.00	517.00

*SECNO 582.000

3265 DIVIDED FLOW

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

REPEAT OF B, NO BRIDGE TABLE

582.00	7.35	693.35	0.00	0.00	o93.61	.45	.11	.14	702.00
1215.	0.	1215.	0.	0.	225.	0.	10.	3.	702.00
.06	0.00	5.40	0.00	.070	.045	.060	.043	686.00	500.00
.006230	49.	49.	49.	2	0	0	0.00	61.00	566.00

*SECNO 583.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 701.40 MAX ELLC= 695.40

D/S FACE OF GRAND TRUNK WESTERN RAILROAD BRIDGE

ONE CONCRETE PIER, 5.0' WIDE ELLC e 695.4 > 693.36 ⇒ unsubmerged outlet

583.00	7.36	693.36	0.00	0.00	693.81	.45	.00	.00	702.00
1215.	0.	1215.	0.	0.	225.	0.	10.	3.	702.00
.06	0.00	5.39	0.00	.035	.035	.035	.043	686.00	500.00
.003758	1.	1.	1.	0	0	0	0.00	61.00	566.00

*SECNO 600.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 701.40 MAX ELLC= 695.40

U/S FACE OF GRAND TRUNK WESTERN RAILROAD BRIDGE

ELLC e 695.4 > 693.45 ⇒ unsubmerged inlet

BRIDGE SECTION B

600.00	7.45	o93.45	0.00	0.00	693.88	.43	.06	.01	702.00
1215.	0.	1215.	0.	0.	231.	0.	10.	3.	702.00
.07	0.00	5.27	0.00	.035	.035	.035	.043	680.00	500.00
.003498	17.	17.	17.	0	0	0	0.00	61.00	566.00

*SECNO 601.000

3265 DIVIDED FLOW

REPEAT OF B, NO BRIDGE TABLE

601.00	7.46	693.46	0.00	0.00	693.89	.43	.00	.00	702.00
1215.	0.	1215.	0.	0.	231.	0.	10.	3.	702.00
.07	0.00	5.26	0.00	.070	.045	.060	.043	686.00	500.00
.005749	1.	1.	1.	0	0	0	0.00	61.00	566.00

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1490 NH CARD USED
*SECNO 650.000

3470 ENCROACHMENT STATIONS= 276.0 442.0 TYPE= 1 TARGET= 166.000

REPEAT OF C, INVERT ADJUSTED

650.00	7.29	693.99	0.00	0.00	694.07	.07	.08	.11	689.80
1215.	382.	517.	316.	265.	175.	237.	11.	3.	689.70
.07	1.44	2.95	1.33	.065	.045	.065	.043	686.70	276.00
.000703	49.	49.	49.	2	0	0	0.00	166.00	442.00

*SECNO 765.000

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

3470 ENCROACHMENT STATIONS= 264.0 453.0 TYPE= 1 TARGET= 189.000

REPEAT OF C, INVERT ADJUSTED

765.00	5.64	694.04	0.00	0.00	694.26	.23	.12	.08	691.50
1215.	348.	643.	224.	173.	130.	130.	12.	3.	691.40
.08	2.01	4.93	1.72	.065	.045	.064	.044	688.40	264.00
.002900	45.	115.	125.	2	0	0	0.00	189.00	453.00

*SECNO 880.000

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 293.0 424.0 TYPE= 1 TARGET= 131.000

VALLEY SECTION C

880.00	4.74	694.74	694.74	0.00	695.53	.79	.50	.28	693.10
1215.	207.	873.	135.	72.	106.	55.	13.	3.	693.00
.08	2.88	8.22	2.44	.065	.045	.065	.045	690.00	293.00
.010615	45.	115.	125.	20	.10	0	0.00	131.00	424.00

*SECNO 1021.000

3470 ENCROACHMENT STATIONS= 328.0 389.0 TYPE= 1 TARGET= 61.000

REPEAT OF C, INVERT ADJUSTED

1021.00	6.20	696.00	0.00	0.00	696.51	.52	.90	.08	692.90
1215.	143.	931.	141.	51.	145.	51.	13.	4.	692.80
.09	2.79	6.41	2.78	.065	.045	.065	.045	689.80	328.00
.004234	125.	141.	170.	2	0	0	0.00	61.00	389.00

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*SECNO 1070.000

REPEAT OF D, NO BRIDGE TABLE

1070.00	6.52	696.22	0.00	0.00	697.02	.79	.37	.14	704.60
1215.	0.	1215.	0.	0.	170.	0.	14.	4.	704.60
.09	0.00	7.14	0.00	.065	.065	.065	.045	689.70	300.00
.016626	49.	49.	49.	2	0	0	0.00	36.50	336.50

*SECNO 1071.000

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 704.60 MAX ELLC= 700.90

D/S FACE OF PARKDALE RD BRIDGE

NO PIERS EL.LC e 700.9 > 696.24 ⇒ unsubmerged outlet

1071.00	6.54	696.24	0.00	0.00	697.02	.79	.01	.00	704.60
1215.	0.	1215.	0.	0.	171.	0.	14.	4.	704.60
.09	0.00	7.12	0.00	.030	.032	.030	.045	689.70	300.00
.004003	1.	1.	1.	0	0	0	0.00	36.50	336.50

*SECNO 1100.000

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

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 706.60 MAX ELLC= 702.30

U/S FACE OF PARKDALE RD BRIDGE

BRIDGE SECTION D EL.LC e 702.3 > 696.42 ⇒ unsubmerged inlet

1100.00	6.72	696.42	0.00	0.00	697.15	.73	.11	.02	704.60
1215.	0.	1215.	0.	0.	177.	0.	14.	4.	704.60
.09	0.00	6.85	0.00	.030	.032	.030	.044	689.70	300.00
.003546	29.	29.	29.	2	0	0	0.00	36.50	336.50

*SECNO 1101.000

REPEAT OF D, NO BRIDGE TABLE

1101.00	6.73	696.43	0.00	0.00	697.16	.73	.00	.00	704.60
1215.	0.	1215.	0.	0.	178.	0.	14.	4.	704.60
.09	0.00	6.84	0.00	.090	.040	.050	.044	689.70	300.00
.005530	1.	1.	1.	0	0	0	0.00	36.50	336.50

1490 NH CARD USED

*SECNO 1150.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 917.0 1052.0 TYPE= 1 TARGET= 135.000

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 99999.00 ELREA= 99999.00

REPEAT OF E, INVERT ADJUSTED

1150.00	7.66	697.36	0.00	0.00	697.39	.03	.03	.21	99999.00	
1215.	0.	1215.	0.	0.	896.	0.	14.	4.	99999.00	
.10	0.00	1.36	0.00	.090	.050	.050	.044	689.70	917.00	
.000186	49.	49.	49.	2	0	0	0.00	135.00	1052.00	

*SECNO 1620.000

3470 ENCROACHMENT STATIONS= 863.0 1130.0 TYPE= 1 TARGET= 267.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 100000.00 ELREA= 694.80

VALLEY SECTION E

1620.00	6.75	697.45	0.00	0.00	697.47	.01	.07	.00100000.00		
1215.	0.	1205.	10.	0.	1240.	24.	26.	6.	694.80	
.24	0.00	.97	.40	.090	.046	.050	.043	690.70	863.00	
.000125	500.	470.	425.	2	0	0	0.00	205.14	1128.14	

*SECNO 1835.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 698.70 ELREA= 698.00

VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

1835.00	4.17	697.47	0.00	0.00	697.57	.09	.06	.04	698.70
1215.	0.	1215.	0.	0.	492.	0.	30.	7.	698.00
.26	0.00	2.47	0.00	.065	.045	.065	.043	693.30	678.63
.001246	215.	215.	190.	1	0	0	0.00	158.73	844.20

*SECNO 2050.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 699.40 ELREA= 697.70

VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

2050.00	3.71	697.81	0.00	0.00	697.97	.15	.37	.03	699.40
1215.	0.	1088.	127.	0.	331.	98.	33.	8.	697.70
.28	0.00	3.28	1.29	.065	.045	.065	.043	694.10	495.04
.002536	215.	215.	190.	2	0	0	0.00	210.87	705.91

*SECNO 2265.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 700.10 ELREA= 697.40

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VALLEY SECTIONS E AND F AVERAGED USING AVSEC PROGRAM

2265.00	3.58	698.48	0.00	0.00	698.78	.31	.74	.08	700.10
1215.	0.	1013.	202.	0.	211.	116.	34.	9.	697.40
.30	0.00	4.79	1.75	.065	.045	.065	.044	694.90	311.05
.005125	215.	215.	190.	2	0	0	0.00	192.23	503.28

*SECNO 2480.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 701.00 ELREA= 697.40

VALLEY SECTION F

2480.00	4.04	699.84	0.00	0.00	700.32	.47	1.45	.08	701.00
1215.	0.	633.	582.	0.	88.	205.	36.	10.	697.40
.31	0.00	7.16	2.83	.065	.045	.065	.044	695.80	127.23
.010145	215.	215.	190.	3	0	0	0.00	214.85	342.08

*SECNO 3180.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 704.30 ELREA= 700.70

REPEAT OF F, INVERT ADJUSTED

3180.00	4.77	703.87	0.00	0.00	706.04	.17	3.63	.09	704.30
1215.	0.	489.	726.	0.	106.	360.	42.	13.	700.70
.37	0.00	4.60	2.02	.065	.045	.065	.045	699.10	127.09
.003382	570.	700.	640.	4	0	0	0.00	260.31	387.40

*SECNO 3530.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 706.00 ELREA= 705.00

MANUFACTURED FROM SECTIONS F AND G

3530.00	4.76	705.56	0.00	0.00	706.46	.90	2.06	.37	706.00
1215.	0.	1211.	4.	0.	158.	4.	44.	15.	705.00
.38	0.00	7.64	1.14	.065	.045	.065	.045	700.80	127.09
.013675	285.	350.	320.	2	0	0	0.00	66.07	193.16

1490 NH CARD USED
*SECNO 3880.000

3301 HV CHANGED MORE THAN HVINS

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

REPEAT OF G, INVERT ADJUSTED

3880.00	5.98	708.68	0.00	0.00	708.84	.36	2.21	.16	705.60

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1215.	48.	893.	274.	22.	162.	163.	46.	16.	707.10
.40	2.20	5.51	1.68	.068	.045	.069	.045	702.50	51.99
.003702	285.	350.	320.	2	0	0	0.00	163.13	215.12

*SECNO 4580.000

VALLEY SECTION G

4580.00	5.63	711.43	0.00	0.00	711.93	.50	3.02	.07	708.90
1210.	44.	949.	217.	18.	150.	123.	51.	18.	710.40
.44	2.42	6.32	1.77	.068	.045	.069	.045	705.80	52.55
.005386	570.	700.	640.	4	0	0	0.00	153.39	205.94

*SECNO 5475.000

REPEAT OF G, INVERT ADJUSTED

5475.00	5.59	716.29	0.00	0.00	716.80	.52	4.86	.01	713.80
1210.	43.	956.	210.	18.	149.	119.	57.	21.	715.30
.48	2.45	6.42	1.77	.068	.045	.069	.045	710.70	52.61
.005638	900.	895.	825.	4	0	0	0.00	152.27	204.89

*SECNO 6370.000

3470 ENCROACHMENT STATIONS= 436.0 538.0 TYPE= 1 TARGET= 102.000

VALLEY SECTION H

6370.00	4.71	720.31	0.00	0.00	720.55	.24	3.66	.08	718.00
1210.	34.	1157.	19.	16.	288.	12.	63.	23.	718.40
.55	2.18	4.02	1.60	.055	.045	.065	.045	715.60	436.00
.003146	900.	895.	825.	3	0	0	0.00	102.00	538.00

*SECNO 6477.000

3470 ENCROACHMENT STATIONS= 450.0 500.0 TYPE= 1 TARGET= 50.000

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

REPEAT OF H, INVERT ADJUSTED

6477.00	5.12	720.62	0.00	0.00	721.35	.73	.56	.24100000.00	
1210.	0.	1210.	0.	0.	177.	0.	63.	24. 100000.00	
.55	0.00	6.85	0.00	.055	.045	.065	.045	715.50	450.00
.010236	120.	107.	120.	2	0	0	0.00	50.00	500.00

*SECNO 6526.000

3301 HV CHANGED MORE THAN HVINS

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

REPEAT OF I, NO BRIDGE TABLE

6526.00	5.25	720.75	0.00	0.00	722.68	1.93	.72	.60	728.70

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1210.	0.	1210.	0.	0.	109.	0.	63.	24.	729.20
.55	0.00	11.14	0.00	.055	.045	.065	.045	715.50	400.00
.023111	49.	49.	49.	2	0	0	0.00	24.00	424.00

*SECNO 6527.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 725.80 MAX ELLC= 726.80

D/S FACE OF ROMEO RD. BRIDGE

NO PIERS ELLC @726.8 > 721.1 ⇒ unsubmerged outlet

6527.00	5.60	721.10	0.00	0.00	722.77	1.67	.01	.08	728.70
1210.	0.	1210.	0.	0.	117.	0.	63.	24.	729.20
.55	0.00	10.36	0.00	.030	.032	.030	.045	715.50	400.00
.009427	1.	1.	1.	10	0	0	0.00	24.00	424.00

*SECNO 6560.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 725.80 MAX ELLC= 726.80

U/S FACE OF ROMEO RD. BRIDGE

BRIDGE SECTION I ELLC @726.8 > 721.94 ⇒ unsubmerged inlet

6560.00	6.44	721.94	0.00	0.00	723.15	1.21	.24	.14	728.70
1210.	0.	1210.	0.	0.	137.	0.	63.	24.	729.20
.55	0.00	8.83	0.00	.030	.032	.030	.045	715.50	400.00
.005899	33.	33.	33.	3	0	0	0.00	24.00	424.00

*SECNO 6561.000

REPEAT OF I, NO BRIDGE TABLE

6561.00	6.45	721.95	0.00	0.00	723.16	1.21	.01	.00	728.70
1210.	0.	1210.	0.	0.	137.	0.	63.	24.	729.20
.55	0.00	8.81	0.00	.050	.040	.090	.045	715.50	400.00
.009177	1.	1.	1.	0	0	0	0.00	24.00	424.00

*SECNO 6610.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 425.0 549.0 TYPE= 1 TARGET= 124.000

REPEAT OF H, INVERT ADJUSTED

6610.00	7.58	723.48	0.00	0.00	723.54	.05	.04	.35	718.30
1210.	108.	1054.	48.	91.	541.	76.	64.	24.	718.70
.56	1.18	1.95	.63	.050	.040	.090	.045	715.90	425.00
.000253	49.	49.	49.	2	0	0	0.00	124.00	549.00

*SECNO 6762.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TT E	VLOB	VCH	VROB	XNL	Y CH	XX R	WTN	EL IN	SSTA

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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 366.0 541.0 TYPE= 1 TARGET= 175.000

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

6762.00	6.32	723.52	0.00	0.00	723.59	.07	.05	.01	719.60
1210.	236.	955.	19.	173.	425.	51.	66.	24.	721.50
.58	1.36	2.25	.37	.050	.040	.090	.045	717.20	366.00
.000395	132.	152.	155.	2	0	0	0.00	175.00	541.00

*SECNO 6915.000

3470 ENCROACHMENT STATIONS= 354.0 483.0 TYPE= 1 TARGET= 129.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 722.10 ELREA= 725.40

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

6915.00	5.02	723.52	0.00	0.00	723.85	.32	.13	.13	722.10
1210.	74.	1136.	0.	39.	243.	0.	68.	25.	725.40
.59	1.89	4.67	0.00	.050	.040	.090	.045	718.50	354.00
.002924	132.	153.	155.	2	0	0	0.00	96.86	450.86

*SECNO 7067.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 283.0 486.0 TYPE= 1 TARGET= 203.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 724.50 ELREA= 729.30

VALLEY SECTIONS H AND J AVERAGED USING AVSEC PROGRAM

7067.00	4.15	723.95	723.93	0.00	725.23	1.28	.90	.48	724.50
1210.	0.	1210.	0.	0.	133.	0.	69.	25.	729.30
.59	0.00	9.08	0.00	.050	.040	.090	.045	719.80	356.03
.018105	132.	152.	155.	3	15	0	0.00	52.86	408.88

*SECNO 7220.000

3470 ENCROACHMENT STATIONS= 287.0 413.0 TYPE= 1 TARGET= 126.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 727.00 ELREA= 733.30

VALLEY SECTION J

7220.00	5.25	726.35	0.00	0.00	727.51	1.16	2.25	.04	727.00
1210.	0.	1210.	0.	0.	140.	0.	69.	25.	733.30
.60	0.00	8.65	0.00	.050	.040	.090	.045	721.10	327.69
.012186	132.	153.	155.	3	0	0	0.00	42.84	370.54

*SECNO 7351.000

3470 ENCROACHMENT STATIONS= 320.0 380.0 TYPE= 1 TARGET= 60.000

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 727.70 ELREA= 734.00

REPEAT OF J, INVERT ADJUSTED

7351.00	6.22	728.02	0.00	0.00	728.69	.67	1.03	.15	727.70
1210.	2.	1208.	0.	2.	185.	0.	70.	25.	734.00
.60	.98	6.59	0.00	.050	.040	.090	.044	721.80	320.00
.005509	140.	131.	140.	2	0	0	0.00	51.16	371.16

*SECNO 7400.000

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

REPEAT OF K, NO BRIDGE TABLE

7400.00	6.30	728.40	0.00	0.00	728.94	.54	.21	.04	733.90
1210.	0.	1210.	0.	0.	205.	0.	70.	25.	734.00
.61	0.00	5.90	0.00	.050	.040	.090	.044	722.10	300.00
.003544	49.	49.	49.	2	0	0	0.00	36.00	336.00

*SECNO 7401.000

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 733.90 MAX ELLC= 731.00

D/S FACE OF TIENKEN RD. BRIDGE

NO PIERS, CONCRETE BRIDGE ELLC = 731.0 > 728.41 ⇒ unsubmerged outlet

7401.00	6.31	728.41	0.00	0.00	728.95	.54	.00	.00	733.90
1210.	0.	1210.	0.	0.	205.	0.	70.	25.	734.00
.61	0.00	5.89	0.00	.030	.035	.030	.044	722.10	300.00
.002707	1.	1.	1.	0	0	0	0.00	36.00	336.00

*SECNO 7430.000

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 733.90 MAX ELLC= 731.00

U/S FACE OF TIENKEN RD. BRIDGE

ELLC = 731.0 > 728.51 ⇒ unsubmerged inlet

BRIDGE SECTION K

7430.00	6.41	728.51	0.00	0.00	729.03	.52	.08	.00	733.90
1210.	0.	1210.	0.	0.	209.	0.	70.	25.	734.00
.61	0.00	5.80	0.00	.030	.035	.030	.044	722.10	300.00
.002582	29.	29.	29.	0	0	0	0.00	36.00	336.00

*SECNO 7431.000

REPEAT OF K, NO BRIDGE TABLE

7431.00	6.82	728.92	0.00	0.00	729.13	.20	.00	.10	733.90
810.	0.	810.	0.	0.	224.	0.	70.	25.	734.00
.61	0.00	3.62	0.00	100	038	100	.044	722.10	300.00

* DNR IV.S. 728.4 @ 1000 cfs U/S side Tienken Rd

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.001102	1.	1.	1.	2	0	0	0.00	36.00	336.00

FEC File
Stoney Cr. Hill #1
741-12

*SECNO 7480.000

3470 ENCROACHMENT STATIONS= 282.0 418.0 TYPE= 1 TARGET= 136.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 728.40 ELREA= 734.70

REPEAT OF J, INVERT ADJUSTED

7480.00	6.46	728.96	0.00	0.00	729.22	.26	.07	.03	728.40
810.	9.	801.	0.	22.	195.	0.	70.	25.	734.70
.61	.60	4.12	0.00	.100	.038	.100	.044	722.50	282.00
.001803	49.	49.	49.	2	0	0	0.00	89.32	371.32

*SECNO 7880.000

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 731.00 ELREA= 737.30

REPEAT OF J, INVERT ADJUSTED

7880.00	4.92	730.02	0.00	0.00	730.66	.64	1.24	.19	731.00
810.	0.	810.	0.	0.	126.	0.	72.	26.	737.30
.63	0.00	6.42	0.00	.100	.038	.100	.044	725.10	329.05
.006596	350.	400.	400.	2	0	0	0.00	41.28	370.33

*SECNO 8330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 733.20 ELREA= 746.60

VALLEY SECTION L

8330.00	4.64	732.64	0.00	0.00	733.03	.39	2.30	.07	733.20
810.	0.	810.	0.	0.	161.	0.	73.	26.	746.60
.65	0.00	5.04	0.00	.100	.038	.100	.044	728.00	501.95
.004090	400.	450.	450.	2	0	0	0.00	54.70	556.65

*SECNO 9150.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 737.30 ELREA= 750.70

REPEAT OF L, INVERT ADJUSTED

9150.00	4.35	736.45	0.00	0.00	736.93	.48	3.86	.04	737.30
810.	0.	810.	0.	0.	145.	0.	76.	27.	750.70
.69	0.00	5.58	0.00	.100	.038	.100	.043	732.10	502.98
.005462	775.	820.	710.	2	0	0	0.00	52.69	555.67

*SECNO 9970.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 741.20 ELREA= 738.60

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VALLEY SECTION M

9970.00	3.94	740.14	0.00	0.00	740.55	.41	3.60	.02	741.20
810.	0.	807.	3.	0.	157.	4.	79.	28.	738.60
.74	0.00	5.15	.73	.100	.038	.100	.043	736.20	195.38
.003599	775.	820.	710.	2	0	0	0.00	51.65	247.03

*SECNO 10680.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 745.00 ELREA= 742.40

REPEAT OF M, INVERT ADJUSTED

10680.00	3.39	743.39	0.00	0.00	743.98	.59	3.33	.09	745.00
810.	0.	809.	1.	0.	131.	2.	81.	29.	742.40
.77	0.00	6.17	.72	.100	.038	.100	.042	740.00	196.10
.006387	690.	710.	660.	2	0	0	0.00	49.12	245.22

4400 − 440 = 3960

11390 − 11390 = 4440

7430 + 4400 = 11830

*SECNO 11390.000

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

VALLEY SECTION N

11390.00	3.95	747.75	0.00	0.00	748.06	.31	4.00	.08	746.90
810.	68.	636.	106.	71.	128.	74.	85.	32.	747.40
.82	.96	4.98	1.43	.065	.045	.065	.043	743.80	142.32
.005064	690.	710.	660.	4	0	0	0.00	331.71	474.02

*SECNO 12260.000

REPEAT OF N, INVERT ADJUSTED

12260.00	4.03	751.83	0.00	0.00	752.09	.27	4.02	.01	750.90
810.	82.	614.	114.	85.	130.	81.	90.	38.	751.40
.88	.96	4.71	1.41	.065	.045	.065	.043	747.80	141.42
.004400	785.	870.	800.	4	0	0	0.00	332.70	474.12

*SECNO 13130.000

VALLEY SECTION O

13130.00	4.03	755.83	0.00	0.00	756.15	.32	4.03	.02	755.10
810.	134.	634.	42.	118.	125.	31.	95.	44.	754.30
.93	1.13	5.06	1.36	.065	.045	.065	.043	751.80	219.83
.005093	785.	870.	800.	3	0	0	0.00	296.65	516.48

1490 NH CARD USED

*SECNO 14000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 760.00 ELREA= 757.40

VALLEY SECTION P

DNR W.S. 4400' Vs Tierra corresp. to sta 11830 @ 748.0 elev a/s

Ref W.S. 11390 @ 810 cfs

Ref. file: Stoney Cr. Alt 1 191-12

depth of flow invert!

N =

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14000.00	6.36	758.96	0.00	0.00	759.24	.27	3.08	.01	760.00
810.	0.	775.	35.	0.	181.	38.	100.	48.	757.40
.99	0.00	4.28	.92	.065	.045	.070	.043	752.60	561.91
.002614	800.	870.	930.	2	0	0	0.00	91.12	653.03

*SECNO 14770.000

REPEAT OF P, INVERT ADJUSTED

14770.00	5.46	761.76	0.00	0.00	762.25	.49	2.90	.11	763.70
810.	0.	805.	5.	0.	143.	7.	104.	49.	761.10
1.03	0.00	5.63	.78	.065	.045	.070	.043	756.30	563.61
.005883	675.	770.	800.	1	0	0	0.00	61.62	625.22

*SECNO 15540.000

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

15540.00	4.94	764.94	0.00	0.00	765.19	.25	2.88	.07	763.60
810.	18.	770.	22.	20.	186.	22.	107.	51.	763.30
1.08	.89	4.14	1.02	.065	.045	.065	.043	760.00	103.64
.002584	675.	770.	800.	1	0	0	0.00	103.79	207.43

*SECNO 15902.000

3670 ENCROACHMENT STATIONS= 132.0 183.0 TYPE= 1 TARGET= 51.000

REPEAT OF Q, INVERT ADJUSTED

15902.00	4.55	766.05	0.00	0.00	766.41	.36	1.16	.05	765.10
810.	2.	805.	3.	2.	167.	2.	109.	51.	764.80
1.11	1.07	4.82	1.21	.065	.045	.065	.043	761.50	132.00
.004051	410.	362.	370.	2	0	0	0.00	51.00	183.00

*SECNO 15951.000

3301 HV CHANGED MORE THAN HVINS

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

REPEAT OF R, NO BRIDGE TABLE

15951.00	4.02	765.72	765.72	0.00	767.65	1.93	.42	.79	770.70
810.	0.	810.	0.	0.	73.	0.	109.	51.	770.70
1.11	0.00	11.15	0.00	.065	.045	.065	.043	761.70	120.00
.029952	49.	49.	49.	3	11	0	0.00	19.00	139.00

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*SECNO 15952.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 769.50 MAX ELLC= 769.60

D/S FACE OF WINKLER MILL RD. BRIDGE

NO PIERS

15952.00	4.86	766.56	0.00	0.00	767.86	1.30	.02	.19	770.70
810.	0.	810.	0.	0.	84.	0.	109.	51.	770.70
1.11	0.00	9.14	0.00	.030	.035	.030	.043	761.70	120.00
.010121	1.	1.	1.	10	0	0	0.00	19.00	139.00

*SECNO 15980.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 769.50 MAX ELLC= 769.60

U/S FACE OF WINKLER MILL RD. BRIDGE

BRIDGE SECTION R

15980.00	5.46	767.16	0.00	0.00	768.18	1.02	.24	.08	770.70
810.	0.	810.	0.	0.	100.	0.	109.	51.	770.70
1.11	0.00	8.10	0.00	.030	.035	.030	.043	761.70	120.00
.007163	28.	28.	28.	2	0	0	0.00	19.00	139.00

*SECNO 15981.000

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

REPEAT OF R, NO BRIDGE TABLE

15981.00	5.47	767.17	0.00	0.00	768.19	1.02	.01	.00	770.70
810.	0.	810.	0.	0.	100.	0.	109.	51.	770.70
1.11	0.00	8.09	0.00	.065	.045	.065	.043	761.70	120.00
.011786	1.	1.	1.	0	0	0	0.00	19.00	139.00

*SECNO 16030.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 98.0 217.0 TYPE= 1 TARGET= 119.000

REPEAT OF Q, INVERT ADJUSTED

16030.00	6.25	768.45	0.00	0.00	768.56	.10	.10	.27	765.80
810.	64.	683.	63.	67.	248.	66.	109.	52.	765.50
1.11	.95	2.76	.95	.065	.045	.065	.043	762.20	98.00
.000783	49.	49.	49.	2	0	0	0.00	119.00	217.00

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*SECNO 16240.000

REPEAT OF Q, INVERT ADJUSTED

16240.00	4.65	768.65	0.00	0.00	768.96	.31	.30	.10	767.60
810.	11.	784.	15.	13.	172.	15.	110.	52.	767.30
1.13	.88	4.54	1.04	.065	.045	.065	.043	764.00	110.20
.003455	150.	210.	185.	2	0	0	0.00	92.57	202.76

*SECNO 16450.000

REPEAT OF Q, INVERT ADJUSTED

WINKLER MILL DAM NOT INCLUDED IN HEC-2

REFER TO HYDRAULIC ANALYSIS REPORT

16450.00	3.73	769.63	0.00	0.00	770.24	.61	1.13	.15	769.50
810.	0.	809.	1.	0.	129.	1.	111.	52.	769.20
1.14	.36	6.27	.81	.065	.045	.065	.043	765.90	131.05
.009683	150.	210.	185.	3	0	0	0.00	56.86	187.92

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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: STONY CREEK

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

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

Rec'd 12/22/78
WMD.

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

December 20, 1978

Water Management Division
Michigan Dept. of Natural Resources
Post Office Box 30028
Lansing, Michigan 48909

Attention: Mr. Daniel H. Morgan, Chief
Flood Insurance Unit

Re: Flood Insurance Study, Township of Avon
Hydraulic Investigation

Ref: J&A File No. 5850-01

Gentlemen:

We have completed the hydraulic investigation of Stony Creek in the Township of Avon. 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, Stony Creek
2. HEC-2 computer run, natural floodway, 100-year flow, Stony Creek
3. J&A IPLOT of 100-year profile
4. Plan view and profile
5. Hydraulic analysis report and support data.

If you have any questions, please call me.

Sincerely,

John Emig

John J. Emig, P.E.

JJE/dp
enc.
cc: File

AVON TOWNSHIP FIS

5850-01

STONY CREEK

HYDRAULIC ANALYSIS

TABLE OF CONTENTS

Introduction
Method of Analysis
Special Situations
Variables and Coefficients
Synthetic Cross Sections
Starting Point

Appendix A
Appendix B

Avon Township
Oakland County, Michigan

HYDRAULIC ANALYSIS

Introduction

The stream being studied is Stony Creek in Avon Township, Oakland County, Michigan. The study limits for Stony Creek are from its confluence with the Clinton River in section 12 of the Township upstream to the Winkler Mill Dam in section 1. The flows used in the hydraulic analysis were determined using both Brater's method and the SCS method. A unit hydrograph was calculated from the gaging records for the Washington gage upstream of the study area. Based on this unit hydrograph, the hydrographs for all of the flood flows were determined. The SCS method was then used to route these hydrographs and those hydrographs determined by Brater's method for each subbasin. These flows have been approved by the Michigan Department of Natural Resources. The date of the field survey was January and February, 1978. 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. Bridges which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. The hydraulic model was developed for the 100-year flow. Valley sections upstream and downstream of bridges were located where full cross section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections was that outlined on pages 18-21 of the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If additional sections were found necessary within this distance or if the actual field-surveyed cross section fell within this distance, the intermediate sections were encroached as appropriate.

Special Situations

The Winkler Mill Dam upstream of Winkler Mill Road is an earth dam with two outlets. The west outlet is 19.5 ft. wide and is adjusted by adding or removing boards on the weir crest. The east outlet has a 10 ft. wide adjustable sluice gate. The operating policy for the dam, according to its owner, is to adjust the sluice gate on the east outlet to keep the upstream water-surface elevation relatively constant. Hand calculations were used to determine rating curves for the dam. Rating curves were established for two dam outlet configurations; one with the east outlet sluice gate fully open and one with the sluice gate fully closed (Appendix A). This approach was used to show that, using the normal operating policy, the dam could pass the flood flows used in this study without being overtopped. As a result of this analysis, the flood elevation for the Winkler Mill Pond was set at 774.3. This elevation is 0.5 ft. higher than the normal pond water surface elevation.

Variables and Coefficients

The basis for Manning's "n" value selection came from field inspection and comparison with the photographs and descriptions found on pages 101 to 123 in Open-Channel Hydraulics by Ven 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 Manning's "n" values was used.

	Description	Manning's "n"
1.	Channel	
	a. Sandy bottom, some rocks	.032 - .035
	b. Sandy bottom, some rocks, moderate debris and brush	.040 - .045

Description		Manning's "n"
2.	Flood Plains	
	a. Low grass, light brush and weeds	.035 - .040
	b. Moderate brush and weeds, some debris	.050 - .070
	c. Heavy brush, much weeds and/or debris	.090 - .100

The contraction and expansion coefficients used were 0.30 and 0.50, respectively. These values were used throughout this analysis. References used in the selection of these values were the HEC-2 Users Manual, Exhibit 2, page 2 and in Open-Channel Hydraulics, Ven Te Chow, pages 311 and 468.

Synthetic Cross Sections

Synthetic cross sections used in this hydraulic analysis were developed in two ways. The two methods used were repetition of a field-surveyed cross section with appropriate invert adjustment or interpolating between two field-surveyed cross sections using the Johnson & Anderson, Inc. AVSEC computer program. The AVSEC program develops an average cross section by averaging the overbanks and channel of the two known cross sections. All cross sections and their origins are indicated by the comment cards in the HEC-2 computer program.

Since invert elevations are known only at field-surveyed cross sections, a straight line is assumed between these known points, with the invert elevations of the synthetic cross sections adjusted accordingly.

Starting Point

Profile computations for Stony Creek were begun at its confluence with the Clinton River. Flows for the Clinton River at the time of the peak of the hydrograph for Stony Creek were determined from the appropriate Clinton River hydrograph. The corresponding Clinton River water surface elevations were determined by HEC-2 and were used as starting water-surface elevations for Stony Creek.

APPENDIX A

Dam Specifications and Calculations

West Outlet

Weir elevation: 772.5 Weir height: 2.4 ft. = h

Weir length: 19.5 ft. = L'

No. of side contractions: 2 = N

Weir is sharp crested

H (head on weir) will vary from 0.5 ft. to 4 ft.

Effective weir length

$L = L' - 0.1(NH)$ (Chow, p. 362, eq. 14-10)

$L_{min} = 19.5 - 0.1(2)(4) = 18.7$ ft.

$L_{max} = 19.5 - 0.1(2)(0.5) = 19.4$ ft.

Other values of L computed accordingly.

Weir coefficient, C

$C = 3.27 + 0.40 \frac{H}{h}$ (Chow, p. 362, eq. 14-11)

C values computed accordingly

Weir equation: $Q = CLH^{3/2}$

East Outlet

The east outlet consists of a sluice gate/weir portion and a broadcrested weir portion.

Sharpcrested Weir

Weir elevation: 723.9 Weir height: 5 ft. = h

Weir length: 10 ft. = L'

No. of side contractions: 0 = N

Weir is sharp crested

H (head on weir) will vary from 0.5 ft. to 4 ft.

Weir coefficient, C

C values computed the same as for the West outlet.

Weir equation: $Q = C_L H^{3/2}$

Sluice Gate

Gate width: 10 ft.

Contraction coefficient, C_c: 0.6 (Henderson, p. 204, Table 6-1)

Gate opening: 5 ft. (assumed maximum) = w

It is assumed that the depth immediately downstream of the gate is the same as the gate opening, thus:

$Y_2 = w = 5$ ft.

Discharge coefficient: C_d

$$C_d = \frac{C_c}{\sqrt{1 + C_c w/Y_1}}$$ (Henderson, p. 203, eq. 6-43)

C_d varies with Y_1 (upstream depth)

Values of C_d are computed accordingly.

$q = C_d W \sqrt{2gY_1}$ (Henderson, p. 203, eq. 6-42)

Broad crested Weir

Weir elevation: 773.7 Weir height: 5 ft. = h

Weir length (2 x 12.5) = 25 ft. = L

No. of side contractions: 2 = N

H (head on weir) will vary from 0.5 ft. to 4 ft.

Weir coefficient, C_c: 2.6 ("Hydraulics of Bridge Waterways," Bureau of Public Roads)

Determination of Dam Rating Curves

Case 1: Assumed dam fully closed

WEST OUTLET

Upstream WSEL	H (ft.)	L (ft.)	C	Q (cfs)
773.0	0.5	19.4	3.4	23
773.5	1.0	19.3	3.4	66
774.0	1.5	19.2	3.5	123
774.5	2.0	19.1	3.6	194
775.0	2.5	19.0	3.7	278
775.5	3.0	18.9	3.8	373
776.0	3.5	18.8	3.8	468
776.5	4.0	18.7	3.9	583

Case 1 : Assumed dam fully closed

EAST OUTLET

Upstream WSEL	Broad-crested H (ft.)	Broad-crested C	Broad-crested L (ft.)	Sharp-crested H (ft.)	Sharp-crested C	Sharp-crested L (ft.)	Q Total
773.0	1	1	1	-	-	-	0
773.5	1	1	1	1	3.3	10	12
774.0	0.3	2.6	25.0	0.1	3.3	10	62
774.5	0.8	2.6	25.0	0.6	3.3	10	136
775.0	1.3	2.6	25.0	1.1	3.4	10	226
775.5	1.8	2.6	25.0	1.6	3.4	10	330
776.0	2.3	2.6	25.0	2.1	3.4	10	451
776.5	2.8	2.6	25.0	2.6	3.5	10	

Upstream WSEL	Total Q, Dam fully closed (cfs)
773.0	23
773.5	66
774.0	135
774.3	
774.5	256
775.0	414
775.5	599
776.0	798
776.5	1034

west east
194 + 62 = 256 ✓

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RGW DATE _____ JOB DESCRIPTION _____ SHEET 4 OF 5

SUBJECT _____ JOB NO. 5250-01-1

EAST OUTLET

Upstream WSEL	Broad H (ft.)	Broad C	Broad L (ft.)		Sluice C_c	Sluice W	Sluice Y_1	Sluice C_d	Q_{Total} width	Q_{Total} (cfs)	
773.0	-	-	-		0.6	5.0	4.1	0.46	10	374	Case 2: Assumed dam fully open
773.5	-	-	-		0.6	5.0	4.6	0.47	10	404	
774.0	0.3	2.6	25.0	N	0.6	5.0	5.1	0.48	10	446	
774.5	0.8	2.6	25.0	47	0.6	5.0	5.6	0.48	10	503	
775.0	1.3	2.6	25.0	96	0.6	5.0	6.1	0.49	10	582	
775.5	1.8	2.6	25.0	157	0.6	5.0	6.6	0.50	10	672	
776.0	2.3	2.6	25.0	227	0.6	5.0	7.1	0.50	10	762	
776.5	2.8	2.6	25.0	305	0.6	5.0	7.6	0.51	10	869	

Upstream WSEL	Total Q, Dam fully open (cfs)
773.0	397
773.5	470
774.0	569
774.3	
774.5	697 (west 194 + east 503 = 697)
774.8 ?	810
775.0	860
775.5	1045
776.0	1230
776.5	1452

@ 810 cfs

$$U/S\ W.S = 774.5 + .5\left(\frac{.346}{.168}\right) = 774.846$$, not 774.3

APPENDIX B

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

HYDRAULIC STRUCTURAL DATA

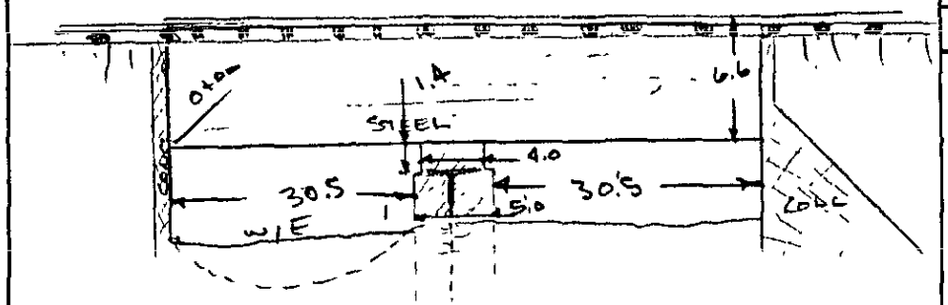
B.S. #2

Code No. 5850-01

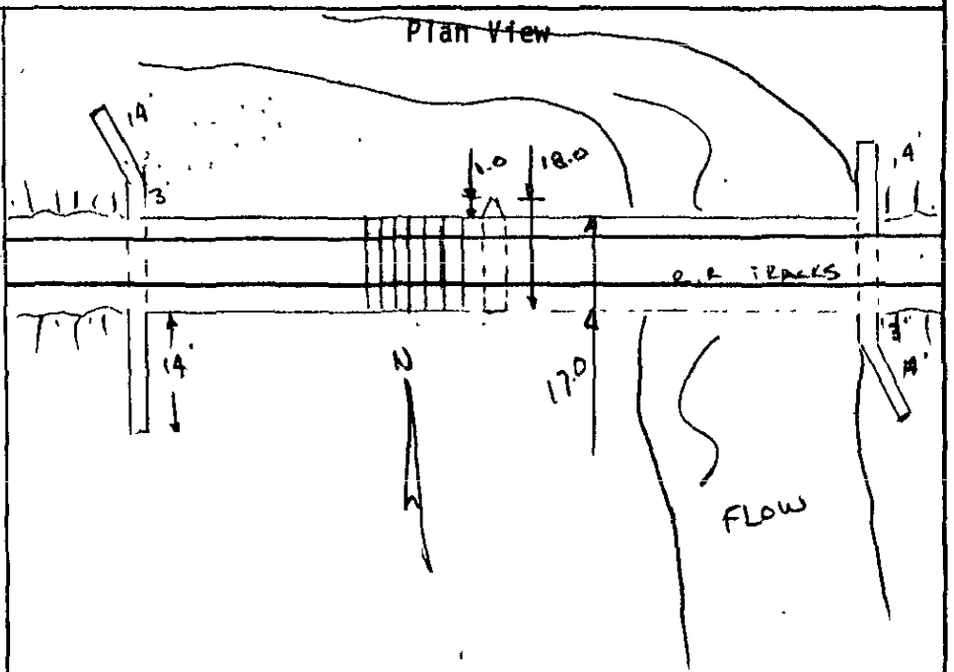
Job Name: Avon Twp. F.I.S.			By: R. Moses
Date: 12-28-77		Feature: Steel & Conc R.R. Bridge	Water Course: Stoney Creek
Remarks: Grand Trunk R.R. Bridge			
Width of Piers: 5'	Pier Shape:	No. of Piers: 1	Area: —
Water Elevation: ~~690.1~~	Length: 66'	Width of Deck: 17.0	Skew: —

FIELD SKETCH

Profile View



Plan View



S.C. B.S.# 4

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

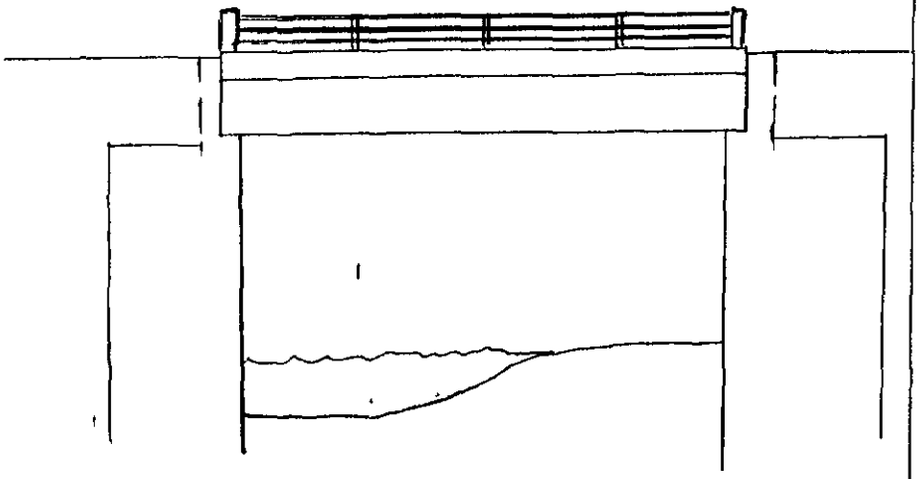
HYDRAULIC STRUCTURAL DATA

Code No. 5850-01

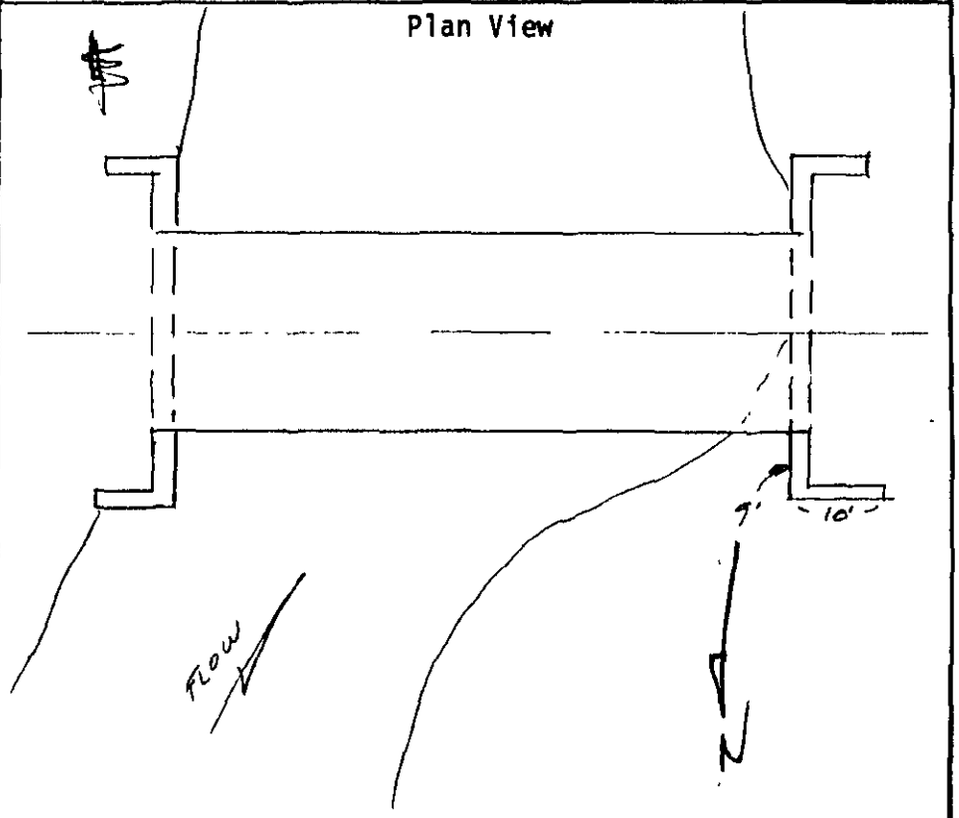
Job Name: AVON TWP F.I.S.			By: MCINNES
Date: 12-19-77	Feature: PARKDALE BRIDGE		Water Course: STONY CREEK
Remarks: STEEL STRINGER BRIDGE W/CONC ABUTMENTS, DECK. SANDY GRAVEL BOTTOM, CHANNEL DOESN'T LINE UP WITH BRIDGE NO DEBRIS. 3' HIGH STEEL RAILING			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 692.4	Length: 36.5'	Width of Deck: 29'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



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

HYDRAULIC STRUCTURAL DATA

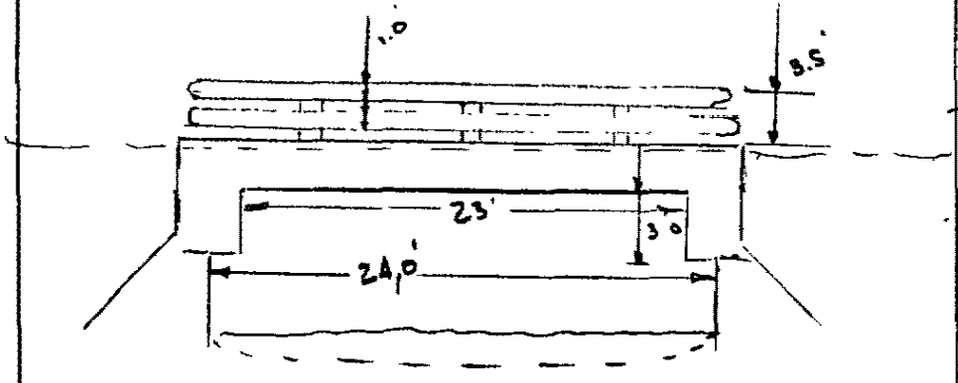
B.S. #9

Code No. 5850-01

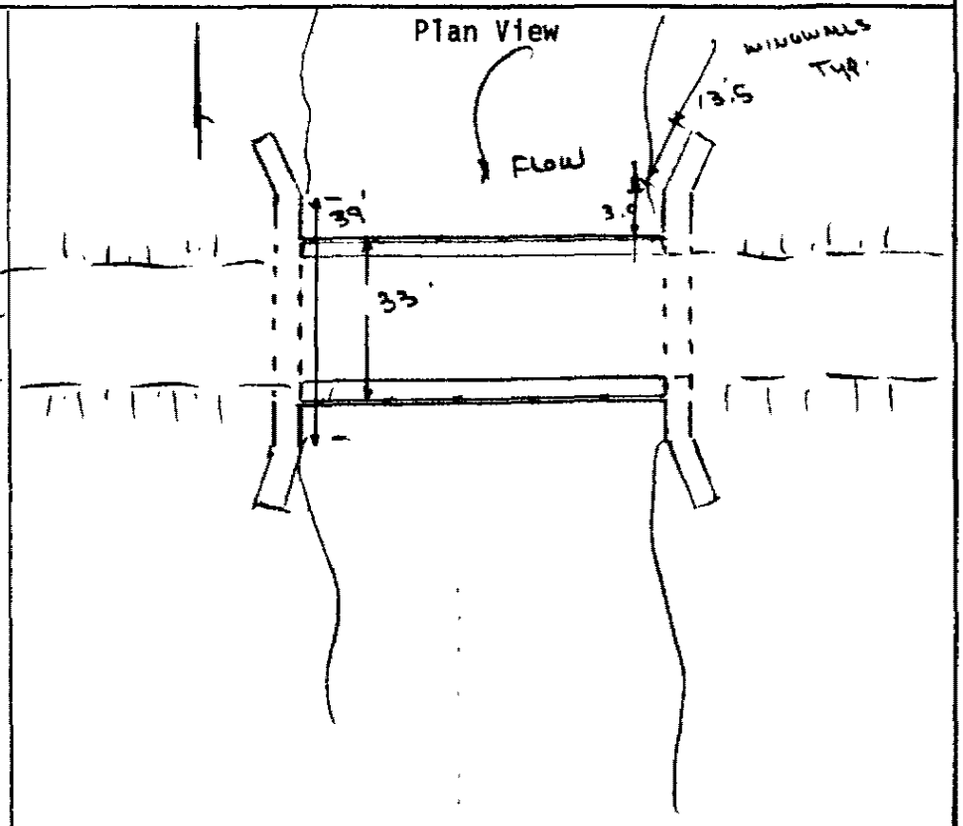
Job Name: Avon Twp. F.I.S.			By: R. Moses
Date: 12-28-77	Feature: Cove Bridge		Water Course: Stony Creek
Remarks: Location of Bridge is on Romeo Rd			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 717.6	Length: 24.0	Width of Deck: 33	Skew: —

FIELD SKETCH

Profile View



Plan View



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

HYDRAULIC STRUCTURAL DATA

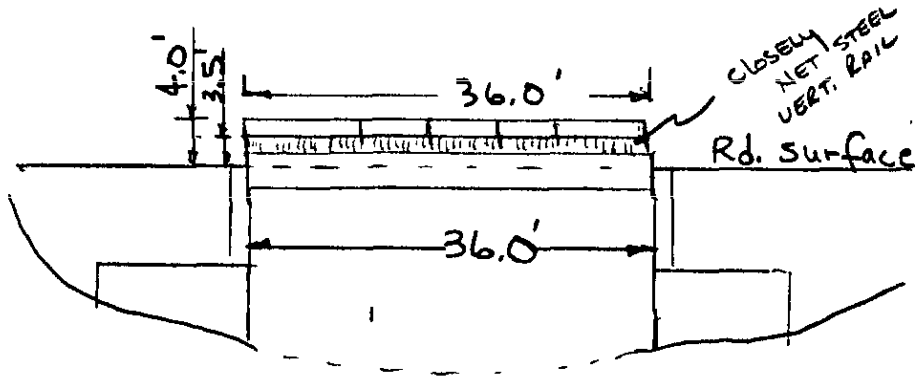
B.S. # 11

Code No. 5850-03

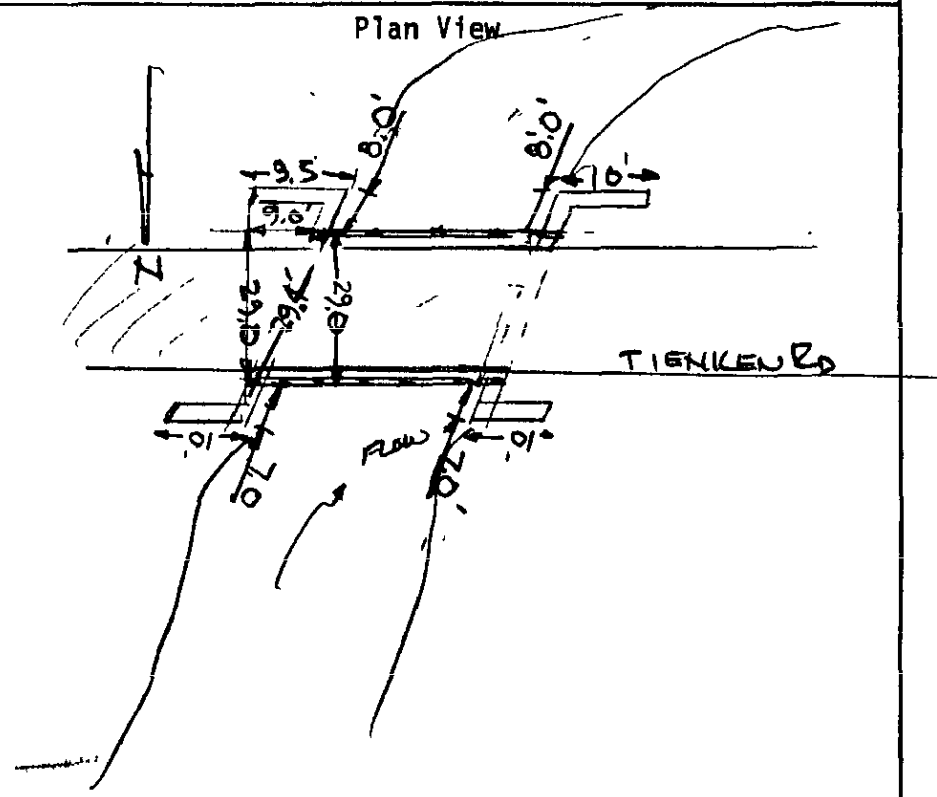
Job Name: Avon Twp. F.I.S.			By: R. Moses
Date: 12-29-77	Feature: Conc Bridge		Water Course: Stony Creek
Remarks: Bridge is on Tienken Rd W. of Romeo Rd			
Width of Piers:	Pier Shape: —	No. of Piers: —	Area:
Water Elevation:	Length: 36.0	Width of Deck: 29.0	Skew:

FIELD SKETCH

Profile View



Plan View



12.1
12.5

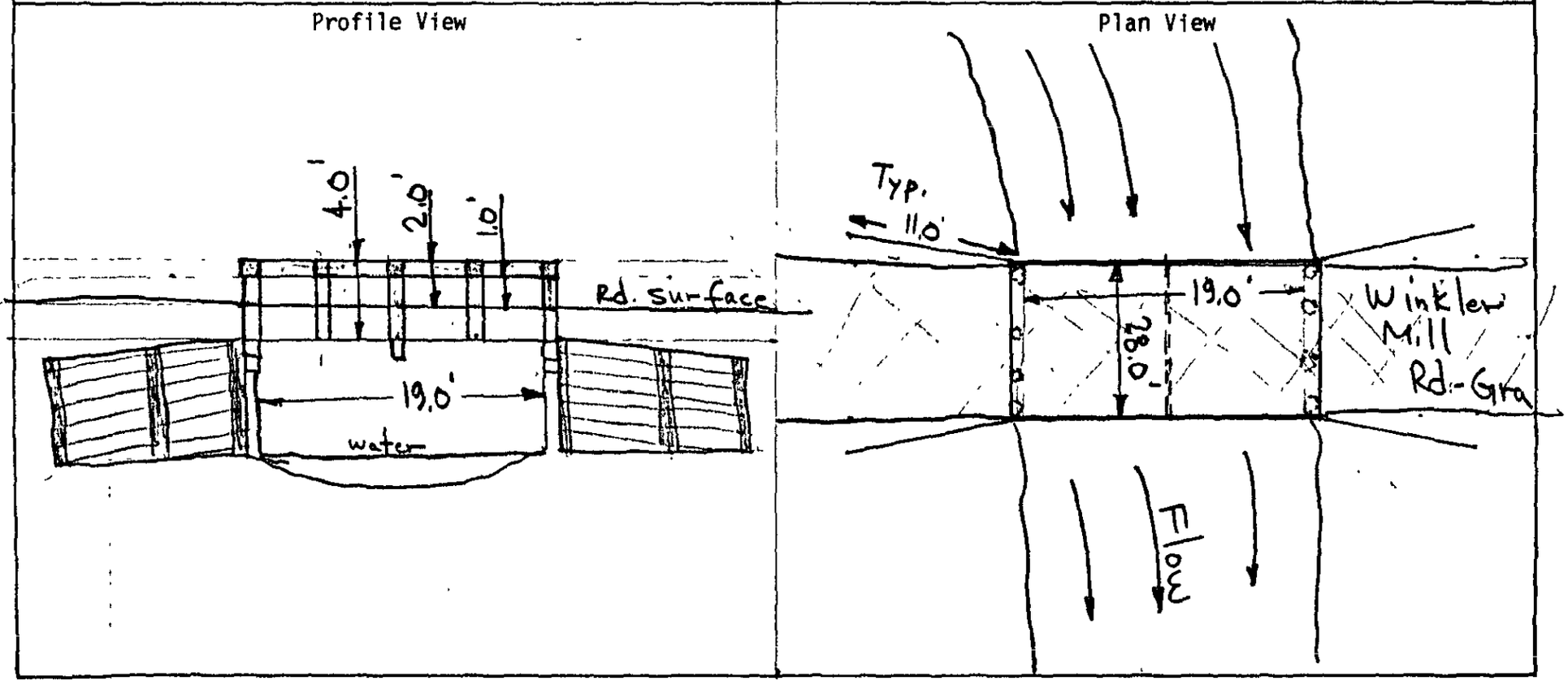
Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 5850-03-BS#18

Job Name: Avon Twp FIS		By: Mapley Neff Lehmoine	
Date: 1-25-78	Feature: Winkler Mill Rd. bridge	Water Course: Stoney Creek	
Remarks:			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 763.0	Length: 19.0	Width of Deck: 28.0	Skew:

FIELD SKETCH



Dam Section #19

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

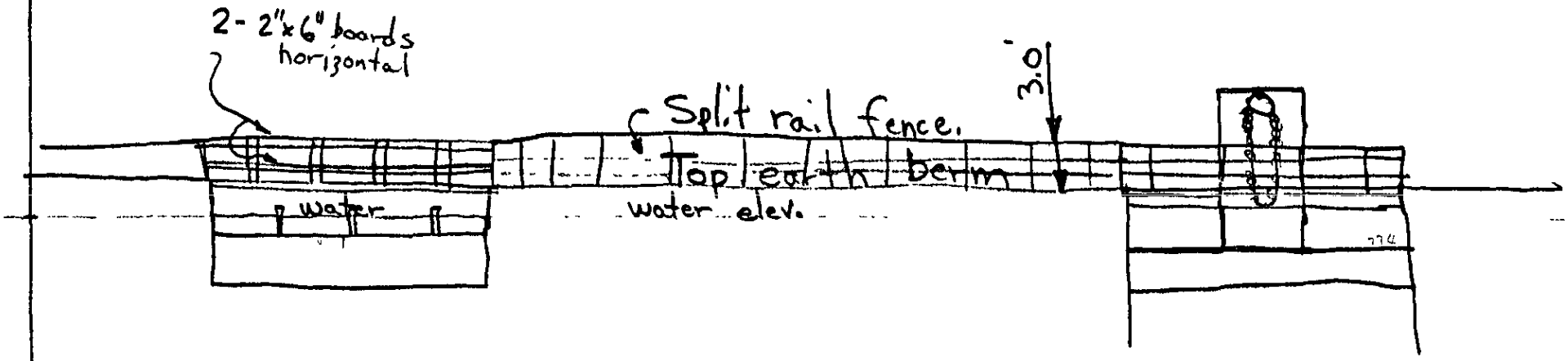
HYDRAULIC STRUCTURAL DATA

Code No. 5850-01

Job Name: Avon Twp FIS			By: Hapley Janette Mackenzie
Date: 2-10-78	Feature: Winkler Mill Pond Dam		Water Course: Stony Crk
Remarks:			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

Profile View



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

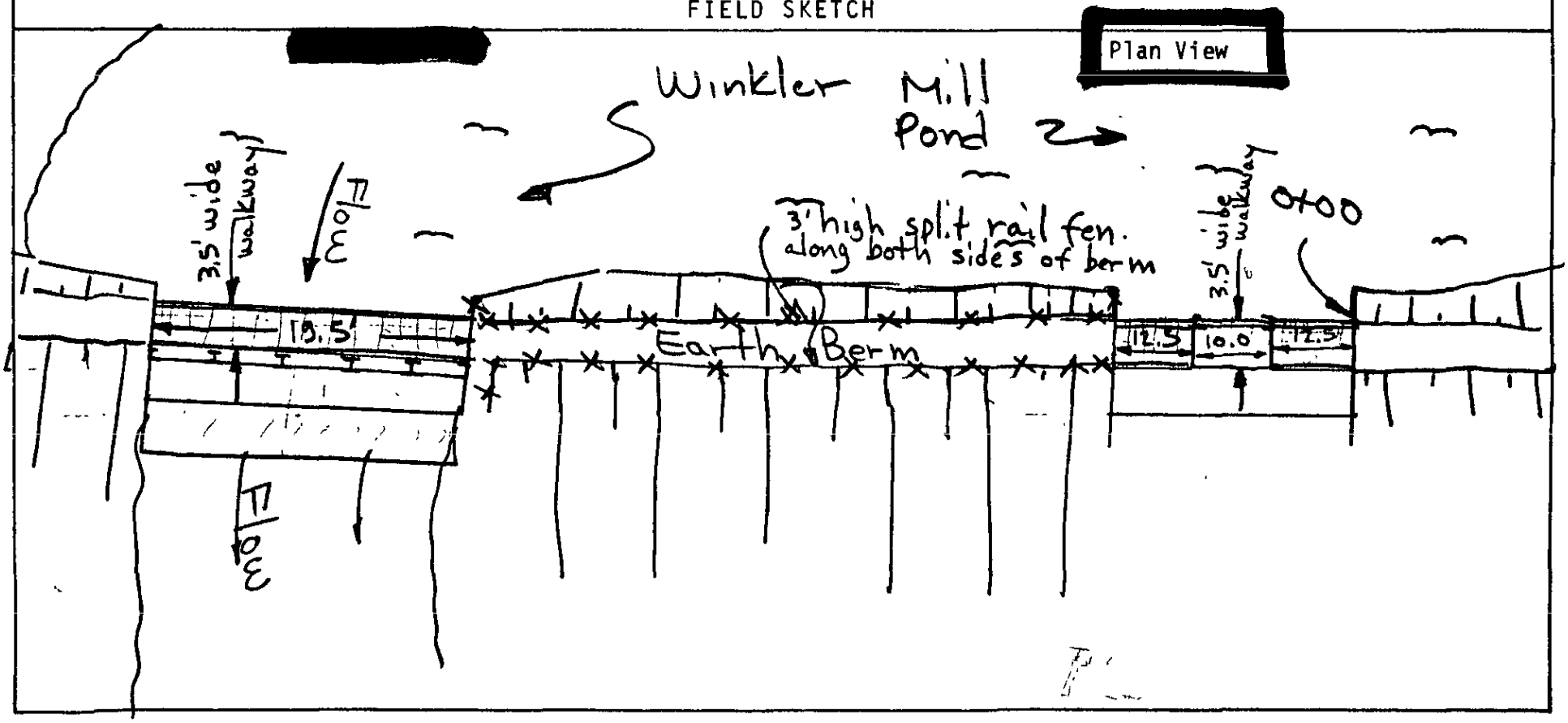
HYDRAULIC STRUCTURAL DATA

Dam Section #19

Code No. 5850

Job Name: Avon Twp FIS			By: Mapley Janette Mackenzie
Date: 2-10-78	Feature: Winkler Mill Pond Dam		Water Course: Stony Crk
Remarks:			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 773.6	Length:	Width of Deck:	Skew:

FIELD SKETCH



00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: STONY CREEK

4) DOCUMENT TYPE: SUMMARY - ENCROACHED

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

STONY CREEK

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
0.000	0.00	0.00	685.00	665.00	691.87	6.87	.01	0.00	691.88	0.00	352.00	1327.72
0.000	0.00	0.00	685.00	1045.00	692.80	7.80	.01	0.00	692.81	0.00	352.00	1655.08
0.000	0.00	0.00	685.00	1215.00	693.13	8.13	.01	0.00	693.14	0.00	352.00	1771.24
0.000	0.00	0.00	685.00	1695.00	693.86	8.86	.02	0.00	693.88	0.00	352.00	2028.20
150.000	0.00	0.00	687.00	665.00	691.87	4.87	.06	.03	691.93	13.33	276.00	488.76
150.000	0.00	0.00	687.00	1045.00	692.81	5.81	.06	.02	692.86	13.33	276.00	747.86
150.000	0.00	0.00	687.00	1215.00	693.14	6.14	.06	.02	693.19	13.33	276.00	839.27
150.000	0.00	0.00	687.00	1695.00	693.87	6.87	.07	.03	693.94	13.33	276.00	1041.82
341.0007	0.00	0.00	686.60	665.00	692.02	5.42	.07	.00	692.08	-2.09	181.00	441.27
341.000	0.00	0.00	686.60	1045.00	692.93	6.33	.08	.01	693.01	-2.09	181.00	606.83
341.000	0.00	0.00	686.60	1215.00	693.26	6.66	.09	.01	693.35	-2.09	181.00	666.41
341.000	0.00	0.00	686.60	1695.00	694.00	7.40	.11	.02	694.11	-2.09	181.00	799.86
533.000	0.00	0.00	686.10	665.00	692.14	6.04	.09	.01	692.23	-2.60	87.00	323.42
533.000	0.00	0.00	686.10	1045.00	693.06	6.96	.14	.03	693.20	-2.60	87.00	404.01
533.000	0.00	0.00	686.10	1215.00	693.39	7.29	.17	.04	693.56	-2.60	87.00	432.71
533.000	0.00	0.00	686.10	1695.00	694.14	8.04	.24	.07	694.38	-2.60	87.00	497.51
582.000	0.00	0.00	686.00	665.00	692.12	6.12	.31	.11	692.42	-2.04	61.00	149.54
582.000	0.00	0.00	686.00	1045.00	693.03	7.03	.40	.13	693.43	-2.04	61.00	205.13
582.000	0.00	0.00	686.00	1215.00	693.35	7.35	.45	.14	693.81	-2.04	61.00	225.05
582.000	0.00	0.00	686.00	1695.00	694.09	8.09	.61	.18	694.70	-2.04	66.00	270.27
583.000	701.40	695.40	686.00	665.00	692.12	6.12	.31	.00	692.43	0.00	61.00	149.76
583.000	701.40	695.40	686.00	1045.00	693.03	7.03	.40	.00	693.44	0.00	61.00	205.33
583.000	701.40	695.40	686.00	1215.00	693.36	7.36	.45	.00	693.81	0.00	61.00	225.26
583.000	701.40	695.40	686.00	1695.00	694.09	8.09	.62	.00	694.71	0.00	66.00	268.91
600.000	701.40	695.40	686.00	665.00	692.22	6.22	.28	.01	692.50	0.00	61.00	155.44
600.000	701.40	695.40	686.00	1045.00	693.12	7.12	.38	.01	693.50	0.00	61.00	210.56
600.000	701.40	695.40	686.00	1215.00	693.45	7.45	.43	.01	693.88	0.00	61.00	230.58
600.000	701.40	695.40	686.00	1695.00	694.25	8.25	.58	.01	694.83	0.00	66.00	276.53
601.000	0.00	0.00	686.00	665.00	692.22	6.22	.28	.00	692.51	0.00	61.00	155.81
601.000	0.00	0.00	686.00	1045.00	693.13	7.13	.38	.00	693.51	0.00	61.00	210.94
601.000	0.00	0.00	686.00	1215.00	693.46	7.46	.43	.00	693.89	0.00	61.00	231.01
601.000	0.00	0.00	686.00	1695.00	694.30	8.30	.55	.01	694.85	0.00	66.00	283.90

FORM 1411 GO PRINTED BY ROTARY MANIFOLD FORMS

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	650.000	0.00	0.00	686.70	665.00	692.59	5.89	.06	.07	692.65	14.29	166.00	444.18
	650.000	0.00	0.00	686.70	1045.00	693.61	6.91	.07	.09	693.68	14.29	166.00	613.05
	650.000	0.00	0.00	686.70	1215.00	693.99	7.29	.07	.11	694.07	14.29	166.00	677.22
	650.000	0.00	0.00	686.70	1695.00	694.98	8.28	.09	.14	695.07	14.29	166.00	840.76
	765.000	0.00	0.00	688.40	665.00	692.54	4.14	.50	.22	693.04	14.78	151.89	166.65
	765.000	0.00	0.00	688.40	1045.00	693.64	5.24	.26	.10	693.90	14.78	189.00	358.26
	765.000	0.00	0.00	688.40	1215.00	694.04	5.64	.23	.08	694.26	14.78	189.00	433.36
	765.000	0.00	0.00	688.40	1695.00	695.04	6.64	.18	.05	695.22	14.78	189.00	621.74
*	880.000	0.00	0.00	690.00	665.00	693.89	3.89	.73	.11	694.62	13.91	113.36	126.40
*	880.000	0.00	0.00	690.00	1045.00	694.47	4.47	.83	.28	695.29	13.91	131.00	197.45
*	880.000	0.00	0.00	690.00	1215.00	694.74	4.74	.79	.28	695.53	13.91	131.00	233.38
*	880.000	0.00	0.00	690.00	1695.00	695.21	5.21	.91	.36	696.12	13.91	131.00	294.36
	1021.000	0.00	0.00	689.80	665.00	695.16	5.36	.25	.14	695.41	-1.42	61.00	196.51
	1021.000	0.00	0.00	689.80	1045.00	695.83	6.03	.42	.12	696.25	-1.42	61.00	237.18
	1021.000	0.00	0.00	689.80	1215.00	696.00	6.20	.52	.08	696.51	-1.42	61.00	247.18
	1021.000	0.00	0.00	689.80	1695.00	696.50	6.70	.79	.04	697.29	-1.42	61.00	277.89
	1070.000	0.00	0.00	689.70	665.00	695.32	5.62	.37	.06	695.68	-2.04	36.50	137.11
	1070.000	0.00	0.00	689.70	1045.00	696.03	6.33	.64	.11	696.67	-2.04	36.50	163.02
	1070.000	0.00	0.00	689.70	1215.00	696.22	6.52	.79	.14	697.02	-2.04	36.50	170.17
	1070.000	0.00	0.00	689.70	1695.00	696.78	7.08	1.23	.22	698.01	-2.04	36.50	190.62
	1071.000	704.60	700.90	689.70	665.00	695.32	5.62	.36	.00	695.69	0.00	36.50	137.32
	1071.000	704.60	700.90	689.70	1045.00	696.04	6.34	.64	.00	696.67	0.00	36.50	163.32
	1071.000	704.60	700.90	689.70	1215.00	696.24	6.54	.79	.00	697.02	0.00	36.50	170.54
	1071.000	704.60	700.90	689.70	1695.00	696.80	7.10	1.22	.00	698.02	0.00	36.50	191.12
	1100.000	704.60	702.30	689.70	665.00	695.41	5.71	.35	.00	695.76	0.00	36.50	140.47
	1100.000	704.60	702.30	689.70	1045.00	696.18	6.48	.60	.01	696.78	0.00	36.50	168.63
	1100.000	704.60	702.30	689.70	1215.00	696.42	6.72	.73	.02	697.15	0.00	36.50	177.46
	1100.000	704.60	702.30	689.70	1695.00	697.13	7.43	1.08	.04	698.21	0.00	36.50	203.34
	1101.000	0.00	0.00	689.70	665.00	695.41	5.71	.35	.00	695.76	0.00	36.50	140.54
	1101.000	0.00	0.00	689.70	1045.00	696.19	6.49	.60	.00	696.78	0.00	36.50	168.72
	1101.000	0.00	0.00	689.70	1215.00	696.43	6.73	.73	.00	697.16	0.00	36.50	177.56
	1101.000	0.00	0.00	689.70	1695.00	697.14	7.44	1.08	.00	698.22	0.00	36.50	203.50
	1150.000	0.00	0.00	689.70	665.00	695.87	6.17	.01	.10	695.88	0.00	135.00	693.38
	1150.000	0.00	0.00	689.70	1045.00	696.95	7.25	.02	.17	696.98	0.00	135.00	840.32
	1150.000	0.00	0.00	689.70	1215.00	697.36	7.66	.03	.21	697.39	0.00	135.00	895.66
	1150.000	0.00	0.00	689.70	1695.00	698.52	8.82	.04	.31	698.56	0.00	135.00	1051.81
	1620.000	0.00	0.00	690.70	665.00	695.91	5.21	.02	.00	695.92	2.13	168.55	618.82
	1620.000	0.00	0.00	690.70	1045.00	697.05	6.35	.03	.00	697.07	2.13	180.00	818.32
	1620.000	0.00	0.00	690.70	1215.00	697.47	6.77	.03	.00	697.49	2.13	180.00	893.42
	1620.000	0.00	0.00	690.70	1695.00	698.63	7.93	.04	.00	698.67	2.13	180.00	1103.78
	1835.000	0.00	0.00	693.30	665.00	695.90	2.60	.11	.05	696.01	12.09	148.72	248.02
	1835.000	0.00	0.00	693.30	1045.00	697.12	3.82	.09	.03	697.21	12.09	156.92	435.78
	1835.000	0.00	0.00	693.30	1215.00	697.54	4.24	.09	.03	697.63	12.09	159.03	501.10
	1835.000	0.00	0.00	693.30	1695.00	698.70	5.40	.07	.01	698.77	12.09	250.11	877.44

FORM 1611 GR PRINTED BY ROTARY MANIFOLD FORMS.

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	2050.000	0.00	0.00	694.10	665.00	696.69	2.59	.17	.03	696.86	3.72	110.08	203.42
	2050.000	0.00	0.00	694.10	1045.00	697.50	3.40	.19	.05	697.70	3.72	113.65	294.89
	2050.000	0.00	0.00	694.10	1215.00	697.86	3.76	.16	.04	698.02	3.72	168.01	400.53
	2050.000	0.00	0.00	694.10	1695.00	698.87	4.77	.16	.04	699.02	3.72	169.31	570.57
	2265.000	0.00	0.00	694.90	665.00	697.69	2.79	.24	.04	697.93	3.72	148.27	188.57
	2265.000	0.00	0.00	694.90	1045.00	698.31	3.41	.28	.04	698.58	3.72	168.83	289.68
	2265.000	0.00	0.00	694.90	1215.00	698.52	3.62	.30	.07	698.82	3.72	168.98	326.75
	2265.000	0.00	0.00	694.90	1695.00	699.31	4.41	.28	.06	699.59	3.72	169.49	459.81
	2480.000	0.00	0.00	695.80	665.00	699.13	3.33	.46	.11	699.59	4.19	148.30	163.36
	2480.000	0.00	0.00	695.80	1045.00	699.64	3.84	.49	.10	700.13	4.19	169.73	246.91
	2480.000	0.00	0.00	695.80	1215.00	699.84	4.04	.49	.10	700.33	4.19	169.77	280.60
	2480.000	0.00	0.00	695.80	1695.00	700.35	4.55	.50	.11	700.86	4.19	169.87	367.42
	3180.000	0.00	0.00	699.10	665.00	703.12	4.02	.15	.09	703.27	4.71	169.76	276.61
	3180.000	0.00	0.00	699.10	1045.00	703.72	4.62	.18	.09	703.90	4.71	169.88	379.31
	3180.000	0.00	0.00	699.10	1215.00	703.94	4.84	.19	.09	704.14	4.71	169.93	417.08
	3180.000	0.00	0.00	699.10	1695.00	704.49	5.39	.23	.08	704.72	4.71	170.00	510.51
	3530.000	0.00	0.00	700.80	665.00	704.76	3.96	.50	.17	705.26	4.86	50.29	117.01
	3530.000	0.00	0.00	700.80	1045.00	705.41	4.61	.75	.28	706.16	4.86	62.44	152.24
	3530.000	0.00	0.00	700.80	1215.00	705.64	4.84	.85	.33	706.50	4.86	68.06	167.70
	3530.000	0.00	0.00	700.80	1695.00	706.22	5.42	1.12	.45	707.34	4.86	81.79	211.27
	3880.000	0.00	0.00	702.50	665.00	707.27	4.77	.37	.04	707.64	4.86	129.40	169.77
	3880.000	0.00	0.00	702.50	1045.00	708.13	5.63	.37	.11	708.50	4.86	153.43	291.48
	3880.000	0.00	0.00	702.50	1215.00	708.45	5.95	.37	.15	708.82	4.86	162.42	342.36
	3880.000	0.00	0.00	702.50	1695.00	709.26	6.76	.36	.23	709.62	4.86	184.85	481.85
	4580.000	0.00	0.00	705.80	665.00	710.54	4.74	.38	.00	710.93	4.71	128.77	166.87
	4580.000	0.00	0.00	705.80	1040.00	711.20	5.40	.47	.05	711.67	4.71	147.01	256.97
	4580.000	0.00	0.00	705.80	1210.00	711.44	5.64	.49	.06	711.93	4.71	153.72	293.11
	4580.000	0.00	0.00	705.80	1680.00	712.02	6.22	.55	.10	712.57	4.71	169.99	387.41
x	5475.000	0.00	0.00	710.70	665.00	715.30	4.60	.49	3.72	715.79	5.47	42.80	123.35
	5475.000	0.00	0.00	710.70	1040.00	716.02	5.32	.51	.02	716.53	5.47	144.76	245.21
	5475.000	0.00	0.00	710.70	1210.00	716.28	5.58	.52	.02	716.80	5.47	152.03	283.84
	5475.000	0.00	0.00	710.70	1680.00	716.89	6.19	.56	.01	717.46	5.47	169.21	382.67
	6370.000	0.00	0.00	715.60	665.00	719.40	3.80	.15	.10	719.55	5.47	102.00	222.35
	6370.000	0.00	0.00	715.60	1040.00	720.05	4.45	.21	.09	720.26	5.47	102.00	289.39
	6370.000	0.00	0.00	715.60	1210.00	720.31	4.71	.24	.08	720.55	5.47	102.00	315.99
	6370.000	0.00	0.00	715.60	1680.00	720.96	5.36	.32	.07	721.28	5.47	102.00	381.32
	6477.000	0.00	0.00	715.50	665.00	719.76	4.26	.39	.12	720.14	-.93	50.00	133.14
	6477.000	0.00	0.00	715.50	1040.00	720.38	4.88	.62	.21	721.00	-.93	50.00	164.26
	6477.000	0.00	0.00	715.50	1210.00	720.63	5.13	.73	.24	721.35	-.93	50.00	176.68
	6477.000	0.00	0.00	715.50	1680.00	721.21	5.71	1.03	.36	722.24	-.93	50.00	206.06
	6526.000	0.00	0.00	715.50	665.00	719.99	4.49	.84	.23	720.83	.00	24.00	90.43
	6526.000	0.00	0.00	715.50	1040.00	720.56	5.06	1.55	.47	722.11	.00	24.00	104.00
	6526.000	0.00	0.00	715.50	1210.00	720.75	5.25	1.93	.60	722.68	.00	24.00	108.62
x	6526.000	0.00	0.00	715.50	1680.00	721.54	6.04	2.69	.83	724.23	.00	24.00	127.52

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FORM 1411 CU PRINTED BY ROTARY MANIFOLD FORMS

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
6527.000	725.80	726.80	715.50	665.00	720.01	4.51	.84	.00	720.84	0.00	24.00	90.66
6527.000	725.80	726.80	715.50	1040.00	720.70	5.20	1.45	.03	722.15	0.00	24.00	107.61
6527.000	725.80	726.80	715.50	1210.00	721.10	5.60	1.67	.08	722.77	0.00	24.00	116.73
6527.000	725.80	726.80	715.50	1680.00	722.69	7.19	1.82	.26	724.51	0.00	24.00	155.04
6560.000	725.80	726.80	715.50	665.00	720.36	4.86	.70	.04	721.06	0.00	24.00	99.25
6560.000	725.80	726.80	715.50	1040.00	721.42	5.92	1.08	.11	722.50	0.00	24.00	124.92
6560.000	725.80	726.80	715.50	1210.00	721.94	6.44	1.21	.14	723.15	0.00	24.00	137.08
6560.000	725.80	726.80	715.50	1680.00	723.32	7.82	1.51	.09	724.83	0.00	24.00	170.27
6561.000	0.00	0.00	715.50	665.00	720.37	4.87	.70	.00	721.06	0.00	24.00	99.37
6561.000	0.00	0.00	715.50	1040.00	721.43	5.93	1.08	.00	722.51	0.00	24.00	124.89
6561.000	0.00	0.00	715.50	1210.00	721.95	6.45	1.21	.00	723.16	0.00	24.00	137.28
6561.000	0.00	0.00	715.50	1680.00	723.33	7.83	1.51	.00	724.84	0.00	24.00	170.44
6610.000	0.00	0.00	715.90	665.00	721.26	5.36	.05	.19	721.31	8.16	100.00	376.19
6610.000	0.00	0.00	715.90	1040.00	722.79	6.89	.07	.30	722.86	8.16	100.00	529.54
6610.000	0.00	0.00	715.90	1210.00	723.47	7.57	.07	.34	723.54	8.16	100.00	597.65
6610.000	0.00	0.00	715.90	1680.00	725.22	9.32	.08	.43	725.31	8.16	100.00	773.20
6762.000	0.00	0.00	717.20	665.00	721.33	4.13	.10	.03	721.43	8.55	83.74	262.46
6762.000	0.00	0.00	717.20	1040.00	722.84	5.64	.11	.02	722.95	8.55	90.00	396.39
6762.000	0.00	0.00	717.20	1210.00	723.51	6.31	.12	.02	723.63	8.55	90.00	456.98
6762.000	0.00	0.00	717.20	1680.00	725.25	8.05	.13	.02	725.38	8.55	90.00	613.69
6915.000	0.00	0.00	718.50	665.00	721.48	2.98	.56	.23	722.04	8.50	62.14	110.32
6915.000	0.00	0.00	718.50	1040.00	722.91	4.41	.40	.14	723.31	8.50	75.92	210.34
6915.000	0.00	0.00	718.50	1210.00	723.57	5.07	.35	.12	723.92	8.50	76.92	261.13
6915.000	0.00	0.00	718.50	1680.00	725.29	6.79	.30	.08	725.58	8.50	78.88	394.94
7067.000	0.00	0.00	719.80	665.00	723.31	3.51	.60	.05	723.98	8.55	49.44	101.69
7067.000	0.00	0.00	719.80	1040.00	723.72	3.92	1.13	.37	724.85	8.55	51.83	121.65
7067.000	0.00	0.00	719.80	1210.00	724.05	4.25	1.17	.41	725.22	8.55	53.30	139.58
7067.000	0.00	0.00	719.80	1680.00	725.48	5.68	.78	.24	726.26	8.55	127.48	265.48
7220.000	0.00	0.00	721.10	665.00	725.13	4.03	.83	.08	725.95	8.50	36.98	91.05
7220.000	0.00	0.00	721.10	1040.00	726.03	4.93	1.05	.02	727.08	8.50	41.30	126.36
7220.000	0.00	0.00	721.10	1210.00	726.24	5.14	1.25	.04	727.49	8.50	42.28	134.86
7220.000	0.00	0.00	721.10	1680.00	726.67	5.57	1.85	.54	728.52	8.50	44.38	153.89
7351.000	0.00	0.00	721.80	665.00	726.63	4.83	.46	.11	727.09	5.34	40.84	122.40
7351.000	0.00	0.00	721.80	1040.00	727.64	5.84	.61	.13	728.25	5.34	45.67	165.99
7351.000	0.00	0.00	721.80	1210.00	728.06	6.26	.66	.18	728.72	5.34	51.18	186.95
7351.000	0.00	0.00	721.80	1680.00	729.15	7.35	.76	.33	729.92	5.34	51.89	243.56
7400.000	0.00	0.00	722.10	665.00	727.03	4.93	.28	.05	727.32	6.12	36.00	155.68
7400.000	0.00	0.00	722.10	1040.00	728.04	5.94	.45	.05	728.50	6.12	36.00	192.15
7400.000	0.00	0.00	722.10	1210.00	728.43	6.33	.54	.04	728.96	6.12	36.00	206.12
7400.000	0.00	0.00	722.10	1680.00	729.38	7.28	.76	.00	730.14	6.12	36.00	240.52
7401.000	733.90	731.00	722.10	665.00	727.04	4.94	.28	.00	727.32	0.00	36.00	156.02
7401.000	733.90	731.00	722.10	1040.00	728.04	5.94	.45	.00	728.50	0.00	36.00	192.31
7401.000	733.90	731.00	722.10	1210.00	728.43	6.33	.53	.00	728.97	0.00	36.00	206.27
7401.000	733.90	731.00	722.10	1680.00	729.38	7.28	.76	.00	730.14	0.00	36.00	240.55

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FORM 1411 OF PRINTED BY ROTARY MANIFOLD FORMS

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	7430.000	733.90	731.00	722.10	665.00	727.10	5.00	.27	.00	727.37	0.00	36.00	158.25
	7430.000	733.90	731.00	722.10	1040.00	728.13	6.03	.44	.00	728.57	0.00	36.00	195.22
	7430.000	733.90	731.00	722.10	1210.00	728.53	6.43	.52	.00	729.05	0.00	36.00	209.48
	7430.000	733.90	731.00	722.10	1680.00	729.51	7.41	.73	.01	730.24	0.00	36.00	244.71
	7431.000	0.00	0.00	722.10	485.00	727.28	5.18	.13	.04	727.42	0.00	36.00	164.89
	7431.000	0.00	0.00	722.10	720.00	728.46	6.36	.19	.08	728.65	0.00	36.00	207.38
	7431.000	0.00	0.00	722.10	810.00	728.94	6.84	.20	.09	729.14	0.00	36.00	224.69
	7431.000	0.00	0.00	722.10	1100.00	730.12	8.02	.26	.14	730.38	0.00	36.00	267.22
	7480.000	0.00	0.00	722.50	485.00	727.30	4.80	.25	.06	727.55	8.16	40.69	121.11
	7480.000	0.00	0.00	722.50	720.00	728.49	5.99	.27	.04	728.76	8.16	76.80	175.69
	7480.000	0.00	0.00	722.50	810.00	728.98	6.48	.26	.03	729.24	8.16	89.33	217.93
	7480.000	0.00	0.00	722.50	1100.00	730.20	7.70	.25	.00	730.45	8.16	90.11	327.09
	7880.000	0.00	0.00	725.10	485.00	728.87	3.77	.55	.15	729.42	6.50	35.77	81.86
	7880.000	0.00	0.00	725.10	720.00	729.73	4.63	.62	.18	730.34	6.50	39.85	114.08
	7880.000	0.00	0.00	725.10	810.00	730.02	4.92	.64	.19	730.66	6.50	41.30	126.34
	7880.000	0.00	0.00	725.10	1100.00	730.95	5.85	.68	.21	731.62	6.50	45.70	166.33
	8330.000	0.00	0.00	728.00	485.00	731.72	3.72	.29	.08	732.00	6.44	48.23	112.59
	8330.000	0.00	0.00	728.00	720.00	732.41	4.41	.37	.08	732.78	6.44	53.04	147.81
	8330.000	0.00	0.00	728.00	810.00	732.64	4.64	.39	.07	733.03	6.44	54.69	160.69
*	8330.000	0.00	0.00	728.00	1100.00	733.19	5.19	.51	2.01	733.71	6.44	58.48	191.63
	9150.000	0.00	0.00	732.10	485.00	735.55	3.45	.36	.04	735.91	5.00	46.50	100.75
	9150.000	0.00	0.00	732.10	720.00	736.23	4.13	.45	.04	736.69	5.00	51.14	133.48
	9150.000	0.00	0.00	732.10	810.00	736.45	4.35	.48	.04	736.93	5.00	52.69	145.15
	9150.000	0.00	0.00	732.10	1100.00	737.16	5.06	.56	.02	737.72	5.00	57.54	183.79
	9970.000	0.00	0.00	736.20	485.00	739.24	3.04	.28	.03	739.51	5.00	47.51	115.77
	9970.000	0.00	0.00	736.20	720.00	739.92	3.72	.37	.02	740.29	5.00	50.60	149.02
	9970.000	0.00	0.00	736.20	810.00	740.14	3.94	.41	.02	740.55	5.00	51.65	160.72
	9970.000	0.00	0.00	736.20	1100.00	740.79	4.59	.52	.01	741.32	5.00	54.61	195.20
	10680.000	0.00	0.00	740.00	485.00	742.54	2.54	.42	.07	742.96	5.35	45.30	93.36
	10680.000	0.00	0.00	740.00	720.00	743.17	3.17	.55	.09	743.71	5.35	48.13	122.27
	10680.000	0.00	0.00	740.00	810.00	743.39	3.39	.59	.09	743.98	5.35	49.12	132.79
	10680.000	0.00	0.00	740.00	1100.00	744.04	4.04	.71	.09	744.75	5.35	52.08	165.60
	11390.000	0.00	0.00	743.80	485.00	747.14	3.34	.34	.02	747.48	5.35	79.61	107.99
	11390.000	0.00	0.00	743.80	720.00	747.63	3.83	.34	.06	747.97	5.35	180.00	207.11
	11390.000	0.00	0.00	743.80	810.00	747.80	4.00	.34	.08	748.13	5.35	180.00	236.47
	11390.000	0.00	0.00	743.80	1100.00	748.28	4.48	.33	.12	748.60	5.35	180.00	323.46
*	12260.000	0.00	0.00	747.80	485.00	751.40	3.60	.26	5.35	751.66	4.60	109.99	133.33
	12260.000	0.00	0.00	747.80	720.00	751.80	4.00	.27	.02	752.06	4.60	180.00	235.79
	12260.000	0.00	0.00	747.80	810.00	751.92	4.12	.28	.02	752.20	4.60	180.00	258.79
	12260.000	0.00	0.00	747.80	1100.00	752.26	4.46	.33	.00	752.59	4.60	180.00	321.68
	13130.000	0.00	0.00	751.80	485.00	755.31	3.51	.29	.01	755.60	4.60	172.56	133.93
	13130.000	0.00	0.00	751.80	720.00	755.74	3.94	.33	.03	756.07	4.60	180.00	211.25
	13130.000	0.00	0.00	751.80	810.00	755.89	4.09	.34	.03	756.22	4.60	180.00	238.78
	13130.000	0.00	0.00	751.80	1100.00	756.33	4.53	.35	.01	756.67	4.60	180.00	316.29

FORM 1411 GR PRINTED BY ROTARY MANIFOLD FORMS.

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	14000.000	0.00	0.00	752.60	485.00	758.10	5.50	.17	.04	758.27	.92	62.83	151.84
	14000.000	0.00	0.00	752.60	720.00	758.80	6.20	.24	.03	759.04	.92	85.77	204.43
	14000.000	0.00	0.00	752.60	810.00	759.00	6.40	.27	.02	759.27	.92	92.36	222.55
	14000.000	0.00	0.00	752.60	1100.00	759.57	6.97	.34	.00	759.90	.92	102.43	277.76
	14770.000	0.00	0.00	756.30	485.00	760.62	4.32	.39	.11	761.01	4.81	38.38	97.25
	14770.000	0.00	0.00	756.30	720.00	761.47	5.17	.47	.11	761.94	4.81	52.20	132.98
	14770.000	0.00	0.00	756.30	810.00	761.75	5.45	.49	.11	762.24	4.81	61.19	148.71
	14770.000	0.00	0.00	756.30	1100.00	762.49	6.19	.56	.11	763.06	4.81	85.32	203.24
	15540.000	0.00	0.00	760.00	485.00	763.97	3.97	.18	.06	764.15	4.81	66.02	145.24
	15540.000	0.00	0.00	760.00	720.00	764.71	4.71	.24	.07	764.94	4.81	94.56	204.57
	15540.000	0.00	0.00	760.00	810.00	764.95	4.95	.25	.07	765.20	4.81	103.90	228.59
	15540.000	0.00	0.00	760.00	1100.00	765.63	5.63	.29	.08	765.92	4.81	130.15	308.13
	15902.000	0.00	0.00	761.50	485.00	765.10	3.60	.24	.03	765.35	4.14	49.11	123.57
	15902.000	0.00	0.00	761.50	720.00	765.82	4.32	.33	.04	766.14	4.14	51.00	159.42
	15902.000	0.00	0.00	761.50	810.00	766.05	4.55	.36	.05	766.41	4.14	51.00	171.44
	15902.000	0.00	0.00	761.50	1100.00	766.71	5.21	.47	.09	767.17	4.14	51.00	204.96
	15951.000	0.00	0.00	761.70	485.00	765.10	3.40	.98	.37	766.08	4.08	19.00	60.94
	15951.000	0.00	0.00	761.70	720.00	765.56	3.86	1.66	.67	767.22	4.08	19.00	69.65
*	15951.000	0.00	0.00	761.70	810.00	765.72	4.02	1.93	.79	767.65	4.08	19.00	72.63
*	15951.000	0.00	0.00	761.70	1100.00	766.58	4.88	2.37	.95	768.95	4.08	19.00	89.03
	15952.000	769.50	769.60	761.70	485.00	765.13	3.43	.97	.00	766.10	0.00	19.00	61.21
	15952.000	769.50	769.60	761.70	720.00	766.07	4.37	1.26	.11	767.35	0.00	19.00	79.25
	15952.000	769.50	769.60	761.70	810.00	766.56	4.86	1.30	.19	767.86	0.00	19.00	88.63
*	15952.000	769.50	769.60	761.70	1100.00	767.59	5.89	1.61	.23	769.20	0.00	19.00	108.09
	15980.000	769.50	769.60	761.70	485.00	765.73	4.03	.69	.09	766.42	0.00	19.00	72.97
	15980.000	769.50	769.60	761.70	720.00	766.75	5.05	.94	.10	767.70	0.00	19.00	92.31
	15980.000	769.50	769.60	761.70	810.00	767.16	5.46	1.02	.08	768.18	0.00	19.00	99.95
	15980.000	769.50	769.60	761.70	1100.00	768.26	6.56	1.28	.10	769.54	0.00	19.00	120.97
	15981.000	0.00	0.00	761.70	485.00	765.74	4.04	.68	.00	766.42	0.00	19.00	73.03
	15981.000	0.00	0.00	761.70	720.00	766.76	5.06	.94	.00	767.71	0.00	19.00	92.44
	15981.000	0.00	0.00	761.70	810.00	767.17	5.47	1.02	.00	768.19	0.00	19.00	100.11
	15981.000	0.00	0.00	761.70	1100.00	768.27	6.57	1.28	.00	769.56	0.00	19.00	121.13
	16030.000	0.00	0.00	762.20	485.00	766.62	4.42	.13	.17	766.75	10.20	83.46	178.99
	16030.000	0.00	0.00	762.20	720.00	767.95	5.75	.11	.25	768.07	10.20	119.00	321.42
	16030.000	0.00	0.00	762.20	810.00	768.45	6.25	.10	.27	768.56	10.20	119.00	381.35
	16030.000	0.00	0.00	762.20	1100.00	769.90	7.70	.09	.36	769.98	10.20	119.00	552.93
	16240.000	0.00	0.00	764.00	485.00	767.13	3.13	.36	.11	767.49	8.57	45.61	101.30
	16240.000	0.00	0.00	764.00	720.00	768.21	4.21	.34	.11	768.54	8.57	75.61	162.83
	16240.000	0.00	0.00	764.00	810.00	768.65	4.65	.31	.10	768.96	8.57	92.56	199.74
	16240.000	0.00	0.00	764.00	1100.00	770.01	6.01	.22	.07	770.23	8.57	145.07	361.27
	16450.000	0.00	0.00	765.90	485.00	768.86	2.96	.42	.03	769.28	9.05	44.66	93.36
	16450.000	0.00	0.00	765.90	720.00	769.42	3.52	.57	.12	769.99	9.05	50.35	119.35
	16450.000	0.00	0.00	765.90	810.00	769.63	3.73	.61	.15	770.24	9.05	56.86	130.67
	16450.000	0.00	0.00	765.90	1100.00	770.47	4.57	.61	.19	771.08	9.05	89.34	192.15

SUMMARY OF ERRORS

FORM 1411 GR PRINTED BY NOTARY MANIFOLD FORMS.
PRINTED IN U.S.A.

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 CAUTION  SECNO=   880.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   880.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   880.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   880.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   880.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=   880.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   880.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   880.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=   880.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   880.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

 CAUTION  SECNO=  5475.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
 CAUTION  SECNO=  5475.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=  6526.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  6526.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

 CAUTION  SECNO=  7220.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  7220.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

 CAUTION  SECNO=  8330.000  PROFILE= 4  WSEL ASSUMED BASED ON MIN DIFF
 CAUTION  SECNO=  8330.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=12260.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
 CAUTION  SECNO=12260.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=15951.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=15951.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=15951.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=15951.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=15951.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=15952.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
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FORM 1411 C. PRINTED BY ROTARY MANIFOLD FORMS.

PRINTED IN U.S.A.

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR    01,02
  MODIFICATION -  50,51,52,53
**************************************************
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FORM 1411 GP PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: AVON TOWNSHIP

3) WATERCOURSE: STONY CREEK

4) DOCUMENT TYPE: SUMMARY - NATURAL

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

STONY CREEK

SUMMARY PRINTOUT

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	0.000	0.00	0.00	685.00	1215.00	693.13	8.13	.01	0.00	693.14	0.00	352.00	1771.24
	150.000	0.00	0.00	687.00	1215.00	693.14	6.14	.06	.02	693.19	13.33	276.00	839.27
	341.000	0.00	0.00	686.60	1215.00	693.26	6.66	.09	.01	693.35	-2.09	181.00	666.41
	533.000	0.00	0.00	686.10	1215.00	693.39	7.29	.17	.04	693.56	-2.60	87.00	432.71
	582.000	0.00	0.00	686.00	1215.00	693.35	7.35	.45	.14	693.81	-2.04	61.00	225.05
	583.000	701.40	695.40	686.00	1215.00	693.36	7.36	.45	.00	693.81	0.00	61.00	225.26
	600.000	701.40	695.40	686.00	1215.00	693.45	7.45	.43	.01	693.88	0.00	61.00	230.58
	601.000	0.00	0.00	686.00	1215.00	693.46	7.46	.43	.00	693.89	0.00	61.00	231.01
	650.000	0.00	0.00	686.70	1215.00	693.99	7.29	.07	.11	694.07	14.29	166.00	677.22
	765.000	0.00	0.00	688.40	1215.00	694.04	5.64	.23	.08	694.26	14.78	189.00	433.36
*	880.000	0.00	0.00	690.00	1215.00	694.74	4.74	.79	.28	695.53	13.91	131.00	233.38
	1021.000	0.00	0.00	689.80	1215.00	696.00	6.20	.52	.08	696.51	-1.42	61.00	247.18
	1070.000	0.00	0.00	689.70	1215.00	696.22	6.52	.79	.14	697.02	-2.04	36.50	170.17
	1071.000	704.60	700.90	689.70	1215.00	696.24	6.54	.79	.00	697.02	0.00	36.50	170.54
	1100.000	704.60	702.30	689.70	1215.00	696.42	6.72	.73	.02	697.15	0.00	36.50	177.46
	1101.000	0.00	0.00	689.70	1215.00	696.43	6.73	.73	.00	697.16	0.00	36.50	177.56
	1150.000	0.00	0.00	689.70	1215.00	697.36	7.66	.03	.21	697.39	0.00	135.00	895.66
	1620.000	0.00	0.00	690.70	1215.00	697.45	6.75	.01	.00	697.47	2.13	265.14	1263.78
	1835.000	0.00	0.00	693.30	1215.00	697.47	4.17	.09	.04	697.57	12.09	158.73	491.99
	2050.000	0.00	0.00	694.10	1215.00	697.81	3.71	.15	.03	697.97	3.72	210.87	429.78

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SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
2265.000	0.00	0.00	694.90	1215.00	698.48	3.58	.31	.08	698.78	3.72	192.23	326.94
2480.000	0.00	0.00	695.80	1215.00	699.84	4.04	.47	.08	700.32	4.19	214.85	293.77
3180.000	0.00	0.00	699.10	1215.00	703.87	4.77	.17	.09	704.04	4.71	260.31	466.03
3530.000	0.00	0.00	700.80	1215.00	705.56	4.76	.90	.37	706.46	4.86	66.07	162.08
3880.000	0.00	0.00	702.50	1215.00	708.48	5.98	.36	.16	708.84	4.86	163.13	346.49
4580.000	0.00	0.00	705.80	1210.00	711.43	5.63	.50	.07	711.93	4.71	153.39	291.27
5475.000	0.00	0.00	710.70	1210.00	716.29	5.59	.52	.01	716.80	5.47	152.27	285.16
6370.000	0.00	0.00	715.60	1210.00	720.31	4.71	.24	.08	720.55	5.47	102.00	315.49
6477.000	0.00	0.00	715.50	1210.00	720.62	5.12	.73	.24	721.35	-.93	50.00	176.54
6526.000	0.00	0.00	715.50	1210.00	720.75	5.25	1.93	.60	722.68	.00	24.00	108.58
6527.000	725.80	726.80	715.50	1210.00	721.10	5.60	1.67	.08	722.77	0.00	24.00	116.77
6560.000	725.80	726.80	715.50	1210.00	721.94	6.44	1.21	.14	723.15	0.00	24.00	137.08
6561.000	0.00	0.00	715.50	1210.00	721.95	6.45	1.21	.00	723.16	0.00	24.00	137.28
6640.000	0.00	0.00	715.90	1210.00	723.48	7.58	.05	.35	723.54	8.16	124.00	707.48
6762.000	0.00	0.00	717.20	1210.00	723.52	6.32	.07	.01	723.59	8.55	175.00	649.42
6915.000	0.00	0.00	718.50	1210.00	723.52	5.02	.32	.13	723.85	8.50	96.86	282.50
7067.000	0.00	0.00	719.80	1210.00	723.95	4.15	1.28	.48	725.23	8.55	52.86	133.31
7220.000	0.00	0.00	721.10	1210.00	726.35	5.25	1.16	.04	727.51	8.50	42.84	139.91
7351.000	0.00	0.00	721.80	1210.00	728.02	6.22	.67	.15	728.69	5.34	51.16	184.92
7400.000	0.00	0.00	722.10	1210.00	728.40	6.30	.54	.04	728.94	6.12	36.00	205.24
7401.000	733.90	731.00	722.10	1210.00	728.41	6.31	.54	.00	728.95	0.00	36.00	205.40
7430.000	733.90	731.00	722.10	1210.00	728.51	6.41	.52	.00	729.03	0.00	36.00	208.65
7431.000	0.00	0.00	722.10	810.00	728.92	6.82	.20	.10	729.13	0.00	36.00	224.01
7480.000	0.00	0.00	722.50	810.00	728.96	6.46	.26	.03	729.22	8.16	89.32	216.26
7880.000	0.00	0.00	725.10	810.00	730.02	4.92	.64	.19	730.66	6.50	41.28	126.18
8330.000	0.00	0.00	728.00	810.00	732.64	4.64	.39	.07	733.03	6.44	54.70	160.72
9150.000	0.00	0.00	732.10	810.00	736.45	4.35	.48	.04	736.93	5.00	52.69	145.15
9970.000	0.00	0.00	736.20	810.00	740.14	3.94	.41	.02	740.55	5.00	51.65	160.71
10680.000	0.00	0.00	740.00	810.00	743.39	3.39	.59	.09	743.98	5.35	49.12	132.79

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	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
	11390.000	0.00	0.00	743.80	810.00	747.75	3.95	.31	.08	748.06	5.35	331.71	272.76
	12260.000	0.00	0.00	747.60	810.00	751.83	4.03	.27	.01	752.09	4.60	332.70	296.21
	13130.000	0.00	0.00	751.80	810.00	755.83	4.03	.32	.02	756.15	4.60	296.65	274.26
	14000.000	0.00	0.00	752.60	810.00	758.96	6.36	.27	.01	759.24	.92	91.12	219.01
	14770.000	0.00	0.00	756.30	810.00	761.76	5.46	.49	.11	762.25	4.81	61.62	149.52
	15540.000	0.00	0.00	760.00	810.00	764.94	4.94	.25	.07	765.19	4.81	103.79	228.27
	15902.000	0.00	0.00	761.50	810.00	766.05	4.55	.36	.05	766.41	4.14	51.00	171.24
*	15951.000	0.00	0.00	761.70	810.00	765.72	4.02	1.93	.79	767.65	4.08	19.00	72.62
	15952.000	769.50	769.60	761.70	810.00	766.56	4.86	1.30	.19	767.86	0.00	19.00	88.64
	15980.000	769.50	769.60	761.70	810.00	767.16	5.46	1.02	.08	768.18	0.00	19.00	99.95
	15981.000	0.00	0.00	761.70	810.00	767.17	5.47	1.02	.00	768.19	0.00	19.00	100.12
	16030.000	0.00	0.00	762.20	810.00	768.45	6.25	.10	.27	768.56	10.20	119.00	381.35
	16240.000	0.00	0.00	764.00	810.00	768.65	4.65	.31	.10	768.96	8.57	92.57	199.74
	16450.000	0.00	0.00	765.90	810.00	769.63	3.73	.61	.15	770.24	9.05	56.86	130.67

SUMMARY OF ERRORS

CAUTION SECNO= 880.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 880.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 880.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=15951.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO=15951.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

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FORM 1411 GP PRINTED BY ROTARY MANIFOLD FORMS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR    01,02
  MODIFICATION -  50,51,52,53
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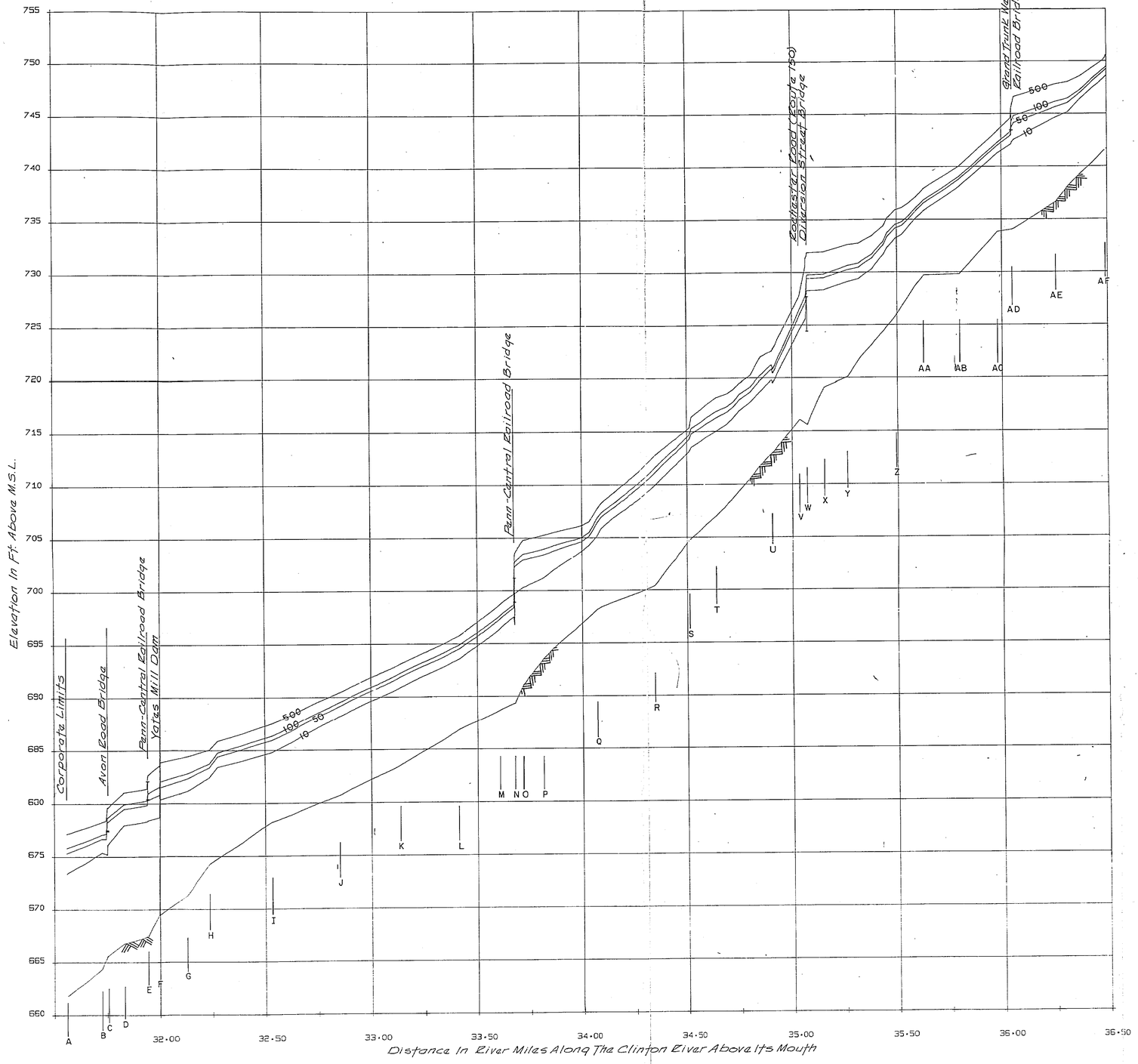
FORM 1411 GB PRINTED BY ROTARY MANIFOLD FORMS.

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**** 7000 SCOPE 2.1 LVL   221   11/11/78  17.42.56  12/14/78      78348

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=4538

HH.MM.SS CPU SECOND ORIGIN
          15.44.57.MFA. JO    LV461 NOSBE B+W LYNRELEASE447 02/04/78
15.44.40 00000.012 MFZ.      -AVOJO01,T20,STMFZ.   AVON TWP FIS
15.44.41 00000.028 USR.       CHARGE.810-0037-45-78-5801,JANDA,001,D,JANDA.
15.44.41 00000.063 JOB.       ATTACH,LGO,HEC2N76V2,ID=HEC.
15.44.42 00000.069 MFZ.         PF254 - CYCLE     1 ATTACHED FROM SN=SYSTEM
15.44.42 00000.069 LOD.      -LGO(PL=999999).
15.49.05 00000.892 MFZ.         LD610 - FLS REQUIRED TO LOAD = 0027777 OU.COC
15.49.05 00000.896 MFZ.         LD603 - EXECUTION INITIATED OS.EXP
15.49.05 00000.896 USR.       FORTRAN LIBRARY 439           08/20/78
15.49.09 00002.003 USR.          STOP
15.49.09 00002.003 USR.             1.105 CP SECONDS EXECUTION TIME
15.49.09 00002.007 MFZ.          RM770 - MAXIMUM ACTIVE FILES                    7
15.49.09 00002.008 MFZ.          RM771 - OPEN/CLOSE CALLS                       24
15.49.09 00002.008 MFZ.          RM772 - DATA TRANSFER CALLS                 3,353
15.49.09 00002.008 MFZ.          RM773 - CONTROL/POSITIONING CALLS              48
15.49.09 00002.008 MFZ.          RM774 - BM DATA TRANSFER CALLS                444
15.49.09 00002.008 MFZ.          RM775 - BM CONTROL/POSITIONING CALLS           67
15.49.09 00002.009 MFZ.          RM776 - QUEUE MANAGER CALLS                    96
15.49.09 00002.009 MFZ.          RM777 - RECALL CALLS                           74
15.49.09 00002.009 MFZ.          BWMSG - NUMBER OF TAPES MOUNTED
15.49.09 00002.010 MFZ.          SRU                    2.159  SEC
15.49.09 00002.010 MFZ.          SCM                   40.381  KWS
15.49.09 00002.010 MFZ.          I/O                    0.045  MW
15.49.09 00002.010 MFZ.          RMS                    0.041  MWS
15.49.09 00002.010 MFZ.          USER                   0.821  SEC
15.49.09 00002.011 MFZ.          JOB                    2.012  SEC
15.49.09 00002.011 MFZ.          SC050 - 000114 SC/LC SWAPS
15.49.09 00002.011 MFZ.       AVOJOPW   AVOJOPW
15.49.09.EJ  END OF JOB
AVOJOPW  JANDA                 12/14/78  15.44.41  7600    JO
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I ORIT 1411 GO PRINTED BY ROTARY MANIFOLD FORMS



Job No. | Contr. No. | Cont Tab No. | Type of Job No. | Sheet No. / Sheet No. of Sheets | As Built | Section | City No. in County | Twp. No. in County | Village No. in County | County Numb. No. in State | State Construction Contract | Job Code No.

TOPOGRAPHIC INFORMATION
DATE OBTAINED
DATE UPDATED

OWNER
UTILITIES
APPR. AGENCIES
BIDDERS

DRAWING ISSUE DATES
GAS | ELEC | PIPE LINE

CHECKED
P.M.
O.A.
CONSTR.

DRAWN:
DESIGN:

SCALE VERT. 1" = 5'
HORIZ. 1" = 0.25 MI.

REVISIONS

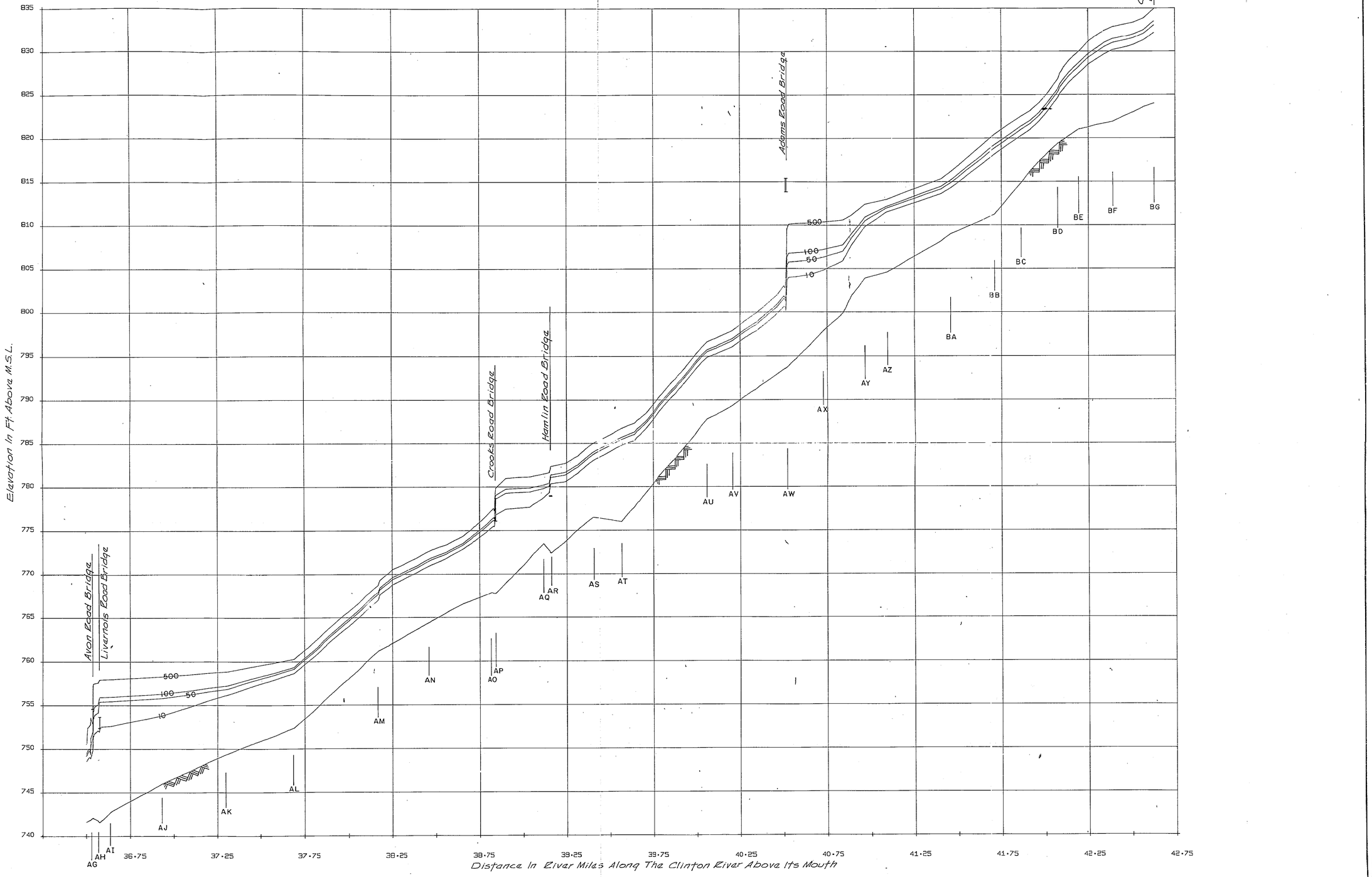
MARK	ADDENDUM CHANGE ORDER	DATE	MARK	ADDENDUM CHANGE ORDER	DATE	MARK	ADDENDUM CHANGE ORDER	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

AVON TOWNSHIP - ROCHESTER FIS
OAKLAND COUNTY, MICHIGAN

CLINTON RIVER

JOB NO. 5850-01/07
SHEET NO. 1



Job No. | Contr. No. | Cost Tab No. | Type of Job No. | Sheet No. / No. of Sheets | As Built | Section | City No. in County | Twp. No. in County | Village No. in County | County No. in State | State | Construction Contract | Job Code No.

TOPOGRAPHIC INFORMATION
DATE OBTAINED
DATE UPDATED

	DATE	BY
V1		

DRAWING ISSUE DATES

	T&L	ELEC	GAS	PIPE LINE		
OWNER						
UTILITIES						
APPR. AGENCIES						
BIDDERS						

CHECKED	DATE	BY
P.W.		
O.A.		
CONSTR.		

DRAWN:
DESIGN:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 0.25 MI.

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

AVON TOWNSHIP - ROCHESTER FIS
OAKLAND COUNTY, MICHIGAN

CLINTON RIVER

JOB NO. 5850-01/07

SHEET NO. 2

AVON TWP FIS / CITY OF ROCHESTER FIS
5850-01/07
CLINTON RIVER AND GALLOWAY CREEK
SCALE 1" = 800'
FLOODWAY (Natural)
FLOODED OUTLINE
FLOODWAY (Encroached)

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BEVERLY HILLS VILLAGE

3) WATERCOURSE: RIVER ROUGE

4) DOCUMENT TYPE: 10 YR NATURAL

00BREAK00

BEVJOV1 — JANDA —

12/14/77 15.41.51 7900 — 10 —

RECEIVED
JAN 24 1978
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          VILLAGE OF BEVERLY HILLS F.I.S., 5670-01, RICHARD ZANOTTI-P.M.
T2          10-YEAR FLOOD, FLOW=1200 C.F.S.
T3         RIVER ROUGE

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        -1.        2.         0.         0.  0.000000       0.00       0.0         0.    658.400      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

J3       1.000     10.000     11.000     12.000     14.000      5.000      4.000      0.000      0.000      0.000
NC        .035       .035       .035       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000   1200.000   2230.000   2800.000   4450.000      0.000      0.000      0.000      0.000      0.000
NH       3.000       .085    243.000       .040    263.000       .085    398.000      0.000      0.000      0.000

X1      20.322     11.000    235.000    269.000    860.000    690.000    950.000      0.000       .500      0.000
GR     679.200      0.000    659.500     50.000    658.800    135.000    655.600    635.000    653.700    244.000
GR     652.100    253.000    653.400    262.000    657.300    269.000    659.700    335.000    660.500    367.000
GR     667.700   -398.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1      20.350      0.000      0.000      0.000    140.000    110.000    150.000      0.000       .500      0.000
NH       3.000       .085    147.000       .037    191.000       .035    688.000      0.000      0.000      0.000

X1      20.445     16.000    145.000    197.000    300.000    600.000    500.000      0.000      0.000      0.000
GR     672.600      0.000    663.400     45.000    660.000     80.000    658.300    145.000    655.600    149.000
GR     654.600    159.000    654.100    169.000    653.900    179.000    655.800    189.000    659.400    197.000
GR     659.100    245.000    660.000    345.000    658.800    445.000    659.300    545.000    661.700    645.000
GR     670.400    688.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NH       3.000       .080    344.000       .037    374.000       .080    715.000      0.000      0.000      0.000

X1      20.483     16.000    340.000    380.000    150.000    400.000    200.000      0.000      0.000      0.000
GR     670.100      0.000    663.500     40.000    660.900     60.000    659.800    140.000    659.400    240.000
GR     659.800    340.000    655.300    346.000    654.400    356.000    654.900    366.000    655.800    373.000
GR     660.600    380.000    660.500    440.000    660.700    540.000    659.000    640.000    662.200    534.000
GR     671.300    715.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NH       3.000       .085    317.000       .037    343.000       .085    577.000      0.000      0.000      0.000

X1      20.578     14.000    312.000    355.000    750.000    400.000    500.000      0.000      0.000      0.000
X3       0.000      0.000      0.000    120.000      0.000    500.000      0.000      0.000      0.000      0.000
GR     671.300      0.000    667.000     17.000    662.400    112.000    661.900    212.000    659.300    312.000
GR     655.900    318.000    654.900    327.000    655.700    337.000    656.400    342.000    661.200    355.000
GR     660.400    412.000    661.100    512.000    662.700    555.000    669.700    577.000      0.000      0.000

X1      20.691      0.000      0.000      0.000    650.000    500.000    600.000      0.000      1.300      0.000
NH       3.000       .045    250.000       .050    353.000       .040    377.000       .035    435.000      0.000

X1      20.767     10.000    350.000    422.000    200.000    450.000    400.000      0.000      0.000      0.000
GR     683.500      0.000    670.500     50.000    668.800    150.000    662.700    250.000    661.700    350.000
GR     657.800   -354.000    657.500    364.000    658.100    376.000    672.500    422.000    676.000    435.000
NH       4.000       .045    100.000       .055    210.000       .037    230.000       .040    500.000      0.000
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GR	674.200	0.000	665.600	100.000	664.900	200.000	658.700	211.000	657.300	220.000
GR	659.400	230.000	661.900	235.000	663.600	300.000	665.600	400.000	677.900	500.000
NH	3.000	.060	276.000	.040	312.500	.045	762.500	0.000	0.000	0.000
X1	20.938	90.000	276.000	312.500	250.000	400.000	400.000	0.000	0.000	0.000
GR	675.400	0.000	673.400	9.500	671.400	19.000	669.400	28.500	667.900	38.000
GR	667.700	47.500	667.500	57.100	667.300	66.600	667.100	76.100	666.800	85.600
GR	666.600	95.100	666.300	104.600	666.000	114.200	665.800	123.700	665.500	133.200
GR	665.400	142.700	665.400	152.200	665.400	161.700	665.400	171.300	665.400	180.800
GR	665.300	190.300	665.300	199.800	665.300	209.300	665.300	218.800	665.300	228.400
GR	665.100	237.900	664.900	247.400	664.700	256.900	664.500	266.400	664.300	276.000
GR	663.600	277.200	663.000	278.400	662.300	279.600	661.700	280.800	661.000	282.000
GR	660.400	283.200	660.000	284.500	659.600	285.700	659.300	286.900	659.100	288.100
GR	659.100	289.300	659.000	290.500	658.900	291.800	658.300	293.000	658.800	294.200
GR	658.700	295.400	658.600	296.600	658.800	297.800	658.900	299.100	659.000	300.300
GR	659.200	301.500	659.300	302.700	659.700	303.900	660.200	305.100	660.600	306.400
GR	661.100	307.600	661.700	308.800	662.300	310.000	662.900	311.200	663.500	312.500
GR	663.600	327.500	663.800	342.500	663.900	357.400	664.000	372.400	664.100	387.400
GR	664.200	402.400	664.300	417.400	664.400	432.400	664.500	447.400	664.600	462.400
GR	664.900	477.400	665.100	492.400	665.300	507.400	665.500	522.400	665.700	537.400
GR	665.900	552.400	666.100	567.400	666.300	582.400	666.600	597.400	667.200	612.400
GR	667.800	627.400	668.300	642.400	668.900	657.400	669.600	672.400	670.400	687.400
GR	671.200	702.400	672.100	717.400	672.900	732.400	674.700	747.400	677.100	762.500
QT	4.000	1195.000	2105.000	2600.000	3895.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.065	358.000	.040	381.000	.085	1025.000	0.000	0.000	0.000
X1	21.013	17.000	352.000	390.000	250.000	400.000	400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	190.000	0.000	553.000	0.000	0.000	0.000	0.000
GR	676.600	0.000	664.100	45.000	664.800	90.000	665.300	190.000	665.600	290.000
GR	663.700	352.000	659.700	360.000	659.900	370.000	660.300	380.000	665.200	390.000
GR	665.300	490.000	665.200	590.000	666.300	690.000	667.400	790.000	667.600	890.000
GR	670.400	990.000	676.400	1025.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.071	0.000	0.000	0.000	255.000	280.000	305.000	0.000	.550	0.000
X3	0.000	0.000	0.000	277.000	0.000	465.000	0.000	0.000	0.000	0.000
X1	21.096	0.000	0.000	0.000	110.000	120.000	130.000	0.000	.250	0.000
X3	0.000	0.000	0.000	310.000	0.000	433.000	0.000	0.000	0.000	0.000
X1	21.111	0.000	0.000	0.000	65.000	75.000	80.000	0.000	.140	0.000
X3	0.000	0.000	0.000	332.000	0.000	410.000	0.000	0.000	0.000	0.000
X1	21.121	0.000	0.000	0.000	45.000	50.000	55.000	0.000	.100	0.000
X3	0.000	0.000	0.000	343.000	0.000	399.000	0.000	0.000	0.000	0.000
X1	21.124	0.000	0.000	0.000	10.000	10.000	15.000	0.000	.020	0.000
X3	0.000	0.000	0.000	347.000	0.000	395.000	0.000	0.000	0.000	0.000
X1	21.126	0.000	0.000	0.000	10.000	10.000	10.000	0.000	.020	0.000
X3	0.000	0.000	0.000	350.000	0.000	393.000	0.000	0.000	0.000	0.000
NH	3.000	.045	200.000	.040	239.000	.045	400.000	0.000	0.000	0.000
X1	21.128	19.000	200.000	239.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	676.800	0.000	675.100	100.000	675.000	200.000	664.500	200.000	661.400	210.000
GR	661.200	220.000	660.800	220.000	661.200	230.000	661.400	236.000	663.400	239.000
GR	674.800	239.000	674.400	300.000	674.500	400.000	674.600	500.000	674.300	600.000
GR	674.400	700.000	674.600	800.000	675.300	900.000	677.100	1000.000	0.000	0.000
NC	.025	.025	.025	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	21.129	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	19.000	0.000	676.800	0.000	100.000	675.100	0.000	200.000	675.000	0.000
BT	200.000	675.000	671.600	210.000	675.000	671.500	220.000	674.900	671.400	225.000
BT	674.900	671.400	230.000	674.800	671.400	236.000	674.800	671.300	239.000	674.800
BT	671.300	239.000	674.800	0.000	300.000	674.400	0.000	400.000	674.500	0.000
BT	500.000	674.600	0.000	600.000	674.300	0.000	700.000	674.400	0.000	800.000

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X1	21.136	0.000	0.000	0.000	44.000	44.000	44.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.045	200.000	.040	239.000	.045	400.000	0.000	0.000	0.000
X1	21.137	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	4.000	.045	200.000	.065	347.000	.035	370.000	.085	400.000	0.000
X1	21.143	12.000	325.000	377.000	64.000	24.000	33.000	0.000	1.900	0.000
GR	674.800	0.000	675.300	100.000	676.300	200.000	674.500	257.000	669.400	300.000
GR	668.300	325.000	661.300	348.000	659.200	354.000	658.600	361.000	659.000	368.000
GR	669.500	377.000	674.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.146	0.000	0.000	0.000	40.000	9.000	15.000	0.000	-.150	0.000
X1	21.148	0.000	0.000	0.000	40.000	8.000	15.000	0.000	-.150	0.000
X1	21.158	0.000	0.000	0.000	130.000	27.000	50.000	0.000	-.400	0.000
X1	21.184	0.000	0.000	0.000	325.000	81.000	136.000	0.000	-1.200	0.000
NH	3.000	.065	303.000	.040	385.000	.065	495.000	0.000	0.000	0.000
X1	21.233	46.000	303.000	390.000	510.000	160.000	250.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	218.000	0.000	447.000	0.000	0.000	0.000	0.000
GR	677.300	0.000	673.700	18.000	675.000	118.000	673.000	218.000	670.300	303.000
GR	662.200	310.800	662.100	312.000	662.100	314.000	662.100	317.000	662.100	319.000
GR	662.100	322.000	662.100	324.000	662.200	325.200	662.200	325.200	663.400	328.800
GR	663.400	328.800	663.400	330.000	663.400	332.000	663.400	335.000	663.400	337.000
GR	663.400	340.000	663.400	342.000	663.400	343.200	663.400	343.200	662.100	345.800
GR	662.100	345.800	661.800	347.000	661.800	349.000	661.800	352.000	661.800	354.000
GR	661.800	357.000	661.800	359.000	662.100	360.200	662.100	360.200	662.400	361.800
GR	662.400	361.800	661.600	363.000	661.200	365.000	661.100	368.000	661.100	370.000
GR	661.200	373.000	661.600	375.000	662.400	376.200	672.900	390.000	673.500	418.000
GR	674.300	495.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.440	3.040	0.000	38.800	0.000	341.100	0.000	661.100	661.100
NH	3.000	.025	303.000	.031	390.000	.025	495.000	0.000	0.000	0.000
X1	21.250	0.000	0.000	0.000	90.000	90.000	90.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	669.900	672.900	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	218.000	0.000	447.000	0.000	0.000	0.000	0.000
BT	43.000	218.000	673.000	0.000	310.800	672.900	0.000	310.800	672.900	664.200
BT	312.000	672.900	666.700	314.000	672.900	668.700	317.000	672.900	669.700	319.000
BT	672.900	669.700	322.000	672.900	668.700	324.000	672.900	666.700	325.200	672.900
BT	664.200	325.200	672.900	662.200	328.800	673.000	663.400	328.800	673.000	663.900
BT	330.000	673.000	666.400	332.000	673.000	668.400	335.000	673.000	669.400	337.000
BT	673.000	669.400	340.000	673.000	668.400	342.000	673.000	666.400	343.200	673.000
BT	663.900	343.200	673.000	663.400	345.800	673.000	662.100	345.800	673.000	664.100
BT	347.000	673.000	666.600	349.000	673.000	668.600	352.000	673.100	669.600	354.000
BT	673.100	669.600	357.000	673.100	668.600	359.000	673.100	666.600	360.200	673.100
BT	664.100	360.200	673.100	662.100	361.800	673.100	662.400	361.800	673.100	664.400
BT	363.000	673.100	666.900	365.000	673.100	668.900	368.000	673.200	669.900	370.000
BT	673.200	669.900	373.000	673.200	668.900	375.000	673.200	666.900	376.200	673.200
BT	664.400	376.200	673.200	0.000	418.000	673.500	0.000	447.000	673.800	0.000
NH	5.000	.032	195.000	.055	211.000	.035	241.000	.055	250.000	.032
NH	426.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.354	11.000	195.000	250.000	500.000	550.000	550.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000
GR	676.700	0.000	675.100	50.000	674.500	150.000	673.800	195.000	663.300	212.000
GR	661.800	220.000	661.200	230.000	663.100	240.000	671.300	250.000	674.700	350.000
GR	678.900	426.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.075	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.439	20.000	50.000	84.000	400.000	350.000	450.000	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

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GR	665.100	58.000	664.500	63.000	665.000	68.000	665.000	73.000	666.300	78.000
GR	668.800	84.000	670.800	100.000	671.100	150.000	671.400	200.000	671.400	300.000
GR	673.000	400.000	673.300	500.000	674.300	600.000	675.100	650.000	685.200	750.000
NC	.050	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.550	3.080	0.000	25.530	0.000	153.200	0.000	664.500	664.500
X1	21.441	0.000	0.000	0.000	8.000	8.000	8.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	670.800	670.800	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	670.800	670.800	0.000
BT	16.000	0.000	671.400	0.000	20.000	671.100	0.000	34.000	670.800	0.000
BT	50.000	673.300	668.900	50.000	673.300	670.500	84.000	673.300	670.500	84.000
BT	673.300	668.800	100.000	670.800	0.000	150.000	671.100	0.000	200.000	671.400
BT	0.000	300.000	671.400	0.000	400.000	673.000	0.000	500.000	673.300	0.000
BT	600.000	674.300	0.000	650.000	675.100	0.000	750.000	685.200	0.000	0.000
NH	3.000	.070	19.000	.040	57.000	.075	670.000	0.000	0.000	0.000
X1	21.581	15.000	0.000	59.000	400.000	350.000	740.000	0.000	0.000	0.000
GR	680.900	0.000	667.200	20.000	663.700	30.000	664.200	40.000	665.500	47.000
GR	666.500	56.000	671.300	59.000	671.100	100.000	671.400	200.000	671.400	300.000
GR	673.000	400.000	673.300	500.000	674.300	600.000	675.100	640.000	685.200	670.000
QT	4.000	1194.000	2080.000	2560.000	3820.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.070	50.000	.040	103.200	.075	627.500	0.000	0.000	0.000
X1	21.624	90.000	50.000	103.200	225.000	205.000	225.000	0.000	0.000	0.000
GR	681.500	0.000	681.400	1.700	681.400	3.400	681.300	5.100	681.200	6.800
GR	681.200	8.600	681.100	10.300	681.000	12.000	681.000	13.700	680.900	15.500
GR	680.800	17.200	680.800	18.900	680.700	20.600	680.600	22.400	680.600	24.100
GR	680.500	25.800	680.400	27.500	680.400	29.300	680.300	31.000	680.200	32.700
GR	680.200	34.400	680.100	36.200	680.000	37.900	680.000	39.600	679.900	41.300
GR	679.800	43.100	679.800	44.800	679.700	46.500	679.600	48.200	679.500	50.000
GR	678.400	51.700	677.200	53.500	676.000	55.300	674.800	57.000	673.700	58.800
GR	672.500	60.600	671.300	62.400	670.100	64.100	669.000	65.900	667.800	67.700
GR	667.000	69.500	666.500	71.200	666.000	73.000	665.500	74.800	664.900	76.600
GR	664.800	78.300	664.900	80.100	665.000	81.900	665.100	83.700	665.100	85.400
GR	665.400	87.200	665.700	89.000	666.000	90.800	666.200	92.500	666.600	94.300
GR	667.000	96.100	667.300	97.900	667.700	99.600	669.300	101.400	671.300	103.200
GR	671.800	120.700	671.700	138.100	671.800	155.600	671.900	173.100	671.900	190.600
GR	672.000	208.000	672.100	225.500	672.100	243.000	672.200	260.500	672.200	277.900
GR	672.300	295.400	672.400	312.900	672.600	330.400	672.900	347.800	673.200	365.300
GR	673.500	382.800	673.700	400.300	673.800	417.700	674.000	435.200	674.200	452.700
GR	674.300	470.200	674.500	487.600	674.800	505.100	675.000	522.600	675.300	540.100
GR	675.500	557.500	675.900	575.000	676.300	592.500	679.000	610.000	684.200	627.500
NH	3.000	.070	100.000	.040	147.500	.045	585.000	0.000	0.000	0.000
X1	21.666	90.000	100.000	147.500	225.000	205.000	225.000	0.000	0.000	0.000
GR	682.200	0.000	682.000	3.400	681.900	6.800	681.700	10.300	681.600	13.700
GR	681.500	17.200	681.300	20.600	681.200	24.100	681.100	27.500	680.900	31.000
GR	680.800	34.400	680.700	37.900	680.500	41.300	680.400	44.800	680.300	48.200
GR	680.100	51.700	680.000	55.100	679.900	58.600	679.700	62.100	679.600	65.500
GR	679.500	68.900	679.300	72.400	679.200	75.800	679.100	79.300	678.900	82.700
GR	678.800	86.200	678.700	89.600	678.500	93.100	678.400	96.500	678.300	100.000
GR	677.200	101.500	676.200	103.100	675.200	104.700	674.200	106.300	673.200	107.900
GR	672.200	109.400	671.200	111.000	670.200	112.600	669.200	114.200	668.200	115.800
GR	667.500	117.400	667.100	118.900	666.800	120.500	666.400	122.100	666.000	123.700
GR	665.900	125.300	666.000	126.900	666.000	128.400	666.100	130.000	666.200	131.600
GR	666.400	133.200	666.600	134.800	666.800	136.400	667.000	137.900	667.500	139.500
GR	668.000	141.100	668.600	142.700	669.100	144.300	670.400	145.900	672.400	147.500
GR	672.400	162.000	672.400	176.600	672.500	191.200	672.600	205.800	672.700	220.400
GR	672.800	234.900	672.800	249.500	672.900	264.100	673.000	278.700	673.100	293.300
GR	673.200	307.900	673.300	322.400	673.600	337.000	673.800	351.600	674.100	366.200
GR	674.300	380.800	674.500	395.400	674.700	409.900	674.900	424.500	675.200	439.100
GR	675.400	453.700	675.700	468.300	676.000	482.900	676.300	497.400	676.600	512.000
GR	676.900	526.600	677.300	541.200	677.700	555.800	679.700	570.400	683.300	585.000
NH	3.000	.045	150.000	.040	191.700	.045	542.500	0.000	0.000	0.000
X1	21.708	90.000	150.000	191.700						

GR	682.800	0.000	682.600	5.100	682.400	10.300	682.200	15.500	682.000	20.600
GR	681.800	25.800	681.600	31.000	681.400	36.200	681.200	41.300	681.000	46.500
GR	680.800	51.700	680.600	56.800	680.400	62.000	680.200	67.200	680.000	72.400
GR	679.800	77.500	679.600	82.700	679.400	87.900	679.200	93.100	679.000	98.200
GR	678.800	103.400	678.600	108.600	678.400	113.700	678.200	118.900	678.000	124.100
GR	677.800	129.300	677.600	134.400	677.400	139.600	677.200	144.800	677.000	150.000
GR	676.100	151.300	675.300	152.700	674.400	154.100	673.600	155.500	672.800	156.900
GR	671.900	158.300	671.100	159.700	670.300	161.100	669.400	162.500	668.600	163.900
GR	668.000	165.300	667.800	166.600	667.500	168.000	667.300	169.400	667.100	170.800
GR	667.000	172.200	667.000	173.600	667.000	175.000	667.100	176.400	667.200	177.800
GR	667.300	179.200	667.500	180.600	667.600	182.000	667.800	183.300	668.400	184.700
GR	669.100	186.100	669.800	187.500	670.500	188.900	671.500	190.300	673.000	191.700
GR	673.000	203.400	673.100	215.100	673.200	226.800	673.300	238.500	673.400	250.200
GR	673.500	261.800	673.600	273.500	673.700	285.200	673.800	296.900	674.000	308.600
GR	674.100	320.300	674.300	332.000	674.500	343.700	674.700	355.400	674.900	367.100
GR	675.100	378.800	675.300	390.500	675.500	402.100	675.800	413.800	676.200	425.500
GR	676.500	437.200	676.900	448.900	677.200	460.600	677.600	472.300	678.000	484.000
GR	678.300	495.700	678.700	507.400	679.200	519.100	680.300	530.800	682.400	542.500
NH	4.000	.035	200.000	.018	212.000	.033	229.000	.035	500.000	0.000
X1	21.731	9.000	200.000	236.000	125.000	115.000	120.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	130.000	0.000	435.000	0.000	0.000	0.000	0.000
GR	683.100	0.000	675.300	200.000	668.100	213.000	667.600	221.000	668.200	229.000
GR	673.200	236.000	674.000	300.000	675.900	393.000	681.100	500.000	0.000	0.000
NC	.033	.033	.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.731	11.000	204.000	236.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	130.000	0.000	435.000	0.000	0.000	0.000	0.000
BT	8.000	0.000	683.100	0.000	200.000	675.300	0.000	204.000	673.800	673.300
BT	236.000	673.800	673.300	236.000	673.800	0.000	300.000	674.000	0.000	393.000
BT	675.900	0.000	500.000	681.100	0.000	0.000	0.000	0.000	0.000	0.000
GR	683.100	0.000	675.300	200.000	673.300	204.000	668.100	213.000	667.600	221.000
GR	668.000	229.000	673.200	236.000	673.800	236.000	674.000	300.000	675.900	393.000
GR	681.100	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.733	0.000	0.000	0.000	8.000	8.000	8.000	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	130.000	0.000	435.000	0.000	0.000	0.000	0.000
NC	.032	.032	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.734	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	130.000	0.000	435.000	0.000	0.000	0.000	0.000
NH	4.000	.032	200.000	.018	212.000	.033	229.000	.032	500.000	0.000
X1	21.754	9.000	200.000	236.000	110.000	110.000	110.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	130.000	0.000	435.000	0.000	0.000	0.000	0.000
GR	683.500	0.000	675.700	200.000	668.500	213.000	668.100	221.000	668.600	229.000
GR	673.600	236.000	674.400	300.000	676.300	393.000	681.500	500.000	0.000	0.000
NH	4.000	.032	200.000	.020	212.000	.033	229.000	.032	500.000	0.000
X1	21.801	9.000	200.000	236.000	365.000	90.000	250.000	0.000	.400	0.000
X3	0.000	0.000	0.000	150.000	0.000	315.000	0.000	0.000	0.000	0.000
GR	683.500	0.000	675.700	200.000	668.500	213.000	669.100	221.000	668.600	229.000
GR	673.600	236.000	674.400	300.000	676.300	393.000	681.500	500.000	0.000	0.000
X1	21.824	0.000	0.000	0.000	150.000	60.000	125.000	0.000	.200	0.000
X3	0.000	0.000	0.000	175.000	0.000	275.000	0.000	0.000	0.000	0.000
NH	3.000	.035	411.000	.040	428.000	.035	500.000	0.000	0.000	0.000
X1	21.848	11.000	398.000	440.000	160.000	60.000	125.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	439.000	0.000	0.000	0.000	0.000
GR	686.400	0.000	683.500	100.000	682.000	200.000	681.700	300.000	674.400	398.000
GR	669.600	404.000	669.000	415.000	669.700	420.000	669.900	431.000	674.500	440.000
GR	685.700	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.580	3.000	0.000	36.100	0.000	332.000	0.000	669.000	669.000

X1	21.858	16.000	400.000	439.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	678.300	681.700	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	686.400	0.000	100.000	683.500	0.000	200.000	682.000	0.000
BT	300.000	681.700	0.000	400.000	683.000	0.000	400.000	683.000	678.300	405.000
BT	683.100	678.300	410.000	683.300	678.300	415.000	683.400	678.300	420.000	683.500
BT	678.300	425.000	683.700	678.300	430.000	683.800	678.300	435.000	683.900	678.300
BT	439.000	684.100	678.300	439.000	684.100	0.000	500.000	685.700	0.000	0.000
GR	686.400	0.000	683.500	100.000	682.000	200.000	681.700	300.000	683.000	400.000
GR	669.900	400.000	669.700	405.000	669.300	410.000	669.000	415.000	669.700	420.000
GR	669.800	425.000	669.700	430.000	670.500	435.000	671.700	439.000	684.100	439.000
GR	685.700	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.080	234.000	.037	265.000	.080	615.000	0.000	0.000	0.000
X1	21.862	15.000	233.000	275.000	18.000	22.000	20.000	0.000	1.060	0.000
X3	10.000	0.000	0.000	213.000	0.000	295.000	0.000	0.000	0.000	0.000
GR	693.800	0.000	675.300	49.000	677.500	75.000	677.800	175.000	675.200	233.000
GR	671.900	243.000	671.100	250.000	670.100	257.000	671.200	262.000	676.300	275.000
GR	677.300	375.000	677.600	475.000	678.600	523.000	684.500	575.000	697.300	615.000
X1	21.871	0.000	0.000	0.000	44.000	56.000	50.000	0.000	.110	0.000
X3	0.000	0.000	0.000	163.000	0.000	345.000	0.000	0.000	0.000	0.000
X1	21.953	0.000	0.000	0.000	390.000	472.000	430.000	0.000	.950	0.000
NH	3.000	.085	201.000	.040	235.000	.070	777.000	0.000	0.000	0.000
X1	22.047	15.000	201.000	242.000	150.000	900.000	500.000	0.000	0.000	0.000
GR	688.400	0.000	674.700	42.000	678.000	142.000	676.500	201.000	672.700	210.000
GR	672.000	217.000	672.400	227.000	672.600	235.000	677.700	242.000	677.500	342.000
GR	676.900	442.000	677.100	542.000	677.800	642.000	683.400	742.000	693.500	777.000
NH	3.000	.055	28.000	.037	40.000	.047	472.000	0.000	0.000	0.000
X1	22.170	10.000	0.000	62.000	600.000	700.000	650.000	0.000	0.000	0.000
GR	685.600	0.000	672.000	28.000	670.500	34.000	673.100	40.000	678.200	62.000
GR	680.200	162.000	679.800	262.000	680.300	362.000	683.700	462.000	685.600	472.000
X1	22.217	0.000	0.000	0.000	185.000	148.000	248.000	0.000	.930	0.000
X1	22.263	0.000	0.000	0.000	185.000	147.000	247.000	0.000	.920	0.000
NC	.055	.047	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.356	12.000	115.000	139.000	370.000	295.000	495.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	300.000	0.000	0.000	0.000	0.000
GR	690.300	0.000	683.600	65.000	681.800	115.000	675.100	115.000	674.600	121.000
GR	674.200	127.000	674.500	133.000	675.000	139.000	681.800	139.000	680.700	215.000
GR	682.000	315.000	682.100	330.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.037	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.357	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	300.000	0.000	0.000	0.000	0.000
BT	7.000	0.000	690.300	0.000	65.000	683.600	0.000	115.000	681.800	681.200
BT	139.000	681.800	681.200	215.000	680.700	0.000	315.000	682.000	0.000	330.000
BT	682.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.359	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	0.000	0.000	0.000	0.000	0.000	300.000	0.000	0.000	0.000	0.000
NC	.050	.045	.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.360	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	300.000	0.000	0.000	0.000	0.000
NH	3.000	.085	35.000	.037	68.000	.032	656.000	0.000	0.000	0.000
X1	22.435	13.000	17.000	75.000	349.000	299.000	399.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000

GR	675.300	67.000	680.300	75.000	682.200	175.000	682.600	275.000	683.700	375.000
GR	684.000	475.000	685.200	575.000	691.700	656.000	0.000	0.000	0.000	0.000
NH	3.000	.085	23.000	.037	58.000	.065	363.000	0.000	0.000	0.000
X1	22.586	13.000	23.000	66.000	700.000	650.000	800.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000
GR	693.300	0.000	687.800	10.000	682.000	23.000	678.200	27.000	677.600	38.000
GR	677.700	49.000	677.700	58.000	680.700	66.000	682.500	166.000	683.000	266.000
GR	684.400	323.000	683.200	341.000	693.600	363.000	0.000	0.000	0.000	0.000
NH	3.000	.080	115.000	.037	141.000	.080	859.000	0.000	0.000	0.000
X1	22.690	16.000	96.000	159.000	500.000	600.000	550.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	300.000	0.000	0.000	0.000	0.000
GR	693.500	0.000	685.200	29.000	684.800	59.000	682.500	96.000	679.200	107.000
GR	678.700	121.000	678.500	131.000	678.700	141.000	688.300	159.000	688.100	259.000
GR	686.700	359.000	686.000	459.000	687.700	559.000	686.400	659.000	691.300	759.000
GR	693.600	859.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.793	0.000	0.000	0.000	360.000	440.000	542.500	0.000	.930	0.000
X3	0.000	0.000	0.000	0.000	0.000	300.000	0.000	0.000	0.000	0.000
NH	4.000	.085	76.000	.040	107.000	.085	210.000	.045	520.000	0.000
X1	22.998	13.000	70.000	270.000	725.000	880.000	1085.000	0.000	-.930	0.000
GR	707.300	0.000	688.800	40.000	687.200	70.000	682.300	77.000	682.200	97.000
GR	682.300	97.000	682.700	106.000	684.500	112.000	689.600	170.000	692.500	270.000
GR	690.800	370.000	693.200	470.000	701.800	520.000	0.000	0.000	0.000	0.000
X1	23.101	0.000	0.000	0.000	360.000	440.000	542.500	0.000	.930	0.000
NH	4.000	.085	151.000	.042	171.000	.085	274.000	.045	781.000	0.000
X1	23.190	14.000	146.000	178.000	600.000	350.000	500.000	0.000	0.000	0.000
GR	707.200	0.000	695.100	46.000	685.300	146.000	683.600	152.000	682.900	101.000
GR	683.700	171.000	687.600	178.000	689.300	246.000	689.900	346.000	690.400	446.000
GR	694.700	546.000	694.700	646.000	693.500	746.000	701.300	781.000	0.000	0.000
QT	4.000	940.000	1630.000	2030.000	3145.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.080	177.000	.040	198.000	.075	300.000	0.000	0.000	0.000
X1	23.271	8.000	170.000	205.000	300.000	300.000	400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	128.000	0.000	248.000	0.000	0.000	0.000	0.000
GR	695.800	0.000	693.400	100.000	687.600	170.000	684.200	179.000	681.700	188.000
GR	684.400	197.000	691.300	205.000	690.500	300.000	0.000	0.000	0.000	0.000
NH	3.000	.060	682.000	.037	722.000	.060	900.000	0.000	0.000	0.000
X1	23.302	16.000	682.000	722.000	100.000	166.000	166.000	.880	0.000	0.000
X3	0.000	0.000	0.000	682.000	0.000	722.000	0.000	0.000	0.000	0.000
GR	711.700	0.000	704.100	100.000	699.200	200.000	696.600	300.000	695.900	400.000
GR	696.100	500.000	695.900	600.000	695.500	675.000	684.400	682.000	684.700	692.000
GR	684.700	702.000	685.100	714.000	687.200	722.000	696.200	727.000	699.700	800.000
GR	704.600	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.560	3.000	0.000	37.000	0.000	307.400	0.000	684.400	684.400
NH	3.000	.020	682.000	.018	722.000	.020	1000.000	0.000	0.000	0.000
X1	23.309	17.000	682.000	722.000	34.000	34.000	34.000	.880	0.000	0.000
X2	0.000	0.000	1.000	692.700	695.900	0.000	0.000	0.000	.980	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	711.700	0.000	100.000	704.100	0.000	200.000	699.200	0.000
BT	300.000	696.600	0.000	400.000	696.100	0.000	500.000	696.100	0.000	600.000
BT	695.900	0.000	682.000	695.900	0.000	682.000	695.900	692.700	692.000	695.900
BT	692.700	702.000	696.000	692.700	714.000	696.000	692.700	722.000	696.000	692.700
BT	722.000	696.000	0.000	800.000	699.700	0.000	900.000	704.600	0.000	1000.000
BT	707.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	711.700	0.000	704.100	100.000	699.200	200.000	696.600	300.000	696.100	400.000
GR	696.100	500.000	695.900	600.000	695.900	692.000	684.400	682.000	684.700	692.000
GR	684.700	702.000	685.100	714.000	687.200	722.000	696.000	722.000	699.700	800.000
GR	704.600	900.000	707.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000

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X1	23.323	18.000	583.000	639.000	100.000	50.000	75.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	515.000	0.000	705.000	0.000	0.000	0.000	0.000
GR	702.400	0.000	697.600	38.000	692.500	138.000	690.200	238.000	691.100	338.000
GR	689.900	368.000	686.300	380.000	685.600	397.000	686.300	409.000	689.900	418.000
GR	690.500	438.000	690.300	538.000	690.400	583.000	694.400	598.000	694.000	505.000
GR	683.700	614.000	696.200	638.000	703.100	738.000	0.000	0.000	0.000	0.000
NH	8.000	.037	81.000	.075	198.000	.037	238.000	.075	342.000	.037
NH	378.000	.080	558.000	.037	606.000	.032	758.000	0.000	0.000	0.000
X1	23.356	25.000	558.000	688.000	175.000	175.000	175.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	707.100	0.000	694.800	48.000	688.000	69.000	691.100	81.000	691.200	138.000
GR	690.000	198.000	686.400	215.000	686.100	220.000	686.500	224.000	691.100	238.000
GR	690.900	258.000	688.700	342.000	686.100	347.000	685.000	358.000	686.000	364.000
GR	693.000	378.000	692.000	458.000	694.400	558.000	685.000	582.000	684.600	588.000
GR	685.100	596.000	692.900	606.000	699.900	658.000	702.100	688.000	702.700	758.000
NH	3.000	.070	333.000	.012	403.000	.070	650.000	0.000	0.000	0.000
X1	23.410	15.000	333.000	403.000	485.000	135.000	285.000	0.000	0.000	0.000
GR	711.900	0.000	710.000	100.000	708.300	200.000	706.500	315.000	694.300	331.000
GR	694.300	333.000	685.800	333.000	684.000	369.000	686.800	397.000	686.800	403.000
GR	697.800	403.000	697.800	405.000	700.300	500.000	701.200	600.000	701.700	650.000
NH	3.000	.070	339.000	.012	400.500	.070	650.000	0.000	0.000	0.000
SB	0.000	2.500	3.400	0.000	.100	0.000	.010	0.000	686.700	686.700
X1	23.413	25.000	339.000	400.500	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	687.000	696.700	0.000	0.000	0.000	0.000	0.000
BT	25.000	0.000	711.900	0.000	100.000	710.000	0.000	200.000	708.300	0.000
BT	315.000	706.500	0.000	337.000	700.000	0.000	339.000	700.000	0.000	339.000
BT	696.700	0.000	352.000	696.700	686.700	352.000	700.000	0.000	354.000	700.000
BT	0.000	354.000	696.700	0.000	368.000	696.700	0.000	368.000	700.000	0.000
BT	370.000	700.000	0.000	370.000	696.700	0.000	384.000	696.700	0.000	384.000
BT	700.000	0.000	386.000	700.000	0.000	386.000	696.700	0.000	400.500	696.700
BT	0.000	400.500	700.000	0.000	402.500	700.000	0.000	500.000	700.300	0.000
BT	600.000	701.200	0.000	650.000	701.700	0.000	0.000	0.000	0.000	0.000
GR	711.900	0.000	710.000	100.000	708.300	200.000	706.500	315.000	700.000	337.000
GR	700.000	339.000	686.700	339.000	686.700	352.000	686.700	352.000	686.700	354.000
GR	686.700	354.000	686.700	368.000	686.700	368.000	686.700	370.000	686.700	370.000
GR	686.700	384.000	686.700	384.000	686.700	386.000	686.700	386.000	686.700	400.500
GR	700.000	400.500	700.000	402.500	700.300	500.000	701.200	600.000	701.700	650.000
NH	3.000	.032	76.000	.042	465.000	.032	505.000	0.000	0.000	0.000
QT	4.000	1195.000	2080.000	2560.000	3820.000	0.000	0.000	0.000	0.000	0.000
X1	23.470	24.000	60.000	505.000	200.000	500.000	300.000	0.000	0.000	0.000
GR	709.900	0.000	706.000	60.000	696.800	76.000	694.700	80.000	692.500	100.000
GR	693.200	120.000	695.100	140.000	695.000	160.000	694.600	180.000	694.400	200.000
GR	694.300	220.000	694.100	240.000	694.100	260.000	694.200	280.000	694.100	300.000
GR	694.500	320.000	694.500	340.000	694.400	360.000	694.500	380.000	694.700	400.000
GR	694.900	420.000	695.100	440.000	695.600	465.000	711.900	505.000	0.000	0.000
NH	4.000	.070	60.000	.042	100.000	.070	220.000	.042	505.000	0.000
X1	23.531	0.000	0.000	0.000	470.000	270.000	320.000	0.000	.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	402.000	0.000	0.000	0.000	0.000
NH	3.000	.035	205.000	.040	243.000	.035	700.000	0.000	0.000	0.000
X1	23.540	15.000	200.000	240.000	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	700.620	700.620	0.000
GR	708.800	0.000	707.600	100.000	707.100	155.000	696.700	200.000	696.500	205.000
GR	693.800	215.000	693.000	225.000	692.700	235.000	694.300	240.000	697.400	275.000
GR	700.300	300.000	701.700	400.000	702.000	500.000	704.100	600.000	710.800	700.000
NC	.025	.025	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	23.541	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	700.620	700.620	0.000

SB	1.000	1.000	3.040	0.000	33.330	.010	348.700	0.000	892.700	892.700
X1	23.546	0.000	0.000	0.000	29.000	29.000	29.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	704.000	701.700	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	701.500	701.500	0.000
BT	16.000	0.000	708.800	0.000	100.000	707.600	0.000	200.000	707.600	696.700
BT	200.000	707.600	699.600	205.000	707.500	702.400	215.000	707.200	703.900	225.000
BT	706.900	704.000	235.000	706.600	702.400	240.000	706.500	699.700	240.000	706.500
BT	694.300	275.000	706.400	0.000	300.000	704.800	0.000	400.000	701.700	0.000
BT	500.000	702.000	0.000	600.000	704.100	0.000	700.000	710.800	0.000	0.000
NH	3.000	.032	200.000	.040	240.000	.032	700.000	0.000	0.000	0.000
X1	23.547	15.000	200.000	240.000	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	701.500	701.500	0.000
GR	708.800	0.000	707.600	100.000	707.100	155.000	696.700	200.000	696.500	205.000
GR	693.800	215.000	693.000	225.000	692.700	235.000	694.300	240.000	700.400	275.000
GR	700.800	300.000	701.700	400.000	702.000	500.000	704.100	600.000	710.800	700.000
NH	3.000	.032	88.000	.042	231.000	.080	656.000	0.000	0.000	0.000
X1	23.631	25.000	86.000	233.000	250.000	550.000	450.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	86.000	0.000	480.000	0.000	0.000	0.000	0.000
GR	710.400	0.000	699.900	48.000	698.900	86.000	695.500	89.000	695.000	96.000
GR	694.700	106.000	694.900	116.000	695.100	126.000	694.200	136.000	694.400	146.000
GR	694.500	156.000	695.300	166.000	695.700	176.000	695.600	186.000	695.900	196.000
GR	695.900	206.000	696.200	216.000	696.400	230.000	698.300	233.000	700.100	286.000
GR	700.200	386.000	700.800	486.000	701.200	586.000	701.200	603.000	710.800	656.000
NH	4.000	.032	190.000	.075	445.000	.042	480.000	.075	956.000	0.000
QT	4.000	1180.000	1800.000	2100.000	2820.000	0.000	0.000	0.000	0.000	0.000
X1	23.802	20.000	441.000	489.000	1100.000	750.000	900.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	270.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	724.500	0.000	707.000	75.000	702.200	141.000	698.300	241.000	698.400	341.000
GR	698.300	441.000	698.000	443.000	693.900	451.000	693.900	461.000	696.100	471.000
GR	696.600	481.000	696.900	487.000	697.600	489.000	696.500	541.000	697.400	641.000
GR	697.600	731.000	700.500	741.000	700.200	841.000	699.400	930.000	711.700	956.000
NH	3.000	.080	368.000	.042	404.000	.080	757.000	0.000	0.000	0.000
X1	23.935	16.000	363.000	406.000	900.000	350.000	700.000	0.000	0.000	0.000
GR	712.700	0.000	701.300	29.000	699.700	63.000	700.100	163.000	698.900	263.000
GR	699.700	363.000	696.600	370.000	693.700	380.000	693.000	393.000	695.400	403.000
GR	699.700	406.000	698.600	463.000	698.600	563.000	700.900	663.000	702.800	738.000
GR	708.100	757.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1195.000	2080.000	2560.000	3820.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.085	151.000	.042	171.000	.085	274.000	.045	781.000	0.000
X1	23.190	14.000	146.000	178.000	500.000	250.000	400.000	0.000	0.000	0.000
GR	707.200	0.000	695.100	46.000	685.300	146.000	683.600	152.000	682.900	161.000
GR	683.700	171.000	687.600	178.000	689.300	246.000	689.900	346.000	690.400	446.000
GR	694.700	546.000	694.700	646.000	693.500	746.000	701.300	781.000	0.000	0.000
QT	4.000	255.000	450.000	530.000	675.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.060	41.000	.040	76.000	.045	140.000	0.000	0.000	0.000
X1	23.383	9.000	41.000	100.000	800.000	500.000	1020.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	140.000	0.000	0.000	0.000	0.000
GR	690.500	0.000	690.200	41.000	685.600	51.000	685.400	60.000	685.700	70.000
GR	685.800	75.000	688.100	83.000	689.900	100.000	705.500	140.000	0.000	0.000
NH	3.000	.075	63.000	.015	83.000	.075	323.000	0.000	0.000	0.000
X1	23.457	12.000	63.000	83.000	300.000	440.000	389.000	0.000	0.000	0.000
GR	702.800	0.000	703.300	23.000	699.700	52.000	698.400	63.000	685.800	63.000
GR	685.600	73.000	686.500	83.000	698.300	83.000	705.200	104.000	708.200	153.000
GR	709.700	263.000	711.600	323.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.075	63.000	.015	79.000	.075	323.000	0.000	0.000	0.000
SB	0.000	2.500	3.080	0.000	.100	0.000	.010	0.000	686.400	686.400
X1	23.461	12.000	63.000	79.000	21.000	21.000	21.000	0.000	0.000	0.000

BT	12.000	0.000	702.800	0.000	23.000	703.200	0.000	52.000	699.700	0.000
BT	63.000	699.300	0.000	64.000	696.400	686.400	71.000	696.400	0.000	78.000
BT	696.400	0.000	79.000	699.500	0.000	104.000	705.200	0.000	163.000	708.200
BT	0.000	263.000	709.700	0.000	323.000	711.600	0.000	0.000	0.000	0.000
GR	702.800	0.000	703.200	23.000	699.700	52.000	699.300	63.000	686.400	64.000
GR	686.400	71.000	686.400	78.000	699.500	79.000	705.200	104.000	708.200	163.000
GR	709.700	263.000	711.600	323.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.060	173.000	.037	221.000	.060	368.000	0.000	0.000	0.000
X1	23.468	13.000	173.000	221.000	25.000	50.000	37.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	178.000	0.000	216.000	0.000	0.000	0.000	0.000
GR	696.000	0.000	699.700	78.000	704.500	173.000	695.400	178.000	695.300	154.000
GR	695.700	190.000	695.000	197.000	694.500	203.000	695.000	210.000	695.000	216.000
GR	706.400	221.000	707.400	278.000	709.400	368.000	0.000	0.000	0.000	0.000
SB	1.250	1.500	3.000	0.000	33.000	2.000	244.000	0.000	694.500	694.500
NH	3.000	.018	178.000	.015	216.000	.018	368.000	0.000	0.000	0.000
X1	23.477	19.000	178.000	216.000	45.000	45.000	45.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	701.900	704.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	705.000	705.000	0.000
BT	19.000	0.000	696.000	0.000	78.000	699.700	0.000	178.000	704.600	0.000
BT	178.000	704.600	701.900	184.000	704.800	701.900	190.000	704.900	701.900	190.000
BT	704.900	701.900	191.000	704.900	701.900	191.000	704.900	701.900	197.000	705.100
BT	701.900	203.000	705.300	701.900	203.000	705.300	701.900	204.000	705.300	701.900
BT	204.000	705.300	701.900	210.000	705.500	701.900	216.000	705.800	701.900	216.000
BT	705.800	0.000	278.000	707.400	0.000	368.000	709.400	0.000	0.000	0.000
GR	696.000	0.000	699.700	78.000	704.600	178.000	695.400	178.000	695.300	184.000
GR	695.700	190.000	701.900	190.000	701.900	191.000	695.700	191.000	695.000	197.000
GR	694.500	203.000	701.900	203.000	701.900	204.000	694.500	204.000	695.000	210.000
GR	695.000	216.000	705.800	216.000	707.400	278.000	709.400	368.000	0.000	0.000
NH	3.000	.032	100.000	.037	193.000	.032	230.000	0.000	0.000	0.000
X1	23.510	12.000	100.000	230.000	200.000	150.000	175.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	230.000	0.000	0.000	0.000	0.000
GR	702.700	0.000	701.100	100.000	695.900	108.000	694.200	120.000	694.000	130.000
GR	693.500	140.000	693.400	150.000	693.900	160.000	693.800	170.000	694.000	180.000
GR	695.800	190.000	710.200	230.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1195.000	2080.000	2560.000	3820.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.032	76.000	.042	468.000	.032	505.000	0.000	0.000	0.000
X1	23.614	24.000	60.000	505.000	600.000	500.000	550.000	0.000	0.000	0.000
GR	709.900	0.000	706.000	60.000	696.800	76.000	694.700	80.000	692.500	100.000
GR	693.200	120.000	695.100	140.000	695.000	160.000	694.600	180.000	694.400	200.000
GR	694.300	220.000	694.100	240.000	694.100	260.000	694.200	280.000	694.100	300.000
GR	694.500	320.000	694.500	340.000	694.400	360.000	694.500	380.000	694.700	400.000
GR	694.900	420.000	695.100	440.000	695.600	465.000	711.900	505.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BEVERLY HILLS, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE

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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T1      VILLAGE OF BEVERLY HILLS F.I.S., 5670-01, RICHARD ZANOTTI-P.M.
T2      100-YEAR FLOOD, FLOW=2800 C.F.S.
T3      RIVER ROUGE
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	1.	4.	0.	0.	0.000000	0.00	0.0	0.	660.900	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

CCHV= .300 CEHV= .500
1490 NH CARD USED

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

REPEATED SECTION FROM SECTION 20.350

20.32	9.30	660.90	0.00	660.90	661.16	.26	0.00	0.00	655.10
2800.	1048.	1429.	323.	616.	257.	235.	0.	0.	656.80
0.00	1.70	5.55	1.38	.085	.043	.085	0.000	651.60	45.18
.001766	860.	950.	690.	0	0	1	0.00	325.70	374.88

1850* FEET U.S. OF 12-MILE ROAD BRIDGE (U.S. FACE), VS-34

20.35	9.05	661.15	0.00	0.00	661.47	.32	.29	.03	655.60
2800.	1014.	1488.	297.	567.	249.	209.	3.	1.	657.30
.01	1.79	5.98	1.43	.085	.043	.085	.037	652.10	45.33
.002139	140.	150.	110.	1	0	1	0.00	323.93	369.77

1490 NH CARD USED

1300* FEET D.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-33

20.45	7.97	661.87	0.00	0.00	661.95	.08	.41	.07	658.30
2800.	133.	1039.	1628.	195.	346.	1025.	18.	6.	659.40
.08	.68	3.01	1.59	.085	.037	.035	.036	653.90	60.73
.000438	300.	500.	600.	2	0	1	0.00	585.13	645.85

1490 NH CARD USED

1100* FEET D.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-32

20.48	7.60	662.00	0.00	0.00	662.25	.25	.21	.09	659.30
2800.	840.	1378.	582.	617.	245.	504.	28.	10.	660.60
.10	1.36	5.63	1.15	.080	.038	.080	.033	654.40	51.54
.001864	150.	200.	400.	2	0	1	0.00	629.71	681.25

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 120.0 500.0 TYPE= 1 TARGET= 380.000

600* FEET D.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-31

20.58	8.19	663.09	0.00	0.00	663.52	.43	1.18	.09	659.30
2800.	491.	1768.	542.	339.	271.	342.	43.	17.	661.20
.13	1.45	6.51	1.59	.085	.040	.085	.033	654.90	120.00
.002622	750.	500.	400.	2	0	1	0.00	380.00	500.00

15

BEVERLY HILLS CORPORATE LIMITS, (REPEATED FROM SECTION 20.578)

20.69	8.39	664.59	0.00	0.00	664.92	.32	1.36	.03	660.60

.17	1.32	5.86	1.41	.085	.041	.085	.033	656.20	93.55
.002061	650.	600.	500.	2	0	1	0.00	463.31	556.86

1490 NH CARD USED

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

400 FEET U.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-30 SEC.A

20.77	7.84	665.34	0.00	0.00	665.75	.41	.79	.04	661.70
2800.	1124.	1676.	0.	372.	274.	0.	63.	25.	672.50
.19	3.03	6.12	0.00	.049	.040	.085	.034	657.50	206.67
.002537	200.	400.	450.	2	0	1	0.00	192.47	399.14

1490 NH CARD USED

900 FEET U.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-29 SEC.B

20.86	9.12	666.42	0.00	0.00	666.75	.33	.97	.02	664.30
2800.	146.	1379.	1275.	120.	236.	423.	71.	28.	661.90
.22	1.21	5.84	3.02	.055	.037	.040	.035	657.30	90.51
.001677	400.	500.	500.	0	0	1	0.00	316.12	406.63

1490 NH CARD USED

INTERPOLATED SECTION BETWEEN SECTIONS 20.862 AND 21.013

20.94	8.56	667.16	0.00	0.00	667.30	.14	.49	.06	664.30
2800.	395.	1066.	1339.	332.	250.	673.	79.	31.	663.50
.26	1.19	4.27	1.99	.060	.040	.045	.035	658.60	73.57
.001007	250.	400.	400.	0	0	1	0.00	537.66	611.23

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 190.0 553.0 TYPE= 1 TARGET= 363.000

650 FEET D.S. OF LAHSER ROAD BRIDGE (D.S. FACE), VS-28 SEC.C

21.01	7.90	667.60	0.00	0.00	667.85	.25	.50	.05	663.70
2600.	750.	1323.	526.	398.	249.	382.	89.	35.	665.20
.29	1.88	5.32	1.38	.065	.043	.085	.035	659.70	190.00
.001991	250.	400.	400.	2	0	1	0.00	363.00	553.00

3470 ENCROACHMENT STATIONS= 277.0 465.0 TYPE= 1 TARGET= 188.000

REPEATED SECTION FROM SECTION 21.013

21.07	7.94	668.19	0.00	0.00	668.70	.51	.72	.13	664.25
2600.	561.	1714.	324.	213.	250.	181.	94.	36.	665.75
.30	2.64	6.84	1.80	.065	.043	.085	.035	660.25	277.00
.003272	255.	305.	280.	2	0	1	0.00	188.00	465.00

3470 ENCROACHMENT STATIONS= 310.0 433.0 TYPE= 1 TARGET= 123.000

REPEATED SECTION FROM SECTION 21.013

21.10	8.05	668.55	0.00	0.00	669.24	.68	.45	.09	664.50
2600.	462.	1917.	220.	143.	255.	109.	96.	37.	666.00
.31	3.23	7.53	2.03	.065	.043	.085	.035	660.50	310.00
.003891	110.	130.	120.	2	0	1	0.00	123.00	433.00

3470 ENCROACHMENT STATIONS= 332.0 410.0 TYPE= 1 TARGET= 78.000

REPEATED SECTION FROM SECTION 21.013

21.11	8.11	668.75	0.00	0.00	669.72	.98	.34	.15	664.64
2600.	297.	2183.	120.	76.	256.	52.	96.	37.	666.14
.31	3.90	8.51	2.32	.065	.044	.085	.035	660.64	332.00
.004924	65.	80.	75.	2	0	1	0.00	78.00	410.00

3470 ENCROACHMENT STATIONS= 343.0 399.0 TYPE= 1 TARGET= 56.000

REPEATED SECTION FROM SECTION 21.013

21.12	8.17	668.91	0.00	0.00	670.13	1.22	.29	.12	664.74
2600.	158.	2381.	61.	36.	259.	24.	97.	37.	666.24
.31	4.37	9.20	2.53	.065	.044	.085	.035	660.74	343.00
.005694	45.	55.	50.	2	0	1	0.00	56.00	399.00

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= 347.0 395.0 TYPE= 1 TARGET= 48.000

REPEATED SECTION FROM SECTION 21.013

21.12	8.16	668.92	0.00	0.00	670.28	1.36	.09	.07	664.76
2600.	94.	2471.	35.	20.	259.	13.	97.	37.	666.26
.31	4.58	9.55	2.63	.065	.044	.085	.035	660.76	347.00
.006138	10.	15.	10.	2	0	1	0.00	48.00	395.00

3470 ENCROACHMENT STATIONS= 350.0 393.0 TYPE= 1 TARGET= 43.000

REPEATED SECTION FROM SECTION 21.013

21.13	8.15	668.93	0.00	0.00	670.40	1.47	.06	.06	664.78
2600.	39.	2539.	21.	8.	258.	8.	97.	37.	666.28
.32	4.74	9.83	2.70	.065	.044	.085	.035	660.78	350.00
.006520	10.	10.	10.	2	0	1	0.00	43.00	393.00

1490 NH CARD USED

GROUND POINTS FROM SECTION 21.129 1 FT. DOWNSTREAM

21.13	8.56	669.36	0.00	0.00	670.54	1.18	.05	.09	675.00
2600.	0.	2600.	0.	0.	298.	0.	97.	37.	674.80
.32	0.00	8.73	0.00	.065	.040	.085	.035	660.80	200.00

.001431 19. 10. 10. 2 0 1 0.00 39.00 239.00

CCHV= .300 CEHV= .500

NORMAL BRIDGE,NRD=19 MIN ELTRD= 674.30 MAX ELLC= 671.60

D.S. FACE OF LAHSER ROAD BRIDGE

21.13	8.57	669.37	0.00	0.00	670.55	1.18	.00	.00	675.00
2600.	0.	2600.	0.	0.	298.	0.	97.	37.	674.80
.32	0.00	8.72	0.00	.025	.025	.025	.035	660.90	200.00
.002042	1.	1.	1.	0	0	1	0.00	39.00	239.00

NORMAL BRIDGE,NRD=19 MIN ELTRD= 674.30 MAX ELLC= 671.60

U.S. FACE OF LAHSER ROAD BRIDGE, BS-27 SEC.D

CONCRETE BOX CULVERT, WITH HEADWALLS

APPROX. SIZE = 39'X10.5', LENGTH = 44 FT.

21.14	8.71	669.51	0.00	0.00	670.65	1.14	.09	.01	675.00
2600.	0.	2600.	0.	0.	304.	0.	97.	37.	674.80
.32	0.00	8.56	0.00	.025	.025	.025	.035	660.40	200.00
.001936	44.	44.	44.	0	0	1	0.00	39.00	239.00

1490 NH CARD USED

GROUND POINTS FROM SECTION 21.129 1 FT. UPSTREAM

21.14	8.71	669.51	0.00	0.00	670.65	1.14	.00	.00	675.00
2600.	0.	2600.	0.	0.	304.	0.	97.	37.	674.80
.32	0.00	8.56	0.00	.025	.040	.025	.035	660.80	200.00
.004064	1.	1.	1.	0	0	1	0.00	39.00	239.00

1490 NH CARD USED

REPEATED SECTION FROM SECTION 21.184

21.14	8.97	669.47	0.00	0.00	671.00	1.53	.15	.19	670.20
2600.	0.	2600.	0.	0.	262.	0.	98.	37.	671.40
.32	0.00	9.92	0.00	.025	.037	.025	.035	660.50	327.39
.005367	64.	33.	24.	2	0	1	0.00	47.95	375.35

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

REPEATED SECTION FROM SECTION 21.184

21.15	9.57	669.92	0.00	0.00	671.16	1.24	.07	.04	670.05
2600.	0.	2600.	0.	0.	292.	0.	98.	37.	671.25
.32	0.00	8.92	0.00	.025	.037	.025	.035	660.35	325.43

REPEATED SECTION FROM SECTION 21.194

21.15	9.99	670.19	0.00	0.00	671.26	1.07	.06	.05	669.90
2600.	0.	2600.	0.	1.	313.	0.	98.	37.	671.10
.32	.37	8.30	0.00	.065	.037	.025	.035	660.20	318.37
.003338	40.	15.	8.	2	0	1	0.00	57.85	376.22

REPEATED SECTION FROM SECTION 21.194

21.16	10.87	670.67	0.00	0.00	671.48	.81	.14	.08	669.50
2600.	12.	2588.	0.	16.	358.	0.	98.	37.	670.70
.32	.79	7.22	0.00	.065	.037	.025	.035	659.80	299.40
.002244	130.	50.	27.	2	0	1	0.00	77.58	376.98

250 FEET U.S. OF LAHSER ROAD BRIDGE (U.S. FACE), VS-26 SEC.E

21.18	12.73	671.33	0.00	0.00	671.79	.45	.20	.11	669.30
2600.	95.	2501.	4.	78.	455.	9.	100.	38.	669.50
.33	1.21	5.49	.52	.065	.037	.085	.035	658.60	243.69
.001025	325.	136.	81.	2	0	1	0.00	102.69	336.38

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 218.0 447.0 TYPE= 1 TARGET= 229.000

21.23	10.76	671.86	0.00	0.00	672.05	.19	.19	.08	670.30
2600.	17.	2583.	0.	38.	732.	0.	104.	39.	672.90
.35	.45	3.53	0.00	.065	.041	.085	.034	661.10	253.84
.000526	510.	260.	160.	2	0	1	0.00	134.80	389.64

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BHP	BAREA	SS	ELCHU	ELCHD
	0.00	2.44	3.04	0.00	38.80	0.00	341.10	0.00	661.10	661.10

1490 NH CARD USED
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
674.06	672.05	0.00	268.	2328.	341.	669.90	672.90	30.00

3470 ENCROACHMENT STATIONS= 218.0 447.0 TYPE= 1 TARGET= 229.000

U.S. FACE OF RIVERVIEW ROAD BRIDGE, BS-25 SEC.F

FOUR C.M.P. X-CULVERTS, SPACED 3 FEET APART

APPROX. SIZE = 14'X9', LENGTH = 89 FEET.

21.25	12.41	673.51	0.00	0.00	673.63	.11	1.57	0.00	670.30

2600.	177.	2420.	0.	138.	873.	0.	108.	39.	672.90
.36	1.12	2.76	.34	.025	.031	.025	.034	661.10	218.00
.000154	90.	90.	90.	2	0	3	0.00	201.36	419.36

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 350.0 TYPE= 1 TARGET= 349.999

550 FT. U.S. OF RIVERVIEW ROAD BRIDGE (U.S. FACE), VS-24 SEC.G

21.35	12.33	673.53	0.00	0.00	673.95	.42	.17	.15	673.80
2600.	0.	2492.	108.	0.	470.	73.	116.	41.	671.30
.39	0.00	5.30	1.49	.025	.036	.032	.033	661.20	145.44
.000887	500.	550.	550.	2	0	1	0.00	120.10	315.54

3280 CROSS SECTION 21.44 EXTENDED 2.85 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
21.44	9.75	674.25	0.00	0.00	674.40	.15	.37	.08	668.90
2600.	254.	1221.	1125.	177.	281.	1033.	125.	44.	668.80
.43	1.44	4.35	1.09	.070	.040	.075	.034	664.50	0.00
.000873	400.	450.	350.	3	0	1	0.00	595.28	595.28

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.55	3.08	0.00	25.53	0.00	153.20	0.00	664.50	664.50

6870 D.S. ENERGY OF 674.40 HIGHER THAN COMPUTED ENERGY OF 674.38

3280 CROSS SECTION 21.44 EXTENDED 2.90 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
681.19	674.40	0.00	2245.	348.	153.	670.50	670.80	30.00

U/S FACE OF PRIVATE VEHICLE BRIDGE SEC.H

CONCRETE WOOD BRIDGE ON STEEL I-BEAM

SPAN = 34.0 FEET, LENGTH = 3 FEET

21.44	9.80	674.30	0.00	0.00	674.40	.10	0.00	0.00	668.90
2600.	269.	1042.	1289.	179.	282.	1058.	125.	44.	668.80
.43	1.50	3.69	1.22	.050	.035	.050	.034	664.50	0.00
.000477	8.	8.	8.	2	0	6	0.00	600.16	600.16

1490 NH CARD USED

1600 FT. D.S. OF 13-MILE ROAD BRIDGE (U.S. FACE), VS-23 SEC.I

21.58	10.87	674.57	0.00	0.00	674.70	.12	.29	.01	680.90
2600.	0.	1454.	1146.	0.	399.	1248.	141.	49.	671.30
.49	0.00	3.64	.92	.050	.040	.075	.035	663.70	9.23
.000578	400.	740.	350.	2	0	1	0.00	504.50	613.73

1490 NH CARD USED

INTERPOLATED SECTION BETWEEN SECTS. 21.581 AND 21.754

21.62	9.88	674.68	0.00	0.00	674.94	.26	.17	.07	679.50
2560.	0.	1660.	900.	0.	334.	758.	148.	52.	671.60
.51	0.00	4.97	1.19	.050	.040	.075	.035	664.80	57.19
.001166	225.	225.	205.	1	0	1	0.00	441.18	498.37

1490 NH CARD USED

INTERPOLATED SECTION BETWEEN SECTS. 21.581 AND 21.754

21.67	9.04	674.94	0.00	0.00	675.27	.33	.30	.04	678.30
2560.	0.	1579.	981.	0.	280.	461.	152.	54.	672.40
.53	0.00	5.63	2.13	.050	.040	.045	.035	665.40	105.11
.001680	225.	225.	205.	2	0	1	0.00	321.55	426.66

1490 NH CARD USED

INTERPOLATED SECTION BETWEEN SECTS. 21.581 AND 21.754

21.71	8.28	675.28	0.00	0.00	675.96	.68	.51	.17	677.00
2560.	0.	1805.	755.	0.	235.	274.	155.	55.	673.00
.54	0.00	7.67	2.76	.050	.040	.045	.035	667.00	152.73
.003489	225.	225.	205.	2	0	1	0.00	236.66	389.39

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 130.0 435.0 TYPE= 1 TARGET= 305.000

21.73	7.95	675.55	675.36	0.00	676.58	1.03	.44	.18	675.30
2560.	1.	1905.	654.	1.	207.	183.	156.	56.	673.20
.54	.67	9.22	3.57	.035	.033	.035	.035	667.60	193.66
.004000	125.	120.	115.	4	11	1	0.00	182.07	375.73

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

NORMAL BRIDGE,NRD= 8 MIN ELTRD= 673.80 MAX ELLC= 673.30

3470 ENCROACHMENT STATIONS= 130.0 435.0 TYPE= 1 TARGET= 305.000

21.73	8.67	676.27	0.00	0.00	676.75	.48	.00	.17	673.30
2560.	37.	1363.	1160.	19.	209.	276.	156.	56.	673.60
.54	1.97	6.52	4.20	.033	.023	.033	.035	667.60	175.12
.003800	1.	1.	1.	14	0	1	-17.00	225.51	400.62

NORMAL BRIDGE,NRD= 8 MIN ELTRD= 673.80 MAX ELLC= 673.30

3470 ENGROACHMENT STATIONS= 130.0 435.0 TYPE= 1 TARGET= 305.000

U/S FACE OF PRIVATE FOOT BRIDGE SEC.J

WOOD BRIDGE

SPAN = 32 FEET, LENGTH = 8 FEET

21.73	8.75	676.35	0.00	0.00	676.79	.44	.03	.01	673.30
2560.	41.	1329.	1189.	21.	211.	289.	157.	56.	673.80
.54	1.95	6.29	4.12	.033	.023	.033	.035	667.60	173.13
.003478	8.	8.	8.	2	0	1	-17.00	229.08	402.22

3470 ENCROACHMENT STATIONS= 130.0 435.0 TYPE= 1 TARGET= 305.000

21.73	8.60	676.20	0.00	0.00	676.94	.75	.00	.15	673.30
2560.	32.	1799.	730.	18.	223.	264.	157.	56.	673.80
.54	1.75	8.08	2.76	.032	.025	.032	.035	667.60	176.93
.001610	1.	1.	1.	2	0	1	0.00	222.24	399.17

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 130.0 435.0 TYPE= 1 TARGET= 305.000

550 FT. D.S. OF 13-MILE ROAD BRIDGE (U.S. FACE), VS-22 SEC.K

21.75	8.62	676.72	0.00	0.00	677.21	.49	.19	.08	675.70
2560.	17.	1564.	979.	13.	234.	303.	158.	56.	673.60
.55	1.26	6.69	3.23	.032	.033	.032	.035	668.10	173.88
.001803	110.	110.	110.	3	0	1	0.00	227.74	401.62

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 150.0 315.0 TYPE= 1 TARGET= 165.000

REPEATED SECTION FROM SECTION 21.754

21.80	8.57	677.07	0.00	0.00	677.68	.61	.41	.06	676.10
2560.	18.	1641.	901.	12.	232.	203.	160.	57.	674.00
.55	1.46	7.07	4.44	.032	.037	.032	.035	668.50	175.05
.002582	365.	250.	90.	2	0	1	0.00	139.95	315.00

3470 ENCROACHMENT STATIONS= 175.0 275.0 TYPE= 1 TARGET= 100.000

REPEATED SECTION FROM SECTION 21.754

21.82	8.53	677.23	0.00	0.00	678.17	.94	.32	.17	676.30
2560.	19.	1936.	605.	11.	230.	109.	161.	57.	674.20
.56	1.69	8.40	5.57	.032	.037	.032	.035	668.70	176.20
.003675	150.	125.	60.	2	0	1	0.00	98.80	275.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 400.0 439.0 TYPE= 1 TARGET= 39.000

21.85	8.51	677.51	0.00	0.00	678.75	1.25	.43	.15	100000.00	
2560.	0.	2560.	0.	0.	286.	0.	162.	57.	100000.00	
.56	0.00	8.97	0.00	.032	.037	.032	.035	669.00	400.00	
.003652	160.	125.	60.	2	0	1	0.00	39.00	439.00	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.58	3.00	0.00	34.10	0.00	332.00	0.00	669.00	669.00

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	

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QOR	BAREA	ELLC	ELTRD	CLASS
678.96	678.63	0.00	0.	2560.	332.	678.30	681.70	10.00

U.S. FACE OF 13-MILE ROAD BRIDGE, RS-21 SEC.1

CONCRETE BRIDGE, WITH HEADWALLS AND WINGWALLS

APPROX. SIZE = 39.5'X9', LENGTH = 49 FEET

21.86	8.97	677.97	0.00	0.00	678.96	1.00	.21	0.00	643.00
2560.	0.	2560.	0.	0.	319.	0.	162.	57.	684.10
.56	0.00	8.02	0.00	.032	.018	.032	.034	669.00	400.00
.000700	50.	50.	50.	3	0	1	0.00	39.00	439.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 213.0 295.0 TYPE= 1 TARGET= 82.000

REPEATED SECTION FROM SECTION 21.953

21.86	9.16	678.20	0.00	0.00	679.04	.84	.03	.05	674.14
2560.	192.	2238.	130.	72.	287.	57.	162.	57.	675.24
.56	2.65	7.80	2.27	.080	.042	.080	.034	669.04	213.00
.003670	18.	20.	22.	2	0	1	0.00	82.00	295.00

3470 ENCROACHMENT STATIONS= 163.0 345.0 TYPE= 1 TARGET= 182.000

REPEATED SECTION FROM SECTION 21.953

21.87	9.78	678.93	0.00	0.00	679.30	.37	.12	.14	674.25
2560.	380.	1791.	389.	221.	313.	226.	163.	57.	675.35
.57	1.72	5.72	1.72	.080	.042	.080	.034	669.15	163.00
.001791	44.	50.	56.	3	0	1	0.00	182.00	345.00

500 FT. U.S. FROM 13-MILE ROAD BRIDGE (U.S. FACE), VS-20 SEC.M

21.95	9.68	679.78	0.00	0.00	679.93	.15	.56	.07	675.20
2560.	592.	1300.	668.	518.	309.	618.	174.	61.	676.30
.61	1.14	4.21	1.08	.080	.042	.080	.034	670.10	37.13
.000985	390.	430.	472.	2	0	1	0.00	496.29	533.42

1490 NH CARD USED

1000 FT. U.S. FROM 13-MILE ROAD BRIDGE (U.S. FACE), VS-19 SEC.N

22.05	8.29	680.29	0.00	0.00	680.34	.05	.38	.03	676.50
2560.	558.	817.	1185.	621.	286.	1246.	198.	69.	677.76
.71	.90	2.86	.95	.085	.042	.070	.033	672.00	24.86
.000484	150.	500.	900.	2	0	1	0.00	661.60	686.46

1490 NH CARD USED

1000 FT. D.S. FROM WALK BRIDGE (D.S. FACE), VS-18 SEC.O

22.17	10.22	680.72	0.00	0.00	681.26	.54	.67	.25	685.61
2560.	0.	1990.	570.	0.	300.	293.	219.	77.	678.20
.75	0.00	6.63	1.95	.085	.043	.047	.033	670.50	10.05
.003383	600.	650.	700.	2	0	1	0.00	364.24	374.29

REPEATED SECTION FROM SECTION 22.170

22.22	10.07	681.50	0.00	0.00	682.15	.65	.83	.05	686.53
2560.	0.	2079.	481.	0.	292.	246.	222.	79.	679.13
.76	0.00	7.11	1.95	.085	.043	.047	.032	671.43	10.36
.003978	185.	248.	148.	3	0	1	0.00	359.51	369.87

REPEATED SECTION FROM SECTION 22.170

22.26	10.06	682.41	0.00	0.00	683.06	.66	.91	.00	687.45
2560.	0.	2084.	476.	0.	292.	244.	224.	80.	680.05
.77	0.00	7.14	1.95	.085	.043	.047	.032	672.35	10.38
.004011	185.	247.	147.	2	0	1	0.00	359.27	369.65

3280 CROSS SECTION 22.36 EXTENDED 1.89 FEET

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

3470 ENCROACHMENT STATIONS= .0 300.0 TYPE= 1 TARGET= 299.999

GROUND POINTS OF SECT. 22.357 1 FT. DOWNSTREAM

22.36	9.79	683.99	0.00	0.00	684.30	.31	1.13	.10	681.80
2560.	89.	1294.	1177.	65.	226.	440.	230.	82.	681.60
.80	1.37	5.74	2.67	.055	.037	.047	.033	674.20	61.25
.001869	370.	495.	295.	2	0	1	0.00	238.75	300.00

3280 CROSS SECTION 22.36 EXTENDED 2.06 FEET

NORMAL BRIDGE,NRD= 7 MIN ELTRD= 680.70 MAX ELLC= 681.20

3470 ENCROACHMENT STATIONS= .0 300.0 TYPE= 1 TARGET= 299.999

D.S. FACE OF WALK BRIDGE

22.36	9.95	684.15	0.00	0.00	684.34	.18	.00	.04	681.80
2560.	173.	732.	1655.	74.	215.	468.	230.	82.	681.80
.80	2.33	3.40	3.54	.035	.035	.037	.033	674.20	59.61
.001876	1.	1.	1.	2	0	1	-14.40	240.38	300.00

3280 CROSS SECTION 22.36 EXTENDED 2.07 FEET

NORMAL BRIDGE,NRD= 7 MIN ELTRD= 680.70 MAX ELLC= 681.20

3470 ENCROACHMENT STATIONS= .0 300.0 TYPE= 1 TARGET= 299.999

U.S. FACE OF WALK BRIDGE (W.LADY TO W.KENNOWAY DRIVE), BS-17 SEC.P

CONCRETE-STEEL-WOOD BRIDGE, WITH WINGWALLS

APPROX. SIZE = 24'X7', LENGTH = 9 FEET

22.36	9.97	684.17	0.00	0.00	684.35	.18	.02	.00	681.80
2560.	175.	728.	1657.	75.	216.	470.	230.	82.	681.80
.80	2.33	3.38	3.52	.035	.035	.037	.033	674.20	59.45
.001844	9.	9.	9.	0	0	1	-14.40	240.55	300.00

3280 CROSS SECTION 22.36 EXTENDED 2.04 FEET

3470 ENCROACHMENT STATIONS= .0 300.0 TYPE= 1 TARGET= 299.999

GROUND POINTS OF SECT. 22.357 1 FT. UPSTREAM

22.36	9.94	684.14	0.00	0.00	684.39	.25	.00	.03	681.80
2560.	111.	1184.	1264.	73.	229.	465.	230.	82.	681.80
.80	1.52	5.16	2.72	.050	.039	.045	.033	674.20	59.76
.001647	1.	1.	1.	2	0	1	0.00	240.24	300.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 200.0 TYPE= 1 TARGET= 199.999

400 FEET U.S. OF WALK BRIDGE (U.S. FACE), VS-16 SEC.Q

22.44	9.46	684.56	0.00	0.00	684.74	.19	.33	.02	687.20
2560.	0.	1603.	957.	0.	406.	388.	236.	84.	680.30
.83	0.00	3.95	2.47	.050	.036	.032	.033	675.10	21.37
.000610	349.	399.	299.	2	0	1	0.00	176.63	200.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 200.0 TYPE= 1 TARGET= 199.999

1200 FEET U.S. OF WALK BRIDGE (U.S. FACE), VS-15 SEC.P

22.59	7.59	685.19	0.00	0.00	685.50	.32	.70	.07	682.00
2560.	10.	1627.	922.	11.	299.	447.	249.	87.	680.70
.87	.90	5.45	2.06	.085	.039	.065	.034	677.60	15.86
.001603	700.	800.	650.	2	0	1	0.00	184.14	200.00

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= .0 300.0 TYPE= 1 TARGET= 299.999

1700 FEET U.S. OF WALK BRIDGE (U.S. FACE), VS-14 SEC.S

22.69	7.71	686.21	0.00	0.00	686.80	.59	1.16	.14	682.50
2560.	215.	2345.	0.	133.	366.	0.	257.	89.	680.30
.90	1.62	6.42	0.00	.080	.042	.065	.034	678.50	25.48
.002794	500.	550.	600.	2	0	1	0.00	129.60	155.08

3470 ENCROACHMENT STATIONS= .0 300.0 TYPE= 1 TARGET= 299.999

REPEATED SECTION FROM SECTION 22.690

22.79	8.20	687.63	0.00	0.00	688.10	.47	1.27	.04	683.43
2560.	269.	2291.	0.	168.	395.	0.	263.	90.	689.23
.93	1.60	5.80	0.00	.080	.043	.065	.034	679.43	23.74
.002124	360.	543.	440.	2	0	1	0.00	132.27	156.01

1490 NH CARD USED

3265 DIVIDED FLOW

REPEATED SECTION FROM SECTION 23.101

23.00	8.72	689.99	0.00	0.00	690.24	.25	2.07	.07	686.27
2560.	137.	2423.	0.	93.	591.	1.	278.	94.	691.57
1.00	1.48	4.10	.22	.085	.050	.045	.035	681.27	35.41
.001816	725.	1085.	880.	2	0	1	0.00	192.81	375.20

3265 DIVIDED FLOW

1100 FEET D.S. OF S. EVERGREEN ROAD BRIDGE (U.S. FACE), VS-13 SEC.T

23.10	8.76	690.96	0.00	0.00	691.20	.24	.96	.00	687.20
2560.	138.	2421.	0.	94.	596.	1.	286.	96.	692.50
1.04	1.48	4.06	.25	.085	.050	.045	.035	682.20	35.34
.001785	360.	543.	440.	2	0	1	0.00	197.08	376.50

1490 NH CARD USED

600 FEET D/S OF S. ENERGREEN ROAD BRIDGE (U/S FACE), VS-12 SEC.U

START OF ISLAND PROBLEM

23.19	8.88	691.78	0.00	0.00	691.97	.18	.74	.02	685.30	
2560.	304.	1180.	1076.	214.	249.	630.	295.	99.	687.60	
1.08	1.42	4.75	1.71	.085	.045	.057	.035	682.90	79.86	
.001377	600.	500.	350.	2	0	1	0.00	398.29	478.14	

1490 NH CARD USED

3280 CROSS SECTION 23.27 EXTENDED 1.71 FEET

3470 ENCROACHMENT STATIONS= 128.0 248.0 TYPE= 1 TARGET= 120.000

200 FEET D.S. OF S. EVERGREEN ROAD BRIDGE (U.S. FACE), VS-11 SEC.V

23.27	10.51	692.21	0.00	0.00	692.84	.63	.65	.22	687.60	
2030.	227.	1753.	49.	120.	257.	47.	301.	101.	691.30	
1.10	1.89	6.81	1.06	.080	.042	.075	.035	681.70	128.00	
.002546	300.	400.	300.	2	0	1	0.00	120.00	248.00	

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 600.2 635.4 TYPE= 1 TARGET= 40.000

U.S. FACE OF SOUTH EVERGREEN ROAD BRIDGE, BS-9.5 SEC.W

23.30	8.29	692.69	0.00	0.00	693.57	.88	.61	.12	684.40	
2030.	0.	2030.	0.	0.	270.	0.	302.	101.	100030.00	
1.11	.02	7.51	0.00	.060	.060	.075	.035	684.40	600.16	
.006081	100.	166.	166.	2	0	1	0.00	35.20	635.36	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BNC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	3.00	0.00	37.00	0.00	307.40	0.00	684.40	684.40

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

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
693.75	693.57	0.00	0.	2030.	307.	692.70	694.90	10.00

27

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 695.90 ELREA= 696.00

CONCRETE BOX CULVERT, WITH HEADWALLS AND WINGWALLS .

APPROX. SIZE = 40'X8', LENGTH = 33 FT., SKEW OF 30 DEGREES

23.31	8.52	692.92	0.00	0.00	693.75	.83	.13	0.00	695.90
2030.	0.	2030.	0.	0.	278.	0.	303.	101.	696.00
1.11	0.00	7.29	0.00	.060	.020	.075	.035	684.40	600.16
.000843	34.	34.	34.	3	0	1	0.00	35.20	635.36

1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 515.0 705.0 TYPE= 1 TARGET= 190.000

75 FEET U.S. OF S. EVERGREEN ROAD BRIDGE (U.S. FACE), VS-8 SEC.X

23.32	10.00	693.70	0.00	0.00	693.99	.29	.08	.16	690.40
2030.	388.	1642.	0.	229.	346.	0.	303.	101.	696.20
1.11	1.69	4.75	0.00	.070	.041	.075	.035	683.70	515.00
.001263	100.	75.	50.	2	0	1	0.00	118.21	633.21

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 400.0 758.0 TYPE= 1 TARGET= -400.000

250 FEET U.S. OF S. EVERGREEN ROAD BRIDGE (U.S. FACE), VS-7.5 SEC.Y

23.36	9.22	693.82	0.00	0.00	694.47	.65	.31	.19	694.40
2030.	163.	1867.	0.	154.	277.	0.	305.	102.	702.10
1.12	1.06	6.75	0.00	.080	.037	.075	.035	694.60	400.00
.002562	175.	175.	175.	2	0	1	0.00	187.28	612.85

1490 NH CARD USED

15 FEET D.S. OF DAM SECTION 23.413(EAST OF EVERGREEN RD.)

23.41	10.51	694.51	0.00	0.00	694.66	.15	.04	.15	694.30
2030.	0.	2030.	0.	0.	647.	0.	309.	103.	697.80
1.15	.04	3.14	0.00	.070	.012	.075	.035	684.00	330.73
.000041	485.	285.	135.	2	0	1	0.00	72.27	403.00

1490 NH CARD USED

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.50	3.40	0.00	.10	0.00	.01	0.00	686.70	686.70

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
*********	697.36	0.00	2031.	0.	0.	687.00	696.70	30.00

DAM SECTION 23.413 (550 FT. EAST OF EVERGREEN RD.), DS-6 SEC.Z

23.41	14.21	700.91	0.00	0.00	701.00	.08	6.34	0.00	700.00
2030.	0.	2024.	6.	3.	874.	97.	310.	103.	700.00
1.15	.06	2.32	.06	.070	.012	.070	.035	685.70	333.41
.000014	15.	15.	15.	2	0	11	0.00	234.25	562.16

1490 NH CARD USED

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

400 FEET D.S. FROM RIVERSIDE DRIVE BRIDGE (U.S. FACE), VS-5 SECAA

END OF ISLAND PROBLEM

23.47	8.51	701.01	0.00	0.00	701.03	.01	.01	.02	706.00
2560.	0.	2560.	0.	0.	2618.	0.	322.	106.	711.90
1.23	0.00	.98	0.00	.070	.042	.070	.035	692.50	68.68
.000062	200.	300.	500.	2	0	1	0.00	409.60	478.28

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 402.0 TYPE= 1 TARGET= 401.999

REPEATED SECTION FROM SECTION 23.47

23.53	8.33	701.03	0.00	0.00	701.06	.02	.03	.00	706.20
2560.	0.	2560.	0.	0.	2148.	0.	340.	108.	100000.00
1.31	0.00	1.19	0.00	.070	.049	.070	.035	692.70	68.99
.000128	470.	320.	270.	1	0	1	0.00	333.01	402.00

1490 NH CARD USED

23.54	8.18	700.88	0.00	0.00	701.24	.37	.02	.17	696.70
2560.	102.	1449.	1010.	38.	271.	239.	341.	109.	694.30
1.31	2.70	5.35	4.23	.035	.040	.035	.035	692.70	181.92
.001563	50.	50.	50.	2	0	1	0.00	159.41	341.33

D.S. FACE OF RIVERSIDE DRIVE BRIDGE

23.54	8.14	700.84	0.00	0.00	701.28	.44	.00	.04	696.70
2560.	83.	1653.	824.	37.	269.	235.	341.	109.	694.30
1.31	2.22	6.14	3.51	.025	.020	.025	.035	692.70	182.08
.000550	1.	1.	1.	2	0	1	0.00	156.55	338.63

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.45	3.04	0.00	33.53	.01	348.70	0.00	692.70	692.70

6840,FLOW IS BY WEIR AND LOW FLOW

BRIDGE W.S.= 700.84 BRIDGE VELOCITY= 9.23

704.00	702.17	.00	60.	2520.	349.	704.00	701.70	15.00

U.S. FACE OF RIVERSIDE DRIVE BRIDGE, BS-4 SEC.AB

CONCRETE BRIDGE, WITH HEADWALLS AND WINGWALLS

APPROX. SIZE = 40' X 6', LENGTH = 29 FEET

23.55	9.22	701.92	0.00	0.00	702.17	.25	.88	0.00	696.70
2560.	109.	1505.	946.	59.	312.	389.	342.	109.	694.30
1.31	1.85	4.82	2.43	.025	.020	.025	.035	692.70	177.42
.000278	29.	29.	29.	2	0	3	0.00	295.44	472.86

1490 NH CARD USED

GROUND POINTS FROM SECTION 23.541 1 FT. UPSTREAM

23.55	9.19	701.89	0.00	0.00	702.19	.30	.00	.02	696.70
2560.	172.	1562.	826.	58.	311.	262.	342.	109.	694.30
1.31	2.95	5.02	3.15	.032	.040	.032	.035	692.70	177.53
.001171	1.	1.	1.	2	0	1	0.00	286.93	464.45

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 86.0 480.0 TYPE= 1 TARGET= 394.000

450 FEET U.S. FROM RIVERSIDE DRIVE BRIDGE (U.S. FACE), VS-3 SEC.AC

23.63	8.23	702.43	0.00	0.00	702.49	.06	.23	.07	698.90
2560.	0.	2236.	324.	0.	1041.	582.	354.	113.	698.30
1.38	.01	2.15	.56	.032	.042	.080	.035	694.20	86.00
.000274	250.	450.	550.	2	0	1	0.00	394.00	480.00

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= 270.0 956.0 TYPE= 1 TARGET= -270.000

1350 FEET U.S. FROM RIVERSIDE DRIVE BRIDGE (U.S. FACE), VS-2 SEC.AD

23.80	8.77	702.67	0.00	0.00	702.68	.01	.17	.02	698.30
2100.	455.	442.	1203.	737.	337.	1863.	399.	123.	697.60
1.69	.62	1.31	.65	.075	.049	.075	.034	693.90	270.00
.000138	1100.	900.	750.	2	0	1	0.00	666.91	936.91

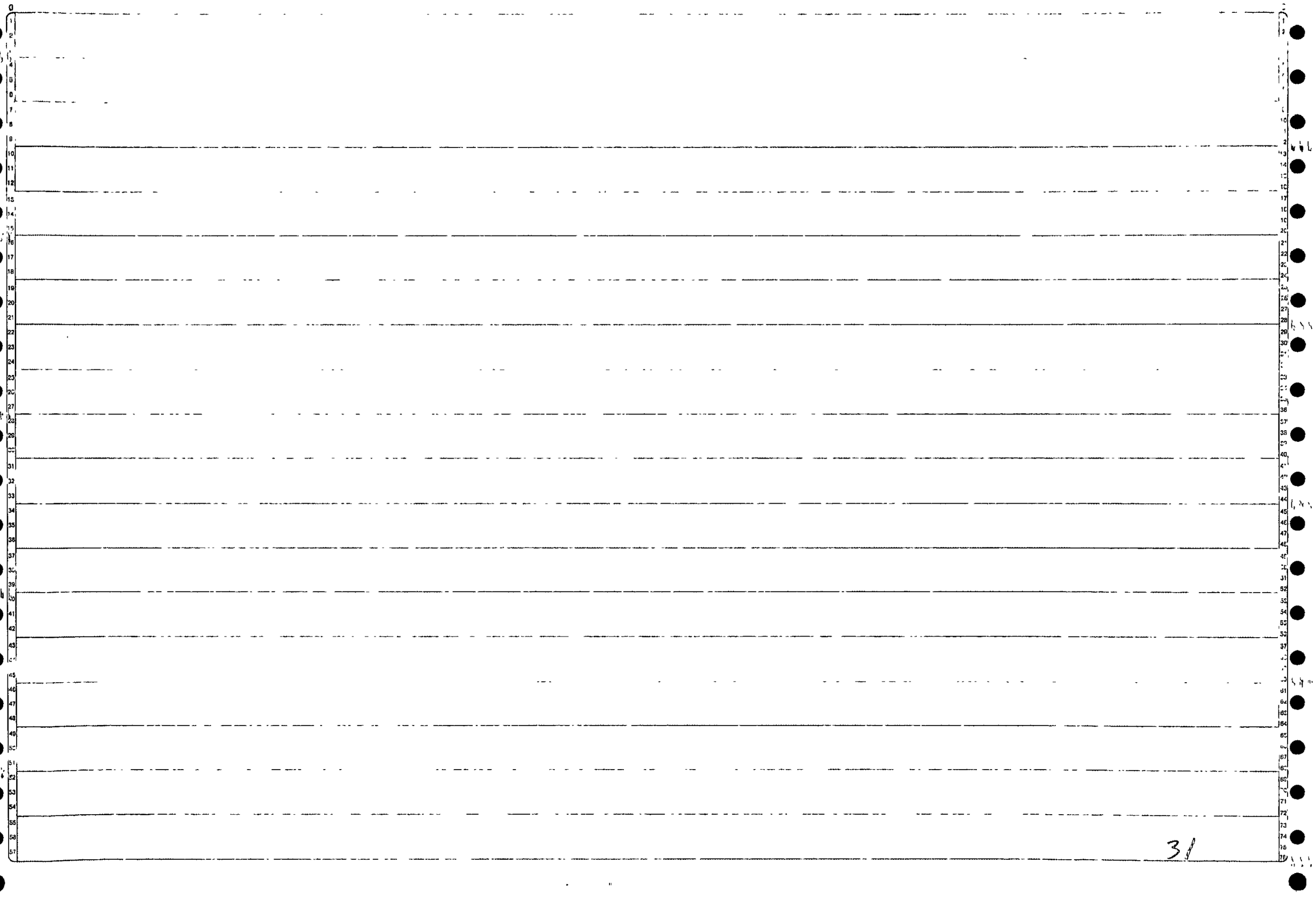
1490 NH CARD USED

2050 FEET U.S. FROM RIVERSIDE DRIVE BRIDGE (U.S. FACE), VS-1 SEC.AF

23.94	9.77	702.77	0.00	0.00	702.80	.03	.11	.01	699.70
2100.	674.	741.	684.	1041.	332.	994.	434.	132.	699.70

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
.000265	900.	700.	350.	2	0	1	0.00	711.50	736.77

1490 NH CARD USED



START TRIB COMP
-23.190 23.190 69178.209 691.782

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

1500 FT. D.S. OF N. EVERGREEN RD. BRIDGE (U.S. FACE), VS-12 SEC.U

-23.19	8.88	691.78	0.00	0.00	691.97	.18	.20	0.00	685.30
2560.	304.	1180.	1076.	214.	249.	630.	448.	136.	687.60
1.86	1.42	4.75	1.71	.085	.045	.057	.034	682.90	79.86
.001377	500.	400.	250.	0	0	1	0.00	398.29	478.14

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 140.0 TYPE= 1 TARGET= 139.999

490 FT. D.S. OF N. EVERGREEN RD. BRIDGE (U.S. FACE), VS-11 SEC.A

23.38	7.27	692.67	0.00	0.00	692.70	.03	.68	.05	690.20
530.	52.	473.	5.	95.	326.	10.	462.	140.	689.90
2.04	.55	1.45	.49	.060	.041	.045	.033	685.40	.00
.000158	800.	1020.	500.	2	0	1	0.00	107.09	107.09

1490 NH CARD USED

21 FT. D/S OF DAM SECTION 23.461 (W. OF EVERGREEN ROAD)

23.46	7.04	692.64	0.00	0.00	692.87	.24	.07	.10	698.40
530.	0.	530.	0.	0.	135.	0.	464.	141.	698.30
2.07	0.00	3.92	0.00	.060	.015	.045	.033	685.60	63.00
.000239	300.	389.	440.	2	0	1	0.00	20.00	83.00

1490 NH CARD USED

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.50	3.08	0.00	.10	0.00	.01	0.00	686.40	686.40

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
**********	693.85	0.00	535.	0.	0.	687.00	696.40	30.00

DAM SECTION 23.461 (80 FT. WEST OF EVERGREEN RD.), DS-10 SEC.B

23.46	14.45	700.85	0.00	0.00	700.94	.09	8.06	0.00	699.30
530.	2.	528.	0.	20.	218.	4.	464.	141.	699.50
2.07	.09	2.42	.07	.075	.015	.075	.033	686.40	42.50
.000019	21.	21.	21.	2	0	11	0.00	42.41	84.91

3470 ENCROACHMENT STATIONS= 178.0 216.0 TYPE= 1 TARGET= 38.000

23.47	6.35	700.85	0.00	0.00	700.94	.09	.00	.00100000.00	
530.	0.	530.	0.	0.	218.	0.	464.	141.	100000.00
2.07	0.00	2.43	0.00	.075	.037	.075	.033	694.50	178.00
.000356	25.	37.	50.	0	0	1	0.00	38.00	216.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	3.00	0.00	33.00	2.00	244.00	0.00	694.50	694.51

1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION 23.48 EXTENDED 4.86 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

CLASS A LOW FLOW

BRIDGE W.S.= 700.83 BRIDGE VELOCITY= 2.70

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
0.00	700.96	.01	0.	530.	244.	701.90	704.60	1.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 705.00 ELREA= 705.00

U.S. FACE OF NORTH EVERGREEN ROAD BRIDGE, BS-9 SEC.C

CONCRETE BOX CULVERT, WITH PIERS, HEADWALLS, AND WINGWALLS

APPROX. SIZE = 38' X 6.5', LENGTH = 44 FEET

23.48	6.36	700.86	0.00	0.00	700.96	.10	.02	0.00	704.60
530.	0.	530.	0.	0.	207.	0.	465.	141.	705.80
2.08	0.00	2.56	0.00	.075	.015	.075	.033	694.50	178.00
.000159	45.	45.	45.	0	0	1	0.00	36.00	216.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 230.0 TYPE= 1 TARGET= 229.999

175 FEET U.S. OF N. EVERGREEN ROAD BRIDGE (U.S. FACE), VS-7 SEC.D

23.51	7.59	700.99	0.00	0.00	701.00	.01	.01	.03	701.10
530.	0.	530.	0.	0.	622.	0.	466.	141.	100000.00
2.13	0.00	.85	0.00	.075	.037	.075	.033	693.40	100.17
.000037	200.	175.	150.	2	0	1	0.00	104.24	204.41

1490 NH CARD USED

400 FEET D.S. OF RIVERSIDE DRIVE BRIDGE (U.S. FACE), VS-5 SEC.AA

23.61	8.52	701.02	0.00	0.00	701.03	.01	.03	.00	706.00
~~2560.~~	~~0.~~	~~2560.~~	~~0.~~	~~0.~~	~~2621.~~	~~0.~~	~~487.~~	~~144.~~	~~711.90~~
2.29	0.00	.98	0.00	.075	.042	.075	.032	592.50	68.66
.000062	600.	550.	500.	2	0	1	0.00	409.63	478.30

START TRIB COMP
-23.190 23.190 69310.152 693.102

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
1500 FT. D.S. OF N. EVERGREEN RD. BRIDGE (U.S. FACE), VS=12 SEC.U									
-23.19	10.20	693.10	0.00	0.00	693.25	.14	.16	0.00	685.30
3820.	427.	1305.	2088.	311.	291.	1046.	649.	154.	687.60
1.86	1.38	4.49	2.00	.085	.045	.054	.034	682.90	66.39
.001015	500.	400.	250.	0	0	1	0.00	442.43	508.83
1490 NH CARD USED									
3470 ENCROACHMENT STATIONS= .0 140.0 TYPE= 1 TARGET= 139.999									
490 FT. D.S. OF N. EVERGREEN RD. BRIDGE (U.S. FACE), VS=11 SEC.A									
23.38	8.38	693.78	0.00	0.00	693.81	.03	.53	.03	690.20
675.	90.	574.	11.	141.	392.	19.	667.	158.	689.90
2.04	.64	1.46	.56	.060	.041	.045	.034	685.40	.00
.000130	800.	1020.	500.	2	0	1	0.00	109.96	109.96
1490 NH CARD USED									
21 FT. D/S OF DAM SECTION 23.461 (W. OF EVERGREEN ROAD)									
23.46	8.12	693.72	0.00	0.00	694.01	.29	.07	.13	698.40
675.	0.	675.	0.	0.	157.	0.	670.	158.	698.30
2.06	0.00	4.30	0.00	.060	.015	.045	.033	685.60	63.00
.000257	300.	389.	440.	2	0	1	0.00	20.00	83.00
1490 NH CARD USED									
SPECIAL BRIDGE									

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.50	3.09	0.00	.10	0.00	.01	0.00	686.40	686.40

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	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
*********	695.02	0.00	677.	0.	0.	687.00	696.40	30.00

35

DAM SECTION 23.461 (80 FT. WEST OF EVERGREEN RD.), DS-10 SEC.B

675.	4.	670.	1.	30.	225.	7.	670.	158.	699.50
2.07	.13	2.98	.10	.075	.015	.075	.033	686.40	38.82
.000028	21.	21.	21.	2	0	11	0.00	48.03	86.85

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 178.0 216.0 TYPE= 1 TARGET= 38.000

23.47	6.80	701.30	0.00	0.00	701.43	.13	.00	.001	00000.00
675.	0.	675.	0.	0.	235.	0.	670.	158.	100000.00
2.07	0.00	2.87	0.00	.075	.037	.075	.033	694.50	178.00
.000451	25.	37.	50.	0	0	1	0.00	38.00	216.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	3.00	0.00	33.00	2.00	244.00	0.00	694.50	694.50

1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION 23.48 EXTENDED 5.32 FEET

CLASS A LOW FLOW

BRIDGE W.S.= 701.28 BRIDGE VELOCITY= 3.21

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
0.00	701.46	.02	0.	675.	244.	701.90	704.60	1.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 705.00 ELREA= 705.00

U.S. FACE OF NORTH EVERGREEN ROAD BRIDGE, BS-9 SEC.C

CONCRETE BOX CULVERT, WITH PIERS, HEADWALLS, AND WINGWALLS

APPROX. SIZE = 38' X 6.5', LENGTH = 44 FEET

23.48	6.82	701.32	0.00	0.00	701.46	.14	.03	0.00	704.60
675.	0.	675.	0.	0.	223.	0.	671.	158.	705.80
2.07	0.00	3.02	0.00	.075	.015	.075	.033	694.50	178.00
.000210	45.	45.	45.	0	0	1	0.00	36.00	216.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 230.0 TYPE= 1 TARGET= 229.999

175 FEET U.S. OF N. EVERGREEN ROAD BRIDGE (U.S. FACE), VS-7 SEC.D

23.51	8.10	701.50	0.00	0.00	701.52	.02	.02	.04	701.10
675.	1.	674.	0.	5.	676.	0.	673.	159.	100000.00
2.12	.11	1.00	0.00	.032	.037	.075	.033	693.40	75.00
.000047	200.	175.	150.	2	0	1	0.00	130.83	205.83

1490 NH CARD USED

400 FEET D.S. OF RIVERSIDE DRIVE BRIDGE (U.S. FACE), VS-5 SEC.AA

23.61	9.04	701.54	0.00	0.00	701.57	.03	.05	.01	706.00
3820.	0.	3820.	0.	0.	2837.	0.	695.	162.	711.90
2.24	0.00	1.35	0.00	.032	.042	.075	.033	692.50	67.75
.000107	600.	550.	500.	2	0	1	0.00	411.84	479.59

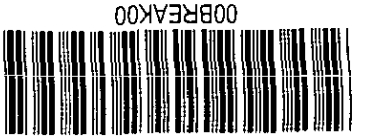


1) COUNTY: OAKLAND

2) STUDY NAME: BEVERLY HILLS, VILLAGE 1

3) WATERCOURSE: RIVER ROUGE

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS



Received as enclosure with letter dated Aug 31, 1977 from J. & A

ROUGE RIVER, VILLAGE OF BEVERLY HILLS

The revision was made as a result of a comparison of the hydraulic model to a 1966 FPI report done by the U. S. Corps of Engineers for the Main Branch of the Rouge River. This comparison revealed a few facts that would seemingly affect the model, therefore, additional information was obtained and the revisions incorporated into the HEC-2 modeling.

The additional material included:

1. Verification of field-surveyed elevations at Lahser Road Bridge. The FPI report shows the bridge as being 4.46 feet lower than was surveyed by Johnson & Anderson, Inc. The elevation obtained by Johnson & Anderson, Inc. has been corroborated by an independent survey done for the Wilcox Drain at Lahser Road.

2. Field survey of two foot-bridges that were not originally picked up by our field crews. These bridges have been surveyed and inserted into the HEC-2 model.

3. The flows upstream of Riverside Drive, Section 23.778. The original hydrology submittal revealed this flow changed, but by an oversight, the new values were never inserted.

VILLAGE OF BEVERLY HILLS
FLOOD INSURANCE STUDY

HYDRAULIC ANALYSIS
OF
THE RIVER ROUGE

June 9, 1977

J&A File No. 5670-01
Richard Zanotti, Project Manager

Cross Section Location

Cross Section	SECNO	J&A SECNO	Location
A	20.767	VS-30	400'± u/s of Beverly Hills Corporate Limits
B	20.862	VS-29	900'± u/s of Beverly Hills Corporate Limits
C	21.013	VS-28	650'± d/s of Lahser Road Bridge
D	21.136	BS-27	u/s Face of Lahser Road Bridge
E	21.184	VS-26	250'± u/s of Lahser Road Bridge
F	21.250	BS-25	u/s Face of Riverview Road Bridge
G	21.354	VS-24	550'± u/s of Riverview Road Bridge
H	21.581	VS-23	1600'± d/s of 13 Mile Road Bridge
I	21.790	VS-22	500'± d/s of 13 Mile Road Bridge
J	21.884	BS-21	u/s Face of 13 Mile Road Bridge
K	21.970	VS-20	450'± u/s of 13 Mile Road Bridge
L	22.055	VS-19	900'± u/s of 13 Mile Road Bridge
M	22.169	VS-18	1000'± d/s of Walk Bridge (W. Lady to W. Kennoway Drive)
N	22.358	BS-17	u/s Face of Walk Bridge (W. Lady to W. Kennoway Drive)
O	22.434	VS-16	400'± u/s of Walk Bridge (W. Lady to W. Kennoway Drive)
P	22.585	VS-15	1200'± u/s of Walk Bridge (W. Lady to W. Kennoway Drive)
Q	22.680	VS-14	1700'± u/s of Walk Bridge (W. Lady to W. Kennoway Drive)
R	23.078	VS-13	1100'± d/s of Evergreen Road - South Bridge
S	23.17	VS-12	600'± d/s of Evergreen Road - South Bridge
T	23.248	VS-11	200'± d/s of Evergreen Road - South Bridge
U	23.286	BS-9	u/s Face of Evergreen Road - South Bridge
V	23.300	VS-8	75'± u/s of Evergreen Road - South Bridge

Cross Section	SECNO	J&A SECNO	Location
W	23.333	VS-7	250'± u/s of Evergreen Road - South Bridge
X	23.390	DS-6	u/s Face of Dam Section 6 (550'± East of Evergreen Road)
Y	23.45	VS-5	400'± d/s of Riverside Drive Bridge
Z	23.523	BS-4	u/s Face of Riverside Drive Bridge
AA	23.608	VS-3	450'± u/s of Riverside Drive Bridge
AB	23.778	VS-2	1350'± u/s of Riverside Drive Bridge
AC	23.911	VS-1	2050'± u/s of Riverside Drive Bridge
BB	-23.17	VS-12	1330'± d/s of Evergreen Road - North Bridge
BC	23.343	VS-11	430'± d/s of Evergreen Road - North Bridge
BD	23.409	DS-10	u/s Face of Dam Section 10 (80'± West of Evergreen Road)
BE	23.425	BS-9	u/s Face of Evergreen Road - North Bridge
BF	23.458	VS-7	175'± u/s of Evergreen Road - North Bridge
BG	23.562	VS-5	400'± d/s of Riverside Drive Bridge

HYDRAULIC ANALYSIS

Introduction

The Main River Rouge carries discharge from Bloomfield Hills, Bloomfield Township, Troy, and Birmingham in southern Oakland County before reaching the northern section of the Village of Beverly Hills. It has a drainage area of approximately 35 square miles as it reaches the northern corporate limits of Beverly Hills. The study includes approximately 3.3 miles of the River Rouge from the northern corporate boundary of 14 Mile Road to the southern corporate boundary of Bingham Farms. It also includes approximately 0.4 miles from the northern corporate boundary of Southfield through Bingham Farms to the southern corporate boundary of Beverly Hills. The flows were determined by using the recorded flows from the Birmingham, Southfield, and Detroit gages. These flows were found to be compatible with previous adjacent studies done in Southfield and Birmingham by the U.S. Army Corps of Engineers (References 1 and 2). The flows have been approved by the Michigan Department of Natural Resources.

Method of Analysis

The flood profiles were calculated by the HEC-2 computer program developed by the U.S. Army Corps of Engineers (Reference 3). All bridges have been modeled by the requirements of the HEC-2 normal and special bridge routines.

Variables and Coefficients

The roughness factors (Manning's "n") were determined by comparing descriptions in V. T. Chow's Open-Channel Hydraulics (Reference 4) with photographs and field descriptions taken in Bingham Farms and Beverly Hills by survey crews in

January, 1977 and October, 1977, respectively. These descriptions were supplemented by field reconnaissance in March, 1977 and are indicative of summer conditions.

Starting Conditions

The profile computations for the River Rouge began at the northern corporate limits of Southfield. The starting elevations were determined by using the values given for the northern corporate limits found on Plate 4 of the Preliminary Flood Insurance Study for the City of Southfield done by the U.S. Army Corps of Engineers. From the Southfield corporate limits, the 10-, 50-, 100-, and 500-year flows were run through Bingham Farms to the Beverly Hills southern corporate limits to find the starting elevations for Beverly Hills.

Bingham Farms was included in this analysis since continuity of the river profile was required for a proper starting elevation at Beverly Hills. Therefore the stream profile will run from the northern corporate limits of Southfield to the northern corporate limits of Beverly Hills.

Stationing was recorded in river miles from the mouth of the River Rouge at the Detroit River.

Special Problems

The special problems encountered in Beverly Hills on the River Rouge consisted mainly of one island problem found at Evergreen Road and two dam sections found at 550'± east of Evergreen Road and 80'± west of Evergreen Road (SECNO = 23.390 and 23.409, respectively).

The island problem consisted of two channels of the River Rouge with a concrete dam located on each. Evergreen Road crossed both channels creating a special bridge on each tributary. Rating curves were run on each dam to provide an estimate of the flows passing through each channel. From these curves, different flows were run up each channel using the tributary option of the HEC-2 program until a common water-surface elevation was found at cross section 5 above the island problem, essentially a lake elevation. This elevation served as a check to determine if the assumed flows were correct.

Both of the dam sections were modeled with the special bridge routine. Weir flows were calculated over weirs defined by the stations and road elevations on BT cards. On the SB card, some arbitrarily small values for the variables defining the trapezoid and the orifice area were given to cause the program (1) to solve for a combination of pressure flow and weir flow and (2) to provide a negligible pressure flow (Reference 5). The weir discharge coefficients were determined by dam shapes and the 100-year flood energy grade elevations. The first dam section (SECNO = 23.390) is a sharp-crested weir and weir height is about 10.0 feet. For the 100-year flow, H (energy grade elevation over weir crest) is about 4.0 feet and so the weir discharge coefficient was found to be 3.40 (Reference 6). The second dam section (SECNO = 23.409) is a concrete, broad-crested weir with a weir breadth of 4.0 feet. For the 100-year flood, H is about 4.0 feet to cause C = 3.08 (Reference 6).

Discussion

The flood plain along the River Rouge within the corporate limits of Beverly Hills is basically undeveloped with most residential homes having been built above the flood plain. Vegetation varies from fairly woody

sections with thick underbrush to sections of mowed lawns. This gives "n" values ranging from 0.085 to 0.032. The flood plain is relatively flat with widths ranging from 40 to 600 feet and channel banks at 9 to 12 feet in height. The approximate channel slope is .00205.

Generally speaking, the water-surface profile in this river is very sensitive to the floodway. For instance, by moving in the encroachment 40 feet (total) at section 20.767, the water-surface elevation upstream will raise 0.20 ft. Another example, having moved the encroachment 75 feet at section 21.738 and 50 feet at section 21.790, it raises the water-surface elevation upstream by 0.39 feet. Due to these characteristics, the maximum reduction in top width in this study is less than 20 feet. Therefore, only the natural encroachment HEC-2 run was provided.

References

1. U.S. Army Corps of Engineers, Preliminary Flood Insurance Study for the City of Southfield, December, 1973.

2. U.S. Army Corps of Engineers, Preliminary Flood Insurance Study for the City of Birmingham, December, 1973.

3. U.S. Army Corps of Engineers, HEC-2 Water Surface Profiles Users Manual, October, 1973.

4. Chow, Ven Te, Open-Channel Hydraulics, pp. 101-123, McGraw-Hill, 1959.

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

6. Hulsing, Harry, Measurement of Peak Discharge at Dams by Indirect Method, Techniques of Water-Resources Investigations of USGS, 1976.

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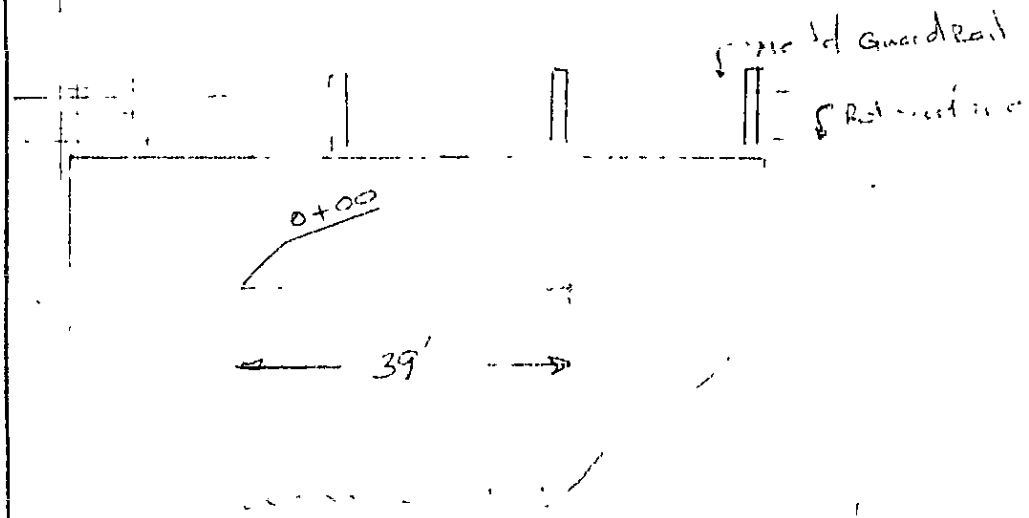
HYDRAULIC STRUCTURAL DATA

Code No. 01- -- Ex. # 27

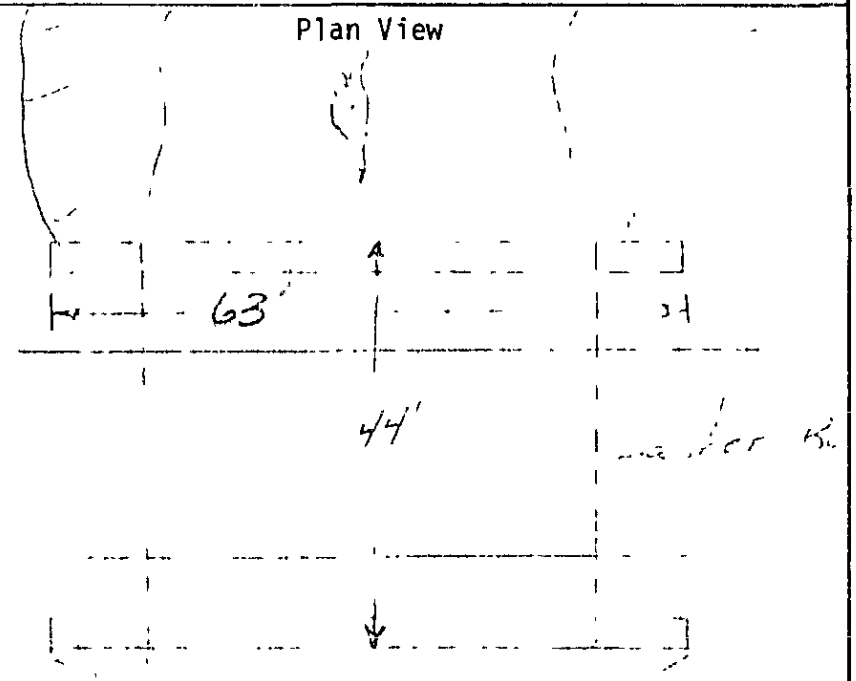
Job Name: Beverly Hills, Village of			By: G. Norberg
Date: 10-11-76	Feature: Conc. Box Culv.		Water Course: Rouge River
Remarks: Under Rd Bridge			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 661.7	Length: 44'	Width of Deck:	Skew: —

FIELD SKETCH

Profile View



Plan View



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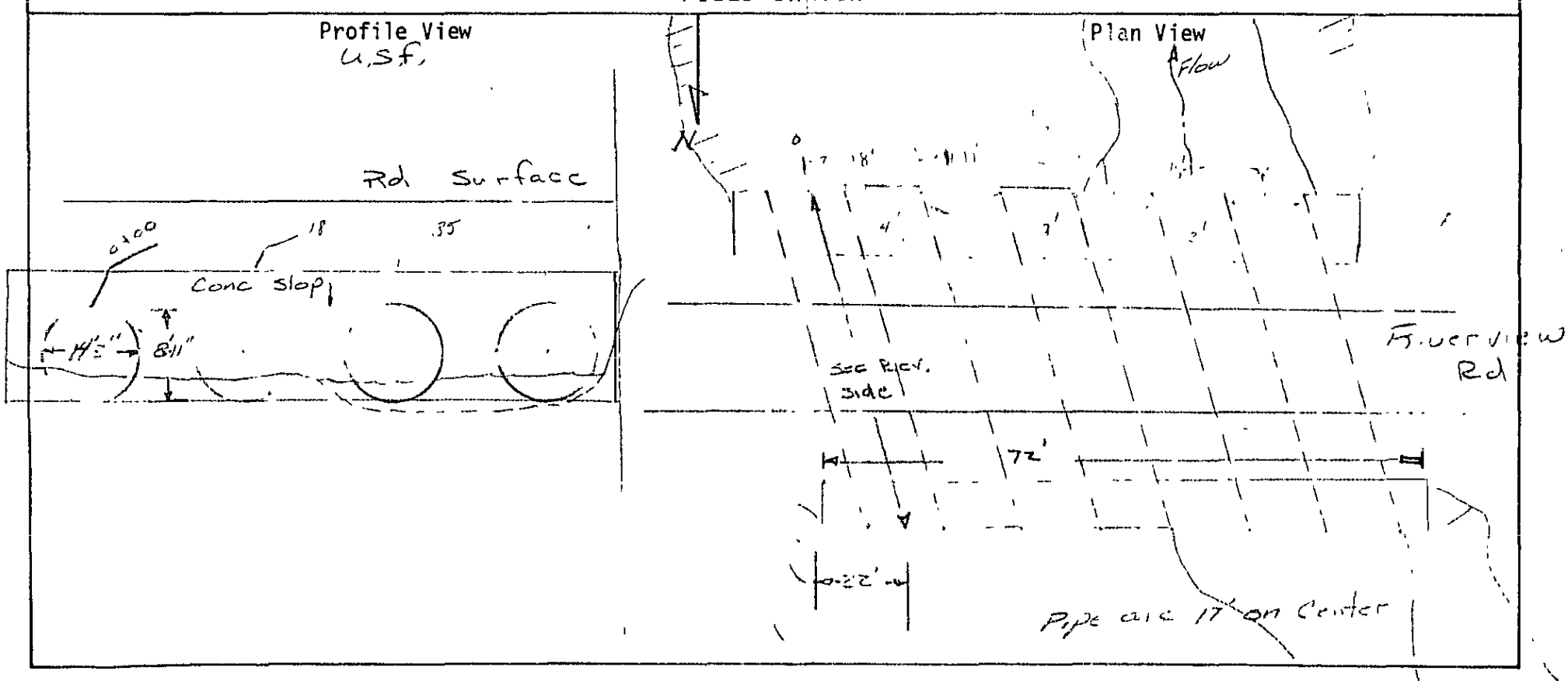
HYDRAULIC STRUCTURAL DATA

Code No. 21- - [illegible]

Job Name: Village of Beverly Hills		By: [illegible]
Date: 10-11 76	Feature: 1 "C.M.P. X-Culv.	Water Course: Rouge River
Remarks: River View Rd Bridge		

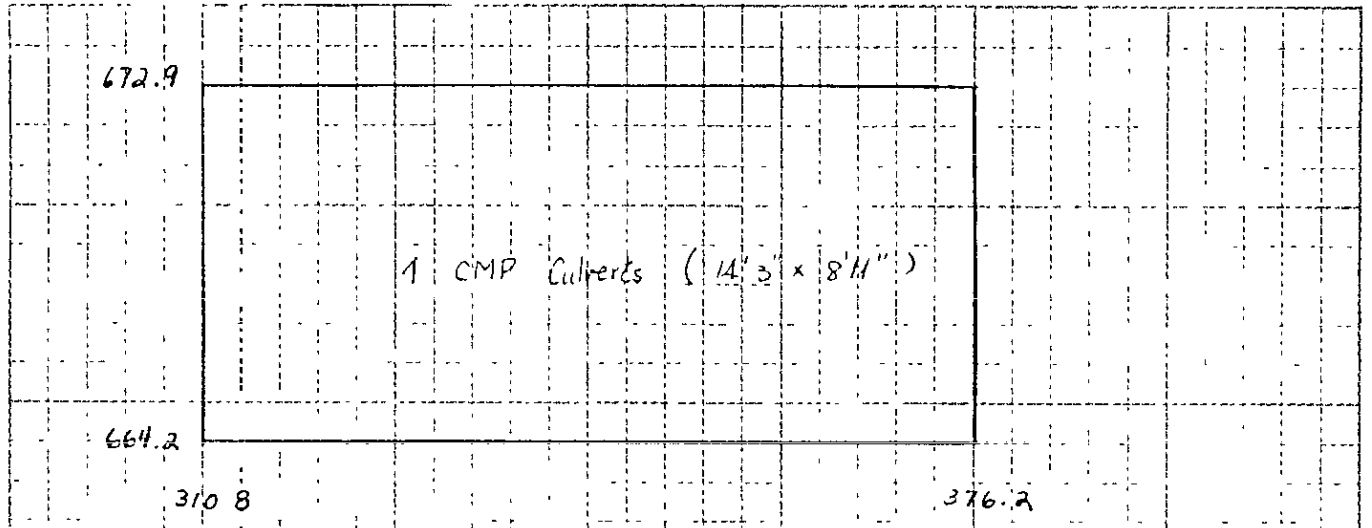
Width of Piers: —	Pier Shape: -	No. of Piers: - - - - -	Area:
Water Elevation: 662.3	Length: See Rev Side	Width of Deck: - -	Skew:

FIELD SKETCH



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY LDT DATE 2/9/22 JOB DESCRIPTION Villages of Reverly II, III SHEET 1 OF 1
SUBJECT Riverview Rd Culvert (B.S. #25) JOB NO 5620-01-1



Area: $A = 341.4\ ft^2$

Wetted Perimeter: $P = 165.2\ ft$

Hydraulic Radius: $R = A/P = 2.06\ ft$

Max. Depth: $D = 8.8\ ft$

Bottom Width: $BWC = \frac{341.1}{8.8} = 39.8\ ft$

Length: $L = 88\ ft.$

Manning Coeff.: $n = .031$ (silt & gravel bottom)

Entrance loss: $K_e = 0.5$ (with Headwall)

$$K_f = \frac{21.1\,(.031)^2\,(39')}{(2.06)^{4/3}} = 0.94$$

$$XKOR = .1 + 0.5 + 0.94 = \underline{2.44}$$

Weir Coefficient: $C = 3.04$ (Paved Road, $H \approx 1.0\ ft$, $L = 88\ ft$)

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HYDRAULIC STRUCTURAL DATA

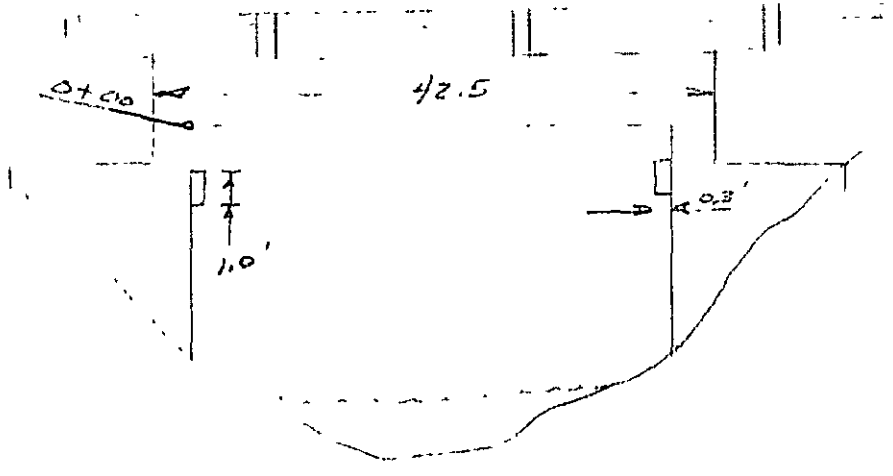
Code No. 1

Job Name: Beverly Hills FIS			By: G. Norberg
Date: 8-17-76	Feature: Conc. Bridge		Water Course: Rouge River
Remarks: 13 Mile Rd Bridge			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 670.3	Length: 49.0'	Width of Deck: 42.5'	Skew: —

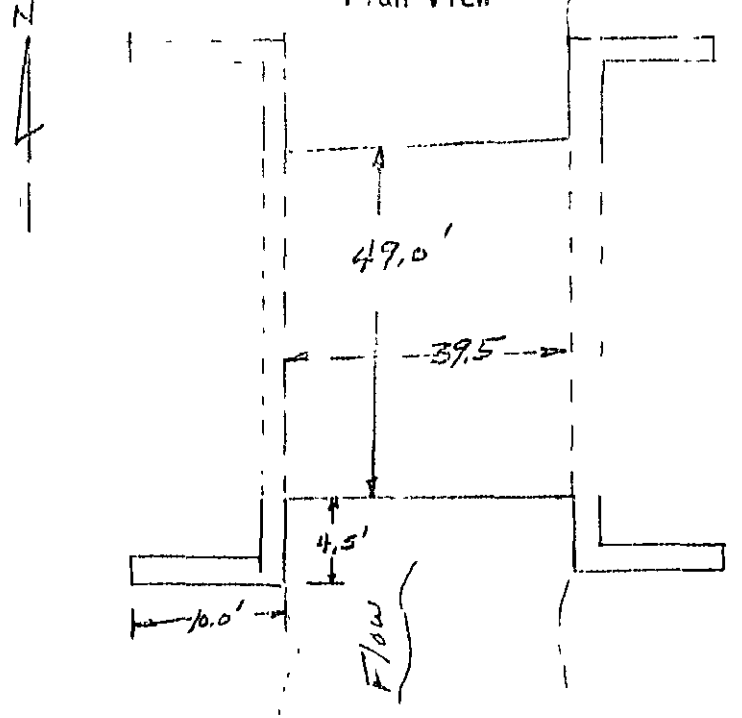
FIELD SKETCH

Profile View

Upstream face

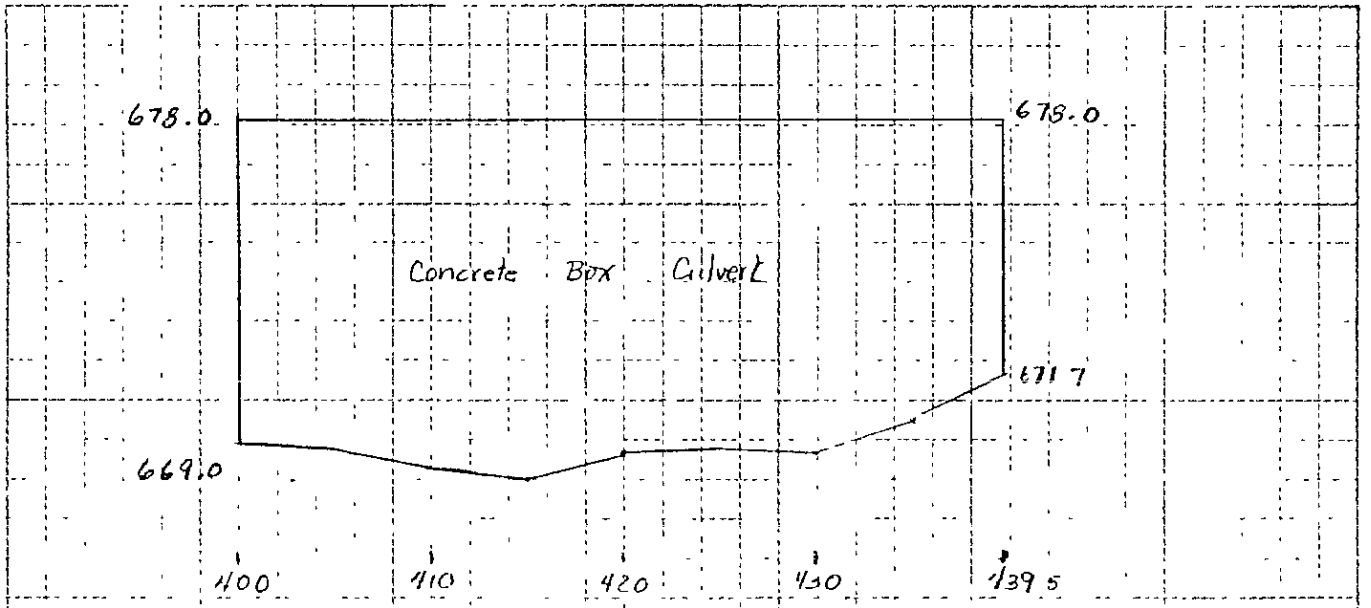


Plan View



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY LDT DATE 2/10/92 JOB DESCRIPTION Federal Hill Rd ES SHEET 1 OF
SUBJECT 13-Mile Rd Bridge (BS # 21) JOB NO. 5610-11-1



Area: $A = 33.2$ ft²

Wetted Perimeter: $P = 93.3$ ft

Hydraulic Radius: $R = 3.56$ ft

Max. Depth: $D = 4.2$ ft

Bottom Width: $BWC = \frac{33.2}{9.2} = 36.1$ ft

Length: $L = 49$ ft

Manning Coeff.: $n = .018$ (Smooth Metal)

Entrance loss: $K_e = 0.50$ (Headwall Parallel to Embankment)

$$K_f = \frac{29.1\left(\frac{.018}{.018}\right)^2(49)}{(3.56)^{4/3}} = .08$$

$$\Sigma K_{OR} = 1.08 + .5 = \underline{1.58}$$

Weir Coefficient: $C = 3.0$ (Pressure Flow only — Arbitrary Value)

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

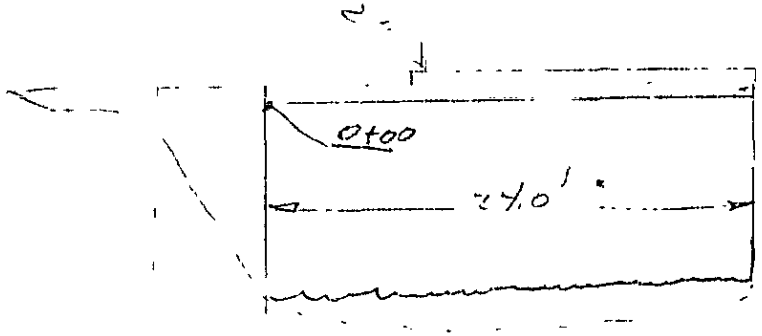
HYDRAULIC STRUCTURAL DATA

Code No. ____

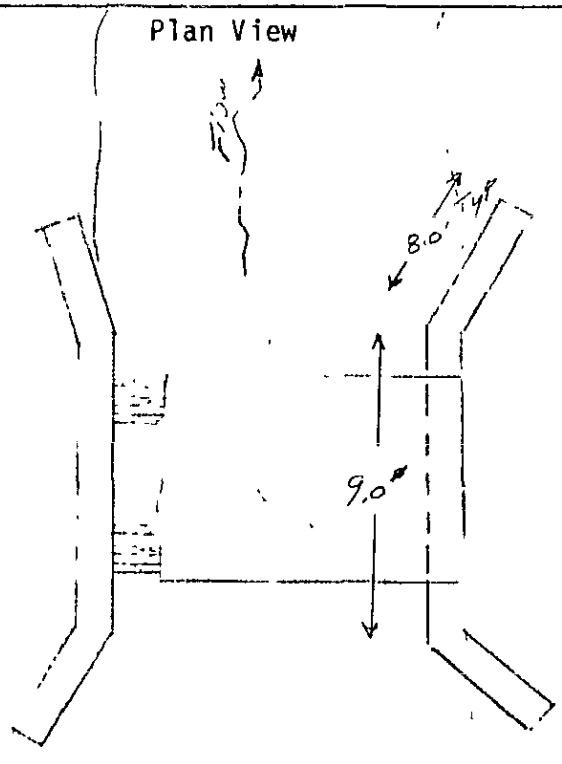
Job Name: Beverly Hills, Village of			By: G. Norberg
Date: 10-8-76	Feature: Conc-Steel-wood Bridge		Water Course: River Rouge
Remarks: walk Bridge connecting west Lady' Dr with W. Kenraway Dr.			
Width of Piers: ——	Pier Shape: ——	No. of Piers: —	Area:
Water Elevation: 676.0	Length: 24.0'	Width of Deck: 9.0'	Skew:

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

Sheet 2 of 2

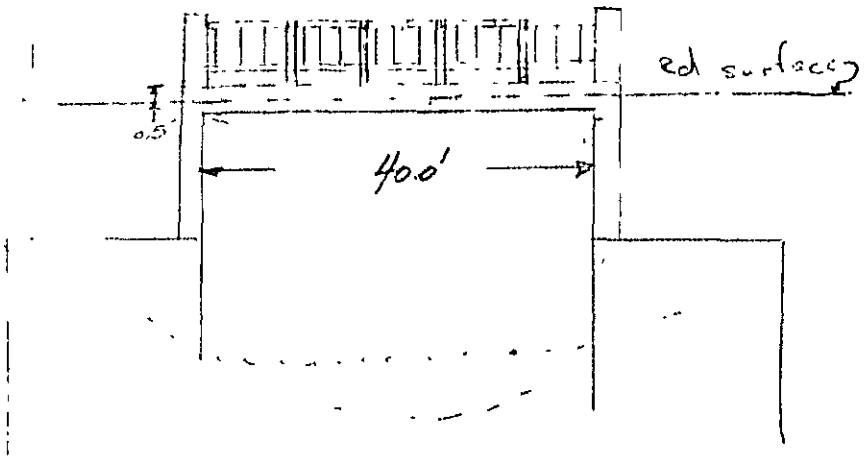
Code No. 5670-01- - BS #9

Job Name: Village of Beverly Hills		By: G. Norberg
Date: 10-11-76	Feature: Minor Bridge	Water Course: Rouge River
Remarks: Evergreen Rd.		

Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: See Below	Length:	Width of Deck:	Skew:

FIELD SKETCH

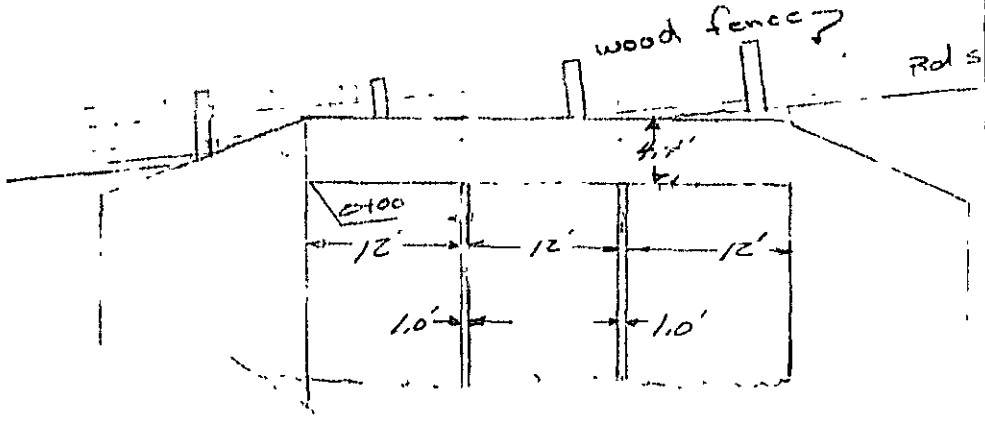
Profile View
u.s.f. S. Bridge



water EL = 684.9

BS #9.5

Profile View
~~Plan View~~ u.s.f. N. Bridge



water EL = 696.7

BS #9

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HYDRAULIC STRUCTURAL DATA

Sheet 1 of 2

Code No. [illegible]

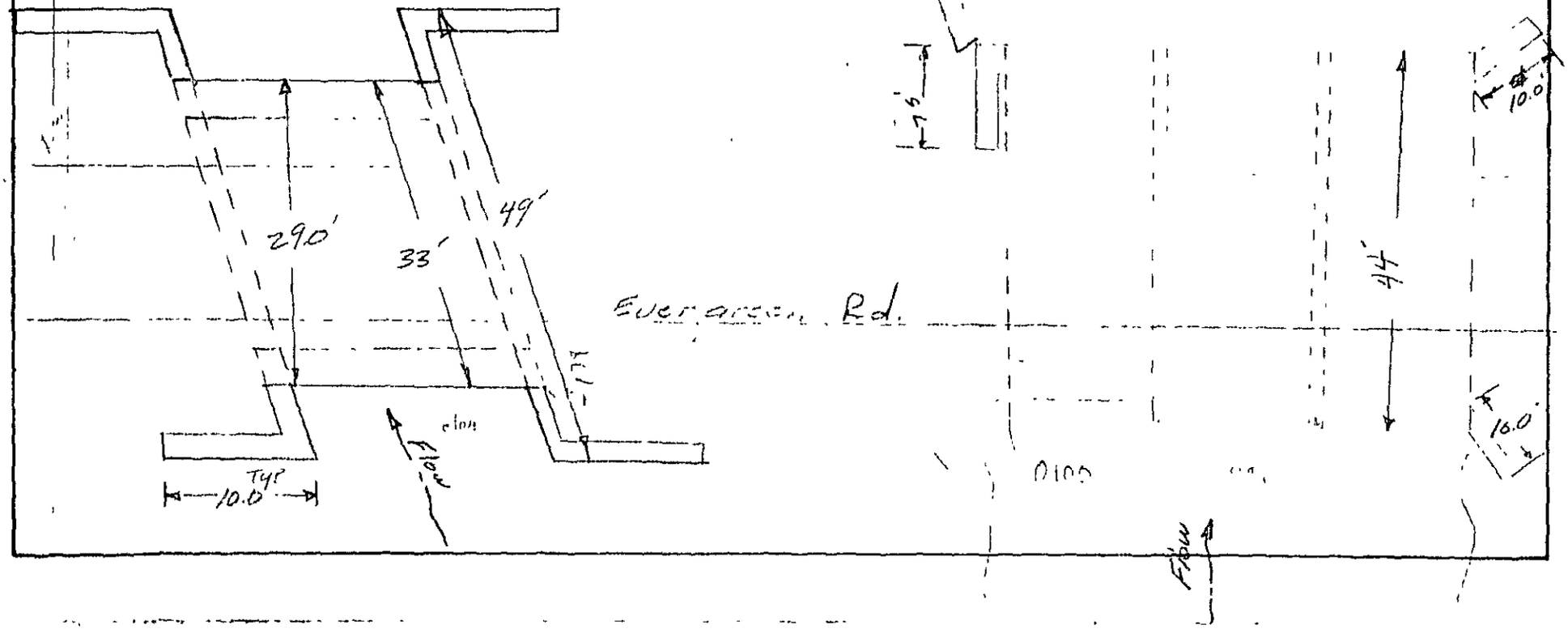
Job Name: Village of Beverly Hills			By: C. Norberg
Date:	Feature: Conc. Box Culv.		Water Course: Rouge River
Remarks: Evergreen Rd Bridge. West Has Large Amt of Trash			
	(see sheet 2)		
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

~~Profile View~~
Plan view
South

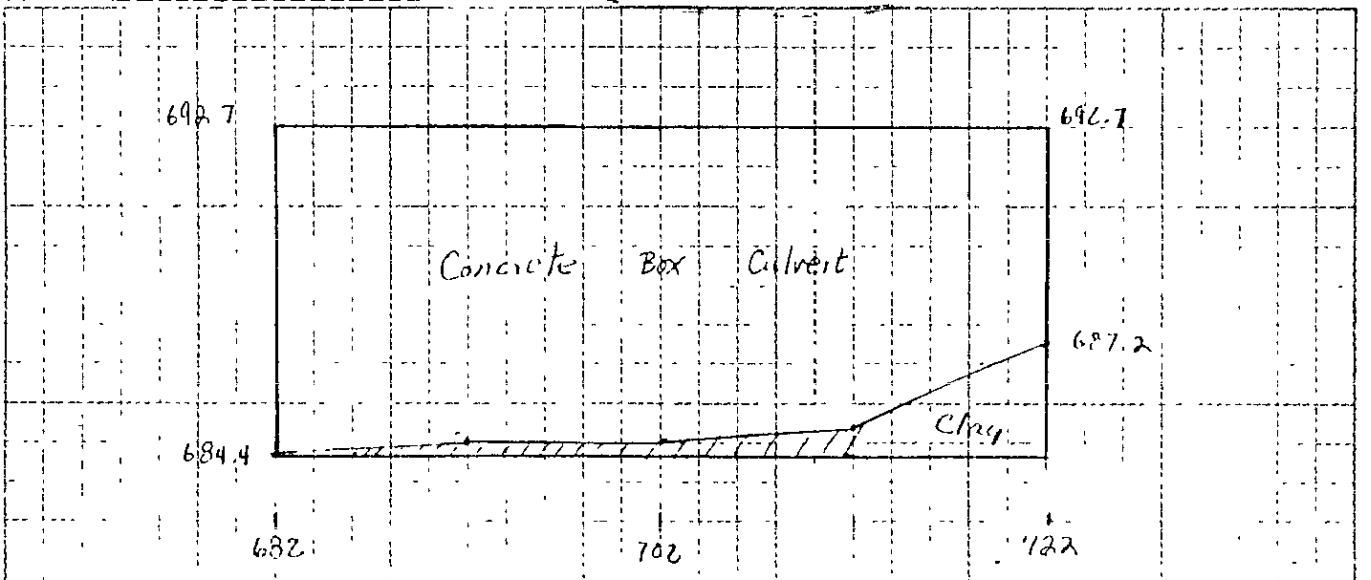
N

Plan View
North



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BY LDT DATE 2/10/77 JOB DESCRIPTION Beverly Hills, C.C.S. SHEET 1 OF 2
SUBJECT Evergreen Road Bridges (South Bridge) JOB NO. 5610.01-1



Area: $A = 307.4$ ft²

Wetted Perimeter: $P = 94.0$ ft

Hydraulic Radius: $R = A/P = 3.21$ ft

Max. Depth: $D = 8.3$ ft

Bottom Width: $BWC = \frac{307.4}{8.3} = 37.04$ ft

Length: $L = 33.0$ ft

Manning Coeff.: $n = .018$ (Horizontal)

Entrance loss: $k_e = 0.50$ (Headwall Parallel to Embankment)

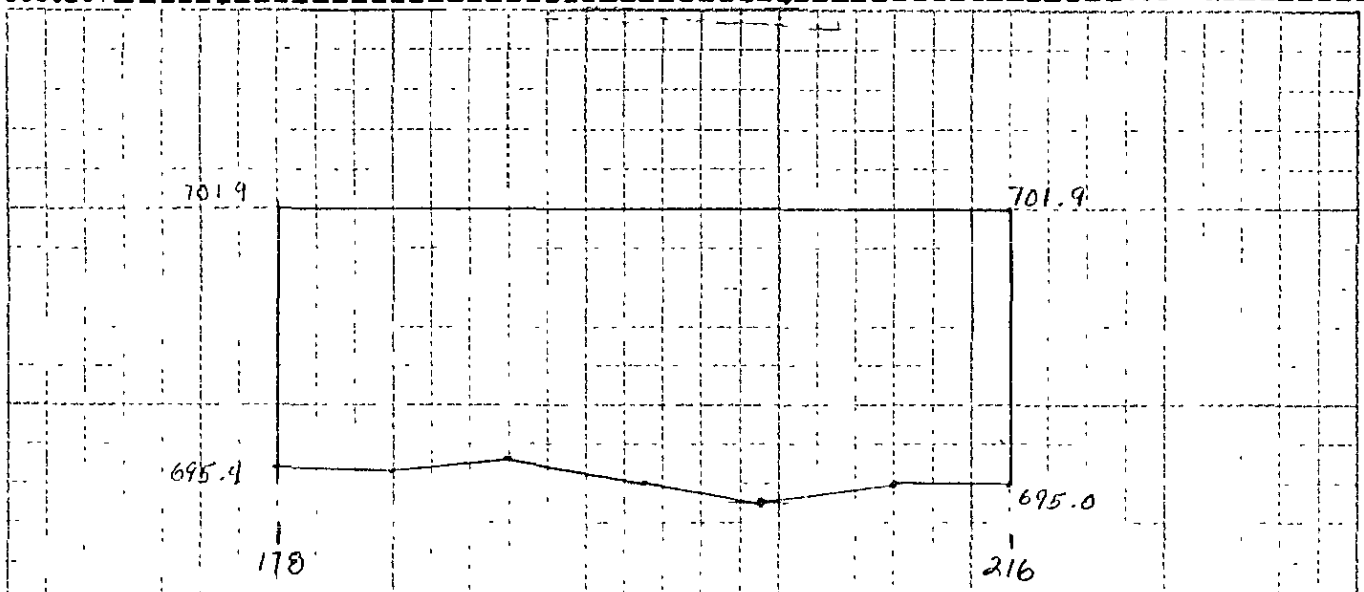
$$k_f = \frac{29(.018)^2(33)}{(3.21)^{4/3}} = .06$$

$$K_{TOT} = 1 + K_e + K_f = 1 + .50 + .06 = 1.56$$

Weir Coefficient: $C = 3.0$ (No wear slant; Arbitrary Value)

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BY LDT DATE 4/10/11 JOB DESCRIPTION Beverly Hills I.S. SHEET 2 OF 2
SUBJECT Evergreen Road Bridges (North Bridge) B.S. JOB NO. 5670-01-1



Area: $A = 314.1 \text{ ft}^2$

Wetted Perimeter: $P = 142.6 \text{ ft}$

Hydraulic Radius: $R = A/P = 2.17 \text{ ft}$

Max. Depth: $D = 7.4 \text{ ft}$

Bottom Width: $BWC = \frac{314.1}{7.4} = 33.0 \text{ ft}$

Length: $L = 44.0 \text{ ft}$

Manning Coeff.: $n = .015$ (Sandy bottom; Concrete Piers)

Entrance loss: $k_e = 0.40$

$$k_f = \frac{29.1 (.015)^2 (44)}{(2.17)^{4/3}} = .10$$

$$XKOR = 1 + k_e + k_f = 1 + .40 + .10 = \underline{1.50}$$

Weir Coefficient = $C = 3.0$ (No Weir Flow)

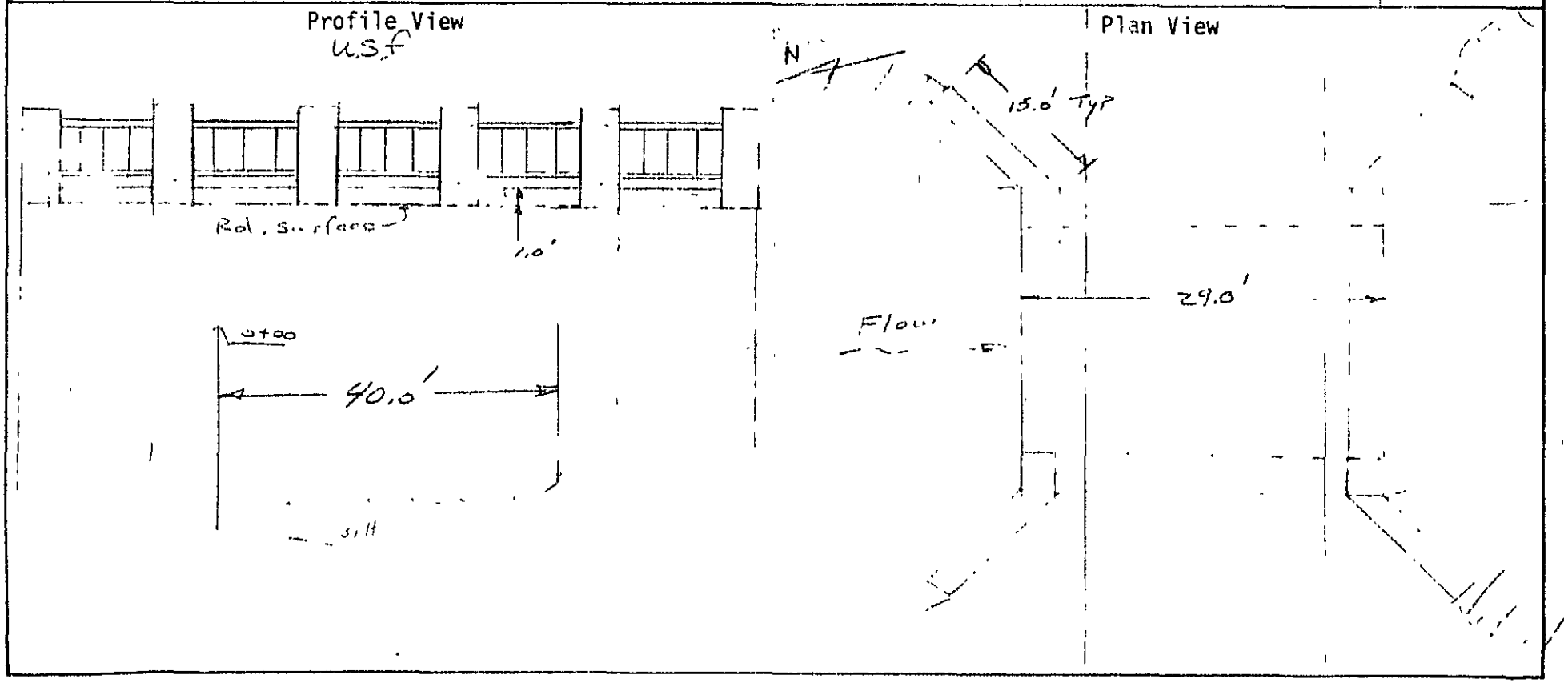
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HYDRAUL STRUCTURAL DATA

Code No. [illegible]

Job Name: Village of Beverly Hills			By: C. Norberg
Date:	Feature: Cove Bridge		Water Course: Rouge River
Remarks: Riverside Drive Bridge.			
Width of Piers: —	Pier Shape: -	No. of Piers: —	Area: —
Water Elevation: 696.7	Length: 29'	Width of Deck:	Skew: —

FIELD SKETCH



```
X1      23.51        10      200.00      240.00       1.00       1.00       1.00      1.000

BT      10.00      0.00      708.80        0.00     100.00     707.60       0.00    200.00    707.60      0.00

BT     200.00    707.60      699.60      205.00     707.50     702.40     215.00    707.20    703.90    225.00
BT     706.90    704.00      235.00      706.60     702.40     240.00     706.50    699.70    240.00    706.50
BT       0.00

GR     706.80      0.00      707.60      100.00     707.60     200.00     696.70    200.00    696.50    205.00
GR     693.80    215.00      693.00      225.00     692.70     235.00     694.30    240.00    706.50    240.00
********************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*********************

 200.00   699.60   205.00   702.40   215.00   703.90   225.00   704.00   235.00   702.40
 240.00   699.70

 200.00   707.60   200.00   696.70   205.00   696.50   215.00   693.80   225.00   693.00
 235.00   692.70   240.00   694.30   240.00   706.50
************** LISTING OF COORDINATES OF ORIFICE**********************

 200.00   699.60   205.00   702.40   215.00   703.90   225.00   704.00   235.00   702.40
 240.00   699.70   240.00   694.30   235.00   692.70   225.00   693.00   215.00   693.80
 205.00   696.50   200.00   696.70   200.00   699.60

ORIFICE AREA      348.7 WETTED PERIMETER     90.6  29.1/R**1.333      4.8351
```

Area = $A = 348.7\ ft^2$

Wetted Perimeter = $P = 90.6\ ft$

Hydraulic Radius = $R = A/P = 3.85\ ft$

$K_e = 0.4$ (Wingwalls, Headwalls, 30°~70°)

$L = 29.0\ ft$

$n = 0.018$ (Concrete Bridge with Sandy Bottom).

$K_f = \frac{29n^2L}{R^{4/3}} = 4.8351\,n^2L = 0.05$

$XKHR = 1.45$

$C = 3.04$ (Paved Road, $H \geq 1.5\ ft$, $L = 29\ ft$)

$XK = 1.05$ (Arbitrary)

$D = 10.4\ ft$

$BWC = A/D = 33.53$

$BWP = 0.01\ ft$

$ELCHU = 692.7$

$ELCHD = 692.7$

$ELLC = 704.0$

$ELTRD = 701.7$



1) COUNTY: OAKLAND

2) STUDY NAME: BEVERLY HILLS, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE

4) DOCUMENT TYPE: SUMMARY



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

RIVER-ROUGE

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	C.SEL	Hv	HL	OLOSS	QCH	DEPTH	TOPWID
20.32	950.00	0.00	0.00	651.60	1200.00	658.80	.27	0.00	0.00	889.40	7.20	249.71
20.32	950.00	0.00	0.00	651.60	2230.00	660.10	.30	0.00	0.00	1299.56	8.50	320.22
20.32	950.00	0.00	0.00	651.60	2800.00	660.90	.26	0.00	0.00	1429.47	9.30	325.70
20.32	950.00	0.00	0.00	651.60	4450.00	662.40	.28	0.00	0.00	1873.90	10.80	335.96
20.35	150.00	0.00	0.00	652.10	1200.00	659.09	.32	.31	.03	921.66	6.98	217.42
20.35	150.00	0.00	0.00	652.10	2230.00	660.40	.36	.33	.03	1347.93	8.30	315.22
20.35	150.00	0.00	0.00	652.10	2800.00	661.15	.32	.23	.03	1488.14	9.05	323.93
20.35	150.00	0.00	0.00	652.10	4450.00	662.63	.32	.26	.02	1931.92	10.53	334.09
20.45	500.00	0.00	0.00	653.90	1200.00	660.00	.16	.71	.05	913.72	6.10	493.65
20.45	500.00	0.00	0.00	653.90	2230.00	661.25	.09	.51	.08	1003.05	7.35	559.25
20.45	500.00	0.00	0.00	653.90	2800.00	661.87	.08	.41	.07	1039.21	7.97	585.13
20.45	500.00	0.00	0.00	653.90	4450.00	663.28	.07	.32	.08	1202.14	9.38	606.54
20.48	200.00	0.00	0.00	654.40	1200.00	660.17	.54	.37	.19	1074.90	5.77	352.39
20.48	200.00	0.00	0.00	654.40	2230.00	661.39	.35	.26	.13	1336.72	6.99	616.67
20.48	200.00	0.00	0.00	654.40	2800.00	662.00	.25	.21	.09	1377.80	7.60	629.71
20.48	200.00	0.00	0.00	654.40	4450.00	663.39	.17	.16	.05	1569.14	8.99	647.19
20.58	500.00	0.00	0.00	654.90	1200.00	661.71	.29	1.21	.07	1005.01	6.81	280.80
20.58	500.00	0.00	0.00	654.90	2230.00	662.66	.40	1.30	.03	1537.92	7.76	380.00
20.58	500.00	0.00	0.00	654.90	2800.00	663.09	.43	1.18	.09	1767.72	8.19	380.00
20.58	500.00	0.00	0.00	654.90	4450.00	664.23	.45	.98	.14	2315.77	9.33	380.00
20.69	600.00	0.00	0.00	656.20	1200.00	662.83	.35	1.15	.03	1035.70	6.63	297.59
20.69	600.00	0.00	0.00	656.20	2230.00	664.09	.33	1.34	.02	1462.45	7.89	451.31
20.69	600.00	0.00	0.00	656.20	2800.00	664.59	.32	1.36	.03	1640.39	8.39	463.31
20.69	600.00	0.00	0.00	656.20	4450.00	665.77	.32	1.36	.04	2090.86	9.57	491.36
20.77	400.00	0.00	0.00	657.50	1200.00	663.69	.28	.77	.02	932.84	6.19	160.07
20.77	400.00	0.00	0.00	657.50	2230.00	664.86	.36	.79	.01	1425.84	7.36	163.95
20.77	400.00	0.00	0.00	657.50	2800.00	665.34	.41	.79	.04	1675.84	7.84	192.47
20.77	400.00	0.00	0.00	657.50	4450.00	666.47	.52	.80	.10	2341.81	8.97	214.50
20.86	500.00	0.00	0.00	657.30	1200.00	664.61	.32	.94	.02	886.33	7.31	149.74
20.86	500.00	0.00	0.00	657.30	2230.00	665.88	.34	.99	.01	1254.50	8.58	305.46
20.86	500.00	0.00	0.00	657.30	2800.00	666.42	.33	.97	.02	1379.29	9.12	316.12
20.86	500.00	0.00	0.00	657.30	4450.00	667.67	.32	.94	.06	1696.93	10.37	340.30
20.94	400.00	0.00	0.00	658.60	1200.00	665.40	.23	.63	.03	840.97	6.80	333.39
20.94	400.00	0.00	0.00	658.60	2230.00	666.66	.15	.54	.06	989.76	8.06	506.97
20.94	400.00	0.00	0.00	658.60	2800.00	667.16	.14	.49	.06	1065.64	8.56	537.66
20.94	400.00	0.00	0.00	658.60	4450.00	668.33	.13	.41	.06	1253.03	9.73	607.95
21.01	400.00	0.00	0.00	659.70	1195.00	666.09	.28	.72	.02	924.00	6.39	363.00
21.01	400.00	0.00	0.00	659.70	2105.00	667.15	.25	.53	.05	1188.45	7.45	363.00
21.01	400.00	0.00	0.00	659.70	2600.00	667.60	.25	.50	.05	1323.49	7.90	363.00
21.01	400.00	0.00	0.00	659.70	3895.00	668.69	.24	.42	.06	1619.56	8.99	363.00

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
21.07	305.00	0.00	0.00	660.25	1195.00	666.74	.33	.57	.03	988.92	6.49	188.00
21.07	305.00	0.00	0.00	660.25	2105.00	667.75	.45	.70	.10	1475.71	7.50	188.00
21.07	305.00	0.00	0.00	660.25	2600.00	668.19	.51	.72	.13	1714.06	7.94	188.00
21.07	305.00	0.00	0.00	660.25	3895.00	669.22	.63	.72	.19	2281.76	8.97	188.00
21.10	130.00	0.00	0.00	660.50	1195.00	667.03	.36	.31	.02	1021.37	6.53	123.00
21.10	130.00	0.00	0.00	660.50	2105.00	668.10	.57	.40	.06	1614.17	7.60	123.00
21.10	130.00	0.00	0.00	660.50	2600.00	668.55	.68	.45	.09	1917.11	8.05	123.00
21.10	130.00	0.00	0.00	660.50	3895.00	669.58	.95	.52	.16	2666.59	9.08	123.00
21.11	80.00	0.00	0.00	660.64	1195.00	667.20	.43	.20	.03	1083.12	6.56	78.00
21.11	80.00	0.00	0.00	660.64	2105.00	668.29	.78	.29	.10	1803.80	7.65	78.00
21.11	80.00	0.00	0.00	660.64	2600.00	668.75	.98	.34	.15	2183.12	8.11	78.00
21.11	80.00	0.00	0.00	660.64	3895.00	669.73	1.51	.43	.28	3148.46	9.09	78.00
21.12	55.00	0.00	0.00	660.74	1195.00	667.33	.48	.15	.03	1135.64	6.59	56.00
21.12	55.00	0.00	0.00	660.74	2105.00	668.44	.95	.24	.09	1946.80	7.70	56.00
21.12	55.00	0.00	0.00	660.74	2600.00	668.91	1.22	.29	.12	2381.01	8.17	56.00
21.12	55.00	0.00	0.00	660.74	3895.00	669.88	2.00	.39	.25	3502.91	9.14	56.00
21.12	15.00	0.00	0.00	660.76	1195.00	667.36	.51	.04	.01	1159.69	6.60	48.00
21.12	15.00	0.00	0.00	660.76	2105.00	668.47	1.04	.07	.05	2012.00	7.71	48.00
21.12	15.00	0.00	0.00	660.76	2600.00	668.92	1.36	.09	.07	2471.39	8.16	48.00
21.12	15.00	0.00	0.00	660.76	3895.00	669.85	2.30	.12	.15	3665.43	9.09	48.00
21.13	10.00	0.00	0.00	660.78	1195.00	667.38	.54	.03	.01	1179.16	6.60	43.00
21.13	10.00	0.00	0.00	660.78	2105.00	668.48	1.11	.05	.04	2061.59	7.70	43.00
21.13	10.00	0.00	0.00	660.78	2600.00	668.93	1.47	.06	.06	2539.41	8.15	43.00
21.13	10.00	0.00	0.00	660.78	3895.00	669.82	2.55	.09	.12	3785.66	9.04	43.00
21.13	10.00	0.00	0.00	660.80	1195.00	667.54	.43	.03	.03	1195.00	6.74	39.00
21.13	10.00	0.00	0.00	660.80	2105.00	668.80	.90	.04	.06	2105.00	8.00	39.00
21.13	10.00	0.00	0.00	660.80	2600.00	669.36	1.18	.05	.09	2600.00	8.56	39.00
21.13	10.00	0.00	0.00	660.80	3895.00	670.72	1.92	.07	.19	3895.00	9.92	39.00
21.13	1.00	674.30	671.60	660.80	1195.00	667.54	.43	.00	.00	1195.00	6.74	39.00
21.13	1.00	674.30	671.60	660.80	2105.00	668.80	.90	.00	.00	2105.00	8.00	39.00
21.13	1.00	674.30	671.60	660.80	2600.00	669.37	1.18	.00	.00	2600.00	8.57	39.00
21.13	1.00	674.30	671.60	660.80	3895.00	670.73	1.91	.00	.00	3895.00	9.93	39.00
21.14	44.00	674.30	671.60	660.80	1195.00	667.59	.42	.04	.00	1195.00	6.79	39.00
21.14	44.00	674.30	671.60	660.80	2105.00	668.91	.88	.07	.01	2105.00	8.11	39.00
21.14	44.00	674.30	671.60	660.80	2600.00	669.51	1.14	.09	.01	2600.00	8.71	39.00
21.14	44.00	674.30	671.60	660.80	3895.00	670.98	1.91	.12	.03	3895.00	10.18	39.00
21.14	1.00	0.00	0.00	660.80	1195.00	667.59	.42	.00	.00	1195.00	6.79	39.00
21.14	1.00	0.00	0.00	660.80	2105.00	668.92	.87	.00	.00	2105.00	8.12	39.00
21.14	1.00	0.00	0.00	660.80	2600.00	669.51	1.14	.00	.00	2600.00	8.71	39.00
21.14	1.00	0.00	0.00	660.80	3895.00	670.99	1.81	.00	.00	3895.00	10.19	39.00

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
21.14	33.00	0.00	0.00	660.50	1195.00	667.54	.71	.08	.14	1195.00	7.04	39.94
21.14	33.00	0.00	0.00	660.50	2105.00	668.85	1.26	.13	.19	2105.00	8.35	45.49
21.14	33.00	0.00	0.00	660.50	2600.00	669.47	1.53	.15	.19	2600.00	8.97	47.95
21.14	33.00	0.00	0.00	660.50	3895.00	671.08	1.98	.15	.09	3886.12	10.58	71.40
21.15	15.00	0.00	0.00	660.35	1195.00	667.70	.62	.04	.03	1195.00	7.35	41.23
21.15	15.00	0.00	0.00	660.35	2105.00	669.20	1.04	.06	.07	2105.00	8.85	47.49
21.15	15.00	0.00	0.00	660.35	2600.00	669.92	1.24	.07	.09	2604.08	9.57	50.43
21.15	15.00	0.00	0.00	660.35	3895.00	671.74	1.54	.07	.13	3849.50	11.39	84.33
21.15	15.00	0.00	0.00	660.20	1195.00	667.82	.55	.04	.02	1195.00	7.62	42.37
21.15	15.00	0.00	0.00	660.20	2105.00	669.42	.91	.05	.04	2105.00	9.22	48.99
21.15	15.00	0.00	0.00	660.20	2600.00	670.19	1.07	.06	.05	2599.65	9.99	57.65
21.15	15.00	0.00	0.00	660.20	3895.00	672.09	1.31	.06	.07	3914.56	11.89	91.32
21.16	50.00	0.00	0.00	659.90	1195.00	668.09	.42	.09	.04	1195.00	8.29	45.12
21.16	50.00	0.00	0.00	659.80	2105.00	669.84	.69	.13	.07	2104.57	10.04	59.95
21.16	50.00	0.00	0.00	659.80	2600.00	670.67	.81	.14	.08	2587.76	10.87	77.58
21.16	50.00	0.00	0.00	659.80	3895.00	672.66	.98	.14	.10	3735.27	12.86	104.42
21.18	136.00	0.00	0.00	658.60	1195.00	668.47	.24	.14	.05	1194.93	9.87	54.91
21.18	136.00	0.00	0.00	658.60	2105.00	670.42	.39	.19	.09	2064.40	11.82	90.33
21.18	136.00	0.00	0.00	658.60	2600.00	671.33	.45	.20	.11	2500.91	12.73	102.69
21.18	136.00	0.00	0.00	658.60	3895.00	673.41	.56	.22	.12	3546.20	14.81	130.82
21.23	260.00	0.00	0.00	661.10	1195.00	668.79	.10	.14	.04	1195.00	7.69	60.14
21.23	260.00	0.00	0.00	661.10	2105.00	670.90	.16	.18	.07	2103.07	9.80	103.41
21.23	260.00	0.00	0.00	661.10	2600.00	671.86	.19	.19	.08	2582.91	10.76	134.80
21.23	260.00	0.00	0.00	661.10	3895.00	674.04	.24	.20	.10	3690.36	12.94	229.00
21.25	90.00	672.90	669.90	661.10	1195.00	668.79	.20	.05	.05	1195.00	7.69	80.14
21.25	90.00	672.90	669.90	661.10	2105.00	672.23	.11	1.28	0.00	2060.55	11.13	146.98
21.25	90.00	672.90	669.90	661.10	2600.00	673.51	.11	1.57	0.00	2420.25	12.41	201.36
21.25	90.00	672.90	669.90	661.10	3895.00	675.05	.14	.92	0.00	3273.74	13.95	229.00
21.35	550.00	0.00	0.00	661.20	1195.00	669.22	.35	.51	.08	1195.00	8.02	45.04
21.35	550.00	0.00	0.00	661.20	2105.00	672.26	.42	.19	.15	2092.88	11.06	80.83
21.35	550.00	0.00	0.00	661.20	2600.00	673.53	.42	.17	.15	2491.52	12.33	120.10
21.35	550.00	0.00	0.00	661.20	3895.00	675.07	.49	.19	.17	3335.91	13.87	294.77
21.44	450.00	0.00	0.00	664.50	1195.00	669.95	1.18	1.15	.42	1161.46	5.45	52.22
21.44	450.00	0.00	0.00	664.50	2105.00	672.94	.34	.58	.02	1357.98	8.44	396.22
21.44	450.00	0.00	0.00	664.50	2600.00	674.25	.15	.37	.08	1221.04	9.75	595.28
21.44	450.00	0.00	0.00	664.50	3895.00	675.88	.09	.30	.12	1315.75	11.38	657.78
21.44	8.00	670.80	670.50	664.50	1195.00	670.23	1.07	.17	0.00	1195.00	5.73	34.00
21.44	8.00	670.80	670.50	664.50	2105.00	673.05	.23	0.00	0.00	1193.00	8.55	416.46
21.44	8.00	670.80	670.50	664.50	2600.00	674.30	.10	0.00	0.00	1041.86	9.80	600.16
21.44	8.00	670.80	670.50	664.50	3895.00	675.94	.06	.03	0.00	1085.85	11.44	658.36

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
21.58	740.00	0.00	0.00	663.70	1195.00	672.49	.15	1.07	.27	1015.75	8.79	356.36
21.58	740.00	0.00	0.00	663.70	2105.00	673.67	.17	.54	.02	1418.10	9.97	526.56
21.58	740.00	0.00	0.00	663.70	2600.00	674.57	.12	.28	.01	1453.61	10.87	604.50
21.58	740.00	0.00	0.00	663.70	3695.00	676.10	.09	.17	.01	1661.46	12.40	535.98
21.62	225.00	0.00	0.00	664.80	1194.00	672.62	.31	.21	.08	1120.17	7.82	271.58
21.62	225.00	0.00	0.00	664.80	2080.00	673.82	.35	.23	.09	1587.23	9.02	360.52
21.62	225.00	0.00	0.00	664.80	2560.00	674.68	.26	.17	.07	1659.51	9.88	441.18
21.62	225.00	0.00	0.00	664.80	3820.00	676.18	.19	.13	.05	1910.36	11.38	532.34
21.67	225.00	0.00	0.00	665.90	1194.00	672.93	.52	.41	.10	1159.69	7.03	160.17
21.67	225.00	0.00	0.00	665.90	2080.00	674.17	.47	.42	.06	1556.20	8.27	265.04
21.67	225.00	0.00	0.00	665.90	2560.00	674.94	.33	.30	.04	1578.79	9.04	321.55
21.67	225.00	0.00	0.00	665.90	3820.00	676.38	.22	.21	.02	1710.75	10.48	398.29
21.71	225.00	0.00	0.00	667.00	1194.00	673.52	.73	.70	.11	1170.07	6.52	108.70
21.71	225.00	0.00	0.00	667.00	2080.00	674.68	.31	.67	.17	1680.19	7.68	200.39
21.71	225.00	0.00	0.00	667.00	2560.00	675.28	.68	.51	.17	1804.96	8.28	236.66
21.71	225.00	0.00	0.00	667.00	3820.00	676.58	.48	.34	.13	2029.51	9.58	289.08
21.73	120.00	0.00	0.00	667.60	1194.00	673.88	.94	.47	.11	1169.61	6.28	88.13
21.73	120.00	0.00	0.00	667.60	2080.00	675.12	1.00	.48	0.00	1682.52	7.52	154.44
21.73	120.00	0.00	0.00	667.60	2560.00	675.55	1.03	.44	.18	1905.15	7.95	182.07
21.73	120.00	0.00	0.00	667.60	3820.00	676.73	.81	.32	.16	2203.21	9.13	246.84
21.73	1.00	673.80	673.30	667.60	1194.00	673.70	1.31	.01	.18	1194.00	6.10	32.41
21.73	1.00	673.80	673.30	667.60	2080.00	675.19	.99	.01	0.00	1550.22	7.59	158.20
21.73	1.00	673.80	673.30	667.60	2560.00	676.27	.48	.00	.17	1362.53	8.67	225.51
21.73	1.00	673.80	673.30	667.60	3820.00	677.15	.49	.00	.10	1570.82	9.55	266.14
21.73	8.00	673.80	673.30	667.60	1194.00	673.77	1.31	.07	.00	1194.00	6.17	32.93
21.73	8.00	673.80	673.30	667.60	2080.00	675.96	.43	.04	.17	1226.31	8.36	211.13
21.73	8.00	673.80	673.30	667.60	2560.00	676.35	.44	.03	.01	1329.38	8.75	229.08
21.73	8.00	673.80	673.30	667.60	3820.00	677.20	.47	.03	.01	1548.55	9.60	268.63
21.73	1.00	0.00	0.00	667.60	1194.00	674.77	.55	.00	.23	1094.58	7.17	136.49
21.73	1.00	0.00	0.00	667.60	2080.00	675.84	.68	.00	.12	1577.60	8.24	204.14
21.73	1.00	0.00	0.00	667.60	2560.00	676.20	.75	.00	.15	1798.83	8.60	222.24
21.73	1.00	0.00	0.00	667.60	3820.00	677.03	.83	.00	.18	2256.29	9.43	260.59
21.75	110.00	0.00	0.00	668.10	1194.00	674.97	.53	.18	.01	1056.61	6.87	126.66
21.75	110.00	0.00	0.00	668.10	2080.00	676.28	.48	.18	.06	1409.17	8.18	207.17
21.75	110.00	0.00	0.00	668.10	2560.00	676.72	.49	.19	.08	1564.38	8.62	227.74
21.75	110.00	0.00	0.00	668.10	3820.00	677.63	.42	.19	.09	1912.96	9.53	269.54
21.80	250.00	0.00	0.00	668.50	1194.00	675.60	.41	.47	.04	992.07	7.10	114.12
21.80	250.00	0.00	0.00	668.50	2080.00	676.67	.53	.41	.02	1423.31	8.17	129.63
21.80	250.00	0.00	0.00	668.50	2560.00	677.07	.61	.41	.06	1641.04	8.57	139.95
21.80	250.00	0.00	0.00	668.50	3820.00	677.89	.82	.42	.15	2163.48	9.39	161.04

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
21.82	125.00	0.00	0.00	668.70	1194.00	675.82	.47	.25	.03	1046.54	7.12	74.13
21.82	125.00	0.00	0.00	668.70	2080.00	676.84	.77	.30	.12	1636.23	8.14	88.90
21.82	125.00	0.00	0.00	668.70	2560.00	677.23	.94	.32	.17	1936.34	8.53	98.60
21.82	125.00	0.00	0.00	668.70	3820.00	678.00	1.40	.39	.29	2664.10	9.30	100.00
21.85	125.00	0.00	0.00	669.00	1194.00	676.13	.41	.23	.02	1194.00	7.13	39.00
21.85	125.00	0.00	0.00	669.00	2080.00	677.13	.92	.36	.07	2080.00	8.13	39.00
21.85	125.00	0.00	0.00	669.00	2560.00	677.51	1.25	.43	.15	2560.00	8.51	39.00
21.85	125.00	0.00	0.00	669.00	3820.00	678.16	2.34	.63	.47	3820.00	9.16	39.00
21.86	50.00	681.70	678.30	669.00	1194.00	676.24	.35	.03	.02	1194.00	7.24	39.00
21.86	50.00	681.70	678.30	669.00	2080.00	677.38	.76	.06	.05	2080.00	8.38	39.00
21.86	50.00	681.70	678.30	669.00	2560.00	677.97	1.00	.21	0.00	2560.00	8.97	39.00
21.86	50.00	681.70	678.30	669.00	3820.00	679.98	1.43	.91	0.00	3820.00	10.98	39.00
21.86	20.00	0.00	0.00	669.04	1194.00	676.20	.47	.01	.06	1135.86	7.16	82.00
21.86	20.00	0.00	0.00	669.04	2080.00	677.40	.77	.02	.00	1874.63	8.36	82.00
21.86	20.00	0.00	0.00	669.04	2560.00	678.20	.84	.03	.05	2238.21	9.16	82.00
21.86	20.00	0.00	0.00	669.04	3820.00	680.82	.90	.03	.19	3106.27	11.78	82.00
21.87	50.00	0.00	0.00	669.15	1194.00	676.39	.42	.13	.01	1104.52	7.24	159.74
21.87	50.00	0.00	0.00	669.15	2080.00	678.00	.42	.14	.11	1599.86	8.85	182.00
21.87	50.00	0.00	0.00	669.15	2560.00	678.93	.37	.12	.14	1790.90	9.78	182.00
21.87	50.00	0.00	0.00	669.15	3820.00	681.59	.27	.08	.16	2218.22	12.44	182.00
21.95	430.00	0.00	0.00	670.10	1194.00	677.46	.36	.99	.02	1066.68	7.36	277.52
21.95	430.00	0.00	0.00	670.10	2080.00	679.00	.21	.72	.06	1264.36	8.90	487.32
21.95	430.00	0.00	0.00	670.10	2560.00	679.78	.15	.56	.07	1299.99	9.68	496.29
21.95	430.00	0.00	0.00	670.10	3820.00	682.13	.07	.28	.06	1345.88	12.03	523.16
22.05	500.00	0.00	0.00	672.00	1194.00	678.45	.09	.64	.08	655.48	6.45	623.15
22.05	500.00	0.00	0.00	672.00	2080.00	679.66	.06	.47	.04	769.48	7.66	648.30
22.05	500.00	0.00	0.00	672.00	2560.00	680.29	.05	.38	.03	816.65	8.29	661.60
22.05	500.00	0.00	0.00	672.00	3820.00	682.37	.03	.19	.01	882.54	10.37	705.13
22.17	650.00	0.00	0.00	670.50	1194.00	679.17	.42	.89	.17	1169.84	8.67	97.49
22.17	650.00	0.00	0.00	670.50	2080.00	680.15	.68	.80	.31	1875.89	9.65	305.38
22.17	650.00	0.00	0.00	670.50	2560.00	680.72	.54	.67	.25	1989.92	10.22	364.24
22.17	650.00	0.00	0.00	670.50	3820.00	682.61	.19	.31	.08	1807.33	12.11	423.44
22.22	248.00	0.00	0.00	671.43	1194.00	679.87	.48	.72	.03	1181.55	8.44	85.12
22.22	248.00	0.00	0.00	671.43	2080.00	681.11	.66	.94	.00	1867.37	9.68	319.30
22.22	248.00	0.00	0.00	671.43	2560.00	681.50	.65	.83	.05	2079.29	10.07	359.51
22.22	248.00	0.00	0.00	671.43	3820.00	682.85	.33	.32	.07	2115.27	11.42	402.20
22.26	247.00	0.00	0.00	672.35	1194.00	680.67	.52	.82	.02	1185.88	8.32	78.93
22.26	247.00	0.00	0.00	672.35	2080.00	682.05	.65	.92	.00	1863.17	9.70	325.43
22.26	247.00	0.00	0.00	672.35	2560.00	682.41	.66	.91	.00	2083.81	10.06	359.27
22.26	247.00	0.00	0.00	672.35	3820.00	683.32	.52	.56	.09	2385.48	10.97	387.91

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
22.36	495.00	0.00	0.00	674.20	1194.00	682.15	.39	1.32	.04	989.43	7.95	194.85
22.36	495.00	0.00	0.00	674.20	2080.00	683.61	.28	1.09	.11	1152.93	9.41	235.14
22.36	495.00	0.00	0.00	674.20	2560.00	683.99	.31	1.13	.10	1293.95	9.79	232.75
22.36	495.00	0.00	0.00	674.20	3820.00	684.61	.44	1.18	.02	1640.45	10.41	244.81
22.36	1.00	680.70	681.20	674.20	1194.00	682.41	.19	.00	.06	699.94	8.21	201.82
22.36	1.00	680.70	681.20	674.20	2080.00	683.78	.16	.00	.04	675.72	9.58	236.72
22.36	1.00	680.70	681.20	674.20	2560.00	684.15	.18	.00	.04	731.99	9.95	240.32
22.36	1.00	680.70	681.20	674.20	3820.00	684.62	.28	.00	.05	901.73	10.62	246.38
22.36	9.00	680.70	681.20	674.20	1194.00	682.45	.18	.03	.00	682.63	8.25	203.17
22.36	9.00	680.70	681.20	674.20	2080.00	683.79	.16	.02	.00	671.88	9.59	236.87
22.36	9.00	680.70	681.20	674.20	2560.00	684.17	.18	.02	.00	728.10	9.97	240.55
22.36	9.00	680.70	681.20	674.20	3820.00	684.85	.27	.02	.00	896.75	10.65	247.09
22.36	1.00	0.00	0.00	674.20	1194.00	682.41	.28	.00	.05	899.45	8.21	201.89
22.36	1.00	0.00	0.00	674.20	2080.00	683.76	.22	.00	.03	1059.08	9.56	236.57
22.36	1.00	0.00	0.00	674.20	2560.00	684.14	.25	.00	.03	1184.12	9.94	240.24
22.36	1.00	0.00	0.00	674.20	3820.00	684.81	.35	.00	.04	1520.37	10.61	246.74
22.44	399.00	0.00	0.00	675.10	1194.00	682.92	.11	.30	.05	951.66	7.82	175.93
22.44	399.00	0.00	0.00	675.10	2080.00	684.15	.15	.30	.02	1372.33	9.05	177.96
22.44	399.00	0.00	0.00	675.10	2560.00	684.56	.19	.33	.02	1602.57	9.46	178.63
22.44	399.00	0.00	0.00	675.10	3820.00	685.34	.29	.45	.02	2189.36	10.24	179.92
22.59	800.00	0.00	0.00	677.60	1194.00	683.42	.22	.55	.05	940.73	5.82	180.19
22.59	800.00	0.00	0.00	677.60	2080.00	684.71	.27	.62	.06	1389.45	7.11	183.07
22.59	800.00	0.00	0.00	677.60	2560.00	685.19	.32	.70	.07	1627.44	7.59	184.14
22.59	800.00	0.00	0.00	677.60	3820.00	686.17	.44	.91	.07	2233.29	8.57	186.35
22.69	550.00	0.00	0.00	678.50	1194.00	684.29	.32	.91	.05	1174.29	5.79	84.18
22.69	550.00	0.00	0.00	678.50	2080.00	685.65	.51	1.06	.12	1955.72	7.15	126.62
22.69	550.00	0.00	0.00	678.50	2560.00	686.21	.59	1.16	.14	2345.04	7.71	129.66
22.69	550.00	0.00	0.00	678.50	3820.00	687.39	.79	1.40	.18	3316.14	8.89	135.96
22.79	542.50	0.00	0.00	679.43	1194.00	685.34	.30	1.03	.01	1171.24	5.91	86.51
22.79	542.50	0.00	0.00	679.43	2080.00	686.97	.42	1.21	.03	1921.14	7.54	128.66
22.79	542.50	0.00	0.00	679.43	2560.00	687.63	.47	1.27	.04	2291.22	8.20	132.27
22.79	542.50	0.00	0.00	679.43	3820.00	689.07	.59	1.42	.06	3210.80	9.64	203.99
23.00	1085.00	0.00	0.00	681.27	1194.00	687.46	.22	2.01	.03	1136.90	6.19	108.54
23.00	1085.00	0.00	0.00	681.27	2080.00	689.26	.24	2.06	.05	1996.03	7.99	153.20
23.00	1085.00	0.00	0.00	681.27	2560.00	689.99	.25	2.07	.07	2422.69	8.72	192.81
23.00	1085.00	0.00	0.00	681.27	3820.00	691.54	.22	1.99	.11	3388.37	10.27	404.17
23.10	542.50	0.00	0.00	682.20	1194.00	688.46	.21	.99	.00	1185.94	6.26	110.62
23.10	542.50	0.00	0.00	682.20	2080.00	690.24	.24	.97	.00	1994.11	8.04	154.93
23.10	542.50	0.00	0.00	682.20	2560.00	690.96	.24	.96	.00	2421.27	8.76	197.08
23.10	542.50	0.00	0.00	682.20	3820.00	692.39	.23	.86	.01	3405.77	10.19	393.88

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
23.19	500.00	0.00	0.00	682.90	1194.00	689.49	.41	1.13	.10	985.17	6.59	175.31
23.19	500.00	0.00	0.00	682.90	2080.00	691.10	.24	.87	.00	1158.92	8.20	375.64
23.19	500.00	0.00	0.00	682.90	2560.00	691.78	.18	.74	.02	1180.11	8.88	398.29
23.19	500.00	0.00	0.00	682.90	3820.00	693.10	.14	.60	.03	1304.43	10.20	442.43
23.27	400.00	0.00	0.00	681.70	940.00	690.45	.31	.82	.03	895.77	8.75	68.36
23.27	400.00	0.00	0.00	681.70	1630.00	691.69	.52	.73	.14	1461.99	9.99	120.00
23.27	400.00	0.00	0.00	681.70	2030.00	692.21	.63	.65	.22	1753.35	10.51	120.00
23.27	400.00	0.00	0.00	681.70	3145.00	693.29	.92	.57	.39	2512.87	11.59	120.00
23.30	166.00	0.00	0.00	684.40	940.00	690.79	.33	.35	.01	940.00	6.39	35.20
23.30	166.00	0.00	0.00	684.40	1630.00	692.14	.66	.52	.07	1630.00	7.74	35.20
23.30	166.00	0.00	0.00	684.40	2030.00	692.69	.88	.61	.12	2030.00	8.29	35.20
23.30	166.00	0.00	0.00	684.40	3145.00	693.80	1.60	.86	.34	3145.00	9.40	35.20
23.31	34.00	695.90	692.70	684.40	940.00	690.83	.33	.03	.00	940.00	6.43	35.20
23.31	34.00	695.90	692.70	684.40	1630.00	692.17	.65	.03	0.00	1630.00	7.77	35.20
23.31	34.00	695.90	692.70	684.40	2030.00	692.92	.83	.18	0.00	2030.00	8.52	35.20
23.31	34.00	695.90	692.70	684.40	3145.00	694.94	1.26	.79	0.00	3145.00	10.54	35.20
23.32	75.00	0.00	0.00	683.70	940.00	690.96	.27	.06	.02	914.34	7.26	112.95
23.32	75.00	0.00	0.00	683.70	1630.00	692.70	.30	.08	.10	1401.13	9.00	116.29
23.32	75.00	0.00	0.00	683.70	2030.00	693.70	.29	.08	.16	1642.26	10.00	116.21
23.32	75.00	0.00	0.00	683.70	3145.00	696.30	.27	.08	.30	2277.63	12.60	124.42
23.36	175.00	0.00	0.00	684.60	940.00	691.18	.53	.35	.13	940.00	6.58	37.58
23.36	175.00	0.00	0.00	684.60	1630.00	692.83	.75	.36	.23	1604.66	8.23	136.51
23.36	175.00	0.00	0.00	684.60	2030.00	693.82	.65	.31	.18	1866.54	9.22	187.26
23.36	175.00	0.00	0.00	684.60	3145.00	696.46	.32	.18	.02	2315.02	11.86	232.46
23.41	285.00	0.00	0.00	684.00	940.00	691.81	.07	.02	.14	940.00	7.81	70.00
23.41	285.00	0.00	0.00	684.00	1630.00	693.69	.12	.03	.19	1630.00	9.69	70.00
23.41	285.00	0.00	0.00	684.00	2030.00	694.51	.15	.04	.15	2029.98	10.51	72.27
23.41	285.00	0.00	0.00	684.00	3145.00	696.59	.24	.04	.02	3143.32	12.59	75.01
23.41	15.00	696.70	687.00	686.70	940.00	699.60	.02	7.75	0.00	940.00	12.90	61.50
23.41	15.00	696.70	687.00	686.70	1630.00	700.60	.06	6.85	0.00	1628.05	13.90	198.20
23.41	15.00	696.70	687.00	686.70	2030.00	700.91	.08	6.34	0.00	2023.87	14.21	234.25
23.41	15.00	696.70	687.00	686.70	3145.00	701.50	.18	4.85	0.00	3117.51	14.80	298.57
23.47	300.00	0.00	0.00	692.50	1195.00	699.62	.01	.00	.00	1195.00	7.12	403.73
23.47	300.00	0.00	0.00	692.50	2080.00	700.66	.01	.01	.01	2080.00	8.16	408.15
23.47	300.00	0.00	0.00	692.50	2560.00	701.01	.01	.01	.02	2560.00	8.51	409.60
23.47	300.00	0.00	0.00	692.50	3820.00	701.72	.03	.02	.05	3820.00	9.22	412.58
23.53	320.00	0.00	0.00	692.70	1195.00	699.63	.01	.01	.00	1195.00	6.93	330.56
23.53	320.00	0.00	0.00	692.70	2080.00	700.68	.02	.02	.00	2080.00	7.98	332.39
23.53	320.00	0.00	0.00	692.70	2560.00	701.03	.02	.03	.00	2560.00	8.33	333.01
23.53	320.00	0.00	0.00	692.70	3820.00	701.76	.04	.04	.01	3820.00	9.06	334.26

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
23.54	50.00	0.00	0.00	692.70	1195.00	699.40	.50	.01	.24	1195.00	6.70	40.00
23.54	50.00	0.00	0.00	692.70	2080.00	700.13	1.16	.02	.57	2080.00	7.43	40.00
23.54	50.00	0.00	0.00	692.70	2560.00	700.88	.37	.02	.17	1448.56	8.18	159.41
23.54	50.00	0.00	0.00	692.70	3820.00	701.52	.56	.02	.26	2027.97	8.82	208.03
23.54	1.00	0.00	0.00	692.70	1195.00	699.40	.50	.00	.00	1195.00	6.70	40.00
23.54	1.00	0.00	0.00	692.70	2080.00	700.13	1.16	.00	.00	2080.00	7.43	40.00
23.54	1.00	0.00	0.00	692.70	2560.00	700.84	.44	.00	.04	1653.05	8.14	156.55
23.54	1.00	0.00	0.00	692.70	3820.00	701.44	.72	.00	.08	2351.95	8.74	202.14
23.55	29.00	701.70	704.00	692.70	1195.00	699.40	.50	.00	0.00	1195.00	6.70	40.00
23.55	29.00	701.70	704.00	692.70	2080.00	700.13	1.16	.00	0.00	2080.00	7.43	40.00
23.55	29.00	701.70	704.00	692.70	2560.00	701.92	.25	.88	0.00	1505.42	9.22	295.44
23.55	29.00	701.70	704.00	692.70	3820.00	702.92	.29	1.05	0.00	1960.70	10.22	370.01
23.55	1.00	0.00	0.00	692.70	1195.00	699.40	.50	.00	.00	1195.00	6.70	40.00
23.55	1.00	0.00	0.00	692.70	2080.00	700.13	1.16	.00	.00	2080.00	7.43	40.00
23.55	1.00	0.00	0.00	692.70	2560.00	701.89	.30	.00	.02	1562.08	9.19	286.93
23.55	1.00	0.00	0.00	692.70	3820.00	702.92	.29	.00	.00	1880.83	10.22	370.04
23.63	450.00	0.00	0.00	694.20	1195.00	700.25	.04	.26	.14	1177.27	6.05	308.74
23.63	450.00	0.00	0.00	694.20	2080.00	701.87	.05	.31	.33	1878.40	7.67	394.00
23.63	450.00	0.00	0.00	694.20	2560.00	702.43	.06	.23	.07	2236.19	8.23	394.00
23.63	450.00	0.00	0.00	694.20	3820.00	703.45	.09	.27	.06	3159.96	9.25	394.00
23.80	900.00	0.00	0.00	693.90	1180.00	700.52	.02	.23	.01	353.56	6.62	662.35
23.80	900.00	0.00	0.00	693.90	1800.00	702.10	.01	.17	.01	406.58	8.20	665.71
23.80	900.00	0.00	0.00	693.90	2100.00	702.67	.01	.17	.02	441.68	8.77	666.91
23.80	900.00	0.00	0.00	693.90	2820.00	703.74	.01	.19	.02	532.59	9.84	669.17
X 23.94	700.00	0.00	0.00	693.00	1180.00	700.73	.08	.24	.03	717.27	7.73	614.44
23.94	700.00	0.00	0.00	693.00	1800.00	702.22	.04	.13	.01	713.06	9.22	688.68
23.94	700.00	0.00	0.00	693.00	2100.00	702.77	.03	.11	.01	741.28	9.77	711.59
23.94	700.00	0.00	0.00	693.00	2820.00	703.83	.03	.10	.01	828.38	10.33	719.13
-23.19	400.00	0.00	0.00	682.90	1195.00	689.49	.41	.47	0.00	986.06	6.59	175.23
-23.19	400.00	0.00	0.00	682.90	2080.00	691.10	.24	.24	0.00	1160.40	8.20	375.50
-23.19	400.00	0.00	0.00	682.90	2560.00	691.78	.18	.20	0.00	1180.12	8.88	398.29
-23.19	400.00	0.00	0.00	682.90	3820.00	693.10	.14	.16	0.00	1304.83	10.20	442.43
23.38	1020.00	0.00	0.00	685.40	255.00	691.04	.02	1.04	.12	246.35	5.64	102.43
23.38	1020.00	0.00	0.00	685.40	450.00	692.19	.03	.81	.06	411.71	6.79	105.87
23.38	1020.00	0.00	0.00	685.40	530.00	692.67	.03	.68	.05	473.37	7.27	107.09
23.38	1020.00	0.00	0.00	685.40	675.00	693.78	.03	.53	.03	573.86	8.38	109.96
23.46	389.00	0.00	0.00	685.60	255.00	691.05	.09	.05	.04	255.00	5.45	20.00
23.46	389.00	0.00	0.00	685.60	450.00	692.18	.20	.07	.09	450.00	6.58	20.00
23.46	389.00	0.00	0.00	685.60	530.00	692.64	.24	.07	.10	530.00	7.04	20.00
23.46	389.00	0.00	0.00	685.60	675.00	693.72	.29	.07	.13	675.00	8.12	20.00

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
23.46	21.00	696.40	687.00	686.40	255.00	699.52	.03	8.40	0.00	254.99	13.12	22.25
23.46	21.00	696.40	687.00	686.40	450.00	700.53	.07	9.22	0.00	448.38	14.13	38.39
23.46	21.00	696.40	687.00	686.40	530.00	700.85	.09	8.06	0.00	527.84	14.45	42.41
23.46	21.00	696.40	687.00	686.40	675.00	701.29	.14	7.42	0.00	670.33	14.89	48.03
23.47	37.00	0.00	0.00	694.50	255.00	699.52	.04	.00	.00	255.00	5.02	38.00
23.47	37.00	0.00	0.00	694.50	450.00	700.53	.07	.00	.00	450.00	6.03	38.00
23.47	37.00	0.00	0.00	694.50	530.00	700.85	.09	.00	.00	530.00	6.35	38.00
23.47	37.00	0.00	0.00	694.50	675.00	701.30	.13	.00	.00	675.00	6.80	38.00
23.48	45.00	704.60	701.90	694.50	255.00	699.52	.04	.01	0.00	255.00	5.02	36.00
23.48	45.00	704.60	701.90	694.50	450.00	700.54	.08	.02	0.00	450.00	6.04	36.00
23.48	45.00	704.60	701.90	694.50	530.00	700.86	.10	.02	0.00	530.00	6.36	36.00
23.48	45.00	704.60	701.90	694.50	675.00	701.32	.14	.03	0.00	675.00	6.82	36.00
23.51	175.00	0.00	0.00	693.40	255.00	699.58	.00	.01	.01	255.00	6.18	98.14
23.51	175.00	0.00	0.00	693.40	450.00	700.64	.01	.01	.02	450.00	7.24	102.75
23.51	175.00	0.00	0.00	693.40	530.00	700.99	.01	.01	.03	530.00	7.59	104.24
23.51	175.00	0.00	0.00	693.40	675.00	701.50	.02	.02	.04	674.46	8.10	130.83
23.61	550.00	0.00	0.00	692.50	1195.00	699.59	.01	.02	.00	1195.00	7.09	403.67
23.61	550.00	0.00	0.00	692.50	2080.00	700.67	.01	.02	.00	2080.00	8.17	408.16
23.61	550.00	0.00	0.00	692.50	2560.00	701.02	.01	.03	.00	2560.00	8.52	409.63
23.61	550.00	0.00	0.00	692.50	3820.00	701.54	.03	.05	.01	3820.00	9.04	411.84

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSEL<	TOPWID	T.W. DIFF	LENGTH
20.322	1200.000	658.800	0.000	0.000	0.000	249.714	0.000	950.000
20.322	2230.000	660.100	1.300	0.000	0.000	320.222	-70.508	950.000
20.322	2800.000	660.900	.800	0.000	0.000	325.697	-75.983	950.000
20.322	4450.000	662.400	1.500	0.000	0.000	335.963	-86.248	950.000
20.350	1200.000	659.083	0.000	.283	0.000	217.420	0.000	150.000
20.350	2230.000	660.399	1.315	.299	0.000	315.222	-97.802	150.000
20.350	2800.000	661.149	.751	.249	0.000	323.933	-106.513	150.000
20.350	4450.000	662.635	1.486	.235	0.000	334.088	-116.668	150.000
20.445	1200.000	659.998	0.000	.915	0.000	493.650	0.000	500.000
20.445	2230.000	661.254	1.256	.855	0.000	559.249	-65.599	500.000
20.445	2800.000	661.873	.619	.724	0.000	585.127	-91.476	500.000
20.445	4450.000	663.278	1.405	.643	0.000	606.536	-112.886	500.000
20.483	1200.000	660.173	0.000	.176	0.000	352.393	0.000	200.000
20.483	2230.000	661.387	1.214	.133	0.000	616.674	-264.282	200.000
20.483	2800.000	661.998	.611	.125	0.000	629.710	-277.317	200.000
20.483	4450.000	663.388	1.390	.110	0.000	647.191	-294.799	200.000
20.578	1200.000	661.710	0.000	1.536	0.000	280.804	0.000	500.000
20.578	2230.000	662.663	.953	1.275	0.000	379.999	-99.195	500.000
20.578	2800.000	663.095	.432	1.097	0.000	379.999	-99.195	500.000
20.578	4450.000	664.232	1.137	.844	0.000	379.999	-99.195	500.000
20.691	1200.000	662.834	0.000	1.124	0.000	297.590	0.000	600.000
20.691	2230.000	664.089	1.255	1.426	0.000	451.309	-153.720	600.000
20.691	2800.000	664.592	.503	1.497	0.000	463.311	-165.721	600.000
20.691	4450.000	665.769	1.177	1.537	0.000	491.359	-193.770	600.000
20.767	1200.000	663.687	0.000	.853	0.000	160.067	0.000	400.000
20.767	2230.000	664.862	1.175	.774	0.000	183.049	-22.982	400.000
20.767	2800.000	665.343	.481	.751	0.000	192.468	-32.401	400.000
20.767	4450.000	666.468	1.124	.698	0.000	214.495	-54.428	400.000

20.862	1200.000	664.605	0.000	.918	0.000	149.736	0.000	500.000
20.862	2230.000	665.876	1.271	1.014	0.000	305.462	-155.726	500.000
20.862	2800.000	666.420	.543	1.077	0.000	316.120	-166.384	500.000
20.862	4450.000	667.670	1.250	1.203	0.000	340.902	-191.166	500.000
20.938	1200.000	665.396	0.000	.790	0.000	333.593	0.000	400.000
20.938	2230.000	666.664	1.269	.788	0.000	506.968	-173.375	400.000
20.938	2800.000	667.155	.491	.735	0.000	537.656	-204.063	400.000
20.938	4450.000	668.333	1.178	.663	0.000	607.958	-274.365	400.000
21.013	1195.000	666.090	0.000	.695	0.000	362.999	0.000	400.000
21.013	2105.000	667.152	1.062	.488	0.000	362.999	-.000	400.000
21.013	2600.000	667.602	.450	.447	0.000	362.999	-.000	400.000
21.013	3895.000	668.695	1.092	.362	0.000	362.999	-.000	400.000
21.071	1195.000	666.738	0.000	.648	0.000	187.999	0.000	305.000
21.071	2105.000	667.752	1.014	.600	0.000	187.999	-.000	305.000
21.071	2600.000	668.195	.443	.593	0.000	187.999	-.000	305.000
21.071	3895.000	669.220	1.025	.525	0.000	187.999	-.000	305.000
21.096	1195.000	667.031	0.000	.292	0.000	122.999	0.000	130.000
21.096	2105.000	668.096	1.065	.344	0.000	122.999	-.000	130.000
21.096	2600.000	668.553	.457	.358	0.000	122.999	-.000	130.000
21.096	3895.000	669.579	1.025	.358	0.000	122.999	-.000	130.000
21.111	1195.000	667.202	0.000	.172	0.000	77.999	0.000	80.000
21.111	2105.000	668.288	1.086	.193	0.000	77.999	-.000	80.000
21.111	2600.000	668.745	.457	.192	0.000	77.999	-.000	80.000
21.111	3895.000	669.732	.987	.155	0.000	77.999	-.000	80.000
21.121	1195.000	667.327	0.000	.125	0.000	55.999	0.000	55.000
21.121	2105.000	668.443	1.116	.155	0.000	55.999	-.000	55.000
21.121	2600.000	668.906	.463	.161	0.000	55.999	-.000	55.000
21.121	3895.000	669.877	.971	.145	0.000	55.999	-.000	55.000
21.124	1195.000	667.358	0.000	.030	0.000	47.999	0.000	15.000
21.124	2105.000	668.470	1.113	.027	0.000	47.999	-.000	15.000
21.124	2600.000	668.925	.455	.019	0.000	47.999	-.000	15.000
21.124	3895.000	669.854	.929	-.023	0.000	47.999	-.000	15.000
21.126	1195.000	667.376	0.000	.019	0.000	42.999	0.000	10.000
21.126	2105.000	668.484	1.108	.014	0.000	42.999	-.000	10.000
21.126	2600.000	668.932	.448	.007	0.000	42.999	-.000	10.000
21.126	3895.000	669.825	.893	-.030	0.000	42.999	-.000	10.000
21.128	1195.000	667.538	0.000	.161	0.000	39.000	0.000	10.000
21.128	2105.000	668.801	1.263	.317	0.000	39.000	0.000	10.000
21.128	2600.000	669.361	.560	.429	0.000	39.000	0.000	10.000
21.128	3895.000	670.717	1.356	.892	0.000	39.000	0.000	10.000
21.129	1195.000	667.540	0.000	.002	0.000	39.000	0.000	1.000
21.129	2105.000	668.805	1.265	.004	0.000	39.000	0.000	1.000
21.129	2600.000	669.366	.561	.005	0.000	39.000	0.000	1.000
21.129	3895.000	670.725	1.359	.008	0.000	39.000	0.000	1.000
21.136	1195.000	667.593	0.000	.054	0.000	39.000	0.000	44.000
21.136	2105.000	668.913	1.319	.108	0.000	39.000	0.000	44.000
21.136	2600.000	669.508	.595	.142	0.000	39.000	0.000	44.000
21.136	3895.000	670.983	1.475	.258	0.000	39.000	0.000	44.000
21.137	1195.000	667.595	0.000	.002	0.000	39.000	0.000	1.000
21.137	2105.000	668.916	1.321	.003	0.000	39.000	0.000	1.000
21.137	2600.000	669.511	.596	.003	0.000	39.000	0.000	1.000
21.137	3895.000	670.988	1.477	.005	0.000	39.000	0.000	1.000

21.143	2105.000	668.853	1.317	-.062	0.000	45.396	-5.457	33.000
21.143	2600.000	669.470	.617	-.041	0.000	47.952	-8.012	33.000
21.143	3895.000	671.083	1.613	.095	0.000	71.802	-31.863	33.000
21.146	1195.000	667.699	0.000	.162	0.000	41.234	0.000	15.000
21.146	2105.000	669.203	1.504	.350	0.000	47.492	-6.257	15.000
21.146	2600.000	669.921	.717	.450	0.000	50.430	-9.195	15.000
21.146	3895.000	671.736	1.816	.653	0.000	84.326	-43.091	15.000
21.148	1195.000	667.824	0.000	.125	0.000	42.373	0.000	15.000
21.148	2105.000	669.421	1.597	.218	0.000	48.993	-6.620	15.000
21.148	2600.000	670.190	.768	.269	0.000	57.854	-15.480	15.000
21.148	3895.000	672.090	1.901	.354	0.000	91.325	-4[illegible].951	15.000
21.158	1195.000	668.086	0.000	.262	0.000	45.116	0.000	50.000
21.158	2105.000	669.841	1.755	.420	0.000	59.051	-13.935	50.000
21.158	2600.000	670.670	.829	.481	0.000	77.578	-32.461	50.000
21.158	3895.000	672.658	1.988	.568	0.000	104.425	-59.308	50.000
21.184	1195.000	668.467	0.000	.380	0.000	54.907	0.000	136.000
21.184	2105.000	670.422	1.955	.581	0.000	90.334	-35.427	136.000
21.184	2600.000	671.334	.912	.664	0.000	102.692	-47.785	136.000
21.184	3895.000	673.410	2.076	.752	0.000	130.815	-75.908	136.000
21.233	1195.000	668.788	0.000	.321	0.000	80.139	0.000	260.000
21.233	2105.000	670.898	2.110	.476	0.000	103.408	-23.269	260.000
21.233	2600.000	671.862	.964	.527	0.000	134.800	-54.661	260.000
21.233	3895.000	674.037	2.175	.626	0.000	228.999	-148.860	260.000
21.250	1195.000	668.787	0.000	-.001	0.000	80.139	0.000	90.000
21.250	2105.000	672.230	3.443	1.332	0.000	146.879	-66.740	90.000
21.250	2600.000	673.514	1.284	1.652	0.000	201.360	-121.222	90.000
21.250	3895.000	675.051	1.537	1.015	0.000	228.999	-148.860	90.000
21.354	1195.000	669.217	0.000	.430	0.000	45.040	0.000	550.000
21.354	2105.000	672.263	3.046	.033	0.000	80.825	-35.785	550.000
21.354	2600.000	673.528	1.265	.014	0.000	120.095	-75.055	550.000
21.354	3895.000	675.068	1.540	.017	0.000	294.775	-249.735	550.000
21.439	1195.000	669.951	0.000	.734	0.000	52.220	0.000	450.000
21.439	2105.000	672.940	2.989	.677	0.000	396.223	-344.003	450.000
21.439	2600.000	674.253	1.313	.725	0.000	595.285	-543.065	450.000
21.439	3895.000	675.882	1.629	.814	0.000	657.780	-605.560	450.000
21.441	1195.000	670.234	0.000	.282	0.000	34.000	0.000	8.000
21.441	2105.000	673.048	2.815	.108	0.000	416.455	-382.455	8.000
21.441	2600.000	674.302	1.254	.049	0.000	600.160	-566.160	8.000
21.441	3895.000	675.945	1.642	.063	0.000	658.364	-624.364	8.000
21.581	1195.000	672.493	0.000	2.260	0.000	356.358	0.000	740.000
21.581	2105.000	673.671	1.178	-.623	0.000	526.563	-170.205	740.000
21.581	2600.000	674.575	.904	.272	0.000	604.497	-248.139	740.000
21.581	3895.000	676.103	1.528	.158	0.000	635.977	-279.619	740.000
21.624	1194.000	672.622	0.000	.128	0.000	271.578	0.000	225.000
21.624	2080.000	673.816	1.195	.145	0.000	360.517	-88.939	225.000
21.624	2560.000	674.679	.863	.105	0.000	441.180	-169.602	225.000
21.624	3820.000	676.184	1.505	.081	0.000	532.344	-260.766	225.000
21.666	1194.000	672.930	0.000	.308	0.000	160.166	0.000	225.000
21.666	2080.000	674.170	1.241	.354	0.000	265.044	-104.878	225.000
21.666	2560.000	674.944	.774	.265	0.000	321.551	-161.385	225.000
21.666	3820.000	676.376	1.432	.192	0.000	398.288	-238.122	225.000
21.708	1194.000	673.521	0.000	.592	0.000	108.696	0.000	225.000

21.708	2560.000	675.281	.604	.337	0.000	236.659	-127.963	225.000
21.708	3820.000	676.579	1.298	.203	0.000	289.079	-180.383	225.000
21.731	1194.000	673.884	0.000	.362	0.000	88.126	0.000	120.000
21.731	2080.000	675.119	1.235	.442	0.000	154.442	-66.316	120.000
21.731	2560.000	675.547	.428	.266	0.000	182.072	-93.946	120.000
21.731	3820.000	676.732	1.185	.152	0.000	246.845	-158.719	120.000
21.731	1194.000	673.704	0.000	-.179	0.000	32.812	0.000	1.000
21.731	2080.000	675.193	1.489	.074	0.000	158.200	-125.388	1.000
21.731	2560.000	676.273	1.080	.726	0.000	225.506	-192.695	1.000
21.731	3820.000	677.151	.878	.420	0.000	266.145	-233.333	1.000
21.733	1194.000	673.772	0.000	.068	0.000	32.928	0.000	8.000
21.733	2080.000	675.963	2.190	.769	0.000	211.178	-178.250	8.000
21.733	2560.000	676.347	.385	.074	0.000	229.085	-196.157	8.000
21.733	3820.000	677.203	.856	.052	0.000	268.628	-235.700	8.000
21.734	1194.000	674.768	0.000	.996	0.000	136.490	0.000	1.000
21.734	2080.000	675.843	1.074	-.120	0.000	204.136	-67.646	1.000
21.734	2560.000	676.197	.355	-.150	0.000	222.238	-85.748	1.000
21.734	3820.000	677.027	.829	-.177	0.000	260.587	-124.097	1.000
21.754	1194.000	674.970	0.000	.201	0.000	126.664	0.000	110.000
21.754	2080.000	676.278	1.308	.435	0.000	207.173	-80.508	110.000
21.754	2560.000	676.721	.443	.524	0.000	227.736	-101.072	110.000
21.754	3820.000	677.627	.905	.600	0.000	269.541	-142.876	110.000
21.801	1194.000	675.603	0.000	.633	0.000	114.119	0.000	250.000
21.801	2080.000	676.668	1.065	.390	0.000	129.634	-15.515	250.000
21.801	2560.000	677.073	.405	.352	0.000	139.947	-25.829	250.000
21.801	3820.000	677.895	.822	.268	0.000	161.036	-46.917	250.000
21.824	1194.000	675.820	0.000	.217	0.000	74.132	0.000	125.000
21.824	2080.000	676.842	1.022	.174	0.000	88.904	-14.771	125.000
21.824	2560.000	677.228	.386	.155	0.000	98.801	-24.669	125.000
21.824	3820.000	677.998	.769	.103	0.000	99.999	-25.867	125.000
21.848	1194.000	676.129	0.000	.309	0.000	38.999	0.000	125.000
21.848	2080.000	677.126	.997	.284	0.000	38.999	-.000	125.000
21.848	2560.000	677.506	.380	.278	0.000	38.999	-.000	125.000
21.848	3820.000	678.161	.655	.164	0.000	38.999	-.000	125.000
21.858	1194.000	676.243	0.000	.113	0.000	39.000	0.000	50.000
21.858	2080.000	677.380	1.138	.254	0.000	39.000	0.000	50.000
21.858	2560.000	677.967	.587	.461	0.000	39.000	0.000	50.000
21.858	3820.000	679.977	2.010	1.816	0.000	39.000	0.000	50.000
21.862	1194.000	676.198	0.000	-.044	0.000	81.999	0.000	20.000
21.862	2080.000	677.400	1.202	.020	0.000	81.999	-.000	20.000
21.862	2560.000	678.202	.801	.235	0.000	81.999	-.000	20.000
21.862	3820.000	680.824	2.622	.847	0.000	81.999	-.000	20.000
21.871	1194.000	676.389	0.000	.190	0.000	159.736	0.000	50.000
21.871	2080.000	678.004	1.615	.603	0.000	181.999	-22.263	50.000
21.871	2560.000	678.935	.931	.733	0.000	181.999	-22.263	50.000
21.871	3820.000	681.590	2.655	.766	0.000	181.999	-22.263	50.000
21.953	1194.000	677.462	0.000	1.073	0.000	277.619	0.000	430.000
21.953	2080.000	678.998	1.536	.994	0.000	487.315	-209.696	430.000
21.953	2560.000	679.781	.784	.846	0.000	496.289	-218.670	430.000
21.953	3820.000	682.127	2.345	.537	0.000	523.162	-245.543	430.000
22.047	1194.000	678.453	0.000	.991	0.000	623.151	0.000	500.000
22.047	2080.000	679.655	1.202	.657	0.000	648.296	-25.146	500.000

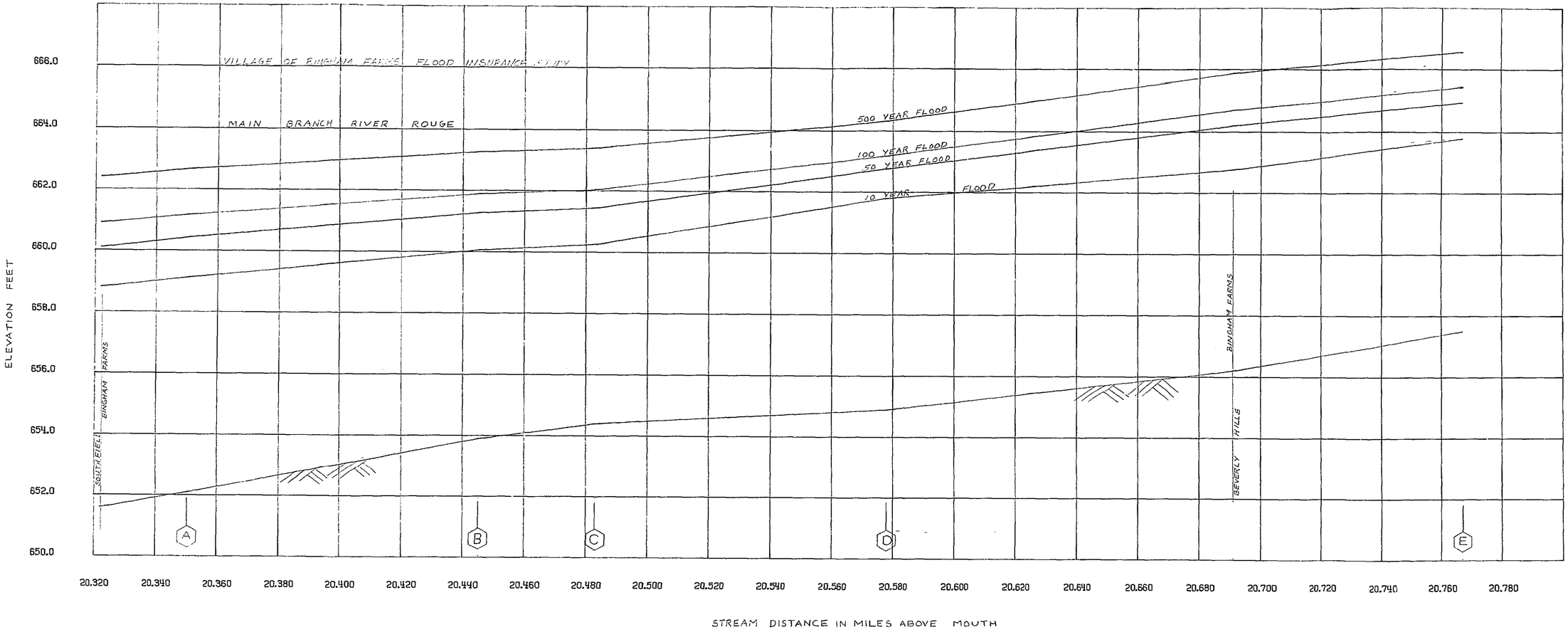
22.047	3820.000	682.370	2.080	.244	0.000	705.129	-81.979	500.000
22.170	1194.000	679.174	0.000	.721	0.000	97.492	0.000	650.000
22.170	2080.000	680.149	.976	.494	0.000	305.375	-207.883	650.000
22.170	2560.000	680.718	.568	.428	0.000	364.243	-266.751	650.000
22.170	3820.000	682.606	1.888	.235	0.000	423.443	-325.951	650.000
22.217	1194.000	679.866	0.000	.692	0.000	85.116	0.000	248.000
22.217	2080.000	681.113	1.248	.964	0.000	319.297	-234.181	248.000
22.217	2560.000	681.498	.385	.780	0.000	359.512	-274.396	248.000
22.217	3820.000	682.854	1.355	.248	0.000	402.197	-317.081	248.000
22.263	1194.000	680.668	0.000	.802	0.000	78.932	0.000	247.000
22.263	2080.000	682.045	1.378	.932	0.000	325.927	-246.995	247.000
22.263	2560.000	682.407	.362	.909	0.000	359.274	-280.342	247.000
22.263	3820.000	683.319	.912	.465	0.000	387.914	-308.982	247.000
22.356	1194.000	682.152	0.000	1.485	0.000	194.953	-0.000	495.000
22.356	2080.000	683.614	1.462	1.569	0.000	235.138	-40.235	495.000
22.356	2560.000	683.986	.372	1.579	0.000	238.747	-43.893	495.000
22.356	3820.000	684.610	.623	1.291	0.000	244.810	-49.957	495.000
22.357	1194.000	682.408	0.000	.256	0.000	201.819	0.000	1.000
22.357	2080.000	683.776	1.368	.161	0.000	236.717	-34.898	1.000
22.357	2560.000	684.154	.378	.168	0.000	240.385	-38.566	1.000
22.357	3820.000	684.822	.668	.212	0.000	246.878	-45.059	1.000
22.359	1194.000	682.454	0.000	.046	0.000	203.173	0.000	9.000
22.359	2080.000	683.794	1.340	.019	0.000	236.872	-33.698	9.000
22.359	2560.000	684.173	.379	.019	0.000	240.548	-37.375	9.000
22.359	3820.000	684.846	.673	.024	0.000	247.087	-43.913	9.000
22.360	1194.000	682.408	0.000	-.046	0.000	201.890	0.000	1.000
22.360	2080.000	683.762	1.354	-.033	0.000	236.567	-34.677	1.000
22.360	2560.000	684.140	.379	-.033	0.000	240.242	-38.351	1.000
22.360	3820.000	684.810	.670	-.036	0.000	246.739	-44.849	1.000
22.435	1194.000	682.921	0.000	.513	0.000	175.926	0.000	399.000
22.435	2080.000	684.151	1.230	.390	0.000	177.960	-2.034	399.000
22.435	2560.000	684.557	.406	.416	0.000	178.631	-2.705	399.000
22.435	3820.000	685.338	.781	.528	0.000	179.922	-3.997	399.000
22.586	1194.000	683.421	0.000	.500	0.000	180.185	0.000	800.000
22.586	2080.000	684.710	1.289	.558	0.000	183.073	-2.887	800.000
22.586	2560.000	685.187	.477	.630	0.000	184.142	-3.957	800.000
22.586	3820.000	686.170	.984	.832	0.000	186.347	-6.162	800.000
22.690	1194.000	684.285	0.000	.864	0.000	84.182	0.000	550.000
22.690	2080.000	685.652	1.367	.942	0.000	126.618	-42.436	550.000
22.690	2560.000	686.207	.555	1.020	0.000	129.598	-45.415	550.000
22.690	3820.000	687.391	1.185	1.221	0.000	135.962	-51.780	550.000
22.793	1194.000	685.345	0.000	1.059	0.000	86.515	0.000	542.500
22.793	2080.000	686.966	1.621	1.314	0.000	128.660	-42.145	542.500
22.793	2560.000	687.633	.667	1.426	0.000	132.270	-45.755	542.500
22.793	3820.000	689.073	1.440	1.681	0.000	203.988	-117.473	542.500
22.998	1194.000	687.461	0.000	2.116	0.000	108.543	0.000	1085.000
22.998	2080.000	689.256	1.795	2.291	0.000	153.199	-44.655	1085.000
22.998	2560.000	689.995	.738	2.362	0.000	192.813	-84.269	1085.000
22.998	3820.000	691.535	1.541	2.463	0.000	404.165	-295.622	1085.000
23.101	1194.000	688.464	0.000	1.003	0.000	110.617	0.000	542.500
23.101	2080.000	690.237	1.773	.981	0.000	154.929	-44.312	542.500
23.101	2560.000	690.959	.722	.964	0.000	197.085	-86.468	542.500

23.190	1194.000	689.495	0.000	1.030	0.000	175.308	0.000	500.000
23.190	2080.000	691.101	1.606	.864	0.000	375.641	-200.333	500.000
23.190	2560.000	691.782	.681	.823	0.000	398.286	-222.979	500.000
23.190	3820.000	693.102	1.319	.711	0.000	442.433	-267.125	500.000
23.271	940.000	690.446	0.000	.951	0.000	68.357	0.000	400.000
23.271	1630.000	691.687	1.241	.586	0.000	119.999	-51.642	400.000
23.271	2030.000	692.206	.520	.424	0.000	119.999	-51.642	400.000
23.271	3145.000	693.289	1.083	.188	0.000	119.999	-51.642	400.000
23.302	940.000	690.787	0.000	.341	0.000	35.199	0.000	166.000
23.302	1630.000	692.140	1.353	.453	0.000	35.199	-.000	166.000
23.302	2030.000	692.693	.553	.486	0.000	35.199	-.000	166.000
23.302	3145.000	693.804	1.111	.515	0.000	35.199	-.000	166.000
23.309	940.000	690.827	0.000	.040	0.000	35.200	0.000	34.000
23.309	1630.000	692.173	1.346	.033	0.000	35.200	0.000	34.000
23.309	2030.000	692.924	.751	.231	0.000	35.200	0.000	34.000
23.309	3145.000	694.937	2.013	1.133	0.000	35.200	0.000	34.000
23.323	940.000	690.958	0.000	.131	0.000	112.948	0.000	75.000
23.323	1630.000	692.699	1.742	.526	0.000	116.287	-3.339	75.000
23.323	2030.000	693.696	.997	.773	0.000	118.211	-5.264	75.000
23.323	3145.000	696.298	2.602	1.362	0.000	124.421	-11.473	75.000
23.356	940.000	691.181	0.000	.224	0.000	37.573	0.000	175.000
23.356	1630.000	692.830	1.649	.131	0.000	136.510	-98.931	175.000
23.356	2030.000	693.822	.991	.125	0.000	187.285	-149.706	175.000
23.356	3145.000	696.456	2.634	.158	0.000	232.464	-194.886	175.000
23.410	940.000	691.805	0.000	.624	0.000	70.000	0.000	285.000
23.410	1630.000	693.689	1.883	.858	0.000	70.000	0.000	285.000
23.410	2030.000	694.508	.819	.686	0.000	72.272	-2.272	285.000
23.410	3145.000	696.592	2.084	.136	0.000	75.006	-5.006	285.000
23.413	940.000	699.596	0.000	7.791	0.000	61.500	0.000	15.000
23.413	1630.000	700.599	1.002	6.910	0.000	198.195	-136.695	15.000
23.413	2030.000	700.913	.315	6.406	0.000	234.255	-172.755	15.000
23.413	3145.000	701.505	.591	4.913	0.000	298.572	-237.072	15.000
23.470	1195.000	699.621	0.000	.025	0.000	403.731	0.000	300.000
23.470	2080.000	700.664	1.043	.065	0.000	408.146	-4.415	300.000
23.470	2560.000	701.011	.347	.097	0.000	409.600	-5.869	300.000
23.470	3820.000	701.720	.710	.216	0.000	412.577	-8.846	300.000
23.531	1195.000	699.633	0.000	.012	0.000	330.564	0.000	320.000
23.531	2080.000	700.683	1.050	.019	0.000	332.389	-1.825	320.000
23.531	2560.000	701.035	.352	.024	0.000	333.007	-2.443	320.000
23.531	3820.000	701.757	.723	.037	0.000	334.260	-3.696	320.000
23.540	1195.000	699.398	0.000	-.235	0.000	40.000	0.000	50.000
23.540	2080.000	700.126	.728	-.557	0.000	40.000	0.000	50.000
23.540	2560.000	700.878	.752	-.156	0.000	159.407	-119.407	50.000
23.540	3820.000	701.519	.641	-.238	0.000	208.029	-168.029	50.000
23.541	1195.000	699.399	0.000	.001	0.000	40.000	0.000	1.000
23.541	2080.000	700.130	.730	.003	0.000	40.000	0.000	1.000
23.541	2560.000	700.841	.711	-.037	0.000	156.552	-116.552	1.000
23.541	3820.000	701.442	.602	-.077	0.000	202.139	-162.139	1.000
23.546	1195.000	699.400	0.000	.000	0.000	40.000	0.000	29.000
23.546	2080.000	700.131	.731	.001	0.000	40.000	0.000	29.000
23.546	2560.000	701.917	1.786	1.077	0.000	295.444	-255.444	29.000
23.546	3820.000	702.915	.998	1.479	0.000	370.614	-330.614	29.000

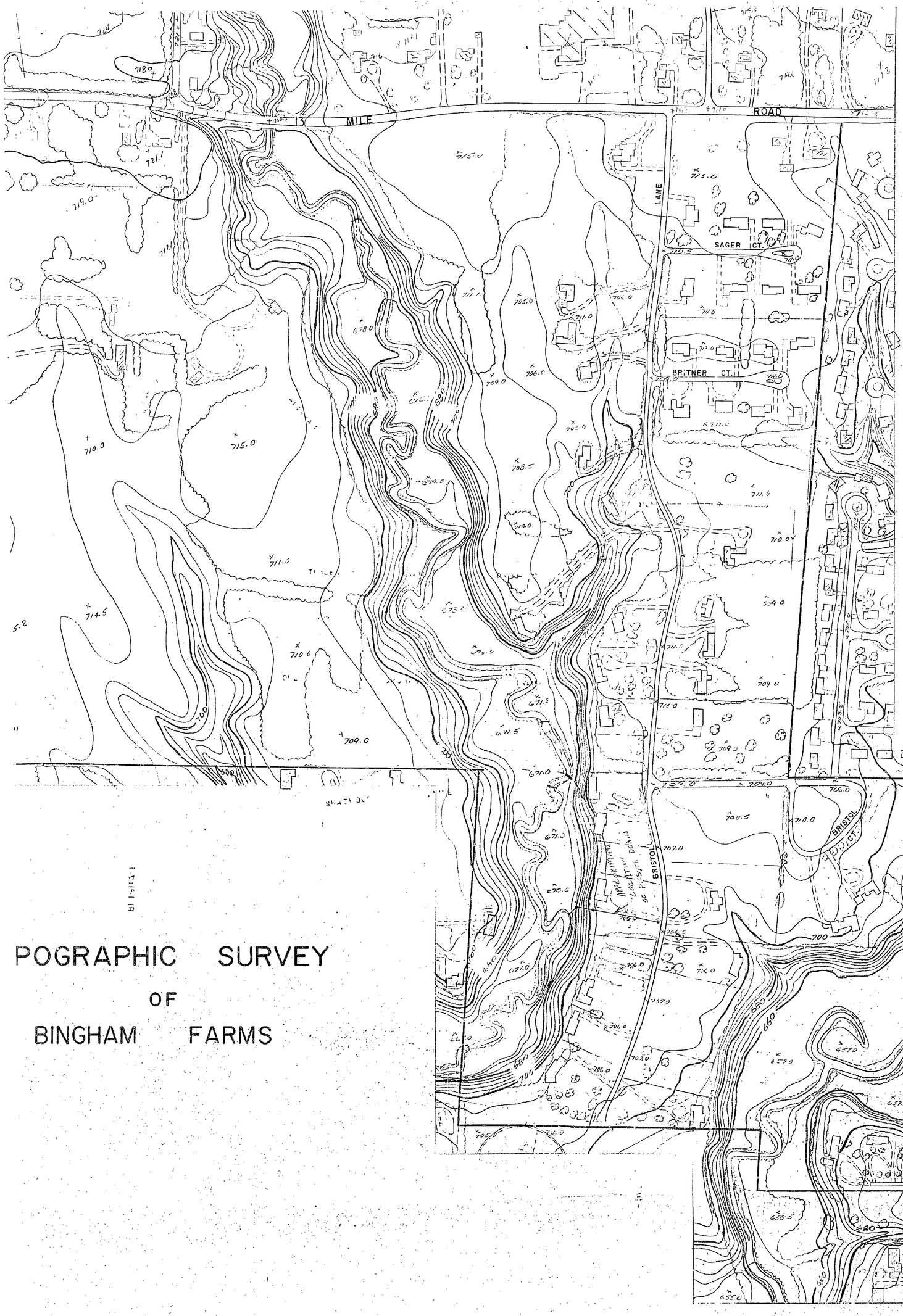
23.547	1195.000	699.401	0.000	.001	0.000	40.000	0.000	1.000
23.547	2080.000	700.134	.733	.003	0.000	40.000	0.000	1.000
23.547	2560.000	701.893	1.759	-.024	0.000	286.926	-246.926	1.000
23.547	3820.000	702.917	1.023	.001	0.000	370.644	-330.644	1.000
23.631	1195.000	700.253	0.000	.852	0.000	308.737	0.000	450.000
23.631	2080.000	701.875	1.622	1.741	0.000	393.999	-85.262	450.000
23.631	2560.000	702.430	.555	.536	0.000	393.999	-85.262	450.000
23.631	3820.000	703.451	1.021	.534	0.000	393.999	-85.262	450.000
23.802	1180.000	700.519	0.000	.266	0.000	662.349	0.000	900.000
23.802	1800.000	702.103	1.584	.228	0.000	665.714	-3.365	900.000
23.802	2100.000	702.668	.565	.238	0.000	666.906	-4.557	900.000
23.802	2820.000	703.741	1.073	.290	0.000	669.175	-6.826	900.000
23.935	1180.000	700.729	0.000	.210	0.000	614.442	0.000	700.000
23.935	1800.000	702.216	1.487	.113	0.000	688.679	-74.237	700.000
23.935	2100.000	702.769	.553	.101	0.000	711.503	-97.061	700.000
23.935	2820.000	703.831	1.062	.090	0.000	719.135	-104.693	700.000
-23.190	1195.000	689.495	0.000	-11.235	0.000	175.227	0.000	400.000
-23.190	2080.000	691.101	1.606	-11.115	0.000	375.497	-200.270	400.000
-23.190	2560.000	691.782	.691	-10.987	0.000	398.286	-223.059	400.000
-23.190	3820.000	693.102	1.319	-10.730	0.000	442.433	-267.206	400.000
23.383	255.000	691.045	0.000	1.550	0.000	102.934	0.000	1020.000
23.383	450.000	692.192	1.147	1.091	0.000	105.873	-2.939	1020.000
23.383	530.000	692.667	.475	.885	0.000	107.093	-4.159	1020.000
23.383	675.000	693.783	1.117	.682	0.000	109.956	-7.022	1020.000
23.457	255.000	691.054	0.000	.009	0.000	20.000	0.000	389.000
23.457	450.000	692.177	1.123	-.015	0.000	20.000	0.000	389.000
23.457	530.000	692.636	.460	-.030	0.000	20.000	0.000	389.000
23.457	675.000	693.722	1.086	-.061	0.000	20.000	0.000	389.000
23.461	255.000	699.524	0.000	8.470	0.000	22.250	0.000	21.000
23.461	450.000	700.530	1.006	8.353	0.000	38.389	-16.139	21.000
23.461	530.000	700.847	.317	8.210	0.000	42.409	-20.159	21.000
23.461	675.000	701.291	.444	7.568	0.000	48.034	-25.784	21.000
23.468	255.000	699.519	0.000	-.004	0.000	37.999	0.000	37.000
23.468	450.000	700.528	1.009	-.001	0.000	37.999	-.000	37.000
23.468	530.000	700.848	.320	.001	0.000	37.999	-.000	37.000
23.468	675.000	701.304	.456	.014	0.000	37.999	-.000	37.000
23.477	255.000	699.523	0.000	.004	0.000	36.000	0.000	45.000
23.477	450.000	700.537	1.014	.009	0.000	36.000	0.000	45.000
23.477	530.000	700.859	.322	.011	0.000	36.000	0.000	45.000
23.477	675.000	701.321	.461	.016	0.000	36.000	0.000	45.000
23.510	255.000	699.576	0.000	-.052	0.000	98.142	0.000	175.000
23.510	450.000	700.643	1.067	.106	0.000	102.748	-4.606	175.000
23.510	530.000	700.989	.346	.130	0.000	104.243	-6.101	175.000
23.510	675.000	701.500	.511	.179	0.000	130.833	-32.691	175.000
23.614	1195.000	699.590	0.000	.015	0.000	403.669	0.000	550.000
23.614	2080.000	700.667	1.076	-.024	0.000	408.159	-4.489	550.000
23.614	2560.000	701.018	.352	.029	0.000	409.633	-5.963	550.000
23.614	3820.000	701.544	.526	.044	0.000	411.838	-8.169	550.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	99.820	0.000


VILLAGE OF BINGHAM FARMS FLOOD INSURANCE STUDY
MAIN BRANCH RIVER ROUGE
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
SOUTHFIELD
BINGHAM FARMS
BINGHAM FARMS
BEVERLY HILLS
A
B
C
D
E
ELEVATION FEET
668.0
664.0
662.0
660.0
658.0
656.0
654.0
652.0
650.0
20.320
20.340
20.360
20.380
20.400
20.420
20.440
20.460
20.480
20.500
20.520
20.540
20.560
20.580
20.600
20.620
20.640
20.660
20.680
20.700
20.720
20.740
20.760
20.780
STREAM DISTANCE IN MILES ABOVE MOUTH

RECEIVED
MAR 29 1984
WATER MANAGEMENT



POGRAPHIC SURVEY

OF

BINGHAM FARMS

OF

BINGHAM FARMS

MAPS PLOTTED FROM AERIAL PHOTO METHODS IN APRIL, 1971

CONTOUR INTERVAL - 4'

DATE 10-29-71	SCALE 1" = 200'	GWE	Giffels-Webster Engineers, Inc.
DRAWN OTHERS	DESIGNED		CONSULTING ENGINEERS AND LAND SURVEYORS
CKD. BY	SECTION 2, 3		2731 North Adams Road Pontiac, Michigan 48057
F.B. NONE	T. 1 N., R. 11 E.		Phone: 313/852-3100 or 313/356-2266
SHEET 1	OF 2 SHEETS		

8-01.10.09-2524.00

NO. 2524

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BINGHAM FARMS VILLAGE OF

3) WATERCOURSE: RIVER ROUGE, FRANKLIN BRANCH

4) DOCUMENT TYPE: 100 YR ENCROACHED

00BREAK00

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


T1       VILLAGE OF BINGHAM FARMS, MICHIGAN FLOOD INSURANCE STUDY
T2       ROUGE RIVER
T3       FRANKLIN BRANCH 100 YEAR FLOOD DISCHARGE 1640 CFS

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -10.        4.         0.         0.    .000000        .00         .0         0.    673.530       .000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

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

*PROF 3

CCHV=     .200 CEHV=     .400
*SECNO 6350.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 COE 5 CORP. BOUNDARY SECNO=00000  FIELD SECTION A *******

   6350.00      7.13    673.53       .00    673.53    674.01       .48       .00       .00    671.50
     1640.       26.      1388.      226.       37.      229.      248.        0.        0.    671.50
      .00        .71      6.06       .91      .125      .045      .125      .000    666.40     33.46
  .003538      1715.      2320.     1995.         0         0         0       .00    252.72    286.18

CCHV=     .300 CEHV=     .500
*SECNO 635.000

         VALLEY     1  FIELD SECTION B **********************************

    635.00     10.95    675.05       .00       .00    675.11       .06       .97       .13    668.20
     1640.      425.      522.      693.      373.      170.      598.       10.        3.    669.80
      .09       1.14      3.07      1.16      .125      .060      .125      .067    664.10     14.48
  .000997       650.      635.      400.         2         0         0       .00    206.33    220.82

*SECNO 1635.000

         VALLEY     2  FIELD SECTION C **********************************

   1635.00      7.96    676.36       .00       .00    676.50       .15      1.35       .04    671.40
     1640.       31.      755.      854.       30.      176.      653.       30.        7.    672.60
      .18       1.03      4.30      1.31      .125      .060      .125      .067    668.40     22.92
  .002481       800.      1000.     850.         2         0         0       .00    254.07    276.99
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FORM 1411-60-PRINTED BY ROTARY MANIFOLD FORMS.

*SECNO 2767.000

VALLEY 3 FIELD SECTION D **********

2767.00	7.85	678.45	.00	.00	678.63	.18	2.11	.02	675.80
1640.	437.	1131.	72.	494.	280.	72.	49.	13.	674.60
.28	.88	4.04	1.00	.125	.050	.125	.062	670.60	20.36
.001691	944.	1132.	891.	2	0	0	.00	275.15	295.51

*SECNO 3053.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3053.00	7.18	678.98	.00	.00	679.35	.37	.63	.10	677.10
1640.	264.	1289.	87.	264.	234.	69.	53.	14.	675.80
.29	1.00	5.50	1.26	.125	.050	.125	.061	671.80	30.83
.003565	208.	286.	203.	2	0	0	.00	244.84	275.67

*SECNO 3339.000

3339.00	7.12	680.02	.00	.00	680.51	.49	1.10	.06	678.30
1640.	206.	1327.	108.	190.	213.	78.	55.	15.	677.10
.31	1.08	6.24	1.38	.125	.050	.125	.060	672.90	49.55
.004707	208.	286.	203.	2	0	0	.00	207.65	257.21

*SECNO 3895.000

3895.00	7.46	682.66	.00	.00	683.27	.60	2.70	.06	680.80
1640.	175.	1284.	181.	143.	183.	120.	60.	17.	679.70
.33	1.22	7.01	1.50	.125	.050	.125	.059	675.20	42.89
.005663	404.	556.	394.	2	0	0	.00	188.78	231.67

*SECNO 4173.000

4173.00	7.87	684.17	.00	.00	684.53	.36	1.19	.07	682.10
1640.	242.	1007.	391.	138.	169.	208.	63.	18.	680.90
.35	1.76	5.95	1.88	.080	.050	.080	.059	676.30	36.13
.003942	202.	278.	197.	2	0	0	.00	230.82	266.94

*SECNO 4451.000

3470 ENCROACHMENT STATIONS= .0 180.0 TYPE= 1 TARGET= 179.999

VALLEY 4 FIELD SECTION E **********

4451.00	7.89	685.29	.00	.00	685.81	.52	1.20	.08	683.30
1640.	209.	1023.	407.	101.	144.	160.	65.	19.	682.20
.36	2.07	7.12	2.54	.080	.050	.080	.059	677.40	29.97
.006074	202.	278.	197.	2	0	0	.00	150.03	180.00

*SECNO 4560.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

PRINTED IN U.S.A.
FORM 1411-OD-PRINTED BY ROTARY MANIFOLD FORMS.

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 32.0 163.0 TYPE= 1 TARGET= 131.000

4560.00	7.51	686.01	.00	.00	686.13	.13	.21	.12	682.00
1640.	40.	1523.	77.	40.	514.	66.	67.	20.	682.00
.37	1.00	2.96	1.17	.080	.045	.080	.058	678.50	32.00
.000870	120.	110.	120.	2	0	0	.00	131.00	163.00

*SECNO 4630.000

3470 ENCROACHMENT STATIONS= 95.0 148.0 TYPE= 1 TARGET= 53.000

********** RIVER CROSSING RD. BRIDGE (4.55) FIELD SECTION F **********

4630.00	7.00	686.00	.00	.00	686.33	.33	.09	.10	680.00
1640.	0.	1640.	0.	0.	355.	0.	67.	20.	100000.00
.38	.00	4.62	.00	.080	.045	.080	.058	679.00	95.00
.002225	90.	70.	25.	2	0	0	.00	53.00	148.00

*SECNO 4631.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 29 MIN ELTRD= 697.00 MAX ELLC= 699.10

4631.00	6.96	685.96	.00	.00	686.37	.41	.00	.04	684.00
1640.	0.	1640.	0.	0.	320.	0.	67.	20.	684.00
.38	.00	5.13	.00	.080	.020	.080	.058	679.00	59.99
.000680	1.	1.	1.	2	0	0	-1.93	47.23	110.21

*SECNO 4731.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 29 MIN ELTRD= 697.00 MAX ELLC= 699.10

********** RIVER CROSSING RD. BRIDGE (4.55) FIELD SECTION F **********

4731.00	7.04	686.04	.00	.00	686.44	.40	.07	.00	684.00
1640.	0.	1640.	0.	0.	323.	0.	68.	20.	684.00
.38	.00	5.08	.00	.080	.020	.080	.057	679.00	59.99
.000661	100.	100.	100.	2	0	0	-2.12	47.23	110.21

*SECNO 4732.000

3470 ENCROACHMENT STATIONS= 61.0 114.0 TYPE= 1 TARGET= 53.000

4732.00	7.13	686.13	.00	.00	686.46	.33	.00	.02100000.00	
1640.	0.	1638.	2.	0.	357.	4.	68.	20.	682.00
.38	.00	4.58	.56	.080	.035	.080	.057	679.00	61.00

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.001208	1.	1.	1.	2	0	0	.00	53.00	114.00

*SECNO 4822.000

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

3470 ENCROACHMENT STATIONS= = .0 194.0 TYPE= 1 TARGET= 193.999

****

4822.00	7.14	686.14	.00	.00	686.91	.77	.23	.22	684.00
1640.	77.	1157.	406.	40.	141.	169.	69.	20.	684.00
.39	1.92	8.22	2.41	.080	.050	.080	.057	679.00	29.70
.008944	50.	90.	80.	2	0	0	.00	164.30	194.00

*SECNO 5302.000

5302.00	8.55	688.95	.00	.00	689.28	.33	2.24	.13	686.00
1640.	10.	1037.	593.	11.	184.	328.	73.	22.	686.00
.42	.97	5.64	1.81	.080	.050	.080	.057	680.40	122.42
.003246	400.	480.	365.	2	0	0	.00	194.55	316.97

*SECNO 5482.000

3470 ENCROACHMENT STATIONS= 134.0 190.0 TYPE= 1 TARGET= 56.000

5482.00	8.62	689.31	.00	.00	690.10	.79	.59	.23	683.69
1640.	44.	1536.	59.	23.	209.	31.	74.	22.	683.69
.42	1.88	7.36	1.89	.080	.050	.080	.057	680.69	134.00
.004253	50.	180.	90.	2	0	0	.00	56.00	190.00

*SECNO 5532.000

3470 ENCROACHMENT STATIONS= 242.0 273.0 TYPE= 1 TARGET= 31.000

****

5532.00	8.80	689.65	.00	.00	690.36	.72	.24	.02	683.35
1640.	0.	1640.	0.	0.	241.	0.	74.	22.	99999.85
.42	.00	6.80	.00	.080	.050	.080	.057	680.95	242.00
.005626	50.	50.	50.	2	0	0	.00	31.00	273.00

*SECNO 5533.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 700.30 MAX ELLC= 696.30

BRIDGE 5 FIELD SECTION G ***THIRTEEN MILE ROAD**********

5533.00	8.74	689.59	.00	.00	690.43	.84	.01	.06	700.15
1640.	0.	1640.	0.	0.	223.	0.	74.	22.	700.15
.42	.00	7.35	.00	.080	.038	.080	.057	680.85	242.00
.006176	1.	1.	1.	2	0	0	.00	30.50	272.50

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*SECNO 5579.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5579.00	8.92	689.92	.00	.00	690.72	.80	.28	.01	700.30
1640.	0.	1640.	0.	0.	228.	0.	75.	22.	700.30
.43	.00	7.18	.00	.080	.038	.080	.056	681.00	242.00
.005830	46.	46.	46.	2	0	0	.00	30.50	272.50

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 700.30 MAX ELLC= 696.30

*SECNO 5580.000

3470 ENCROACHMENT STATIONS= 243.0 274.0 TYPE= 1 TARGET= 31.000

5580.00	8.91	689.91	.00	.00	690.74	.83	.01	.01100000.00	
1640.	0.	1627.	13.	0.	222.	12.	75.	22.	681.60
.43	.00	7.33	1.05	.060	.050	.125	.056	681.00	243.00
.005551	1.	1.	1.	1	0	0	.00	31.00	274.00

*SECNO 5650.000

****

5650.00	8.72	690.72	.00	.00	691.14	.42	.28	.12	686.00
1640.	469.	947.	223.	149.	147.	129.	75.	22.	682.00
.43	3.15	6.44	1.73	.060	.050	.125	.056	682.00	208.92
.003148	75.	70.	50.	2	0	0	.00	95.62	304.54

*SECNO 6160.000

6160.00	8.80	691.80	.00	.00	691.84	.03	.57	.12	689.00
1640.	468.	398.	774.	604.	168.	781.	87.	25.	686.00
.54	.77	2.37	.99	.100	.050	.100	.056	683.00	10.24
.000558	450.	510.	600.	3	0	0	.00	376.10	386.34

*SECNO 6685.000

3301 HV CHANGED MORE THAN HVINS

6685.00	7.77	691.97	.00	.00	692.64	.67	.48	.32	685.90
1640.	161.	1307.	172.	85.	180.	100.	94.	27.	686.20
.56	1.89	7.28	1.71	.100	.050	.100	.056	684.20	87.06
.004527	300.	525.	225.	2	0	0	.00	125.89	212.95

*SECNO 7210.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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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VALLEY 6 FIELD SECTION H **********

7210.00	8.15	694.55	.00	.00	695.59	1.04	2.77	.19	687.90
1640.	165.	1460.	14.	61.	170.	9.	97.	27.	691.60
.58	2.73	8.61	1.54	.100	.050	.100	.056	686.40	46.74
.007384	300.	525.	225.	2	0	0	.00	49.46	96.20

*SECNO 7670.000

****

7670.00	9.43	698.52	.00	.00	699.79	1.27	4.08	.11	712.39
1640.	0.	1640.	0.	0.	182.	0.	99.	28.	712.39
.59	.00	9.03	.00	.100	.050	.100	.056	689.09	100.00
.011041	400.	460.	450.	3	0	0	.00	22.00	122.00

*SECNO 7671.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 709.60 MAX ELLC= 703.70

BRIDGE 7 FIELD SECTION I ***PRIVATE DRIVE**********

7671.00	9.39	698.48	.00	.00	699.84	1.37	.01	.05	712.39
1640.	0.	1640.	0.	0.	175.	0.	99.	28.	712.39
.59	.00	9.38	.00	.100	.027	.100	.056	689.09	100.00
.004686	1.	1.	1.	2	0	0	-5.80	22.00	122.00

*SECNO 7690.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 709.60 MAX ELLC= 703.70

7690.00	9.36	698.56	.00	.00	699.94	1.38	.09	.01	712.50
1640.	0.	1640.	0.	0.	174.	0.	99.	28.	712.50
.59	.00	9.44	.00	.100	.027	.100	.056	689.20	100.00
.004774	19.	19.	19.	2	0	0	-6.07	22.00	122.00

*SECNO 7691.000

7691.00	9.57	698.77	.00	.00	699.99	1.22	.00	.05	712.50
1640.	0.	1640.	0.	0.	185.	0.	99.	28.	712.50
.59	.00	8.88	.00	.100	.035	.100	.056	689.20	100.00
.005164	1.	1.	1.	2	0	0	.00	22.00	122.00

*SECNO 7841.000

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

****

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7841.00	9.08	699.88	.00	.00	700.62	.74	.49	.14	695.90
1640.	0.	1467.	173.	1.	201.	81.	100.	28.	696.00
.60	.22	7.28	2.13	.100	.035	.050	.055	690.80	.67
.002395	150.	150.	20.	3	0	0	.00	91.29	91.95

*SECNO 8151.000

VALLEY 8 FIELD SECTION J **********

8151.00	9.78	701.18	.00	.00	701.46	.28	.69	.14	694.20
1640.	648.	900.	92.	169.	193.	68.	102.	28.	696.10
.62	3.83	4.67	1.37	.035	.060	.125	.056	691.40	192.03
.002274	350.	310.	50.	2	0	0	.00	134.06	326.09

*SECNO 8354.000

3470 ENCROACHMENT STATIONS= 268.0 324.0 TYPE= 1 TARGET= 56.000

8354.00	9.93	701.63	.00	.00	702.08	.45	.54	.09	694.50
1640.	473.	1057.	111.	80.	196.	69.	104.	29.	696.40
.63	5.92	5.39	1.61	.035	.060	.125	.056	691.70	268.00
.002955	225.	203.	180.	1	0	0	.00	56.00	324.00

*SECNO 8404.000

3470 ENCROACHMENT STATIONS= 281.0 311.0 TYPE= 1 TARGET= 30.000

8404.00	9.88	701.65	.00	.00	702.48	.83	.21	.19	694.57
1640.	152.	1458.	31.	25.	195.	20.	104.	29.	696.47
.63	6.04	7.48	1.56	.035	.060	.125	.056	691.78	281.00
.005762	56.	51.	45.	2	0	0	.00	30.00	311.00

*SECNO 8421.000

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8421.00	9.80	701.60	.00	.00	702.83	1.23	.15	.20	705.80
1640.	0.	1640.	0.	0.	184.	0.	104.	29.	705.80
.63	.00	8.90	.00	.060	.060	.125	.056	691.80	300.00
.015951	19.	17.	15.	2	0	0	.00	22.00	322.00

*SECNO 8422.000

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

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 705.80 MAX ELLC= 703.60

BRIDGE 9 FIELD SECTION K ***BINGHAM ROAD**********

8422.00	9.82	701.62	.00	.00	702.84	1.23	.01	.00	705.80
1640.	0.	1640.	0.	0.	185.	0.	104.	29.	705.80
.63	.00	8.89	.00	.060	.039	.125	.056	691.80	300.00

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.006716	1.	1.	1.	0	0	0	.00	22.00	322.00

*SECNO 8439.000

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 705.80 MAX ELLC= 703.60

8439.00	10.00	701.80	.00	.00	702.97	1.17	.11	.02	705.80
1640.	0.	1640.	0.	0.	189.	0.	104.	29.	705.80
.63	.00	8.69	.00	.060	.039	.125	.056	691.80	300.00
.006314	17.	17.	17.	1	0	0	.00	22.00	322.00

*SECNO 8440.000

8440.00	10.01	701.81	.00	.00	702.98	1.17	.01	.00	705.80
1640.	0.	1640.	0.	0.	189.	0.	104.	29.	705.80
.63	.00	8.69	.00	.060	.060	.125	.056	691.80	300.00
.014945	1.	1.	1.	0	0	0	.00	22.00	322.00

*SECNO 8444.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 296.0 326.0 TYPE= 1 TARGET= 30.000

****

8444.00	10.81	702.62	.00	.00	703.19	.57	.03	.18100000.00	
1640.	0.	1621.	19.	0.	266.	16.	104.	29.	697.31
.63	.00	6.10	1.25	.060	.060	.125	.056	691.81	296.00
.004589	4.	4.	5.	2	0	0	.00	30.00	326.00

*SECNO 8484.000

3470 ENCROACHMENT STATIONS= 251.0 367.0 TYPE= 1 TARGET= 116.000

VALLEY NPS FIELD SECTION L **********

8484.00	10.23	703.23	.00	.00	703.40	.17	.09	.12	695.00
1640.	597.	962.	81.	223.	258.	94.	105.	29.	698.50
.64	2.67	3.73	.86	.060	.060	.125	.056	693.00	251.00
.001302	40.	40.	43.	2	0	0	.00	108.64	359.64

*SECNO 8914.000

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
8914.00	8.01	704.01	.00	.00	704.34	.33	.86	.08	698.30
1640.	603.	939.	98.	161.	179.	79.	109.	30.	700.60
.66	3.75	5.25	1.24	.050	.060	.125	.056	696.00	122.35
.003584	425.	430.	350.	2	0	0	.00	143.87	266.22

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*SECNO 9344.000

VALLEY 10 FIELD SECTION N **********

9344.00	7.11	706.01	.00	.00	706.55	.54	2.11	.11	701.70
1640.	450.	962.	228.	94.	135.	136.	113.	31.	702.70
.68	4.77	6.91	1.68	.050	.060	.125	.056	698.90	54.85
.007483	425.	430.	350.	3	0	0	.00	141.12	195.97

*SECNO 9994.000

3470 ENCROACHNENT STATIONS= 270.0 359.0 TYPE= 1 TARGET= 89.000

9994.00	8.02	710.02	.00	.00	710.50	.47	3.93	.02	707.00
1640.	354.	1165.	121.	84.	191.	75.	118.	33.	707.00
.72	4.22	6.11	1.61	.050	.060	.125	.057	702.00	270.00
.005725	500.	650.	550.	3	0	0	.00	89.00	359.00

*SECNO 10095.000

BRIDGE 11D FIELD SECTION N ***D/S FACE TELEGRAPH ROAD*****

10095.00	8.31	710.51	.00	.00	711.28	.77	.64	.15	732.90
1640.	0.	1640.	0.	0.	233.	0.	119.	33.	732.10
.72	.00	7.04	.00	.050	.045	.055	.057	702.20	9.70
.007395	81.	101.	81.	2	0	0	.00	38.10	47.80

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.40	3.00	.00	17.07	.00	145.11	.00	705.30	702.20

*SECNO 10435.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
715.27	714.40	.00	0.	1640.	145.	145.	713.80	732.00

BRIDGE 11U FIELD SECTION O ***U/S FACE TELEGRAPH ROAD

10435.00	9.41	714.71	.00	.00	715.27	.57	3.99	.00	732.90
1640.	0.	1640.	0.	0.	272.	0.	121.	33.	732.10
.73	.00	6.04	.00	.050	.015	.055	.055	705.30	9.70
.000515	340.	340.	340.	2	0	0	.00	38.10	47.80

*SECNO 10461.000
3280 CROSS SECTION 10461.00 EXTENDED .10 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	WTH	ELMIN	SSTA

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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS=		104.0	196.0	TYPE=	1	TARGET=		92.000	
10461.00	10.10	715.10	.00	.00	715.37	.28	.02	.09	710.10
1640.	146.	1404.	90.	111.	309.	63.	121.	33.	711.00
.74	1.31	4.54	1.43	.080	.035	.055	.055	705.00	104.00
.000831	26.	26.	26.	2	0	0	.00	92.00	196.00

FORM 1411-GC-PRINTED BY ROTARY MANIFOLD FORMS.



1) COUNTY: OAKLAND

2) STUDY NAME: BINGHAM FARMS, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE, FRANKLIN BRANCH

4) DOCUMENT TYPE: SUMMARY



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

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

FRANKLIN BRANCH 10 YEAR

SUMMARY PRINTOUT

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
6350.000	2320.00	.00	.00	666.40	965.00	671.50	.66	.00	.00	965.00	5.10	40.00
6350.000	2320.00	.00	.00	666.40	1410.00	672.80	.63	.00	.00	1314.49	6.40	235.20
6350.000	2320.00	.00	.00	666.40	1640.00	673.53	.48	.00	.00	1387.72	7.13	252.72
6350.000	2320.00	.00	.00	666.40	2200.00	674.20	.54	.00	.00	1704.45	7.80	296.03
635.000	635.00	.00	.00	664.10	965.00	673.47	.05	1.17	.18	359.95	9.37	198.04
635.000	635.00	.00	.00	664.10	1410.00	674.61	.05	1.06	.17	466.70	10.51	204.00
635.000	635.00	.00	.00	664.10	1640.00	675.05	.06	.97	.13	522.43	10.95	206.33
635.000	635.00	.00	.00	664.10	2200.00	675.88	.08	1.08	.14	658.25	11.78	210.74
1635.000	1000.00	.00	.00	668.40	965.00	674.84	.17	1.43	.06	582.18	6.44	223.36
1635.000	1000.00	.00	.00	668.40	1410.00	675.90	.15	1.34	.05	696.38	7.50	244.84
1635.000	1000.00	.00	.00	668.40	1640.00	676.36	.15	1.35	.04	755.31	7.96	254.07
1635.000	1000.00	.00	.00	668.40	2200.00	677.29	.15	1.44	.03	898.03	8.89	272.90
2767.000	1132.00	.00	.00	670.60	965.00	677.27	.15	2.40	.01	789.85	6.67	269.70
2767.000	1132.00	.00	.00	670.60	1410.00	678.07	.17	2.18	.01	1021.93	7.47	273.40
2767.000	1132.00	.00	.00	670.60	1640.00	678.45	.18	2.11	.02	1130.88	7.85	275.13
2767.000	1132.00	.00	.00	670.60	2200.00	679.27	.19	2.01	.02	1382.11	8.67	278.98
3053.000	286.00	.00	.00	671.80	965.00	677.82	.32	.64	.08	890.90	6.02	209.20
3053.000	286.00	.00	.00	671.80	1410.00	678.61	.37	.64	.10	1166.53	6.81	232.77
3053.000	286.00	.00	.00	671.80	1640.00	678.98	.37	.63	.10	1288.76	7.18	244.84
3053.000	286.00	.00	.00	671.80	2200.00	679.78	.38	.60	.09	1557.69	7.98	255.47
3339.000	286.00	.00	.00	672.90	965.00	678.90	.41	1.12	.04	905.95	6.00	187.62
3339.000	286.00	.00	.00	672.90	1410.00	679.68	.47	1.12	.05	1193.92	6.78	201.63
3339.000	286.00	.00	.00	672.90	1640.00	680.02	.49	1.10	.06	1326.53	7.12	207.65
3339.000	286.00	.00	.00	672.90	2200.00	680.75	.53	1.05	.08	1622.20	7.85	221.18
3895.000	556.00	.00	.00	675.20	965.00	681.52	.50	2.67	.05	885.95	6.32	166.15
3895.000	556.00	.00	.00	675.20	1410.00	682.32	.57	2.70	.05	1157.75	7.12	180.59
3895.000	556.00	.00	.00	675.20	1640.00	682.66	.60	2.70	.06	1284.15	7.46	188.78
3895.000	556.00	.00	.00	675.20	2200.00	683.37	.65	2.68	.06	1560.07	8.17	236.03
4173.000	277.50	.00	.00	676.30	965.00	682.99	.42	1.35	.02	787.29	6.69	166.02
4173.000	277.50	.00	.00	676.30	1410.00	683.82	.38	1.23	.06	942.69	7.52	228.21
4173.000	277.50	.00	.00	676.30	1640.00	684.17	.36	1.19	.07	1006.67	7.87	230.82
4173.000	277.50	.00	.00	676.30	2200.00	684.90	.34	1.12	.09	1154.59	8.60	235.88

FORM 1411-00-PRINTED BY ROTARY MANIFOLD FORMS

	SECNO	XLCH	ELTRD	ELLC	ELNIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
	4451.000	277.50	.00	.00	677.40	965.00	684.32	.46	1.36	.02	745.53	6.92	148.06
	4451.000	277.50	.00	.00	677.40	1410.00	684.99	.50	1.24	.06	933.26	7.59	149.43
1	4451.000	277.50	.00	.00	677.40	1640.00	685.29	.52	1.20	.08	1023.12	7.89	150.03
2	4451.000	277.50	.00	.00	677.40	2200.00	685.92	.58	1.14	.12	1227.70	8.52	151.31
3													
4	4560.000	110.00	.00	.00	678.50	965.00	684.99	.07	.16	.12	910.65	6.49	127.93
5	4560.000	110.00	.00	.00	678.50	1410.00	685.70	.11	.19	.12	1315.57	7.20	131.00
6	4560.000	110.00	.00	.00	678.50	1640.00	686.01	.13	.21	.12	1523.23	7.51	131.00
7	4560.000	110.00	.00	.00	678.50	2200.00	686.67	.18	.24	.12	2026.33	8.17	131.00
8													
9	4630.000	70.00	.00	.00	679.00	965.00	685.00	.16	.06	.04	965.00	6.00	53.00
10	4630.000	70.00	.00	.00	679.00	1410.00	685.70	.27	.08	.08	1410.00	6.70	53.00
11	4630.000	70.00	.00	.00	679.00	1640.00	686.00	.33	.09	.10	1640.00	7.00	53.00
12	4630.000	70.00	.00	.00	679.00	2200.00	686.63	.50	.11	.16	2200.00	7.63	53.00
13													
14	4631.000	1.00	697.00	699.10	679.00	965.00	684.99	.19	.00	.02	965.00	5.99	47.21
15	4631.000	1.00	697.00	699.10	679.00	1410.00	685.67	.33	.00	.03	1410.00	6.67	47.22
16	4631.000	1.00	697.00	699.10	679.00	1640.00	685.96	.41	.00	.04	1640.00	6.96	47.23
17	4631.000	1.00	697.00	699.10	679.00	2200.00	686.57	.63	.00	.07	2200.00	7.57	47.23
18													
19	4731.000	100.00	697.00	699.10	679.00	965.00	685.02	.19	.03	.00	965.00	6.02	47.21
20	4731.000	100.00	697.00	699.10	679.00	1410.00	685.73	.32	.06	.00	1410.00	6.73	47.22
21	4731.000	100.00	697.00	699.10	679.00	1640.00	686.04	.40	.07	.00	1640.00	7.04	47.23
22	4731.000	100.00	697.00	699.10	679.00	2200.00	686.69	.61	.10	.01	2200.00	7.69	47.24
23													
24	4732.000	1.00	.00	.00	679.00	965.00	685.06	.16	.00	.01	963.74	6.06	53.00
25	4732.000	1.00	.00	.00	679.00	1410.00	685.81	.27	.00	.02	1408.06	6.81	53.00
26	4732.000	1.00	.00	.00	679.00	1640.00	686.13	.33	.00	.02	1637.70	7.13	53.00
27	4732.000	1.00	.00	.00	679.00	2200.00	686.86	.48	.00	.04	2196.85	7.86	53.00
28													
29	* 4822.000	90.00	.00	.00	679.00	965.00	684.98	.93	.17	.38	895.30	5.98	139.89
30	* 4822.000	90.00	.00	.00	679.00	1410.00	685.72	.87	.21	.30	1097.90	6.72	159.17
31	4822.000	90.00	.00	.00	679.00	1640.00	686.14	.77	.23	.22	1157.11	7.14	164.30
32	4822.000	90.00	.00	.00	679.00	2200.00	687.04	.62	.25	.07	1290.31	8.04	166.22
33													
34	5302.000	480.00	.00	.00	680.40	965.00	688.04	.26	2.19	.20	739.45	7.64	177.81
35	5302.000	480.00	.00	.00	680.40	1410.00	688.72	.30	2.24	.17	933.69	8.32	190.31
36	5302.000	480.00	.00	.00	680.40	1640.00	688.95	.33	2.24	.13	1036.99	8.55	194.55
37	5302.000	480.00	.00	.00	680.40	2200.00	689.48	.40	2.16	.07	1259.21	9.08	204.35
38													
39	5482.000	180.00	.00	.00	680.69	965.00	688.39	.38	.41	.06	927.59	7.70	50.89
40	5482.000	180.00	.00	.00	680.69	1410.00	689.06	.64	.52	.17	1330.85	8.37	55.62
41	5482.000	180.00	.00	.00	680.69	1640.00	689.31	.79	.59	.23	1536.41	8.62	56.00
42	5482.000	180.00	.00	.00	680.69	2200.00	689.82	1.20	.74	.40	2028.65	9.13	56.00
43													
44	5532.000	50.00	.00	.00	680.85	965.00	688.58	.33	.13	.01	965.00	7.73	31.00
45	5532.000	50.00	.00	.00	680.85	1410.00	689.35	.57	.20	.02	1410.00	8.50	31.00
46	5532.000	50.00	.00	.00	680.85	1640.00	689.65	.72	.24	.02	1640.00	8.80	31.00
47	5532.000	50.00	.00	.00	680.85	2200.00	690.29	1.10	.35	.03	2200.00	9.44	31.00
48													
49	5533.000	1.00	700.30	696.30	680.85	965.00	688.55	.39	.00	.03	965.00	7.70	30.50
50	5533.000	1.00	700.30	696.30	680.85	1410.00	689.31	.67	.00	.05	1410.00	8.46	30.50
51	5533.000	1.00	700.30	696.30	680.85	1640.00	689.59	.84	.01	.06	1640.00	8.74	30.50
52	5533.000	1.00	700.30	696.30	680.85	2200.00	690.20	1.29	.01	.09	2200.00	9.35	30.50
53													
54													
55													
56													
57													

FORM 1411-OD-PRINTED BY ROTARY MANIFOLD FORMS.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
5579.000	46.00	700.30	696.30	681.00	965.00	688.70	.40	.15	.00	965.00	7.70	30.50
5579.000	46.00	700.30	696.30	681.00	1410.00	689.56	.65	.23	.01	1410.00	8.56	30.50
5579.000	46.00	700.30	696.30	681.00	1640.00	689.92	.80	.28	.01	1640.00	8.92	30.50
5579.000	46.00	700.30	696.30	681.00	2200.00	690.75	1.17	.39	.04	2200.00	9.75	30.50
5580.000	1.00	.00	.00	681.00	965.00	688.70	.41	.00	.01	956.81	7.70	31.00
5580.000	1.00	.00	.00	681.00	1410.00	689.56	.67	.00	.01	1398.79	8.56	31.00
5580.000	1.00	.00	.00	681.00	1640.00	689.91	.83	.01	.01	1627.28	8.91	31.00
5580.000	1.00	.00	.00	681.00	2200.00	690.73	1.21	.01	.02	2183.80	9.73	31.00
5650.000	70.00	.00	.00	682.00	965.00	689.00	.35	.23	.02	648.40	7.00	77.69
5650.000	70.00	.00	.00	682.00	1410.00	690.17	.40	.27	.08	852.47	8.17	89.89
5650.000	70.00	.00	.00	682.00	1640.00	690.72	.42	.28	.12	947.11	8.72	95.62
5650.000	70.00	.00	.00	682.00	2200.00	692.04	.44	.30	.23	1149.05	10.04	109.21
6160.000	510.00	.00	.00	683.00	965.00	690.18	.04	.77	.09	306.28	7.18	371.36
6160.000	510.00	.00	.00	683.00	1410.00	691.28	.03	.63	.11	366.66	8.28	374.58
6160.000	510.00	.00	.00	683.00	1640.00	691.80	.03	.57	.12	397.97	8.80	376.10
6160.000	510.00	.00	.00	683.00	2200.00	693.04	.03	.47	.12	471.63	10.04	379.70
6685.000	525.00	.00	.00	684.20	965.00	690.61	.50	.65	.23	865.15	6.41	85.42
6685.000	525.00	.00	.00	684.20	1410.00	691.51	.64	.53	.30	1172.81	7.31	112.47
6685.000	525.00	.00	.00	684.20	1640.00	691.97	.67	.48	.32	1307.09	7.77	125.89
6685.000	525.00	.00	.00	684.20	2200.00	693.13	.61	.38	.29	1541.08	8.93	223.47
7210.000	525.00	.00	.00	686.40	965.00	693.03	.65	2.50	.08	886.40	6.63	42.09
7210.000	525.00	.00	.00	686.40	1410.00	694.11	.90	2.73	.13	1267.28	7.71	47.33
7210.000	525.00	.00	.00	686.40	1640.00	694.55	1.04	2.77	.19	1460.44	8.15	49.46
7210.000	525.00	.00	.00	686.40	2200.00	695.34	1.42	2.62	.41	1925.46	8.96	53.33
7670.000	460.00	.00	.00	689.09	965.00	696.36	.80	3.41	.08	965.00	7.27	22.00
7670.000	460.00	.00	.00	689.09	1410.00	697.84	1.11	3.84	.11	1410.00	8.75	22.00
7670.000	460.00	.00	.00	689.09	1640.00	698.52	1.27	4.08	.11	1640.00	9.43	22.00
7670.000	460.00	.00	.00	689.09	2200.00	700.03	1.63	4.79	.10	2200.00	10.94	22.00
7671.000	1.00	709.60	703.70	689.09	965.00	696.36	.81	.01	.00	965.00	7.27	22.00
7671.000	1.00	709.60	703.70	689.09	1410.00	697.82	1.17	.01	.03	1410.00	8.73	22.00
7671.000	1.00	709.60	703.70	689.09	1640.00	698.48	1.37	.01	.05	1640.00	9.39	22.00
7671.000	1.00	709.60	703.70	689.09	2200.00	699.91	1.88	.01	.12	2200.00	10.82	22.00
7690.000	19.00	709.60	703.70	689.20	965.00	696.42	.83	.07	.01	965.00	7.22	22.00
7690.000	19.00	709.60	703.70	689.20	1410.00	697.89	1.19	.08	.01	1410.00	8.69	22.00
7690.000	19.00	709.60	703.70	689.20	1640.00	698.56	1.38	.09	.01	1640.00	9.36	22.00
7690.000	19.00	709.60	703.70	689.20	2200.00	700.02	1.89	.11	.01	2200.00	10.82	22.00
7691.000	1.00	.00	.00	689.20	965.00	696.44	.82	.00	.00	965.00	7.24	22.00
7691.000	1.00	.00	.00	689.20	1410.00	698.01	1.09	.00	.03	1410.00	8.81	22.00
7691.000	1.00	.00	.00	689.20	1640.00	698.77	1.22	.00	.05	1640.00	9.57	22.00
7691.000	1.00	.00	.00	689.20	2200.00	700.52	1.51	.01	.11	2200.00	11.32	22.00
7841.000	150.00	.00	.00	690.80	965.00	697.10	.89	.69	.04	958.69	6.30	35.44
7841.000	150.00	.00	.00	690.80	1410.00	698.89	.86	.57	.07	1335.63	8.09	59.27
7841.000	150.00	.00	.00	690.80	1640.00	699.88	.74	.49	.14	1467.12	9.08	91.29
7841.000	150.00	.00	.00	690.80	2200.00	702.26	.37	.26	.34	1527.01	11.46	218.73

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
8151.000	310.00	.00	.00	691.40	965.00	699.09	.35	1.30	.16	729.23	7.69	63.38
8151.000	310.00	.00	.00	691.40	1410.00	700.50	.32	.90	.16	871.20	9.10	110.69
8151.000	310.00	.00	.00	691.40	1640.00	701.18	.28	.69	.14	900.01	9.78	134.06
8151.000	310.00	.00	.00	691.40	2200.00	702.83	.17	.30	.06	851.88	11.43	238.57
8354.000	203.00	.00	.00	691.70	965.00	699.82	.30	.66	.01	703.47	8.12	55.88
8354.000	203.00	.00	.00	691.70	1410.00	701.05	.40	.60	.04	939.69	9.35	56.00
8354.000	203.00	.00	.00	691.70	1640.00	701.63	.45	.54	.09	1056.77	9.93	56.00
8354.000	203.00	.00	.00	691.70	2200.00	703.00	.55	.37	.19	1334.25	11.30	56.00
8404.000	51.00	.00	.00	691.78	965.00	699.92	.45	.18	.08	864.44	8.14	30.00
8404.000	51.00	.00	.00	691.78	1410.00	701.10	.70	.20	.15	1255.28	9.33	30.00
8404.000	51.00	.00	.00	691.78	1640.00	701.65	.83	.21	.19	1457.79	9.88	30.00
8404.000	51.00	.00	.00	691.78	2200.00	702.94	1.12	.22	.29	1952.55	11.16	30.00
8421.000	17.00	.00	.00	691.80	965.00	699.92	.67	.11	.11	965.00	8.12	22.00
8421.000	17.00	.00	.00	691.80	1410.00	701.07	1.04	.14	.17	1410.00	9.27	22.00
8421.000	17.00	.00	.00	691.80	1640.00	701.60	1.23	.15	.20	1640.00	9.80	22.00
8421.000	17.00	.00	.00	691.80	2200.00	702.84	1.68	.18	.28	2200.00	11.04	22.00
8422.000	1.00	705.80	703.60	691.80	965.00	699.93	.67	.01	.00	965.00	8.13	22.00
8422.000	1.00	705.80	703.60	691.80	1410.00	701.09	1.03	.01	.00	1410.00	9.29	22.00
8422.000	1.00	705.80	703.60	691.80	1640.00	701.62	1.23	.01	.00	1640.00	9.82	22.00
8422.000	1.00	705.80	703.60	691.80	2200.00	702.85	1.68	.01	.00	2200.00	11.05	22.00
8439.000	17.00	705.80	703.60	691.80	965.00	700.03	.65	.07	.01	965.00	8.23	22.00
8439.000	17.00	705.80	703.60	691.80	1410.00	701.24	.99	.10	.01	1410.00	9.44	22.00
8439.000	17.00	705.80	703.60	691.80	1640.00	701.80	1.17	.11	.02	1640.00	10.00	22.00
8439.000	17.00	705.80	703.60	691.80	2200.00	703.10	1.60	.14	.02	2200.00	11.30	22.00
8440.000	1.00	.00	.00	691.80	965.00	700.03	.65	.01	.00	965.00	8.23	22.00
8440.000	1.00	.00	.00	691.80	1410.00	701.25	.99	.01	.00	1410.00	9.45	22.00
8440.000	1.00	.00	.00	691.80	1640.00	701.81	1.17	.01	.00	1640.00	10.01	22.00
8440.000	1.00	.00	.00	691.80	2200.00	703.11	1.59	.01	.00	2200.00	11.31	22.00
8444.000	4.00	.00	.00	691.81	965.00	700.47	.33	.02	.10	956.57	8.66	30.00
8444.000	4.00	.00	.00	691.81	1410.00	701.93	.49	.03	.15	1394.35	10.12	30.00
8444.000	4.00	.00	.00	691.81	1640.00	702.62	.57	.03	.18	1620.51	10.81	30.00
8444.000	4.00	.00	.00	691.81	2200.00	704.23	.76	.04	.25	2171.07	12.42	30.00
8484.000	40.00	.00	.00	693.00	965.00	700.77	.17	.10	.05	685.20	7.77	91.42
8484.000	40.00	.00	.00	693.00	1410.00	702.44	.17	.09	.10	872.12	9.44	103.08
8484.000	40.00	.00	.00	693.00	1640.00	703.23	.17	.09	.12	961.86	10.23	108.64
8484.000	40.00	.00	.00	693.00	2200.00	705.08	.17	.08	.18	1164.39	12.08	116.00
8914.000	430.00	.00	.00	696.00	965.00	702.00	.45	1.37	.14	742.01	6.00	78.55
8914.000	430.00	.00	.00	696.00	1410.00	703.34	.38	1.00	.11	896.39	7.34	120.64
8914.000	430.00	.00	.00	696.00	1640.00	704.01	.33	.86	.08	939.43	8.01	143.87
8914.000	430.00	.00	.00	696.00	2200.00	705.64	.22	.59	.03	983.29	9.64	195.48
9344.000	430.00	.00	.00	698.90	965.00	704.96	.44	2.94	.00	692.50	6.06	111.31
9344.000	430.00	.00	.00	698.90	1410.00	705.69	.51	2.41	.07	878.57	6.79	135.88
9344.000	430.00	.00	.00	698.90	1640.00	706.01	.54	2.11	.11	961.72	7.11	141.12
9344.000	430.00	.00	.00	698.90	2200.00	706.87	.53	1.38	.16	1114.57	7.97	155.07

FORM 1411-6D-PRINTED BY HOYAIT MANIFOLD FORMS

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	OCH	DEPTH	TOPWID
9994.000	650.00	.00	.00	702.00	965.00	708.83	.34	3.74	.03	785.79	6.83	89.00
9994.000	650.00	.00	.00	702.00	1410.00	709.66	.43	3.87	.03	1038.24	7.66	89.00
9994.000	650.00	.00	.00	702.00	1640.00	710.02	.47	3.93	.02	1164.84	8.02	89.00
9994.000	650.00	.00	.00	702.00	2200.00	710.71	.61	3.89	.04	1473.51	8.71	89.00
10095.000	101.00	.00	.00	702.20	965.00	709.30	.41	.51	.03	965.00	7.10	38.10
10095.000	101.00	.00	.00	702.20	1410.00	710.15	.64	.59	.11	1410.00	7.95	38.10
10095.000	101.00	.00	.00	702.20	1640.00	710.51	.77	.64	.15	1640.00	8.31	38.10
10095.000	101.00	.00	.00	702.20	2200.00	711.23	1.11	.76	.25	2200.00	9.03	38.10
10435.000	340.00	732.00	713.80	705.30	965.00	710.19	1.86	1.62	.72	965.00	4.89	38.10
10435.000	340.00	732.00	713.80	705.30	1410.00	711.25	2.49	2.02	.92	1410.00	5.95	38.10
10435.000	340.00	732.00	713.80	705.30	1640.00	714.71	.57	3.99	.00	1640.00	9.41	38.10
10435.000	340.00	732.00	713.80	705.30	2200.00	719.42	.37	7.46	.00	2200.00	14.12	38.10
10461.000	26.00	.00	.00	705.00	965.00	712.24	.34	.07	.46	919.53	7.24	75.19
10461.000	26.00	.00	.00	705.00	1410.00	714.14	.30	.05	.66	1252.00	9.14	92.00
10461.000	26.00	.00	.00	705.00	1640.00	715.10	.28	.02	.09	1403.60	10.10	92.00
10461.000	26.00	.00	.00	705.00	2200.00	719.72	.14	.01	.07	1696.43	14.72	92.00

SUMMARY OF ERRORS

CAUTION SECNO= 4822.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4822.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4822.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4822.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

FORM 1411-GO-PRINTED BY ROTARY MANIFOLD FORMS,

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -   01,02,03
  MODIFICATION -  50,51,52,53
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FORM 1411-60-PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BINGHAM FARMS, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

RECEIVED
APR 21981
WATER MANAGEMENT

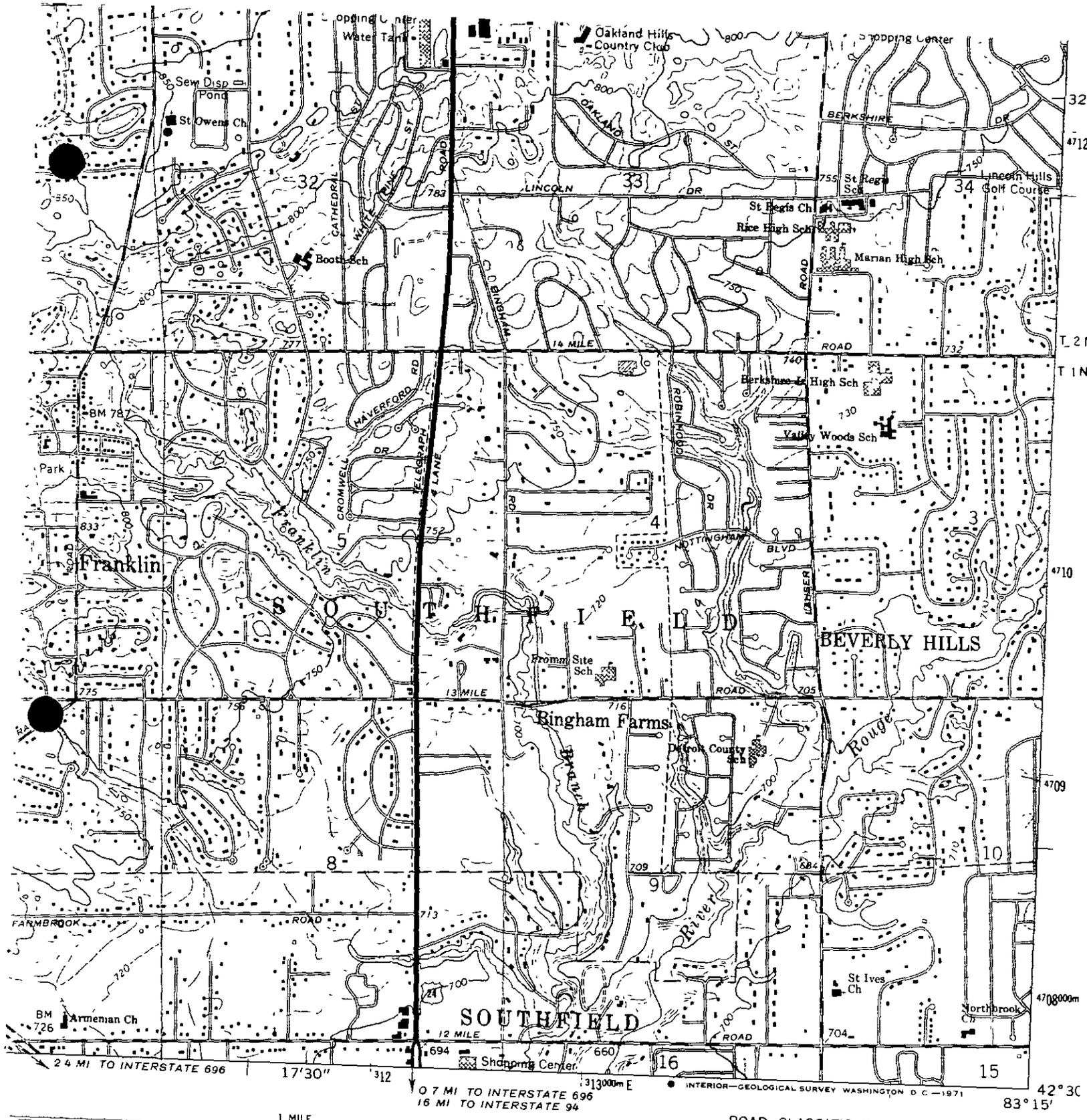
VILLAGE OF BINGHAM FARMS
OAKLAND COUNTY
MICHIGAN

FLOOD INSURANCE STUDY
FRANKLIN BRANCH RIVER ROUGE
MAIN BRANCH RIVER ROUGE

HYDRAULIC ANALYSIS

JOHNSON & ANDERSON, INC.
2300 DIXIE HIGHWAY
PONTIAC, MICHIGAN 48055

J&A FILE NO. 6504-01



1 MILE

5000 6000 7000 FEET

1 KILOMETER

O FEET
EVEL

ACCURACY STANDARDS
WASHINGTON, D C 20242
MBOLS IS AVAILABLE ON REQUEST

MICHIGAN

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, all weather, hard surface

Secondary highway, all weather, hard surface

Light duty road, all weather, improved surface

Unimproved road, fair or dry weather

U S Route

PONTIAC SOUTH, MICH.

N4230—W8315/7 5

1968

AMS 4369 III SE—SERIES V862

HYDRAULIC ANALYSIS

A. Introduction

The Franklin Branch of the Rouge River in the Village of Bingham Farms and the Main Branch of the Rouge River in the Village of Bingham Farms are the subject watercourses in this report. The confluence of these watercourses is in the City of Southfield approximately one mile south of Bingham Farms. Therefore, the study is made up of two separate portions. The Franklin Branch portion of the study begins at the Bingham Farms/Southfield corporate limits and continues upstream for approximately two river miles to the western corporate limits at the Bingham Farms/Village of Franklin boundary adjacent to Telegraph Road. The drainage area of the Franklin Branch at the Bingham Farms/Southfield boundary is approximately 14 square miles. The portion of the study dealing with the Rouge River Main Branch begins at the Bingham Farms/Southfield corporate boundary and continues upstream approximately 1800 river feet to the Bingham Farms/Beverly Hills corporate boundary. The drainage area of the Main Branch at the Bingham Farms/Southfield line is 37 square miles. The major floods on the Rouge River occur during the midwinter and spring months. The project manager for this study is Andrew Kubek.

B. Hydrology

The frequency flood discharges used in this study are ~~570 cfs~~ 965, ~~1200~~ 1410 cfs, 1640 cfs, and ~~2800~~ 2200 cfs for the 10, 50, 100 and 500 year events on the Franklin Branch of the River Rouge. These flows were developed for use in ~~the City of Southfield FIS conducted by the USCOE, Detroit, and also for use~~ in the Village of Franklin FIS conducted by McNammee, Porter and Seeley, Consulting Engineers, Ann Arbor, Michigan. The corresponding discharges for the Main Branch River Rouge are 1200 cfs, 2230 cfs, 2800 cfs and 4450 cfs. These flows were developed by Johnson & Anderson, Inc. for use in the City of Beverly Hills FIS.

C. Method of Analysis

The flood profile elevations were calculated by the HEC-2 computer program developed by the U.S. Army Corps of Engineers.[1] All of the bridges on the Franklin Branch except the Telegraph Road bridge have been modeled for the requirements of the normal bridge routine. The Telegraph Road triple circular culvert required the special bridge routine for 100 and 500 year discharges. For 10 and 50 year discharges, the slope of the triple culvert is steep. Normal bridge routine was used and the critical depth was used as the control depth at the upstream face of the bridge.

D. Variables and Coefficients

These roughness factors (Manning's "n") utilized in this model were established by comparing the descriptions in Open-Channel Hydraulics[2] and Roughness Characteristics of Natural Channels[3] with photographs and field descriptions taken by survey crews during May and July 1980 and field reconnaissance trips taken during November and December 1980. These roughness factors were determined assuming that flooding would occur during the spring months. The Manning's "n" for the channel ranges from .035 in open areas to .085 in areas where the river cut through dense woods and brush. The channel bottom consists mainly of hard sand and gravel. The Manning's "n" for the overbanks ranges from .035 in areas of short grass to .125 in areas of dense woods and brush. The expansion and contraction coefficients chosen for this study were 0.4 and 0.2, on the Franklin Branch and 0.5 and 0.3 on the Main Branch.

E. Starting Point

The starting water surface elevations for the Franklin Branch 10-, 50-, 100-, and 500- year floods were taken from the Flood Insurance Study for the City of Southfield.[4] Franklin Branch section No. 4 from the Southfield study, located approximately 2300 river feet downstream of the Southfield Bingham Farms corporate boundary, was chosen as the initial cross section for the Franklin Branch portion of the Village of Bingham Farms Flood Insurance Study. The starting water surface elevations for the Main Branch were taken from the Flood Insurance studies for the Cities of Southfield[3]

and Beverly Hills.[6] The section located at river mile 20.322 and designated as section 43 for the Main Branch Rouge River from the Southfield study was chosen as the initial cross-section for this portion of the Village of Bingham Farms Flood Insurance Study. This section corresponds to the Southfield/Bingham Farms corporate boundary. The water surface elevations used were obtained from the U.S. Army Corps of Engineers, Detroit District, Flood Insurance Study - City of Southfield, December 1973, plates 4 and 12, revised July 1976.

F. Encroachments

In most cases, the encroachments for the 100-year natural floodway were based on a 1:1 convergence and 1:4 divergence from bridges or other constrictions. In some reaches of the stream, this method was not feasible due to severe meandering of the stream. In these cases, the 100-year natural floodway was based on the sweep and extent of moving floodwaters.

The encroachments were modeled by utilizing the X3 card or by modifying cross-sectional GR elevations to contain flow within the appropriate top width limits.

G. Past Flooding and High Water Data

The flood of April 6, 1947 is the worst flood known to have occurred in the Upper Rouge Basin with has recorded high water marks. High water marks have been published in the report Flood Plain Information, River Rouge: Main, Evans Ditch, and Franklin Branches.[5]

H. Special Problems

The Telegraph Road Bridge located at the upstream limit of Franklin Branch portion of the study requires a special note for 10- and 50- year flood discharges. The underbridge flowpath is a triple culvert composed of two 7.5 ft. dia. and one ~~8.5 ft.~~ ok SE 8.5 ft. dia. reinforced concrete circular conduits. These conduits are 340 feet long and are built at slopes which are steep for both 10- and 50- year flows. Hydraulic jumps and supercritical flow occur

within each conduit for both flows. Composite critical flow depths at the upstream face of the bridge are calculated by the HEC-2 computer program, using the normal bridge routine. The flow is assumed to be divided evenly between each conduit. The calculations for critical slope for each conduit are included in the Appendix along with the calculations for the "XKOR" value used in the special bridge routine for 100- and 500- year flows.

REFERENCES

1. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2, Water Surface Profile User's Manual, 1976.

2. Chow, Ven Te, Ph.D., Open-Channel Hydraulics, McGraw-Hill Book Company, 1959.

3. Barnes, Harry H., Jr., Geological Survey Water - Supply Paper 1849, Roughness Characteristics of Natural Channels, 1967.

4. U.S. Army Corps of Engineers, Flood Insurance Study for the City of Southfield, 1973.

5. Flood Plain Information, River Rouge: Main, Evans Ditch, and Franklin Branches, 1966.

6. Zanotti, R., Flood Insurance Study for the City of Beverly Hills.

7. King and Brater, Handbook for Hydraulics.

Bingham Farms FIS
Franklin Branch

CROSS SECTION	SECNO	TYPE	DESCRIPTION
COE 4	4030*	4	Southfield FIS
COE 5 A	6350*	4	Southfield FIS - Southfield/Bingham Farms corporate boundary.
(1.0) B	635	1	Field valley section
(2.0) C	1635	1	Field valley section
(3.0) D	2767	1	Field valley section
	3053	2	Computer averaged section using Section D and Section 3339 as the basis for averaging.
	3339	2	Computer average sections simultaneously using factors .34, .67 and Sections D & E as the basis for averaging.
	3895	2	Computer average sections simultaneously using factors .34, .67 and Sections D & E as the basis for averaging.
	4173	2	Computer averaged section using Section 3895 and Section E as the basis for averaging.
(4.0) E	4450	1	Field valley section
	4560	3	Manufactured section per River Crossing Road Bridge Project topographic data.
	4630	3	Manufactured section per River Crossing Road Bridge Project topographic data.
(4.54) F	4631	4	Section coded based upon River Crossing Road Bridge Project engineering design drawings.
(4.55)	4731	4	Section F repeated.
	4732	3	Manufactured section per River Crossing Road Bridge Project topographic data.
	4822	3	Manufactured section per River Crossing Road Bridge Project topographic data.

CROSS SECTION	SECNO	TYPE	DESCRIPTION
	5302	3	Manufactured section per River Crossing Road Bridge Project topographic data.
	5482	3	Manufactured section per River Crossing Road Bridge Project topographic data.
	5532	3	Repeated Section G, overbanks manufactured per River Crossing Road Bridge Project topographic data.
(5.4) G	5533	1	Thirteen Mile Road bridge - downstream face.
(5.5)	5579	1	Thirteen Mile Road bridge - upstream face repeated.
	5580	3	Section G repeated. Overbanks adjusted for side slope.
	5650	3	Approximate field valley section.
	6160	3	Manufactured section approximate field observation channel geometry referred to Section H.
	6686	2	Computer average section using Sections 6160 & 7210 channel mid 1/3 and section adjusted separately.
(6.0) H	7210	1	Field valley section.
	7670	3	Repeat Section I coded to restrict top width.
(7.4) I	7671	1	Private Dr. (31500 Bingham) bridge - downstream face.
(7.5)	7690	1	Private Dr. (31500 Bingham) bridge - upstream face previous section repeated.
	7691	3	Repeat Section I coded to restrict top width.
	7841	3	Manufactured section: reflection of Section J, invert adjusted, side slope adjusted for bulkhead.

CROSS SECTION	SECNO	TYPE	DESCRIPTION
(8.0) J	8151	1	Field valley section
	8354	2	Repeat Section J, adjust invert.
	8404		Repeat Section 8354, adjust invert.
	8421	3	Section coded to restrict top width channel per Section K.
(9.4) K	8422	1	Bingham Road bridge - downstream face.
(9.5)	8439	1	Bingham Road bridge - upstream face.
	8440	3	Repeat Section 8421.
	8444	2	Section repeated, expanded and channel invert adjusted.
L	8484	4	Field valley section modified for 1:1 convergence from MPS Franklin-Bloomfield Twp. FIS.
	8914	4	Computer average section using Sections 8484 & 9344 as base for averaging.
(10.0) M	9344	1	Field valley section.
	9994	3	Approximate field valley section.
(11.4) N	10095	1	Telegraph Road bridge - downstream face.
(11.5) O	10435	1	Telegraph Road bridge - upstream face Bingham Farms/Franklin corporate boundary.
	10461	4	Field valley section modified to limit topwidth from MPS Franklin-Bloomfield Twp. FIS.

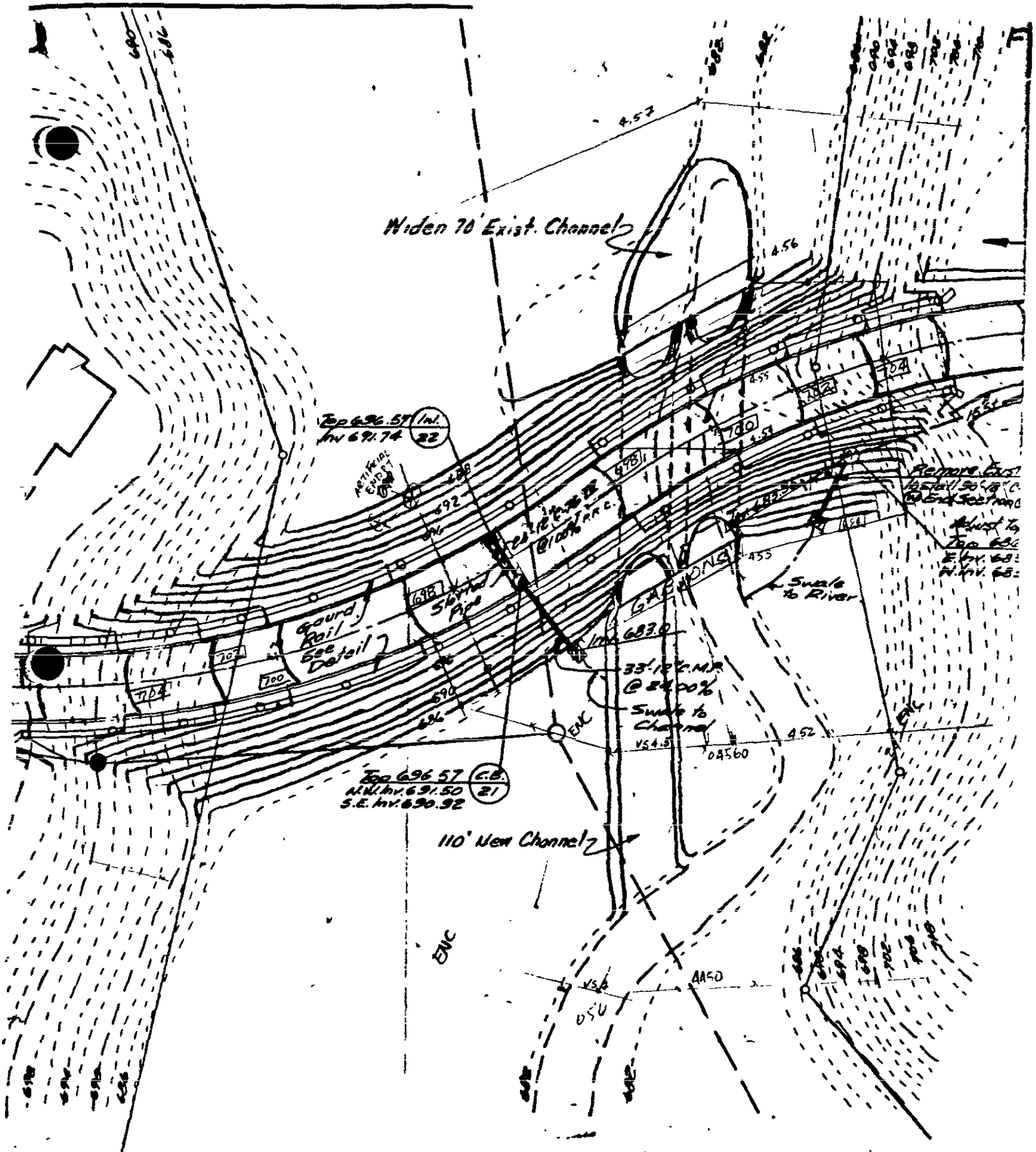
SECTION TYPES

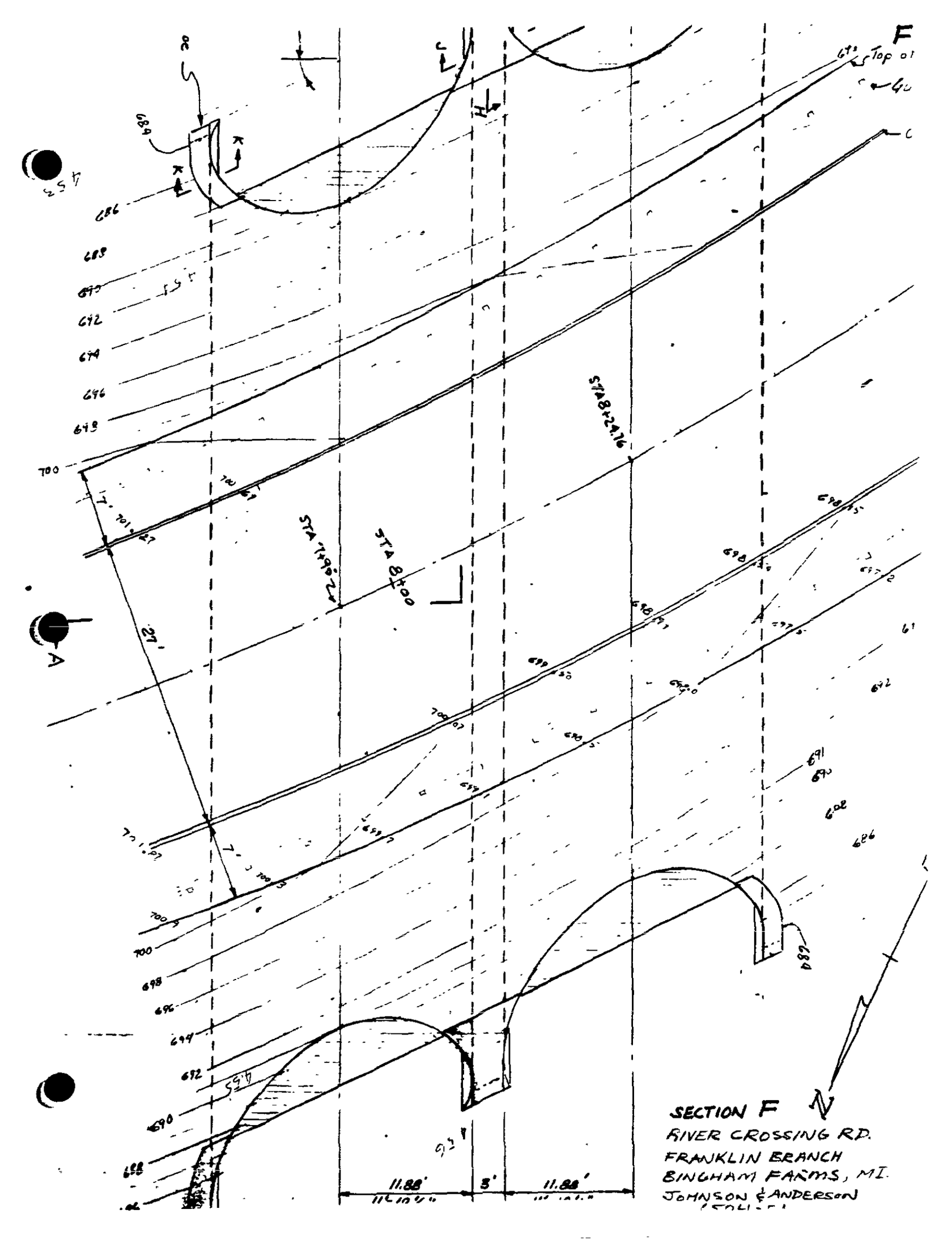
1. Field surveyed.
2. Average, channel thalweg adjusted linearly or repeated
3. Adjustment of field survey based on topographic maps and field observation.
4. COE Report, MPS data or engineering drawings.

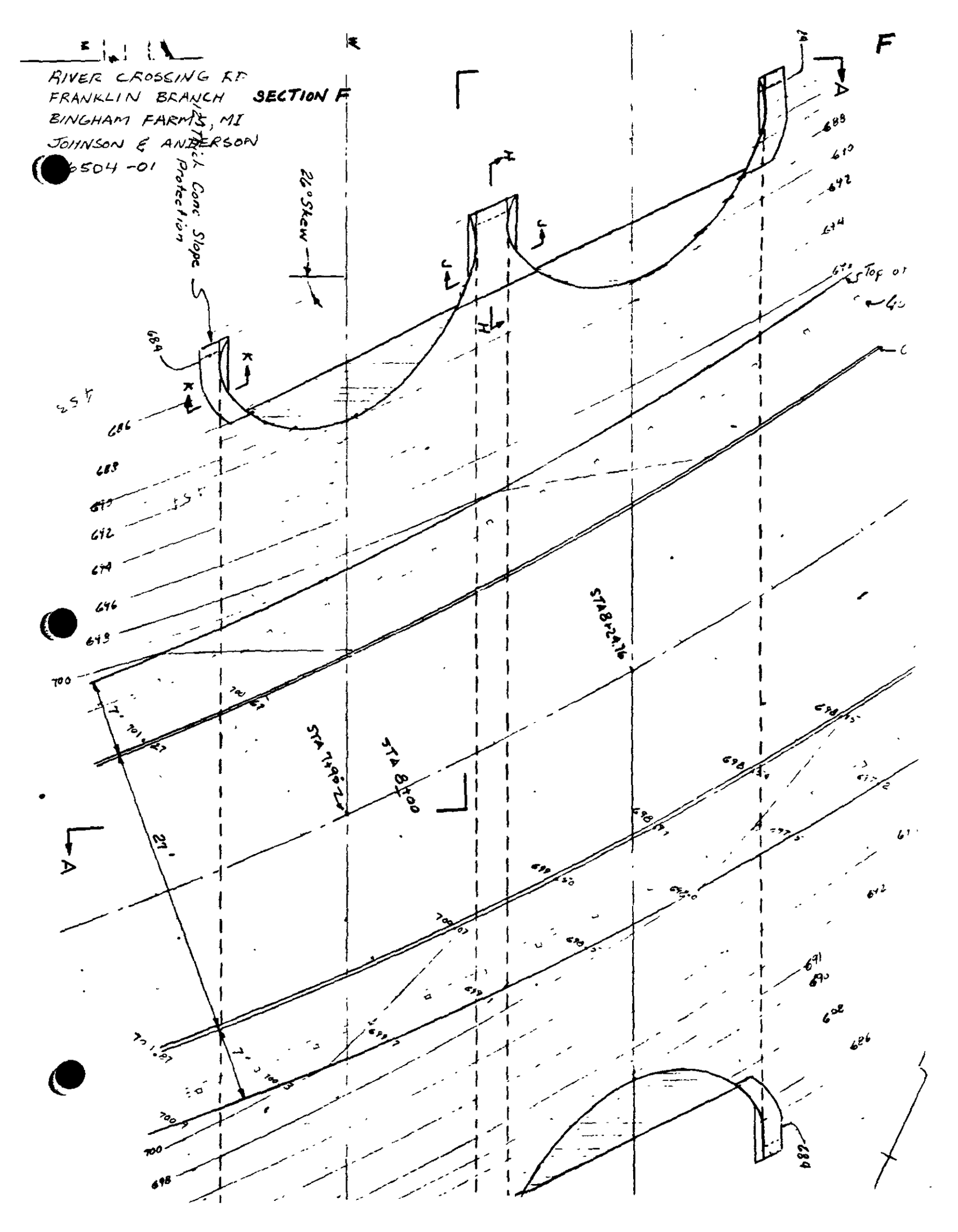
MPS McNamee Porter & Seeley Consulting Engineers, Ann Arbor, MI.

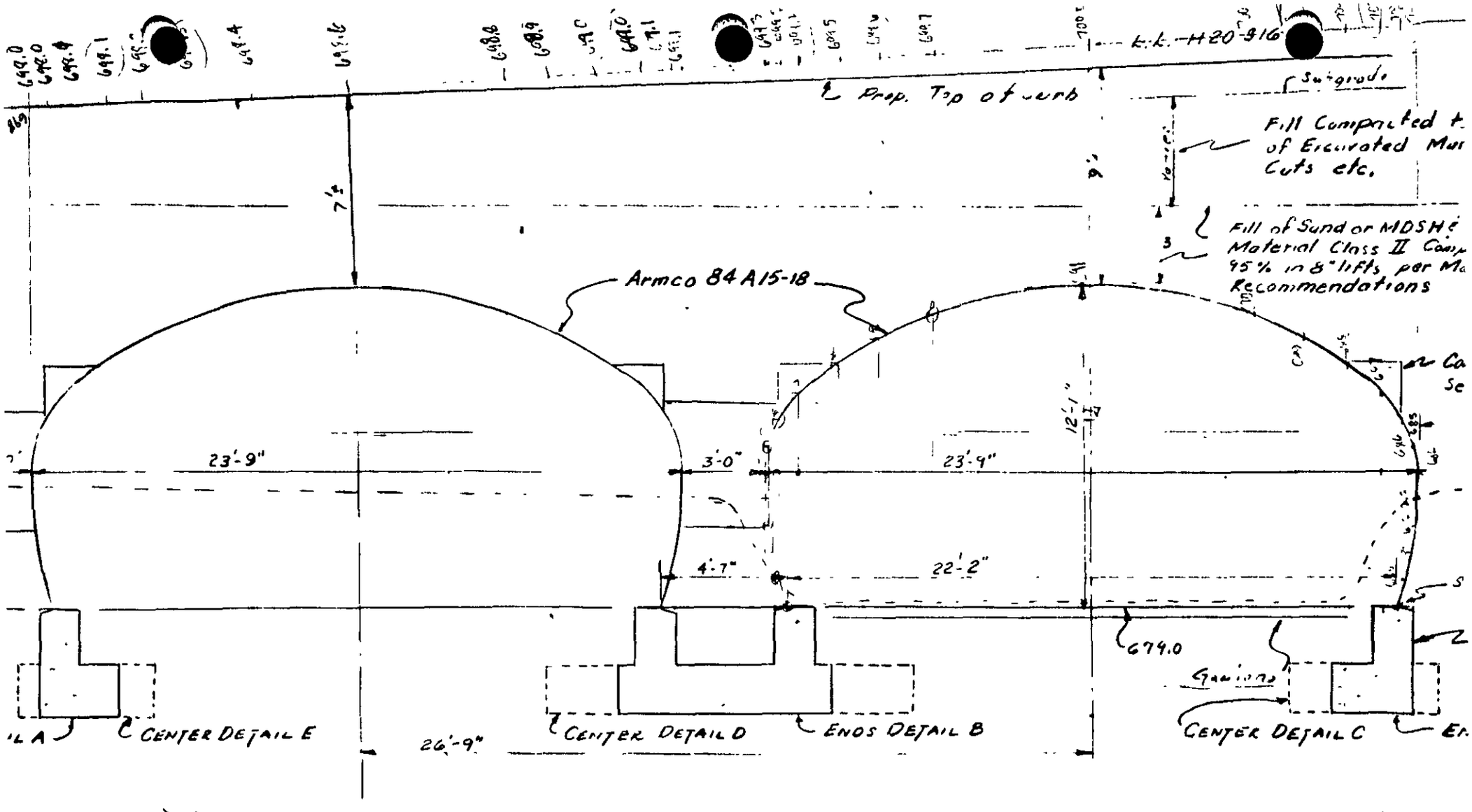
Bingham Farms FIS
Main Branch

CROSS SECTION	SECNO	TYPE	DESCRIPTION
	20322		Repeated Section from Section 20350 Southfield/Bingham Farms corporate limits.
(VS 34) A	20.350		1850 feet upstream of 12 Mile Road Bridge (u/s face).
(VS 33) B	20.445		1300 feet downstream of Beverly Hills Corporate limits.
(VS 32) C	20.483		1100 feet downstream of Beverly Hills Corporate limits.
(VS 31) D	20.578		600 Feet downstream of Beverly Hills Corporate limits.
	20.691		Repeated from Section 20.578; Bingham Farms Beverly Hills Corporate limits.
(VS 30) E	20.767		400 feet upstream of Beverly Hills.


Widen 70' Exist. Channel
Top 696.57 Inl.
Inv 691.74 22
Gourd Rail see Detail
Top 696.57 C.B.
N.W. Inv. 691.50 21
S.E. Inv. 690.92
110' New Channel
Swale to River
Swale to Channel
Inv 683.0
4.57
4.56
4.52
4.50
4.55
4.53
4.54
4.55
4.59
4.55
4.55
4.55


F
STA 8+24.76
STA 7+99.24
STA 8+00
11.88'
3'
11.88'
SECTION F
RIVER CROSSING RD.
FRANKLIN BRANCH
BINGHAM FARMS, MI.
JOHNSON & ANDERSON


RIVER CROSSING RP
FRANKLIN BRANCH
BINGHAM FARMS, MI
JOHNSON & ANDERSON
0504-01
SECTION F
Rip Rap Protection
Conc Slope
26° Skew
STA 7+90 ±
STA 8+00 ±
STA 8+24.76
Top of
21'
684
686
688
690
692
694
696
698
700



SECTION LOOKING NORTH A-A

Scale: 1" = 5'

SECTION F

RIVER CROSSING RD
FRANKLIN BRANCH
BINGHAM FARMS, MI.
JOHNSON & ANDERSON
6504-01

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

HYDRAULIC STRUCTURAL DATA

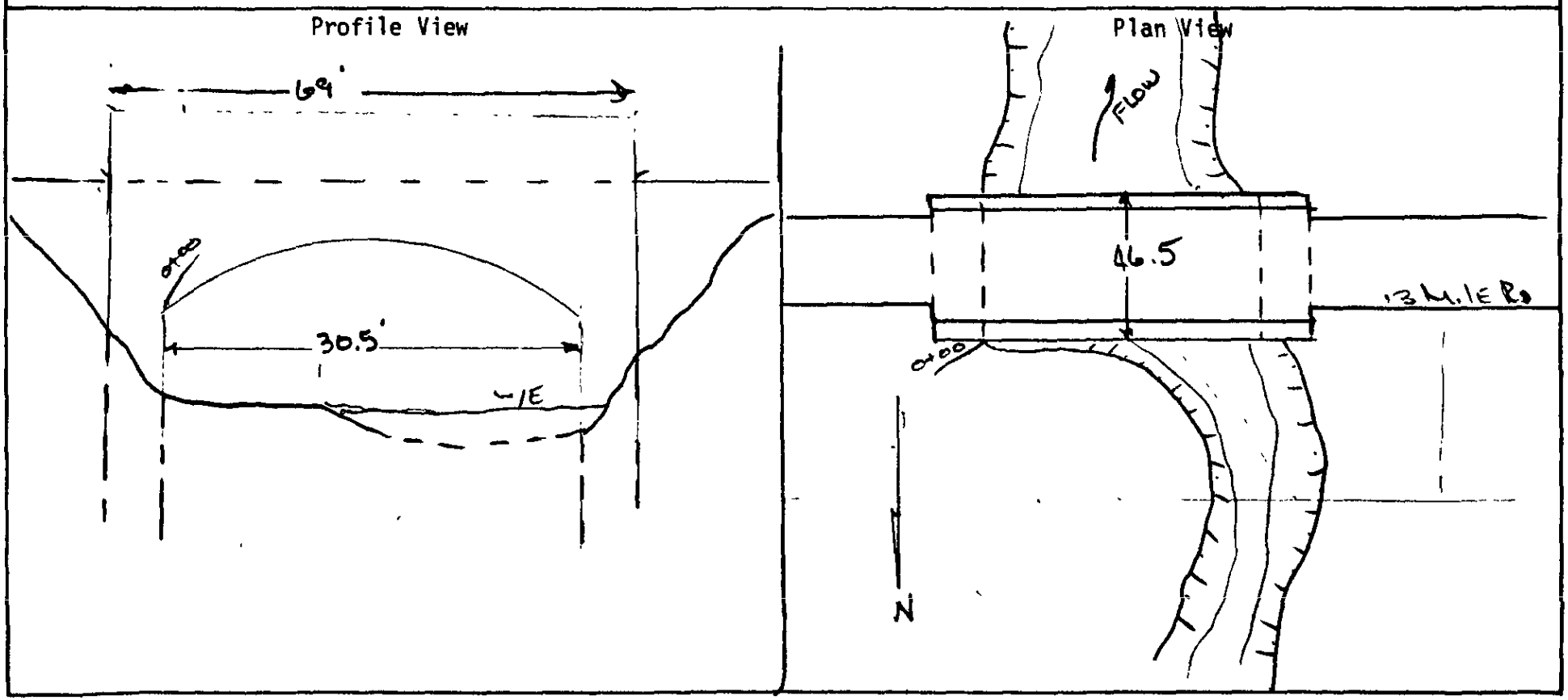
B.S. #5

SECTION G

Code No. 6504-01

Job Name: BINGHAM FARM			By: R MOSES
Date: 5-12-80	Feature: CONC. ARCH BRIDGE		Water Course: FRANKLIN DRAIN
Remarks: BRIDGE IS ON 13 M.le RD — log JAM DNSTREAM OF BRIDGE . STAFF GAGE ON DNSTREAM FACE			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 683.3	Length: 30.5	Width of Deck: 46.5	Skew: 90°

FIELD SKETCH



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

HYDRAULIC STRUCTURAL DATA

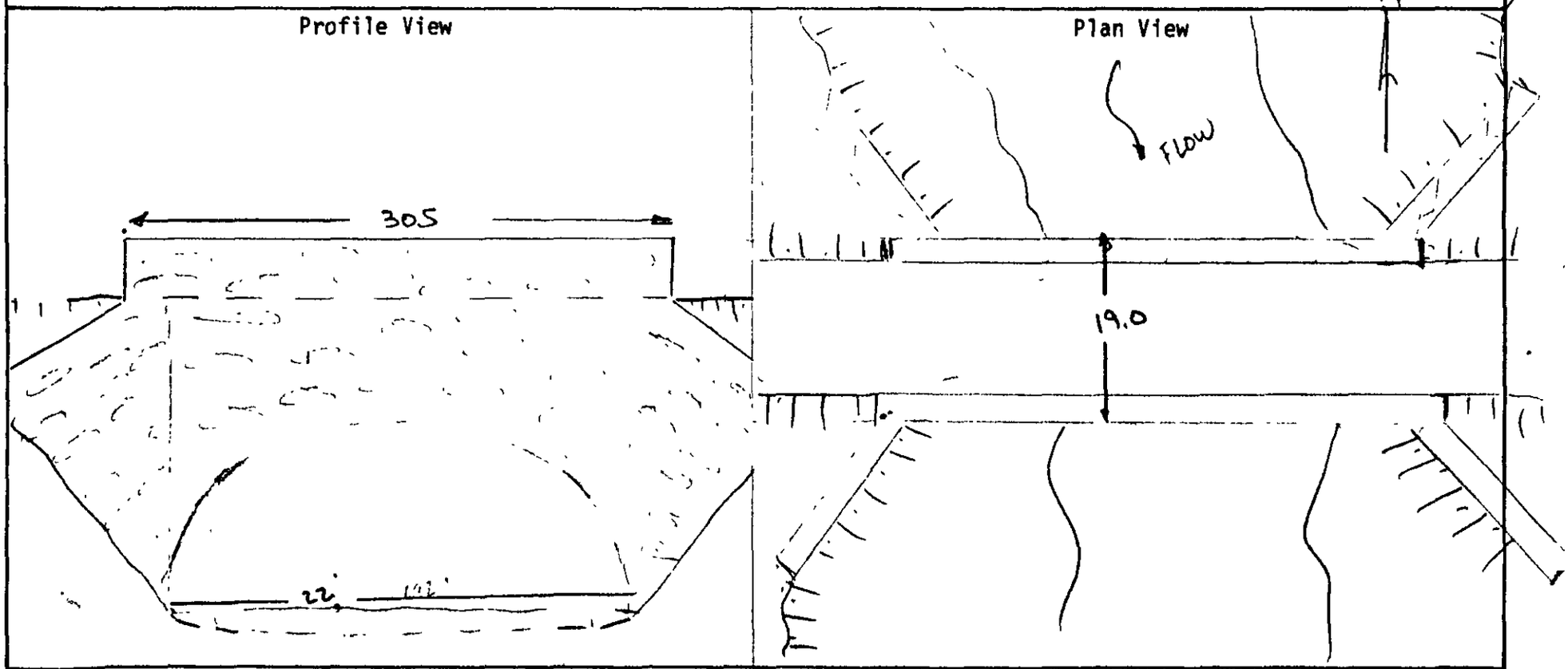
B.S. #7

SECTION I

Code No. 6504-01

Job Name: BINGHAM FARMS			By: R. HOSOI
Date: 5-13-80	Feature: STONE & MORTAR ARCH BRIDGE		Water Course:
Remarks: PRIVATE DR. TO # 31500 BINGHAM			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation:	Length:	Width of Deck:	Skew: 90°

FIELD SKETCH



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

HYDRAULIC STRUCTURAL DATA

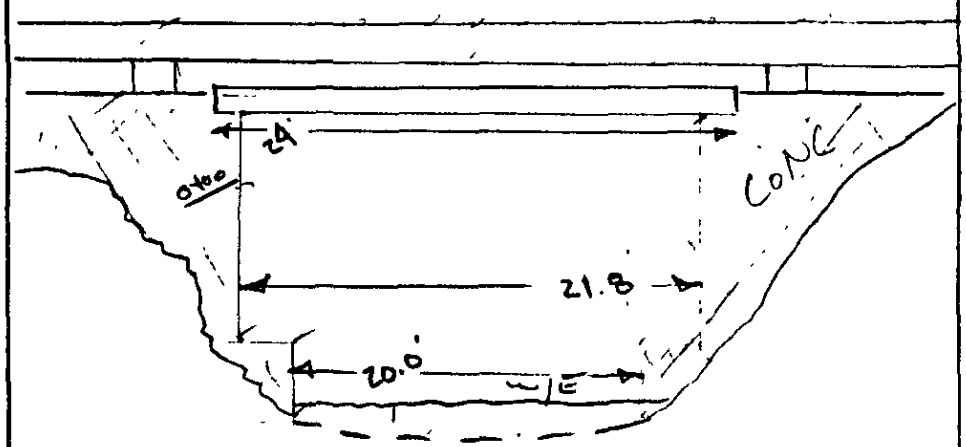
B.S. #9
SECTION K

Code No. 65004-01

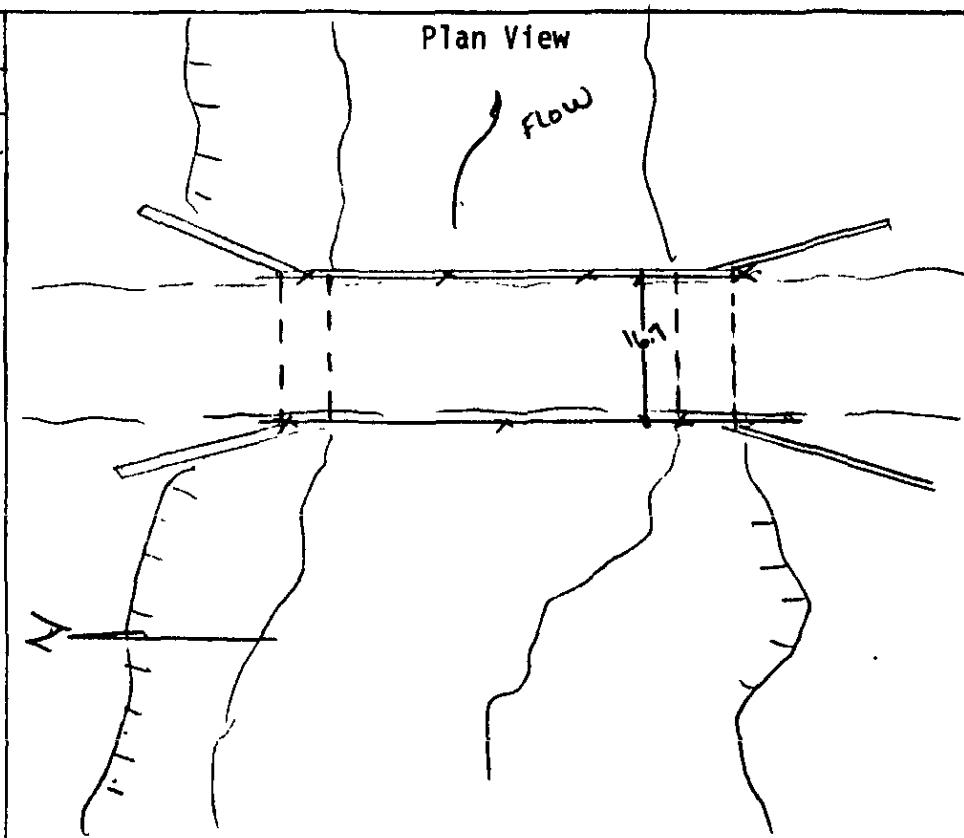
Job Name: BINGHAM FARMS			By: R. MOSES
Date: 5-13-80	Feature: CONC. BOX CULVERT		Water Course: FRANKLIN DRAIN
Remarks: BRIDGE IS ON BINGHAM RD. HEAVY BRUSH UP & DNSTREAM			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 693.8	Length: 24	Width of Deck: 16.7	Skew:

FIELD SKETCH

Profile View



Plan View



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

HYDRAULIC STRUCTURAL DATA

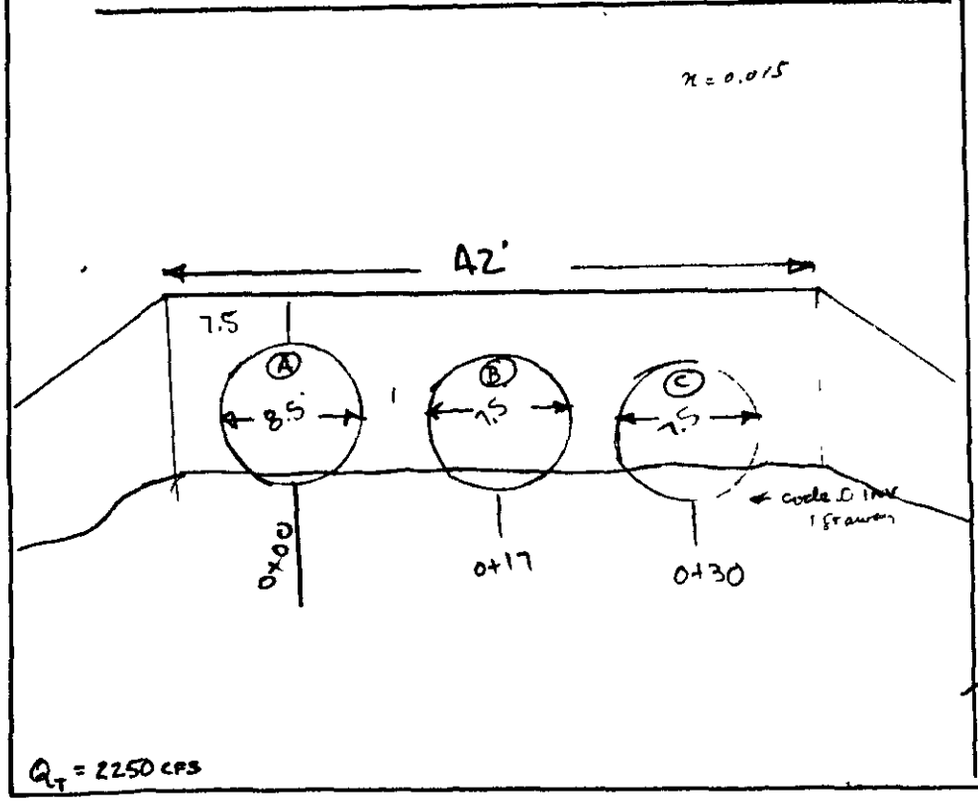
SECTION O

Code No. 6504-01

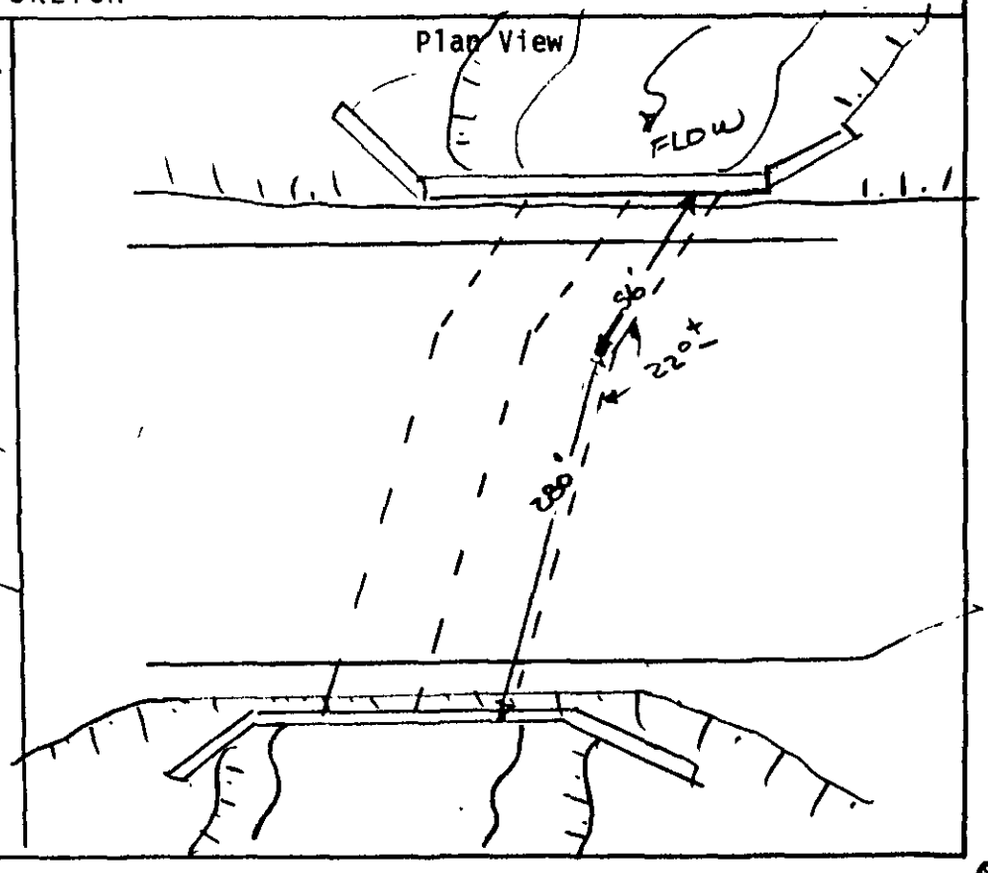
Job Name: BINGHAM FARMS F.I.S.			By: R. MOSES
Date: 7-2-80	Feature: 1-8.5' & 2-7.5' CSPC CULV		Water Course: FRANKLIN DRAIN
Remarks: PIPES ARE VERY LOW FROM RD SURFACE (25' TO 30'±)			
Culverts under TELEGRAPH, N of 13 Mile RD			
Width of Piers: —	Pier Shape: ROUND	No. of Piers: —	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

Profile View



Plan View



SPECIAL BRIDGE AND CRITICAL SLOPE CALCULATION

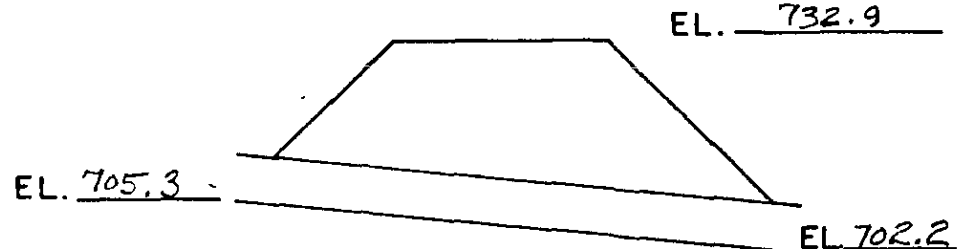
SECTION N & O

JOB NAME: BINGHAM FARMS FIS	JOB NO. 6504	01		
WATERCOURSE: FRANKLIN BRANCH	CULVERT LOCATION: TELEGRAPH RD N. OF BMI. RD.			
CULVERT DESCRIPTION: 3 RCP	BY JMP	DATE 3-2-81		

Two 7.5' dia. circular

one 8.5' dia. circular

WEIR DESCRIPTION:



A = 20 44.18 30 56.75

D = 7.5' 10 8.5'

So = 7.5, 1.009%, 7.5, 0.949%, 8.5, 0.875%

WP = _____

Ke = 0.5

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

n = .015

L = 340'

Sta. 104+35	Sta. 100+95

CALCULATIONS AND COMMENTS:

$$k_{f_{7.5}} = \frac{29.1 \ .015^2 \ 340}{1.875^{4/3}} = .96 \qquad K_{7.5} = 1.5 + .96 = 2.46$$

$$k_{f_{8.5}} = \frac{29.1 \ .015^2 \ 340}{2.125^{4/3}} = .81 \qquad K_{8.5} = 1.5 + .81 = 2.31$$

$$K_{equiv} = \frac{[2(44.18) + 56.75]^2}{\left[2\sqrt{\frac{44.18^{2.1}}{2.46}} + \sqrt{\frac{56.75^{2.1}}{2.31}}\right]^2} = 2.4$$

N & O

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY JMP DATE 1/29/81 JOB DESCRIPTION BINGHAM FARMS SHEET 1 OF 2
SUBJECT DETERMINE CRITICAL SLOPE FOR TELEGRAPH INLET N&O JOB NO. 6504-01

Pipe diameters		7.5'			8.5'		
1/3 Flow	10-yr	190 cfs			190 cfs		
1/3 Flow	50-yr	413 cfs			413 cfs		

Calculation

Critical depth for circular pipe assuming $n = .015$ $Q = Q_{TOTAL} \div 3$

From King-Brater (1963) Table 8-10

$Q = K_c' d^{5/2}$ $\therefore K_c' = \frac{Q}{d^{5/2}}$

	7.5' DIA			8.5' DIA		
	K_c'	$\frac{D_c}{d}$	D_c	K_c'	$\frac{D_c}{d}$	D_c
10-yr	1.233	.469	3.52	0.902	398	3.38
50-yr	2.681	.702	5.27	1.961	.597	5.07

Area and Hydraulic Radius

7.5' DIA

10-YR $D_c = 3.52$ $A = \frac{2\theta}{360}\pi r^2 - \frac{1}{2}|D_c - r|\left(2r \sin\cos^{-1}\frac{|D_c - r|}{r}\right)$

$= \frac{172.9673}{360}\frac{\pi}{4}7.5^2 - \frac{1}{2}.23\left(7.5 \sin\cos^{-1}\frac{1.23}{3.75}\right) = 20.3654$

50-YR $D_c = 5.27$ $A = \pi r^2 - \frac{2\theta}{360}\pi r^2 - \frac{1}{2}|D_c - r|\left(2r \sin\cos^{-1}\frac{|D_c - r|}{r}\right)$

$= \pi 3.75^2 - \frac{132.1760\,\pi 3.75^2}{360} + \frac{1}{2}1.52\left(7.5 \sin\cos^{-1}\frac{1.52}{3.75}\right) = 33.1690$

10-YR $P = \frac{172.9673}{360} 2\pi 3.75 = 11.32$ $R = \frac{A}{P} = \frac{20.3654}{11.32} = 1.7991$

50-YR $P = \left(1 - \frac{132.1760}{360}\right)2\pi 3.75 = 14.91$ $R = \frac{A}{P} = \frac{33.1690}{14.91} = 2.2246$

Area and Hydraulic Radius

8.5' DIA

10-YR $D_c = 3.38$

$$A = \frac{2\cos^{-1}\frac{4.25-3.38}{4.25}}{360}\pi 4.25^2 - \frac{1}{2}4.25-3.38\left(8.5\sin\cos^{-1}\frac{4.25-3.38}{4.25}\right)$$

$$= 21.0295$$

50-YR $D_c = 5.07$

$$A = \pi 4.25^2 - \frac{2\cos^{-1}\frac{5.07-4.25}{4.25}}{360}\pi 4.25^2 + \frac{1}{2}5.07-4.25\left(8.5\sin\cos^{-1}\frac{5.07-4.25}{4.25}\right)$$

$$= 35.2990$$

10-YR $P = \frac{156.3754}{360} \times 2\pi 4.25 = 11.60$ $\qquad R = \frac{A}{P} = \frac{21.0295}{11.6} = 1.8129$

50-YR $P = \left(1 - \frac{157.7510}{360}\right) \cdot 2\pi 4.25 = 15.00$ $\qquad R = \frac{A}{P} = \frac{35.2990}{15.00} = 2.3533$

Critical Slope

$$S = \left(\frac{Q\,n}{1.49\,A_c R_c^{2/3}}\right)^2$$

	7.5' DIA	8.5' DIA
10-YR	.403%	.374%
50-YR	.541%	.443%
	C	B	A
S_o	1.009%	0.949%	0.875%

JOHNSON & ANDERSON, INC.
Consulting Engineers
2300 Dixie Highway
Pontiac, Michigan 48055
Phone (313) 334-9901

LETTER OF TRANSMITTAL

Date.	Job No.
March 31, 1981	6504-01-1
Re: Village of Bingham Farms	
Flood Insurance Study	

Water Management Division
Michigan Dept. of Natural Resources
P.O. Box 30028
Lansing, MI 48909

Attn: Mr. Dan Morgan, P.E.

RECEIVED
APR 2 1981
WATER MANAGEMENT

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover

☐ Shop drawing ☐ Prints ☐ Plans ☐ Specifications

☐ Copy of letter ☐ Change Order ☐ Samples ☐ _____

Copies	Date	No.	Description
1	3/31/81		Hydraulic Analysis - Franklin & Main Br. River Rouge
1	3/31/81		Proposed Floodway Map
1	3/31/81		HEC-2 Model Output
1	3/31/81		Iplot Output
1	3/31/81		Water Surface Profile Plots (2 sheets)

These are transmitted as checked below:

☒ For approval ☐ Reviewed ☐ _____

☐ For your use ☐ Rejected ☐ Submit____copies for distribution

☐ As requested ☐ As noted ☐ Return____corrected prints

☒ For review & comment ☐ Revise and resubmit____copies for approval

REMARKS:

cc:

SIGNED:

Mow-Soung Cheng

Mow-Soung Cheng, Ph.D., P.E.

(Yellow copy to File)
GU-030 (10-78)

1) COUNTY: OAKLAND

2) STUDY NAME: BINGHAM FARMS, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE MAIN BRANCH

4) DOCUMENT TYPE: 100-YR NATURAL

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**********
  NEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********

CM
CM
CM
CE
GW  1  4  0.  0.  .000000  .00  .0  0.  660.900  .000
GE  -1
EX  0  3  0  0  .000  .000  .000  .000  .000  .000
FR  3,000  ,000  -1.000  ,000  ,000  ,000  ,000  ,000  ,000  ,000
EN
```

*PROF 3

CCHV= .300 CEHV= .500

*SECNO 20.322

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
	REPEATED SECTION FROM SECTION 20.350								
20.32	9.30	660.90	.00	660.90	661.23	.33	.00	.00	655.10
2800.	948.	1560.	292.	616.	257.	235.	0.	0.	656.80
.00	1.54	6.06	1.25	.085	.035	.085	.000	651.60	45.18
.001447	860.	950.	690.	0	0	0	.00	325.70	370.88

*SECNO 20.350

1830* FEET U.S. OF 12-MILE ROAD BRIDGE (U.S. FACE), VS-34 SEC-A

20.35	9.04	661.14	.00	.00	661.53	.39	.27	.03	655.60
2800.	915.	1616.	268.	567.	249.	208.	4.	1.	657.30
.01	1.62	6.50	1.29	.085	.035	.085	.041	652.10	45.84
.001746	140.	200.	110.	2	0	0	.00	323.92	369.76

*SECNO 20.445

1300* FEET D.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-33 SEC-B

20.45	8.18	662.08	.00	.00	662.25	.16	.64	.07	658.30
2800.	207.	1533.	1060.	213.	357.	1120.	20.	6.	659.40
.07	.97	4.30	.95	.085	.035	.085	.040	653.90	58.54
.000822	300.	630.	600.	2	0	0	.00	588.36	646.90

*SECNO 20.483

1100* FEET D.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-32 SEC-C

20.48	7.99	662.39	.00	.00	662.58	.19	.32	.01	659.80
2800.	857.	1308.	635.	730.	260.	622.	32.	11.	660.60
.10	1.17	5.02	1.02	.085	.035	.085	.039	654.40	48.54
.001271	150.	330.	400.	2	0	0	.00	636.11	684.65

*SECNO 20.578

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

3470 ENCROACHMENT STATIONS= 120.0 500.0 TYPE= 1 TARGET= 380.000

FORM 141 5-68

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	20.58	8.28	663.18	.00	.00	663.63	.45	.92	.13	659.30
	2800.	475.	1811.	514.	355.	275.	354.	49.	18.	661.20
1	.13	1.34	6.58	1.45	.085	.035	.085	.037	654.90	120.00
2	.002144	750.	550.	400.	2	0	0	.00	380.00	500.00

*SECNO 20.691

BEVERLY HILLS CORPORATE LIMITS, (REPEATED FROM SECTION 20.578)

	20.69	8.50	664.70	.00	.00	665.03	.33	1.37	.03	660.60
	2800.	502.	1679.	619.	415.	284.	478.	61.	21.	662.50
10	.18	1.21	5.91	1.30	.085	.035	.085	.040	656.20	91.40
11	.001652	200.	970.	450.	3	0	0	.00	465.79	557.19

FORM 1411 K GS

PRINTED IN U.S.A.

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

T1          VILLAGE OF BINGHAM FARMS F.I.S., 6504-01,  ANDREW KUBEK-P.M.
T2          500-YEAR FLOOD; FLOW=4450 C.F.S.
T3          RIVER ROUGE

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       -1.         5.         0.         0.    .000000        .00         .0         0.    662.400       .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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FORM 1471 X GB
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*PROF 4

CCHV= .300 CEHV= .500

*SECNO 20.322

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
			REPEATED SECTION FROM SECTION 20.350						
20.32	10.80	662.40	.00	662.40	662.76	.36	.00	.00	655.10
4450.	1720.	2090.	640.	903.	308.	392.	0.	0.	656.80
.00	1.90	6.78	1.63	.085	.035	.085	.000	651.60	41.37
.001423	860.	950.	690.	0	0	0	.00	335.96	377.33

*SECNO 20.350

1850* FEET U.S. OF 12-MILE ROAD BRIDGE (U.S. FACE), VS-34 SEC-A

20.35	10.53	662.63	.00	.00	663.04	.42	.25	.03	655.60
4450.	1688.	2149.	613.	849.	299.	362.	5.	1.	657.30
.01	1.99	7.19	1.69	.085	.035	.085	.042	652.10	42.08
.001670	140.	200.	110.	1	0	0	.00	334.04	376.13

*SECNO 20.445

1300* FEET D.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-33 SEC-B

20.45	9.64	663.54	.00	.00	663.69	.15	.57	.08	658.30
4450.	401.	1963.	2086.	349.	432.	1778.	29.	7.	659.40
.07	1.15	4.54	1.17	.085	.035	.085	.041	653.90	44.34
.000712	300.	630.	600.	2	0	0	.00	609.73	654.07

*SECNO 20.483

1100* FEET D.S. OF BEVERLY HILLS CORPORATE LIMITS, VS-32 SEC-C

20.48	9.40	663.80	.00	.00	663.95	.15	.26	.00	659.80
4450.	1554.	1582.	1314.	1147.	317.	1054.	48.	11.	660.60
.10	1.36	5.00	1.25	.085	.035	.085	.039	654.40	38.21
.000970	150.	330.	400.	2	0	0	.00	651.22	689.43

*SECNO 20.578

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

3470 ENCROACHMENT STATIONS= 120.0 500.0 TYPE= 1 TARGET= 380.000

FORM 1411 X 08

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20.58	9.52	664.42	.00	.00	664.90	.48	.78	.16	659.30
4450.	1038.	2409.	1003.	593.	328.	533.	74.	18.	661.20
.13	1.75	7.34	1.88	.085	.035	.085	.037	654.90	120.00
.002107	750.	550.	400.	2	0	0	.00	380.00	500.00

*SECNO 20.691

BEVERLY HILLS CORPORATE LIMITS, (REPEATED FROM SECTION 20.578)

20.69	9.62	665.82	.00	.00	666.18	.37	1.25	.03	660.60
4450.	1044.	2220.	1186.	675.	332.	706.	91.	22.	662.50
.18	1.55	6.68	1.68	.085	.035	.085	.041	656.20	68.27
.001714	200.	970.	450.	3	0	0	.00	492.45	560.71

FORM 1411 ½ GB

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

****

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

RIVER ROUGE

SUMMARY PRINTOUT

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
20.322	950.00	.00	.00	651.60	1200.00	658.80	.30	.00	.00	925.24	7.20	249.71
20.322	950.00	.00	.00	651.60	2230.00	660.10	.37	.00	.00	1395.28	8.50	320.22
20.322	950.00	.00	.00	651.60	2800.00	660.90	.33	.00	.00	1559.55	9.30	325.70
20.322	950.00	.00	.00	651.60	4450.00	662.40	.36	.00	.00	2090.02	10.80	335.96
20.350	200.00	.00	.00	652.10	1200.00	659.08	.36	.31	.03	954.45	6.98	216.97
20.350	200.00	.00	.00	652.10	2230.00	660.39	.43	.32	.03	1442.45	8.29	314.86
20.350	200.00	.00	.00	652.10	2800.00	661.14	.39	.27	.03	1616.25	9.04	323.92
20.350	200.00	.00	.00	652.10	4450.00	662.63	.42	.25	.03	2148.87	10.53	334.04
20.445	630.00	.00	.00	653.90	1200.00	660.11	.21	.84	.04	1018.45	6.21	499.81
20.445	630.00	.00	.00	653.90	2230.00	661.46	.18	.74	.08	1378.28	7.56	569.86
20.445	630.00	.00	.00	653.90	2800.00	662.08	.16	.64	.07	1532.70	8.18	588.36
20.445	630.00	.00	.00	653.90	4450.00	663.54	.15	.57	.08	1962.88	9.64	609.73
20.483	330.00	.00	.00	654.40	1200.00	660.53	.36	.49	.07	986.44	6.13	442.39
20.483	330.00	.00	.00	654.40	2230.00	661.80	.23	.37	.03	1218.68	7.40	625.37
20.483	330.00	.00	.00	654.40	2800.00	662.39	.19	.32	.01	1308.00	7.99	636.11
20.483	330.00	.00	.00	654.40	4450.00	663.80	.15	.26	.00	1582.44	9.40	651.22
20.578	550.00	.00	.00	654.90	1200.00	661.66	.32	1.08	.01	1024.49	6.76	278.62
20.578	550.00	.00	.00	654.90	2230.00	662.70	.42	1.00	.10	1571.47	7.80	380.00
20.578	550.00	.00	.00	654.90	2800.00	663.18	.45	.92	.13	1811.15	8.28	380.00
20.578	550.00	.00	.00	654.90	4450.00	664.42	.48	.78	.16	2409.19	9.52	380.00
20.691	970.00	.00	.00	656.20	1200.00	663.09	.28	1.37	.01	996.03	6.89	314.35
20.691	970.00	.00	.00	656.20	2230.00	664.24	.32	1.40	.03	1463.71	8.04	454.86
20.691	970.00	.00	.00	656.20	2800.00	664.70	.33	1.37	.03	1679.06	8.50	465.79
20.691	970.00	.00	.00	656.20	4450.00	665.82	.37	1.25	.03	2219.87	9.62	492.45

SUMMARY OF ERRORS

FORM 141 ½ 68
PRINTED IN U.S.A.

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: ANY DRAIN

4) DOCUMENT TYPE: 50 YR.

00BREAK00

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


T1       JOB HUD-FIA H-4705  T06
T2       FLOOD INSURANCE STUDIES
T3       50 YEAR FLOW

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       -1.        3.         0.         0.    .002120       0.00      -1.0          0.    825.000      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
```

*PROF 3

CCHV= .300 CEHV= .500
*SECNO 201.300

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 830.00 ELREA= 830.00

** D/S FACE GTW RAILROAD CULVERT AND CONFLUENCE W/ QUARTON

201.30	5.68	825.88	0.00	825.00	826.09	.21	0.00	0.00	820.20
310.	0.	310.	0.	0.	85.	0.	0.	0.	820.20
0.00	0.00	3.64	0.00	.095	.060	.095	0.000	820.20	310.00
.002124	0.	0.	0.	0	0	4	0.00	15.00	325.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.53	2.60	100.00	4.50	0.00	15.90	0.00	820.20	820.20

*SECNO 201.800
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
840.82	826.25	0.00	29.	282.	16.	18.	824.15	838.00

201.80	17.48	838.23	0.00	0.00	838.23	.00	12.14	0.00	823.80
310.	114.	95.	102.	612.	249.	674.	5.	1.	823.50
.31	.19	.38	.15	.095	.060	.095	.060	820.75	31.28
.000006	260.	260.	260.	0	0	5	0.00	198.15	229.43

*SECNO 201.900

201.90	17.18	838.23	0.00	0.00	838.23	.00	.00	.00	824.10
310.	113.	96.	100.	590.	244.	642.	8.	1.	823.80
.42	.19	.39	.16	.095	.060	.095	.060	821.05	33.26
.000007	100.	100.	100.	2	0	0	0.00	193.36	226.62

*SECNO 202.300

** D/S FACE KENSINGTON RD

202.30	16.98	838.23	0.00	0.00	838.23	.00	.00	.00	824.30
510.	186.	161.	164.	576.	241.	621.	9.	1.	824.00
.44	.32	.66	.26	.095	.060	.095	.060	821.25	34.57
.000021	30.	30.	30.	0	0	0	0.00	190.18	224.74

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	2.90	200.00	4.00	0.00	12.60	0.00	821.25	821.25

*SECNO 202.700

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.53	838.23	0.00	497.	14.	13.	17.	825.40	826.80

202.70	17.01	838.26	0.00	0.00	838.26	.00	.03	0.00	824.30
510.	186.	160.	164.	578.	242.	625.	10.	1.	824.00
.47	.32	.66	.26	.095	.060	.095	.059	821.25	34.36
.000020	36.	36.	36.	0	0	5	0.00	190.69	225.04

*SECNO 202.800

3280 CROSS SECTION 202.80 EXTENDED .36 FEET

202.80	16.46	838.26	0.00	0.00	838.27	.00	.00	.00	824.60
510.	96.	141.	273.	424.	295.	1283.	11.	1.	824.90
.49	.23	.48	.21	.095	.060	.095	.059	821.80	27.44
.000011	20.	20.	20.	0	0	0	0.00	237.56	265.00

*SECNO 202.810

** VHAY LAKE DAM AND ROAD

202.81	15.77	838.27	0.00	0.00	838.27	.00	.00	.00	825.30
510.	96.	147.	267.	389.	282.	1166.	20.	3.	825.60
.66	.25	.52	.23	.095	.060	.095	.059	822.50	29.31
.000014	195.	195.	195.	0	0	0	0.00	233.39	262.70

*SECNO 202.820

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 837.40 MAX ELLC= 836.40

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

202.82	4.00	838.10	838.10	0.00	838.51	.41	.00	.20	837.40
510.	103.	299.	108.	87.	45.	91.	20.	3.	837.40
.66	1.19	6.63	1.19	.095	.020	.095	.059	834.10	75.91
.009208	4.	4.	4.	4	10	0	-15.70	270.18	346.09

*SECNO 202.830

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 837.40 MAX ELLC= 836.40

202.83	4.38	838.48	0.00	0.00	838.64	.16	.05	.08	837.40
510.	135.	234.	142.	135.	51.	141.	20.	3.	837.40
.66	1.00	4.56	1.00	.095	.020	.095	.058	834.10	75.86
.003675	9.	9.	9.	5	0	0	-15.70	270.29	346.14

*SECNO 202.840

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
202.84	13.98	838.68	0.00	0.00	838.68	.00	.00	.05	839.00
510.	0.	509.	1.	0.	4131.	51.	21.	3.	836.00
.70	0.00	.12	.02	.095	.060	.095	.058	824.70	47.98
.000001	18.	18.	18.	2	0	0	0.00	409.33	457.31

CCHV= .100 CEHV= .300

*SECNO 204.000

204.00	9.99	838.69	0.00	0.00	838.69	.00	.00	.00	841.00
510.	0.	510.	0.	0.	2866.	3.	131.	15.	838.00
2.82	0.00	.18	.01	.095	.060	.095	.059	828.70	60.47
.000003	1360.	1360.	1360.	2	0	0	0.00	365.24	425.70

*SECNO 205.200

205.20	8.59	838.69	0.00	0.00	838.69	.00	.00	.00	848.60
510.	0.	510.	0.	0.	1129.	0.	154.	18.	839.80
3.13	0.00	.45	0.00	.095	.060	.095	.060	830.10	276.88
.000032	500.	500.	500.	0	0	0	0.00	192.56	469.44

*SECNO 205.300

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 836.90 MAX ELLC= 835.40

** PRIVATE DRIVE, SIMPLE MODEL

205.30	7.29	838.69	0.00	0.00	838.70	.01	.01	.00	849.90
510.	0.	510.	0.	0.	678.	0.	156.	19.	841.10
3.18	0.00	.75	0.00	.095	.060	.095	.060	831.40	282.62
.000523	120.	120.	120.	0	0	0	-215.42	171.68	454.30

*SECNO 205.400

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 836.90 MAX ELLC= 835.40

205.40	7.30	838.70	0.00	0.00	838.71	.01	.01	.00	849.90
510.	0.	510.	0.	0.	679.	0.	157.	19.	841.10
3.18	0.00	.75	0.00	.095	.060	.095	.060	831.40	282.59
.000519	14.	14.	14.	0	0	0	-215.42	171.76	454.35

*SECNO 205.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
205.80	8.72	838.72	0.00	0.00	838.72	.00	.01	.00	845.00
510.	0.	510.	0.	0.	1159.	0.	159.	19.	845.00
3.26	0.00	.44	0.00	.095	.060	.095	.060	830.00	84.00
.000042	120.	120.	120.	2	0	0	0.00	255.88	339.87

CCHV= .100 CEHV= .300
*SECNO 205.900

** CONCRETE AND STONE WEIR

205.90	4.90	838.70	0.00	0.00	838.73	.02	.00	.01	833.80
510.	191.	188.	131.	451.	98.	319.	159.	19.	833.80
3.26	.42	1.92	.41	.095	.025	.095	.059	833.80	84.08
.000125	1.	1.	1.	1	0	0	0.00	255.74	339.82

*SECNO 205.910

205.91	4.91	838.71	0.00	0.00	838.73	.02	.00	.00	833.80
510.	191.	188.	131.	450.	98.	319.	159.	19.	833.80
3.26	.42	1.92	.41	.095	.025	.095	.059	833.80	84.18
.000125	2.	2.	2.	0	0	0	0.00	255.59	339.77

*SECNO 205.920

205.92	7.43	838.73	0.00	0.00	838.73	.00	.00	.00	845.00
510.	0.	510.	0.	0.	1062.	0.	159.	19.	845.00
3.26	0.00	.48	0.00	.095	.060	.095	.059	831.30	83.89
.000057	1.	1.	1.	2	0	0	0.00	256.04	339.93

*SECNO 206.000

206.00	5.85	838.75	0.00	0.00	838.76	.00	.03	.00	840.00
510.	0.	510.	0.	0.	1888.	0.	184.	26.	838.90
4.00	0.00	.27	0.00	.095	.060	.095	.060	832.90	142.15
.000024	725.	725.	725.	2	0	0	0.00	573.92	716.07

*SECNO 207.200

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= 128.0 633.0 TYPE= 1 TARGET= -128.000

207.20	3.31	838.79	0.00	0.00	838.80	.01	.04	.00	835.80

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     510.      218.      124.      168.      437.      147.      409.      207.       34.    835.80
     4.35       .50       .85       .41      .095      .060      .095      .060   835.48   128.00
  .000248      700.      700.      700.         0         0         0      0.00   407.41   535.41

*SECNO 207.300

3470 ENCROACHMENT STATIONS=      128.0      390.0  TYPE=       1  TARGET=      262.000

         ** D/S FACE E. LONG LAKE - ELLIPTICAL CMP

   207.30      3.36   838.84      0.00      0.00   838.85       .01       .05       .00   835.80
     510.      256.      146.      107.      446.      150.      194.      211.       35.    835.80
     4.43       .58       .98       .55      .095      .060      .095      .060   835.48   128.00
  .000322      185.      185.      185.         2         0         0      0.00   262.00   390.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       3.30       2.90     110.00       4.00       0.00      11.40       0.00     835.48     835.48

*SECNO 207.700
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                    AREA
   941.40     838.85       0.00       468.        43.        11.         6.     837.10     838.20

3470 ENCROACHMENT STATIONS=      600.0     1191.0  TYPE=       1  TARGET=     -600.000
   207.70      4.64   839.44      0.00      0.00   839.55       .12       .70       0.00   839.10
     510.        1.      377.      132.        2.      121.      107.      212.       36.    837.50
     4.44       .32      3.13      1.23      .095      .060      .095      .060   834.80   651.23
  .004625       75.       75.       75.         2         0        10      0.00   150.09   801.33

*SECNO 207.800

3470 ENCROACHMENT STATIONS=      600.0     1191.0  TYPE=       1  TARGET=     -600.000
   207.80      4.85   839.65      0.00      0.00   839.73       .08       .18       .00   839.10
     510.        2.      342.      165.        5.      131.      128.      212.       36.    837.50
     4.44       .44      2.62      1.30      .065      .050      .065      .059   834.80   643.63
  .002013       60.       60.       60.         2         0         0      0.00   161.68   805.31

*SECNO 208.300

3470 ENCROACHMENT STATIONS=      600.0     1191.0  TYPE=       1  TARGET=     -600.000

         ** D/S FACE EASTAWAYS - CMP

   208.30      4.36   839.96      0.00      0.00   840.11       .15       .35       .02   839.90
     510.        0.      379.      131.        0.      107.       82.      213.       36.    838.30
     4.46       .02      3.53      1.59      .065      .050      .065      .059   835.60   661.01
  .004762      120.      120.      120.         2         0         0      0.00   135.19   796.21
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SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CQFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.57	2.90	0.00	4.00	0.00	15.00	0.00	835.60	835.60

*SECNO 208.700

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
886.09	840.11	0.00	441.	74.	15.	14.	839.10	839.50

3470 ENCROACHMENT STATIONS= 600.0 1191.0 TYPE= 1 TARGET= -600.000

208.70	5.27	840.87	0.00	0.00	840.92	.05	.81	0.00	839.90
510.	8.	315.	188.	16.	150.	177.	213.	37.	838.30
4.47	.46	2.09	1.06	.065	.050	.065	.059	835.60	629.09
.001071	70.	70.	70.	2	0	7	0.00	235.99	865.07

*SECNO 208.800

3470 ENCROACHMENT STATIONS= 270.0 535.0 TYPE= 1 TARGET= -270.000

208.80	4.72	840.95	0.00	0.00	841.01	.05	.09	.00	838.40
510.	73.	245.	192.	63.	102.	170.	214.	37.	837.90
4.48	1.17	2.41	1.13	.085	.060	.075	.059	836.23	270.00
.001497	70.	70.	70.	2	0	0	0.00	159.01	429.01

CCHV= .100 CEHV= .300

*SECNO 208.900

3470 ENCROACHMENT STATIONS= 200.0 535.0 TYPE= 1 TARGET= -200.000

208.90	4.54	841.17	0.00	0.00	841.22	.05	.21	.00	838.80
510.	118.	229.	163.	136.	97.	151.	215.	38.	838.30
4.50	.87	2.36	1.08	.085	.060	.075	.059	836.63	200.00
.001528	140.	140.	140.	2	0	0	0.00	224.70	424.70

*SECNO 209.000

209.00	4.40	841.90	0.00	0.00	842.13	.23	.85	.05	840.80
510.	12.	347.	150.	13.	78.	77.	217.	39.	839.40
4.53	.94	4.47	1.95	.085	.060	.075	.059	837.50	253.15
.006394	310.	310.	310.	2	0	0	0.00	118.57	371.73

*SECNO 210.200

3470 ENCROACHMENT STATIONS= .0 620.0 TYPE= 1 TARGET= 619.999

210.20	2.96	843.46	0.00	0.00	843.48	.02	1.33	.02	841.80

510.	25.	292.	193.	51.	204.	241.	222.	42.	841.70
4.68	.49	1.43	.80	.085	.060	.075	.059	840.50	311.71
.000997	650.	650.	650.	3	0	0	0.00	308.29	620.00

CCHV= .500 CEHV= 1.000
*SECNO 210.300

3301 HV CHANGED MORE THAN HVINS

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 300.0 560.0 TYPE= 1 TARGET= 260.000

** D/S FACE KINGSLEY RD. - 2-3' DIA. CMPS

210.30	3.37	843.95	843.95	0.00	845.08	1.13	.45	1.11	844.60
510.	0.	510.	0.	0.	60.	0.	223.	43.	844.20
4.69	0.00	8.54	0.00	.085	.060	.075	.059	840.58	356.95
.042844	150.	150.	150.	2	8	0	0.00	26.48	383.44

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	DWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.00	2.60	100.00	6.00	0.00	14.10	0.00	840.58	840.58

*SECNO 210.700
3280 CROSS SECTION 210.70 EXTENDED .72 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
904.89	845.08	0.00	411.	101.	14.	16.	843.20	845.00

3470 ENCROACHMENT STATIONS= 300.0 404.0 TYPE= 1 TARGET= 104.000

210.70	5.64	846.22	0.00	0.00	846.36	.13	1.28	0.00	844.60
510.	57.	405.	48.	61.	125.	34.	223.	43.	844.20
4.69	.94	3.24	1.39	.085	.060	.075	.059	840.58	300.00
.002600	43.	43.	43.	2	0	7	0.00	104.00	404.00

*SECNO 210.800
3280 CROSS SECTION 210.80 EXTENDED .64 FEET

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3470 ENCROACHMENT STATIONS=      300.0      404.0  TYPE=      1  TARGET=      104.000
   210.80      5.76    846.34      0.00      0.00    846.46       .12       .10       .01    844.60
     510.       63.       397.       50.       67.      128.       37.      223.       43.     844.20
     4.70       .94      3.09      1.35      .085      .060      .075      .059    840.58    300.00
  .002281       40.       40.       40.         3         0         0      0.00    104.00    404.00

*SECNO 210.900
3280 CROSS SECTION     210.90 EXTENDED        .49 FEET


3470 ENCROACHMENT STATIONS=         .0      404.0  TYPE=      1  TARGET=      403.999

         ** BLOOMFIELD TWP. BDY.

   210.90      5.61    846.69      0.00      0.00    846.73       .04       .23       .04    845.10
     280.       38.       217.       25.       94.      124.       34.      224.       43.     844.70
     4.73       .41      1.74       .74      .085      .060      .075      .059    841.08    194.50
  .000761       160.      160.      160.         2         0         0      0.00    209.50    404.00

CCHV=     .300 CEHV=     .500
*SECNO 210.910
3280 CROSS SECTION     210.91 EXTENDED        .50 FEET
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3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=   842.90 MAX ELLC=   842.50

3470 ENCROACHMENT STATIONS=         .0      404.0  TYPE=      1  TARGET=      403.999

         ** WOODEN FOOTBRIDGE

   210.91      5.63    846.71      0.00      0.00    846.74       .03       .00       .00    845.10
     280.       60.       182.       39.       96.      118.       34.      224.       43.     844.70
     4.73       .62      1.55      1.13      .085      .060      .075      .059    841.08    193.56
  .001766         3.        3.        3.         1         0         0     -6.97    210.43    404.00

*SECNO 210.920
3280 CROSS SECTION     210.92 EXTENDED        .51 FEET

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


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=   842.90 MAX ELLC=   842.50

3470 ENCROACHMENT STATIONS=         .0      404.0  TYPE=      1  TARGET=      403.999
   210.92      5.64    846.72      0.00      0.00    846.74       .03       .01       .00    845.10
     280.       60.       181.       39.       97.      118.       34.      224.       43.     844.70
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     4.73       .62      1.54      1.13      .085      .060      .075      .059    841.08    192.56
  .001733        4.        4.        4.         0         0         0     -6.97    211.44    404.00

*SECNO 210.930
3280 CROSS SECTION    210.93 EXTENDED       .46 FEET


3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=  843.70 MAX ELLC=  843.10


3470 ENCROACHMENT STATIONS=         .0     404.0  TYPE=      1  TARGET=      403.999

         ** WOODEN FOOTBRIDGE

   210.93      5.58   846.76      0.00      0.00   846.80       .03       .05       .00    845.20
    280.       61.      177.      42.       89.      111.      33.       224.      44.      844.80
     4.73      .69      1.60      1.26      .085      .060      .075      .059    841.18    197.58
  .002252      25.       25.       25.         0         0         0    -12.32    206.42    404.00

*SECNO 210.940
3280 CROSS SECTION    210.94 EXTENDED       .47 FEET


3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=  843.70 MAX ELLC=  843.10


3470 ENCROACHMENT STATIONS=         .0     404.0  TYPE=      1  TARGET=      403.999

   210.94      5.59   846.77      0.00      0.00   846.80       .03       .01       .00    845.20
    280.       62.      176.      42.       91.      111.      33.       224.      44.      844.80
     4.73      .68      1.58      1.25      .085      .060      .075      .059    841.18    196.45
  .002203        4.        4.        4.         0         0         0    -12.32    207.55    404.00

*SECNO 210.950
3280 CROSS SECTION    210.95 EXTENDED       .52 FEET


         ** SMALL DAM

   210.95      5.64   846.82      0.00      0.00   846.82       .01       .01       .01    845.20
    280.       20.      108.      152.      99.      125.      496.      224.      44.      844.80
     4.75      .20      .86       .31       .085      .060      .075      .059    841.18    191.67
  .000184      25.       25.       25.         1         0         0      0.00    614.33    806.00

*SECNO 210.960
3280 CROSS SECTION    210.96 EXTENDED       .52 FEET


   210.96      4.82   846.82      0.00      0.00   846.82       .00       .00       .00    845.20
    280.       27.       45.      208.      98.       63.      494.      224.      44.      844.80
     4.75      .28       .71      .42       .085      .060      .075      .059    842.00    192.16
  .000348        1.        1.        1.         0         0         0      0.00    613.84    806.00

*SECNO 210.970
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3280 CROSS SECTION 210.97 EXTENDED .52 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
210.97	4.82	846.82	0.00	0.00	846.82	.00	.00	.00	845.20
280.	27.	45.	208.	98.	63.	495.	224.	44.	844.80
4.75	.28	.71	.42	.085	.060	.075	.059	842.00	191.99
.000346	2.	2.	2.	0	0	0	0.00	614.01	806.00

*SECNO 210.980
3280 CROSS SECTION 210.98 EXTENDED .52 FEET

210.98	5.64	846.82	0.00	0.00	846.83	.01	.00	.00	845.20
280.	20.	108.	152.	99.	125.	495.	224.	44.	844.80
4.75	.20	.86	.31	.085	.060	.075	.059	841.18	191.94
.000185	1.	1.	1.	0	0	0	0.00	614.06	806.00

*SECNO 211.000

211.00	3.65	846.95	0.00	0.00	846.99	.05	.15	.02	843.30
280.	129.	131.	20.	230.	55.	17.	229.	48.	843.30
4.82	.56	2.40	1.15	.085	.060	.075	.059	843.30	275.31
.001668	350.	350.	350.	2	0	0	0.00	379.29	654.59

CCHV= .100 CEHV= .300
*SECNO 211.300

** 2' DIA RCP - 100 FT. LONG

211.30	3.70	847.00	0.00	0.00	847.04	.03	.04	.00	843.30
280.	145.	117.	18.	251.	56.	18.	229.	48.	843.30
4.82	.58	2.10	1.01	.075	.060	.075	.059	843.30	271.08
.001261	30.	30.	30.	2	0	0	0.00	383.66	654.75

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.45	3.00	200.00	2.00	0.00	3.20	0.00	843.30	843.30

*SECNO 211.700
3280 CROSS SECTION 211.70 EXTENDED .87 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1138.27	847.40	0.00	260.	21.	3.	3.	844.90	848.00

211.70	5.27	848.57	0.00	0.00	848.57	.00	1.54	0.00	843.30
280.	224.	46.	10.	876.	79.	37.	230.	49.	843.30
4.91	.26	.58	.28	.075	.060	.075	.059	843.30	220.00
.000059	100.	100.	100.	0	0	10	0.00	438.88	658.88

CCHV= .100 CEHV= .300
*SECNO 212.900

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
212.90	4.57	848.57	0.00	0.00	848.63	.06	.04	.02	846.10
280.	91.	124.	65.	70.	46.	57.	233.	50.	845.70
4.95	1.30	2.68	1.13	.075	.060	.075	.059	844.00	8.53
.002034	230.	230.	230.	2	0	0	0.00	96.30	104.84

*SECNO 213.000

213.00	4.28	849.28	0.00	0.00	849.34	.06	.71	.00	846.80
280.	94.	119.	67.	70.	44.	57.	235.	51.	846.40
5.00	1.34	2.71	1.17	.075	.060	.075	.059	845.30	8.44
.002154	340.	340.	340.	2	0	0	0.00	96.51	104.95

*SECNO 213.500

213.50	4.31	849.81	0.00	0.00	849.87	.06	.53	.00	847.30
280.	95.	118.	68.	72.	44.	59.	236.	52.	846.90
5.04	1.32	2.67	1.15	.075	.060	.075	.059	845.50	8.13
.002074	250.	250.	250.	0	0	0	0.00	97.19	105.32

*SECNO 214.200

214.20	4.40	850.50	0.00	0.00	850.71	.21	.79	.05	853.80
280.	0.	280.	0.	0.	76.	0.	236.	52.	851.60
5.05	0.00	3.71	0.00	.075	.060	.075	.059	846.10	63.92
.008884	210.	210.	210.	2	0	0	0.00	35.23	100.16

CCHV= .300 CEHV= .500
*SECNO 214.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 852.00 ELREA= 852.00

** D/S FACE GREAT OAKS - 7' DIA. CMP

214.30	5.04	851.44	0.00	0.00	852.07	.63	1.15	.21	850.00
180.	0.	180.	0.	0.	28.	0.	236.	52.	850.00
5.06	0.00	6.38	0.00	.075	.060	.075	.059	846.40	71.50
.018836	100.	100.	100.	2	0	0	0.00	7.00	78.50

CCHV= .500 CEHV= 1.000
*SECNO 214.400

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

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 856.00 MAX ELLC= 853.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.40	5.05	851.45	0.00	0.00	852.12	.67	.01	.04	850.00
180.	0.	180.	0.	0.	27.	0.	236.	52.	850.00
5.06	0.00	6.56	0.00	.075	.025	.075	.059	846.40	71.50
.005013	1.	1.	1.	0	0	0	-13.43	7.00	78.50

*SECNO 214.600

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 856.00 MAX ELLC= 853.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.60	5.51	851.91	0.00	0.00	852.46	.56	.29	.06	850.00
180.	0.	180.	0.	0.	30.	0.	236.	52.	850.00
5.06	0.00	6.00	0.00	.075	.025	.075	.059	846.40	71.50
.004063	65.	65.	65.	2	0	0	-23.21	7.00	78.50

*SECNO 214.700

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.70	5.63	852.03	0.00	0.00	852.51	.48	.01	.04	850.00
180.	0.	180.	0.	0.	32.	0.	236.	52.	850.00
5.06	0.00	5.57	0.00	.075	.060	.075	.059	846.40	71.50
.011983	1.	1.	1.	2	0	0	0.00	7.00	78.50

CCHV= .300 CEHV= .500

*SECNO 214.800

214.80	5.24	852.94	0.00	0.00	853.06	.11	.44	.11	852.20
180.	3.	166.	10.	8.	59.	11.	237.	52.	851.20
5.07	.41	2.81	.98	.095	.060	.070	.059	847.70	141.49
.002605	90.	90.	90.	2	0	0	0.00	49.76	191.25

*SECNO 215.100

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 855.20 MAX ELLC= 854.40

** WOODEN FOOTBRIDGE

215.10	5.01	853.81	0.00	0.00	853.95	.14	.88	.01	853.30
180.	1.	170.	8.	4.	56.	8.	237.	52.	852.30
5.10	.36	3.06	1.01	.095	.060	.070	.059	848.30	148.43
.003346	300.	300.	300.	4	0	0	0.00	41.21	189.64

*SECNO 215.150

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 655.20 MAX ELLC= 854.40

215.15	5.03	853.82	0.00	0.00	853.96	.14	.01	.00	853.30
180.	2.	170.	8.	4.	56.	8.	237.	52.	852.30
5.10	.37	3.05	1.01	.095	.060	.070	.059	848.80	148.09
.003305	4.	4.	4.	0	0	0	0.00	41.64	189.72

*SECNO 215.200

215.20	5.03	853.93	0.00	0.00	854.07	.14	.10	.00	853.80
180.	0.	178.	2.	0.	59.	3.	237.	53.	853.00
5.10	.01	3.03	.74	.095	.060	.070	.059	848.90	54.62
.003490	30.	30.	30.	0	0	0	0.00	23.05	77.66

CCHV= .300 CEHV= .500
*SECNO 215.300

** D/S FACE FOXHALL RD. - 2-5' CMP ARCHES

215.30	5.01	854.11	0.00	0.00	854.25	.14	.18	.00	854.00
180.	0.	179.	1.	0.	58.	2.	237.	53.	853.20
5.11	.01	3.07	.50	.095	.040	.070	.059	849.10	54.86
.001597	80.	80.	80.	2	0	0	0.00	22.66	77.52

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.46	2.90	80.00	12.00	0.00	24.60	0.00	849.10	849.10

*SECNO 215.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.15	854.25	0.00	66.	114.	25.	38.	852.30	854.50

215.70	5.74	854.84	0.00	0.00	854.93	.09	.68	0.00	854.00
180.	1.	175.	4.	4.	70.	8.	237.	53.	853.20
5.11	.25	2.49	.53	.095	.040	.070	.059	849.10	46.85
.000827	45.	45.	45.	2	0	4	0.00	35.16	82.01

*SECNO 215.800

3470 ENCROACHMENT STATIONS= 555.0 664.0 TYPE= 1 TARGET= -555.000

215.80	5.50	854.90	0.00	0.00	854.98	.08	.05	.00	853.40
180.	20.	157.	3.	34.	63.	6.	237.	53.	853.50
5.12	.58	2.47	.55	.060	.040	.060	.059	849.40	569.82
.000796	60.	60.	60.	1	0	0	0.00	67.80	637.62

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: AMY DRAIN

4) DOCUMENT TYPE: SOW

00BREAK00

30.	0.	38.	0.	0	20.	0.	14	9.	862.00
2.74	.00	1.95	.00	.085	.060	.085	.000	358.00	190.00
.109764	80.	80.	80.	20	21	0	.00	170.00	360.00

0
1

THIS RUN EXECUTED 12/20/86 21:14:42

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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
**************************************************

T1 , HEATHERS HYDRAULIC EVALUATION
T2 , 50 YR STORM VERSION H85
T3 , AMY DRAIN JOB 19726-02
```

JJ	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0	0.	000000	00	.0	0.	854.900	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	0.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

J

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 3

CCHV= .300 CEHV= .500
*SECNO 215.800

3470 ENCROACHMENT STATIONS= 555.0 664.0 TYPE= 1 TARGET= -555.000
ELENCL= 860.30 ELENCR= 100000.00

215.80	5.50	854.90	.00	854.90	854.98	08	00	00	858.40
180	20.	157.	3	34.	63.	6	0.	0.	858.50
.00	58	2.48	.55	060	.040	.060	.000	849.40	570.00
000801	0	0.	0	0	0	0	.00	67.58	637.58

0
CCHV= .100 CEHV= 300
*SECNO 215.900

3470 ENCROACHMENT STATIONS= 291.0 396.0 TYPE= 1 TARGET= 105.000
ELENCL= 860.30 ELENCR= 860.30

215.90	5.01	855.11	.00	.00	855.12	.01	.12	.01	855.00
180.	0.	75	105	0.	88.	193	1.	1	862.20
11	.00	.86	.54	080	.060	.085	000	850.10	291.00
.000787	275	275.	275	1	0	0	.00	105.00	396.00

0
*SECNO 216.000

3470 ENCROACHMENT STATIONS= 291.4 396.5 TYPE= 1 TARGET= 105.002

ELENCL= 860.30 ELENCR= 860.30
216.00 4.59 855.19 .00 .00 855.20 .01 .08 .00 855.50
180. 0. 79 101. 0. 76. 161 3 1. 852.70
19 .00 1.04 .63 .085 .060 085 .000 850.60 292.38
.000486 225 225 225. 2 0 0 .00 103.62 396.00
0
*SECNO 216.200

9470 ENCROACHMENT STATIONS 291 0 340 0 TYPE= 1 TARGET= 49.000
ELENCL= 860.30 ELENCR= 860.30
216.20 4.20 855.40 .00 .00 855.45 .05 .24 .01 856.10
180. 0. 134. 46. 0. 65 89 4 2. 853.30
23 00 2.05 1.18 .085 .060 085 .000 851.20 294.09
.002089 275 275. 275. 2 0 0 .00 45.91 340.00
0
1
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SECNO	DEPTH	QWSEL	CRTWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMTN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	TDC	TCONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 216.300

8495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 857.70 ELRFA= 854.90

D/S FACE 72 X 44 IN CM PIPE ARCH AT SQ.LK.RD.
216.30 3.90 855.60 .00 .00 855.69 .09 .21 .02 854.80
53. 0. 52 1. 0 22 2. 4 2. 854.90
24 00 2.40 .54 .085 .060 085 000 851.70 705.00
.003979 90 90 90 2 0 0 00 11.60 716.60
0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SD NOT SPECIFIED

SD	XK	XKOR	COEQ	RDLEN	BWC	BWP	RAREA	SS	ELCHU	ELCHD
	00	3.30	3.10	00	4.00	.00	17.60	.00	851.70	851.70

*SECNO 216.700
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.06	855.69	.00	0	58.	18	21	855.20	859.60

8495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.30 ELRFA= 854.90

216.70 4.30 856.00 .00 .00 856.06 .06 .38 .00 854.80
53. 0. 50. 3 0. 24 5 4. 2 854.90
26 00 2.09 60 .000 .060 085 .000 851.70 705.00
.002607 100 100. 100. 2 0 0 00 14.82 719.82
0
*SECNO 2.000

8495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 862.00 ELREA= 862.00

2.00 2.09 856.09 .00 .00 856.09 .00 01 02 858.00

.84	.00	.28	.00	.085	.060	085	.000	854.00	112.24
.000039	45.	70.	95	2	0	0	.00	129.77	236.01

0
1

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

*SECNO 3.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 862.00 ELREA= 862.00

3.00	2.10	856.10	00	.00	856.10	.00	.01	.00	861.00
53	0.	53.	0.	0.	115.	0.	5	2	862.00
.45	.00	.46	00	.085	060	.085	.000	854.00	97.99
.000177	175	175.	175	2	0	0	.00	69.86	167.86

0
*SECNO 4.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 859.25 ELREA= 858.50

D/S FACE OF BRIDGE

4.20	2.10	856.10	.00	00	856.14	01	03	.00	858.50
59.	0.	53.	0.	0.	86.	0.	5.	2	858.50
.52	00	.62	.00	.085	.060	.085	.000	854.00	169.53
.000256	160	160.	160.	1	0	0	.00	40.94	210.47

0
SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	DWC	BWP	BAREA	SS	ELCHU	ELCHD
	00	1.56	3.10	.00	40.00	.00	180.00	.00	854.00	854.00

*SECNO 4.800

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 TGLWC= 856.139 ELLC= 858.500 PCWSE= 856.193 ELTRD= 860.000

3870 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 860.00 MAX ELLC= 858.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.00 ELREA= 858.50

4.80	2.10	856.15	.00	.00	856.15	.01	.01	00	858.50
53	0.	53.	0.	0.	87.	0	5.	2.	858.50
.54	.00	61	.00	.085	.060	.085	.000	854.00	169.52
.000250	50.	50	50.	1	0	0	.00	40.95	210.48

0
1

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

*SECNO 5.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLFT= 860.00 ELREA= 860.00

5.00	2.16	856.16	.00	.00	856.16	.00	.01	00	861.00
53.	0.	59.	0	0	106.	0.	5.	2.	860.00
57	.00	.50	00	.085	.060	.085	000	854.00	20.75
.000198	50.	50.	50.	0	0	0	.00	60.21	80.95

0
*SECNO 6.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLFT= 861.00 ELREA= 861.00

6.00	2.18	856.18	00	00	856.19	.01	.02	.00	861.00
50.	0.	59.	0.	0.	89.	0.	6	3.	860.00
62	.00	.59	00	.085	.060	085	.000	854.00	34.09
.000281	100	100.	100	0	0	0	00	51.82	85.91

0
*SECNO 7.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLFT= 860.00 ELREA= 860.00

7.00	2.19	856.19	.00	00	856.20	00	.01	.00	854.00
53	0.	53.	0	0.	395.	0.	7.	3.	854.00
1.05	00	.10	.00	085	060	.085	.000	854.00	410.00
000010	200.	210.	220	2	0	0	00	180.00	590.00

0
*SECNO 8.000

3470 ENCROACHMENT STATIONS= 315.0 545.0 TYPE= 1 TARGET= 280.000
ELENCL= 860.00 ELENCR= 860.00

8.00	2.20	856.20	00	.00	856.20	.00	.00	.00	860.00
53.	0	53.	0	0	507.	0	7.	3.	860.00
1.21	.00	.10	.00	085	.060	.085	.000	854.00	315.00
.000006	100	60.	30	0	0	0	.00	280.00	545.00

0
*SECNO 9.000

3470 ENCROACHMENT STATIONS= 345.0 480.0 TYPE= 1 TARGET= 135.000

1
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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

ELENCL= 861.00 ELENCR= 861.00

9.00	2.20	856.20	.00	.00	856.20	00	.00	.00	861.00
51.	0	51	0.	0.	297.	0	9.	4.	861.00
1.44	00	.17	.00	.085	.060	085	.000	854.00	345.00
.000017	140.	140	140	0	0	0	.00	135.00	480.00

0
*SECNO 10.000

3470 ENCROACHMENT STATIONS= 125.0 170.0 TYPE= 1 TARGET= 45.000
ELENCL= 861.00 ELENCR= 861.00

10.00	2.20	856.20	.00	00	856.20	00	.00	.00	861.00
51	0	0.	51.	0	0.	99	9.	4.	907.00
1.48	00	.00	.51	.085	060	.085	.000	854.00	125.00
.000341	70.	75.	80.	0	0	0	.00	45.00	170.00

0
*SECNO 11.200

3501 HL CHANGED MORE THAN HLTOL

3686 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 859 25 ELREA= 859.25

D/S FACE 72X44 IN CM PIPE ARCH

11 80	1.64	856.31	856.31	.00	856.97	.66	.07	.33	857.67
51	0.	51.	0	0	8.	0	9.	4	857.67
1.48	.00	6 52	00	.085	.060	085	000	854.67	167.02
.067199	40.	50.	60	20	15	0	.00	5 97	172.98

0

SPECTAL BRIDGE

SD	XK	XKOR	COEQ	RDLEN	BWC	DWP	BAREA	SS	ELCHU	ELCHD
	00	2.52	3.10	.00	3.50	.00	17.60	.75	854.67	854.67

*SECNO 11 800

1

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

6070,LOW FLOW BY NORMAL BRIDGE

LOPRS= .000 EGLWC= 856 973 ELLC= 857 670 PCWSE= 856.314 ELTRD= 860 000
3280 CROSS SECTION 11.80 EXTENDED 44 FEET

3301 HV CHANGED MORE THAN HVTNS

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 860 00 MAX ELLC= 857.67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

11 80	3 77	858.44	.00	00	858 58	.13	1 45	.16	857.67
51.	0.	51.	0	0.	17.	0.	9	4.	857 67
1 49	00	2 94	.00	.085	.060	.085	.000	854.67	166.00
016019	50.	50	50.	10	0	0	-19.78	8.00	174.00

0

*SECNO 12.000

9470 ENCROACHMENT STATIONS= 110.0 340.0 TYPE= 1 TARGET= 230.000
ELENCL= 861 00 ELENCR= 861.00

12.00	3.62	858.62	.00	00	858.62	00	.00	.04	861.00
51.	0.	51.	0.	0.	613	0	10.	4.	860.00
1.77	.00	08	.00	.085	.060	085	.000	853.00	110.00
000002	105.	85.	65.	2	0	0	.00	183.94	293.94

0

*SECNO 13 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA = 861.00

13.00	3 62	858.62	.00	.00	858.62	.00	.00	.00	860 00
51.	0.	51	0.	0.	868.	0.	11.	5	860.00

000001	50	50.	50.	2	0	0	00	270.65	351 71

0

*SECNO 14.200

1

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

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.25 ELREA= 860.25

D/S FACE OF BRIDGE									
14.20	2.62	858.62	00	.00	858 62	00	.00	.00	859.50
51.	0.	51.	0.	0.	107.	0.	16	6.	859 50
2.28	00	.48	.00	085	.060	.083	.000	856 00	299.25
000118	460	450	440.	0	0	0	.00	41.50	280.75

0

SPECIAL BRIDGE

6070,VARIABLE ELCHU OR ELCHD ON CARD SR NOT SPECIFIED

SD	XK	XKOR	COEQ	RDLEN	RWC	BWP	BAREA	SS	ELCHU	ELCHD
	00	1.56	3 10	.00	40.00	00	140.00	.00	856.00	856.00

*SECNO 14 800

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 000 EGLWC= 858.622 ELLC= 859.500 HCWSE= 858.618 ELTRD= 861.000

9870 NORMAL BRIDGE,NRD = 8 MIN ELTRD= 861.00 MAX ELLC= 859.50

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

14.80	2.62	858 62	.00	.00	858.63	00	.01	00	859.50
51.	0.	51.	0	0.	107	0.	16	6	859.50
2.31	.00	48	00	085	.060	085	.000	856.00	239.25
000118	50	50.	50.	0	0	0	.00	41.50	280.75

0

*SECNO 15 000

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

15.00	2.63	858 63	.00	00	858.63	00	.00	.00	858.00
51.	0.	51.	0.	0.	462.	0.	16.	7	857.00
2.50	.00	11	00	.085	.060	085	.000	856 00	230.00
000008	65	75.	85.	0	0	0	.00	240 00	470.00

0

1

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

*SECNO 16.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

14.00	1.63	858.63	.00	.00	858.63	.00	.00	.00	858.00
51	0.	51.	0.	0	432.	0	19.	8	860.00
3 11	.00	12	00	.085	.060	085	000	857.00	170.00
000014	260.	260.	260.	1	0	0	.00	300 93	470.93

0
*SECNO 17.000

3470 ENCROACHMENT STATIONS= 200.0 420.0 TYPE= 1 TARGET= 220.000
ELENCL= 861.00 ELENCR= 861.00

17 00	1.63	858.63	.00	00	858.63	.00	.00	.00	861.00
51.	0.	51.	0	0.	304.	0.	20.	9	861.00
3 28	.00	.17	.00	.085	.060	.085	000	857.00	200.00
000030	80.	100	120	0	0	0	.00	220.00	420 00

0
*SECNO 18.000

3470 ENCROACHMENT STATIONS= 190.0 360 0 TYPE= 1 TARGET= 170.000
ELENCL= 862.00 ELENCR= 862.00

18 00	64	858.64	00	.00	858.64	.00	.01	.00	862.00
51.	0	51.	0.	0	108.	0.	20.	9	862.00
3.33	.00	.47	.00	.085	060	.085	.000	858 00	190.00
.000661	80.	80	80.	0	0	0	00	170.00	360.00

0
1

THIS RUN EXECUTED 12/20/86 21:15:15

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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
****

T1 , HEATHERS HYDRAULIC EVALUATION
T2 , 500 YR STORM VERSION HBS
T3 , AMY DRAIN JOB #9726-02

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	5	0.	0.	.000000	00	.0	0.	855.880	000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNTM	TTRACE
	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	XLOBI	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 4

CCHV= 300 CEHV= .500

CCHV= .100 CEHV= .300
*SECNO 215.900

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS=			291.0	396.0	TYPE=	1	TARGET=	105.000	
215.90	5.00	855.10	0.00	0.00	855.11	.01	.12	.01	855.00
180.	0.	73.	107.	0.	88.	199.	239.	53.	852.20
5.24	0.00	.83	.54	.085	.060	.085	.059	850.10	291.00
.000273	275.	275.	275.	1	0	0	0.00	105.00	396.00

*SECNO 215.950

3470 ENCROACHMENT STATIONS=			291.0	396.0	TYPE=	1	TARGET=	105.000	
215.95	4.58	855.18	0.00	0.00	855.19	.01	.08	.00	855.50
180.	0.	77.	103.	0.	76.	166.	240.	54.	852.70
5.31	0.00	1.02	.62	.085	.060	.085	.059	850.60	292.41
.000462	225.	225.	225.	2	0	0	0.00	103.59	396.00

*SECNO 216.200

3470 ENCROACHMENT STATIONS=			291.0	340.0	TYPE=	1	TARGET=	49.000	
216.20	4.18	855.38	0.00	0.00	855.44	.05	.23	.01	856.10
180.	0.	132.	48.	0.	65.	40.	241.	54.	853.30
5.36	0.00	2.04	1.19	.085	.060	.085	.059	851.20	294.16
.002070	275.	275.	275.	2	0	0	0.00	45.84	340.00

CCHV= .300 CEHV= .500
*SECNO 216.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.00 ELREA= 857.00

** D/S FACE SQUARE LAKE RD. - 2-5' DIA. CMP'S, ONE IS BULKHEADED

216.30	3.14	855.54	0.00	0.00	855.84	.31	.28	.13	854.80
70.	0.	70.	0.	0.	16.	0.	241.	54.	854.80
5.36	0.00	4.44	0.00	.085	.060	.085	.059	852.40	705.00
.016863	90.	90.	90.	2	0	0	0.00	5.10	710.10

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	4.10	3.10	0.00	5.00	0.00	9.80	0.00	852.40	852.40

*SECNO 216.700
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID	ELLC	ELTRD

					AREA			
858.78	855.84	0.00	0.	70.	10.	-4262.	0.00	860.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.30 ELREA= 860.30

216.70	6.31	858.71	0.00	0.00	858.78	.07	2.94	0.00	854.80
70.	0.	70.	0.	0.	32.	0.	241.	54.	854.80
5.37	0.00	2.19	0.00	.085	.060	.085	.059	852.40	705.00
.001599	100.	100.	100.	2	0	0	0.00	5.10	710.10

*SECNO 216.800
3280 CROSS SECTION 216.80 EXTENDED 3.41 FEET

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

3470 ENCROACHMENT STATIONS= 256.0 393.0 TYPE= 1 TARGET= 137.000

216.80	7.31	858.81	0.00	0.00	858.81	.00	.00	.02	854.00
70.	33.	14.	23.	292.	73.	232.	242.	54.	854.60
5.62	.11	.18	.10	.085	.060	.085	.059	851.50	256.00
.000006	110.	110.	110.	2	0	0	0.00	137.00	393.00

*SECNO 217.000

3470 ENCROACHMENT STATIONS= 405.0 1243.0 TYPE= 1 TARGET= -405.000

217.00	4.11	858.81	0.00	0.00	858.81	.00	.00	.00100000.00	
70.	0.	70.	0.	0.	1659.	0.	260.	59.	859.40
10.17	0.00	.04	0.00	.085	.060	.085	.059	854.70	405.00
.000000	690.	690.	690.	2	0	0	0.00	412.49	817.49

*SECNO 218.000

3470 ENCROACHMENT STATIONS= 286.0 1243.0 TYPE= 1 TARGET= -286.000

218.00	3.31	858.81	0.00	0.00	858.81	.00	.00	.00100000.00	
70.	0.	70.	0.	0.	1726.	0.	291.	67.	860.20
15.65	0.00	.04	0.00	.085	.060	.085	.059	855.50	286.00
.000001	800.	800.	800.	0	0	0	0.00	528.10	814.10

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLENHEIM ZO JOINT-1P

3) WATERCOURSE: ARMY [illegible]

4) DOCUMENT TYPE: 100 YR. NATURAL

00BREAK00

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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100 yr NATURAL & EXISTING
Top Widths are = the same, they varied from 0-3' differences

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C
T1       HUD-FIA H-4705
T2       BLOOMFIELD TWP FIS
T3       AMY DRAIN

J1   ICHECK      INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        0.         4.         0.         0.    .002120       0.00      -1.0          0.    825.000      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

QT       5.000    280.000    310.000    320.000    495.000    320.000      0.000      0.000      0.000      0.000
NC        .095       .095       .060       .300       .500      0.000      0.000      0.000      0.000      0.000

         ** D/S FACE GTW RAILROAD CULVERT AND CONFLUENCE W/ QUARTJN

X1     201.300      7.000    310.000    325.000      0.000      0.000      0.000      0.000      1.100      0.000
X3      10.000      0.000      0.000      0.000      0.000      0.000      0.000    830.000    830.000      0.000
GR     830.000    210.000    820.000    250.000    819.100    310.000    819.100    325.000    819.500    430.000
GR     820.000    540.000    830.000    600.000      0.000      0.000      0.000      0.000      0.000      0.000
SB       0.000      2.530      2.600    100.000      4.500      0.000     15.900      0.000      0.000      0.000

X1     201.800     11.000    106.000    121.000    260.000    260.000    260.000      0.000      0.000      0.000
X2       0.000      0.000      1.000    824.150    838.000      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    838.000    838.000      0.000
GR     843.000      0.000    836.600     42.000    827.200     75.000    823.800    106.000    820.750    112.000
GR     820.750    118.000    823.500    121.000    823.800    128.000    823.800    141.000    840.000    246.000
GR     840.000    300.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     201.900      0.000      0.000      0.000    100.000    100.000    100.000      0.000       .300      0.000
QT       5.000    330.000    510.000    620.000    835.000    520.000      0.000      0.000      0.000      0.000

         ** D/S FACE KENSINGTON RD

X1     202.300      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    826.000    826.000      0.000
SB       0.000      1.820      2.900    200.000      4.000      0.000     12.600      0.000      0.000      0.000

X1     202.700      0.000      0.000      0.000     36.000     36.000     36.000      0.000      0.000      0.000
X2       0.000      0.000      1.000    825.400    826.800      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    826.800    826.800      0.000
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X1    202.800    11.000    78.000    97.000    20.000    20.000    20.000     0.000     2.000     0.000
GR    842.000    12.000   824.900    58.000   822.600    78.000   819.800    82.000   819.800    89.000
GR    822.900    97.000   825.400   111.000   826.000   147.000   829.200   180.000   829.100   218.000
GR    835.900   265.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

      ** VHAY LAKE DAM AND ROAD

X1    202.810     0.000     0.000     0.000   195.000   195.000   195.000     0.000      .700     0.000
NC      0.000     0.000      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    202.820     8.000   200.000   216.000     4.000     4.000     4.000     0.000     0.000     0.000
X2      0.000     0.000     0.000   836.400   837.400     0.000     0.000     0.000     0.000     0.000
X5      1.000   838.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    845.000    75.000   837.400    76.000   837.400   200.000   834.100   201.000   834.100   215.000
GR    837.400   216.000   837.400   346.000   845.000   347.000     0.000     0.000     0.000     0.000

X1    202.830     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   836.400   837.400     0.000     0.000     0.000     0.000     0.000
X5      1.000   838.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.000      .060     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    202.840     9.000    46.000   416.000    18.000    18.000    18.000     0.000    -2.000     0.000
GR    845.100     0.000   841.000    46.000   838.600    61.000   834.400    72.000   826.700   120.000
GR    826.700   318.000   838.000   416.000   840.400   450.000   844.000   543.000     0.000     0.000
NC      0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000

X1    204.000     9.000    46.000   416.000  1360.000  1360.000  1360.000     0.000     0.000     0.000
GR    845.100     0.000   841.000    46.000   838.600    61.000   834.400    72.000   828.700   120.000
GR    828.700   318.000   838.000   416.000   840.400   450.000   844.000   543.000     0.000     0.000

X1    205.200    11.000   233.000   483.000   500.000   500.000   500.000     0.000     0.000     0.000
GR    854.800    69.000   854.100   134.000   848.600   233.000   836.400   287.000   833.200   303.000
GR    830.100   340.000   830.100   390.000   833.200   428.000   837.500   455.000   839.800   483.000
GR    845.000   602.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

      ** PRIVATE DRIVE, SIMPLE MODEL

X1    205.300     0.000     0.000     0.000   120.000   120.000   120.000     0.000     1.300     0.000
X2      0.000     0.000     0.000   835.400   836.900     0.000     0.000     0.000     0.000     0.000

X1    205.400     0.000     0.000     0.000    14.000    14.000    14.000     0.000     0.000     0.000
X2      0.000     0.000     0.000   835.400   836.900     0.000     0.000     0.000     0.000     0.000

X1    205.800     8.000     0.000   386.000   120.000   120.000   120.000     0.000     0.000     0.000
GR    845.000     0.000   836.400   115.000   834.700   156.000   830.000   220.000   830.000   240.000
GR    834.700   288.000   838.600   339.000   845.000   386.000     0.000     0.000     0.000     0.000
NC      0.000     0.000      .025      .100      .300     0.000     0.000     0.000     0.000     0.000

      ** CONCRETE AND STONE WEIR

X1    205.900     8.000   220.000   240.000     1.000     1.000     1.000     0.000     0.000     0.000
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GR	845.000	0.000	836.400	115.000	834.700	156.000	833.800	220.000	833.800	240.000
GR	834.700	288.000	838.600	339.000	845.000	386.000	0.000	0.000	0.000	0.000
X1	205.910	0.000	0.000	0.000	2.000	2.000	2.000	0.000	0.000	0.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	205.920	8.000	0.000	386.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	845.000	0.000	836.400	115.000	834.700	156.000	831.300	220.000	831.300	240.000
GR	834.700	288.000	838.600	339.000	845.000	386.000	0.000	0.000	0.000	0.000
X1	206.000	12.000	87.000	721.000	725.000	725.000	725.000	0.000	0.000	0.000
GR	845.000	0.000	840.000	87.000	838.600	149.000	836.800	184.000	834.800	300.000
GR	834.000	377.000	832.900	385.000	832.900	440.000	834.800	443.000	835.100	592.000
GR	838.900	721.000	845.000	782.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	207.200	12.000	277.000	323.000	700.000	700.000	700.000	0.000	.500	0.000
X3	0.000	0.000	0.000	128.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.200	0.000	837.300	69.000	835.900	88.000	835.400	128.000	835.300	277.000
GR	834.980	295.000	834.980	310.000	835.300	323.000	835.600	390.000	837.700	522.000
GR	840.700	591.000	845.000	633.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE E. LONG LAKE - ELLIPTICAL CMP

X1	207.300	0.000	0.000	0.000	185.000	185.000	185.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	128.000	0.000	390.000	0.000	0.000	0.000	0.000
SB	0.000	3.300	2.900	110.000	4.000	0.000	11.400	0.000	0.000	0.000
X1	207.700	18.000	663.000	710.000	75.000	75.000	75.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	337.100	0.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	2.000	520.000	838.200	837.100	905.000	840.000	837.100	0.000	0.000	0.000
GR	845.000	0.000	843.000	174.000	841.300	259.000	840.000	546.000	843.100	600.000
GR	840.100	628.000	839.100	663.000	837.500	680.000	835.400	691.000	834.800	693.000
GR	834.800	696.000	835.400	699.000	837.500	710.000	838.400	742.000	838.000	775.000
GR	839.800	808.000	840.000	860.000	844.500	1191.000	0.000	0.000	0.000	0.000
NC	.065	.065	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	207.800	18.000	663.000	710.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	845.000	0.000	843.000	174.000	841.300	259.000	840.000	546.000	843.100	600.000
GR	840.100	628.000	839.100	663.000	837.500	680.000	835.400	691.000	834.800	693.000
GR	834.800	696.000	835.400	699.000	837.500	710.000	838.400	742.000	838.000	775.000
GR	839.800	808.000	840.000	860.000	844.500	1191.000	0.000	0.000	0.000	0.000

** D/S FACE EASTAWAYS - CMP

X1	208.300	0.000	0.000	0.000	120.000	120.000	120.000	0.000	.800	0.000
X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.570	2.900	0.000	4.000	0.000	15.000	0.000	0.000	0.000
X1	208.700	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.100	0.000	0.000	0.000	0.000	0.000	0.000

X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	4.000	340.000	840.500	839.100	400.000	840.000	839.100	500.000	840.000	839.100
BT	525.000	839.500	839.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.085	.075	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	208.800	10.000	295.000	320.000	70.000	70.000	70.000	0.000	.400	0.000
X3	0.000	0.000	0.000	270.000	0.000	0.000	0.000	0.000	0.000	0.000
X4	1.000	838.500	270.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	845.000	0.000	840.900	76.000	840.000	194.000	838.000	295.000	835.830	301.000
GR	835.830	308.000	837.500	320.000	838.800	350.000	839.000	392.000	845.000	535.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	208.900	0.000	0.000	0.000	140.000	140.000	140.000	0.000	.400	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	209.000	10.000	277.000	299.000	310.000	310.000	310.000	0.000	1.000	0.000
GR	848.000	0.000	843.800	133.000	841.700	236.000	839.800	277.000	836.500	284.000
GR	836.500	291.000	838.400	299.000	840.000	333.000	840.800	371.000	845.000	400.000
X1	210.200	14.000	373.000	455.000	650.000	650.000	650.000	0.000	.700	0.000
X3	0.000	0.000	0.000	0.000	0.000	620.000	0.000	0.000	0.000	0.000
GR	848.000	0.000	847.400	71.000	845.000	146.000	844.000	266.000	841.100	373.000
GR	840.200	390.000	840.200	442.000	839.800	443.000	839.800	449.000	841.000	455.000
GR	841.600	620.000	842.000	692.000	843.900	829.000	844.500	905.000	0.000	0.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE KINGSLEY RD. - 2-3' DIA. CMPS

X1	210.300	11.000	355.000	384.000	150.000	150.000	150.000	0.000	.200	0.000
X3	0.000	0.000	0.000	300.000	0.000	560.000	0.000	0.000	0.000	0.000
GR	846.800	119.000	845.700	222.000	845.500	297.000	844.400	355.000	840.380	367.000
GR	840.380	376.000	844.000	384.000	844.600	404.000	844.600	437.000	844.600	560.000
GR	845.500	806.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.000	2.600	100.000	6.000	0.000	14.100	0.000	0.000	0.000
X1	210.700	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	843.200	845.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	404.000	0.000	0.000	0.000	0.000
X1	210.800	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	404.000	0.000	0.000	0.000	0.000
QT	5.000	185.000	280.000	320.000	420.000	320.000	0.000	0.000	0.000	0.000

** BLOOMFIELD TWP. BDY.

X1	210.900	0.000	0.000	0.000	160.000	160.000	160.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	404.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** WOODEN FOOTBRIDGE

X1	210.910	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000

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X2      0.000      0.000      0.000    842.500    842.900      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    404.000      0.000      0.000      0.000      0.000

X1    210.920      0.000      0.000      0.000      4.000      4.000      4.000      0.000      0.000      0.000
X2      0.000      0.000      0.000    842.500    842.900      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    404.000      0.000      0.000      0.000      0.000

        ** WOODEN FOOTBRIDGE

X1    210.930      0.000      0.000      0.000     25.000     25.000     25.000      0.000       .100      0.000
X2      0.000      0.000      0.000    843.100    843.700      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    404.000      0.000      0.000      0.000      0.000

X1    210.940      0.000      0.000      0.000      4.000      4.000      4.000      0.000      0.000      0.000
X2      0.000      0.000      0.000    843.100    843.700      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    404.000      0.000      0.000      0.000      0.000

        ** SMALL DAM

X1    210.950      0.000      0.000      0.000     25.000     25.000     25.000      0.000      0.000      0.000

X1    210.960     15.000    355.000    384.000      1.000      1.000      1.000      0.000       .800      0.000
GR    846.800    119.000    845.700    222.000    845.500    297.000    844.400    355.000    844.000    360.000
GR    844.000    367.000    841.200    368.000    841.200    369.000    844.000    370.000    844.000    377.000
GR    844.000    384.000    844.600    404.000    844.600    437.000    844.600    560.000    845.500    806.000

X1    210.970      0.000      0.000      0.000      1.500      1.500      1.500      0.000      0.000      0.000

X1    210.980     11.000    355.000    384.000      1.000      1.000      1.000      0.000       .800      0.000
GR    846.800    119.000    845.700    222.000    845.500    297.000    844.400    355.000    840.380    367.000
GR    840.380    376.000    844.000    384.000    844.600    404.000    844.600    437.000    844.600    560.000
GR    845.500    806.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    211.000      8.000    630.000    645.000    350.000    350.000    350.000      0.000      0.000      0.000
GR    847.700    220.000    846.200    330.000    846.200    490.000    846.500    625.000    843.300    630.000
GR    843.300    645.000    849.000    660.000    850.000    730.000      0.000      0.000      0.000      0.000
NC       .075       .075       .060       .100       .300      0.000      0.000      0.000      0.000      0.000

        ** 2' DIA RCP - 100 FT. LONG

X1    211.300      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    846.500    846.500      0.000
SB      0.000      2.450      3.000    200.000      2.000      0.000      3.200      0.000      0.000      0.000

X1    211.700      0.000      0.000      0.000    100.000    100.000    100.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    844.900    848.000      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    848.000    848.000      0.000
NC      0.000      0.000      0.000       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    212.900      7.000     54.000     65.000    230.000    230.000    230.000      0.000      -.700      0.000
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GR	850.000	0.000	847.600	28.000	846.800	54.000	844.700	56.000	844.700	63.000
GR	846.400	65.000	850.000	115.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	213.000	7.000	54.000	65.000	340.000	340.000	340.000	0.000	0.000	0.000
GR	850.000	0.000	847.600	28.000	846.800	54.000	845.000	56.000	845.000	63.000
GR	846.400	65.000	850.000	115.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	213.500	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.500	0.000
X1	214.200	10.000	48.000	110.000	210.000	210.000	210.000	0.000	0.000	0.000
GR	855.000	0.000	853.800	48.000	851.800	61.000	846.900	72.000	846.100	75.000
GR	846.100	79.000	846.900	81.000	848.800	85.000	851.600	110.000	854.800	150.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	5.000	125.000	180.000	220.000	290.000	220.000	0.000	0.000	0.000	0.000

** D/S FACE GREAT OAKS - 7' DIA. CMP

X1	214.300	7.000	71.500	78.500	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	852.000	852.000	0.000
GR	856.000	0.000	850.000	71.500	847.400	72.500	846.400	75.000	847.400	77.500
GR	850.000	78.500	856.000	150.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	.500	1.000	0.000	0.000	0.000	0.000	0.000
X1	214.400	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	856.000	856.000	0.000
BT	7.000	0.000	856.000	0.000	71.500	856.000	850.000	72.500	856.000	852.500
BT	75.000	856.000	853.400	77.500	856.000	852.500	78.500	856.000	850.000	150.000
BT	856.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	214.600	0.000	0.000	0.000	65.000	65.000	65.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.000	856.000	0.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	214.700	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	856.000	856.000	0.000
NC	.095	.070	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	214.800	11.000	164.000	179.000	90.000	90.000	90.000	0.000	0.000	0.000
GR	857.000	0.000	855.700	21.000	854.900	82.000	852.200	164.000	849.100	168.000
GR	847.700	170.000	847.700	175.000	849.100	177.000	851.200	179.000	856.600	217.000
GR	857.000	244.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** WOODEN FOOTBRIDGE

X1	215.100	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.100	0.000
X2	0.000	0.000	0.000	854.400	855.200	0.000	0.000	0.000	0.000	0.000
X1	215.150	0.000	0.000	0.000	4.000	4.000	4.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	854.400	855.200	0.000	0.000	0.000	0.000	0.000

X1	215.200	10.000	56.000	72.000	30.000	30.000	30.000	0.000	0.000	0.000
GR	857.000	0.000	856.000	32.000	853.800	56.000	850.100	58.000	848.900	60.000
GR	848.900	65.000	850.100	67.000	853.000	72.000	854.800	83.000	856.400	105.000
NC	0.000	0.000	.040	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOXHALL RD. - 2-5' CMP ARCHES

X1	215.300	0.000	0.000	0.000	80.000	80.000	80.000	0.000	.200	0.000
SB	0.000	2.460	2.900	80.000	12.000	0.000	24.600	0.000	0.000	0.000
X1	215.700	0.000	0.000	0.000	45.000	45.000	45.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	852.300	854.500	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	215.800	18.000	615.000	629.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	555.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	857.000	0.000	856.100	289.000	855.500	344.000	852.300	372.000	855.200	397.000
GR	855.000	429.000	852.000	440.000	852.000	451.000	855.200	517.000	855.400	555.000
GR	853.400	615.000	850.500	617.000	849.400	620.000	849.400	624.000	850.500	627.000
GR	853.500	629.000	856.600	648.000	857.000	664.000	0.000	0.000	0.000	0.000
NC	.085	.085	.060	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	215.900	14.000	291.000	320.000	275.000	275.000	275.000	0.000	-1.200	0.000
X3	0.000	0.000	0.000	291.000	0.000	396.000	0.000	0.000	0.000	0.000
GR	859.200	72.000	859.200	136.000	854.000	193.000	854.000	211.000	856.400	239.000
GR	856.200	291.000	851.900	310.000	851.300	312.000	851.300	315.000	851.900	317.000
GR	853.400	320.000	854.000	396.000	855.600	531.000	860.000	631.000	0.000	0.000
X1	215.950	0.000	0.000	0.000	225.000	225.000	225.000	0.000	.500	0.000
X3	0.000	0.000	0.000	291.000	0.000	396.000	0.000	0.000	0.000	0.000
X1	216.200	0.000	0.000	0.000	275.000	275.000	275.000	0.000	.600	0.000
X3	0.000	0.000	0.000	291.000	0.000	340.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	5.000	45.000	70.000	80.000	90.000	80.000	0.000	0.000	0.000	0.000

** D/S FACE SQUARE LAKE RD. - 2-5' DIA. CMP'S, ONE IS BULKHEADED

X1	216.300	6.000	705.000	710.100	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	857.000	857.000	0.000
GR	860.300	645.000	854.800	705.000	852.400	705.100	852.400	710.000	854.800	710.100
GR	861.000	760.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	4.100	3.100	0.000	5.000	0.000	9.800	0.000	0.000	0.000
X1	216.700	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	854.800	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	860.300	860.300	0.000
BT	3.000	645.000	860.300	0.000	710.000	860.300	0.000	760.000	861.000	0.000
X1	216.800	10.000	320.000	332.000	110.000	110.000	110.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	256.000	0.000	393.000	0.000	0.000	0.000	0.000

GR	856.000	188.000	855.200	256.000	854.000	283.000	854.000	320.000	853.400	321.000
GR	851.500	323.000	851.500	326.000	853.400	329.000	854.600	332.000	855.400	393.000
X1	217.000	5.000	158.000	820.000	690.000	690.000	690.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	405.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	861.600	158.000	854.700	228.000	854.700	800.000	859.400	820.000	864.600	1243.000
X1	218.000	0.000	0.000	0.000	800.000	800.000	800.000	0.000	.800	0.000
X3	0.000	0.000	0.000	286.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .300 CEHV= .500
*SECNO 201.300

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	ARO3	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= 830.00 ELREA= 830.00

** D/S FACE GTW RAILROAD CULVERT AND CONFLUENCE W/ QUARTON

201.30	5.79	825.99	0.00	825.00	826.20	.21	0.00	0.00	820.20
320.	0.	320.	0.	0.	87.	0.	0.	0.	820.20
0.00	0.00	3.68	0.00	.095	.060	.095	0.000	820.20	310.00
.002124	0.	0.	0.	0	0	4	0.00	15.00	325.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.53	2.60	100.00	4.50	0.00	15.90	0.00	820.20	820.20

*SECNO 201.800

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPP	BAREA	TRAPEZOID AREA	ELLC	ELTRD
841.91	826.37	0.00	41.	281.	16.	18.	824.15	838.00

201.80	17.54	838.29	0.00	0.00	838.29	.00	12.09	0.00	823.80
320.	117.	98.	105.	617.	250.	680.	5.	1.	823.50
.30	.19	.39	.15	.095	.060	.095	.060	820.75	30.91
.000007	260.	260.	260.	0	0	5	0.00	199.05	229.96

*SECNO 201.900

201.90	17.24	838.29	0.00	0.00	838.29	.00	.00	.00	824.10
320.	117.	99.	104.	594.	245.	648.	8.	1.	823.80
.41	.20	.40	.16	.095	.060	.095	.060	821.05	32.88
.000007	100.	100.	100.	2	0	0	0.00	194.27	227.15

*SECNO 202.300

** D/S FACE KENSINGTON RD

202.30	17.04	838.29	0.00	0.00	838.29	.00	.00	.00	824.30
620.	226.	194.	200.	580.	242.	627.	9.	1.	824.00
.43	.39	.80	.32	.095	.060	.095	.060	821.25	34.19
.000030	30.	30.	30.	0	0	0	0.00	191.08	225.28

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	2.90	200.00	4.00	0.00	12.60	0.00	821.25	821.25

*SECNO 202.700

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
906.72	838.29	0.00	607.	15.	13.	17.	825.40	826.80

202.70	17.07	838.32	0.00	0.00	838.33	.00	.04	0.00	824.30
620.	226.	194.	200.	583.	243.	631.	11.	1.	824.00
.45	.39	.80	.32	.095	.060	.095	.059	821.25	33.94
.000030	36.	36.	36.	0	0	5	0.00	191.70	225.64

*SECNO 202.800

3280 CROSS SECTION 202.80 EXTENDED .42 FEET

202.80	16.53	838.33	0.00	0.00	338.33	.00	.00	.00	824.60
620.	116.	171.	333.	427.	296.	1293.	11.	1.	824.90
.47	.27	.58	.26	.095	.060	.095	.059	821.80	27.27
.000015	20.	20.	20.	0	0	0	0.00	237.73	265.00

*SECNO 202.810

** VHAY LAKE DAM AND ROAD

202.81	15.83	838.33	0.00	0.00	838.33	.00	.00	.00	825.30
620.	117.	178.	325.	393.	283.	1177.	20.	3.	825.60
.61	.30	.63	.28	.095	.060	.095	.059	822.50	29.13
.000020	195.	195.	195.	0	0	0	0.00	234.01	263.14

*SECNO 202.820

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 837.40 MAX ELLC= 836.40

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY

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3720 CRITICAL DEPTH ASSUMED
   202.82      4.09    838.19    838.19      0.00    838.66      .48      .30      .24    837.40
    620.       136.      342.      142.       98.       46.      102.      20.       3.     837.40
     .61       1.39      7.36      1.39      .095      .020      .095     .059   834.10     75.90
 .010914         4.        4.        4.        20        10         0   -15.70   270.21    346.10

*SECNO 202.830

3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   837.40 MAX ELLC=   836.40

   202.83      4.55    838.65      0.00      0.00    838.81      .16      .05      .09    837.40
    620.       176.      260.      184.       156.      54.      163.      20.       3.     837.40
     .61       1.13      4.82      1.13      .095      .020      .095     .058   834.10     75.83
 .003831         9.        9.        9.         5         0         0   -15.70   270.33    346.17

*SECNO 202.840
   SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS    BANK ELEV
   Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST

   202.84     14.16    838.86      0.00      0.00    838.86      .00      .00      .05    839.00
    620.        0.       619.       1.        0.      4197.      59.      21.       3.     836.00
     .64       0.00       .15       .03       .095      .060      .095     .058   824.70     46.86
 .000001        18.       18.       18.         2         0         0     0.00   415.06    461.93

CCHV=     .100 CEHV=     .300
*SECNO 204.000
   204.00     10.16    838.86      0.00      0.00    838.87      .00      .00      .00    841.00
    620.        0.       620.       0.        0.      2930.       5.      133.      15.     838.00
     2.43       0.00       .21       .02       .095      .060      .095     .059   828.70     59.35
 .000004     1360.     1360.     1360.         2         0         0     0.00   368.90    428.25

*SECNO 205.200
   205.20      8.77    838.87      0.00      0.00    838.87      .00      .01      .00    848.60
    620.        0.       620.       0.        0.      1164.       0.      157.      18.     839.80
     2.69       0.00       .53       0.00      .095      .060      .095     .060   830.10    276.08
 .000043      500.      500.      500.         0         0         0     0.00   195.55    471.63

*SECNO 205.300

3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   836.90 MAX ELLC=   835.40

        ** PRIVATE DRIVE, SIMPLE MODEL

   205.30      7.48    838.88      0.00      0.00    838.89      .01      .01      .00    849.90
    620.        0.       620.       0.        0.      709.        0.      150.      19.     841.10
     2.73       0.00       .87       0.00      .095      .060      .095     .060   831.40    281.82
 .000670      120.      120.      120.         0         0         0  -215.42   174.03    455.85

*SECNO 205.400

3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   836.90 MAX ELLC=   835.40
```

205.40	7.48	838.88	0.00	0.00	838.90	.01	.01	.00	849.90
620.	0.	620.	0.	0.	711.	0.	160.	19.	841.10
2.73	0.00	.87	0.00	.095	.060	.095	.060	831.40	281.78
.000665	14.	14.	14.	0	0	0	-215.42	174.20	455.97

*SECNO 205.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
205.80	8.91	838.91	0.00	0.00	838.91	.00	.02	.00	845.00
620.	0.	620.	0.	0.	1208.	0.	162.	19.	845.00
2.80	0.00	.51	0.00	.095	.060	.095	.060	830.00	81.45
.000056	120.	120.	120.	2	0	0	0.00	259.82	341.27

CCHV= .100 CEHV= .300
*SECNO 205.900

** CONCRETE AND STONE WEIR

205.90	5.09	838.89	0.00	0.00	838.92	.03	.00	.01	833.80
620.	233.	226.	161.	477.	102.	338.	162.	19.	833.80
2.80	.49	2.21	.48	.095	.025	.095	.059	833.80	81.57
.000158	1.	1.	1.	1	0	0	0.00	259.64	341.20

*SECNO 205.910

205.91	5.09	838.89	0.00	0.00	838.92	.03	.00	.00	833.80
620.	233.	226.	161.	476.	102.	337.	162.	19.	833.80
2.80	.49	2.22	.48	.095	.025	.095	.059	833.80	81.69
.000159	2.	2.	2.	0	0	0	0.00	259.45	341.14

*SECNO 205.920

205.92	7.62	836.92	0.00	0.00	838.92	.00	.00	.00	845.00
620.	0.	620.	0.	0.	1112.	0.	162.	19.	845.00
2.80	0.00	.56	0.00	.095	.060	.095	.059	831.30	81.31
.000073	1.	1.	1.	2	0	0	0.00	260.03	341.34

*SECNO 206.000

206.00	6.06	838.96	0.00	0.00	838.96	.00	.03	.00	840.00
620.	0.	620.	0.	0.	2005.	0.	188.	26.	838.90
3.45	0.00	.31	.00	.095	.060	.095	.060	832.90	133.26
.000030	725.	725.	725.	2	0	0	0.00	588.29	721.55

*SECNO 207.200

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= 128.0 633.0 TYPE= 1 TARGET= -128.000

207.20	3.52	839.00	0.00	0.00	839.01	.01	.05	.00	835.80
620.	262.	148.	210.	468.	157.	454.	213.	35.	835.80
3.76	.56	.95	.46	.095	.060	.095	.060	835.48	128.00
.000285	700.	700.	700.	0	0	0	0.00	412.21	540.21

*SECNO 207.300

3470 ENCROACHMENT STATIONS= 128.0 390.0 TYPE= 1 TARGET= 262.000

** D/S FACE E. LONG LAKE - ELLIPTICAL CMP

207.30	3.58	839.06	0.00	0.00	839.07	.01	.06	.00	835.80
620.	312.	176.	131.	478.	160.	208.	217.	36.	835.80
3.83	.65	1.11	.63	.095	.060	.095	.060	835.48	128.00
.000379	185.	185.	185.	2	0	0	0.00	262.00	390.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.30	2.90	110.00	4.00	0.00	11.40	0.00	835.48	835.48

*SECNO 207.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
990.62	839.07	0.00	581.	40.	11.	6.	837.10	838.20

3470 ENCROACHMENT STATIONS= 600.0 1191.0 TYPE= 1 TARGET= -600.000

207.70	4.72	839.52	0.00	0.00	839.68	.16	.61	0.00	839.10
620.	1.	452.	167.	3.	125.	115.	218.	36.	837.50
3.84	.43	3.63	1.45	.095	.060	.095	.060	834.80	648.27
.005955	75.	75.	75.	2	0	10	0.00	154.61	802.88

*SECNO 207.800

3470 ENCROACHMENT STATIONS= 600.0 1191.0 TYPE= 1 TARGET= -600.000

207.80	5.00	839.80	0.00	0.00	839.90	.10	.21	.01	839.10
620.	5.	405.	210.	9.	138.	141.	219.	37.	837.50
3.84	.55	2.94	1.49	.065	.050	.065	.059	834.80	638.58
.002381	60.	60.	60.	2	0	0	0.00	169.38	807.96

*SECNO 208.300

3470 ENCROACHMENT STATIONS= 600.0 1191.0 TYPE= 1 TARGET= -600.000

** D/S FACE EASTAWAYS - CMP

208.30	4.54	840.14	0.00	0.00	840.32	.17	.40	.02	839.90
620.	0.	442.	177.	1.	116.	99.	219.	37.	838.30
3.85	.40	3.80	1.79	.065	.050	.065	.059	835.60	654.42
.004979	120.	120.	120.	2	0	0	0.00	145.24	799.66

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.57	2.90	0.00	4.00	0.00	15.00	0.00	835.60	835.60

*SECNO 208.700

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
908.32	840.32	0.00	549.	72.	15.	14.	839.10	839.50

3470 ENCROACHMENT STATIONS= 600.0 1191.0 TYPE= 1 TARGET= -600.000

208.70	5.40	841.00	0.00	0.00	841.06	.06	.74	0.00	839.90
620.	12.	371.	236.	21.	156.	197.	220.	37.	838.30
3.86	.58	2.38	1.20	.065	.050	.065	.059	835.60	627.10
.001310	70.	70.	70.	2	0	8	0.00	247.34	874.44

upstream face Eastway Section L

*SECNO 208.800

3470 ENCROACHMENT STATIONS= 270.0 535.0 TYPE= 1 TARGET= -270.000

208.80	4.87	841.10	0.00	0.00	841.17	.07	.11	.00	838.40
620.	89.	288.	243.	66.	105.	186.	220.	38.	837.90
3.87	1.35	2.74	1.30	.085	.060	.075	.059	836.23	270.00
.001846	70.	70.	70.	2	0	0	0.00	162.50	432.50

Section M

CCHV= .100 CEHV= .300

*SECNO 208.900

3470 ENCROACHMENT STATIONS= 200.0 535.0 TYPE= 1 TARGET= -200.000

208.90	4.73	841.36	0.00	0.00	841.42	.05	.25	.00	838.80
620.	152.	261.	206.	154.	102.	171.	222.	38.	838.30
3.90	.99	2.57	1.20	.085	.060	.075	.059	836.63	200.00
.001697	140.	140.	140.	2	0	0	0.00	229.23	429.23

*SECNO 209.000

209.00	4.65	842.15	0.00	0.00	842.40	.24	.92	.06	840.80
620.	22.	394.	205.	20.	83.	96.	224.	40.	839.40
3.92	1.09	4.72	2.14	.085	.060	.075	.059	837.50	247.73
.006529	310.	310.	310.	2	0	0	0.00	125.73	373.46

*SECNO 210.200

3470 ENCROACHMENT STATIONS= .0 620.0 TYPE= 1 TARGET= 619.999

210.20	3.21	843.71	0.00	0.00	843.73	.02	1.31	.02	841.80

620.	36.	337.	247.	67.	224.	282.	230.	43.	841.70
4.07	.53	1.50	.88	.085	.060	.075	.059	840.50	302.50
.000967	650.	650.	650.	3	0	0	0.00	317.50	620.00

CCHV= .500 CEHV= 1.000
*SECNO 210.300

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	VLCB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 300.0 560.0 TYPE= 1 TARGET= 260.000

** D/S FACE KINGSLEY RD. - 2-3' DIA. CMPS

210.30	3.74	844.32	844.32	0.00	845.54	1.22	.44	1.19	844.60
620.	0.	620.	0.	0.	70.	0.	231.	43.	844.20
4.08	0.00	8.85	.61	.085	.060	.075	.059	840.58	355.83
.040477	150.	150.	150.	2	8	0	0.00	32.21	388.04

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.00	2.60	100.00	6.00	0.00	14.10	0.00	840.58	840.58

*SECNO 210.700
3280 CROSS SECTION 210.70 EXTENDED .93 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HB	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
934.39	845.54	0.00	522.	98.	14.	16.	843.20	845.00

3470 ENCROACHMENT STATIONS= 300.0 404.0 TYPE= 1 TARGET= 104.000

210.70	5.85	846.43	0.00	0.00	846.59	.16	1.05	0.00	844.60
620.	82.	475.	62.	72.	131.	39.	231.	43.	844.20
4.08	1.15	3.63	1.61	.085	.060	.075	.059	840.58	300.00
.003066	43.	43.	43.	2	0	8	0.00	104.00	404.00

*SECNO 210.800
3280 CROSS SECTION 210.80 EXTENDED .87 FEET

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3470 ENCROACHMENT STATIONS=      300.0      404.0  TYPE=      1  TARGET=      104.000
   210.80      5.99    846.57      0.00      0.00    846.71       .14       .11       .01    844.60
     620.       91.       465.       65.       80.       135.       41.       231.       44.     844.20
     4.08      1.14      3.44      1.56      .085      .060      .075      .059    840.58    300.00
  .002643       40.       40.       40.         3         0         0      0.00    104.00    404.00

*SECNO 210.900
3280 CROSS SECTION    210.90 EXTENDED       .77 FEET


3470 ENCROACHMENT STATIONS=         .0      404.0  TYPE=      1  TARGET=      403.999

        ** BLOOMFIELD TWP. BDY.

   210.90      5.89    846.97      0.00      0.00    847.01       .03       .24       .06    845.10
     320.       63.       227.       30.      143.       132.       39.       232.       44.     844.70
     4.12       .44      1.72       .77      .085      .060      .075      .059    841.08    168.28
  .000676      160.      160.      160.         2         0         0      0.00    235.72    404.00

CCHV=    .300 CEHV=    .500
*SECNO 210.910
3280 CROSS SECTION    210.91 EXTENDED       .78 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  842.90 MAX ELLC=  842.50


3470 ENCROACHMENT STATIONS=         .0      404.0  TYPE=      1  TARGET=      403.999

        ** WOODEN FOOTBRIDGE

   210.91      5.91    846.99      0.00      0.00    847.01       .02       .00       .00    845.10
     320.       93.       182.       45.      145.       126.       40.       232.       44.     844.70
     4.12       .64      1.45      1.12      .085      .060      .075      .059    841.08    167.29
  .001432         3.        3.        3.         1         0         0     -6.97    236.71    404.00

*SECNO 210.920
3280 CROSS SECTION    210.92 EXTENDED       .79 FEET


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


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  842.90 MAX ELLC=  842.50


3470 ENCROACHMENT STATIONS=         .0      404.0  TYPE=      1  TARGET=      403.999
   210.92      5.92    847.00      0.00      0.00    847.02       .02       .01       .00    845.10
     320.       94.       182.       44.      147.       126.       40.       232.       44.     844.70
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    4.12      .64     1.44     1.12     .085     .060     .075     .059   841.08   166.33
 .001408       4.       4.       4.        0        0        0    -6.97   237.67   404.00

*SECNO 210.930
3280 CROSS SECTION    210.93 EXTENDED       .73 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  843.70 MAX ELLC=  843.10

3470 ENCROACHMENT STATIONS=        .0     404.0  TYPE=     1  TARGET=     403.999

         ** WOODEN FOOTBRIDGE

  210.93     5.86   847.04     0.00     0.00   847.06      .02      .04      .00   845.20
   320.      95.     177.      48.      135.     119.      39.      232.      44.    844.80
    4.12      .70     1.49     1.24     .085     .060     .075     .059   841.18   172.19
 .001804      25.      25.      25.        0        0        0   -12.32   231.81   404.00

*SECNO 210.940
3280 CROSS SECTION    210.94 EXTENDED       .74 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  843.70 MAX ELLC=  843.10

3470 ENCROACHMENT STATIONS=        .0     404.0  TYPE=     1  TARGET=     403.999

  210.94     5.86   847.04     0.00     0.00   847.07      .02      .01      .00   845.20
   320.      96.     176.      48.      137.     119.      39.      232.      44.    844.80
    4.12      .70     1.48     1.23     .085     .060     .075     .059   841.18   171.29
 .001774       4.       4.       4.        0        0        0   -12.32   232.71   404.00

*SECNO 210.950
3280 CROSS SECTION    210.95 EXTENDED       .79 FEET


         ** SMALL DAM

  210.95     5.90   847.08     0.00     0.00   847.08      .00      .01      .01   845.20
   320.      30.     105.     186.      145.     133.     607.      233.      45.    844.80
    4.14      .20      .79      .31     .085     .060     .075     .059   841.18   166.99
 .000142      25.      25.      25.        0        0        0     0.00   639.01   806.00

*SECNO 210.960
3280 CROSS SECTION    210.96 EXTENDED       .78 FEET


  210.96     5.08   847.08     0.00     0.00   847.08      .00      .00      .00   845.20
   320.      38.      45.     238.      144.      71.     604.      233.      45.    844.80
    4.14      .26      .63      .39     .085     .060     .075     .059   842.00   167.78
 .000237       1.       1.       1.        0        0        0     0.00   638.22   806.00

*SECNO 210.970
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3280 CROSS SECTION 210.97 EXTENDED .78 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLCB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
210.97	5.08	847.08	0.00	0.00	847.08	.00	.00	.00	845.20
320.	38.	45.	238.	144.	71.	604.	233.	45.	844.80
4.14	.26	.63	.39	.085	.060	.075	.059	842.00	167.67
.000237	2.	2.	2.	0	0	0	0.00	638.33	806.00

*SECNO 210.980
3280 CROSS SECTION 210.98 EXTENDED .78 FEET

210.98	5.90	847.08	0.00	0.00	847.08	.00	.00	.00	845.20
320.	29.	105.	186.	144.	133.	604.	233.	45.	844.80
4.14	.20	.79	.31	.085	.060	.075	.059	841.18	167.65
.000144	1.	1.	1.	0	0	0	0.00	638.35	806.00

*SECNO 211.000

211.00	3.88	847.18	0.00	0.00	847.21	.03	.11	.01	843.30
320.	177.	123.	20.	315.	58.	20.	238.	49.	843.30
4.22	.56	2.12	1.02	.085	.060	.075	.059	843.30	258.29
.001198	350.	350.	350.	2	0	0	0.00	396.92	655.21

CCHV= .100 CEHV= .300
*SECNO 211.300

** 2' DIA RCP - 100 FT. LONG

211.30	3.92	847.22	0.00	0.00	847.24	.02	.03	.00	843.30
320.	190.	112.	18.	326.	59.	20.	238.	49.	843.30
4.23	.58	1.91	.92	.075	.060	.075	.059	843.30	256.11
.000965	30.	30.	30.	1	0	0	0.00	399.18	655.28

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CQFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.45	3.00	200.00	2.00	0.00	3.20	0.00	843.30	843.30

*SECNO 211.700
3280 CROSS SECTION 211.70 EXTENDED .93 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1227.65	847.68	0.00	301.	20.	3.	3.	844.90	848.00

211.70	5.33	848.63	0.00	0.00	848.63	.00	1.39	0.00	843.30
320.	257.	51.	12.	901.	80.	37.	240.	50.	843.30
4.31	.29	.64	.31	.075	.060	.075	.059	843.30	220.00
.000071	100.	100.	100.	0	0	10	0.00	439.03	659.03

CCHV= .100 CEHV= .300
*SECNO 212.900

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	IOC	ICONT	CORAR	TOPWID	ENDST
212.90	4.63	848.62	0.00	0.00	848.70	.08	.05	.02	846.10
320.	105.	140.	75.	73.	47.	59.	243.	52.	845.70
4.34	1.45	2.97	1.26	.075	.060	.075	.059	844.00	7.87
.002458	230.	230.	230.	2	0	0	0.00	97.76	105.63

*SECNO 213.000

213.00	4.44	849.44	0.00	0.00	849.51	.07	.80	.00	846.80
320.	111.	130.	79.	78.	46.	64.	244.	52.	846.40
4.39	1.43	2.85	1.24	.075	.060	.075	.059	845.00	6.64
.002272	340.	340.	340.	2	0	0	0.00	100.45	107.09

*SECNO 213.500

213.50	4.49	849.99	0.00	0.00	850.05	.05	.55	.00	847.30
320.	112.	128.	80.	80.	46.	66.	245.	53.	846.90
4.43	1.39	2.77	1.21	.075	.060	.075	.059	845.50	5.97
.002102	250.	250.	250.	2	0	0	0.00	101.92	107.89

*SECNO 214.200

214.20	4.58	850.68	0.00	0.00	850.91	.23	.81	.05	853.80
320.	0.	320.	0.	0.	82.	0.	246.	53.	851.60
4.44	0.00	3.88	0.00	.075	.060	.075	.059	846.10	63.51
.009322	210.	210.	210.	2	0	0	0.00	38.31	101.81

CCHV= .300 CEHV= .500
*SECNO 214.300

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 852.00 ELREA= 852.00

** D/S FACE GREAT OAKS - 7' DIA. CMP

214.30	5.27	851.67	0.00	0.00	852.51	.85	1.29	.31	850.00
220.	0.	220.	0.	0.	30.	0.	246.	53.	850.00
4.45	0.00	7.38	0.00	.075	.060	.075	.059	846.40	71.50
.023420	100.	100.	100.	2	0	0	0.00	7.00	78.50

CCHV= .500 CEHV= 1.000
*SECNO 214.400

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

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 856.00 MAX ELLC= 853.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.40	5.28	851.68	0.00	0.00	852.59	.91	.01	.06	850.00
220.	0.	220.	0.	0.	29.	0.	246.	53.	850.00
4.45	0.00	7.65	0.00	.075	.025	.075	.059	846.40	71.50
.006707	1.	1.	1.	0	0	0	-17.99	7.00	78.50

*SECNO 214.600

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 856.00 MAX ELLC= 853.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.60	5.94	852.34	0.00	0.00	853.06	.72	.38	.09	850.00
220.	0.	220.	0.	0.	32.	0.	246.	53.	850.00
4.45	0.00	6.81	0.00	.075	.025	.075	.059	846.40	71.50
.005150	65.	65.	65.	2	0	0	-34.82	7.00	78.50

*SECNO 214.700

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.70	6.16	852.56	0.00	0.00	853.14	.58	.01	.07	850.00
220.	0.	220.	0.	0.	36.	0.	246.	53.	850.00
4.45	0.00	6.10	0.00	.075	.060	.075	.059	846.40	71.50
.012387	1.	1.	1.	2	0	0	0.00	7.00	78.50

CCHV= .300 CEHV= .500

*SECNO 214.800

214.80	5.85	853.55	0.00	0.00	853.65	.10	.37	.14	852.20
220.	15.	185.	20.	28.	68.	19.	247.	53.	851.20
4.46	.54	2.70	1.05	.095	.060	.070	.059	847.70	122.93
.001991	90.	90.	90.	2	0	0	0.00	72.63	195.55

*SECNO 215.100

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 855.20 MAX ELLC= 854.40

** WOODEN FOOTBRIDGE

215.10	5.70	854.50	0.00	0.00	854.63	.13	.96	.01	853.30
220.	9.	194.	17.	18.	65.	16.	247.	54.	852.30
4.49	.51	3.01	1.07	.095	.060	.070	.059	848.80	127.27
.005999	300.	300.	300.	2	0	0	-7.14	67.28	194.55

*SECNO 215.150

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 855.20 MAX ELLC= 854.40

215.15	5.72	854.52	0.00	0.00	854.65	.13	.02	0.00	853.30
220.	9.	194.	17.	18.	65.	16.	247.	54.	852.30
4.49	.51	3.01	1.07	.095	.060	.070	.059	848.80	127.05
.005999	4.	4.	4.	0	0	0	-7.64	67.55	194.60

*SECNO 215.200

215.20	5.74	854.64	0.00	0.00	854.77	.13	.12	.00	853.80
220.	2.	210.	8.	4.	70.	8.	247.	54.	853.00
4.49	.45	3.00	.96	.095	.060	.070	.059	848.90	46.88
.002704	30.	30.	30.	2	0	0	0.00	35.12	82.00

CCHV= .300 CEHV= .500
*SECNO 215.300

** D/S FACE FOXHALL RD. - 2-5' CMP ARCHES

215.30	5.68	854.78	0.00	0.00	854.92	.15	.15	.01	854.00
220.	1.	214.	5.	3.	69.	8.	247.	54.	853.20
4.50	.30	3.10	.65	.095	.040	.070	.059	849.10	47.59
.001308	80.	80.	80.	2	0	0	0.00	34.02	81.60

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COEQ	RDLEN	SWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.46	2.90	80.00	12.00	0.00	24.60	0.00	849.10	849.10

*SECNO 215.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
857.83	854.92	0.00	137.	83.	25.	38.	852.30	854.50

215.70	5.99	855.09	0.00	0.00	855.21	.12	.29	0.00	854.00
220.	2.	211.	7.	7.	74.	11.	248.	54.	853.20
4.50	.33	2.84	.66	.095	.040	.070	.059	849.10	44.06
.000995	45.	45.	45.	2	0	4	0.00	40.23	84.29

*SECNO 215.800

3470 ENCROACHMENT STATIONS= 555.0 664.0 TYPE= 1 TARGET= -555.000

215.80	5.78	855.18	0.00	0.00	855.28	.10	.06	.01	853.40

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: [illegible] TOWNSHIP

3) WATERCOURSE: AMY DRAIN

4) DOCUMENT TYPE: 100 YR - REVISION

00BREAK00

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1**********************************************************
*
 *  WATER SURFACE PROFILES                                *
*
 *  VERSION OF NOVEMBER 1976                              *
*
 *  UPDATED MAY 1984                                      *
*
 *  IBM-PC-XT VERSION                                     *
*
 *  RUN DATE  12/20/86  TIME  21:07:30                    *
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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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Revision
XSEC 215.8 → 218

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X     X  XXXXXXX   XXXXX                XXXXX
X     X  X        X     X              X     X
X     X  X        X                    X     X
XXXXXXX  XXXX     X           XXXXX     XXXXX
X     X  X        X                    X
X     X  X        X     X              X
X     X  XXXXXXX   XXXXX                XXXXXXX
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THIS RUN EXECUTED 12/20/86 21:07:31

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

FR
C
T1  , HEATHERS HYDRAULIC EVALUATION
T2  , 100 YR. STORM VERSION N85
T3  , AMY DRAIN JOB #9726-02

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0         2          0.         0.     .000000        00         0          0.     855.180        000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLOC      IBW        CHNIM      ITRACE

       1 000     10 000       .000       .000        000        000       .000        000       .000        000


NC        .060       .060       .040       .300       .500       .000        000        000       .000       .000
QT       4.000    270.000    125.000    180.000    290 000       .000       .000        000       .000       .000
X1     215.800     18 000    615.000    629.000        000       .000       .000       .000        000       .000
X3        .000        000       .000    565.000    860.300       .000       .000       .000        000       .000
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GR	855.000	429.000	852.000	440.000	852.000	451.000	855.200	517.000	855.400	555.000
GR	853.400	615.000	850.500	617.000	849.400	620.000	849.400	624 000	850 500	677.000
GR	853 500	629 000	856.600	648.000	857.000	664.000	.000	.000	.000	.000
NC	085	.085	060	.100	.300	.000	.000	.000	.000	.000
X1	215 900	15.000	291.000	320.000	275.000	275.000	275 000	.000	-1.200	.000
X3	000	000	.000	291.000	860.300	396.000	860.300	000	.000	.000
GR	859.200	72.000	859 200	136.000	854.000	190.000	854.000	211 000	856.400	239.000
GR	856.200	291.000	851.900	310 000	851.300	312.000	851.300	315 000	851.900	317.000
GR	853.400	370.000	853 700	340.000	854.000	396.000	855.600	531 000	860.000	631.000
X1	216.000	000	.000	.000	225.000	225.000	225.000	.000	.500	.000
X3	.000	000	.000	291.000	860.300	396.000	860.300	000	.000	.000
X1	216.200	.000	000	.000	275 000	275.000	275.000	.000	.600	.000
X3	.000	000	.000	291.000	860.300	340 000	860.300	.000	.000	000

12/10/86 21:07:30 PAGE 2

NC	.000	.000	000	300	.500	.000	.000	000	.000	000
QT	4 000	64.400	38.900	53 000	79 100	000	.000	000	000	.000
	D/S FACE 72 X 44 IN CM PIPE ARCH AT SQ.LK RD.									
X1	216 300	6.000	705.000	711.000	90 000	90 000	90.000	.000	.000	000
X3	10.000	000	.000	.000	.000	000	857.700	857.700	.000	.000
GR	860 300	645.000	854 800	705.000	851.700	705.100	851.700	710 000	854.900	711.000
OR	861 000	760.000	.000	.000	.000	.000	.000	.000	.000	.000
SR	.000	9 300	9.100	.000	6.000	.000	17.600	000	.000	.000
X1	216.700	.000	.000	.000	100.000	100.000	100.000	000	.000	.000
X2	.000	.000	1.000	855.200	859.600	.000	.000	000	.000	000
X3	10 000	000	.000	.000	.000	.000	860.300	860.300	.000	.000
BT	9.000	645.000	859.600	.000	710.000	859.600	856.900	760 000	861.000	000
X1	2.000	5 000	96.000	270.000	45.000	95.000	70.000	.000	.000	000
X3	10.000	.000	.000	.000	000	.000	862.000	862.000	.000	.000
GR	858.000	000	858.000	96.000	854.000	130 000	854.000	224 000	862.000	270 000
X1	3.000	6.000	70 000	218 000	175.000	175.000	175.000	.000	.000	.000
X3	10.000	000	.000	.000	.000	000	862 000	862.000	.000	.000
GR	861 000	.000	861 000	70.000	854.000	110.000	854.000	150.000	862.000	218.000
OR	862.000	300.000	.000	000	.000	.000	.000	.000	.000	.000
	D/S FACE OF DRIDGE									
X1	4.200	9 000	169 000	211.000	160.000	160 000	160.000	000	.000	.000
X3	10.000	000	.000	.000	.000	.000	859.250	859.250	.000	.000
GR	860 000	000	859.000	8.000	858.500	169.000	854.000	170.000	854.000	210 000
OR	858.500	211 000	859 000	410.000	860 000	440.000	861 000	460 000	000	000
SB	.000	1.560	8 100	.000	40.000	.000	180.000	.000	.000	.000
X1	4.800	.000	.000	.000	50 000	50 000	50.000	.000	000	.000
X2	.000	000	1 000	858.500	860.000	.000	.000	.000	.000	.000
X3	10 000	.000	.000	.000	.000	.000	860.000	860 000	000	000
RT	8.000	.000	860.000	860 000	8.000	860 000	859.000	169.000	860.000	858.500
BT	170.000	860 000	858.500	210.000	860 000	858.500	211.000	860 000	858.500	410 000
BT	860.000	859 000	440.000	860.000	860.000	.000	000	.000	.000	000
X1	5 000	5.000	000	103.000	50 000	50.000	50.000	.000	.000	.000
X3	10.000	000	.000	000	.000	.000	.000	860.000	860.000	000
GR	861 000	000	864.000	30.000	854 000	68.000	859.000	98.000	860 000	103.000
X1	6.000	5 000	000	105 000	100.000	100.000	100 000	.000	000	.000
X3	10.000	000	.000	.000	.000	.000	000	861.000	861 000	.000
OR	861 000	000	861.000	10 000	854.000	45 000	854 000	75 000	860 000	105.000

X1	7 000	8.000	410.000	590.000	200 000	220.000	210.000	.000	.000	.000
X3	10.000	000	000	.000	.000	.000	.000	860.000	860.000	.000
GR	860 000	.000	854 000	40.000	854 000	410.000	854.000	590 000	854.000	612.000
GR	860.000	646.000	861 000	706.000	862.000	760 000	000	.000	000	.000

X1	8.000	10.000	40.000	660.000	100.000	30.000	60.000	.000	.000	.000
X3	000	000	000	315.000	860.000	545.000	860 000	.000	.000	.000
GR	860 000	.000	857.600	40 000	856 000	100.000	854.000	166.000	854.000	915.000
GR	854 000	545.000	854.000	686.000	860 000	660 000	861.000	768 000	862 000	790.000
QT	4.000	61.700	38.400	50.700	188 000	.000	.000	.000	.000	.000
X1	9.000	15.000	830 000	532 000	140 000	140.000	140.000	.000	000	.000
X3	.000	.000	000	345 000	861.000	480.000	861 000	000	.000	000
GR	860.000	.000	859 000	40.000	857.000	74.000	856.000	126.000	854.000	170.000
GR	854 000	230.000	856 000	254 000	856.800	288.000	856.000	830 000	854.000	945 000
GR	854 000	450.000	864.000	480.000	860.000	532.000	860.700	580.000	862.000	630.000
X1	10 000	10 000	60.000	280.000	70 000	80 000	75.000	.000	.000	.000
X3	000	000	.000	185.000	861.000	170 000	861.000	.000	000	.000
GR	857.000	.000	857.000	60.000	854.000	90 000	854 000	125.000	854.000	170.000
GR	854 000	215 000	859 000	245.000	860.000	264.000	861.000	318.000	862 000	428 000
	D/S FACE 72X44 IN CM PIPE ARCH									
X1	11 700	8 000	166.000	174.000	40.000	60.000	50.000	000	.000	.000
X3	10.000	.000	.000	000	.000	.000	.000	859.250	859 250	.000
GR	858 000	.000	858.000	80.000	857.670	166.000	854.670	168.250	854 670	171.750
GR	857 670	174.000	860.000	280.000	864.000	400 000	.000	.000	000	.000
SB	.000	2.520	3 100	.000	3 500	000	17.600	750	854.670	854 670
X1	11.800	.000	.000	000	50.000	50.000	50 000	.000	000	.000
X2	000	.000	1 000	857.670	860.000	000	.000	.000	.000	.000
X3	10.000	.000	.000	000	.000	.000	.000	861.000	861 000	.000
BT	8 000	.000	860.000	858.000	80.000	860 000	858.000	166.000	860.000	857 670
BT	168.250	860.000	857.670	171.750	860.000	857 670	174.000	860.000	857.670	280.000
BT	860 000	860.000	400.000	862 000	862.000	.000	.000	.000	.000	.000
X1	10 000	9.000	32.000	305.000	105.000	65 000	85.000	000	.000	000
X3	.000	000	.000	110.000	861.000	340 000	861 000	.000	.000	.000
GR	861.000	.000	860 000	32 000	865.000	65.000	855.000	110.000	855.000	265.000
GR	860.000	305.000	860 700	340.000	861 000	360.000	862.000	450.000	.000	.000
X1	10.000	7.000	70 000	360.000	50.000	50.000	50.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	861.000	861 000	.000
GR	861 000	.000	860.000	70.000	855 000	110 000	855.000	930 000	860.000	860.000
GR	811 000	445.000	862.000	455.000	000	000	.000	.000	000	000
	D/S FACE OF BRIDGE									
X1	14.200	8.000	239.000	281 000	460.000	440.000	450.000	.000	000	000
X3	10.000	.000	.000	.000	000	000	000	860.250	860.250	.000
GR	861.000	000	860.000	46.000	859.500	239.000	856 000	240.000	856.000	280.000
GR	859 500	281.000	861 000	530 000	867 000	590.000	.000	000	.000	.000
SB	.000	1.560	3 100	.000	40.000	.000	140.000	.000	.000	000
X1	14 800	.000	.000	.000	50.000	50.000	50.000	.000	.000	.000
X2	.000	.000	1 000	859.500	861 000	.000	000	.000	000	.000
X3	10.000	.000	.000	.000	.000	.000	000	861.000	861 000	000
BT	8.000	.000	861 000	861.000	46 000	861.000	860.000	239.000	861.000	859.500
BT	240.000	861.000	859 500	280.000	861 000	859.500	281.000	861.000	859.500	530 000

BT	861.000	861.000	590.000	862.000	862.000	.000	000	000	.000	.000
X1	15.000	9 000	230 000	470.000	65.000	85.000	75.000	.000	.000	.000
X3	10.000	000	.000	.000	.000	.000	.000	861.000	861.000	.000
GR	861.000	.000	860.000	120 000	858.000	230.000	856 000	860.000	856.000	890 000
GR	857.000	470 000	860.000	505 000	861.000	520.000	862.000	850.000	000	.000
X1	16 000	11.000	170.000	480.000	260.000	260.000	260.000	.000	.000	.000
X3	10.000	.000	000	000	.000	.000	.000	861.000	861 000	000
GR	864.000	.000	863.000	15 000	862 000	40.000	860 000	50.000	859.000	100.000
GR	858 000	170 000	857.000	275.000	857 000	460 000	860.000	480.000	861.000	500.000
GR	862 000	550 000	.000	000	000	.000	.000	.000	.000	.000
X1	17 000	13 000	115 000	480 000	80 000	120 000	100.000	000	.000	.000
X3	.000	000	.000	200 000	861.000	420 000	861.000	.000	000	.000
GR	864 000	000	863.000	15 000	862 000	40 000	860 000	65 000	859 000	115 000
GR	858 000	140.000	857.500	200.000	857 000	380.000	857.500	420 000	858.000	465.000
GR	860.000	480 000	861.000	537.000	862.000	640 000	.000	.000	.000	.000
X1	18 000	12.000	60.000	470 000	80.000	80.000	80.000	000	000	.000
X3	.000	000	.000	190.000	862.000	360.000	862 000	.000	000	000
GR	864 000	.000	862.000	40.000	860 000	60 000	859.000	90.000	858.000	140.000
GR	858.000	190.000	858.000	360 000	858 000	400.000	859.000	460 000	860.000	470 000
GR	861 000	520.000	862.000	680 000	.000	000	.000	.000	.000	000
PJ	.000	.000	.000	000	.000	.000	.000	.000	.000	.000

1

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

*PROF 1

CCHV = .900 CEHV= .500

*SECNO 215.800

3470 ENCROACHMENT STATIONS = 555.0 664.0 TYPE= 1 TARGET= -555.000

ELENCL= 860.30	ELENCR= 100000.00							
215.80	5 78	855.18	.00	855.18	855.28	.10	00	.00	853 40
220.	92.	182	6	48	67	9.	0.	0	853.50
.00	.68	2 70	66	060	.040	060	.000	849.40	561 60
000881	0	0.	0	0	0	0	.00	77 70	669.30

0

CCHV 100 CEHV= .300

*SECNO 215.900

3470 ENCROACHMENT STATIONS= 291 0 396.0 TYPE= 1 TARGET= 105.000

ELENCL= 860 30	ELENCR= 860 30							
215.90	5.31	855.41	.00	.00	855.42	01	.13	.01	855.00
220	0	90.	130.	0	97	216.	1.	1.	852 20
.10	00	.98	.60	085	.060	.085	.000	850.10	291.00
.000305	275	275.	275.	1	0	0	.00	105 00	396.00

0

*SECNO 216 000

3470 ENCROACHMENT STATIONS= 291 0 396.0 TYPE = 1 TARGET= 105 000

ELENCL= 860.30	ELENCR= 860.30							
216 00	4.89	855.49	.00	.00	855.50	.01	.09	.00	855 50
220	0.	93.	127.	0.	84.	184	3.	1.	852 70
.18	00	1.10	69	.085	.060	.085	.000	850.60	291.04
.000497	225	225.	225	2	0	0	.00	104.96	396 00

0

*SECNO 216.200

9470 ENCROACHMENT STATIONS= 291.0 340.0 TYPE= 1 TARGET= 49.000

ELTNCI =	860 30	ELTNCR=	860 30						
216 20	4 51	855.71	.00	.00	855 77	.06	.25	.01	856.10
220	0.	161.	59.	0.	74.	45	4	2	859.30
22	.00	2 19	1 31	085	060	.085	.000	851.20	292.73
.002173	275	275.	275	2	0	0	.00	47 26	340.00

0
1

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

CCHV= .300 CLHV= .500
*SECNO 216.900

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 857 70 ELREA= 854 90

D/S FACE 72 X 44 IN CM PIPE ARCH AT SQ LK RD.

216 90	4.21	855.91	.00	.00	856 01	.10	.22	02	854.60
64.	0.	61.	0	0.	24.	4	4.	2.	854 90
20	00	2 61	72	085	060	.085	.000	851.70	705 00
.004222	90.	90.	90.	2	0	0	00	14 12	719 12

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	DWP	BAREA	SS	ELCHU	ELCHD
00	3.30	3 10	00	6 00	00	17.60	.00	851.70	851.70

*SECNO 216.700
PRESSURE FLOW

EGPRS	EGLWC	HB	QWETR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.60	856.01	.00	0.	64.	18	21.	855 20	859 60

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.30 ELREA= 854.90

216 70	4.84	856.54	00	.00	856.60	06	.58	.00	854 80
64.	0	67.	8	0	27.	11.	4	2.	854.90
.24	.00	2 08	71	.000	.060	.085	.000	851 70	705.00
002195	100.	100	100.	2	0	0	.00	19.15	724 15

0
*SECNO 2.000

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 862.00 ELREA 862 00

2.00	2.62	856 62	00	.00	856.62	00	.01	02	858.00
64	0.	64.	0.	0	295	0.	5.	2.	862.00
33	00	.22	.00	.085	.060	.085	.000	864.00	107 73
000026	45	70.	95.	2	0	0	00	191 33	299 06

0
1

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

*SECNO 3.000

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 862.00 ELREA= 862.00

3.00	2.63	856.63	.00	.00	856.63	00	.01	.00	861.00
64	0.	64	0	0.	154	0.	5.	2	862.00
.15	.00	.47	.00	.085	.060	.085	.000	854.00	24.99
000114	175.	175	175.	2	0	0	00	77.35	172.33

0

*SECNO 4.200

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 859.25 ELREA= 858.50

D/S FACE OF BRIDGE

4.20	2.65	856.60	00	00	856.65	.01	02	.00	858.50
64.	0.	64	0.	0.	107	0.	6.	2.	858.50
.52	00	.60	00	085	.060	085	.000	854.00	169.41
.000187	160	160.	160.	1	0	0	.00	41.17	210.59

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.56	3.10	00	40.00	00	180.00	.00	854.00	854.00	

*SECNO 4.300

6070,LOW FLOW BY NORMAL BRIDGE

TOPKS= 000 EGLWC= 856.654 ELLC= 858.500 HCWSE= 856.649 ELTRD= 860.000

3370 NORMAL BRIDGE,NCD= 6 MIN ELTRD= 860.00 MAX ELLC= 858.50

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.00 ELREA= 858.50

4.80	2.66	856.66	00	.00	856.66	01	.01	.00	858.50
64.	0	64.	0	0	108	0.	6.	3.	858.50
.54	00	.60	.00	085	060	.085	.000	854.00	169.41
000185	50.	50	50.	0	0	0	00	41.18	210.59

0

1

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

*SECNO 5.000

9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.00 ELREA= 860.00

5.00	2.67	856.67	.00	00	856.67	.00	.01	.00	861.00
64.	0	64.	0.	0	108	0.	6.	3.	860.00

.000198	50	50.	50.	0	0	0	.00	65 44	84.00

0

*SECNO 6.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

6.00	2.68	856.68	00	.00	856.69	00	.02	.00	861.00
64	0.	64	0.	0.	117.	0.	7.	3	860.00
.62	.00	.55	00	085	.060	.085	.000	854 00	31.58
.000193	100	100	100.	0	0	0	.00	56.85	88 42

0

*SECNO 7.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.00 ELREA= 860 00

7.00	2.69	856.69	.00	.00	856.69	.00	00	.00	854 00
64.	0	64.	0.	0.	485.	0.	8.	3	854 00
1.06	00	10	.00	.085	060	085	.000	854.00	410 00
.000008	200	210.	220.	2	0	0	.00	180.00	590.00

0

*SECNO 8.000

3470 ENCROACHMENT STATIONS= 315.0 545 0 TYPE= 1 TARGET= 280.000
FLENCL= 860 00 FLENCR= 860.00

8 00	2 69	856 69	.00	.00	856 69	.00	.00	.00	860 00
64.	0.	64.	0	0.	621.	0.	9.	4.	860.00
1 22	00	.10	.00	.085	060	.085	000	854.00	315.00
000005	100	60	80.	0	0	0	.00	230.00	545 00

0

*SECNO 9 000

3470 ENCROACHMENT STATIONS= 345.0 480.0 TYPE= 1 TARGET= 185.000

J

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

ELENCL= 861.00 ELENCR= 861.00

9.00	2.70	856 70	00	.00	856.70	.00	.00	.00	861.00
62.	0.	62.	0	0.	364.	0	10	4	861 00
1.45	00	.17	.00	.085	.060	.085	.000	854.00	345.00
.000013	140	140	140.	0	0	0	00	135.00	480.00

0

*SECNO 10.000

3470 ENCROACHMENT STATIONS= 125 0 170.0 TYPE= 1 TARGET= 45.000
ELENCL= 861 00 ELENCR= 861 00

10 00	2.70	856.70	.00	.00	856 70	00	.00	.00	861.00
62.	0	0	62.	0	0	121	11.	4	907 00
1 50	00	00	51	.085	.060	.085	.000	854.00	125.00
.000262	70.	75.	80	0	0	0	.00	45.00	170.00

0

*SECNO 11.200

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEA= 859.25 ELREA= 859.25

D/S FACE 72X44 IN CM PIPE ARCH

11.20	3.85	856.52	856.52	.00	857.24	.73	.05	.36	857.67
62.	0.	62.	0.	0.	9.	0.	11.	4.	857.67
1.50	00	6.84	00	.085	.060	.085	.000	854.67	166 87
066062	40.	50	60.	20	14	0	.00	6 27	173.18

0

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	PAREA	SS	ELCHU	ELCHD
	00	2.52	3 10	.00	9.50	.00	17 60	75	854.67	854.67

*SECNO 11.800

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	TIL	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	JCONT	CORAR	TOPWID	ENDST

6070,LOW FLOW BY NORMAL BRIDGE

HOPRS= .000 PGLWC= 857.243 ELLC= 857.670 PCWSE 856.516 ELTRD= 860 000
3280 CROSS SECTION 11.80 EXTENDED 1.06 FEET

0301 HV CHANGED MORE THAN HVINS

0370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 860 00 MAX ELLC= 857.67

3495 OVERBANK AREA ASSUMED NON EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

11 80	4.39	859.06	.00	00	859.26	.20	1.86	16	857.67
62	0.	62	0.	0.	17	0	11.	4.	857 67
1.50	00	3 58	.00	.085	.060	085	000	854 67	166.00
023724	50.	50.	50.	7	0	0	-55 07	8.00	174.00

0

*SECNO 12 000

3470 ENCROACHMENT STATIONS= 110 0 340 0 TYPE= 1 TARGET= 230.000
ELENCL= 861.00 ELENCR= 861.00

12.00	4.32	859.32	.00	00	859.32	.00	.00	.06	861.00
62	0.	62	0.	0	744	0.	12.	5.	860 00
1.79	.00	.08	00	085	.060	.085	.000	865.00	110 00
000002	105.	85.	65.	2	0	0	.00	189.55	299.55

0

*SECNO 13.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

13 00	4.32	859.32	00	00	859 32	00	.00	.00	860.00
62.	0.	62.	0.	0	1081.	0	18.	5.	860.00
2 03	.00	06	00	085	.060	.085	.000	855.00	75 45
.000001	50.	50.	50.	2	0	0	.00	280.46	355.91

0

*SECNO 14 200

1

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.25 ELREA= 860.25

D/S FACE OF BRIDGE									
14.20	3.32	859.32	.00	.00	859.32	.00	.00	00	859.50
62.	0	62.	0	0.	136.	0	19	6	859.50
2.31	.00	.45	.00	035	.060	.035	000	856.00	239.05
.000081	460.	450	440.	0	0	0	.00	41.90	280.95

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SK	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.56	3.10	.00	40.00	00	140.00	.00	856.00	856.00

*SECNO 14.800

6070,LOW FLOW BY NORMAL BRIDGE

ECONS= .000 ECLWC= 859.382 ELLC= 859.500 PCWSE= 859.819 ELTRD= 861.000

3070 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 861.00 MAX ELLC= 859.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

14.80	3.32	859.38	.00	.00	859.38	.00	.00	.00	859.50
62.	0	62.	0.	0	136.	0.	19.	7.	859.50
2.34	.00	.45	.00	035	.060	.035	.000	856.00	239.05
.000081	50.	50	50	0	0	0	.00	41.90	280.95

0

*SECNO 15.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

15.00	3.33	859.38	.00	.00	859.38	.00	.00	.00	858.00
62	0.	62.	0	0	629	0	20.	7.	857.00
2.55	.00	.10	.00	035	.060	.035	.000	856.00	230.00
.000004	65.	75	85.	0	0	0	.00	240.00	470.00

0

1

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

*SECNO 16.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

16.00	2.30	859.38	.00	.00	859.38	.00	.00	.00	858.00
62.	0.	62.	0.	0.	644.	0.	24	8	860.00
3.30	.00	.10	.00	035	060	.035	.000	857.00	170.00
.000233	230.	250	250	0	0	0	.00	206.10	475.50

```
0
 *SECNO 17 000

 3470 ENCROACHMENT STATIONS=      200.0      420.0  TYPE=      1  TARGET=      220 000
  LLENCL=     861 00  ELENCR=    861.00
     17.00      2 33   859.38       .00       .00   859.38        00       .00       .00   861 00
       62.         0.      62         0.        0.     457.        0.       25.         9    861.00
      3.51        00      .13        00      085      .060      .085      .000   857 00   200.00
   .000011       80.     100.      120.        0         0         0        00   220.00   420.00
0
 *SECNO 18 000

 3470 ENCROACHMENT STATIONS=      190.0      360 0  TYPE=      1  TARGET=      170.000
  ELENCL=     862.00  ELENCR=    862.00
     18.00      1 38   859.38       .00       .00   859.38       .00       .00        00   862.00
       62.         0.      62.        0.        0.     226.        0        25.         9.    862.00
      3 59       .00      .27        00      085      .060      085      .000   858.00   190.00
   .000085       80.      80.       80.        0         0         0       .00   170.00   360 00
0
1
 CROSS SECTION     215.80
 STREAM    DRAIN JOB #9726-02
 DISCHARGE=       220.


 PLOTTED POINTS (BY PRIORITY)-B=BOTTOM BRIDGE,T=TOP BRIDGE,X=GROUND,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL

 ELEV  849.      850.      851       852       853.      854.      855.      856.      857.      858       859.


     STA-FEET

 10 555. .                  .         .         .         .  X      .         .         .         .
    556. .                  .         .         .         .    X    .         .         .         .
    557. .         .        .         .         .         .      X  .         .         .         .
    558.           .        .         .         .         .      X  .         .         .         .
    559            .        .         .         .         .      X  .         .         .         .
    560.           .        .         .         .         .      XE .         .         .         .
    561. .         .        .         .         .         .      XE .         .         .         .
    562.           .        .         .         .         .      XE .         .         .         .
    563. .         .        .         .         .         .     XWE .         .         .         .
    564            .        .         .         .         .     XWE .         .         .         .
    565.           .        .         .         .         .     XWE .         .         .         .
    566  .         .        .         .         .         .    X WE .         .         .         .
    567. .         .        .         .         .         .    X WE .         .         .         .
    568. .         .        .         .         .         .    X WE .         .         .         .
    569            .        .         .         .         .      X  WE .      .         .         .
    570.           .        .         .         .         .      X  WE .      .         .         .
    571. .         .        .         .         .         .      X  WE .      .         .         .
    572.           .        .         .         .         .    X    WE .      .         .
    573            .        .         .         .         .    X    WE .      .         .
    574. .         .        .         .         .         .    X  . WE .      .         .         .
    575. .         .        .         .         .         .  X    . WE .      .         .         .
    576.           .        .         .         .         .  X      WE .      .         .         .
    577  .         .        .         .         .         .  X    . WE .      .         .         .
    578. .         .        .         .         .         .    X  . WE .      .         .
    579            .        .         .         .         .    X    WE .      .         .         .
    580.           .        .         .         .         .    X  . WE .      .         .         .
    581.           .        .         .         .         .  X    . WE .      .         .
    582            .        .         .         .         .  X    . WE .      .         .         .
    583  .         .        .         .         .         .  X    . WE .      .         .         .
    584  .                  .         .         .         .X      . WE .      .         .         .
    585            .        .         .         .         .X      . WE .      .         .         .
    586  .         .        .         .         .         .X        WE .      .         .         .
    587            .        .         .         .       X .       . WE .      .         .
    588                                                  X         WE
```

```
     220.       32.      182.        6.       47.       67.        9.      248.       54.    853.50
    4.51       .68      2.71       .65      .060      .040      .060      .059    849.40    561.84
.1000888       60.       60.       60.         1         0         0      0.00     77.40    639.25


CCHV=     .100 CEHV=     .300
*SECNO 215.900
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLCB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      291.0      396.0  TYPE=      1  TARGET=     105.000
   215.90      5.31    855.41      0.00       0.00    855.42       .01       .13       .01    855.00
     220.        0.       88.       132.         0.       96.      221.      249.       55.     852.20
     4.62      0.00       .92       .60       .085      .060      .085      .059    850.10    291.00
  .000293       275.      275.      275.          2         0         0      0.00    105.00    396.00


*SECNO 215.950

3470 ENCROACHMENT STATIONS=      291.0      396.0  TYPE=      1  TARGET=     105.000
   215.95      4.89    855.49      0.00       0.00    855.80       .01       .08       .00    855.50
     220.        0.       90.       130.         0.       84.      189.      251.       55.     852.70
     4.69      0.00      1.07       .69       .085      .060      .085      .059    850.60    291.05
  .000473       225.      225.      225.          2         0         0      0.00    104.95    396.00


*SECNO 216.200

3470 ENCROACHMENT STATIONS=      291.0      340.0  TYPE=      1  TARGET=      49.000
   216.20      4.50    855.70      0.00       0.00    855.76       .05       .24       .01    856.10
     220.        0.       159.       61.         0.       73.       46.      252.       56.     853.30
     4.73      0.00      2.17      1.32       .085      .060      .085      .059    851.20    292.79
  .002146       275.      275.      275.          2         0         0      0.00     47.21    340.00


CCHV=     .300 CEHV=     .500
*SECNO 216.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      857.00 ELREA=      857.00


        ** D/S FACE SQUARE LAKE RD. - 2-5' DIA. CMP'S, ONE IS BULKHEADED

   216.30      3.44    855.84      0.00       0.00    856.17       .33       .28       .14    854.80
     80.        0.       80.        0.         0.       17.        0.      252.       56.     854.80
     4.74      0.00      4.62      0.00       .085      .060      .085      .059    852.40    705.00
  .016124        90.       90.       90.          2         0         0      0.00      5.10    710.10


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        3AREA      SS         ELCHU      ELCHD
      0.00       4.10       3.10       0.00       5.00       0.00       9.80       0.00     852.40     852.40

*SECNO 216.700
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Revised

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860.08	856.17	0.00	0.	80.	10.	-4262.	0.00	860.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.30 ELREA= 860.30

216.70	7.62	860.02	0.00	0.00	860.08	.07	3.91	0.00	854.80
80.	0.	80.	0.	0.	39.	0.	252.	56.	854.80
4.75	0.00	2.07	0.00	.085	.060	.085	.059	852.40	705.00
.001111	100.	100.	100.	2	0	0	0.00	5.10	710.10

*SECNO 216.800
3280 CROSS SECTION 216.80 EXTENDED 4.70 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

Revised

3470 ENCROACHMENT STATIONS= 256.0 393.0 TYPE= 1 TARGET= 137.000

216.80	8.60	860.10	0.00	0.00	860.10	.00	.00	.02	854.00
80.	38.	14.	28.	374.	89.	311.	253.	56.	854.60
5.03	.10	.16	.09	.085	.060	.085	.059	851.50	256.00
.000003	110.	110.	110.	2	0	0	0.00	137.00	393.00

*SECNO 217.000

3470 ENCROACHMENT STATIONS= 405.0 1243.0 TYPE= 1 TARGET= -405.000

217.00	5.40	860.10	0.00	0.00	860.10	.00	.00	.00100000.00	
80.	0.	80.	0.	0.	2195.	20.	277.	61.	859.40
10.31	0.00	.04	.00	.085	.060	.085	.059	854.70	405.00
.000000	690.	690.	690.	2	0	0	0.00	472.24	877.24

*SECNO 218.000

3470 ENCROACHMENT STATIONS= 286.0 1243.0 TYPE= 1 TARGET= -286.000

218.00	4.60	860.10	0.00	0.00	860.10	.00	.00	.00100000.00	
80.	0.	80.	0.	0.	2412.	0.	319.	70.	860.20
17.01	0.00	.03	0.00	.085	.060	.085	.059	855.50	286.00
.000000	800.	800.	800.	0	0	0	0.00	533.60	819.60

00BREAK00

1) COUNTY: [illegible]

2) STUDY NAME: [illegible]

3) WATERCOURSE: [illegible]

4) DOCUMENT TYPE: 500 YR

00BREAK00

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

T1       JOB HUD-FIA H-4705  T06
T2       FLOOD INSURANCE STUDIES
T3       500 YEAR FLOW

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        5.        0.        0.    .002120      0.00     -1.0         0.   826.000     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
```

*PROF 4

CCHV= .300 CEHV= .500
*SECNO 201.300

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 830.00 ELREA= 830.00

** D/S FACE GTW RAILROAD CULVERT AND CONFLUENCE W/ QUARTON

201.30	7.51	827.71	0.00	826.00	828.01	.30	0.00	0.00	820.20
495.	0.	495.	0.	0.	113.	0.	0.	0.	820.20
0.00	0.00	4.39	0.00	.095	.060	.095	0.000	820.20	310.00
.002141	0.	0.	0.	0	0	3	0.00	15.00	325.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.53	2.60	100.00	4.50	0.00	15.90	0.00	820.20	820.20

*SECNO 201.800

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
865.78	828.17	0.00	227.	269.	16.	18.	824.15	838.00

201.80	18.16	838.91	0.00	0.00	838.91	.00	10.90	0.00	823.80
495.	182.	146.	167.	665.	259.	750.	5.	1.	823.50
.21	.27	.56	.22	.095	.060	.095	.060	820.75	26.82
.000013	260.	260.	260.	0	0	7	0.00	208.98	235.81

*SECNO 201.900

201.90	17.86	838.91	0.00	0.00	838.91	.00	.00	.00	824.10
495.	182.	148.	165.	641.	255.	716.	9.	1.	823.80
.29	.28	.58	.23	.095	.060	.095	.060	821.05	28.80
.000015	100.	100.	100.	2	0	0	0.00	204.19	232.99

*SECNO 202.300

** D/S FACE KENSINGTON RD

202.30	17.66	838.91	0.00	0.00	838.92	.01	.00	.00	824.30
835.	306.	253.	276.	626.	252.	694.	10.	1.	824.00
.30	.49	1.00	.40	.095	.060	.095	.060	821.25	30.11
.000045	30.	30.	30.	3	0	0	0.00	201.01	231.11

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	2.90	200.00	4.00	0.00	12.60	0.00	821.25	821.25

*SECNO 202.700

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
963.02	838.92	0.00	820.	17.	13.	17.	825.40	826.80
202.70	17.71	838.96	0.00	0.00	838.96	.01	.05	0.00	824.30
835.	306.	252.	277.	630.	252.	700.	12.	1.	824.00
.32	.49	1.00	.40	.095	.060	.095	.059	821.25	29.77
.000044	36.	36.	36.	0	0	7	0.00	201.82	231.59

*SECNO 202.800

3280 CROSS SECTION 202.80 EXTENDED 1.06 FEET

202.80	17.16	838.96	0.00	0.00	838.96	.00	.00	.00	824.60
835.	156.	222.	456.	460.	308.	1399.	12.	2.	824.90
.33	.34	.72	.33	.095	.060	.095	.059	821.80	25.57
.000023	20.	20.	20.	0	0	0	0.00	239.43	265.00

*SECNO 202.810

3280 CROSS SECTION 202.81 EXTENDED .37 FEET

** VHAY LAKE DAM AND ROAD

202.81	16.47	838.97	0.00	0.00	838.97	.00	.00	.00	825.30
835.	157.	231.	447.	424.	295.	1284.	22.	3.	825.60
.45	.37	.78	.35	.095	.060	.095	.059	822.50	27.42
.000029	195.	195.	195.	0	0	0	0.00	237.58	265.00

*SECNO 202.820

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 837.40 MAX ELLC= 836.40

202.82	4.77	838.87	0.00	0.00	839.07	.20	.00	.10	837.40
835.	252.	319.	264.	182.	57.	191.	22.	3.	837.40
.45	1.38	5.56	1.38	.095	.020	.095	.059	834.10	75.81
.004693	4.	4.	4.	2	0	0	-15.70	270.39	346.19

*SECNO 202.830

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 837.40 MAX ELLC= 836.40

202.83	4.84	838.94	0.00	0.00	839.12	.18	.04	.01	837.40
835.	256.	310.	269.	191.	58.	200.	22.	3.	837.40
.45	1.34	5.31	1.34	.095	.020	.095	.058	834.10	75.80
.004178	9.	9.	9.	2	0	0	-15.70	270.40	346.20

*SECNO 202.840

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
202.84	14.47	839.17	0.00	0.00	839.17	.00	.00	.05	839.00
835.	0.	832.	3.	0.	4311.	75.	23.	3.	836.00
.47	.00	.19	.03	.095	.060	.095	.058	824.70	44.11
.000002	18.	18.	18.	2	0	0	0.00	425.75	469.85

CCHV= .100 CEHV= .300

*SECNO 204.000

204.00	10.47	839.17	0.00	0.00	839.17	.00	.01	.00	841.00
835.	0.	835.	0.	0.	3041.	10.	139.	15.	838.00
1.85	0.00	.27	.03	.095	.060	.095	.059	828.70	57.42
.000007	1360.	1360.	1360.	2	0	0	0.00	375.21	432.62

*SECNO 205.200

205.20	9.08	839.18	0.00	0.00	839.18	.01	.01	.00	848.60
835.	0.	835.	0.	0.	1226.	0.	164.	19.	839.80
2.05	0.00	.68	0.00	.095	.060	.095	.060	830.10	274.71
.000068	500.	500.	500.	0	0	0	0.00	200.69	475.40

*SECNO 205.300

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 836.90 MAX ELLC= 835.40

** PRIVATE DRIVE, SIMPLE MODEL

205.30	7.79	839.19	0.00	0.00	839.21	.02	.02	.00	849.90
835.	0.	835.	0.	0.	764.	0.	166.	19.	841.10
2.09	0.00	1.09	0.00	.095	.060	.095	.060	831.40	280.44
.000962	120.	120.	120.	0	0	0	-215.42	179.21	459.65

*SECNO 205.400

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 836.90 MAX ELLC= 835.40

205.40	7.80	839.20	0.00	0.00	839.22	.02	.01	.00	849.90
835.	0.	835.	0.	0.	767.	0.	167.	19.	841.10
2.09	0.00	1.09	0.00	.095	.060	.095	.060	831.40	280.37
.000951	14.	14.	14.	0	0	0	-215.42	179.46	459.83

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*SECNO 205.800
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

   205.80      9.24    839.24      0.00      0.00    839.25       .01       .02       .00    845.00
     835.        0.      835.        0.        0.    1295.        0.      169.       20.     845.00
     2.14      0.00       .64      0.00      .095      .060      .095      .060    830.00     77.02
  .000083      120.      120.      120.         2         0         0      0.00    266.68    343.70

CCHV=     .100 CEHV=     .300
*SECNO 205.900

         ** CONCRETE AND STONE WEIR

   205.90      5.41    839.21      0.00      0.00    839.26       .05       .00       .01    833.80
     835.      317.      298.      220.      521.      108.      370.      169.       20.     833.80
     2.14       .61      2.75       .60      .095      .025      .095      .059    833.80     77.39
  .000226        1.        1.        1.         2         0         0      0.00    266.12    343.50

*SECNO 205.910
   205.91      5.41    839.21      0.00      0.00    839.26       .05       .00       .00    833.80
     835.      317.      298.      220.      521.      108.      370.      169.       20.     833.80
     2.14       .61      2.75       .60      .095      .025      .095      .059    833.80     77.38
  .000226        2.        2.        2.         0         0         0      0.00    266.12    343.50

*SECNO 205.920
   205.92      7.96    839.26      0.00      0.00    839.26       .01       .00       .00    845.00
     835.        0.      835.        0.        0.    1201.        0.      169.       20.     845.00
     2.14      0.00       .70      0.00      .095      .060      .095      .059    831.30     76.82
  .000107        1.        1.        1.         2         0         0      0.00    267.00    343.81

*SECNO 206.000
   206.00      6.41    839.31      0.00      0.00    839.31       .00       .05       .00    840.00
     835.        0.      835.        0.        0.    2214.        1.      198.       27.     838.90
     2.68      0.00       .38       .03      .095      .060      .095      .060    832.90    117.71
  .000041      725.      725.      725.         2         0         0      0.00    607.36    725.07

*SECNO 207.200
   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=      128.0      633.0  TYPE=        1  TARGET=     -128.000
   207.20      3.89    839.37      0.00      0.00    839.37       .01       .06       .00    835.80
     835.      345.      193.      297.      523.      173.      535.      226.       35.     835.80
     2.94       .66      1.11       .55      .095      .060      .095      .060    835.48    128.00
  .000345      700.      700.      700.         0         0         0      0.00    420.64    548.64
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*SECNO 207.300

3470 ENCROACHMENT STATIONS= 128.0 390.0 TYPE= 1 TARGET= 262.000

** D/S FACE E. LONG LAKE - ELLIPTICAL CMP

207.30	3.96	839.44	0.00	0.00	839.45	.01	.07	.00	835.80
835.	422.	235.	178.	534.	177.	234.	230.	37.	835.80
3.00	.79	1.33	.76	.095	.060	.095	.060	835.48	128.00
.000478	185.	185.	185.	2	0	0	0.00	262.00	390.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.30	2.90	110.00	4.00	0.00	11.40	0.00	835.48	835.48

*SECNO 207.700

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1114.35	839.45	0.00	806.	34.	11.	6.	837.10	838.20

3470 ENCROACHMENT STATIONS= 600.0 1191.0 TYPE= 1 TARGET= -600.000

207.70	4.86	839.66	0.00	0.00	839.90	.24	.45	0.00	839.10
835.	3.	594.	237.	6.	131.	128.	231.	37.	837.50
3.00	.62	4.53	1.85	.095	.060	.095	.060	834.80	643.28
.008641	75.	75.	75.	2	0	10	0.00	162.22	805.50

*SECNO 207.800

3470 ENCROACHMENT STATIONS= 600.0 1191.0 TYPE= 1 TARGET= -600.000

207.80	5.26	840.06	0.00	0.00	840.19	.13	.28	.01	839.10
835.	12.	516.	307.	16.	150.	176.	232.	37.	837.50
3.01	.76	3.44	1.75	.065	.050	.065	.059	834.80	629.40
.002910	60.	60.	60.	2	0	0	0.00	235.01	864.41

*SECNO 208.300

3470 ENCROACHMENT STATIONS= 600.0 1191.0 TYPE= 1 TARGET= -600.000

** D/S FACE EASTAWAYS - CMP

208.30	4.86	840.46	0.00	0.00	840.68	.21	.46	.02	839.90
835.	4.	559.	272.	6.	131.	129.	232.	38.	838.30
3.02	.72	4.25	2.11	.065	.050	.065	.059	835.60	643.20
.005293	120.	120.	120.	2	0	0	0.00	162.34	805.54

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.57	2.90	0.00	4.00	0.00	15.00	0.00	835.60	835.60

*SECNO 208.700

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
964.13	840.68	0.00	769.	70.	15.	14.	839.10	839.50

3470 ENCROACHMENT STATIONS=			600.0	1191.0	TYPE=	1	TARGET=	-600.000	
208.70	5.64	841.24	0.00	0.00	841.33	.08	.65	0.00	839.90
835.	25.	472.	339.	30.	168.	240.	233.	38.	838.30
3.03	.82	2.81	1.41	.065	.050	.065	.059	835.60	624.79
.001663	70.	70.	70.	2	0	8	0.00	267.87	892.66

*SECNO 208.800

3470 ENCROACHMENT STATIONS=			270.0	535.0	TYPE=	1	TARGET=	-270.000	
208.80	5.14	841.37	0.00	0.00	841.47	.10	.14	.00	838.40
835.	120.	367.	348.	73.	112.	218.	234.	39.	837.90
3.04	1.64	3.27	1.60	.085	.060	.075	.059	836.23	270.00
.002428	70.	70.	70.	2	0	0	0.00	169.04	439.04

CCHV= .100 CEHV= .300
*SECNO 208.900

3470 ENCROACHMENT STATIONS=			200.0	535.0	TYPE=	1	TARGET=	-200.000	
208.90	5.08	841.71	0.00	0.00	841.77	.07	.30	.00	838.80
835.	223.	318.	294.	187.	110.	210.	235.	39.	838.30
3.06	1.19	2.88	1.40	.085	.060	.075	.059	836.63	200.00
.001918	140.	140.	140.	2	0	0	0.00	237.46	437.46

*SECNO 209.000

209.00	5.07	842.57	0.00	0.00	842.84	.27	1.01	.06	840.80
835.	45.	475.	315.	34.	93.	127.	238.	41.	839.40
3.08	1.32	5.13	2.47	.085	.060	.075	.059	837.50	238.69
.006697	310.	310.	310.	2	0	0	0.00	137.66	376.35

*SECNO 210.200

3470 ENCROACHMENT STATIONS=			.0	620.0	TYPE=	1	TARGET=	619.999	
210.20	3.63	844.13	0.00	0.00	844.16	.03	1.29	.02	841.80
835.	60.	423.	352.	101.	259.	353.	245.	44.	841.70
3.22	.59	1.63	1.00	.085	.060	.075	.059	840.50	286.73
.000937	650.	650.	650.	3	0	0	0.00	333.27	620.00

CCHV= .500 CEHV= 1.000
*SECNO 210.300

3301 HV CHANGED MORE THAN HVINS

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 300.0 560.0 TYPE= 1 TARGET= 260.000

** D/S FACE KINGSLEY RD. - 2-3' DIA. CMPS

210.30	4.75	845.33	845.33	0.00	845.87	.54	.36	.51	844.60
835.	15.	654.	166.	14.	99.	100.	247.	45.	844.20
3.23	1.08	6.59	1.66	.085	.060	.075	.059	840.58	316.35
.014625	150.	150.	150.	2	11	0	0.00	243.65	560.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.00	2.60	100.00	6.00	0.00	14.10	0.00	840.58	840.58

*SECNO 210.700
3280 CROSS SECTION 210.70 EXTENDED 1.32 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1008.70	845.87	0.00	751.	85.	14.	16.	843.20	845.00

3470 ENCROACHMENT STATIONS= 300.0 404.0 TYPE= 1 TARGET= 104.000

210.70	6.24	846.82	0.00	0.00	847.03	.21	1.16	0.00	844.60
835.	140.	603.	92.	93.	142.	46.	247.	45.	844.20
3.23	1.50	4.24	1.99	.085	.060	.075	.059	840.58	300.00
.003741	43.	43.	43.	2	0	8	0.00	104.00	404.00

*SECNO 210.800
3280 CROSS SECTION 210.80 EXTENDED 1.30 FEET

3470 ENCROACHMENT STATIONS= 300.0 404.0 TYPE= 1 TARGET= 104.000

210.80	6.41	846.99	0.00	0.00	847.18	.19	.14	.01	844.60
835.	152.	588.	95.	103.	147.	50.	247.	45.	844.20
3.23	1.47	3.99	1.91	.085	.060	.075	.059	840.58	300.00
.003161	40.	40.	40.	2	0	0	0.00	104.00	404.00

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*SECNO 210.900
3280 CROSS SECTION    210.90 EXTENDED      1.27 FEET


3470 ENCROACHMENT STATIONS=        .0     404.0  TYPE=     1  TARGET=     403.999

        ** BLOOMFIELD TWP. BDY.

   210.90      6.39   847.47      0.00      0.00   847.50       .03       .25       .08   845.10
     420.      125.     .254.      41.      248.     147.       49.      249.       46.    844.70
     3.27       .50     1.73       .83      .085     .060      .075      .059   841.08   121.38
  .000599      160.     160.      160.         2        0         0      0.00   282.62   404.00

CCHV=    .300 CEHV=    .500
*SECNO 210.910
3280 CROSS SECTION    210.91 EXTENDED      1.29 FEET


3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=  842.90 MAX ELLC=  842.50

3470 ENCROACHMENT STATIONS=        .0     404.0  TYPE=     1  TARGET=     403.999

        ** WOODEN FOOTBRIDGE

   210.91      6.41   847.49      0.00      0.00   847.51       .02       .00       .00   845.10
     420.      172.     191.       56.      251.     140.       50.      249.       46.    844.70
     3.27       .69     1.37      1.13      .085     .060      .075      .059   841.08   120.32
  .001109         3.       3.        3.         1        0         0     -6.97   283.68   404.00

*SECNO 210.920
3280 CROSS SECTION    210.92 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


3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=  842.90 MAX ELLC=  842.50

3470 ENCROACHMENT STATIONS=        .0     404.0  TYPE=     1  TARGET=     403.999
   210.92      6.42   847.50      0.00      0.00   847.52       .02       .00       .00   845.10
     420.      173.     191.       56.      253.     140.       50.      249.       46.    844.70
     3.27       .69     1.36      1.12      .085     .060      .075      .059   841.08   119.44
  .001094         4.       4.        4.         0        0         0     -6.97   284.56   404.00

*SECNO 210.930
3280 CROSS SECTION    210.93 EXTENDED      1.22 FEET
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3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 843.70 MAX ELLC= 843.10

3470 ENCROACHMENT STATIONS= .0 404.0 TYPE= 1 TARGET= 403.999

** WOODEN FOOTBRIDGE

210.93	6.35	847.53	0.00	0.00	847.55	.02	.03	.00	845.20
420.	176.	184.	60.	236.	133.	48.	249.	46.	844.80
3.28	.75	1.38	1.23	.085	.060	.075	.059	841.18	126.10
.001357	25.	25.	25.	0	0	0	-12.32	277.89	404.00

*SECNO 210.940
3280 CROSS SECTION 210.94 EXTENDED 1.23 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 843.70 MAX ELLC= 843.10

3470 ENCROACHMENT STATIONS= .0 404.0 TYPE= 1 TARGET= 403.999

210.94	6.35	847.53	0.00	0.00	847.55	.02	.01	.00	845.20
420.	177.	184.	60.	238.	133.	49.	249.	46.	844.80
3.28	.74	1.38	1.23	.085	.060	.075	.059	841.18	125.44
.001342	4.	4.	4.	0	0	0	-12.32	278.55	404.00

*SECNO 210.950
3280 CROSS SECTION 210.95 EXTENDED 1.27 FEET

** SMALL DAM

210.95	6.38	847.56	0.00	0.00	847.56	.00	.01	.00	845.20
420.	53.	108.	260.	246.	147.	809.	249.	47.	844.80
3.29	.21	.74	.32	.085	.060	.075	.059	841.18	122.21
.000108	25.	25.	25.	0	0	0	0.00	683.79	806.00

*SECNO 210.960
3280 CROSS SECTION 210.96 EXTENDED 1.26 FEET

210.96	5.56	847.56	0.00	0.00	847.56	.00	.00	.00	845.20
420.	62.	49.	309.	245.	85.	807.	249.	47.	844.80
3.29	.25	.58	.38	.085	.060	.075	.059	842.00	122.67
.000155	1.	1.	1.	0	0	0	0.00	683.33	806.00

*SECNO 210.970
3280 CROSS SECTION 210.97 EXTENDED 1.26 FEET

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

210.97	5.56	847.56	0.00	0.00	847.56	.00	.00	.00	845.20
420.	62.	49.	309.	245.	85.	807.	249.	47.	844.80
3.30	.25	.58	.38	.085	.060	.075	.059	842.00	122.61
.000154	2.	2.	2.	0	0	0	0.00	683.39	806.00

*SECNO 210.980
3280 CROSS SECTION 210.98 EXTENDED 1.26 FEET

210.98	6.38	847.56	0.00	0.00	847.56	.00	.00	.00	845.20
420.	52.	108.	260.	245.	146.	808.	249.	47.	844.80
3.30	.21	.74	.32	.085	.060	.075	.059	841.18	122.59
.000109	1.	1.	1.	0	0	0	0.00	683.41	806.00

*SECNO 211.000

211.00	4.33	847.63	0.00	0.00	847.65	.02	.08	.01	843.30
420.	280.	118.	22.	492.	65.	25.	257.	51.	843.30
3.40	.57	1.82	.88	.085	.060	.075	.059	843.30	224.84
.000762	350.	350.	350.	2	0	0	0.00	431.57	656.41

CCHV= .100 CEHV= .300
*SECNO 211.300

** 2' DIA RCP - 100 FT. LONG

211.30	4.36	847.66	0.00	0.00	847.67	.01	.02	.00	843.30
420.	293.	107.	20.	499.	65.	25.	257.	52.	843.30
3.41	.59	1.64	.79	.075	.060	.075	.059	843.30	223.47
.000619	30.	30.	30.	1	0	0	0.00	432.99	656.45

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.45	3.00	200.00	2.00	0.00	3.20	0.00	843.30	843.30

*SECNO 211.700
3280 CROSS SECTION 211.70 EXTENDED 1.07 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1503.02	848.30	0.00	403.	17.	3.	3.	844.90	848.00

211.70	5.46	848.76	0.00	0.00	848.77	.00	1.09	0.00	843.30
420.	341.	64.	15.	956.	82.	39.	259.	53.	843.30
3.48	.36	.78	.38	.075	.060	.075	.059	843.30	220.00
.000103	100.	100.	100.	0	0	10	0.00	439.39	659.39

CCHV= .100 CEHV= .300
*SECNO 212.900

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
212.90	4.76	848.76	0.00	0.00	848.87	.11	.07	.03	846.10
420.	142.	177.	102.	79.	49.	65.	262.	54.	845.70
3.50	1.80	3.64	1.56	.075	.060	.075	.059	844.00	6.34
.003555	230.	230.	230.	2	0	0	0.00	101.11	107.45

*SECNO 213.000

213.00	4.79	849.79	0.00	0.00	849.87	.08	1.00	.00	846.80
420.	154.	155.	111.	95.	49.	80.	264.	55.	846.40
3.54	1.62	3.14	1.40	.075	.060	.075	.059	845.00	2.49
.002466	340.	340.	340.	2	0	0	0.00	109.54	112.03

*SECNO 213.500

213.50	4.88	850.38	0.00	0.00	850.45	.07	.58	.00	847.30
420.	156.	152.	113.	100.	50.	84.	265.	55.	846.90
3.58	1.55	3.00	1.34	.075	.060	.075	.059	845.50	1.39
.002196	250.	250.	250.	2	0	0	0.00	111.96	113.35

*SECNO 214.200

214.20	4.99	851.09	0.00	0.00	851.37	.28	.86	.06	853.80
420.	0.	420.	0.	0.	99.	0.	266.	56.	851.60
3.59	0.00	4.23	0.00	.075	.060	.075	.059	846.10	62.58
.010067	210.	210.	210.	2	0	0	0.00	42.91	105.49

CCHV= .300 CEHV= .500
*SECNO 214.300

** D/S FACE GREAT OAKS - 7' DIA. CMP

214.30	5.72	852.12	0.00	0.00	852.42	.30	1.03	.01	850.00
290.	57.	176.	57.	27.	33.	27.	266.	56.	850.00
3.60	2.13	5.35	2.13	.075	.060	.075	.059	846.40	46.26
.010760	100.	100.	100.	4	0	0	0.00	57.47	103.74

CCHV= .500 CEHV= 1.000
*SECNO 214.400

3301 HV CHANGED MORE THAN HVINS

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

3370 NORMAL BRIDGE,NRO= 7 MIN ELTRD= 856.00 MAX ELLC= 853.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.40	5.73	852.13	0.00	0.00	853.47	1.34	.01	1.05	850.00
290.	0.	290.	0.	0.	31.	0.	266.	56.	850.00
3.60	0.00	9.30	0.00	.075	.025	.075	.059	846.40	71.50
.009669	1.	1.	1.	0	0	0	-28.80	7.00	78.50

*SECNO 214.600

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 856.00 MAX ELLC= 853.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.60	6.78	853.18	0.00	0.00	854.23	1.05	.61	.14	850.00
290.	0.	290.	0.	0.	35.	0.	266.	56.	850.00
3.60	0.00	8.24	0.00	.075	.025	.075	.059	846.40	71.50
.009228	65.	65.	65.	3	0	0	-65.15	7.00	78.50

*SECNO 214.700

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

214.70	7.38	853.78	0.00	0.00	854.44	.66	.01	.20	850.00
290.	0.	290.	0.	0.	45.	0.	266.	56.	850.00
3.60	0.00	6.51	0.00	.075	.060	.075	.059	846.40	71.50
.010650	1.	1.	1.	3	0	0	0.00	7.00	78.50

CCHV= .300 CEHV= .500

*SECNO 214.800

3301 HV CHANGED MORE THAN HVINS

214.80	7.07	854.77	0.00	0.00	854.82	.05	.20	.18	852.20
290.	57.	190.	43.	100.	87.	45.	267.	56.	851.20
3.62	.57	2.19	.96	.095	.060	.070	.059	847.70	85.94
.000954	90.	90.	90.	2	0	0	0.00	118.18	204.12

*SECNO 215.100

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 855.20 MAX ELLC= 854.40

** WOODEN FOOTBRIDGE

215.10	6.62	855.42	0.00	0.00	855.59	.17	.71	.06	853.30
290.	22.	242.	26.	32.	68.	20.	268.	57.	852.30
3.64	.69	3.56	1.29	.095	.060	.070	.059	848.80	99.55
.012991	300.	300.	300.	3	0	0	-62.52	101.42	200.97

*SECNO 215.150

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 855.20 MAX ELLC= 854.40

215.15	6.69	855.49	0.00	0.00	855.64	.15	.05	.00	853.30
290.	26.	236.	28.	36.	69.	22.	268.	57.	852.30
3.64	.71	3.43	1.29	.095	.060	.070	.059	848.80	97.45
.011771	4.	4.	4.	2	0	0	-62.52	104.01	201.46

*SECNO 215.200

215.20	6.76	855.66	0.00	0.00	855.77	.11	.12	.01	853.80
290.	12.	250.	28.	19.	86.	24.	268.	57.	853.00
3.65	.65	2.89	1.16	.095	.060	.070	.059	848.90	35.75
.001891	30.	30.	30.	2	0	0	0.00	59.02	94.77

CCHV= .300 CEHV= .500
*SECNO 215.300

** D/S FACE FOXHALL RD. - 2-5' CMP ARCHES

215.30	6.65	855.75	0.00	0.00	855.89	.14	.11	.01	854.00
290.	8.	264.	18.	17.	85.	22.	268.	57.	853.20
3.65	.45	3.13	.83	.095	.040	.070	.059	849.10	36.99
.001012	80.	80.	80.	2	0	0	0.00	56.23	93.22

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.46	2.90	80.00	12.00	0.00	24.60	0.00	849.10	849.10

*SECNO 215.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
861.06	855.89	0.00	242.	48.	25.	38.	852.30	854.50

215.70	6.66	855.76	0.00	0.00	855.89	.14	.00	0.00	854.00
290.	8.	264.	18.	17.	85.	22.	268.	57.	853.20
3.66	.45	3.12	.83	.095	.040	.070	.059	849.10	36.84
.001001	45.	45.	45.	2	0	6	0.00	56.56	93.40

*SECNO 215.800

3470 ENCROACHMENT STATIONS= 555.0 664.0 TYPE= 1 TARGET= -555.000

215.80	6.48	855.88	0.00	0.00	855.96	.08	.05	.02	853.40
290.	75.	202.	13.	89.	77.	17.	268.	57.	853.50
3.67	.84	2.62	.73	.060	.040	.060	.059	849.40	555.00
.000690	60.	60.	60.	2	0	0	0.00	88.61	643.61

CCHV= .100 CEHV= .300
*SECNO 215.900

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

9470 ENCROACHMENT STATIONS= 555.0 664.0 TYPE= 1 TARGET= -555.000
ELENCL= 860.30 ELENCR= 100000.00
215.80 6.48 855.88 .00 855.88 855.96 .08 .00 .00 859.40
290. 75. 203. 13. 89. 77. 17 0. 0. 859.50
.00 .84 2.63 .78 .060 .040 060 .000 849.40 555.00
000693 0. 0. 0. 0 0 0 .00 88.59 648.59
0
CCHV= .100 CFHV= 300
*SECNO 215.900

9470 ENCROACHMENT STATIONS= 291.0 396.0 TYPE= 1 TARGET= 105.000
ELENCL= 860.30 ELENCR= 860.30
215.90 5.97 856.07 .00 .00 856.08 .01 .12 .01 855.00
290 0. 115. 175. 0. 116 266. 2. 1. 852.20
.10 .00 1.00 66 085 .060 .085 000 850.10 291.00
000280 275. 270. 275. 0 0 0 .00 105.00 396.00
0
*SECNO 216.000

9470 ENCROACHMENT STATIONS= 291.0 396.0 TYPE= 1 TARGET= 105.000
ELENCL= 860.30 ELENCR= 860.30
216.00 5.54 856.14 .00 .00 856.16 .01 .08 .00 855.50
290 0 117 173. 0. 103 234. 4. 1. 852.70
.17 .00 1.14 74 .085 .060 .085 .000 850.60 291.00
.000418 225. 225. 225. 2 0 0 .00 105.00 396.00
0
*SECNO 216.200

9470 ENCROACHMENT STATIONS= 291.0 340.0 TYPE= 1 TARGET= 49.000
ELENCL= 860.30 ELENCR= 860.30
216.20 5.12 856.32 .00 .00 856.39 07 .21 .02 856.10
290 0 208 82. 0. 91 57. 5. 2 858.30
20 .00 2.28 1.49 085 060 .085 .000 851.70 291.00
001953 275 275. 275. 2 0 0 .00 49.00 340.00
0
1

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

CCHV= .300 CEHV= 500
*SECNO 216.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 857.70 ELREA= 854.90

D/S FACE 72 X 44 IN CM PIPE ARCH AT SQ.LK RD.
216.30 4.80 856.50 .00 .00 856.60 09 .20 .01 854.80
79. 0. 70 9. 0. 27. 10. 5. 2 854.90
.21 .00 2.59 88 .085 .060 .085 .000 851.70 705.00
003426 90. 90. 90 2 0 0 .00 18.88 723.88
0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SK	XK	XKOR	COFQ	RDLEN	BWC	BWP	BARFA	SS	ELCHU	ELCHD
	.00	3.30	3.10	.00	6.00	00	17.60	.00	851.70	851.70

*SECNO 216.700

EGRRS	EGLWC	HO	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
857.54	856.60	00	0	79.	18	21.	855.20	859.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.30 ELREA= 854.90

216.70	5.80	857.50	00	.00	857.54	.04	.94	.00	854.80
79.	0.	59	20	0.	33	27.	5.	2.	854.90
.29	.00	1.79	.79	.000	.060	.085	000	851.70	705.00
.001258	100	100.	100.	2	0	0	00	26.88	791.88

0

*SECNO 2.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 862.00 ELREA= 862.00

2.00	3.55	857.55	.00	.00	857.55	.00	00	.01	858.00
79.	0	79.	0.	0	424	0.	6	2	862.00
.34	.00	.19	.00	.085	.060	085	.000	854.00	99.80
000014	45	70.	95	2	0	0	00	144.68	244.43

0

1

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

*SECNO 3.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 862.00 ELREA= 862.00

3.00	3.56	857.56	.00	.00	857.56	00	.00	00	861.00
79	0	79.	0.	0	232.	0.	7	2	862.00
.48	00	34	.00	085	.060	.085	.000	854.00	89.68
.000054	175.	175.	175.	2	0	0	.00	90.56	180.23

0

*SECNO 4.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 859.25 ELREA= 858.50

D/S FACE OF BRIDGE

4.20	3.57	857.57	.00	00	857.57	00	.01	.00	858.50
79	0	79	0.	0.	145.	0.	8.	3.	858.50
.57	.00	.54	.00	.085	.060	.085	.000	854.00	169.21
.000108	160	160	160	0	0	0	.00	41.58	210.79

0

SPECIAL BRIDGE

6070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	RWC	RWP	RAREA	SS	ELCHU	ELCHD
	.00	1.56	3.10	00	40.00	00	180.00	.00	854.00	854.00

*SECNO 4.800

6070, LOW FLOW BY NORMAL BRIDGE

EGRRS= .000 FQLWC= 857.572 ELLC= 858.500 FQWSL= 857.567 ELTRD= 860.000

3970 NORMAL BRIDGE,NRD= 8 MIN EL TRD= 860.00 MAX ELLC= 858.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860 00 ELREA= 858.50

4.80	3.57	857.57	00	00	857.58	.00	01	.00	858.50
79	0	79.	0.	0.	146	0.	8.	0.	858 50
.59	.00	.54	.00	.085	060	085	.000	854 00	169.21
000108	50	50.	50.	0	0	0	.00	41.59	210.79

0
1

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

*SECNO 5.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.00 ELREA= 860.00

5.00	3.58	807.58	.00	.00	857.58	.00	.00	.00	861 00
79	0	79.	0.	0.	202	0.	8.	0.	860 00
.63	.00	.39	00	.085	.060	085	.000	854 00	14 67
.000068	50.	50.	50	0	0	0	.00	74 80	89.47

0
*SECNO 6.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

6 00	3.59	857 59	.00	.00	857.59	.00	.01	.00	861.00
79.	0.	79.	0	0	172.	0	9.	3.	860.00
69	.00	.46	.00	.085	060	085	.000	854.00	27.06
000097	100	100.	100.	0	0	0	00	65.89	92 94

0
*SECNO 7 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.00 ELREA= 860.00

7 00	3.59	857.59	00	.00	857 59	.00	.00	.00	854.00
79	0.	79.	0.	0.	648.	0.	11.	3	854 00
1 16	.00	.12	.00	.085	060	.085	.000	854.00	410 00
000004	200.	210.	220.	1	0	0	.00	180.00	590.00

0
*SECNO 8 000

3470 ENCROACHMENT STATIONS= 315 0 345.0 TYPE= 1 TARGET= 230.000
ELINCL= 860.00 ELENCR= 860.00

8 00	3.59	857 59	.00	.00	857.59	.00	.00	.00	860.00
79	0.	79	0.	0	827	0.	12.	4.	860.00
1.34	00	10	.00	.085	060	085	.000	854.00	315 00
.000008	100	60.	30	0	0	0	.00	230.00	545.00

0
*SECNO 9 000

3470 ENCROACHMENT STATIONS= 345 0 430.0 TYPE= 1 TARGET= 135.000

1

SECNO	DEPTH	CWSEL	CRTWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLENCL = 861.00 FLENCR= 861.00

9.00	3.59	857.59	.00	.00	857.60	.00	00	.00	861.00
189.	0.	189.	0	0.	485.	0.	14.	4.	861 00
1 44	.00	38	.00	085	.060	.085	.000	854.00	345.00
.000045	140.	140	140.	0	0	0	.00	135 00	480.00

0

*SECNO 10 000

3470 ENCROACHMENT STATIONS= 125 0 170.0 TYPE= 1 TARGET = 45.000

ELFNCL= 861 00 ELENCR= 861.00

10.00	3 60	857.60	.00	00	857.62	.02	.01	.01	861.00
189.	0.	0.	189.	0.	0.	162	14.	5.	907.00
1.46	.00	00	1.13	085	.060	.085	.000	854 00	125 00
.000925	70.	75	80	0	0	0	.00	45 00	170.00

0

*SECNO 11 200

3280 CROSS SECTION 11 20 EXTENDED .09 FEET

3901 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 859.25 ELREA= 859.25

D/S FACE 72X44 IN CM PIPE ARCH

11.20	3.36	858 03	860.03	00	859.31	1.28	.16	.68	857.67
180.	0.	189	0	0.	20.	0	14.	5.	857 67
1 46	00	9 09	.00	.085	.060	.085	.000	854.67	166.00
.060200	40.	50	60	20	11	0	.00	8.00	174.00

0

SPECIAL BRIDGE

SR	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	FLCHD
	.00	2 52	3 10	00	3.50	.00	17.60	75	854.67	854 67

*SECNO 11.800

3280 CROSS SECTION 11.80 EXTENDED 1.70 FEET

1

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

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HB	QWEIR	QPR	BAREA	TRAPEZOID AREA	FLLC	ELTRD
862 26	859.31	.00	54.	130.	18	17.	857.67	860.00

```
 9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       861.00 ELREA=       861.00

     11.80      5.02    859.69       .00       .00    860.16       .46        84         00    857.67
      183.        0.      183.        0.        0.       93         0       14.          5.     857.67
      1.47       .00      5.46       .00      .000       060      .000      .000     864.67    166.00
   .011035       50.       50.       50.         2         0         6        00       8.00    174.00
0
 *SECNO 12.000

 9470 ENCROACHMENT STATIONS=      110.0      340.0  TYPE=       1  TARGET=      230.000
  ELENCL=     861.00  ELENCR=     861.00
     12.00      5.30    860.30       .00       .00    860.30       .00       .00        .14    861.00
      183         0       183.        0         0.      988.        2.       15          5.     860.00
      1.59        00       .20       .01       085      .060      .085      .000     855.00    110.00
   .000008       105        85.       65.         2         0         0       .00     209.83    319.83
0
 *SECNO 13.000

 9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       861.00 ELREA=       861.00

     13.00      5.30    860.90       .00       .00    860.30       .00       .00        .00    860.00
      183         0.      183         0.        0.      1361         0.       17.          5.     860.00
      1.69        00       .13       .00       085      .060      .085       000     855.00     70.00
    000004        50        50.       50.         2         0         0       .00     290.00    360.00
0
 *SECNO 14.200
          D/S FACE OF BRIDGE
     14.20      4.30    860.30       .00       .00    860.31       .01       .01        .01    859.50
      183.       19       187.         7      108.      177.        63.       26          9.     859.50
      1.85       .17       .89       .14      .035       060      .085       000     856.00     32.21
   .000220       460.      450       440.        0         0         0       .00     381.56    413.77
0
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   SECNO     DEPTH     CWSEL     CRTWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROD      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    TDC       JCONT     CORAR     TOPWID      ENDST


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK          XKOR       COEQ       RDLEN      DWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.56       9.10         .00      40.00        .00     140.00         .00     856.00     856.00

*SECNO 14.800
PRESSURE FLOW

 EGPRS       EGLWC       HB         QWEIR      OPR        BAREA     TRAPEZOID      ELLC       ELTRD
                                                                      AREA
    860.34      860.31        .00          0.       183.       140        140       859.50     861.00


9495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       861.00 ELREA=       861.00

     14.80      4.32    860.32       .00       .00    860.34       .02       .03        .00    859.50
      189.        0.      183         0         0       178         0.       26          9      859.50
      1.86       .00      1.03       .00      .000      .060      .000      .000     806.00    209.00
   .000203        50        50        50         1         2         0       .00     381.56    381.00
```

0
*SECNO 15.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

15.00	4.35	860.35	.00	.00	860.35	00	00	00	858.00
183.	0.	183.	0.	0.	872.	0.	27.	9	857 00
1.96	.00	.21	.00	.085	.060	.085	.000	856.00	230.00
.000013	65.	75	85.	0	0	0	00	240.00	470.00

0
*SECNO 16.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

16 00	3 35	860 35	.00	.00	860 35	.00	00	.00	858.00
183.	0.	183.	0	0.	956.	0.	02.	11.	860.00
0 34	.00	.19	.00	.085	.060	.085	.000	857.00	170.00
000013	260.	260.	260.	2	0	0	.00	310.00	480.00

0
1
12/20/86 21:07 30 PAGE 39

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

*SECNO 17 000

3470 ENCROACHMENT STATIONS= 200 0 420.0 TYPE= 1 TARGET= 220.000
ELENCL= 861 00 ELENCR= 861 00

17 00	3.35	860 35	.00	00	860.35	.00	00	.00	861.00
183.	0.	183	0.	0	682.	0.	34.	11.	861.00
2.14	00	.27	.00	.085	.060	.085	.000	857.00	200.00
000027	80	100.	120.	0	0	0	00	220.00	420.00

0
*SECNO 18 000

3470 ENCROACHMENT STATIONS= 190.0 360.0 TYPE= 1 TARGET= 170.000
ELENCL= 862.00 ELENCR= 862.00

18.00	2.35	860 35	00	.00	860.36	.00	.00	.00	862.00
183	0	183	0.	0.	400.	0.	35.	12	862 00
2.49	00	.46	00	085	.060	.085	.000	858.00	190.00
000113	80	80	80	0	0	0	.00	170.00	360.00

0
1
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THIS RUN EXECUTED 12/20/86 21:15:49

****
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
****

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

TIME	VLOB	VCH	VRCB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS=			291.0	396.0	TYPE=	1	TARGET=	105.000	
215.90	5.97	856.07	0.00	0.00	856.08	.01	.11	.01	855.00
290.	0.	113.	177.	0.	116.	271.	270.	58.	852.20
3.77	0.00	.98	.65	.085	.060	.085	.059	850.10	291.00
.000270	275.	275.	275.	2	0	0	0.00	105.00	396.00

*SECNO 215.950

3470 ENCROACHMENT STATIONS=			291.0	396.0	TYPE=	1	TARGET=	105.000	
215.95	5.54	856.14	0.00	0.00	856.15	.01	.07	.00	855.50
290.	0.	115.	175.	0.	103.	239.	272.	58.	852.70
3.84	0.00	1.11	.73	.085	.060	.085	.059	850.60	291.00
.000401	225.	225.	225.	2	0	0	0.00	105.00	396.00

*SECNO 216.200

3470 ENCROACHMENT STATIONS=			291.0	340.0	TYPE=	1	TARGET=	49.000	
216.20	5.11	856.31	0.00	0.00	856.38	.07	.21	.02	856.10
290.	0.	206.	84.	0.	91.	59.	274.	59.	853.30
3.87	0.00	2.26	1.44	.085	.060	.085	.059	851.20	291.00
.001928	275.	275.	275.	2	0	0	0.00	49.00	340.00

CCHV= .300 CEHV= .500

*SECNO 216.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 857.00 ELREA= 857.00

** D/S FACE SQUARE LAKE RD. - 2-5' DIA. CMP'S, ONE IS BULKHEADED

216.30	4.03	856.43	0.00	0.00	856.73	.31	.24	.12	854.80
90.	0.	90.	0.	0.	20.	0.	274.	59.	854.80
3.88	0.00	4.44	0.00	.085	.060	.085	.059	852.40	705.00
.012019	90.	90.	90.	1	0	0	0.00	5.10	710.10

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	4.10	3.10	0.00	5.00	0.00	9.80	0.00	852.40	852.40

*SECNO 216.700
3280 CROSS SECTION 216.70 EXTENDED .15 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
861.80	856.73	0.00	12.	78.	10.	-4262.	0.00	860.30

```
   216.70      8.05    860.45      0.00      0.00    860.45       .00      3.71      0.00    854.80
     90.        42.        18.       30.       174.      41.      128.      274.       59.     854.80
    3.98        .24        .44       .24       .085      .060     .085      .059    852.40    645.00
 .000046      100.       100.      100.          0         0        6      0.00    110.56    755.56

*SECNO 216.800
3280 CROSS SECTION     216.80 EXTENDED       5.05 FEET

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


3470 ENCROACHMENT STATIONS=      256.0      393.0  TYPE=      1  TARGET=      137.000
   216.80      8.95    860.45      0.00      0.00    860.45       .00       .00       .00    854.00
     90.        42.        16.       32.       397.      93.      332.      276.       59.     854.60
    4.25        .11        .17       .10       .085      .060     .085      .059    851.50    256.00
 .000004      110.       110.      110.          2         0        0      0.00    137.00    393.00

*SECNO 217.000

3470 ENCROACHMENT STATIONS=      405.0     1243.0  TYPE=      1  TARGET=     -405.000
   217.00      5.75    860.45      0.00      0.00    860.45       .00       .00       .00100000.00
     90.        0.         90.       0.        0.       2343.      46.      301.       64.     859.40
    9.26        0.00       .04       .01       .085      .060     .085      .059    854.70    405.00
 .000000      690.       690.      690.          1         0        0      0.00    501.14    906.14

*SECNO 218.000

3470 ENCROACHMENT STATIONS=      286.0     1243.0  TYPE=      1  TARGET=     -286.000
   218.00      4.95    860.45      0.00      0.00    860.45       .00       .00       .00100000.00
     90.        0.         90.       0.        0.       2597.       3.      347.       74.     860.20
   15.68        0.00       .03       .00       .085      .060     .085      .059    855.50    286.00
 .000000      800.       800.      800.          0         0        0      0.00    554.51    840.51
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: ARMY DRAIN

4) DOCUMENT TYPE: CONVERGENCE RUN — WATER-SURFACE PROFILES

00BREAK00

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

C
T1      HUD-FIA H-4705
T2      BLOOMFIELD TWP FIS
T3      AMY DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.       4.        0.        0.    .002120     0.00     -1.0       0.    825.000    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

QT      5.000   280.000   310.000   320.000   495.000   320.000     0.000     0.000     0.000     0.000
NC       .095      .095      .060      .300      .500     0.000     0.000     0.000     0.000     0.000

        ** D/S FACE GTW RAILROAD CULVERT AND CONFLUENCE W/ QUARTON

X1    201.300     7.000   310.000   325.000     0.000     0.000     0.000     0.000     1.100     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   830.000   830.000     0.000
GR    830.000   210.000   820.000   250.000   819.100   310.000   819.100   325.000   819.500   430.000
GR    820.000   540.000   830.000   600.000     0.000     0.000     0.000     0.000     0.000     0.000
SB     -0.000     2.530     2.600   100.000     4.500     0.000    15.900     0.000     0.000     0.000

X1    201.800    11.000   106.000   121.000   260.000   260.000   260.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   824.150   851.900     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   851.900   851.900     0.000
GR    843.000     0.000   836.600    42.000   827.200    75.000   823.800   106.000   820.750   112.000
GR    820.750   118.000   823.500   121.000   823.800   128.000   828.800   141.000   840.000   246.000
GR    840.000   300.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    201.900     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .300     0.000
QT      5.000   330.000   510.000   620.000   835.000   620.000     0.000     0.000     0.000     0.000

        ** D/S FACE KENSINGTON RD

X1    202.300     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   826.000   826.000     0.000
SB      0.000     1.820     2.900   200.000     4.000     0.000    12.600     0.000     0.000     0.000

X1    202.700     0.000     0.000     0.000    36.000    36.000    36.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   825.400   826.800     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   826.800   826.800     0.000
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X1	202.800	11.000	78.000	97.000	20.000	20.000	20.000	0.000	2.000	0.000
GR	842.000	12.000	824.900	58.000	822.600	78.000	819.800	82.000	819.800	89.000
GR	822.900	97.000	825.400	111.000	826.000	147.000	829.200	180.000	829.100	218.000
GR	835.900	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** VHAY LAKE DAM AND ROAD

X1	202.810	0.000	0.000	0.000	195.000	195.000	195.000	0.000	.700	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	202.820	8.000	200.000	216.000	4.000	4.000	4.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	836.400	837.400	0.000	0.000	0.000	0.000	0.000
X5	1.000	838.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	845.000	75.000	837.400	76.000	837.400	200.000	834.100	201.000	834.100	215.000
GR	837.400	216.000	837.400	346.000	845.000	347.000	0.000	0.000	0.000	0.000

X1	202.830	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	836.400	837.400	0.000	0.000	0.000	0.000	0.000
X5	1.000	838.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	202.840	9.000	46.000	416.000	18.000	18.000	18.000	0.000	-2.000	0.000
GR	845.100	0.000	841.000	46.000	838.600	61.000	834.400	72.000	826.700	120.000
GR	826.700	318.000	838.000	416.000	840.400	450.000	844.000	543.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	204.000	9.000	46.000	416.000	1360.000	1360.000	1360.000	0.000	0.000	0.000
GR	845.100	0.000	841.000	46.000	838.600	61.000	834.400	72.000	828.700	120.000
GR	828.700	318.000	838.000	416.000	840.400	450.000	844.000	543.000	0.000	0.000

X1	205.200	11.000	233.000	483.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	854.800	69.000	854.100	134.000	848.600	233.000	836.400	287.000	833.200	303.000
GR	830.100	340.000	830.100	390.000	833.200	428.000	837.500	455.000	839.800	483.000
GR	845.000	602.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** PRIVATE DRIVE, SIMPLE MODEL

X1	205.300	0.000	0.000	0.000	120.000	120.000	120.000	0.000	1.300	0.000
X2	0.000	0.000	0.000	835.400	836.900	0.000	0.000	0.000	0.000	0.000

X1	205.400	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	835.400	836.900	0.000	0.000	0.000	0.000	0.000

X1	205.800	8.000	0.000	386.000	120.000	120.000	120.000	0.000	0.000	0.000
GR	845.000	0.000	836.400	115.000	834.700	156.000	830.000	220.000	830.000	240.000
GR	834.700	288.000	838.600	339.000	845.000	386.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	.100	.300	0.000	0.000	0.000	0.000	0.000

** CONCRETE AND STONE WEIR

X1	205.900	8.000	220.000	240.000	1.000	1.000	1.000	0.000	0.000	0.000

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GR	845.000	0.000	836.400	115.000	834.700	156.000	833.800	220.000	833.800	240.000
GR	834.700	288.000	838.600	339.000	845.000	386.000	0.000	0.000	0.000	0.000
X1	205.910	0.000	0.000	0.000	2.000	2.000	2.000	0.000	0.000	0.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	205.920	8.000	0.000	386.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	845.000	0.000	836.400	115.000	834.700	156.000	831.300	220.000	831.300	240.000
GR	834.700	288.000	838.600	339.000	845.000	386.000	0.000	0.000	0.000	0.000
X1	206.000	12.000	87.000	721.000	725.000	725.000	725.000	0.000	0.000	0.000
GR	845.000	0.000	840.000	87.000	838.600	149.000	836.800	184.000	834.800	300.000
GR	834.000	377.000	832.900	385.000	832.900	440.000	834.800	443.000	835.100	592.000
GR	838.900	721.000	845.000	782.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	207.200	12.000	277.000	323.000	700.000	700.000	700.000	0.000	.500	0.000
X3	0.000	0.000	0.000	128.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.200	0.000	837.300	69.000	835.900	88.000	835.400	128.000	835.300	277.000
GR	834.980	295.000	834.980	310.000	835.300	323.000	835.600	390.000	837.700	522.000
GR	840.700	591.000	845.000	633.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE E. LONG LAKE - ELLIPTICAL CMP

X1	207.300	0.000	0.000	0.000	185.000	185.000	185.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	128.000	0.000	390.000	0.000	0.000	0.000	0.000
SB	0.000	3.300	2.900	110.000	4.000	0.000	11.400	0.000	0.000	0.000
X1	207.700	18.000	663.000	710.000	75.000	75.000	75.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.100	0.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	2.000	520.000	838.200	837.100	905.000	840.000	837.100	0.000	0.000	0.000
GR	845.000	0.000	843.000	174.000	841.300	259.000	840.000	546.000	843.100	600.000
GR	840.100	628.000	839.100	663.000	837.500	680.000	835.400	691.000	834.800	693.000
GR	834.800	696.000	835.400	699.000	837.500	710.000	838.400	742.000	838.000	775.000
GR	839.800	808.000	840.000	860.000	844.500	1191.000	0.000	0.000	0.000	0.000
NC	.065	.065	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	207.800	18.000	663.000	710.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	845.000	0.000	843.000	174.000	841.300	259.000	840.000	546.000	843.100	600.000
GR	840.100	628.000	839.100	663.000	837.500	680.000	835.400	691.000	834.800	693.000
GR	834.800	696.000	835.400	699.000	837.500	710.000	838.400	742.000	838.000	775.000
GR	839.800	808.000	840.000	860.000	844.500	1191.000	0.000	0.000	0.000	0.000

** D/S FACE EASTAWAYS - CMP

X1	208.300	0.000	0.000	0.000	120.000	120.000	120.000	0.000	.800	0.000
X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.570	2.900	0.000	4.000	0.000	15.000	0.000	0.000	0.000
X1	208.700	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.100	0.000	0.000	0.000	0.000	0.000	0.000

X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	4.000	340.000	840.500	839.100	400.000	840.000	839.100	500.000	840.000	839.100
BT	525.000	839.500	839.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.085	.075	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	208.800	10.000	295.000	320.000	70.000	70.000	70.000	0.000	.400	0.000
X3	0.000	0.000	0.000	270.000	0.000	0.000	0.000	0.000	0.000	0.000
X4	1.000	838.500	270.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	845.000	0.000	840.900	76.000	840.000	194.000	838.000	295.000	835.830	301.000
GR	835.830	308.000	837.500	320.000	838.800	350.000	839.000	392.000	845.000	535.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	208.900	0.000	0.000	0.000	140.000	140.000	140.000	0.000	.400	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	209.000	10.000	277.000	299.000	310.000	310.000	310.000	0.000	1.000	0.000
GR	848.000	0.000	843.800	133.000	841.700	236.000	839.800	277.000	836.500	284.000
GR	836.500	291.000	838.400	299.000	840.000	333.000	840.800	371.000	845.000	400.000
X1	210.200	14.000	373.000	455.000	650.000	650.000	650.000	0.000	.700	0.000
X3	0.000	0.000	0.000	0.000	0.000	620.000	0.000	0.000	0.000	0.000
GR	848.000	0.000	847.400	71.000	845.000	146.000	844.000	266.000	841.100	373.000
GR	840.200	390.000	840.200	442.000	839.800	443.000	839.800	449.000	841.000	455.000
GR	841.600	620.000	842.000	692.000	843.900	829.000	844.500	905.000	0.000	0.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE KINGSLEY RD. - 2-3' DIA. CMPS

X1	210.300	11.000	355.000	384.000	150.000	150.000	150.000	0.000	.200	0.000
X3	0.000	0.000	0.000	300.000	0.000	560.000	0.000	0.000	0.000	0.000
GR	846.800	119.000	845.700	222.000	845.500	297.000	844.400	355.000	840.380	367.000
GR	840.380	376.000	844.000	384.000	844.600	404.000	844.600	437.000	844.600	560.000
GR	845.500	806.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.000	2.600	100.000	6.000	0.000	14.100	0.000	0.000	0.000
X1	210.700	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	843.200	845.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	404.000	0.000	0.000	0.000	0.000
X1	210.800	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	404.000	0.000	0.000	0.000	0.000
QT	5.000	185.000	280.000	320.000	420.000	320.000	0.000	0.000	0.000	0.000

** BLOOMFIELD THP. BDY.

X1	210.900	0.000	0.000	0.000	160.000	160.000	160.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	404.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** WOODEN FOOTBRIDGE

X1	210.910	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000

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X2	0.000	0.000	0.000	842.500	842.900	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	404.000	0.000	0.000	0.000	0.000
X1	210.920	0.000	0.000	0.000	4.000	4.000	4.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	842.500	842.900	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	404.000	0.000	0.000	0.000	0.000

** WOODEN FOOTBRIDGE

X1	210.930	0.000	0.000	0.000	25.000	25.000	25.000	0.000	.100	0.000
X2	0.000	0.000	0.000	843.100	843.700	0.000	0.000	0.000	0.000	0.000
X1	210.940	0.000	0.000	0.000	4.000	4.000	4.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	843.100	843.700	0.000	0.000	0.000	0.000	0.000

** SMALL DAM

X1	210.950	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X1	210.960	15.000	355.000	384.000	1.000	1.000	1.000	0.000	.800	0.000
GR	846.800	119.000	845.700	222.000	845.500	297.000	844.400	355.000	844.000	360.000
GR	844.000	367.000	841.200	368.000	841.200	369.000	844.000	370.000	844.000	377.000
GR	844.000	384.000	844.600	404.000	844.600	437.000	844.600	560.000	845.500	806.000
X1	210.970	0.000	0.000	0.000	1.500	1.500	1.500	0.000	0.000	0.000
X1	210.980	11.000	355.000	384.000	1.000	1.000	1.000	0.000	.800	0.000
GR	846.800	119.000	845.700	222.000	845.500	297.000	844.400	355.000	840.380	367.000
GR	840.380	376.000	844.000	384.000	844.600	404.000	844.600	437.000	844.600	560.000
GR	845.500	806.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	211.000	8.000	630.000	645.000	350.000	350.000	350.000	0.000	0.000	0.000
GR	847.700	220.000	846.200	330.000	846.200	490.000	846.500	625.000	843.300	630.000
GR	843.300	645.000	849.000	660.000	850.000	730.000	0.000	0.000	0.000	0.000
NC	.075	.075	.060	.100	.300	0.000	0.000	0.000	0.000	0.000

** 2' DIA RCP - 100 FT. LONG

X1	211.300	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	846.500	846.500	0.000
SB	0.000	2.450	3.000	200.000	2.000	0.000	3.200	0.000	0.000	0.000
X1	211.700	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	844.900	848.000	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	848.000	848.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	212.900	7.000	54.000	65.000	230.000	230.000	230.000	0.000	-.700	0.000
GR	850.000	0.000	847.600	28.000	846.800	54.000	844.700	56.000	844.700	63.000
GR	846.400	65.000	850.000	115.000	0.000	0.000	0.000	0.000	0.000	0.000

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X1	213.000	7.000	54.000	65.000	340.000	340.000	340.000	0.000	0.000	0.000
GR	850.000	0.000	847.600	28.000	846.800	54.000	845.000	56.000	845.000	63.000
GR	846.400	65.000	850.000	115.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	213.500	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.500	0.000
X1	214.200	10.000	48.000	110.000	210.000	210.000	210.000	0.000	0.000	0.000
GR	855.000	0.000	853.800	48.000	851.800	61.000	846.900	72.000	846.100	75.000
GR	846.100	79.000	846.900	81.000	848.800	85.000	851.600	110.000	854.800	150.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	5.000	125.000	180.000	220.000	290.000	220.000	0.000	0.000	0.000	0.000

** D/S FACE GREAT OAKS - 7' DIA. CMP

X1	214.300	7.000	71.500	78.500	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	852.000	852.000	0.000
GR	856.000	0.000	850.000	71.500	847.400	72.500	846.400	75.000	847.400	77.500
GR	850.000	78.500	856.000	150.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	.500	1.000	0.000	0.000	0.000	0.000	0.000
X1	214.400	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	856.000	856.000	0.000
BT	7.000	0.000	856.000	0.000	71.500	856.000	850.000	72.500	856.000	852.500
BT	75.000	856.000	853.400	77.500	856.000	852.500	78.500	856.000	850.000	150.000
BT	856.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	214.600	0.000	0.000	0.000	65.000	65.000	65.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.000	856.000	0.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	214.700	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	856.000	856.000	0.000
NC	.095	.650	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	214.800	11.000	164.000	179.000	90.000	90.000	90.000	0.000	0.000	0.000
GR	857.000	0.000	855.700	21.000	854.900	82.000	852.200	164.000	849.100	168.000
GR	847.700	170.000	847.700	175.000	849.100	177.000	851.200	179.000	856.600	217.000
GR	857.000	244.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** WOODEN FOOTBRIDGE

X1	215.100	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.100	0.000
X2	0.000	0.000	0.000	854.400	855.200	0.000	0.000	0.000	0.000	0.000
X1	215.150	0.000	0.000	0.000	4.000	4.000	4.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	854.400	855.200	0.000	0.000	0.000	0.000	0.000
X1	215.200	10.000	56.000	72.000	30.000	30.000	30.000	0.000	0.000	0.000

THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

GR	857.000	0.000	856.000	32.000	853.800	56.000	850.100	58.000	848.900	60.000
GR	848.900	65.000	850.100	67.000	853.000	72.000	854.800	83.000	856.400	105.000
NC	0.000	0.000	.040	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOXHALL RD. - 2-5' CMP ARCHES

X1	215.300	0.000	0.000	0.000	80.000	80.000	80.000	0.000	.200	0.000
SB	0.000	2.460	2.900	80.000	12.000	0.000	24.600	0.000	0.000	0.000

X1	215.700	0.000	0.000	0.000	45.000	45.000	45.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	852.300	854.500	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	215.800	18.000	615.000	629.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	555.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	857.000	0.000	856.100	289.000	855.500	344.000	852.300	372.000	855.200	397.000
GR	855.000	429.000	852.000	440.000	852.000	451.000	855.200	517.000	855.400	555.000
GR	853.400	615.000	850.500	617.000	849.400	620.000	849.400	624.000	850.500	627.000
GR	853.500	629.000	856.600	648.000	857.000	664.000	0.000	0.000	0.000	0.000
NC	.085	.085	.060	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	215.900	14.000	291.000	320.000	275.000	275.000	275.000	0.000	-1.200	0.000
X3	0.000	0.000	0.000	291.000	0.000	396.000	0.000	0.000	0.000	0.000
GR	859.200	72.000	859.200	136.000	854.000	193.000	854.000	211.000	856.400	239.000
GR	856.200	291.000	851.900	310.000	851.300	312.000	851.300	315.000	851.900	317.000
GR	853.400	320.000	854.000	396.000	855.600	531.000	860.000	631.000	0.000	0.000

X1	215.950	0.000	0.000	0.000	225.000	225.000	225.000	0.000	.500	0.000
X3	0.000	0.000	0.000	291.000	0.000	396.000	0.000	0.000	0.000	0.000

X1	216.200	0.000	0.000	0.000	275.000	275.000	275.000	0.000	.600	0.000
X3	0.000	0.000	0.000	291.000	0.000	396.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	5.000	45.000	70.000	80.000	90.000	80.000	0.000	0.000	0.000	0.000

** D/S FACE SQUARE LAKE RD. - 2-5' DIA. CMP'S, ONE IS BULKHEADED

X1	216.300	6.000	705.000	710.100	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	857.000	857.000	0.000
GR	860.300	645.000	854.800	705.000	852.400	705.100	852.400	710.000	854.800	710.100
GR	861.000	760.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.100	4.100	0.000	5.000	0.000	9.800	0.000	0.000	0.000

X1	216.700	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	854.800	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	860.300	860.300	0.000
BT	3.000	645.000	860.300	0.000	710.000	860.300	0.000	760.000	861.000	0.000

X1	216.800	10.000	320.000	332.000	110.000	110.000	110.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	256.000	0.000	393.000	0.000	0.000	0.000	0.000
GR	856.000	188.000	855.200	256.000	854.000	283.000	854.000	320.000	853.400	321.000
GR	851.500	323.000	851.500	326.000	853.400	329.000	854.600	332.000	855.400	393.000

X1	217.000	5.000	158.000	820.000	690.000	690.000	690.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	405.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	861.600	158.000	854.700	228.000	854.700	800.000	859.400	820.000	864.600	1243.000
X1	218.000	0.000	0.000	0.000	800.000	800.000	800.000	0.000	.800	0.000
X3	0.000	0.000	0.000	286.000	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

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: AMY DRAIN

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

February 19, 1987

THE HEATHERS

HYDRAULIC EVALUATION

OF THE AMY DRAIN

PROJECT: The Heathers - Job #9726-02

CONSULTING FIRM: Giffels-Webster Engineers, Inc.

WATER COURSE: Amy Drain

STUDY LIMITS: Square Lake Road to I-75 Right-of-way, approximately 2,500 linear feet

DATE OF AERIAL SURVEY:

DATE OF LAND SURVEY:

SOURCE OF FLOWS: Discharges were computed by the ILUDRAIN program for a tributary area of 585 acres

TOPOGRAPHIC INFORMATION: Site Plan of Heathers (scale 1" = 100') showing the location of the HEC-2 cross-sections

METHOD OF ANALYSIS: HEC-2 computer program for water surface profiles and ILUDRAIN computer program for hydrological evaluation

VARIABLES & COEFFICIENTS:

HEC-2

Channel "n" - 0.060
Overbank "n" - 0.085
Culvert "n" - 0.024
Contraction Coefficient - 0.1 to 0.3
Expansion Coefficient - 0.5
Bridge loss coefficients were chosen per Reference 1.

ILUDRAIN

Rainstorm distribution SCS Type II
Antecedent Moisture - Condition 2
Impermeable Area Abstractions - 0.1 inches
Permeable Area Abstractions - 0.2 inches

CROSS-SECTIONS: See Exhibits #3 & #4
Sections downstream of Square Lake Road are per Flood Insurance Study Hydraulic Report, Reference

XKOR CALCULATIONS: Culverts at Square Lake Road and Section 11.2 per Exhibit #6. The proposed bridges per recommendation in Reference 1

REFERENCES:

1. HEC-2 Water Surface Profiles User Manual, U.S. Army Corps of Engineers, September, 1982.

2. ILLUDRAIN Urban Storm Drainage Design Version 2.1.

3. Flood Insurance Study Hydraulic Report
HUD-FIA-M-4705, City of Bloomfield Hills and Bloomfield Township, Oakland County, Michigan.

STARTING CONDITIONS:

Profiles for 100, 10, 50 and 500 year flows through Sections 215.8 to 216.3 as computed in the HEC-2 run of Reference 3 were used as starting conditions.

HIGH WATER MARKS AND CALIBRATION:

There was no high water information available. The computer hardware was calibrated by running the Reference 3 data through it.

DESIGNATED FLOODWAY:

Encroachment Method 1 was used in modeling the flows from Section 2 to Section 18. The location of sections is shown in Exhibit #2.

COMPUTER OUTPUTS:

Enclosed are the following:

1. HEC-2 computer run originally done for the Flood Insurance Study Hydraulic Report (HUD-FIA-H-4705). Exhibit #7

2. Above data duplicated on our computer, Exhibit #8.

3. Multiprofile run for the proposed conditions showing profile data for the 100, 10, 50 and 500 year storms. The output for the 100 year flows also contain the plots of cross-sections and profile, Exhibit #9.

4. Computer runs of ILUDRAIN program with flow computations for each of the four floods. The computer outputs show also the required volumes, outflows and staging for the two large storage reaches, Exhibit #10.

COMMENTS:

We have not delineated 100 or 500 year floodplains at this time. This will be done after the D.N.R. approval of the 100 and 500 year flood elevations.

AMY DRAIN REVISED HYDROLOGY:

Hydraulic investigation of the tributary area has shown that currently only 585 acres (0.91 square miles) are contained in the Amy Drain Tributary area upstream of Square Lake Road. This is somewhat less than the 1.07 square miles called for in the FIA Report. The proposed Heathers development occupies approximatey 177 acres of the present tributary area. Of these, the run-off from approximately 30 acres does not reach Amy Drain, as it is retained on-site in natural retention areas.

Rainstorm data used in modeling of the flows was as follows:

STORM FREQUENCY (YEARS)	24 HOUR PRECIPITATION
1	2.1"
5	3.0"
10	3.5"
25	3.9"
50	4.3"
100	5.0"
500	5.9"

The hypothetical 500 year frequency has been obtained by extrapolation of a semi-log plot of the other frequencies. The 10, 50 and 100 year storms were the only ones to be used directly in the ILUDRAIN program.

The ILUDRAIN program is used for evaluation and design of storm water drainage systems in urban areas. The model is patterned after the British Road Research Laboratory Method. The program uses a storm hyetograph and physical basin parameter to predict stormwater run-off hydrographs from both paved and grassed areas. In the design mode, ILUDRAIN selectspipe diameters at user specified slopes to pass the peak of the design hydrograph. In the evaluation mode, ILUDRAIN routes hydrographs through user user-specified pipes, open channels, or storage basins.

OTHER MODELING NOTES:

For modeling purposes, the portion of Amy Drain lying between Square Lake Road and I-75 has been divided into two large storage reaches. The lower storage area (reach 1/85) is formed by the flow restriction under Square Lake Road. This restriction is created by a 72" x 44" pipe arch culvert (equivalent to 60" round pipe). The upper storage area (reach 1/65) is formed by the flow restriction in the HEC-2 Section 11.2. This restriction is also provided by a 72" x 44" pipe arch culvert.

The ILUDRAIN program employed in the storage mode did flood-routing computations through each of the two storage areas. These computations yielded outflows, storage volumes and stages for each of the four design frequency flows. The data provided for the flood routing consisted of discharge volume curves, which were developed for the two basins and are a part of data submitted with this report, Exhibit #5.

The discharges for each of the storage areas were adjusted until a close agreement was obtained between the ILUDRAIN storage stages and the HEC-2 profile elevations. Each of the two storage area is traversed by a short-span bridge. The flow area of each of these bridges is of sufficient size to reduce the effect on the hydraulic profile elevations to an insignificant minimum.

The culvert in Section 11.2 develops high velocity flows against which the channel will have to be protected by appropriate construction.

DATA AND RESULTS:

The following is data obtained from the ILUDRAIN modeling.

	LOWER BASIN			UPPER BASIN		
FREQUENCY	Q (CFS)	STORED VOLUME (CU.FT.)	STAGE (FT.)	Q (CFS)	STORAGE VOLUME (CU. FT.)	STAGE (FT.)
100	64.39	647,293	856.19 (856.69)	61.73	1,172,091	859.28 (859.33)
10	38.87	402,133	854.91 (855.69)	38.37	547,357	857.53 (857.58)
50	53.03	540,498	855.52 (856.20)	50.73	860,551	858.44 (858.63)
500	78.97	843,580	857.00 (857.59)	183.73	1,634,862	860.28 (860.35)

( ) Designate water surface elevations computed by HEC-2.

...LE PORTER & SEELEY
CONSULTING ENGINEERS
...ARBOR MICHIGAN

JOB ____ SHEET NO ____

SUBJ COMMUNITY: BLOOMFIELD HILLS/BLOOMFIELD TOWNSHIP FILE NO ____

COMP WATERCOURSE: AMY DRAIN DATE ____

TABLE — XKOR CALCULATIONS

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

Cross Section Location	K_e	A	P	R	n	ℓ	K_F	XKOR	REMARKS
G.T.W.R.R. (201.3, 201.7)	.6	15.9	14.1	1.12	.012	260	.93	2.53	4-5'Φ RCP
KENSINGTON (202.3, 202.7)	.4	12.6	12.6	1	.02	36	.418	1.82	4.0'Φ CMP
E. LONG LAKE (207.3 & 208.7)	.7	11.43	13	.88	.025	75	1.61	3.31	(Elliptical CMP)
FAST AWAYS (208.3, 208.7)	.7	15	14.5	1.03	.025	50	.87	2.57	Elliptical CMP
KINGSLEY (210.3, 210.8)	.9	14.1	18.8	.75	.025	43	1.14	3.04	2-3'Φ CMP
FOXRIDGE (211.3, 211.7)	.4	3.2	6.4	.5	.012	100	1.05	2.45	2'Φ RCP
FOXHALL (215.3, 215.7)	.5	24.6	27.7	.89	.025	45	.96	2.46	2-5'CMP-½Φ
SQ. LAKE RD. (216.3, 216.7)	.9	9.8	12.9	.76	.025	100	2.6	4.1	2-½5'Φ CMP one blocked
	.5 resubmitted to DNR 10-10-80								

Revisions

Correspond to letter of 10/22/80 from MPS

Hydraulic Analysis

Subject: Bridges

Project: HUD-FIA-H-4705

Community

Watercourse

Remarks

Bridge Location

Routine:

- n values
- skew angle
- enroachment option
- shock coefficients
- BT cards

Special Bridge Coefficients

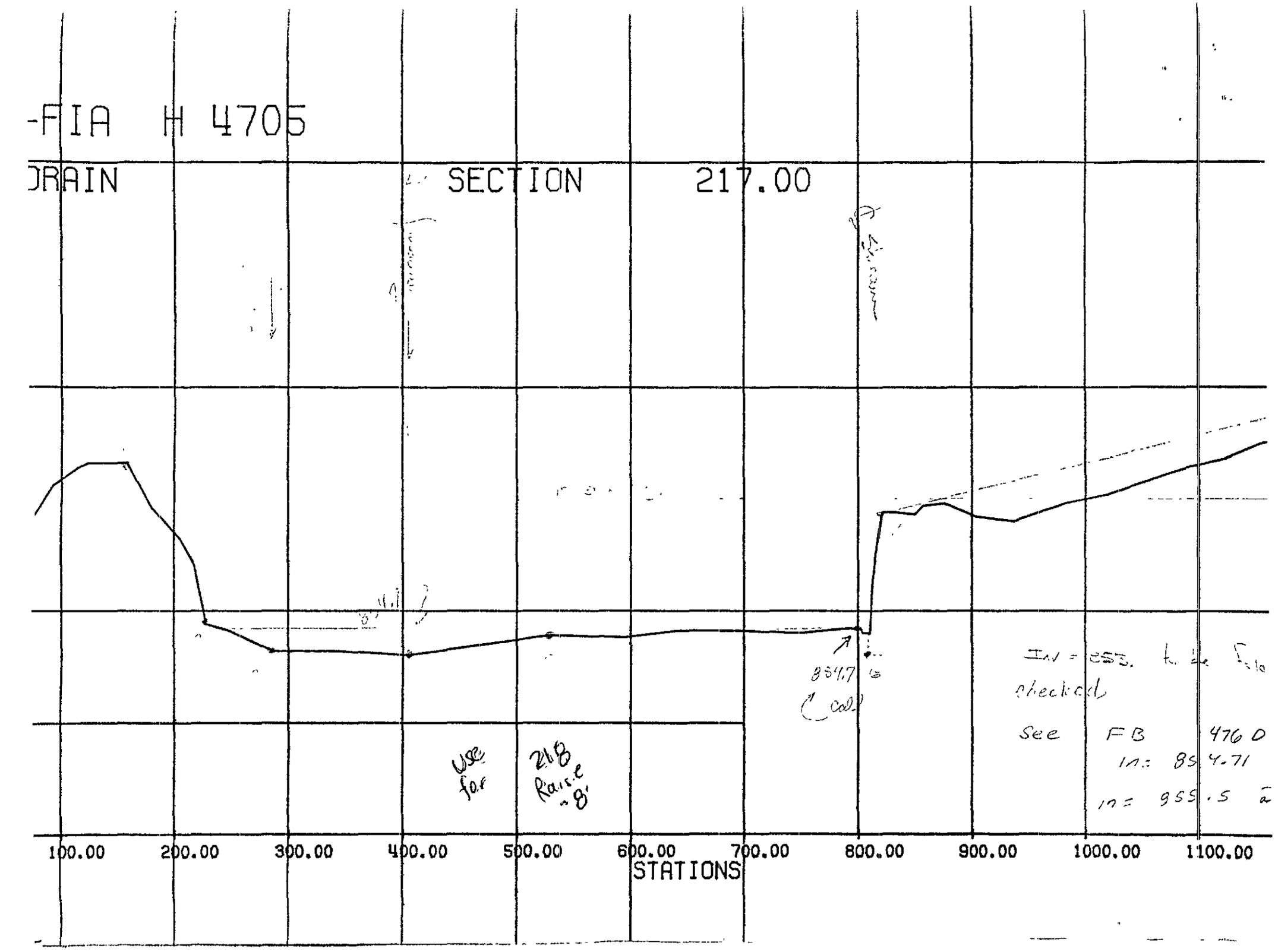
- Pier shape (XK)
- Orifice coeff. (XKOR)
- Weir coef. (COFQ)
- Weir Length (RDLEN)
- Bottom of trapezoid (BWC)
- Area of trapezoid (BAREA)
- Side Slope (SS)
- U/s Invert of trap. (ELCHU)
- D/S Invert of trapezoid (ELCHD)
- Pressure Elev. (ELLC)
- Weir Elev. (ELTRD)

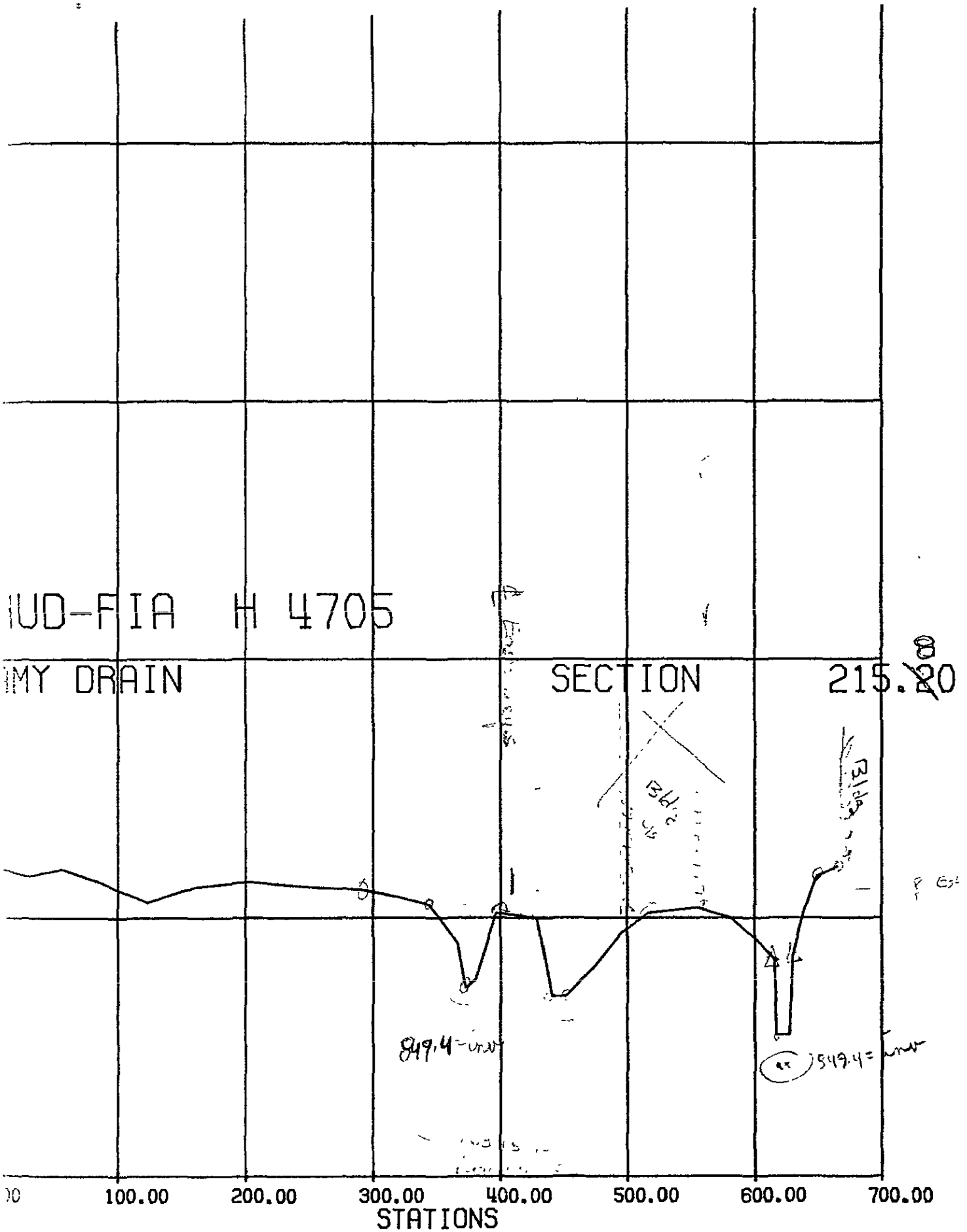
2 5'6" CMP 12' apart ℄ — ℄ Assume ½

Per field notes —
E. culvert completely
blocked intentionally
w/conc. bags.
use 1 culvert



ELLC : 854.8 A: 9.8ft²

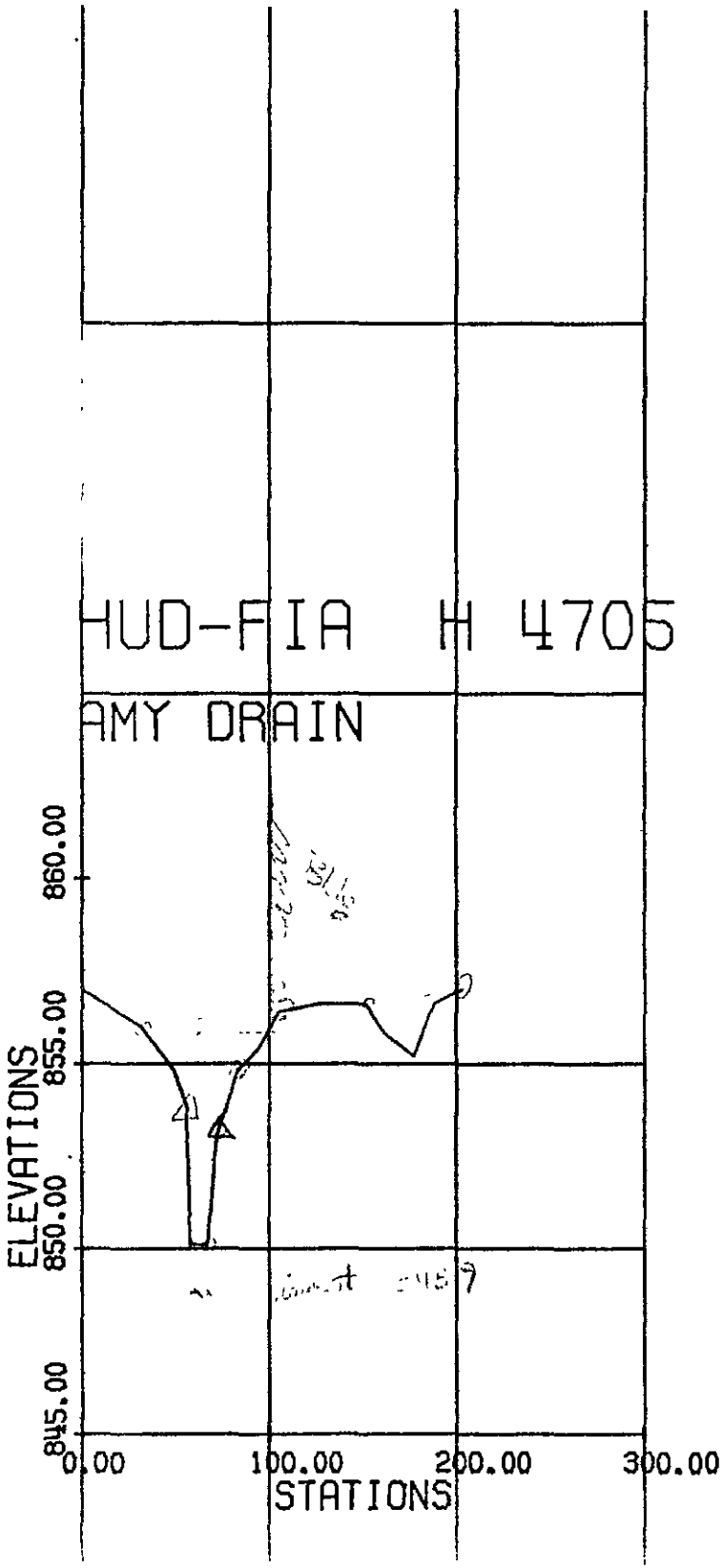

-FIA H 4705
DRAIN
SECTION 217.00
854.7
(calc)
Use for 218 Raise ~8'
Inv = est. to be checked
See FB 4760
IN: 854.71
IN = 955.5
100.00
200.00
300.00
400.00
500.00
600.00
700.00
800.00
900.00
1000.00
1100.00
STATIONS


IUD-FIA H 4705
MY DRAIN
SECTION
215.20
849.4
549.4
100.00
200.00
300.00
400.00
500.00
600.00
700.00
STATIONS

HUD-FIA H 4705

AMY DRAIN

SECTION 215.80



Amy DRAIN

12-01-80
CJM

1) 216.3 - 216.7 Sq Lk Rd XKOR = 4.1 ← see Calculation sheet enclosed

K_e = .5 (not .9)!

K_f = 2.6 } 4.5
K_e = .9 }

..... Values were switched XKOR = 3.1 vs 4.5

Q = 80 TW = 855.62 .5 (.8) (.02) $h^{1/2}$ vs .568 ∴ 21 h

EGU/S prev = 858.82 h = 4.14
now = 859.76 4.66

→ still all pressure flow

Memo states may open other blocked culvert after future area developement.

1'-0 horiz to be computed

intentionally blocked. now elevation = 860.02 vs 858.74 previous change maps, profile.

Rev: 1
CXF:
Changed

2) 90° 5'-0 wide pressure w/ 1:4 45 + 5 = 50'

unchecked TW = 103.2

Yes, should be shown as 50' wide 291 → 340

Plan will be changed to show this

3) 207.7 & 207.3 Weir = 110 Weir = 2.9 XKOR = 3.3

Q = 620 vs 400 @ 260

TW = 841.98 Road El = 838.2 Computed = 842.02

Weir = 180

US 837.7 submerged note el Δ from 207.7 - 207.3 = .03'

increase weir to 200', even using full 400' as weir length, profile would not be altered.

Send Hiromo at 207.3

For floodplain use full 400 for floodway use effective = 200'

Area taken at 207.7 ($\frac{400}{2}$ × 2)

TW = 845.99 $P_d = 2.6(100)^{1/2}$ now 1157 in ROB V_{ROB} = .79

w/ XKOR = 3.1

4) Grand Trunk Western - see p. 6 notes

Is it possible for flow to go through underpass at 6" WR and E. Long Lake Rd? ⇒ Yes - it was included in model including Modelling notes. It was in original notes for Trib. Could have but was not. Mod

Also report which shows

12-01-80

Amy

5) Section 217, 218 Floodway widths

Topography is very flat is this region. This is storage area used in the hydrologic routing of flows.

216.8 → 217

80' does section really change that much such that TW goes from 130 - 400 ?

→ encroach at 530 for both - no okay as is send C-A from Keiths

6) Foxhall Rd (215.3 - 215.7) Weir length used = 80'

U/s width = 42'

Q = 220 T/Rd = 854.5 XKOR = 2.46 C = 2.9 A = 24.6

TW = 854.97 Δ .1' HWF 855.2 eg = 855.35

Q_f .64(24.6)(8.62) $h^{1/2}$ = 77 eg 855.4

Q_w 2.9(42)$(H)^{3/2}$ c = 2.7 88

2.7(42)$(H^{3/2})$ = 165

weir length = 50 U/s Topwidth ≈ 69 use more of a composite of sections at 215.2, 215.8

Note 215.8 has topwid = 80

HW = 855.2 eg = 855.35

Q_w $2.7(60)H^{3/2}$ = 127

Q_f $126h^{1/2}$ = 73

205 ~ close

previously EG_{HW} = 855.3 / 855.15

ΔHW < .1 ≠ .07

This, using floodway width of 60' at 215.7. This seems more appropriate, using a composite section of 215.2, 215.8

7) Foxhall 215.3 - 215.7

see notes on question #6 Floodway ≅ 60' using a more representative modeling section.
— send the two cross-sections Xerox's

8) 210.93 - 210.98 Floodway Widths
Would like to see plan to answer this DNR has plan.

25'
210.92 → 210.93
210.98 ≅ 350' 211

All are using section from 210.3 (210.8)

210.93 is wider because no longer restricted by the bldgs - however make expansion more gradual. 300" @ 210.93 This would be area taken off AROB mainly Very little friction loss in this region, insignificant effect

would → be to or [illegible]

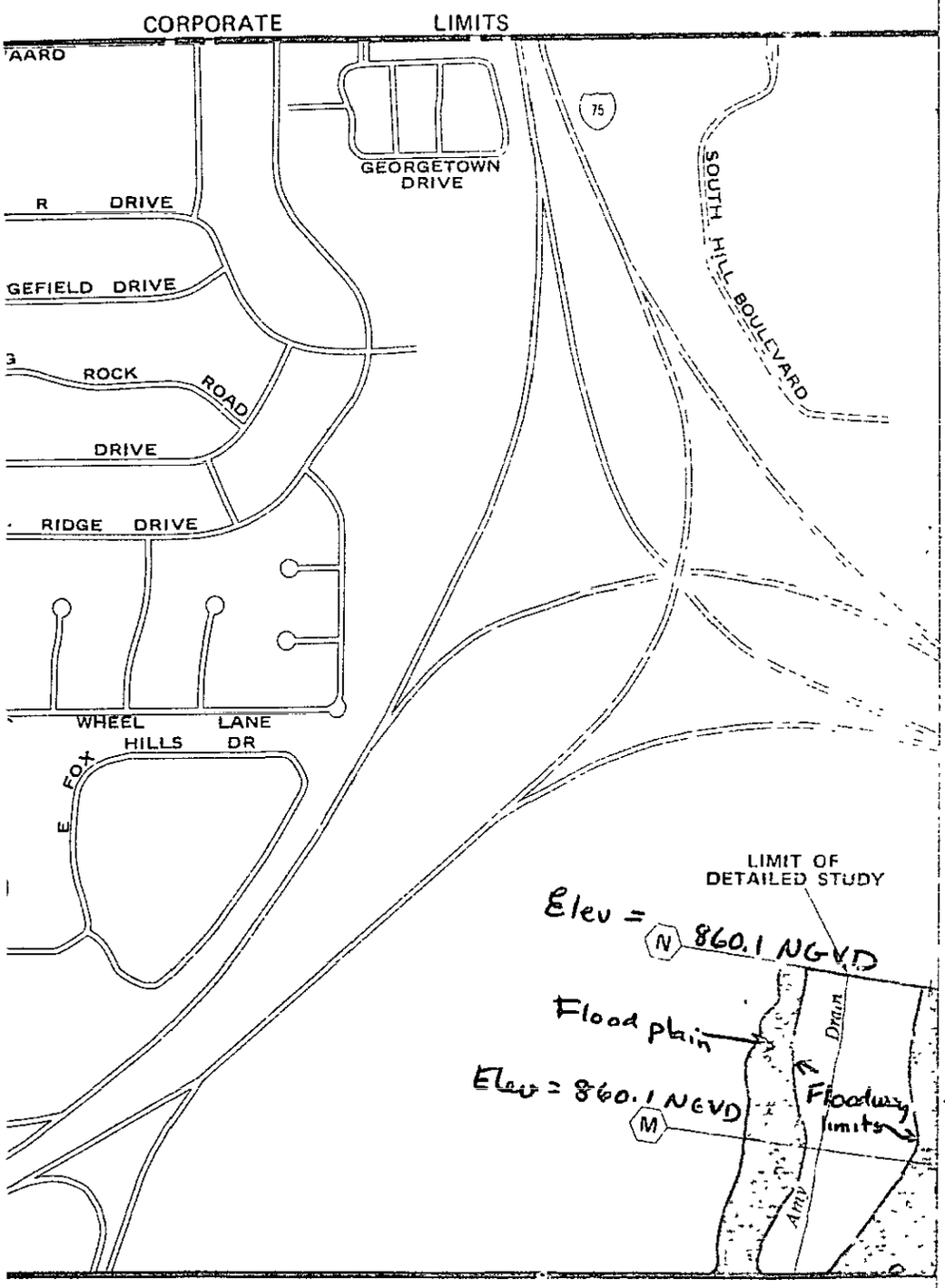
210.93 and 210.94 restrict width ≅ 300' use 40Y left encroachment
210.95 - 210.98 do not reduce.

9) 211.3 - 211.7 most of flow is weir flow
Qpr = 20 Qweir = 300

Could it easily plug up? What would happen then?

If modelled only the weir flow and $Q_{pressure} = 0$
Then, $Q = C(200)H^{3/2}$ top rd = 848
TW = 847.19

$320 = 600H^{3/2}$
$H = .658$ HW = 848.66 vs 848.63





APPROXIMATE SCALE

800 0 800 F

NATIONAL FLOOD INSURANCE P

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

TOWNSHIP OF
BLOOMFIELD,
MICHIGAN
OAKLAND COUNTY

PANEL 5 OF 16

(SEE MAP INDEX FOR PANELS NOT P

Amy Drain

COMMUNITY-PANEL N
260169

EFFECTIVE D
JANUARY 6,

Giffels-Webster Engineers, Inc.
2731 Adams Road
Pontiac, Michigan 48057
Phone 313/852-3100 or 313/358-2266

Date 12/24/86
Job No. 9726-02
Subject The Heathers
By ORC

Preliminary Culvert Design

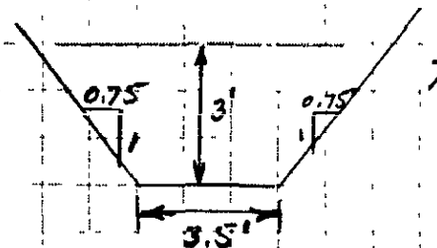
Computation of XKOR

Culvert Size: 72"x44" CMPipe Arch

Equiv. Round Pipe: 60 inch ϕ

Cross-sect. Area: 17.6 Sq.Ft

Trapezoid of Equiv Area



Trapezoidal Area = [3.5+(0.75)3]3

= 17.25 Sq.Ft

$$K_f = 29n^2\left(\frac{L}{R^{4/3}}\right)$$

$$R = \frac{A}{P} = \frac{\pi(35/4)}{\pi(5)} = 1.25$$

$$R^{4/3} = 1.35$$

$$K_f = 29(0.024)^2\left(\frac{50}{1.35}\right)$$

K_f = 0.62

K_c = 0.90

1.52

+ 1.00

XKOR = 2.52

EXHIBIT 6

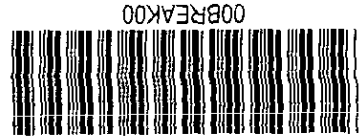


1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: AMY DRAIN

4) DOCUMENT TYPE: SUMMARY



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

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

AMY DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	201.300	0.00	0.00	0.00	820.20	320.00	825.99	0.00	826.20	21.24	3.68	86.91	69.44
	201.300	0.00	0.00	0.00	820.20	280.00	825.55	0.00	825.74	21.22	3.49	80.24	60.79
	201.300	0.00	0.00	0.00	820.20	310.00	825.88	0.00	826.09	21.24	3.64	85.26	67.26
	201.300	0.00	0.00	0.00	820.20	495.00	827.71	0.00	828.01	21.41	4.39	112.63	106.97
	201.800	260.00	838.00	824.15	820.75	320.00	838.29	0.00	838.29	.07	.39	1546.98	1227.59
	201.800	260.00	838.00	824.15	820.75	280.00	837.71	0.00	837.73	.63	1.16	241.15	352.77
	201.800	260.00	838.00	824.15	820.75	310.00	838.23	0.00	838.23	.06	.38	1535.72	1216.71
	201.800	260.00	838.00	824.15	820.75	495.00	838.91	0.00	838.91	.13	.56	1674.10	1351.33
	201.900	100.00	0.00	0.00	821.05	320.00	838.29	0.00	838.29	.07	.40	1487.91	1170.65
	201.900	100.00	0.00	0.00	821.05	280.00	837.74	0.00	837.74	.07	.38	1383.41	1070.78
	201.900	100.00	0.00	0.00	821.05	310.00	838.23	0.00	838.23	.07	.39	1476.92	1160.10
	201.900	100.00	0.00	0.00	821.05	495.00	838.91	0.00	838.91	.15	.58	1611.95	1290.63
	202.300	30.00	0.00	0.00	821.25	620.00	838.29	0.00	838.29	.30	.80	1449.41	1133.74
	202.300	30.00	0.00	0.00	821.25	330.00	837.74	0.00	837.74	.10	.46	1346.83	1036.05
	202.300	30.00	0.00	0.00	821.25	510.00	838.23	0.00	838.23	.21	.66	1438.60	1123.39
	202.300	30.00	0.00	0.00	821.25	835.00	838.91	0.00	838.92	.45	1.00	1571.52	1251.35
	202.700	36.00	826.80	825.40	821.25	620.00	838.32	0.00	838.33	.30	.80	1456.82	1140.83
	202.700	36.00	826.80	825.40	821.25	330.00	837.76	0.00	837.76	.10	.46	1350.60	1039.63
	202.700	36.00	826.80	825.40	821.25	510.00	838.26	0.00	838.26	.20	.66	1444.71	1129.23
	202.700	36.00	826.80	825.40	821.25	835.00	838.96	0.00	838.96	.44	1.00	1581.75	1261.27
	202.800	20.00	0.00	0.00	821.80	620.00	838.33	0.00	838.33	.15	.58	2016.16	1576.56
	202.800	20.00	0.00	0.00	821.80	330.00	837.76	0.00	837.76	.05	.33	1882.37	1433.38
	202.800	20.00	0.00	0.00	821.80	510.00	838.26	0.00	838.27	.11	.48	2001.39	1560.40
	202.800	20.00	0.00	0.00	821.80	835.00	838.96	0.00	838.96	.23	.72	2167.15	1745.59
	202.810	195.00	0.00	0.00	822.50	620.00	838.33	0.00	838.33	.20	.63	1852.34	1402.36
	202.810	195.00	0.00	0.00	822.50	330.00	837.76	0.00	837.76	.07	.36	1720.60	1268.60
	202.810	195.00	0.00	0.00	822.50	510.00	838.27	0.00	838.27	.14	.52	1837.30	1386.89
	202.810	195.00	0.00	0.00	822.50	835.00	838.97	0.00	838.97	.29	.78	2002.75	1561.88
*	202.820	4.00	837.40	836.40	834.10	620.00	838.19	838.19	838.66	109.14	7.36	246.33	59.35
*	202.820	4.00	837.40	836.40	834.10	330.00	833.00	0.00	838.23	50.96	4.81	195.85	46.23
*	202.820	4.00	837.40	836.40	834.10	510.00	838.10	838.10	838.51	92.08	6.63	223.38	53.15
	202.820	4.00	837.40	836.40	834.10	835.00	838.87	0.00	839.07	46.93	5.56	430.60	121.89

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	1OK*S	VCH	AREA	.01K
	202.830	9.00	837.40	836.40	834.10	620.00	838.65	0.00	838.81	38.31	4.82	373.34	100.16
*	202.830	9.00	837.40	836.40	834.10	330.00	838.00	0.00	838.23	50.96	4.81	195.85	46.23
	202.830	9.00	837.40	836.40	834.10	510.00	838.48	0.00	838.64	36.75	4.56	327.26	84.13
	202.830	9.00	837.40	836.40	834.10	835.00	838.94	0.00	839.12	41.78	5.31	448.74	129.18
	202.840	18.00	0.00	0.00	824.70	620.00	838.86	0.00	838.86	.01	.15	4256.35	5248.06
	202.840	18.00	0.00	0.00	824.70	330.00	838.30	0.00	838.30	.00	.08	4028.50	4851.45
	202.840	18.00	0.00	0.00	824.70	510.00	838.68	0.00	838.68	.01	.12	4182.67	5119.92
	202.840	18.00	0.00	0.00	824.70	835.00	839.17	0.00	839.17	.02	.19	4385.36	5482.15
	204.000	1360.00	0.00	0.00	828.70	620.00	838.86	0.00	838.87	.04	.21	2935.63	2947.08
	204.000	1360.00	0.00	0.00	828.70	330.00	838.30	0.00	838.30	.02	.12	2731.06	2631.57
	204.000	1360.00	0.00	0.00	828.70	510.00	838.69	0.00	838.69	.03	.18	2869.72	2846.50
	204.000	1360.00	0.00	0.00	828.70	835.00	839.17	0.00	839.17	.07	.27	3050.53	3123.74
	205.200	500.00	0.00	0.00	830.10	620.00	838.87	0.00	838.87	.43	.53	1164.31	943.35
	205.200	500.00	0.00	0.00	830.10	330.00	838.30	0.00	838.30	.16	.31	1056.70	829.31
	205.200	500.00	0.00	0.00	830.10	510.00	838.69	0.00	838.69	.32	.45	1129.39	905.94
	205.200	500.00	0.00	0.00	830.10	835.00	839.18	0.00	839.18	.68	.68	1225.68	1009.99
	205.300	120.00	836.90	835.40	831.40	620.00	838.88	0.00	838.89	6.70	.87	709.39	239.58
	205.300	120.00	836.90	835.40	831.40	330.00	838.31	0.00	838.31	3.03	.54	612.78	189.65
	205.300	120.00	836.90	835.40	831.40	510.00	838.69	0.00	838.70	5.23	.75	678.13	223.07
	205.300	120.00	836.90	835.40	831.40	835.00	839.19	0.00	839.21	9.62	1.09	764.49	269.21
	205.400	14.00	836.90	835.40	831.40	620.00	838.88	0.00	838.90	6.65	.87	711.15	240.51
	205.400	14.00	836.90	835.40	831.40	330.00	838.31	0.00	838.31	3.02	.54	613.47	189.99
	205.400	14.00	836.90	835.40	831.40	510.00	838.70	0.00	838.71	5.19	.75	679.44	223.76
	205.400	14.00	836.90	835.40	831.40	835.00	839.20	0.00	839.22	9.51	1.09	767.22	270.71
	205.800	120.00	0.00	0.00	830.00	620.00	838.91	0.00	838.91	.56	.51	1208.15	832.14
	205.800	120.00	0.00	0.00	830.00	330.00	838.32	0.00	838.32	.23	.31	1058.89	692.76
	205.800	120.00	0.00	0.00	830.00	510.00	838.72	0.00	838.72	.42	.44	1159.07	784.54
	205.800	120.00	0.00	0.00	830.00	835.00	839.24	0.00	839.25	.83	.64	1295.35	918.50
	205.900	1.00	0.00	0.00	833.80	620.00	838.89	0.00	838.92	1.58	2.21	917.06	493.04
	205.900	1.00	0.00	0.00	833.80	330.00	838.31	0.00	838.32	.73	1.38	770.13	387.28
	205.900	1.00	0.00	0.00	833.80	510.00	838.70	0.00	838.73	1.25	1.92	868.55	457.00
	205.900	1.00	0.00	0.00	833.80	835.00	839.21	0.00	839.26	2.26	2.75	999.28	555.83
	205.910	2.00	0.00	0.00	833.80	620.00	838.89	0.00	838.92	1.59	2.22	914.70	491.27
	205.910	2.00	0.00	0.00	833.80	330.00	838.31	0.00	838.32	.73	1.39	768.29	386.01
	205.910	2.00	0.00	0.00	833.80	510.00	838.71	0.00	838.73	1.25	1.92	866.79	455.70
	205.910	2.00	0.00	0.00	833.80	835.00	839.21	0.00	839.26	2.26	2.75	999.36	555.90
	205.920	1.00	0.00	0.00	831.30	620.00	838.92	0.00	838.92	.73	.56	1111.98	724.67
	205.920	1.00	0.00	0.00	831.30	330.00	838.32	0.00	838.33	.31	.34	959.71	588.39
	205.920	1.00	0.00	0.00	831.30	510.00	838.73	0.00	838.73	.57	.48	1062.24	678.43
	205.920	1.00	0.00	0.00	831.30	835.00	839.26	0.00	839.26	1.07	.70	1200.62	809.04
	206.000	725.00	0.00	0.00	832.90	620.00	838.96	0.00	838.96	.30	.31	2005.00	1124.37
	206.000	725.00	0.00	0.00	832.90	330.00	838.34	0.00	838.34	.15	.20	1656.39	856.91
	206.000	725.00	0.00	0.00	832.90	510.00	838.75	0.00	838.76	.24	.27	1888.31	1033.70
	206.000	725.00	0.00	0.00	832.90	835.00	839.31	0.00	839.31	.41	.38	2214.95	1303.73

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	207.200	700.00	0.00	0.00	835.48	620.00	839.00	0.00	839.01	2.85	.95	1078.78	367.34
	207.200	700.00	0.00	0.00	835.48	330.00	838.36	0.00	838.37	1.85	.66	821.65	242.37
	207.200	700.00	0.00	0.00	835.48	510.00	838.79	0.00	838.80	2.48	.85	993.30	323.74
	207.200	700.00	0.00	0.00	835.48	835.00	839.37	0.00	839.37	3.45	1.11	1231.43	449.86
	207.300	185.00	0.00	0.00	835.48	620.00	839.06	0.00	839.07	3.79	1.11	845.92	318.44
	207.300	185.00	0.00	0.00	835.48	330.00	838.40	0.00	838.41	2.29	.75	671.29	218.01
	207.300	185.00	0.00	0.00	835.48	510.00	838.84	0.00	838.85	3.22	.98	789.18	284.18
	207.300	185.00	0.00	0.00	835.48	835.00	839.44	0.00	839.45	4.78	1.33	944.90	381.76
	207.700	75.00	838.20	837.10	834.80	620.00	839.52	0.00	839.68	59.55	3.63	242.74	80.34
	207.700	75.00	838.20	837.10	834.80	330.00	839.24	0.00	839.31	26.95	2.27	201.89	63.57
	207.700	75.00	838.20	837.10	834.80	510.00	839.44	0.00	839.55	46.25	3.13	229.83	74.99
	207.700	75.00	838.20	837.10	834.80	835.00	839.66	0.00	839.90	86.41	4.53	265.34	89.83
	207.800	60.00	0.00	0.00	834.80	620.00	839.80	0.00	839.90	23.81	2.94	287.59	127.05
	207.800	60.00	0.00	0.00	834.80	330.00	839.37	0.00	839.42	13.46	1.99	220.30	99.96
	207.800	60.00	0.00	0.00	834.80	510.00	839.65	0.00	839.73	20.13	2.62	263.71	113.65
	207.800	60.00	0.00	0.00	834.80	835.00	840.06	0.00	840.19	29.10	3.44	341.68	154.80
	208.300	120.00	0.00	0.00	835.60	620.00	840.14	0.00	840.32	49.79	3.80	216.38	87.86
	208.300	120.00	0.00	0.00	835.60	330.00	839.58	0.00	839.70	39.86	3.02	141.51	52.27
	208.300	120.00	0.00	0.00	835.60	510.00	839.96	0.00	840.11	47.62	3.53	189.98	73.91
	208.300	120.00	0.00	0.00	835.60	835.00	840.46	0.00	840.68	52.93	4.25	265.71	114.77
	208.700	70.00	839.50	839.10	835.60	620.00	841.00	0.00	841.06	13.10	2.38	374.60	171.31
	208.700	70.00	839.50	839.10	835.60	330.00	840.61	0.00	840.64	6.58	1.55	290.41	128.66
	208.700	70.00	839.50	839.10	835.60	510.00	840.87	0.00	840.92	10.71	2.09	343.80	155.84
	208.700	70.00	839.50	839.10	835.60	835.00	841.24	0.00	841.33	16.63	2.81	438.41	204.77
	208.800	70.00	0.00	0.00	836.23	620.00	841.10	0.00	841.17	18.46	2.74	357.88	144.30
	208.800	70.00	0.00	0.00	836.23	330.00	840.67	0.00	840.70	9.17	1.79	289.69	108.99
	208.800	70.00	0.00	0.00	836.23	510.00	840.95	0.00	841.01	14.97	2.41	334.38	131.79
	208.800	70.00	0.00	0.00	836.23	835.00	841.37	0.00	841.47	24.28	3.27	403.38	169.46
	208.900	140.00	0.00	0.00	836.63	620.00	841.36	0.00	841.42	16.97	2.57	427.10	150.50
	208.900	140.00	0.00	0.00	836.63	330.00	840.81	0.00	840.84	11.75	1.94	303.73	96.28
	208.900	140.00	0.00	0.00	836.63	510.00	841.17	0.00	841.22	15.28	2.36	383.95	130.45
	208.900	140.00	0.00	0.00	836.63	835.00	841.71	0.00	841.77	19.18	2.88	507.68	190.68
	209.000	310.00	0.00	0.00	837.50	620.00	842.15	0.00	842.40	65.29	4.72	198.83	76.73
	209.000	310.00	0.00	0.00	837.50	330.00	841.40	0.00	841.58	58.23	3.85	115.06	43.24
	209.000	310.00	0.00	0.00	837.50	510.00	841.90	0.00	842.13	63.94	4.47	168.15	63.78
	209.000	310.00	0.00	0.00	837.50	835.00	842.57	0.00	842.84	66.97	5.13	254.01	102.04
	210.200	650.00	0.00	0.00	840.50	620.00	843.71	0.00	843.73	9.67	1.50	573.87	199.38
	210.200	650.00	0.00	0.00	840.50	330.00	842.97	0.00	842.99	11.05	1.31	351.80	99.29
	210.200	650.00	0.00	0.00	840.50	510.00	843.46	0.00	843.48	9.97	1.43	495.78	161.52
	210.200	650.00	0.00	0.00	840.50	835.00	844.13	0.00	844.16	9.37	1.63	712.95	272.83
*	210.300	150.00	0.00	0.00	840.58	620.00	844.32	844.32	845.54	404.77	8.85	70.25	30.82
	210.300	150.00	0.00	0.00	840.58	330.00	843.45	0.00	844.21	341.23	6.99	47.20	17.86
*	210.300	150.00	0.00	0.00	840.58	510.00	843.95	843.95	845.08	428.44	8.54	59.70	24.64
*	210.300	150.00	0.00	0.00	840.58	835.00	845.33	845.33	845.87	146.25	6.59	213.23	69.05

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
210.700	43.00	845.00	843.20	840.58	620.00	846.43	0.00	846.59	30.66	3.63	241.46	111.97
210.700	43.00	845.00	843.20	840.58	330.00	845.84	0.00	845.92	17.08	2.47	180.34	79.84
210.700	43.00	845.00	843.20	840.58	510.00	846.22	0.00	846.36	26.00	3.24	220.08	100.03
210.700	43.00	845.00	843.20	840.58	835.00	846.82	0.00	847.03	37.41	4.24	281.99	136.53
210.800	40.00	0.00	0.00	840.58	620.00	846.57	0.00	846.71	26.43	3.44	256.17	120.61
210.800	40.00	0.00	0.00	840.58	330.00	845.92	0.00	845.99	15.44	2.38	188.96	83.99
210.800	40.00	0.00	0.00	840.58	510.00	846.34	0.00	846.46	22.81	3.09	232.34	106.79
210.800	40.00	0.00	0.00	840.58	835.00	846.99	0.00	847.18	31.61	3.99	300.49	148.52
210.900	160.00	0.00	0.00	841.08	320.00	846.97	0.00	847.01	6.76	1.72	314.49	123.09
210.900	160.00	0.00	0.00	841.08	185.00	846.16	0.00	846.19	6.69	1.50	162.22	71.53
210.900	160.00	0.00	0.00	841.08	280.00	846.69	0.00	846.73	7.61	1.74	252.18	101.52
210.900	160.00	0.00	0.00	841.08	420.00	847.47	0.00	847.50	5.99	1.73	444.32	171.60
210.910	3.00	842.90	842.50	841.08	320.00	846.99	0.00	847.01	14.32	1.45	310.05	84.56
210.910	3.00	842.90	842.50	841.08	185.00	846.16	0.00	846.19	18.86	1.46	154.66	42.60
210.910	3.00	842.90	842.50	841.08	280.00	846.71	0.00	846.74	17.66	1.55	247.30	66.64
210.910	3.00	842.90	842.50	841.08	420.00	847.49	0.00	847.51	11.09	1.37	440.56	126.10
210.920	4.00	842.90	842.50	841.08	320.00	847.00	0.00	847.02	14.08	1.44	312.46	85.28
210.920	4.00	842.90	842.50	841.08	185.00	846.17	0.00	846.20	18.63	1.46	155.54	42.86
210.920	4.00	842.90	842.50	841.08	280.00	846.72	0.00	846.74	17.33	1.54	249.57	67.26
210.920	4.00	842.90	842.50	841.08	420.00	847.50	0.00	847.52	10.94	1.36	443.22	127.00
210.930	25.00	843.70	843.10	841.18	320.00	847.04	0.00	847.06	18.04	1.49	292.42	75.33
210.930	25.00	843.70	843.10	841.18	185.00	846.22	0.00	846.26	25.26	1.54	144.94	36.81
210.930	25.00	843.70	843.10	841.18	280.00	846.76	0.00	846.80	22.52	1.60	233.00	59.00
210.930	25.00	843.70	843.10	841.18	420.00	847.53	0.00	847.55	13.57	1.38	417.85	114.00
210.940	4.00	843.70	843.10	841.18	320.00	847.04	0.00	847.07	17.74	1.48	294.65	75.97
210.940	4.00	843.70	843.10	841.18	185.00	846.23	0.00	846.27	24.70	1.52	146.40	37.23
210.940	4.00	843.70	843.10	841.18	280.00	846.77	0.00	846.80	22.03	1.58	235.51	59.65
210.940	4.00	843.70	843.10	841.18	420.00	847.53	0.00	847.55	13.42	1.38	419.81	114.64
210.950	25.00	0.00	0.00	841.18	320.00	847.08	0.00	847.08	1.42	.79	885.45	268.23
210.950	25.00	0.00	0.00	841.18	185.00	846.28	0.00	846.29	2.81	.97	410.96	110.45
210.950	25.00	0.00	0.00	841.18	280.00	846.82	0.00	846.82	1.84	.86	720.23	206.37
210.950	25.00	0.00	0.00	841.18	420.00	847.56	0.00	847.56	1.08	.74	1201.70	403.29
210.960	1.00	0.00	0.00	842.00	320.00	847.08	0.00	847.08	2.37	.63	818.24	207.74
210.960	1.00	0.00	0.00	842.00	185.00	846.28	0.00	846.29	9.20	.96	345.29	60.98
210.960	1.00	0.00	0.00	842.00	280.00	846.82	0.00	846.82	3.48	.71	655.23	150.04
210.960	1.00	0.00	0.00	842.00	420.00	847.56	0.00	847.56	1.55	.58	1136.58	337.72
210.970	1.50	0.00	0.00	842.00	320.00	847.08	0.00	847.08	2.37	.63	818.98	208.02
210.970	1.50	0.00	0.00	842.00	185.00	846.28	0.00	846.29	9.08	.95	347.13	61.41
210.970	1.50	0.00	0.00	842.00	280.00	846.82	0.00	846.82	3.46	.71	656.38	150.43
210.970	1.50	0.00	0.00	842.00	420.00	847.56	0.00	847.56	1.54	.58	1137.03	337.91
210.980	1.00	0.00	0.00	841.18	320.00	847.08	0.00	847.08	1.44	.79	880.96	266.46
210.980	1.00	0.00	0.00	841.18	185.00	846.28	0.00	846.29	2.82	.98	409.65	110.11
210.980	1.00	0.00	0.00	841.18	280.00	846.82	0.00	846.83	1.85	.86	718.46	205.75
210.980	1.00	0.00	0.00	841.18	420.00	847.56	0.00	847.56	1.09	.74	1198.94	402.03

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
211.000	350.00	0.00	0.00	843.30	320.00	847.18	0.00	847.21	11.98	2.12	392.64	92.45
211.000	350.00	0.00	0.00	843.30	185.00	846.47	0.00	846.57	28.82	2.87	130.51	34.46
211.000	350.00	0.00	0.00	843.30	280.00	846.95	0.00	846.99	16.68	2.40	302.57	68.56
211.000	350.00	0.00	0.00	843.30	420.00	847.63	0.00	847.65	7.62	1.82	581.59	152.18
211.300	30.00	0.00	0.00	843.30	320.00	847.22	0.00	847.24	9.65	1.91	404.48	103.01
211.300	30.00	0.00	0.00	843.30	185.00	846.58	0.00	846.64	19.68	2.43	168.91	41.71
211.300	30.00	0.00	0.00	843.30	280.00	847.00	0.00	847.04	12.61	2.10	324.54	78.86
211.300	30.00	0.00	0.00	843.30	420.00	847.66	0.00	847.67	6.19	1.64	589.67	158.84
211.700	100.00	848.00	844.90	843.30	320.00	848.53	0.00	848.63	.71	.64	1017.87	378.58
211.700	100.00	848.00	844.90	843.30	185.00	848.42	0.00	848.42	.32	.42	925.76	327.15
211.700	100.00	848.00	844.90	843.30	280.00	848.57	0.00	848.57	.59	.58	992.15	363.90
211.700	100.00	848.00	844.90	843.30	420.00	848.76	0.00	848.77	1.03	.78	1077.46	413.55
212.900	230.00	0.00	0.00	844.00	320.00	848.63	0.00	848.70	24.58	2.97	179.14	64.54
212.900	230.00	0.00	0.00	844.00	185.00	848.42	0.00	848.45	10.94	1.92	159.59	55.94
212.900	230.00	0.00	0.00	844.00	280.00	848.57	0.00	848.63	20.34	2.68	173.61	62.08
212.900	230.00	0.00	0.00	844.00	420.00	848.76	0.00	848.87	35.55	3.64	192.16	70.44
213.000	340.00	0.00	0.00	845.00	320.00	849.44	0.00	849.51	22.72	2.85	186.86	67.14
213.000	340.00	0.00	0.00	845.00	185.00	848.87	0.00	848.92	17.27	2.26	134.60	44.51
213.000	340.00	0.00	0.00	845.00	280.00	849.28	0.00	849.34	21.54	2.71	171.67	60.33
213.000	340.00	0.00	0.00	845.00	420.00	849.79	0.00	849.87	24.66	3.14	224.22	84.57
213.500	250.00	0.00	0.00	845.50	320.00	849.99	0.00	850.05	21.02	2.77	192.68	69.79
213.500	250.00	0.00	0.00	845.50	185.00	849.32	0.00	849.37	18.77	2.33	130.17	42.70
213.500	250.00	0.00	0.00	845.50	280.00	849.81	0.00	849.87	20.74	2.67	174.25	61.48
213.500	250.00	0.00	0.00	845.50	420.00	850.38	0.00	850.45	21.96	3.00	234.70	89.63
214.200	210.00	0.00	0.00	846.10	320.00	850.68	0.00	850.91	93.22	3.88	82.47	33.14
214.200	210.00	0.00	0.00	846.10	185.00	849.95	0.00	850.11	76.41	3.23	57.31	21.16
214.200	210.00	0.00	0.00	846.10	280.00	850.50	0.00	850.71	88.84	3.71	75.56	29.71
214.200	210.00	0.00	0.00	846.10	420.00	851.09	0.00	851.37	100.67	4.23	99.21	41.86
214.300	100.00	0.00	0.00	846.40	220.00	851.67	0.00	852.51	234.20	7.38	29.79	14.38
214.300	100.00	0.00	0.00	846.40	125.00	850.81	0.00	851.24	160.36	5.26	23.78	9.87
214.300	100.00	0.00	0.00	846.40	180.00	851.44	0.00	852.07	188.36	6.38	28.20	13.12
214.300	100.00	0.00	0.00	846.40	290.00	852.12	0.00	852.42	107.60	5.35	86.37	27.96
214.400	1.00	856.00	853.40	846.40	220.00	851.68	0.00	852.59	67.07	7.65	28.74	26.86
214.400	1.00	856.00	853.40	846.40	125.00	850.82	0.00	851.25	34.96	5.30	23.58	21.14
214.400	1.00	856.00	853.40	846.40	180.00	851.45	0.00	852.12	50.13	6.56	27.43	25.42
214.400	1.00	856.00	853.40	846.40	290.00	852.13	0.00	853.47	96.69	9.30	31.19	29.49
214.600	65.00	856.00	853.40	846.40	220.00	852.34	0.00	853.06	51.50	6.81	32.29	30.66
214.600	65.00	856.00	853.40	846.40	125.00	851.11	0.00	851.49	29.00	4.91	25.43	23.21
214.600	65.00	856.00	853.40	846.40	180.00	851.91	0.00	852.46	40.63	6.00	30.01	28.24
214.600	65.00	856.00	853.40	846.40	290.00	853.18	0.00	854.23	92.28	8.24	35.21	30.19
214.700	1.00	0.00	0.00	846.40	220.00	852.56	0.00	853.14	123.87	6.10	36.07	19.77
214.700	1.00	0.00	0.00	846.40	125.00	851.15	0.00	851.50	116.79	4.78	26.15	11.57
214.700	1.00	0.00	0.00	846.40	180.00	852.03	0.00	852.51	119.83	5.57	32.29	16.44
214.700	1.00	0.00	0.00	846.40	290.00	853.78	0.00	854.44	106.50	6.51	44.54	28.10

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
214.800	90.00	0.00	0.00	847.70	220.00	853.55	0.00	853.65	19.91	2.70	115.53	49.30
214.800	90.00	0.00	0.00	847.70	125.00	851.99	0.00	852.10	35.27	2.75	47.02	21.05
214.800	90.00	0.00	0.00	847.70	180.00	852.94	0.00	853.06	26.05	2.81	78.13	35.27
214.800	90.00	0.00	0.00	847.70	290.00	854.77	0.00	854.82	9.54	2.19	231.70	93.88
215.100	300.00	855.20	854.40	848.80	220.00	854.50	0.00	854.63	59.99	3.01	98.39	28.40
215.100	300.00	855.20	854.40	848.80	125.00	853.06	0.00	853.18	36.25	2.78	46.49	20.76
215.100	300.00	855.20	854.40	848.80	180.00	853.81	0.00	853.95	33.46	3.06	67.73	31.12
215.100	300.00	855.20	854.40	848.80	290.00	855.42	0.00	855.59	129.91	3.56	119.98	25.44
215.150	4.00	855.20	854.40	848.80	220.00	854.52	0.00	854.65	59.99	3.01	98.39	28.40
215.150	4.00	855.20	854.40	848.80	125.00	853.08	0.00	853.19	35.76	2.77	46.76	20.90
215.150	4.00	855.20	854.40	848.80	180.00	853.83	0.00	853.96	33.05	3.05	68.20	31.31
215.150	4.00	855.20	854.40	848.80	290.00	855.49	0.00	855.64	117.71	3.43	127.11	26.73
215.200	30.00	0.00	0.00	848.90	220.00	854.64	0.00	854.77	27.04	3.00	82.03	42.31
215.200	30.00	0.00	0.00	848.90	125.00	853.19	0.00	853.30	34.59	2.66	47.00	21.25
215.200	30.00	0.00	0.00	848.90	180.00	853.93	0.00	854.07	34.90	3.03	61.39	30.47
215.200	30.00	0.00	0.00	848.90	290.00	855.66	0.00	855.77	18.91	2.89	129.49	66.69
215.300	80.00	0.00	0.00	849.10	220.00	854.78	0.00	854.92	13.08	3.10	79.78	60.83
215.300	80.00	0.00	0.00	849.10	125.00	853.37	0.00	853.48	15.63	2.68	46.74	31.62
215.300	80.00	0.00	0.00	849.10	180.00	854.11	0.00	854.25	15.97	3.07	60.87	45.05
215.300	80.00	0.00	0.00	849.10	290.00	855.75	0.00	855.89	10.12	3.13	122.97	91.14
215.700	45.00	854.50	852.30	849.10	220.00	855.09	0.00	855.21	9.95	2.84	91.68	69.75
215.700	45.00	854.50	852.30	849.10	125.00	854.29	0.00	854.36	6.45	2.02	65.46	49.21
215.700	45.00	854.50	852.30	849.10	180.00	854.84	0.00	854.93	8.27	2.49	82.10	62.60
215.700	45.00	854.50	852.30	849.10	290.00	855.76	0.00	855.89	10.01	3.12	123.74	91.64
215.800	60.00	0.00	0.00	849.40	220.00	855.18	0.00	855.28	8.88	2.71	122.87	73.81
215.800	60.00	0.00	0.00	849.40	125.00	854.33	0.00	854.40	7.19	2.15	70.55	46.61
215.800	60.00	0.00	0.00	849.40	180.00	854.90	0.00	854.98	7.96	2.47	103.56	63.79
215.800	60.00	0.00	0.00	849.40	290.00	855.88	0.00	855.96	6.90	2.62	183.64	110.39
215.900	275.00	0.00	0.00	850.10	220.00	855.41	0.00	855.42	2.93	.92	317.43	128.51
215.900	275.00	0.00	0.00	850.10	125.00	854.52	0.00	854.52	2.77	.77	224.57	75.16
215.900	275.00	0.00	0.00	850.10	180.00	855.10	0.00	855.11	2.73	.83	286.49	109.02
215.900	275.00	0.00	0.00	850.10	290.00	856.07	0.00	856.08	2.70	.98	387.05	176.57
215.950	225.00	0.00	0.00	850.60	220.00	855.49	0.00	855.50	4.73	1.07	273.38	101.16
215.950	225.00	0.00	0.00	850.60	125.00	854.60	0.00	854.61	5.20	.99	181.51	54.79
215.950	225.00	0.00	0.00	850.60	180.00	855.18	0.00	855.19	4.62	1.02	241.23	83.70
215.950	225.00	0.00	0.00	850.60	290.00	856.14	0.00	856.15	4.01	1.11	342.04	144.84
216.200	275.00	0.00	0.00	851.20	220.00	855.70	0.00	855.76	21.46	2.17	119.55	47.49
216.200	275.00	0.00	0.00	851.20	125.00	854.83	0.00	854.87	21.24	1.88	80.23	27.12
216.200	275.00	0.00	0.00	851.20	180.00	855.38	0.00	855.44	20.70	2.04	105.10	39.56
216.200	275.00	0.00	0.00	851.20	290.00	856.31	0.00	856.38	19.28	2.26	149.46	66.04
216.300	90.00	0.00	0.00	852.40	80.00	855.84	0.00	856.17	161.24	4.62	17.30	6.30
216.300	90.00	0.00	0.00	852.40	45.00	855.03	0.00	855.21	126.88	3.42	13.16	4.00
216.300	90.00	0.00	0.00	852.40	70.00	855.54	0.00	855.84	168.63	4.44	15.76	5.39
216.300	90.00	0.00	0.00	852.40	90.00	856.43	0.00	856.73	120.19	4.44	20.28	8.21

RVnsco

SUMMARY PRINTOUT TABLE 150

SECNO	XLOC	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
215.800	.00	.00	.00	849.40	220.00	855.18	.00	855.28	8.81	2.70	123.49	74.14
215.800	.00	.00	.00	849.40	125.00	854.83	.00	854.87	4.17	1.77	98.51	61.18
215.800	.00	.00	.00	849.40	180.00	854.90	.00	854.98	8.01	2.48	103.16	63.58
215.800	.00	.00	.00	849.40	290.00	855.88	.00	855.96	6.98	2.68	188.28	110.14
215.900	275.00	.00	.00	850.10	220.00	855.41	.00	855.42	3.05	.93	312.74	126.03
215.900	275.00	.00	.00	850.10	125.00	854.94	.00	854.95	1.70	.64	263.41	95.98
215.900	275.00	.00	.00	850.10	180.00	855.11	.00	855.12	2.87	.86	281.14	106.31
215.900	275.00	.00	.00	850.10	290.00	856.07	.00	856.08	2.80	1.00	381.61	173.22
216.000	225.00	.00	.00	850.60	220.00	855.49	.00	855.50	4.97	1.10	268.33	98.71
216.000	225.00	.00	.00	850.60	125.00	854.99	.00	855.00	3.02	.80	217.23	71.90
216.000	225.00	.00	.00	850.60	180.00	855.19	.00	855.20	4.86	1.04	236.68	81.69
216.000	225.00	.00	.00	850.60	290.00	856.14	.00	856.16	4.18	1.14	336.81	141.89
216.200	275.00	.00	.00	851.20	220.00	855.71	.00	855.77	21.79	2.19	118.70	47.20
216.200	275.00	.00	.00	851.20	125.00	855.13	.00	855.16	14.34	1.68	92.05	33.01
216.200	275.00	.00	.00	851.20	180.00	855.40	.00	855.45	20.89	2.05	104.42	39.38
216.200	275.00	.00	.00	851.20	290.00	856.32	.00	856.39	19.59	2.28	148.44	65.63
216.300	90.00	.00	.00	851.70	64.40	855.91	.00	856.01	42.22	2.61	27.61	9.91
216.300	90.00	.00	.00	851.70	38.90	855.27	.00	855.38	30.55	1.97	20.17	7.04
216.300	90.00	.00	.00	851.70	53.00	855.60	.00	855.69	39.79	2.40	29.59	8.40
216.300	90.00	.00	.00	851.70	79.10	856.50	.00	856.60	34.26	2.59	37.40	13.51
216.700	100.00	859.60	855.20	851.70	64.40	856.54	.00	856.60	21.95	2.08	38.02	13.75
216.700	100.00	859.60	855.20	851.70	38.90	855.46	.00	855.52	14.72	1.85	22.10	7.82
216.700	100.00	859.60	855.20	851.70	53.00	856.00	.00	856.06	26.07	2.09	28.88	10.38
216.700	100.00	859.60	855.20	851.70	79.10	857.50	.00	857.54	12.58	1.79	60.18	22.30
2.000	70.00	.00	.00	854.00	64.40	856.62	.00	856.62	.26	.22	295.17	125.19
2.000	70.00	.00	.00	854.00	38.90	855.54	.00	855.54	.60	.24	161.97	50.05
2.000	70.00	.00	.00	854.00	53.00	856.09	.00	856.09	.39	.23	227.50	84.41
2.000	70.00	.00	.00	854.00	79.10	857.55	.00	857.55	.14	.19	429.95	214.65

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SECNO	XLOC	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
3.000	175.00	.00	.00	854.00	64.40	856.63	.00	856.63	1.14	.42	154.16	60.27
3.000	175.00	.00	.00	854.00	38.90	855.56	.00	855.56	2.79	.49	79.78	23.27
3.000	175.00	.00	.00	854.00	53.00	856.10	.00	856.10	1.77	.46	115.41	39.80
3.000	175.00	.00	.00	854.00	79.10	857.56	.00	857.56	.54	.34	232.19	107.32
4.200	160.00	.00	.00	854.00	64.40	856.65	.00	856.65	1.87	.60	107.30	47.14
4.200	160.00	.00	.00	854.00	38.90	855.61	.00	855.62	3.40	.60	64.96	21.08
4.200	160.00	.00	.00	854.00	53.00	856.19	.00	856.14	2.56	.62	86.04	33.15
4.200	160.00	.00	.00	854.00	79.10	857.57	.00	857.57	1.08	.54	145.31	76.06
4.800	50.00	860.00	858.50	854.00	64.40	856.66	.00	856.66	1.85	.60	107.51	47.29
4.800	50.00	860.00	858.50	854.00	38.90	855.63	.00	855.63	3.35	.60	65.80	21.27
4.800	50.00	860.00	858.50	854.00	53.00	856.15	.00	856.15	2.50	.61	86.61	33.50
4.800	50.00	860.00	858.50	854.00	79.10	857.57	.00	857.58	1.08	.54	145.52	76.29
5.000	50.00	.00	.00	854.00	64.40	856.67	.00	856.67	1.38	.47	137.96	55.88

	5.000	50 00	.00	.00	854.00	59.00	856.16	.00	856.16	1.23	.50	106.01	38.10
	5 000	50.00	.00	.00	854.00	79.10	857.50	00	857.58	.68	.39	201.81	96.26
	6 000	100.00	00	.00	854.00	64.40	856.68	.00	856.69	1 93	55	116.58	46.92
	6.000	100 00	00	.00	854.00	38 90	855.68	.00	855.68	3.95	.61	64 23	19 57
	6.000	100 00	00	.00	854 00	53.00	856 18	.00	856.19	2.81	.59	89 26	31 59
	6.000	100 00	.00	.00	854 00	79.10	857.59	00	857 59	.97	.46	172.05	80.29
	7.000	210.00	.00	00	854 00	64.40	856 69	00	856.69	.08	.13	484.96	202.56
	7.000	210 00	.00	.00	854.00	38 90	855.69	00	855.69	.13	10	304.27	106 93
	7 000	210.00	.00	.00	854 00	53.00	856.19	.00	856.20	10	.18	395.06	165.25
	7.000	210.00	00	00	854.00	79.10	857.59	.00	857 59	.04	.10	647 86	376 86
	8.000	60 00	00	.00	854 00	64 40	856.69	.00	856 69	.05	.10	621.14	293.76
	8 000	60 00	00	00	854.00	38.90	855.69	.00	855.69	08	.10	390.37	186 23
	8.000	60 00	.00	.00	854.00	53 00	856 20	.00	856 20	.06	10	506.98	209.96
	8.000	60.00	.00	.00	854.00	79 10	857 59	00	857 59	.03	.10	827.32	471.27
	9.000	140.00	00	00	854 00	61.70	856.70	00	856.70	.13	17	363.90	170.07
	9 000	140 00	.00	.00	854.00	38.40	855.69	.00	855.69	24	.17	228.51	79.07
	9 000	140 00	00	.00	854.00	50.70	856 20	.00	856 20	17	.17	296.54	121.48
	9 000	140.00	.00	.00	854.00	189 00	857 59	.00	857.60	.45	.38	485.28	272.45
	10.000	75.00	00	.00	854.00	61.70	856.70	.00	856.70	2.62	.00	121.98	38.11
	10 000	75.00	.00	.00	854.00	38 40	855.70	.00	855.70	4 53	.00	76.23	18.04
	10 000	75.00	00	.00	854.00	50.70	856.20	00	856.20	3.41	00	98.89	27.46
	10.000	75 00	.00	.00	854.00	189.00	857.60	.00	857.62	9.25	.00	161.85	60.17
*	11 200	50.00	.00	00	854.67	61.70	856.52	856.52	857 24	662 62	6.84	9.02	2.40
*	11.200	50 00	00	00	854.67	38 40	806.06	856.06	856.63	686.39	6.07	6 32	1.47
*	11.200	50.00	.00	.00	854.67	50.70	856.31	856.31	856.97	671.99	6.52	7.78	1.96
*	11 200	50 00	.00	00	854.67	189.00	858.03	858 03	859 31	602.00	9.09	20.13	7.46

	SECNO	XLCH	FLTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	11.800	50 00	860 00	857.67	854 67	61.70	859.06	00	859.26	297.24	3.58	17.25	4.01
	11.800	50.00	860.00	857.67	854.67	38.40	857.41	.00	857.51	62.19	2.52	15.21	4 87
	11.800	50.00	860 00	857 67	854.67	50.70	858 44	.00	858 58	160.19	2.94	17 25	4 01
	11.800	50.00	860.00	857 67	854.67	189.00	859.69	.00	860.16	110.95	5.46	33.49	17.42
	12.000	85 00	00	.00	855.00	61.70	859.32	00	859 32	.02	.08	748.99	451.26
	12 000	85.00	.00	00	855.00	38.40	857.54	.00	857.54	.04	.09	419.72	184.14
	12 000	85.00	.00	.00	855.00	50 70	858.62	.00	858 62	.02	.08	613.06	384.16
	12 000	85.00	.00	00	855 00	189.00	860 30	00	860.30	.08	.20	935 03	640.78
	13 000	50 00	.00	.00	855.00	61 70	859.32	.00	859.32	01	.06	1080.70	656.90
	13.000	50.00	.00	.00	855.00	38.40	857 54	.00	857.54	.02	.06	604.58	265.57
	13 000	50.00	.00	00	855.00	50.70	858 62	.00	858.62	.01	.06	887 62	484.65
	13.000	50.00	.00	.00	855 00	189.00	860.30	.00	860 30	.04	.13	1361.18	943.54
	14.200	450.00	.00	.00	856 00	61.70	859.32	00	859 32	31	45	135.92	68.43
	14.200	450.00	.00	00	856.00	38 40	857.54	.00	857 55	3.78	.62	62.43	19.76
	14.200	450.00	.00	00	856.00	50.70	858.62	.00	858.62	1 18	48	106.72	46.69
	14 200	450.00	.00	.00	856 00	189.00	860.30	.00	860.31	2 20	.89	338.37	123.38
	14.800	50 00	861.00	859.50	856.00	61.70	859 32	.00	859 33	.81	.45	135.09	68 40
	14.800	50.00	861 00	859 50	856 00	38.40	857 56	00	857.57	3.71	.61	62.78	19.94
	14.800	50.00	861.00	859 50	856 00	50 70	858.62	00	858.63	1 18	48	106.60	46 67
	14.800	50 00	861 00	859 50	856 00	189.00	860.32	.00	860.34	2.92	1.03	178.38	107.08

	15.000	75.00	.00	.00	856.00	38.40	857.58	.00	857.58	51	.18	215.57	53.88
	15.000	75.00	00	.00	856.00	50.70	858.68	.00	858.68	.08	.11	461.89	176.99
	15 000	75.00	.00	.00	856.00	183.00	860.35	.00	860.35	.13	.21	871.99	510.39
	16.000	260.00	.00	.00	857.00	61 70	859.33	00	859.33	06	.10	643.93	262.09
	16 000	260 00	00	00	857.00	38.40	857 60	00	857.60	9.28	.29	131.96	21.21
	16.000	260.00	.00	00	857 00	50 70	858.63	.00	858.68	.14	.12	481.90	186.07
	16.000	260.00	.00	.00	857.00	183.00	860 35	00	860.35	.13	.19	955.69	501.14
	17 000	100.00	00	.00	857 00	61.70	859.33	.00	859.33	.11	.13	457.43	182.54
	17.000	100.00	.00	00	857 00	38.40	857 66	.00	857.66	10 07	43	89 24	12.10
	17.000	100 00	.00	.00	857.00	50.70	858.63	.00	858.60	30	.17	304.41	92.90
	17.000	100.00	00	.00	857.00	183.00	860 35	.00	860.35	.27	.27	682.05	353.09
	18 000	80.00	.00	00	858 00	61 70	859 33	00	859 33	.85	.27	226.11	67.09
*	18.000	80.00	.00	.00	858.00	38.40	858.12	858 12	858 17	1097.64	1.95	19.70	1.16
	18.000	80.00	.00	.00	858.00	50 70	858 64	.00	858 64	6.61	.47	108.16	19.72
	18 000	80.00	00	00	858.00	183.00	860.35	.00	860.36	1.13	.46	399.86	172.00

DRAIN JOB 19726 02

SUMMARY PRTNTOUT TABLE 150

SECNO	Q	CWSEL	DTFWSP	DTFWSX	DTFKWS	TOPWID	XLCH
215.800	220 00	853 18	00	.00	.00	77.70	.00
215.800	125 00	854.89	-.35	.00	.00	65.05	.00
215.800	180.00	854.90	.07	00	00	67.58	.00
215.800	290 00	855.80	.98	.00	.00	88 59	.00
215.900	220.00	855 41	.00	.23	00	105.00	275.00
215 900	125 00	854.94	-.47	.11	.00	104.76	275.00
215 900	180 00	855 11	16	.21	.00	105 00	275.00
215 900	290.00	856.07	.96	19	.00	105.00	275.00
216 000	220 00	855.49	00	.08	.00	104 96	225.00
216.000	125.00	854 99	-.50	.05	.00	102.79	225.00
216.000	180.00	855 19	20	.08	00	103 62	225.00
216.000	290 00	856.14	.96	.07	.00	105.00	225.00
216 200	220 00	855.71	.00	22	.00	47 26	275.00
216.200	125.00	855.13	-.58	.14	00	44.70	275.00
216.200	180 00	855.40	.27	.21	.00	45.91	275.00
216.200	290.00	856 32	92	.18	.00	49.00	275 00
216 300	64 40	855.91	.00	.20	.00	14.12	90.00
216.300	98.90	855.27	-.65	.14	00	8.94	90.00
216.300	53.00	855 60	.33	20	.00	11.60	90.00
216 300	79.10	856 50	.91	.18	.00	18.88	90.00
216 700	64 40	856.54	.00	.63	.00	19.15	100.00
216.700	98.90	855.46	-1.07	.20	.00	10.53	100.00
216 700	53 00	856.00	.53	40	.00	14.82	100.00
216 700	79.10	857.50	1.50	1.00	.00	26.88	100.00
2 000	64 40	856.62	.00	08	.00	131 33	70 00
2 000	98.90	855.54	-1.08	.08	.00	115.98	70.00
2.000	53.00	856.09	.55	.09	.00	120.77	70.00
2 000	79 10	857 55	1.46	.05	00	144.68	70.00
3 000	64 40	856 69	20	01	00	77 30	175 00

	3.000	38.90	855.56	-1.07	.02	.00	62.19	175.00
	3.000	53.00	856.10	.54	.01	.00	69.86	175.00
	3.000	79.10	857.56	1.46	.00	.00	90.56	175.00
	4.200	64.40	856.65	00	.02	.00	41.17	160.00
	4.200	38.90	855.61	-1.04	.05	.00	40.72	160.00
	4.200	53.00	856.13	52	.03	.00	40.94	160.00
	4.200	79.10	857.57	1.43	.01	.00	41.58	160.00

	SECNO	Q	CWSEL	DLFWSP	DTFWSX	DLFKWS	TOPWID	XLCH
	4.800	64.40	856.66	.00	.01	00	41.18	50.00
	4.800	38.90	855.63	-1.03	.02	.00	40.72	50.00
	4.800	53.00	856.15	.52	.01	.00	40.95	50.00
	4.800	79.10	857.57	1.43	.01	.00	41.59	50.00
	5.000	64.10	856.67	.00	.01	.00	65.44	50.00
	5.000	38.90	855.64	-1.03	02	00	54.90	50.00
	5.000	53.00	856.16	.52	.01	.00	60.21	50.00
	5.000	79.10	857.58	1.42	.01	.00	74.80	50.00
	6.000	64.40	856.68	00	02	00	56.85	100.00
	6.000	38.90	855.68	-1.01	03	.00	46.74	100.00
	6.000	53.00	856.18	51	.02	.00	51.82	100.00
	6.000	79.10	857.59	1.41	.01	00	65.89	100.00
	7.000	64.40	856.69	.00	.01	.00	180.00	210.00
	7.000	38.90	855.69	-1.00	.02	.00	180.00	210.00
	7.000	53.00	856.19	.50	.01	.00	180.00	210.00
	7.000	79.10	857.59	1.40	.01	.00	180.00	210.00
	8.000	64.40	856.69	.00	00	.00	230.00	60.00
	8.000	38.90	855.69	-1.00	00	00	230.00	60.00
	8.000	53.00	856.20	.50	.00	.00	230.00	60.00
	8.000	79.10	857.59	1.40	.00	.00	230.00	60.00
	9.000	61.70	856.70	.00	.00	.00	135.00	140.00
	9.000	38.40	855.69	-1.00	.00	00	135.00	140.00
	9.000	50.70	856.20	.50	.00	.00	135.00	140.00
	9.000	183.00	857.59	1.40	.00	00	135.00	140.00
	10.000	61.70	856.70	.00	.00	.00	45.00	75.00
	10.000	38.40	855.70	-1.00	.00	.00	45.00	75.00
	10.000	50.70	856.20	.50	.00	.00	45.00	75.00
	10.000	183.00	857.60	1.40	.00	00	45.00	75.00
*	11.200	61.70	856.52	.00	-.18	.00	6.27	50.00
*	11.200	38.40	856.06	-.46	37	.00	5.59	50.00
*	11.200	50.70	856.31	25	.12	.00	5.97	50.00
*	11.200	183.00	858.09	1.72	43	00	8.00	50.00
	11.800	61.70	859.06	.00	2.54	.00	8.00	50.00
	11.800	38.40	857.41	-1.65	1.35	.00	7.61	50.00
	11.800	50.70	858.44	1.03	2.13	.00	8.00	50.00
	11.800	183.00	859.69	1.25	1.66	00	8.00	50.00
	12.000	61.70	859.02	.00	.26	.00	189.55	85.00
	12.000	38.40	857.54	-1.78	.13	00	175.33	85.00
	12.000	50.70	858.62	1.08	.17	.00	183.94	85.00
	12.000	183.00	860.30	1.68	.60	00	209.89	85.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	13.000	61.70	859.32	.00	.00	.00	280.46	50.00
	13 000	38 40	857.54	-1.78	.00	.00	255.59	50.00
	13.000	50.70	858.62	1 08	.00	.00	270 65	50.00
	13 000	183.00	860 30	1 68	.00	.00	290.00	50.00
	14 200	61 70	859 32	.00	.00	00	41.90	450.00
	14.200	38.40	857 54	-1 78	.00	.00	40.88	450 00
	14.200	50.70	858 62	1 08	.00	00	41.50	450.00
	14.200	183 00	860 30	1 68	.00	.00	381.56	450.00
	14 800	61.70	859.32	.00	.00	.00	41.90	50.00
	14.800	38.40	857.56	-1.76	02	00	40.89	50 00
	14 800	50.70	858.62	1.06	.01	.00	41.50	50.00
	14.800	183 00	860 32	1.70	.03	00	42.00	50.00
	15.000	61.70	859 38	.00	.00	.00	240.00	75.00
	15 000	38.40	857 58	-1 75	.02	.00	212.90	75.00
	15.000	50.70	858.63	1 05	.01	.00	240 00	75.00
	15 000	183 00	860.35	1.72	02	.00	240.00	75 00
	16 000	61.70	859 33	.00	.00	00	305 59	260.00
	16 000	38.40	857 60	-1 73	.03	00	252 38	260.00
	16 000	50.70	858 63	1.03	.00	.00	300.93	260.00
	16.000	183 00	860 35	1.72	.00	.00	310.00	260.00
	17.000	61 70	859 33	.00	.00	.00	220 00	100 00
	17.000	38 40	857.66	-1.67	.05	00	220 00	100 00
	17 000	50.70	858 63	.98	.00	00	220.00	100.00
	17 000	183.00	860 35	1.72	00	00	220 00	100 00
	18.000	61 70	859.33	00	.00	.00	170.00	80.00
*	18 000	38.40	858 12	-1.22	46	.00	170.00	80.00
	18.000	50.70	858.64	.52	.01	.00	170 00	80.00
	18.000	183 00	860.35	1 71	00	00	170.00	80.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION	SECNO=	11 200	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	11.200	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	11 200	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	11 200	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	11 200	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	11 200	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	11 200	PROFILE= 3	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	11 200	PROFILE= 3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	11.200	PROFILE= 3	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	11 200	PROFILE= 4	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	11 200	PROFILE= 4	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	11.200	PROFILE= 4	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	18 000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	18 000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	18.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	18 200	PROFILE= 2	SUPER TOP STEEP

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	LOK*S	VCH	AREA	.OIK
216.700	100.00	860.30	0.00	852.40	80.00	860.02	0.00	860.08	11.11	2.07	38.60	24.00
216.700	100.00	860.30	0.00	852.40	45.00	856.29	0.00	856.37	33.71	2.30	19.59	7.75
216.700	100.00	860.30	0.00	852.40	70.00	858.71	0.00	858.78	15.99	2.19	31.94	17.50
216.700	100.00	860.30	0.00	852.40	90.00	860.45	0.00	860.45	.46	.44	343.16	132.51
216.800	110.00	0.00	0.00	851.50	80.00	860.10	0.00	860.10	.03	.16	774.45	434.16
216.800	110.00	0.00	0.00	851.50	45.00	856.40	0.00	856.41	.30	.29	267.58	82.74
216.800	110.00	0.00	0.00	851.50	70.00	858.81	0.00	858.81	.06	.18	597.14	287.22
216.800	110.00	0.00	0.00	851.50	90.00	860.45	0.00	860.45	.04	.17	821.99	477.34
217.000	690.00	0.00	0.00	854.70	80.00	860.10	0.00	860.10	.00	.04	2215.63	1637.17
217.000	690.00	0.00	0.00	854.70	45.00	856.41	0.00	856.41	.04	.07	681.42	239.07
217.000	690.00	0.00	0.00	854.70	70.00	858.81	0.00	858.81	.00	.04	1659.37	1031.93
217.000	690.00	0.00	0.00	854.70	90.00	860.45	0.00	860.45	.00	.04	2388.54	1826.72
218.000	800.00	0.00	0.00	855.50	80.00	860.10	0.00	860.10	.00	.03	2412.12	1622.95
218.000	800.00	0.00	0.00	855.50	45.00	856.42	0.00	856.42	.16	.09	476.92	111.65
218.000	800.00	0.00	0.00	855.50	70.00	858.81	0.00	858.81	.01	.04	1725.99	937.10
218.000	800.00	0.00	0.00	855.50	90.00	860.45	0.00	860.45	.00	.03	2600.05	1834.45

AMY DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	201.300	320.00	825.99	0.00	0.00	.99	15.00	0.00
	201.300	280.00	825.55	-.44	0.00	1.55	15.00	0.00
	201.300	310.00	825.88	.33	0.00	.88	15.00	0.00
	201.300	495.00	827.71	1.82	0.00	1.71	15.00	0.00
	201.800	320.00	838.29	0.00	12.29	0.00	199.05	260.00
	201.800	280.00	837.71	-.58	12.16	0.00	15.00	260.00
	201.800	310.00	838.23	.52	12.35	0.00	198.15	260.00
	201.800	495.00	838.91	.68	11.20	0.00	208.98	260.00
	201.900	320.00	838.29	0.00	.00	0.00	194.27	100.00
	201.900	280.00	837.74	-.55	.03	0.00	185.49	100.00
	201.900	310.00	838.23	.49	.00	0.00	193.36	100.00
	201.900	495.00	838.91	.68	.00	0.00	204.19	100.00
	202.300	620.00	838.29	0.00	-.00	0.00	191.08	30.00
	202.300	330.00	837.74	-.55	.00	0.00	182.32	30.00
	202.300	510.00	838.23	.49	-.00	0.00	190.18	30.00
	202.300	835.00	838.91	.68	-.00	0.00	201.01	30.00
	202.700	620.00	838.32	0.00	.04	0.00	191.70	36.00
	202.700	330.00	837.76	-.56	.02	0.00	182.65	36.00
	202.700	510.00	838.26	.50	.03	0.00	190.69	36.00
	202.700	835.00	838.96	.69	.05	0.00	201.82	36.00
	202.800	620.00	838.33	0.00	.00	0.00	237.73	20.00
	202.800	330.00	837.76	-.57	.00	0.00	235.24	20.00
	202.800	510.00	838.26	.50	.00	0.00	237.56	20.00
	202.800	835.00	838.96	.70	.01	0.00	239.43	20.00
	202.810	620.00	838.33	0.00	.00	0.00	234.01	195.00
	202.810	330.00	837.76	-.57	.00	0.00	228.54	195.00
	202.810	510.00	838.27	.50	.00	0.00	233.39	195.00
	202.810	835.00	838.97	.70	.00	0.00	237.58	195.00
*	202.820	620.00	838.19	0.00	-.14	0.00	270.21	4.00
*	202.820	330.00	838.00	-.19	.24	0.00	270.16	4.00
*	202.820	510.00	838.10	.10	-.16	0.00	270.18	4.00
	202.820	835.00	838.87	.77	-.10	0.00	270.39	4.00
	202.830	620.00	838.65	0.00	.46	0.00	270.33	9.00
*	202.830	330.00	838.00	-.65	0.00	0.00	270.15	9.00
	202.830	510.00	838.48	.48	.38	0.00	270.29	9.00
	202.830	835.00	838.94	.46	.07	0.00	270.40	9.00
	202.840	620.00	838.86	0.00	.21	0.00	415.06	18.00
	202.840	330.00	838.30	-.56	.30	0.00	398.22	18.00
	202.840	510.00	838.68	.38	.20	0.00	409.33	18.00
	202.840	835.00	839.17	.49	.23	0.00	425.75	18.00
	204.000	620.00	838.86	0.00	.00	0.00	368.90	1360.00
	204.000	330.00	838.30	-.56	.00	0.00	358.49	1360.00

204.000	510.00	838.69	.38	.00	0.00	365.24	1360.00
204.000	835.00	839.17	.49	.00	0.00	375.21	1360.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
205.200	620.00	838.87	0.00	.00	0.00	195.55	500.00
205.200	330.00	838.30	-.56	.00	0.00	186.19	500.00
205.200	510.00	838.69	.38	.00	0.00	192.56	500.00
205.200	835.00	839.18	.49	.00	0.00	200.69	500.00
205.300	620.00	838.88	0.00	.01	0.00	174.03	120.00
205.300	330.00	838.31	-.57	.00	0.00	167.56	120.00
205.300	510.00	838.69	.39	.01	0.00	171.68	120.00
205.300	835.00	839.19	.50	.01	0.00	179.21	120.00
205.400	620.00	838.88	0.00	.01	0.00	174.20	14.00
205.400	330.00	838.31	-.57	.00	0.00	167.60	14.00
205.400	510.00	838.70	.39	.01	0.00	171.76	14.00
205.400	835.00	839.20	.50	.01	0.00	179.46	14.00
205.800	620.00	838.91	0.00	.02	0.00	259.82	120.00
205.800	330.00	838.32	-.59	.01	0.00	246.01	120.00
205.800	510.00	838.72	.40	.02	0.00	255.88	120.00
205.800	835.00	839.24	.52	.04	0.00	266.68	120.00
205.900	620.00	838.89	0.00	-.02	0.00	259.64	1.00
205.900	330.00	838.31	-.58	-.01	0.00	246.01	1.00
205.900	510.00	838.70	.39	-.01	0.00	255.74	1.00
205.900	835.00	839.21	.51	-.03	0.00	266.12	1.00
205.910	620.00	838.89	0.00	.00	0.00	259.45	2.00
205.910	330.00	838.31	-.58	.00	0.00	245.81	2.00
205.910	510.00	838.71	.39	.00	0.00	255.59	2.00
205.910	835.00	839.21	.51	.00	0.00	266.12	2.00
205.920	620.00	838.92	0.00	.03	0.00	260.03	1.00
205.920	330.00	838.32	-.60	.01	0.00	245.97	1.00
205.920	510.00	838.73	.40	.02	0.00	256.04	1.00
205.920	835.00	839.26	.53	.04	0.00	267.00	1.00
206.000	620.00	838.96	0.00	.04	0.00	588.29	725.00
206.000	330.00	838.34	-.61	.02	0.00	547.96	725.00
206.000	510.00	838.75	.41	.03	0.00	573.92	725.00
206.000	835.00	839.31	.55	.05	0.00	607.36	725.00
207.200	620.00	839.00	0.00	.04	0.00	412.21	700.00
207.200	330.00	838.36	-.64	.02	0.00	397.60	700.00
207.200	510.00	838.79	.43	.04	0.00	407.41	700.00
207.200	835.00	839.37	.57	.06	0.00	420.64	700.00
207.300	620.00	839.06	0.00	.06	0.00	262.00	185.00
207.300	330.00	838.40	-.66	.04	0.00	262.00	185.00
207.300	510.00	838.84	.44	.05	0.00	262.00	185.00
207.300	835.00	839.44	.59	.07	0.00	262.00	185.00
207.700	620.00	839.52	0.00	.46	0.00	154.61	75.00
207.700	330.00	839.24	-.28	.84	0.00	139.81	75.00
207.700	510.00	839.44	.19	.59	0.00	150.09	75.00
207.700	835.00	839.66	.22	.22	0.00	162.22	75.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
207.800	620.00	839.80	0.00	.28	0.00	169.38	60.00
207.800	330.00	839.37	-.43	.13	0.00	145.57	60.00
207.800	510.00	839.65	.28	.22	0.00	161.68	60.00
207.800	835.00	840.06	.41	.40	0.00	235.01	60.00
208.300	620.00	840.14	0.00	.35	0.00	145.24	120.00
208.300	330.00	839.58	-.57	.21	0.00	122.88	120.00
208.300	510.00	839.96	.38	.30	0.00	135.19	120.00
208.300	835.00	840.46	.51	.40	0.00	162.34	120.00
208.700	620.00	841.00	0.00	.85	0.00	247.34	70.00
208.700	330.00	840.61	-.38	1.03	0.00	173.68	70.00
208.700	510.00	840.87	.25	.91	0.00	235.99	70.00
208.700	835.00	841.24	.37	.78	0.00	267.87	70.00
208.800	620.00	841.10	0.00	.10	0.00	162.50	70.00
208.800	330.00	840.67	-.43	.05	0.00	152.17	70.00
208.800	510.00	840.95	.29	.08	0.00	159.01	70.00
208.800	835.00	841.37	.42	.13	0.00	169.04	70.00
208.900	620.00	841.36	0.00	.26	0.00	229.23	140.00
208.900	330.00	840.81	-.55	.14	0.00	215.03	140.00
208.900	510.00	841.17	.36	.22	0.00	224.70	140.00
208.900	835.00	841.71	.54	.33	0.00	237.46	140.00
209.000	620.00	842.15	0.00	.79	0.00	125.73	310.00
209.000	330.00	841.40	-.76	.59	0.00	87.89	310.00
209.000	510.00	841.90	.51	.73	0.00	118.57	310.00
209.000	835.00	842.57	.67	.87	0.00	137.66	310.00
210.200	620.00	843.71	0.00	1.55	0.00	317.50	650.00
210.200	330.00	842.97	-.73	1.58	0.00	290.55	650.00
210.200	510.00	843.46	.49	1.56	0.00	308.29	650.00
210.200	835.00	844.13	.67	1.56	0.00	333.27	650.00
* 210.300	620.00	844.32	0.00	.62	0.00	32.21	150.00
210.300	330.00	843.45	-.87	.48	0.00	23.91	150.00
* 210.300	510.00	843.95	.50	.49	0.00	26.48	150.00
* 210.300	835.00	845.33	1.39	1.20	0.00	243.65	150.00
210.700	620.00	846.43	0.00	2.11	0.00	104.00	43.00
210.700	330.00	845.84	-.59	2.39	0.00	104.00	43.00
210.700	510.00	846.22	.38	2.28	0.00	104.00	43.00
210.700	835.00	846.82	.59	1.48	0.00	104.00	43.00
210.800	620.00	846.57	0.00	.14	0.00	104.00	40.00
210.800	330.00	845.92	-.65	.08	0.00	104.00	40.00
210.800	510.00	846.34	.42	.12	0.00	104.00	40.00
210.800	835.00	846.99	.65	.18	0.00	104.00	40.00
210.900	320.00	846.97	0.00	.40	0.00	235.72	160.00
210.900	185.00	846.16	-.82	.24	0.00	105.23	160.00
210.900	280.00	846.69	.54	.35	0.00	209.50	160.00
210.900	420.00	847.47	.78	.48	0.00	282.62	160.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
210.910	320.00	846.99	0.00	.02	0.00	236.71	3.00
210.910	185.00	846.16	-.83	.01	0.00	104.93	3.00
210.910	280.00	846.71	.55	.02	0.00	210.43	3.00
210.910	420.00	847.49	.78	.02	0.00	283.68	3.00
210.920	320.00	847.00	0.00	.01	0.00	237.67	4.00
210.920	185.00	846.17	-.82	.01	0.00	105.37	4.00
210.920	280.00	846.72	.55	.01	0.00	211.44	4.00
210.920	420.00	847.50	.78	.00	0.00	284.56	4.00
210.930	320.00	847.04	0.00	.04	0.00	231.81	25.00
210.930	185.00	846.22	-.81	.05	0.00	102.72	25.00
210.930	280.00	846.76	.54	.05	0.00	206.42	25.00
210.930	420.00	847.53	.76	.03	0.00	277.89	25.00
210.940	320.00	847.04	0.00	.01	0.00	232.71	4.00
210.940	185.00	846.23	-.81	.01	0.00	103.46	4.00
210.940	280.00	846.77	.54	.01	0.00	207.55	4.00
210.940	420.00	847.53	.76	.01	0.00	278.55	4.00
210.950	320.00	847.08	0.00	.04	0.00	639.01	25.00
210.950	185.00	846.28	-.80	.04	0.00	505.19	25.00
210.950	280.00	846.82	.54	.04	0.00	614.33	25.00
210.950	420.00	847.56	.74	.03	0.00	683.79	25.00
210.960	320.00	847.08	0.00	.00	0.00	633.22	1.00
210.960	185.00	846.28	-.80	.00	0.00	502.68	1.00
210.960	280.00	846.82	.54	.00	0.00	613.84	1.00
210.960	420.00	847.56	.74	.00	0.00	683.33	1.00
210.970	320.00	847.08	0.00	.00	0.00	638.33	1.50
210.970	185.00	846.28	-.80	.00	0.00	503.87	1.50
210.970	280.00	846.82	.54	.00	0.00	614.01	1.50
210.970	420.00	847.56	.74	.00	0.00	683.39	1.50
210.980	320.00	847.08	0.00	-.00	0.00	638.35	1.00
210.980	185.00	846.28	-.80	-.00	0.00	504.35	1.00
210.980	280.00	846.82	.54	-.00	0.00	614.06	1.00
210.980	420.00	847.56	.74	-.00	0.00	683.41	1.00
211.000	320.00	847.18	0.00	.10	0.00	395.92	350.00
211.000	185.00	846.47	-.71	.18	0.00	328.98	350.00
211.000	280.00	846.95	.48	.13	0.00	379.29	350.00
211.000	420.00	847.63	.69	.07	0.00	431.57	350.00
211.300	320.00	847.22	0.00	.04	0.00	399.18	30.00
211.300	185.00	846.58	-.64	.11	0.00	351.50	30.00
211.300	280.00	847.00	.42	.06	0.00	383.66	30.00
211.300	420.00	847.66	.66	.02	0.00	432.99	30.00
211.700	320.00	848.63	0.00	1.41	0.00	439.03	100.00
211.700	185.00	848.42	-.21	1.84	0.00	438.48	100.00
211.700	280.00	848.57	.15	1.57	0.00	438.88	100.00
211.700	420.00	848.76	.19	1.11	0.00	429.39	100.00

SECNO	Q	CWSEL	DIFKSP	DIFWSX	DIFKWS	TOPWID	XLCH
212.900	320.00	848.63	0.00	-.00	0.00	97.76	230.00
212.900	185.00	848.42	-.21	-.00	0.00	92.51	230.00
212.900	280.00	848.57	.15	-.00	0.00	96.30	230.00
212.900	420.00	848.76	.19	-.01	0.00	101.11	230.00
213.000	320.00	849.44	0.00	.81	0.00	100.45	340.00
213.000	185.00	848.87	-.57	.45	0.00	86.13	340.00
213.000	280.00	849.28	.41	.71	0.00	96.51	340.00
213.000	420.00	849.79	.51	1.04	0.00	109.54	340.00
213.500	320.00	849.99	0.00	.55	0.00	101.92	250.00
213.500	185.00	849.32	-.67	.45	0.00	84.81	250.00
213.500	280.00	849.81	.49	.53	0.00	97.19	250.00
213.500	420.00	850.38	.57	.59	0.00	111.96	250.00
214.200	320.00	850.68	0.00	.69	0.00	38.31	210.00
214.200	185.00	849.95	-.74	.63	0.00	30.08	210.00
214.200	280.00	850.50	.55	.69	0.00	36.23	210.00
214.200	420.00	851.09	.60	.71	0.00	42.91	210.00
214.300	220.00	851.67	0.00	.98	0.00	7.00	100.00
214.300	125.00	850.81	-.86	.86	0.00	7.00	100.00
214.300	180.00	851.44	.63	.94	0.00	7.00	100.00
214.300	290.00	852.12	.68	1.02	0.00	57.47	100.00
214.400	220.00	851.68	0.00	.01	0.00	7.00	1.00
214.400	125.00	850.82	-.86	.01	0.00	7.00	1.00
214.400	180.00	851.45	.63	.01	0.00	7.00	1.00
214.400	290.00	852.13	.68	.01	0.00	7.00	1.00
214.600	220.00	852.34	0.00	.66	0.00	7.00	65.00
214.600	125.00	851.11	-1.23	.30	0.00	7.00	65.00
214.600	180.00	851.91	.79	.46	0.00	7.00	65.00
214.600	290.00	853.18	1.27	1.05	0.00	7.00	65.00
214.700	220.00	852.56	0.00	.22	0.00	7.00	1.00
214.700	125.00	851.15	-1.41	.04	0.00	7.00	1.00
214.700	180.00	852.03	.88	.12	0.00	7.00	1.00
214.700	290.00	853.78	1.75	.60	0.00	7.00	1.00
214.800	220.00	853.55	0.00	.99	0.00	72.63	90.00
214.800	125.00	851.99	-1.56	.84	0.00	20.27	90.00
214.800	180.00	852.94	.95	.92	0.00	49.76	90.00
214.800	290.00	854.77	1.83	.99	0.00	118.18	90.00
215.100	220.00	854.50	0.00	.95	0.00	67.28	300.00
215.100	125.00	853.06	-1.44	1.07	0.00	20.05	300.00
215.100	180.00	853.81	.75	.87	0.00	41.21	300.00
215.100	290.00	855.42	1.61	.65	0.00	131.42	300.00
215.150	220.00	854.52	0.00	.02	0.00	67.55	4.00
215.150	125.00	853.08	-1.45	.02	0.00	20.16	4.00
215.150	180.00	853.83	.75	.01	0.00	41.64	4.00
215.150	290.00	855.49	1.66	.07	0.00	104.01	4.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
215.200	220.00	854.64	0.00	.11	0.00	35.12	30.00
215.200	125.00	853.19	-1.45	.12	0.00	16.79	30.00
215.200	180.00	853.93	.74	.10	0.00	23.05	30.00
215.200	290.00	855.66	1.73	.16	0.00	59.02	30.00
215.300	220.00	854.78	0.00	.14	0.00	34.02	80.00
215.300	125.00	853.37	-1.41	.18	0.00	16.69	80.00
215.300	180.00	854.11	.74	.18	0.00	22.66	80.00
215.300	290.00	855.75	1.64	.10	0.00	56.23	80.00
215.700	220.00	855.09	0.00	.32	0.00	40.23	45.00
215.700	125.00	854.29	-.80	.92	0.00	25.88	45.00
215.700	180.00	854.84	.55	.73	0.00	35.16	45.00
215.700	290.00	855.76	.92	.01	0.00	55.56	45.00
215.800	220.00	855.18	0.00	.09	0.00	77.40	60.00
215.800	125.00	854.33	-.85	.04	0.00	47.03	60.00
215.800	180.00	854.90	.57	.06	0.00	67.80	60.00
215.800	290.00	855.88	.98	.13	0.00	88.61	60.00
215.900	220.00	855.41	0.00	.23	0.00	105.00	275.00
215.900	125.00	854.52	-.89	.18	0.00	102.87	275.00
215.900	180.00	855.10	.59	.20	0.00	105.00	275.00
215.900	290.00	856.07	.97	.19	0.00	105.00	275.00
215.950	220.00	855.49	0.00	.08	0.00	104.95	225.00
215.950	125.00	854.60	-.89	.08	0.00	101.01	225.00
215.950	180.00	855.18	.58	.08	0.00	103.59	225.00
215.950	290.00	856.14	.96	.07	0.00	105.00	225.00
216.200	220.00	855.70	0.00	.21	0.00	47.21	275.00
216.200	125.00	854.83	-.87	.23	0.00	43.38	275.00
216.200	180.00	855.38	.56	.20	0.00	45.84	275.00
216.200	290.00	856.31	.93	.17	0.00	49.00	275.00
216.300	80.00	855.84	0.00	.14	0.00	5.10	90.00
216.300	45.00	855.03	-.81	.20	0.00	5.10	90.00
216.300	70.00	855.54	.51	.15	0.00	5.10	90.00
216.300	90.00	856.43	.89	.12	0.00	5.10	90.00
216.700	80.00	860.02	0.00	4.18	0.00	5.10	100.00
216.700	45.00	856.29	-3.73	1.26	0.00	5.10	100.00
216.700	70.00	858.71	2.42	3.17	0.00	5.10	100.00
216.700	90.00	860.45	1.74	4.02	0.00	110.56	100.00
216.800	80.00	860.10	0.00	.09	0.00	137.00	110.00
216.800	45.00	856.40	-3.70	.12	0.00	137.00	110.00
216.800	70.00	858.81	2.40	.10	0.00	137.00	110.00
216.800	90.00	860.45	1.64	.00	0.00	137.00	110.00
217.000	80.00	860.10	0.00	.00	0.00	472.24	690.00
217.000	45.00	856.41	-3.69	.01	0.00	402.27	690.00
217.000	70.00	858.81	2.40	.00	0.00	412.49	690.00
217.000	90.00	860.45	1.64	.00	0.00	501.14	690.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
218.000	80.00	860.10	0.00	.00	0.00	533.60	800.00
218.000	45.00	856.42	-3.69	.01	0.00	517.93	800.00
218.000	70.00	858.81	2.39	.00	0.00	528.10	800.00
218.000	90.00	860.45	1.64	.00	0.00	554.51	800.00

SUMMARY OF ERRORS

CAUTION SECNO= 202.820 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 202.820 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 202.820 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
NOTE SECNO= 202.820 PROFILE= 2 WSEL BASED ON X5 CARD
CAUTION SECNO= 202.820 PROFILE= 3 CRITICAL DEPTH ASSUMED

NOTE SECNO= 202.830 PROFILE= 2 WSEL BASED ON X5 CARD

CAUTION SECNO= 210.300 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 210.300 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 210.300 PROFILE= 4 CRITICAL DEPTH ASSUMED

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD - TOWNSHIP

3) WATERCOURSE: AMY DRAIN

4) DOCUMENT TYPE: SUMMARY - convergence

00BREAK00

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

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

AMY DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
D	201.300	0.00	0.00	0.00	820.20	320.00	825.99	0.00	826.20	21.24	3.68	86.91	69.44
D*1.15	201.300	0.00	0.00	0.00	820.20	320.00	826.80	0.00	826.96	13.76	3.23	99.00	86.28
D*.85	201.300	0.00	0.00	0.00	820.20	320.00	825.10	0.00	825.39	37.13	4.35	73.50	52.52
	201.800	260.00	851.90	824.15	820.75	320.00	841.89	0.00	841.91	.38	1.05	303.94	518.82
	201.800	260.00	851.90	824.15	820.75	320.00	842.70	0.00	842.71	.33	1.01	316.04	553.70
	201.800	260.00	851.90	824.15	820.75	320.00	840.99	0.00	841.01	.44	1.10	290.52	481.20
	201.900	100.00	0.00	0.00	821.05	320.00	841.91	0.00	841.91	.02	.27	2371.04	2026.08
	201.900	100.00	0.00	0.00	821.05	320.00	842.72	0.00	842.72	.02	.24	2607.56	2274.79
	201.900	100.00	0.00	0.00	821.05	320.00	841.02	0.00	841.02	.03	.30	2113.80	1772.08
	202.300	30.00	0.00	0.00	821.25	620.00	841.91	0.00	841.91	.10	.53	2313.17	1967.35
	202.300	30.00	0.00	0.00	821.25	620.00	842.72	0.00	842.72	.08	.48	2548.61	2211.54
	202.300	30.00	0.00	0.00	821.25	620.00	841.02	0.00	841.02	.13	.59	2057.13	1718.72
	202.700	36.00	826.80	825.40	821.25	620.00	841.94	0.00	841.95	.10	.53	2322.98	1977.25
	202.700	36.00	826.80	825.40	821.25	620.00	842.75	0.00	842.75	.08	.48	2558.38	2221.97
	202.700	36.00	826.80	825.40	821.25	620.00	841.05	0.00	841.05	.13	.59	2066.99	1727.93
	202.800	20.00	0.00	0.00	821.80	620.00	841.95	0.00	841.95	.05	.40	2894.47	2650.36
	202.800	20.00	0.00	0.00	821.80	620.00	842.75	0.00	842.75	.04	.37	3094.61	2923.10
	202.800	20.00	0.00	0.00	821.80	620.00	841.05	0.00	841.05	.07	.43	2674.60	2362.04
	202.810	195.00	0.00	0.00	822.50	620.00	841.95	0.00	841.95	.07	.42	2722.48	2423.78
	202.810	195.00	0.00	0.00	822.50	620.00	842.75	0.00	842.75	.05	.39	2920.98	2685.94
	202.810	195.00	0.00	0.00	822.50	620.00	841.05	0.00	841.06	.08	.46	2504.48	2147.48
	202.820	4.00	837.40	836.40	834.10	620.00	841.94	0.00	841.95	.98	1.21	1264.11	626.73
	202.820	4.00	837.40	836.40	834.10	620.00	842.75	0.00	842.75	.59	1.01	1482.45	808.95
	202.820	4.00	837.40	836.40	834.10	620.00	841.05	0.00	841.06	1.92	1.54	1022.27	447.49
	202.830	9.00	837.40	836.40	834.10	620.00	841.94	0.00	841.95	.98	1.21	1263.45	626.21
	202.830	9.00	837.40	836.40	834.10	620.00	842.75	0.00	842.75	.59	1.02	1482.01	808.57
	202.830	9.00	837.40	836.40	834.10	620.00	841.05	0.00	841.06	1.93	1.55	1021.13	446.70
	202.840	18.00	0.00	0.00	824.70	620.00	841.95	0.00	841.95	.01	.11	5710.88	7923.33
	202.840	18.00	0.00	0.00	824.70	620.00	842.76	0.00	842.76	.01	.11	6141.03	8724.11
	202.840	18.00	0.00	0.00	824.70	620.00	841.07	0.00	841.07	.01	.12	5256.99	7094.19

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
204.000	1360.00	0.00	0.00	828.70	620.00	841.95	0.00	841.95	.02	.15	4189.39	4982.29
204.000	1360.00	0.00	0.00	828.70	620.00	842.76	0.00	842.76	.01	.14	4566.31	5625.77
204.000	1360.00	0.00	0.00	828.70	620.00	841.07	0.00	841.07	.02	.17	3800.46	4315.62
205.200	500.00	0.00	0.00	830.10	620.00	841.96	0.00	841.96	.11	.34	1872.45	1839.18
205.200	500.00	0.00	0.00	830.10	620.00	842.76	0.00	842.76	.08	.31	2097.78	2136.54
205.200	500.00	0.00	0.00	830.10	620.00	841.07	0.00	841.07	.16	.38	1643.81	1537.71
205.300	120.00	836.90	835.40	831.40	620.00	841.96	0.00	841.96	.95	.47	1329.44	634.89
205.300	120.00	836.90	835.40	831.40	620.00	842.76	0.00	842.76	.63	.41	1526.24	778.62
205.300	120.00	836.90	835.40	831.40	620.00	841.07	0.00	841.08	1.57	.55	1132.36	494.11
205.400	14.00	836.90	835.40	831.40	620.00	841.96	0.00	841.96	.95	.47	1329.88	635.20
205.400	14.00	836.90	835.40	831.40	620.00	842.76	0.00	842.76	.63	.41	1526.57	778.87
205.400	14.00	836.90	835.40	831.40	620.00	841.07	0.00	841.08	1.57	.55	1132.97	494.52
205.800	120.00	0.00	0.00	830.00	620.00	841.96	0.00	841.97	.12	.30	2100.49	1807.90
205.800	120.00	0.00	0.00	830.00	620.00	842.76	0.00	842.76	.08	.26	2364.82	2130.65
205.800	120.00	0.00	0.00	830.00	620.00	841.08	0.00	841.08	.17	.34	1823.13	1484.47
205.900	1.00	0.00	0.00	833.80	620.00	841.96	0.00	841.97	.24	1.18	1809.74	1264.94
205.900	1.00	0.00	0.00	833.80	620.00	842.76	0.00	842.77	.17	1.04	2074.77	1524.70
205.900	1.00	0.00	0.00	833.80	620.00	841.08	0.00	841.09	.38	1.38	1532.68	1006.57
205.910	2.00	0.00	0.00	833.80	620.00	841.96	0.00	841.97	.24	1.18	1808.36	1263.61
205.910	2.00	0.00	0.00	833.80	620.00	842.76	0.00	842.77	.17	1.04	2073.68	1523.60
205.910	2.00	0.00	0.00	833.80	620.00	841.08	0.00	841.09	.38	1.38	1530.83	1004.90
205.920	1.00	0.00	0.00	831.30	620.00	841.97	0.00	841.97	.14	.31	1998.37	1665.17
205.920	1.00	0.00	0.00	831.30	620.00	842.77	0.00	842.77	.10	.27	2263.68	1982.26
205.920	1.00	0.00	0.00	831.30	620.00	841.08	0.00	841.09	.21	.36	1720.84	1349.53
206.000	725.00	0.00	0.00	832.90	620.00	841.97	0.00	841.97	.04	.16	3979.93	3253.28
206.000	725.00	0.00	0.00	832.90	620.00	842.77	0.00	842.77	.02	.14	4544.48	3996.78
206.000	725.00	0.00	0.00	832.90	620.00	841.09	0.00	841.09	.06	.19	3375.21	2508.34
207.200	700.00	0.00	0.00	835.48	620.00	841.98	0.00	841.98	.24	.42	2408.40	1253.27
207.200	700.00	0.00	0.00	835.48	620.00	842.77	0.00	842.77	.16	.36	2785.89	1569.91
207.200	700.00	0.00	0.00	835.48	620.00	841.10	0.00	841.10	.43	.51	2000.52	942.45
207.300	185.00	0.00	0.00	835.48	620.00	841.98	0.00	841.98	.46	.58	1611.24	914.58
207.300	185.00	0.00	0.00	835.48	620.00	842.78	0.00	842.78	.31	.51	1819.49	1115.35
207.300	185.00	0.00	0.00	835.48	620.00	841.11	0.00	841.11	.76	.67	1382.56	712.09
207.700	75.00	838.20	837.10	834.80	620.00	842.01	0.00	842.02	2.53	1.16	962.54	389.78
207.700	75.00	838.20	837.10	834.80	620.00	842.81	0.00	842.81	1.22	.89	1305.33	561.14
207.700	75.00	838.20	837.10	834.80	620.00	841.13	0.00	841.16	6.51	1.65	643.16	242.95
207.800	60.00	0.00	0.00	834.80	620.00	842.03	0.00	842.03	1.40	1.04	963.82	524.22
207.800	60.00	0.00	0.00	834.80	620.00	842.81	0.00	842.82	.66	.79	1304.60	760.76
207.800	60.00	0.00	0.00	834.80	620.00	841.17	0.00	841.19	3.60	1.48	652.27	326.69
208.300	120.00	0.00	0.00	835.60	620.00	842.04	0.00	842.06	3.25	1.42	680.86	343.93
208.300	120.00	0.00	0.00	835.60	620.00	842.82	0.00	842.83	1.39	1.04	965.19	525.13
208.300	120.00	0.00	0.00	835.60	620.00	841.22	0.00	841.26	9.44	2.11	432.80	201.77

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	10K
	208.700	70.00	839.50	839.10	835.60	620.00	842.13	0.00	842.14	2.94	1.37	710.16	361.81
	208.700	70.00	839.50	839.10	835.60	620.00	842.90	0.00	842.91	1.28	1.01	998.35	547.30
	208.700	70.00	839.50	839.10	835.60	620.00	841.36	0.00	841.40	7.84	1.97	469.22	221.48
	208.800	70.00	0.00	0.00	836.23	620.00	842.15	0.00	842.18	6.04	1.82	541.50	252.31
	208.800	70.00	0.00	0.00	836.23	620.00	842.91	0.00	842.92	3.12	1.43	690.68	350.87
	208.800	70.00	0.00	0.00	836.23	620.00	841.42	0.00	841.47	12.74	2.39	410.81	173.67
	208.900	140.00	0.00	0.00	836.63	620.00	842.24	0.00	842.26	5.62	1.68	636.62	261.57
	208.900	140.00	0.00	0.00	836.63	620.00	842.95	0.00	842.96	2.75	1.29	819.56	373.89
	208.900	140.00	0.00	0.00	836.63	620.00	841.60	0.00	841.64	12.13	2.26	483.03	178.03
	209.000	310.00	0.00	0.00	837.50	620.00	842.51	0.00	842.67	40.25	3.94	244.94	97.72
	209.000	310.00	0.00	0.00	837.50	620.00	843.08	0.00	843.17	19.67	3.00	329.18	139.79
	209.000	310.00	0.00	0.00	837.50	620.00	842.19	0.00	842.42	61.86	4.63	203.62	78.83
	210.200	650.00	0.00	0.00	840.50	620.00	843.74	0.00	843.77	9.07	1.47	586.69	205.84
	210.200	650.00	0.00	0.00	840.50	620.00	843.89	0.00	843.91	7.35	1.37	631.12	228.74
	210.200	650.00	0.00	0.00	840.50	620.00	843.71	0.00	843.73	9.66	1.50	574.17	199.53
*	210.300	150.00	0.00	0.00	840.58	620.00	844.32	844.32	845.54	406.11	8.86	70.17	30.77
*	210.300	150.00	0.00	0.00	840.58	620.00	844.31	844.31	845.54	412.07	8.91	69.78	30.54
*	210.300	150.00	0.00	0.00	840.58	620.00	844.32	844.32	845.54	404.95	8.86	70.24	30.81
	210.700	43.00	845.00	843.20	840.58	620.00	846.43	0.00	846.59	30.66	3.63	241.44	111.96
	210.700	43.00	845.00	843.20	840.58	620.00	846.43	0.00	846.59	30.68	3.63	241.38	111.93
	210.700	43.00	845.00	843.20	840.58	620.00	846.43	0.00	846.59	30.66	3.63	241.45	111.97
	210.800	40.00	0.00	0.00	840.58	620.00	846.57	0.00	846.71	26.43	3.44	256.16	120.60
	210.800	40.00	0.00	0.00	840.58	620.00	846.57	0.00	846.71	26.44	3.44	256.11	120.57
	210.800	40.00	0.00	0.00	840.58	620.00	846.57	0.00	846.71	26.43	3.44	256.17	120.60
	210.900	160.00	0.00	0.00	841.08	320.00	846.97	0.00	847.01	6.76	1.72	314.48	123.09
	210.900	160.00	0.00	0.00	841.08	320.00	846.97	0.00	847.01	6.76	1.72	314.40	123.06
	210.900	160.00	0.00	0.00	841.08	320.00	846.97	0.00	847.01	6.76	1.72	314.49	123.09
	210.910	3.00	842.90	842.50	841.08	320.00	846.99	0.00	847.01	14.32	1.45	310.03	84.56
	210.910	3.00	842.90	842.50	841.08	320.00	846.99	0.00	847.01	14.33	1.45	309.96	84.54
	210.910	3.00	842.90	842.50	841.08	320.00	846.99	0.00	847.01	14.32	1.45	310.04	84.56
	210.920	4.00	842.90	842.50	841.08	320.00	847.00	0.00	847.02	14.08	1.44	312.44	85.28
	210.920	4.00	842.90	842.50	841.08	320.00	847.00	0.00	847.02	14.09	1.44	312.37	85.26
	210.920	4.00	842.90	842.50	841.08	320.00	847.00	0.00	847.02	14.08	1.44	312.46	85.28
	210.930	25.00	843.70	843.10	841.18	320.00	847.03	0.00	847.04	2.32	.53	837.73	210.12
	210.930	25.00	843.70	843.1	841.18	320.00	847.03	0.00	847.04	2.32	.53	837.55	210.05
	210.930	25.00	843.70	843.1	841.18	320.00	847.03	0.00	847.04	2.32	.53	837.77	210.13
	210.940	4.00	843.70	843.10	841.18	320.00	847.04	0.00	847.04	2.29	.53	841.49	211.48
	210.940	4.00	843.70	843.10	841.18	320.00	847.04	0.00	847.04	2.29	.53	841.31	211.42
	210.940	4.00	843.70	843.10	841.18	320.00	847.04	0.00	847.04	2.29	.53	841.53	211.49
	210.950	25.00	0.00	0.00	841.18	320.00	847.04	0.00	847.04	1.55	.82	855.99	256.71
	210.950	25.00	0.00	0.00	841.18	320.00	847.04	0.00	847.04	1.55	.82	855.81	256.64
	210.950	25.00	0.00	0.00	841.18	320.00	847.04	0.00	847.04	1.55	.82	856.02	256.73

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
210.960	1.00	0.00	0.00	842.00	320.00	847.04	0.00	847.04	2.60	.66	793.04	198.39
210.960	1.00	0.00	0.00	842.00	320.00	847.04	0.00	847.04	2.60	.66	792.86	198.32
210.960	1.00	0.00	0.00	842.00	320.00	847.04	0.00	847.04	2.60	.66	793.07	198.40
210.970	1.50	0.00	0.00	842.00	320.00	847.04	0.00	847.04	2.59	.66	794.44	198.90
210.970	1.50	0.00	0.00	842.00	320.00	847.04	0.00	847.04	2.59	.66	794.26	198.84
210.970	1.50	0.00	0.00	842.00	320.00	847.04	0.00	847.04	2.59	.66	794.47	198.92
210.980	1.00	0.00	0.00	841.18	320.00	847.04	0.00	847.05	1.55	.82	856.44	256.89
210.980	1.00	0.00	0.00	841.18	320.00	847.04	0.00	847.05	1.55	.82	856.26	256.82
210.980	1.00	0.00	0.00	841.18	320.00	847.04	0.00	847.05	1.55	.82	856.48	256.90
211.000	350.00	0.00	0.00	843.30	320.00	847.15	0.00	847.18	12.94	2.19	380.29	88.97
211.000	350.00	0.00	0.00	843.30	320.00	847.15	0.00	847.18	12.94	2.19	380.21	88.95
211.000	350.00	0.00	0.00	843.30	320.00	847.15	0.00	847.18	12.93	2.19	380.31	88.98
211.300	30.00	0.00	0.00	843.30	320.00	847.19	0.00	847.21	10.08	1.95	397.45	100.77
211.300	30.00	0.00	0.00	843.30	320.00	847.19	0.00	847.21	10.09	1.95	397.37	100.74
211.300	30.00	0.00	0.00	843.30	320.00	847.19	0.00	847.21	10.08	1.95	397.46	100.77
211.700	100.00	848.00	844.90	843.30	320.00	848.63	0.00	848.63	.71	.64	1017.75	378.52
211.700	100.00	848.00	844.90	843.30	320.00	848.63	0.00	848.63	.71	.64	1017.75	378.52
211.700	100.00	848.00	844.90	843.30	320.00	848.63	0.00	848.63	.71	.64	1017.75	378.52
212.900	230.00	0.00	0.00	844.00	320.00	848.62	0.00	848.70	24.59	2.97	179.11	64.53
212.900	230.00	0.00	0.00	844.00	320.00	848.62	0.00	848.70	24.59	2.97	179.11	64.53
212.900	230.00	0.00	0.00	844.00	320.00	848.62	0.00	848.70	24.59	2.97	179.11	64.53
213.000	340.00	0.00	0.00	845.00	320.00	849.44	0.00	849.51	22.72	2.85	186.85	67.13
213.000	340.00	0.00	0.00	845.00	320.00	849.44	0.00	849.51	22.72	2.85	186.85	67.13
213.000	340.00	0.00	0.00	845.00	320.00	849.44	0.00	849.51	22.72	2.85	186.85	67.13
213.500	250.00	0.00	0.00	845.50	320.00	849.99	0.00	850.05	21.03	2.77	192.68	69.79
213.500	250.00	0.00	0.00	845.50	320.00	849.99	0.00	850.05	21.03	2.77	192.68	69.79
213.500	250.00	0.00	0.00	845.50	320.00	849.99	0.00	850.05	21.03	2.77	192.68	69.79
214.200	210.00	0.00	0.00	846.10	320.00	850.68	0.00	850.91	93.22	3.88	82.47	33.14
214.200	210.00	0.00	0.00	846.10	320.00	850.68	0.00	850.91	93.22	3.88	82.47	33.14
214.200	210.00	0.00	0.00	846.10	320.00	850.68	0.00	850.91	93.22	3.88	82.47	33.14
214.300	100.00	0.00	0.00	846.40	220.00	851.67	0.00	852.51	234.20	7.38	29.79	14.38
214.300	100.00	0.00	0.00	846.40	220.00	851.67	0.00	852.51	234.20	7.38	29.79	14.38
214.300	100.00	0.00	0.00	846.40	220.00	851.67	0.00	852.51	234.20	7.38	29.79	14.38
214.400	1.00	856.00	853.40	846.40	220.00	851.68	0.00	852.59	67.07	7.65	28.74	26.86
214.400	1.00	856.00	853.40	846.40	220.00	851.68	0.00	852.59	67.07	7.65	28.74	26.86
214.400	1.00	856.00	853.40	846.40	220.00	851.68	0.00	852.59	67.07	7.65	28.74	26.86
214.600	65.00	856.00	853.40	846.40	220.00	852.34	0.00	853.06	51.50	6.81	32.29	30.66
214.600	65.00	856.00	853.40	846.40	220.00	852.34	0.00	853.06	51.50	6.81	32.29	30.66
214.600	65.00	856.00	853.40	846.40	220.00	852.34	0.00	853.06	51.50	6.81	32.29	30.66
214.700	1.00	0.00	0.00	846.40	220.00	852.56	0.00	853.14	123.87	6.10	36.07	19.77
214.700	1.00	0.00	0.00	846.40	220.00	852.56	0.00	853.14	123.87	6.10	36.07	19.77
214.700	1.00	0.00	0.00	846.40	220.00	852.56	0.00	853.14	123.87	6.10	36.07	19.77

THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
214.800	90.00	0.00	0.00	847.70	220.00	853.56	0.00	853.69	23.42	2.94	116.33	45.46
214.800	90.00	0.00	0.00	847.70	220.00	853.56	0.00	853.69	23.42	2.94	116.33	45.46
214.800	90.00	0.00	0.00	847.70	220.00	853.56	0.00	853.69	23.42	2.94	116.33	45.46
215.100	300.00	855.20	854.40	848.80	220.00	854.67	0.00	854.82	68.93	3.22	98.39	26.50
215.100	300.00	855.20	854.40	848.80	220.00	854.67	0.00	854.82	68.93	3.22	98.39	26.50
215.100	300.00	855.20	854.40	848.80	220.00	854.67	0.00	854.82	68.93	3.22	98.39	26.50
215.150	4.00	855.20	854.40	848.80	220.00	854.70	0.00	854.85	68.93	3.22	98.39	26.50
215.150	4.00	855.20	854.40	848.80	220.00	854.70	0.00	854.85	68.93	3.22	98.39	26.50
215.150	4.00	855.20	854.40	848.80	220.00	854.70	0.00	854.85	68.93	3.22	98.39	26.50
215.200	30.00	0.00	0.00	848.90	220.00	854.84	0.00	854.97	24.47	2.95	89.55	44.48
215.200	30.00	0.00	0.00	848.90	220.00	854.84	0.00	854.97	24.47	2.95	89.55	44.48
215.200	30.00	0.00	0.00	848.90	220.00	854.84	0.00	854.97	24.47	2.95	89.55	44.48
215.300	80.00	0.00	0.00	849.10	220.00	854.97	0.00	855.11	11.71	3.02	86.54	64.29
215.300	80.00	0.00	0.00	849.10	220.00	854.97	0.00	855.11	11.71	3.02	86.54	64.29
215.300	80.00	0.00	0.00	849.10	220.00	854.97	0.00	855.11	11.71	3.02	86.54	64.29
215.700	45.00	854.50	852.30	849.10	220.00	855.15	0.00	855.27	10.14	2.89	93.84	69.10
215.700	45.00	854.50	852.30	849.10	220.00	855.15	0.00	855.27	10.14	2.89	93.84	69.10
215.700	45.00	854.50	852.30	849.10	220.00	855.15	0.00	855.27	10.14	2.89	93.84	69.10
215.800	60.00	0.00	0.00	849.40	220.00	855.25	0.00	855.34	8.14	2.63	129.18	77.11
215.800	60.00	0.00	0.00	849.40	220.00	855.25	0.00	855.34	8.14	2.63	129.18	77.11
215.800	60.00	0.00	0.00	849.40	220.00	855.25	0.00	855.34	8.14	2.63	129.18	77.11
215.900	275.00	0.00	0.00	850.10	220.00	855.46	0.00	855.47	2.77	.90	323.10	132.20
215.900	275.00	0.00	0.00	850.10	220.00	855.46	0.00	855.47	2.77	.90	323.10	132.20
215.900	275.00	0.00	0.00	850.10	220.00	855.46	0.00	855.47	2.77	.90	323.10	132.20
215.950	225.00	0.00	0.00	850.60	220.00	855.54	0.00	855.55	4.46	1.05	278.56	104.22
215.950	225.00	0.00	0.00	850.60	220.00	855.54	0.00	855.55	4.46	1.05	278.56	104.22
215.950	225.00	0.00	0.00	850.60	220.00	855.54	0.00	855.55	4.46	1.05	278.56	104.22
216.200	275.00	0.00	0.00	851.20	220.00	855.69	0.00	855.71	7.75	1.30	232.17	79.01
216.200	275.00	0.00	0.00	851.20	220.00	855.69	0.00	855.71	7.75	1.30	232.17	79.01
216.200	275.00	0.00	0.00	851.20	220.00	855.69	0.00	855.71	7.75	1.30	232.17	79.01
216.300	90.00	0.00	0.00	852.40	80.00	855.62	0.00	856.00	200.40	4.94	16.21	5.65
216.300	90.00	0.00	0.00	852.40	80.00	855.62	0.00	856.00	200.40	4.94	16.21	5.65
216.300	90.00	0.00	0.00	852.40	80.00	855.62	0.00	856.00	200.40	4.94	16.21	5.65
216.700	100.00	860.30	0.00	852.40	80.00	858.74	0.00	858.83	20.60	2.49	32.07	17.63
216.700	100.00	860.30	0.00	852.40	80.00	858.74	0.00	858.83	20.60	2.49	32.07	17.63
216.700	100.00	860.30	0.00	852.40	80.00	858.74	0.00	858.83	20.60	2.49	32.07	17.63
216.800	110.00	0.00	0.00	851.50	80.00	858.86	0.00	858.86	.07	.21	604.67	292.99
216.800	110.00	0.00	0.00	851.50	80.00	858.86	0.00	858.86	.07	.21	604.67	292.99
216.800	110.00	0.00	0.00	851.50	80.00	858.86	0.00	858.86	.07	.21	604.67	292.99
217.000	690.00	0.00	0.00	854.70	80.00	858.87	0.00	858.87	.01	.05	1682.20	1055.20
217.000	690.00	0.00	0.00	854.70	80.00	858.87	0.00	858.87	.01	.05	1682.20	1055.20
217.000	690.00	0.00	0.00	854.70	80.00	858.87	0.00	858.87	.01	.05	1682.20	1055.20

THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
218.000	800.00	0.00	0.00	855.50	80.00	858.87	0.00	858.87	.01	.05	1755.57	963.66
218.000	800.00	0.00	0.00	855.50	80.00	858.87	0.00	858.87	.01	.05	1755.57	963.66
218.000	800.00	0.00	0.00	855.50	80.00	858.87	0.00	858.87	.01	.05	1755.57	963.66

THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

AMY DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
201.300	320.00	825.99	0.00	0.00	.99	15.00	0.00
201.300	320.00	826.80	.81	0.00	0.00	15.00	0.00
201.300	320.00	825.10	-1.70	0.00	0.00	15.00	0.00
201.800	320.00	841.89	0.00	15.90	0.00	15.00	260.00
201.800	320.00	842.70	.81	15.90	0.00	15.00	260.00
201.800	320.00	840.99	-1.70	15.89	0.00	15.00	260.00
201.900	320.00	841.91	0.00	.02	0.00	290.89	100.00
201.900	320.00	842.72	.81	.02	0.00	296.18	100.00
201.900	320.00	841.02	-1.70	.02	0.00	285.03	100.00
202.300	620.00	841.91	0.00	-.00	0.00	289.58	30.00
202.300	620.00	842.72	.81	-.00	0.00	294.87	30.00
202.300	620.00	841.02	-1.70	-.00	0.00	283.72	30.00
202.700	620.00	841.94	0.00	.03	0.00	289.80	36.00
202.700	620.00	842.75	.81	.03	0.00	295.09	36.00
202.700	620.00	841.05	-1.70	.03	0.00	283.95	36.00
202.800	620.00	841.95	0.00	.00	0.00	247.47	20.00
202.800	620.00	842.75	.80	.00	0.00	249.64	20.00
202.800	620.00	841.05	-1.70	.00	0.00	245.07	20.00
202.810	620.00	841.95	0.00	.00	0.00	245.59	195.00
202.810	620.00	842.75	.80	.00	0.00	247.76	195.00
202.810	620.00	841.05	-1.70	.00	0.00	243.20	195.00
202.820	620.00	841.94	0.00	-.00	0.00	271.20	4.00
202.820	620.00	842.75	.81	-.00	0.00	271.41	4.00
202.820	620.00	841.05	-1.70	-.01	0.00	270.96	4.00
202.830	620.00	841.94	0.00	.00	0.00	271.20	9.00
202.830	620.00	842.75	.81	.00	0.00	271.41	9.00
202.830	620.00	841.05	-1.70	.00	0.00	270.96	9.00
202.840	620.00	841.95	0.00	.01	0.00	528.67	18.00
202.840	620.00	842.76	.80	.01	0.00	539.09	18.00
202.840	620.00	841.07	-1.69	.01	0.00	495.84	18.00
204.000	620.00	841.95	0.00	.00	0.00	454.87	1360.00
204.000	620.00	842.76	.80	.00	0.00	484.60	1360.00
204.000	620.00	841.07	-1.69	.00	0.00	422.00	1360.00
205.200	620.00	841.96	0.00	.00	0.00	269.91	500.00
205.200	620.00	842.76	.80	.00	0.00	291.82	500.00
205.200	620.00	841.07	-1.69	.00	0.00	245.69	500.00
205.300	620.00	841.96	0.00	.00	0.00	234.43	120.00
205.300	620.00	842.76	.80	.00	0.00	256.33	120.00
205.300	620.00	841.07	-1.69	.00	0.00	210.54	120.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
205.400	620.00	841.96	0.00	.00	0.00	234.48	14.00
205.400	620.00	842.76	.80	.00	0.00	256.37	14.00
205.400	620.00	841.07	-1.69	.00	0.00	210.59	14.00
205.800	620.00	841.96	0.00	.01	0.00	323.23	120.00
205.800	620.00	842.76	.80	.00	0.00	339.75	120.00
205.800	620.00	841.08	-1.68	.01	0.00	304.94	120.00
205.900	620.00	841.96	0.00	-.00	0.00	323.10	1.00
205.900	620.00	842.76	.80	-.00	0.00	339.67	1.00
205.900	620.00	841.08	-1.69	-.01	0.00	304.82	1.00
205.910	620.00	841.96	0.00	.00	0.00	323.02	2.00
205.910	620.00	842.76	.80	.00	0.00	339.61	2.00
205.910	620.00	841.08	-1.69	.00	0.00	304.70	2.00
205.920	620.00	841.97	0.00	.01	0.00	323.02	1.00
205.920	620.00	842.77	.80	.00	0.00	339.61	1.00
205.920	620.00	841.08	-1.68	.01	0.00	304.70	1.00
206.000	620.00	841.97	0.00	.01	0.00	699.25	725.00
206.000	620.00	842.77	.80	.00	0.00	721.03	725.00
206.000	620.00	841.09	-1.68	.01	0.00	675.14	725.00
207.200	620.00	841.98	0.00	.00	0.00	470.60	700.00
207.200	620.00	842.77	.80	.00	0.00	478.37	700.00
207.200	620.00	841.10	-1.67	.01	0.00	460.78	700.00
207.300	620.00	841.98	0.00	.01	0.00	262.00	185.00
207.300	620.00	842.78	.79	.00	0.00	262.00	185.00
207.300	620.00	841.11	-1.66	.01	0.00	262.00	185.00
207.700	620.00	842.01	0.00	.03	0.00	398.30	75.00
207.700	620.00	842.81	.79	.03	0.00	464.19	75.00
207.700	620.00	841.13	-1.67	.02	0.00	325.11	75.00
207.800	620.00	842.03	0.00	.01	0.00	398.57	60.00
207.800	620.00	842.81	.79	.01	0.00	464.06	60.00
207.800	620.00	841.17	-1.64	.03	0.00	327.43	60.00
208.300	620.00	842.04	0.00	.02	0.00	334.58	120.00
208.300	620.00	842.82	.78	.01	0.00	398.85	120.00
208.300	620.00	841.22	-1.60	.05	0.00	266.13	120.00
208.700	620.00	842.13	0.00	.08	0.00	341.77	70.00
208.700	620.00	842.90	.77	.08	0.00	405.68	70.00
208.700	620.00	841.36	-1.54	.14	0.00	277.24	70.00
208.800	620.00	842.15	0.00	.02	0.00	187.50	70.00
208.800	620.00	842.91	.76	.01	0.00	205.59	70.00
208.800	620.00	841.42	-1.49	.06	0.00	170.08	70.00
208.900	620.00	842.24	0.00	.09	0.00	250.07	140.00
208.900	620.00	842.95	.72	.05	0.00	266.94	140.00
208.900	620.00	841.60	-1.35	.19	0.00	234.98	140.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	209.000	620.00	842.51	0.00	.27	0.00	135.77	310.00
	209.000	620.00	843.08	.57	.13	0.00	162.50	310.00
	209.000	620.00	842.19	-.89	.59	0.00	126.81	310.00
	210.200	620.00	843.74	0.00	1.24	0.00	318.99	650.00
	210.200	620.00	843.89	.15	.81	0.00	324.08	650.00
	210.200	620.00	843.71	-.18	1.52	0.00	317.54	650.00
*	210.300	620.00	844.32	0.00	.57	0.00	32.11	150.00
*	210.300	620.00	844.31	-.01	.42	0.00	31.67	150.00
*	210.300	620.00	844.32	.01	.61	0.00	32.19	150.00
	210.700	620.00	846.43	0.00	2.11	0.00	104.00	43.00
	210.700	620.00	846.43	-.00	2.12	0.00	104.00	43.00
	210.700	620.00	846.43	.00	2.11	0.00	104.00	43.00
	210.800	620.00	846.57	0.00	.14	0.00	104.00	40.00
	210.800	620.00	846.57	-.00	.14	0.00	104.00	40.00
	210.800	620.00	846.57	.00	.14	0.00	104.00	40.00
	210.900	320.00	846.97	0.00	.40	0.00	235.71	160.00
	210.900	320.00	846.97	-.00	.40	0.00	235.68	160.00
	210.900	320.00	846.97	.00	.40	0.00	235.71	160.00
	210.910	320.00	846.99	0.00	.02	0.00	236.71	3.00
	210.910	320.00	846.99	-.00	.02	0.00	236.68	3.00
	210.910	320.00	846.99	.00	.02	0.00	236.71	3.00
	210.920	320.00	847.00	0.00	.01	0.00	237.66	4.00
	210.920	320.00	847.00	-.00	.01	0.00	237.63	4.00
	210.920	320.00	847.00	.00	.01	0.00	237.67	4.00
	210.930	320.00	847.03	0.00	.04	0.00	633.80	25.00
	210.930	320.00	847.03	-.00	.04	0.00	633.78	25.00
	210.930	320.00	847.03	.00	.04	0.00	633.81	25.00
	210.940	320.00	847.04	0.00	.00	0.00	634.36	4.00
	210.940	320.00	847.04	-.00	.00	0.00	634.33	4.00
	210.940	320.00	847.04	.00	.00	0.00	634.37	4.00
	210.950	320.00	847.04	0.00	.00	0.00	634.68	25.00
	210.950	320.00	847.04	-.00	.00	0.00	634.66	25.00
	210.950	320.00	847.04	.00	.00	0.00	634.69	25.00
	210.960	320.00	847.04	0.00	.00	0.00	634.51	1.00
	210.960	320.00	847.04	-.00	.00	0.00	634.48	1.00
	210.960	320.00	847.04	.00	.00	0.00	634.51	1.00
	210.970	320.00	847.04	0.00	.00	0.00	634.72	1.50
	210.970	320.00	847.04	-.00	.00	0.00	634.69	1.50
	210.970	320.00	847.04	.00	.00	0.00	634.72	1.50
	210.980	320.00	847.04	0.00	-.00	0.00	634.75	1.00
	210.980	320.00	847.04	-.00	-.00	0.00	634.72	1.00
	210.980	320.00	847.04	.00	-.00	0.00	634.75	1.00

THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

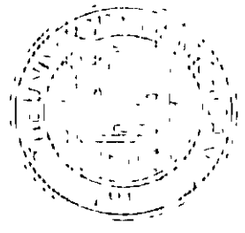
SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
211.000	320.00	847.15	0.00	.11	0.00	394.55	350.00
211.000	320.00	847.15	-.00	.11	0.00	394.53	350.00
211.000	320.00	847.15	.00	.11	0.00	394.55	350.00
211.300	320.00	847.19	0.00	.04	0.00	397.84	30.00
211.300	320.00	847.19	-.00	.04	0.00	397.82	30.00
211.300	320.00	847.19	.00	.04	0.00	397.84	30.00
211.700	320.00	848.63	0.00	1.44	0.00	439.03	100.00
211.700	320.00	848.63	-.00	1.44	0.00	439.03	100.00
211.700	320.00	848.63	.00	1.44	0.00	439.03	100.00
212.900	320.00	848.62	0.00	-.00	0.00	97.75	230.00
212.900	320.00	848.62	-.00	-.00	0.00	97.75	230.00
212.900	320.00	848.62	.00	-.00	0.00	97.75	230.00
213.000	320.00	849.44	0.00	.81	0.00	100.45	340.00
213.000	320.00	849.44	-.00	.81	0.00	100.45	340.00
213.000	320.00	849.44	.00	.81	0.00	100.45	340.00
213.500	320.00	849.99	0.00	.55	0.00	101.92	250.00
213.500	320.00	849.99	-.00	.55	0.00	101.92	250.00
213.500	320.00	849.99	.00	.55	0.00	101.92	250.00
214.200	320.00	850.68	0.00	.69	0.00	38.31	210.00
214.200	320.00	850.68	-.00	.69	0.00	38.31	210.00
214.200	320.00	850.68	.00	.69	0.00	38.31	210.00
214.300	220.00	851.67	0.00	.98	0.00	7.00	100.00
214.300	220.00	851.67	.00	.98	0.00	7.00	100.00
214.300	220.00	851.67	-.00	.98	0.00	7.00	100.00
214.400	220.00	851.68	0.00	.01	0.00	7.00	1.00
214.400	220.00	851.68	.00	.01	0.00	7.00	1.00
214.400	220.00	851.68	-.00	.01	0.00	7.00	1.00
214.600	220.00	852.34	0.00	.66	0.00	7.00	65.00
214.600	220.00	852.34	.00	.66	0.00	7.00	65.00
214.600	220.00	852.34	-.00	.66	0.00	7.00	65.00
214.700	220.00	852.56	0.00	.22	0.00	7.00	1.00
214.700	220.00	852.56	.00	.22	0.00	7.00	1.00
214.700	220.00	852.56	-.00	.22	0.00	7.00	1.00
214.800	220.00	853.56	0.00	1.00	0.00	73.04	90.00
214.800	220.00	853.56	.00	1.00	0.00	73.04	90.00
214.800	220.00	853.56	-.00	1.00	0.00	73.04	90.00
215.100	220.00	854.67	0.00	1.11	0.00	73.33	300.00
215.100	220.00	854.67	.00	1.11	0.00	73.33	300.00
215.100	220.00	854.67	-.00	1.11	0.00	73.33	300.00
215.150	220.00	854.70	0.00	.03	0.00	74.00	4.00
215.150	220.00	854.70	.00	.03	0.00	74.00	4.00
215.150	220.00	854.70	-.00	.03	0.00	74.00	4.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
215.200	220.00	854.84	0.00	.14	0.00	38.90	30.00
215.200	220.00	854.84	.00	.14	0.00	38.90	30.00
215.200	220.00	854.84	-.00	.14	0.00	38.90	30.00
215.300	220.00	854.97	0.00	.13	0.00	37.25	80.00
215.300	220.00	854.97	.00	.13	0.00	37.25	80.00
215.300	220.00	854.97	-.00	.13	0.00	37.25	80.00
215.700	220.00	855.15	0.00	.18	0.00	41.53	45.00
215.700	220.00	855.15	.00	.18	0.00	41.53	45.00
215.700	220.00	855.15	-.00	.18	0.00	41.53	45.00
215.800	220.00	855.25	0.00	.11	0.00	80.30	60.00
215.800	220.00	855.25	.00	.11	0.00	80.30	60.00
215.800	220.00	855.25	-.00	.11	0.00	80.30	60.00
215.900	220.00	855.46	0.00	.21	0.00	105.00	275.00
215.900	220.00	855.46	.00	.21	0.00	105.00	275.00
215.900	220.00	855.46	-.00	.21	0.00	105.00	275.00
215.950	220.00	855.54	0.00	.08	0.00	105.00	225.00
215.950	220.00	855.54	.00	.08	0.00	105.00	225.00
215.950	220.00	855.54	-.00	.08	0.00	105.00	225.00
216.200	220.00	855.69	0.00	.15	0.00	103.20	275.00
216.200	220.00	855.69	.00	.15	0.00	103.20	275.00
216.200	220.00	855.69	-.00	.15	0.00	103.20	275.00
216.300	80.00	855.62	0.00	-.07	0.00	5.10	90.00
216.300	80.00	855.62	.00	-.07	0.00	5.10	90.00
216.300	80.00	855.62	-.00	-.07	0.00	5.10	90.00
216.700	80.00	858.74	0.00	3.11	0.00	5.10	100.00
216.700	80.00	858.74	.00	3.11	0.00	5.10	100.00
216.700	80.00	858.74	-.00	3.11	0.00	5.10	100.00
216.800	80.00	858.86	0.00	.13	0.00	137.00	110.00
216.800	80.00	858.86	.00	.13	0.00	137.00	110.00
216.800	80.00	858.86	-.00	.13	0.00	137.00	110.00
217.000	80.00	858.87	0.00	.00	0.00	412.72	690.00
217.000	80.00	858.87	.00	.00	0.00	412.72	690.00
217.000	80.00	858.87	-.00	.00	0.00	412.72	690.00
218.000	80.00	858.87	0.00	.00	0.00	528.33	800.00
218.000	80.00	858.87	.00	.00	0.00	528.33	800.00
218.000	80.00	858.87	-.00	.00	0.00	528.33	800.00

SUMMARY OF ERRORS

CAUTION SECNO= 210.300 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 210.300 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 210.300 PROFILE= 3 CRITICAL DEPTH ASSUMED



THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TWP

3) WATERCOURSE: RIVER ROUGE

4) DOCUMENT TYPE: 10YR-500YR SUMMARY

00BREAK00

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

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C
T1      HUD-FIA H-4705
T2      BLOOMFIELD IMP FIS
T3      MAIN RIVER ROUGE
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	2.	0.	0.	0.000000	0.00	-1.0	0.	749.330	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									
	201.000	0.000	150.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	.030	.030	.030	.500	1.000	0.000	0.000	0.000	0.000	0.000
QT	7.000	1180.000	1630.000	1830.000	2270.000	1830.000	1830.000	1830.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	2.400	5.400	0.000	0.000

***BIRMINGHAM FIS X-SECT. NO 149500

X1	.900	11.000	110.000	145.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	764.000	0.000	746.000	60.000	744.000	110.000	740.000	120.000	738.000	125.000
GR	740.000	130.000	744.000	145.000	746.000	280.000	754.000	400.000	756.000	530.000
GR	762.000	640.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

***D/S FACE GTW RR BRIDGE

X1	.950	6.000	40.000	58.100	40.000	100.000	50.000	0.000	0.000	0.000
GR	784.300	0.000	743.600	40.000	740.600	40.100	740.600	58.000	743.600	58.100
GR	784.300	98.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.000	2.900	0.000	18.000	2.000	129.000	0.000	740.600	740.600
X1	1.010	0.000	0.000	0.000	104.000	104.000	104.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	748.700	784.900	0.000	0.000	0.000	0.000	0.000
NC	.130	.130	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.800	9.000	165.000	208.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	756.600	54.000	752.600	131.000	750.000	165.000	740.800	177.000	740.800	194.000
GR	748.000	203.000	752.300	254.000	753.600	324.000	755.000	390.000	0.000	0.000

***D/S FACE KENSINGTON RD.

X1	1.820	0.000	0.000	0.000	10.000	10.000	10.000	0.000	.100	0.000
SB	1.600	1.900	1.500	200.000	30.000	5.000	101.000	0.000	741.600	740.900
X1	2.020	0.000	0.000	0.000	39.000	39.000	39.000	0.000	.700	0.000
X2	0.000	0.000	1.000	747.900	751.000	0.000	0.000	0.000	0.000	0.000
BT	8.000	54.000	756.600	0.000	170.000	752.100	0.000	171.000	756.300	0.000
BT	203.000	756.300	0.000	204.000	751.300	0.000	244.000	751.000	0.000	255.000
BT	752.300	0.000	390.000	755.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.800	7.000	280.000	344.000	31.000	31.000	31.000	0.000	0.000	0.000
GR	750.300	230.000	750.600	280.000	743.200	290.000	741.800	306.000	743.300	327.000
GR	746.500	344.000	748.800	565.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	3.000	14.000	95.000	114.000	915.000	915.000	915.000	0.000	0.000	0.000
GR	760.000	0.000	757.300	17.000	755.600	34.000	752.700	60.000	749.800	79.000
GR	747.400	95.000	744.100	104.000	747.400	114.000	748.800	139.000	750.400	160.000
GR	752.400	182.000	755.900	198.000	757.700	214.000	758.200	234.000	0.000	0.000
X1	4.000	9.000	66.000	95.000	1675.000	1675.000	1675.000	0.000	0.000	0.000
GR	765.000	0.000	755.200	40.000	751.300	66.000	747.900	76.000	749.100	82.000
GR	751.000	85.000	751.800	95.000	752.500	356.000	757.500	410.000	0.000	0.000
X1	5.000	10.000	165.000	194.000	1660.000	1660.000	1660.000	0.000	0.000	0.000
GR	766.700	51.000	754.800	84.000	753.800	165.000	752.800	174.000	751.000	178.000
GR	751.000	190.000	753.800	194.000	755.000	252.000	763.800	341.000	768.300	406.000
X1	6.000	9.000	21.000	56.000	1365.000	1365.000	1365.000	0.000	0.000	0.000
GR	770.000	0.000	758.900	21.000	755.700	34.000	754.800	45.000	755.700	53.000
GR	757.500	56.000	758.200	166.000	761.100	226.000	767.800	276.000	0.000	0.000
X1	6.100	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.400	0.000
X1	7.200	9.000	239.000	268.000	275.000	275.000	275.000	0.000	0.000	0.000
GR	761.800	127.000	760.800	223.000	760.000	239.000	759.300	246.000	756.200	249.000
GR	754.700	257.000	755.700	262.000	760.600	268.000	761.800	350.000	0.000	0.000

***D/S FACE FOOTBRIDGE

X1	7.220	10.000	300.000	355.000	67.000	67.000	67.000	0.000	0.000	0.000
GR	762.800	220.000	762.100	290.000	762.000	300.000	760.000	310.000	756.800	335.000
GR	760.000	350.000	762.000	355.000	762.100	360.000	762.400	370.000	763.500	410.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000
X1	7.240	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	290.000	762.100	762.100	300.000	767.300	764.200	360.000	767.300	764.200
BT	370.000	762.400	762.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.260	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000

X1	7.280	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
	***D/S FACE ADAMS RD									
X1	7.300	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	764.000	764.000	0.000
SB	0.000	1.500	3.100	160.000	20.000	0.000	143.000	0.000	757.000	757.000
X1	7.320	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	763.900	766.500	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	766.400	766.400	0.000
	***D/S FACE FOOTBRIDGE									
X1	7.420	11.000	242.000	316.000	19.000	19.000	19.000	0.000	0.000	0.000
GR	766.000	193.000	764.500	242.000	759.600	254.000	757.000	264.000	758.300	280.000
GR	758.500	293.000	760.700	304.000	763.900	305.000	766.600	314.000	767.300	316.000
GR	767.800	329.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.440	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	7.000	193.000	766.000	766.000	242.000	766.600	764.500	254.000	766.600	763.600
BT	305.000	766.600	763.600	314.000	766.600	766.600	316.000	767.300	767.300	329.000
BT	767.800	767.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.460	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
X1	7.480	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	7.800	10.000	242.000	316.000	48.000	48.000	48.000	0.000	0.000	0.000
GR	765.500	210.000	764.500	242.000	759.600	254.000	757.000	264.000	758.900	274.000
GR	760.400	279.000	763.900	305.000	766.600	314.000	767.300	316.000	767.800	329.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
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T1       JOB HUD-FIA H-4705  T06
T2       FLOOD INSURANCE STUDIES
T3       100 YEAR FLOW

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.        4.         0.         0.  0.000000       0.00      -1.0         0.    750.670      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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*PPOF 3

CCHV= .500 CEHV= 1.000
*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

***BIRMINGHAM FIS X-SECT. NO 149500

.90	12.67	750.67	0.00	750.67	750.69	.02	0.00	0.00	744.00
1830.	344.	515.	971.	320.	333.	929.	0.	0.	744.00
0.00	1.07	1.54	1.05	.030	.030	.030	0.000	738.00	44.43
.000052	0.	0.	0.	0	0	0	0.00	305.62	350.05

*SECNO .950

3301 HV CHANGED MORE THAN HVINS

***D/S FACE GTW RR BRIDGE

.95	10.08	750.68	0.00	0.00	751.81	1.13	.01	1.10	743.60
1830.	104.	1623.	103.	25.	182.	25.	2.	0.	743.60
.00	4.22	8.92	4.22	.030	.030	.030	.023	740.60	33.05
.002162	40.	50.	100.	0	0	0	0.00	31.99	65.03

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	2.90	0.00	18.00	2.00	129.00	0.00	740.60	740.60

*SECNO 1.010

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
756.93	751.80	0.00	0.	1830.	129.	130.	748.70	784.90

1.01	16.02	756.62	0.00	0.00	756.93	.31	5.12	0.00	743.60
1830.	211.	1408.	211.	83.	290.	83.	2.	0.	743.60
.01	2.53	4.86	2.53	.030	.030	.030	.027	740.60	27.20
.000346	104.	104.	104.	2	0	0	0.00	43.67	70.87

*SECNO 1.800
3280 CROSS SECTION 1.80 EXTENDED 2.02 FEET

1.80	16.22	757.02	0.00	0.00	757.06	.05	.00	.13	750.00
1830.	184.	1221.	425.	381.	592.	780.	3.	0.	748.00
.01	.48	2.06	.55	.130	.065	.130	.029	740.80	54.00
.000285	10.	10.	10.	2	0	0	0.00	336.00	390.00

*SECNO 1.820
3280 CROSS SECTION 1.82 EXTENDED 1.92 FEET

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

***D/S FACE KENSINGTON RD.

1.82	16.12	757.02	0.00	0.00	757.07	.05	.00	.00	750.10
1830.	180.	1231.	419.	370.	588.	762.	3.	1.	748.10
.01	.49	2.09	.55	.130	.065	.130	.031	740.90	54.00
.000296	10.	10.	10.	0	0	0	0.00	336.00	390.00

SPECIAL BRIDGE

SB	XK	XKOR	COPQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.60	1.90	1.50	200.00	30.00	5.00	101.00	0.00	741.60	740.90

*SECNO 2.020
3280 CROSS SECTION 2.02 EXTENDED 1.40 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
766.71	757.10	.03	1545.	285.	101.	158.	747.90	751.00

2.02	15.60	757.20	0.00	0.00	757.26	.06	.19	0.00	750.80
1830.	159.	1287.	384.	312.	565.	667.	4.	1.	748.80
.02	.51	2.28	.57	.130	.065	.130	.037	741.60	57.90
.000369	39.	39.	39.	2	0	5	0.00	332.10	390.00

*SECNO 2.800
3280 CROSS SECTION 2.80 EXTENDED 8.48 FEET

2.80	15.48	757.28	0.00	0.00	757.28	.01	.00	.02	750.60
1830.	103.	866.	861.	341.	860.	2127.	6.	1.	746.50
.03	.30	1.01	.40	.130	.065	.130	.040	741.80	230.00
.000064	31.	31.	31.	2	0	0	0.00	335.00	565.00

CCHV= .200 CEHV= .400

*SECNO 3.000

3.00	13.28	757.38	0.00	0.00	757.43	.05	.13	.02	747.40
1830.	440.	564.	826.	357.	221.	588.	53.	7.	747.40
.18	1.23	2.55	1.40	.090	.065	.090	.059	744.10	16.50
.000511	915.	915.	915.	2	0	0	0.00	194.64	211.14

*SECNO 4.000
3280 CROSS SECTION 4.00 EXTENDED .51 FEET

4.00	10.11	758.01	0.00	0.00	758.03	.01	.59	.01	751.30
1830.	97.	328.	1404.	140.	231.	1692.	116.	18.	751.80
.68	.69	1.42	.83	.090	.065	.090	.063	747.90	28.53
.000257	1675.	1675.	1675.	2	0	0	0.00	381.47	410.00

*SECNO 5.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	IWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5.00	7.83	758.83	0.00	0.00	758.92	.08	.86	.03	753.80
1830.	680.	622.	528.	390.	197.	332.	172.	29.	753.80
.89	1.74	3.15	1.59	.090	.065	.090	.063	751.00	72.81
.001565	1660.	1660.	1660.	2	0	0	0.00	217.97	290.78

*SECNO 6.000

6.00	6.86	761.66	0.00	0.00	761.79	.13	2.85	.02	758.90
1830.	7.	736.	1086.	7.	194.	541.	198.	36.	757.50
1.03	1.02	3.80	2.01	.090	.065	.090	.064	754.80	15.78
.002932	1365.	1365.	1365.	3	0	0	0.00	214.40	230.18

*SECNO 6.100

6.10	6.91	763.11	0.00	0.00	763.23	.12	1.44	.00	760.30
1830.	8.	733.	1090.	7.	195.	548.	207.	38.	758.90
1.08	1.01	3.76	1.99	.090	.065	.090	.064	756.20	15.70
.002833	500.	500.	500.	2	0	0	0.00	214.78	230.49

*SECNO 7.200
3280 CROSS SECTION 7.20 EXTENDED 2.12 FEET

7.20	9.22	763.92	0.00	0.00	764.09	.17	.84	.02	760.00
1830.	574.	848.	408.	308.	194.	223.	212.	40.	760.60
1.11	1.86	4.36	1.83	.090	.065	.090	.064	754.70	127.00
.003327	275.	275.	275.	2	0	0	0.00	223.00	350.00

*SECNO 7.220
3280 CROSS SECTION 7.22 EXTENDED 1.32 FEET

***D/S FACE FOOTBRIDGE

7.22	7.31	764.11	0.00	0.00	764.46	.35	.30	.07	762.00
1830.	257.	1446.	127.	138.	276.	76.	213.	40.	762.00
1.11	1.87	5.24	1.67	.090	.065	.090	.064	756.80	220.00
.006300	67.	67.	67.	1	0	0	0.00	190.00	410.00

CCHV= .400 CEHV= .800
*SECNO 7.240
3280 CROSS SECTION 7.24 EXTENDED 1.32 FEET

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

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 762.10 MAX ELLC= 764.20

7.24	7.32	764.12	0.00	0.00	764.47	.35	.01	.00	762.00
1830.	257.	1446.	127.	137.	275.	76.	213.	40.	762.00
1.11	1.87	5.25	1.67	.090	.065	.090	.064	756.80	220.00
.006323	1.	1.	1.	0	0	0	0.00	190.00	410.00

*SECNO 7.260
3280 CROSS SECTION 7.26 EXTENDED 1.92 FEET

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 762.10 MAX ELLC= 764.20

7.26	7.92	764.72	0.00	0.00	764.91	.19	.38	.06	762.00
1830.	466.	1128.	236.	183.	280.	104.	213.	40.	762.00
1.12	2.55	4.03	2.28	.090	.065	.090	.064	756.80	220.00
.009061	50.	50.	50.	2	0	0	-36.26	190.00	410.00

*SECNO 7.280
3280 CROSS SECTION 7.28 EXTENDED 1.92 FEET

7.28	7.91	764.71	0.00	0.00	764.94	.22	.01	.03	762.00
1830.	322.	1335.	173.	186.	309.	109.	213.	40.	762.00
1.12	1.73	4.32	1.59	.090	.065	.090	.064	756.80	220.00
.003682	1.	1.	1.	0	0	0	0.00	190.00	410.00

*SECNO 7.300
3280 CROSS SECTION 7.30 EXTENDED 1.98 FEET

***D/S FACE ADAMS RD

7.30	7.98	764.78	0.00	0.00	765.00	.22	.05	.00	762.00
1830.	327.	1326.	177.	190.	312.	112.	213.	40.	762.00
1.12	1.72	4.25	1.58	.090	.065	.090	.064	756.80	220.00
.003511	15.	15.	15.	2	0	0	0.00	190.00	410.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	3.10	160.00	20.00	0.00	143.00	0.00	757.00	757.00

*SECNO 7.320
3280 CROSS SECTION 7.32 EXTENDED 4.43 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
768.59	765.48	0.00	351.	1486.	143.	138.	763.90	766.50

7.32	10.43	767.23	0.00	0.00	767.29	.06	2.30	0.00	762.00
1830.	467.	1079.	284.	386.	447.	247.	214.	41.	762.00
1.12	1.21	2.42	1.15	.090	.065	.090	.064	756.80	220.00
.000703	43.	43.	43.	2	0	3	0.00	190.00	410.00

*SECNO 7.420
3280 CROSS SECTION 7.42 EXTENDED 1.23 FEET

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

***D/S FACE FOOTBRIDGE

7.42	10.23	767.23	0.00	0.00	767.39	.16	.02	.08	764.50
1830.	100.	1730.	0.	97.	527.	0.	215.	41.	767.30
1.13	1.03	3.28	0.00	.090	.065	.090	.064	757.00	193.00
.001621	19.	19.	19.	2	0	0	0.00	122.80	315.80

*SECNO 7.440
3280 CROSS SECTION 7.44 EXTENDED 1.19 FEET

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 766.00 MAX ELLC= 767.80

7.44	10.19	767.19	0.00	0.00	767.59	.41	.00	.20	764.50
1830.	107.	1723.	0.	43.	328.	0.	215.	41.	767.30
1.13	2.47	5.25	0.00	.090	.065	.090	.064	757.00	193.00
.027295	1.	1.	1.	2	0	0	-247.05	122.67	315.67

*SECNO 7.460
3280 CROSS SECTION 7.46 EXTENDED 1.38 FEET

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 766.00 MAX ELLC= 767.80

7.46	10.38	767.38	0.00	0.00	767.74	.36	.12	.02	764.50
1830.	137.	1693.	0.	53.	342.	0.	215.	41.	767.30
1.13	2.58	4.94	.02	.090	.065	.090	.064	757.00	193.00
.022879	5.	5.	5.	2	0	0	-247.05	125.12	318.12

*SECNO 7.480
3280 CROSS SECTION 7.48 EXTENDED 1.70 FEET

7.48	10.70	767.70	0.00	0.00	767.83	.13	.00	.09	764.50
1830.	126.	1704.	0.	120.	561.	2.	215.	41.	767.30
1.13	1.05	3.03	.20	.090	.065	.090	.064	757.00	193.00
.001277	1.	1.	1.	2	0	0	0.00	133.37	326.37

*SECNO 7.800
3280 CROSS SECTION 7.80 EXTENDED 2.27 FEET

7.80	10.77	767.77	0.00	0.00	767.96	.19	.08	.04	764.50
1830.	129.	1701.	1.	89.	472.	3.	215.	41.	767.30
1.13	1.45	3.60	.29	.090	.065	.090	.064	757.00	210.00
.002188	48.	48.	48.	2	0	0	0.00	118.12	328.12

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

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

MAIN RIVER ROUGE

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
.900	0.00	0.00	0.00	738.00	1180.00	749.33	0.00	749.35	.49	1.36	1189.25	1679.22
.900	0.00	0.00	0.00	738.00	1630.00	750.17	0.00	750.19	.55	1.53	1431.80	2197.46
.900	0.00	0.00	0.00	738.00	1830.00	750.67	0.00	750.69	.52	1.54	1582.31	2539.58
.900	0.00	0.00	0.00	738.00	2270.00	755.50	0.00	755.51	.10	.88	3328.54	7280.15
.950	50.00	0.00	0.00	740.60	1180.00	749.34	0.00	750.02	15.43	6.85	190.03	300.43
.950	50.00	0.00	0.00	740.60	1630.00	750.18	0.00	751.20	20.82	8.46	215.39	357.22
.950	50.00	0.00	0.00	740.60	1830.00	750.68	0.00	751.81	21.62	8.92	231.14	393.56
.950	50.00	0.00	0.00	740.60	2270.00	755.50	0.00	756.08	7.15	6.66	408.42	849.20
1.010	104.00	784.90	748.70	740.60	1180.00	751.56	0.00	751.94	6.49	5.17	260.46	463.28
1.010	104.00	784.90	748.70	740.60	1630.00	754.79	0.00	755.14	4.48	5.10	379.59	770.07
1.010	104.00	784.90	748.70	740.60	1830.00	756.62	0.00	756.93	3.46	4.86	456.27	984.30
1.010	104.00	784.90	748.70	740.60	2270.00	764.99	0.00	765.12	.91	3.30	890.36	2378.39
1.800	10.00	0.00	0.00	740.80	1180.00	751.93	0.00	752.07	11.18	3.01	480.24	352.88
1.800	10.00	0.00	0.00	740.80	1630.00	755.20	0.00	755.28	4.94	2.47	1161.77	733.47
1.800	10.00	0.00	0.00	740.80	1830.00	757.02	0.00	757.06	2.85	2.06	1752.35	1084.65
1.800	10.00	0.00	0.00	740.80	2270.00	765.17	0.00	765.18	.38	1.03	4491.57	3662.73
1.820	10.00	0.00	0.00	740.90	1180.00	751.94	0.00	752.08	11.65	3.05	470.20	345.74
1.820	10.00	0.00	0.00	740.90	1630.00	755.21	0.00	755.29	5.16	2.51	1132.20	717.76
1.820	10.00	0.00	0.00	740.90	1830.00	757.02	0.00	757.07	2.96	2.09	1719.63	1063.03
1.820	10.00	0.00	0.00	740.90	2270.00	765.17	0.00	765.18	.39	1.04	4458.19	3623.45
2.020	39.00	751.00	747.90	741.60	1180.00	753.61	0.00	753.71	7.57	2.64	592.58	428.97
2.020	39.00	751.00	747.90	741.60	1630.00	755.55	0.00	755.64	6.07	2.67	1024.04	661.83
2.020	39.00	751.00	747.90	741.60	1830.00	757.20	0.00	757.26	3.69	2.28	1544.37	952.40
2.020	39.00	751.00	747.90	741.60	2270.00	765.32	0.00	765.33	.44	1.09	4274.98	3410.98
2.800	31.00	0.00	0.00	741.80	1180.00	753.76	0.00	753.77	.97	1.01	2149.14	1198.11
2.800	31.00	0.00	0.00	741.80	1630.00	755.67	0.00	755.68	.86	1.07	2791.65	1753.17
2.800	31.00	0.00	0.00	741.80	1830.00	757.28	0.00	757.28	.64	1.01	3328.32	2280.81
2.800	31.00	0.00	0.00	741.80	2270.00	765.33	0.00	765.33	.16	.69	6022.39	5675.42
3.000	915.00	0.00	0.00	744.10	1180.00	753.93	0.00	754.01	12.52	3.16	595.62	333.51
3.000	915.00	0.00	0.00	744.10	1630.00	755.82	0.00	755.89	8.40	2.97	884.60	562.55
3.000	915.00	0.00	0.00	744.10	1830.00	757.38	0.00	757.43	5.11	2.55	1165.83	809.75
3.000	915.00	0.00	0.00	744.10	2270.00	765.35	0.00	765.36	.58	1.22	2998.27	2968.47

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.000	1675.00	0.00	0.00	747.90	1180.00	755.49	0.00	755.52	6.65	1.77	1137.41	457.71
4.000	1675.00	0.00	0.00	747.90	1630.00	756.85	0.00	756.87	4.24	1.64	1625.88	791.34
4.000	1675.00	0.00	0.00	747.90	1830.00	758.01	0.00	758.03	2.57	1.42	2063.40	1142.26
4.000	1675.00	0.00	0.00	747.90	2270.00	765.42	0.00	765.42	.24	.68	4996.80	4594.17
5.000	1660.00	0.00	0.00	751.00	1180.00	757.30	0.00	757.39	22.37	3.18	600.18	249.49
5.000	1660.00	0.00	0.00	751.00	1630.00	758.14	0.00	758.24	20.69	3.37	770.77	358.36
5.000	1660.00	0.00	0.00	751.00	1830.00	758.83	0.00	758.92	15.65	3.15	918.71	462.56
5.000	1660.00	0.00	0.00	751.00	2270.00	765.48	0.00	765.50	1.12	1.33	2659.17	2142.17
6.000	1365.00	0.00	0.00	754.80	1180.00	760.74	0.00	760.84	28.68	3.33	549.35	220.34
6.000	1365.00	0.00	0.00	754.80	1630.00	761.43	0.00	761.55	28.65	3.65	690.57	304.50
6.000	1365.00	0.00	0.00	754.80	1830.00	761.66	0.00	761.79	29.32	3.80	741.74	337.94
6.000	1365.00	0.00	0.00	754.80	2270.00	765.73	0.00	765.77	3.92	2.01	1692.44	1146.97
6.100	500.00	0.00	0.00	756.20	1180.00	762.16	0.00	762.26	28.12	3.31	553.29	222.53
6.100	500.00	0.00	0.00	756.20	1630.00	762.85	0.00	762.96	28.01	3.62	696.04	308.01
6.100	500.00	0.00	0.00	756.20	1830.00	763.11	0.00	763.23	28.33	3.76	750.52	343.80
6.100	500.00	0.00	0.00	756.20	2270.00	765.98	0.00	766.03	6.78	2.42	1406.64	871.79
7.200	275.00	0.00	0.00	754.70	1180.00	762.98	0.00	763.14	34.84	4.04	516.65	199.92
7.200	275.00	0.00	0.00	754.70	1630.00	763.66	0.00	763.82	33.45	4.26	667.48	281.85
7.200	275.00	0.00	0.00	754.70	1830.00	763.92	0.00	764.09	33.27	4.36	726.06	317.25
7.200	275.00	0.00	0.00	754.70	2270.00	766.19	0.00	766.27	10.63	2.99	1232.19	696.11
7.220	67.00	0.00	0.00	756.80	1180.00	763.20	0.00	763.53	68.80	4.78	315.07	142.27
7.220	67.00	0.00	0.00	756.80	1630.00	763.86	0.00	764.20	64.54	5.12	439.89	202.90
7.220	67.00	0.00	0.00	756.80	1830.00	764.11	0.00	764.46	63.00	5.24	489.37	230.56
7.220	67.00	0.00	0.00	756.80	2270.00	766.24	0.00	766.39	18.89	3.64	894.05	522.26
7.240	1.00	762.10	764.20	756.80	1180.00	763.22	0.00	763.54	67.81	4.76	317.40	143.30
7.240	1.00	762.10	764.20	756.80	1630.00	763.86	0.00	764.20	64.59	5.12	439.74	202.82
7.240	1.00	762.10	764.20	756.80	1830.00	764.12	0.00	764.47	63.23	5.25	488.65	230.14
7.240	1.00	762.10	764.20	756.80	2270.00	766.25	0.00	766.39	62.56	3.35	749.48	287.01
7.260	50.00	762.10	764.20	756.80	1180.00	763.62	0.00	763.84	43.21	4.05	394.88	179.52
7.260	50.00	762.10	764.20	756.80	1630.00	764.46	0.00	764.63	82.65	3.85	535.09	179.30
7.260	50.00	762.10	764.20	756.80	1830.00	764.72	0.00	764.91	90.61	4.03	566.40	192.25
7.260	50.00	762.10	764.20	756.80	2270.00	766.56	0.00	766.69	53.64	3.10	786.89	309.93
7.280	1.00	0.00	0.00	756.80	1180.00	763.63	0.00	763.85	42.97	4.04	395.88	180.02
7.280	1.00	0.00	0.00	756.80	1630.00	764.46	0.00	764.67	36.47	4.17	554.55	269.91
7.280	1.00	0.00	0.00	756.80	1830.00	764.71	0.00	764.94	36.82	4.32	603.58	301.59
7.280	1.00	0.00	0.00	756.80	2270.00	766.56	0.00	766.69	15.68	3.41	952.85	573.25
7.300	15.00	0.00	0.00	756.80	1180.00	763.68	0.00	764.02	57.41	4.69	251.79	155.74
7.300	15.00	0.00	0.00	756.80	1630.00	764.52	0.00	764.72	34.72	4.10	565.18	276.63
7.300	15.00	0.00	0.00	756.80	1830.00	764.78	0.00	765.00	35.11	4.25	614.44	308.84
7.300	15.00	0.00	0.00	756.80	2270.00	766.59	0.00	766.71	15.42	3.39	958.28	578.06
7.320	43.00	766.50	763.90	756.80	1180.00	765.06	0.00	765.27	24.20	3.60	327.54	239.87
7.320	43.00	766.50	763.90	756.80	1630.00	766.93	0.00	766.98	6.56	2.28	1022.59	636.27
7.320	43.00	766.50	763.90	756.80	1830.00	767.23	0.00	767.29	7.03	2.42	1080.17	690.33
7.320	43.00	766.50	763.90	756.80	2270.00	768.12	0.00	768.19	7.00	2.58	1248.35	858.26

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7.420	19.00	0.00	0.00	757.00	1180.00	765.18	0.00	765.33	19.40	3.08	389.64	267.89
7.420	19.00	0.00	0.00	757.00	1630.00	766.93	0.00	767.07	14.92	3.08	586.96	421.98
7.420	19.00	0.00	0.00	757.00	1830.00	767.23	0.00	767.39	16.21	3.28	623.95	454.47
7.420	19.00	0.00	0.00	757.00	2270.00	768.11	0.00	768.29	16.01	3.52	739.83	567.28
7.440	1.00	766.00	767.80	757.00	1180.00	765.16	0.00	765.43	118.74	4.14	285.25	108.29
7.440	1.00	766.00	767.80	757.00	1630.00	766.88	0.00	767.28	286.83	5.15	334.08	96.24
7.440	1.00	766.00	767.80	757.00	1830.00	767.19	0.00	767.59	272.95	5.25	371.28	110.77
7.440	1.00	766.00	767.80	757.00	2270.00	768.08	0.00	768.44	194.20	5.00	488.40	162.89
7.460	5.00	766.00	767.80	757.00	1180.00	765.22	0.00	765.49	118.98	4.14	285.25	108.18
7.460	5.00	766.00	767.80	757.00	1630.00	767.09	0.00	767.43	236.71	4.83	359.32	105.95
7.460	5.00	766.00	767.80	757.00	1830.00	767.38	0.00	767.74	228.79	4.94	395.48	120.98
7.460	5.00	766.00	767.80	757.00	2270.00	768.21	0.00	768.54	175.39	4.83	505.80	171.41
7.480	1.00	0.00	0.00	757.00	1180.00	765.41	0.00	765.54	17.19	2.96	410.83	284.61
7.480	1.00	0.00	0.00	757.00	1630.00	767.41	0.00	767.53	11.74	2.84	646.15	475.64
7.480	1.00	0.00	0.00	757.00	1830.00	767.70	0.00	767.83	12.77	3.03	683.52	512.09
7.480	1.00	0.00	0.00	757.00	2270.00	768.46	0.00	768.62	13.61	3.34	786.55	615.24
7.800	48.00	0.00	0.00	757.00	1180.00	765.51	0.00	765.73	37.78	3.77	326.37	191.99
7.800	48.00	0.00	0.00	757.00	1630.00	767.47	0.00	767.64	20.60	3.39	530.12	359.13
7.800	48.00	0.00	0.00	757.00	1830.00	767.77	0.00	767.96	21.88	3.60	563.62	391.24
7.800	48.00	0.00	0.00	757.00	2270.00	768.53	0.00	768.75	22.25	3.91	654.17	481.29

MAIN RIVER ROUGE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.900	1180.00	749.33	0.00	0.00	0.00	281.05	0.00
.900	1630.00	750.17	0.00	0.00	0.00	296.45	0.00
.900	1830.00	750.67	0.00	0.00	0.00	305.62	0.00
.900	2270.00	755.50	0.00	0.00	0.00	469.17	0.00
.950	1180.00	749.34	0.00	.01	0.00	29.35	50.00
.950	1630.00	750.18	0.00	.01	0.00	31.00	50.00
.950	1830.00	750.68	0.00	.01	0.00	31.99	50.00
.950	2270.00	755.50	0.00	.00	0.00	41.46	50.00
1.010	1180.00	751.56	0.00	2.23	0.00	33.74	104.00
1.010	1630.00	754.79	0.00	4.61	0.00	40.07	104.00
1.010	1830.00	756.62	0.00	5.94	0.00	43.67	104.00
1.010	2270.00	764.99	0.00	9.49	0.00	60.09	104.00
1.800	1180.00	751.93	0.00	.37	0.00	110.34	10.00
1.800	1630.00	755.20	0.00	.41	0.00	309.13	10.00
1.800	1830.00	757.02	0.00	.39	0.00	336.00	10.00
1.800	2270.00	765.17	0.00	.18	0.00	336.00	10.00
1.820	1180.00	751.94	0.00	.01	0.00	108.16	10.00
1.820	1630.00	755.21	0.00	.01	0.00	307.28	10.00
1.820	1830.00	757.02	0.00	.00	0.00	336.00	10.00
1.820	2270.00	765.17	0.00	.00	0.00	336.00	10.00
2.020	1180.00	753.61	0.00	1.67	0.00	154.80	39.00
2.020	1630.00	755.55	0.00	.34	0.00	288.42	39.00
2.020	1830.00	757.20	0.00	.18	0.00	332.10	39.00
2.020	2270.00	765.32	0.00	.15	0.00	336.00	39.00
2.800	1180.00	753.76	0.00	.14	0.00	335.00	31.00
2.800	1630.00	755.67	0.00	.13	0.00	335.00	31.00
2.800	1830.00	757.28	0.00	.08	0.00	335.00	31.00
2.800	2270.00	765.33	0.00	.01	0.00	335.00	31.00
3.000	1180.00	753.93	0.00	.17	0.00	139.98	915.00
3.000	1630.00	755.82	0.00	.14	0.00	165.80	915.00
3.000	1830.00	757.38	0.00	.10	0.00	194.64	915.00
3.000	2270.00	765.35	0.00	.02	0.00	234.00	915.00
4.000	1180.00	755.49	0.00	1.57	0.00	349.52	1675.00
4.000	1630.00	756.85	0.00	1.03	0.00	369.73	1675.00
4.000	1830.00	758.01	0.00	.63	0.00	381.47	1675.00
4.000	2270.00	765.42	0.00	.07	0.00	410.00	1675.00
5.000	1180.00	757.30	0.00	1.81	0.00	198.24	1660.00
5.000	1630.00	758.14	0.00	1.29	0.00	209.04	1660.00
5.000	1830.00	758.83	0.00	.82	0.00	217.97	1660.00
5.000	2270.00	765.48	0.00	.07	0.00	310.95	1660.00
6.000	1180.00	760.74	0.00	3.44	0.00	201.04	1365.00
6.000	1630.00	761.43	0.00	3.29	0.00	212.16	1365.00

6.000	1830.00	761.66	0.00	2.83	0.00	214.40	1365.00
6.000	2270.00	765.73	0.00	.25	0.00	252.50	1365.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.100	1180.00	762.16	0.00	1.42	0.00	201.48	500.00
6.100	1630.00	762.85	0.00	1.42	0.00	212.40	500.00
6.100	1830.00	763.11	0.00	1.44	0.00	214.78	500.00
6.100	2270.00	765.98	0.00	.24	0.00	241.68	500.00
7.200	1180.00	762.98	0.00	.82	0.00	223.00	275.00
7.200	1630.00	763.66	0.00	.81	0.00	223.00	275.00
7.200	1830.00	763.92	0.00	.82	0.00	223.00	275.00
7.200	2270.00	766.19	0.00	.22	0.00	223.00	275.00
7.220	1180.00	763.20	0.00	.22	0.00	178.92	67.00
7.220	1630.00	763.86	0.00	.19	0.00	190.00	67.00
7.220	1830.00	764.11	0.00	.19	0.00	190.00	67.00
7.220	2270.00	766.24	0.00	.05	0.00	190.00	67.00
7.240	1180.00	763.22	0.00	.01	0.00	179.40	1.00
7.240	1630.00	763.86	0.00	.01	0.00	190.00	1.00
7.240	1830.00	764.12	0.00	.01	0.00	190.00	1.00
7.240	2270.00	766.25	0.00	.00	0.00	190.00	1.00
7.260	1180.00	763.62	0.00	.41	0.00	190.00	50.00
7.260	1630.00	764.46	0.00	.60	0.00	190.00	50.00
7.260	1830.00	764.72	0.00	.60	0.00	190.00	50.00
7.260	2270.00	766.56	0.00	.31	0.00	190.00	50.00
7.280	1180.00	763.63	0.00	.01	0.00	190.00	1.00
7.280	1630.00	764.46	0.00	-.00	0.00	190.00	1.00
7.280	1830.00	764.71	0.00	-.00	0.00	190.00	1.00
7.280	2270.00	766.56	0.00	.01	0.00	190.00	1.00
7.300	1180.00	763.68	0.00	.05	0.00	55.00	15.00
7.300	1630.00	764.52	0.00	.07	0.00	190.00	15.00
7.300	1830.00	764.78	0.00	.07	0.00	190.00	15.00
7.300	2270.00	766.59	0.00	.03	0.00	190.00	15.00
7.320	1180.00	765.06	0.00	1.38	0.00	55.00	43.00
7.320	1630.00	766.93	0.00	2.41	0.00	190.00	43.00
7.320	1830.00	767.23	0.00	2.45	0.00	190.00	43.00
7.320	2270.00	768.12	0.00	1.53	0.00	190.00	43.00
7.420	1180.00	765.18	0.00	.12	0.00	89.53	19.00
7.420	1630.00	766.93	0.00	.00	0.00	121.94	19.00
7.420	1830.00	767.23	0.00	.00	0.00	122.80	19.00
7.420	2270.00	768.11	0.00	-.00	0.00	136.00	19.00
7.440	1180.00	765.16	0.00	-.02	0.00	88.81	1.00
7.440	1630.00	766.88	0.00	-.05	0.00	121.80	1.00
7.440	1830.00	767.19	0.00	-.05	0.00	122.67	1.00
7.440	2270.00	768.08	0.00	-.03	0.00	136.00	1.00
7.460	1180.00	765.22	0.00	.06	0.00	90.95	5.00
7.460	1630.00	767.09	0.00	.21	0.00	122.39	5.00
7.460	1830.00	767.38	0.00	.19	0.00	125.12	5.00
7.460	2270.00	768.21	0.00	.13	0.00	136.00	5.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7.480	1180.00	765.41	0.00	.19	0.00	97.68	1.00
7.480	1630.00	767.41	0.00	.32	0.00	125.87	1.00
7.480	1830.00	767.70	0.00	.32	0.00	133.37	1.00
7.480	2270.00	768.46	0.00	.25	0.00	136.00	1.00
7.800	1180.00	765.51	0.00	.10	0.00	100.36	48.00
7.800	1630.00	767.47	0.00	.06	0.00	110.50	48.00
7.800	1830.00	767.77	0.00	.07	0.00	118.12	48.00
7.800	2270.00	768.53	0.00	.07	0.00	119.00	48.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR MAIN RIVER ROUGE

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10_	2_	0.2_
.900	0.	-1.3	-.5	4.8
.950	50.	-1.3	-.5	4.8
1.010	154.	-5.1	-1.8	8.4
1.800	164.	-5.1	-1.8	8.2
1.820	174.	-5.1	-1.8	8.2
2.020	213.	-3.6	-1.7	8.1
2.800	244.	-3.5	-1.6	8.0
3.000	1159.	-3.5	-1.6	8.0
4.000	2834.	-2.5	-1.2	7.4
5.000	4494.	-1.5	-.7	6.7
6.000	5859.	-.9	-.2	4.1
6.100	6359.	-.9	-.3	2.9
7.200	6634.	-.9	-.3	2.3
7.220	6701.	-.9	-.3	2.1
7.240	6702.	-.9	-.3	2.1
7.260	6752.	-1.1	-.3	1.8
7.280	6753.	-1.1	-.3	1.8
7.300	6768.	-1.1	-.3	1.8
7.320	6811.	-2.2	-.3	.9
7.420	6830.	-2.0	-.3	.9
7.440	6831.	-2.0	-.3	.9
7.460	6836.	-2.2	-.3	.8
7.480	6837.	-2.3	-.3	.8
7.800	6885.	-2.3	-.3	.8
WEIGHTED AVG FOR REACH		-2.2	-.9	6.3

FHF FOR THE REACH = 020 WITH 70.7_ OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 4

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	AVG ELEVATION DATA 10_	1_	DIFF.	WTD. AVG.	FHF	PERCENT WITHIN
	0.				SEC.		.900
1	100.	749.3	750.7	-1.3	-1.3	015	100.
	50.				SEC.		.950
	154.				SEC.		1.010
	164.				SEC.		1.800
	174.				SEC.		1.820
2	200.	752.5	757.1	-4.6	-3.0	030	0.
	213.				SEC.		2.020

	244.				SEC.		2.800
3	300.	753.8	757.3	-3.5	-3.1	030	33.
4	400.	753.8	757.3	-3.5	-3.2	030	50.
5	500.	753.8	757.3	-3.5	-3.3	035	60.
6	600.	753.8	757.3	-3.5	-3.3	035	67.
7	700.	753.8	757.3	-3.5	-3.3	035	71.
8	800.	753.9	757.3	-3.5	-3.4	035	75.
9	900.	753.9	757.3	-3.5	-3.4	035	78.
10	1000.	753.9	757.4	-3.5	-3.4	035	80.
11	1100.	753.9	757.4	-3.5	-3.4	035	82.
	1159.				SEC.		3.000
12	1200.	753.9	757.4	-3.4	-3.4	035	83.
13	1300.	754.0	757.4	-3.4	-3.4	035	85.
14	1400.	754.1	757.5	-3.3	-3.4	035	86.
15	1500.	754.2	757.5	-3.3	-3.4	035	87.
16	1600.	754.3	757.5	-3.2	-3.4	035	88.
17	1700.	754.4	757.6	-3.2	-3.4	035	88.
18	1800.	754.5	757.6	-3.1	-3.4	035	89.
19	1900.	754.6	757.6	-3.1	-3.3	035	89.
20	2000.	754.7	757.7	-3.0	-3.3	035	90.
21	2100.	754.8	757.7	-3.0	-3.3	035	90.
22	2200.	754.9	757.8	-2.9	-3.3	035	91.
23	2300.	754.9	757.8	-2.8	-3.3	035	91.
24	2400.	755.0	757.8	-2.8	-3.2	030	92.
25	2500.	755.1	757.9	-2.7	-3.2	030	92.
26	2600.	755.2	757.9	-2.7	-3.2	030	92.
27	2700.	755.3	757.9	-2.6	-3.2	030	93.
28	2800.	755.4	758.0	-2.6	-3.2	030	93.
	2834.				SEC.		4.000
29	2900.	755.5	758.0	-2.5	-3.1	030	93.
30	3000.	755.6	758.1	-2.4	-3.1	030	93.
31	3100.	755.7	758.1	-2.4	-3.1	030	94.
32	3200.	755.8	758.2	-2.3	-3.1	030	94.
33	3300.	755.9	758.2	-2.3	-3.0	030	94.
34	3400.	756.1	758.3	-2.2	-3.0	030	94.
35	3500.	756.2	758.3	-2.2	-3.0	030	94.
36	3600.	756.3	758.4	-2.1	-3.0	030	94.
37	3700.	756.4	758.4	-2.0	-2.9	030	95.
38	3800.	756.5	758.5	-2.0	-2.9	030	95.
39	3900.	756.6	758.5	-1.9	-2.9	030	95.
40	4000.	756.7	758.6	-1.9	-2.9	030	93.
41	4100.	756.8	758.6	-1.8	-2.8	030	93.
42	4200.	756.9	758.7	-1.7	-2.8	030	90.
43	4300.	757.0	758.7	-1.7	-2.8	030	91.
44	4400.	757.1	758.8	-1.6	-2.8	030	89.
	4494.				SEC.		5.000
45	4500.	757.3	758.8	-1.6	-2.7	025	89.
46	4600.	757.4	759.0	-1.5	-2.7	025	87.
47	4700.	757.7	759.2	-1.5	-2.7	025	85.
48	4800.	757.9	759.4	-1.4	-2.7	025	85.
49	4900.	758.2	759.6	-1.4	-2.6	025	84.
50	5000.	758.5	759.8	-1.3	-2.6	025	84.
51	5100.	758.7	760.0	-1.3	-2.6	025	82.
52	5200.	759.0	760.2	-1.2	-2.6	025	83.
53	5300.	759.2	760.4	-1.2	-2.5	025	81.
54	5400.	759.5	760.6	-1.1	-2.5	025	76.
55	5500.	759.7	760.8	-1.1	-2.5	025	67.
56	5600.	760.0	761.0	-1.1	-2.4	025	64.
57	5700.	760.2	761.2	-1.0	-2.4	025	61.
58	5800.	760.5	761.4	-1.0	-2.4	025	60.
	5859.				SEC.		6.000

59	5900.	760.7	761.7	-.9	-2.4	025		59.
60	6000.	761.0	761.9	-.9	-2.3	025		60.
61	6100.	761.3	762.2	-.9	-2.3	025		61.
62	6200.	761.6	762.5	-.9	-2.3	025		60.
63	6300.	761.9	762.8	-.9	-2.3	025		57.
	6359.					SEC.	6.100	
64	6400.	762.1	763.1	-.9	-2.3	025		58.
65	6500.	762.4	763.4	-.9	-2.2	020		57.
66	6600.	762.7	763.7	-.9	-2.2	020		56.
	6634.					SEC.	7.200	
67	6700.	763.0	764.0	-.9	-2.2	020		55.
	6701.					SEC.	7.220	
	6702.					SEC.	7.240	
	6752.					SEC.	7.260	
	6753.					SEC.	7.280	
	6768.					SEC.	7.300	
68	6800.	764.2	765.7	-1.5	-2.2	020		57.
	6811.					SEC.	7.320	
	6830.					SEC.	7.420	
	6831.					SEC.	7.440	
	6836.					SEC.	7.460	
	6837.					SEC.	7.480	
	6885.					SEC.	7.800	

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 20N WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE@ 202 53 68
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: RIVER ROUGE

4) DOCUMENT TYPE: 100 YR ENCROACHED REVISED FLOODWAY RUN

00BREAK00

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


T1       FLOOD INSURANCE STUDY
T2       CITY OF BIRMINGHAM  100 YR. WITH ENCROACHMENT
T3       MAIN ROUGE

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.        3.         0.         0.  0.000000       0.00        .5     2103.    702.870      0.000

ULTIPLE PROFILE RUN WITH INTERPOLATED CROSS SECTIONS
J2  NPROF      IPLCT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     15.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 127875.000
 2800 NAT Q1=     811.19  WSEL=     702.77  ENC Q1=     811.19  WSEL=     702.87  RATIO=    .0000
 NAT Q1=     842.  RATIOS LOB,CH,ROB=    .2765    .4439    .2796  WSEL=     702.87
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALCB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLCB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       62.7     643.0  TYPE=      4  TARGET=         .037
127875.00      9.87   702.87      0.00   702.77   702.93      .06      0.00      0.00   699.70
    2103.      566.     968.      570.     992.     337.     907.       0.        0.    699.70
     0.00       .57     2.87       .63      .150     .050     .150    0.000   693.00    62.72
  .000670        0.       0.        0.         0        0        0     0.00   580.32   643.04

*SECNO 130100.000
 2800 NAT Q1=     418.19  WSEL=     707.87  ENC Q1=     418.19  WSEL=     707.97  RATIO=    .0000
 NAT Q1=     429.  RATIOS LOB,CH,ROB=    .0481    .8609    .0911  WSEL=     707.97

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      113.6     202.9  TYPE=      4  TARGET=         .025
130100.00      7.29   705.79      0.00   707.87   706.85     1.06      3.62       .30   703.00
    2103.       41.    1974.       87.      31.      232.      63.       65.       17.    703.00
      .08       1.33     8.53      1.39      .150     .050     .150     .050   698.50   113.57
  .008296     2225.    2225.     2225.         3        0        0     0.00    89.32   202.89

*SECNO 132184.000
 2800 NAT Q1=     585.85  WSEL=     711.85  ENC Q1=     585.85  WSEL=     711.95  RATIO=    .0000
 NAT Q1=     602.  RATIOS LOB,CH,ROB=    .0241    .5481    .4278  WSEL=     711.95

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=       81.0     284.8  TYPE=      4  TARGET=         .026

          ** DOWNSTREAM OF NORTHLAWN DRIVE BRIDGE **

132184.00      9.97   712.07      0.00   711.85   712.22      .15      5.28       .09   708.00
    2103.       24.    1175.      904.      36.      287.     860.      101.       24.    707.00
      .29       .68     4.09      1.05      .150     .050     .150     .050   702.10    80.98
  .001210     2084.    2084.     2084.         4        0        0     0.00   203.79   284.77

*SECNO 132284.000
 2800 NAT Q1=     577.04  WSEL=     711.91  ENC Q1=     585.28  WSEL=     712.01  RATIO=   -.0143
 NAT Q1=     586.  RATIOS LOB,CH,ROB=  0.0000    .9995    .0005  WSEL=     712.01
3280 CROSS SECTION 132284.00 EXTENDED       .63 FEET


3470 ENCROACHMENT STATIONS=       76.0     127.0  TYPE=      4  TARGET=         .001
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132284.00	10.43	712.13	0.00	711.91	712.37	.25	.12	.03	714.70
2103.	0.	2103.	0.	0.	527.	0.	103.	24.	713.00
.29	0.00	3.99	0.00	.150	.050	.150	.050	701.70	76.00
.001248	100.	100.	100.	2	0	0	0.00	51.00	127.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.58	2.60	0.00	51.00	0.00	408.00	0.00	701.70	701.70

*SECNO 132316.000
2800 NAT Q1= 609.08 WSEL= 712.28 ENC Q1= 616.59 WSEL= 712.38 RATIO= -.0123
NAT Q1= 618. RATIOS LOB,CH,ROB= 0.0000 .9977 .0023 WSEL= 712.38
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 132316.00 EXTENDED .99 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= 76.0 127.0 TYPE= 4 TARGET= .002

132316.00	10.79	712.49	0.00	712.28	712.72	.23	.04	.00	714.70
2103.	0.	2103.	0.	0.	545.	0.	104.	24.	713.00
.30	0.00	3.86	0.00	.150	.050	.150	.050	701.70	76.00
.001126	32.	32.	32.	0	0	3	0.00	51.00	127.00

*SECNO 132370.000
2800 NAT Q1= 688.27 WSEL= 712.47 ENC Q1= 688.27 WSEL= 712.57 RATIO= .0000
NAT Q1= 706. RATIOS LOB,CH,ROB= .0284 .5244 .4472 WSEL= 712.57

3470 ENCROACHMENT STATIONS= 78.6 296.4 TYPE= 4 TARGET= .025

** UPSTREAM OF NORTHLAWN DRIVE BRIDGE **

132370.00	10.57	712.67	0.00	712.47	712.79	.12	.05	.01	708.00
2103.	39.	1123.	941.	52.	307.	987.	105.	25.	707.00
.30	.75	3.66	.95	.150	.050	.150	.050	702.10	78.56
.000886	54.	54.	54.	2	0	0	0.00	217.88	296.43

CCHV= .100 CEHV= .300
*SECNO 133675.000
2800 NAT Q1= 383.45 WSEL= 714.17 ENC Q1= 383.45 WSEL= 714.27 RATIO= .0000
NAT Q1= 395. RATIOS LOB,CH,ROB= .2333 .5919 .1748 WSEL= 714.27

3470 ENCROACHMENT STATIONS= 246.4 403.4 TYPE= 4 TARGET= .030

** DOWNSTREAM OF LINCOLN ROAD BRIDGE **

133675.00	8.99	714.29	0.00	714.17	714.68	.39	1.81	.08	709.00
2103.	472.	1273.	358.	369.	202.	204.	133.	30.	707.00
.38	1.28	6.31	1.75	.150	.050	.150	.051	705.30	246.36
.002938	1180.	1305.	1100.	2	0	0	0.00	157.03	403.40

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CCHV=    .600 CEHV=    .800
*SECNO 133725.000
 2800 NAT Q1=    270.22  WSEL=    715.11  ENC Q1=    274.59  WSEL=    715.21  RATIO=  -.0162
 NAT Q1=    275.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    715.21

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      61.5      92.5  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      716.00 ELREA=      716.00

133725.00     9.09   714.39     0.00   715.11   715.43     1.05      .22      .53   723.30
    2103.       0.    2103.       0.       0.      256.       0.     134.      30.    722.00
      .38     0.00     8.21     0.00     .150     .050     .150     .051   705.30    61.50
  .007679      50.      50.      50.        2        0        0     0.00    31.00    92.50


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.61      2.50      0.00     31.00      0.00    275.00      0.00    705.30    705.30

*SECNO 133755.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   715.847  EGLWC=   716.245  ELLC=   716.000  PCWSE=   714.385  ELTRD=   716.300

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  716.30 MAX ELLC=  716.00


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      716.30 ELREA=      716.30

133755.00     9.38   714.68     0.00   715.32   715.70     1.01      .24      .02   723.30
    2103.       0.    2103.       0.       0.      261.       0.     134.      30.    722.00
      .38     0.00     8.07     0.00     .150     .050     .150     .051   705.30    61.50
  .008380      30.      30.      30.        2        0        0    -4.82    31.00    92.50


*SECNO 133805.000
 2800 NAT Q1=    734.79  WSEL=    716.67  ENC Q1=    734.79  WSEL=    716.77  RATIO=   .0000
 NAT Q1=    753.  RATIOS LOB,CH,ROB=   .3428   .4882   .1690  WSEL=    716.77

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    ICC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     202.5     404.3  TYPE=     4  TARGET=       .024

          ** UPSTREAM OF LINCOLN ROAD BRIDGE **

133805.00    10.86   716.16     0.00   716.67   716.32      .16      .12      .51   709.00
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    2103.      676.     1089.      338.      713.      248.      272.      135.       30.     707.00
      .39       .95     4.38      1.24      .150      .050      .150      .051   705.30   202.46
  .001073       50.       50.       50.         3         0         0      0.00   201.89   404.34


CCHV=     .100 CEHV=     .300
*SECNO 135840.000
 2800 NAT Q1=     495.56  WSEL=     718.73  ENC Q1=     495.56  WSEL=     718.83  RATIO=    .0000
 NAT Q1=     511.  RATIOS LOB,CH,ROB=    .2466    .4877    .2656  WSEL=     718.83

3470 ENCROACHMENT STATIONS=      140.9      421.4  TYPE=      4  TARGET=         .031
135840.00      8.09   718.69      0.00   718.73   718.88       .19      2.55       .01   713.50
    2103.      497.     1072.      535.      433.      222.      512.      180.       39.     714.00
      .55      1.15     4.83      1.05      .150      .050      .150      .052   710.60   140.94
  .001963     1600.     2035.     1470.         3         0         0      0.00   280.41   421.35


CCHV=     .600 CEHV=     .800
*SECNO 138170.000
 2800 NAT Q1=     329.81  WSEL=     724.04  ENC Q1=     329.81  WSEL=     724.14  RATIO=    .0000
 NAT Q1=     339.  RATIOS LOB,CH,ROB=    .0314    .8049    .1637  WSEL=     724.14

3470 ENCROACHMENT STATIONS=      316.2      402.8  TYPE=      4  TARGET=         .027

          ** DOWNSTREAM OF MAPLE STREET BRIDGE **

138170.00      8.61   724.21      0.00   724.04   724.81       .60      5.61       .33   720.00
    2103.       38.     1730.      335.       32.      254.      198.      215.       46.     718.50
      .65      1.19     6.81      1.69      .150      .050      .150      .053   715.60   316.23
  .003891     1730.     2330.     1530.         2         0         0      0.00    86.58   402.81


*SECNO 138220.000
 2800 NAT Q1=     469.22  WSEL=     724.55  ENC Q1=     476.42  WSEL=     724.65  RATIO=   -.0153
 NAT Q1=     476.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     724.65

3470 ENCROACHMENT STATIONS=       58.0      103.0  TYPE=      4  TARGET=         0.000
138220.00     10.54   724.74      0.00   724.55   725.09       .35       .13       .15   727.00
    2103.        0.     2103.        0.        0.      444.        0.      215.       46.     727.00
      .66      0.00     4.73      0.00      .150      .050      .150      .053   714.20    58.00
  .001899       90.       50.       20.         3         0         0      0.00    45.00   103.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.71       2.50     350.00      45.00       0.00     315.00       0.00     714.20     714.20

*SECNO 138280.000
 2800 NAT Q1=     532.68  WSEL=     725.43  ENC Q1=     539.98  WSEL=     725.53  RATIO=   -.0137
 NAT Q1=     540.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     725.53
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       58.0      103.0  TYPE=      4  TARGET=         0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      727.00 ELREA=      727.00

138280.00     11.42   725.62      0.00   725.43   725.91       .29       .10       .03   727.00
    2103.        0.     2103.        0.        0.      484.        0.      216.       46.     727.00
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      .66       0.00       4.35       0.00       .150       .050       .150       .053    714.20     58.00
  .001480       60.        60.        60.          0          0          0       0.00     45.00    103.00


CCHV=     .100 CEHV=     .300
*SECNO 138330.000
 2800 NAT Q1=     476.31  WSEL=     725.49  ENC Q1=     476.31  WSEL=     725.59  RATIO=    .0000
 NAT Q1=     488.  RATIOS LOB,CH,ROB=    .0538    .7595    .1867  WSEL=     725.59
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLCB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLCBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      302.9      405.0  TYPE=      4  TARGET=         .024

          ** UPSTREAM OF MAPLE STREET BRIDGE **

138330.00     10.06    725.66       0.00    725.49    726.02       .35       .09       .02    720.00
    2103.        93.     1635.       375.       91.       304.      269.      216.       46.     718.50
     .66        1.02       5.37       1.39      .150      .050      .150      .053    715.60    302.91
  .001900       40.        50.        70.          2          0          0       0.00    102.09    404.99


CCHV=     .600 CEHV=     .800
*SECNO 138460.000
 2800 NAT Q1=     278.38  WSEL=     725.80  ENC Q1=     278.38  WSEL=     725.90  RATIO=    .0000
 NAT Q1=     287.  RATIOS LOB,CH,ROB=    .0405    .9074    .0521  WSEL=     725.90

3470 ENCROACHMENT STATIONS=      297.4      385.3  TYPE=      4  TARGET=         .031

          ** DOWNSTREAM OF BALDWIN STREET BRIDGE **

138460.00      9.16    725.96       0.00    725.80    726.67       .70       .37       .28    723.50
    1980.        53.     1850.        77.       49.       266.       64.      218.       47.     723.00
     .67        1.09       6.94       1.21      .150      .050      .150      .053    716.80    297.39
  .004877       60.        130.       160.         2          0          0       0.00     87.89    385.28


*SECNO 138510.000
 2800 NAT Q1=     206.66  WSEL=     726.07  ENC Q1=     206.66  WSEL=     726.17  RATIO=  0.0000
 NAT Q1=     214.  RATIOS LOB,CH,ROB=    .0724    .8205    .1071  WSEL=     726.17
3280 CROSS SECTION 138510.00 EXTENDED       .22 FEET


3470 ENCROACHMENT STATIONS=       73.3      208.1  TYPE=      4  TARGET=         .034
138510.00     10.82    726.22       0.00    726.07    727.25       1.03       .33       .26    724.30
    1980.        118.     1671.       191.       89.       189.      130.      219.       47.     724.30
     .67        1.32       8.85       1.47      .150      .050      .150      .053    715.40     73.29
  .008917       60.        50.        50.          3          0          0       0.00    134.84    208.12


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       1.59       2.50     272.00      18.50       0.00     126.00       0.00     715.40     715.40
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*SECNO 138530.000
6870 D.S. ENERGY OF  727.25 HIGHER THAN COMPUTED ENERGY OF  726.44
 2800 NAT Q1=    208.95  WSEL=    726.09  ENC Q1=    208.95  WSEL=    726.19  RATIO=   .0000
 NAT Q1=    216.  RATIOS LOB,CH,ROB=   .0738   .8171   .1091  WSEL=    726.19
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 138530.00 EXTENDED       .25 FEET


3470 ENCROACHMENT STATIONS=      71.1     210.8  TYPE=     4  TARGET=        .031
138530.00    10.85   726.25     0.00   726.09   727.25     1.00      .18      .02   724.30
    1980.      125.    1658.     197.     94.     189.     136.     219.     47.    724.30
      .67     1.33     8.76     1.46    .150     .050     .150     .053   715.40    71.13
  .008702     20.      20.      20.       0        0        5     0.00   139.66   210.79


CCHV=    .100 CEHV=    .300
*SECNO 138580.000
 2800 NAT Q1=    407.52  WSEL=    727.00  ENC Q1=    407.52  WSEL=    727.10  RATIO=  0.0000
 NAT Q1=    419.  RATIOS LOB,CH,ROB=   .0896   .8209   .0896  WSEL=    727.10

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     259.5     406.3  TYPE=     4  TARGET=        .027

          ** UPSTREAM OF BALDWIN STREET BRIDGE **

138580.00    10.36   727.16     0.00   727.00   727.53      .37      .22      .06   723.50
    1980.      158.    1665.     157.     171.     314.     155.     219.     47.    723.00
      .67      .92     5.30     1.02    .150     .050     .150     .053   716.80   259.53
  .002279     30.      50.      110.       2        0        0     0.00   146.81   406.34


CCHV=    .600 CEHV=    .800
*SECNO 139645.000
 2800 NAT Q1=    676.69  WSEL=    728.76  ENC Q1=    676.69  WSEL=    728.86  RATIO=   .0000
 NAT Q1=    696.  RATIOS LOB,CH,ROB=   .1841   .6094   .2065  WSEL=    728.86
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      99.4     351.0  TYPE=     4  TARGET=        .027

          ** DOWNSTREAM OF WILLITS STREET BRIDGE **

139645.00     9.39   728.89     0.00   728.76   729.02      .13     1.35      .15   722.50
    1980.      347.    1239.     394.     391.     348.     556.     241.     51.    723.50
      .79      .89     3.56      .71     .150     .050     .150     .053   719.50    99.42
  .000843    1100.    1065.     800.        3        0        0     0.00   251.62   351.04


*SECNO 139695.000
 2800 NAT Q1=    410.87  WSEL=    728.75  ENC Q1=    410.87  WSEL=    728.85  RATIO=  0.0000
 NAT Q1=    419.  RATIOS LOB,CH,ROB=   .0518   .9010   .0472  WSEL=    728.85

3470 ENCROACHMENT STATIONS=     111.4     160.4  TYPE=     4  TARGET=        .019
139695.00     9.48   728.88     0.00   728.75   729.43      .55      .07      .34   720.50
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    1980.       82.     1820.       77.       55.      293.       58.      242.       52.    721.00
     .79       1.50      6.20      1.34      .150      .050      .150      .052   719.40   111.36
  .002301       60.       50.       80.         2         0         0      0.00    49.02   160.37


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        1.59        2.50        0.00       27.00        0.00      176.00        0.00      719.90      719.40

*SECNO 139745.000
 2800 NAT Q1=      575.56  WSEL=     731.15  ENC Q1=     575.56  WSEL=     731.25  RATIO=    .0000
 NAT Q1=     585.  RATIOS LOB,CH,ROB=    .0587    .8848    .0565  WSEL=     731.25
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       108.2       163.6  TYPE=       4  TARGET=          .016
139745.00     11.38    731.28      0.00    731.15    731.64       .35       .08       .12    721.00
    1980.      103.     1778.       98.       89.      354.       91.      243.       52.    721.50
     .79       1.16      5.02      1.08      .150      .050      .150      .052   719.90   108.17
  .001171       50.       50.       50.         0         0         3      0.00    55.45   163.62


*SECNO 139795.000
 2800 NAT Q1=    1356.07  WSEL=     731.67  ENC Q1=    1356.07  WSEL=     731.77  RATIO=    .0000
 NAT Q1=    1383.  RATIOS LOB,CH,ROB=    .2208    .4966    .2825  WSEL=     731.77

3470 ENCROACHMENT STATIONS=        62.6       380.7  TYPE=       4  TARGET=          .020

          ** UPSTREAM OF WILLITS BRIDGE **

139795.00     12.31    731.81      0.00    731.67    731.85       .04       .02       .19    722.50
    1980.      425.      996.      559.      789.      465.     1119.      245.       52.    723.50
     .80        .54      2.14       .50      .150      .050      .150      .052   719.50    62.63
  .000208       40.       50.       90.         2         0         0      0.00   318.03   380.67


CCHV=     .100 CEHV=     .300
*SECNO 140000.000
 2800 NAT Q1=      762.18  WSEL=     731.69  ENC Q1=     762.18  WSEL=     731.79  RATIO=    .0000
 NAT Q1=     779.  RATIOS LOB,CH,ROB=    .1984    .6306    .1710  WSEL=     731.79

3470 ENCROACHMENT STATIONS=        81.3       269.8  TYPE=       4  TARGET=          .022
140000.00     11.82    731.82      0.00    731.69    731.96       .14       .08       .03    723.20
    1980.      381.     1273.      325.      468.      349.      423.      253.       53.    724.00
     .83        .81      3.65       .77      .150      .050      .150      .053   720.00    81.32
  .000664      100.      300.      205.         2         0         0      0.00   188.48   269.80


*SECNO 141580.000
 2800 NAT Q1=      345.05  WSEL=     734.65  ENC Q1=     345.05  WSEL=     734.75  RATIO=  0.0000
 NAT Q1=     353.  RATIOS LOB,CH,ROB=    .1474    .8338    .0188  WSEL=     734.75

3301 HV CHANGED MORE THAN HVINS

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IOC        ICONT      CORAR      TOPWID      ENDST
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3470 ENCROACHMENT STATIONS=       42.4      102.9  TYPE=      4  TARGET=          .023
141580.00      8.48    733.68      0.00    734.65    734.53       .85      2.36       .22    728.50
    1980.      248.     1720.       12.      126.      217.       12.      283.       58.     729.00
      .89      1.96      7.92      1.07      .150      .050      .150      .052    725.20     42.43
  .005408     1680.     1610.     1580.         3         0         0      0.00     60.49    102.92


*SECNO 141800.000
 2800 NAT Q1=     366.59  WSEL=     735.42  ENC Q1=     366.59  WSEL=     735.52  RATIO=    .0000
 NAT Q1=     375.  RATIOS LOB,CH,ROB=    .1509    .8285    .0205  WSEL=     735.52

3470 ENCROACHMENT STATIONS=       41.7      103.9  TYPE=      4  TARGET=          .021
141800.00      9.21    734.91      0.00    735.42    735.58       .67      1.03       .02    729.00
    1980.      268.     1694.       18.      150.      239.       17.      285.       58.     729.50
      .90      1.79      7.08      1.04      .150      .050      .150      .052    725.70     41.70
  .003791      300.      220.      200.         2         0         0      0.00     62.21    103.91


CCHV=     .600 CEHV=     .800
*SECNO 141875.000
 2800 NAT Q1=     344.69  WSEL=     735.64  ENC Q1=     344.69  WSEL=     735.74  RATIO=   0.0000
 NAT Q1=     353.  RATIOS LOB,CH,ROB=    .1473    .8339    .0188  WSEL=     735.74

3470 ENCROACHMENT STATIONS=       42.4      102.9  TYPE=      4  TARGET=          .022

          ** DOWNSTREAM OF WOODWARD AVENUE BRIDGE **

141875.00      9.00    735.20      0.00    735.64    735.93       .73       .30       .04    729.50
    1980.      261.     1706.       13.      141.      233.       13.      286.       58.     730.00
      .91      1.85      7.33       .98      .150      .050      .150      .052    726.20     42.39
  .004212        80.       75.       80.         2         0         0      0.00     60.55    102.95

*SECNO 141925.000

3265 DIVIDED FLOW

3280 CROSS SECTION 141925.00 EXTENDED       1.69 FEET


3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=         .0      217.0  TYPE=      1  TARGET=      216.999
141925.00     11.09    735.19    732.48    735.60    737.03      1.84       .21       .89    725.10
    1980.        0.     1971.       9.        0.      181.       20.      286.       58.     727.20
      .91       .08     10.92       .45      .150      .040      .150      .052    724.10    126.02
  .004276        30.       50.       70.         6        11         0      0.00     54.67    217.00


SPECIAL BRIDGE

SB  XK          XKOR       COEQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.79       2.50       0.00      18.50       0.00      148.00       0.00     724.10     724.10

*SECNO 142025.000
3280 CROSS SECTION 142025.00 EXTENDED       3.00 FEET
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3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
740.16	738.86	0.00	528.	1444.	148.	174.	733.50	734.50

3470 ENCROACHMENT STATIONS= .0 217.0 TYPE= 1 TARGET= 216.999

142025.00	12.40	736.50	0.00	736.79	737.83	1.33	.80	0.00	725.10
1980.	0.	1924.	56.	1.	205.	91.	287.	58.	727.20
.91	.07	9.39	.61	.150	.040	.150	.052	724.10	126.00
.002673	100.	100.	100.	3	0	2	0.00	90.99	217.00

*SECNO 142075.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QRCB	ALCB	ACH	ARCB	VOL	TWA	LEFT/RIGHT
TIME	VLCB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLCBR	ITRIAL	ICC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 17.0 104.0 TYPE= 1 TARGET= 87.000

** UPSTREAM OF WOODWARD AVENUE BRIDGE **

142075.00	11.33	737.83	0.00	737.99	738.42	.59	.15	.44	733.80
1980.	411.	1467.	102.	261.	206.	80.	287.	58.	733.90
.91	1.57	7.12	1.28	.150	.040	.150	.052	726.50	17.00
.003116	60.	50.	40.	3	0	0	0.00	87.00	104.00

*SECNO 142115.000

3470 ENCROACHMENT STATIONS= 45.0 85.1 TYPE= 1 TARGET= 40.100

142115.00	11.41	737.91	0.00	738.06	738.89	.98	.16	.31	733.80
1980.	231.	1749.	0.	121.	208.	0.	287.	58.	100000.00
.91	1.90	8.42	0.00	.150	.040	.150	.052	726.50	45.00
.005047	40.	40.	40.	2	0	0	0.00	40.10	85.10

*SECNO 142315.000
2800 NAT Q1= 634.30 WSEL= 739.40 ENC Q1= 634.30 WSEL= 739.50 RATIO= .0000
NAT Q1= 644. RATIOS LOB,CH,RCB= .0824 .8481 .0695 WSEL= 739.50
3280 CROSS SECTION 142315.00 EXTENDED 5.09 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 31.4 102.2 TYPE= 4 TARGET= .015

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142315.00    12.19   739.29     0.00   739.40   739.65     .36     .39     .37   729.60
   1980.      148.    1709.     122.    132.     330.     140.     290.     59.    734.90
     .93      1.13     5.19      .87     .150     .040     .150     .052  727.10   31.42
  .001039     210.     200.     190.       2        0        0     0.00   70.79   102.21


CCHV=    .100 CEHV=    .300
*SECNO 142790.000
 2800 NAT Q1=    1038.26  WSEL=    739.95  ENC Q1=   1038.26  WSEL=    740.05  RATIO=  0.0000
 NAT Q1=   1061.  RATIOS LOB,CH,ROB=    .0109   .4428   .5463  WSEL=    740.05
3280 CROSS SECTION 142790.00 EXTENDED      3.87 FEET


                          733.35
3470 ENCROACHMENT STATIONS=      25.9     223.1  TYPE=     4  TARGET=        .022
142790.00    11.07   739.87     0.00   739.95   739.96     .09     .28     .03   732.50
   1980.       0.     904.     1076.     1.     272.     1068.     300.     60.    731.80
     .99       .05     3.32     1.01     .100     .040     .100     .051  728.80   25.92
  .000392     470.     475.     430.       2        0        0     0.00  197.20   223.12


CCHV=    .600 CEHV=    .800
*SECNO 143340.000
 2800 NAT Q1=     518.33  WSEL=    740.19  ENC Q1=    518.33  WSEL=    740.29  RATIO=  0.0000
 NAT Q1=    527.  RATIOS LOB,CH,ROB=    .0510   .9173   .0316  WSEL=    740.29

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      51.9      94.1  TYPE=     4  TARGET=        .017
          ** DOWNSTREAM OF HUNTER BLVD BRIDGE **

143340.00    11.93   740.13     0.00   740.19   740.78     .66     .37     .46   732.00
   1980.       87.    1847.      47.     59.     275.      37.     310.     61.    732.00
     1.01      1.47     6.72     1.27     .100     .040     .100     .051  728.20   51.85
  .001533     470.     550.     500.       2        0        0     0.00   42.24   94.10


*SECNO 143390.000
 2800 NAT Q1=     125.84  WSEL=    739.84  ENC Q1=    127.17  WSEL=    739.94  RATIO=  -.0105
 NAT Q1=    127.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    739.94

3301 HV CHANGED MORE THAN HVINS

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


3470 ENCROACHMENT STATIONS=     244.0     256.0  TYPE=     4  TARGET=       C.000
143390.00    11.29   739.79     0.00   739.84   743.11    3.31     .20     2.13   756.60
   1980.       0.    1980.       0.      0.     136.       0.     310.     61.    756.60
     1.01      0.00    14.61     0.00     .100     .040     .100     .051  728.50   244.00
  .025033      50.      50.      60.       2        0        0     0.00   12.00   256.00


SPECIAL BRIDGE
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5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
     0.00        1.75        2.50      450.00       12.00        0.00      122.00        0.00      728.50      728.50

*SECNO 143610.000
 PRESS FLOW BECAUSE EGLWC OF     747.08  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=     205.21  WSEL=     745.54  ENC Q1=     206.62  WSEL=     745.64  RATIO=  -.0069
 NAT Q1=     207.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     745.64
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       244.0       256.0  TYPE=       4  TARGET=         0.000
143610.00     16.99    745.49        0.00    745.54    746.96       1.46        3.18        1.11      756.60
    1980.        0.      1980.        0.        0.       204.         0.         311.        62.       756.60
     1.02       0.00       9.71       0.00      .100      .040       .100       .051      728.50      244.00
  .009376       220.       220.       220.         0         0          0       0.00       12.00      256.00


*SECNO 143660.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=        45.0        95.0  TYPE=       1  TARGET=        50.000

          ** UPSTREAM OF HUNTER BLVD BRIDGE -CORPORATE LIMITS **

143660.00     19.36    747.56        0.00    747.60    747.75        .19        .03         .76      732.00
    1980.       172.      1749.       59.       198.      468.        92.        311.        62.       732.00
     1.02        .87       3.74       .64       .100      .040       .100       .051      728.20       45.00
  .000233       40.        50.        90.          3         0          0       0.00       50.00       95.00

CCHV=     .100 CEHV=     .300
*SECNO 145800.000
 2800 NAT Q1=    3083.24  WSEL=     747.95  ENC Q1=    3083.24  WSEL=     748.05  RATIO=     .0000
 NAT Q1=    3130.  RATIOS LOB,CH,ROB=    .1740    .3209    .5051  WSEL=     748.05

3470 ENCROACHMENT STATIONS=        55.8       389.1  TYPE=       4  TARGET=          .015
145800.00     19.72    747.92        0.00    747.95    747.93         .01        .16         .02      736.00
    1980.       332.       650.       998.       834.      459.      2151.        389.        68.       736.00
     1.70        .40       1.42       .46       .100      .040       .100       .050      728.20       55.77
  .000043      1600.      2140.      1400.          2         0          0       0.00      333.34      389.11


CCHV=     .600 CEHV=     .800
*SECNO 146500.000
                                  748.23
3470 ENCROACHMENT STATIONS=       130.0       210.0  TYPE=       1  TARGET=         80.000
146500.00     19.75    747.95        0.00    747.98    748.07         .12        .05         .09      736.00
    1980.       206.      1475.       299.       248.      460.       330.        420.        71.       736.00
     1.77        .83       3.21       .91       .100      .040       .100       .050      728.20      130.00
  .000220       500.       700.       600.          2         0          0       0.00       80.00      210.00
                                                                                                  130

*SECNO 146550.000
3280 CROSS SECTION 146550.00 EXTENDED       5.76 FEET

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

3470 ENCROACHMENT STATIONS= 250.0 450.0 TYPE= 1 TARGET= 200.000

146550.00	12.76	747.96	0.00	747.99	748.11	.15	.02	.03	735.20
1980.	460.	859.	661.	476.	185.	596.	421.	71.	735.20
1.78	.97	4.64	1.11	.100	.040	.100	.050	735.20	250.00
.000524	50.	50.	50.	3	0	0	0.00	200.00	450.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.50	750.00	14.50	0.00	85.60	0.00	735.20	735.20

*SECNO 146570.000
PRESS FLOW BECAUSE EGLWC OF 748.33 EXCEEDS 1.5 DEPTH
3280 CROSS SECTION 146570.00 EXTENDED 5.80 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
761.17	748.33	0.00	1743.	237.	86.	85.	741.07	740.70

3470 ENCROACHMENT STATIONS= 250.0 450.0 TYPE= 1 TARGET= 200.000

146570.00	12.80	748.00	0.00	748.03	748.15	.15	.03	0.00	735.20
1980.	462.	856.	662.	480.	186.	600.	422.	71.	735.20
1.78	.96	4.61	1.10	.100	.040	.100	.050	735.20	250.00
.000515	20.	20.	20.	2	0	7	0.00	200.00	450.00

CCHV= .100 CEHV= .300
*SECNO 146620.000
3280 CROSS SECTION 146620.00 EXTENDED 2.11 FEET

3470 ENCROACHMENT STATIONS= 20.0 230.0 TYPE= 1 TARGET= 210.000

146620.00	13.11	748.11	0.00	748.14	748.19	.08	.04	.01	737.00
1980.	766.	305.	909.	691.	61.	730.	423.	72.	737.00
1.79	1.11	5.03	1.25	.140	.040	.140	.050	735.00	20.00
.000922	20.	50.	80.	2	0	0	0.00	210.00	230.00

CCHV= .600 CEHV= .800
*SECNO 146670.000
3280 CROSS SECTION 146670.00 EXTENDED 2.16 FEET

3470 ENCROACHMENT STATIONS= 20.0 230.0 TYPE= 1 TARGET= 210.000

146670.00	13.16	748.16	0.00	748.19	748.24	.08	.05	.00	737.00

1980.	768.	304.	908.	696.	61.	734.	425.	72.	737.00
1.80	1.10	4.99	1.24	.140	.040	.140	.050	735.00	20.00
.000904	50.	50.	50.	2	0	0	0.00	210.00	230.00

*SECNO 146720.000
3280 CROSS SECTION 146720.00 EXTENDED 3.08 FEET

3470 ENCROACHMENT STATIONS= .0 180.0 TYPE= 1 TARGET= 179.999

146720.00	12.88	748.18	0.00	748.21	748.46	.28	.06	.16	736.90
1980.	380.	1117.	483.	402.	199.	510.	427.	72.	737.60
1.80	.94	5.62	.95	.140	.040	.140	.050	735.30	.00
.000873	40.	50.	100.	2	0	0	0.00	180.00	180.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	2.50	330.00	16.70	0.00	100.00	0.00	735.30	735.30

*SECNO 146730.000
PRESS FLOW BECAUSE EGLWC OF 748.65 EXCEEDS 1.5 DEPTH
6870 D.S. ENERGY OF 748.46 HIGHER THAN COMPUTED ENERGY OF 748.38
3280 CROSS SECTION 146730.00 EXTENDED 3.09 FEET

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
757.55	748.65	0.00	1688.	292.	100.	119.	742.41	742.20

3470 ENCROACHMENT STATIONS= .0 180.0 TYPE= 1 TARGET= 179.999

146730.00	12.89	748.19	0.00	748.22	748.46	.27	0.00	0.00	736.90
1980.	377.	1105.	498.	403.	199.	511.	427.	72.	737.60
1.80	.93	5.56	.97	.140	.040	.140	.050	735.30	.00
.000853	10.	10.	10.	2	0	7	0.00	180.00	180.00

CCHV= .100 CEHV= .300
*SECNO 146780.000

3470 ENCROACHMENT STATIONS= 130.0 330.0 TYPE= 1 TARGET= 200.000

146780.00	11.41	748.41	0.00	748.44	748.51	.10	.03	.02	742.00
1980.	125.	1349.	506.	183.	446.	701.	429.	73.	742.00
1.81	.68	3.03	.72	.140	.045	.140	.050	737.00	130.00
.000466	50.	50.	50.	2	0	0	0.00	200.00	330.00

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CCHV=     .600 CEHV=     .800
*SECNO 147850.000
 2800 NAT Q1=    1626.49  WSEL=     748.76  ENC Q1=    1626.49  WSEL=     748.86  RATIO=    .0000
 NAT Q1=    1667.  RATIOS LOB,CH,ROB=    .1790    .4570    .3640  WSEL=     748.86

3470 ENCROACHMENT STATIONS=       58.0      420.9  TYPE=      4  TARGET=          .024

          ** DOWNSTREAM OF 16 MILE ROAD BRIDGE -CORPORATE LIMITS **

147850.00     11.73    748.73      0.00    748.76    748.77       .03       .22       .04 |  742.00
    1980.       341.      926.      713.      582.      462.     1208.      459.       77. |  742.00
     2.00       .59      2.01       .59      .100      .040      .100      .050    737.00 |   58.01
  .000154       900.     1070.      500.         2         0         0      0.00    362.90 |  420.91

*SECNO 147900.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      120.0      470.0  TYPE=      1  TARGET=      350.000
147900.00      9.54    748.34      0.00    748.36    750.45      2.11       .02      1.66    740.80
    1980.         0.      1980.        0.        0.       170.         0.      460.       77.    741.00
     2.00       .08     11.66       .08      .150      .030      .150      .050    738.80    290.80
  .003951       50.       50.       50.         2         0         0      0.00    19.40    310.20

SPECIAL BRIDGE
5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       2.21       2.50       0.00      16.40       0.00      86.00       0.00      738.80     738.80

*SECNO 147960.000
PRESSURE AND WEIR FLOW

 EGPRS       EGLWC       H3         QWEIR       QPR        BAREA     TRAPEZOID AREA      ELLC       ELTRD
   766.53      750.80       0.00      1298.5       683.       86.       109.       745.46     748.46


3470 ENCROACHMENT STATIONS=      120.0      470.0  TYPE=      1  TARGET=      350.000
147960.00      9.65    748.45      0.00    748.45    750.50      2.06       .05      0.00    740.80
    1980.         0.      1980.        0.        0.       172.         0.      460.       77.    741.00
     2.00       .08     11.51       .08      .150      .030      .150      .050    738.80    290.80
  .003789       60.       60.       60.         4         0         6      0.00    19.40    310.20

CCHV=     .100 CEHV=     .300
*SECNO 148000.000
 2800 NAT Q1=    2555.25  WSEL=     750.69  ENC Q1=    2555.25  WSEL=     750.79  RATIO=    .0000
 NAT Q1=    2627.  RATIOS LOB,CH,ROB=    .1886    .2778    .5336  WSEL=     750.79

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
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WS + d/s XSEC unnaturally restrictive, top of road input as top of bank ~~ew~~

-50 → 300

250 → 300

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   TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       56.8      305.8  TYPE=      4  TARGET=          .027
148000.00     12.69    750.69      0.00    750.69    750.72       .03       .01       .20    744.00
    1980.      364.      568.    1048.      298.      334.      866.      462.       77.    744.00
     2.02      1.22      1.70      1.21      .030      .030      .030      .050    738.00     56.76
  .000063       40.       40.      100.         3         0         0      0.00    249.01    305.77


*SECNO 148450.000
 2800 NAT Q1=    2572.08  WSEL=     750.72  ENC Q1=    2572.08  WSEL=     750.82  RATIO=   0.0000
 NAT Q1=    2644.  RATIOS LOB,CH,ROB=    .1887    .2772    .5341  WSEL=     750.82

3470 ENCROACHMENT STATIONS=       56.7      306.0  TYPE=      4  TARGET=          .027
148450.00     12.71    750.71      0.00    750.72    750.74       .03       .02       .00    744.00
    1980.      364.      566.    1049.      300.      335.      871.      475.       80.    744.00
     2.10      1.22      1.69      1.20      .030      .030      .030      .049    738.00     56.70
  .000062       400.      450.      350.         2         0         0      0.00    249.33    306.03


CCHV=     .600 CEHV=     .800
*SECNC 149500.000
 2800 NAT Q1=    2606.88  WSEL=     750.76  ENC Q1=    2606.88  WSEL=     750.86  RATIO=    .0000
 NAT Q1=    2679.  RATIOS LOB,CH,ROB=    .1890    .2758    .5352  WSEL=     750.86

3470 ENCROACHMENT STATIONS=       56.6      306.5  TYPE=      4  TARGET=          .027

          ** DOWNSTREAM OF GTWRR BRIDGE **
149500.00     12.76    750.76      0.00    750.76    750.79       .03       .05       .00    744.00
    1980.      365.      563.    1052.      303.      337.      881.      503.       84.    744.00
     2.27      1.20      1.67      1.19      .030      .030      .030      .049    738.00     56.58
  .000060       800.     1050.      700.         2         0         0      0.00    249.93    306.52


*SECNO 149550.000
 2800 NAT Q1=     158.32  WSEL=     750.29  ENC Q1=     159.26  WSEL=     750.39  RATIO=  -.0059
 NAT Q1=    161.  RATIOS LOB,CH,ROB=    .0085    .9915  0.0000  WSEL=     750.39

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=       91.3      108.8  TYPE=      4  TARGET=          .008
149550.00      9.77    750.28      0.00    750.29    752.80      2.52       .01      2.00    748.78
    1980.        0.     1980.        0.        0.      155.        0.      504.       84.    784.78
     2.27      0.00     12.75      0.00      .030      .030      .030      .049    740.51     91.25
  .016522       40.       50.      100.         3         0         0      0.00     16.00    108.75


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR      COEQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      2.33      2.50      0.00     16.00      0.00    129.00      0.00    740.51    740.51
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*SECNO 149720.000
 PRESS FLOW BECAUSE EGLWC OF     758.91  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=     499.68  WSEL=     758.44  ENC Q1=     499.68  WSEL=     758.54  RATIO=    .0000
 NAT Q1=     506.  RATIOS LOB,CH,ROB=    .3296    .6704   0.0000  WSEL=     758.54
 WATER EL=CHANGE FRCM NATURAL PROFILES BRIDGE

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=       73.3      108.8  TYPE=      4  TARGET=          .013
149720.00     17.92    758.43      0.00    758.44    758.83       .40       .63      1.27    748.78
    1980.      641.     1339.        0.      111.      286.        0.      505.       84.     784.78
     2.28      5.79      4.69      0.00      .030      .030      .030      .049    740.51     73.26
  .001579      170.      170.      170.         0         0         0      0.00     33.99    108.75


CCHV=     .100 CEHV=     .300
*SECNO 149740.000
 2800 NAT Q1=    2437.83  WSEL=     758.85  ENC Q1=    2437.83  WSEL=     758.95  RATIO=   0.0000
 NAT Q1=    2492.  RATIOS LOB,CH,ROB=    .1955    .1079    .6966  WSEL=     758.95
3280 CROSS SECTION 149740.00 EXTENDED       5.04 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      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=       143.1      689.0  TYPE=      4  TARGET=          .022

          ** UPSTREAM OF GTWRR BRIDGE -CORPORATE LIMITS **

149740.00     17.46    758.86      0.00    758.85    758.87       .01       .00       .04    750.90
    1980.      372.     220.      1388.      909.      161.     2923.      506.       85.     750.90
     2.29       .41     1.37       .47       .100      .030      .100      .049    741.40    143.07
  .000068      20.       20.       20.          2         0         0      0.00    545.95    689.02


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK         XKOR       COEQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.55       2.50       0.00       9.40       0.00      49.00       0.00     741.40     741.40

*SECNO 149780.000
 2800 NAT Q1=    2472.25  WSEL=     758.90  ENC Q1=    2472.25  WSEL=     759.00  RATIO=    .0000
 NAT Q1=    2524.  RATIOS LOB,CH,ROB=    .1965    .1071    .6964  WSEL=     759.00
 WATER EL=CHANGE FRCM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 149780.00 EXTENDED       5.10 FEET


3470 ENCROACHMENT STATIONS=       140.4      689.8  TYPE=      4  TARGET=          .021
149780.00     17.52    758.92      0.00    758.90    758.93       .01       .00       .00    750.90
    1980.      375.     219.      1387.      927.      162.     2949.      510.       85.     750.90
     2.31       .40     1.35       .47       .100      .030      .100      .049    741.40    140.39
  .000066      40.       40.       40.          0         0         6      0.00    549.36    689.75
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MAIN ROUGE

SUMMARY PRINTOUT

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	TOPWID	STENCL	STENCR
	127875.000	0.00	0.00	0.00	693.00	2103.00	702.77	711.56	0.00	0.00
	127875.000	0.00	0.00	0.00	693.00	2103.00	702.87	580.32	62.72	643.04
*	130100.000	741.67	0.00	0.00	698.50	2103.00	707.87	143.84	0.00	0.00
	130100.000	2225.00	0.00	0.00	698.50	2103.00	705.79	89.32	113.57	202.89
	132184.000	2084.00	0.00	0.00	702.10	2103.00	711.85	288.28	0.00	0.00
	132184.000	2084.00	0.00	0.00	702.10	2103.00	712.07	203.79	80.98	284.78
	132284.000	100.00	0.00	0.00	701.70	2103.00	711.91	75.48	0.00	0.00
	132284.000	100.00	0.00	0.00	701.70	2103.00	712.13	51.00	76.00	127.00
	132316.000	32.00	711.50	709.70	701.70	2103.00	712.28	88.88	0.00	0.00
	132316.000	32.00	999999.00	0.00	701.70	2103.00	712.49	51.00	76.00	127.00
	132370.000	54.00	0.00	0.00	702.10	2103.00	712.47	314.82	0.00	0.00
	132370.000	54.00	0.00	0.00	702.10	2103.00	712.67	217.88	78.56	296.44
	133675.000	1305.00	0.00	0.00	705.30	2103.00	714.17	237.09	0.00	0.00
	133675.000	1305.00	0.00	0.00	705.30	2103.00	714.29	157.03	246.36	403.40
*	133725.000	25.00	0.00	0.00	705.30	2103.00	715.11	31.00	0.00	0.00
	133725.000	50.00	0.00	0.00	705.30	2103.00	714.39	31.00	61.50	92.50
	133755.000	30.00	716.30	716.00	705.30	2103.00	715.32	31.00	0.00	0.00
	133755.000	30.00	716.30	716.00	705.30	2103.00	714.68	31.00	0.00	0.00
*	133805.000	25.00	0.00	0.00	705.30	2103.00	716.67	318.07	0.00	0.00
	133805.000	50.00	0.00	0.00	705.30	2103.00	716.16	201.89	202.46	404.35
	135840.000	2035.00	0.00	0.00	710.60	2103.00	718.73	357.90	0.00	0.00
	135840.000	2035.00	0.00	0.00	710.60	2103.00	718.69	280.41	140.94	421.35
	138170.000	2330.00	0.00	0.00	715.60	2103.00	724.04	123.67	0.00	0.00
	138170.000	2330.00	0.00	0.00	715.60	2103.00	724.21	86.58	316.23	402.81
	138220.000	50.00	0.00	0.00	714.20	2103.00	724.55	45.00	0.00	0.00
	138220.000	50.00	0.00	0.00	714.20	2103.00	724.74	45.00	58.00	103.00

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	TOPWID	STENCL	STENCR
	138280.000	60.00	726.40	722.36	714.20	2103.00	725.43	45.00	0.00	0.00
	138280.000	60.00	999999.00	0.00	714.20	2103.00	725.62	45.00	58.00	103.00
	138330.000	50.00	0.00	0.00	715.60	2103.00	725.49	150.47	0.00	0.00
	138330.000	50.00	0.00	0.00	715.60	2103.00	725.66	102.09	302.91	404.99
	138460.000	130.00	0.00	0.00	716.80	1980.00	725.80	201.56	0.00	0.00
	138460.000	130.00	0.00	0.00	716.80	1980.00	725.96	87.89	297.39	385.28
	138510.000	50.00	0.00	0.00	715.40	1980.00	726.07	249.32	0.00	0.00
	138510.000	50.00	0.00	0.00	715.40	1980.00	726.22	134.84	73.29	208.13
	138530.000	20.00	723.90	722.80	715.40	1980.00	726.09	250.48	0.00	0.00
	138530.000	20.00	999999.00	0.00	715.40	1980.00	726.25	139.66	71.13	210.79
*	138580.000	25.00	0.00	0.00	716.80	1980.00	727.00	257.19	0.00	0.00
	138580.000	50.00	0.00	0.00	716.80	1980.00	727.16	146.81	259.53	406.34
	139645.000	1065.00	0.00	0.00	719.50	1980.00	728.76	334.77	0.00	0.00
	139645.000	1065.00	0.00	0.00	719.50	1980.00	728.89	251.62	99.42	351.04
	139695.000	50.00	0.00	0.00	719.40	1980.00	728.75	61.67	0.00	0.00
	139695.000	50.00	0.00	0.00	719.40	1980.00	728.88	49.02	111.36	160.37
	139745.000	50.00	730.70	728.30	719.90	1980.00	731.15	62.00	0.00	0.00
	139745.000	50.00	999999.00	0.00	719.90	1980.00	731.28	55.45	108.17	163.62
	139795.000	50.00	0.00	0.00	719.50	1980.00	731.67	368.39	0.00	0.00
	139795.000	50.00	0.00	0.00	719.50	1980.00	731.81	318.03	62.63	380.67
	140000.000	300.00	0.00	0.00	720.00	1980.00	731.69	256.16	0.00	0.00
	140000.000	300.00	0.00	0.00	720.00	1980.00	731.82	188.48	81.32	269.80
*	141580.000	805.00	0.00	0.00	725.20	1980.00	734.65	82.55	0.00	0.00
	141580.000	1610.00	0.00	0.00	725.20	1980.00	733.68	60.49	42.43	102.92
	141800.000	220.00	0.00	0.00	725.70	1980.00	735.42	85.05	0.00	0.00
	141800.000	220.00	0.00	0.00	725.70	1980.00	734.91	62.21	41.70	103.91
	141875.000	75.00	0.00	0.00	726.20	1980.00	735.64	82.51	0.00	0.00
	141875.000	75.00	0.00	0.00	726.20	1980.00	735.20	60.55	42.39	102.95
	141925.000	50.00	0.00	0.00	724.10	1980.00	735.60	66.02	.00	217.00
	141925.000	50.00	0.00	0.00	724.10	1980.00	735.19	54.67	.00	217.00
	142025.000	100.00	734.50	733.50	724.10	1980.00	736.79	91.00	.00	217.00
	142025.000	100.00	734.50	733.50	724.10	1980.00	736.50	90.99	.00	217.00
	142075.000	50.00	0.00	0.00	726.50	1980.00	737.99	87.00	17.00	104.00
	142075.000	50.00	0.00	0.00	726.50	1980.00	737.83	87.00	17.00	104.00
	142115.000	40.00	0.00	0.00	726.50	1980.00	738.06	40.10	45.00	85.10
	142115.000	40.00	0.00	0.00	726.50	1980.00	737.91	40.10	45.00	85.10
	142315.000	200.00	0.00	0.00	727.10	1980.00	739.40	84.68	0.00	0.00
	142315.000	200.00	0.00	0.00	727.10	1980.00	739.29	70.79	31.42	102.21

SECNO	XLCH	EL TRD	ELLC	ELMIN	Q	CWSEL	TOPWID	STENCL	STENCR
142790.000	475.00	0.00	0.00	728.80	1980.00	739.95	213.80	0.00	0.00
142790.000	475.00	0.00	0.00	728.80	1980.00	739.87	197.20	25.92	223.12
143340.000	550.00	0.00	0.00	728.20	1980.00	740.19	55.66	0.00	0.00
143340.000	550.00	0.00	0.00	728.20	1980.00	740.13	42.24	51.85	94.10
143390.000	50.00	0.00	0.00	728.50	1980.00	739.84	12.00	0.00	0.00
143390.000	50.00	0.00	0.00	728.50	1980.00	739.79	12.00	244.00	256.00
143610.000	220.00	755.60	738.67	728.50	1980.00	745.54	12.00	0.00	0.00
143610.000	220.00	999999.00	0.00	728.50	1980.00	745.49	12.00	244.00	256.00
143660.000	50.00	0.00	0.00	728.20	1980.00	747.60	50.00	45.00	95.00
143660.000	50.00	0.00	0.00	728.20	1980.00	747.56	50.00	45.00	95.00
145800.000	2140.00	0.00	0.00	728.20	1980.00	747.95	402.34	0.00	0.00
145800.000	2140.00	0.00	0.00	728.20	1980.00	747.92	333.34	55.77	389.11
146500.000	700.00	0.00	0.00	728.20	1980.00	747.98	80.00	130.00	210.00
146500.000	700.00	0.00	0.00	728.20	1980.00	747.95	80.00	130.00	210.00
146550.000	50.00	0.00	0.00	735.20	1980.00	747.99	200.00	250.00	450.00
146550.000	50.00	0.00	0.00	735.20	1980.00	747.96	200.00	250.00	450.00
146570.000	20.00	740.70	741.07	735.20	1980.00	748.03	200.00	250.00	450.00
146570.000	20.00	740.70	741.07	735.20	1980.00	748.00	200.00	250.00	450.00
146620.000	50.00	0.00	0.00	735.00	1980.00	748.14	210.00	20.00	230.00
146620.000	50.00	0.00	0.00	735.00	1980.00	748.11	210.00	20.00	230.00
146670.000	50.00	0.00	0.00	735.00	1980.00	748.19	210.00	20.00	230.00
146670.000	50.00	0.00	0.00	735.00	1980.00	748.16	210.00	20.00	230.00
146720.000	50.00	0.00	0.00	735.30	1980.00	748.21	180.00	.00	180.00
146720.000	50.00	0.00	0.00	735.30	1980.00	748.18	180.00	.00	180.00
146730.000	10.00	742.20	742.41	735.30	1980.00	748.22	180.00	.00	180.00
146730.000	10.00	742.20	742.41	735.30	1980.00	748.19	180.00	.00	180.00
146780.000	50.00	0.00	0.00	737.00	1980.00	748.44	200.00	130.00	330.00
146780.000	50.00	0.00	0.00	737.00	1980.00	748.41	200.00	130.00	330.00
147850.000	1070.00	0.00	0.00	737.00	1980.00	748.76	410.11	0.00	0.00
147850.000	1070.00	0.00	0.00	737.00	1980.00	748.73	362.90	58.01	420.92
147900.000	50.00	0.00	0.00	738.80	1980.00	748.36	19.40	120.00	470.00
147900.000	50.00	0.00	0.00	738.80	1980.00	748.34	19.40	120.00	470.00
147960.000	60.00	748.46	745.46	738.80	1980.00	748.45	19.40	120.00	470.00
147960.000	60.00	748.46	745.46	738.80	1980.00	748.45	19.40	120.00	470.00
148000.000	40.00	0.00	0.00	738.00	1980.00	750.69	306.02	0.00	0.00
148000.000	40.00	0.00	0.00	738.00	1980.00	750.69	249.01	56.76	305.77
148450.000	450.00	0.00	0.00	738.00	1980.00	750.72	306.45	0.00	0.00
148450.000	450.00	0.00	0.00	738.00	1980.00	750.71	249.33	56.70	306.03

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	TOPWID	STENCL	STENCR
149500.000	1050.00	0.00	0.00	738.00	1980.00	750.76	307.34	0.00	0.00
149500.000	1050.00	0.00	0.00	738.00	1980.00	750.76	249.93	56.58	306.52
149550.000	50.00	0.00	0.00	740.51	1980.00	750.29	19.89	0.00	0.00
149550.000	50.00	0.00	0.00	740.51	1980.00	750.28	16.00	91.25	108.75
149720.000	170.00	784.18	748.73	740.51	1980.00	758.44	40.90	0.00	0.00
149720.000	170.00	999999.00	0.00	740.51	1980.00	758.43	33.99	73.26	108.75
149740.000	20.00	0.00	0.00	741.40	1980.00	758.85	623.64	0.00	0.00
149740.000	20.00	0.00	0.00	741.40	1980.00	758.86	545.95	143.07	689.02
149780.000	40.00	750.50	748.00	741.40	1980.00	758.90	624.75	0.00	0.00
149780.000	40.00	999999.00	0.00	741.40	1980.00	758.92	549.36	140.39	689.75

MAIN ROUGE

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	127875.000	0.00	0.00	0.00	693.00	2103.00	702.77	0.00	702.83	6.72	2.85	2367.65	811.19
	127875.000	0.00	0.00	0.00	693.00	2103.00	702.87	0.00	702.93	6.70	2.87	2235.67	812.40
*	130100.000	741.67	0.00	0.00	698.50	2103.00	707.87	0.00	708.32	25.29	5.78	593.28	418.19
	130100.000	2225.00	0.00	0.00	698.50	2103.00	705.79	0.00	706.85	82.96	8.53	325.38	230.89
	132184.000	2084.00	0.00	0.00	702.10	2103.00	711.85	0.00	712.00	12.89	4.15	1230.68	585.85
	132184.000	2084.00	0.00	0.00	702.10	2103.00	712.07	0.00	712.22	12.10	4.09	1183.26	604.53
	132284.000	100.00	0.00	0.00	701.70	2103.00	711.91	0.00	712.17	13.28	4.08	520.46	577.04
	132284.000	100.00	0.00	0.00	701.70	2103.00	712.13	0.00	712.37	12.48	3.99	526.55	595.25
	132316.000	32.00	711.50	709.70	701.70	2103.00	712.28	0.00	712.52	11.92	3.93	551.08	609.08
	132316.000	32.00	999999.00	0.00	701.70	2103.00	712.49	0.00	712.72	11.26	3.86	545.29	626.67
	132370.000	54.00	0.00	0.00	702.10	2103.00	712.47	0.00	712.58	9.34	3.70	1416.09	688.27
	132370.000	54.00	0.00	0.00	702.10	2103.00	712.67	0.00	712.79	8.86	3.66	1345.52	706.58
	133675.000	1305.00	0.00	0.00	705.30	2103.00	714.17	0.00	714.55	30.08	6.32	856.28	383.45
	133675.000	1305.00	0.00	0.00	705.30	2103.00	714.29	0.00	714.68	29.38	6.31	774.21	387.97
*	133725.000	25.00	0.00	0.00	705.30	2103.00	715.11	0.00	715.99	60.57	7.56	278.35	270.22
	133725.000	50.00	0.00	0.00	705.30	2103.00	714.39	0.00	715.43	76.79	8.21	256.02	239.98
	133755.000	30.00	716.30	716.00	705.30	2103.00	715.32	0.00	716.24	85.89	7.69	273.39	226.91
	133755.000	30.00	716.30	716.00	705.30	2103.00	714.68	0.00	715.70	83.80	8.07	260.61	229.73
*	133805.000	25.00	0.00	0.00	705.30	2103.00	716.67	0.00	716.80	8.19	3.96	1551.04	734.79
	133805.000	50.00	0.00	0.00	705.30	2103.00	716.16	0.00	716.32	10.73	4.38	1233.10	642.04
	135840.000	2035.00	0.00	0.00	710.60	2103.00	718.73	0.00	718.90	18.01	4.64	1280.35	495.56
	135840.000	2035.00	0.00	0.00	710.60	2103.00	718.69	0.00	718.88	19.63	4.83	1166.65	474.68
	138170.000	2330.00	0.00	0.00	715.60	2103.00	724.04	0.00	724.64	40.66	6.85	517.43	329.81
	138170.000	2330.00	0.00	0.00	715.60	2103.00	724.21	0.00	724.81	38.91	6.81	483.57	337.15
	138220.000	50.00	0.00	0.00	714.20	2103.00	724.55	0.00	724.91	20.09	4.83	435.67	469.22
	138220.000	50.00	0.00	0.00	714.20	2103.00	724.74	0.00	725.09	18.98	4.73	444.22	482.73
	138280.000	60.00	726.40	722.36	714.20	2103.00	725.43	0.00	725.73	15.59	4.42	475.33	532.68
	138280.000	60.00	999999.00	0.00	714.20	2103.00	725.62	0.00	725.91	14.80	4.35	483.85	546.56
	138330.000	50.00	0.00	0.00	715.60	2103.00	725.49	0.00	725.84	19.49	5.37	715.47	476.31
	138330.000	50.00	0.00	0.00	715.60	2103.00	725.66	0.00	726.02	19.00	5.37	664.21	482.45
	138460.000	130.00	0.00	0.00	716.80	1980.00	725.80	0.00	726.49	50.59	6.96	465.86	278.38
	138460.000	130.00	0.00	0.00	716.80	1980.00	725.96	0.00	726.67	48.77	6.94	378.62	283.51
	138510.000	50.00	0.00	0.00	715.40	1980.00	726.07	723.08	727.10	91.79	8.89	469.46	206.66
	138510.000	50.00	0.00	0.00	715.40	1980.00	726.22	0.00	727.25	89.17	8.85	407.97	209.68
	138530.000	20.00	723.90	722.80	715.40	1980.00	726.09	0.00	727.10	89.79	8.81	477.53	208.95

138530.000	20.00 999999.00	0.00	715.40	1980.00	726.25	0.00	727.25	87.02	8.76	418.77	212.26	

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
*	138580.000	25.00	0.00	0.00	716.80	1980.00	727.00	0.00	727.36	23.61	5.32	742.90	407.52
	138580.000	50.00	0.00	0.00	716.80	1980.00	727.15	0.00	727.53	22.79	5.30	639.36	414.74
	139645.000	1065.00	0.00	0.00	719.50	1980.00	728.76	0.00	728.88	8.56	3.55	1410.95	676.69
	139645.000	1065.00	0.00	0.00	719.50	1980.00	728.89	0.00	729.02	8.43	3.56	1295.45	681.93
	139695.000	50.00	0.00	0.00	719.40	1980.00	728.75	0.00	729.29	23.22	6.17	429.63	410.87
	139695.000	50.00	0.00	0.00	719.40	1980.00	728.88	0.00	729.43	23.01	6.20	406.34	412.74
	139745.000	50.00	730.70	728.30	719.90	1980.00	731.15	0.00	731.50	11.83	5.01	547.69	575.56
	139745.000	50.00	999999.00	0.00	719.90	1980.00	731.28	0.00	731.64	11.71	5.02	534.38	578.58
	139795.000	50.00	0.00	0.00	719.50	1980.00	731.67	0.00	731.71	2.13	2.15	2445.90	1356.07
	139795.000	50.00	0.00	0.00	719.50	1980.00	731.81	0.00	731.85	2.08	2.14	2372.66	1373.65
	140000.000	300.00	0.00	0.00	720.00	1980.00	731.69	0.00	731.82	6.75	3.65	1334.86	762.18
	140000.000	300.00	0.00	0.00	720.00	1980.00	731.82	0.00	731.96	6.64	3.65	1240.26	768.44
*	141580.000	805.00	0.00	0.00	725.20	1980.00	734.65	0.00	735.24	32.93	6.72	454.27	345.05
	141580.000	1610.00	0.00	0.00	725.20	1980.00	733.68	0.00	734.53	54.08	7.92	355.01	269.24
	141800.000	220.00	0.00	0.00	725.70	1980.00	735.42	0.00	735.96	29.17	6.47	476.96	366.59
	141800.000	220.00	0.00	0.00	725.70	1980.00	734.91	0.00	735.58	37.91	7.08	406.21	321.58
	141875.000	75.00	0.00	0.00	726.20	1980.00	735.64	0.00	736.24	33.00	6.73	453.89	344.69
	141875.000	75.00	0.00	0.00	726.20	1980.00	735.20	0.00	735.93	42.12	7.33	387.06	305.10
	141925.000	50.00	0.00	0.00	724.10	1980.00	735.60	732.49	737.27	36.88	10.42	225.71	326.05
	141925.000	50.00	0.00	0.00	724.10	1980.00	735.19	732.48	737.03	42.76	10.92	200.96	302.79
	142025.000	100.00	734.50	733.50	724.10	1980.00	736.79	0.00	738.02	24.10	9.07	323.07	403.33
	142025.000	100.00	734.50	733.50	724.10	1980.00	736.50	0.00	737.83	26.73	9.39	296.82	382.94
	142075.000	50.00	0.00	0.00	726.50	1980.00	737.99	0.00	738.55	29.26	6.96	560.83	366.03
	142075.000	50.00	0.00	0.00	726.50	1980.00	737.83	0.00	738.42	31.16	7.12	546.75	354.73
	142115.000	40.00	0.00	0.00	726.50	1980.00	738.06	0.00	739.01	48.20	8.28	335.33	285.18
	142115.000	40.00	0.00	0.00	726.50	1980.00	737.91	0.00	738.89	50.47	8.42	329.14	278.71
	142315.000	200.00	0.00	0.00	727.10	1980.00	739.40	0.00	739.74	9.74	5.06	644.92	634.30
	142315.000	200.00	0.00	0.00	727.10	1980.00	739.29	0.00	739.65	10.39	5.19	601.28	614.20
	142790.000	475.00	0.00	0.00	728.80	1980.00	739.95	0.00	740.03	3.64	3.22	1420.01	1038.26
	142790.000	475.00	0.00	0.00	728.80	1980.00	739.87	0.00	739.96	3.92	3.32	1340.81	999.85
	143340.000	550.00	0.00	0.00	728.20	1980.00	740.19	0.00	740.81	14.59	6.58	397.75	518.33
	143340.000	550.00	0.00	0.00	728.20	1980.00	740.13	0.00	740.78	15.33	6.72	370.27	505.66
	143390.000	50.00	0.00	0.00	728.50	1980.00	739.84	0.00	743.13	247.56	14.54	136.14	125.84
	143390.000	50.00	0.00	0.00	728.50	1980.00	739.79	0.00	743.11	250.33	14.61	135.53	125.14
	143610.000	220.00	755.60	738.67	728.50	1980.00	745.54	0.00	747.00	93.10	9.68	204.54	205.21
	143610.000	220.00	999999.00	0.00	728.50	1980.00	745.49	0.00	746.96	93.76	9.71	203.92	204.48
	143660.000	50.00	0.00	0.00	728.20	1980.00	747.60	0.00	747.79	2.31	3.73	760.21	1302.38
	143660.000	50.00	0.00	0.00	728.20	1980.00	747.56	0.00	747.75	2.33	3.74	758.30	1297.68

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
145800.000	2140.00	0.00	0.00	728.20	1980.00	747.95	0.00	747.96	.41	1.39	3631.61	3083.24
145800.000	2140.00	0.00	0.00	728.20	1980.00	747.92	0.00	747.93	.43	1.42	3443.86	3021.09
146500.000	700.00	0.00	0.00	728.20	1980.00	747.98	0.00	748.10	2.19	3.20	1040.36	1339.19
146500.000	700.00	0.00	0.00	728.20	1980.00	747.95	0.00	748.07	2.20	3.21	1037.84	1334.68
146550.000	50.00	0.00	0.00	735.20	1980.00	747.99	0.00	748.14	5.17	4.62	1263.73	870.75
146550.000	50.00	0.00	0.00	735.20	1980.00	747.96	0.00	748.11	5.24	4.64	1257.42	864.93
146570.000	20.00	740.70	741.07	735.20	1980.00	748.03	0.00	748.18	5.08	4.59	1271.83	878.24
146570.000	20.00	740.70	741.07	735.20	1980.00	748.00	0.00	748.15	5.15	4.61	1265.24	872.14
146620.000	50.00	0.00	0.00	735.00	1980.00	748.14	0.00	748.22	9.10	5.00	1487.18	656.48
146620.000	50.00	0.00	0.00	735.00	1980.00	748.11	0.00	748.19	9.22	5.03	1480.61	652.14
146670.000	50.00	0.00	0.00	735.00	1980.00	748.19	0.00	748.27	8.92	4.97	1496.98	662.98
146670.000	50.00	0.00	0.00	735.00	1980.00	748.16	0.00	748.24	9.04	4.99	1490.55	658.71
146720.000	50.00	0.00	0.00	735.30	1980.00	748.21	0.00	748.49	8.62	5.59	1116.77	674.27
146720.000	50.00	0.00	0.00	735.30	1980.00	748.18	0.00	748.46	8.73	5.62	1111.30	670.07
146730.000	10.00	742.20	742.41	735.30	1980.00	748.22	0.00	748.49	8.43	5.53	1118.37	682.15
146730.000	10.00	742.20	742.41	735.30	1980.00	748.19	0.00	748.46	8.53	5.56	1112.91	677.86
146780.000	50.00	0.00	0.00	737.00	1980.00	748.44	0.00	748.53	4.61	3.01	1335.52	922.23
146780.000	50.00	0.00	0.00	737.00	1980.00	748.41	0.00	748.51	4.66	3.03	1330.02	916.80
147850.000	1070.00	0.00	0.00	737.00	1980.00	748.76	0.00	748.79	1.48	1.97	2349.14	1626.49
147850.000	1070.00	0.00	0.00	737.00	1980.00	748.73	0.00	748.77	1.54	2.01	2252.25	1593.37
147900.000	50.00	0.00	0.00	738.80	1980.00	748.36	0.00	750.46	39.14	11.62	171.07	316.48
147900.000	50.00	0.00	0.00	738.80	1980.00	748.34	0.00	750.45	39.51	11.66	170.59	315.01
147960.000	60.00	748.46	745.46	738.80	1980.00	748.45	0.00	750.51	37.82	11.50	172.85	321.97
147960.000	60.00	748.46	745.46	738.80	1980.00	748.45	0.00	750.50	37.89	11.51	172.76	321.66
148000.000	40.00	0.00	0.00	738.00	1980.00	750.69	0.00	750.72	.60	1.66	1589.06	2555.25
148000.000	40.00	0.00	0.00	738.00	1980.00	750.69	0.00	750.72	.63	1.70	1498.39	2498.23
148450.000	450.00	0.00	0.00	738.00	1980.00	750.72	0.00	750.74	.59	1.65	1596.29	2572.08
148450.000	450.00	0.00	0.00	738.00	1980.00	750.71	0.00	750.74	.62	1.69	1505.56	2515.67
149500.000	1050.00	0.00	0.00	738.00	1980.00	750.76	0.00	750.79	.58	1.64	1611.19	2606.88
149500.000	1050.00	0.00	0.00	738.00	1980.00	750.76	0.00	750.79	.60	1.67	1520.15	2551.56
149550.000	50.00	0.00	0.00	740.51	1980.00	750.29	0.00	752.75	156.41	12.64	158.46	158.32
149550.000	50.00	0.00	0.00	740.51	1980.00	750.28	0.00	752.80	165.22	12.75	155.33	154.04
149720.000	170.00	784.18	748.73	740.51	1980.00	758.44	0.00	758.81	15.70	4.67	406.18	499.68
149720.000	170.00	999999.00	0.00	740.51	1980.00	758.43	0.00	758.83	15.79	4.69	396.48	498.31
149740.000	20.00	0.00	0.00	741.40	1980.00	758.85	0.00	758.85	.66	1.34	4155.95	2437.83
149740.000	20.00	0.00	0.00	741.40	1980.00	758.86	0.00	758.87	.68	1.37	3993.40	2396.04
149780.000	40.00	750.50	748.00	741.40	1980.00	758.90	0.00	758.91	.64	1.33	4195.41	2472.25
149780.000	40.00	999999.00	0.00	741.40	1980.00	758.92	0.00	758.93	.66	1.35	4037.43	2430.06

MAIN ROUGE

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	127875.000	2103.00	702.77	0.00	0.00	0.00	711.56	0.00
	127875.000	2103.00	702.87	.10	0.00	.10	580.32	0.00
*	130100.000	2103.00	707.87	0.00	1.96	0.00	143.84	741.67
	130100.000	2103.00	705.79	-2.08	2.92	-2.08	89.32	2225.00
	132184.000	2103.00	711.85	0.00	3.98	0.00	288.28	2084.00
	132184.000	2103.00	712.07	.22	6.28	.22	203.79	2084.00
	132284.000	2103.00	711.91	0.00	.06	0.00	75.48	100.00
	132284.000	2103.00	712.13	.22	.06	.22	51.00	100.00
	132316.000	2103.00	712.28	0.00	.37	0.00	88.88	32.00
	132316.000	2103.00	712.49	.22	.37	.22	51.00	32.00
	132370.000	2103.00	712.47	0.00	.19	0.00	314.82	54.00
	132370.000	2103.00	712.67	.21	.18	.21	217.88	54.00
	133675.000	2103.00	714.17	0.00	1.70	0.00	237.09	1305.00
	133675.000	2103.00	714.29	.12	1.62	.12	157.03	1305.00
*	133725.000	2103.00	715.11	0.00	1.01	0.00	31.00	25.00
	133725.000	2103.00	714.39	-.72	.09	-.72	31.00	50.00
	133755.000	2103.00	715.32	0.00	.21	0.00	31.00	30.00
	133755.000	2103.00	714.68	-.63	.30	-.63	31.00	30.00
*	133805.000	2103.00	716.67	0.00	.01	0.00	318.07	25.00
	133805.000	2103.00	716.16	-.52	1.47	-.52	201.89	50.00
	135840.000	2103.00	718.73	0.00	2.05	0.00	357.90	2035.00
	135840.000	2103.00	718.69	-.04	2.53	-.04	280.41	2035.00
	138170.000	2103.00	724.04	0.00	5.31	0.00	123.67	2330.00
	138170.000	2103.00	724.21	.17	5.52	.17	86.58	2330.00
	138220.000	2103.00	724.55	0.00	.51	0.00	45.00	50.00
	138220.000	2103.00	724.74	.19	.53	.19	45.00	50.00
	138280.000	2103.00	725.43	0.00	.88	0.00	45.00	60.00
	138280.000	2103.00	725.62	.19	.88	.19	45.00	60.00
	138330.000	2103.00	725.49	0.00	.06	0.00	150.47	50.00
	138330.000	2103.00	725.66	.17	.04	.17	102.09	50.00
	138460.000	1980.00	725.80	0.00	.31	0.00	201.56	130.00
	138460.000	1980.00	725.96	.16	.30	.16	87.89	130.00
	138510.000	1980.00	726.07	0.00	.27	0.00	249.32	50.00
	138510.000	1980.00	726.22	.15	.26	.15	134.84	50.00
	138530.000	1980.00	726.09	0.00	.02	0.00	250.48	20.00

138530.000	1980.00	726.25	.15	.02	.15	139.66	20.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	138580.000	1980.00	727.00	0.00	.16	0.00	257.19	25.00
	138580.000	1980.00	727.16	.16	.91	.16	146.81	50.00
	139645.000	1980.00	728.76	0.00	1.76	0.00	334.77	1065.00
	139645.000	1980.00	728.89	.13	1.73	.13	251.62	1065.00
	139695.000	1980.00	728.75	0.00	-.01	0.00	61.67	50.00
	139695.000	1980.00	728.88	.13	-.01	.13	49.02	50.00
	139745.000	1980.00	731.15	0.00	2.40	0.00	62.00	50.00
	139745.000	1980.00	731.28	.13	2.40	.13	55.45	50.00
	139795.000	1980.00	731.67	0.00	.52	0.00	368.39	50.00
	139795.000	1980.00	731.81	.14	.53	.14	318.03	50.00
	140000.000	1980.00	731.69	0.00	.02	0.00	256.16	300.00
	140000.000	1980.00	731.82	.14	.01	.14	188.48	300.00
*	141580.000	1980.00	734.65	0.00	2.25	0.00	82.55	805.00
	141580.000	1980.00	733.68	-.97	1.85	-.97	60.49	1610.00
	141800.000	1980.00	735.42	0.00	.77	0.00	85.05	220.00
	141800.000	1980.00	734.91	-.51	1.23	-.51	62.21	220.00
	141875.000	1980.00	735.64	0.00	.23	0.00	82.51	75.00
	141875.000	1980.00	735.20	-.44	.29	-.44	60.55	75.00
	141925.000	1980.00	735.60	0.00	-.04	0.00	66.02	50.00
	141925.000	1980.00	735.19	-.41	-.02	-.41	54.67	50.00
	142025.000	1980.00	736.79	0.00	1.19	0.00	91.00	100.00
	142025.000	1980.00	736.50	-.29	1.31	-.29	90.99	100.00
	142075.000	1980.00	737.99	0.00	1.20	0.00	87.00	50.00
	142075.000	1980.00	737.83	-.16	1.33	-.16	87.00	50.00
	142115.000	1980.00	738.06	0.00	.07	0.00	40.10	40.00
	142115.000	1980.00	737.91	-.15	.08	-.15	40.10	40.00
	142315.000	1980.00	739.40	0.00	1.34	0.00	84.68	200.00
	142315.000	1980.00	739.29	-.12	1.38	-.12	70.79	200.00
	142790.000	1980.00	739.95	0.00	.54	0.00	213.80	475.00
	142790.000	1980.00	739.87	-.08	.58	-.08	197.20	475.00
	143340.000	1980.00	740.19	0.00	.24	0.00	55.66	550.00
	143340.000	1980.00	740.13	-.06	.26	-.06	42.24	550.00
	143390.000	1980.00	739.84	0.00	-.34	0.00	12.00	50.00
	143390.000	1980.00	739.79	-.05	-.33	-.05	12.00	50.00
	143610.000	1980.00	745.54	0.00	5.70	0.00	12.00	220.00
	143610.000	1980.00	745.49	-.05	5.70	-.05	12.00	220.00
	143660.000	1980.00	747.60	0.00	2.06	0.00	50.00	50.00
	143660.000	1980.00	747.56	-.04	2.07	-.04	50.00	50.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
145800.000	1980.00	747.95	0.00	.35	0.00	402.34	2140.00
145800.000	1980.00	747.92	-.03	.36	-.03	333.34	2140.00
146500.000	1980.00	747.98	0.00	.03	0.00	80.00	700.00
146500.000	1980.00	747.95	-.03	.03	-.03	80.00	700.00
146550.000	1980.00	747.99	0.00	.01	0.00	200.00	50.00
146550.000	1980.00	747.96	-.03	.01	-.03	200.00	50.00
146570.000	1980.00	748.03	0.00	.04	0.00	200.00	20.00
146570.000	1980.00	748.00	-.03	.04	-.03	200.00	20.00
146620.000	1980.00	748.14	0.00	.12	0.00	210.00	50.00
146620.000	1980.00	748.11	-.03	.12	-.03	210.00	50.00
146670.000	1980.00	748.19	0.00	.05	0.00	210.00	50.00
146670.000	1980.00	748.16	-.03	.05	-.03	210.00	50.00
146720.000	1980.00	748.21	0.00	.02	0.00	180.00	50.00
146720.000	1980.00	748.18	-.03	.02	-.03	180.00	50.00
146730.000	1980.00	748.22	0.00	.01	0.00	180.00	10.00
146730.000	1980.00	748.19	-.03	.01	-.03	180.00	10.00
146780.000	1980.00	748.44	0.00	.22	0.00	200.00	50.00
146780.000	1980.00	748.41	-.03	.22	-.03	200.00	50.00
147850.000	1980.00	748.76	0.00	.32	0.00	410.11	1070.00
147850.000	1980.00	748.73	-.02	.33	-.02	362.90	1070.00
147900.000	1980.00	748.36	0.00	-.39	0.00	19.40	50.00
147900.000	1980.00	748.34	-.02	-.39	-.02	19.40	50.00
147960.000	1980.00	748.45	0.00	.09	0.00	19.40	60.00
147960.000	1980.00	748.45	-.01	.11	-.01	19.40	60.00
148000.000	1980.00	750.69	0.00	2.24	0.00	306.02	40.00
148000.000	1980.00	750.69	-.01	2.24	-.01	249.01	40.00
148450.000	1980.00	750.72	0.00	.02	0.00	306.45	450.00
148450.000	1980.00	750.71	-.00	.02	-.00	249.33	450.00
149500.000	1980.00	750.76	0.00	.05	0.00	307.34	1050.00
149500.000	1980.00	750.76	-.00	.05	-.00	249.93	1050.00
149550.000	1980.00	750.29	0.00	-.48	0.00	19.89	50.00
149550.000	1980.00	750.28	-.01	-.49	-.01	16.00	50.00
149720.000	1980.00	758.44	0.00	8.15	0.00	40.90	170.00
149720.000	1980.00	758.43	-.01	8.15	-.01	33.99	170.00
149740.000	1980.00	758.85	0.00	.41	0.00	623.64	20.00
149740.000	1980.00	758.86	.02	.44	.02	545.95	20.00
149780.000	1980.00	758.90	0.00	.06	0.00	624.75	40.00
149780.000	1980.00	758.92	.02	.06	.02	549.36	40.00

SUMMARY OF ERRORS

CAUTION SECNO=********* PROFILE= 1 INTERPOLATED XSECTIONS USED

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FLOODWAY DATA, MAIN ROUGE
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
127875.000	580.	2236.	.9	702.9	702.8	.1
130100.000	89.	325.	6.5	705.9	707.9	-2.0
132184.000	204.	1183.	1.8	712.0	711.8	.2
132284.000	51.	527.	4.0	712.1	711.9	.2
132316.000	51.	545.	3.9	712.5	712.3	.2
132370.000	218.	1346.	1.6	712.7	712.5	.2
133675.000	157.	774.	2.7	714.3	714.2	.1
133725.000	31.	256.	8.2	714.5	715.1	-.6
133755.000	31.	261.	8.1	714.8	715.3	-.5
133805.000	202.	1233.	1.7	716.3	716.7	-.4
135840.000	280.	1167.	1.8	718.7	718.7	0.0
138170.000	87.	484.	4.3	724.2	724.0	.2
138220.000	45.	444.	4.7	724.7	724.5	.2
138280.000	45.	484.	4.3	725.6	725.4	.2
138330.000	102.	664.	3.2	725.7	725.5	.2
138460.000	88.	379.	5.2	726.0	725.8	.2
138510.000	135.	408.	4.9	726.3	726.1	.2
138530.000	140.	419.	4.7	726.3	726.1	.2
138580.000	147.	639.	3.1	727.2	727.0	.2
139645.000	252.	1295.	1.5	728.9	728.8	.1
139695.000	49.	406.	4.9	728.8	728.7	.1
139745.000	55.	534.	3.7	731.3	731.2	.1
139795.000	318.	2373.	.8	731.8	731.7	.1
140000.000	188.	1240.	1.6	731.8	731.7	.1
141580.000	60.	355.	5.6	733.7	734.6	-.9
141800.000	62.	406.	4.9	735.0	735.4	-.4
141875.000	61.	387.	5.1	735.3	735.6	-.3
141925.000	91.	201.	9.9	735.3	735.6	-.3
142025.000	91.	297.	6.7	736.6	736.8	-.2
142075.000	87.	547.	3.6	737.9	738.0	-.1
142115.000	40.	329.	6.0	738.0	738.1	-.1
142315.000	71.	601.	3.3	739.4	739.4	0.0
142790.000	197.	1341.	1.5	739.9	739.9	0.0
143340.000	42.	370.	5.3	740.2	740.2	0.0
143390.000	12.	136.	14.6	739.8	739.8	0.0
143610.000	12.	204.	9.7	745.5	745.5	0.0
143660.000	50.	758.	2.6	747.6	747.6	0.0
145800.000	333.	3444.	.6	748.0	748.0	0.0
146500.000	80.	1038.	1.9	748.0	748.0	0.0
146550.000	200.	1257.	1.6	748.0	748.0	0.0
146570.000	200.	1265.	1.6	748.0	748.0	0.0
146620.000	210.	1481.	1.3	748.1	748.1	0.0
146670.000	210.	1491.	1.3	748.2	748.2	0.0
146720.000	180.	1111.	1.8	748.2	748.2	0.0
146730.000	180.	1113.	1.8	748.2	748.2	0.0
146780.000	200.	1330.	1.5	748.4	748.4	0.0
147850.000	363.	2252.	.9	748.8	748.8	0.0
147900.000	19.	171.	11.6	748.4	748.4	0.0
147960.000	19.	173.	11.5	748.5	748.5	0.0
148000.000	249.	1498.	1.3	750.7	750.7	0.0

FLOODWAY DATA, MAIN ROUGE
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
148450.000	249.	1506.	1.3	750.7	750.7	0.0
149500.000	250.	1520.	1.3	750.8	750.8	0.0
149550.000	18.	155.	12.7	750.3	750.3	0.0
149720.000	35.	396.	5.0	758.4	758.4	0.0
149740.000	546.	3993.	.5	758.8	758.8	0.0
149780.000	549.	4037.	.5	758.9	758.9	0.0

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: RIVER ROUGE

100 YR NATURAL —

4) DOCUMENT TYPE: REVISED FLOODWAY RUN

00BREAK00

ERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 16:25:31 03-13-80

Rough

Floodway run as changed by MPS on plan

REVISED RUN

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

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

XX        XX   SSSSSSSSS   NN          NN  LL
XX        XX  SSSSSSSSSSS  NNN         NN  LL
 XX      XX   SS         SS  NNNN       NN  LL
  XX    XX    SS             NN NN      NN  LL
   XX  XX     SSS            NN  NN     NN  LL
    XXXX       SSSSSSSSS     NN   NN    NN  LL
    XXXX         SSSSSSSSS   NN    NN   NN  LL
   XX  XX              SSS   NN     NN NN  LL
  XX    XX             SS   NN      NNNN  LL
 XX      XX   SS         SS  NN       NNN  LL
XX        XX  SSSSSSSSSSS  NN         NN  LLLLLLLLLLL
XX        XX   SSSSSSSSS   NN          N  LLLLLLLLLLL
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************

C
T1      FLOOD INSURANCE STUDY **** 31 AUG 1978 ****
T2      CITY OF BIRMINGHAM   100 YR. NATURAL
T3      MAIN ROUGE

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        2.        0.        0.  0.000000      0.00       .5    2103.   702.770     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    38.000    39.000    40.000    41.000    42.000    43.000     1.000     4.000    27.000    28.000

   200.000     0.000   150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .150      .150      .050      .100      .300     0.000     0.000     0.000     0.000     0.000

X1 127875.000    16.000   363.000   406.000     0.000     0.000     0.000     0.000     0.000     0.000
GR     712.700     0.000   701.300    29.000   699.700    63.000   700.100   163.000   698.900   263.000
GR     699.700   363.000   696.600   370.000   693.700   380.000   693.000   393.000   695.400   403.000
GR     699.700   406.000   698.600   463.000   698.600   563.000   700.900   663.000   702.800   738.000
GR     708.100   757.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 130100.000    10.000   130.000   170.000  2225.000  2225.000  2225.000     0.000     0.000     0.000
GR     715.600     0.000   713.000    30.000   709.500    70.000   703.000   130.000   699.000   140.000
GR     698.500   150.000   699.500   160.000   703.000   170.000   704.600   200.000   715.900   300.000

          ** DOWNSTREAM OF NORTHLAWN DRIVE BRIDGE **

X1 132184.000    14.000    90.000   123.000  2084.000  2084.000  2084.000     0.000     0.000     0.000
GR     720.000     0.000   710.600    70.000   708.200    80.000   708.000    90.000   703.000    95.000
GR     702.100   100.000   702.600   116.000   707.000   123.000   706.600   170.000   706.500   200.000
GR     706.100   220.000   706.500   260.000   710.200   290.000   720.000   640.000     0.000     0.000

X1 132284.000    13.000    76.000   127.000   100.000   100.000   100.000     0.000     0.000     0.000
GR     718.200     0.000   715.800    50.000   714.700    76.000   702.000    76.000   701.700    86.000
GR     701.800    97.000   701.700   117.000   702.000   125.000   702.300   127.000   713.000   127.000
GR     712.700   150.000   712.000   170.000   711.500   200.000     0.000     0.000     0.000     0.000
SB       0.000     1.580     2.600     0.000    51.000     0.000   408.000     0.000   701.700   701.700
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X1	132316.000	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	709.700	711.500	0.000	0.000	0.000	0.000	0.000
BT	7.000	0.000	718.200	718.200	50.000	715.800	715.800	76.000	714.700	709.700
BT	127.000	713.000	709.700	150.000	712.700	712.700	170.000	712.000	712.000	200.000
BT	711.500	711.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF NORTHLAWN DRIVE BRIDGE **

X1	132370.000	14.000	90.000	123.000	54.000	54.000	54.000	0.000	0.000	0.000
GR	720.000	0.000	710.600	70.000	708.200	80.000	708.000	90.000	703.000	95.000
GR	702.100	100.000	702.600	116.000	707.000	123.000	706.600	170.000	706.500	200.000
GR	706.100	220.000	706.500	260.000	710.200	290.000	720.000	640.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF LINCOLN ROAD BRIDGE **

X1	133675.000	10.000	345.000	370.000	1180.000	1100.000	1305.000	0.000	0.000	0.000
GR	720.000	0.000	710.000	300.000	710.500	335.000	709.000	345.000	706.000	350.000
GR	705.300	360.000	707.000	370.000	709.000	400.000	717.500	420.000	717.500	700.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000

X1	133725.000	13.000	61.500	92.500	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	716.000	716.000	0.000
GR	727.000	0.000	723.600	30.000	723.300	61.500	706.100	61.500	705.800	65.000
GR	705.300	71.000	705.300	77.000	705.900	83.000	708.000	89.000	708.400	92.500
GR	722.000	92.500	716.300	350.000	718.000	400.000	0.000	0.000	0.000	0.000
SB	0.000	1.610	2.500	0.000	31.000	0.000	275.000	0.000	0.000	0.000

X1	133755.000	0.000	0.000	0.000	30.000	30.000	30.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	716.000	716.300	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	716.300	716.300	0.000
BT	11.000	0.000	727.000	727.000	30.000	723.600	723.600	61.500	723.300	713.300
BT	65.000	723.100	714.700	71.000	722.900	715.700	77.000	722.700	716.000	83.000
BT	722.500	715.700	89.000	722.000	714.700	92.500	722.000	713.300	350.000	716.300
BT	716.300	400.000	718.000	718.000	0.000	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF LINCOLN ROAD BRIDGE **

X1	133805.000	10.000	345.000	370.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	720.000	0.000	710.000	300.000	710.500	335.000	709.000	345.000	706.000	350.000
GR	705.300	360.000	707.000	370.000	709.000	400.000	717.500	420.000	717.500	700.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	135840.000	12.000	255.000	285.000	1600.000	1470.000	2035.000	0.000	0.000	0.000
GR	730.000	0.000	720.000	60.000	718.000	90.000	716.000	190.000	713.500	200.000
GR	713.500	255.000	711.000	260.000	710.600	280.000	714.000	285.000	716.000	430.000
GR	720.000	440.000	730.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF MAPLE STREET BRIDGE **

X1	138170.000	12.000	325.000	360.000	1730.000	1530.000	2330.000	0.000	0.000	0.000
GR	731.000	0.000	727.000	170.000	726.000	265.000	723.500	300.000	720.000	325.000

GR	715.600	340.000	715.600	350.000	718.500	360.000	720.500	400.000	726.000	425.000
GR	728.500	490.000	731.000	680.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	138220.000	13.000	58.000	103.000	90.000	20.000	50.000	0.000	0.000	0.000
GR	729.000	0.000	727.000	58.000	715.500	58.000	714.500	68.000	714.800	73.000
GR	714.800	83.000	714.200	88.000	714.400	93.000	715.700	98.000	715.700	103.000
GR	727.000	103.000	726.400	185.000	730.000	350.000	0.000	0.000	0.000	0.000
SB	0.000	1.710	2.500	350.000	45.000	0.000	315.000	0.000	0.000	0.000
X1	138280.000	0.000	0.000	0.000	60.000	60.000	60.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	722.360	726.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	727.000	727.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF MAPLE STREET BRIDGE **

X1	138330.000	12.000	325.000	360.000	40.000	70.000	50.000	0.000	0.000	0.000
GR	731.000	0.000	727.000	170.000	726.000	265.000	723.500	300.000	720.000	325.000
GR	715.600	340.000	715.600	350.000	718.500	360.000	720.500	400.000	726.000	425.000
GR	728.500	490.000	731.000	680.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000
QT	2.000	1980.000	1980.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF BALDWIN STREET BRIDGE **

X1	138460.000	11.000	320.000	360.000	60.000	160.000	130.000	0.000	0.000	0.000
GR	740.000	0.000	728.000	150.000	728.000	200.000	726.000	230.000	723.500	320.000
GR	717.500	325.000	716.800	330.000	718.000	340.000	723.000	360.000	728.000	500.000
GR	731.000	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	138510.000	10.000	125.000	143.500	60.000	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	722.800	722.800	0.000
GR	726.700	0.000	724.700	72.000	724.300	125.000	717.700	125.000	715.800	131.000
GR	715.400	136.000	716.000	143.500	724.300	143.500	723.900	170.000	726.000	272.000
SB	0.000	1.590	2.500	272.000	18.500	0.000	126.000	0.000	0.000	0.000
X1	138530.000	0.000	0.000	.005	20.000	20.000	20.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	722.800	723.900	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	724.300	724.300	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF BALDWIN STREET BRIDGE **

X1	138580.000	11.000	320.000	360.000	30.000	110.000	50.000	0.000	0.000	0.000
GR	740.000	0.000	728.000	150.000	728.000	200.000	726.000	230.000	723.500	320.000
GR	717.500	325.000	716.800	330.000	718.000	340.000	723.000	360.000	728.000	500.000
GR	731.000	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF WILLITS STREET BRIDGE **

X1	139645.000	10.000	170.000	210.000	1100.000	800.000	1065.000	0.000	0.000	0.000
GR	740.000	0.000	730.000	35.000	723.000	130.000	722.500	170.000	719.500	175.000

GR	719.500	200.000	723.500	210.000	727.000	380.000	735.000	410.000	740.000	460.000
X1	139695.000	30.000	119.000	151.000	60.000	80.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	728.300	728.300	0.000
GR	734.000	0.000	731.800	50.000	730.700	104.000	728.800	104.000	721.800	114.000
GR	720.500	119.000	720.400	120.000	720.000	122.000	719.400	124.000	719.400	126.000
GR	719.400	128.000	719.400	130.000	719.400	132.000	719.400	133.000	719.400	137.000
GR	719.400	138.000	719.400	140.000	719.400	142.000	719.400	144.000	720.000	146.000
GR	720.500	148.000	721.000	150.000	721.000	151.000	721.600	154.000	727.100	164.000
GR	729.000	166.000	731.000	166.000	731.500	200.000	733.000	250.000	735.000	300.000
SB	0.000	1.590	2.500	0.000	27.000	0.000	176.000	0.000	719.900	719.400
X1	139745.000	0.000	0.000	0.000	50.000	50.000	50.000	1.000	.500	0.000
X2	0.000	0.000	1.000	728.300	730.700	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	730.700	730.700	0.000
BT	28.000	0.000	734.500	734.500	50.000	732.300	732.300	104.000	731.200	731.200
BT	114.000	730.700	722.300	119.000	730.700	720.900	120.000	730.700	723.500	122.000
BT	730.700	726.500	124.000	730.700	728.000	126.000	730.700	728.300	128.000	730.700
BT	728.000	130.000	730.700	727.000	132.000	730.700	725.000	133.000	730.700	719.900
BT	137.000	730.700	719.900	138.000	730.700	724.500	140.000	730.700	727.000	142.000
BT	730.700	728.000	144.000	730.700	728.300	146.000	730.700	728.000	148.000	730.700
BT	727.000	150.000	730.700	725.000	151.000	730.700	721.500	154.000	730.700	722.100
BT	164.000	730.700	727.600	166.000	730.700	729.500	200.000	732.000	732.000	250.000
BT	733.500	733.500	300.000	735.500	735.500	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF WILLITS BRIDGE **

X1	139795.000	10.000	170.000	210.000	40.000	90.000	50.000	0.000	0.000	0.000
GR	740.000	0.000	730.000	35.000	723.000	130.000	722.500	170.000	719.500	175.000
GR	719.500	200.000	723.500	210.000	727.000	380.000	735.000	410.000	740.000	460.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	140000.000	9.000	160.000	192.000	100.000	205.000	300.000	0.000	0.000	0.000
GR	740.000	0.000	730.000	60.000	723.200	160.000	720.000	167.000	720.000	175.000
GR	720.500	185.000	724.000	192.000	730.000	290.000	740.000	385.000	0.000	0.000
X1	141580.000	12.000	70.000	100.000	1680.000	1580.000	1610.000	0.000	0.000	0.000
GR	747.000	0.000	729.500	45.000	728.500	70.000	727.500	75.000	725.200	80.000
GR	726.000	95.000	729.000	100.000	734.000	110.000	735.500	120.000	738.000	245.000
GR	738.000	340.000	742.000	520.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	141800.000	0.000	0.000	0.000	300.000	200.000	220.000	0.000	.500	0.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF WOODWARD AVENUE BRIDGE **

X1	141875.000	0.000	0.000	0.000	80.000	80.000	75.000	0.000	.500	0.000
NC	.150	.150	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	141925.000	10.000	126.100	144.600	30.000	70.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	217.000	0.000	0.000	0.000	0.000
GR	741.000	0.000	737.000	126.000	725.100	126.100	724.100	130.000	727.200	144.600
GR	736.500	144.700	734.500	200.000	733.500	300.000	732.500	350.000	733.500	400.000

SB	0.000	1.790	2.500	0.000	18.500	0.000	148.000	0.000	724.100	724.100
X1	142025.000	0.000	0.000	0.000	100.000	100.000	100.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	733.500	734.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	217.000	0.000	0.000	0.000	0.000
BT	8.000	0.000	741.000	741.000	126.000	737.000	737.000	126.100	740.500	733.500
BT	130.000	740.500	733.500	144.600	740.500	733.500	144.700	736.500	736.500	200.000
BT	734.500	734.500	210.000	744.500	744.500	0.000	0.000	0.000	0.000	0.000
** UPSTREAM OF WOODWARD AVENUE BRIDGE **										
X1	142075.000	13.000	66.000	85.100	60.000	40.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	17.000	0.000	104.000	0.000	0.000	0.000	0.000
GR	740.000	0.000	737.500	12.000	733.200	17.000	731.800	65.000	733.800	66.000
GR	727.200	66.100	727.200	74.000	726.500	84.000	727.200	85.000	733.900	85.100
GR	732.000	86.000	735.300	104.000	740.000	264.000	0.000	0.000	0.000	0.000
X1	142115.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	45.000	0.000	85.100	0.000	0.000	0.000	0.000
X1	142315.000	10.000	49.000	77.100	210.000	190.000	200.000	0.000	0.000	0.000
GR	740.700	0.000	739.300	22.000	731.300	40.000	729.600	49.000	728.000	49.000
GR	727.100	67.000	728.000	77.000	734.900	77.100	733.300	78.000	734.200	105.000
NC	.100	.100	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	142790.000	12.000	26.000	52.000	470.000	430.000	475.000	0.000	0.000	0.000
GR	742.100	0.000	740.100	16.000	732.500	26.000	729.000	29.000	728.800	38.000
GR	729.000	47.000	731.800	52.000	732.600	124.000	734.400	130.000	734.200	136.000
GR	733.700	136.100	736.000	230.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000
** DOWNSTREAM OF HUNTER BLVD BRIDGE **										
X1	143340.000	7.000	62.000	88.000	470.000	500.000	550.000	0.000	0.000	0.000
GR	750.000	0.000	742.100	40.000	732.000	62.000	728.200	74.000	728.900	84.000
GR	732.000	88.000	750.000	114.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	143390.000	8.000	244.000	256.000	50.000	60.000	50.000	0.000	0.000	0.000
GR	756.000	0.000	755.600	50.000	755.600	100.000	756.600	244.000	728.500	244.000
GR	728.500	256.000	756.600	256.000	757.800	450.000	0.000	0.000	0.000	0.000
SB	0.000	1.750	2.500	450.000	12.000	0.000	122.000	0.000	0.000	0.000
X1	143610.000	0.000	0.000	0.000	220.000	220.000	220.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	738.670	755.600	0.000	0.000	0.000	0.000	0.000
** UPSTREAM OF HUNTER BLVD BRIDGE -CORPORATE LIMITS **										
X1	143660.000	7.000	62.000	88.000	40.000	90.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	45.000	0.000	95.000	0.000	0.000	0.000	0.000
GR	750.000	0.000	742.100	40.000	732.000	62.000	728.200	74.000	728.900	84.000
GR	732.000	88.000	750.000	114.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	145800.000	10.000	155.000	182.000	1600.000	1400.000	2140.000	0.000	0.000	0.000
GR	750.000	0.000	740.000	80.000	738.000	150.000	736.000	155.000	728.200	162.000
GR	728.900	172.000	736.000	182.000	738.000	350.000	740.000	375.000	750.000	430.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000
X1	146500.000	0.000	0.000	0.000	500.000	600.000	700.000	1.000	0.000	0.000
X3	0.000	0.000	0.000	130.000	0.000	210.000	0.000	0.000	0.000	0.000
X1	146550.000	17.000	342.750	357.250	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	450.000	0.000	0.000	0.000	0.000
GR	751.100	0.000	747.600	50.000	743.800	150.000	742.600	250.000	742.600	332.700
GR	744.690	332.750	744.690	342.700	735.200	342.750	735.200	357.250	744.690	357.300
GR	744.690	367.300	741.200	367.350	741.200	420.000	740.900	450.000	740.700	550.000
GR	741.400	650.000	742.200	750.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.590	2.500	750.000	14.500	0.000	85.600	0.000	0.000	0.000
X1	146570.000	0.000	0.000	0.000	20.000	20.000	20.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	741.070	740.700	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	450.000	0.000	0.000	0.000	0.000
BT	11.000	250.000	742.600	742.600	332.700	742.600	742.600	332.750	744.690	744.690
BT	342.700	744.690	744.690	342.750	744.690	741.070	357.250	744.690	741.070	357.300
BT	744.690	744.690	367.300	744.690	744.690	367.350	741.200	741.200	420.000	741.200
BT	741.200	450.000	740.900	740.900	0.000	0.000	0.000	0.000	0.000	0.000
NC	.140	.140	.040	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	146620.000	10.000	135.000	140.000	20.000	80.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	20.000	0.000	230.000	0.000	0.000	0.000	0.000
GR	750.000	0.000	744.000	30.000	742.000	100.000	737.000	135.000	735.000	137.000
GR	737.000	140.000	740.000	160.000	742.000	320.000	744.000	410.000	746.000	560.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000
X1	146670.000	0.000	0.000	0.000	50.000	50.000	50.000	1.000	0.000	0.000
X3	0.000	0.000	0.000	20.000	0.000	230.000	0.000	0.000	0.000	0.000
X1	146720.000	12.000	71.650	88.350	40.000	100.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	180.000	0.000	0.000	0.000	0.000
GR	742.700	0.000	742.200	30.000	743.090	71.600	736.900	71.650	735.300	80.000
GR	737.600	88.350	743.090	88.400	742.400	130.000	742.600	180.000	742.900	240.000
GR	744.300	280.000	745.100	330.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.540	2.500	330.000	16.700	0.000	100.000	0.000	0.000	0.000
X1	146730.000	0.000	0.000	0.000	10.000	10.000	10.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	742.410	742.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	180.000	0.000	0.000	0.000	0.000
BT	9.000	0.000	742.700	742.700	30.000	742.200	742.200	71.600	743.090	743.090
BT	71.650	743.090	742.410	80.000	743.090	742.410	88.350	743.090	742.410	88.400
BT	743.090	743.090	130.000	742.400	742.400	180.000	742.600	742.600	0.000	0.000
NC	.140	.140	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	146780.000	10.000	160.000	210.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	130.000	0.000	330.000	0.000	0.000	0.000	0.000

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GR     756.000       0.000     744.000      60.000     742.000     160.000     738.000     180.000     737.000     185.000
GR     738.000     190.000     742.000     210.000     744.000     420.000     748.000     435.000     750.000     465.000
NC       .100        .100        .040        .600        .800       0.000       0.000       0.000       0.000       0.000

          ** DOWNSTREAM OF 16 MILE ROAD BRIDGE -CORPORATE LIMITS **

X1 147850.000       0.000       0.000       0.000     900.000     500.000    1070.000       1.000       0.000       0.000
NC       .150        .150        .030       0.000       0.000       0.000       0.000       0.000       0.000       0.000

X1 147900.000      23.000     290.900     310.100      50.000      50.000      50.000       0.000       0.000       0.000
X3       0.000       0.000       0.000     120.000       0.000     470.000       0.000       0.000       0.000       0.000
GR     753.220       0.000     750.870     100.000     749.190     200.000     748.460     290.800     740.800     290.900
GR     739.400     291.400     739.200     292.000     738.800     295.000     739.200     298.000     739.400     298.600
GR     740.800     299.100     741.000     301.900     739.600     302.600     739.200     303.000     739.000     306.000
GR     739.200     309.000     739.600     309.600     741.000     310.100     748.460     310.200     748.870     400.000
GR     749.950     500.000     751.870     600.000     753.150     650.000       0.000       0.000       0.000       0.000
SB       0.000       2.210       2.500       0.000      16.400       0.000      86.000       0.000       0.000       0.000

X1 147960.000       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     745.460     748.460       0.000       0.000       0.000       0.000       0.000
X3       0.000       0.000       0.000     120.000       0.000     470.000       0.000       0.000       0.000       0.000
BT      20.000      99.000     753.220     753.220     100.000     750.870     750.870     200.000     749.190     749.190
BT     290.800     748.460     748.460     290.900     748.460     740.800     291.400     748.460     743.000     292.000
BT     748.460     744.000     295.000     748.460     745.460     298.000     748.460     744.000     298.600     748.460
BT     743.000     299.100     748.460     740.800     301.900     748.460     741.000     302.400     748.460     743.000
BT     303.000     748.460     744.000     306.000     748.460     745.370     309.000     748.460     744.000     309.600
BT     748.460     743.000     310.100     748.460     741.000     310.200     748.460     748.460     400.000     748.870
BT     748.870       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
NC       .030        .030        .020        .100        .300       0.000       0.000       0.000       0.000       0.000

X1 148000.000      11.000     110.000     145.000      40.000     100.000      40.000       0.000       0.000       0.000
GR     764.000       0.000     746.000      60.000     744.000     110.000     740.000     120.000     738.000     125.000
GR     740.000     130.000     744.000     145.000     746.000     280.000     754.000     400.000     756.000     530.000
GR     762.000     640.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

X1 148450.000       0.000       0.000       0.000     400.000     350.000     450.000       0.000       0.000       0.000
NC       0.000       0.000       0.000        .600        .800       0.000       0.000       0.000       0.000       0.000

          ** DOWNSTREAM OF GTWRR BRIDGE **

X1 149500.000       0.000       0.000       0.000     800.000     700.000    1050.000       0.000       0.000       0.000

X1 149550.000      14.000      91.250     108.750      40.000     100.000      50.000       0.000       0.000       0.000
GR     784.180       0.000     748.780      91.250     740.510      91.250     740.510      91.750     740.510      98.750
GR     740.510      99.250     784.780      99.250     784.780     100.750     740.630     100.750     740.630     101.250
GR     740.630     108.250     740.630     108.750     784.780     108.750     785.430     200.000       0.000       0.000
SB       0.000       2.330       2.500       0.000      16.000       0.000     129.000       0.000       0.000       0.000

X1 149720.000       0.000       0.000       0.000     170.000     170.000     170.000       0.000       0.000       0.000
X2       0.000       0.000       1.000     748.730     784.180       0.000       0.000       0.000       0.000       0.000
BT      14.000       0.000     784.180     784.180      91.250     784.780     784.780      91.250     784.780     748.110
BT      91.750     784.780     748.610      98.750     784.780     748.610      99.250     784.780     748.110      99.250
BT     784.780     784.780     100.750     784.780     784.780     100.750     784.780     748.230     101.250     784.780
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BT	748.730	108.250	784.780	748.730	108.750	784.780	748.230	108.750	784.780	784.780
BT	200.000	785.430	785.430	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.030	.100	.300	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF GTWRR BRIDGE -CORPORATE LIMITS **

X1	149740.000	16.000	295.300	304.700	20.000	20.000	20.000	0.000	0.000	0.000
GR	763.200	0.000	757.500	100.000	753.120	200.000	750.900	295.300	743.000	295.300
GR	742.000	296.000	741.600	297.000	741.400	300.000	741.600	303.000	742.000	304.000
GR	743.000	304.700	750.900	304.700	750.500	400.000	750.760	500.000	751.650	600.000
GR	753.820	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.550	2.500	0.000	9.400	0.000	49.000	0.000	0.000	0.000

X1	149780.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	748.000	750.500	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	763.200	763.200	100.000	757.500	757.500	200.000	753.120	753.120
BT	295.300	750.900	750.900	295.300	750.900	743.000	296.000	750.900	745.600	297.000
BT	750.900	746.800	300.000	750.900	748.000	303.000	750.900	746.800	304.000	750.900
BT	745.600	304.700	750.900	743.000	304.700	750.900	750.900	400.000	750.500	750.500
BT	500.000	750.760	750.760	600.000	751.650	751.650	700.000	753.820	753.820	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 127875.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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
127875.00	9.77	702.77	0.00	702.77	702.83	.06	0.00	0.00	699.70
2103.	573.	949.	581.	1041.	332.	994.	0.	0.	699.70
0.00	.55	2.85	.58	.150	.050	.150	0.000	693.00	25.26
.000672	0.	0.	0.	0	0	0	0.00	711.56	736.82

*SECNO 130100.000

1645 INT SEC ADDED BY RAISING SEC 130100.00, -3.667FT AND MULTIPLYING BY 1.003

3301 HV CHANGED MORE THAN HVINS

1.01	8.54	703.38	0.00	0.00	703.99	.61	.99	.17	699.33
2103.	74.	1878.	150.	76.	283.	124.	24.	7.	699.33
.03	.98	6.65	1.21	.150	.050	.150	.050	694.83	92.97
.003880	742.	742.	742.	3	0	0	0.00	129.34	222.31

1645 INT SEC ADDED BY RAISING SEC 1.01, 1.833FT AND MULTIPLYING BY .998

1.02	9.24	705.91	0.00	0.00	706.38	.47	2.38	.01	701.17
2103.	94.	1827.	182.	104.	310.	162.	33.	9.	701.17
.07	.91	5.89	1.12	.150	.050	.150	.050	696.67	86.39
.002690	742.	742.	742.	2	0	0	0.00	141.74	228.13

1645 INT SEC ADDED BY RAISING SEC 1.02, 1.833FT AND MULTIPLYING BY .998

130100.00	9.37	707.87	0.00	0.00	708.32	.45	1.93	.00	703.00
2103.	98.	1818.	187.	109.	315.	169.	43.	12.	703.00
.11	.90	5.78	1.11	.150	.050	.150	.050	698.50	85.07
.002529	742.	742.	742.	2	0	0	0.00	143.84	228.91

*SECNO 132184.000

** DOWNSTREAM OF NORTHLAWN DRIVE BRIDGE **

132184.00	9.75	711.85	0.00	0.00	712.00	.15	3.66	.03	708.00
2103.	49.	1161.	893.	68.	280.	883.	87.	22.	707.00
.32	.73	4.15	1.01	.150	.050	.150	.050	702.10	60.68
.001289	2084.	2084.	2084.	2	0	0	0.00	288.28	348.97

*SECNO 132284.000

3265 DIVIDED FLOW

3280 CROSS SECTION 132284.00 EXTENDED .41 FEET

132284.00	10.21	711.91	0.00	0.00	712.17	.26	.13	.03	714.70
2103.	0.	2102.	1.	0.	515.	5.	89.	23.	713.00
.33	0.00	4.08	.12	.150	.050	.150	.050	701.70	76.00
.001328	100.	100.	100.	2	0	0	0.00	75.48	200.00

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.58	2.60	0.00	51.00	0.00	408.00	0.00	701.70	701.70

*SECNO 132316.000

3265 DIVIDED FLOW

3280 CROSS SECTION 132316.00 EXTENDED .78 FEET

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
712.56	712.17	0.00	57.	2030.	408.	408.	709.70	711.50

132316.00	10.58	712.28	0.00	0.00	712.52	.24	.35	0.00	714.70
2103.	0.	2099.	4.	0.	534.	17.	89.	23.	713.00
.33	0.00	3.93	.21	.150	.050	.150	.050	701.70	76.00
.001192	32.	32.	32.	2	0	3	0.00	88.88	200.00

*SECNO 132370.000

** UPSTREAM OF NORTHLAWN DRIVE BRIDGE **

132370.00	10.37	712.47	0.00	0.00	712.58	.12	.06	.01	708.00
2103.	58.	1111.	934.	87.	300.	1029.	90.	23.	707.00
.34	.67	3.70	.91	.150	.050	.150	.050	702.10	56.11
.000934	54.	54.	54.	2	0	0	0.00	314.82	370.92

CCHV= .100 CEHV= .300
*SECNO 133675.000

** DOWNSTREAM OF LINCOLN ROAD BRIDGE **

133675.00	8.87	714.17	0.00	0.00	714.55	.38	1.89	.08	709.00
2103.	479.	1256.	368.	441.	199.	216.	121.	30.	707.00

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      .42      1.09      6.32      1.70      .150      .050      .150      .051    705.30    175.06
  .003008     1180.     1305.     1100.         2         0         0      0.00    237.09    412.15

CCHV=     .600 CEHV=     .800
*SECNO 133725.000

1645 INT SEC ADDED BY RAISING SEC 133725.00,   0.000FT AND MULTIPLYING BY     .898

3301 HV CHANGED MORE THAN HVINS

      1.01      8.80    714.10      0.00      0.00    715.49      1.39       .13       .81    723.30
    2103.         0.    2103.         0.        0.     222.         0.     121.       30.     722.00
      .42      0.00      9.48      0.00      .150      .050      .150      .051    705.30     55.25
  .011054        25.       25.       25.         2         0         0      0.00     27.85     83.10


1645 INT SEC ADDED BY RAISING SEC      1.01,   0.000FT AND MULTIPLYING BY   1.113

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      716.00 ELREA=      716.00

133725.00      9.81    715.11      0.00      0.00    715.99       .89       .20       .30    723.30
    2103.         0.    2103.         0.        0.     278.         0.     121.       30.     722.00
      .42      0.00      7.56      0.00      .150      .050      .150      .051    705.30     61.50
  .006057        25.       25.       25.         3         0         0      0.00     31.00     92.50

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COEQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.61       2.50       0.00       31.00      0.00       275.00     0.00       705.30     705.30

*SECNO 133755.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=   715.994  ELLC=   716.000  PCWSE=   715.108  ELTRD=   716.300

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  716.30 MAX ELLC=  716.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      716.30 ELREA=      716.30

133755.00     10.02    715.32      0.00      0.00    716.24       .92       .21       .03    723.30
    2103.         0.    2103.         0.        0.     273.         0.     121.       30.     722.00
      .42      0.00      7.69      0.00      .150      .050      .150      .051    705.30     61.50
  .008589        30.       30.       30.         2         0         0    -11.50     31.00     92.50

*SECNO 133805.000

1645 INT SEC ADDED BY RAISING SEC 133805.00,   0.000FT AND MULTIPLYING BY   1.101
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3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLCB	VCH	VRCB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
	1.01	11.36	716.66	0.00	0.00	716.77	.10	.04	.49	709.00
	2103.	710.	1037.	356.	1056.	287.	362.	122.	30.	707.00
	.42	.67	3.61	.98	.150	.050	.150	.051	705.30	110.32
	.000675	25.	25.	25.	3	0	0	0.00	349.96	460.28

1645 INT SEC ADDED BY RAISING SEC 1.01, 0.000FT AND MULTIPLYING BY .908

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

** UPSTREAM OF LINCOLN ROAD BRIDGE **

133805.00	11.37	716.67	0.00	0.00	716.80	.13	.02	.02	709.00
2103.	712.	1034.	356.	961.	261.	329.	123.	31.	707.00
.43	.74	3.96	1.08	.150	.050	.150	.051	705.30	99.97
.000819	25.	25.	25.	1	0	0	0.00	318.07	418.04

CCHV= .100 CEHV= .300
*SECNO 135840.000

135840.00	8.13	718.73	0.00	0.00	718.90	.17	2.09	.01	713.50
2103.	513.	1037.	553.	506.	223.	551.	176.	43.	714.00
.60	1.01	4.64	1.00	.150	.050	.150	.052	710.60	78.94
.001801	1600.	2035.	1470.	3	0	0	0.00	357.90	436.84

CCHV= .600 CEHV= .800
*SECNO 138170.000

** DOWNSTREAM OF MAPLE STREET BRIDGE **

138170.00	8.44	724.04	0.00	0.00	724.64	.60	5.40	.34	720.00
2103.	63.	1700.	340.	59.	248.	210.	213.	53.	718.50
.70	1.06	6.85	1.62	.150	.050	.150	.053	715.60	292.42
.004066	1730.	2330.	1530.	2	0	0	0.00	123.67	416.10

*SECNO 138220.000

138220.00	10.35	724.55	0.00	0.00	724.91	.36	.13	.14	727.00
2103.	0.	2103.	0.	0.	436.	0.	214.	53.	727.00
.71	0.00	4.83	0.00	.150	.050	.150	.053	714.20	58.00
.002009	90.	50.	20.	3	0	0	0.00	45.00	103.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.71	2.50	350.00	45.00	0.00	315.00	0.00	714.20	714.20

*SECNO 138280.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
725.73	724.91	0.00	0.	2103.	315.	367.	722.36	726.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 727.00 ELREA= 727.00

138280.00	11.23	725.43	0.00	0.00	725.73	.30	.82	0.00	727.00
2103.	0.	2103.	0.	0.	475.	0.	214.	53.	727.00
.71	0.00	4.42	0.00	.150	.050	.150	.053	714.20	58.00
.001559	60.	60.	60.	2	0	0	0.00	45.00	103.00

CCHV= .100 CEHV= .300
*SECNO 138330.000

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

** UPSTREAM OF MAPLE STREET BRIDGE **

138330.00	9.89	725.49	0.00	0.00	725.84	.35	.09	.01	720.00
2103.	110.	1604.	390.	121.	299.	296.	215.	53.	718.50
.71	.91	5.37	1.32	.150	.050	.150	.053	715.60	272.19
.001949	40.	50.	70.	2	0	0	0.00	150.47	422.66

CCHV= .600 CEHV= .800
*SECNO 138460.000

** DOWNSTREAM OF BALDWIN STREET BRIDGE **

138460.00	9.00	725.80	0.00	0.00	726.49	.69	.38	.27	723.50
1980.	74.	1809.	97.	96.	260.	110.	217.	53.	723.00
.72	.77	6.96	.88	.150	.050	.150	.053	716.80	237.00
.005059	60.	130.	160.	2	0	0	0.00	201.56	438.56

*SECNO 138510.000
3280 CROSS SECTION 138510.00 EXTENDED .07 FEET

138510.00	10.67	726.07	723.08	0.00	727.10	1.03	.34	.27	724.30
1980.	132.	1654.	195.	117.	186.	166.	217.	54.	724.30
.72	1.12	8.89	1.17	.150	.050	.150	.053	715.40	22.68
.009179	60.	50.	50.	6	9	0	0.00	249.32	272.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.50	272.00	18.50	0.00	126.00	0.00	715.40	715.40

*SECNO 138530.000
6870 D.S. ENERGY OF 727.10 HIGHER THAN COMPUTED ENERGY OF 726.31
3280 CROSS SECTION 138530.00 EXTENDED .10 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
732.17	727.10	0.00	1590.	390.	126.	137.	722.80	723.90

138530.00	10.69	726.09	0.00	0.00	727.10	1.00	0.00	0.00	724.30
1980.	135.	1644.	200.	120.	187.	171.	218.	54.	724.30
.72	1.13	8.81	1.17	.150	.050	.150	.053	715.40	21.52
.008979	20.	20.	20.	2	0	0	0.00	250.48	272.00

CCHV= .100 CEHV= .300
*SECNO 138580.000

1645 INT SEC ADDED BY RAISING SEC 138580.00, -.700FT AND MULTIPLYING BY .785

3301 HV CHANGED MORE THAN HVINS

1.01	10.74	726.84	0.00	0.00	727.28	.45	.13	.06	722.80
1980.	215.	1556.	209.	211.	258.	226.	218.	54.	722.30
.72	1.02	6.02	.92	.150	.050	.150	.053	716.10	162.43
.002916	15.	25.	55.	2	0	0	0.00	219.88	382.31

1645 INT SEC ADDED BY RAISING SEC 1.01, .700FT AND MULTIPLYING BY 1.274

** UPSTREAM OF BALDWIN STREET BRIDGE **

138580.00	10.20	727.00	0.00	0.00	727.36	.37	.07	.01	723.50
1980.	170.	1638.	172.	210.	308.	225.	219.	54.	723.00
.73	.81	5.32	.76	.150	.050	.150	.053	716.80	214.93
.002361	15.	25.	55.	2	0	0	0.00	257.19	472.13

CCHV= .600 CEHV= .800
*SECNO 139645.000

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

** DOWNSTREAM OF WILLITS STREET BRIDGE **

139645.00	9.26	728.76	0.00	0.00	728.88	.12	1.38	.15	722.50
1980.	362.	1217.	401.	466.	343.	603.	243.	61.	723.50
.84	.78	3.55	.67	.150	.050	.150	.053	719.50	51.83
.000856	1100.	1065.	800.	3	0	0	0.00	334.77	386.60

*SECNO 139695.000

139695.00	9.35	728.75	0.00	0.00	729.29	.54	.07	.33	720.50
1980.	102.	1786.	92.	73.	289.	68.	244.	61.	721.00
.84	1.40	6.17	1.36	.150	.050	.150	.053	719.40	104.07
.002322	60.	50.	80.	2	0	0	0.00	61.67	165.74

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.50	0.00	27.00	0.00	176.00	0.00	719.90	719.40

*SECNO 139745.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	CPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
731.87	729.98	0.00	119.	1858.	176.	227.	728.30	730.70

139745.00	11.25	731.15	0.00	0.00	731.50	.35	2.21	0.00	721.00
1980.	116.	1753.	111.	101.	350.	96.	245.	61.	721.50
.85	1.14	5.01	1.15	.150	.050	.150	.053	719.90	104.00
.001183	50.	50.	50.	2	0	3	0.00	62.00	166.00

*SECNO 139795.000

** UPSTREAM OF WILLITS BRIDGE **

139795.00	12.17	731.67	0.00	0.00	731.71	.04	.02	.19	722.50
1980.	435.	989.	556.	853.	459.	1133.	247.	61.	723.50
.86	.51	2.15	.49	.150	.050	.150	.053	719.50	29.14
.000213	40.	50.	90.	2	0	0	0.00	368.39	397.53

CCHV= .100 CEHV= .300
*SECNO 140000.000

140000.00	11.69	731.69	0.00	C.CO	731.82	.13	.08	.03	723.20
1980.	389.	1257.	334.	517.	345.	473.	255.	63.	724.00
.88	.75	3.65	.71	.150	.050	.150	.053	720.00	49.87
.000675	100.	300.	205.	2	0	0	0.00	256.16	306.04

*SECNO 141580.C00

1645 INT SEC ADDED BY RAISING SEC 141580.00, -2.600FT AND MULTIPLYING BY 1.050

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.01	9.79	732.39	0.00	0.00	732.88	.48	.95	.10	725.90
1980.	298.	1641.	41.	198.	270.	40.	272.	66.	726.40
.93	1.50	6.09	1.01	.150	.050	.150	.053	722.60	32.38
.002537	840.	805.	790.	2	0	0	0.00	90.12	122.50

1645 INT SEC ADDED BY RAISING SEC 1.01, 2.600FT AND MULTIPLYING BY .953

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
141580.00	9.45	734.65	0.00	0.00	735.24	.59	2.33	.03	728.50
1980.	289.	1655.	36.	175.	246.	33.	281.	67.	729.00
.97	1.65	6.72	1.10	.150	.050	.150	.052	725.20	31.76
.003293	840.	805.	790.	2	0	0	0.00	82.55	114.31
*SECNO 141800.000									
141800.00	9.72	735.42	0.00	0.00	735.96	.55	.72	.00	729.00
1980.	296.	1644.	39.	186.	254.	37.	284.	68.	729.50
.98	1.60	6.47	1.07	.150	.050	.150	.052	725.70	31.07
.002917	300.	220.	200.	2	0	0	0.00	85.05	116.12

CCHV= .600 CEHV= .800
*SECNO 141875.000

** DOWNSTREAM OF WOODWARD AVENUE BRIDGE **

141875.00	9.44	735.64	0.00	0.00	736.24	.59	.24	.04	729.50
1980.	289.	1655.	36.	175.	246.	33.	285.	68.	730.00
.98	1.65	6.73	1.10	.150	.050	.150	.052	726.20	31.78
.003300	80.	75.	80.	2	0	0	0.00	82.51	114.28

*SECNO 141925.000

3265 DIVIDED FLOW

3280 CROSS SECTION 141925.00 EXTENDED 2.10 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= .0 217.0 TYPE= 1 TARGET= 216.999

141925.00	11.50	735.60	732.49	0.00	737.27	1.67	.17	.86	725.10
1980.	0.	1960.	20.	0.	188.	37.	285.	68.	727.20
.98	.08	10.42	.53	.150	.040	.150	.052	724.10	126.01
.003688	30.	50.	70.	6	11	0	0.00	66.02	217.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	2.50	0.00	18.50	0.00	148.00	0.00	724.10	724.10

*SECNO 142025.000
3280 CROSS SECTION 142025.00 EXTENDED 3.29 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
740.57	737.27	0.00	603.	1382.	148.	174.	733.50	734.50

3470 ENCROACHMENT STATIONS= .0 217.0 TYPE= 1 TARGET= 216.999

142025.00	12.69	736.79	0.00	0.00	738.02	1.23	.75	0.00	725.10
1980.	0.	1907.	73.	1.	210.	112.	286.	68.	727.20
.98	.07	9.07	.65	.150	.040	.150	.052	724.10	126.00
.002410	100.	100.	100.	3	0	2	0.00	91.00	217.00

*SECNO 142075.000

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 17.0 104.0 TYPE= 1 TARGET= 87.000

** UPSTREAM OF WOODWARD AVENUE BRIDGE **

142075.00	11.49	737.99	0.00	0.00	738.55	.56	.13	.40	733.80
1980.	418.	1458.	105.	269.	209.	83.	286.	68.	733.90
.99	1.55	6.96	1.27	.150	.040	.150	.052	726.50	17.00
.002926	60.	50.	40.	3	0	0	0.00	87.00	104.00

*SECNO 142115.000

3470 ENCROACHMENT STATIONS= 45.0 85.1 TYPE= 1 TARGET= 40.100

142115.00	11.56	738.06	0.00	0.00	739.01	.95	.15	.31	733.80
1980.	235.	1745.	0.	125.	211.	0.	287.	68.	100000.00
.99	1.89	8.28	0.00	.150	.040	.150	.052	726.50	45.00
.004820	40.	40.	40.	2	0	0	0.00	40.10	85.10

*SECNO 142315.000
3280 CROSS SECTION 142315.00 EXTENDED 5.21 FEET

3301 HV CHANGED MORE THAN HVINS

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142315.00     12.30    739.40      0.00      0.00    739.74      .34       .37       .36    729.60
    1980.      161.     1682.      136.      155.     333.      158.      289.       69.     734.90
     1.00      1.04      5.06       .86       .150     .040      .150      .052   727.10     20.32
  .000974      210.      200.      190.         2        0         0      0.00    84.68    105.00


CCHV=     .100 CEHV=     .300
*SECNO 142790.000
3280 CROSS SECTION 142790.00 EXTENDED      3.95 FEET


142790.00     11.15    739.95      0.00      0.00    740.03      .08       .26       .03    732.50
    1980.       21.      882.     1077.       36.     274.     1109.      299.       70.     731.80
     1.07       .58      3.22       .97       .100     .040      .100      .052   728.80     16.20
  .000364      470.      475.      430.         2        0         0      0.00   213.80    230.00


CCHV=     .600 CEHV=     .800
*SECNO 143340.000

3301 HV CHANGED MORE THAN HVINS

          ** DOWNSTREAM OF HUNTER BLVD BRIDGE **

143340.00     11.99    740.19      0.00      0.00    740.81      .62       .35       .43    732.00
    1980.       99.     1819.       62.       73.     276.       48.      310.       72.     732.00
     1.09      1.36      6.58      1.27       .100     .040      .100      .051   728.20     44.17
  .001459      470.      550.      500.         2        0         0      0.00    55.66     99.83


*SECNO 143390.000

3301 HV CHANGED MORE THAN HVINS

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


143390.00     11.34    739.84      0.00      0.00    743.13      3.28       .19      2.13    756.60
    1980.        0.     1980.        0.        0.     136.         0.      310.       72.     756.60
     1.09       0.00     14.54      0.00       .100     .040      .100      .051   728.50    244.00
  .024756       50.       50.       60.         2        0         0      0.00    12.00    256.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR      COEQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.75      2.50    450.00      12.00      0.00    122.00      0.00    728.50    728.50

*SECNO 143610.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW
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EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
747.00	743.13	0.00	0.	1980.	122.	122.	738.67	755.60

143610.00	17.04	745.54	0.00	0.00	747.00	1.46	3.87	0.00	756.60
1980.	0.	1980.	0.	0.	205.	0.	311.	72.	756.60
1.10	0.00	9.68	0.00	.100	.040	.100	.051	728.50	244.00
.009310	220.	220.	220.	3	0	0	0.00	12.00	256.00

*SECNO 143660.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 45.0 95.0 TYPE= 1 TARGET= 50.000

Difference from COE Creek F.W.

** UPSTREAM OF HUNTER BLVD BRIDGE -CORPORATE LIMITS **

143660.00	19.40	747.60	0.00	0.00	747.79	.19	.03	.76	732.00
1980.	172.	1749.	59.	199.	469.	92.	312.	72.	732.00
1.10	.87	3.73	.64	.100	.040	.100	.051	728.20	45.00
.000231	40.	50.	90.	3	0	0	0.00	50.00	95.00

CCHV= .100 CEHV= .300
*SECNO 145800.000

145800.00	19.75	747.95	0.00	0.00	747.96	.01	.15	.02	736.00
1980.	342.	639.	999.	934.	460.	2237.	393.	80.	736.00
1.81	.37	1.39	.45	.100	.040	.100	.050	728.20	16.39
.000041	1600.	2140.	1400.	2	0	0	0.00	402.34	418.73

CCHV= .600 CEHV= .800
*SECNO 146500.000

3470 ENCROACHMENT STATIONS= 130.0 210.0 TYPE= 1 TARGET= 80.000

146500.00	19.78	747.98	0.00	0.00	748.10	.12	.05	.09	736.00
1980.	206.	1475.	299.	249.	461.	331.	425.	83.	736.00
1.88	.83	3.20	.90	.100	.040	.100	.050	728.20	130.00
.000219	500.	700.	600.	2	0	0	0.00	80.00	210.00

*SECNO 146550.000
3280 CROSS SECTION 146550.00 EXTENDED 5.79 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	ICCNT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 250.0 450.0 TYPE= 1 TARGET= 200.000

146550.00	12.79	747.99	0.00	0.00	748.14	.15	.02	.03	735.20
1980.	462.	857.	662.	479.	185.	599.	426.	83.	735.20
1.88	.96	4.62	1.10	.100	.040	.100	.050	735.20	250.00
.000517	50.	50.	50.	3	0	0	0.00	200.00	450.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.50	750.00	14.50	0.00	85.60	0.00	735.20	735.20

*SECNO 146570.000
PRESS FLOW BECAUSE EGLWC OF 748.14 EXCEEDS 1.5 DEPTH
3280 CROSS SECTION 146570.00 EXTENDED 5.83 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
761.20	748.14	0.00	1743.	237.	86.	85.	741.07	740.70

3470 ENCROACHMENT STATIONS= 250.0 450.0 TYPE= 1 TARGET= 200.000

146570.00	12.83	748.03	0.00	0.00	748.18	.15	.04	0.00	735.20
1980.	463.	854.	663.	483.	186.	603.	427.	83.	735.20
1.88	.96	4.59	1.10	.100	.040	.100	.050	735.20	250.00
.000508	20.	20.	20.	2	0	7	0.00	200.00	450.00

CCHV= .100 CEHV= .300
*SECNO 146620.000
3280 CROSS SECTION 146620.00 EXTENDED 2.14 FEET

3470 ENCROACHMENT STATIONS= 20.0 230.0 TYPE= 1 TARGET= 210.000

146620.00	13.14	748.14	0.00	0.00	748.22	.08	.04	.01	737.00
1980.	768.	304.	909.	694.	61.	732.	428.	84.	737.00
1.89	1.11	5.00	1.24	.140	.040	.140	.050	735.00	20.00
.000910	20.	50.	80.	2	0	0	0.00	210.00	230.00

CCHV= .600 CEHV= .800
*SECNO 146670.000
3280 CROSS SECTION 146670.00 EXTENDED 2.19 FEET

3470 ENCROACHMENT STATIONS= 20.0 230.0 TYPE= 1 TARGET= 210.000

146670.00	13.19	748.19	0.00	0.00	748.27	.08	.05	.00	737.00
1980.	769.	303.	908.	699.	61.	737.	430.	84.	737.00
1.90	1.10	4.97	1.23	.140	.040	.140	.050	735.00	20.00
.000892	50.	50.	50.	2	0	0	0.00	210.00	230.00

*SECNO 146720.000
3280 CROSS SECTION 146720.00 EXTENDED 3.11 FEET

3470 ENCROACHMENT STATIONS= .0 180.0 TYPE= 1 TARGET= 179.999

146720.00	12.91	748.21	0.00	0.00	748.49	.28	.06	.16	736.90
1980.	381.	1115.	484.	405.	199.	513.	432.	84.	737.60
1.90	.94	5.59	.94	.140	.040	.140	.050	735.30	.00
.000862	40.	50.	100.	2	0	0	0.00	180.00	180.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	2.50	330.00	16.70	0.00	100.00	0.00	735.30	735.30

*SECNO 146730.000
PRESS FLOW BECAUSE EGLWC OF 748.49 EXCEEDS 1.5 DEPTH
6870 D.S. ENERGY OF 748.49 HIGHER THAN COMPUTED ENERGY OF 748.41
3280 CROSS SECTION 146730.00 EXTENDED 3.12 FEET

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
757.58	748.49	0.00	1689.	291.	100.	119.	742.41	742.20

3470 ENCROACHMENT STATIONS= .0 180.0 TYPE= 1 TARGET= 179.999

146730.00	12.92	748.22	0.00	0.00	748.49	.27	0.00	0.00	736.90
1980.	378.	1103.	499.	405.	199.	514.	432.	84.	737.60
1.91	.93	5.53	.97	.140	.040	.140	.050	735.30	.00
.000843	10.	10.	10.	2	0	7	0.00	180.00	180.00

CCHV= .100 CEHV= .300
*SECNO 146780.000

3470 ENCROACHMENT STATIONS= 130.0 330.0 TYPE= 1 TARGET= 200.000

146780.00	11.44	748.44	0.00	0.00	748.53	.10	.03	.02	742.00
1980.	125.	1348.	507.	184.	447.	704.	434.	84.	742.00
1.91	.68	3.01	.72	.140	.045	.140	.050	737.00	130.00
.000461	50.	50.	50.	2	0	0	0.00	200.00	330.00

CCHV= .600 CEHV= .800
*SECNO 147850.000

** DOWNSTREAM OF 16 MILE ROAD BRIDGE -CORPORATE LIMITS **

147850.00	11.76	748.76	0.00	0.00	748.79	.03	.21	.04	742.00
1980.	352.	911.	717.	632.	463.	1254.	465.	89.	742.00
2.11	.56	1.97	.57	.100	.040	.100	.050	737.00	36.22
.000148	900.	1070.	500.	2	0	0	0.00	410.11	446.33

*SECNO 147900.000

3301 HV CHANGED MCRE THAN HVINS

3470 ENCROACHMENT STATIONS= 120.0 470.0 TYPE= 1 TARGET= 350.000

147900.00	9.56	748.36	0.00	0.00	750.46	2.10	.02	1.65	740.80
1980.	0.	1980.	0.	0.	170.	0.	466.	90.	741.00
2.11	.08	11.62	.08	.150	.030	.150	.050	738.80	290.80
.003914	50.	50.	50.	2	0	0	0.00	19.40	310.20

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.21	2.50	0.00	16.40	0.00	86.00	0.00	738.80	738.80

*SECNO 147960.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
766.55	750.46	0.00	1301.	679.	86.	109.	745.46	748.46

3470 ENCROACHMENT STATIONS= 120.0 470.0 TYPE= 1 TARGET= 350.000

147960.00	9.65	748.45	0.00	0.00	750.51	2.06	.04	0.00	740.80
1980.	0.	1980.	0.	0.	172.	0.	466.	90.	741.00
2.11	.08	11.50	.08	.150	.030	.150	.050	738.80	290.80
.003782	60.	60.	60.	4	0	6	0.00	19.40	310.20

CCHV= .100 CEHV= .300
*SECNO 148000.000

3301 HV CHANGED MORE THAN HV INS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VRCB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
148000.00	12.69	750.69	0.00	0.00	750.72	.03	.01	.20	744.00
1980.	372.	556.	1052.	321.	334.	934.	468.	90.	744.00
2.13	1.16	1.66	1.13	.030	.030	.030	.050	738.00	44.36
.000060	40.	40.	100.	3	0	0	0.00	306.02	350.38
*SECNO 148450.000									
148450.00	12.72	750.72	0.00	0.00	750.74	.03	.02	.00	744.00
1980.	373.	554.	1053.	323.	335.	938.	482.	93.	744.00
2.21	1.15	1.65	1.12	.030	.030	.030	.049	738.00	44.28
.000059	400.	450.	350.	2	0	0	0.00	306.45	350.73

CCHV= .600 CEHV= .800
*SECNO 149500.000

** DOWNSTREAM OF GTWRR BRIDGE **

149500.00	12.76	750.76	0.00	0.00	750.79	.03	.05	.00	744.00
1980.	373.	552.	1055.	326.	337.	948.	511.	98.	744.00
2.39	1.14	1.64	1.11	.030	.030	.030	.049	738.00	44.12
.000058	800.	1050.	700.	2	0	0	0.00	307.34	351.46

*SECNO 149550.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

149550.00	9.78	750.29	0.00	0.00	752.75	2.47	.01	1.95	748.78
1980.	14.	1966.	0.	3.	156.	0.	512.	98.	784.78
2.39	4.90	12.64	0.00	.030	.030	.030	.049	740.51	87.36
.015641	40.	50.	100.	3	0	0	0.00	19.89	108.75

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.33	2.50	0.00	16.00	0.00	129.00	0.00	740.51	740.51

*SECNO 149720.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
758.81	752.75	0.00	0.	1980.	129.	132.	748.73	784.18

149720.00	17.93	758.44	0.00	0.00	758.81	.37	6.06	0.00	748.78
1980.	644.	1336.	0.	120.	286.	0.	514.	98.	784.78
2.40	5.35	4.67	0.00	.030	.030	.030	.049	740.51	66.35
.001570	170.	170.	170.	2	0	0	0.00	40.90	108.75

CCHV= .100 CEHV= .300
*SECNO 149740.000
3280 CROSS SECTION 149740.00 EXTENDED 5.03 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

** UPSTREAM OF GTWRR BRIDGE -CORPORATE LIMITS **

149740.00	17.45	758.85	0.00	C.CC	758.85	.01	.00	.04	750.90
1980.	384.	216.	1380.	1021.	161.	2974.	515.	98.	750.90
2.41	.38	1.34	.46	.100	.030	.100	.049	741.40	76.36
.000066	20.	20.	20.	2	0	0	0.00	623.64	700.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU CR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.55	2.50	0.00	9.40	0.00	49.00	0.00	741.40	741.40

*SECNO 149780.000
3280 CROSS SECTION 149780.00 EXTENDED 5.09 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
798.15	758.85	0.00	1912.	79.	49.	62.	748.00	750.50

149780.00	17.5C	758.90	0.00	0.00	758.91	.01	.06	0.00	750.90
1980.	386.	215.	1379.	1035.	162.	2999.	518.	99.	750.90
2.43	.37	1.33	.46	.100	.030	.100	.049	741.40	75.25
.000064	40.	40.	40.	0	0	6	0.00	624.75	700.00

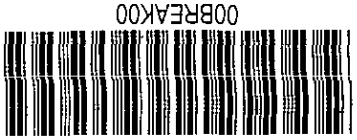


1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: RIVER ROUGH

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS



PROJECT: HUD-FIA-H-4705 Bloomfield Twp. FIS, Oakland Co., MI

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

WATERCOURSE: River Rouge

STUDY LIMITS: Hunter Blvd. to Adams Rd.
profile shows the Grand Trunk RR d/s of Kensington Rd
Potter one mile upstream

DATE OF AERIAL SURVEY: 11/78 Abrams

DATE OF LAND SURVEY: 2/79 - 10/79 MPS Field Crew

SOURCE OF FLOWS: Discharges were computed by MP&S/SH&G and approved by MDNR on 5/29/79

TOPOGRAPHIC INFORMATION: USGS topographic maps; 10' contours.
1969 2' contour interval, 1"=200' maps by Abrams
METHOD OF ANALYSIS: HEC-2 water surface profile computer program

VARIABLES AND COEFFICIENTS:
Channel "n" .030-.065
Overbank "n" .030-.130
n values thru bridges See XKOR Table
Contraction Coefficients .2-.5
Expansion Coefficients .4-1.0

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return.

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

(Note: CX #4 on IPlot)

REFERENCES:

1. "Hec-2 Water-Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.
2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.
3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey Water Supply Paper 1849.
4. "Floodway Determination using computer Program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.

HIGH WATER MARKS AND CALIBRATION

No high water data was found for this reach of study.

Starting Conditions

The Birmingham FIS is available on the River Rouge downstream of the GTWRR bridge. Therefore, the Birmingham FIS hydraulics were used for the reach between Hunter Blvd. and Quarton Rd. and also for a starting elevation downstream of the GTWRR bridge.

100 yr d/s of Railroad elev 750.7
50 yr = 750.2
10 yr 749.4
500 yr = 751.5

Designated Floodway

The floodway delineation was arrived at after studying 1) topographic information to locate any structures or other obstructions and 2) cross-section plots. The cross-sections were modified to exclude ineffective overbank areas, based on 1) velocity considerations 2) the presence of structures and 3) expansion and contraction of 1:4 and 1:1 respectively near bridges (See enclosed 1" = 1000' plan for floodway delineation).

Computer Outputs

Enclosed are complete computer outputs for (i) 100 year natural (ii) 10, 50 and 500 year flood profiles and (iii) sensitivity analysis for your review.

Remarks

The River Rouge in this reach is quite meandering. Therefore, roughnesses have been increased approximately 30% on the overbanks. In addition, lengths were used along the channel.

Starting elevations were taken from the Birmingham FIS downstream of the GTWRR bridge. Because of slightly different flows and XKOR's, the elevations upstream of the bridge are different from those on the Birmingham hydraulic runs.

There are numerous footbridges and small weirs in this reach. However, because the depth of water is large in the channel, they are expected to provide very little loss. Hand calculations were run and the losses were found to be approximately 0.1 foot or less for the 100 year event. Therefore, they were not input into the model. Copies of the calculations are enclosed.

COMMUNITY Bloomington, Ind.
WATERSHED:

TABLE 1 - [illegible]

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

HUD-FIA LETTER	SECTION NO.	SECTION TYPE	REMARKS
	.9	1	Birmingham FIS X-sect 149500
	.95	3	R(1.01)
A	1.01	2	Confined for pressure flow
B	1.8	2	Partly modified for topwidth. Closeness of 2 bridges - 1 pressure 1 - weir makes compatibility of topwidths unpractical, therefore shock losses taken high.
	1.82	3	R(2.02)
C	2.02	2	Part of right side of weir ineffective
D	2.8	2	Topwidth considerations from d/s bridges.
E	3.0	1	
F	4.0	1	
G	5.0	1	
H	6.0	1	
	6.1	3	R(6.0)
I	7.2	2	Topwidth considerations from u/s Channel from 2' topo map and 7.20. Bridge info surveyed. Also topwidth considerations because of structures u/s of Adams.
	7.22, 7.24	4	Same as 7.22.
	7.26, 7.28		
J	7.30, 7.32	4	
	7.42, 7.44	4	Channel from cross-section 7.8, otherwise same as above.
	7.46, 7.48		
K	7.80	2	Topwidth considerations just d/s

X-5 losses

From computer output
get ACH (area)
QCH (discharge)

Compute $h_{v_c} = \left(\frac{QCH}{ACH}\right)^2 / 64.4$

$h_{v_b} = \left(\frac{QCH}{ACH - A1}\right)^2 / 64.4$

where A1 = Area of footbridge (from table)

$\Delta h = 1.5 (h_{v_b} - h_{v_c})$

TMC
11/79

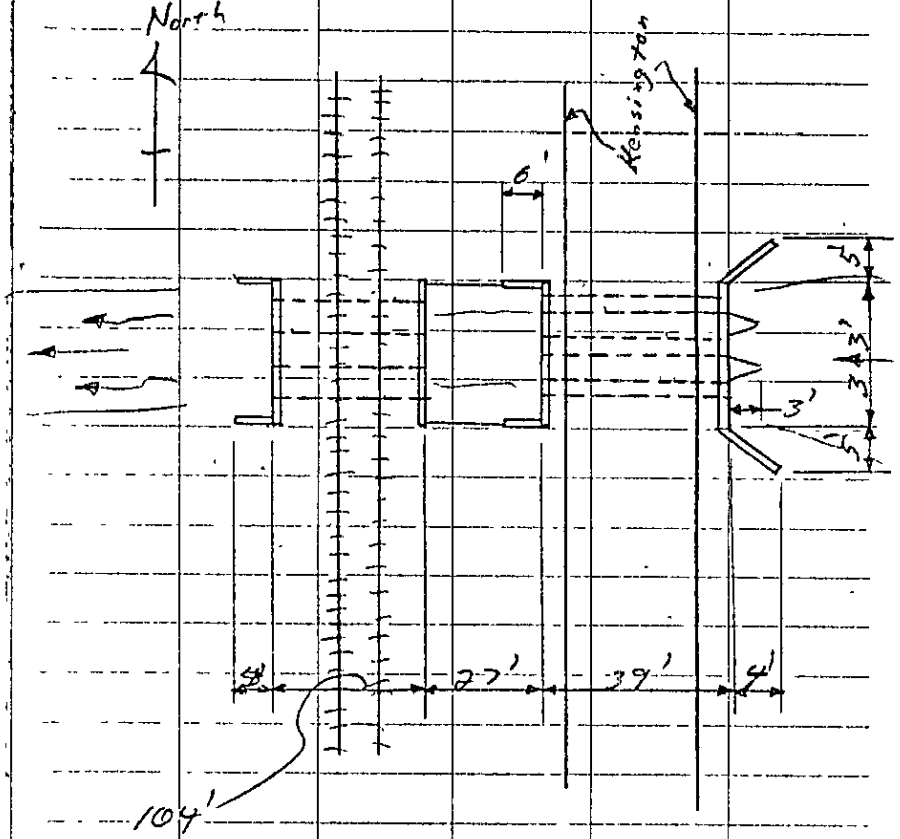
		Area (of Footbr.)				
	2 E A	63		.0072	.0062	
	2 E B	6		.0065	0062	
	3 A	53	219/554	.1729	.0994	.1103
	3 B	30	" "	.1554	.0994	.051
219-55	4 A	7	234/333	.0334	.0314	.003
	5 A	9	206/590	.1392	.1273	.0017
	5 B	17	206/590	.1513	.1273	.0117
	5 C	6		.1351		.0117
	6 A	6	" "	.1351		.0117
38	6 B	38		.1915		.0963
14	6 E	14	205/693	.2044	.1775	.0370
13	6 C	13		.2022		.0370
10	6 D	10	219/1111	.4388	.3996	.0588
9		9		.4346		.0525

Bloomfield Twp
Oakland Co
3-5-7 River Rouge D. Coby

476/13

Bridge Detail #3

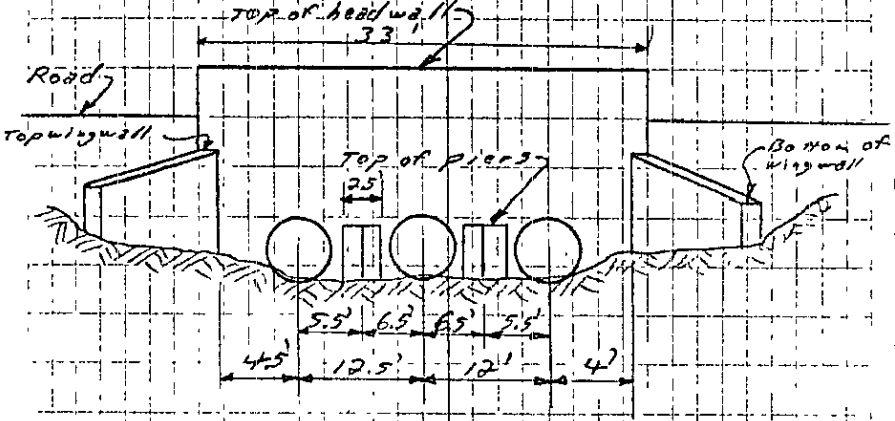
Bridge under Kensington & RR tracks
North Rouge Branch



Coby - 35°

N. Shubert T.
D. Jeffries Ø

Looking downstream at bridge under Kensington Road



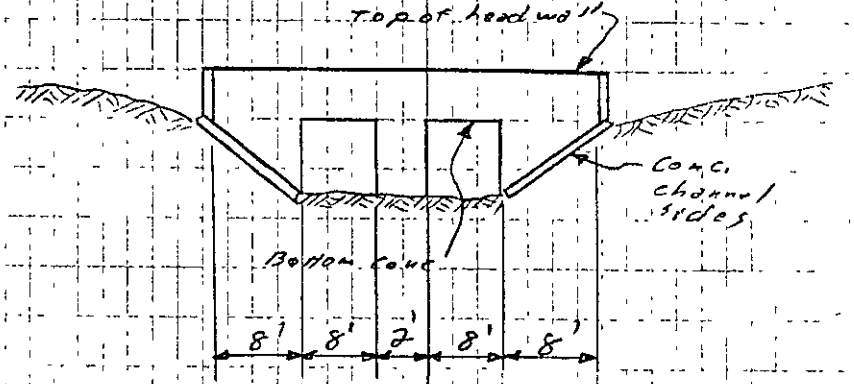
Culverts are 6' DIA CMP
on each side & middle
culvert is 9' Dia CMP

Bridge Detail #3 Cont

2-5-79

Sta	+S	HI	-S	Elev
BM 24-15				771.56
	0.54	772.10		
TP			11.57	760.53
	1.16	761.69		
TP			9.37	752.32
	5.38	757.7		

Looking downstream at bridge under R.R. tracks



Description

"PERFECT"
10 X 10
EUGENE DIE
PRINTED IN U.S.A.

STREAM ELEVATION IN FEET (MSL)

735 740 745 750 755 760 765 770 775

D/S LIMIT OF STUDY

GRAND TRUNK R.R.

KENSINGTON RD.

FOOTBRIDGE

WEIR

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE

WEIR

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE

FOOTBRIDGE ADAMS RD

TROY CORPORATE LIMITS

A B C D E F G H I J K

1000 2000 3000 4000 5000 6000 7000

STREAM DISTANCE IN FEET (MS)

LEGEND

500 YEAR FLOOD

100 YEAR FLOOD

50 YEAR FLOOD

10 YEAR FLOOD

STREAM BED

CROSS SECTION LOCATION

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

FLOOD PROFILES

RIVER RIDGE

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: RIVER ROUGE

4) DOCUMENT TYPE: ORIGINAL SUBMISSION
USE REVISED FLOODWAY

00BREAK00

JOB NO. UM4888 UNIVERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 16:07:42 03-13-80

Rouge

Original Floodway

Run as submitted

by COE

ORIGINAL RUN

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

```
MM          MM   NN          NN   EEEEEEEEEEEE  TTTTTTTTTTT
MMM        MMM   NNN         NN   EEEEEEEEEEEE  TTTTTTTTTTT
MMMM      MMMM   NNNN        NN   EE                 TT
MM MM    MM MM   NN NN       NN   EE                 TT
MM  MMMM  MM  MM  NN  NN     NN   EE                 TT
MM   MM   MM  MM  NN   NN    NN   EEEEEEEE           TT
MM        MM  MM  NN    NN   NN   EEEEEEEE           TT
MM        MM  MM  NN     NN NN   EE                 TT
MM        MM  MM  NN      NNNN   EE                 TT
MM        MM  MM  NN       NNN   EE                 TT
MM        MM  MM  NN        NN   EEEEEEEEEEEE       TT
MM        MM  MM  NN         N   EEEEEEEEEEEE       TT
```

```
XX        XX   SSSSSSSSS   NN         NN  LL
XX        XX  SSSSSSSSSSS  NNN        NN  LL
 XX      XX   SS        SS  NNNN       NN  LL
  XX    XX    SS            NN NN      NN  LL
   XX  XX     SSS           NN  NN     NN  LL
    XXXX       SSSSSSSSS    NN   NN    NN  LL
    XXXX        SSSSSSSSS   NN    NN   NN  LL
   XX  XX             SSS   NN     NN NN  LL
  XX    XX             SS   NN      NNNN  LL
 XX      XX   SS        SS  NN       NNN  LL
XX        XX  SSSSSSSSSSS  NN        NN  LLLLLLLLLLL
XX        XX   SSSSSSSSS   NN         N  LLLLLLLLLLL
```

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

Corresp

```
C
T1      FLOOD INSURANCE STUDY **** 31 AUG 1978 ****
T2      CITY OF BIRMINGHAM    100 YR. NATURAL
T3      MAIN ROUGE
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.000000	0.00	.5	2103.	702.770	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38.000	39.000	40.000	41.000	42.000	43.000	1.000	4.000	27.000	28.000
	200.000	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
NC	.150	.150	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	127875.000	16.000	363.000	406.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	712.700	0.000	701.300	29.000	699.700	63.000	700.100	163.000	698.900	263.000
GR	699.700	363.000	696.600	370.000	693.700	380.000	693.000	393.000	695.400	403.000
GR	699.700	406.000	698.600	463.000	698.600	563.000	700.900	663.000	702.800	738.000
GR	708.100	757.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	130100.000	10.000	130.000	170.000	2225.000	2225.000	2225.000	0.000	0.000	0.000
GR	715.600	0.000	713.000	30.000	709.500	70.000	703.000	130.000	699.000	140.000
GR	698.500	150.000	699.500	160.000	703.000	170.000	704.600	200.000	715.900	300.000

** DOWNSTREAM OF NORTHLAWN DRIVE BRIDGE **

X1	132184.000	14.000	90.000	123.000	2084.000	2084.000	2084.000	0.000	0.000	0.000
GR	720.000	0.000	710.600	70.000	708.200	80.000	708.000	90.000	703.000	95.000
GR	702.100	100.000	702.600	116.000	707.000	123.000	706.600	170.000	706.500	200.000
GR	706.100	220.000	706.500	260.000	710.200	290.000	720.000	640.000	0.000	0.000
X1	132284.000	13.000	76.000	127.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	718.200	0.000	715.800	50.000	714.700	76.000	702.000	76.000	701.700	86.000
GR	701.800	97.000	701.700	117.000	702.000	125.000	702.300	127.000	713.000	127.000
GR	712.700	150.000	712.000	170.000	711.500	200.000	0.000	0.000	0.000	0.000
SB	0.000	1.580	2.600	0.000	51.000	0.000	408.000	0.000	701.700	701.700

X1	132316.000	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	709.700	711.500	0.000	0.000	0.000	0.000	0.000
BT	7.000	0.000	718.200	718.200	50.000	715.800	715.800	76.000	714.700	709.700
BT	127.000	713.000	709.700	150.000	712.700	712.700	170.000	712.000	712.000	200.000
BT	711.500	711.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF NORTHLAWN DRIVE BRIDGE **

X1	132370.000	14.000	90.000	123.000	54.000	54.000	54.000	0.000	0.000	0.000
GR	720.000	0.000	710.600	70.000	708.200	80.000	708.000	90.000	703.000	95.000
GR	702.100	100.000	702.600	116.000	707.000	123.000	706.600	170.000	706.500	200.000
GR	706.100	220.000	706.500	260.000	710.200	290.000	720.000	640.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF LINCOLN ROAD BRIDGE **

X1	133675.000	10.000	345.000	370.000	1180.000	1100.000	1305.000	0.000	0.000	0.000
GR	720.000	0.000	710.000	300.000	710.500	335.000	709.000	345.000	706.000	350.000
GR	705.300	360.000	707.000	370.000	709.000	400.000	717.500	420.000	717.500	700.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000

X1	133725.000	13.000	61.500	92.500	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	716.000	716.000	0.000
GR	727.000	0.000	723.600	30.000	723.300	61.500	706.100	61.500	705.800	65.000
GR	705.300	71.000	705.300	77.000	705.900	83.000	708.000	89.000	708.400	92.500
GR	722.000	92.500	716.300	350.000	718.000	400.000	0.000	0.000	0.000	0.000
SB	0.000	1.610	2.500	0.000	31.000	0.000	275.000	0.000	0.000	0.000

X1	133755.000	0.000	0.000	0.000	30.000	30.000	30.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	716.000	716.300	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	716.300	716.300	0.000
BT	11.000	0.000	727.000	727.000	30.000	723.600	723.600	61.500	723.300	713.300
BT	65.000	723.100	714.700	71.000	722.900	715.700	77.000	722.700	716.000	83.000
BT	722.500	715.700	89.000	722.000	714.700	92.500	722.000	713.300	350.000	716.300
BT	716.300	400.000	718.000	718.000	0.000	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF LINCOLN ROAD BRIDGE **

X1	133805.000	10.000	345.000	370.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	720.000	0.000	710.000	300.000	710.500	335.000	709.000	345.000	706.000	350.000
GR	705.300	360.000	707.000	370.000	709.000	400.000	717.500	420.000	717.500	700.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	135840.000	12.000	255.000	285.000	1600.000	1470.000	2035.000	0.000	0.000	0.000
GR	730.000	0.000	720.000	60.000	718.000	90.000	716.000	190.000	713.500	200.000
GR	713.500	255.000	711.000	260.000	710.600	280.000	714.000	285.000	716.000	430.000
GR	720.000	440.000	730.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF MAPLE STREET BRIDGE **

X1	138170.000	12.000	325.000	360.000	1730.000	1530.000	2330.000	0.000	0.000	0.000
GR	731.000	0.000	727.000	170.000	726.000	265.000	723.500	300.000	720.000	325.000

```
GR     715.600     340.000     715.600     350.000     718.500     360.000     720.500     400.000     726.000     425.000
GR     728.500     490.000     731.000     680.000       0.000       0.000       0.000       0.000       0.000       0.000

X1 138220.000      13.000      58.000     103.000      90.000      20.000      50.000       0.000       0.000       0.000
GR     729.000       0.000     727.000      58.000     715.500      58.000     714.500      68.000     714.800      73.000
GR     714.800      83.000     714.200      88.000     714.400      93.000     715.700      98.000     715.700     103.000
GR     727.000     103.000     726.400     185.000     730.000     350.000       0.000       0.000       0.000       0.000
SB       0.000       1.710       2.500     350.000      45.000       0.000     315.000       0.000       0.000       0.000

X1 138280.000       0.000       0.000       0.000      60.000      60.000      60.000       1.000       0.000       0.000
X2       0.000       0.000       1.000     722.360     726.400       0.000       0.000       0.000       0.000       0.000
X3      10.000       0.000       0.000       0.000       0.000       0.000       0.000     727.000     727.000       0.000
NC       0.000       0.000       0.000        .100        .300       0.000       0.000       0.000       0.000       0.000

          ** UPSTREAM OF MAPLE STREET BRIDGE **

X1 138330.000      12.000     325.000     360.000      40.000      70.000      50.000       0.000       0.000       0.000
GR     731.000       0.000     727.000     170.000     726.000     265.000     723.500     300.000     720.000     325.000
GR     715.600     340.000     715.600     350.000     718.500     360.000     720.500     400.000     726.000     425.000
GR     728.500     490.000     731.000     680.000       0.000       0.000       0.000       0.000       0.000       0.000
NC       0.000       0.000       0.000        .600        .800       0.000       0.000       0.000       0.000       0.000
QT       2.000    1980.000    1980.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

          ** DOWNSTREAM OF BALDWIN STREET BRIDGE **

X1 138460.000      11.000     320.000     360.000      60.000     160.000     130.000       0.000       0.000       0.000
GR     740.000       0.000     728.000     150.000     728.000     200.000     726.000     230.000     723.500     320.000
GR     717.500     325.000     716.800     330.000     718.000     340.000     723.000     360.000     728.000     500.000
GR     731.000     630.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

X1 138510.000      10.000     125.000     143.500      60.000      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     722.800     722.800       0.000
GR     726.700       0.000     724.700      72.000     724.300     125.000     717.700     125.000     715.800     131.000
GR     715.400     136.000     716.000     143.500     724.300     143.500     723.900     170.000     726.000     272.000
SB       0.000       1.590       2.500     272.000      18.500       0.000     126.000       0.000       0.000       0.000

X1 138530.000       0.000       0.000        .005      20.000      20.000      20.000       1.000       0.000       0.000
X2       0.000       0.000       1.000     722.800     723.900       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     724.300     724.300       0.000
NC       0.000       0.000       0.000        .100        .300       0.000       0.000       0.000       0.000       0.000

          ** UPSTREAM OF BALDWIN STREET BRIDGE **

X1 138580.000      11.000     320.000     360.000      30.000     110.000      50.000       0.000       0.000       0.000
GR     740.000       0.000     728.000     150.000     728.000     200.000     726.000     230.000     723.500     320.000
GR     717.500     325.000     716.800     330.000     718.000     340.000     723.000     360.000     728.000     500.000
GR     731.000     630.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
NC       0.000       0.000       0.000        .600        .800       0.000       0.000       0.000       0.000       0.000

          ** DOWNSTREAM OF WILLITS STREET BRIDGE **

X1 139645.000      10.000     170.000     210.000    1100.000     800.000    1065.000       0.000       0.000       0.000
GR     740.000       0.000     730.000      35.000     723.000     130.000     722.500     170.000     719.500     175.000
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GR	719.500	200.000	723.500	210.000	727.000	380.000	735.000	410.000	740.000	460.000
X1	139695.000	30.000	119.000	151.000	60.000	80.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	728.300	728.300	0.000
GR	734.000	0.000	731.800	50.000	730.700	104.000	728.800	104.000	721.800	114.000
GR	720.500	119.000	720.400	120.000	720.000	122.000	719.400	124.000	719.400	126.000
GR	719.400	128.000	719.400	130.000	719.400	132.000	719.400	133.000	719.400	137.000
GR	719.400	138.000	719.400	140.000	719.400	142.000	719.400	144.000	720.000	146.000
GR	720.500	148.000	721.000	150.000	721.000	151.000	721.600	154.000	727.100	164.000
GR	729.000	166.000	731.000	166.000	731.500	200.000	733.000	250.000	735.000	300.000
SB	0.000	1.590	2.500	0.000	27.000	0.000	176.000	0.000	719.900	719.400
X1	139745.000	0.000	0.000	0.000	50.000	50.000	50.000	1.000	.500	0.000
X2	0.000	0.000	1.000	728.300	730.700	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	730.700	730.700	0.000
BT	28.000	0.000	734.500	734.500	50.000	732.300	732.300	104.000	731.200	731.200
BT	114.000	730.700	722.300	119.000	730.700	720.900	120.000	730.700	723.500	122.000
BT	730.700	726.500	124.000	730.700	728.000	126.000	730.700	728.300	128.000	730.700
BT	728.000	130.000	730.700	727.000	132.000	730.700	725.000	133.000	730.700	719.900
BT	137.000	730.700	719.900	138.000	730.700	724.500	140.000	730.700	727.000	142.000
BT	730.700	728.000	144.000	730.700	728.300	146.000	730.700	728.000	148.000	730.700
BT	727.000	150.000	730.700	725.000	151.000	730.700	721.500	154.000	730.700	722.100
BT	164.000	730.700	727.600	166.000	730.700	729.500	200.000	732.000	732.000	250.000
BT	733.500	733.500	300.000	735.500	735.500	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF WILLITS BRIDGE **

X1	139795.000	10.000	170.000	210.000	40.000	90.000	50.000	0.000	0.000	0.000
GR	740.000	0.000	730.000	35.000	723.000	130.000	722.500	170.000	719.500	175.000
GR	719.500	200.000	723.500	210.000	727.000	380.000	735.000	410.000	740.000	460.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	140000.000	9.000	160.000	192.000	100.000	205.000	300.000	0.000	0.000	0.000
GR	740.000	0.000	730.000	60.000	723.200	160.000	720.000	167.000	720.000	175.000
GR	720.500	185.000	724.000	192.000	730.000	290.000	740.000	385.000	0.000	0.000
X1	141580.000	12.000	70.000	100.000	1680.000	1580.000	1610.000	0.000	0.000	0.000
GR	747.000	0.000	729.500	45.000	728.500	70.000	727.500	75.000	725.200	80.000
GR	726.000	95.000	729.000	100.000	734.000	110.000	735.500	120.000	738.000	245.000
GR	738.000	340.000	742.000	520.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	141800.000	0.000	0.000	0.000	300.000	200.000	220.000	0.000	.500	0.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF WOODWARD AVENUE BRIDGE **

X1	141875.000	0.000	0.000	0.000	80.000	80.000	75.000	0.000	.500	0.000
NC	.150	.150	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	141925.000	10.000	126.100	144.600	30.000	70.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	217.000	0.000	0.000	0.000	0.000
GR	741.000	0.000	737.000	126.000	725.100	126.100	724.100	130.000	727.200	144.600
GR	736.500	144.700	734.500	200.000	733.500	300.000	732.500	350.000	733.500	400.000

SB	0.000	1.790	2.500	0.000	18.500	0.000	148.000	0.000	724.100	724.100
X1	142025.000	0.000	0.000	0.000	100.000	100.000	100.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	733.500	734.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	217.000	0.000	0.000	0.000	0.000
BT	8.000	0.000	741.000	741.000	126.000	737.000	737.000	126.100	740.500	733.500
BT	130.000	740.500	733.500	144.600	740.500	733.500	144.700	736.500	736.500	200.000
BT	734.500	734.500	210.000	744.500	744.500	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF WOODWARD AVENUE BRIDGE **

X1	142075.000	13.000	66.000	85.100	60.000	40.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	17.000	0.000	104.000	0.000	0.000	0.000	0.000
GR	740.000	0.000	737.500	12.000	733.200	17.000	731.800	65.000	733.800	66.000
GR	727.200	66.100	727.200	74.000	726.500	84.000	727.200	85.000	733.900	85.100
GR	732.000	86.000	735.300	104.000	740.000	264.000	0.000	0.000	0.000	0.000
X1	142115.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	45.000	0.000	85.100	0.000	0.000	0.000	0.000
X1	142315.000	10.000	49.000	77.100	210.000	190.000	200.000	0.000	0.000	0.000
GR	740.700	0.000	739.300	22.000	731.300	40.000	729.600	49.000	728.000	49.000
GR	727.100	67.000	728.000	77.000	734.900	77.100	733.300	78.000	734.200	105.000
NC	.100	.100	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	142790.000	12.000	26.000	52.000	470.000	430.000	475.000	0.000	0.000	0.000
GR	742.100	0.000	740.100	16.000	732.500	26.000	729.000	29.000	728.800	38.000
GR	729.000	47.000	731.800	52.000	732.600	124.000	734.400	130.000	734.200	136.000
GR	733.700	136.100	736.000	230.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF HUNTER BLVD BRIDGE **

X1	143340.000	7.000	62.000	88.000	470.000	500.000	550.000	0.000	0.000	0.000
GR	750.000	0.000	742.100	40.000	732.000	62.000	728.200	74.000	728.900	84.000
GR	732.000	88.000	750.000	114.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	143390.000	8.000	244.000	256.000	50.000	60.000	50.000	0.000	0.000	0.000
GR	756.000	0.000	755.600	50.000	755.600	100.000	756.600	244.000	728.500	244.000
GR	728.500	256.000	756.600	256.000	757.800	450.000	0.000	0.000	0.000	0.000
SB	0.000	1.750	2.500	450.000	12.000	0.000	122.000	0.000	0.000	0.000
X1	143610.000	0.000	0.000	0.000	220.000	220.000	220.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	738.670	755.600	0.000	0.000	0.000	0.000	0.000

** UPSTREAM OF HUNTER BLVD BRIDGE -CORPORATE LIMITS **

X1	143660.000	7.000	62.000	88.000	40.000	90.000	50.000	0.000	0.000	0.000
GR	750.000	0.000	742.100	40.000	732.000	62.000	728.200	74.000	728.900	84.000
GR	732.000	88.000	750.000	114.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	145800.000	10.000	90.000	110.000	1600.000	1400.000	2140.000	0.000	0.000	0.000
GR	756.000	0.000	740.000	60.000	738.000	90.000	734.000	100.000	732.000	102.000
GR	734.000	105.000	736.000	110.000	738.000	190.000	740.000	205.000	750.000	240.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000
X1	146500.000	0.000	0.000	0.000	500.000	600.000	700.000	1.000	0.000	0.000
X1	146550.000	17.000	342.750	357.250	50.000	50.000	50.000	0.000	0.000	0.000
GR	751.100	0.000	747.600	50.000	743.800	150.000	742.600	250.000	742.600	332.700
GR	744.690	332.750	744.690	342.700	735.200	342.750	735.200	357.250	744.690	357.300
GR	744.590	367.300	741.200	367.350	741.200	420.000	740.900	450.000	740.700	550.000
GR	741.400	650.000	742.200	750.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.590	2.500	750.000	14.500	0.000	85.600	0.000	0.000	0.000
X1	146570.000	0.000	0.000	0.000	20.000	20.000	20.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	741.070	740.700	0.000	0.000	0.000	0.000	0.000
BT	17.000	0.000	751.100	751.100	50.000	747.600	747.600	150.000	743.800	743.800
BT	250.000	742.600	742.600	332.700	742.600	742.600	332.750	744.690	744.690	342.700
BT	744.690	744.690	342.750	744.690	741.070	357.250	744.690	741.070	357.300	744.690
BT	744.690	367.300	744.690	744.690	367.350	741.200	741.200	420.000	741.200	741.200
BT	450.000	740.900	740.900	550.000	740.700	740.700	650.000	741.400	741.400	750.000
BT	742.200	742.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.140	.140	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	146620.000	10.000	135.000	140.000	20.000	80.000	50.000	0.000	0.000	0.000
GR	750.000	0.000	744.000	30.000	742.000	100.000	737.000	135.000	735.000	137.000
GR	737.000	140.000	740.000	160.000	742.000	320.000	744.000	410.000	746.000	560.000
NC	0.000	0.000	0.000	.600	.800	0.000	0.000	0.000	0.000	0.000
X1	146670.000	0.000	0.000	0.000	50.000	50.000	50.000	1.000	0.000	0.000
X1	146720.000	12.000	71.650	88.350	40.000	100.000	50.000	0.000	0.000	0.000
GR	742.700	0.000	742.200	30.000	743.090	71.600	736.900	71.650	735.300	80.000
GR	737.600	88.350	743.090	88.400	742.400	130.000	742.600	180.000	742.900	240.000
GR	744.300	280.000	745.100	330.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.540	2.500	330.000	16.700	0.000	100.000	0.000	0.000	0.000
X1	146730.000	0.000	0.000	0.000	10.000	10.000	10.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	742.410	742.200	0.000	0.000	0.000	0.000	0.000
BT	12.000	0.000	742.700	742.700	30.000	742.200	742.200	71.600	743.090	743.090
BT	71.650	743.090	742.410	80.000	743.090	742.410	88.350	743.090	742.410	88.400
BT	743.090	743.090	130.000	742.400	742.400	180.000	742.600	742.600	240.000	742.900
BT	742.900	280.000	744.300	744.300	330.000	745.100	745.100	0.000	0.000	0.000
NC	.140	.140	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	146780.000	10.000	160.000	210.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	756.000	0.000	744.000	60.000	742.000	160.000	738.000	180.000	737.000	185.000
GR	738.000	190.000	742.000	210.000	744.000	420.000	748.000	435.000	750.000	465.000
NC	.100	.100	.040	.600	.800	0.000	0.000	0.000	0.000	0.000

** DOWNSTREAM OF 16 MILE ROAD BRIDGE -CORPORATE LIMITS **

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X1 147850.000     0.000     0.000     0.000   900.000   500.000  1070.000     1.000     0.000     0.000
NC      .150      .150      .030     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 147900.000    23.000   290.900   310.100    50.000    50.000    50.000     0.000     0.000     0.000
GR    753.220     0.000   750.870   100.000   749.190   200.000   748.460   290.800   740.800   290.900
GR    739.400   291.400   739.200   292.000   738.800   295.000   739.200   298.000   739.400   298.600
GR    740.800   299.100   741.000   301.900   739.600   302.600   739.200   303.000   739.000   306.000
GR    739.200   309.000   739.600   309.600   741.000   310.100   748.460   310.200   748.870   400.000
GR    749.950   500.000   751.870   600.000   753.150   650.000     0.000     0.000     0.000     0.000
SB      0.000     2.210     2.500     0.000    16.400     0.000    86.000     0.000     0.000     0.000

X1 147960.000     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   745.460   748.460     0.000     0.000     0.000     0.000     0.000
BT     23.000     0.000   753.220   753.220   100.000   750.870   750.870   200.000   749.190   749.190
BT    290.800   748.460   748.460   290.900   748.460   740.800   291.400   748.460   743.000   292.000
BT    748.460   744.000   295.000   748.460   745.460   298.000   748.460   744.000   298.600   748.460
BT    743.000   299.100   748.460   740.800   301.900   748.460   741.000   302.400   748.460   743.000
BT    303.000   748.460   744.000   306.000   748.460   745.370   309.000   748.460   744.000   309.600
BT    748.460   743.000   310.100   748.460   741.000   310.200   748.460   748.460   400.000   748.870
BT    748.870   500.000   749.950   749.950   600.000   751.870   751.870   650.000   753.150   753.150
NC      .030      .030      .030      .100      .300     0.000     0.000     0.000     0.000     0.000

X1 148000.000    11.000   110.000   145.000    40.000   100.000    40.000     0.000     0.000     0.000
GR    764.000     0.000   746.000    60.000   744.000   110.000   740.000   120.000   738.000   125.000
GR    740.000   130.000   744.000   145.000   746.000   280.000   754.000   400.000   756.000   530.000
GR    762.000   640.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 148450.000     0.000     0.000     0.000   400.000   350.000   450.000     0.000     0.000     0.000
NC      0.000     0.000     0.000      .600      .800     0.000     0.000     0.000     0.000     0.000

          ** DOWNSTREAM OF GTWRR BRIDGE **

X1 149500.000     0.000     0.000     0.000   800.000   700.000  1050.000     0.000     0.000     0.000

X1 149550.000    14.000    91.250   108.750    40.000   100.000    50.000     0.000     0.000     0.000
GR    784.180     0.000   748.780    91.250   740.510    91.250   740.510    91.750   740.510    98.750
GR    740.510    99.250   784.780    99.250   784.780   100.750   740.630   100.750   740.630   101.250
GR    740.630   108.250   740.630   108.750   784.780   108.750   785.430   200.000     0.000     0.000
SB      0.000     2.330     2.500     0.000    16.000     0.000   129.000     0.000     0.000     0.000

X1 149720.000     0.000     0.000     0.000   170.000   170.000   170.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   748.730   784.180     0.000     0.000     0.000     0.000     0.000
BT     14.000     0.000   784.180   784.180    91.250   784.780   784.780    91.250   784.780   748.110
BT     91.750   784.780   748.610    98.750   784.780   748.610    99.250   784.780   748.110    99.250
BT    784.780   784.780   100.750   784.780   784.780   100.750   784.780   748.230   101.250   784.780
BT    748.730   108.250   784.780   748.730   108.750   784.780   748.230   108.750   784.780   784.780
BT    200.000   785.430   785.430     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .100      .100      .030      .100      .300     0.000     0.000     0.000     0.000     0.000

          ** UPSTREAM OF GTWRR BRIDGE -CORPORATE LIMITS **

X1 149740.000    16.000   295.300   304.700    20.000    20.000    20.000     0.000     0.000     0.000
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GR	763.200	0.000	757.500	100.000	753.120	200.000	750.900	295.300	743.000	295.300
GR	742.000	296.000	741.600	297.000	741.400	300.000	741.600	303.000	742.000	304.000
GR	743.000	304.700	750.900	304.700	750.500	400.000	750.760	500.000	751.650	600.000
GR	753.820	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.550	2.500	0.000	9.400	0.000	49.000	0.000	0.000	0.000
X1	149780.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	748.000	750.500	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	763.200	763.200	100.000	757.500	757.500	200.000	753.120	753.120
BT	295.300	750.900	750.900	295.300	750.900	743.000	296.000	750.900	745.600	297.000
BT	750.900	746.800	300.000	750.900	748.000	303.000	750.900	746.800	304.000	750.900
BT	745.600	304.700	750.900	743.000	304.700	750.900	750.900	400.000	750.500	750.500
BT	500.000	750.760	750.760	600.000	751.650	751.650	700.000	753.820	753.820	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Matches COE original run ✓

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*PROF 1

CCHV=    .100 CEHV=    .300
*SECNO 127875.000
   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

127875.00      9.77    702.77      0.00    702.77    702.83       .06      0.00      0.00    699.70
    2103.      573.      949.      581.     1041.      332.      994.        0.        0.     699.70
     .00       .55      2.85       .58      .150      .050      .150     0.000    693.00     25.26
  .000672        0.        0.        0.         0         0         0      0.00    711.56    736.82

*SECNO 130100.000

1645 INT SEC ADDED BY RAISING SEC 130100.00,  -3.667FT AND MULTIPLYING BY   1.003

3301 HV CHANGED MORE THAN HVINS

     1.01      8.54    703.38      0.00      0.00    703.99       .61       .99       .17    699.33
    2103.       74.     1878.      150.       76.      283.      124.       24.        7.     699.33
      .03       .98      6.65      1.21      .150      .050      .150      .050    694.83     92.97
  .003880       742.      742.      742.         3         0         0      0.00    129.34    222.31

1645 INT SEC ADDED BY RAISING SEC      1.01,   1.833FT AND MULTIPLYING BY    .998

     1.02      9.24    705.91      0.00      0.00    706.38       .47      2.38       .01    701.17
    2103.       94.     1827.      182.      104.      310.      162.       33.        9.     701.17
      .07       .91      5.89      1.12      .150      .050      .150      .050    696.67     86.39
  .002690       742.      742.      742.         2         0         0      0.00    141.74    228.13

1645 INT SEC ADDED BY RAISING SEC      1.02,   1.833FT AND MULTIPLYING BY    .998

130100.00      9.37    707.87      0.00      0.00    708.32       .45      1.93       .00    703.00
    2103.       98.     1818.      187.      109.      315.      169.       43.       12.     703.00
      .11       .90      5.78      1.11      .150      .050      .150      .050    698.50     85.07
  .002529       742.      742.      742.         2         0         0      0.00    143.84    228.91

*SECNO 132184.000

          ** DOWNSTREAM OF NORTHLAWN DRIVE BRIDGE **

132184.00      9.75    711.85      0.00      0.00    712.00       .15      3.66       .03    708.00
    2103.       49.     1161.      893.       68.      280.      883.       87.       22.     707.00
      .32       .73      4.15      1.01      .150      .050      .150      .050    702.10     60.68
  .001289      2084.     2084.     2084.         2         0         0      0.00    288.28    348.97

*SECNO 132284.000
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3265 DIVIDED FLOW

3280 CROSS SECTION 132284.00 EXTENDED .41 FEET

132284.00	10.21	711.91	0.00	0.00	712.17	.26	.13	.03	714.70
2103.	0.	2102.	1.	0.	515.	5.	89.	23.	713.00
.33	0.00	4.08	.12	.150	.050	.150	.050	701.70	76.00
.001328	100.	100.	100.	2	0	0	0.00	75.48	200.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.58	2.60	0.00	51.00	0.00	408.00	0.00	701.70	701.70

*SECNO 132316.000

3265 DIVIDED FLOW

3280 CROSS SECTION 132316.00 EXTENDED .78 FEET

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
712.56	712.17	0.00	57.	2030.	408.	408.	709.70	711.50

132316.00	10.58	712.28	0.00	0.00	712.52	.24	.35	0.00	714.70
2103.	0.	2099.	4.	0.	534.	17.	89.	23.	713.00
.33	0.00	3.93	.21	.150	.050	.150	.050	701.70	76.00
.001192	32.	32.	32.	2	0	3	0.00	88.88	200.00

*SECNO 132370.000

** UPSTREAM OF NORTHLAWN DRIVE BRIDGE **

132370.00	10.37	712.47	0.00	0.00	712.58	.12	.06	.01	708.00
2103.	58.	1111.	934.	87.	300.	1029.	90.	23.	707.00
.34	.67	3.70	.91	.150	.050	.150	.050	702.10	56.11
.000934	54.	54.	54.	2	0	0	0.00	314.82	370.92

CCHV= .100 CEHV= .300
*SECNO 133675.000

** DOWNSTREAM OF LINCOLN ROAD BRIDGE **

133675.00	8.87	714.17	0.00	0.00	714.55	.38	1.89	.08	709.00
2103.	479.	1256.	368.	441.	199.	216.	121.	30.	707.00

```
      .42      1.09      6.32      1.70      .150      .050      .150      .051    705.30    175.06
  .003008     1180.     1305.     1100.         2         0         0      0.00    237.09    412.15

CCHV=    .600 CEHV=    .800
*SECNO 133725.000

1645 INT SEC ADDED BY RAISING SEC 133725.00,   0.000FT AND MULTIPLYING BY    .898

3301 HV CHANGED MORE THAN HVINS

     1.01      8.80    714.10      0.00      0.00    715.49      1.39       .13       .81    723.30
     2103.        0.    2103.        0.        0.      222.        0.      121.       30.     722.00
      .42      0.00      9.48      0.00      .150      .050      .150      .051    705.30     55.25
  .011054       25.       25.       25.         2         0         0      0.00     27.85     83.10


1645 INT SEC ADDED BY RAISING SEC      1.01,   0.000FT AND MULTIPLYING BY   1.113

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      716.00 ELREA=      716.00

133725.00      9.81    715.11      0.00      0.00    715.99       .89       .20       .30    723.30
     2103.        0.    2103.        0.        0.      278.        0.      121.       30.     722.00
      .42      0.00      7.56      0.00      .150      .050      .150      .051    705.30     61.50
  .006057       25.       25.       25.         3         0         0      0.00     31.00     92.50

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        AREA       SS         ELCHU      ELCHD
     0.00       1.61       2.50       0.00       31.00      0.00       275.00     0.00       705.30     705.30

*SECNO 133755.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      0.000  EGLWC=    715.994  ELLC=    716.000  PCWSE=    715.108  ELTRD=    716.300

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  716.30 MAX ELLC=  716.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      716.30 ELREA=      716.30

133755.00     10.02    715.32      0.00      0.00    716.24       .92       .21       .03    723.30
     2103.        0.    2103.        0.        0.      273.        0.      121.       30.     722.00
      .42      0.00      7.69      0.00      .150      .050      .150      .051    705.30     61.50
  .008589       30.       30.       30.         2         0         0    -11.50     31.00     92.50

*SECNO 133805.000

1645 INT SEC ADDED BY RAISING SEC 133805.00,   0.000FT AND MULTIPLYING BY   1.101
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3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.01	11.36	716.66	0.00	0.00	716.77	.10	.04	.49	709.00
2103.	710.	1037.	356.	1056.	287.	362.	122.	30.	707.00
.42	.67	3.61	.98	.150	.050	.150	.051	705.30	110.32
.000675	25.	25.	25.	3	0	0	0.00	349.96	460.28

1645 INT SEC ADDED BY RAISING SEC 1.01, 0.000FT AND MULTIPLYING BY .908

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

** UPSTREAM OF LINCCLN ROAD BRIDGE **

→133805.00	11.37	716.67	0.00	0.00	716.80	.13	.02	.02	709.00
2103.	712.	1034.	356.	961.	261.	329.	123.	31.	707.00
.43	.74	3.96	1.08	.150	.050	.150	.051	705.30	99.97
.000819	25.	25.	25.	1	0	0	0.00	318.07	418.04

CCHV= .100 CEHV= .300
*SECNO 135840.000

135840.00	8.13	718.73	0.00	0.00	718.90	.17	2.09	.01	713.50
2103.	513.	1037.	553.	506.	223.	551.	176.	43.	714.00
.60	1.01	4.64	1.00	.150	.050	.150	.052	710.60	78.94
.001801	1600.	2035.	1470.	3	0	0	0.00	357.90	436.84

CCHV= .600 CEHV= .800
*SECNO 138170.000

** DOWNSTREAM OF MAPLE STREET BRIDGE **

138170.00	8.44	724.04	0.00	0.00	724.64	.60	5.40	.34	720.00
2103.	63.	1700.	340.	59.	248.	210.	213.	53.	718.50
.70	1.06	6.85	1.62	.150	.050	.150	.053	715.60	292.42
.004066	1730.	2330.	1530.	2	0	0	0.00	123.67	416.10

*SECNO 138220.000

138220.00	10.35	724.55	0.00	0.00	724.91	.36	.13	.14	727.00
2103.	0.	2103.	0.	0.	436.	0.	214.	53.	727.00
.71	0.00	4.83	0.00	.150	.050	.150	.053	714.20	58.00
.002009	90.	50.	20.	3	0	0	0.00	45.00	103.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.71	2.50	350.00	45.00	0.00	315.00	0.00	714.20	714.20

*SECNO 138280.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
725.73	724.91	0.00	0.	2103.	315.	367.	722.36	726.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 727.00 ELREA= 727.00

138280.00	11.23	725.43	0.00	0.00	725.73	.30	.82	0.00	727.00
2103.	0.	2103.	0.	0.	475.	0.	214.	53.	727.00
.71	0.00	4.42	0.00	.150	.050	.150	.053	714.20	58.00
.001559	60.	60.	60.	2	0	0	0.00	45.00	103.00

CCHV= .100 CEHV= .300
*SECNO 138330.000

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

** UPSTREAM OF MAPLE STREET BRIDGE **

138330.00	9.89	725.49	0.00	0.00	725.84	.35	.09	.01	720.00
2103.	110.	1604.	390.	121.	299.	296.	215.	53.	718.50
.71	.91	5.37	1.32	.150	.050	.150	.053	715.60	272.19
.001949	40.	50.	70.	2	0	0	0.00	150.47	422.66

CCHV= .500 CEHV= .800
*SECNO 138460.000

** DOWNSTREAM OF BALDWIN STREET BRIDGE **

138460.00	9.00	725.80	0.00	0.00	726.49	.69	.38	.27	723.50
1980.	74.	1809.	97.	96.	260.	110.	217.	53.	723.00
.72	.77	6.96	.88	.150	.050	.150	.053	716.80	237.00
.005059	60.	130.	160.	2	0	0	0.00	201.56	438.56

*SECNO 138510.000
3280 CROSS SECTION 138510.00 EXTENDED .07 FEET

138510.00	10.67	726.07	723.08	0.00	727.10	1.03	.34	.27	724.30
1980.	132.	1654.	195.	117.	186.	166.	217.	54.	724.30
.72	1.12	8.89	1.17	.150	.050	.150	.053	715.40	22.68
.009179	60.	50.	50.	6	9	0	0.00	249.32	272.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BHP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.50	272.00	18.50	0.00	126.00	0.00	715.40	715.40

*SECNO 138530.000
6870 D.S. ENERGY OF 727.10 HIGHER THAN COMPUTED ENERGY OF 726.31
3280 CROSS SECTION 138530.00 EXTENDED .10 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
732.17	727.10	0.00	1590.	390.	126.	137.	722.80	723.90

138530.00	10.69	726.09	0.00	0.00	727.10	1.00	0.00	0.00	724.30
1980.	135.	1644.	200.	120.	187.	171.	218.	54.	724.30
.72	1.13	8.81	1.17	.150	.050	.150	.053	715.40	21.52
.008979	20.	20.	20.	2	0	0	0.00	250.48	272.00

CCHV= .100 CEHV= .300
*SECNO 138580.000

1645 INT SEC ADDED BY RAISING SEC 138580.00, -.700FT AND MULTIPLYING BY .785

3301 HV CHANGED MORE THAN HVINS

1.01	10.74	726.84	0.00	0.00	727.28	.45	.13	.06	722.80
1980.	215.	1556.	209.	211.	258.	226.	218.	54.	722.30
.72	1.02	6.02	.92	.150	.050	.150	.053	716.10	162.43
.002916	15.	25.	55.	2	0	0	0.00	219.88	382.31

1645 INT SEC ADDED BY RAISING SEC 1.01, .700FT AND MULTIPLYING BY 1.274

** UPSTREAM OF BALDWIN STREET BRIDGE **

138580.00	10.20	727.00	0.00	0.00	727.36	.37	.07	.01	723.50
1980.	170.	1638.	172.	210.	308.	225.	219.	54.	723.00
.73	.81	5.32	.76	.150	.050	.150	.053	716.80	214.93
.002361	15.	25.	55.	2	0	0	0.00	257.19	472.13

CCHV= .600 CEHV= .800
*SECNO 139645.000

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

** DOWNSTREAM OF WILLITS STREET BRIDGE **

139645.00	9.26	728.76	0.00	0.00	728.88	.12	1.38	.15	722.50
1980.	362.	1217.	401.	466.	343.	603.	243.	61.	723.50
.84	.78	3.55	.67	.150	.050	.150	.053	719.50	51.83
.000856	1100.	1065.	800.	3	0	0	0.00	334.77	386.60

*SECNO 139695.000

139695.00	9.35	728.75	0.00	0.00	729.29	.54	.07	.33	720.50
1980.	102.	1786.	92.	73.	289.	68.	244.	61.	721.00
.84	1.40	6.17	1.36	.150	.050	.150	.053	719.40	104.07
.002322	60.	50.	80.	2	0	0	0.00	61.67	165.74

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.50	0.00	27.00	0.00	176.00	0.00	719.90	719.40

*SECNO 139745.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
731.87	729.98	0.00	119.	1858.	176.	227.	728.30	730.70

139745.00	11.25	731.15	0.00	0.00	731.50	.35	2.21	0.00	721.00
1980.	116.	1753.	111.	101.	350.	96.	245.	61.	721.50
.85	1.14	5.01	1.15	.150	.050	.150	.053	719.90	104.00
.001183	50.	50.	50.	2	0	3	0.00	62.00	166.00

*SECNO 139795.000

** UPSTREAM OF WILLITS BRIDGE **

139795.00	12.17	731.67	0.00	0.00	731.71	.04	.02	.19	722.50
1980.	435.	989.	556.	853.	459.	1133.	247.	61.	723.50
.86	.51	2.15	.49	.150	.050	.150	.053	719.50	29.14
.000213	40.	50.	90.	2	0	0	0.00	368.39	397.53

CCHV= .100 CEHV= .300
*SECNO 140000.000

140000.00	11.69	731.69	0.00	0.00	731.82	.13	.08	.03	723.20
1980.	389.	1257.	334.	517.	345.	473.	255.	63.	724.00
.88	.75	3.65	.71	.150	.050	.150	.053	720.00	49.87
.000675	100.	300.	205.	2	0	0	0.00	256.16	306.04

*SECNO 141580.000

1645 INT SEC ADDED BY RAISING SEC 141580.00, -2.600FT AND MULTIPLYING BY 1.050

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.01	9.79	732.39	0.00	0.00	732.88	.48	.95	.10	725.90
1980.	298.	1641.	41.	198.	270.	40.	272.	66.	726.40
.93	1.50	6.09	1.01	.150	.050	.150	.053	722.60	32.38
.002537	840.	805.	790.	2	0	0	0.00	90.12	122.50

1645 INT SEC ADDED BY RAISING SEC 1.01, 2.600FT AND MULTIPLYING BY .953

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
141580.00	9.45	734.65	0.00	0.00	735.24	.59	2.33	.03	728.50
1980.	289.	1655.	36.	175.	246.	33.	281.	67.	729.00
.97	1.65	6.72	1.10	.150	.050	.150	.052	725.20	31.76
.003293	840.	805.	790.	2	0	0	0.00	82.55	114.31
*SECNO 141800.000									
141800.00	9.72	735.42	0.00	0.00	735.96	.55	.72	.00	729.00
1980.	296.	1644.	39.	186.	254.	37.	284.	68.	729.50
.98	1.60	6.47	1.07	.150	.050	.150	.052	725.70	31.07
.002917	300.	220.	200.	2	0	0	0.00	85.05	116.12

CCHV= .600 CEHV= .800
*SECNO 141875.000

** DOWNSTREAM OF WOODWARD AVENUE BRIDGE **

141875.00	9.44	735.64	0.00	0.00	736.24	.59	.24	.04	729.50
1980.	289.	1655.	36.	175.	246.	33.	285.	68.	730.00
.98	1.65	6.73	1.10	.150	.050	.150	.052	726.20	31.78
.003300	80.	75.	80.	2	0	0	0.00	82.51	114.28

*SECNO 141925.000

3265 DIVIDED FLOW

3280 CROSS SECTION 141925.00 EXTENDED 2.10 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= .0 217.0 TYPE= 1 TARGET= 216.999

141925.00	11.50	735.60	732.49	0.00	737.27	1.67	.17	.86	725.10
1980.	0.	1960.	20.	0.	188.	37.	285.	68.	727.20
.98	.08	10.42	.53	.150	.040	.150	.052	724.10	126.01
.003688	30.	50.	70.	6	11	0	0.00	66.02	217.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.79	2.50	0.00	18.50	0.00	148.00	0.00	724.10	724.10

*SECNO 142025.000
3280 CROSS SECTION 142025.00 EXTENDED 3.29 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
740.57	737.27	0.00	603.	1382.	148.	174.	733.50	734.50

3470 ENCROACHMENT STATIONS= .0 217.0 TYPE= 1 TARGET= 216.999

142025.00	12.69	736.79	0.00	0.00	738.02	1.23	.75	0.00	725.10
1980.	0.	1907.	73.	1.	210.	112.	286.	68.	727.20
.98	.07	9.07	.65	.150	.040	.150	.052	724.10	126.00
.002410	100.	100.	100.	3	0	2	0.00	91.00	217.00

*SECNO 142075.000

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 17.0 104.0 TYPE= 1 TARGET= 87.000

** UPSTREAM OF WOODWARD AVENUE BRIDGE **

142075.00	11.49	737.99	0.00	0.00	738.55	.56	.13	.40	733.80
1980.	418.	1458.	105.	269.	209.	83.	286.	68.	733.90
.99	1.55	6.96	1.27	.150	.040	.150	.052	726.50	17.00
.002926	60.	50.	40.	3	0	0	0.00	87.00	104.00

*SECNO 142115.000

3470 ENCROACHMENT STATIONS= 45.0 85.1 TYPE= 1 TARGET= 40.100

142115.00	11.56	738.06	0.00	0.00	739.01	.95	.15	.31	733.80
1980.	235.	1745.	0.	125.	211.	0.	287.	68.	100000.00
.99	1.89	8.28	0.00	.150	.040	.150	.052	726.50	45.00
.004820	40.	40.	40.	2	0	0	0.00	40.10	85.10

*SECNO 142315.000
3280 CROSS SECTION 142315.00 EXTENDED 5.21 FEET

3301 HV CHANGED MORE THAN HVINS

142315.00	12.30	739.40	0.00	0.00	739.74	.34	.37	.36	729.60
1980.	161.	1682.	136.	155.	333.	158.	289.	69.	734.90
1.00	1.04	5.06	.86	.150	.040	.150	.052	727.10	20.32
.000974	210.	200.	190.	2	0	0	0.00	84.68	105.00

CCHV= .100 CEHV= .300
*SECNO 142790.000
3280 CROSS SECTION 142790.00 EXTENDED 3.95 FEET

142790.00	11.15	739.95	0.00	0.00	740.03	.08	.26	.03	732.50
1980.	21.	882.	1077.	36.	274.	1109.	299.	70.	731.80
1.07	.58	3.22	.97	.100	.040	.100	.052	728.80	16.20
.000364	470.	475.	430.	2	0	0	0.00	213.80	230.00

CCHV= .600 CEHV= .800
*SECNO 143340.000

3301 HV CHANGED MORE THAN HVINS

** DOWNSTREAM OF HUNTER BLVD BRIDGE **

143340.00	11.99	740.19	0.00	0.00	740.81	.62	.35	.43	732.00
1980.	99.	1819.	62.	73.	276.	48.	310.	72.	732.00
1.09	1.36	6.58	1.27	.100	.040	.100	.051	728.20	44.17
.001459	470.	550.	500.	2	0	0	0.00	55.66	99.83

*SECNO 143390.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	HSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
143390.00	11.34	739.84	0.00	0.00	743.13	3.28	.19	2.13	756.60
1980.	0.	1980.	0.	0.	136.	0.	310.	72.	756.60
1.09	0.00	14.54	0.00	.100	.040	.100	.051	728.50	244.00
.024756	50.	50.	60.	2	0	0	0.00	12.00	256.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COPQ	RDLEN	BHC	BHP	BAREA	SS	ELCHU	ELCHD
	0.00	1.75	2.50	450.00	12.00	0.00	122.00	0.00	728.50	728.50

*SECNO 143610.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
747.00	743.13	0.00	0.	1980.	122.	122.	738.67	755.60

143610.00	17.04	745.54	0.00	0.00	747.00	1.46	3.87	0.00	756.60
1980.	0.	1980.	0.	0.	205.	0.	311.	72.	756.60
1.10	0.00	9.68	0.00	.100	.040	.100	.051	728.50	244.00
.009310	220.	220.	220.	3	0	0	0.00	12.00	256.00

*SECNO 143660.000

3301 HV CHANGED MORE THAN HVINS

** UPSTREAM OF HUNTER BLVD BRIDGE -CORPORATE LIMITS **

143660.00	19.47	747.67	0.00	0.00	747.81	.15	.03	.78	732.00
1980.	250.	1604.	126.	312.	471.	177.	312.	72.	732.00
1.10	.80	3.41	.71	.100	.040	.100	.051	728.20	11.82
.000192	40.	50.	90.	3	0	0	0.00	98.81	110.63

CCHV= .100 CEHV= .300
*SECNO 145800.000

145800.00	16.12	748.12	0.00	0.00	748.16	.04	.34	.01	738.00
1980.	292.	655.	1033.	397.	262.	1142.	364.	77.	736.00
1.47	.73	2.50	.91	.100	.040	.100	.050	732.00	29.55
.000171	1600.	2140.	1400.	3	0	0	0.00	203.87	233.42

CCHV= .500 CEHV= .800
*SECNO 146500.000

146500.00	16.23	748.23	0.00	0.00	748.26	.04	.10	.00	738.00
1980.	294.	653.	1034.	404.	265.	1155.	389.	80.	736.00
1.59	.73	2.47	.90	.100	.040	.100	.050	732.00	29.15
.000166	500.	700.	600.	2	0	0	0.00	204.64	233.79

*SECNO 146550.000
3280 CROSS SECTION 146550.00 EXTENDED 6.08 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSEIK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
146550.00	13.08	748.28	0.00	0.00	748.29	.01	.01	.02	735.20
1980.	435.	323.	1221.	1276.	190.	2746.	392.	81.	735.20
1.61	.34	1.70	.44	.100	.040	.100	.050	735.20	40.27
.000068	50.	50.	50.	2	0	0	0.00	709.73	750.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.50	750.00	14.50	0.00	85.60	0.00	735.20	735.20

*SECNO 146570.000
PRESS FLOW BECAUSE EGLWC OF 748.29 EXCEEDS 1.5 DEPTH
3280 CROSS SECTION 146570.00 EXTENDED 6.14 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
761.49	748.29	0.00	1862.	131.	86.	85.	741.07	740.70
146570.00	13.13	748.33	0.00	0.00	748.34	.01	.05	0.00	735.20
1980.	438.	321.	1221.	1292.	190.	2767.	394.	81.	735.20
1.62	.34	1.69	.44	.100	.040	.100	.050	735.20	39.49
.000067	20.	20.	20.	0	0	6	0.00	710.51	750.00

CCHV= .100 CEHV= .300
*SECNO 146620.000
3280 CROSS SECTION 146620.00 EXTENDED 2.33 FEET

146620.00	13.33	748.33	0.00	0.00	748.34	.01	.01	.00	737.00
1980.	439.	169.	1371.	729.	62.	2348.	400.	82.	737.00
1.65	.60	2.75	.58	.140	.040	.140	.050	735.00	8.35
.000268	20.	50.	80.	2	0	0	0.00	551.65	560.00

CCHV= .600 CEHV= .800
*SECNO 146670.000
3280 CROSS SECTION 146670.00 EXTENDED 2.34 FEET

146670.00	13.34	748.34	0.00	0.00	748.36	.01	.01	.00	737.00
1980.	439.	169.	1371.	730.	62.	2351.	403.	83.	737.00
1.66	.60	2.74	.58	.140	.040	.140	.050	735.00	8.32
.000267	50.	50.	50.	1	0	0	0.00	551.68	560.00

*SECNO 146720.000
3280 CROSS SECTION 146720.00 EXTENDED 5.65 FEET

146720.00	13.05	748.35	0.00	0.00	748.47	.12	.03	.08	736.90
1980.	292.	838.	849.	415.	202.	1234.	408.	83.	737.60
1.67	.71	4.16	.69	.140	.040	.140	.050	735.30	0.00
.000469	40.	50.	100.	2	0	0	0.00	330.00	330.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	2.50	330.00	16.70	0.00	100.00	0.00	735.30	735.30

*SECNO 146730.000
PRESS FLOW BECAUSE EGLWC OF 748.47 EXCEEDS 1.5 DEPTH
3280 CROSS SECTION 146730.00 EXTENDED 5.65 FEET

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
757.72	748.47	0.00	1756.	224.	100.	119.	742.41	742.20

146730.00	13.05	748.35	0.00	0.00	748.47	.12	.00	0.00	736.90
1980.	292.	838.	849.	415.	202.	1235.	408.	83.	737.60
1.67	.71	4.16	.69	.140	.040	.140	.050	735.30	0.00
.000468	10.	10.	10.	2	0	7	0.00	330.00	330.00

CCHV= .100 CEHV= .300
*SECNO 146780.000

146780.00	11.45	748.45	0.00	0.00	748.49	.05	.02	.01	742.00
1980.	310.	1037.	632.	595.	448.	1183.	411.	84.	742.00
1.68	.52	2.32	.53	.140	.045	.140	.050	737.00	37.75
.000272	50.	50.	50.	2	0	0	0.00	404.02	441.76

CCHV= .500 CEHV= .800
*SECNO 147850.000

** DOWNSTREAM OF 16 MILE ROAD BRIDGE -CORPORATE LIMITS **

147850.00	11.64	748.64	0.00	0.00	748.67	.03	.17	.01	742.00
1980.	350.	917.	713.	618.	457.	1227.	448.	90.	742.00
1.87	.57	2.01	.58	.100	.040	.100	.050	737.00	36.79
.000157	900.	1070.	500.	2	0	0	0.00	407.83	444.63

*SECNO 147900.000

3301 HV CHANGED MORE THAN HVINS

147900.00	9.44	748.24	0.00	0.00	750.39	2.16	.02	1.70	740.80
1980.	0.	1980.	0.	0.	168.	0.	450.	91.	741.00
1.88	.08	11.78	.08	.150	.030	.150	.050	738.80	290.80
.004094	50.	50.	50.	3	0	0	0.00	19.39	310.20

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.21	2.50	0.00	16.40	0.00	86.00	0.00	738.80	738.80

*SECNO 147960.000
6870 D.S. ENERGY OF 750.39 HIGHER THAN COMPUTED ENERGY OF 750.33
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
766.43	750.39	0.00	1324.	671.	86.	109.	745.46	748.46

147960.00	9.44	748.24	0.00	0.00	750.39	2.15	0.00	0.00	740.80
1980.	0.	1980.	0.	0.	168.	0.	450.	91.	741.00
1.88	.08	11.77	.08	.150	.030	.150	.050	738.80	290.80
.004082	60.	60.	60.	3	0	6	0.00	19.39	310.20

CCHV= .100 CEHV= .300
*SECNO 148000.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
148000.00	12.59	750.59	0.00	0.00	750.62	.03	.01	.21	744.00
1980.	371.	562.	1047.	315.	331.	913.	451.	91.	744.00
1.89	1.18	1.70	1.15	.030	.030	.030	.050	738.00	44.70
.000064	40.	40.	100.	3	0	0	0.00	304.15	348.85

*SECNO 148450.000
148450.00	12.62	750.62	0.00	0.00	750.64	.03	.02	.00	744.00
1980.	371.	560.	1048.	316.	332.	918.	465.	94.	744.00
1.97	1.17	1.69	1.14	.030	.030	.030	.049	738.00	44.62
.000063	400.	450.	350.	2	0	0	0.00	304.61	349.23

CCHV= .600 CEHV= .800
*SECNO 149500.000

** DOWNSTREAM OF GTWRR BRIDGE **

149500.00	12.67	750.67	0.00	0.00	750.69	.03	.05	.00	744.00
1980.	372.	557.	1051.	320.	333.	928.	494.	99.	744.00
2.15	1.16	1.67	1.13	.030	.030	.030	.049	738.00	44.44
.000061	800.	1050.	700.	2	0	0	0.00	305.56	350.00

*SECNO 149550.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

149550.00	9.67	750.18	0.00	0.00	752.71	2.53	.01	2.00	748.78
1980.	12.	1968.	0.	3.	154.	0.	495.	99.	784.78
2.15	4.74	12.80	0.00	.030	.030	.030	.049	740.51	87.64

.016151	40.	50.	100.	3	0	0	0.00	19.61	108.75

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	KK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.33	2.50	0.00	16.00	0.00	129.00	0.00	740.51	740.51

*SECNO 149720.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
758.70	752.71	0.00	0.	1980.	129.	132.	748.73	784.18

149720.00	17.81	758.32	0.00	0.00	758.70	.38	5.99	0.00	748.78
1980.	633.	1347.	0.	117.	284.	0.	496.	99.	784.78
2.16	5.39	4.74	0.00	.030	.030	.030	.049	740.51	66.65
.001621	170.	170.	170.	2	0	0	0.00	40.60	108.75

CCHV= .100 CEHV= .300

*SECNO 149740.000

3280 CROSS SECTION 149740.00 EXTENDED 4.92 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

** UPSTREAM OF GTWRR BRIDGE -CORPORATE LIMITS **

149740.00	17.34	758.74	0.00	0.00	758.74	.01	.00	.04	750.90
1980.	380.	219.	1381.	997.	160.	2931.	497.	99.	750.90
2.17	.38	1.37	.47	.100	.030	.100	.049	741.40	78.28
.000069	20.	20.	20.	2	0	0	0.00	621.73	700.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.55	2.50	0.00	9.40	0.00	49.00	0.00	741.40	741.40

*SECNO 149780.000

3280 CROSS SECTION 149780.00 EXTENDED 4.98 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
798.04	758.74	0.00	1911.	80.	49.	62.	748.00	750.50
149780.00	17.40	758.80	0.00	0.00	758.80	.01	.06	0.00	750.90
1980.	382.	218.	1380.	1011.	161.	2956.	501.	100.	750.90
2.19	.38	1.35	.47	.100	.030	.100	.049	741.40	77.16
.000067	40.	40.	40.	0	0	6	0.00	622.85	700.00

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

T1      FLOOD INSURANCE STUDY
T2      CITY OF BIRMINGHAM  100 YR. WITH ENCROACHMENT
T3      MAIN ROUGE

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        3.        0.        0.  0.000000      0.00        .5     2103.   702.870     0.000

ULTIPLE PROFILE RUN WITH INTERPOLATED CROSS SECTIONS
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 2

CCHV=    .100 CEHV=    .300
*SECNO 127875.000
 2800 NAT Q1=    811.19  WSEL=    702.77  ENC Q1=    811.19  WSEL=    702.87  RATIO=   .0000
 NAT Q1=    842.  RATIOS LOB,CH,ROB=   .2765   .4439   .2796  WSEL=    702.87
   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


3470 ENCROACHMENT STATIONS=      62.7     643.0  TYPE=     4  TARGET=        .037
127875.00      9.87   702.87      0.00   702.77   702.93      .06      0.00      0.00   699.70
    2103.      566.      968.      570.      992.      337.      907.       0.       0.    699.70
     0.00       .57      2.87       .63       .150      .050      .150    0.000   693.00    62.72
  .000670       0.        0.        0.         0         0         0     0.00   580.32   643.04


*SECNO 130100.000
 2800 NAT Q1=    418.19  WSEL=    707.87  ENC Q1=    418.19  WSEL=    707.97  RATIO=   .0000
 NAT Q1=    429.  RATIOS LOB,CH,ROB=   .0481   .8609   .0911  WSEL=    707.97

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     113.6     202.9  TYPE=     4  TARGET=        .025
130100.00      7.29   705.79      0.00   707.87   706.85     1.06      3.62      .30   703.00
    2103.       41.     1974.       87.       31.      232.       63.       65.       17.    703.00
      .08       1.33      8.53      1.39       .150      .050      .150      .050   698.50   113.57
  .008296     2225.     2225.     2225.         3         0         0     0.00    89.32   202.89


*SECNO 132184.000
 2800 NAT Q1=    585.85  WSEL=    711.85  ENC Q1=    585.85  WSEL=    711.95  RATIO=   .0000
 NAT Q1=    602.  RATIOS LOB,CH,ROB=   .0241   .5481   .4278  WSEL=    711.95

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      81.0     284.8  TYPE=     4  TARGET=        .026

          ** DOWNSTREAM OF NORTHLAWN DRIVE BRIDGE **

132184.00      9.97   712.07      0.00   711.85   712.22      .15      5.28      .09   708.00
    2103.       24.     1175.      904.       36.      287.      860.      101.       24.    707.00
      .29       .68      4.09      1.05       .150      .050      .150      .050   702.10    80.98
  .001210     2084.     2084.     2084.         4         0         0     0.00   203.79   284.77


*SECNO 132284.000
 2800 NAT Q1=    577.04  WSEL=    711.91  ENC Q1=    585.28  WSEL=    712.01  RATIO=  -.0143
 NAT Q1=    586.  RATIOS LOB,CH,ROB=  0.0000   .9995   .0005  WSEL=    712.01
3280 CROSS SECTION 132284.00 EXTENDED       .63 FEET


3470 ENCROACHMENT STATIONS=      76.0     127.0  TYPE=     4  TARGET=        .001
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132284.00     10.43    712.13      0.00    711.91    712.37      .25       .12       .03    714.70
    2103.        0.      2103.       0.        0.      527.       0.       103.       24.     713.00
     .29      0.00      3.99      0.00      .150      .050      .150      .050    701.70     76.00
 .001248      100.      100.      100.         2         0         0      0.00     51.00    127.00


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
     0.00        1.58        2.60         0.00      51.00        0.00      408.00        0.00      701.70      701.70

*SECNO 132316.000
 2800 NAT Q1=     609.08  WSEL=     712.28  ENC Q1=     616.59  WSEL=     712.38  RATIO=  -.0123
 NAT Q1=     618.  RATIOS LOB,CH,ROB=  0.0000   .9977   .0023  WSEL=     712.38
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 132316.00 EXTENDED       .99 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=      76.0      127.0  TYPE=      4  TARGET=         .002
132316.00     10.79    712.49      0.00    712.28    712.72      .23       .04       .00    714.70
    2103.        0.      2103.       0.        0.      545.       0.       104.       24.     713.00
     .30      0.00      3.86      0.00      .150      .050      .150      .050    701.70     76.00
 .001126        32.       32.       32.         0         0         3      0.00     51.00    127.00


*SECNO 132370.000
 2800 NAT Q1=     688.27  WSEL=     712.47  ENC Q1=     688.27  WSEL=     712.57  RATIO=   .0000
 NAT Q1=     706.  RATIOS LOB,CH,ROB=   .0284   .5244   .4472  WSEL=     712.57

3470 ENCROACHMENT STATIONS=      78.6      296.4  TYPE=      4  TARGET=         .025

          ** UPSTREAM OF NORTHLAWN DRIVE BRIDGE **

132370.00     10.57    712.67      0.00    712.47    712.79      .12       .05       .01    708.00
    2103.       39.      1123.     941.       52.      307.      987.      105.       25.     707.00
     .30        .75       3.66      .95      .150      .050      .150      .050    702.10     78.56
 .000886        54.       54.       54.         2         0         0      0.00    217.88    296.43


CCHV=    .100 CEHV=    .300
*SECNO 133675.000
 2800 NAT Q1=     383.45  WSEL=     714.17  ENC Q1=     383.45  WSEL=     714.27  RATIO=   .0000
 NAT Q1=     395.  RATIOS LOB,CH,ROB=   .2333   .5919   .1748  WSEL=     714.27

3470 ENCROACHMENT STATIONS=     246.4      403.4  TYPE=      4  TARGET=         .030

          ** DOWNSTREAM OF LINCOLN ROAD BRIDGE **

133675.00      8.99    714.29      0.00    714.17    714.68      .39      1.81       .08    709.00
    2103.      472.      1273.     358.      369.      202.      204.      133.       30.     707.00
     .38       1.28       6.31     1.75      .150      .050      .150      .051    705.30    246.36
 .002938      1180.     1305.     1100.        2         0         0      0.00    157.03    403.40
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CCHV=    .600 CEHV=    .800
*SECNO 133725.000
 2800 NAT Q1=    270.22  WSEL=    715.11  ENC Q1=    274.59  WSEL=    715.21  RATIO=  -.0162
 NAT Q1=    275.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    715.21

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      61.5      92.5  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      716.00 ELREA=      716.00

133725.00      9.09    714.39      0.00    715.11    715.43      1.05       .22       .53    723.30
    2103.         0.    2103.         0.        0.     256.         0.     134.       30.     722.00
      .38      0.00      8.21      0.00      .150      .050      .150      .051    705.30     61.50
  .007679      50.       50.       50.         2         0         0      0.00     31.00     92.50


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.61       2.50       0.00      31.00       0.00     275.00       0.00     705.30     705.30

*SECNO 133755.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=    715.847   EGLWC=    716.245  ELLC=    716.000  PCWSE=    714.385  ELTRD=    716.300

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  716.30 MAX ELLC=  716.00


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      716.30 ELREA=      716.30

133755.00      9.38    714.68      0.00    715.32    715.70      1.01       .24       .02    723.30
    2103.         0.    2103.         0.        0.     261.         0.     134.       30.     722.00
      .38      0.00      8.07      0.00      .150      .050      .150      .051    705.30     61.50
  .008380      30.       30.       30.         2         0         0     -4.82     31.00     92.50


*SECNO 133805.000
 2800 NAT Q1=    734.79  WSEL=    716.67  ENC Q1=    734.79  WSEL=    716.77  RATIO=   .0000
 NAT Q1=    753.  RATIOS LOB,CH,ROB=   .3428   .4882   .1690  WSEL=    716.77

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=      202.5      404.3  TYPE=     4  TARGET=        .024

          ** UPSTREAM OF LINCOLN ROAD BRIDGE **

133805.00     10.86    716.16      0.00    716.67    716.32       .16       .12       .51    709.00
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    2103.      676.     1089.      338.      713.      248.      272.      135.       30.     707.00
      .39       .95     4.38      1.24      .150      .050      .150      .051   705.30     202.46
  .001073       50.      50.       50.         3         0         0      0.00   201.89     404.34


CCHV=    .100 CEHV=    .300
*SECNO 135840.000
 2800 NAT Q1=     495.56  WSEL=     718.73  ENC Q1=     495.56  WSEL=     718.83  RATIO=    .0000
 NAT Q1=     511.  RATIOS LOB,CH,ROB=   .2466   .4877   .2656  WSEL=     718.83

3470 ENCROACHMENT STATIONS=      140.9      421.4  TYPE=      4  TARGET=         .031
135840.00      8.09   718.69      0.00   718.73   718.88      .19      2.55      .01   713.50
    2103.      497.     1072.      535.      433.      222.      512.      180.       39.     714.00
      .55      1.15     4.83      1.05      .150      .050      .150      .052   710.60     140.94
  .001963     1600.     2035.     1470.         3         0         0      0.00   280.41     421.35


CCHV=    .600 CEHV=    .800
*SECNO 138170.000
 2800 NAT Q1=     329.81  WSEL=     724.04  ENC Q1=     329.81  WSEL=     724.14  RATIO=    .0000
 NAT Q1=     339.  RATIOS LOB,CH,ROB=   .0314   .8049   .1637  WSEL=     724.14

3470 ENCROACHMENT STATIONS=      316.2      402.8  TYPE=      4  TARGET=         .027

          ** DOWNSTREAH OF MAPLE STREET BRIDGE **

138170.00      8.61   724.21      0.00   724.04   724.81      .60      5.61      .33   720.00
    2103.       38.     1730.      335.       32.      254.      198.      215.       46.     718.50
      .65      1.19     6.81      1.69      .150      .050      .150      .053   715.60     316.23
  .003891     1730.     2330.     1530.         2         0         0      0.00    86.58     402.81


*SECNO 138220.000
 2800 NAT Q1=     469.22  WSEL=     724.55  ENC Q1=     476.42  WSEL=     724.65  RATIO=   -.0153
 NAT Q1=     476.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     724.65

3470 ENCROACHMENT STATIONS=       58.0      103.0  TYPE=      4  TARGET=        0.000
138220.00     10.54   724.74      0.00   724.55   725.09      .35      .13       .15   727.00
    2103.        0.     2103.       0.        0.      444.       0.      215.       46.     727.00
      .66      0.00     4.73      0.00      .150      .050      .150      .053   714.20      58.00
  .001898       90.      50.       20.         3         0         0      0.00    45.00     103.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.71       2.50      350.00      45.00       0.00      315.00      0.00      714.20     714.20

*SECNO 138280.000
 2800 NAT Q1=     532.68  WSEL=     725.43  ENC Q1=     539.98  WSEL=     725.53  RATIO=   -.0137
 NAT Q1=     540.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     725.53
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       58.0      103.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      727.00 ELREA=      727.00

138280.00     11.42   725.62      0.00   725.43   725.91      .29      .10       .03   727.00
    2103.        0.     2103.       0.        0.      484.       0.      216.       46.     727.00
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     .66      0.00      4.35      0.00      .150      .050      .150      .053    714.20     58.00
  .001480      60.       60.       60.         0         0         0      0.00     45.00    103.00


CCHV=    .100 CEHV=    .300
*SECNO 138330.000
 2800 NAT Q1=     476.31  WSEL=     725.49  ENC Q1=     476.31  WSEL=     725.59  RATIO=   .0000
 NAT Q1=     488.  RATIOS LOB,CH,ROB=    .0538   .7595   .1867  WSEL=     725.59
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      302.9      405.0  TYPE=      4  TARGET=         .024

          ** UPSTREAM OF MAPLE STREET BRIDGE **

138330.00     10.06    725.66      0.00    725.49    726.02       .35       .09       .02    720.00
    2103.       93.     1635.       375.      91.       304.      269.      216.       46.     718.50
      .66      1.02      5.37      1.39      .150      .050      .150      .053    715.60    302.91
  .001900       40.       50.       70.         2         0         0      0.00    102.09    404.99


CCHV=    .600 CEHV=    .800
*SECNO 138460.000
 2800 NAT Q1=     278.38  WSEL=     725.80  ENC Q1=     278.38  WSEL=     725.90  RATIO=   .0000
 NAT Q1=     287.  RATIOS LOB,CH,ROB=    .0405   .9074   .0521  WSEL=     725.90

3470 ENCROACHMENT STATIONS=      297.4      385.3  TYPE=      4  TARGET=         .031

          ** DOWNSTREAM OF BALDWIN STREET BRIDGE **

138460.00      9.16    725.96      0.00    725.80    726.67       .70       .37       .28    723.50
    1980.       53.     1850.       77.       49.       266.       64.      218.       47.     723.00
      .67      1.09      6.94      1.21      .150      .050      .150      .053    716.80    297.39
  .004877       60.       130.      160.        2         0         0      0.00     87.89    385.28


*SECNO 138510.000
 2800 NAT Q1=     206.66  WSEL=     726.07  ENC Q1=     206.66  WSEL=     726.17  RATIO=  0.0000
 NAT Q1=     214.  RATIOS LOB,CH,ROB=    .0724   .8205   .1071  WSEL=     726.17
3280 CROSS SECTION 138510.00 EXTENDED       .22 FEET


3470 ENCROACHMENT STATIONS=       73.3      208.1  TYPE=      4  TARGET=         .034
138510.00     10.82    726.22      0.00    726.07    727.25      1.03       .33       .26    724.30
    1980.      118.     1671.       191.      89.       189.      130.      219.       47.     724.30
      .67      1.32      8.85      1.47      .150      .050      .150      .053    715.40     73.29
  .008917       60.       50.       50.         3         0         0      0.00    134.84    208.12


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       1.59       2.50     272.00      18.50       0.00     126.00       0.00     715.40     715.40
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*SECNO 138530.000
6870 D.S. ENERGY OF  727.25 HIGHER THAN COMPUTED ENERGY OF  726.44
 2800 NAT Q1=    208.95  WSEL=    726.09  ENC Q1=    208.95  WSEL=    726.19  RATIO=   .0000
 NAT Q1=    216.  RATIOS LOB,CH,ROB=   .0738   .8171   .1091  WSEL=    726.19
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 138530.00 EXTENDED       .25 FEET


3470 ENCROACHMENT STATIONS=      71.1     210.8  TYPE=     4  TARGET=        .031
138530.00     10.85   726.25     0.00   726.09   727.25     1.00      .18      .02   724.30
    1980.      125.    1658.     197.      94.     189.     136.      219.     47.    724.30
      .67      1.33     8.76     1.46     .150     .050     .150      .053  715.40    71.13
  .008702       20.      20.      20.        0        0        5      0.00  139.66   210.79


CCHV=    .100 CEHV=    .300
*SECNO 138580.000
 2800 NAT Q1=    407.52  WSEL=    727.00  ENC Q1=    407.52  WSEL=    727.10  RATIO=  0.0000
 NAT Q1=    419.  RATIOS LOB,CH,ROB=   .0896   .8209   .0896  WSEL=    727.10

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     259.5     406.3  TYPE=     4  TARGET=        .027

          ** UPSTREAM OF BALDWIN STREET BRIDGE **

138580.00     10.36   727.16     0.00   727.00   727.53      .37      .22      .06   723.50
    1980.      158.    1665.     157.     171.     314.     155.      219.     47.    723.00
      .67       .92     5.30     1.02     .150     .050     .150      .053  716.80   259.53
  .002279       30.      50.     110.        2        0        0      0.00  146.81   406.34


CCHV=    .500 CEHV=    .800
*SECNO 139645.000
 2800 NAT Q1=    676.69  WSEL=    728.76  ENC Q1=    676.69  WSEL=    728.86  RATIO=   .0000
 NAT Q1=    696.  RATIOS LOB,CH,ROB=   .1841   .6094   .2065  WSEL=    728.86
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      99.4     351.0  TYPE=     4  TARGET=        .027

          ** DOWNSTREAM OF WILLITS STREET BRIDGE **

139645.00      9.39   728.89     0.00   728.76   729.02      .13     1.35      .15   722.50
    1980.      347.    1239.     394.     391.     348.     556.      241.     51.    723.50
      .79       .89     3.56      .71     .150     .050     .150      .053  719.50    99.42
  .000843     1100.    1065.     800.        3        0        0      0.00  251.62   351.04


*SECNO 139695.000
 2800 NAT Q1=    410.87  WSEL=    728.75  ENC Q1=    410.87  WSEL=    728.85  RATIO=  0.0000
 NAT Q1=    419.  RATIOS LOB,CH,ROB=   .0518   .9010   .0472  WSEL=    728.85

3470 ENCROACHMENT STATIONS=     111.4     160.4  TYPE=     4  TARGET=        .019
139695.00      9.48   728.88     0.00   728.75   729.43      .55      .07      .34   720.50
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    1980.      82.    1820.      77.      55.     293.      58.     242.      52.    721.00
     .79      1.50     6.20     1.34     .150     .050     .150     .052  719.40   111.36
  .002301      60.      50.      80.        2        0        3     0.00   49.02   160.37


SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       1.59       2.50       0.00      27.00       0.00     176.00       0.00     719.90     719.40

*SECNO 139745.000
 2800 NAT Q1=     575.56  WSEL=     731.15  ENC Q1=     575.56  WSEL=     731.25  RATIO=    .0000
 NAT Q1=     585.  RATIOS LOB,CH,ROB=    .0587   .8848   .0565  WSEL=     731.25
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      108.2      163.6  TYPE=      4  TARGET=         .016
139745.00     11.38    731.28      0.00    731.15    731.64       .35       .08       .12    721.00
    1980.      103.     1778.      98.       89.      354.      91.       243.      52.     721.50
      .79      1.16     5.02      1.08     .150      .050     .150      .052   719.90    108.17
  .001171      50.      50.       50.         0         0        3     0.00    55.45    163.62


*SECNO 139795.000
 2800 NAT Q1=    1356.07  WSEL=     731.67  ENC Q1=    1356.07  WSEL=     731.77  RATIO=    .0000
 NAT Q1=    1383.  RATIOS LOB,CH,ROB=    .2208   .4966   .2825  WSEL=     731.77

3470 ENCROACHMENT STATIONS=       62.6      380.7  TYPE=      4  TARGET=         .020

           ** UPSTREAM OF HILLITS BRIDGE **

139795.00     12.31    731.81      0.00    731.67    731.85       .04       .02       .19    722.50
    1980.      425.     996.       559.      789.      465.     1119.      245.      52.     723.50
      .80       .54     2.14       .50      .150      .050     .150      .052   719.50     62.63
  .000208      40.      50.        90.         2         0        0     0.00   318.03    380.67


CCHV=    .100 CEHV=    .300
*SECNO 140000.000
 2800 NAT Q1=     762.18  WSEL=     731.69  ENC Q1=     762.18  WSEL=     731.79  RATIO=    .0000
 NAT Q1=     779.  RATIOS LOB,CH,ROB=    .1984   .6306   .1710  WSEL=     731.79

3470 ENCROACHMENT STATIONS=       81.3      269.8  TYPE=      4  TARGET=         .022
140000.00     11.82    731.82      0.00    731.69    731.96       .14       .08       .03    723.20
    1980.      381.     1273.      325.      468.      349.      423.      253.      53.     724.00
      .83       .81     3.65       .77      .150      .050     .150      .053   720.00     81.32
  .000664      100.     300.       205.         2         0        0     0.00   188.48    269.80


*SECNO 141580.000
 2800 NAT Q1=     345.05  WSEL=     734.65  ENC Q1=     345.05  WSEL=     734.75  RATIO=  0.0000
 NAT Q1=     353.  RATIOS LOB,CH,ROB=    .1474   .8338   .0188  WSEL=     734.75

3301 HV CHANGED MORE THAN HVINS

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST
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3470 ENCROACHMENT STATIONS=       42.4      102.9  TYPE=      4  TARGET=          .023
141580.00      8.48    733.68      0.00    734.65    734.53       .85      2.36       .22    728.50
    1980.       248.     1720.       12.      126.      217.       12.       283.       58.     729.00
      .89       1.96      7.92      1.07      .150      .050      .150      .052    725.20     42.43
  .005408      1680.     1610.     1580.         3         0         0      0.00     60.49    102.92


*SECNO 141800.000
 2800 NAT Q1=     366.59  WSEL=     735.42  ENC Q1=     366.59  WSEL=     735.52  RATIO=    .0000
 NAT Q1=     375.  RATIOS LOB,CH,ROB=    .1509    .8285    .0205  WSEL=     735.52

3470 ENCROACHMENT STATIONS=       41.7      103.9  TYPE=      4  TARGET=          .021
141800.00      9.21    734.91      0.00    735.42    735.58       .67      1.03       .02    729.00
    1980.       268.     1694.       18.      150.      239.       17.       285.       58.     729.50
      .90       1.79      7.08      1.04      .150      .050      .150      .052    725.70     41.70
  .003791       300.      220.      200.         2         0         0      0.00     62.21    103.91


CCHV=    .600 CEHV=    .800
*SECNO 141875.000
 2800 NAT Q1=     344.69  WSEL=     735.64  ENC Q1=     344.69  WSEL=     735.74  RATIO=  0.0000
 NAT Q1=     353.  RATIOS LOB,CH,ROB=    .1473    .8339    .0188  WSEL=     735.74

3470 ENCROACHMENT STATIONS=       42.4      102.9  TYPE=      4  TARGET=          .022

          ** DOWNSTREAM OF WOODWARD AVENUE BRIDGE **

141875.00      9.00    735.20      0.00    735.64    735.93       .73       .30       .04    729.50
    1980.       261.     1706.       13.      141.      233.       13.       286.       58.     730.00
      .91       1.85      7.33       .98      .150      .050      .150      .052    726.20     42.39
  .004212        80.       75.       80.         2         0         0      0.00     60.55    102.95


*SECNO 141925.000

3265 DIVIDED FLOW

3280 CROSS SECTION 141925.00 EXTENDED      1.69 FEET


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=         .0      217.0  TYPE=      1  TARGET=       216.999
141925.00     11.09    735.19    732.48    735.60    737.03      1.84       .21       .89    725.10
    1980.         0.     1971.       9.        0.      181.       20.       286.       58.     727.20
      .91       .08     10.92       .45      .150      .040      .150      .052    724.10    126.02
  .004276        30.       50.       70.         6        11         0      0.00     54.67    217.00


SPECIAL BRIDGE

SB   XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        1.79        2.50        0.00        18.50       0.00        148.00      0.00        724.10      724.10

*SECNO 142025.000
3280 CROSS SECTION 142025.00 EXTENDED      3.00 FEET
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3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
740.16	738.86	0.00	528.	1444.	148.	174.	733.50	734.50

3470 ENCROACHMENT STATIONS= .0 217.0 TYPE= 1 TARGET= 216.999

142025.00	12.40	736.50	0.00	736.79	737.83	1.33	.80	0.00	725.10
1980.	0.	1924.	56.	1.	205.	91.	287.	58.	727.20
.91	.07	9.39	.61	.150	.040	.150	.052	724.10	126.00
.002673	100.	100.	100.	3	0	2	0.00	90.99	217.00

*SEC NO 1420 75.000

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 17.0 104.0 TYPE= 1 TARGET= 87.000

** UPSTREAM OF WOODWARD AVENUE BRIDGE **

142075.00	11.33	737.83	0.00	737.99	738.42	.59	.15	.44	733.80
1980.	411.	1467.	102.	261.	206.	80.	287.	58.	733.90
.91	1.57	7.12	1.28	.150	.040	.150	.052	726.50	17.00
.003116	60.	50.	40.	3	0	0	0.00	87.00	104.00

*SEC NO 142115.000

3470 ENCROACHMENT STATIONS= 45.0 85.1 TYPE= 1 TARGET= 40.100

142115.00	11.41	737.91	0.00	738.06	738.89	.98	.16	.31	733.80
1980.	231.	1749.	0.	121.	208.	0.	287.	58.	100000.00
.91	1.90	8.42	0.00	.150	.040	.150	.052	726.50	45.00
.005047	40.	40.	40.	2	0	0	0.00	40.10	85.10

*SEC NO 142315.000

2800 NAT Q1= 634.30 WSEL= 739.40 ENC Q1= 634.30 WSEL= 739.50 RATIO= .0000

NAT Q1= 644. RATIOS LOB,CH,ROB= .0824 .8481 .0695 WSEL= 739.50

3280 CROSS SECTION 142315.00 EXTENDED 5.09 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 31.4 102.2 TYPE= 4 TARGET= .015

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142315.00     12.19    739.29      0.00    739.40    739.65       .36       .39       .37    729.60
    1980.       148.     1709.      122.      132.      330.      140.      290.       59.     734.90
      .93      1.13      5.19       .87      .150      .040      .150      .052    727.10     31.42
  .001039       210.      200.      190.         2         0         0      0.00     70.79    102.21


CCHV=    .100 CEHV=    .300
*SECNO 142790.000
 2800 NAT Q1=    1038.26  WSEL=     739.95  ENC Q1=    1038.26  WSEL=     740.05  RATIO=  0.0000
 NAT Q1=    1061.  RATIOS LOB,CH,ROB=    .0109    .4428    .5463  WSEL=     740.05
3280 CROSS SECTION 142790.00 EXTENDED      3.87 FEET


3470 ENCROACHMENT STATIONS=       25.9      223.1  TYPE=      4  TARGET=         .022
142790.00     11.07    739.87      0.00    739.95    739.96       .09       .28       .03    732.50
    1980.        0.       904.     1076.         1.      272.     1068.      300.       60.     731.80
      .99       .05      3.32      1.01      .100      .040      .100      .051    728.80     25.92
  .000392       470.      475.      430.         2         0         0      0.00    197.20    223.12


CCHV=    .600 CEHV=    .800
*SECNO 143340.000
 2800 NAT Q1=     518.33  WSEL=     740.19  ENC Q1=     518.33  WSEL=     740.29  RATIO=  0.0000
 NAT Q1=     527.  RATIOS LOB,CH,ROB=    .0510    .9173    .0316  WSEL=     740.29

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=       51.9       94.1  TYPE=      4  TARGET=         .017
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** DOWNSTREAM OF HUNTER BLVD BRIDGE **

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143340.00     11.93    740.13      0.00    740.19    740.78       .66       .37       .46    732.00
    1980.        87.     1847.       47.       59.      275.       37.      310.       61.     732.00
     1.01      1.47      6.72      1.27      .100      .040      .100      .051    728.20     51.85
  .001533       470.      550.      500.         2         0         0      0.00     42.24     94.10


*SECNO 143390.000
 2800 NAT Q1=     125.84  WSEL=     739.84  ENC Q1=     127.17  WSEL=     739.94  RATIO=  -.0105
 NAT Q1=     127.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     739.94

3301 HV CHANGED MORE THAN HVINS

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


3470 ENCROACHMENT STATIONS=      244.0      256.0  TYPE=      4  TARGET=         0.000
143390.00     11.29    739.79      0.00    739.84    743.11      3.31       .20      2.13    756.60
    1980.        0.       1980.       0.        0.      136.       0.      310.       61.     756.60
     1.01      0.00      14.61      0.00      .100      .040      .100      .051    728.50    244.00
  .025033       50.       50.       60.         2         0         0      0.00     12.00    256.00


SPECIAL BRIDGE
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5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00        1.75       2.50     450.00       12.00       0.00     122.00       0.00     728.50     728.50

*SECNO 143610.000
 PRESS FLOW BECAUSE EGLWC OF     747.08  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=     205.21  WSEL=     745.54  ENC Q1=     206.62  WSEL=     745.64  RATIO=  -.0069
 NAT Q1=     207.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     745.64
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      244.0      256.0  TYPE=      4  TARGET=        0.000
143610.00     16.99    745.49      0.00    745.54    746.96      1.46      3.18      1.11    756.60
    1980.        0.      1980.       0.        0.       204.       0.       311.       62.     756.60
     1.02       0.00      9.71      0.00      .100      .040      .100      .051    728.50    244.00
  .009376      220.       220.      220.         0         0         0      0.00     12.00    256.00


*SECNO 143660.000
 2800 NAT Q1=    1428.38  WSEL=     747.67  ENC Q1=    1428.38  WSEL=     747.77  RATIO=  0.0000
 NAT Q1=    1444.  RATIOS LOB,CH,ROB=   .1272   .8086   .0642  WSEL=     747.77

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=       30.4      104.8  TYPE=      4  TARGET=         .011

          ** UPSTREAM OF HUNTER BLVD BRIDGE -CORPORATE LIMITS **

143660.00     19.42    747.62      0.00    747.67    747.77       .15       .03       .79    732.00
    1980.      240.      1618.     123.      277.      470.      165.      311.       62.     732.00
     1.02       .87      3.44      .74       .100      .040      .100      .051    728.20     30.37
  .000197      40.        50.      90.         3         0         0      0.00     74.46    104.83


CCHV=    .100 CEHV=    .300
*SECNO 145800.000
 2800 NAT Q1=    1512.24  WSEL=     748.12  ENC Q1=    1512.24  WSEL=     748.22  RATIO=  0.0000
 NAT Q1=    1536.  RATIOS LOB,CH,ROB=   .1482   .3296   .5222  WSEL=     748.22

3470 ENCROACHMENT STATIONS=       47.3      216.6  TYPE=      4  TARGET=         .016
145800.00     16.09    748.09      0.00    748.12    748.13       .04       .35       .01    738.00
    1980.      280.      666.     1034.      354.      262.     1098.      361.       66.     736.00
     1.38       .79      2.54      .94       .100      .040      .100      .050    732.00     47.29
  .000179     1600.     2140.     1400.         3         0         0      0.00    169.31    216.59


CCHV=    .500 CEHV=    .800
*SECNO 146500.000
 2800 NAT Q1=    1537.68  WSEL=     748.23  ENC Q1=    1537.68  WSEL=     748.33  RATIO=   .0000
 NAT Q1=    1562.  RATIOS LOB,CH,ROB=   .1490   .3286   .5224  WSEL=     748.33

3470 ENCROACHMENT STATIONS=       47.0      216.9  TYPE=      4  TARGET=         .016
146500.00     16.20    748.20      0.00    748.23    748.24       .04       .11       .00    738.00
    1980.      282.      664.     1034.      360.      264.     1111.      385.       68.     736.00
     1.50       .78      2.51      .93       .100      .040      .100      .050    732.00     46.96
  .000173      500.      700.      600.         2         0         0      0.00    169.94    216.90


*SECNO 146550.000
 2800 NAT Q1=    2395.57  WSEL=     748.28  ENC Q1=    2395.57  WSEL=     748.38  RATIO=   .0000
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 NAT Q1=    2453.  RATIOS LOB,CH,ROB=    .2223   .1615   .6163  WSEL=    748.38
3280 CROSS SECTION 146550.00 EXTENDED      6.06 FEET

   SEC NO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      114.5      741.2  TYPE=      4  TARGET=         .023
146550.00     13.06    748.26      0.00    748.28    748.27       .01       .01       .02    735.20
    1980.      422.      331.     1226.     1144.      189.     2683.      388.       69.    735.20
     1.52       .37      1.75       .46       .100      .040      .100      .050    735.20    114.50
  .000072      50.       50.       50.          2         0         0      0.00    626.71    741.20


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        1.59       2.50     750.00       14.50       0.00      85.60       0.00     735.20     735.20

*SEC NO 146570.000
 PRESS FLOW BECAUSE EGLWC OF     748.44  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=    2427.70  WSEL=     748.33  ENC Q1=    2427.70  WSEL=     748.43  RATIO=  0.0000
 NAT Q1=    2482.  RATIOS LOB,CH,ROB=    .2235   .1606   .6159  WSEL=     748.43
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 146570.00 EXTENDED      6.10 FEET


3470 ENCROACHMENT STATIONS=      111.5      741.8  TYPE=      4  TARGET=         .022
146570.00     13.10    748.30      0.00    748.33    748.31       .01       .00       .00    735.20
    1980.      426.      329.     1225.     1164.      190.     2705.      390.       69.    735.20
     1.53       .37      1.73       .45       .100      .040      .100      .050    735.20    111.52
  .000070      20.       20.       20.          0         0         6      0.00    630.31    741.83


CCHV=     .100 CEHV=     .300
*SECNO 146620.000
 2800 NAT Q1=    1208.60  WSEL=     748.33  ENC Q1=    1208.60  WSEL=     748.43  RATIO=  0.0000
 NAT Q1=    1240.  RATIOS LOB,CH,ROB=    .2219   .0845   .6936  WSEL=     748.43
3280 CROSS SECTION 146620.00 EXTENDED      2.31 FEET


3470 ENCROACHMENT STATIONS=       31.4      529.6  TYPE=      4  TARGET=         .025
146620.00     13.31    748.31      0.00    748.33    748.32       .02       .01       .00    737.00
    1980.      426.      174.     1380.      674.       62.     2263.      395.       70.    737.00
     1.55       .63      2.83       .61       .140      .040      .140      .050    735.00     31.43
  .000285      20.       50.       80.          2         0         0      0.00    498.19    529.63


CCHV=     .600 CEHV=     .800
*SECNO 146670.000
 2800 NAT Q1=    1210.69  WSEL=     748.34  ENC Q1=    1210.69  WSEL=     748.44  RATIO=   .0000
 NAT Q1=    1244.  RATIOS LOB,CH,ROB=    .2219   .0843   .6938  WSEL=     748.44
3280 CROSS SECTION 146670.00 EXTENDED      2.32 FEET
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3470 ENCROACHMENT STATIONS=       32.1      528.1  TYPE=      4  TARGET=          .027
146670.00      13.32    748.32      0.00    748.34    748.34       .02       .01       .00    737.00
     1980.       425.       174.     1381.      671.       62.     2262.       399.       70.     737.00
     1.56        .63       2.83       .61       .140      .040       .140      .050    735.00     32.13
  .000285         50.        50.        50.         1         0          0      0.00    495.94    528.06


*SECNO 146720.000
 2800 NAT Q1=     914.46  WSEL=     748.35  ENC Q1=     914.46  WSEL=     748.45  RATIO=  0.0000
 NAT Q1=     936.  RATIOS LOB,CH,ROB=    .1483    .4193    .4324  WSEL=     748.45
3280 CROSS SECTION 146720.00 EXTENDED       5.63 FEET


3470 ENCROACHMENT STATIONS=        5.2      317.5  TYPE=      4  TARGET=          .023
146720.00      13.03    748.33      0.00    748.35    748.46       .13       .03       .09    736.90
     1980.       277.       859.      845.      384.      201.     1188.       403.       71.     737.60
     1.57        .72       4.27       .71       .140      .040       .140      .050    735.30      5.20
  .000495         40.        50.       100.         2         0          0      0.00    312.29    317.49


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        1.54        2.50       330.00      16.70        0.00       100.00       0.00       735.30      735.30
*SECNO 146730.000
 PRESS FLOW BECAUSE EGLWC OF    748.58  EXCEEDS 1.5 DEPTH
6870 D.S. ENERGY OF  748.46 HIGHER THAN COMPUTED ENERGY OF  748.45
 2800 NAT Q1=     914.85  WSEL=     748.35  ENC Q1=     914.85  WSEL=     748.45  RATIO=   .0000
 NAT Q1=     937.  RATIOS LOB,CH,ROB=    .1484    .4192    .4325  WSEL=     748.45
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 146730.00 EXTENDED       5.63 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=        5.2      317.5  TYPE=      4  TARGET=          .023
146730.00      13.03    748.33      0.00    748.35    748.46       .13       .00       .00    736.90
     1980.       277.       859.      845.      384.      201.     1188.       404.       71.     737.60
     1.58        .72       4.26       .71       .140      .040       .140      .050    735.30      5.20
  .000494         10.        10.        10.         0         0          7      0.00    312.30    317.50


CCHV=    .100 CEHV=    .300
*SECNO 146780.000
 2800 NAT Q1=    1200.26  WSEL=     748.45  ENC Q1=    1200.26  WSEL=     748.55  RATIO=  0.0000
 NAT Q1=    1229.  RATIOS LOB,CH,ROB=    .1577    .5209    .3214  WSEL=     748.55

3470 ENCROACHMENT STATIONS=       59.8      418.9  TYPE=      4  TARGET=          .023
146780.00      11.43    748.43      0.00    748.45    748.48       .05       .02       .01    742.00
```

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    1980.      301.     1058.      621.      545.      447.     1137.      406.       72.    742.00
     1.58       .55      2.37       .55      .140      .045      .140      .050   737.00     59.76
  .000284      50.       50.       50.         2         0         0      0.00   359.19    418.95


CCHV=    .500 CEHV=    .800
*SECNO 147850.000
 2800 NAT Q1=    1581.51  WSEL=     748.64  ENC Q1=    1581.51  WSEL=     748.74  RATIO=    .0000
 NAT Q1=    1621.  RATIOS LOB,CH,ROB=    .1778   .4603   .3618  WSEL=     748.74

3470 ENCROACHMENT STATIONS=      58.5     420.4  TYPE=     4  TARGET=        .024

          ** DOWNSTREAM OF 16 MILE ROAD BRIDGE -CORPORATE LIMITS **

147850.00     11.64   748.64      0.00   748.64   748.67      .03       .18       .01   742.00
    1980.      339.      932.      709.      571.      457.     1186.      442.       77.    742.00
     1.77       .59      2.04       .60      .100      .040      .100      .050   737.00     58.46
  .000162      900.     1070.      500.         2         0         0      0.00   361.93    420.39


*SECNO 147900.000
 2800 NAT Q1=     309.43  WSEL=     748.24  ENC Q1=     315.34  WSEL=     748.34  RATIO=  -.0191
 NAT Q1=     315.  RATIOS LOB,CH,ROB=    .0000  1.0000   .0000  WSEL=     748.34

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      290.9     310.1  TYPE=     4  TARGET=        .000
147900.00      9.44   748.24      0.00   748.24   750.39      2.16       .02      1.70   740.80
    1980.        0.     1980.        0.        0.      168.        0.      443.       78.    741.00
     1.77      0.00     11.78      0.00      .150      .030      .150      .050   738.80    290.90
  .007828      50.       50.       50.         3         0         0      0.00    19.20    310.10


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK          XKOR       COFQ       RDLEN      BWC        BHP        BAREA      SS         ELCHU      ELCHD
      0.00       2.21       2.50       0.00      16.40       0.00      86.00       0.00      738.80     738.80

*SECNO 147960.000
6870 D.S. ENERGY OF  750.39 HIGHER THAN COMPUTED ENERGY OF  750.33
 2800 NAT Q1=     309.90  WSEL=     748.24  ENC Q1=     315.56  WSEL=     748.34  RATIO=  -.0183
 NAT Q1=     316.  RATIOS LOB,CH,ROB=    .0000  1.0000   .0000  WSEL=     748.34
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      290.9     310.1  TYPE=     4  TARGET=        .000
147960.00      9.44   748.24      0.00   748.24   750.40      2.15       .47       .00   740.80
    1980.        0.     1980.        0.        0.      168.        0.      443.       78.    741.00
     1.77      0.00     11.78      0.00      .150      .030      .150      .050   738.80    290.90
  .007820      60.       60.       60.         0         0         6      0.00    19.20    310.10


CCHV=    .100 CEHV=    .300
*SECNO 148000.000
 2800 NAT Q1=    2483.22  WSEL=     750.59  ENC Q1=    2483.22  WSEL=     750.69  RATIO=  0.0000
 NAT Q1=    2554.  RATIOS LOB,CH,ROB=    .1880   .2807   .5313  WSEL=     750.69

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


3470 ENCROACHMENT STATIONS=       57.0      304.7  TYPE=      4  TARGET=          .028
148000.00      12.59    750.59      0.00    750.59    750.62       .03       .01       .21    744.00
    1980.       363.      574.     1043.      292.      331.      848.      445.       78.    744.00
     1.78       1.24      1.74      1.23      .030      .030      .030      .050    738.00     57.01
  .000066       40.       40.      100.         3         0         0      0.00    247.72    304.73


*SECNO 148450.000
 2800 NAT Q1=    2500.87  WSEL=     750.62  ENC Q1=    2500.87  WSEL=     750.72  RATIO=  0.0000
 NAT Q1=    2572.  RATIOS LOB,CH,ROB=    .1881   .2800   .5318  WSEL=     750.72

3470 ENCROACHMENT STATIONS=       56.9      305.0  TYPE=      4  TARGET=          .028
148450.00      12.62    750.62      0.00    750.62    750.65       .03       .03       .00    744.00
    1980.       363.      572.     1045.      294.      332.      853.      458.       80.    744.00
     1.86       1.24      1.73      1.23      .030      .030      .030      .049    738.00     56.94
  .000065       400.      450.      350.         2         0         0      0.00    248.08    305.02


CCHV=    .600 CEHV=    .800
*SECNO 149500.000
 2800 NAT Q1=    2537.20  WSEL=     750.67  ENC Q1=    2537.20  WSEL=     750.77  RATIO=   .0000
 NAT Q1=    2609.  RATIOS LOB,CH,ROB=    .1884   .2785   .5330  WSEL=     750.77

3470 ENCROACHMENT STATIONS=       56.8      305.5  TYPE=      4  TARGET=          .027

          ** DOWNSTREAM OF GTWRR BRIDGE **

149500.00      12.67    750.67      0.00    750.67    750.70       .03       .05       .00    744.00
    1980.       364.      569.     1047.      297.      333.      863.      485.       84.    744.00
     2.03       1.22      1.71      1.21      .030      .030      .030      .049    738.00     56.81
  .000063       800.     1050.      700.         2         0         0      0.00    248.72    305.53


*SECNO 149550.000
 2800 NAT Q1=     155.80  WSEL=     750.18  ENC Q1=     156.94  WSEL=     750.28  RATIO=  -.0073
 NAT Q1=     158.  RATIOS LOB,CH,ROB=    .0072   .9928  0.0000  WSEL=     750.28

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=       91.3      108.8  TYPE=      4  TARGET=          .007
149550.00       9.66    750.17      0.00    750.18    752.75      2.58       .01      2.04    748.78
    1980.         0.     1980.        0.        0.      154.        0.      486.       85.    784.78
     2.03       0.00      12.88     0.00      .030      .030      .030      .049    740.51     91.25
  .016945       40.       50.      100.         3         0         0      0.00     16.00    108.75


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
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SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       2.33       2.50       0.00       16.00      0.00       129.00     0.00       740.51     740.51

*SECNO 149720.000
 PRESS FLOW BECAUSE EGLWC OF    758.80  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=    491.74  WSEL=    758.32  ENC Q1=    491.74  WSEL=    758.42  RATIO=   .0000
 NAT Q1=    498.  RATIOS LOB,CH,ROB=   .3242   .6758  0.0000  WSEL=    758.42
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      73.5      108.8  TYPE=     4  TARGET=        .013
149720.00     17.81    758.32      0.00    758.32    758.72      .41       .65      1.30    748.78
    1980.      631.     1349.       0.      108.      284.       0.       487.      85.     784.78
     2.04      5.83      4.75      0.00      .030      .030      .030      .049    740.51    73.52
  .001628      170.      170.      170.         0         0         0      0.00     33.73    108.75


CCHV=    .100 CEHV=    .300
*SECNO 149740.000
 2800 NAT Q1=   2379.01  WSEL=    758.74  ENC Q1=   2379.01  WSEL=    758.84  RATIO=   .0000
 NAT Q1=   2433.  RATIOS LOB,CH,ROB=   .1937   .1094   .6969  WSEL=    758.84
3280 CROSS SECTION 149740.00 EXTENDED      4.94 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=     145.4      688.8  TYPE=     4  TARGET=        .022

          ** UPSTREAM OF GTWRR BRIDGE -CORPORATE LIMITS **

149740.00     17.36    758.76      0.00    758.74    758.77      .01       .00       .04    750.90
    1980.      368.      223.     1389.      886.      160.     2883.      488.      85.     750.90
     2.05      .42       1.39      .48       .100      .030      .100      .049    741.40    145.45
  .000072      20.       20.       20.          2         0         0      0.00    543.31    688.76


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.55       2.50       0.00       9.40       0.00       49.00      0.00       741.40     741.40

*SECNO 149780.000
 2800 NAT Q1=   2413.37  WSEL=    758.80  ENC Q1=   2413.37  WSEL=    758.90  RATIO=  0.0000
 NAT Q1=   2464.  RATIOS LOB,CH,ROB=   .1947   .1086   .6968  WSEL=    758.90
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 149780.00 EXTENDED      5.00 FEET


3470 ENCROACHMENT STATIONS=     142.7      689.5  TYPE=     4  TARGET=        .021
149780.00     17.42    758.82      0.00    758.80    758.83      .01       .00       .00    750.90
    1980.      371.      221.     1388.      904.      161.     2909.      492.      85.     750.90
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2.07	.41	1.38	.48	.100	.030	.100	.049	741.40	142.70
.000069	40.	40.	40.	0	0	6	0.00	546.83	689.53

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: RIVER ROUGE – QUARTON BRANCH

4) DOCUMENT TYPE: 100 YR PRODUCTION RUNS

00BREAK00

JOB NO. UM7215 UNIVERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 13:32:47 03-27-80

QUESTION BRANCH

PRODUCTION RUNS

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

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MM          MM  NN          NN  EEEEEEEEEEEE  TTTTTTTTTTTT
MMM        MMM  NNN         NN  EEEEEEEEEEEE  TTTTTTTTTTTT
MMMM      MMMM  NNNN        NN  EE                    TT
MM MM    MM MM  NN NN       NN  EE                    TT
MM  MMMM  MM  MM  NN  NN     NN  EE                    TT
MM   MM   MM  MM  NN   NN    NN  EEEEEEEE              TT
MM        MM  MM  NN    NN   NN  EEEEEEEE              TT
MM        MM  MM  NN     NN  NN  EE                    TT
MM        MM  MM  NN      NN NN  EE                    TT
MM        MM  MM  NN       NNNN  EE                    TT
MM        MM  MM  NN        NNN  EE                    TT
MM        MM  MM  NN         NN  EEEEEEEEEEEE        TT
MM        MM  MM  NN          N  EEEEEEEEEEEE        TT
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XX        XX   SSSSSSSSS   NN         NN  LL
XX        XX  SSSSSSSSSSS  NNN        NN  LL
 XX      XX   SS         SS NNNN      NN  LL
  XX    XX    SS            NN NN     NN  LL
   XX  XX     SSS           NN  NN    NN  LL
    XXXX       SSSSSSSSS    NN   NN   NN  LL
    XXXX         SSSSSSSSS  NN    NN  NN  LL
   XX  XX              SSS  NN     NN NN  LL
  XX    XX             SS  NN      NNNN  LL
 XX      XX   SS        SS  NN       NNN  LL
XX        XX  SSSSSSSSSSS  NN        NN  LLLLLLLLLLL
XX        XX   SSSSSSSSS   NN         N  LLLLLLLLLLL
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERRCR CORR -  01,02,03
 /MODIFICATION -  5C,51,52,53
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C
T1       HUD-FIA H-4705 T06
T2       BLOOMFIELC TWP. FIS
T3       QUARTON BRANCH ROUGE RIVER 100 - YR.

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       -1.        4.         0.         0.   0.000C0       0.00      -1.0         0.    750.500      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

QT       5.000    850.000   1250.000   1450.000   1900.000   1450.000      0.000      0.000      0.000      0.000
NC        .085       .085       .055       .300       .500      0.000      0.000      0.000      0.000      0.000


         **STARTING ELEVATION FROM BIRMINGHAM FIS RATING CURVE

X1     101.200      9.000    218.000    240.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     756.000      0.000    749.200    130.000    745.800    150.000    742.600    218.000    741.200    230.000
GR     744.300    240.000    746.000    300.000    749.800    370.000    755.500    400.000      0.000      0.000

         **D/S FACE QUARTON RD.- CMP ARCH

X1     101.300      7.000    240.000    266.000    145.000    145.000    145.000      0.000      0.000      0.000
X3      10.000      0.000      0.000      0.000      0.000      0.000      0.000    750.000    750.000      0.000
GR     753.000    150.000    748.400    240.000    740.000    241.000    739.800    252.000    740.000    265.000
GR     748.400    266.000    753.000    300.000      0.000      0.000      0.000      0.000      0.000      0.000
SB       0.000      2.110      2.900    150.000     14.000      0.000     97.000      0.000    739.800    739.800

X1     101.700      C.000      0.000      0.000     54.000     54.000     54.000      0.000      0.000      0.000
X2       0.000      0.000      1.000    748.400    753.000      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    753.000    753.000      0.000
NC        .070       .070      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     101.800      7.000    100.000    208.000     95.000     95.000     95.000      0.000      0.000      0.000
X4       1.000    743.200    120.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     756.000      0.000    743.200    120.000    743.200    208.000    746.000    210.000    746.200    230.000
GR     751.000    330.000    755.100    490.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       0.000      0.000      0.000       .100       .300      0.000      0.000      C.000      0.000      0.000

X1     103.000     12.000    262.000    282.000   1245.000   1245.000   1245.000      0.000      0.000      0.000
GR     758.000      0.000    748.800     40.000    749.500    170.000    748.500    260.000    745.200    262.000
GR     745.200    280.000    748.100    282.000    748.200    375.000    751.000    398.000    751.500    485.000
GR     755.000    540.000    758.000    675.000      0.000      0.000      0.000      0.000      0.000      0.000
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X1	104.000	9.000	100.000	169.000	955.000	955.000	955.000	0.000	0.000	0.000
GR	761.400	0.000	757.700	80.000	755.000	100.000	748.000	138.000	748.000	160.000
GR	749.600	169.000	749.800	190.000	748.800	244.000	760.000	293.000	0.000	0.000
X1	104.300	0.000	0.000	0.000	90.000	90.000	90.000	0.000	.300	0.000
X3	0.000	0.000	0.000	0.000	0.000	190.000	0.000	0.000	0.000	0.000
X1	105.000	10.000	366.000	404.000	685.000	685.000	685.000	0.000	0.000	0.000
GR	765.000	0.000	763.000	271.000	754.400	366.000	750.900	378.000	750.900	397.000
GR	752.600	404.000	756.600	453.000	758.600	600.000	762.800	844.000	765.000	845.000
NC	.075	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	105.500	0.000	0.000	0.000	350.000	350.000	350.000	0.000	1.300	0.000
X1	105.700	0.000	0.000	0.000	350.000	350.000	350.000	0.000	1.100	0.000
X1	106.200	17.000	275.000	362.000	270.000	270.000	270.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	274.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	770.000	0.000	764.400	38.000	758.800	97.000	753.000	115.000	753.000	129.000
GR	761.000	144.000	761.000	148.000	759.400	274.000	759.400	275.000	755.000	298.000
GR	753.000	325.000	755.000	355.000	757.000	362.000	757.000	378.000	757.000	400.000
GR	758.000	466.000	770.000	467.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**D/S FACE CHESTERFIELD RD.- 2 CMP ARCHES PROPOSED

X1	106.300	0.000	0.000	0.000	245.000	245.000	245.000	0.000	.900	0.000
X3	0.000	0.000	0.000	144.000	0.000	362.000	0.000	0.000	0.000	0.000
SB	1.000	2.050	2.900	0.000	17.500	.100	122.000	0.000	0.000	0.000
X1	106.700	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	759.900	0.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	144.000	0.000	362.000	0.000	0.000	0.000	0.000
BT	8.000	0.000	761.400	0.000	60.000	761.400	0.000	85.000	760.700	0.000
BT	105.000	761.400	0.000	130.000	762.000	0.000	155.000	760.400	0.000	180.000
BT	760.000	0.000	205.000	760.900	0.000	0.000	0.000	0.000	0.000	0.000
X1	106.800	12.000	379.000	412.000	80.000	80.000	80.000	0.000	0.000	0.000
GR	770.000	0.000	764.300	55.000	764.300	200.000	767.500	217.000	759.400	257.000
GR	757.400	365.000	755.500	379.000	755.500	402.000	758.300	412.000	766.500	500.000
GR	767.000	700.000	770.000	775.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

**100 FT. D/S ENDICOTT LAKE DAM

X1	107.200	13.000	242.000	339.000	420.000	420.000	420.000	0.000	0.000	0.000
GR	769.000	30.000	767.400	71.000	764.500	92.000	764.500	199.000	767.900	200.000
GR	767.900	220.000	760.600	242.000	757.500	290.000	757.500	336.000	760.200	339.000
GR	763.400	400.000	771.200	489.000	775.000	704.000	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

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          **WSEL 1865 FT. U/S DAM IS INPUT DIRECTLY USING HAND CALCULATED SPILLWAY
          **RATING CURVE ASSUMING NO FRICTION THRU LAKE.
X1     108.000     8.000   195.000   395.000  1865.000  1865.000  1865.000     0.000     0.000     0.000
X5       5.000   767.500   767.700   767.800   768.000   767.800     0.000     0.000     0.000     0.000
GR     770.000    80.000   769.000   160.000   767.500   195.000   762.700   230.000   762.700   360.000
GR     767.500   380.000   768.500   395.000   770.000   490.000     0.000     0.000     0.000     0.000
NC       0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

X1     109.200     7.000    70.000   179.000   525.000   525.000   525.000     0.000     0.000     0.000
GR     777.000     0.000   768.300    70.000   764.200    80.000   764.200   175.000   766.900   179.000
GR     769.800   234.000   772.800   336.000     0.000     0.000     0.000     0.000     0.000     0.000

          **D/S FACE DRIVEWAY - 2 CONC. ARCHES
X1     109.300    10.000   225.000   330.000   115.000   115.000   115.000     0.000     0.000     0.000
X3      10.000     0.000     0.000     0.000     0.000     0.000     0.000   770.000   770.000     0.000
GR     773.100    98.000   770.500   225.000   765.000   226.000   765.000   239.000   770.500   240.000
GR     770.500   315.000   765.000   317.000   765.000   329.000   770.500   330.000   773.000   450.000
SB       0.000     1.500     2.700   300.000    30.000     0.000   127.000     0.000   765.800   765.000

X1     109.700     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   768.000   773.000     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   773.000   773.000     0.000

X1     109.800    12.000    91.000   131.000   152.000   152.000   152.000     0.000     0.000     0.000
GR     777.000     0.000   772.800    34.000   769.800    91.000   767.800   102.000   765.000   110.000
GR     765.000   120.000   768.500   131.000   769.000   180.000   766.800   210.000   767.000   258.000
GR     773.000   269.000   775.800   359.000     0.000     0.000     0.000     0.000     0.000     0.000

          **D/S FACE DRIVEWAY- CONC. BOX
X1     110.300    10.000   300.000   325.000   200.000   200.000   200.000     0.000     0.000     0.000
GR     778.000     0.000   771.800   150.000   770.700   240.000   771.600   270.000   771.200   300.000
GR     768.700   301.000   764.700   310.000   768.500   324.000   771.200   325.000   778.000   430.000
NC       0.000     0.000      .020      .500     1.000     0.000     0.000     0.000     0.000     0.000

X1     110.400     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT       9.000     0.000   778.000     0.000   150.000   771.800     0.000   240.000   770.700     0.000
BT     270.000   771.600     0.000   300.000   772.100   771.200   301.000   773.700   771.200   324.000
BT     773.700   771.200   325.000   773.000   771.200   430.000   778.000     0.000     0.000     0.000

X1     110.600     0.000     0.000     0.000    13.000    13.000    13.000     0.000     0.000     0.000
X2       0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000

X1     110.700     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
NC       0.000     0.000      .055      .300      .500     0.000     0.000     0.000     0.000     0.000

X1     110.730    11.000   305.000   340.000    50.000    50.000    50.000     0.000    -.500     0.000
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GR	779.000	0.000	774.800	130.000	763.500	230.000	763.500	240.000	770.000	305.000
GR	765.800	310.000	765.800	335.000	768.500	340.000	769.000	370.000	772.000	395.000
GR	779.000	440.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	110.800	0.000	0.000	0.000	110.000	110.000	110.000	0.000	.500	0.000
X4	2.000	780.000	245.000	780.000	300.000	0.000	0.000	0.000	0.000	0.000

**D/S FACE CRANBROOK CT.- CMP ARCH

X1	111.300	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.200	0.000
SB	1.000	1.590	2.800	0.000	15.000	.100	71.000	0.000	0.000	0.000
X1	111.700	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	772.600	0.000	0.000	0.000	0.000	0.000	0.000
BT	10.000	0.000	779.000	0.000	120.000	775.200	0.000	210.000	773.500	0.000
BT	250.000	773.000	0.000	251.000	780.000	0.000	320.000	780.000	0.000	321.000
BT	773.700	0.000	380.000	774.000	0.000	420.000	775.000	0.000	470.000	779.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	111.750	12.000	215.000	310.000	50.000	50.000	50.000	0.000	-.600	0.000
GR	777.500	20.000	773.600	60.000	770.000	170.000	769.500	215.000	767.000	228.000
GR	767.000	240.000	770.000	250.000	769.500	270.000	767.000	280.000	767.000	295.000
GR	770.500	310.000	779.000	370.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	111.800	0.000	0.000	0.000	212.000	212.000	212.000	0.000	.600	0.000

**D/S FACE DRIVEWAY- STONE ARCH

X1	112.300	0.000	0.000	0.000	140.000	140.000	140.000	0.000	.600	0.000
X3	0.000	0.000	0.000	60.000	0.000	310.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.030	.500	1.000	0.000	0.000	0.000	0.000	0.000
X1	112.400	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	769.600	773.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	310.000	0.000	0.000	0.000	0.000
X1	112.600	0.000	0.000	0.000	13.000	13.000	13.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	769.600	773.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	310.000	0.000	0.000	0.000	0.000
X1	112.700	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	310.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	112.800	9.000	385.000	410.000	350.000	350.000	350.000	0.000	0.000	0.000
GR	780.000	0.000	775.500	110.000	774.800	240.000	771.500	280.000	772.500	330.000
GR	773.000	385.000	768.200	395.000	772.500	410.000	779.500	470.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	113.000	13.000	455.000	490.000	450.000	450.000	450.000	0.000	0.000	0.000

X3	0.000	0.000	0.000	390.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	782.000	0.000	776.700	130.000	771.000	210.000	772.700	330.000	773.500	390.000
GR	773.800	455.000	771.500	460.000	771.500	480.000	774.000	490.000	774.500	580.000
GR	774.500	630.000	778.000	630.000	782.000	650.000	0.000	0.000	0.000	0.000
NC	.090	.090	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	114.200	9.000	550.000	620.000	200.000	200.000	200.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	779.000	779.000	0.000
GR	780.000	140.000	775.500	340.000	774.000	550.000	773.000	575.000	772.200	580.000
GR	772.200	590.000	774.000	610.000	774.200	620.000	777.000	680.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**D/S FACE LONE PINE RD.- STONE ARCH

X1	114.300	7.000	106.500	123.500	100.000	100.000	100.000	0.000	0.000	0.000
GR	772.600	106.500	772.500	107.500	772.000	111.000	771.400	115.000	772.000	119.000
GR	773.200	122.500	773.700	123.500	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.030	.500	1.000	0.000	0.000	0.000	0.000	0.000
X1	114.400	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	7.000	106.500	789.100	772.600	107.500	789.100	777.400	111.000	789.100	781.000
BT	115.000	789.100	782.100	119.000	789.100	781.000	122.500	789.100	777.500	123.500
BT	789.100	773.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	114.600	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.055	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	114.700	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	114.800	13.000	516.000	546.000	83.000	83.000	83.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	430.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	788.000	145.000	785.500	220.000	782.500	255.000	779.200	320.000	777.800	390.000
GR	772.500	430.000	777.500	431.000	777.400	516.000	772.500	520.000	772.500	540.000
GR	777.400	546.000	778.300	606.000	786.400	611.000	0.000	0.000	0.000	0.000
X1	115.000	12.000	209.000	316.000	1000.000	1000.000	1000.000	.940	0.000	0.000
GR	800.000	0.000	786.600	141.000	784.400	188.000	781.200	209.000	776.500	211.000
GR	776.500	229.000	778.100	240.000	779.100	298.000	780.400	316.000	782.000	390.000
GR	787.200	415.000	793.300	471.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	115.500	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.400	0.000
X1	116.200	11.000	125.000	209.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	789.000	69.000	783.000	125.000	780.100	131.000	778.600	161.000	778.600	173.000
GR	780.100	203.000	782.100	209.000	785.200	340.000	785.600	410.000	788.800	465.000
GR	790.400	533.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**D/S FACE BRADY LANE- CONC. BOX

X1	116.300	0.000	0.000	0.000	150.000	150.000	150.000	0.000	1.100	0.000
SB	1.000	1.500	2.900	180.000	16.000	.100	72.000	0.000	779.700	779.700
X1	116.700	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	784.000	785.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	340.000	0.000	0.000	0.000	0.000
NC	.080	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	116.800	13.000	263.000	330.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	790.000	135.000	787.600	198.000	783.500	221.000	784.200	263.000	782.800	286.000
GR	780.600	288.000	780.600	297.000	783.200	307.000	784.200	330.000	785.100	387.000
GR	785.100	422.000	786.400	461.000	790.000	500.000	0.000	0.000	0.000	0.000
X1	116.900	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.600	0.000
X1	117.200	10.000	140.000	210.000	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	788.000	788.000	0.000
GR	787.600	60.000	784.800	107.000	784.500	140.000	784.500	155.000	781.700	175.000
GR	781.700	185.000	785.200	197.000	785.500	210.000	787.200	372.000	790.400	457.000

**D/S FACE CRANBROOK RD.- CONC. BOX

X1	117.300	6.000	182.000	200.000	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	790.300	790.300	0.000
GR	796.000	180.000	788.600	182.000	782.500	185.000	782.500	199.000	788.600	200.000
GR	791.000	470.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.540	3.100	0.000	14.000	0.000	85.000	0.000	782.500	782.500
X1	117.700	0.000	0.000	0.000	33.000	33.000	33.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	788.600	791.500	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	795.500	795.500	0.000
BT	8.000	180.000	796.000	0.000	180.100	791.500	0.000	193.900	791.500	0.000
BT	194.000	795.700	0.000	220.000	795.400	0.000	350.000	795.500	0.000	390.000
BT	795.900	0.000	530.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	117.750	9.000	232.000	286.000	50.000	50.000	50.000	0.000	-1.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	795.500	795.500	0.000
GR	802.000	0.000	792.800	131.000	793.200	175.000	790.400	232.000	784.000	270.000
GR	784.000	278.000	787.200	286.000	788.500	330.000	792.600	377.000	0.000	0.000
X1	117.800	0.000	0.000	0.000	150.000	150.000	150.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	232.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

**100 FT. D/S CRANBROOK LAKE DAM

X1	117.850	0.000	0.000	0.000	300.000	300.000	300.000	0.000	3.200	0.000
NC	.095	.060	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**WSEL 1450 FT. U/S DAM IS INPUT DIRECTLY USING HAND CALCULATED SPILLWAY

**RATING CURVE ASSUMING NO FRICTION THRU LAKE.

X1	118.200	11.000	637.000	763.000	1450.000	1450.000	1450.000	C.CCC	0.000	0.000
X5	5.000	797.700	797.900	798.000	798.200	798.000	0.000	0.000	0.000	0.000
GR	804.400	243.000	803.200	408.000	801.400	495.000	797.300	562.000	797.900	610.000
GR	797.100	637.000	791.500	690.000	791.500	710.000	796.600	763.000	801.200	817.000
GR	805.000	860.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	C.CCO	0.000	0.000

**D/S FACE DRIVEWAY- CONC. ARCH

X1	118.300	4.000	620.000	666.000	90.000	90.000	90.000	0.000	0.000	0.000
GR	800.000	620.000	792.700	621.000	792.700	665.000	800.000	666.000	0.000	0.000
NC	0.000	C.000	.020	.500	1.000	0.000	0.000	C.OOC	0.000	0.000
X1	118.400	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	799.000	800.000	0.000	0.000	0.000	0.000	0.000
X1	118.600	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	799.000	800.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.055	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	118.700	C.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	118.800	10.000	263.000	359.000	225.000	225.000	225.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	263.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	800.000	100.000	799.600	263.000	795.800	278.000	791.800	308.000	791.800	323.000
GR	795.800	350.000	798.200	359.000	801.100	409.000	803.700	471.000	805.000	531.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	118.900	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.600	0.000
NC	.095	.095	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	119.100	10.000	151.000	210.000	400.000	400.000	400.000	0.000	-.400	0.000
GR	810.000	0.000	801.000	19.000	799.200	151.000	794.400	180.000	794.400	190.000
GR	799.000	210.000	804.600	247.000	805.700	344.000	803.800	425.000	810.000	603.000
X1	119.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	.400	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**D/S FACE TAMARACK WAY- CONC. ARCH

X1	119.300	11.000	222.000	285.000	190.000	190.000	190.000	0.000	-.500	0.000
X3	0.000	0.000	0.000	175.000	0.000	395.000	0.000	0.000	0.000	0.000
GR	810.000	C.000	804.000	175.000	801.000	222.000	797.400	230.000	797.000	260.000
GR	794.500	270.000	794.500	275.000	799.100	285.000	801.700	371.000	804.800	395.000
GR	807.000	627.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.000	1.460	2.900	230.000	17.500	.100	115.000	0.000	0.000	0.000
X1	19.700	C.000	0.000	0.000	22.000	22.000	22.000	C.OOC	0.000	0.000

X2	0.000	0.000	1.000	800.000	805.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	175.000	0.000	395.000	0.000	0.000	0.000	0.000
X1	119.800	11.000	222.000	285.000	90.000	90.000	90.000	0.000	.500	0.000
GR	810.000	0.000	804.000	175.000	801.000	222.000	797.400	230.000	797.000	260.000
GR	794.500	270.000	794.500	275.000	799.100	285.000	801.700	371.000	804.800	395.000
GR	807.000	627.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	120.000	11.000	269.000	290.000	400.000	400.000	400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	812.000	0.000	801.900	64.000	799.500	200.000	799.600	252.000	799.000	269.000
GR	796.700	277.000	796.700	283.000	798.700	290.000	800.600	415.000	808.400	443.000
GR	812.000	475.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	120.500	0.000	0.000	0.000	440.000	440.000	440.000	0.000	1.900	0.000
X1	121.100	10.000	173.000	217.000	210.000	210.000	210.000	0.000	-.300	0.000
GR	815.000	0.000	808.500	41.000	805.000	173.000	803.300	183.000	799.500	197.000
GR	799.500	202.000	802.300	217.000	806.000	328.000	807.700	476.000	815.000	522.000
X1	121.200	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.300	0.000
QT	5.000	620.000	920.000	1080.000	1450.000	1080.000	0.000	0.000	0.000	0.000

**CONFLUENCE WITH FOREST LAKE-LONG LAKE BRANCH

X1	121.250	0.000	0.000	0.000	130.000	130.000	130.000	0.000	.500	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**D/S FACE GULFORD- CONC. ARCH

X1	121.300	0.000	0.000	0.000	110.000	110.000	110.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	328.000	0.000	806.500	806.500	0.000
SB	1.000	1.470	2.900	0.000	12.000	.100	78.000	0.000	798.400	798.400
X1	121.700	0.000	0.000	0.000	19.000	19.000	19.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	806.200	807.600	0.000	0.000	0.000	.960	0.000
X3	10.000	0.000	0.000	0.000	0.000	328.000	0.000	807.600	807.600	0.000
BT	6.000	28.000	812.800	0.000	125.000	809.200	0.000	200.000	809.000	0.000
BT	276.000	807.600	0.000	345.000	808.400	0.000	420.000	812.600	0.000	0.000
X1	121.800	10.000	269.000	290.000	115.000	115.000	115.000	0.000	0.000	0.000
GR	814.800	32.000	808.600	102.000	808.400	224.000	803.800	251.000	803.800	269.000
GR	800.900	275.000	800.900	280.000	804.400	290.000	805.400	333.000	808.000	350.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	121.900	10.000	313.000	351.000	230.000	230.000	230.000	0.000	-1.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	375.000	0.000	0.000	0.000	0.000
GR	815.000	0.000	811.100	87.000	809.400	174.000	809.000	250.000	807.000	313.000
GR	804.600	333.000	804.600	338.000	808.400	351.000	808.800	375.000	810.500	550.000

X1	122.000	0.000	0.000	0.000	345.000	345.000	345.000	0.000	1.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	375.000	0.000	0.000	0.000	0.000
X1	123.100	8.000	276.000	310.000	405.000	405.000	405.000	0.000	-1.500	0.000
X4	1.000	810.000	210.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	816.600	28.000	810.900	150.000	809.600	276.000	807.500	286.000	807.500	293.000
GR	810.600	310.000	810.800	319.000	815.900	373.000	0.000	0.000	0.000	0.000
X1	123.150	0.000	0.000	0.000	170.000	170.000	170.000	0.000	1.000	0.000
X3	10.000	0.000	0.000	210.000	0.000	0.000	0.000	0.000	825.000	0.000
X4	1.000	810.000	210.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	123.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.500	0.000
X3	10.000	0.000	0.000	240.000	0.000	0.000	0.000	0.000	825.000	0.000
X4	1.000	809.500	240.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**D/S FACE WOODWARD AVE.- CONC. BOX

X1	123.300	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.000	825.000	0.000
SB	1.000	2.700	2.860	0.000	12.000	.100	46.900	0.000	0.000	0.000
X1	123.700	0.000	0.000	0.000	200.000	200.000	200.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	811.500	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	816.000	816.000	0.000
BT	12.000	0.000	821.000	0.000	80.000	818.500	0.000	170.000	816.800	0.000
BT	171.000	825.000	0.000	230.000	825.000	0.000	231.000	816.000	0.000	271.000
BT	816.000	0.000	272.000	825.000	0.000	560.000	825.000	0.000	561.000	815.500
BT	0.000	661.000	816.500	0.000	662.000	825.000	0.000	0.000	0.000	0.000
X1	123.800	12.000	355.000	381.000	150.000	150.000	150.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	293.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	819.000	108.000	816.400	178.000	810.000	293.000	810.200	355.000	807.800	365.000
GR	807.800	375.000	809.000	381.000	809.600	408.000	813.600	422.000	813.800	464.000
GR	814.600	466.000	815.300	540.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	124.000	10.000	429.000	446.000	1025.000	1025.000	1025.000	0.000	0.000	0.000
GR	822.800	175.000	815.800	261.000	811.700	379.000	812.300	405.000	811.200	429.000
GR	810.500	434.000	810.500	438.000	811.100	446.000	811.800	545.000	821.400	606.000
X1	125.000	9.000	308.000	324.000	1125.000	1125.000	1125.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000
GR	820.700	20.000	815.000	33.000	814.500	238.000	813.600	308.000	813.600	314.000
GR	813.600	318.000	813.600	324.000	815.800	438.000	821.000	496.000	0.000	0.000
X1	125.100	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000

X1	125.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000
X1	125.300	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000
X1	125.400	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000
X1	125.500	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000
X1	125.600	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000

**100 FT D/S CONFLUENCE WITH STONYCREFT BR. AND AMY DRAIN. 100YR WSEL=8

**PER STUDY BY DONALD L. KNAPP AND ASSOC.

X1	125.700	9.000	310.000	325.000	60.000	60.000	60.000	0.000	0.000	0.000
GR	830.000	210.000	820.000	250.000	819.000	310.000	819.000	315.000	819.000	320.000
GR	819.000	325.000	819.500	430.000	820.000	540.000	830.000	600.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .300 CEHV= .500

*SECNO 101.200

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	VRCB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
	**STARTING ELEVATION FROM BIRMINGHAM FIS RATING CURVE								
101.20	9.30	750.50	0.00	750.50	750.53	.03	0.00	0.00	742.60
1450.	573.	401.	476.	505.	181.	504.	0.	0.	744.30
0.00	1.14	2.22	.94	.085	.055	.085	0.000	741.20	105.15
.000421	0.	0.	0.	0	0	0	0.00	268.54	373.68

*SECNO 101.300

**D/S FACE QUARTON RD.- CMP ARCH

101.30	10.64	750.44	0.00	0.00	750.85	.41	.13	.19	748.40
1450.	40.	1394.	15.	41.	265.	15.	3.	1.	748.40
.01	.99	5.25	.98	.085	.055	.085	.055	739.80	200.06
.003124	145.	145.	145.	2	0	0	0.00	81.03	281.09

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.11	2.90	150.00	14.00	0.00	97.00	0.00	739.80	739.80

*SECNO 101.700

3280 CROSS SECTION 101.70 EXTENDED .90 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	CPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
757.76	750.90	0.00	440.	1012.	97.	120.	748.40	753.00
101.70	14.10	753.90	0.00	0.00	754.01	.11	3.15	0.00	748.40
1450.	284.	1060.	106.	288.	355.	109.	3.	1.	748.40
.01	.99	2.98	.97	.085	.055	.085	.054	739.80	150.00
.000682	54.	54.	54.	2	0	4	0.00	150.00	300.00

*SECNO 101.800

101.80	10.84	754.04	0.00	0.00	754.05	.01	.01	.03	806.00
1450.	0.	1079.	371.	0.	1505.	903.	7.	1.	743.20
.06	0.00	.72	.41	.070	.055	.070	.054	743.20	18.36
.000045	95.	95.	95.	2	0	0	0.00	430.36	448.71

CofQ
to
matches well with the 1968
flood here

CCHV= .100 CEHV= .300

*SECNO 103.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALCB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLCBL	XLCH	XLCBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
103.00	8.92	754.12	0.00	0.00	754.13	.01	.08	.00	745.20
1450.	706.	188.	556.	1183.	176.	963.	74.	15.	748.10
.59	.60	1.07	.58	.070	.055	.070	.055	745.20	16.87
.000096	1245.	1245.	1245.	2	0	0	0.00	509.30	526.17

*SECNO 104.000

104.00	6.29	754.29	0.00	0.00	754.36	.06	.21	.02	755.00
1450.	0.	673.	777.	0.	295.	432.	108.	22.	749.60
.72	0.00	2.28	1.80	.070	.055	.070	.055	748.00	103.85
.000962	955.	955.	955.	2	0	0	0.00	164.18	268.02

*SECNO 104.300

3470 ENCROACHMENT STATIONS= .0 190.0 TYPE= 1 TARGET= 189.999

104.30	6.01	754.31	0.00	0.00	754.56	.26	.15	.06	755.30
1450.	0.	1182.	268.	0.	277.	90.	109.	22.	749.90
.72	0.00	4.27	2.97	.070	.055	.070	.055	748.30	105.39
.003557	90.	90.	90.	2	0	0	0.00	84.61	190.00

Topo shows Creek @ 200 ft

*SECNO 105.000

105.00	6.05	756.95	0.00	0.00	757.31	.37	2.72	.03	754.40
1450.	59.	1102.	288.	36.	203.	119.	114.	24.	752.60
.76	1.66	5.44	2.42	.070	.055	.070	.055	750.90	337.89
.004451	685.	685.	685.	2	0	0	0.00	140.41	478.31

*SECNO 105.500

105.50	6.03	758.23	0.00	0.00	758.62	.39	1.30	.01	755.70
1450.	46.	1126.	279.	35.	202.	118.	117.	25.	753.90
.78	1.29	5.57	2.36	.075	.045	.060	.054	752.20	338.09
.003142	350.	350.	350.	2	0	0	0.00	138.90	476.99

*SECNO 105.700

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
105.70	6.03	759.33	0.00	0.00	759.72	.39	1.10	.00	756.80
1450.	46.	1125.	279.	35.	202.	118.	120.	26.	755.00
.81	1.29	5.57	2.36	.075	.045	.060	.053	753.30	338.08
.003138	350.	350.	350.	2	0	0	0.00	139.03	477.10

*SECNO 106.200

3470 ENCROACHMENT STATIONS= 274.0 467.0 TYPE= 1 TARGET= -274.000

106.20	7.01	760.01	0.00	0.00	760.09	.08	.35	.03	759.40
1450.	0.	1099.	351.	1.	436.	281.	123.	27.	757.00
.84	.27	2.52	1.25	.075	.045	.060	.053	753.00	274.00
.000690	270.	270.	270.	2	0	0	0.00	192.17	466.17

CCHV= .300 CEHV= .500
*SECNO 106.300

3470 ENCROACHMENT STATIONS= 144.0 362.0 TYPE= 1 TARGET= 218.000

**D/S FACE CHESTERFIELD RD.- 2 CMP ARCHES PROPOSED

106.30	6.31	760.21	0.00	0.00	760.44	.23	.27	.08	760.30
1450.	0.	1450.0	0.	0.	374.	0.	127.	28.	100000.00
.86	0.00	3.87	0.00	.075	.045	.060	.052	753.90	275.47
.002046	245.	245.	245.	2	0	0	0.00	186.53	362.00

Small

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
5227 DOWNSTREAM ELEV IS 759.51 ,NOT 760.21 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	2.05	2.90	0.00	17.50	.10	122.00	0.00	753.90	753.90

*SECNO 106.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
764.71	760.66	0.00	546.	904.	122.	-13118.	0.00	760.00

3470 ENCROACHMENT STATIONS= 144.0 362.0 TYPE= 1 TARGET= 218.000

106.70	7.95	761.85	0.00	0.00	761.96	.11	1.52	0.00	760.30
1450.	42.	1408.	0.	96.	517.	0.	127.	28.	100000.00
.86	.44	2.73	0.00	.075	.045	.060	.052	753.90	152.34
.000680	15.	15.	15.	2	0	4	0.00	209.66	362.00

*SECNO 106.800

106.80	6.43	761.93	0.00	0.00	762.03	.10	.06	.00	755.50
1450.	702.	668.	81.	473.	198.	71.	128.	29.	758.30
.87	1.48	3.37	1.14	.075	.045	.060	.052	755.50	244.52
.000970	80.	80.	80.	2	0	0	0.00	206.40	450.92

CCHV= .100 CEHV= .300
*SECNO 107.200

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

**100 FT. D/S ENDICOTT LAKE DAM

107.20	4.90	762.40	0.00	0.00	762.59	.19	.54	.03	760.60
1450.	3.	1396.	51.	5.	397.	46.	134.	30.	760.20
.90	.62	3.52	1.11	.090	.045	.060	.051	757.50	236.57
.001757	420.	420.	420.	2	0	0	0.00	144.42	380.98

*SECNO 108.000
WATER EL=X5 CARD= 767.800

**WSEL 1865 FT. U/S DAM IS INPUT DIRECTLY USING HAND CALCULATED SPILLWAY

**RATING CURVE ASSUMING NO FRICTION THRU LAKE.

108.00	5.10	767.80	0.00	0.00	767.85	.05	1.84	.01	767.50
1450.	0.	1450.	0.	1.	812.	0.	161.	38.	768.50
1.19	.14	1.79	0.00	.075	.055	.075	.052	762.70	188.00
.000631	1865.	1865.	1865.	0	0	0	0.00	196.50	384.50

CCHV= .300 CEHV= .500
*SECNO 109.200

109.20	4.13	768.33	0.00	0.00	768.51	.18	.60	.06	768.30
1450.	0.	1434.	16.	0.	424.	19.	168.	40.	766.90
1.24	.01	3.38	.81	.075	.055	.075	.053	764.20	69.74
.002603	525.	525.	525.	2	0	0	0.00	136.42	206.16

*SECNO 109.300

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HV INS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 770.00 ELREA= 770.00

**D/S FACE DRIVEWAY - 2 CONC. ARCHES

109.30	4.57	769.57	769.57	0.00	771.70	2.14	.79	.98	770.50
1450.	0.	1450.	0.	0.	124.	0.	169.	40.	770.50
1.24	0.00	11.73	0.00	.075	.055	.075	.053	765.00	225.17
.047244	115.	115.	115.	20	8	0	0.00	29.15	329.83

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.70	300.00	30.00	0.00	127.00	0.00	765.80	765.00

*SECNO 109.700

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
772.60	771.87	0.00	0.	1450.	127.	66.	768.00	773.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 773.00 ELREA= 773.00

109.70	7.32	772.32	0.00	0.00	772.60	.28	.90	0.00	770.50
1450.	0.	1450.	0.	0.	343.	0.	169.	40.	770.50
1.24	0.00	4.23	0.00	.075	.055	.075	.053	765.00	225.00
.006208	18.	18.	18.	2	0	0	0.00	105.00	330.00

*SECNO 109.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLCB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VRCB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
109.80	7.83	772.83	0.00	0.00	772.87	.04	.20	.07	769.80
1450.	54.	497.	899.	87.	241.	664.	171.	41.	768.50
1.27	.62	2.06	1.35	.075	.055	.075	.053	765.00	33.74
.000552	152.	152.	152.	3	0	0	0.00	234.96	268.69

*SECNO 110.300

**D/S FACE DRIVEWAY- CONC. BOX

110.30	8.23	772.93	0.00	0.00	773.28	.35	.25	.16	771.20
1450.	533.	886.	31.	266.	151.	23.	175.	42.	771.20
1.28	2.00	5.87	1.33	.075	.055	.075	.053	764.70	122.64
.005474	200.	200.	200.	3	0	0	0.00	229.09	351.73

CCHV= .500 CEHV= 1.000

*SECNO 110.400

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 770.70 MAX ELLC= 771.20

110.40	8.24	772.94	772.75	0.00	773.73	.79	.01	.44	771.20
1450.	509.	941.	0.	253.	108.	0.	175.	42.	771.20
1.28	2.01	8.74	0.00	.075	.020	.075	.053	764.70	122.58
.005771	1.	1.	1.	0	9	0	-79.81	229.18	351.76

*SECNO 110.600

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 770.70 MAX ELLC= 771.20

110.60	8.94	773.64	0.00	0.00	774.00	.36	.06	.22	771.20
1450.	736.	712.	2.	385.	109.	4.	175.	42.	771.20
1.28	1.91	6.56	.54	.075	.020	.075	.053	764.70	105.47
.003369	13.	13.	13.	7	0	0	-115.15	257.21	362.68

*SECNO 110.700

110.70	8.95	773.65	0.00	0.00	774.10	.45	.00	.10	771.20
1450.	360.	1062.	28.	400.	169.	46.	175.	42.	771.20
1.28	.90	6.29	.61	.075	.020	.075	.053	764.70	105.26
.000715	1.	1.	1.	0	0	0	0.00	257.56	362.82

CCHV= .300 CEHV= .500

*SECNO 110.730

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALCB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLCBL	XLCH	XLCBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
110.73	11.23	774.23	0.00	0.00	774.24	.01	.01	.13	769.50
1450.	924.	338.	189.	1189.	295.	309.	176.	42.	768.00
1.30	.78	1.14	.61	.075	.055	.075	.053	763.00	130.60
.000113	50.	50.	50.	2	0	0	0.00	281.97	412.56

*SECNO 110.800

3265 DIVIDED FLOW

110.80	10.74	774.24	0.00	0.00	774.27	.03	.02	.01	770.00
1450.	709.	487.	254.	640.	278.	275.	180.	43.	768.50
1.32	1.11	1.75	.92	.075	.055	.075	.053	763.50	134.93
.000287	110.	110.	110.	2	0	0	0.00	214.87	409.42

*SECNO 111.300

3265 DIVIDED FLOW

**D/S FACE CRANBROOK CT.- CMP ARCH

111.30	10.55	774.25	0.00	0.00	774.28	.03	.01	.00	770.20
1450.	712.	491.	248.	619.	272.	261.	181.	43.	768.70
1.33	1.15	1.81	.95	.075	.055	.075	.053	763.70	136.63
.000316	40.	40.	40.	0	0	0	0.00	211.78	408.18

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	1.59	2.80	0.00	15.00	.10	71.00	0.00	763.70	763.70

*SECNO 111.700

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
784.55	774.28	.00	977.	473.	71.	-11379.	0.00	773.00
111.70	11.63	775.33	0.00	0.00	775.35	.02	1.07	0.00	770.20
1450.	704.	469.	277.	743.	309.	339.	182.	43.	768.70
1.33	.95	1.52	.82	.075	.055	.075	.053	763.70	119.74
.000187	16.	16.	16.	2	0	6	0.00	236.48	415.13

*SECNO 111.750

111.75	8.94	775.34	0.00	0.00	775.36	.02	.01	.00	768.90
1450.	507.	895.	48.	763.	725.	105.	183.	43.	769.90
1.35	.66	1.24	.46	.075	.055	.075	.053	766.40	35.96
.000142	50.	50.	50.	0	0	0	0.00	312.47	348.43

*SECNO 111.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLCB	QCH	QRCB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VRCB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
111.80	8.38	775.38	0.00	0.00	775.40	.02	.04	.00	769.50
1450.	482.	926.	42.	663.	671.	84.	191.	45.	770.50
1.40	.73	1.38	.50	.075	.055	.075	.053	767.00	41.76
.000196	212.	212.	212.	0	0	0	0.00	302.68	344.44

*SECNO 112.300

3470 ENCROACHMENT STATIONS= 60.0 310.0 TYPE= 1 TARGET= 250.000

**D/S FACE DRIVEWAY- STONE ARCH

112.30	7.81	775.41	0.00	0.00	775.44	.03	.03	.00	770.10
1450.	471.	979.	0.	557.	616.	0.	195.	46.	100000.00
1.43	.84	1.59	0.00	.075	.055	.075	.053	767.60	60.00
.000309	140.	140.	140.	0	0	0	0.00	250.00	310.00

CCHV= .500 CEHV= 1.000
*SECNO 112.400

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 773.50 MAX ELLC= 769.60

3470 ENCROACHMENT STATIONS= 60.0 310.0 TYPE= 1 TARGET= 250.000

112.40	7.81	775.41	0.00	0.00	775.54	.14	.00	.11	770.10
1450.	522.	928.	0.	288.	269.	0.	195.	46.	100000.00
1.43	1.81	3.45	0.00	.075	.030	.075	.053	767.60	60.00
.003701	1.	1.	1.	0	0	0	-618.09	250.00	310.00

*SECNO 112.600

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 773.50 MAX ELLC= 769.60

3470 ENCROACHMENT STATIONS= 60.0 310.0 TYPE= 1 TARGET= 250.000

112.60	7.86	775.46	0.00	0.00	775.59	.13	.05	.00	770.10
1450.	528.	922.	0.	297.	274.	0.	195.	46.	100000.00
1.43	1.78	3.36	0.00	.075	.030	.075	.053	767.60	60.00
.003419	13.	13.	13.	2	0	0	-618.09	250.00	310.00

*SECNO 112.700

3470 ENCROACHMENT STATIONS= 60.0 310.0 TYPE= 1 TARGET= 250.000

112.70	8.00	775.60	0.00	0.00	775.64	.04	.00	.04	770.10
1450.	310.	1140.	0.	588.	635.	0.	195.	46.	100000.00
1.43	.53	1.80	0.00	.075	.030	.075	.053	767.60	60.00
.000113	1.	0.	1.	2	0	0	0.00	250.00	310.00

CCHV= .300 CEHV= .500
*SECNO 112.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
112.80	7.47	775.67	0.00	0.00	775.76	.10	.10	.03	773.00
1450.	928.	468.	54.	513.	130.	43.	203.	48.	772.50
1.47	1.81	3.59	1.26	.060	.045	.060	.052	768.20	105.88
.001421	350.	350.	350.	2	0	0	0.00	331.29	437.16

CCHV= .100 CEHV= .300
*SECNO 113.000

3470 ENCROACHMENT STATIONS= 390.0 650.0 TYPE= 1 TARGET= -390.000

113.00	4.89	776.39	0.00	0.00	776.51	.12	.74	.01	773.80
1450.	368.	583.	500.	178.	153.	287.	209.	51.	774.00
1.52	2.07	3.81	1.74	.060	.045	.060	.052	771.50	390.00
.001929	450.	450.	450.	2	0	0	0.00	240.00	630.00

*SECNC 114.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 779.00 ELREA= 779.00

114.20	4.62	776.82	0.00	0.00	777.33	.52	.70	.12	774.00
1450.	0.	1450.	0.	0.	252.	0.	211.	52.	774.20
1.53	0.00	5.76	0.00	.090	.055	.090	.052	772.20	550.00
.008284	200.	200.	200.	2	0	0	0.00	70.00	620.00

CCHV= .300 CEHV= .500
*SECNO 114.300
3280 CROSS SECTION 114.30 EXTENDED 5.64 FEET

3301 HV CHANGED MORE THAN HV INS

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

**D/S FACE LONE PINE RD.- STONE ARCH

114.30	6.84	778.24	778.24	0.00	781.29	3.04	1.63	1.26	772.60
1450.	0.	1450.	0.	0.	104.	0.	212.	52.	773.70
1.53	0.00	14.00	0.00	.090	.055	.090	.052	771.40	106.50
.046094	100.	100.	100.	20	11	0	0.00	17.00	123.50

CCHV= .500 CEHV= 1.000
*SECNO 114.400
3280 CROSS SECTION 114.40 EXTENDED 5.68 FEET

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 789.10 MAX ELLC= 782.10

114.40	6.88	778.28	778.13	0.00	781.70	3.42	.03	.38	772.60
1450.	0.	1450.	0.	0.	98.	0.	212.	52.	773.70
1.53	0.00	14.84	0.00	.090	.030	.090	.052	771.40	106.50
.021133	1.	1.	1.	2	12	0	-6.55	17.00	123.50

*SECNC 114.600
3280 CROSS SECTION 114.60 EXTENDED 7.91 FEET

3301 HV CHANGED MORE THAN HVINS

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

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 789.10 MAX ELLC= 782.10

114.60	9.11	780.51	0.00	0.00	782.68	2.17	.36	.62	772.60
1450.	0.	1450.	0.	0.	123.	0.	212.	52.	773.70
1.53	0.00	11.83	0.00	.090	.030	.090	.052	771.40	106.50
.010601	25.	25.	25.	5	0	0	-19.56	17.00	123.50

CCHV= .300 CEHV= .500
*SECNO 114.700
3280 CROSS SECTION 114.70 EXTENDED 9.14 FEET

3301 HV CHANGED MORE THAN HV INS

114.70	10.35	781.75	0.00	0.00	782.98	1.23	.01	.28	772.60
1450.	0.	1450.	0.	0.	163.	0.	212.	52.	773.70
1.53	0.00	8.89	0.00	.090	.055	.090	.052	771.40	106.50
.009656	1.	1.	1.	3	0	0	0.00	17.80	123.50

CCHV= .100 CEHV= .300
*SECNO 114.800

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 430.0 611.0 TYPE= 1 TARGET= -430.000

114.80	10.64	783.14	0.00	0.00	783.18	.04	.09	.12	777.40
1450.	493.	647.	310.	492.	295.	325.	213.	52.	777.40
1.54	1.00	2.20	.95	.090	.055	.090	.052	772.50	430.00
.000372	83.	83.	83.	2	0	0	0.00	178.99	608.99

*SECNO 115.000

115.00	7.16	783.66	0.00	0.00	783.74	.08	.54	.01	781.20
1450.	10.	1285.	155.	19.	538.	177.	234.	56.	780.40
1.67	.56	2.39	.87	.090	.055	.090	.052	776.50	181.28
.000872	1000.	1000.	1000.	3	0	0	0.00	192.83	374.11

*SECNO 115.500

115.50	6.21	784.11	0.00	0.00	784.24	.13	.49	.02	782.60
1450.	4.	1348.	98.	7.	442.	106.	240.	58.	781.80
1.71	.58	3.05	.93	.090	.055	.090	.052	777.90	187.15
.001843	400.	400.	400.	2	0	0	0.00	182.66	369.81

*SECNO 116.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLCB	VCH	VRCB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
116.20	5.68	784.28	0.00	0.00	784.45	.17	.19	.01	783.00
1450.	4.	1367.	79.	8.	399.	100.	241.	58.	782.10
1.72	.55	3.42	.79	.090	.055	.090	.052	778.60	113.08
.002043	100.	100.	100.	2	0	0	0.00	187.94	301.02

CCHV= .300 CEHV= .500
*SECNO 116.300

**D/S FACE BRADY LANE- CONC. BOX

116.30	4.94	784.64	0.00	0.00	784.91	.27	.41	.05	784.10
1450.	1.	1413.	36.	1.	337.	44.	243.	59.	783.20
1.73	.43	4.19	.82	.090	.055	.090	.052	779.70	119.96
.003834	150.	150.	150.	2	0	0	0.00	149.90	269.86

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	1.50	2.90	180.00	16.00	.10	72.00	0.00	779.70	779.70

*SECNO 116.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
794.09	784.91	.00	760.	691.	72.	68.	784.00	785.50

3470 ENCROACHMENT STATIONS= .0 340.0 TYPE= 1 TARGET= 339.999

116.70	7.00	786.79	0.00	0.00	786.78	.08	1.88	0.00	784.10
1450.	17.	1252.	181.	32.	511.	256.	243.	59.	783.20
1.73	.54	2.45	.71	.090	.055	.090	.052	779.70	100.71
.000755	18.	18.	18.	2	0	5	0.00	239.29	340.00

*SECNO 116.800

116.80	6.21	786.81	0.00	0.00	786.93	.12	.13	.02	784.20
1450.	276.	866.	309.	155.	263.	225.	245.	60.	784.20
1.74	1.78	3.29	1.37	.080	.055	.080	.052	780.60	202.43
.002465	100.	100.	100.	2	0	0	0.00	263.02	465.45

*SECNO 116.900

116.90	5.89	787.09	0.00	0.00	787.24	.16	.30	.02	784.80
1450.	272.	909.	269.	136.	241.	182.	246.	60.	784.80
1.75	2.01	3.77	1.48	.080	.055	.080	.052	781.20	204.25
.003620	100.	100.	100.	2	0	0	0.00	257.69	461.94

*SECNO 117.200
3280 CROSS SECTION 117.20 EXTENDED .04 FEET

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 788.00 ELREA= 788.00

117.20	5.94	787.64	0.00	0.00	788.07	.42	.69	.13	784.50
1450.	0.	1450.	0.	0.	278.	0.	248.	61.	785.50
1.76	0.00	5.22	0.00	.080	.055	.080	.052	781.70	140.00
.006039	150.	150.	150.	2	0	0	0.00	70.00	210.00

*SECNO 117.300

3301 HV CHANGED MORE THAN HV INS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLCB	QCH	QRCB	ALCB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

SLOPE	XLCBL	XLCH	XLCBR	ITRIAL	ICC	ICONT	CORAR	TOPWID	ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 790.30 ELREA= 790.30

**D/S FACE CRANBROOK RD.- CONC. BOX 788.6 < ELLC < 789.02 ⇒ submerged outlet

117.30	6.52	789.02	789.02	0.00	791.97	2.95	1.27	1.26	788.60
1450.	0.	1450.	0.	0.	105.	0.	248.	61.	788.60
1.76	0.00	13.79	0.00	.080	.055	.080	.053	782.50	182.00
.042444	100.	100.	100.	20	8	0	0.00	18.00	200.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	3.10	0.00	14.00	0.00	85.00	0.00	782.50	782.50

*SECNO 117.700
3280 CROSS SECTION 117.70 EXTENDED 2.24 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	CPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
795.98	791.97	0.00	194.	1255.	85.	85.	788.60	791.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 795.50 ELREA= 795.50

117.70	10.74	793.24	0.00	0.00	794.23	1.00	2.26	0.00	788.60
1450.	0.	1450.	0.	0.	181.	0.	248.	61.	788.60
1.76	0.00	8.01	0.00	.080	.055	.080	.053	782.50	182.00
.006936	33.	33.	33.	3	0	2	0.00	18.00	200.00

*SECNO 117.750
3280 CROSS SECTION 117.75 EXTENDED 3.03 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 795.50 ELREA= 795.50

117.75	11.63	794.43	0.00	0.00	794.57	.13	.07	.26	789.20
1450.	0.	1450.	0.	0.	494.	0.	249.	61.	786.00
1.76	0.00	2.94	0.00	.080	.055	.080	.053	782.80	232.00

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  .COC635      50.      50.      50.       2        0        0     0.00    54.00   286.00

*SECNC 117.800
3280 CROSS SECTION    117.80 EXTENDED      2.02 FEET


3470 ENCROACHMENT STATIONS=      232.0     377.0  TYPE=      1  TARGET=     -232.000
   117.80    10.62   794.62      0.00      0.00   794.67      .05       .07       .03   790.40
    1450.       0.     887.      563.       0.     439.      489.      251.       61.    787.20
     1.79     0.00     2.02      1.15      .080     .055      .080      .053   784.00   232.00
  .000388     150.     150.      150.       2        0        0     0.00    145.00   377.00

CCHV=     .100 CEHV=     .300
*SECNO 117.850
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XAL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


        **100 FT. D/S CRANBROOK LAKE DAM

   117.85      7.57   794.77      C.00      0.00   794.94      .17       .23       .04   793.60
    1450.       9.     1030.      412.      14.     275.      218.      256.       62.    790.40
     1.82      .62      3.75      1.89      .080     .055      .080      .053   787.20   208.12
  .002267     300.     300.      300.       0        0        0     0.00    157.11   365.23

*SECNO 118.20C
 WATER EL=X5 CARD=    798.000

        **WSEL 1450 FT. U/S DAM IS INPUT DIRECTLY USING HAND CALCULATED SPILLWAY


        **RATING CURVE ASSUMING NO FRICTION THRU LAKE.

   118.20      6.50   798.00      0.00      0.00   798.11      .11      2.57       .01   797.10
    1450.      12.     1429.       8.       37.     535.      12.      274.       69.    796.60
     1.97      .34      2.67      .74      .095     .055      .060      .053   791.50   550.56
  .001426     1450.    1450.     1450.       0        0        0     0.00    228.87   779.43

CCHV=     .300 CEHV=     .500
*SECNC 118.300

        **D/S FACE DRIVEWAY- CONC. ARCH

   118.30      5.31   798.01      0.00      0.00   798.59      .58      .25       .23   800.00
    1450.       D.     1450.       0.        0.     238.       0.      275.       69.    800.00
     1.97     0.00      6.10      0.00      .095     .055      .060      .053   792.70   620.27
  .007205      90.      90.       90.       2        0        0     0.00     45.46   665.73

CCHV=     .500 CEHV=    1.000
*SECNO 118.400

3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   800.00 MAX ELLC=   799.00
```

118.40	5.31	798.01	0.00	0.00	798.59	.58	.00	.00	800.00
1450.	0.	1450.	0.	0.	238.	0.	275.	69.	800.00
1.97	0.00	6.10	0.00	.095	.020	.060	.053	792.70	620.27
.000950	1.	1.	1.	0	0	0	0.00	45.46	665.73

*SECNO 118.600

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 800.00 MAX ELLC= 799.00

118.60	5.34	798.04	0.00	0.00	798.61	.57	.02	.00	800.00
1450.	0.	1450.	0.	0.	239.	0.	275.	69.	800.00
1.97	0.00	6.07	0.00	.095	.020	.060	.053	792.70	620.27
.000939	16.	16.	16.	2	0	0	0.00	45.46	665.73

CCHV= .300 CEHV= .500

*SECNO 118.700

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
118.70	5.34	798.04	0.00	0.00	798.61	.57	.00	.00	800.00
1450.	0.	1450.	0.	0.	239.	0.	275.	69.	800.00
1.97	0.00	6.07	0.00	.095	.055	.060	.053	792.70	620.27
.007095	1.	1.	1.	0	0	0	0.00	45.46	665.73

*SECNO 118.800

3470 ENCROACHMENT STATIONS= -263.0 531.0 TYPE= 1 TARGET= -263.000

118.80	7.45	799.25	0.00	0.00	799.40	.15	.66	.13	799.60
1450.	0.	1444.	6.	0.	466.	10.	277.	69.	798.20
1.99	0.00	3.10	.64	.095	.055	.060	.053	791.80	264.38
.001597	225.	225.	225.	2	0	0	0.00	112.72	377.10

CCHV= .100 CEHV= .300

*SECNO 118.900

118.90	7.27	799.67	0.00	0.00	799.83	.16	.42	.00	800.20
1450.	0.	1446.	4.	0.	448.	6.	280.	70.	798.80
2.01	0.00	3.22	.60	.095	.055	.060	.053	792.40	265.12
.001803	250.	250.	250.	2	0	0	0.00	108.75	373.87

Natural restriction

*SECNO 119.100

119.10	6.60	800.60	0.00	0.00	800.93	.33	1.05	.05	798.80
1450.	113.	1324.	13.	119.	274.	13.	284.	72.	798.60
2.04	.95	4.83	1.01	.095	.055	.095	.053	794.00	19.00
.004216	400.	400.	400.	2	0	0	0.00	204.23	223.23

*SECNO 119.200

119.20	6.99	801.39	0.00	0.00	801.64	.25	.70	.01	799.20
1450.	171.	1261.	18.	171.	297.	19.	286.	72.	799.00
2.05	1.00	4.25	.95	.095	.055	.095	.053	794.40	18.17
.002921	200.	200.	200.	2	0	0	0.00	207.64	225.81

CCHV= .300 CEHV= .500
*SECNO 119.300

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

3470 ENCROACHMENT STATIONS= 175.0 395.0 TYPE= 1 TARGET= 220.000

**D/S FACE TAMARACK WAY- CONC. ARCH

119.30	7.93	801.93	0.00	0.00	802.11	.18	.45	.02	800.50
1450.	9.	1248.	193.	16.	345.	176.	288.	73.	798.60
2.07	.55	3.61	1.09	.095	.055	.095	.053	794.00	199.62
.001933	190.	190.	190.	2	0	0	0.00	177.01	376.64

SPECIAL BRIDGE

5070,VARIABLE ELCHU CR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	1.46	2.90	230.00	17.50	.10	115.00	0.00	794.00	794.00

*SECNO 19.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
805.53	802.11	.00	74.	1388.	115.	104.	800.00	805.00

3470 ENCROACHMENT STATIONS= 175.0 395.0 TYPE= 1 TARGET= 220.000

19.70	11.19	805.19	0.00	0.00	805.23	.04	3.13	0.00	800.50
1450.	80.	996.	374.	150.	551.	514.	288.	73.	798.60
2.07	.53	1.81	.73	.095	.055	.095	.053	794.00	175.00
.000259	22.	22.	22.	2	0	2	0.00	220.00	395.00

*SECNO 119.800

119.80	10.21	805.21	0.00	0.00	805.27	.06	.03	.01	801.50
1450.	59.	1056.	335.	112.	489.	406.	291.	74.	799.60
2.09	.53	2.16	.82	.095	.055	.095	.053	795.00	154.16
.000433	90.	90.	90.	2	0	0	0.00	240.18	394.34

CCHV= .100 CEHV= .300
*SECNO 120.000

3470 ENCROACHMENT STATIONS= 200.0 475.0 TYPE= 1 TARGET= -200.000

120.00	8.71	805.41	0.00	0.00	805.43	.03	.16	.00	799.00
1450.	385.	341.	724.	408.	167.	761.	301.	76.	798.70
2.18	.94	2.05	.95	.095	.055	.095	.053	796.70	200.00
.000377	400.	400.	400.	2	0	0	0.00	232.26	432.26

*SECNO 120.500

120.50	7.02	805.62	0.00	0.00	805.64	.03	.21	.00	800.90
1450.	638.	295.	516.	713.	131.	526.	315.	79.	800.60
2.28	.90	2.25	.98	.095	.055	.095	.053	798.60	52.48
.000627	440.	440.	440.	2	0	0	0.00	373.71	426.19

*SECNO 121.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICCNT	CORAR	TOPWID	ENDST
121.10	6.48	805.68	0.00	0.00	806.05	.36	.30	.10	804.70
1450.	14.	1062.	374.	18.	191.	204.	319.	80.	802.00
2.29	.76	5.55	1.84	.095	.055	.095	.053	799.20	135.91
.006126	210.	210.	210.	2	0	0	0.00	191.59	327.50

*SECNO 121.200

121.20	6.49	805.99	0.00	0.00	806.35	.36	.31	.00	805.00
1450.	14.	1061.	375.	19.	191.	204.	320.	81.	802.30
2.30	.76	5.54	1.83	.095	.055	.095	.053	799.50	135.63
.006081	50.	50.	50.	2	0	0	0.00	192.10	327.73

*SECNO 121.250

**CONFLUENCE WITH FOREST LAKE-LONG LAKE BRANCH

121.25	6.74	806.74	0.00	0.00	806.90	.16	.53	.02	805.50
1080.	17.	761.	302.	29.	202.	234.	321.	81.	802.80
2.31	.58	3.76	1.29	.095	.055	.095	.053	800.00	126.32
.002602	130.	130.	130.	2	0	0	0.00	222.38	348.70

CCHV= .300 CEHV= .500
*SECNO 121.300

3470 ENCROACHMENT STATIONS= .0 328.0 TYPE= 1 TARGET= 327.995

**D/S FACE GULFORD- CONC. ARCH

121.30	7.03	807.03	0.00	0.00	807.16	.13	.25	.01	805.50
1080.	25.	730.	324.	44.	215.	264.	322.	82.	802.80
2.32	.58	3.39	1.23	.095	.055	.095	.053	800.00	115.34
.001953	110.	110.	110.	2	0	0	0.00	212.66	328.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	1.47	2.90	0.00	12.00	.10	78.00	0.00	798.40	798.40

*SECNO 121.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID	ELLC	ELTRD

						AREA			
811.40	807.42	.00	349.	734.	78.	93.	806.20	807.60	

3470 ENCROACHMENT STATIONS= .0 328.0 TYPE= 1 TARGET= 327.999

121.70	9.01	809.01	0.00	0.00	809.05	.03	1.89	0.00	805.50
1080.	106.	579.	396.	233.	302.	484.	323.	82.	802.80
2.33	.45	1.91	.82	.095	.055	.095	.053	800.00	40.92
.000394	19.	19.	19.	2	0	4	0.00	287.08	328.00

*SECNC 121.800

3280 CROSS SECTION 121.80 EXTENDED 1.06 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	ARCB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VRCB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICCNT	CORAR	TOPWID	ENDST
121.80	8.16	809.06	0.00	0.00	809.16	.10	.08	.03	803.80
1080.	282.	497.	301.	244.	145.	219.	325.	83.	804.40
2.34	1.16	3.43	1.38	.095	.055	.095	.053	800.90	96.83
.001320	115.	115.	115.	2	0	0	0.00	253.17	350.00

CCHV= .100 CEHV= .300

*SECNO 121.900

3470 ENCROACHMENT STATIONS= .0 375.0 TYPE= 1 TARGET= 374.999

121.90	6.58	809.38	0.00	0.00	809.46	.08	.30	.00	805.20
1080.	425.	593.	62.	432.	201.	62.	328.	84.	806.60
2.37	.98	2.95	1.00	.095	.055	.095	.053	802.80	85.22
.001319	230.	230.	230.	2	0	0	0.00	289.77	375.00

*SECNO 122.000

3470 ENCROACHMENT STATIONS= .0 375.0 TYPE= 1 TARGET= 374.999

122.00	5.44	810.04	0.00	0.00	810.29	.25	.78	.05	807.00
1080.	288.	747.	46.	203.	158.	35.	333.	86.	808.40
2.40	1.42	4.73	1.32	.095	.055	.095	.053	804.60	141.21
.004683	345.	345.	345.	2	0	0	0.00	233.79	375.00

*SECNO 123.100

123.10	5.59	811.59	0.00	0.00	811.72	.13	1.42	.01	808.10
1080.	440.	584.	56.	332.	153.	49.	337.	88.	809.10
2.44	1.33	3.81	1.14	.095	.055	.095	.053	806.00	103.21
.002733	405.	405.	405.	2	0	0	0.00	240.00	343.21

*SECNO 123.150

3470 ENCROACHMENT STATIONS= 210.0 373.0 TYPE= 1 TARGET= -210.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 809.10 ELREA= 825.00

123.15	5.13	812.13	0.00	0.00	812.42	.30	.65	.05	809.10

1080.	372.	708.	0.	170.	137.	0.	339.	89.	810.10
2.45	2.18	5.15	0.00	.095	.055	.095	.053	807.00	210.00
.005762	170.	170.	170.	2	0	0	0.00	100.00	310.00

CCHV= .300 CEHV= .500
*SECNO 123.200

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	ICCNT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 240.0 373.0 TYPE= 1 TARGET= -240.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 809.60 ELREA= 825.00

123.20	5.20	812.70	0.00	0.00	813.09	.38	.62	.04	809.60
1080.	294.	786.	0.	113.	140.	0.	339.	89.	810.60
2.46	2.59	5.61	0.00	.095	.055	.095	.053	807.50	240.00
.006668	100.	100.	100.	2	0	0	0.00	70.00	310.00

*SECNO 123.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 825.00 ELREA= 825.00

**D/S FACE WOODWARD AVE.- CONC. BOX

123.30	5.77	813.27	0.00	0.00	813.99	.71	.74	.16	809.60
1080.	0.	1080.	0.	0.	159.	0.	340.	89.	810.60
2.46	0.00	6.77	0.00	.095	.055	.095	.053	807.50	276.00
.008165	100.	100.	100.	2	0	0	0.00	34.00	310.00

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with weir flow
u/s flow
normal around the
buildgs

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	2.70	2.86	0.00	12.00	.10	46.90	0.00	807.50	807.50

*SECNO 123.700
3280 CROSS SECTION 123.70 EXTENDED 1.43 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
835.51	814.00	.02	623.	461.	47.	-9609.	0.00	815.50
123.70	9.82	817.32	0.00	0.00	817.33	.01	3.34	0.00	809.60
1080.	616.	346.	118.	1251.	297.	274.	344.	90.	810.60

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     2.54       .49      1.16       .43      .095      .055      .095      .053    807.50     28.00
  .000105      200.      200.      200.         0         0         7      0.00    345.00    373.00

*SECNO 123.800
3280 CROSS SECTION     123.80  EXTENDED       2.03 FEET


3470 ENCROACHMENT STATIONS=      293.0      540.0  TYPE=      1  TARGET=     -293.000
   123.80      9.53    817.33      0.00      0.00    817.35       .02       .02       .00    810.20
    1080.      332.      364.      384.      448.      232.      632.      350.       91.     809.00
     2.58       .74      1.57       .61      .095      .055      .095      .053    807.80    293.00
  .000185      150.      150.      150.         2         0         0      0.00    247.00    540.00

CCHV=     .100 CEHV=     .300
*SECNO 124.000
   124.00      7.04    817.54      0.00      0.00    817.55       .01       .20       .00    811.20
    1080.      438.      156.      486.      748.      115.      707.      384.       98.     811.10
     2.97       .59      1.35       .69      .095      .055      .095      .053    810.50    239.65
  .000196     1025.     1025.     1025.         2         0         0      0.00    341.80    581.46

*SECNO 125.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
   Q          QLCB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VRCB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

3470 ENCROACHMENT STATIONS=        .0      350.0  TYPE=      1  TARGET=      349.999
   125.00      4.31    817.91      0.00      0.00    817.92       .02       .38       .00    813.60
    1080.      850.      129.      101.      927.       69.      105.      418.      107.     813.60
     3.27       .92      1.88       .95      .095      .055      .095      .053    813.60     26.37
  .000690     1125.     1125.     1125.         2         0         0      0.00    323.63    350.00

*SECNO 125.100

3470 ENCROACHMENT STATIONS=        .0      350.0  TYPE=      1  TARGET=      349.999
   125.10      3.60    818.00      0.00      0.00    818.03       .03       .10       .00    814.40
    1080.      832.      140.      108.      727.       58.       87.      420.      108.     814.40
     3.29      1.14      2.43      1.24      .095      .055      .095      .053    814.40     27.99
  .001468      100.      100.      100.         2         0         0      0.00    322.01    350.00

*SECNO 125.200

3470 ENCROACHMENT STATIONS=        .0      350.0  TYPE=      1  TARGET=      349.999
   125.20      2.99    818.19      0.00      0.00    818.24       .05       .21       .01    815.20
    1080.      808.      154.      118.      558.       48.       71.      422.      108.     815.20
     3.30      1.45      3.22      1.65      .095      .055      .095      .053    815.20     29.37
  .003291      100.      100.      100.         2         0         0      0.00    320.63    350.00

*SECNO 125.300

3470 ENCROACHMENT STATIONS=        .0      350.0  TYPE=      1  TARGET=      349.999
   125.30      2.61    818.61      0.00      0.00    818.69       .08       .44       .01    816.00
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1080.	785.	168.	127.	452.	42.	61.	423.	109.	816.00
3.32	1.74	4.02	2.07	.095	.055	.095	.053	816.00	30.24
.006170	100.	100.	100.	2	0	0	0.00	319.76	350.00

*SECNO 125.400

3470 ENCROACHMENT STATIONS=			.0	350.0	TYPE=	1	TARGET=	349.999	
125.40	2.49	819.29	0.00	0.00	819.39	.10	.69	.00	816.80
1080.	776.	174.	130.	418.	40.	58.	425.	110.	816.80
3.33	1.85	4.37	2.24	.095	.055	.095	.053	816.80	30.52
.007751	100.	100.	100.	2	0	0	0.00	319.48	350.00

*SECNO 125.500

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

low "n" values

3470 ENCROACHMENT STATIONS=			.0	350.0	TYPE=	1	TARGET=	349.999	
125.50	2.47	820.07	0.00	0.00	820.17	.10	.79	.00	817.60
1080.	774.	175.	131.	414.	40.	58.	426.	110.	817.60
3.34	1.87	4.41	2.26	.095	.055	.095	.053	817.60	30.55
.007968	100.	100.	100.	2	0	0	0.00	319.45	350.00

*SECNO 125.600

3470 ENCROACHMENT STATIONS=			.0	350.0	TYPE=	1	TARGET=	349.999	
125.60	2.47	820.87	0.00	0.00	820.97	.10	.80	.00	818.40
1080.	774.	175.	131.	413.	40.	58.	427.	111.	818.40
3.35	1.87	4.42	2.27	.095	.055	.095	.053	818.40	30.56
.008024	100.	100.	100.	1	0	0	0.00	319.44	350.00

*SECNO 125.700

**100 FT D/S CONFLUENCE WITH STONYCROFT BR. AND AMY DRAIN. 100YR WSEL=8

**PER STUDY BY DONALD L. KNAPP AND ASSOC.

125.70	2.33	821.33	0.00	0.00	821.40	.07	.43	.00	819.00
1080.	207.	132.	741.	113.	35.	397.	428.	112.	819.00
3.36	1.83	3.78	1.87	.095	.055	.095	.053	819.00	244.69
.006357	60.	60.	60.	2	0	0	0.00	303.26	547.96



1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: RIVER ROUGE — QUARTON BRANCH

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS



McNamee Porter & Seeley

Transmittal

McNamee, Porter and Seeley
3131 South State
Ann Arbor, Michigan 48104
Telephone (313) 665-6000

To: Michigan DNR
Water Management Division
P.O. Box 30028
Lansing, Michigan48909

Attn: Mr. Daniel Morgan, P.E.

Date: August 13, 1980

Project: Bloomfield Twp. FIS

Contract No.: HUD-FIA H-4705

Agency No.:

Gentlemen:

☒ We are enclosing ☐ We are sending under separate cover

The following:

☐ Drawings ☐ Specifications ☐ Change Orders

☐ Pay Estimate ☐ Contract Documents ☒ other

Revised hydraulic report on Quarton Branch of the River Rouge

For:

☒ Your approval ☐ Your corrections ☐ Your comments

☐ Your execution ☐ Your file ☐ Your signature

Remarks: Enclosures include:

- Hydraulic design notes including x-section plots (please return)
- Photographs (please return)
- Profile with the 100 year water surface elevations plotted
- 1" = 200' - 2" contour plan maps with mylar overlays will be forwarded with the entire Bloomfield Twp. hydraulic submittal in approximately two weeks.

CC.

By: John S. Wise

mps

MPS

FLOOD INSURANCE STUDY HYDRAULIC REPORT

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

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

WATERCOURSE: Quarton Branch, River Rouge

STUDY LIMITS: Quarton Rd. (d/s limit) to confluence with Amy Drain and Stonycroft Branch Rouge River (u/s limit).

DATE OF AERIAL SURVEY: 11/19/78 Abrams Aerial Survey

DATE OF LAND SURVEY: 3/79 - 3/80 by McNamee, Porter and Seeley field crew

SOURCE OF FLOWS: Discharges were computed by MP&S/SH&G and approved by MDNR on 5/29/79

TOPOGRAPHIC INFORMATION: USGS topographic maps; contours. 1" = 200' 2' contour interval

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

VARIABLES AND COEFFICIENTS:

Channel "n"	0.045 - 0.055
Overbank "n"	0.060 - 0.095
n values thru bridges	0.020 - 0.030
Contraction Coefficients	0.1-0.5
Expansion Coefficients	0.3-1.0

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return.

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

REFERENCES:

1. "Hec-2 Water Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.
2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.
3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey Water Supply Paper 1849.
4. "Floodway Determination using computer Program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.
5. "[illegible] Quarton Branch & River Rouge, Flood Plain Determinations", Birmingham, Bloomfield Twp., Bloomfield Twp. Dept. of Engineering, Hubbell, Roth & Clark Inc. Sept 1975

STARTING CONDITIONS

Starting elevations for the 10, 50, 100 and 500 yr. flows were determined from a rating curve (enclosed) developed from the approved Birmingham FIS just downstream of Quarton Rd.

Highwater Marks and Calibration

No highwater information was available for this reach of study and therefore no model calibration was possible. (See comments below).

A sensitivity analysis was performed on the 100 yr. flow by raising and lowering all Manning 'n' values by 30%.

Designated Floodway

The floodway delineation was arrived at after studying 1) topography information to locate any structures or other obstructions and 2) cross-section plots. The cross-sections were modified to exclude ineffective overbank areas, based on 1) velocity considerations 2) the presence of structures and 3) expansion and contraction of 1:4 and 1:1 respectively near bridges (See enclosed 1" = 200' plan for floodway delineation).

Computer Outputs

Enclosed are complete computer outputs for (i) 100 year natural, (ii) 10, 50 and 500 year flood plain elevations and (iii) sensitivity analysis for your review.

Comments

The flood study and drainage plan report (Reference #5) contains flood water surface profiles developed with the aid of highwater marks on the Quarton branch of the Rouge River from June 1968 flood. Efforts made by MPS/SHG to obtain these highwater marks from Hubbell, Roth and Clark, Inc. of Bloomfield Hills, Michigan were unsuccessful. The MDNR log informed MPS/SHG that several other consulting firms have tried without success to obtain the 1968 flood highwater marks from HRC.

The computed water surface profiles for the FIS are significantly different than the profiles contained in the HRC report in some locations, however without the information used to develop these profiles, either highwater marks or hydraulic/hydrologic computations, meaningful comparison can not be made.

In order to feel comfortable with the hydraulics and hydrology of the River Rouge system in Bloomfield Township, it was felt necessary that the system be analyzed through the City of Bloomfield Hills also (See the enclosed map for reaches of the River Rouge system to be studied in detail by MPS/SHG). The objective of this study through Bloomfield Hills is to develop a model that will produce accurate starting elevations at the City of Bloomfield Hills and Bloomfield Township boundary. Consequently, the degree of refinement of the model within the City of Bloomfield Hills is consistant with this objective. The reach of the Quarton Branch of the River Rouge studied lies entirely within the City limits of Bloomfield Hills. Results from the Quarton Branch will provide starting elevations for the other tributaries which flow through Bloomfield Township and are to be studied in detail.

The Quarton Branch of the River Rouge within the study limits is quite complicated, therefore to aid in the review process the working cross-section plots and modelling notes have been enclosed.

There are two major dams in the reach studied, namely, Endicott Lake dam (just u/s section 107.2) and Cranbrook Lake dam (just u/s section 117.85). Spillway rating curves were developed by hand for each dam (see modelling notes). These curves were used to directly input (using the x5 card) water-surface elevation upstream of the two lakes.

McNAMEE, PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR MICHIGAN

JOB: HUD-FIA H-4705 SHEET NO
COMMUNITY: Bloomfield Twp. FILE NO
WATERCOURSE: DATE Quarton CH Branch Rouge River

TABLE 1 - SECNO

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

SECTION NO.	SECTION TYPE	REMARKS
101.2	1	
101.3, 101.7	4	Quarton Rd. Face Sections
101.8	1	
103	1	
104	1	
104.3	3	Repeat of 104. ROB modified to model constriction u/s 104.
105	2	Local dip on ROB eliminated
105.5, 105.7	3	Repeats of 105
106.2	2	Flow path N. of island eliminated by X3 card. (Q is insignificant)
106.3	3	D/s face of Chesterfield - repeat of 106.2 Section modified by X3 card to model LOB restriction.
Chesterfield model represents proposed improvements.		
106.7	3	U/s Face Chesterfield - repeat of 106.2 LOB modified by X3 card to model effective weir length.
106.8	1	
107.2	1	100' D/s Endicott Lake Dam.
108	1	X5 card was used to directly input hand computed WSEL from spillway rating curve. (See hydr. notes).
109.2	1	
109.3, 109.7	4	Face sections @ a driveway bridge. 2 openings modelled - pressure flow only for 100yr.
109.8		

TABLE 1 - SECNO

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

SECTION NO.	SECTION TYPE	REMARKS
110.3, 110.4, 110.6, 110.7	4	Face sections & driveway bridge
110.8	2	Section modified using X4 pts to model bldg. u/s.
111.3, 111.7	3	repeats of 110.8 - faces of Cranbrook Ct.
111.5	3	repeat of 111.3
111.8	1	
112.3 - 112.7	3	Driveway bridge faces - bridge quite submerged ⇒ modelled using XZ conds.
112.8	1	
113	2	Cons modified by X3 to model 1:4 exp. from Lone Pine (Pressure only)
114.2	2	Modified to model 1:4 exp.
114.3 - 114.7	4	Face sections (large extentions one OK) Lone Pine Rd.
114.8	2	1:1 Contraction modelled
115	1	
116.2	1	
116.3 - 116.7	3	Faces of Brady Lane - repeat of 116.2
116.8	1	
116.9	3	Repeat of 116.8 to model transition more smoothly d/s Cranbrook bridge.
117.2	2	Section confined for long. to 1:4 exp. from Cranbrook. (Mostly pressure)
117.3 - 117.7	4	Cranbrook Ct. faces - restrictive opening with high wall causes much backup ⇒
117.75	3 (Repeat 117.8 w/ X3 for 1:1 exp.)	mostly (80%) Pressure flow.
117.8	2	1:1 Contraction.
117.85	3	Repeat of 117.8

McNAMEE, PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

JOB: HUD-FIA H-4705 SHEET NO
COMMUNITY: Bloomfield Twp. FILE NO
WATERCOURSE: Quarton Branch Rouge DATE River

TABLE 1 - SECNO

Section Types — Description

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

SECTION NO.	SECTION TYPE	REMARKS
118.2	1	WSEL input directly @ this section using hand computed spillway outlet curve and assuming zero loss thru lake.
118.3 - 118.7	4	Faces & driveway bridge. Model as box with equivalent area.
118.8	2	LOB ineffective area eliminated
118.9	3	Repeat of 118.8
119.1	3	Repeat of 119.2
119.2	1	
119.3 - 119.7	3	Tamarack Way Faces are repeat of 119.8 - encroached to represent effective weir length.
119.8	2	Local dip on LOB eliminated.
120	2	LOB modified to represent restriction d/s.
120.5	3	Repeat of 120 with full X-section used.
121.1	3	Repeat of 121.2
121.2	1	
121.25	3	Repeat of 121.2 - Slope change occurs here.
121.3, 121.7	3	Guilford bridge faces - repeats of 121.2 encroached using X3 card to represent approximate effective weir length.
121.8	1	
121.9	3	Repeat of 122
122	2	Ineffective area on ROB eliminated using X3.
123.1	3	Repeat of 123.2
123.15	3	Repeat of 123.2 modified to represent 1:4 expansion from Woodward.
123.2	2	Section modified to model bldg. on ROB and 1:4 exp. of pressure flow.

McNAMEE PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR MICHIGAN

JOB: HUD-FIA H-4705 SHEET NO
COMMUNITY: Bloomfield Twp. FILE NO
WATERCOURSE: Quarton DATE CHK Rouge River

TABLE 1. - SECNO

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

SECTION NO.	SECTION TYPE	REMARKS
123.3	3	d/s face Woodward Ave. Repeat of 123.2 with X3 conf inlg flow to opening.
123.7	3	u/s face Woodward Ave. Repeat of sec 123.2 using full section.
123.8	2	LOB brought in to model 1:1 contraction ROB chopped to represent Bldgs.
124.6	1	
125	2	ROB ineffective area eliminated by X- Repeats of 125 to model steep slope.
125.1 - 125.6	3	
125.7	4	X-section developed from 2' topo - invert was field surveyed @ confluence.

COMMUNITY: Bloomfield

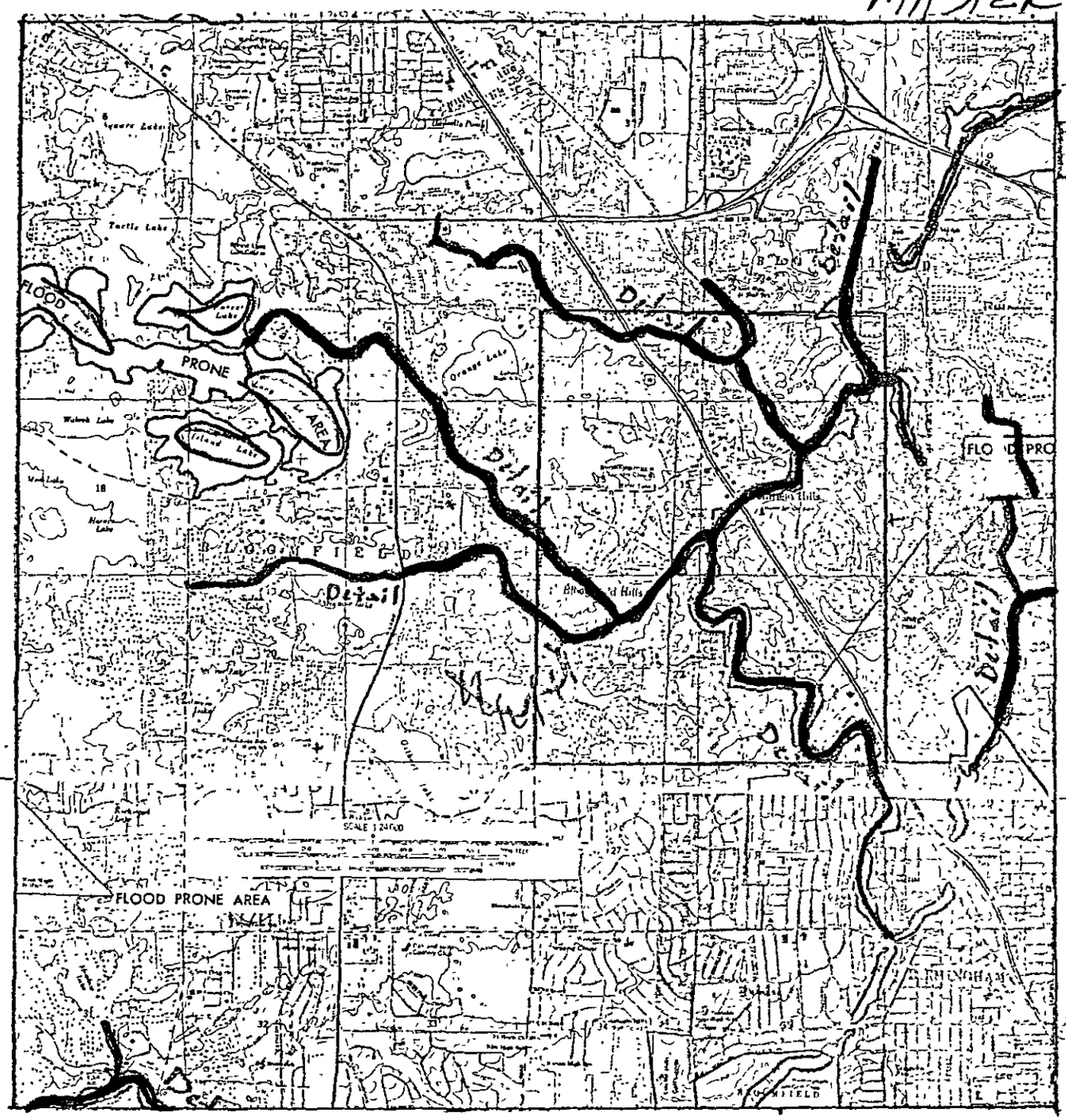
WATERCOURSE: Quarton Branch

TABLE 3 - XKOR CALCULATIONS

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

Cross Section Location	K_e	A (ft^2)	P	R	n	l	K_F	XKOR	REMARKS
Quarton Rd. (101.3, 101.7)	0.9	97	30	3.2	.025	54'	0.21	2.11	Heavy Growth & Debris
Chesterfield Rd (106.3, 106.7)	0.7	122	58	2.07	.025	31	0.35	2.05	Twin CMP Arches (Proposed)
Driveway (109.3, 109.7)	0.9	(63)x2 = 126	72	1.76	.020	18	0.1	1.5	Divided flow - 2 openings modelled as one assuming 50/50 split
Cranbrook Cr. (111.3, 111.7)	0.5	91	30	2.37	.025	16'	.09	1.59	CMP Arch
Brady Lane (116.3, 116.7)	0.4	72	41	1.76	0.020	18	0.10	1.50	16ft box
Cranbrook Cr. (117.3, 117.7)	0.4	85	40	2.1	0.020	33	.14	1.54	14' RCP box
Tamarack Way (119.3, 119.7)	0.4	115	38	3.0	.020	22	.06	1.46	Conc Arch
Guilford Rd (121.3, 121.7)	0.4	78	34	2.26	.020	19	.07	1.47	Conc Arch
Woodward Ave (123.3, 123.7)	0.35	47	34	1.38	.020	200	1.51	2.86	12' Conc. Box

BLOOMFIELD TWP. FIS REVISED MASTER



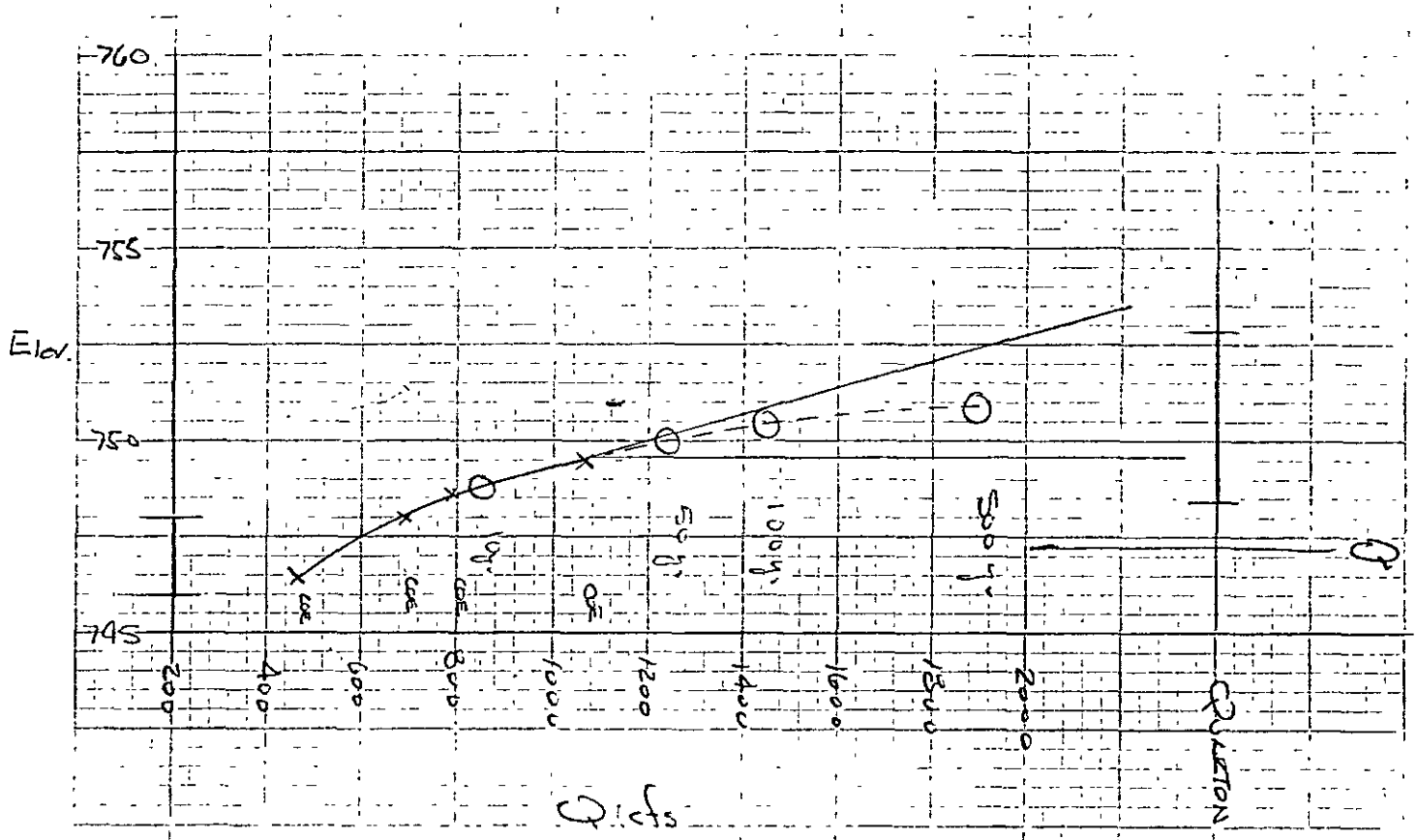
= Reaches of the River Rouge system to be studied in detail by MPJ/SHG.

= Quarton Branch of the Rouge River

= Bloomfield Twp/ City of Bloomfield Hills boundary.

Bloomfield T-02
Quarton Rd.

Rating Curve - COE study ~650' u/s Railroad ≅ 100' d/s Quarton Rd



STARTING ELEVATIONS	
10 yr =	748.8
50 yr =	750.0
100 yr =	750.5
500 yr	751.0

RECEIVED
JAN 0 1981
WATER MANAGEMENT

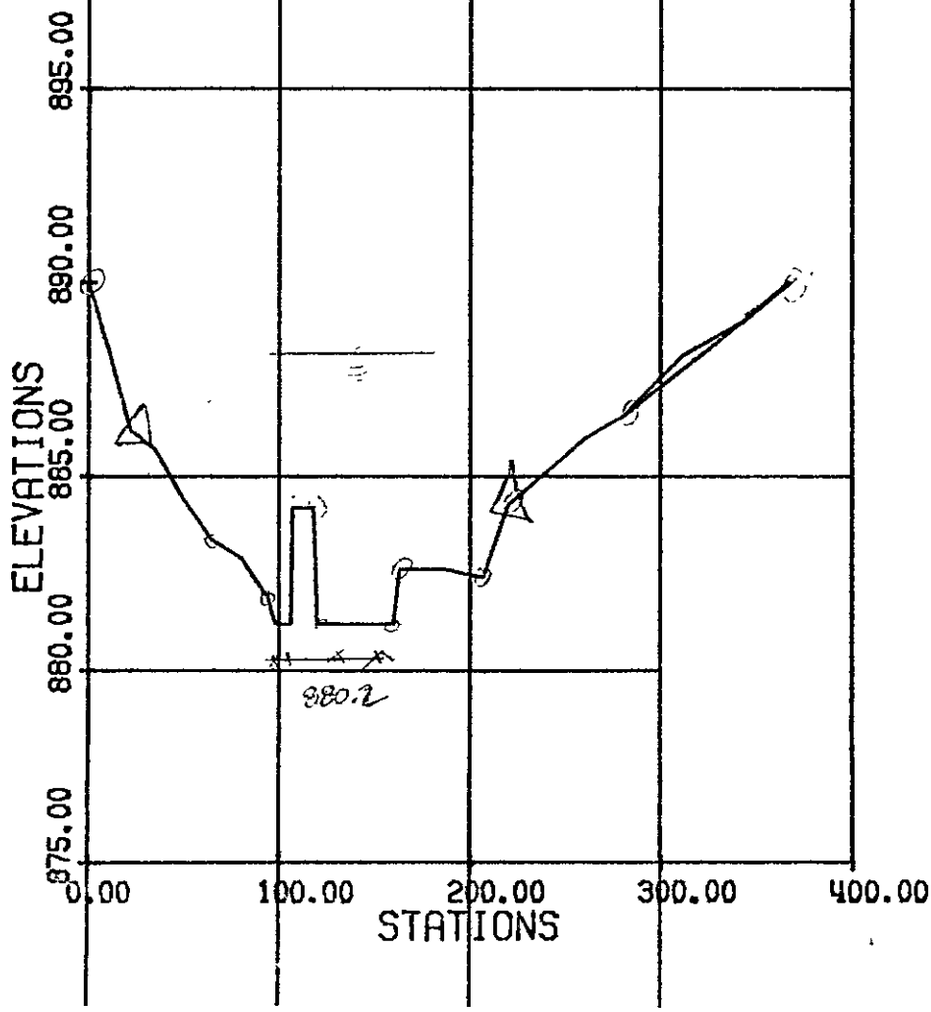
Copy to file - ltr
& letter from MDS.

HUD-FIA H-4705

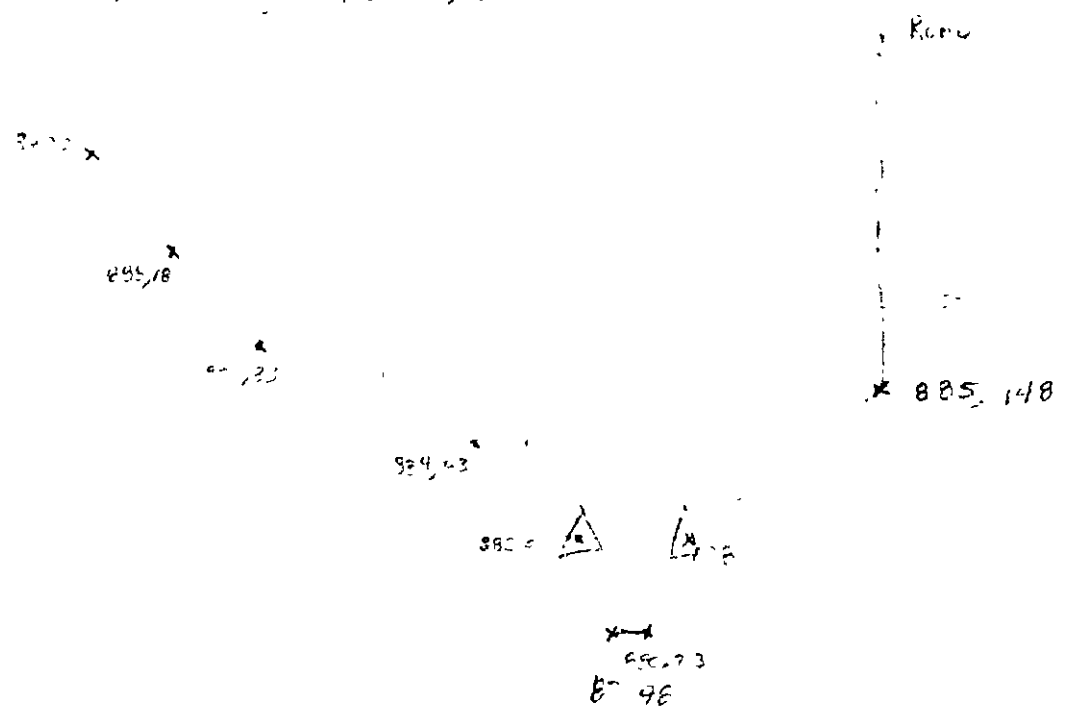
MURPHY BRANCH

SECTION 1L

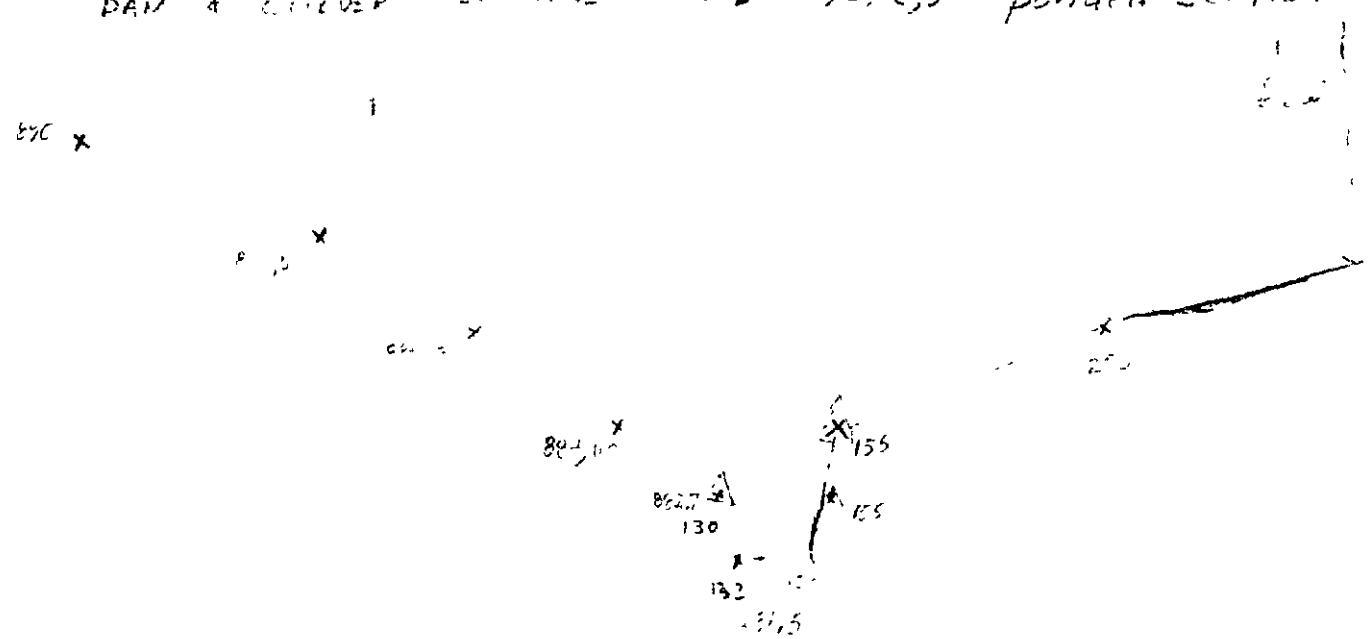
142-8



142.8 Developed from topo. Use for U/S face of 142, Culvert
142.8 142 A, B, C



DAM & CULVERT SECTIONS 142.8 A, B, C, D ponded section



COMMUNITY: BLOOMFIELD
WATERCOURSE: MURPHY DRAIN

TABLE - XKOR CALCULATIONS

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

Cross Section Location	Ke	A	P	R	n	ℓ	Kf	XKOR	Remarks
Opdyke Rd (132.4, 132.6)	.1	12.6	12.6	1	.013	31	.15	1.25	4'ϕ RCP
Concrete Footbridge (133.0, 133.1)	.3	30.8	17.4	2.17	.025	8	.05	1.37	
Stone Arch Driveway (134.0, 134.1)	.3	17.5	23	76	.025	26	.33	1.63	
Driveway (135.0, 135.1)	.5	7.1	12.6	.75	.025	32	.85	2.35	3'ϕ CMP
Concrete Driveway (137.3, 137.7)	.3	29.7	16.4	1.8	.013	14	.03	1.33	
Woodward Ave. (139.3, 139.7)	.35	52.8	32.8	1.61	.020	200	1.23	2.58	concrete box w/ deposition
Hickory Grove (142.3, 142.7)	.5	total = 30.9		$R_1 = .56$ $R_2 = 1.28$	.028 & .027	38 or 41	equivalent .658	2.16	see modelling notes (two openings)
Two 25' CMP's (142.86, 142.89)	.5	total = 9.82	each = 7.85	.62	.0244	20	.65	2.15	
Two 2.5' CMPs (142.90, 142.91)	.5	total = 25.5	15.5	1.23	.025	20	.47	1.97	
Lahser Rd (143.0, 143.35)	.5	23.56	14.1	1.67	.027	35	.38	1.88	5.5'ϕ CMP
3' Diameter RCP (144.3, 144.7)	.5	7.07	9.42	.75	.015	71	.68	2.2	
Aspinal Drive (146.3, 146.7)	.5	7.07	9.42	.75	.013	100	.72	2.25	3'ϕ RCP

Interchange (12-10-80) resubmitted

Hydraulic Analysis

Subject: Bridges

Project: HUD-FIA-H-4705

Community

Watercourse

Remarks

Bridge Location 142.8 86 142.8 87 => 142.8 B

Routine: T.O 2.5x4.5 CMP, 20' Long

n values .025

skew angle

enroachment option

shock coefficients

BT cards

$K_e = .5$

Special Bridge Coefficients

Pier shape (XK)

Orifice coeff. (XKOR)

Weir coef. (COFQ) 2.6

Weir Length (RDLEN) 130

Bottom of trapezoid (BWC) 9.0

Area of trapezoid (BAREA)

Side Slope (SS)

U/s Invert of trap. (ELCHU) 5.5

D/S Invert of trapezoid (ELCHD)

Pressure Elev. (ELLC)

Weir Elev. (ELTRD) 8865

K_{ex} = .47 (of course!)

$$= \frac{2g(.025)^2(20)}{R^{4/3}} = .47$$

Hydraulic Analysis

Subject: Bridges

Project: HUD-FIA-H-4705

Community [illegible]

Watercourse

Remarks

Bridge Location 142-BC - 1419, 1429 1

Routine: Spec'l Driveway Culverts

n values .0244 Two 2.5'φ CMP culverts 15' long

skew angle

enroachment option

shock coefficients [illegible]

BT cards

Special Bridge Coefficients

Pier shape (XK)

Orifice coeff. (XKOR) [illegible]

Weir coef. (COFQ) 3.0

Weir Length (RDLEN) 17

Bottom of trapezoid (BWC) 5

Area of trapezoid (BAREA) [illegible]

Side Slope (SS)

U/s Invert of trap. (ELCHU) 883.2

D/S Invert of trapezoid (ELCHD)

Pressure Elev. (ELLC) 885.7

Weir Elev. (ELTRD) 886.6

$K_f = \frac{29(.0244)^2(2.0)}{.63} = .65$

A = [illegible] 9.82 R = .62

P_{each} 7.85

Hydraulic Analysis

Subject: Bridges

Project: HUD-FIA-H-4705

Community

Watercourse

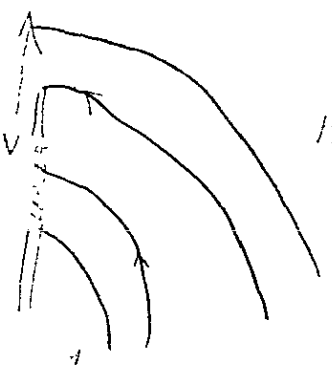
Remarks

Bridge Location Lahser Rd. 143

Routine:

5.5' ϕ CMP, = ' long

- n values
- skew angle
- enroachment option
- shock coefficients
- BT cards



Special Bridge Coefficients

- Pier shape (XK)
- Orifice coeff. (XKOR) 1.88
- Weir coef. (COFQ) 3.0
- Weir Length (RDLEN) (can't turn right angle effectively) ~~250~~ 200 even though in elevation
- Bottom of trapezoid (BWC) 5.5
- Area of trapezoid (BAREA)
- Side Slope (SS)
- U/s Invert of trap. (ELCHU)
- D/S Invert of trapezoid (ELCHD)
- Pressure Elev. (ELLC)
- Weir Elev. (ELTRD)

$K_p = \frac{29 \cdot n^2 2^{4/3}}{(1.00)^{4/3}}$

$K_p = .75$

$XK = 1.88$

$A = 23.5h$

$R =$

Comments to Mr Finch FEMA 1-

Murphy 12-8-.. CJM

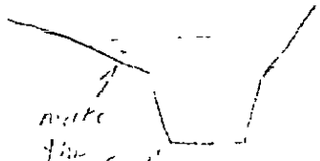
[illegible] and 120' weir U/S TW 887
D/S = 123

[illegible] C & G D/S elev = 887.4 TWD = 891.6
Cof = [illegible] HW= Qp= 132
Equals Qw = 416
532

139.3 - 139.7 Floodward Ave

Area = 52.5 Area = 2.5 ± Rd length = 180 Cof = 3.0

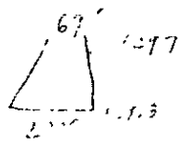
Floodway US 69 Reduction U/S 195
D= 49 D/S 49



TW = 879.53 computed = 877.03
Qp = 264 h^1/2
Qw = 450 H^3/2

HW = 879
Qp = 492
Qw = 40
532

137.8



No. TW @ 139.5 ok now

142.3 - 142.7

142.7 drawn from topo, not using Abrams section.

Qp = .68 (31) √2g √h = 169 h^1/2 U/S Grade = 886.7 HW = 885.7 ←

add .1 for U/S eg

Qw = 540 H^3/2

w/ 885.8 HW Q = 540 cfs

should not have used such a small section for 142.7

142.86 - 142.87

Unencroached U/S Topwidth = 148 weir used = 130' elev = 887.5
using weir = 120' 348 H^3/2 = 401 egrade = 887.6
Qp = 130 = 145.7 √h

Δ = 887.5 - 887.4 = .1

142.9 - 142.91

weir length more like (40' unencroached = 120'
encroached = 65'
submerged flow here, value of coef q changes (decreases) ← eq
reference h

Murph (continued)

7. 143.7 - 143.75 Road & structure skewed to flow
LAHSER ROAD
See hydraulic analysis sheet. (weir effective length) Reduced because of skewed to flow.

Effective flow area for pressure flow: Note total $Q_p/Q = 158/525 = .301$
Pressure / total may decrease somewhat:

Multiple actual opening : cosine of skew angle 50° cos = .643
Skewed crossings up to 20° no objectionable flow patterns

area = 15.15 $C = \sqrt{\frac{1}{1.89}} = .73$

893.7 600 892.02 = TW
892.6 = T/R

100yr $Q_p = .73(15.15)(8.02)h^{1/2}$ $Q_w = 3(200)(H)^{3/2}$

HW =	893.3	893.4
Q_p	100.35	104.2
Q_w =	351.4	430
	452	534.2

okay Δelev < .1

10yr TW = 891.54 Q = 300 902.4

HW =	892.95	893.1
Q_p =	105.3	110.8
Q_w =	124.2	212
	229.5	322.8

Δelev < .1

$2.9(100)(902.2-901.2)^{3/2}$

902.4 & 110 150 u/s 110 420

381 156 − 105 using 100 = $2.9(100)(H)^{3/2}$

8. Culvert @ 144
the full area was used, as it was impossible to determine the amount of debris which would remain plugging the culvert. It is felt most of the debris would be washed out under the higher flood flows, although the value of "n" was increased to .015. If had used the normal "n" value of .012 K_f would be .4351 vs .68 used for revised n.

No photos
DNR has photos

9. W/S Drain enclosure Can discharge be handled by enclosure

10. Include statement in text $\frac{1}{2}(3.07)\sqrt{2g}\,h^{1/2}$ 425 78

Put in Ok-1 file

RECEIVED

SEP 1 1980

WATER MANAGEMENT

FLOOD INSURANCE STUDY HYDRAULIC REPORT

PROJECT: HUD-FIA-H-4705 City of Bloomfield Hills and Bloomfield Township Oakland Co., Michigan

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

WATERCOURSE: Murphy Drain

STUDY LIMITS: Confluence with Stonycroft Drain (downstream limit) to approximately 1200' downstream of Square Lake Rd. (beginning of drain enclosure).

DATE OF AERIAL SURVEY: November, 1978, by Abrams Aerial Survey

DATE OF LAND SURVEY: 3/14/79 - 3/16/79 and 8/19/80

SOURCE OF FLOWS: Discharges were computed by MP&S/SH&G and approved by MDNR on May 29, 1979

TOPOGRAPHIC INFORMATION: Abrams 2' topographic map 1" = 200'

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

VARIABLES AND COEFFICIENTS:

Channel "n"	.063
Overbank "n"	.063 - .1
n values thru bridges	.013 - .028
Contraction Coefficients	.1-.4
Expansion Coefficients	.3-.8

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return.

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

REFERENCES:

1. "Hec-2 Water Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.
2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.
3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey Water Supply Paper 1849.
4. "Floodway Determination using computer Program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.
5. "Flood Study and Drainage Plan, Quarton Branch of Rouge River Flood Plain Information", Birmingham, Bloomfield Hills, Bloomfield Township, Oakland County, Michigan. Hubbell, Roth & Clark, Inc. September 1970.

Starting Conditions

Starting water surface elevations for Murphy Drain were obtained from the Stonycroft Drain 10, 50, 100 and 500 year flood elevations at the confluence of the two drains. The Stonycroft study is included in this submittal.

High Water Marks and Calibration

There was no high water information available. Therefore, a calibration test was not possible. A convergence test of the 100 year flood plain elevations was run by starting the calculations with a depth at the downstream end 15% greater than, and less than, the water surface used in the natural floodway run.

A sensitivity analysis was performed on the 100 year flow by raising and lowering all Manning "n" values by 30%.

Designated Floodway

Encroachment method 4 in the HEC-2 program was used to determine encroachment stations based on an allowable surcharge of .1 feet. At field surveyed sections the designated floodway was established using the computer determined encroachment stations. Between field surveyed sections, the available topographic information was used to complete the floodway information. Please note that the floodway was designated only on that portion of Murphy Drain falling outside of the City of Bloomfield Hills limits. (See the enclosed 1" = 200' and 1" = 400' topographic maps for delineation). Within the city only the natural 100-year flood plain has been delineated, as this was modelled only to obtain starting elevations for the township portion.

Computer Outputs

Enclosed are complete computer outputs for the (i) 100-year natural and 100-year designated floodway, (ii) 10, 50, and 500 year flood plain elevations (iii) sensitivity analysis, and (iv) the starting elevation convergence test for your review.

Comments

We have delineated only the 100 year flood plain within the city limits, as it is not included in our study area. However, for the portion of Murphy Drain within Bloomfield Township we have delineated the 100 year designated floodway, as the 100 and 500 year natural water surface elevations will be delineated by Abrams after DNR approval of the elevations. (See the enclosed profile for the 10, 50, 100 and 500 year natural computed water profiles within the Township).

The flood study and drainage plan report (Reference #5) contains flood water surface profiles developed with the aid of highwater marks on the Quarton branch of the Rouge River from June 1967 flood. Efforts made by MPS/SHG to obtain these highwater marks from Hubbell, Roth and Clark, Inc. of Bloomfield Hills, Michigan were unsuccessful. The MDNR log informed MPS/SHG that several other consulting firms have tried without success to obtain the 1968 flood highwater marks from HRC.

Additional Modelling Notes

All structures noted in the field survey of Murphy Drain have been included in the computer model, with the exception

of the footbridge at 142.8-E (I on profile). The structure has a large open area with three 2'-0" diameter culverts, and is submerged by about 1.5' at the 100 year flood. Friction losses would also be expected to be low for the short reach of only sixteen feet. The major loss in this stretch of drain is at the upstream weir, about 150' downstream of Lahser Road. Hand-calculated modelling notes are included in the report. Note that the detailed study ends at section 150, as upstream of this point the drain is enclosed.

Job: Hud-Fin H-4705

Bloomfield - Murphy Drain

Footbridge, Culverts Not Modelled

Section # 142.8 E 3 - 2'ϕ Culverts

$K_e = .1$ flush inlet

$n = .025$

$L = 16$

$A = 3.14 \times 3 = 9.42$

$P = 6.3$ each

$R = \frac{1}{2}$ each

$K_f = \frac{29 n^2 L}{R^{4/3}} = \frac{29(.025)^2(16)}{(.5)^{4/3}} = .93$

$\lambda K_e R = 1.83$

$\frac{1}{\sqrt{\lambda K_e R}} = c = .74.$

$Q_p = .74(9.42)\sqrt{2g}\, h^{1/2}$

TW = 891.2

submerged

$Q_{100} = 525 = .$

$Q_{weir} = 2.6 \times 150 \times H^{3/2}$ Top = 890

$Q = 515$ for HW = 891.2

approximately no loss over bridge through 2 openings.

Neglect from modelling.

COMMUNITY: BLOOMFIELD

WATERCOURSE: MURPHY DRAIN

TABLE - XKOR CALCULATIONS

$XKOR = 1 + Ke + Kf$ $\quad Kf = \frac{2.9\,n^2\,l}{R^{4/3}}$ $\quad R = A/P$

Cross Section Location	Ke	A	P	R	n	l	Kf	XKOR	Remarks
Opayne Rd (132.4, 132.6)	.1	12.6	13.6	1	0.3	31	.15	1.25	4' ϕ RCP
Concrete Footbridge (133.0, 133.1)	.3	30.8	17.4	2.17	.025	8	.05	1.37	
Stone Arch Driveway (134.0, 134.1)	.3	17.5	23	76	.025	26	.33	1.63	
Driveway (135.0, 135.1)	.5	7.1	12.6	.75	.025	32	.85	2.35	3' ϕ CMP
Concrete Driveway (137.3, 137.7)	.3	29.7	16.4	1.8	.013	14	.03	1.33	
Woodward Ave. (139.3, 139.7)	.35	52.8	32.8	1.61	.026	200	1.23	2.58	concrete box w/ deposition
Hickory Grove (142.3, 142.7)	.5	total = 30.9		$R_1 = .56$ $R_2 = 1.28$	.028 & .027	38 or 41	equivalent .658	2.16	See modelling notes (two openings)
Two 2.5' CMP's (142.86, 142.87)	.5	total = 9.82	each = 7.85	.62	.0244	20	.65	2.15	
Two 2.5' CMPs (142.90, 142.91)	.5	total = 25.5	15.5	1.623	.025	20	.47	1.97	
Lahser Rd (143.7, 143.75)	.5	23.56	14.1	1.67	.027	35	.38	1.88	5.5' ϕ CMP
3' Diameter RCP (144.3, 144.7)	.5	7.07	9.42	.75	.015	71	.68	2.2	
Aspinal Drive (146.3, 146.7)	.5	7.07	9.42	.75	.013	100	.72	2.25	3' RCP

McNAMEE PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

COMMUNITY: BLOOMFIELD FILE NO. 11
WATERCOURSE: MURPHY DRAIN
DATE CHK BY DATE

TABLE 1 - SECTIONS

Section Types | Description
1 | Surveyed (See Remarks if Other Than MRS and/or Abcame)
2 | Field Survey Section Partly Modified for Modelling
3 | Synthetic - Repeat of nearby Surveyed section with an invert adjustment (See Remarks)
4 | Synthetic - Developed from topo, surveyed sections, or other information

SECTION NO.	SECTION TYPE	REMARKS
13D19	4	Confluence with Stonecliff and Harmon. From Topo
13.1.0	1	Valley Section
132.2	1	Valley Section
13216	2	D/S Face Updyke Rd Repeat 132.2 for overbanks
13216	2	U/S Face Updyke Rd Repeat 132.12 for overbank
133.0	2	D/S Face Concrete Footbridge
133.1	2	U/S Face Footbridge
134.0	2	D/S Face Driveway + Stone Arch & Repeat 133.0 for overbanks
134.1	2	U/S Face Driveway + Repeat 133.0 for overbank
1135.0	2	D/S Face Driveway Repeat 133.0 for overbanks
1135.1	2	U/S Face Driveway Repeat 133.0 for overbanks
136.0	1	Valley Section
136.1	4	Synthetic pond section from topo
137.3	2	D/S face Concrete Driveway modified w/A topo info
137.7	2	U/S Face Concrete Drive use 138 for overbanks
138.0	3	Valley section Repeat 138
1138	1	Valley Section
		Valley Repeat 1138

CONSULTING ENGINEERS
ANN ARBOR MICHIGAN

COMMUNITY: BLOOMFIELD FILE NO. 4/
WATERCOURSE: MURPHY DRAIN
DATE CHK BY DATE

TABLE 1 - SECNO

Section Types:

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

SECTION NO.	SECTION TYPE	REMARKS
139.2	1	Valley Section
139.3	2	D/S Face Woodward Avenue. Repeat 139.2 for blier banks
139.7	2	U/S Face Woodward Avenue Repeat 139.2
139.6	1	Valley Section
140	1	Open Stream, Swamp
141	1	Open Stream, no underwater taken. Invert interpolated
142.12	1	Valley Section
142.3	2	D/S Face Hickory Grove and Bloomfield Hills/ City Limit
A		Repeat 142.2
142.7	2	U/S Face Hickory Grove,
	1	Repeat 142.81
142.8	2	D/S Face of two 3' CMP's
B		
142.81	2	U/S Face of CMP's Repeat 142.8
142.82	3	D/S Face Wood Weir Repeat 142.8 w/ modification
C		
142.83	3	U/S Face Weir Repeat 142.8 with modifications
142.84	3	D/S Face Concrete Weir Repeat 142.8 w/ invert modified
D		
142.89	3	U/S Face Concrete Weir Repeat 142.8 w/ invert modified
142.86	3	D/S Face 2 - 2.5' CMP's Repeat 142.8 w/ invert modified
E		
142.87	3	U/S Face CMP's. Repeat 142.8 w/ invert modified

McNAMEE, PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

COMMUNITY: BLOOMFIELD FILE NO. 31
WATERCOURSE: MURPHY DRAIN
DATE CHK BY DATE

TABLE 1 - SECNO

Section Types

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

SECTION NO.		SECTION TYPE	REMARKS
1421.9		2	D/S Face 2-2.5' CMP: Repeat 142.8 Special Bridge
142.01	A	2	U/S Face CMPs Repeat 142.8
1421.93		3	D/S Face concrete weir Strong Weir Repeat 142.8
142.94	G	3	U/S Face Weir Repeat 142.8
1438.2	H	1	Valley Section
	I	FOOTBRIDGE NOT MODELLED	
1431.21		3	D/S Face Stage Weir Repeat 143.2, invert modified
143.22	J	3	U/S Face Weir Repeat 143.2, invert modified
1443.7		2	D/S Face Labser RCP Repeat 143.2, invert modified
143.75	K	2	U/S Face Labser Repeat 143.8, slightly modified Banks
143.76	L	1	(WIER Repeat 146.8 invert increased)
144.18	M	1	Valley Section
1441.3		2	D/S Face Arched 31' Diam RCA Repeat 144.8
144.7	N	2	U/S Face RCP, Repeat 145
145	O	1	Valley Section
1466.3		2	D/S Face Culvert under Asphalt Drive Repeat 145
146.7	P	2	U/S Face Culvert, Repeat 146.8
1468.8	Q	1	Valley Section

McNAMEE, PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

COMMUNITY: BLOOMFIELD FILE NO. 4/4
WATERCOURSE: MURPHY DRAIN
DATE CHK BY DATE

TABLE 1 - SECNO

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

SECTION NO.	SECTION TYPE		REMARKS
V46.9	R	3	D/S Face Footbridge, Repeat V46.18
V46.91		3	U/S Face Footbridge Repeat V46.18
1442.0	B	1	Open Stream
1480.0	K	1	Open Stream
1499.0	U	1	Open Stream
1510.0	V	1	Open Stream

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: RIVER ROUGE -- QUARTON BRANCH

4) DOCUMENT TYPE: SUMMARY -- PRODUCTION RUN

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

QUARTON BRANCH ROUGE RIV

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
101.200	0.00	0.00	0.00	741.20	1450.00	750.50	0.00	750.53	4.21	2.22	1189.54	706.38
101.200	0.00	0.00	0.00	741.20	850.00	748.80	0.00	748.83	4.60	1.99	773.78	396.52
101.200	0.00	0.00	0.00	741.20	1250.00	750.00	0.00	750.03	4.30	2.15	1058.32	602.88
101.200	0.00	0.00	0.00	741.20	1900.00	751.00	0.00	751.05	5.38	2.61	1326.86	818.92
101.300	145.00	0.00	0.00	739.80	1450.00	750.44	0.00	750.85	31.24	5.25	321.63	259.44
101.300	145.00	0.00	0.00	739.80	850.00	748.83	0.00	749.05	20.61	3.80	223.46	187.22
101.300	145.00	0.00	0.00	739.80	1250.00	749.96	0.00	750.34	29.41	4.94	253.15	230.50
101.300	145.00	0.00	0.00	739.80	1900.00	750.89	0.00	751.50	44.47	6.45	360.72	284.93
101.700	54.00	753.00	748.40	739.80	1450.00	753.90	0.00	754.01	6.82	2.98	752.71	555.04
101.700	54.00	753.00	748.40	739.80	850.00	751.20	0.00	751.34	9.13	2.98	285.29	281.31
101.700	54.00	753.00	748.40	739.80	1250.00	753.55	0.00	753.64	5.97	2.74	699.41	511.53
101.700	54.00	753.00	748.40	739.80	1900.00	754.46	0.00	754.60	9.16	3.55	836.38	627.63
101.800	95.00	0.00	0.00	743.20	1450.00	754.04	0.00	754.05	.45	.72	2407.62	2169.42
101.800	95.00	0.00	0.00	743.20	850.00	751.39	0.00	751.39	.55	.68	1435.80	1142.75
101.800	95.00	0.00	0.00	743.20	1250.00	753.67	0.00	753.67	.39	.66	2250.39	1998.70
101.800	95.00	0.00	0.00	743.20	1900.00	754.65	0.00	754.66	.59	.85	2677.78	2467.33
103.000	1245.00	0.00	0.00	745.20	1450.00	754.12	0.00	754.13	.96	1.07	2321.29	1482.99
103.000	1245.00	0.00	0.00	745.20	850.00	751.52	0.00	751.53	3.06	1.52	1064.02	485.60
103.000	1245.00	0.00	0.00	745.20	1250.00	753.74	0.00	753.75	.92	1.02	2128.96	1303.72
103.000	1245.00	0.00	0.00	745.20	1900.00	754.75	0.00	754.76	1.11	1.21	2644.90	1802.66
104.000	955.00	0.00	0.00	748.00	1450.00	754.29	0.00	754.36	9.62	2.28	727.17	467.53
104.000	955.00	0.00	0.00	748.00	850.00	752.09	0.00	752.17	21.49	2.65	389.33	183.38
104.000	955.00	0.00	0.00	748.00	1250.00	753.91	0.00	753.96	9.34	2.16	664.87	409.11
104.000	955.00	0.00	0.00	748.00	1900.00	754.94	0.00	755.02	10.92	2.57	835.75	574.84
104.300	90.00	0.00	0.00	748.30	1450.00	754.31	0.00	754.56	35.57	4.27	367.42	243.13
104.300	90.00	0.00	0.00	748.30	850.00	752.26	0.00	752.55	66.11	4.55	205.24	104.54
104.300	90.00	0.00	0.00	748.30	1250.00	753.93	0.00	754.16	34.17	4.03	336.15	213.83
104.300	90.00	0.00	0.00	748.30	1900.00	754.94	0.00	755.27	41.05	4.85	421.81	296.55
105.000	685.00	0.00	0.00	750.90	1450.00	756.95	0.00	757.31	44.51	5.44	357.72	217.33
105.000	685.00	0.00	0.00	750.90	850.00	755.82	0.00	756.10	41.67	4.49	234.58	131.67
105.000	685.00	0.00	0.00	750.90	1250.00	756.56	0.00	756.92	46.51	5.28	309.39	183.29
105.000	685.00	0.00	0.00	750.90	1900.00	757.70	0.00	758.07	40.43	5.66	488.38	298.81

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	105.500	350.00	0.00	0.00	752.20	1450.00	758.23	0.00	758.62	31.42	5.57	355.22	258.70
	105.500	350.00	0.00	0.00	752.20	850.00	757.05	0.00	757.34	30.46	4.64	227.94	154.02
	105.500	350.00	0.00	0.00	752.20	1250.00	757.88	0.00	758.25	31.56	5.34	311.66	222.49
	105.500	350.00	0.00	0.00	752.20	1900.00	758.90	0.00	759.32	31.05	5.99	467.10	340.95
	105.700	350.00	0.00	0.00	753.30	1450.00	759.33	0.00	759.72	31.38	5.57	355.42	258.86
	105.700	350.00	0.00	0.00	753.30	850.00	758.12	0.00	758.42	31.26	4.68	225.46	152.03
	105.700	350.00	0.00	0.00	753.30	1250.00	758.98	0.00	759.35	31.42	5.33	312.29	223.01
	105.700	350.00	0.00	0.00	753.30	1900.00	759.99	0.00	760.41	31.29	6.01	465.26	339.65
	106.200	270.00	0.00	0.00	753.00	1450.00	760.01	0.00	760.09	6.90	2.52	716.81	552.03
	106.200	270.00	0.00	0.00	753.00	850.00	758.74	0.00	758.81	7.42	2.22	473.95	312.03
	106.200	270.00	0.00	0.00	753.00	1250.00	759.65	0.00	759.73	6.95	2.41	646.94	474.30
	106.200	270.00	0.00	0.00	753.00	1900.00	760.70	0.00	760.80	7.11	2.79	849.03	712.70
	106.300	245.00	0.00	0.00	753.90	1450.00	760.21	0.00	760.44	20.46	3.87	374.36	320.54
	106.300	245.00	0.00	0.00	753.90	850.00	758.97	0.00	759.12	18.26	3.14	271.07	198.93
	106.300	245.00	0.00	0.00	753.90	1250.00	759.85	0.00	760.06	19.52	3.64	343.80	282.90
	106.300	245.00	0.00	0.00	753.90	1900.00	760.88	0.00	761.18	21.85	4.37	447.17	406.47
*	106.700	15.00	760.00	0.00	753.90	1450.00	761.85	0.00	761.96	6.80	2.73	612.12	555.90
	106.700	15.00	760.00	0.00	753.90	850.00	760.38	0.00	760.46	6.22	2.18	389.90	340.84
	106.700	15.00	760.00	0.00	753.90	1250.00	761.54	0.00	761.64	6.13	2.50	552.26	504.88
*	106.700	15.00	760.00	0.00	753.90	1900.00	762.34	0.00	762.49	8.52	3.20	719.48	651.04
	106.800	80.00	0.00	0.00	755.50	1450.00	761.93	0.00	762.03	9.70	3.37	741.99	465.67
	106.800	80.00	0.00	0.00	755.50	850.00	760.44	0.00	760.54	12.75	3.20	452.55	238.06
	106.800	80.00	0.00	0.00	755.50	1250.00	761.61	0.00	761.70	9.27	3.18	677.35	410.61
	106.800	80.00	0.00	0.00	755.50	1900.00	762.45	0.00	762.58	11.26	3.84	854.30	566.32
	107.200	420.00	0.00	0.00	757.50	1450.00	762.40	0.00	762.59	17.57	3.52	448.21	345.90
	107.200	420.00	0.00	0.00	757.50	850.00	761.11	0.00	761.26	22.87	3.11	279.61	177.74
	107.200	420.00	0.00	0.00	757.50	1250.00	762.08	0.00	762.24	17.54	3.32	402.45	298.50
	107.200	420.00	0.00	0.00	757.50	1900.00	762.98	0.00	763.21	18.78	3.97	534.67	438.44
*	108.000	1865.00	0.00	0.00	762.70	1450.00	767.80	0.00	767.85	6.31	1.79	813.22	577.23
*	108.000	1865.00	0.00	0.00	762.70	850.00	767.50	0.00	767.52	2.67	1.12	756.00	520.44
*	108.000	1865.00	0.00	0.00	762.70	1250.00	767.70	0.00	767.74	5.02	1.58	793.77	557.95
*	108.000	1865.00	0.00	0.00	762.70	1900.00	768.00	0.00	768.08	9.49	2.23	853.29	616.88
	109.200	525.00	0.00	0.00	764.20	1450.00	768.33	0.00	768.51	26.03	3.38	443.94	284.18
	109.200	525.00	0.00	0.00	764.20	850.00	767.75	0.00	767.83	15.31	2.35	367.79	217.25
	109.200	525.00	0.00	0.00	764.20	1250.00	768.14	0.00	768.28	22.99	3.08	417.64	260.70
	109.200	525.00	0.00	0.00	764.20	1900.00	768.75	0.00	768.99	31.56	3.98	502.13	338.21
*	109.300	115.00	0.00	0.00	765.00	1450.00	769.57	769.57	771.70	472.44	11.73	123.60	66.71
*	109.300	115.00	0.00	0.00	765.00	850.00	768.22	768.22	769.77	467.82	9.97	85.25	39.30
*	109.300	115.00	0.00	0.00	765.00	1250.00	769.14	769.14	771.10	471.27	11.23	111.33	57.58
*	109.300	115.00	0.00	0.00	765.00	1900.00	771.28	771.28	772.22	365.49	7.92	261.71	99.38
	109.700	18.00	773.00	768.00	765.00	1450.00	772.32	0.00	772.60	62.08	4.23	343.05	184.03
	109.700	18.00	773.00	768.00	765.00	850.00	768.36	0.00	769.77	406.40	9.50	89.50	42.16
	109.700	18.00	773.00	768.00	765.00	1250.00	770.20	0.00	771.40	238.31	8.80	142.05	80.97
	109.700	18.00	773.00	768.00	765.00	1900.00	773.72	0.00	773.80	15.72	2.69	968.06	479.28

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	109.800	152.00	0.00	0.00	765.00	1450.00	772.83	0.00	772.87	5.52	2.06	992.40	617.01
	109.800	152.00	0.00	0.00	765.00	850.00	770.64	0.00	770.69	11.60	2.21	527.15	249.56
	109.800	152.00	0.00	0.00	765.00	1250.00	772.02	0.00	772.07	7.28	2.15	810.48	463.20
	109.800	152.00	0.00	0.00	765.00	1900.00	773.89	0.00	773.94	4.87	2.16	1256.74	860.70
	110.300	200.00	0.00	0.00	764.70	1450.00	772.93	0.00	773.28	54.74	5.87	440.01	195.98
	110.300	200.00	0.00	0.00	764.70	850.00	770.64	0.00	771.92	232.63	9.07	93.76	55.73
*	110.300	200.00	0.00	0.00	764.70	1250.00	772.03	772.03	772.86	125.60	7.99	250.13	111.54
	110.300	200.00	0.00	0.00	764.70	1900.00	774.01	0.00	774.21	30.15	4.87	710.90	346.00
	110.400	1.00	770.70	771.20	764.70	1450.00	772.94	772.75	773.73	57.71	8.74	360.75	190.88
	110.400	1.00	770.70	771.20	764.70	850.00	770.66	0.00	771.93	30.49	9.04	94.04	153.93
	110.400	1.00	770.70	771.20	764.70	1250.00	772.04	771.20	773.46	76.91	10.20	212.52	142.54
	110.400	1.00	770.70	771.20	764.70	1900.00	774.02	0.00	774.33	47.02	6.49	586.15	277.07
	110.600	13.00	770.70	771.20	764.70	1450.00	773.64	0.00	774.00	33.69	6.56	497.39	249.82
	110.600	13.00	770.70	771.20	764.70	850.00	771.08	770.11	772.09	22.05	8.09	113.54	181.00
*	110.600	13.00	770.70	771.20	764.70	1250.00	772.02	771.20	773.47	77.82	10.26	209.10	141.69
	110.600	13.00	770.70	771.20	764.70	1900.00	774.12	0.00	774.40	42.02	6.23	612.13	293.11
	110.700	1.00	0.00	0.00	764.70	1450.00	773.65	0.00	774.10	7.15	6.29	614.84	542.43
	110.700	1.00	0.00	0.00	764.70	850.00	771.08	770.12	772.10	22.17	8.10	113.05	180.52
	110.700	1.00	0.00	0.00	764.70	1250.00	773.70	0.00	774.03	5.10	5.34	628.39	553.46
	110.700	1.00	0.00	0.00	764.70	1900.00	774.12	0.00	774.68	8.63	7.23	740.69	646.92
	110.730	50.00	0.00	0.00	763.00	1450.00	774.23	0.00	774.24	1.13	1.14	1794.08	1364.08
	110.730	50.00	0.00	0.00	763.00	850.00	772.41	0.00	772.41	.97	.90	1304.80	862.47
	110.730	50.00	0.00	0.00	763.00	1250.00	774.12	0.00	774.13	.88	1.00	1763.18	1330.54
	110.730	50.00	0.00	0.00	763.00	1900.00	774.84	0.00	774.86	1.46	1.36	1972.81	1570.54
	110.800	110.00	0.00	0.00	763.50	1450.00	774.24	0.00	774.27	2.87	1.75	1192.87	855.24
	110.800	110.00	0.00	0.00	763.50	850.00	772.42	0.00	772.44	2.67	1.42	827.55	519.78
	110.800	110.00	0.00	0.00	763.50	1250.00	774.13	0.00	774.15	2.26	1.54	1168.88	831.93
	110.800	110.00	0.00	0.00	763.50	1900.00	774.86	0.00	774.90	3.68	2.08	1327.98	990.62
	111.300	40.00	0.00	0.00	763.70	1450.00	774.25	0.00	774.28	3.16	1.81	1151.91	815.55
	111.300	40.00	0.00	0.00	763.70	850.00	772.43	0.00	772.45	3.01	1.48	792.10	489.70
	111.300	40.00	0.00	0.00	763.70	1250.00	774.14	0.00	774.16	2.49	1.59	1127.90	792.51
	111.300	40.00	0.00	0.00	763.70	1900.00	774.87	0.00	774.91	4.03	2.15	1285.60	946.83
	111.700	16.00	773.00	0.00	763.70	1450.00	775.33	0.00	775.35	1.87	1.52	1391.31	1059.77
	111.700	16.00	773.00	0.00	763.70	850.00	774.34	0.00	774.35	1.04	1.04	1172.32	835.27
	111.700	16.00	773.00	0.00	763.70	1250.00	775.16	0.00	775.17	1.51	1.34	1352.80	1017.81
	111.700	16.00	773.00	0.00	763.70	1900.00	775.76	0.00	775.79	2.62	1.85	1496.73	1173.61
	111.750	50.00	0.00	0.00	766.40	1450.00	775.34	0.00	775.36	1.42	1.24	1592.00	1216.94
	111.750	50.00	0.00	0.00	766.40	850.00	774.34	0.00	774.35	.88	.89	1289.17	906.14
	111.750	50.00	0.00	0.00	766.40	1250.00	775.17	0.00	775.18	1.16	1.10	1537.38	1158.85
	111.750	50.00	0.00	0.00	766.40	1900.00	775.78	0.00	775.80	1.93	1.50	1729.51	1366.81
	111.800	212.00	0.00	0.00	767.00	1450.00	775.38	0.00	775.40	1.96	1.38	1418.08	1035.01
	111.800	212.00	0.00	0.00	767.00	850.00	774.36	0.00	774.38	1.30	1.01	1119.70	745.23
	111.800	212.00	0.00	0.00	767.00	1250.00	775.19	0.00	775.21	1.63	1.24	1363.20	979.50
	111.800	212.00	0.00	0.00	767.00	1900.00	775.82	0.00	775.86	2.60	1.65	1556.01	1178.57

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	112.300	140.00	0.00	0.00	767.60	1450.00	775.41	0.00	775.44	3.09	1.59	1173.27	824.26
	112.300	140.00	0.00	0.00	767.60	850.00	774.38	0.00	774.40	2.15	1.19	918.01	580.14
	112.300	140.00	0.00	0.00	767.60	1250.00	775.22	0.00	775.24	2.59	1.43	1126.86	777.09
	112.300	140.00	0.00	0.00	767.60	1900.00	775.86	0.00	775.91	4.04	1.90	1287.26	945.13
	112.400	1.00	773.50	769.60	767.60	1450.00	775.41	0.00	775.54	37.01	3.45	556.79	238.33
	112.400	1.00	773.50	769.60	767.60	850.00	774.38	0.00	774.56	79.62	3.77	301.24	95.26
	112.400	1.00	773.50	769.60	767.60	1250.00	775.22	0.00	775.34	36.04	3.26	510.16	208.22
	112.400	1.00	773.50	769.60	767.60	1900.00	775.86	0.00	776.02	35.46	3.73	671.08	319.05
	112.600	13.00	773.50	769.60	767.60	1450.00	775.46	0.00	775.59	34.19	3.36	571.22	248.00
	112.600	13.00	773.50	769.60	767.60	850.00	774.53	0.00	774.67	57.10	3.36	338.27	112.48
	112.600	13.00	773.50	769.60	767.60	1250.00	775.28	0.00	775.39	33.16	3.17	524.11	217.06
	112.600	13.00	773.50	769.60	767.60	1900.00	775.92	0.00	776.07	33.26	3.65	684.90	329.45
	112.700	1.00	0.00	0.00	767.60	1450.00	775.60	0.00	775.64	1.13	1.80	1222.80	1363.10
	112.700	1.00	0.00	0.00	767.60	850.00	774.71	0.00	774.73	.67	1.26	999.86	1040.25
	112.700	1.00	0.00	0.00	767.60	1250.00	775.40	0.00	775.43	.94	1.61	1173.47	1288.51
	112.700	1.00	0.00	0.00	767.60	1900.00	776.06	0.00	776.12	1.51	2.17	1337.95	1543.87
	112.800	350.00	0.00	0.00	768.20	1450.00	775.67	0.00	775.76	14.21	3.59	686.00	384.65
	112.800	350.00	0.00	0.00	768.20	850.00	774.74	0.00	774.82	14.05	3.13	439.60	226.78
	112.800	350.00	0.00	0.00	768.20	1250.00	775.45	0.00	775.54	13.37	3.38	616.88	341.90
	112.800	350.00	0.00	0.00	768.20	1900.00	776.16	0.00	776.26	14.52	3.85	851.87	498.56
	113.000	450.00	0.00	0.00	771.50	1450.00	776.39	0.00	776.51	19.29	3.81	617.16	330.16
	113.000	450.00	0.00	0.00	771.50	850.00	775.50	0.00	775.62	22.38	3.53	404.90	179.69
	113.000	450.00	0.00	0.00	771.50	1250.00	776.15	0.00	776.27	19.14	3.66	560.11	285.73
	113.000	450.00	0.00	0.00	771.50	1900.00	776.88	0.00	777.02	19.40	4.11	735.95	431.36
	114.200	200.00	0.00	0.00	772.20	1450.00	776.82	0.00	777.33	82.84	5.76	251.65	159.31
	114.200	200.00	0.00	0.00	772.20	850.00	776.08	0.00	776.36	60.97	4.24	200.25	108.86
	114.200	200.00	0.00	0.00	772.20	1250.00	776.61	0.00	777.04	75.29	5.28	236.91	144.06
	114.200	200.00	0.00	0.00	772.20	1900.00	777.23	0.00	777.94	99.60	6.78	280.04	190.38
*	114.300	100.00	0.00	0.00	771.40	1450.00	778.24	778.24	781.29	460.94	14.00	103.59	67.54
	114.300	100.00	0.00	0.00	771.40	850.00	776.45	776.40	778.55	420.68	11.63	73.10	41.44
*	114.300	100.00	0.00	0.00	771.40	1250.00	777.66	777.66	780.43	452.29	13.34	93.68	58.78
*	114.300	100.00	0.00	0.00	771.40	1900.00	779.41	779.41	783.09	371.00	15.39	123.42	98.64
	114.400	1.00	789.10	782.10	771.40	1450.00	778.28	778.13	781.70	211.33	14.84	97.69	99.74
	114.400	1.00	789.10	782.10	771.40	850.00	776.48	776.41	778.70	159.62	11.97	71.02	67.28
	114.400	1.00	789.10	782.10	771.40	1250.00	777.69	777.64	780.72	191.29	13.96	89.54	90.38
	114.400	1.00	789.10	782.10	771.40	1900.00	779.44	779.20	783.91	218.51	16.98	111.92	128.54
	114.600	25.00	789.10	782.10	771.40	1450.00	780.51	0.00	782.68	106.01	11.83	122.56	140.83
	114.600	25.00	789.10	782.10	771.40	850.00	778.33	0.00	779.49	71.65	8.65	98.29	100.42
	114.600	25.00	789.10	782.10	771.40	1250.00	779.84	0.00	781.64	87.61	10.77	116.09	133.55
	114.600	25.00	789.10	782.10	771.40	1900.00	781.73	0.00	785.01	187.21	14.55	130.59	138.86
	114.700	1.00	0.00	0.00	771.40	1450.00	781.75	0.00	782.98	96.56	8.89	163.03	147.56
	114.700	1.00	0.00	0.00	771.40	850.00	778.66	0.00	779.57	132.11	7.68	110.70	73.95
	114.700	1.00	0.00	0.00	771.40	1250.00	780.69	0.00	781.84	100.13	8.61	145.16	124.92
	114.700	1.00	0.00	0.00	771.40	1900.00	784.30	0.00	785.62	85.11	9.20	206.60	205.95

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	114.800	83.00	0.00	0.00	772.50	1450.00	783.14	0.00	783.18	3.72	2.20	1111.03	751.33
	114.800	83.00	0.00	0.00	772.50	850.00	779.79	0.00	779.88	11.08	2.87	514.38	255.32
	114.800	83.00	0.00	0.00	772.50	1250.00	782.02	0.00	782.07	5.01	2.35	910.18	558.51
	114.800	83.00	0.00	0.00	772.50	1900.00	785.77	0.00	785.80	2.15	1.96	1583.59	1294.65
	115.000	1000.00	0.00	0.00	776.50	1450.00	783.66	0.00	783.74	8.72	2.39	734.17	490.98
	115.000	1000.00	0.00	0.00	776.50	850.00	781.35	0.00	781.47	24.41	2.74	326.16	172.04
	115.000	1000.00	0.00	0.00	776.50	1250.00	782.75	0.00	782.85	13.15	2.59	564.15	344.67
	115.000	1000.00	0.00	0.00	776.50	1900.00	786.03	0.00	786.08	3.64	1.97	1239.50	996.21
	115.500	400.00	0.00	0.00	777.90	1450.00	784.11	0.00	784.24	18.43	3.05	555.59	337.80
	115.500	400.00	0.00	0.00	777.90	850.00	782.48	0.00	782.62	34.13	3.04	287.70	145.50
	115.500	400.00	0.00	0.00	777.90	1250.00	783.43	0.00	783.58	25.96	3.23	433.06	245.33
	115.500	400.00	0.00	0.00	777.90	1900.00	786.21	0.00	786.29	7.11	2.45	963.18	712.56
	116.200	100.00	0.00	0.00	778.60	1450.00	784.28	0.00	784.45	20.43	3.42	507.02	320.80
	116.200	100.00	0.00	0.00	778.60	850.00	782.78	0.00	782.93	27.67	3.10	282.17	161.59
	116.200	100.00	0.00	0.00	778.60	1250.00	783.66	0.00	783.85	25.49	3.49	401.44	247.57
	116.200	100.00	0.00	0.00	778.60	1900.00	786.27	0.00	786.37	8.05	2.71	1023.24	669.64
	116.300	150.00	0.00	0.00	779.70	1450.00	784.64	0.00	784.91	38.34	4.19	382.45	234.19
	116.300	150.00	0.00	0.00	779.70	850.00	783.30	0.00	783.52	51.76	3.77	225.39	118.15
	116.300	150.00	0.00	0.00	779.70	1250.00	784.12	0.00	784.40	46.48	4.21	312.03	183.34
	116.300	150.00	0.00	0.00	779.70	1900.00	786.40	0.00	786.57	16.22	3.47	725.40	471.70
	116.700	18.00	785.50	784.00	779.70	1450.00	786.70	0.00	786.78	7.55	2.45	797.90	527.57
	116.700	18.00	785.50	784.00	779.70	850.00	783.30	0.00	783.52	51.58	3.77	225.64	118.35
	116.700	18.00	785.50	784.00	779.70	1250.00	786.44	0.00	786.51	6.80	2.26	734.73	479.20
	116.700	18.00	785.50	784.00	779.70	1900.00	787.38	0.00	787.48	8.23	2.75	961.66	662.13
	116.800	100.00	0.00	0.00	780.60	1450.00	786.81	0.00	786.93	24.65	3.29	643.30	292.07
*	116.800	100.00	0.00	0.00	780.60	850.00	784.58	784.58	785.21	307.94	6.65	152.39	48.44
	116.800	100.00	0.00	0.00	780.60	1250.00	786.54	0.00	786.65	25.32	3.18	571.55	248.39
	116.800	100.00	0.00	0.00	780.60	1900.00	787.49	0.00	787.61	20.78	3.37	828.59	416.83
	116.900	100.00	0.00	0.00	781.20	1450.00	787.09	0.00	787.24	36.20	3.77	558.91	240.99
	116.900	100.00	0.00	0.00	781.20	850.00	786.16	0.00	786.31	46.51	3.50	334.66	124.64
	116.900	100.00	0.00	0.00	781.20	1250.00	786.82	0.00	786.97	37.82	3.66	491.47	203.26
	116.900	100.00	0.00	0.00	781.20	1900.00	787.72	0.00	787.88	30.19	3.83	726.11	345.81
	117.200	150.00	0.00	0.00	781.70	1450.00	787.64	0.00	788.07	60.39	5.22	277.52	186.59
	117.200	150.00	0.00	0.00	781.70	850.00	786.81	0.00	787.04	45.37	3.87	219.47	126.19
	117.200	150.00	0.00	0.00	781.70	1250.00	787.40	0.00	787.76	55.45	4.80	260.45	167.86
	117.200	150.00	0.00	0.00	781.70	1900.00	788.15	0.00	788.29	24.23	3.59	824.77	385.99
*	117.300	100.00	0.00	0.00	782.50	1450.00	789.02	789.02	791.97	424.44	13.79	105.17	70.38
*	117.300	100.00	0.00	0.00	782.50	850.00	787.16	787.16	789.30	432.69	11.75	72.31	40.86
*	117.300	100.00	0.00	0.00	782.50	1250.00	788.46	788.46	791.14	434.20	13.14	95.14	59.99
*	117.300	100.00	0.00	0.00	782.50	1900.00	790.96	790.96	791.72	113.85	8.64	452.78	178.07
	117.700	33.00	791.50	788.60	782.50	1450.00	793.24	0.00	794.23	69.36	8.01	181.09	174.11
	117.700	33.00	791.50	788.60	782.50	850.00	788.15	0.00	789.55	237.08	9.49	89.61	55.20
	117.700	33.00	791.50	788.60	782.50	1250.00	792.04	0.00	792.99	78.59	7.83	159.56	141.00
	117.700	33.00	791.50	788.60	782.50	1900.00	796.05	0.00	796.06	2.09	1.64	1927.92	1315.76

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	117.750	50.00	0.00	0.00	782.80	1450.00	794.43	0.00	794.57	6.35	2.94	493.78	575.27
	117.750	50.00	0.00	0.00	782.80	850.00	789.98	0.00	790.16	20.17	3.35	253.44	189.28
	117.750	50.00	0.00	0.00	782.80	1250.00	793.20	0.00	793.33	7.66	2.93	427.03	451.60
	117.750	50.00	0.00	0.00	782.80	1900.00	796.05	0.00	796.07	1.40	1.54	1948.72	1606.32
	117.800	150.00	0.00	0.00	784.00	1450.00	794.62	0.00	794.67	3.88	2.02	928.21	736.13
	117.800	150.00	0.00	0.00	784.00	850.00	790.37	0.00	790.49	22.42	3.12	339.93	179.50
	117.800	150.00	0.00	0.00	784.00	1250.00	793.39	0.00	793.45	5.38	2.16	750.60	538.95
	117.800	150.00	0.00	0.00	784.00	1900.00	796.07	0.00	796.12	3.60	2.14	1139.61	1000.80
	117.850	300.00	0.00	0.00	787.20	1450.00	794.77	0.00	794.84	22.67	3.75	506.50	304.53
	117.850	300.00	0.00	0.00	787.20	850.00	791.40	791.25	792.28	230.32	7.66	124.16	56.01
	117.850	300.00	0.00	0.00	787.20	1250.00	793.61	0.00	793.87	47.05	4.54	344.04	182.24
	117.850	300.00	0.00	0.00	787.20	1900.00	796.20	0.00	796.34	14.11	3.49	764.34	505.77
*	118.200	1450.00	0.00	0.00	791.50	1450.00	798.00	0.00	798.11	14.26	2.67	583.66	384.00
*	118.200	1450.00	0.00	0.00	791.50	850.00	797.70	0.00	797.74	6.36	1.70	518.53	337.03
*	118.200	1450.00	0.00	0.00	791.50	1250.00	797.90	0.00	797.99	11.55	2.36	560.91	367.74
*	118.200	1450.00	0.00	0.00	791.50	1900.00	798.20	0.00	798.37	20.66	3.31	629.99	417.99
	118.300	90.00	0.00	0.00	792.70	1450.00	798.01	0.00	798.59	72.05	6.10	237.57	170.83
	118.300	90.00	0.00	0.00	792.70	850.00	797.72	0.00	797.94	29.51	3.79	224.41	156.46
	118.300	90.00	0.00	0.00	792.70	1250.00	797.92	0.00	798.36	56.60	5.36	233.33	166.15
	118.300	90.00	0.00	0.00	792.70	1900.00	798.18	0.00	799.11	112.05	7.74	245.35	179.49
	118.400	1.00	800.00	799.00	792.70	1450.00	798.01	0.00	798.59	9.50	6.10	237.75	470.33
	118.400	1.00	800.00	799.00	792.70	850.00	797.72	0.00	797.94	3.91	3.79	224.31	429.97
	118.400	1.00	800.00	799.00	792.70	1250.00	797.92	0.00	798.36	7.47	5.35	233.45	457.30
	118.400	1.00	800.00	799.00	792.70	1900.00	798.19	0.00	799.12	14.77	7.74	245.62	494.45
	118.600	16.00	800.00	799.00	792.70	1450.00	798.04	0.00	798.61	9.39	6.07	238.72	473.28
	118.600	16.00	800.00	799.00	792.70	850.00	797.73	0.00	797.95	3.87	3.78	225.09	432.29
	118.600	16.00	800.00	799.00	792.70	1250.00	797.94	0.00	798.38	7.41	5.34	234.12	459.32
	118.600	16.00	800.00	799.00	792.70	1900.00	798.24	0.00	799.15	14.38	7.67	247.78	501.13
	118.700	1.00	0.00	0.00	792.70	1450.00	798.04	0.00	798.61	70.95	6.07	238.76	172.14
	118.700	1.00	0.00	0.00	792.70	850.00	797.73	0.00	797.95	29.41	3.78	224.67	156.74
	118.700	1.00	0.00	0.00	792.70	1250.00	797.94	0.00	798.38	55.99	5.34	234.15	167.06
	118.700	1.00	0.00	0.00	792.70	1900.00	798.24	0.00	799.15	108.64	7.67	247.83	182.29
	118.800	225.00	0.00	0.00	791.80	1450.00	799.25	0.00	799.40	15.97	3.10	475.63	362.87
	118.800	225.00	0.00	0.00	791.80	850.00	798.29	0.00	798.37	10.63	2.26	376.96	260.72
	118.800	225.00	0.00	0.00	791.80	1250.00	798.93	0.00	799.05	14.68	2.87	440.00	326.20
	118.800	225.00	0.00	0.00	791.80	1900.00	799.98	0.00	800.17	17.36	3.50	562.78	456.06
	118.900	250.00	0.00	0.00	792.40	1450.00	799.67	0.00	799.83	18.03	3.22	454.87	341.51
	118.900	250.00	0.00	0.00	792.40	850.00	798.57	0.00	798.67	13.34	2.44	348.73	232.71
	118.900	250.00	0.00	0.00	792.40	1250.00	799.31	0.00	799.45	17.04	3.01	417.38	302.83
	118.900	250.00	0.00	0.00	792.40	1900.00	800.42	0.00	800.62	19.03	3.60	553.35	435.57
	119.100	400.00	0.00	0.00	794.00	1450.00	800.60	0.00	800.93	42.16	4.83	406.22	223.31
	119.100	400.00	0.00	0.00	794.00	850.00	799.36	0.00	799.64	48.07	4.20	214.61	122.60
	119.100	400.00	0.00	0.00	794.00	1250.00	800.22	0.00	800.55	44.49	4.69	334.67	187.40
	119.100	400.00	0.00	0.00	794.00	1900.00	801.36	0.00	801.68	36.23	4.96	564.19	315.66

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
119.200	200.00	0.00	0.00	794.40	1450.00	801.39	0.00	801.64	29.21	4.25	486.77	268.30
119.200	200.00	0.00	0.00	794.40	850.00	800.20	0.00	800.40	30.89	3.65	268.38	152.95
119.200	200.00	0.00	0.00	794.40	1250.00	801.04	0.00	801.28	30.17	4.11	414.24	227.57
119.200	200.00	0.00	0.00	794.40	1900.00	802.07	0.00	802.33	28.21	4.54	628.43	357.75
119.300	190.00	0.00	0.00	794.00	1450.00	801.93	0.00	802.11	19.33	3.61	537.85	329.77
119.300	190.00	0.00	0.00	794.00	850.00	800.74	0.00	800.86	17.87	2.95	346.26	201.06
119.300	190.00	0.00	0.00	794.00	1250.00	801.59	0.00	801.75	18.79	3.41	479.00	288.34
119.300	190.00	0.00	0.00	794.00	1900.00	802.59	0.00	802.80	20.53	4.02	659.60	419.29
19.700	22.00	805.00	800.00	794.00	1450.00	805.19	0.00	805.23	2.59	1.81	1215.15	900.69
19.700	22.00	805.00	800.00	794.00	850.00	801.91	0.00	801.98	6.72	2.13	535.37	328.00
19.700	22.00	805.00	800.00	794.00	1250.00	804.23	0.00	804.27	3.21	1.86	1002.15	698.02
19.700	22.00	805.00	800.00	794.00	1900.00	805.80	0.00	805.85	3.34	2.15	1348.28	1039.35
119.800	90.00	0.00	0.00	795.00	1450.00	805.21	0.00	805.27	4.33	2.16	1007.16	696.72
119.800	90.00	0.00	0.00	795.00	850.00	801.98	0.00	802.09	14.53	2.76	380.48	223.02
119.800	90.00	0.00	0.00	795.00	1250.00	804.25	0.00	804.32	5.73	2.27	792.58	522.06
119.800	90.00	0.00	0.00	795.00	1900.00	805.83	0.00	805.90	5.29	2.51	1174.43	825.71
120.000	400.00	0.00	0.00	796.70	1450.00	805.41	0.00	805.43	3.77	2.05	1336.38	747.25
120.000	400.00	0.00	0.00	796.70	850.00	802.54	0.00	802.58	10.23	2.50	683.84	265.70
120.000	400.00	0.00	0.00	796.70	1250.00	804.50	0.00	804.53	4.75	2.12	1126.97	573.31
120.000	400.00	0.00	0.00	796.70	1900.00	806.06	0.00	806.10	4.61	2.39	1489.50	884.66
120.500	440.00	0.00	0.00	798.60	1450.00	805.62	0.00	805.64	6.27	2.25	1369.81	579.20
120.500	440.00	0.00	0.00	798.60	850.00	803.25	0.00	803.35	34.19	3.83	519.78	145.37
120.500	440.00	0.00	0.00	798.60	1250.00	804.79	0.00	804.82	10.02	2.59	1062.96	394.80
120.500	440.00	0.00	0.00	798.60	1900.00	806.31	0.00	806.34	6.33	2.43	1629.05	755.16
121.100	210.00	0.00	0.00	799.20	1450.00	805.68	0.00	806.05	61.26	5.55	412.90	185.25
121.100	210.00	0.00	0.00	799.20	850.00	804.17	0.00	804.63	107.14	5.82	195.84	82.12
121.100	210.00	0.00	0.00	799.20	1250.00	804.96	0.00	805.44	98.26	6.22	290.44	126.10
121.100	210.00	0.00	0.00	799.20	1900.00	806.38	0.00	806.72	51.79	5.64	575.36	264.01
121.200	50.00	0.00	0.00	799.50	1450.00	805.99	0.00	806.35	60.81	5.54	414.36	185.95
121.200	50.00	0.00	0.00	799.50	850.00	804.74	0.00	805.09	78.84	5.16	226.89	95.73
121.200	50.00	0.00	0.00	799.50	1250.00	805.48	0.00	805.88	76.40	5.71	324.93	143.01
121.200	50.00	0.00	0.00	799.50	1900.00	806.63	0.00	806.99	54.08	5.73	563.25	258.37
121.250	130.00	0.00	0.00	800.00	1080.00	806.74	0.00	806.90	26.02	3.76	465.45	211.73
121.250	130.00	0.00	0.00	800.00	620.00	805.61	0.00	805.74	28.50	3.26	270.56	116.14
121.250	130.00	0.00	0.00	800.00	920.00	806.36	0.00	806.52	28.02	3.68	388.91	173.79
121.250	130.00	0.00	0.00	800.00	1450.00	807.33	0.00	807.51	26.25	4.09	616.42	283.00
121.300	110.00	0.00	0.00	800.00	1080.00	807.03	0.00	807.16	19.53	3.39	523.33	244.35
121.300	110.00	0.00	0.00	800.00	620.00	805.91	0.00	806.12	33.63	3.74	165.71	106.91
121.300	110.00	0.00	0.00	800.00	920.00	806.66	0.00	806.79	20.38	3.29	448.40	203.77
121.300	110.00	0.00	0.00	800.00	1450.00	807.62	0.00	807.77	20.58	3.76	655.97	319.64
121.700	19.00	807.60	806.20	800.00	1080.00	809.01	0.00	809.05	3.94	1.91	1019.56	543.85
121.700	19.00	807.60	806.20	800.00	620.00	805.91	0.00	806.12	33.54	3.74	165.83	107.05
121.700	19.00	807.60	806.20	800.00	920.00	808.68	0.00	808.71	3.62	1.77	925.55	483.63
121.700	19.00	807.60	806.20	800.00	1450.00	809.48	0.00	809.53	5.13	2.28	1155.46	640.10

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
121.800	115.00	0.00	0.00	800.90	1080.00	805.06	0.00	809.16	13.20	3.43	607.70	297.26
121.800	115.00	0.00	0.00	800.90	620.00	806.35	0.00	806.59	47.96	4.69	218.83	89.53
121.800	115.00	0.00	0.00	800.90	920.00	808.72	0.00	808.81	12.59	3.24	522.65	259.29
121.800	115.00	0.00	0.00	800.90	1450.00	809.54	0.00	809.67	16.23	3.97	731.84	359.97
121.900	230.00	0.00	0.00	802.80	1080.00	809.38	0.00	809.46	13.19	2.95	694.94	297.33
121.900	230.00	0.00	0.00	802.80	620.00	807.45	0.00	807.66	44.36	4.00	228.20	93.09
121.900	230.00	0.00	0.00	802.80	920.00	809.03	0.00	809.11	13.67	2.87	596.76	248.82
121.900	230.00	0.00	0.00	802.80	1450.00	809.93	0.00	810.02	14.13	3.26	856.39	385.77
122.000	345.00	0.00	0.00	804.60	1080.00	810.04	0.00	810.29	46.83	4.73	395.60	157.82
122.000	345.00	0.00	0.00	804.60	620.00	809.11	0.00	809.36	54.10	4.29	205.47	84.29
122.000	345.00	0.00	0.00	804.60	920.00	809.73	0.00	809.98	50.77	4.67	325.22	129.11
122.000	345.00	0.00	0.00	804.60	1450.00	810.61	0.00	810.85	43.34	4.95	536.20	220.24
123.100	405.00	0.00	0.00	806.00	1080.00	811.59	0.00	811.72	27.33	3.81	533.92	206.59
123.100	405.00	0.00	0.00	806.00	620.00	810.74	0.00	810.86	26.55	3.27	342.43	120.33
123.100	405.00	0.00	0.00	806.00	920.00	811.33	0.00	811.46	26.85	3.63	473.09	177.55
123.100	405.00	0.00	0.00	806.00	1450.00	812.11	0.00	812.26	28.20	4.17	664.22	273.07
123.150	170.00	0.00	0.00	807.00	1080.00	812.13	0.00	812.42	57.62	5.15	307.49	142.27
123.150	170.00	0.00	0.00	807.00	620.00	811.28	0.00	811.48	48.80	4.06	223.29	88.76
123.150	170.00	0.00	0.00	807.00	920.00	811.87	0.00	812.13	54.50	4.80	281.46	124.62
123.150	170.00	0.00	0.00	807.00	1450.00	812.65	0.00	813.03	64.67	5.92	359.45	180.31
123.200	100.00	0.00	0.00	807.50	1080.00	812.70	0.00	813.09	66.68	5.61	253.43	132.26
123.200	100.00	0.00	0.00	807.50	620.00	811.78	0.00	812.01	54.77	4.30	189.11	83.78
123.200	100.00	0.00	0.00	807.50	920.00	812.41	0.00	812.74	62.67	5.19	233.36	116.21
123.200	100.00	0.00	0.00	807.50	1450.00	813.28	0.00	813.79	75.43	6.52	293.81	166.95
123.300	100.00	0.00	0.00	807.50	1080.00	813.27	0.00	813.99	81.65	6.77	159.44	119.52
123.300	100.00	0.00	0.00	807.50	620.00	812.28	0.00	812.66	59.53	4.93	125.64	80.36
123.300	100.00	0.00	0.00	807.50	920.00	812.96	0.00	813.56	74.33	6.18	148.95	106.71
123.300	100.00	0.00	0.00	807.50	1450.00	813.89	0.00	814.89	97.63	8.04	180.32	146.75
123.700	200.00	815.50	0.00	807.50	1080.00	817.32	0.00	817.33	1.05	1.16	1822.67	1054.86
123.700	200.00	815.50	0.00	807.50	620.00	816.51	0.00	816.52	.56	.79	1543.65	830.41
123.700	200.00	815.50	0.00	807.50	920.00	817.09	0.00	817.09	.87	1.04	1742.24	987.43
123.700	200.00	815.50	0.00	807.50	1450.00	817.76	0.00	817.78	1.49	1.43	1975.98	1188.71
123.800	150.00	0.00	0.00	807.80	1080.00	817.33	0.00	817.35	1.85	1.57	1313.14	793.00
123.800	150.00	0.00	0.00	807.80	620.00	816.52	0.00	816.53	.95	1.05	1112.64	636.34
123.800	150.00	0.00	0.00	807.80	920.00	817.10	0.00	817.11	1.52	1.40	1255.32	746.04
123.800	150.00	0.00	0.00	807.80	1450.00	817.79	0.00	817.81	2.67	1.94	1425.09	887.87
124.000	1025.00	0.00	0.00	810.50	1080.00	817.54	0.00	817.55	1.96	1.35	1571.04	771.57
124.000	1025.00	0.00	0.00	810.50	620.00	816.63	0.00	816.64	1.21	.97	1270.11	562.67
124.000	1025.00	0.00	0.00	810.50	920.00	817.27	0.00	817.28	1.70	1.23	1480.46	706.51
124.000	1025.00	0.00	0.00	810.50	1450.00	818.07	0.00	818.08	2.55	1.62	1754.91	908.90
125.000	1125.00	0.00	0.00	813.60	1080.00	817.91	0.00	817.92	6.90	1.88	1101.02	411.05
125.000	1125.00	0.00	0.00	813.60	620.00	816.90	0.00	816.91	7.00	1.58	776.94	234.38
125.000	1125.00	0.00	0.00	813.60	920.00	817.60	0.00	817.62	6.77	1.77	1003.06	353.56
125.000	1125.00	0.00	0.00	813.60	1450.00	818.51	0.00	818.54	7.30	2.11	1297.93	536.61

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
125.100	100.00	0.00	0.00	814.40	1080.00	818.00	0.00	818.03	14.68	2.43	871.53	281.87
125.100	100.00	0.00	0.00	814.40	620.00	817.00	0.00	817.03	20.58	2.32	553.14	136.65
125.100	100.00	0.00	0.00	814.40	920.00	817.69	0.00	817.72	15.57	2.36	774.38	233.14
125.100	100.00	0.00	0.00	814.40	1450.00	818.60	0.00	818.64	13.75	2.61	1067.62	391.07
125.200	100.00	0.00	0.00	815.20	1080.00	818.19	0.00	818.24	32.91	3.22	677.35	188.26
125.200	100.00	0.00	0.00	815.20	620.00	817.31	0.00	817.36	58.51	3.40	394.34	81.05
125.200	100.00	0.00	0.00	815.20	920.00	817.91	0.00	817.96	37.69	3.22	586.51	149.85
125.200	100.00	0.00	0.00	815.20	1450.00	818.78	0.00	818.83	27.06	3.29	865.49	278.73
125.300	100.00	0.00	0.00	816.00	1080.00	818.61	0.00	818.69	61.70	4.02	555.31	137.49
125.300	100.00	0.00	0.00	816.00	620.00	817.98	0.00	818.05	81.35	3.84	353.25	68.74
125.300	100.00	0.00	0.00	816.00	920.00	818.39	0.00	818.47	69.00	4.01	483.46	110.75
125.300	100.00	0.00	0.00	816.00	1450.00	819.12	0.00	819.20	49.47	4.05	717.03	206.15
125.400	100.00	0.00	0.00	816.80	1080.00	819.29	0.00	819.39	77.51	4.37	516.30	122.67
125.400	100.00	0.00	0.00	816.80	620.00	818.78	0.00	818.86	79.34	3.80	356.24	69.60
125.400	100.00	0.00	0.00	816.80	920.00	819.12	0.00	819.21	79.43	4.22	461.96	103.23
125.400	100.00	0.00	0.00	816.80	1450.00	819.68	0.00	819.79	70.12	4.58	642.62	173.15
125.500	100.00	0.00	0.00	817.60	1080.00	820.07	0.00	820.17	79.68	4.41	511.76	120.99
125.500	100.00	0.00	0.00	817.60	620.00	819.58	0.00	819.66	80.28	3.82	354.83	69.20
125.500	100.00	0.00	0.00	817.60	920.00	819.92	0.00	820.01	79.85	4.23	461.18	102.96
125.500	100.00	0.00	0.00	817.60	1450.00	820.42	0.00	820.53	78.02	4.76	621.36	164.16
125.600	100.00	0.00	0.00	818.40	1080.00	820.87	0.00	820.97	80.24	4.42	510.59	120.56
125.600	100.00	0.00	0.00	818.40	620.00	820.39	0.00	820.46	80.78	3.83	354.10	68.98
125.600	100.00	0.00	0.00	818.40	920.00	820.72	0.00	820.81	80.46	4.24	460.05	102.57
125.600	100.00	0.00	0.00	818.40	1450.00	821.20	0.00	821.32	79.62	4.79	617.39	162.50
125.700	60.00	0.00	0.00	819.00	1080.00	821.33	0.00	821.40	63.57	3.78	544.73	135.45
125.700	60.00	0.00	0.00	819.00	620.00	820.83	0.00	820.88	58.75	3.09	394.28	80.89
125.700	60.00	0.00	0.00	819.00	920.00	821.17	0.00	821.23	62.16	3.57	496.26	116.69
125.700	60.00	0.00	0.00	819.00	1450.00	821.66	0.00	821.75	65.43	4.20	648.83	179.25

QUARTON BRANCH ROUGE RIV

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
101.200	1450.00	750.50	0.00	0.00	0.00	268.54	0.00
101.200	850.00	748.80	-1.70	0.00	0.00	219.23	0.00
101.200	1250.00	750.00	1.20	0.00	0.00	256.35	0.00
101.200	1900.00	751.00	1.00	0.00	0.00	280.73	0.00
101.300	1450.00	750.44	0.00	-.06	0.00	81.03	145.00
101.300	850.00	748.83	-1.62	.03	0.00	26.00	145.00
101.300	1250.00	749.96	1.13	-.04	0.00	26.00	145.00
101.300	1900.00	750.89	.93	-.11	0.00	93.13	145.00
101.700	1450.00	753.90	0.00	3.46	0.00	150.00	54.00
101.700	850.00	751.20	-2.70	2.38	0.00	26.00	54.00
101.700	1250.00	753.55	2.34	3.59	0.00	150.00	54.00
101.700	1900.00	754.46	.91	3.57	0.00	150.00	54.00
101.800	1450.00	754.04	0.00	.14	0.00	430.36	95.00
101.800	850.00	751.39	-2.65	.18	0.00	301.89	95.00
101.800	1250.00	753.67	2.28	.12	0.00	412.30	95.00
101.800	1900.00	754.65	.98	.19	0.00	459.74	95.00
103.000	1450.00	754.12	0.00	.08	0.00	509.30	1245.00
103.000	850.00	751.52	-2.60	.13	0.00	457.10	1245.00
103.000	1250.00	753.74	2.22	.07	0.00	501.67	1245.00
103.000	1900.00	754.75	1.01	.10	0.00	521.89	1245.00
104.000	1450.00	754.29	0.00	.17	0.00	164.18	955.00
104.000	850.00	752.09	-2.20	.57	0.00	142.58	955.00
104.000	1250.00	753.91	1.82	.17	0.00	160.41	955.00
104.000	1900.00	754.94	1.03	.19	0.00	170.54	955.00
104.300	1450.00	754.31	0.00	.02	0.00	84.61	90.00
104.300	850.00	752.26	-2.05	.17	0.00	73.47	90.00
104.300	1250.00	753.93	1.68	.03	0.00	82.58	90.00
104.300	1900.00	754.94	1.00	-.00	0.00	88.03	90.00
105.000	1450.00	756.95	0.00	2.64	0.00	140.41	685.00
105.000	850.00	755.82	-1.12	3.57	0.00	93.11	685.00
105.000	1250.00	756.56	.73	2.62	0.00	110.25	685.00
105.000	1900.00	757.70	1.15	2.76	0.00	204.48	685.00
105.500	1450.00	758.23	0.00	1.28	0.00	138.90	350.00
105.500	850.00	757.05	-1.18	1.22	0.00	91.44	350.00
105.500	1250.00	757.88	.83	1.32	0.00	110.73	350.00
105.500	1900.00	758.90	1.02	1.20	0.00	195.48	350.00
105.700	1450.00	759.33	0.00	1.10	0.00	139.03	350.00
105.700	850.00	758.12	-1.20	1.08	0.00	90.80	350.00
105.700	1250.00	758.98	.86	1.10	0.00	110.86	350.00
105.700	1900.00	759.99	1.01	1.09	0.00	194.68	350.00
106.200	1450.00	760.01	0.00	.69	0.00	192.17	270.00
106.200	850.00	758.74	-1.27	.62	0.00	187.61	270.00

106.200	1250.00	759.65	.91	.67	0.00	192.14	270.00
106.200	1900.00	760.70	1.05	.72	0.00	192.22	270.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	106.300	1450.00	760.21	0.00	.19	0.00	86.53	245.00
	106.300	850.00	758.97	-1.24	.23	0.00	80.04	245.00
	106.300	1250.00	759.85	.88	.20	0.00	84.66	245.00
	106.300	1900.00	760.88	1.03	.18	0.00	134.08	245.00
*	106.700	1450.00	761.85	0.00	1.64	0.00	209.66	15.00
	106.700	850.00	760.38	-1.46	1.41	0.00	94.64	15.00
	106.700	1250.00	761.54	1.16	1.69	0.00	185.82	15.00
*	106.700	1900.00	762.34	.80	1.45	0.00	218.00	15.00
	106.800	1450.00	761.93	0.00	.08	0.00	206.40	80.00
	106.800	850.00	760.44	-1.49	.06	0.00	183.11	80.00
	106.800	1250.00	761.61	1.17	.07	0.00	201.43	80.00
	106.800	1900.00	762.45	.84	.11	0.00	214.76	80.00
	107.200	1450.00	762.40	0.00	.48	0.00	144.42	420.00
	107.200	850.00	761.11	-1.29	.67	0.00	115.81	420.00
	107.200	1250.00	762.08	.97	.47	0.00	137.24	420.00
	107.200	1900.00	762.98	.90	.53	0.00	157.08	420.00
*	108.000	1450.00	767.80	0.00	5.40	0.00	196.50	1865.00
*	108.000	850.00	767.50	-.30	6.39	0.00	185.00	1865.00
*	108.000	1250.00	767.70	.20	5.62	0.00	192.67	1865.00
*	108.000	1900.00	768.00	.30	5.02	0.00	204.17	1865.00
	109.200	1450.00	768.33	0.00	.53	0.00	136.42	525.00
	109.200	850.00	767.75	-.59	.25	0.00	123.70	525.00
	109.200	1250.00	768.14	.39	.44	0.00	132.04	525.00
	109.200	1900.00	768.75	.61	.75	0.00	147.49	525.00
*	109.300	1450.00	769.57	0.00	1.23	0.00	29.15	115.00
*	109.300	850.00	768.22	-1.34	.48	0.00	27.93	115.00
*	109.300	1250.00	769.14	.92	1.01	0.00	28.76	115.00
*	109.300	1900.00	771.28	2.13	2.53	0.00	180.06	115.00
	109.700	1450.00	772.32	0.00	2.76	0.00	105.00	18.00
	109.700	850.00	768.36	-3.96	.14	0.00	28.07	18.00
	109.700	1250.00	770.20	1.83	1.05	0.00	29.72	18.00
	109.700	1900.00	773.72	3.52	2.44	0.00	352.00	18.00
	109.800	1450.00	772.83	0.00	.51	0.00	234.96	152.00
	109.800	850.00	770.64	-2.19	2.27	0.00	189.70	152.00
	109.800	1250.00	772.02	1.38	1.83	0.00	218.61	152.00
	109.800	1900.00	773.89	1.87	.18	0.00	272.19	152.00
	110.300	1450.00	772.93	0.00	.10	0.00	229.09	200.00
	110.300	850.00	770.64	-2.29	.01	0.00	24.57	200.00
*	110.300	1250.00	772.03	1.39	.01	0.00	193.47	200.00
	110.300	1900.00	774.01	1.98	.12	0.00	271.95	200.00
	110.400	1450.00	772.94	0.00	.01	0.00	229.18	1.00
	110.400	850.00	770.66	-2.27	.02	0.00	24.58	1.00
	110.400	1250.00	772.04	1.38	.01	0.00	193.96	1.00
	110.400	1900.00	774.02	1.97	.00	0.00	272.01	1.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	110.600	1450.00	773.64	0.00	.71	0.00	257.21	13.00
	110.600	850.00	771.08	-2.56	.42	C.CO	69.87	13.00
*	110.600	1250.00	772.02	.94	-.02	0.00	193.07	13.00
	110.600	1900.00	774.12	2.09	.10	0.00	276.09	13.00
	110.700	1450.00	773.65	0.00	.00	0.00	257.56	1.00
	110.700	850.00	771.08	-2.56	.00	0.00	69.05	1.00
	110.700	1250.00	773.70	2.62	1.68	0.00	259.64	1.00
	110.700	1900.00	774.12	.42	.00	0.00	276.25	1.00
	110.730	1450.00	774.23	0.00	.59	0.00	281.97	50.00
	110.730	850.00	772.41	-1.82	1.32	0.00	254.08	50.00
	110.730	1250.00	774.12	1.71	.42	0.00	280.29	50.00
	110.730	1900.00	774.84	.72	.73	0.00	303.35	50.00
	110.800	1450.00	774.24	0.00	.01	0.00	214.87	110.00
	110.800	850.00	772.42	-1.82	.01	0.00	185.52	110.00
	110.800	1250.00	774.13	1.71	.01	0.00	213.06	110.00
	110.800	1900.00	774.86	.73	.01	0.00	226.02	110.00
	111.300	1450.00	774.25	0.00	.01	0.00	211.78	40.00
	111.300	850.00	772.43	-1.83	.01	0.00	182.42	40.00
	111.300	1250.00	774.14	1.71	.01	0.00	209.95	40.00
	111.300	1900.00	774.87	.73	.01	0.00	221.70	40.00
	111.700	1450.00	775.33	0.00	1.08	0.00	236.48	16.00
	111.700	850.00	774.34	-.99	1.91	0.00	213.32	16.00
	111.700	1250.00	775.16	.82	1.02	0.00	230.17	16.00
	111.700	1900.00	775.76	.60	.89	0.00	252.93	16.00
	111.750	1450.00	775.34	0.00	.01	0.00	312.47	50.00
	111.750	850.00	774.34	-1.00	.01	0.00	295.21	50.00
	111.750	1250.00	775.17	.82	.01	0.00	309.43	50.00
	111.750	1900.00	775.78	.61	.02	0.00	320.00	50.00
	111.800	1450.00	775.38	0.00	.03	0.00	302.68	212.00
	111.800	850.00	774.36	-1.01	.02	0.00	285.10	212.00
	111.800	1250.00	775.19	.83	.03	0.00	299.52	212.00
	111.800	1900.00	775.82	.63	.04	0.00	310.47	212.00
	112.300	1450.00	775.41	0.00	.03	0.00	250.00	140.00
	112.300	850.00	774.38	-1.02	.02	0.00	250.00	140.00
	112.300	1250.00	775.22	.84	.02	0.00	250.00	140.00
	112.300	1900.00	775.86	.64	.04	0.00	250.00	140.00
	112.400	1450.00	775.41	0.00	.00	0.00	250.00	1.00
	112.400	850.00	774.38	-1.02	.00	0.00	250.00	1.00
	112.400	1250.00	775.22	.84	.00	0.00	250.00	1.00
	112.400	1900.00	775.86	.64	.00	0.00	250.00	1.00
	112.600	1450.00	775.46	0.00	.06	0.00	250.00	13.00
	112.600	850.00	774.53	-.93	.15	0.00	250.00	13.00
	112.600	1250.00	775.28	.75	.06	0.00	250.00	13.00
	112.600	1900.00	775.92	.64	.05	0.00	250.00	13.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	112.700	1450.00	775.60	0.00	.13	0.00	250.00	1.00
	112.700	850.00	774.71	-.89	.18	0.00	250.00	1.00
	112.700	1250.00	775.40	.69	.13	0.00	250.00	1.00
	112.700	1900.00	776.06	.66	.14	0.00	250.00	1.00
	112.800	1450.00	775.67	0.00	.07	0.00	331.29	350.00
	112.800	850.00	774.74	-.93	.03	0.00	188.56	350.00
	112.800	1250.00	775.45	.72	.05	0.00	317.44	350.00
	112.800	1900.00	776.16	.70	.10	0.00	347.42	350.00
	113.000	1450.00	776.39	0.00	.72	0.00	240.00	450.00
	113.000	850.00	775.50	-.89	.76	0.00	240.00	450.00
	113.000	1250.00	776.15	.65	.70	0.00	240.00	450.00
	113.000	1900.00	776.88	.73	.73	0.00	240.00	450.00
	114.200	1450.00	776.82	0.00	.43	0.00	70.00	200.00
	114.200	850.00	776.08	-.73	.58	0.00	70.00	200.00
	114.200	1250.00	776.61	.52	.46	0.00	70.00	200.00
	114.200	1900.00	777.23	.62	.35	0.00	70.00	200.00
*	114.300	1450.00	778.24	0.00	1.43	0.00	17.00	100.00
	114.300	850.00	776.45	-1.79	.37	0.00	17.00	100.00
*	114.300	1250.00	777.66	1.21	1.06	0.00	17.00	100.00
*	114.300	1900.00	779.41	1.75	2.18	0.00	17.00	100.00
	114.400	1450.00	778.28	0.00	.03	0.00	17.00	1.00
	114.400	850.00	776.48	-1.80	.02	0.00	17.00	1.00
	114.400	1250.00	777.69	1.21	.03	0.00	17.00	1.00
	114.400	1900.00	779.44	1.75	.03	0.00	17.00	1.00
	114.600	1450.00	780.51	0.00	2.23	0.00	17.00	25.00
	114.600	850.00	778.33	-2.18	1.85	0.00	17.00	25.00
	114.600	1250.00	779.84	1.51	2.15	0.00	17.00	25.00
	114.600	1900.00	781.73	1.89	2.29	0.00	17.00	25.00
	114.700	1450.00	781.75	0.00	1.24	0.00	17.00	1.00
	114.700	850.00	778.66	-3.09	.33	0.00	17.00	1.00
	114.700	1250.00	780.69	2.04	.85	0.00	17.00	1.00
	114.700	1900.00	784.30	3.61	2.58	0.00	17.00	1.00
	114.800	1450.00	783.14	0.00	1.39	0.00	178.99	83.00
	114.800	850.00	779.79	-3.35	1.13	0.00	176.92	83.00
	114.800	1250.00	782.02	2.23	1.32	0.00	178.29	83.00
	114.800	1900.00	785.77	3.75	1.46	0.00	180.61	83.00
	115.000	1450.00	783.66	0.00	.52	0.00	192.83	1000.00
	115.000	850.00	781.35	-2.31	1.56	0.00	143.10	1000.00
	115.000	1250.00	782.75	1.40	.73	0.00	183.16	1000.00
	115.000	1900.00	786.03	3.28	.26	0.00	240.83	1000.00
	115.500	1450.00	784.11	0.00	.45	0.00	182.66	400.00
	115.500	850.00	782.48	-1.63	1.13	0.00	129.81	400.00
	115.500	1250.00	783.43	.95	.68	0.00	175.34	400.00
	115.500	1900.00	786.21	2.78	.18	0.00	210.72	400.00

	SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	116.200	1450.00	784.28	0.00	.17	0.00	187.94	100.00
	116.200	850.00	782.78	-1.50	.30	0.00	111.86	100.00
	116.200	1250.00	783.66	.88	.24	0.00	156.30	100.00
	116.200	1900.00	786.27	2.61	.07	0.00	326.94	100.00
	116.300	1450.00	784.64	0.00	.36	0.00	149.90	150.00
	116.300	850.00	783.30	-1.34	.52	0.00	86.48	150.00
	116.300	1250.00	784.12	.83	.46	0.00	123.30	150.00
	116.300	1900.00	786.40	2.28	.13	0.00	252.94	150.00
	116.700	1450.00	786.70	0.00	2.06	0.00	239.29	18.00
	116.700	850.00	783.30	-3.40	.00	0.00	86.60	18.00
	116.700	1250.00	786.44	3.14	2.31	0.00	236.81	18.00
	116.700	1900.00	787.38	.94	.98	0.00	245.59	18.00
	116.800	1450.00	786.81	0.00	.11	0.00	263.02	100.00
*	116.800	850.00	784.58	-2.23	1.28	0.00	139.34	100.00
	116.800	1250.00	786.54	1.95	.10	0.00	258.50	100.00
	116.800	1900.00	787.49	.96	.12	0.00	274.36	100.00
	116.900	1450.00	787.09	0.00	.28	0.00	257.69	100.00
	116.900	850.00	786.16	-.92	1.58	0.00	226.46	100.00
	116.900	1250.00	786.82	.66	.29	0.00	249.91	100.00
	116.900	1900.00	787.72	.90	.23	0.00	268.15	100.00
	117.200	1450.00	787.64	0.00	.56	0.00	70.00	150.00
	117.200	850.00	786.81	-.83	.65	0.00	70.00	150.00
	117.200	1250.00	787.40	.59	.58	0.00	70.00	150.00
	117.200	1900.00	788.15	.75	.43	0.00	337.31	150.00
*	117.300	1450.00	789.02	0.00	1.38	0.00	18.00	100.00
*	117.300	850.00	787.16	-1.86	.35	0.00	17.05	100.00
*	117.300	1250.00	788.46	1.31	1.06	0.00	17.91	100.00
*	117.300	1900.00	790.96	2.49	2.80	0.00	283.60	100.00
	117.700	1450.00	793.24	0.00	4.22	0.00	18.00	33.00
	117.700	850.00	788.15	-5.09	.99	0.00	17.71	33.00
	117.700	1250.00	792.04	3.89	3.58	0.00	18.00	33.00
	117.700	1900.00	796.05	4.00	5.09	0.00	290.00	33.00
	117.750	1450.00	794.43	0.00	1.20	0.00	54.00	50.00
	117.750	850.00	789.98	-4.45	1.83	0.00	54.00	50.00
	117.750	1250.00	793.20	3.21	1.15	0.00	54.00	50.00
	117.750	1900.00	796.05	2.85	.01	0.00	309.39	50.00
	117.800	1450.00	794.62	0.00	.19	0.00	145.00	150.00
	117.800	850.00	790.37	-4.25	.38	0.00	119.17	150.00
	117.800	1250.00	793.39	3.03	.20	0.00	145.00	150.00
	117.800	1900.00	796.07	2.67	.02	0.00	145.00	150.00
	117.850	1450.00	794.77	0.00	.15	0.00	157.11	300.00
	117.850	850.00	791.40	-3.36	1.03	0.00	75.03	300.00
	117.850	1250.00	793.61	2.21	.21	0.00	119.77	300.00
	117.850	1900.00	796.20	2.59	.13	0.00	222.58	300.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	118.200	1450.00	798.00	0.00	3.23	0.00	228.87	1450.00
*	118.200	850.00	797.70	-.30	6.30	0.00	197.70	1450.00
*	118.200	1250.00	797.90	.20	4.29	0.00	226.07	1450.00
*	118.200	1900.00	798.20	.30	2.00	0.00	234.49	1450.00
	118.300	1450.00	798.01	0.00	.01	0.00	45.46	90.00
	118.300	850.00	797.72	-.29	.02	0.00	45.38	90.00
	118.300	1250.00	797.92	.20	.02	0.00	45.43	90.00
	118.300	1900.00	798.18	.26	-.02	0.00	45.50	90.00
	118.400	1450.00	798.01	0.00	.00	0.00	45.46	1.00
	118.400	850.00	797.72	-.30	.00	0.00	45.38	1.00
	118.400	1250.00	797.92	.20	.00	0.00	45.43	1.00
	118.400	1900.00	798.19	.27	.01	0.00	45.50	1.00
	118.600	1450.00	798.04	0.00	.02	0.00	45.46	16.00
	118.600	850.00	797.73	-.31	.01	0.00	45.38	16.00
	118.600	1250.00	797.94	.21	.02	0.00	45.43	16.00
	118.600	1900.00	798.24	.30	.05	0.00	45.52	16.00
	118.700	1450.00	798.04	0.00	.00	0.00	45.46	1.00
	118.700	850.00	797.73	-.31	.00	0.00	45.38	1.00
	118.700	1250.00	797.94	.21	.00	0.00	45.43	1.00
	118.700	1900.00	798.24	.30	.00	0.00	45.52	1.00
	118.800	1450.00	799.25	0.00	1.21	0.00	112.72	225.00
	118.800	850.00	798.29	-.96	.56	0.00	92.33	225.00
	118.800	1250.00	798.93	.64	.99	0.00	105.81	225.00
	118.800	1900.00	799.98	1.05	1.74	0.00	126.62	225.00
	118.900	1450.00	799.67	0.00	.41	0.00	108.75	250.00
	118.900	850.00	798.57	-1.09	.29	0.00	88.74	250.00
	118.900	1250.00	799.31	.74	.39	0.00	101.18	250.00
	118.900	1900.00	800.42	1.11	.45	0.00	214.07	250.00
	119.100	1450.00	800.60	0.00	.93	0.00	204.23	400.00
	119.100	850.00	799.36	-1.24	.79	0.00	105.51	400.00
	119.100	1250.00	800.22	.86	.91	0.00	174.15	400.00
	119.100	1900.00	801.36	1.14	.94	0.00	210.87	400.00
	119.200	1450.00	801.39	0.00	.79	0.00	207.64	200.00
	119.200	850.00	800.20	-1.19	.84	0.00	140.46	200.00
	119.200	1250.00	801.04	.84	.82	0.00	204.57	200.00
	119.200	1900.00	802.07	1.02	.70	0.00	213.51	200.00
	119.300	1450.00	801.93	0.00	.54	0.00	177.01	190.00
	119.300	850.00	800.74	-1.19	.53	0.00	137.39	190.00
	119.300	1250.00	801.59	.85	.55	0.00	169.05	190.00
	119.300	1900.00	802.59	1.00	.52	0.00	192.44	190.00
	19.700	1450.00	805.19	0.00	3.27	0.00	220.00	22.00
	19.700	850.00	801.91	-3.28	1.18	0.00	176.69	22.00
	19.700	1250.00	804.23	2.31	2.64	0.00	219.42	22.00
	19.700	1900.00	805.80	1.57	3.21	0.00	220.00	22.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
119.800	1450.00	805.21	0.00	.02	0.00	240.18	90.00
119.800	850.00	801.98	-3.24	.06	0.00	149.03	90.00
119.800	1250.00	804.25	2.28	.03	0.00	207.99	90.00
119.800	1900.00	805.83	1.57	.03	0.00	314.14	90.00
120.000	1450.00	805.41	0.00	.19	0.00	232.26	400.00
120.000	850.00	802.54	-2.87	.56	0.00	221.95	400.00
120.000	1250.00	804.50	1.96	.25	0.00	229.00	400.00
120.000	1900.00	806.06	1.56	.24	0.00	234.61	400.00
120.500	1450.00	805.62	0.00	.21	0.00	373.71	440.00
120.500	850.00	803.25	-2.37	.71	0.00	322.41	440.00
120.500	1250.00	804.79	1.54	.29	0.00	365.47	440.00
120.500	1900.00	806.31	1.52	.24	0.00	380.53	440.00
121.100	1450.00	805.68	0.00	.07	0.00	191.59	210.00
121.100	850.00	804.17	-1.51	.92	0.00	105.92	210.00
121.100	1250.00	804.96	.79	.17	0.00	141.85	210.00
121.100	1900.00	806.38	1.42	.07	0.00	277.27	210.00
121.200	1450.00	805.99	0.00	.31	0.00	192.10	50.00
121.200	850.00	804.74	-1.25	.57	0.00	115.96	50.00
121.200	1250.00	805.48	.74	.52	0.00	157.45	50.00
121.200	1900.00	806.63	1.15	.26	0.00	271.77	50.00
121.250	1080.00	806.74	0.00	.75	0.00	222.38	130.00
121.250	620.00	805.61	-1.13	.86	0.00	132.02	130.00
121.250	920.00	806.36	.75	.88	0.00	182.91	130.00
121.250	1450.00	807.33	.97	.70	0.00	295.17	130.00
121.300	1080.00	807.03	0.00	.29	0.00	212.66	110.00
121.300	620.00	805.91	-1.12	.30	0.00	44.00	110.00
121.300	920.00	806.66	.76	.31	0.00	198.93	110.00
121.300	1450.00	807.62	.96	.29	0.00	235.01	110.00
121.700	1080.00	809.01	0.00	1.98	0.00	287.08	19.00
121.700	620.00	805.91	-3.11	.00	0.00	44.00	19.00
121.700	920.00	808.68	2.77	2.01	0.00	274.89	19.00
121.700	1450.00	809.48	.81	1.86	0.00	290.05	19.00
121.800	1080.00	809.06	0.00	.04	0.00	253.17	115.00
121.800	620.00	806.35	-2.70	.45	0.00	103.22	115.00
121.800	920.00	808.72	2.37	.04	0.00	249.35	115.00
121.800	1450.00	809.54	.82	.06	0.00	258.65	115.00
121.900	1080.00	809.38	0.00	.32	0.00	289.77	230.00
121.900	620.00	807.45	-1.93	1.10	0.00	172.40	230.00
121.900	920.00	809.03	1.58	.31	0.00	274.31	230.00
121.900	1450.00	809.93	.89	.38	0.00	301.95	230.00
122.000	1080.00	810.04	0.00	.66	0.00	233.79	345.00
122.000	620.00	809.11	-.93	1.66	0.00	145.20	345.00
122.000	920.00	809.73	.61	.69	0.00	217.84	345.00
122.000	1450.00	810.61	.88	.68	0.00	262.77	345.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
123.100	1080.00	811.59	0.00	1.55	0.00	240.00	405.00
123.100	620.00	810.74	-.85	1.63	0.00	212.95	405.00
123.100	920.00	811.33	.59	1.60	0.00	231.75	405.00
123.100	1450.00	812.11	.78	1.51	0.00	256.78	405.00
123.150	1080.00	812.13	0.00	.54	0.00	100.00	170.00
123.150	620.00	811.28	-.84	.54	0.00	100.00	170.00
123.150	920.00	811.87	.58	.54	0.00	100.00	170.00
123.150	1450.00	812.65	.78	.53	0.00	100.00	170.00
123.200	1080.00	812.70	0.00	.57	0.00	70.00	100.00
123.200	620.00	811.78	-.92	.50	0.00	70.00	100.00
123.200	920.00	812.41	.63	.55	0.00	70.00	100.00
123.200	1450.00	813.28	.86	.63	0.00	70.00	100.00
123.300	1080.00	813.27	0.00	.57	0.00	34.00	100.00
123.300	620.00	812.28	-.99	.50	0.00	34.00	100.00
123.300	920.00	812.96	.69	.55	0.00	34.00	100.00
123.300	1450.00	813.89	.92	.61	0.00	34.00	100.00
123.700	1080.00	817.32	0.00	4.04	0.00	345.00	200.00
123.700	620.00	816.51	-.80	4.23	0.00	343.23	200.00
* 123.700	920.00	817.09	.57	4.12	0.00	345.00	200.00
123.700	1450.00	817.76	.68	3.88	0.00	345.00	200.00
123.800	1080.00	817.33	0.00	.02	0.00	247.00	150.00
123.800	620.00	816.52	-.81	.01	0.00	247.00	150.00
123.800	920.00	817.10	.58	.01	0.00	247.00	150.00
123.800	1450.00	817.79	.69	.02	0.00	247.00	150.00
124.000	1080.00	817.54	0.00	.20	0.00	341.80	1025.00
124.000	620.00	816.63	-.90	.11	0.00	324.98	1025.00
124.000	920.00	817.27	.64	.17	0.00	336.83	1025.00
124.000	1450.00	818.07	.80	.28	0.00	351.69	1025.00
125.000	1080.00	817.91	0.00	.37	0.00	323.63	1125.00
125.000	620.00	816.90	-1.01	.27	0.00	321.34	1125.00
125.000	920.00	817.60	.70	.33	0.00	322.94	1125.00
125.000	1450.00	818.51	.91	.45	0.00	325.01	1125.00
125.100	1080.00	818.00	0.00	.09	0.00	322.01	100.00
125.100	620.00	817.00	-.99	.10	0.00	319.74	100.00
125.100	920.00	817.69	.69	.09	0.00	321.32	100.00
125.100	1450.00	818.60	.91	.09	0.00	323.39	100.00
125.200	1080.00	818.19	0.00	.20	0.00	320.63	100.00
125.200	620.00	817.31	-.89	.30	0.00	318.61	100.00
125.200	920.00	817.91	.60	.21	0.00	319.98	100.00
125.200	1450.00	818.78	.87	.17	0.00	321.96	100.00
125.300	1080.00	818.61	0.00	.42	0.00	319.76	100.00
125.300	620.00	817.98	-.63	.67	0.00	318.31	100.00
125.300	920.00	818.39	.41	.48	0.00	319.25	100.00
125.300	1450.00	819.12	.73	.34	0.00	320.91	100.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
125.400	1080.00	819.29	0.00	.68	0.00	319.48	100.00
125.400	620.00	818.78	-.51	.81	0.00	318.34	100.00
125.400	920.00	819.12	.34	.73	0.00	319.09	100.00
125.400	1450.00	819.68	.56	.57	0.00	320.38	100.00
125.500	1080.00	820.07	0.00	.78	0.00	319.45	100.00
125.500	620.00	819.58	-.49	.80	0.00	318.33	100.00
125.500	920.00	819.92	.33	.80	0.00	319.09	100.00
125.500	1450.00	820.42	.50	.73	0.00	320.23	100.00
125.600	1080.00	820.87	0.00	.80	0.00	319.44	100.00
125.600	620.00	820.39	-.49	.81	0.00	318.32	100.00
125.600	920.00	820.72	.33	.80	0.00	319.08	100.00
125.600	1450.00	821.20	.49	.79	0.00	320.20	100.00
125.700	1080.00	821.33	0.00	.45	0.00	303.26	60.00
125.700	620.00	820.83	-.50	.44	0.00	298.26	60.00
125.700	920.00	821.17	.34	.45	0.00	301.66	60.00
125.700	1450.00	821.66	.49	.46	0.00	306.68	60.00

SUMMARY OF ERRORS

CAUTION SECNO= 106.700 PROFILE= 1 HYDRAULIC JUMP D.S.
CAUTION SECNO= 106.700 PROFILE= 4 HYDRAULIC JUMP D.S.
NOTE SECNO= 108.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 108.000 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 108.000 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 108.000 PROFILE= 4 WSEL BASED ON X5 CARD

CAUTION SECNO= 109.300 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 109.300 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 109.300 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 109.300 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 109.300 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 109.300 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 109.300 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 109.300 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 109.300 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 109.300 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 109.300 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 109.300 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 110.300 PROFILE= 3 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 110.600 PROFILE= 3 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 110.600 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 114.300 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 114.300 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 114.300 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 114.300 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 114.300 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 114.300 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

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 CAUTION   SECNO=   114.300   PROFILE= 4   CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=   114.300   PROFILE= 4   PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=   114.300   PROFILE= 4   20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION   SECNO=   116.800   PROFILE= 2   CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=   116.800   PROFILE= 2   PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=   116.800   PROFILE= 2   20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION   SECNO=   117.300   PROFILE= 1   CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=   117.300   PROFILE= 1   PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=   117.300   PROFILE= 1   20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=   117.300   PROFILE= 2   CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=   117.300   PROFILE= 3   CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=   117.300   PROFILE= 3   PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=   117.300   PROFILE= 3   20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=   117.300   PROFILE= 4   CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=   117.300   PROFILE= 4   PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=   117.300   PROFILE= 4   20 TRIALS ATTEMPTED TO BALANCE WSEL

 NOTE      SECNO=   118.200   PROFILE= 1   WSEL BASED ON X5 CARD
 NOTE      SECNO=   118.200   PROFILE= 2   WSEL BASED ON X5 CARD
 NOTE      SECNO=   118.200   PROFILE= 3   WSEL BASED ON X5 CARD
 NOTE      SECNO=   118.200   PROFILE= 4   WSEL BASED ON X5 CARD

 CAUTION   SECNO=   123.700   PROFILE= 3   HYDRAULIC JUMP D.S.
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1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: RIVER ROUGE

4) DOCUMENT TYPE: SUMMARY - ORIGINAL RUN



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

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

MAIN ROUGE

SUMMARY PRINTOUT

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	TOPWID	STENCL	STENCR
	127875.000	0.00	0.00	0.00	693.00	2103.00	702.77	711.56	0.00	0.00
	127875.000	0.00	0.00	0.00	693.00	2103.00	702.87	580.32	62.72	643.04
*	130100.000	741.67	0.00	0.00	698.50	2103.00	707.87	143.84	0.00	0.00
	130100.000	2225.00	0.00	0.00	698.50	2103.00	705.79	89.32	113.57	202.89
	132184.000	2084.00	0.00	0.00	702.10	2103.00	711.85	288.28	0.00	0.00
	132184.000	2084.00	0.00	0.00	702.10	2103.00	712.07	203.79	80.98	284.78
	132284.000	100.00	0.00	0.00	701.70	2103.00	711.91	75.48	0.00	0.00
	132284.000	100.00	0.00	0.00	701.70	2103.00	712.13	51.00	76.00	127.00
	132316.000	32.00	711.50	709.70	701.70	2103.00	712.28	88.88	0.00	0.00
	132316.000	32.00	999999.00	0.00	701.70	2103.00	712.49	51.00	76.00	127.00
	132370.000	54.00	0.00	0.00	702.10	2103.00	712.47	314.82	0.00	0.00
	132370.000	54.00	0.00	0.00	702.10	2103.00	712.67	217.88	78.56	296.44
	133675.000	1305.00	0.00	0.00	705.30	2103.00	714.17	237.09	0.00	0.00
	133675.000	1305.00	0.00	0.00	705.30	2103.00	714.29	157.03	246.36	403.40
*	133725.000	25.00	0.00	0.00	705.30	2103.00	715.11	31.00	0.00	0.00
	133725.000	50.00	0.00	0.00	705.30	2103.00	714.39	31.00	61.50	92.50
	133755.000	30.00	716.30	716.00	705.30	2103.00	715.32	31.00	0.00	0.00
	133755.000	30.00	716.30	716.00	705.30	2103.00	714.68	31.00	0.00	0.00
*	133805.000	25.00	0.00	0.00	705.30	2103.00	716.67	318.07	0.00	0.00
	133805.000	50.00	0.00	0.00	705.30	2103.00	716.16	201.89	202.46	404.35
	135840.000	2035.00	0.00	0.00	710.60	2103.00	718.73	357.90	0.00	0.00
	135840.000	2035.00	0.00	0.00	710.60	2103.00	718.69	280.41	140.94	421.35
	138170.000	2330.00	0.00	0.00	715.60	2103.00	724.04	123.67	0.00	0.00
	138170.000	2330.00	0.00	0.00	715.60	2103.00	724.21	86.58	316.23	402.81
	138220.000	50.00	0.00	0.00	714.20	2103.00	724.55	45.00	0.00	0.00
	138220.000	50.00	0.00	0.00	714.20	2103.00	724.74	45.00	58.00	103.00

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	TOPWID	STENCL	STENCR
	138280.000	60.00	726.40	722.36	714.20	2103.00	725.43	45.00	0.00	0.00
	138280.000	60.00	999999.00	0.00	714.20	2103.00	725.62	45.00	58.00	103.00
	138330.000	50.00	0.00	0.00	715.60	2103.00	725.49	150.47	0.00	0.00
	138330.000	50.00	0.00	0.00	715.60	2103.00	725.66	102.09	302.91	404.99
	138460.000	130.00	0.00	0.00	716.80	1980.00	725.80	201.56	0.00	0.00
	138460.000	130.00	0.00	0.00	716.80	1980.00	725.96	87.89	297.39	385.28
	138510.000	50.00	0.00	0.00	715.40	1980.00	726.07	249.32	0.00	0.00
	138510.000	50.00	0.00	0.00	715.40	1980.00	726.22	134.84	73.29	208.13
	138530.000	20.00	723.90	722.80	715.40	1980.00	726.09	250.48	0.00	0.00
	138530.000	20.00	999999.00	0.00	715.40	1980.00	726.25	139.66	71.13	210.79
*	138580.000	25.00	0.00	0.00	716.80	1980.00	727.00	257.19	0.00	0.00
	138580.000	50.00	0.00	0.00	716.80	1980.00	727.16	146.81	259.53	406.34
	139645.000	1065.00	0.00	0.00	719.50	1980.00	728.76	334.77	0.00	0.00
	139645.000	1065.00	0.00	0.00	719.50	1980.00	728.89	251.62	99.42	351.04
	139695.000	50.00	0.00	0.00	719.40	1980.00	728.75	61.67	0.00	0.00
	139695.000	50.00	0.00	0.00	719.40	1980.00	728.88	49.02	111.36	160.37
	139745.000	50.00	730.70	728.30	719.90	1980.00	731.15	62.00	0.00	0.00
	139745.000	50.00	999999.00	0.00	719.90	1980.00	731.28	55.45	108.17	163.62
	139795.000	50.00	0.00	0.00	719.50	1980.00	731.67	368.39	0.00	0.00
	139795.000	50.00	0.00	0.00	719.50	1980.00	731.81	318.03	62.63	380.67
	140000.000	300.00	0.00	0.00	720.00	1980.00	731.69	256.16	0.00	0.00
	140000.000	300.00	0.00	0.00	720.00	1980.00	731.82	188.48	81.32	269.80
*	141580.000	805.00	0.00	0.00	725.20	1980.00	734.65	82.55	0.00	0.00
	141580.000	1610.00	0.00	0.00	725.20	1980.00	733.68	60.49	42.43	102.92
	141800.000	220.00	0.00	0.00	725.70	1980.00	735.42	85.05	0.00	0.00
	141800.000	220.00	0.00	0.00	725.70	1980.00	734.91	62.21	41.70	103.91
	141875.000	75.00	0.00	0.00	726.20	1980.00	735.64	82.51	0.00	0.00
	141875.000	75.00	0.00	0.00	726.20	1980.00	735.20	60.55	42.39	102.95
	141925.000	50.00	0.00	0.00	724.10	1980.00	735.60	66.02	.00	217.00
	141925.000	50.00	0.00	0.00	724.10	1980.00	735.19	54.67	.00	217.00
	142025.000	100.00	734.50	733.50	724.10	1980.00	736.79	91.00	.00	217.00
	142025.000	100.00	734.50	733.50	724.10	1980.00	736.50	90.99	.00	217.00
	142075.000	50.00	0.00	0.00	726.50	1980.00	737.99	87.00	17.00	104.00
	142075.000	50.00	0.00	0.00	726.50	1980.00	737.83	87.00	17.00	104.00
	142115.000	40.00	0.00	0.00	726.50	1980.00	738.06	40.10	45.00	85.10
	142115.000	40.00	0.00	0.00	726.50	1980.00	737.91	40.10	45.00	85.10
	142315.000	200.00	0.00	0.00	727.10	1980.00	739.40	84.68	0.00	0.00
	142315.000	200.00	0.00	0.00	727.10	1980.00	739.29	70.79	31.42	102.21

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	TOPWID	STENCL	STENCR
142790.000	475.00	0.00	0.00	728.80	1980.00	739.95	213.80	0.00	0.00
142790.000	475.00	0.00	0.00	728.80	1980.00	739.87	197.20	25.92	223.12
143340.000	550.00	0.00	0.00	728.20	1980.00	740.19	55.66	0.00	0.00
143340.000	550.00	0.00	0.00	728.20	1980.00	740.13	42.24	51.85	94.10
143390.000	50.00	0.00	0.00	728.50	1980.00	739.84	12.00	0.00	0.00
143390.000	50.00	0.00	0.00	728.50	1980.00	739.79	12.00	244.00	256.00
143610.000	220.00	755.60	738.67	728.50	1980.00	745.54	12.00	0.00	0.00
143610.000	220.00	999999.00	0.00	728.50	1980.00	745.49	12.00	244.00	256.00
143660.000	50.00	0.00	0.00	728.20	1980.00	747.67	98.81	0.00	0.00
143660.000	50.00	0.00	0.00	728.20	1980.00	747.62	74.46	30.37	104.83
145800.000	2140.00	0.00	0.00	732.00	1980.00	748.12	203.87	0.00	0.00
145800.000	2140.00	0.00	0.00	732.00	1980.00	748.09	169.31	47.29	216.59
146500.000	700.00	0.00	0.00	732.00	1980.00	748.23	204.64	0.00	0.00
146500.000	700.00	0.00	0.00	732.00	1980.00	748.20	169.94	46.96	216.90
146550.000	50.00	0.00	0.00	735.20	1980.00	748.28	709.73	0.00	0.00
146550.000	50.00	0.00	0.00	735.20	1980.00	748.26	626.71	114.50	741.20
146570.000	20.00	740.70	741.07	735.20	1980.00	748.33	710.51	0.00	0.00
146570.000	20.00	999999.00	0.00	735.20	1980.00	748.30	630.31	111.52	741.83
146620.000	50.00	0.00	0.00	735.00	1980.00	748.33	551.65	0.00	0.00
146620.000	50.00	0.00	0.00	735.00	1980.00	748.31	498.19	31.43	529.63
146670.000	50.00	0.00	0.00	735.00	1980.00	748.34	551.68	0.00	0.00
146670.000	50.00	0.00	0.00	735.00	1980.00	748.32	495.94	32.13	528.06
146720.000	50.00	0.00	0.00	735.30	1980.00	748.35	330.00	0.00	0.00
146720.000	50.00	0.00	0.00	735.30	1980.00	748.33	312.29	5.20	317.49
146730.000	10.00	742.20	742.41	735.30	1980.00	748.35	330.00	0.00	0.00
146730.000	10.00	999999.00	0.00	735.30	1980.00	748.33	312.30	5.20	317.50
146780.000	50.00	0.00	0.00	737.00	1980.00	748.45	404.02	0.00	0.00
146780.000	50.00	0.00	0.00	737.00	1980.00	748.43	359.19	59.76	418.95
147850.000	1070.00	0.00	0.00	737.00	1980.00	748.64	407.83	0.00	0.00
147850.000	1070.00	0.00	0.00	737.00	1980.00	748.64	361.93	58.46	420.39
147900.000	50.00	0.00	0.00	738.80	1980.00	748.24	19.39	0.00	0.00
147900.000	50.00	0.00	0.00	738.80	1980.00	748.24	19.20	290.90	310.10
147960.000	60.00	748.46	745.46	738.80	1980.00	748.24	19.39	0.00	0.00
147960.000	60.00	999999.00	0.00	738.80	1980.00	748.24	19.20	290.90	310.10
148000.000	40.00	0.00	0.00	738.00	1980.00	750.59	304.15	0.00	0.00
148000.000	40.00	0.00	0.00	738.00	1980.00	750.59	247.72	57.01	304.73
148450.000	450.00	0.00	0.00	738.00	1980.00	750.62	304.61	0.00	0.00
148450.000	450.00	0.00	0.00	738.00	1980.00	750.62	248.08	56.94	305.02

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	TOPWID	STENCL	STENCR
149500.000	1050.00	0.00	0.00	738.00	1980.00	750.67	305.56	0.00	0.00
149500.000	1050.00	0.00	0.00	738.00	1980.00	750.67	248.72	56.81	305.54
149550.000	50.00	0.00	0.00	740.51	1980.00	750.18	19.61	0.00	0.00
149550.000	50.00	0.00	0.00	740.51	1980.00	750.17	16.00	91.25	108.75
149720.000	170.00	784.18	748.73	740.51	1980.00	758.32	40.60	0.00	0.00
149720.000	170.00	999999.00	0.00	740.51	1980.00	758.32	33.73	73.52	108.75
149740.000	20.00	0.00	0.00	741.40	1980.00	758.74	621.73	0.00	0.00
149740.000	20.00	0.00	0.00	741.40	1980.00	758.76	543.31	145.45	688.76
149780.000	40.00	750.50	748.00	741.40	1980.00	758.80	622.85	0.00	0.00
149780.000	40.00	999999.00	0.00	741.40	1980.00	758.82	546.83	142.70	689.53

SUMMARY OF ERRORS

CAUTION SECNO=********* PROFILE= 1 INTERPOLATED XSECTIONS USED

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FLOODWAY DATA, MAIN ROUGE
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
127875.000	580.	2236.	.9	702.9	702.8	.1
130100.000	89.	325.	6.5	705.9	707.9	-2.0
132184.000	204.	1183.	1.8	712.0	711.8	.2
132284.000	51.	527.	4.0	712.1	711.9	.2
132316.000	51.	545.	3.9	712.5	712.3	.2
132370.000	218.	1346.	1.6	712.7	712.5	.2
133675.000	157.	774.	2.7	714.3	714.2	.1
133725.000	31.	256.	8.2	714.5	715.1	-.6
133755.000	31.	261.	8.1	714.8	715.3	-.5
133805.000	202.	1233.	1.7	716.3	716.7	-.4
135840.000	280.	1167.	1.8	718.7	718.7	0.0
138170.000	87.	484.	4.3	724.2	724.0	.2
138220.000	45.	444.	4.7	724.7	724.5	.2
138280.000	45.	484.	4.3	725.6	725.4	.2
138330.000	102.	664.	3.2	725.7	725.5	.2
138460.000	88.	379.	5.2	726.0	725.8	.2
138510.000	135.	408.	4.9	726.3	726.1	.2
138530.000	140.	419.	4.7	726.3	726.1	.2
138580.000	147.	639.	3.1	727.2	727.0	.2
139645.000	252.	1295.	1.5	728.9	728.8	.1
139695.000	49.	406.	4.9	728.8	728.7	.1
139745.000	55.	534.	3.7	731.3	731.2	.1
139795.000	318.	2373.	.8	731.8	731.7	.1
140000.000	188.	1240.	1.6	731.8	731.7	.1
141580.000	60.	355.	5.6	733.7	734.6	-.9
141800.000	62.	406.	4.9	735.0	735.4	-.4
141875.000	61.	387.	5.1	735.3	735.6	-.3
141925.000	91.	201.	9.9	735.3	735.6	-.3
142025.000	91.	297.	6.7	736.6	736.8	-.2
142075.000	87.	547.	3.6	737.9	738.0	-.1
142115.000	40.	329.	6.0	738.0	738.1	-.1
142315.000	71.	601.	3.3	739.4	739.4	0.0
142790.000	197.	1341.	1.5	739.9	739.9	0.0
143340.000	42.	370.	5.3	740.2	740.2	0.0
143390.000	12.	136.	14.6	739.8	739.8	0.0
143610.000	12.	204.	9.7	745.5	745.5	0.0
143660.000	74.	911.	2.2	747.7	747.7	0.0
145800.000	169.	1714.	1.2	748.1	748.1	0.0
146500.000	170.	1736.	1.1	748.2	748.2	0.0
146550.000	627.	4017.	.5	748.3	748.3	0.0
146570.000	630.	4059.	.5	748.3	748.3	0.0
146620.000	498.	2998.	.7	748.3	748.3	0.0
146670.000	496.	2995.	.7	748.3	748.3	0.0
146720.000	312.	1773.	1.1	748.3	748.3	0.0
146730.000	312.	1773.	1.1	748.4	748.4	0.0
146780.000	359.	2129.	.9	748.4	748.4	0.0
147850.000	362.	2213.	.9	748.6	748.6	0.0
147900.000	19.	168.	11.8	748.2	748.2	0.0
147960.000	19.	168.	11.8	748.2	748.2	0.0
148000.000	248.	1470.	1.3	750.6	750.6	0.0

FLOODWAY DATA, MAIN ROUGE
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
148450.000	248.	1478.	1.3	750.6	750.6	0.0
149500.000	249.	1493.	1.3	750.7	750.7	0.0
149550.000	18.	154.	12.9	750.2	750.2	0.0
149720.000	35.	392.	5.1	758.3	758.3	0.0
149740.000	543.	3929.	.5	758.7	758.7	0.0
149780.000	547.	3973.	.5	758.8	758.8	0.0

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SQUIRE LAKE DRAIN

4) DOCUMENT TYPE: 100 YR DOWNSTREAM
LAKES - ALTERED

00BREAK00

JOB NO. UM2204 UNIVERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 15:39:06 08-19-80

SODON LAKE – D/S LAKES
100YR FLOODWAY
Altered x-sec 407 – limited Flow to Stoneleigh – minimal chng to elev.) ∴ other Flows are OK. – will not change other models to limit Flow to along Stoneleigh.

PARAMETERS: ,ID=IDUK,PW=

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MM          MM  NN          NN  EEEEEEEEEEEE  TTTTTTTTTTTT
MMM        MMM  NNN         NN  EEEEEEEEEEEE  TTTTTTTTTTTT
MMMM      MMMM  NNNN        NN  EE                  TT
MM MM    MM MM  NN NN       NN  EE                  TT
MM  MMMM  MM MM  NN  NN     NN  EE                  TT
MM   MM   MM MM  NN   NN    NN  EEEEEEEE            TT
MM        MM MM  NN    NN   NN  EEEEEEEE            TT
MM        MM MM  NN     NN  NN  EE                  TT
MM        MM MM  NN      NNNN  EE                  TT
MM        MM MM  NN       NNN  EE                  TT
MM        MM MM  NN        NN  EEEEEEEEEEEE        TT
MM        MM MM  NN         N  EEEEEEEEEEEE        TT
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IIIIIIIIII  DDDDDDDDD     UU          UU  KK        KK
    II      DD       DD   UU          UU  KK      KK
    II      DD        DD  UU          UU  KK     KK
    II      DD        DD  UU          UU  KK    KK
    II      DD        DD  UU          UU  KKKKKKK
    II      DD        DD  UU          UU  KKKKKKK
    II      DD        DD  UU          UU  KK    KK
    II      DD        DD  UU          UU  KK     KK
    II      DD       DD   UU          UU  KK      KK
IIIIIIIIII  DDDDDDDDD     UUUUUUUUUUUU  KK        KK
IIIIIIIIII  DDDDDDDD       UUUUUUUUUU   KK         KK
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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C
T1      HUD-FIA H-4705
T2      BLOOMFIELD HILLS
T3      SODON LAKE BRANCH

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -1.        4.        0.        0.  0.000000      0.00      -1.0       0.    818.660     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    200.000     0.000   150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC       .085      .085      .055      .150      .350     0.000     0.000     0.000     0.000     0.000
QT      5.000   240.000   340.000   400.000   5>0.000   400.000     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

         ** CONFLUENCE WITH LONG LAKE - FOREST LAKE BRANCH

X1    399.800    10.000    48.000   220.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    820.000     0.000   818.000    48.000   816.000    56.000   814.000    66.000   812.400   100.000
GR    812.400   170.000   814.000   208.000   816.000   216.000   818.000   220.000   820.000   280.000

X1    400.000    10.000    51.000   129.000   200.000   200.000   200.000     0.000     0.000     0.000
GR    822.000     0.000   821.800    30.000   821.200    51.000   820.000    60.000   812.100    72.000
GR    812.100    95.000   815.600   108.000   818.400   129.000   818.800   243.000   822.000   285.000
NC      0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

         ** D/S FACE FOOTBRIDGE 401.2A

X1    401.200     0.000     0.000     0.000   200.000   200.000   200.000     0.000      .300     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   816.100   816.100     0.000
SB      0.000     2.150     2.700   175.000     4.730     0.000    14.200     0.000   813.100   812.700

X1    401.220    11.000   131.000   291.000    96.000    96.000    96.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   816.100   819.500     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   819.500   819.500     0.000
GR    825.100     0.000   819.400   100.000   819.000   131.000   817.100   178.000   813.100   195.000
GR    813.100   225.000   817.000   250.000   818.500   270.000   822.100   291.000   823.700   331.000
GR    825.100   487.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    401.300     0.000     0.000     0.000     7.000     7.000     7.000     0.000     0.000     0.000

         ** D/S FACE ORCHARD RIDGE RD.
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X1	400.980	0.000	0.000	0.000	8.000	8.000	8.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	817.400	817.400	0.000
SB	0.000	1.900	2.800	275.000	4.210	0.000	16.430	0.000	813.500	813.200
X1	401.020	13.000	192.000	241.000	36.000	36.000	36.000	0.000	-.600	0.000
X2	0.000	0.000	1.000	817.400	819.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	819.400	819.400	0.000
GR	825.000	0.000	821.900	16.000	822.000	145.000	819.800	192.000	814.800	223.000
GR	814.100	226.000	814.100	230.000	814.800	233.000	816.600	241.000	815.900	296.000
GR	818.800	365.000	821.000	386.000	825.000	464.000	0.000	0.000	0.000	0.000
X1	401.800	0.000	0.000	0.000	75.000	75.000	75.000	0.000	.600	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	401.830	0.000	0.000	0.000	205.000	205.000	205.000	0.000	.400	0.000
X1	401.850	0.000	0.000	0.000	235.000	235.000	235.000	0.000	.500	0.000
X1	401.950	13.000	363.000	383.000	230.000	230.000	230.000	0.000	-.400	0.000
GR	826.000	0.000	821.500	257.000	818.000	333.000	817.200	363.000	816.200	371.000
GR	815.800	373.000	815.800	377.000	816.200	379.000	817.400	383.000	817.400	416.000
GR	820.200	496.000	820.700	542.000	826.000	656.000	0.000	0.000	0.000	0.000
X1	402.000	0.000	0.000	0.000	250.000	230.000	230.000	0.000	.400	0.000
QT	5.000	120.000	170.000	190.000	270.000	190.000	0.000	0.000	0.000	0.000
X1	402.100	0.000	0.000	0.000	225.000	225.000	225.000	0.000	1.900	0.000
X1	402.900	13.000	204.000	238.000	250.000	250.000	250.000	0.000	-2.800	0.000
GR	832.000	0.000	829.800	74.000	824.200	204.000	822.000	216.000	821.900	219.000
GR	821.900	222.000	822.000	225.000	823.500	238.000	824.700	296.000	826.400	324.000
GR	828.700	343.000	830.000	366.000	830.800	409.000	0.000	0.000	0.000	0.000
X1	403.200	0.000	0.000	0.000	250.000	250.000	250.000	0.000	2.800	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE VAUGHN RD.

X1	402.980	0.000	0.000	0.000	95.000	95.000	95.000	0.000	.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.000	825.000	0.000
SB	0.000	2.150	2.800	175.000	2.750	0.000	9.620	0.000	822.600	822.600
X1	403.020	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	825.000	828.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.100	828.100	0.000
X1	403.800	10.000	123.000	213.000	80.000	80.000	80.000	0.000	0.000	0.000
GR	832.000	0.000	827.800	40.000	825.500	123.000	823.500	136.000	821.000	154.000

GR	821.000	183.000	823.500	201.000	824.900	213.000	827.100	273.000	832.000	316.000
NC	.095	.095	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	404.000	10.000	131.000	245.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	834.000	0.000	828.100	50.000	828.000	131.000	823.500	158.000	822.200	183.000
GR	822.200	211.000	823.500	236.000	825.400	245.000	826.800	284.000	834.000	345.000
X1	405.200	12.000	146.000	175.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	835.000	0.000	829.000	32.000	829.000	101.000	826.100	118.000	826.000	146.000
GR	825.300	152.000	823.200	156.000	823.200	162.000	826.000	175.000	826.700	236.000
GR	829.000	293.000	835.000	338.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE LAHSER RD.

X1	404.980	0.000	0.000	0.000	75.000	75.000	75.000	0.000	-.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	823.900	823.900	0.000
SB	0.000	1.750	2.900	0.000	2.330	0.000	3.260	0.000	822.500	822.500
X1	405.020	12.000	151.000	191.000	45.000	45.000	45.000	0.000	-.200	0.000
X2	0.000	0.000	1.000	823.900	830.500	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	830.500	830.500	0.000
BT	6.000	0.000	835.400	0.000	73.000	832.200	0.000	145.000	830.500	0.000
BT	165.000	830.500	0.000	234.000	832.000	0.000	310.000	835.400	0.000	0.000
GR	835.000	0.000	833.000	50.000	830.200	98.000	825.400	151.000	823.600	162.000
GR	822.700	168.000	822.700	179.000	823.600	185.000	824.600	191.000	825.600	234.000
GR	831.100	257.000	835.000	293.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	405.800	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	405.810	0.000	0.000	0.000	250.000	250.000	250.000	0.000	-.100	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE DRIVEWAY BRIDGE 405A

X1	405.840	9.000	125.000	165.000	44.000	44.000	44.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.800	825.800	0.000
GR	836.600	0.000	830.600	50.000	828.200	100.000	825.000	125.000	822.600	145.000
GR	825.000	165.000	829.400	200.000	831.800	300.000	835.800	400.000	0.000	0.000
SB	0.000	2.550	3.000	0.000	4.030	0.000	14.100	0.000	822.600	822.600
X1	405.860	0.000	0.000	0.000	56.000	56.000	56.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	825.800	828.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.100	828.100	0.000
BT	7.000	0.000	836.600	0.000	50.000	830.600	0.000	100.000	828.200	0.000
BT	145.000	828.100	0.000	200.000	829.400	0.000	300.000	831.800	0.000	400.000
BT	835.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	405.990	14.000	238.000	295.000	100.000	100.000	100.000	0.000	-.300	0.000
GR	836.000	0.000	829.400	33.000	826.400	102.000	825.000	238.000	824.400	247.000
GR	823.600	251.000	823.100	259.000	823.600	266.000	827.000	285.000	827.900	295.000

GR	827.800	317.000	829.000	373.000	830.300	396.000	836.000	437.000	0.000	0.000
X1	406.000	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.300	0.000
X1	406.100	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.700	0.000

** D/S STORM DRAIN

X1	406.500	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.600	0.000
NC	.150	.150	.075	.500	1.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	50.000	80.000	100.000	150.000	100.000	0.000	0.000	0.000	0.000
X1	407.100	24.000	450.000	600.000	1.000	325.000	1.000	0.000	-2.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	838.000	0.000
GR	835.000	150.000	832.300	160.000	829.700	170.000	828.200	195.000	829.100	296.000
GR	830.000	320.000	831.800	345.000	838.000	346.000	838.000	449.000	831.800	450.000
GR	829.800	458.000	830.600	510.000	831.200	512.000	831.200	528.000	830.500	534.000
GR	830.600	560.000	834.400	600.000	838.000	601.000	838.000	646.000	834.400	647.000
GR	831.500	652.000	831.400	684.000	832.700	720.000	838.000	750.000	0.000	0.000
X1	407.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	838.000	0.000
X1	407.000	13.000	369.000	501.000	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	840.000	840.000	0.000
GR	840.000	80.000	833.400	81.000	852.000	98.000	830.700	150.000	832.500	208.000
GR	832.900	234.000	832.300	286.000	840.000	287.000	840.000	369.000	831.400	370.000
GR	832.000	460.000	832.200	500.000	840.000	501.000	0.000	0.000	0.000	0.000
X1	407.800	11.000	424.000	600.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	840.400	344.000	839.000	375.000	834.100	406.000	832.800	424.000	832.500	510.000
GR	832.000	524.000	832.100	548.000	831.800	562.000	833.200	600.000	834.400	638.000
GR	840.000	639.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	408.000	13.000	712.000	805.000	325.000	325.000	325.000	0.000	0.000	0.000
GR	840.500	578.000	839.200	670.000	835.800	712.000	833.100	732.000	833.100	740.000
GR	835.200	745.000	835.100	770.000	833.600	774.000	836.300	805.000	838.600	830.000
GR	839.200	846.000	839.200	930.000	840.000	942.000	0.000	0.000	0.000	0.000
X1	409.000	10.000	83.000	200.000	475.000	475.000	475.000	0.000	0.000	0.000
GR	842.000	0.000	840.200	83.000	837.700	94.000	837.800	100.000	839.400	110.000
GR	839.000	132.000	837.800	136.000	838.600	200.000	838.900	258.000	840.600	300.000
X1	409.100	0.000	0.000	0.000	500.000	175.000	375.000	0.000	2.000	0.000
X1	409.500	21.000	212.000	340.000	150.000	250.000	150.000	0.000	-2.800	0.000
GR	850.000	0.000	846.000	35.000	846.000	75.000	845.500	92.000	845.500	118.000
GR	846.600	165.000	852.000	166.000	852.000	211.000	846.600	212.000	845.400	248.000
GR	845.700	265.000	845.400	275.000	843.700	280.000	847.000	295.000	848.200	340.000
GR	852.000	341.000	852.000	441.000	847.400	442.000	845.800	485.000	846.100	522.000

GR	852.000	523.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	410.000	0.000	0.000	0.000	150.000	250.000	150.000	0.000	2.800	0.000

** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

X1	410.100	0.000	0.000	0.000	125.000	50.000	50.000	0.000	1.500	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .150 CEHV= .350
*SECNO 399.800

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

** CONFLUENCE WITH LONG LAKE - FOREST LAKE BRANCH

399.80	6.26	818.66	0.00	818.66	818.66	.00	0.00	0.00	818.00
400.	0.	399.	0.	5.	917.	7.	0.	0.	818.00
0.00	.04	.44	.04	.085	.055	.085	0.000	812.40	32.16
.000028	0.	0.	0.	0	0	0	0.00	207.64	239.80

*SECNO 400.000

400.00	6.56	818.66	0.00	0.00	818.69	.03	.01	.01	821.20
400.	0.	399.	1.	0.	281.	10.	3.	1.	818.40
.04	0.00	1.42	.09	.085	.055	.085	.055	812.10	62.03
.000428	200.	200.	200.	0	0	0	0.00	142.68	204.71

CCHV= .300 CEHV= .500
*SECNO 401.200

** D/S FACE FOOTBRIDGE 401.2A

401.20	6.35	818.75	0.00	0.00	818.78	.03	.09	.00	821.50
400.	0.	400.	0.	0.	267.	0.	4.	1.	818.70
.08	0.00	1.50	.03	.085	.055	.085	.055	812.40	62.36
.000510	200.	200.	200.	2	0	0	0.00	80.11	142.47

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	2.70	175.00	4.73	0.00	14.20	0.00	813.10	812.70

*SECNO 401.220
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
845.24	819.46	0.00	305.	95.	14.	14.	816.10	819.50

401.22	7.14	820.24	0.00	0.00	820.25	.01	1.47	0.00	819.00
400.	6.	394.	0.	39.	594.	0.	5.	2.	822.10
.12	.16	.66	0.00	.085	.055	.085	.055	813.10	85.13
.000096	96.	96.	96.	0	0	7	0.00	195.06	280.19

*SECNO 401.300

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
401.30	7.14	820.24	0.00	0.00	820.25	.01	.00	.00	819.00
400.	6.	394.	0.	39.	593.	0.	5.	2.	822.10
.12	.16	.66	0.00	.085	.055	.085	.055	813.10	85.21
.000097	7.	7.	7.	0	0	0	0.00	194.95	280.17

*SECNO 400.980

** D/S FACE ORCHARD RIDGE RD.

400.98	7.04	820.24	0.00	0.00	820.25	.01	.00	.00	819.10
400.	5.	395.	0.	34.	578.	0.	5.	2.	822.20
.12	.16	.68	0.00	.085	.055	.085	.054	813.20	86.98
.000105	8.	8.	8.	0	0	0	0.00	192.60	279.58

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.90	2.80	275.00	4.21	0.00	16.43	0.00	813.50	813.20

*SECNO 401.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.73	820.55	0.00	376.	26.	16.	16.	817.40	819.40

401.02	6.81	820.31	0.00	0.00	820.31	.01	.07	0.00	819.20
400.	2.	164.	235.	13.	220.	524.	6.	2.	816.00
.14	.12	.74	.45	.085	.055	.085	.054	813.50	168.20
.000105	36.	36.	36.	0	0	8	0.00	216.98	385.18

*SECNO 401.800

401.80	6.22	820.32	0.00	0.00	820.33	.01	.01	.00	819.80
400.	0.	167.	232.	3.	191.	439.	7.	2.	816.60
.17	.09	.88	.53	.085	.055	.085	.054	814.10	180.96
.000176	75.	75.	75.	0	0	0	0.00	198.51	379.48

CCHV= .150 CEHV= .350
*SECNO 401.830

401.83	5.86	820.36	0.00	0.00	820.37	.01	.04	.00	820.20
400.	0.	170.	230.	0.	173.	390.	10.	3.	817.00
.25	.05	.98	.59	.085	.055	.085	.054	814.50	188.73
.000251	205.	205.	205.	1	0	0	0.00	187.27	376.01

*SECNO 401.850

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

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
401.85	5.43	820.43	0.00	0.00	820.44	.01	.07	.00	820.70
400.	0.	175.	225.	0.	152.	333.	13.	4.	817.50
.32	0.00	1.15	.68	.085	.055	.085	.055	815.00	193.68
.000390	235.	235.	235.	2	0	0	0.00	178.29	371.96

*SECNO 401.950

401.95	5.11	820.51	0.00	0.00	820.52	.01	.08	.00	816.80
400.	106.	119.	175.	191.	90.	305.	16.	5.	817.00
.40	.56	1.32	.57	.085	.055	.085	.055	815.40	269.96
.000326	230.	230.	230.	0	0	0	0.00	276.42	546.37

*SECNO 402.000

402.00	4.80	820.60	0.00	0.00	820.62	.02	.09	.00	817.20
400.	104.	127.	169.	163.	84.	256.	18.	7.	817.40
.47	.64	1.51	.66	.085	.055	.085	.055	815.80	276.64
.000474	230.	230.	230.	0	0	0	0.00	255.73	532.37

*SECNO 402.100

402.10	3.04	820.74	0.00	0.00	820.77	.04	.15	.01	819.10
190.	34.	96.	60.	45.	49.	77.	20.	8.	819.30
.52	.75	1.98	.78	.085	.055	.085	.055	817.70	314.87
.001676	225.	225.	225.	2	0	0	0.00	142.13	457.00

*SECNO 402.900

402.90	2.35	821.45	0.00	0.00	821.61	.16	.79	.04	821.40
190.	0.	179.	11.	0.	54.	13.	21.	8.	820.70
.54	.02	3.31	.82	.085	.055	.085	.055	819.10	202.91
.008185	250.	250.	250.	3	0	0	0.00	71.20	274.11

*SECNO 403.200

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
403.20	2.12	824.02	823.58	0.00	824.26	.24	2.63	.03	824.20
190.	0.	185.	5.	0.	46.	6.	21.	9.	823.50
.56	0.00	3.99	.84	.085	.055	.085	.055	821.90	205.00
.013998	250.	250.	250.	10	19	0	0.00	57.99	262.99

CCHV= .300 CEHV= .500

*SECNO 402.980

** D/S FACE VAUGHN RD.

402.98	2.44	825.04	0.00	0.00	825.17	.14	.88	.03	824.90
190.	0.	176.	14.	0.	57.	17.	21.	9.	824.20
.56	.24	3.08	.79	.085	.055	.085	.055	822.60	200.73
.006566	95.	95.	95.	1	0	0	0.00	77.92	278.65

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	2.80	175.00	2.75	0.00	9.62	0.00	822.60	822.60

*SECNO 403.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
838.06	825.21	0.00	93.	97.	10.	7.	825.00	828.10

403.02	5.83	828.43	0.00	0.00	828.43	.00	3.26	0.00	824.90
190.	25.	93.	72.	145.	172.	279.	22.	9.	824.20
.59	.17	.54	.26	.085	.055	.085	.055	822.60	122.04
.000046	30.	30.	30.	0	0	7	0.00	212.95	334.99

*SECNO 403.800

403.80	7.43	828.43	0.00	0.00	828.43	.00	.00	.00	825.50
190.	13.	161.	16.	150.	540.	154.	23.	9.	824.90
.67	.09	.30	.10	.085	.055	.085	.055	821.00	33.99
.000011	80.	80.	80.	2	0	0	0.00	250.70	284.68

CCHV= .150 CEHV= .350
*SECNO 404.000

404.00	6.24	828.44	0.00	0.00	828.44	.00	.00	.00	828.00
190.	1.	178.	11.	32.	563.	103.	28.	11.	825.40
.94	.03	.32	.11	.095	.055	.095	.055	822.20	47.12
.000016	300.	300.	300.	0	0	0	0.00	250.78	297.89

*SECNO 405.200

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

405.20	5.24	828.44	0.00	0.00	828.45	.01	.01	.00	826.00
190.	30.	107.	53.	83.	115.	165.	31.	12.	826.00
1.05	.36	.93	.32	.095	.055	.095	.055	823.20	104.29
.000197	250.	250.	250.	0	0	0	0.00	174.80	279.09

CCHV= .300 CEHV= .500
*SECNO 404.980

** D/S FACE LAHSER RD.

404.98	5.96	828.46	0.00	0.00	828.45	.00	.01	.00	825.30
190.	33.	94.	63.	124.	135.	245.	32.	13.	825.30
1.09	.27	.70	.26	.095	.055	.095	.055	822.50	31.21
.000088	75.	75.	75.	0	0	0	0.00	262.91	294.12

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.75	2.90	0.00	2.33	0.00	3.26	0.00	822.50	822.50

*SECNO 405.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
920.76	828.47	0.00	155.	35.	3.	3.	823.90	830.50

405.02	9.02	831.52	0.00	0.00	831.52	.00	3.06	0.00	825.20
190.	25.	109.	56.	228.	327.	364.	33.	13.	824.40
1.14	.11	.33	.15	.095	.055	.095	.055	822.50	71.91
.000009	45.	45.	45.	0	0	11	0.00	190.83	262.74

*SECNO 405.800

405.80	8.82	831.52	0.00	0.00	831.52	.00	.00	.00	825.40
190.	24.	110.	56.	212.	319.	350.	34.	13.	824.60
1.20	.11	.34	.16	.095	.055	.095	.055	822.70	75.32
.000010	50.	50.	50.	0	0	0	0.00	185.59	260.91

CCHV= .150 CEHV= .350
*SECNO 405.810

405.81	8.92	831.52	0.00	0.00	831.52	.00	.00	.00	825.30
190.	25.	109.	56.	220.	323.	357.	39.	14.	824.50
1.47	.11	.34	.16	.095	.055	.095	.055	822.60	73.60
.000010	250.	250.	250.	0	0	0	0.00	188.24	261.83

CCHV= .300 CEHV= .500
*SECNO 405.840

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

** D/S FACE DRIVEWAY BRIDGE 405A

405.84	8.92	831.52	0.00	0.00	831.52	.00	.00	.00	825.00
190.	33.	127.	30.	233.	309.	245.	40.	14.	825.00
1.51	.14	.41	.12	.095	.055	.095	.055	822.60	42.30
.000015	44.	44.	44.	0	0	0	0.00	246.20	288.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.55	3.00	0.00	4.03	0.00	14.10	0.00	822.60	822.60

*SECNO 405.860
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
838.71	831.53	0.00	180.	11.	14.	13.	825.80	828.10

	405.86	8.94	831.54	0.00	0.00	831.55	.00	.02	0.00	825.00
	190.	33.	127.	31.	235.	310.	248.	41.	15.	825.00
	1.55	.14	.41	.12	.095	.055	.095	.055	822.60	42.11
	.000015	56.	56.	56.	0	0	5	0.00	247.32	289.43
*SECNO 405.990										
	405.99	8.75	831.55	0.00	0.00	831.55	.00	.00	.00	824.70
	190.	100.	69.	21.	1123.	391.	340.	44.	16.	827.60
	1.79	.09	.18	.06	.095	.055	.095	.055	822.80	20.77
	.000003	100.	100.	100.	0	0	0	0.00	386.35	407.12
*SECNO 406.000										
	406.00	8.45	831.55	0.00	0.00	831.55	.00	.00	.00	825.00
	190.	100.	70.	20.	1059.	375.	307.	54.	18.	827.90
	2.34	.09	.19	.07	.095	.055	.095	.055	823.10	22.25
	.000004	250.	250.	250.	0	0	0	0.00	382.74	404.99
*SECNO 406.100										
	406.10	6.75	831.55	0.00	0.00	831.55	.00	.00	.00	826.70
	190.	99.	81.	10.	699.	278.	132.	64.	20.	829.60
	2.76	.14	.29	.08	.095	.055	.095	.055	824.80	30.75
	.000014	300.	300.	300.	0	0	0	0.00	357.27	388.02

*SECNO 406.500									
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

** D/S STORM DRAIN

	406.50	5.16	831.56	0.00	0.00	831.56	.00	.01	.00	828.30
	190.	93.	96.	1.	387.	187.	14.	70.	22.	831.20
	2.98	.24	.51	.07	.095	.055	.095	.055	826.40	59.39
	.000075	300.	300.	300.	0	0	0	0.00	278.74	338.12

CCHV= .500 CEHV= 1.000
*SECNO 407.100

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 829.30 ELREA= 838.00

	407.10	5.86	831.56	0.00	0.00	831.56	.00	.00	.00	829.30
	100.	58.	42.	0.	899.	453.	0.	70.	23.	831.90
	2.98	.06	.09	0.00	.150	.075	.150	.055	825.70	153.47

.000005	1.	1.	325.	0	0	0	0.00	338.70	596.44

*SECNO 407.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 831.80 ELREA= 838.00

407.20	1.76	831.56	0.00	0.00	831.58	.01	.00	.01	831.80
100.	0.	100.	0.	0.	120.	0.	73.	24.	834.40
3.05	0.00	.83	0.00	.150	.075	.150	.055	829.80	450.92
.001741	200.	200.	200.	0	0	0	0.00	119.28	570.20

*SECNO 407.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 840.00 ELREA= 840.00

407.00	.84	832.24	0.00	0.00	832.29	.05	.67	.04	840.00
100.	0.	100.	0.	0.	54.	0.	73.	24.	840.00
3.07	0.00	1.87	0.00	.150	.075	.150	.056	831.40	369.90
.029225	150.	150.	150.	4	0	0	0.00	130.10	500.00

*SECNO 407.800

407.80	1.15	832.95	0.00	0.00	832.97	.02	.66	.02	832.80
100.	0.	100.	0.	0.	89.	0.	74.	24.	833.20
3.08	.15	1.12	0.00	.150	.075	.150	.056	831.80	421.90
.007466	50.	50.	50.	3	0	0	0.00	171.35	593.25

*SECNO 408.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
408.00	2.22	835.32	0.00	0.00	835.35	.03	2.37	.02	835.80
100.	0.	100.	0.	0.	67.	0.	74.	25.	836.30
3.14	0.00	1.49	0.00	.150	.075	.150	.057	833.10	715.56
.007107	325.	325.	325.	5	0	0	0.00	78.18	793.74

*SECNO 409.000

3265 DIVIDED FLOW

409.00	1.25	838.95	0.00	0.00	838.98	.03	3.63	.00	840.20
100.	0.	96.	4.	0.	65.	12.	75.	26.	838.60
3.24	0.00	1.48	.31	.150	.075	.150	.059	837.70	88.50
.008239	475.	475.	475.	5	0	0	0.00	145.79	259.26

*SECNO 409.100

3265 DIVIDED FLOW

409.10	1.41	841.11	0.00	0.00	841.13	.02	2.14	.01	842.20
100.	0.	93.	7.	0.	79.	22.	76.	27.	840.60
3.33	0.00	1.17	.33	.150	.075	.150	.060	839.70	87.79
.004416	500.	375.	175.	4	0	0	0.00	157.79	263.23

*SECNO 409.500

3265 DIVIDED FLOW

409.50	2.06	842.96	842.96	0.00	843.15	.19	1.85	.17	843.80
100.	12.	88.	0.	10.	24.	0.	76.	28.	845.40
3.34	1.18	3.68	0.00	.150	.075	.150	.060	840.90	82.71
.099544	150.	150.	250.	4	19	0	0.00	99.57	289.42

*SECNO 410.000

3265 DIVIDED FLOW

410.00	2.50	846.20	0.00	0.00	846.23	.02	2.99	.08	846.60
100.	24.	72.	4.	45.	50.	11.	76.	29.	848.20
3.38	.54	1.45	.35	.150	.075	.150	.061	843.70	33.24
.008134	150.	150.	250.	10	0	0	0.00	229.90	522.02

*SECNO 410.100

3265 DIVIDED FLOW

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

** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

410.10	2.14	847.34	0.00	0.00	847.47	.13	1.14	.11	848.10
100.	14.	86.	0.	13.	27.	0.	76.	29.	849.70
3.38	1.06	3.14	.03	.150	.075	.150	.061	845.20	80.55
.064047	125.	50.	50.	5	0	0	0.00	112.17	489.53

PROFILE FOR STREAM SODON LAKE BRANCH

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

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ELEVATION-FT    810.      815.      820.      825.      830.      835.      840.      845.      850.      855.
   SECNO   CUMDIS-FT
                |         |         |         |         |         |         |         |         |         |
399.80      0.  C   I     .      LE  M        .         .         .         .         .         .         .
           20.  C   I     .      RE  M        .         .         .         .         .         .         .
           40.  C   I     .      RE  .M       .         .         .         .         .         .         .
           60.  C   I     .      REL .M       .         .         .         .         .         .         .
           80.  C   I     .      RE L. M      .         .         .         .         .         .         .
          100.  C   I     .      RE L. M      .         .         .         .         .         .         .
          120.  C   I     .      RE  L M      .         .         .         .         .         .         .
          140.  C   I     .       E  L  M     .         .         .         .         .         .         .
          160.  C   I     .       E  .L M     .         .         .         .         .         .         .
          180.  C   I     .       E  . L M    .         .         .         .         .         .         .
400.00    200.  C   I     .       E  . L M    .         .         .         .         .         .         .
          220.  C   I     .       E  . L M    .         .         .         .         .         .         .
          240.  C   I     .       E  .  LM    .         .         .         .         .         .         .
          260.  C   I     .       E  .  LM    .         .         .         .         .         .         .
          280.  C   I     .       E  .  LM    .         .         .         .         .         .         .
          300.  C   I     .       E  .  LM    .         .         .         .         .         .         .
          320.  C    I    .       E  .  LM    .         .         .         .         .         .         .
          340.  C    I    .       WE .  LM    .         .         .         .         .         .         .
          360.  C    I    .       WE .  LM    .         .         .         .         .         .         .
          380.  C    I    .       WE .  L M   .         .         .         .         .         .         .
401.20    400.  C    I    .        RE .  L M  .         .         .         .         .         .         .
          420.  C    I    .         ER. L   M .         .         .         .         .         .         .
          440.  C    I    .          ERL     M.         .         .         .         .         .         .
          460.  C     I   .          EL R     M.        .         .         .         .         .         .
          480.  C     I   .          LE  R     M.       .         .         .         .         .         .
401.22    500.  C     I   .         L .E  R     M       .         .         .         .         .         .
401.30    520.  C     I   .         L WE  R     M       .         .         .         .         .         .
400.98    540.  C     I   .         L WE  R     M       .         .         .         .         .         .
401.02    560.  C      I  . R       L .E       M.       .         .         .         .         .         .
          580.  C      I  . R        L.E       M.       .         .         .         .         .         .
          600.  C       I . R        L.E       M.       .         .         .         .         .         .
          620.  C       I . R        L.E        M       .         .         .         .         .         .
401.80    640.  C       I . R         LE        M       .         .         .         .         .         .
          660.  C       I . R         LE        M       .         .         .         .         .         .
          680.  C       I . R         LE        M       .         .         .         .         .         .
          700.  C       I . R         LE        M       .         .         .         .         .         .
          720.  C        I.  R        LE        M       .         .         .         .         .         .
          740.  C        I.  R        LE        M       .         .         .         .         .         .
          760.  C        I.  R        LE        M       .         .         .         .         .         .
          780.  C        I.  R        LE        .M      .         .         .         .         .         .
          800.  C        I.  R        LE        .M      .         .         .         .         .         .
          820.  C        I.  R        LE        .M      .         .         .         .         .         .
401.83    840.  C        I.  R        LE        .M      .         .         .         .         .         .
          860.  C        I.  R        LE        .M      .         .         .         .         .         .
          880.  C        I.  R        .E        .M      .         .         .         .         .         .
          900.  C        I.  R        .E        .M      .         .         .         .         .         .
          920.  C        I.  R        .E        .M      .         .         .         .         .         .
          940.  C        I.  R        .E        .M      .         .         .         .         .         .
          960.  C         I    R      .E        .M      .         .         .         .         .         .
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	980.	C		I	R	.E	.M	.	.	.	.	.	.	.
	1000.	C		I	R	.E	.M	.	.	.	.	.	.	.
	1020.	C		I	R	.E	. M	.	.	.	.	.	.	.
	1040.	C		I	R	.E	. M	.	.	.	.	.	.	.
	1060.	C		I	R	.E	. M	.	.	.	.	.	.	.
401.85	1080.	C		I	R	.E	. M	.	.	.	.	.	.	.
	1100.	C		I	R	.E	. M	.	.	.	.	.	.	.
	1120.	C		I	R	LE	. M	.	.	.	.	.	.	.
	1140.	C		I	R	L.E	. M	.	.	.	.	.	.	.
	1160.	C		I	R	L.E	. M	.	.	.	.	.	.	.
	1180.	C		I	R L	.E	. M	.	.	.	.	.	.	.
	1200.	C		I	R L	.E	.M	.	.	.	.	.	.	.
	1220.	C		I	R L	.E	.M	.	.	.	.	.	.	.
	1240.	C		.I	R L	.E	.M	.	.	.	.	.	.	.
	1260.	C		.I	RL	.E	.M	.	.	.	.	.	.	.
	1280.	C		.I	RL	.E	.M	.	.	.	.	.	.	.
401.95	1300.	C		.I	L	.E	.M	.	.	.	.	.	.	.
	1320.	C		.I	L	.E	.M	.	.	.	.	.	.	.
	1340.	C		.I	L	.E	.M	.	.	.	.	.	.	.
	1360.	C		.I	L	.E	.M	.	.	.	.	.	.	.
	1380.	C		.I	L	.E	.M	.	.	.	.	.	.	.
	1400.	C		.I	L	.E	. M	.	.	.	.	.	.	.
	1420.	C		.I	L	.E	. M	.	.	.	.	.	.	.
	1440.	C		.I	L	.E	. M	.	.	.	.	.	.	.
	1460.	C		.I	LR	.E	. M	.	.	.	.	.	.	.
	1480.	C		.I	LR	.E	. M	.	.	.	.	.	.	.
	1500.	C		.I	LR	.E	. M	.	.	.	.	.	.	.
	1520.	C		. I	LR	.E	. M	.	.	.	.	.	.	.
402.00	1540.	C		. I	LR	.E	. M	.	.	.	.	.	.	.
	1560.	C		. I	L	.E	. M	.	.	.	.	.	.	.
	1580.	C		. I	L	.E	. M	.	.	.	.	.	.	.
	1600.	C		. I	LR	.E	. M	.	.	.	.	.	.	.
	1620.	C		. I	L	.E	. M	.	.	.	.	.	.	.
	1640.	C		. I	L	.E	. M	.	.	.	.	.	.	.
	1660.	C		. I	LR	.E	. M	.	.	.	.	.	.	.
	1680.	C		. I	L	.E	. M	.	.	.	.	.	.	.
	1700.	C		. I	LR	.E	. M	.	.	.	.	.	.	.
	1720.	C		. I	LR	.E	. M	.	.	.	.	.	.	.
	1740.	C		. I	L	.WE	. M	.	.	.	.	.	.	.
402.10	1760.	C		. I	LR	.WE	. M	.	.	.	.	.	.	.
	1780.	C		. I	L	. E	. M	.	.	.	.	.	.	.
	1800.	C		. I	L	. E	. M	.	.	.	.	.	.	.
	1820.	C		. I	L	. E	. M	.	.	.	.	.	.	.
	1840.	C		. I	RL	E	. M	.	.	.	.	.	.	.
	1860.	C		. I	L	E	. M	.	.	.	.	.	.	.
	1880.	C		. I	L	E	. M	.	.	.	.	.	.	.
	1900.	C		. I	RL	E	. M	.	.	.	.	.	.	.
	1920.	C		. I	RL	WE	. M	.	.	.	.	.	.	.
	1940.	C		. I	.RL	E	. M	.	.	.	.	.	.	.
	1960.	C		. I	.RL	E	. M	.	.	.	.	.	.	.
	1980.	C		. I	.RL	E	. M	.	.	.	.	.	.	.
402.90	2000.	C		. I	.R	E	. M	.	.	.	.	.	.	.
	2020.	C		. I	. R	WE	. M	.	.	.	.	.	.	.
	2040.	C		. I	. R	E	. M	.	.	.	.	.	.	.
	2060.	C		. I	R	E	. M	.	.	.	.	.	.	.
	2080.	C		. I	R	E	. M	.	.	.	.	.	.	.
	2100.	C		. I	R	E	. M	.	.	.	.	.	.	.
	2120.	C		. I	R	WE	. M.	.	.	.	.	.	.	.
	2140.	C		. I	R	E	. M.	.	.	.	.	.	.	.
	2160.	C		. I	R	WE	. M	.	.	.	.	.	.	.
	2180.	C		. I	R	E	. M	.	.	.	.	.	.	.

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        3420.  C  .  .  I   R.L      .  E    M      .  .  .  .  .
405.81  3440.  C  .  .  I   R.L      .  E    M      .  .  .  .  .
        3460.  C  .  .  I   RL       .  E    .M     .  .  .  .  .
405.84  3480.  C  .  .  I    L       .  E    . M    .  .  .  .  .
        3500.  C  .  .  I    L       .  E    . M    .  .  .  .  .
        3520.  C  .  .  I    L       .  E    . M    .  .  .  .  .
405.86  3540.  C  .  .  I    L       .  E    . M    .  .  .  .  .
        3560.  C  .  .  I    LR      .  E    . M    .  .  .  .  .
        3580.  C  .  .  I    L R     .  E    . M    .  .  .  .  .
        3600.  C  .  .  I    L  R    .  E    .M     .  .  .  .  .
        3620.  C  .  .   I   L   R   .  E    .M     .  .  .  .  .
405.99  3640.  C  .  .   I   L.  R   .  E    .M     .  .  .  .  .
        3660.  C  .  .   I   L.  R   .  E    .M     .  .  .  .  .
        3680.  C  .  .   I   L.  R   .  E    .M     .  .  .  .  .
        3700.  C  .  .   I   L   R   .  E    . M    .  .  .  .  .
        3720.  C  .  .   I   L   R   .  E    . M    .  .  .  .  .
        3740.  C  .  .   I   L   R   .  E    . M    .  .  .  .  .
        3760.  C  .  .   I   L   R   .  E    . M    .  .  .  .  .
        3780.  C  .  .   I   L    R  .  E    . M    .  .  .  .  .
        3800.  C  .  .   I   L    R  .  E    . M    .  .  .  .  .
        3820.  C  .  .   I   L    R  .  E    . M    .  .  .  .  .
        3840.  C  .  .   I   L    R  .  E    . M    .  .  .  .  .
        3860.  C  .  .   I   L    R  .  E    . M    .  .  .  .  .
406.00  3880.  C  .  .   I   L    R  .  E    . M    .  .  .  .  .
        3900.  C  .  .   I   L    R  .  E    . M    .  .  .  .  .
        3920.  C  .  .    I  L    R  .  E    . M    .  .  .  .  .
        3940.  C  .  .    I  .L   R  .  E    .  M   .  .  .  .  .
        3960.  C  .  .    I  .L    R .  E    .  M   .  .  .  .  .
        3980.  C  .  .    I  .L    R .  E    .  M   .  .  .  .  .
        4000.  C  .  .     I .L    R .  E    .  M   .  .  .  .  .
        4020.  C  .  .    I  . L   R .  E    .  M   .  .  .  .  .
        4040.  C  .  .    I  . L    R .  E    .  M   .  .  .  .  .
        4060.  C  .  .    I  . L    R .  E    .  M   .  .  .  .  .
        4080.  C  .  .    I  . L    R .  E    .  M   .  .  .  .  .
        4100.  C  .  .     I. L    R .  E    .  M   .  .  .  .  .
        4120.  C  .  .     I.  L    R. E    .   M  .  .  .  .  .
        4140.  C  .  .     I.  L    R. E    .   M  .  .  .  .  .
        4160.  C  .  .     I.  L    R. E    .   M  .  .  .  .  .
406.10  4180.  C  .  .      I  L    R. E    .   M  .  .  .  .  .
        4200.  C  .  .      I   L   R. E    .    M .  .  .  .  .
        4220.  C  .  .      I   L    R  E   .    M .  .  .  .  .
        4240.  C  .  .      I   L    R  E   .    M .  .  .  .  .
        4260.  C  .  .      I   L    R  E   .    M .  .  .  .  .
        4280.  C  .  .      .I  L    R  E   .    M .  .  .  .  .
        4300.  C  .  .      .I   L   R  E   .     M .  .  .  .  .
        4320.  C  .  .      .I   L   .R E   .     M .  .  .  .  .
        4340.  C  .  .      .I   L   .R E   .     M .  .  .  .  .
        4360.  C  .  .      . I  L   .R E   .     M .  .  .  .  .
        4380.  C  .  .      . I   L  .R E   .      M .  .  .  .  .
        4400.  C  .  .      . I   L  . RE   .      M .  .  .  .  .
        4420.  C  .  .      . I   L  . RE   .      M .  .  .  .  .
        4440.  C  .  .      . I   L  . RE   .      M .  .  .  .  .
        4460.  C  .  .      .  I  L  . RE   .      M .  .  .  .  .
406.50  4480.  C  .  .      .  I   L . RE   .       M.  .  .  .  .
407.10  4500.  C  .  .      .I      L.  ERM   .       .  .  .  .  .
        4520.  C  .  .      . I     L.  ERM   .       .  .  .  .  .
        4540.  C  .  .      .  I     L  E RM  .       .  .  .  .  .
        4560.  C  .  .      .   I    L  E RM  .       .  .  .  .  .
        4580.  C  .  .      .    I   .L E  RM .       .  .  .  .  .
        4600.  C  .  .      .    I   .L E  RM .       .  .  .  .  .
        4620.  C  .  .      .     I  . LE   RM.       .  .  .  .  .
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                5860.  C  .  .  .  .  .  I RE LM      .        .        .        .
                5880.  C  .  .  .  .  .   IRE  L      .        .        .        .
                5900.  C  .  .  .  .  .  I E  LM      .        .        .        .
                5920.  C  .  .  .  .  .  I RE LM      .        .        .        .
                5940.  C  .  .  .  .  .  I RE LM      .        .        .        .
                5960.  C  .  .  .  .  .  I RE LM      .        .        .        .
                5980.  C  .  .  .  .  .   IRE  L      .        .        .        .
                6000.  C  .  .  .  .  .   I.RE LM     .        .        .        .
                6020.  C  .  .  .  .  .   I.RE LM     .        .        .        .
                6040.  C  .  .  .  .  .   I.RE LM     .        .        .        .
      409.10    6060.  C  .  .  .  .  .   I.RE LM     .        .        .        .
                6080.  C  .  .  .  .  .    I RE LM    .        .        .        .
                6100.  C  .  .  .  .  .    I  ERL  M .        .        .        .
                6120.  C  .  .  .  .  .    I   ERL  M.        .        .        .
                6140.  C  .  .  .  .  .    .I  E L   M        .        .        .
                6160.  C  .  .  .  .  .    .I   E LR .M       .        .        .
                6180.  C  .  .  .  .  .    .I   E L R.  M     .        .        .
      409.50    6200.  .  .  .  .  .  .    . I   E L .R  M    .        .        .
                6220.  C  .  .  .  .  .    .  I   EL . R  M   .        .        .
                6240.  C  .  .  .  .  .    .  I    EL. R   M  .        .        .
                6260.  C  .  .  .  .  .    .   I    EL  R   M .        .        .
                6280.  C  .  .  .  .  .    .    I   WEL  R  M .        .        .
                6300.  C  .  .  .  .  .    .     I   EL   R  M.        .        .
                6320.  C  .  .  .  .  .    .     I   .EL  R   M.       .        .
                6340.  C  .  .  .  .  .    .      I  . EL  R   M       .        .
      410.00    6360.  C  .  .  .  .  .    .      I  . EL  R   M       .        .
                6380.  C  .  .  .  .  .    .        I.  EL   R .M      .        .
      410.10    6400.  C  .  .  .  .  .    .        I    EL  R.  M     .        .
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      FLOODWAY DETERMINATION
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	6.	0.	0.	0.000000	0.00	-1.0	0.	818.660	0.000

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

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*PROF 2

CCHV=     .150 CEHV=     .350
*SECNO 399.800
 2800 NAT Q1=     753.70  WSEL=     818.66  ENC Q1=     776.40  WSEL=     818.76  RATIO=  -.0301
 NAT Q1=     778.  RATIOS LOB,CH,ROB=     .0008    .9982    .0010  WSEL=     818.76
   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


3470 ENCROACHMENT STATIONS=      48.0     220.0  TYPE=      4  TARGET=         .002

        ** CONFLUENCE WITH LONG LAKE - FOREST LAKE BRANCH

   399.80      6.26   818.66      0.00   818.66   818.66       .00      0.00      0.00   818.00
     400.        0.      400.        0.      0.      917.        0.        0.        0.   818.00
     0.00      0.00       .44      0.00     .085     .055      .085     0.000   812.40    48.00
  .000029        0.        0.        0.        0        0         0      0.00   172.00   220.00

*SECNO 400.000
 2800 NAT Q1=     193.36  WSEL=     818.66  ENC Q1=     199.56  WSEL=     818.76  RATIO=  -.0320
 NAT Q1=     201.  RATIOS LOB,CH,ROB=  0.0000    .9950    .0050  WSEL=     818.76

3470 ENCROACHMENT STATIONS=      51.0     129.0  TYPE=      4  TARGET=         .005
   400.00      6.56   818.66      0.00   818.66   818.69       .03       .01       .01   821.20
     400.        0.      400.        0.      0.      281.        0.        3.        1.   818.40
      .04      0.00      1.43      0.00     .085     .055      .085      .055   812.10    62.04
  .000435       200.      200.      200.        2        0         0      0.00    66.96   129.00


CCHV=     .300 CEHV=     .500
*SECNO 401.200
 2800 NAT Q1=     177.20  WSEL=     818.75  ENC Q1=     184.32  WSEL=     818.85  RATIO=  -.0402
 NAT Q1=     184.  RATIOS LOB,CH,ROB=  0.0000    .9995    .0005  WSEL=     818.85

3470 ENCROACHMENT STATIONS=      51.0     129.0  TYPE=      4  TARGET=         .001

        ** D/S FACE FOOTBRIDGE 401.2A

   401.20      6.35   818.75      0.00   818.75   818.78       .03       .09       .00   821.50
     400.        0.      400.        0.      0.      267.        0.        4.        1.   818.70
      .08      0.00      1.50      0.00     .085     .055      .085      .055   812.40    62.36
  .000510       200.      200.      200.        0        0         0      0.00    66.64   129.00


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        2.15       2.70     175.00       4.73       0.00      14.20       0.00     813.10     812.70

*SECNO 401.220
 2800 NAT Q1=     407.82  WSEL=     820.24  ENC Q1=     416.15  WSEL=     820.34  RATIO=  -.0204
 NAT Q1=     424.  RATIOS LOB,CH,ROB=    .0179    .9821  0.0000  WSEL=     820.34
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
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3470 ENCROACHMENT STATIONS=      131.0      291.0  TYPE=      4  TARGET=          .018
   401.22      7.14    820.24      0.00    820.24    820.25       .01       .02       .01    819.00
     400.        0.      400.        0.        0.      593.        0.        5.        1.     822.10
      .12      0.00       .67      0.00      .085      .055      .085      .055    813.10    131.00
  .000101        96.       96.       96.         0         0         7      0.00    149.16    280.16


*SECNO 401.300
 2800 NAT Q1=     407.05  WSEL=     820.24  ENC Q1=     416.26  WSEL=     820.34  RATIO=  -.0226
 NAT Q1=     424.  RATIOS LOB,CH,ROB=    .0179    .9821  0.0000  WSEL=     820.34
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         OLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      131.0      291.0  TYPE=      4  TARGET=          .018
   401.30      7.14    820.24      0.00    820.24    820.25       .01       .00       .00    819.00
     400.        0.      400.        0.        0.      593.        0.        5.        1.     822.10
      .12      0.00       .67      0.00      .085      .055      .085      .055    813.10    131.00
  .000101         7.        7.        7.         0         0         0      0.00    149.16    280.16


*SECNO 400.980
 2800 NAT Q1=     390.26  WSEL=     820.24  ENC Q1=     400.49  WSEL=     820.34  RATIO=  -.0262
 NAT Q1=     407.  RATIOS LOB,CH,ROB=    .0158    .9842  0.0000  WSEL=     820.34

3470 ENCROACHMENT STATIONS=      131.0      291.0  TYPE=      4  TARGET=          .016
          ** D/S FACE ORCHARD RIDGE RD.

   400.98      7.04    820.24      0.00    820.24    820.25       .01       .00       .00    819.10
     400.        0.      400.        0.        0.      578.        0.        5.        1.     822.20
      .12      0.00       .69      0.00      .085      .055      .085      .054    813.20    131.00
  .000109         8.        8.        8.         0         0         0      0.00    148.59    279.59


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       1.90       2.80     275.00       4.21       0.00      16.43       0.00     813.50     813.20

*SECNO 401.020
 2800 NAT Q1=     390.75  WSEL=     820.31  ENC Q1=     390.75  WSEL=     820.41  RATIO=    .0000
 NAT Q1=     406.  RATIOS LOB,CH,ROB=    .0048    .4077    .5875  WSEL=     820.41
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      192.0      355.8  TYPE=      4  TARGET=          .038
   401.02      6.81    820.31      0.00    820.31    820.32       .01       .00       .00    819.20
     400.        0.      168.      232.        0.      220.      481.        6.        1.     816.00
      .14      0.00       .77       .48      .085      .055      .085      .054    813.50    192.00
  .000114        36.       36.       36.         0         0         8      0.00    163.78    355.78


*SECNO 401.800
 2800 NAT Q1=     301.24  WSEL=     820.32  ENC Q1=     301.24  WSEL=     820.42  RATIO=    .0000
 NAT Q1=     316.  RATIOS LOB,CH,ROB=    .0010    .4167    .5823  WSEL=     820.42
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3470 ENCROACHMENT STATIONS=      192.0      344.7  TYPE=      4  TARGET=          .045
   401.80      6.22    820.32      0.00    820.32    820.33       .01       .01       .00    819.80
      400.        0.       174.       226.        0.       191.       389.        7.        2.     816.60
       .17      0.00       .91        .58      .085      .055      .085      .054    814.10    192.00
  .000192       75.        75.        75.         0         0         0      0.00    152.70    344.70

CCHV=     .150 CEHV=     .350
*SECNO 401.830
 2800 NAT Q1=     252.33  WSEL=     820.36  ENC Q1=     252.33  WSEL=     820.46  RATIO=     .0000
 NAT Q1=     266.  RATIOS LOB,CH,ROB=     .0001    .4222    .5777  WSEL=     820.46

3470 ENCROACHMENT STATIONS=      192.0      337.5  TYPE=      4  TARGET=          .052
   401.83      5.86    820.36      0.00    820.36    820.38       .01       .05       .00    820.20
      400.        0.       178.       222.        0.       173.       337.        9.        2.     817.00
       .24      0.00      1.03        .66      .085      .055      .085      .054    814.50    192.00
  .000275       205.       205.       205.         0         0         0      0.00    145.49    337.49

*SECNO 401.850
 2800 NAT Q1=     202.67  WSEL=     820.43  ENC Q1=     202.67  WSEL=     820.53  RATIO=     .0000
 NAT Q1=     214.  RATIOS LOB,CH,ROB=     0.0000    .4331    .5669  WSEL=     820.53
   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=      192.0      331.7  TYPE=      4  TARGET=          .051
   401.85      5.44    820.44      0.00    820.43    820.46       .02       .08       .00    820.70
      400.        0.       183.       217.        0.       153.       284.       12.        3.     817.50
       .30      0.00      1.20        .76      .085      .055      .085      .055    815.00    193.62
  .000425       235.       235.       235.         0         0         0      0.00    138.10    331.72

*SECNO 401.950
 2800 NAT Q1=     221.65  WSEL=     820.51  ENC Q1=     221.65  WSEL=     820.61  RATIO=     .0000
 NAT Q1=     236.  RATIOS LOB,CH,ROB=     .2674    .2893    .4433  WSEL=     820.61

3470 ENCROACHMENT STATIONS=      313.6      472.2  TYPE=      4  TARGET=          .062
   401.95      5.13    820.53      0.00    820.51    820.55       .01       .09       .00    816.80
      400.      100.       125.       175.       148.        90.       259.       14.        4.     817.00
       .38       .68      1.38        .67      .085      .055      .085      .055    815.40    313.58
  .000356       230.       230.       230.         0         0         0      0.00    158.62    472.20

*SECNO 402.000
 2800 NAT Q1=     183.69  WSEL=     820.60  ENC Q1=     183.69  WSEL=     820.70  RATIO=     .0000
 NAT Q1=     196.  RATIOS LOB,CH,ROB=     .2625    .3102    .4273  WSEL=     820.70

3470 ENCROACHMENT STATIONS=      316.9      460.4  TYPE=      4  TARGET=          .063
   402.00      4.83    820.63      0.00    820.60    820.65       .02       .10       .00    817.20
      400.       98.       134.       168.       127.        84.       215.       17.        5.     817.40
       .44       .77      1.58        .78      .085      .055      .085      .055    815.80    316.91
  .000515       230.       230.       230.         0         0         0      0.00    143.50    460.41

*SECNO 402.100
 2800 NAT Q1=      46.42  WSEL=     820.74  ENC Q1=      46.42  WSEL=     820.84  RATIO=  0.0000
 NAT Q1=      51.  RATIOS LOB,CH,ROB=     .1845    .4903    .3252  WSEL=     820.84
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3470 ENCROACHMENT STATIONS=      340.1      424.8  TYPE=      4  TARGET=          .097
   402.10      3.07   820.77      0.00   820.74   820.82       .04       .16       .01   819.10
    190.        28.      105.       57.       31.       49.       60.       18.        5.    819.30
     .48        .90      2.12       .95      .085      .055      .085      .055   817.70   340.13
 .001873       225.      225.      225.         2         0         0      0.00    84.63   424.76


*SECNO 402.900
 2800 NAT Q1=       21.00  WSEL=     821.45  ENC Q1=       21.91  WSEL=     821.55  RATIO=  -.0433
 NAT Q1=      24.  RATIOS LOB,CH,ROB=    .0003    .9272    .0725  WSEL=     821.55

3470 ENCROACHMENT STATIONS=      204.0      238.0  TYPE=      4  TARGET=          .073
   402.90      2.44   821.54      0.00   821.45   821.71       .17       .85       .04   821.40
    190.         0.      190.        0.        0.       57.        0.       19.        6.    820.70
     .50        0.00     3.33       0.00      .085      .055      .085      .055   819.10   204.00
 .007975       250.      250.      250.         2         0         0      0.00    34.00   238.00


*SECNO 403.200
 2800 NAT Q1=       16.06  WSEL=     824.02  ENC Q1=       17.46  WSEL=     824.12  RATIO=  -.0872
 NAT Q1=      18.  RATIOS LOB,CH,ROB=  0.0000    .9583    .0417  WSEL=     824.12
   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=      204.0      238.0  TYPE=      4  TARGET=          .042
   403.20      2.16   824.06      0.00   824.02   824.31       .25      2.57       .03   824.20
    190.         0.      190.        0.        0.       48.        0.       19.        6.    823.50
     .51        0.00     3.97       0.00      .085      .055      .085      .055   821.90   204.75
 .013773       250.      250.      250.         3         0         0      0.00    33.25   238.00


CCHV=     .300 CEHV=     .500
*SECNO 402.980
 2800 NAT Q1=       23.45  WSEL=     825.04  ENC Q1=       23.87  WSEL=     825.14  RATIO=  -.0179
 NAT Q1=      26.  RATIOS LOB,CH,ROB=    .0010    .9134    .0855  WSEL=     825.14

3470 ENCROACHMENT STATIONS=      204.0      238.0  TYPE=      4  TARGET=          .087

         ** D/S FACE VAUGHN RD.

   402.98      2.49   825.09      0.00   825.04   825.25       .16       .92       .03   824.90
    190.         0.      190.        0.        0.       59.        0.       19.        6.    824.20
     .52        0.00     3.22       0.00      .085      .055      .085      .055   822.60   204.00
 .007190        95.       95.       95.         2         0         0      0.00    34.00   238.00


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        2.15       2.80     175.00       2.75       0.00       9.62       0.00     822.60     822.60

*SECNO 403.020
 2800 NAT Q1=      279.60  WSEL=     828.43  ENC Q1=      279.60  WSEL=     828.53  RATIO=   .0000
 NAT Q1=     292.  RATIOS LOB,CH,ROB=    .1358    .4832    .3809  WSEL=     828.53
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
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3470 ENCROACHMENT STATIONS=      170.1      314.1  TYPE=      4  TARGET=          .043
   403.02      5.88   828.48      0.00   828.43   828.49       .00       .00       .05   824.90
     190.       23.       96.       71.       97.      174.      259.       19.        6.    824.20
      .54       .23       .55       .27      .085      .055      .085      .055   822.60   170.11
  .000048       30.       30.       30.         0         0         7      0.00   143.97   314.08


*SECNO 403.800
 2800 NAT Q1=     564.87  WSEL=     828.43  ENC Q1=     564.87  WSEL=     828.53  RATIO=    .0000
 NAT Q1=     585.  RATIOS LOB,CH,ROB=    .0714    .8422    .0864  WSEL=     828.53

3470 ENCROACHMENT STATIONS=       81.4      254.1  TYPE=      4  TARGET=          .035
   403.80      7.49   828.49      0.00   828.43   828.49       .00       .00       .00   825.50
     190.       10.      166.       13.      100.      545.      116.       21.        6.    824.90
      .62       .10       .30       .12      .085      .055      .085      .055   821.00    81.35
  .000012       80.       80.       80.         0         0         0      0.00   172.78   254.14


CCHV=     .150 CEHV=     .350
*SECNO 404.000
 2800 NAT Q1=     468.57  WSEL=     828.44  ENC Q1=     468.57  WSEL=     828.54  RATIO=    .0000
 NAT Q1=     486.  RATIOS LOB,CH,ROB=    .0079    .9331    .0590  WSEL=     828.54

3470 ENCROACHMENT STATIONS=      131.0      263.9  TYPE=      4  TARGET=          .036
   404.00      6.29   828.49      0.00   828.44   828.49       .00       .00       .00   828.00
     190.        0.      184.        6.        0.      569.       52.       25.        7.    825.40
      .88      0.00       .32       .12      .095      .055      .095      .055   822.20   131.00
  .000017      300.      300.      300.         0         0         0      0.00   132.92   263.92


*SECNO 405.200
 2800 NAT Q1=     135.51  WSEL=     828.44  ENC Q1=     135.51  WSEL=     828.54  RATIO=    .0000
 NAT Q1=     144.  RATIOS LOB,CH,ROB=    .1606    .5515    .2879  WSEL=     828.54
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      118.1      241.5  TYPE=      4  TARGET=          .059
   405.20      5.30   828.50      0.00   828.44   828.51       .01       .01       .00   826.00
     190.       26.      112.       52.       68.      117.      141.       28.        8.    826.00
      .98       .39       .96       .37      .095      .055      .095      .055   823.20   118.13
  .000205      250.      250.      250.         1         0         0      0.00   123.32   241.45


CCHV=     .300 CEHV=     .500
*SECNO 404.980
 2800 NAT Q1=     202.11  WSEL=     828.46  ENC Q1=     202.11  WSEL=     828.56  RATIO=  0.0000
 NAT Q1=     214.  RATIOS LOB,CH,ROB=    .1775    .4857    .3367  WSEL=     828.56

3470 ENCROACHMENT STATIONS=      116.2      253.5  TYPE=      4  TARGET=          .057

         ** D/S FACE LAHSER RD.

   404.98      6.01   828.51      0.00   828.46   828.52       .00       .01       .00   825.30
     190.       30.       99.       62.       94.      137.      212.       29.        8.    825.30
     1.02       .32       .72       .29      .095      .055      .095      .055   822.50   116.19
  .000093       75.       75.       75.         0         0         0      0.00   137.33   253.51
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SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.75	2.90	0.00	2.33	0.00	3.26	0.00	822.50	822.50

*SECNO 405.020
2800 NAT Q1= 624.05 WSEL= 831.52 ENC Q1= 624.05 WSEL= 831.62 RATIO= .0000
NAT Q1= 640. RATIOS LOB,CH,ROB= .1360 .5685 .2955 WSEL= 831.62
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 106.4 245.0 TYPE= 4 TARGET= .026

405.02	9.08	831.58	0.00	831.52	831.58	.00	.00	.00	825.20	
190.	24.	111.	55.	194.	330.	341.	29.	8.	824.40	
1.07	.12	.34	.16	.095	.055	.095	.055	822.50	106.39	
.000009	45.	45.	45.	0	0	11	0.00	138.64	245.04	

*SECNO 405.800
2800 NAT Q1= 591.79 WSEL= 831.52 ENC Q1= 591.79 WSEL= 831.62 RATIO= .0000
NAT Q1= 608. RATIOS LOB,CH,ROB= .1306 .5754 .2940 WSEL= 831.62

3470 ENCROACHMENT STATIONS= 109.5 244.0 TYPE= 4 TARGET= .026

405.80	8.88	831.58	0.00	831.52	831.58	.00	.00	.00	825.40	
190.	23.	112.	55.	178.	322.	326.	30.	8.	824.60	
1.12	.13	.35	.17	.095	.055	.095	.055	822.70	109.46	
.000011	50.	50.	50.	0	0	0	0.00	134.52	243.99	

CCHV= .150 CEHV= .350
*SECNO 405.810
2800 NAT Q1= 607.98 WSEL= 831.52 ENC Q1= 607.98 WSEL= 831.62 RATIO= 0.0000
NAT Q1= 624. RATIOS LOB,CH,ROB= .1334 .5718 .2948 WSEL= 831.62

3470 ENCROACHMENT STATIONS= 108.1 244.4 TYPE= 4 TARGET= .026

405.81	8.98	831.58	0.00	831.52	831.58	.00	.00	.00	825.30	
190.	24.	112.	55.	186.	326.	333.	35.	9.	824.50	
1.38	.13	.34	.16	.095	.055	.095	.055	822.60	108.10	
.000010	250.	250.	250.	0	0	0	0.00	136.31	244.42	

CCHV= .300 CEHV= .500
*SECNO 405.840
2800 NAT Q1= 485.66 WSEL= 831.52 ENC Q1= 485.66 WSEL= 831.62 RATIO= .0000
NAT Q1= 501. RATIOS LOB,CH,ROB= .1743 .6617 .1640 WSEL= 831.62

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= 72.5 220.8 TYPE= 4 TARGET= .031

** D/S FACE DRIVEWAY BRIDGE 405A

405.84	8.98	831.58	0.00	831.52	831.58	.00	.00	.00	825.00
190.	31.	130.	29.	199.	311.	193.	36.	9.	825.00
1.42	.16	.42	.15	.095	.055	.095	.055	822.60	72.46
.000016	44.	44.	44.	0	0	0	0.00	148.29	220.76

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.55	3.00	0.00	4.03	0.00	14.10	0.00	822.60	822.60

*SECNO 405.860
2800 NAT Q1= 489.12 WSEL= 831.54 ENC Q1= 489.12 WSEL= 831.64 RATIO= .0000
NAT Q1= 505. RATIOS LOB,CH,ROB= .1749 .6603 .1648 WSEL= 831.64
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 71.9 221.7 TYPE= 4 TARGET= .031

405.86	9.00	831.60	0.00	831.54	831.60	.00	.00	.00	825.00
190.	31.	130.	29.	202.	312.	196.	37.	10.	825.00
1.47	.15	.42	.15	.095	.055	.095	.055	822.60	71.90
.000015	56.	56.	56.	0	0	5	0.00	149.78	221.68

*SECNO 405.990
2800 NAT Q1= 1045.67 WSEL= 831.55 ENC Q1= 1045.67 WSEL= 831.65 RATIO= .0000
NAT Q1= 1078. RATIOS LOB,CH,ROB= .5237 .3612 .1151 WSEL= 831.65

3470 ENCROACHMENT STATIONS= 45.0 374.9 TYPE= 4 TARGET= .030

405.99	8.80	831.60	0.00	831.55	831.60	.00	.00	.00	824.70
190.	100.	71.	20.	1087.	395.	291.	40.	10.	827.60
1.70	.09	.18	.07	.095	.055	.095	.055	822.80	45.01
.000003	100.	100.	100.	0	0	0	0.00	329.89	374.89

*SECNO 406.000
2800 NAT Q1= 953.14 WSEL= 831.55 ENC Q1= 953.14 WSEL= 831.65 RATIO= .0000
NAT Q1= 983. RATIOS LOB,CH,ROB= .5237 .3681 .1082 WSEL= 831.65

3470 ENCROACHMENT STATIONS= 47.7 371.7 TYPE= 4 TARGET= .031

406.00	8.51	831.61	0.00	831.55	831.61	.00	.00	.00	825.00
190.	100.	72.	18.	1022.	378.	259.	50.	12.	827.90
2.23	.10	.19	.07	.095	.055	.095	.055	823.10	47.71
.000004	250.	250.	250.	0	0	0	0.00	324.00	371.71

*SECNO 406.100
2800 NAT Q1= 502.88 WSEL= 831.55 ENC Q1= 502.88 WSEL= 831.65 RATIO= .0000
NAT Q1= 526. RATIOS LOB,CH,ROB= .5193 .4221 .0586 WSEL= 831.65

3470 ENCROACHMENT STATIONS= 75.1 333.5 TYPE= 4 TARGET= .043

406.10	6.81	831.61	0.00	831.55	831.61	.00	.00	.00	826.70
190.	99.	84.	7.	651.	281.	77.	59.	14.	829.60
2.62	.15	.30	.09	.095	.055	.095	.055	824.80	75.14
.000015	300.	300.	300.	0	0	0	0.00	258.31	333.45

*SECNO 406.500
2800 NAT Q1= 218.92 WSEL= 831.56 ENC Q1= 218.92 WSEL= 831.66 RATIO= .0000
NAT Q1= 233. RATIOS LOB,CH,ROB= .4938 .4994 .0068 WSEL= 831.66

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=      112.4      295.0  TYPE=      4  TARGET=         .062

         ** D/S STORM DRAIN

   406.50      5.21   831.61      0.00   831.56   831.62       .00       .01       .00   828.30
     190.       89.      101.       0.      336.     190.        0.       64.       16.    831.20
     2.82       .26       .53      0.00     .095     .055      .095      .055   826.40   112.43
  .000079      300.      300.      300.        0        0         0      0.00   182.57   295.00


CCHV=     .500 CEHV=    1.000
*SECNO 407.100
 2800 NAT Q1=     447.29  WSEL=     831.56  ENC Q1=     447.29  WSEL=     831.66  RATIO=  0.0000
 NAT Q1=     465.  RATIOS LOB,CH,ROB=    .5719    .4281  0.0000  WSEL=     831.66

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      174.9      600.0  TYPE=      4  TARGET=         .039

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       829.30 ELREA=       838.00

   407.10      5.92   831.62      0.00   831.56   831.62       .00       .00       .00   829.30
     100.       56.       44.       0.      850.     461.        0.       64.       16.    831.90
     2.82       .07       .10      0.00     .150     .075      .150      .055   825.70   174.86
  .000005        1.        1.      325.        0        0         0      0.00   317.94   597.05


*SECNO 407.200
 2800 NAT Q1=      23.97  WSEL=     831.56  ENC Q1=      27.67  WSEL=     831.66  RATIO=  -.1546
 NAT Q1=      28.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     831.66

3470 ENCROACHMENT STATIONS=      450.0      600.0  TYPE=      4  TARGET=         0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       831.80 ELREA=       838.00

   407.20      1.82   831.62      0.00   831.56   831.63       .01       .00       .01   831.80
     100.        0.      100.       0.       0.      127.        0.       67.       17.    834.40
     2.89       0.00       .79      0.00     .150     .075      .150      .055   829.80   450.71
  .001477      200.      200.      200.        2        0         0      0.00   120.06   570.77


*SECNO 407.000
 2800 NAT Q1=       5.85  WSEL=     832.24  ENC Q1=       8.53  WSEL=     832.34  RATIO=  -.4577
 NAT Q1=       9.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     832.34

3470 ENCROACHMENT STATIONS=      369.0      501.0  TYPE=      4  TARGET=         0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       840.00 ELREA=       840.00

   407.00       .82   832.22      0.00   832.24   832.28       .06       .60       .05   840.00
     100.        0.      100.       0.       0.       52.        0.       68.       17.    840.00
     2.92       0.00      1.92      0.00     .150     .075      .150      .056   831.40   369.90
  .032007      150.      150.      150.        3        0         0      0.00   130.10   500.00


*SECNO 407.800
 2800 NAT Q1=      11.57  WSEL=     832.95  ENC Q1=      15.28  WSEL=     833.05  RATIO=  -.3202
 NAT Q1=      15.  RATIOS LOB,CH,ROB=    .0007    .9993  0.0000  WSEL=     833.05
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3470 ENCROACHMENT STATIONS=      424.0      600.0  TYPE=      4  TARGET=         .001
   407.80      1.15   832.95      0.00   832.95   832.97       .02       .67       .02   832.80
    100.         0.    100.         0.       0.      90.        0.       68.       17.    833.20
     2.93      0.00     1.11      0.00     .150     .075      .150      .056   831.80   424.00
  .007259       50.      50.       50.        3        0         0      0.00   169.39   593.39

*SECNO 408.000
 2800 NAT Q1=      11.86  WSEL=     835.32  ENC Q1=      14.02  WSEL=     835.42  RATIO=  -.1822
 NAT Q1=      14.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.42
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        CLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      712.0      805.0  TYPE=      4  TARGET=         0.000
   408.00      2.21   835.31      0.00   835.32   835.35       .04      2.36       .02   835.80
    100.         0.    100.         0.       0.      66.        0.       68.       18.    836.30
     2.99      0.00     1.51      0.00     .150     .075      .150      .057   833.10   715.61
  .007290       325.     325.      325.        4        0         0      0.00    78.05   793.66

*SECNO 409.000
 2800 NAT Q1=      11.02  WSEL=     838.95  ENC Q1=      12.71  WSEL=     839.05  RATIO=  -.1533
 NAT Q1=      13.  RATIOS LOB,CH,ROB=  0.0000   .9424   .0576  WSEL=     839.05

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=       83.0      200.0  TYPE=      4  TARGET=         .058
   409.00      1.28   838.98      0.00   838.95   839.01       .03      3.67       .00   840.20
    100.         0.    100.         0.       0.      67.        0.       69.       19.    838.60
     3.08      0.00     1.50      0.00     .150     .075      .150      .059   837.70    88.41
  .008184       475.     475.      475.        4        0         0      0.00    86.82   200.00

*SECNO 409.100
 2800 NAT Q1=      15.05  WSEL=     841.11  ENC Q1=      16.28  WSEL=     841.21  RATIO=  -.0820
 NAT Q1=      18.  RATIOS LOB,CH,ROB=  0.0000   .9088   .0912  WSEL=     841.21

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=       83.0      200.0  TYPE=      4  TARGET=         .091
   409.10      1.47   841.17      0.00   841.11   841.19       .02      2.17       .01   842.20
    100.         0.    100.         0.       0.      85.        0.       70.       20.    840.60
     3.17      0.00     1.17      0.00     .150     .075      .150      .060   839.70    87.53
  .004315       500.     375.      175.        4        0         0      0.00    98.45   200.00

*SECNO 409.500
 2800 NAT Q1=       3.17  WSEL=     842.96  ENC Q1=       3.68  WSEL=     843.06  RATIO=  -.1623
 NAT Q1=       4.  RATIOS LOB,CH,ROB=   .1484   .8510   .0006  WSEL=     843.06

3235 SLOPE TOO STEEP, EXCEEDS       .10


3470 ENCROACHMENT STATIONS=      212.0      340.0  TYPE=      4  TARGET=         .149
   409.50      2.09   842.99   842.99   842.96   843.24       .25      1.82       .23   843.80
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     100.        0.      100.        0.        0.       25.        0.       70.       20.    845.40
     3.18      0.00      4.04      0.00      .150      .075      .150      .060   840.90   236.38
  .116596      150.      150.      250.         6        11         0      0.00    53.11   289.49

*SECNO 410.000
 2800 NAT Q1=      11.09  WSEL=    846.20  ENC Q1=      11.09  WSEL=    846.30  RATIO=    .0000
 NAT Q1=      14.  RATIOS LOB,CH,ROB=    .2622    .6829    .0549  WSEL=    846.30

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      106.4      475.2  TYPE=       4  TARGET=         .211
   410.00      2.61    846.31      0.00    846.20    846.34       .03      2.98       .11    846.60
      100.       14.       86.        0.       23.       57.        0.       70.       20.    848.20
     3.21       .58      1.51       .15      .150      .075      .150      .061   843.70   106.41
  .007899      150.      150.      250.         4         0         0      0.00   121.10   475.21


*SECNO 410.100
 2800 NAT Q1=       3.95  WSEL=    847.34  ENC Q1=       4.46  WSEL=    847.44  RATIO=  -.1297
 NAT Q1=       5.  RATIOS LOB,CH,ROB=    .1687    .8270    .0043  WSEL=    847.44
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      212.0      340.0  TYPE=       4  TARGET=         .173
```

** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

```
   410.10      2.13    847.33      0.00    847.34    847.54       .21      1.02       .17    848.10
      100.       0.       100.        0.        0.       28.        0.       70.       20.    849.70
     3.21      0.00      3.64      0.00      .150      .075      .150      .061   845.20   234.85
  .085623      125.       50.       50.         2         0         0      0.00    54.87   289.72
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SODUN LAKE DRAIN

4) DOCUMENT TYPE: 100 YR FLOODWAY
DOWNSTREAM LAKES.

00BREAK00

JOB NO. UM9456 UNIVERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 16:00:20 08-18-80

DNR

SODON LAKE - D/S LAKES
100YR Floodway
x-sec 407 - all Flow should be in Stoneleigh - rerun while limiting Flow to along Stoneleigh.

PARAMETERS: ,ID=IDUK,PW=

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

IIIIIIIIII  DDDDDDDDD    UU          UU  KK        KK
    II      DD      DD   UU          UU  KK      KK
    II      DD       DD  UU          UU  KK     KK
    II      DD       DD  UU          UU  KK    KK
    II      DD       DD  UU          UU  KKKKKKK
    II      DD       DD  UU          UU  KKKKKKK
    II      DD       DD  UU          UU  KK    KK
    II      DD       DD  UU          UU  KK     KK
    II      DD      DD   UU          UU  KK      KK
IIIIIIIIII  DDDDDDDDD     UUUUUUUUUUUU  KK        KK
IIIIIIIIII  DDDDDDDDD      UUUUUUUUUU   KK         KK
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HUD-FIA H-4705
T2      BLOOMFIELD HILLS
T3      SODON LAKE BRANCH

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        4.         0.         0.  0.000000       0.00       -1.0         0.    818.660      0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    200.000     0.000   150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC       .085      .085      .055      .150      .350     0.000     0.000     0.000     0.000     0.000
QT      5.000   240.000   340.000   400.000   550.000   400.000     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

         ** CONFLUENCE WITH LONG LAKE - FOREST LAKE BRANCH

X1    399.800    10.000    48.000   220.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    820.000     0.000   818.000    48.000   816.000    56.000   814.000    66.000   812.400   100.000
GR    812.400   170.000   814.000   208.000   816.000   216.000   818.000   220.000   820.000   280.000

X1    400.000    10.000    51.000   129.000   200.000   200.000   200.000     0.000     0.000     0.000
GR    822.000     0.000   821.800    30.000   821.200    51.000   820.000    60.000   812.100    72.000
GR    812.100    95.000   815.600   108.000   818.400   129.000   818.800   243.000   822.000   285.000
NC      0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

         ** D/S FACE FOOTBRIDGE 401.2A

X1    401.200     0.000     0.000     0.000   200.000   200.000   200.000     0.000      .300     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   816.100   816.100     0.000
SB      0.000     2.150     2.700   175.000     4.730     0.000    14.200     0.000   813.100   812.700

X1    401.220    11.000   131.000   291.000    96.000    95.000    96.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   816.100   819.500     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   819.500   819.500     0.000
GR    825.100     0.000   819.400   100.000   819.000   131.000   817.100   178.000   813.100   195.000
GR    813.100   225.000   817.000   250.000   818.500   270.000   822.100   291.000   823.700   331.000
GR    825.100   487.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    401.300     0.000     0.000     0.000     7.000     7.000     7.000     0.000     0.000     0.000

         ** D/S FACE ORCHARD RIDGE RD.
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X1	400.980	0.000	0.000	0.000	8.000	8.000	8.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	817.400	817.400	0.000
SB	0.000	1.900	2.800	275.000	4.210	0.000	16.430	0.000	813.500	813.200
X1	401.020	13.000	192.000	241.000	36.000	36.000	36.000	0.000	-.600	0.000
X2	0.000	0.000	1.000	817.400	819.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	819.400	819.400	0.000
GR	825.000	0.000	821.900	16.000	822.000	145.000	819.800	192.000	814.800	223.000
GR	814.100	226.000	814.100	230.000	814.800	233.000	816.600	241.000	815.900	296.000
GR	818.800	365.000	821.000	386.000	825.000	464.000	0.000	0.000	0.000	0.000
X1	401.800	0.000	0.000	0.000	75.000	75.000	75.000	0.000	.600	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	401.830	0.000	0.000	0.000	205.000	205.000	205.000	0.000	.400	0.000
X1	401.850	0.000	0.000	0.000	235.000	235.000	235.000	0.000	.500	0.000
X1	401.950	13.000	363.000	383.000	230.000	230.000	230.000	0.000	-.400	0.000
GR	826.000	0.000	821.500	257.000	818.000	333.000	817.200	363.000	816.200	371.000
GR	815.800	373.000	815.800	377.000	816.200	379.000	817.400	383.000	817.400	416.000
GR	820.200	496.000	820.700	542.000	826.000	656.000	0.000	0.000	0.000	0.000
X1	402.000	0.000	0.000	0.000	230.000	230.000	230.000	0.000	.400	0.000
QT	5.000	120.000	170.000	190.000	270.000	190.000	0.000	0.000	0.000	0.000
X1	402.100	0.000	0.000	0.000	225.000	225.000	225.000	0.000	1.900	0.000
X1	402.900	13.000	204.000	238.000	250.000	250.000	250.000	0.000	-2.800	0.000
GR	832.000	0.000	829.800	74.000	824.200	204.000	822.000	216.000	821.900	219.000
GR	821.900	222.000	822.000	225.000	823.500	238.000	824.700	296.000	826.400	324.000
GR	828.700	343.000	830.000	366.000	830.800	409.000	0.000	0.000	0.000	0.000
X1	403.200	0.000	0.000	0.000	250.000	250.000	250.000	0.000	2.800	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE VAUGHN RD.

X1	402.980	0.000	0.000	0.000	95.000	95.000	95.000	0.000	.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.000	825.000	0.000
SB	0.000	2.150	2.800	175.000	2.750	0.000	9.620	0.000	822.600	822.600
X1	403.020	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	825.000	828.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.100	828.100	0.000
X1	403.800	10.000	123.000	213.000	80.000	80.000	80.000	0.000	0.000	0.000
GR	832.000	0.000	827.800	40.000	825.500	123.000	823.500	136.000	821.000	154.000

GR	821.000	183.000	823.500	201.000	824.900	213.000	827.100	273.000	832.000	316.000
NC	.095	.095	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	404.000	10.000	131.000	245.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	834.000	0.000	828.100	50.000	828.000	131.000	823.500	158.000	822.200	183.000
GR	822.200	211.000	823.500	236.000	825.400	245.000	826.800	284.000	834.000	345.000
X1	405.200	12.000	146.000	175.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	835.000	0.000	829.000	32.000	829.000	101.000	826.100	118.000	826.000	146.000
GR	825.300	152.000	823.200	156.000	823.200	162.000	826.000	175.000	826.700	236.000
GR	829.000	293.000	835.000	338.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE LAHSER RD.

X1	404.980	0.000	0.000	0.000	75.000	75.000	75.000	0.000	-.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	823.900	823.900	0.000
SB	0.000	1.750	2.900	0.000	2.330	0.000	3.260	0.000	822.500	822.500
X1	405.020	12.000	151.000	191.000	45.000	45.000	45.000	0.000	-.200	0.000
X2	0.000	0.000	1.000	823.900	830.500	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	830.500	830.500	0.000
BT	6.000	0.000	835.400	0.000	73.000	832.200	0.000	145.000	830.500	0.000
BT	165.000	830.500	0.000	234.000	832.000	0.000	310.000	835.400	0.000	0.000
GR	835.000	0.000	833.000	50.000	830.200	98.000	825.400	151.000	823.600	162.000
GR	822.700	168.000	822.700	179.000	823.600	185.000	824.600	191.000	825.600	234.000
GR	831.100	257.000	835.000	293.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	405.800	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	405.810	0.000	0.000	0.000	250.000	250.000	250.000	0.000	-.100	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE DRIVEWAY BRIDGE 405A

X1	405.840	9.000	125.000	165.000	44.000	44.000	44.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.800	825.800	0.000
GR	836.600	0.000	830.600	50.000	828.200	100.000	825.000	125.000	822.600	145.000
GR	825.000	165.000	829.400	200.000	831.800	300.000	835.800	400.000	0.000	0.000
SB	0.000	2.550	3.000	0.000	4.030	0.000	14.100	0.000	822.600	822.600
X1	405.860	0.000	0.000	0.000	56.000	56.000	56.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	825.800	828.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.100	828.100	0.000
BT	7.000	0.000	836.600	0.000	50.000	830.600	0.000	100.000	828.200	0.000
BT	145.000	828.100	0.000	200.000	829.400	0.000	300.000	831.800	0.000	400.000
BT	835.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	405.990	14.000	238.000	295.000	100.000	100.000	100.000	0.000	-.300	0.000
GR	836.000	0.000	829.400	33.000	826.400	102.000	825.000	238.000	824.400	247.000
GR	823.600	251.000	823.100	259.000	823.600	266.000	827.000	285.000	827.900	295.000

GR	827.800	317.000	829.000	373.000	830.300	396.000	836.000	437.000	0.000	0.000
X1	406.000	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.300	0.000
X1	406.100	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.700	0.000

** D/S STORM DRAIN

X1	406.500	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.600	0.000
NC	.150	.150	.075	.500	1.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	50.000	80.000	100.000	150.000	100.000	0.000	0.000	0.000	0.000
X1	407.100	24.000	450.000	600.000	1.000	325.000	1.000	0.000	-2.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	838.000	0.000
GR	835.000	150.000	832.300	160.000	829.700	170.000	828.200	195.000	829.100	296.000
GR	830.000	320.000	831.800	345.000	838.000	346.000	838.000	449.000	831.800	450.000
GR	829.800	458.000	830.600	510.000	831.200	512.000	831.200	528.000	830.500	534.000
GR	830.600	560.000	834.400	600.000	838.000	601.000	838.000	646.000	834.400	647.000
GR	831.500	652.000	831.400	684.000	832.700	720.000	838.000	750.000	0.000	0.000
X1	407.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	838.000	0.000
X1	407.000	13.000	369.000	501.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	840.000	80.000	833.400	81.000	832.000	98.000	830.700	150.000	832.500	208.000
GR	832.900	234.000	832.300	286.000	840.000	287.000	840.000	369.000	831.400	370.000
GR	832.000	460.000	832.200	500.000	840.000	501.000	0.000	0.000	0.000	0.000
X1	407.800	11.000	424.000	600.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	840.400	344.000	839.000	375.000	834.100	406.000	832.800	424.000	832.500	510.000
GR	832.000	524.000	832.100	548.000	831.800	562.000	833.200	600.000	834.400	638.000
GR	840.000	639.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	408.000	13.000	712.000	805.000	325.000	325.000	325.000	0.000	0.000	0.000
GR	840.500	578.000	839.200	670.000	835.800	712.000	833.100	732.000	833.100	740.000
GR	835.200	745.000	835.100	770.000	833.600	774.000	836.300	805.000	838.600	830.000
GR	839.200	846.000	839.200	930.000	840.000	942.000	0.000	0.000	0.000	0.000
X1	409.000	10.000	83.000	200.000	475.000	475.000	475.000	0.000	0.000	0.000
GR	842.000	0.000	840.200	83.000	837.700	94.000	837.800	100.000	839.400	110.000
GR	839.000	132.000	837.800	136.000	838.600	200.000	838.900	258.000	840.600	300.000
X1	409.100	0.000	0.000	0.000	500.000	175.000	375.000	0.000	2.000	0.000
X1	409.500	21.000	212.000	340.000	150.000	250.000	150.000	0.000	-2.800	0.000
GR	850.000	0.000	846.000	35.000	846.000	75.000	845.500	92.000	845.500	118.000
GR	846.600	165.000	852.000	166.000	852.000	211.000	846.600	212.000	845.400	248.000
GR	845.700	265.000	845.400	275.000	843.700	280.000	847.000	295.000	848.200	340.000
GR	852.000	341.000	852.000	441.000	847.400	442.000	845.800	485.000	846.100	522.000
GR	852.000	523.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	410.000	0.000	0.000	0.000	150.000	250.000	150.000	0.000	2.800	0.000

** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

X1	410.100	0.000	0.000	0.000	125.000	50.000	50.000	0.000	1.500	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .150 CEHV= .350
*SECNO 399.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
	** CONFLUENCE WITH LONG LAKE - FOREST LAKE BRANCH								
399.80	6.26	818.66	0.00	818.66	818.66	.00	0.00	0.00	818.00
400.	0.	399.	0.	5.	917.	7.	0.	0.	818.00
0.00	.04	.44	.04	.085	.055	.085	0.000	812.40	32.16
.000028	0.	0.	0.	0	0	0	0.00	207.64	239.80
*SECNO 400.000									
400.00	6.56	818.66	0.00	0.00	818.69	.03	.01	.01	821.20
400.	0.	399.	1.	0.	281.	10.	3.	1.	818.40
.04	0.00	1.42	.09	.085	.055	.085	.055	812.10	62.03
.000428	200.	200.	200.	0	0	0	0.00	142.68	204.71
CCHV= .300 CEHV= .500									
*SECNO 401.200									
** D/S FACE FOOTBRIDGE 401.2A									
401.20	6.35	818.75	0.00	0.00	818.78	.03	.09	.00	821.50
400.	0.	400.	0.	0.	267.	0.	4.	1.	818.70
.08	0.00	1.50	.03	.085	.055	.085	.055	812.40	62.36
.000510	200.	200.	200.	2	0	0	0.00	80.11	142.47

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	2.70	175.00	4.73	0.00	14.20	0.00	813.10	812.70

*SECNO 401.220
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
845.24	819.46	0.00	305.	95.	14.	14.	816.10	819.50
401.22	7.14	820.24	0.00	0.00	820.25	.01	1.47	0.00	819.00
400.	6.	394.	0.	39.	594.	0.	5.	2.	822.10
.12	.16	.66	0.00	.085	.055	.085	.055	813.10	85.13
.000096	96.	96.	96.	0	0	7	0.00	195.06	280.19

*SECNO 401.300

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
401.30	7.14	820.24	0.00	0.00	820.25	.01	.00	.00	819.00
400.	6.	394.	0.	39.	593.	0.	5.	2.	822.10
.12	.16	.66	0.00	.085	.055	.085	.055	813.10	85.21
.000097	7.	7.	7.	0	0	0	0.00	194.95	280.17

*SECNO 400.980

** D/S FACE ORCHARD RIDGE RD.

400.98	7.04	820.24	0.00	0.00	820.25	.01	.00	.00	819.10
400.	5.	395.	0.	34.	578.	0.	5.	2.	822.20
.12	.16	.68	0.00	.085	.055	.085	.054	813.20	86.98
.000105	8.	8.	8.	0	0	0	0.00	192.60	279.58

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.90	2.80	275.00	4.21	0.00	16.43	0.00	813.50	813.20

*SECNO 401.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.73	820.55	0.00	376.	26.	16.	16.	817.40	819.40
401.02	6.81	820.31	0.00	0.00	820.31	.01	.07	0.00	819.20
400.	2.	164.	235.	13.	220.	524.	6.	2.	816.00
.14	.12	.74	.45	.085	.055	.085	.054	813.50	168.20
.000105	36.	36.	36.	0	0	8	0.00	216.98	385.18

*SECNO 401.800

401.80	6.22	820.32	0.00	0.00	820.33	.01	.01	.00	819.80
400.	0.	167.	232.	3.	191.	439.	7.	2.	816.60
.17	.09	.88	.53	.085	.055	.085	.054	814.10	180.96
.000176	75.	75.	75.	0	0	0	0.00	198.51	379.48

CCHV= .150 CEHV= .350
*SECNO 401.830

401.83	5.86	820.36	0.00	0.00	820.37	.01	.04	.00	820.20
400.	0.	170.	230.	0.	173.	390.	10.	3.	817.00
.25	.05	.98	.59	.085	.055	.085	.054	814.50	188.73
.000251	205.	205.	205.	1	0	0	0.00	187.27	376.01

*SECNO 401.850

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

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
401.85	5.43	820.43	0.00	0.00	820.44	.01	.07	.00	820.70
400.	0.	175.	225.	0.	152.	333.	13.	4.	817.50
.32	0.00	1.15	.68	.085	.055	.085	.055	815.00	193.68
.000390	235.	235.	235.	2	0	0	0.00	178.29	371.96

*SECNO 401.950

401.95	5.11	820.51	0.00	0.00	820.52	.01	.08	.00	816.80
400.	106.	119.	175.	191.	90.	305.	16.	5.	817.00
.40	.56	1.32	.57	.085	.055	.085	.055	815.40	269.96
.000326	230.	230.	230.	0	0	0	0.00	276.42	546.37

*SECNO 402.000

402.00	4.80	820.60	0.00	0.00	820.62	.02	.09	.00	817.20
400.	104.	127.	169.	163.	84.	256.	18.	7.	817.40
.47	.64	1.51	.66	.085	.055	.085	.055	815.80	276.64
.000474	230.	230.	230.	0	0	0	0.00	255.73	532.37

*SECNO 402.100

402.10	3.04	820.74	0.00	0.00	820.77	.04	.15	.01	819.10
190.	34.	96.	60.	45.	49.	77.	20.	8.	819.30
.52	.75	1.98	.78	.085	.055	.085	.055	817.70	314.87
.001676	225.	225.	225.	2	0	0	0.00	142.13	457.00

*SECNO 402.900

402.90	2.35	821.45	0.00	0.00	821.61	.16	.79	.04	821.40
190.	0.	179.	11.	0.	54.	13.	21.	8.	820.70
.54	.02	3.31	.82	.085	.055	.085	.055	819.10	202.91
.008185	250.	250.	250.	3	0	0	0.00	71.20	274.11

*SECNO 403.200

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
403.20	2.12	824.02	823.58	0.00	824.26	.24	2.63	.03	824.20
190.	0.	185.	5.	0.	46.	6.	21.	9.	823.50
.56	0.00	3.99	.84	.085	.055	.085	.055	821.90	205.00
.013998	250.	250.	250.	10	19	0	0.00	57.99	262.99

CCHV= .300 CEHV= .500

*SECNO 402.980

** D/S FACE VAUGHN RD.

402.98	2.44	825.04	0.00	0.00	825.17	.14	.88	.03	824.90
190.	0.	176.	14.	0.	57.	17.	21.	9.	824.20
.56	.24	3.08	.79	.085	.055	.085	.055	822.60	200.73
.006566	95.	95.	95.	1	0	0	0.00	77.92	278.65

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	2.80	175.00	2.75	0.00	9.62	0.00	822.60	822.60

*SECNO 403.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
838.06	825.21	0.00	93.	97.	10.	7.	825.00	828.10

403.02	5.83	828.43	0.00	0.00	828.43	.00	3.26	0.00	824.90
190.	25.	93.	72.	145.	172.	279.	22.	9.	824.20
.59	.17	.54	.26	.085	.055	.085	.055	822.60	122.04
.000046	30.	30.	30.	0	0	7	0.00	212.95	334.99

*SECNO 403.800

403.80	7.43	828.43	0.00	0.00	828.43	.00	.00	.00	825.50
190.	13.	161.	16.	150.	540.	154.	23.	9.	824.90
.67	.09	.30	.10	.085	.055	.085	.055	821.00	33.99
.000011	80.	80.	80.	2	0	0	0.00	250.70	284.68

CCHV= .150 CEHV= .350
*SECNO 404.000

404.00	6.24	828.44	0.00	0.00	828.44	.00	.00	.00	828.00
190.	1.	178.	11.	32.	563.	103.	28.	11.	825.40
.94	.03	.32	.11	.095	.055	.095	.055	822.20	47.12
.000016	300.	300.	300.	0	0	0	0.00	250.78	297.89

*SECNO 405.200

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

405.20	5.24	828.44	0.00	0.00	828.45	.01	.01	.00	826.00
190.	30.	107.	53.	83.	115.	165.	31.	12.	826.00
1.05	.36	.93	.32	.095	.055	.095	.055	823.20	104.29
.000197	250.	250.	250.	0	0	0	0.00	174.80	279.09

CCHV= .300 CEHV= .500
*SECNO 404.980

** D/S FACE LAHSER RD.

404.98	5.96	828.46	0.00	0.00	828.46	.00	.01	.00	825.30
190.	33.	94.	63.	124.	135.	245.	32.	13.	825.30
1.09	.27	.70	.26	.095	.055	.095	.055	822.50	31.21
.000088	75.	75.	75.	0	0	0	0.00	262.91	294.12

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.75	2.90	0.00	2.33	0.00	3.26	0.00	822.50	822.50

*SECNO 405.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
920.76	828.47	0.00	155.	35.	3.	3.	823.90	830.50

405.02	9.02	831.52	0.00	0.00	831.52	.00	3.06	0.00	825.20
190.	25.	109.	56.	228.	327.	364.	33.	13.	824.40
1.14	.11	.33	.15	.095	.055	.095	.055	822.50	71.91
.000009	45.	45.	45.	0	0	11	0.00	190.83	262.74

*SECNO 405.800

405.80	8.82	831.52	0.00	0.00	831.52	.00	.00	.00	825.40
190.	24.	110.	56.	212.	319.	350.	34.	13.	824.60
1.20	.11	.34	.16	.095	.055	.095	.055	822.70	75.32
.000010	50.	50.	50.	0	0	0	0.00	185.59	260.91

CCHV= .150 CEHV= .350
*SECNO 405.810

405.81	8.92	831.52	0.00	0.00	831.52	.00	.00	.00	825.30
190.	25.	109.	56.	220.	323.	357.	39.	14.	824.50
1.47	.11	.34	.16	.095	.055	.095	.055	822.60	73.60
.000010	250.	250.	250.	0	0	0	0.00	188.24	261.83

CCHV= .300 CEHV= .500
*SECNO 405.840

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

** D/S FACE DRIVEWAY BRIDGE 405A

405.84	8.92	831.52	0.00	0.00	831.53	.00	.00	.00	825.00
190.	33.	127.	30.	233.	309.	245.	40.	14.	825.00
1.51	.14	.41	.12	.095	.055	.095	.055	822.60	42.30
.000015	44.	44.	44.	0	0	0	0.00	246.20	288.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.55	3.00	0.00	4.03	0.00	14.10	0.00	822.60	822.60

*SECNO 405.860
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
838.71	831.53	0.00	180.	11.	14.	13.	825.80	828.10
405.86	8.94	831.54	0.00	0.00	831.55	.00	.02	0.00	825.00
190.	33.	127.	31.	235.	310.	248.	41.	15.	825.00
1.55	.14	.41	.12	.095	.055	.095	.055	822.60	42.11
.000015	56.	56.	56.	0	0	5	0.00	247.32	289.43

*SECNO 405.990

405.99	8.75	831.55	0.00	0.00	831.55	.00	.00	.00	824.70
190.	100.	69.	21.	1123.	391.	340.	44.	16.	827.60
1.79	.09	.18	.06	.095	.055	.095	.055	822.80	20.77
.000003	100.	100.	100.	0	0	0	0.00	386.35	407.12

*SECNO 406.000

406.00	8.45	831.55	0.00	0.00	831.55	.00	.00	.00	825.00
190.	100.	70.	20.	1059.	375.	307.	54.	18.	827.90
2.34	.09	.19	.07	.095	.055	.095	.055	823.10	22.25
.000004	250.	250.	250.	0	0	0	0.00	382.74	404.99

*SECNO 406.100

406.10	6.75	831.55	0.00	0.00	831.55	.00	.00	.00	826.70
190.	99.	81.	10.	699.	278.	132.	64.	20.	829.60
2.76	.14	.29	.08	.095	.055	.095	.055	824.80	30.75
.000014	300.	300.	300.	0	0	0	0.00	357.27	388.02

*SECNO 406.500

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	IOC	ICONT	CORAR	TOPWID	ENDST

** D/S STORM DRAIN

406.50	5.16	831.56	0.00	0.00	831.56	.00	.01	.00	828.30
190.	93.	96.	1.	387.	187.	14.	70.	22.	831.20
2.98	.24	.51	.07	.095	.055	.095	.055	826.40	59.39
.000075	300.	300.	300.	0	0	0	0.00	278.74	338.12

CCHV= .500 CEHV= 1.000
*SECNO 407.100

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 829.30 ELREA= 838.00

407.10	5.86	831.56	0.00	0.00	831.56	.00	.00	.00	829.30
100.	58.	42.	0.	899.	453.	0.	70.	23.	831.90
2.98	.06	.09	0.00	.150	.075	.150	.055	825.70	153.47

.000005	1.	1.	325.	0	0	0	0.00	338.70	596.44

*SECNO 407.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 831.80 ELREA= 838.00

407.20	1.76	831.56	0.00	0.00	831.58	.01	.00	.01	831.80
100.	0.	100.	0.	0.	120.	0.	73.	24.	834.40
3.05	0.00	.83	0.00	.150	.075	.150	.055	829.80	450.92
.001741	200.	200.	200.	0	0	0	0.00	119.28	570.20

*SECNO 407.000

3265 DIVIDED FLOW

407.00	1.40	832.10	0.00	0.00	832.12	.01	.54	.00	840.00
100.	61.	39.	0.	71.	38.	0.	74.	24.	840.00
3.09	.86	1.02	0.00	.150	.075	.150	.056	830.70	96.69
.011334	150.	150.	150.	2	0	0	0.00	210.38	481.62

*SECNO 407.800

407.80	1.02	832.82	0.00	0.00	832.86	.03	.72	.02	832.80
100.	0.	100.	0.	0.	67.	0.	74.	24.	833.20
3.10	.01	1.49	0.00	.150	.075	.150	.056	831.80	423.74
.018780	50.	50.	50.	3	0	0	0.00	165.92	589.66

*SECNO 408.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
408.00	2.36	835.46	0.00	0.00	835.49	.03	2.63	.00	835.80
100.	0.	100.	0.	0.	78.	0.	74.	25.	836.30
3.17	0.00	1.28	0.00	.150	.075	.150	.057	833.10	714.54
.004474	325.	325.	325.	4	0	0	0.00	80.79	795.33

*SECNO 409.000

3265 DIVIDED FLOW

409.00	1.16	838.86	0.00	0.00	838.90	.05	3.40	.02	840.20
100.	0.	98.	2.	0.	57.	6.	75.	27.	838.60
3.25	0.00	1.73	.29	.150	.075	.150	.059	837.70	88.92
.013196	475.	475.	475.	5	0	0	0.00	134.30	249.12

*SECNO 409.100

3265 DIVIDED FLOW

409.10	1.46	841.16	0.00	0.00	841.18	.02	2.26	.01	842.20
100.	0.	92.	8.	0.	85.	25.	76.	28.	840.60
3.35	0.00	1.08	.33	.150	.075	.150	.060	839.70	87.52
.003591	500.	375.	175.	5	0	0	0.00	163.22	264.72

*SECNO 409.500

3235 SLOPE TOO STEEP,EXCEEDS .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
7185 MINIMUM SPECIFIC ENERGY									
3720 CRITICAL DEPTH ASSUMED									
409.50	2.04	842.94	842.94	0.00	843.17	.22	1.62	.21	843.80
100.	11.	89.	0.	9.	22.	0.	76.	28.	845.40
3.36	1.23	3.98	0.00	.150	.075	.150	.060	840.90	83.70
.123550	150.	150.	250.	3	15	0	0.00	96.35	289.29

*SECNO 410.000

3265 DIVIDED FLOW

410.00	2.52	846.22	0.00	0.00	846.25	.02	2.98	.10	846.60
100.	24.	71.	4.	46.	51.	12.	76.	29.	848.20
3.40	.53	1.42	.35	.150	.075	.150	.061	843.70	33.13
.007640	150.	150.	250.	9	0	0	0.00	231.33	522.02

*SECNO 410.100

3265 DIVIDED FLOW

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

** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

410.10	2.12	847.32	0.00	0.00	847.46	.14	1.10	.12	848.10
100.	14.	86.	0.	13.	27.	0.	76.	29.	849.70
3.41	1.08	3.21	.03	.150	.075	.150	.061	845.20	80.86
.068029	125.	50.	50.	3	0	0	0.00	109.79	488.41

PROFILE FOR STREAM SODON LAKE BRANCH

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

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ELEVATION-FT   810.      815.      820.      825.      830.      835.      840.      845.      850.      855.
   SECNO  CUMDIS-FT
 399.80      0.  C   I    .     LE  M         .         .         .         .         .         .         .
            20.  C   I    .     RE  M         .         .         .         .         .         .         .
            40.  C   I    .     RE  .M        .         .         .         .         .         .         .
            60.  C   I    .     REL .M        .         .         .         .         .         .         .
            80.  C   I    .     RE L. M       .         .         .         .         .         .         .
           100.  C   I    .     RE L. M       .         .         .         .         .         .         .
           120.  C   I    .     RE  L M       .         .         .         .         .         .         .
           140.  C   I    .      E  L  M      .         .         .         .         .         .         .
           160.  C   I    .      E  .L M      .         .         .         .         .         .         .
           180.  C   I    .      E  . L M     .         .         .         .         .         .         .
 400.00    200.  C   I    .      E  . L M     .         .         .         .         .         .         .
           220.  C   I    .      E  . L M     .         .         .         .         .         .         .
           240.  C   I    .      E  .  LM     .         .         .         .         .         .         .
           260.  C   I    .      E  .  LM     .         .         .         .         .         .         .
           280.  C   I    .      E  .  LM     .         .         .         .         .         .         .
           300.  C   I    .      E  .  LM     .         .         .         .         .         .         .
           320.  C    I   .      E  .  LM     .         .         .         .         .         .         .
           340.  C    I   .      WE .  LM     .         .         .         .         .         .         .
           360.  C    I   .      WE .  LM     .         .         .         .         .         .         .
           380.  C    I   .      WE .  L M    .         .         .         .         .         .         .
 401.20    400.  C    I   .      RE .  L M    .         .         .         .         .         .         .
           420.  C    I   .       ER. L   M   .         .         .         .         .         .         .
           440.  C    I   .        ERL     M  .         .         .         .         .         .         .
           460.  C     I  .        EL R     M .         .         .         .         .         .         .
           480.  C     I  .        LE  R     M.         .         .         .         .         .         .
 401.22    500.  C     I  .       L .E  R     M         .         .         .         .         .         .
 401.30    520.  C     I  .       L WE  R     M         .         .         .         .         .         .
 400.98    540.  C     I  .       L WE  R     M         .         .         .         .         .         .
 401.02    560.  C      I  . R     L .E       M.        .         .         .         .         .         .
           580.  C      I  . R      L.E       M.        .         .         .         .         .         .
           600.  C       I . R      L.E       M.        .         .         .         .         .         .
           620.  C       I . R      L.E        M        .         .         .         .         .         .
 401.80    640.  C       I . R       LE        M        .         .         .         .         .         .
           660.  C       I . R       LE        M        .         .         .         .         .         .
           680.  C       I . R       LE        M        .         .         .         .         .         .
           700.  C       I . R       LE        M        .         .         .         .         .         .
           720.  C        I.   R     LE        M        .         .         .         .         .         .
           740.  C        I.   R     LE        M        .         .         .         .         .         .
           760.  C        I.   R     LE        M        .         .         .         .         .         .
           780.  C        I.   R     LE        .M       .         .         .         .         .         .
           800.  C        I.   R     LE        .M       .         .         .         .         .         .
           820.  C        I.   R     LE        .M       .         .         .         .         .         .
 401.83    840.  C        I.   R     LE        .M       .         .         .         .         .         .
           860.  C        I.   R     LE        .M       .         .         .         .         .         .
           880.  C        I.   R     .E        .M       .         .         .         .         .         .
           900.  C        I.   R     .E        .M       .         .         .         .         .         .
           920.  C        I.   R     .E        .M       .         .         .         .         .         .
           940.  C        I.   R     .E        .M       .         .         .         .         .         .
           960.  C         I    R    .E        .M       .         .         .         .         .         .
```

	980.	C	I	R	.E	.M	.	.	.	.	.	.	.	
	1000.	C	I	R	.E	.M	.	.	.	.	.	.	.	
	1020.	C	I	R	.E	. M	.	.	.	.	.	.	.	
	1040.	C	I	R	.E	. M	.	.	.	.	.	.	.	
	1060.	C	I	R	.E	. M	.	.	.	.	.	.	.	
401.85	1080.	C	I	R	.E	. M	.	.	.	.	.	.	.	
	1100.	C	I	R	.E	. M	.	.	.	.	.	.	.	
	1120.	C	I	R	LE	. M	.	.	.	.	.	.	.	
	1140.	C	I	R	L.E	. M	.	.	.	.	.	.	.	
	1160.	C	I	R	L.E	. M	.	.	.	.	.	.	.	
	1180.	C	I	R L	.E	. M	.	.	.	.	.	.	.	
	1200.	C	I	R L	.E	.M	.	.	.	.	.	.	.	
	1220.	C	I	R L	.E	.M	.	.	.	.	.	.	.	
	1240.	C	.I	R L	.E	.M	.	.	.	.	.	.	.	
	1260.	C	.I	RL	.E	.M	.	.	.	.	.	.	.	
	1280.	C	.I	RL	.E	.M	.	.	.	.	.	.	.	
401.95	1300.	C	.I	L	.E	.M	.	.	.	.	.	.	.	
	1320.	C	.I	L	.E	.M	.	.	.	.	.	.	.	
	1340.	C	.I	L	.E	.M	.	.	.	.	.	.	.	
	1360.	C	.I	L	.E	.M	.	.	.	.	.	.	.	
	1380.	C	.I	L	.E	.M	.	.	.	.	.	.	.	
	1400.	C	.I	L	.E	. M	.	.	.	.	.	.	.	
	1420.	C	.I	L	.E	. M	.	.	.	.	.	.	.	
	1440.	C	.I	L	.E	. M	.	.	.	.	.	.	.	
	1460.	C	.I	LR	.E	. M	.	.	.	.	.	.	.	
	1480.	C	.I	LR	.E	. M	.	.	.	.	.	.	.	
	1500.	C	.I	LR	.E	. M	.	.	.	.	.	.	.	
	1520.	C	. I	LR	.E	. M	.	.	.	.	.	.	.	
402.00	1540.	C	. I	LR	.E	. M	.	.	.	.	.	.	.	
	1560.	C	. I	L	.E	. M	.	.	.	.	.	.	.	
	1580.	C	. I	L	.E	. M	.	.	.	.	.	.	.	
	1600.	C	. I	LR	.E	. M	.	.	.	.	.	.	.	
	1620.	C	. I	L	.E	. M	.	.	.	.	.	.	.	
	1640.	C	. I	L	.E	. M	.	.	.	.	.	.	.	
	1660.	C	. I	LR	.E	. M	.	.	.	.	.	.	.	
	1680.	C	. I	L	.E	. M	.	.	.	.	.	.	.	
	1700.	C	. I	LR	.E	. M	.	.	.	.	.	.	.	
	1720.	C	. I	LR	.E	. M	.	.	.	.	.	.	.	
	1740.	C	. I	L	.WE	. M	.	.	.	.	.	.	.	
402.10	1760.	C	. I	LR	.WE	. M	.	.	.	.	.	.	.	
	1780.	C	. I	L.	E	. M	.	.	.	.	.	.	.	
	1800.	C	. I	L.	E	. M	.	.	.	.	.	.	.	
	1820.	C	. I	L.	E	. M	.	.	.	.	.	.	.	
	1840.	C	. I	RL	E	. M	.	.	.	.	.	.	.	
	1860.	C	. I	L	E	. M	.	.	.	.	.	.	.	
	1880.	C	. I	L	E	. M	.	.	.	.	.	.	.	
	1900.	C	. I	RLE		. M	.	.	.	.	.	.	.	
	1920.	C	. I	RLWE		. M	.	.	.	.	.	.	.	
	1940.	C	. I	.RLE		. M	.	.	.	.	.	.	.	
	1960.	C	. I	.RLE		. M	.	.	.	.	.	.	.	
	1980.	C	. I	.RLE		. M	.	.	.	.	.	.	.	
402.90	2000.	C	. I	.R E		. M	.	.	.	.	.	.	.	
	2020.	C	. I.	RWE		. M	.	.	.	.	.	.	.	
	2040.	C	. I.	R E		. M	.	.	.	.	.	.	.	
	2060.	C	. I	RE		. M	.	.	.	.	.	.	.	
	2080.	C	. I	R E		. M	.	.	.	.	.	.	.	
	2100.	C	. I	RE		. M	.	.	.	.	.	.	.	
	2120.	C	. .I	RWE		. M.	.	.	.	.	.	.	.	
	2140.	C	. .I	RE		. M.	.	.	.	.	.	.	.	
	2160.	C	. . I	RWE		. M	.	.	.	.	.	.	.	
	2180.	C	. . I	R E		. M	.	.	.	.	.	.	.	

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        3420.  C  .  .  I   R.L     .  E    M     .  .  .  .  .
405.81  3440.  C  .  .  I   R.L     .  E    M     .  .  .  .  .
        3460.  C  .  .  I   RL      .  E    .M    .  .  .  .  .
405.84  3480.  C  .  .  I    L      .  E    . M   .  .  .  .  .
        3500.  C  .  .  I    L      .  E    . M   .  .  .  .  .
        3520.  C  .  .  I    L      .  E    . M   .  .  .  .  .
405.86  3540.  C  .  .  I    L      .  E    . M   .  .  .  .  .
        3560.  C  .  .  I    LR     .  E    . M   .  .  .  .  .
        3580.  C  .  .  I    L R    .  E    . M   .  .  .  .  .
        3600.  C  .  .  I    L  R   .  E    .M    .  .  .  .  .
        3620.  C  .  .   I   L   R  .  E    .M    .  .  .  .  .
405.99  3640.  C  .  .   I  L.   R  .  E    .M    .  .  .  .  .
        3660.  C  .  .   I  L.   R  .  E    .M    .  .  .  .  .
        3680.  C  .  .   I  L.   R  .  E    .M    .  .  .  .  .
        3700.  C  .  .   I   L   R  .  E    . M   .  .  .  .  .
        3720.  C  .  .   I   L   R  .  E    . M   .  .  .  .  .
        3740.  C  .  .   I   L   R  .  E    . M   .  .  .  .  .
        3760.  C  .  .   I   L   R  .  E    . M   .  .  .  .  .
        3780.  C  .  .   I   L    R .  E    . M   .  .  .  .  .
        3800.  C  .  .   I   L    R .  E    . M   .  .  .  .  .
        3820.  C  .  .   I   L    R .  E    . M   .  .  .  .  .
        3840.  C  .  .   I   L    R .  E    . M   .  .  .  .  .
        3860.  C  .  .   I   L    R .  E    . M   .  .  .  .  .
406.00  3880.  C  .  .   I   L    R .  E    . M   .  .  .  .  .
        3900.  C  .  .   I   L    R .  E    . M   .  .  .  .  .
        3920.  C  .  .    I  L    R .  E    . M   .  .  .  .  .
        3940.  C  .  .    I  .L   R  .  E    .  M  .  .  .  .  .
        3960.  C  .  .    I  .L    R .  E    .  M  .  .  .  .  .
        3980.  C  .  .    I  .L    R .  E    .  M  .  .  .  .  .
        4000.  C  .  .     I .L    R .  E    .  M  .  .  .  .  .
        4020.  C  .  .    I . L    R .  E    .  M  .  .  .  .  .
        4040.  C  .  .    I . L     R .  E   .  M  .  .  .  .  .
        4060.  C  .  .    I . L     R .  E   .  M  .  .  .  .  .
        4080.  C  .  .    I . L     R .  E   .  M  .  .  .  .  .
        4100.  C  .  .     I. L     R .  E   .  M  .  .  .  .  .
        4120.  C  .  .     I.  L     R.  E   .   M .  .  .  .  .
        4140.  C  .  .     I.  L     R.  E   .   M .  .  .  .  .
        4160.  C  .  .     I.  L     R.  E   .   M .  .  .  .  .
406.10  4180.  C  .  .      I  L     R.  E   .   M .  .  .  .  .
        4200.  C  .  .      I   L    R.  E   .    M .  .  .  .  .
        4220.  C  .  .      I   L     R  E   .    M .  .  .  .  .
        4240.  C  .  .      I   L     R  E   .    M .  .  .  .  .
        4260.  C  .  .      I   L     R  E   .    M .  .  .  .  .
        4280.  C  .  .      .I  L     R  E   .    M .  .  .  .  .
        4300.  C  .  .      .I   L    R  E   .     M .  .  .  .  .
        4320.  C  .  .      .I   L    .R E   .     M .  .  .  .  .
        4340.  C  .  .      .I   L    .R E   .     M .  .  .  .  .
        4360.  C  .  .      . I  L    .R E   .     M .  .  .  .  .
        4380.  C  .  .      . I   L   .R E   .      M .  .  .  .  .
        4400.  C  .  .      . I   L   . RE   .      M .  .  .  .  .
        4420.  C  .  .      . I   L   . RE   .      M .  .  .  .  .
        4440.  C  .  .      . I   L   . RE   .      M .  .  .  .  .
        4460.  C  .  .      .  I  L   . RE   .      M .  .  .  .  .
406.50  4480.  C  .  .      .  I   L  . RE   .       M.  .  .  .  .
407.10  4500.  C  .  .      .I       L.  ERM  .        .  .  .  .  .
        4520.  C  .  .      . I      L.  ERM  .        .  .  .  .  .
        4540.  C  .  .      .  I      L  E RM  .        .  .  .  .  .
        4560.  C  .  .      .   I     L  E RM  .        .  .  .  .  .
        4580.  C  .  .      .    I    .L E  RM  .        .  .  .  .  .
        4600.  C  .  .      .    I    .L E  RM  .        .  .  .  .  .
        4620.  C  .  .      .     I   . LE   RM .        .  .  .  .  .
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                4640.  C .  .  .  I  . LE   RM .        .  .  .  .  .
                4660.  C .  .  .   I . E    RM.        .  .  .  .  .
      407.20    4680.  C .  .  .     I  EL    RM        .  .  .  .  .
                4700.  C .  .  .     I  E  L   RM        .  .  .  .  .
                4720.  C .  .  .     I  E    L . RM      .  .  .  .  .
                4740.  C .  .  .     I    E     L  RM     .  .  .  .  .
                4760.  C .  .  .     .I   E     . L  R    .  .  .  .  .
                4780.  C .  .  .     .I   E     .    LRM  .  .  .  .  .
                4800.  C .  .  .     .I   E     .       LR .  .  .  .  .
                4820.  C .  .  .     .I   E     .         L.  .  .  .  .
      407.00    4840.  C .  .  .     .I   E     .          L  .  .  .  .
                4860.  C .  .  .     . I  E     .    LR    M  .  .  .  .
      407.80    4880.  C .  .  .     .    I E   .          M  .  .  .  .
                4900.  C .  .  .     .    I ER  .          M  .  .  .  .
                4920.  C .  .  .     .    I ER  .          M  .  .  .  .
                4940.  C .  .  .     .    I  ER .          M  .  .  .  .
                4960.  C .  .  .     .    I  ER .          M  .  .  .  .
                4980.  C .  .  .     .    I  ER .          M  .  .  .  .
                5000.  C .  .  .     .     I  ER.          M  .  .  .  .
                5020.  C .  .  .     .     I  ER.          M  .  .  .  .
                5040.  C .  .  .     .     I  EL.          M  .  .  .  .
                5060.  C .  .  .     .     I   ER          M  .  .  .  .
                5080.  C .  .  .     .     I   ER          M  .  .  .  .
                5100.  C .  .  .     .     I   ELR         M  .  .  .  .
                5120.  C .  .  .     .      I   ER         M  .  .  .  .
                5140.  C .  .  .     .      I   ER         M  .  .  .  .
                5160.  C .  .  .     .      I   ELR        M  .  .  .  .
                5180.  C .  .  .     .      I   .ER        M  .  .  .  .
      408.00    5200.  C .  .  .     .      I   .ELR       M  .  .  .  .
                5220.  C .  .  .     .       I  .ELR       M  .  .  .  .
                5240.  C .  .  .     .     I   .WER       M  .  .  .  .
                5260.  C .  .  .     .     I   . EL       M  .  .  .  .
                5280.  C .  .  .     .      I  . EL       M  .  .  .  .
                5300.  C .  .  .     .      I  . ELR      M  .  .  .  .
                5320.  C .  .  .     .       I.  EL       M  .  .  .  .
                5340.  C .  .  .     .       I.  EL       M  .  .  .  .
                5360.  C .  .  .     .       I.  ERL      M  .  .  .  .
                5380.  C .  .  .     .        I  WEL      M  .  .  .  .
                5400.  C .  .  .     .        I   EL      .M  .  .  .  .
                5420.  C .  .  .     .        I   ERL     .M  .  .  .  .
                5440.  C .  .  .     .        .I  ERL     .M  .  .  .  .
                5460.  C .  .  .     .        .I   EL     .M  .  .  .  .
                5480.  C .  .  .     .        . I  E L    .M  .  .  .  .
                5500.  C .  .  .     .        . I  ERL    .M  .  .  .  .
                5520.  C .  .  .     .        . I  WE L   .M  .  .  .  .
                5540.  C .  .  .     .        .  I  E L   .M  .  .  .  .
                5560.  C .  .  .     .        .  I  E L   .M  .  .  .  .
                5580.  C .  .  .     .        .   I E  L  .M  .  .  .  .
                5600.  C .  .  .     .        .   I RE L .M  .  .  .  .
                5620.  C .  .  .     .        .   I  E L .M  .  .  .  .
                5640.  C .  .  .     .        .    I E  LM  .  .  .  .
                5660.  C .  .  .     .        .    I WE LM  .  .  .  .
      409.00    5680.  C .  .  .     .        .    I RE LM  .  .  .  .
                5700.  C .  .  .     .        .     IRE .L  .  .  .  .
                5720.  C .  .  .     .        .     I E .LM  .  .  .  .
                5740.  C .  .  .     .        .     I WE.LM  .  .  .  .
                5760.  C .  .  .     .        .     I RE.LM  .  .  .  .
                5780.  C .  .  .     .        .     I RE.LM  .  .  .  .
                5800.  C .  .  .     .        .      IRE. L  .  .  .  .
                5820.  C .  .  .     .        .      I WE LM  .  .  .  .
                5840.  C .  .  .     .        .      I RE LM  .  .  .  .
```

	5860.	C	.	.	.	.	.	I RE LM	.	.	.	.
	5880.	C	.	.	.	.	.	IRE L	.	.	.	.
	5900.	C	.	.	.	.	.	I E LM	.	.	.	.
	5920.	C	.	.	.	.	.	I RE LM	.	.	.	.
	5940.	C	.	.	.	.	.	I RE LM	.	.	.	.
	5960.	C	.	.	.	.	.	I RE LM	.	.	.	.
	5980.	C	.	.	.	.	.	IRE L	.	.	.	.
	6000.	C	.	.	.	.	.	I.RE LM	.	.	.	.
	6020.	C	.	.	.	.	.	I.RE LM	.	.	.	.
	6040.	C	.	.	.	.	.	I.RE LM	.	.	.	.
409.10	6060.	C	.	.	.	.	.	I.RE LM	.	.	.	.
	6080.	C	.	.	.	.	.	I RE LM	.	.	.	.
	6100.	C	.	.	.	.	.	I ERL M .	.	.	.	.
	6120.	C	.	.	.	.	.	I ERL M.	.	.	.	.
	6140.	C	.	.	.	.	.	.I E L M	.	.	.	.
	6160.	C	.	.	.	.	.	.I E LR .M	.	.	.	.
	6180.	C	.	.	.	.	.	.I WEL R. M	.	.	.	.
409.50	6200.	.	.	.	.	.	.	. I E L .R M	.	.	.	.
	6220.	C	.	.	.	.	.	. I EL . R M	.	.	.	.
	6240.	C	.	.	.	.	.	. I EL. R M	.	.	.	.
	6260.	C	.	.	.	.	.	. I WEL R M .	.	.	.	.
	6280.	C	.	.	.	.	.	. I WEL R M .	.	.	.	.
	6300.	C	.	.	.	.	.	. I EL R M .	.	.	.	.
	6320.	C	.	.	.	.	.	. I .EL R M.	.	.	.	.
	6340.	C	.	.	.	.	.	. I . EL R M	.	.	.	.
410.00	6360.	C	.	.	.	.	.	. I . WE R M	.	.	.	.
	6380.	C	.	.	.	.	.	. I. EL R .M	.	.	.	.
410.10	6400.	C	.	.	.	.	.	. I EL R. M	.	.	.	.

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 HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
 ERROR CORR -  01,02,03
 MODIFICATION -  50,51,52,53
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T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      FLOODWAY DETERMINATION

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -1.        6.        0.        0.  0.000000      0.00     -1.0       0.    818.660     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 2

CCHV=     .150 CEHV=     .350
*SECNO 399.800
 2800 NAT Q1=     753.70  WSEL=     818.66  ENC Q1=     776.40  WSEL=     818.76  RATIO=  -.0301
 NAT Q1=     778.  RATIOS LOB,CH,ROB=    .0008    .9982    .0010  WSEL=     818.76
   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


3470 ENCROACHMENT STATIONS=      48.0     220.0  TYPE=     4  TARGET=        .002

         ** CONFLUENCE WITH LONG LAKE - FOREST LAKE BRANCH

   399.80      6.26   818.66      0.00   818.66   818.66       .00      0.00      0.00   818.00
     400.        0.     400.        0.       0.     917.        0.        0.        0.   818.00
     0.00      0.00      .44      0.00     .085     .055      .085     0.000   812.40    48.00
  .000029        0.       0.        0.        0        0         0      0.00   172.00   220.00


*SECNO 400.000
 2800 NAT Q1=     193.36  WSEL=     818.66  ENC Q1=     199.56  WSEL=     818.76  RATIO=  -.0320
 NAT Q1=     201.  RATIOS LOB,CH,ROB=  0.0000    .9950    .0050  WSEL=     818.76

3470 ENCROACHMENT STATIONS=      51.0     129.0  TYPE=     4  TARGET=        .005
   400.00      6.56   818.66      0.00   818.66   818.69       .03       .01       .01   821.20
     400.        0.     400.        0.       0.     281.        0.        3.        1.   818.40
      .04      0.00     1.43      0.00     .085     .055      .085      .055   812.10    62.04
  .000435      200.     200.      200.        2        0         0      0.00    66.96   129.00


CCHV=     .300 CEHV=     .500
*SECNO 401.200
 2800 NAT Q1=     177.20  WSEL=     818.75  ENC Q1=     184.32  WSEL=     818.85  RATIO=  -.0402
 NAT Q1=     184.  RATIOS LOB,CH,ROB=  0.0000    .9995    .0005  WSEL=     818.85

3470 ENCROACHMENT STATIONS=      51.0     129.0  TYPE=     4  TARGET=        .001

         ** D/S FACE FOOTBRIDGE 401.2A

   401.20      6.35   818.75      0.00   818.75   818.78       .03       .09       .00   821.50
     400.        0.     400.        0.       0.     267.        0.        4.        1.   818.70
      .08      0.00     1.50      0.00     .085     .055      .085      .055   812.40    62.36
  .000510      200.     200.      200.        0        0         0      0.00    66.64   129.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.15      2.70    175.00      4.73      0.00     14.20      0.00    813.10    812.70

*SECNO 401.220
 2800 NAT Q1=     407.82  WSEL=     820.24  ENC Q1=     416.15  WSEL=     820.34  RATIO=  -.0204
 NAT Q1=     424.  RATIOS LOB,CH,ROB=    .0179    .9821  0.0000  WSEL=     820.34
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
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3470 ENCROACHMENT STATIONS=      131.0      291.0  TYPE=      4  TARGET=          .018
   401.22      7.14   820.24      0.00   820.24   820.25       .01       .02       .01   819.00
     400.         0.     400.        0.       0.     593.        0.        5.        1.    822.10
      .12      0.00      .67      0.00     .085     .055      .085      .055   813.10    131.00
  .000101        96.       96.       96.        0        0         7      0.00   149.16    280.16


*SECNO 401.300
 2800 NAT Q1=     407.05  WSEL=     820.24  ENC Q1=     416.26  WSEL=     820.34  RATIO=  -.0226
 NAT Q1=     424.  RATIOS LOB,CH,ROB=     .0179    .9821  0.0000  WSEL=     820.34
   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    IOC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      131.0      291.0  TYPE=      4  TARGET=          .018
   401.30      7.14   820.24      0.00   820.24   820.25       .01       .00       .00   819.00
     400.         0.     400.        0.       0.     593.        0.        5.        1.    822.10
      .12      0.00      .67      0.00     .085     .055      .085      .055   813.10    131.00
  .000101         7.        7.        7.        0        0         0      0.00   149.16    280.16


*SECNO 400.980
 2800 NAT Q1=     390.26  WSEL=     820.24  ENC Q1=     400.49  WSEL=     820.34  RATIO=  -.0262
 NAT Q1=     407.  RATIOS LOB,CH,ROB=     .0158    .9842  0.0000  WSEL=     820.34

3470 ENCROACHMENT STATIONS=      131.0      291.0  TYPE=      4  TARGET=          .016
          ** D/S FACE ORCHARD RIDGE RD.

   400.98      7.04   820.24      0.00   820.24   820.25       .01       .00       .00   819.10
     400.         0.     400.        0.       0.     578.        0.        5.        1.    822.20
      .12      0.00      .69      0.00     .085     .055      .085      .054   813.20    131.00
  .000109         8.        8.        8.        0        0         0      0.00   148.59    279.59


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        1.90       2.80     275.00       4.21       0.00       16.43      0.00     813.50     813.20

*SECNO 401.020
 2800 NAT Q1=     390.75  WSEL=     820.31  ENC Q1=     390.75  WSEL=     820.41  RATIO=   .0000
 NAT Q1=     406.  RATIOS LOB,CH,ROB=     .0048    .4077    .5875  WSEL=     820.41
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      192.0      355.8  TYPE=      4  TARGET=          .038
   401.02      6.81   820.31      0.00   820.31   820.32       .01       .00       .00   819.20
     400.         0.     168.      232.       0.     220.      481.        6.        1.    816.00
      .14      0.00      .77       .48     .085     .055      .085      .054   813.50    192.00
  .000114        36.       36.       36.        0        0         8      0.00   163.78    355.78


*SECNO 401.800
 2800 NAT Q1=     301.24  WSEL=     820.32  ENC Q1=     301.24  WSEL=     820.42  RATIO=   .0000
 NAT Q1=     316.  RATIOS LOB,CH,ROB=     .0010    .4167    .5823  WSEL=     820.42
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3470 ENCROACHMENT STATIONS=      192.0      344.7  TYPE=      4  TARGET=          .045
   401.80      6.22   820.32      0.00   820.32   820.33       .01       .01       .00   819.80
    400.         0.      174.      226.       0.      191.      389.        7.        2.    816.60
     .17      0.00       .91       .58      .085      .055      .085      .054   814.10   192.00
  .000192       75.       75.       75.         0         0         0      0.00   152.70   344.70

CCHV=     .150 CEHV=     .350
*SECNO 401.830
 2800 NAT Q1=     252.33  WSEL=     820.36  ENC Q1=     252.33  WSEL=     820.46  RATIO=    .0000
 NAT Q1=     266.  RATIOS LOB,CH,ROB=    .0001    .4222    .5777  WSEL=     820.46

3470 ENCROACHMENT STATIONS=      192.0      337.5  TYPE=      4  TARGET=          .052
   401.83      5.86   820.36      0.00   820.36   820.38       .01       .05       .00   820.20
    400.         0.      178.      222.       0.      173.      337.        9.        2.    817.00
     .24      0.00      1.03       .66      .085      .055      .085      .054   814.50   192.00
  .000275       205.      205.      205.         0         0         0      0.00   145.49   337.49

*SECNO 401.850
 2800 NAT Q1=     202.67  WSEL=     820.43  ENC Q1=     202.67  WSEL=     820.53  RATIO=    .0000
 NAT Q1=     214.  RATIOS LOB,CH,ROB=   0.0000    .4331    .5669  WSEL=     820.53
   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=      192.0      331.7  TYPE=      4  TARGET=          .051
   401.85      5.44   820.44      0.00   820.43   820.46       .02       .08       .00   820.70
    400.         0.      183.      217.       0.      153.      284.       12.        3.    817.50
     .30      0.00      1.20       .76      .085      .055      .085      .055   815.00   193.62
  .000425       235.      235.      235.         0         0         0      0.00   138.10   331.72

*SECNO 401.950
 2800 NAT Q1=     221.65  WSEL=     820.51  ENC Q1=     221.65  WSEL=     820.61  RATIO=    .0000
 NAT Q1=     236.  RATIOS LOB,CH,ROB=    .2674    .2893    .4433  WSEL=     820.61

3470 ENCROACHMENT STATIONS=      313.6      472.2  TYPE=      4  TARGET=          .062
   401.95      5.13   820.53      0.00   820.51   820.55       .01       .09       .00   816.80
    400.       100.      125.      175.      148.       90.      259.       14.        4.    817.00
     .38       .68      1.38       .67      .085      .055      .085      .055   815.40   313.58
  .000356       230.      230.      230.         0         0         0      0.00   158.62   472.20

*SECNO 402.000
 2800 NAT Q1=     183.69  WSEL=     820.60  ENC Q1=     183.69  WSEL=     820.70  RATIO=    .0000
 NAT Q1=     196.  RATIOS LOB,CH,ROB=    .2625    .3102    .4273  WSEL=     820.70

3470 ENCROACHMENT STATIONS=      316.9      460.4  TYPE=      4  TARGET=          .063
   402.00      4.83   820.63      0.00   820.60   820.65       .02       .10       .00   817.20
    400.         98.      134.      168.      127.       84.      215.       17.        5.    817.40
     .44       .77      1.58       .78      .085      .055      .085      .055   815.80   316.91
  .000515       230.      230.      230.         0         0         0      0.00   143.50   460.41

*SECNO 402.100
 2800 NAT Q1=      46.42  WSEL=     820.74  ENC Q1=      46.42  WSEL=     820.84  RATIO=  0.0000
 NAT Q1=      51.  RATIOS LOB,CH,ROB=    .1845    .4903    .3252  WSEL=     820.84
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3470 ENCROACHMENT STATIONS=      340.1      424.8  TYPE=      4  TARGET=          .097
   402.10      3.07    820.77      0.00    820.74    820.82       .04       .16       .01    819.10
    190.        28.       105.       57.       31.       49.       60.       18.        5.     819.30
     .48        .90      2.12       .95      .085      .055      .085      .055    817.70    340.13
  .001873     225.       225.      225.         2         3         0      0.00     84.63    424.76


*SECNO 402.900
 2800 NAT Q1=       21.00  WSEL=     821.45  ENC Q1=       21.91  WSEL=     821.55  RATIO=  -.0433
 NAT Q1=      24.  RATIOS LOB,CH,ROB=    .0003    .9272    .0725  WSEL=     821.55

3470 ENCROACHMENT STATIONS=      204.0      238.0  TYPE=      4  TARGET=          .073
   402.90      2.44    821.54      0.00    821.45    821.71       .17       .85       .04    821.40
    190.        0.       190.       0.        0.       57.       0.        19.        6.     820.70
     .50       0.00      3.33      0.00      .085      .055      .085      .055    819.10    204.00
  .007975     250.       250.      250.         2         3         0      0.00     34.00    238.00


*SECNO 403.200
 2800 NAT Q1=       16.06  WSEL=     824.02  ENC Q1=       17.46  WSEL=     824.12  RATIO=  -.0872
 NAT Q1=      18.  RATIOS LOB,CH,ROB=  0.0000    .9583    .0417  WSEL=     824.12
   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=      204.0      238.0  TYPE=      4  TARGET=          .042
   403.20      2.16    824.06      0.00    824.02    824.31       .25      2.57       .03    824.20
    190.        0.       190.       0.        0.       48.       0.        19.        6.     823.50
     .51       0.00      3.97      0.00      .085      .055      .085      .055    821.90    204.75
  .013773     250.       250.      250.         3         3         0      0.00     33.25    238.00


CCHV=     .300 CEHV=     .500
*SECNO 402.980
 2800 NAT Q1=       23.45  WSEL=     825.04  ENC Q1=       23.87  WSEL=     825.14  RATIO=  -.0179
 NAT Q1=      26.  RATIOS LOB,CH,ROB=    .0010    .9134    .0855  WSEL=     825.14

3470 ENCROACHMENT STATIONS=      204.0      238.0  TYPE=      4  TARGET=          .087

          ** D/S FACE VAUGHN RD.

   402.98      2.49    825.09      0.00    825.04    825.25       .16       .92       .03    824.90
    190.        0.       190.       0.        0.       59.       0.        19.        6.     824.20
     .52       0.00      3.22      0.00      .085      .055      .085      .055    822.60    204.00
  .007190      95.        95.       95.         2         0         0      0.00     34.00    238.00


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
     0.00        2.15        2.80      175.00        2.75        0.00        9.62        0.00      822.60      822.60

*SECNO 403.020
 2800 NAT Q1=      279.60  WSEL=     828.43  ENC Q1=      279.60  WSEL=     828.53  RATIO=   .0000
 NAT Q1=     292.  RATIOS LOB,CH,ROB=    .1358    .4832    .3809  WSEL=     828.53
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
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3470 ENCROACHMENT STATIONS=      170.1      314.1  TYPE=      4  TARGET=          .043
   403.02      5.88    828.48      0.00    828.43    828.49       .00       .00       .05    824.90
    190.       23.       96.       71.       97.      174.      259.       19.        6.     824.20
     .54       .23       .55       .27      .085      .055      .085      .055    822.60    170.11
 .000048       30.       30.       30.         0         0         7      0.00    143.97    314.08


*SECNO 403.800
 2800 NAT Q1=     564.87  WSEL=     828.43  ENC Q1=     564.87  WSEL=     828.53  RATIO=    .0000
 NAT Q1=     585.  RATIOS LOB,CH,ROB=    .0714    .8422    .0864  WSEL=     828.53

3470 ENCROACHMENT STATIONS=       81.4      254.1  TYPE=      4  TARGET=          .035
   403.80      7.49    828.49      0.00    828.43    828.49       .00       .00       .00    825.50
    190.       10.       166.      13.       100.      545.      116.       21.        6.     824.90
     .62       .10       .30       .12      .085      .055      .085      .055    821.00     81.35
 .000012       80.       80.       80.         0         0         0      0.00    172.78    254.14


CCHV=     .150 CEHV=     .350
*SECNO 404.000
 2800 NAT Q1=     468.57  WSEL=     828.44  ENC Q1=     468.57  WSEL=     828.54  RATIO=    .0000
 NAT Q1=     486.  RATIOS LOB,CH,ROB=    .0079    .9331    .0590  WSEL=     828.54

3470 ENCROACHMENT STATIONS=      131.0      263.9  TYPE=      4  TARGET=          .036
   404.00      6.29    828.49      0.00    828.44    828.49       .00       .00       .00    828.00
    190.        0.       184.       6.        0.      569.       52.       25.        7.     825.40
     .88       0.00      .32       .12      .095      .055      .095      .055    822.20    131.00
 .000017       300.      300.      300.         0         0         0      0.00    132.92    263.92


*SECNO 405.200
 2800 NAT Q1=     135.51  WSEL=     828.44  ENC Q1=     135.51  WSEL=     828.54  RATIO=    .0000
 NAT Q1=     144.  RATIOS LOB,CH,ROB=    .1606    .5515    .2879  WSEL=     828.54
   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=      118.1      241.5  TYPE=      4  TARGET=          .059
   405.20      5.30    828.50      0.00    828.44    828.51       .01       .01       .00    826.00
    190.       26.       112.      52.       68.      117.      141.       28.        8.     826.00
     .98       .39       .96       .37      .095      .055      .095      .055    823.20    118.13
 .000205       250.      250.      250.         1         0         0      0.00    123.32    241.45


CCHV=     .300 CEHV=     .500
*SECNO 404.980
 2800 NAT Q1=     202.11  WSEL=     828.46  ENC Q1=     202.11  WSEL=     828.56  RATIO=  0.0000
 NAT Q1=     214.  RATIOS LOB,CH,ROB=    .1775    .4857    .3367  WSEL=     828.56

3470 ENCROACHMENT STATIONS=      116.2      253.5  TYPE=      4  TARGET=          .057

         ** D/S FACE LAHSER RD.

   404.98      6.01    828.51      0.00    828.46    828.52       .00       .01       .00    825.30
    190.       30.       99.       62.       94.      137.      212.       29.        8.     825.30
    1.02       .32       .72       .29      .095      .055      .095      .055    822.50    116.19
 .000093       75.       75.       75.         0         0         0      0.00    137.33    253.51
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SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.75	2.90	0.00	2.33	0.00	3.26	0.00	822.50	822.50

*SECNO 405.020
2800 NAT Q1= 624.05 WSEL= 831.52 ENC Q1= 624.05 WSEL= 831.62 RATIO= .0000
NAT Q1= 640. RATIOS LOB,CH,ROB= .1360 .5685 .2955 WSEL= 831.62
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 106.4 245.0 TYPE= 4 TARGET= .026

405.02	9.08	831.58	0.00	831.52	831.58	.00	.00	.00	825.20
190.	24.	111.	55.	194.	330.	341.	29.	8.	824.40
1.07	.12	.34	.16	.095	.055	.095	.055	822.50	106.39
.000009	45.	45.	45.	0	0	11	0.00	138.64	245.04

*SECNO 405.800
2800 NAT Q1= 591.79 WSEL= 831.52 ENC Q1= 591.79 WSEL= 831.62 RATIO= .0000
NAT Q1= 608. RATIOS LOB,CH,ROB= .1306 .5754 .2940 WSEL= 831.62

3470 ENCROACHMENT STATIONS= 109.5 244.0 TYPE= 4 TARGET= .026

405.80	8.88	831.58	0.00	831.52	831.58	.00	.00	.00	825.40
190.	23.	112.	55.	178.	322.	326.	30.	8.	824.60
1.12	.13	.35	.17	.095	.055	.095	.055	822.70	109.46
.000011	50.	50.	50.	0	0	0	0.00	134.52	243.99

CCHV= .150 CEHV= .350
*SECNO 405.810
2800 NAT Q1= 607.98 WSEL= 831.52 ENC Q1= 607.98 WSEL= 831.62 RATIO= 0.0000
NAT Q1= 624. RATIOS LOB,CH,ROB= .1334 .5718 .2948 WSEL= 831.62

3470 ENCROACHMENT STATIONS= 108.1 244.4 TYPE= 4 TARGET= .026

405.81	8.98	831.58	0.00	831.52	831.58	.00	.00	.00	825.30
190.	24.	112.	55.	186.	326.	333.	35.	9.	824.50
1.38	.13	.34	.16	.095	.055	.095	.055	822.60	108.10
.000010	250.	250.	250.	0	0	0	0.00	136.31	244.42

CCHV= .300 CEHV= .500
*SECNO 405.840
2800 NAT Q1= 485.66 WSEL= 831.52 ENC Q1= 485.66 WSEL= 831.62 RATIO= .0000
NAT Q1= 501. RATIOS LOB,CH,ROB= .1743 .6617 .1640 WSEL= 831.62

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

3470 ENCROACHMENT STATIONS= 72.5 220.8 TYPE= 4 TARGET= .031

** D/S FACE DRIVEWAY BRIDGE 405A

405.84	8.98	831.58	0.00	831.52	831.58	.00	.00	.00	825.00
190.	31.	130.	29.	199.	311.	193.	36.	9.	825.00
1.42	.16	.42	.15	.095	.055	.095	.055	822.60	72.46
.000016	44.	44.	44.	0	0	0	0.00	148.29	220.76

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.55	3.00	0.00	4.03	0.00	14.10	0.00	822.60	822.60

*SECNO 405.860
2800 NAT Q1= 489.12 WSEL= 831.54 ENC Q1= 489.12 WSEL= 831.64 RATIO= .0000
NAT Q1= 505. RATIOS LOB,CH,ROB= .1749 .6603 .1648 WSEL= 831.64
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 71.9 221.7 TYPE= 4 TARGET= .031

405.86	9.00	831.60	0.00	831.54	831.60	.00	.00	.00	825.00
190.	31.	130.	29.	202.	312.	196.	37.	10.	825.00
1.47	.15	.42	.15	.095	.055	.095	.055	822.60	71.90
.000015	56.	56.	56.	0	0	5	0.00	149.78	221.68

*SECNO 405.990
2800 NAT Q1= 1045.67 WSEL= 831.55 ENC Q1= 1045.67 WSEL= 831.65 RATIO= .0000
NAT Q1= 1078. RATIOS LOB,CH,ROB= .5237 .3612 .1151 WSEL= 831.65

3470 ENCROACHMENT STATIONS= 45.0 374.9 TYPE= 4 TARGET= .030

405.99	8.80	831.60	0.00	831.55	831.60	.00	.00	.00	824.70
190.	100.	71.	20.	1087.	395.	291.	40.	10.	827.60
1.70	.09	.18	.07	.095	.055	.095	.055	822.80	45.31
.000003	100.	100.	100.	0	0	0	0.00	329.89	374.89

*SECNO 406.000
2800 NAT Q1= 953.14 WSEL= 831.55 ENC Q1= 953.14 WSEL= 831.65 RATIO= .0000
NAT Q1= 983. RATIOS LOB,CH,ROB= .5237 .3681 .1082 WSEL= 831.65

3470 ENCROACHMENT STATIONS= 47.7 371.7 TYPE= 4 TARGET= .031

406.00	8.51	831.61	0.00	831.55	831.61	.00	.00	.00	825.00
190.	100.	72.	18.	1022.	378.	259.	50.	12.	827.90
2.23	.10	.19	.07	.095	.055	.095	.055	823.10	47.71
.000004	250.	250.	250.	0	0	0	0.00	324.00	371.71

*SECNO 406.100
2800 NAT Q1= 502.88 WSEL= 831.55 ENC Q1= 502.88 WSEL= 831.65 RATIO= .0000
NAT Q1= 526. RATIOS LOB,CH,ROB= .5193 .4221 .0586 WSEL= 831.65

3470 ENCROACHMENT STATIONS= 75.1 333.5 TYPE= 4 TARGET= .043

406.10	6.81	831.61	0.00	831.55	831.61	.00	.00	.00	826.70
190.	99.	84.	7.	651.	281.	77.	59.	14.	829.60
2.62	.15	.30	.09	.095	.055	.095	.055	824.80	75.14
.000015	300.	300.	300.	0	0	0	0.00	258.31	333.45

*SECNO 406.500
2800 NAT Q1= 218.92 WSEL= 831.56 ENC Q1= 218.92 WSEL= 831.66 RATIO= .0000
NAT Q1= 233. RATIOS LOB,CH,ROB= .4938 .4994 .0068 WSEL= 831.66

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=      112.4      295.0  TYPE=      4  TARGET=         .062

         ** D/S STORM DRAIN

   406.50      5.21   831.61      0.00   831.56   831.62       .00       .01       .00   828.30
     190.       89.      101.       0.      336.      190.       0.       64.       16.    831.20
     2.82       .26       .53      0.00      .095      .055      .095      .055   826.40   112.43
  .000079      300.      300.      300.         0         0         0      0.00   182.57   295.00


CCHV=     .500 CEHV=    1.000
*SECNO 407.100
 2800 NAT Q1=     447.29  WSEL=     831.56  ENC Q1=     447.29  WSEL=     831.66  RATIO=  0.0000
 NAT Q1=     465.  RATIOS LOB,CH,ROB=    .5719    .4281  0.0000  WSEL=     831.66

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      174.9      600.0  TYPE=      4  TARGET=         .039

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      829.30 ELREA=      838.00

   407.10      5.92   831.62      0.00   831.56   831.62       .00       .00       .00   829.30
     100.       56.       44.       0.      850.      461.       0.       64.       16.    831.90
     2.82       .07       .10      0.00      .150      .075      .150      .055   825.70   174.86
  .000005       1.        1.      325.         0         0         0      0.00   317.94   597.05


*SECNO 407.200
 2800 NAT Q1=      23.97  WSEL=     831.56  ENC Q1=      27.67  WSEL=     831.66  RATIO=  -.1546
 NAT Q1=      28.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     831.66

3470 ENCROACHMENT STATIONS=      450.0      600.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      831.80 ELREA=      838.00

   407.20      1.82   831.62      0.00   831.56   831.63       .01       .00       .01   831.80
     100.       0.      100.       0.       0.      127.       0.       67.       17.    834.40
     2.89      0.00       .79      0.00      .150      .075      .150      .055   829.80   450.71
  .001477      200.      200.      200.         2         0         0      0.00   120.06   570.77


*SECNO 407.000
 2800 NAT Q1=       9.39  WSEL=     832.10  ENC Q1=       9.39  WSEL=     832.20  RATIO=  0.0000
 NAT Q1=      12.  RATIOS LOB,CH,ROB=    .5749    .4251  0.0000  WSEL=     832.20

3265 DIVIDED FLOW                                                  Overland flow Along Stoneleigh


3470 ENCROACHMENT STATIONS=      142.2      501.0  TYPE=      4  TARGET=         .223
   407.00      1.44   832.14      0.00   832.10   832.16       .02       .52       .01   840.00.
     100.       48.       52.       0.       44.       42.       0.       68.       17.    840.00
     2.93      1.09      1.24      0.00      .150      .075      .150      .056   830.70   142.22
  .015771      150.      150.      150.         2         0         0      0.00   173.03   488.66


*SECNO 407.800
 2800 NAT Q1=       7.30  WSEL=     832.82  ENC Q1=      10.54  WSEL=     832.92  RATIO=  -.4448
 NAT Q1=      11.  RATIOS LOB,CH,ROB=    .0001    .9999  0.0000  WSEL=     832.92
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3470 ENCROACHMENT STATIONS=      424.0      600.0  TYPE=      4  TARGET=         .000
   407.80      1.07   832.87      0.00   832.82   832.90       .03       .73       .01   832.80
    100.        0.      100.        0.       0.      74.        0.       68.       17.    833.20
     2.94      0.00      1.34      0.00     .150     .075      .150      .056   831.80   424.00
  .013459       50.       50.       50.        3        0         0      0.00   166.85   590.85

*SECNO 408.000
 2800 NAT Q1=       14.95  WSEL=     835.46  ENC Q1=       17.49  WSEL=     835.56  RATIO=  -.1697
 NAT Q1=      17.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.56
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      712.0      805.0  TYPE=      4  TARGET=        0.000
   408.00      2.32   835.42      0.00   835.46   835.45       .03      2.55       .00   835.80
    100.        0.      100.        0.       0.      74.        0.       68.       18.    836.30
     3.01      0.00      1.34      0.00     .150     .075      .150      .057   833.10   714.85
  .005127       325.      325.      325.        3        0         0      0.00    79.99   794.84

*SECNO 409.000
 2800 NAT Q1=        8.71  WSEL=     838.86  ENC Q1=       10.76  WSEL=     838.96  RATIO=  -.2356
 NAT Q1=      11.  RATIOS LOB,CH,ROB=  0.0000   .9628   .0372  WSEL=     838.96

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=       83.0      200.0  TYPE=      4  TARGET=         .037
   409.00      1.20   838.90      0.00   838.86   838.94       .04      3.48       .01   840.20
    100.        0.      100.        0.       0.      60.        0.       69.       19.    838.60
     3.09      0.00      1.66      0.00     .150     .075      .150      .059   837.70    88.74
  .011333       475.      475.      475.        3        0         0      0.00    85.76   200.00

*SECNO 409.100
 2800 NAT Q1=       16.69  WSEL=     841.16  ENC Q1=       17.50  WSEL=     841.26  RATIO=  -.0485
 NAT Q1=      19.  RATIOS LOB,CH,ROB=  0.0000   .8998   .1002  WSEL=     841.26

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=       83.0      200.0  TYPE=      4  TARGET=         .100
   409.10      1.51   841.21      0.00   841.16   841.23       .02      2.27       .01   842.20
    100.        0.      100.        0.       0.      90.        0.       70.       20.    840.60
     3.18      0.00      1.11      0.00     .150     .075      .150      .060   839.70    87.32
  .003767       500.      375.      175.        3        0         0      0.00   101.50   200.00

*SECNO 409.500
 2800 NAT Q1=        2.84  WSEL=     842.94  ENC Q1=        3.47  WSEL=     843.04  RATIO=  -.2212
 NAT Q1=       4.  RATIOS LOB,CH,ROB=   .1419   .8579   .0002  WSEL=     843.04

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
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   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      212.0      340.0  TYPE=      4  TARGET=         .142
   409.50      2.09    842.99    842.99    842.94    843.24       .25      1.62       .23    843.80
     100.        0.     100.        0.        0.       25.        0.       70.       20.     845.40
     3.19      0.00      4.00      0.00      .150      .075      .150      .060    840.90    236.24
  .113364      150.      150.      250.         6        11         0      0.00     53.27    289.51


*SECNO 410.000
 2800 NAT Q1=       11.44  WSEL=     846.22  ENC Q1=       11.44  WSEL=     846.32  RATIO=    .0000
 NAT Q1=      15.  RATIOS LOB,CH,ROB=    .2665    .6754    .0580  WSEL=     846.32

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      108.1      474.8  TYPE=      4  TARGET=         .225
   410.00      2.61    846.31      0.00    846.22    846.34       .03      2.99       .11    846.60
     100.       13.      87.        0.       22.       57.        0.       70.       20.     848.20
     3.22       .57      1.52       .14      .150      .075      .150      .061    843.70    108.11
  .007990      150.      150.      250.         7         0         0      0.00    119.23    474.77


*SECNO 410.100
 2800 NAT Q1=        3.83  WSEL=     847.32  ENC Q1=        4.32  WSEL=     847.42  RATIO=  -.1276
 NAT Q1=       5.  RATIOS LOB,CH,ROB=    .1654    .8311    .0035  WSEL=     847.42
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      212.0      340.0  TYPE=      4  TARGET=         .169

        ** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

   410.10      2.14    847.34      0.00    847.32    847.54       .21      1.03       .17    848.10
     100.        0.     100.        0.        0.       28.        0.       70.       21.     849.70
     3.22      0.00      3.64      0.00      .150      .075      .150      .061    845.20    234.85
  .085685      125.       50.       50.         1         3         0      0.00     54.87    289.72
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SODUN LAKE DRAIN

4) DOCUMENT TYPE: DOWNSTREAM LAKES CONVERGENCE

00BREAK00

JCB NO. UM9488 UNIVERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 17:22:15 08-18-80

DNR

SODON LAKE - D/S LAKES
CONVERGENCE

PARAMETERS: ,ID=IDUK,PW=

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MM          MM  NN          NN  EEEEEEEEEEE  TTTTTTTTTTT
MMM        MMM  NNN         NN  EEEEEEEEEEE  TTTTTTTTTTT
MMMM      MMMM  NNNN        NN  EE               TT
MM MM    MM MM  NN NN       NN  EE               TT
MM  MMMM  MM  NN  NN      NN  EE               TT
MM   MM   MM  NN   NN     NN  EEEEEEE          TT
MM        MM  NN    NN    NN  EEEEEEE          TT
MM        MM  NN     NN   NN  EE               TT
MM        MM  NN      NN  NN  EE               TT
MM        MM  NN       NNNN  EE               TT
MM        MM  NN        NNN  EE               TT
MM        MM  NN         NN  EEEEEEEEEEE      TT
MM        MM  NN          N  EEEEEEEEEEE      TT

IIIIIIIII  DDDDDDDD    UU        UU  KK       KK
IIIIIIIII  DDDDDDDDD   UU        UU  KK      KK
   II      DD      DD  UU        UU  KK     KK
   II      DD       DD UU        UU  KK    KK
   II      DD       DD UU        UU  KK   KK
   II      DD       DD UU        UU  KKKKKK
   II      DD       DD UU        UU  KKKKKK
   II      DD       DD UU        UU  KK   KK
   II      DD       DD UU        UU  KK    KK
   II      DD      DD  UU        UU  KK     KK
IIIIIIIII  DDDDDDDDD   UUUUUUUUUUU  KK      KK
IIIIIIIII  DDDDDDDD     UUUUUUUUU   KK       KK
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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED JULY 1979                                     *
*                                                        *
*  RUN DATE  08/18/80  TIME .11.37.40.                   *
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**************************************
*  U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616           *
*  (916) 440-2105 (FTS) 448-2105     *
**************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X          XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HUD-FIA H-4705
T2      BLOOMFIELD HILLS
T3      SODON LAKE BRANCH

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        4.         0.         0.  0.000000       0.00       -1.0        0.    818.660    0.000

NC       .085       .085       .055       .150       .350     0.000      0.000      0.000      0.000      0.000
QT      5.000    240.000    340.000    400.000    550.000   400.000      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

        ** CONFLUENCE WITH LONG LAKE - FOREST LAKE BRANCH

X1    399.800     10.000     48.000    220.000      0.000     0.000      0.000      0.000      0.000      0.000
GR    820.000      0.000    818.000     48.000    816.000    56.000    814.000     66.000    812.400    100.000
GR    812.400    170.000    814.000    208.000    816.000   216.000    818.000    220.000    820.000    280.000

X1    400.000     10.000     51.000    129.000    200.000   200.000    200.000      0.000      0.000      0.000
GR    822.000      0.000    821.800     30.000    821.200    51.000    820.000     60.000    812.100     72.000
GR    812.100     95.000    815.600    108.000    818.400   129.000    818.800    243.000    822.000    285.000
NC      0.000      0.000      0.000       .300       .500     0.000      0.000      0.000      0.000      0.000

        ** D/S FACE FOOTBRIDGE 401.2A

X1    401.200      0.000      0.000      0.000    200.000   200.000    200.000      0.000       .300      0.000
X3     10.000      0.000      0.000      0.000      0.000     0.000      0.000    816.100    816.100      0.000
SB      0.000      2.150      2.700    175.000      4.730     0.000     14.200      0.000    813.100    812.700

X1    401.220     11.000    131.000    291.000     96.000    96.000     96.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    816.100    819.500     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    819.500    819.500      0.000
GR    825.100      0.000    819.400    100.000    819.000   131.000    817.100    178.000    813.100    195.000
GR    813.100    225.000    817.000    250.000    818.500   270.000    822.100    291.000    823.700    331.000
GR    825.100    487.000      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000

X1    401.300      0.000      0.000      0.000      7.000     7.000      7.000      0.000      0.000      0.000

        ** D/S FACE ORCHARD RIDGE RD.

X1    400.980      0.000      0.000      0.000      8.000     8.000      8.000      0.000       .100      0.000
X3     10.000      0.000      0.000      0.000      0.000     0.000      0.000    817.400    817.400      0.000
SB      0.000      1.900      2.800    275.000      4.210     0.000     16.430      0.000    813.500    813.200
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X1	401.020	13.000	192.000	241.000	36.000	36.000	36.000	0.000	-.600	0.000
X2	0.000	0.000	1.000	817.400	819.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	819.400	819.400	0.000
GR	825.000	0.000	821.900	16.000	822.000	145.000	819.800	192.000	814.800	223.000
GR	814.100	226.000	814.100	230.000	814.800	233.000	816.600	241.000	815.900	296.000
GR	818.800	365.000	821.000	386.000	825.000	464.000	0.000	0.000	0.000	0.000
X1	401.800	0.000	0.000	0.000	75.000	75.000	75.000	0.000	.600	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	401.830	0.000	0.000	0.000	205.000	205.000	205.000	0.000	.400	0.000
X1	401.850	0.000	0.000	0.000	235.000	235.000	235.000	0.000	.500	0.000
X1	401.950	13.000	363.000	383.000	230.000	230.000	230.000	0.000	-.400	0.000
GR	826.000	0.000	821.500	257.000	818.000	333.000	817.200	363.000	816.200	371.000
GR	815.800	373.000	815.800	377.000	816.200	379.000	817.400	383.000	817.400	416.000
GR	820.200	496.000	820.700	542.000	826.000	656.000	0.000	0.000	0.000	0.000
X1	402.000	0.000	0.000	0.000	230.000	230.000	230.000	0.000	.400	0.000
QT	5.000	120.000	170.000	190.000	270.000	190.000	0.000	0.000	0.000	0.000
X1	402.100	0.000	0.000	0.000	225.000	225.000	225.000	0.000	1.900	0.000
X1	402.900	13.000	204.000	238.000	250.000	250.000	250.000	0.000	-2.800	0.000
GR	832.000	0.000	829.800	74.000	824.200	204.000	822.000	216.000	821.900	219.000
GR	821.900	222.000	822.000	225.000	823.500	238.000	824.700	296.000	826.400	324.000
GR	828.700	343.000	830.000	366.000	830.800	409.000	0.000	0.000	0.000	0.000
X1	403.200	0.000	0.000	0.000	250.000	250.000	250.000	0.000	2.800	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE VAUGHN RD.

X1	402.980	0.000	0.000	0.000	95.000	95.000	95.000	0.000	.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.000	825.000	0.000
SB	0.000	2.150	2.800	175.000	2.750	0.000	9.620	0.000	822.600	822.600
X1	403.020	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	825.000	828.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.100	828.100	0.000
X1	403.800	10.000	123.000	213.000	80.000	80.000	80.000	0.000	0.000	0.000
GR	832.000	0.000	827.800	40.000	825.500	123.000	823.500	136.000	821.000	154.000
GR	821.000	183.000	823.500	201.000	824.900	213.000	827.100	273.000	832.000	316.000
NC	.095	.095	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000

X1	404.000	10.000	131.000	245.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	834.000	0.000	828.100	50.000	828.000	131.000	823.500	158.000	822.200	183.000
GR	822.200	211.000	823.500	236.000	825.400	245.000	826.800	284.000	834.000	345.000
X1	405.200	12.000	146.000	175.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	835.000	0.000	829.000	32.000	829.000	101.000	826.100	118.000	826.000	146.000
GR	825.300	152.000	823.200	156.000	823.200	162.000	826.000	175.000	826.700	236.000
GR	829.000	293.000	835.000	338.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE LAHSER RD.

X1	404.980	0.000	0.000	0.000	75.000	75.000	75.000	0.000	-.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	823.900	823.900	0.000
SB	0.000	1.750	2.900	0.000	2.330	0.000	3.260	0.000	822.500	822.500
X1	405.020	12.000	151.000	191.000	45.000	45.000	45.000	0.000	-.200	0.000
X2	0.000	0.000	1.000	823.900	830.500	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	830.500	830.500	0.000
BT	6.000	0.000	835.400	0.000	73.000	832.200	0.000	145.000	830.500	0.000
BT	165.000	830.500	0.000	234.000	832.000	0.000	310.000	835.400	0.000	0.000
GR	835.000	0.000	833.000	50.000	830.200	98.000	825.400	151.000	823.600	162.000
GR	822.700	168.000	822.700	179.000	823.600	185.000	824.600	191.000	825.600	234.000
GR	831.100	257.000	835.000	293.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	405.800	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	405.810	0.000	0.000	0.000	250.000	250.000	250.000	0.000	-.100	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE DRIVEWAY BRIDGE 405A

X1	405.840	9.000	125.000	165.000	44.000	44.000	44.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.800	825.800	0.000
GR	836.600	0.000	830.600	50.000	828.200	100.000	825.000	125.000	822.600	145.000
GR	825.000	165.000	829.400	200.000	831.800	300.000	835.800	400.000	0.000	0.000
SB	0.000	2.550	3.000	0.000	4.030	0.000	14.100	0.000	822.600	822.600
X1	405.860	0.000	0.000	0.000	56.000	56.000	56.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	825.800	828.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.100	828.100	0.000
BT	7.000	0.000	836.600	0.000	50.000	830.600	0.000	100.000	828.200	0.000
BT	145.000	828.100	0.000	200.000	829.400	0.000	300.000	831.800	0.000	400.000
BT	835.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	405.990	14.000	238.000	295.000	100.000	100.000	100.000	0.000	-.300	0.000
GR	836.000	0.000	829.400	33.000	826.400	102.000	825.000	238.000	824.400	247.000
GR	823.600	251.000	823.100	259.000	823.600	266.000	827.000	285.000	827.900	295.000
GR	827.800	317.000	829.000	373.000	830.300	396.000	836.000	437.000	0.000	0.000
X1	406.000	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.300	0.000

X1	406.100	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.700	0.000
	** D/S STORM DRAIN									
X1	406.500	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.600	0.000
NC	.150	.150	.075	.500	1.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	50.000	80.000	100.000	150.000	100.000	0.000	0.000	0.000	0.000
X1	407.100	24.000	450.000	600.000	1.000	325.000	1.000	0.000	-2.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	838.000	0.000
GR	835.000	150.000	832.300	160.000	829.700	170.000	828.200	195.000	829.100	296.000
GR	830.000	320.000	831.800	345.000	838.000	346.000	838.000	449.000	831.800	450.000
GR	829.800	458.000	830.600	510.000	831.200	512.000	831.200	528.000	830.500	534.000
GR	830.600	560.000	834.400	600.000	838.000	601.000	838.000	646.000	834.400	647.000
GR	831.500	652.000	831.400	684.000	832.700	720.000	838.000	750.000	0.000	0.000
X1	407.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	838.000	0.000
X1	407.000	13.000	369.000	501.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	840.000	80.000	833.400	81.000	832.000	98.000	830.700	150.000	832.500	208.000
GR	832.900	234.000	832.300	286.000	840.000	287.000	840.000	369.000	831.400	370.000
GR	832.000	460.000	832.200	500.000	840.000	501.000	0.000	0.000	0.000	0.000
X1	407.800	11.000	424.000	600.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	840.400	344.000	839.000	375.000	834.100	406.000	832.800	424.000	832.500	510.000
GR	832.000	524.000	832.100	548.000	831.800	562.000	833.200	600.000	834.400	638.000
GR	840.000	639.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	408.000	13.000	712.000	805.000	325.000	325.000	325.000	0.000	0.000	0.000
GR	840.500	578.000	839.200	670.000	835.800	712.000	833.100	732.000	833.100	740.000
GR	835.200	745.000	835.100	770.000	833.600	774.000	836.300	805.000	838.600	830.000
GR	839.200	846.000	839.200	930.000	840.000	942.000	0.000	0.000	0.000	0.000
X1	409.000	10.000	83.000	200.000	475.000	475.000	475.000	0.000	0.000	0.000
GR	842.000	0.000	840.200	83.000	837.700	94.000	837.800	100.000	839.400	110.000
GR	839.000	132.000	837.800	136.000	838.600	200.000	838.900	258.000	840.600	300.000
X1	409.100	0.000	0.000	0.000	500.000	175.000	375.000	0.000	2.000	0.000
X1	409.500	21.000	212.000	340.000	150.000	250.000	150.000	0.000	-2.800	0.000
GR	850.000	0.000	846.000	35.000	846.000	75.000	845.500	92.000	845.500	118.000
GR	846.600	165.000	852.000	166.000	852.000	211.000	846.600	212.000	845.400	248.000
GR	845.700	265.000	845.400	275.000	843.700	280.000	847.000	295.000	848.200	340.000
GR	852.000	341.000	852.000	441.000	847.400	442.000	845.800	485.000	846.100	522.000
GR	852.000	523.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	410.000	0.000	0.000	0.000	150.000	250.000	150.000	0.000	2.800	0.000

** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

X1	410.100	0.000	0.000	0.000	125.000	50.000	50.000	0.000	1.500	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
399.800	0.00	0.00	0.00	812.40	400.00	818.66	0.00	818.66	.28	.44	928.88	753.70
399.800	0.00	0.00	0.00	812.40	400.00	819.60	0.00	819.60	.16	.37	1147.92	997.06
399.800	0.00	0.00	0.00	812.40	400.00	817.70	0.00	817.70	.54	.53	752.27	545.03
400.000	200.00	0.00	0.00	812.10	400.00	818.66	0.00	818.69	4.28	1.42	291.39	193.36
400.000	200.00	0.00	0.00	812.10	400.00	819.60	0.00	819.61	1.94	1.08	463.39	286.86
400.000	200.00	0.00	0.00	812.10	400.00	817.70	0.00	817.75	8.54	1.82	219.44	136.86
401.200	200.00	0.00	0.00	812.40	400.00	818.75	0.00	818.78	5.10	1.50	267.06	177.20
401.200	200.00	0.00	0.00	812.40	400.00	819.64	0.00	819.66	2.42	1.17	413.08	256.99
401.200	200.00	0.00	0.00	812.40	400.00	817.87	0.00	817.93	9.38	1.89	211.68	130.59
401.220	96.00	819.50	816.10	813.10	400.00	820.24	0.00	820.25	.96	.66	632.76	407.82
401.220	96.00	819.50	816.10	813.10	400.00	820.29	0.00	820.30	.92	.65	642.96	416.67
401.220	96.00	819.50	816.10	813.10	400.00	820.20	0.00	820.21	.99	.67	625.19	401.29
401.300	7.00	0.00	0.00	813.10	400.00	820.24	0.00	820.25	.97	.66	631.86	407.05
401.300	7.00	0.00	0.00	813.10	400.00	820.29	0.00	820.30	.93	.65	641.91	415.76
401.300	7.00	0.00	0.00	813.10	400.00	820.20	0.00	820.21	1.00	.67	624.56	400.75
400.980	8.00	0.00	0.00	813.20	400.00	820.24	0.00	820.25	1.05	.68	612.35	390.26
400.980	8.00	0.00	0.00	813.20	400.00	820.29	0.00	820.30	1.01	.67	622.45	398.93
400.980	8.00	0.00	0.00	813.20	400.00	820.20	0.00	820.21	1.09	.69	604.86	383.86
401.020	36.00	819.40	817.40	813.50	400.00	820.31	0.00	820.31	1.05	.74	756.84	390.75
401.020	36.00	819.40	817.40	813.50	400.00	820.36	0.00	820.36	1.01	.74	767.50	398.61
401.020	36.00	819.40	817.40	813.50	400.00	820.27	0.00	820.28	1.08	.75	748.70	384.77
401.800	75.00	0.00	0.00	814.10	400.00	820.32	0.00	820.33	1.76	.88	632.71	301.24
401.800	75.00	0.00	0.00	814.10	400.00	820.37	0.00	820.37	1.69	.87	642.43	308.11
401.800	75.00	0.00	0.00	814.10	400.00	820.28	0.00	820.29	1.83	.89	625.30	296.01
401.830	205.00	0.00	0.00	814.50	400.00	820.36	0.00	820.37	2.51	.98	562.55	252.33
401.830	205.00	0.00	0.00	814.50	400.00	820.41	0.00	820.42	2.40	.97	571.42	258.44
401.830	205.00	0.00	0.00	814.50	400.00	820.32	0.00	820.33	2.61	.99	555.80	247.69
401.850	235.00	0.00	0.00	815.00	400.00	820.43	0.00	820.44	3.90	1.15	485.50	202.67
401.850	235.00	0.00	0.00	815.00	400.00	820.47	0.00	820.49	3.76	1.13	491.61	206.39
401.850	235.00	0.00	0.00	815.00	400.00	820.40	0.00	820.41	4.04	1.17	479.57	199.09

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
401.950	230.00	0.00	0.00	815.40	400.00	820.51	0.00	820.52	3.26	1.32	585.86	221.65
401.950	230.00	0.00	0.00	815.40	400.00	820.55	0.00	820.56	3.10	1.29	597.20	227.05
401.950	230.00	0.00	0.00	815.40	400.00	820.48	0.00	820.49	3.36	1.33	578.82	218.32
402.000	230.00	0.00	0.00	815.80	400.00	820.60	0.00	820.62	4.74	1.51	503.16	183.69
402.000	230.00	0.00	0.00	815.80	400.00	820.64	0.00	820.65	4.53	1.49	512.75	188.00
402.000	230.00	0.00	0.00	815.80	400.00	820.57	0.00	820.59	4.91	1.53	496.12	180.52
402.100	225.00	0.00	0.00	817.70	190.00	820.74	0.00	820.77	16.76	1.98	170.10	46.42
402.100	225.00	0.00	0.00	817.70	190.00	820.77	0.00	820.80	15.74	1.94	174.41	47.89
402.100	225.00	0.00	0.00	817.70	190.00	820.71	0.00	820.75	17.57	2.02	166.90	45.33
402.900	250.00	0.00	0.00	819.10	190.00	821.45	0.00	821.61	81.85	3.31	67.56	21.00
402.900	250.00	0.00	0.00	819.10	190.00	821.44	0.00	821.61	82.51	3.32	67.32	20.92
402.900	250.00	0.00	0.00	819.10	190.00	821.45	0.00	821.61	81.22	3.30	67.79	21.08
403.200	250.00	0.00	0.00	821.90	190.00	824.02	823.58	824.26	139.98	3.99	52.77	16.06
403.200	250.00	0.00	0.00	821.90	190.00	824.03	823.58	824.27	139.15	3.98	52.92	16.11
403.200	250.00	0.00	0.00	821.90	190.00	824.02	823.58	824.26	140.77	3.99	52.64	16.01
402.980	95.00	0.00	0.00	822.60	190.00	825.04	0.00	825.17	65.66	3.08	74.56	23.45
402.980	95.00	0.00	0.00	822.60	190.00	825.04	0.00	825.17	65.64	3.08	74.57	23.45
402.980	95.00	0.00	0.00	822.60	190.00	825.04	0.00	825.17	65.67	3.08	74.56	23.45
403.020	30.00	828.10	825.00	822.60	190.00	828.43	0.00	828.43	.46	.54	596.11	279.60
403.020	30.00	828.10	825.00	822.60	190.00	828.43	0.00	828.43	.46	.54	596.11	279.59
403.020	30.00	828.10	825.00	822.60	190.00	828.43	0.00	828.43	.46	.54	596.11	279.60
403.800	80.00	0.00	0.00	821.00	190.00	828.43	0.00	828.43	.11	.30	843.34	564.87
403.800	80.00	0.00	0.00	821.00	190.00	828.43	0.00	828.43	.11	.30	843.34	564.86
403.800	80.00	0.00	0.00	821.00	190.00	828.43	0.00	828.43	.11	.30	843.35	564.87
404.000	300.00	0.00	0.00	822.20	190.00	828.44	0.00	828.44	.16	.32	697.50	468.57
404.000	300.00	0.00	0.00	822.20	190.00	828.44	0.00	828.44	.16	.32	697.50	468.57
404.000	300.00	0.00	0.00	822.20	190.00	828.44	0.00	828.44	.16	.32	697.50	468.57
405.200	250.00	0.00	0.00	823.20	190.00	828.44	0.00	828.45	1.97	.93	362.62	135.51
405.200	250.00	0.00	0.00	823.20	190.00	828.44	0.00	828.45	1.97	.93	362.62	135.51
405.200	250.00	0.00	0.00	823.20	190.00	828.44	0.00	828.45	1.97	.93	362.62	135.51
404.980	75.00	0.00	0.00	822.50	190.00	828.46	0.00	828.46	.88	.70	504.51	202.11
404.980	75.00	0.00	0.00	822.50	190.00	828.46	0.00	828.46	.88	.70	504.50	202.11
404.980	75.00	0.00	0.00	822.50	190.00	828.46	0.00	828.46	.88	.70	504.51	202.12
405.020	45.00	830.50	823.90	822.50	190.00	831.52	0.00	831.52	.09	.33	919.04	624.05
405.020	45.00	830.50	823.90	822.50	190.00	831.52	0.00	831.52	.09	.33	919.04	624.05
405.020	45.00	830.50	823.90	822.50	190.00	831.52	0.00	831.52	.09	.33	919.04	624.05
405.800	50.00	0.00	0.00	822.70	190.00	831.52	0.00	831.52	.10	.34	881.65	591.79
405.800	50.00	0.00	0.00	822.70	190.00	831.52	0.00	831.52	.10	.34	881.65	591.79
405.800	50.00	0.00	0.00	822.70	190.00	831.52	0.00	831.52	.10	.34	881.65	591.79
405.810	250.00	0.00	0.00	822.60	190.00	831.52	0.00	831.52	.10	.34	900.42	607.98
405.810	250.00	0.00	0.00	822.60	190.00	831.52	0.00	831.52	.10	.34	900.42	607.98
405.810	250.00	0.00	0.00	822.60	190.00	831.52	0.00	831.52	.10	.34	900.42	607.98

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK*S	VCH	AREA	.01K
	405.840	44.00	0.00	0.00	822.60	190.00	831.52	0.00	831.53	.15	.41	787.16	485.66
	405.840	44.00	0.00	0.00	822.60	190.00	831.52	0.00	831.53	.15	.41	787.16	485.66
	405.840	44.00	0.00	0.00	822.60	190.00	831.52	0.00	831.53	.15	.41	787.16	485.66
	405.860	56.00	828.10	825.80	822.60	190.00	831.54	0.00	831.55	.15	.41	792.67	489.12
	405.860	56.00	828.10	825.80	822.60	190.00	831.54	0.00	831.55	.15	.41	792.67	489.12
	405.860	56.00	828.10	825.80	822.60	190.00	831.54	0.00	831.55	.15	.41	792.67	489.12
	405.990	100.00	0.00	0.00	822.80	190.00	831.55	0.00	831.55	.03	.18	1854.58	1045.67
	405.990	100.00	0.00	0.00	822.80	190.00	831.55	0.00	831.55	.03	.18	1854.58	1045.67
	405.990	100.00	0.00	0.00	822.80	190.00	831.55	0.00	831.55	.03	.18	1854.58	1045.67
	406.000	250.00	0.00	0.00	823.10	190.00	831.55	0.00	831.55	.04	.19	1740.54	953.14
	406.000	250.00	0.00	0.00	823.10	190.00	831.55	0.00	831.55	.04	.19	1740.54	953.14
	406.000	250.00	0.00	0.00	823.10	190.00	831.55	0.00	831.55	.04	.19	1740.54	953.14
	406.100	300.00	0.00	0.00	824.80	190.00	831.55	0.00	831.55	.14	.29	1108.46	502.88
	406.100	300.00	0.00	0.00	824.80	190.00	831.55	0.00	831.55	.14	.29	1108.46	502.88
	406.100	300.00	0.00	0.00	824.80	190.00	831.55	0.00	831.55	.14	.29	1108.46	502.88
	406.500	300.00	0.00	0.00	826.40	190.00	831.56	0.00	831.56	.75	.51	586.92	218.92
	406.500	300.00	0.00	0.00	826.40	190.00	831.56	0.00	831.56	.75	.51	586.92	218.92
	406.500	300.00	0.00	0.00	826.40	190.00	831.56	0.00	831.56	.75	.51	586.92	218.92
	407.100	1.00	0.00	0.00	825.70	100.00	831.56	0.00	831.56	.05	.09	1351.72	447.29
	407.100	1.00	0.00	0.00	825.70	100.00	831.56	0.00	831.56	.05	.09	1351.72	447.29
	407.100	1.00	0.00	0.00	825.70	100.00	831.56	0.00	831.56	.05	.09	1351.72	447.29
	407.200	200.00	0.00	0.00	829.80	100.00	831.56	0.00	831.58	17.41	.83	120.44	23.97
	407.200	200.00	0.00	0.00	829.80	100.00	831.56	0.00	831.58	17.41	.83	120.44	23.97
	407.200	200.00	0.00	0.00	829.80	100.00	831.56	0.00	831.58	17.41	.83	120.44	23.97
	407.000	150.00	0.00	0.00	830.70	100.00	832.10	0.00	832.12	113.34	1.02	109.36	9.39
	407.000	150.00	0.00	0.00	830.70	100.00	832.10	0.00	832.12	113.34	1.02	109.36	9.39
	407.000	150.00	0.00	0.00	830.70	100.00	832.10	0.00	832.12	113.34	1.02	109.36	9.39
	407.800	50.00	0.00	0.00	831.80	100.00	832.82	0.00	832.86	187.80	1.49	67.21	7.30
	407.800	50.00	0.00	0.00	831.80	100.00	832.82	0.00	832.86	187.80	1.49	67.21	7.30
	407.800	50.00	0.00	0.00	831.80	100.00	832.82	0.00	832.86	187.80	1.49	67.21	7.30
	408.000	325.00	0.00	0.00	833.10	100.00	835.46	0.00	835.49	44.74	1.28	77.90	14.95
	408.000	325.00	0.00	0.00	833.10	100.00	835.46	0.00	835.49	44.74	1.28	77.90	14.95
	408.000	325.00	0.00	0.00	833.10	100.00	835.46	0.00	835.49	44.74	1.28	77.90	14.95
	409.000	475.00	0.00	0.00	837.70	100.00	838.86	0.00	838.90	131.96	1.73	62.98	8.71
	409.000	475.00	0.00	0.00	837.70	100.00	838.86	0.00	838.90	131.96	1.73	62.98	8.71
	409.000	475.00	0.00	0.00	837.70	100.00	838.86	0.00	838.90	131.96	1.73	62.98	8.71
	409.100	375.00	0.00	0.00	839.70	100.00	841.16	0.00	841.18	35.91	1.08	110.65	16.69
	409.100	375.00	0.00	0.00	839.70	100.00	841.16	0.00	841.18	35.91	1.08	110.65	16.69
	409.100	375.00	0.00	0.00	839.70	100.00	841.16	0.00	841.18	35.91	1.08	110.65	16.69
*	409.500	150.00	0.00	0.00	840.90	100.00	842.94	842.94	843.17	1235.50	3.98	31.12	2.84
*	409.500	150.00	0.00	0.00	840.90	100.00	842.94	842.94	843.17	1235.50	3.98	31.12	2.84
*	409.500	150.00	0.00	0.00	840.90	100.00	842.94	842.94	843.17	1235.50	3.98	31.12	2.84

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG-	10K*S	VCH	AREA	.01K
410.000	150.00	0.00	0.00	843.70	100.00	846.22	0.00	846.25	76.40	1.42	108.64	11.44
410.000	150.00	0.00	0.00	843.70	100.00	846.22	0.00	846.25	76.40	1.42	108.64	11.44
410.000	150.00	0.00	0.00	843.70	100.00	846.22	0.00	846.25	76.40	1.42	108.64	11.44
410.100	50.00	0.00	0.00	845.20	100.00	847.32	0.00	847.46	680.29	3.21	39.61	3.83
410.100	50.00	0.00	0.00	845.20	100.00	847.32	0.00	847.46	680.29	3.21	39.61	3.83
410.100	50.00	0.00	0.00	845.20	100.00	847.32	0.00	847.46	680.29	3.21	39.61	3.83

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
399.800	400.00	818.66	0.00	0.00	0.00	207.64	0.00
399.800	400.00	819.60	.94	0.00	0.00	258.40	0.00
399.800	400.00	817.70	-1.90	0.00	0.00	170.20	0.00
400.000	400.00	818.66	0.00	-.00	0.00	142.68	200.00
400.000	400.00	819.60	.94	-.00	0.00	192.94	200.00
400.000	400.00	817.70	-1.90	-.00	0.00	60.29	200.00
401.200	400.00	818.75	0.00	.09	0.00	80.11	200.00
401.200	400.00	819.64	.89	.04	0.00	189.08	200.00
401.200	400.00	817.87	-1.77	.18	0.00	59.12	200.00
401.220	400.00	820.24	0.00	1.49	0.00	195.06	96.00
401.220	400.00	820.29	.05	.65	0.00	196.28	96.00
401.220	400.00	820.20	-.09	2.33	0.00	194.15	96.00
401.300	400.00	820.24	0.00	.00	0.00	194.95	7.00
401.300	400.00	820.29	.05	.00	0.00	196.15	7.00
401.300	400.00	820.20	-.09	.00	0.00	194.07	7.00
400.980	400.00	820.24	0.00	.00	0.00	192.60	8.00
400.980	400.00	820.29	.05	.00	0.00	193.82	8.00
400.980	400.00	820.20	-.09	.00	0.00	191.69	8.00
401.020	400.00	820.31	0.00	.07	0.00	216.98	36.00
401.020	400.00	820.36	.05	.06	0.00	218.50	36.00
401.020	400.00	820.27	-.09	.07	0.00	215.82	36.00
401.800	400.00	820.32	0.00	.01	0.00	198.51	75.00
401.800	400.00	820.37	.05	.01	0.00	200.02	75.00
401.800	400.00	820.28	-.09	.01	0.00	197.36	75.00
401.830	400.00	820.36	0.00	.04	0.00	187.27	205.00
401.830	400.00	820.41	.05	.04	0.00	188.73	205.00
401.830	400.00	820.32	-.08	.04	0.00	186.16	205.00
401.850	400.00	820.43	0.00	.07	0.00	178.29	235.00
401.850	400.00	820.47	.04	.07	0.00	178.83	235.00
401.850	400.00	820.40	-.08	.07	0.00	177.76	235.00
401.950	400.00	820.51	0.00	.08	0.00	276.42	230.00
401.950	400.00	820.55	.04	.08	0.00	278.19	230.00
401.950	400.00	820.48	-.07	.09	0.00	275.31	230.00
402.000	400.00	820.60	0.00	.09	0.00	255.73	230.00
402.000	400.00	820.64	.04	.08	0.00	259.96	230.00
402.000	400.00	820.57	-.06	.09	0.00	252.58	230.00
402.100	190.00	820.74	0.00	.14	0.00	142.13	225.00
402.100	190.00	820.77	.03	.13	0.00	143.65	225.00
402.100	190.00	820.71	-.05	.14	0.00	141.00	225.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
402.900	190.00	821.45	0.00	.71	0.00	71.20	250.00
402.900	190.00	821.44	-.00	.68	0.00	70.96	250.00
402.900	190.00	821.45	.01	.74	0.00	71.43	250.00
403.200	190.00	824.02	0.00	2.58	0.00	57.99	250.00
403.200	190.00	824.03	.00	2.58	0.00	58.12	250.00
403.200	190.00	824.02	-.01	2.57	0.00	57.86	250.00
402.980	190.00	825.04	0.00	1.01	0.00	77.92	95.00
402.980	190.00	825.04	-.00	1.01	0.00	77.93	95.00
402.980	190.00	825.04	.00	1.02	0.00	77.91	95.00
403.020	190.00	828.43	0.00	3.39	0.00	212.95	30.00
403.020	190.00	828.43	-.00	3.39	0.00	212.95	30.00
403.020	190.00	828.43	.00	3.39	0.00	212.95	30.00
403.800	190.00	828.43	0.00	.00	0.00	250.70	80.00
403.800	190.00	828.43	-.00	.00	0.00	250.70	80.00
403.800	190.00	828.43	.00	.00	0.00	250.70	80.00
404.000	190.00	828.44	0.00	.00	0.00	250.78	300.00
404.000	190.00	828.44	-.00	.00	0.00	250.78	300.00
404.000	190.00	828.44	.00	.00	0.00	250.78	300.00
405.200	190.00	828.44	0.00	.01	0.00	174.80	250.00
405.200	190.00	828.44	-.00	.01	0.00	174.80	250.00
405.200	190.00	828.44	.00	.01	0.00	174.80	250.00
404.980	190.00	828.46	0.00	.01	0.00	262.91	75.00
404.980	190.00	828.46	-.00	.01	0.00	262.91	75.00
404.980	190.00	828.46	.00	.01	0.00	262.91	75.00
405.020	190.00	831.52	0.00	3.07	0.00	190.83	45.00
405.020	190.00	831.52	-.00	3.07	0.00	190.83	45.00
405.020	190.00	831.52	.00	3.07	0.00	190.83	45.00
405.800	190.00	831.52	0.00	.00	0.00	185.59	50.00
405.800	190.00	831.52	-.00	.00	0.00	185.59	50.00
405.800	190.00	831.52	.00	.00	0.00	185.59	50.00
405.810	190.00	831.52	0.00	.00	0.00	188.24	250.00
405.810	190.00	831.52	-.00	.00	0.00	188.24	250.00
405.810	190.00	831.52	.00	.00	0.00	188.24	250.00
405.840	190.00	831.52	0.00	.00	0.00	246.20	44.00
405.840	190.00	831.52	-.00	.00	0.00	246.20	44.00
405.840	190.00	831.52	.00	.00	0.00	246.20	44.00
405.860	190.00	831.54	0.00	.02	0.00	247.32	56.00
405.860	190.00	831.54	-.00	.02	0.00	247.32	56.00
405.860	190.00	831.54	.00	.02	0.00	247.32	56.00
405.990	190.00	831.55	0.00	.00	0.00	386.35	100.00
405.990	190.00	831.55	-.00	.00	0.00	386.35	100.00
405.990	190.00	831.55	.00	.00	0.00	386.35	100.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	406.000	190.00	831.55	0.00	.00	0.00	382.74	250.00
	406.000	190.00	831.55	-.00	.00	0.00	382.74	250.00
	406.000	190.00	831.55	.00	.00	0.00	382.74	250.00
	406.100	190.00	831.55	0.00	.00	0.00	357.27	300.00
	406.100	190.00	831.55	-.00	.00	0.00	357.27	300.00
	406.100	190.00	831.55	.00	.00	0.00	357.27	300.00
	406.500	190.00	831.56	0.00	.01	0.00	278.74	300.00
	406.500	190.00	831.56	-.00	.01	0.00	278.74	300.00
	406.500	190.00	831.56	.00	.01	0.00	278.74	300.00
	407.100	100.00	831.56	0.00	.00	0.00	338.70	1.00
	407.100	100.00	831.56	-.00	.00	0.00	338.70	1.00
	407.100	100.00	831.56	.00	.00	0.00	338.70	1.00
	407.200	100.00	831.56	0.00	.00	0.00	119.28	200.00
	407.200	100.00	831.56	-.00	.00	0.00	119.28	200.00
	407.200	100.00	831.56	.00	.00	0.00	119.28	200.00
	407.000	100.00	832.10	0.00	.54	0.00	210.38	150.00
	407.000	100.00	832.10	.00	.54	0.00	210.38	150.00
	407.000	100.00	832.10	-.00	.54	0.00	210.38	150.00
	407.800	100.00	832.82	0.00	.72	0.00	165.92	50.00
	407.800	100.00	832.82	-.00	.72	0.00	165.92	50.00
	407.800	100.00	832.82	.00	.72	0.00	165.92	50.00
	408.000	100.00	835.46	0.00	2.64	0.00	80.79	325.00
	408.000	100.00	835.46	.00	2.64	0.00	80.79	325.00
	408.000	100.00	835.46	-.00	2.64	0.00	80.79	325.00
	409.000	100.00	838.86	0.00	3.40	0.00	134.30	475.00
	409.000	100.00	838.86	.00	3.40	0.00	134.30	475.00
	409.000	100.00	838.86	-.00	3.40	0.00	134.30	475.00
	409.100	100.00	841.16	0.00	2.31	0.00	163.22	375.00
	409.100	100.00	841.16	.00	2.31	0.00	163.22	375.00
	409.100	100.00	841.16	-.00	2.31	0.00	163.22	375.00
*	409.500	100.00	842.94	0.00	1.78	0.00	96.35	150.00
*	409.500	100.00	842.94	.00	1.78	0.00	96.35	150.00
*	409.500	100.00	842.94	-.00	1.78	0.00	96.35	150.00
	410.000	100.00	846.22	0.00	3.28	0.00	231.33	150.00
	410.000	100.00	846.22	-.00	3.28	0.00	231.33	150.00
	410.000	100.00	846.22	.00	3.28	0.00	231.33	150.00
	410.100	100.00	847.32	0.00	1.10	0.00	109.79	50.00
	410.100	100.00	847.32	.00	1.10	0.00	109.79	50.00
	410.100	100.00	847.32	-.00	1.10	0.00	109.79	50.00

SUMMARY OF ERRORS

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CAUTION   SECNO=   409.500   PROFILE= 1   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   409.500   PROFILE= 1   SLOPE TOO STEEP
CAUTION   SECNO=   409.500   PROFILE= 2   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   409.500   PROFILE= 2   SLOPE TOO STEEP
CAUTION   SECNO=   409.500   PROFILE= 3   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   409.500   PROFILE= 3   SLOPE TOO STEEP
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1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SQUAW LAKE DRAIN

4) DOCUMENT TYPE: FLOODWAY UPSTREAM STORM DRAIN



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**************************************************
*  WATER SURFACE PROFILES                        *
*  VERSION OF NOVEMBER 1976                      *
*  UPDATED JULY 1979                             *
*                                                *
*  RUN DATE  08/21/80  TIME .14.43.49.           *
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**************************************
*  U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616           *
*  (916) 440-2105 (FTS) 448-2105     *
**************************************
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X      X  XXXXXXX   XXXXX              XXXXX
X      X  X        X     X            X     X
X      X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X      X  X        X                  X
X      X  X        X     X            X
X      X  XXXXXXX   XXXXX              XXXXXXX
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HUD-FIA H-4705
T2      BLOOMFIELD HILLS
T3      SODON LAKE BRANCH

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        4.         0.         0.  0.000000       0.00      -1.0         0.    842.940      0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    200.000      0.000   150.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

QT      5.000     50.000     80.000    100.000    150.000    100.000      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       .150       .150       .075       .500      1.000      0.000      0.000      0.000      0.000      0.000

X1    409.500     21.000    212.000    340.000      0.000      0.000      0.000      0.000     -2.800      0.000
GR    850.000      0.000    846.000     35.000    846.000     75.000    845.500     92.000    845.500    118.000
GR    846.600    165.000    852.000    166.000    852.000    211.000    846.600    212.000    845.400    248.000
GR    845.700    265.000    845.400    275.000    843.700    280.000    847.000    295.000    848.200    340.000
GR    852.000    341.000    852.000    441.000    847.400    442.000    845.800    485.000    846.100    522.000
GR    852.000    523.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    410.000      0.000      0.000      0.000    150.000    250.000    150.000      0.000      2.800      0.000

        ** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

X1    410.100      0.000      0.000      0.000    125.000     50.000     50.000      0.000      1.500      0.000
QT      5.000     35.000     40.000     45.000     50.000     45.000      0.000      0.000      0.000      0.000
NC       .080       .080       .035       .300       .500      0.000      0.000      0.000      0.000      0.000

X1    411.100      7.000     30.000    830.000      1.000      1.000      1.000      0.000      0.000      0.000
GR    855.000      0.000    843.700     30.000    842.300     45.000    842.300    815.000    843.700    830.000
GR    846.200    840.000    855.000    890.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    411.120      0.000      0.000      0.000    175.000    175.000    175.000      0.000      0.000      0.000

X1    411.140      7.000     30.000    100.000     50.000    200.000     50.000      0.000      0.000      0.000
GR    855.000      0.000    843.700     30.000    842.300     45.000    842.300     85.000    843.700    100.000
GR    846.200    110.000    855.000    160.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    411.200      0.000      0.000      0.000    125.000    125.000    125.000      0.000      0.000      0.000
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X1    411.220      6.000     30.000     80.000     70.000     70.000     70.000      0.000      0.000      0.000
GR    855.000      0.000    843.700     30.000    842.300     45.000    842.300     70.000    843.700     80.000
GR    855.000    116.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        ** D/S FACE CULVERT BETWEEN LAKES

X1    410.980      0.000      0.000      0.000     75.000     75.000     75.000      0.000      0.000      0.000
X3     10.000      0.000      0.000     33.000      0.000     43.000      0.000      0.000      0.000      0.000
SB      0.000      1.900      2.900      0.000      3.000      0.000      7.100      0.000    844.400    842.300

X1    411.020     10.000     42.000     84.000     55.000     55.000     55.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    847.500    853.600      0.000      0.000      0.000      0.000      0.000
X3     10.000      0.000      0.000     62.000      0.000     72.000      0.000      0.000      0.000      0.000
BT      6.000      0.000    855.900      0.000     32.000    855.100      0.000     60.000    853.600      0.000
BT     74.000    853.700      0.000     97.000    854.400      0.000    116.000    855.900      0.000      0.000
GR    855.000      0.000    852.400     10.000    849.800     32.000    849.300     42.000    847.000     60.000
GR    847.000     74.000    849.300     84.000    850.500     97.000    852.400    112.000    855.000    116.000

X1    411.800     10.000     32.000    122.000     50.000     50.000     50.000      0.000      0.000      0.000
GR    855.000      0.000    852.400     10.000    849.800     32.000    849.300     42.000    847.000     60.000
GR    847.000    110.000    849.300    122.000    849.600    130.000    852.400    135.000    855.000    150.000

X1    411.900      6.000     22.000    222.000    225.000    225.000    225.000      0.000      0.000      0.000
GR    855.000      0.000    849.300     22.000    847.000     30.000    847.000    214.000    849.300    222.000
GR    855.000    248.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    412.000      0.000      0.000      0.000    250.000    250.000    250.000      0.000      0.000      0.000

X1    412.100      0.000      0.000      0.000    300.000    300.000    300.000      0.000      0.000      0.000

X1    413.200     10.000     90.000    121.000    300.000    300.000    300.000      0.000      0.000      0.000
GR    855.000      0.000    852.600     47.000    852.200     90.000    849.300    100.000    847.000    109.000
GR    849.300    117.000    851.900    121.000    852.800    137.000    853.400    158.000    855.000    187.000
NC      0.000      0.000       .045       .200       .400      0.000      0.000      0.000      0.000      0.000

X1    412.830      0.000      0.000      0.000     43.000     43.000     43.000      0.000      1.200      0.000

        ** D/S FACE FOOTBRIDGE 412A

X1    412.840      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    853.500    854.200      0.000      0.000      0.000      0.000      0.000

X1    412.860      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    853.500    854.200      0.000      0.000      0.000      0.000      0.000

X1    412.870      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000
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** D/S FACE SUNNINGDALE

X1	412.980	0.000	0.000	0.000	90.000	90.000	90.000	0.000	.500	0.000
X3	10.000	0.000	0.000	104.000	0.000	114.000	0.000	0.000	0.000	0.000
SB	0.000	2.900	2.900	0.000	4.100	0.000	12.300	0.000	848.800	847.500
X1	413.020	9.000	47.000	83.000	190.000	190.000	190.000	0.000	-1.400	0.000
X2	0.000	0.000	1.000	850.000	862.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	65.000	0.000	74.000	0.000	0.000	0.000	0.000
BT	7.000	0.000	872.000	0.000	95.000	866.200	0.000	144.000	864.200	0.000
BT	200.000	862.800	0.000	255.000	864.100	0.000	322.000	866.900	0.000	400.000
BT	872.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	865.000	0.000	858.000	47.000	853.500	57.000	850.200	65.000	850.200	74.000
GR	853.500	82.000	856.200	83.000	850.600	131.000	865.000	163.000	0.000	0.000
X1	413.500	0.000	0.000	0.000	20.000	20.000	20.000	0.000	1.300	0.000

** D/S FACE DAM 413A

X1	413.520	7.000	47.000	83.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	865.000	0.000	858.000	47.000	853.900	57.000	853.900	82.000	856.200	83.000
GR	860.600	131.000	865.000	163.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	413.530	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
X1	413.550	9.000	47.000	83.000	1.000	1.000	1.000	0.000	.400	0.000
GR	865.000	0.000	858.000	47.000	853.500	57.000	850.200	65.000	850.200	74.000
GR	853.500	82.000	856.200	83.000	850.600	131.000	865.000	163.000	0.000	0.000
X1	413.800	0.000	0.000	0.000	100.000	100.000	100.000	0.000	-.400	0.000

** D/S FACE CULVERT PARALLEL TO SOUTH WILLOWAY COURT

X1	413.980	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.800	0.000
X3	10.000	0.000	0.000	65.000	0.000	74.000	0.000	0.000	0.000	0.000
SB	0.000	3.000	2.750	0.000	4.800	0.000	14.870	0.000	853.500	852.500
X1	414.020	9.000	237.000	300.000	145.000	145.000	145.000	0.000	-.500	0.000
X2	0.000	0.000	1.000	854.000	863.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	260.000	0.000	271.000	0.000	0.000	0.000	0.000
BT	7.000	27.000	867.200	0.000	45.000	863.800	0.000	57.000	863.800	0.000
BT	73.000	866.100	0.000	90.000	854.900	0.000	111.000	864.600	0.000	170.000
BT	867.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	861.600	100.000	861.400	170.000	858.900	237.000	855.600	258.000	854.000	260.000
GR	854.000	271.000	855.800	274.000	858.400	300.000	860.000	322.000	0.000	0.000
X1	414.800	0.000	0.000	0.000	105.000	105.000	105.000	0.000	.500	0.000
X1	414.850	0.000	0.000	0.000	125.000	125.000	125.000	0.000	.500	0.000

X1	414.980	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.500	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .500 CEHV= 1.000
*SECNO 409.500

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3720 CRITICAL DEPTH ASSUMED									
409.50	2.08	842.98	842.98	842.94	843.16	.18	0.00	0.00	843.80
100.	12.	88.	0.	10.	24.	0.	0.	0.	845.40
0.00	1.16	3.62	0.00	.150	.075	.150	0.000	840.90	82.49
.094897	0.	0.	0.	0	4	0	0.00	100.30	289.45

*SECNO 410.000

3265 DIVIDED FLOW

410.00	2.50	846.20	0.00	0.00	846.22	.02	2.98	.08	846.60
100.	24.	72.	4.	44.	50.	11.	0.	1.	848.20
.04	.54	1.46	.35	.150	.075	.150	.074	843.70	33.26
.008225	150.	150.	250.	13	0	0	0.00	229.64	522.02

*SECNO 410.100

3265 DIVIDED FLOW

** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

410.10	2.14	847.34	0.00	0.00	847.47	.13	1.14	.11	848.10
100.	14.	86.	0.	13.	28.	0.	0.	1.	849.70
.04	1.06	3.12	.02	.150	.075	.150	.069	845.20	80.47
.062991	125.	50.	50.	5	0	0	0.00	112.83	489.84

CCHV= .300 CEHV= .500
*SECNO 411.100

411.10	5.21	847.51	0.00	0.00	847.51	.00	.00	.04	843.70
45.	0.	45.	0.	19.	4148.	30.	0.	1.	843.70
.07	.00	.01	.00	.080	.035	.080	.068	842.30	19.88
.000000	1.	1.	1.	2	0	0	0.00	827.57	847.45

*SECNO 411.120

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
411.12	5.21	847.51	0.00	0.00	847.51	.00	.00	.00	843.70

45.	0.	45.	0.	19.	4148.	30.	17.	4.	843.70
4.57	.00	.01	.00	.080	.035	.080	.053	842.30	19.88
.000000	175.	175.	175.	2	0	0	0.00	827.57	847.45

*SECNO 411.140

411.14	5.21	847.51	0.00	0.00	847.51	.00	.00	.00	843.70
45.	1.	43.	1.	19.	344.	30.	20.	5.	843.70
4.69	.03	.13	.03	.080	.035	.080	.051	842.30	19.88
.000001	50.	50.	200.	0	0	0	0.00	97.57	117.45

*SECNO 411.200

411.20	5.21	847.51	0.00	0.00	847.51	.00	.00	.00	843.70
45.	1.	43.	1.	19.	344.	30.	21.	5.	843.70
4.97	.03	.13	.03	.080	.035	.080	.047	842.30	19.88
.000001	125.	125.	125.	0	0	0	0.00	97.57	117.45

*SECNO 411.220

411.22	5.21	847.51	0.00	0.00	847.51	.00	.00	.00	843.70
45.	1.	43.	1.	19.	243.	23.	22.	5.	843.70
5.08	.04	.18	.04	.080	.035	.080	.046	842.30	19.88
.000002	70.	70.	70.	0	0	0	0.00	72.26	92.14

*SECNO 410.980

3470 ENCROACHMENT STATIONS= 33.0 43.0 TYPE= 1 TARGET= 10.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100300.00 ELREA= 100000.00

** D/S FACE CULVERT BETWEEN LAKES

410.98	5.02	847.50	0.00	0.00	847.52	.02	.00	.01100000.00	
45.	0.	45.	0.	0.	46.	0.	22.	5. 100000.00	
5.10	0.00	.99	0.00	.080	.035	.080	.045	842.49	33.00
.000170	75.	75.	75.	0	0	0	0.00	10.00	43.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.90	2.90	0.00	3.00	0.00	7.10	0.00	844.40	842.30

*SECNO 411.020

PRESS FLOW BECAUSE EGLWC OF 849.47 EXCEEDS 1.5 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

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
848.69	849.47	0.00	0.	45.	7.	9.	847.50	853.60

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3470 ENCROACHMENT STATIONS=      62.0      72.0  TYPE=      1  TARGET=      10.000

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

   411.02      1.56   848.56      0.00      0.00   848.69      .13      1.17      0.00100000.00
     45.         0.     45.         0.        0.     16.        0.       22.        5. 100000.00
     5.11      0.00     2.88      0.00      .080     .035     .080     .044    847.00     62.00
  .003652       55.      55.       55.         2        0        0     0.00     10.00     72.00


*SECNO 411.800
   411.80      1.73   848.73      0.00      0.00   848.74      .00      .01       .04    849.80
     45.         0.     45.         0.        0.     106.        0.       22.        5.    849.30
     5.14      0.00      .42      0.00      .080     .035     .080     .043    847.00     46.43
  .000060       50.      50.       50.         2        0        0     0.00     72.62    119.05


*SECNO 411.900
   411.90      1.74   848.74      0.00      0.00   848.74      .00      .00       .00    849.30
     45.         0.     45.         0.        0.     331.        0.       23.        6.    849.30
     5.60      0.00      .14      0.00      .080     .035     .080     .042    847.00     23.95
  .000005      225.     225.      225.         2        0        0     0.00    196.10    220.05


*SECNO 412.000
   412.00      1.74   848.74      0.00      0.00   848.74      .00      .00       .00    849.30
     45.         0.     45.         0.        0.     332.        0.       25.        7.    849.30
     6.11      0.00      .14      0.00      .080     .035     .080     .040    847.00     23.92
  .000005      250.     250.      250.         0        0        0     0.00    196.16    220.08


*SECNO 412.100
   412.10      1.74   848.74      0.00      0.00   848.74      .00      .00       .00    849.30
     45.         0.     45.         0.        0.     331.        0.       27.        9.    849.30
     6.73      0.00      .14      0.00      .080     .035     .080     .039    847.00     23.94
  .000005      300.     300.      300.         0        0        0     0.00    196.12    220.06


*SECNO 413.200
     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


7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   413.20      1.55   848.55    848.55      0.00   848.95      .40      .01       .20    852.20
     45.         0.     45.         0.        0.      9.        0.       29.        9.    851.90
     6.74      0.00     5.07      0.00      .080     .035     .080     .039    847.00    102.93
  .020986      300.     300.      300.         3       15        0     0.00     11.46    114.39


CCHV=     .200 CEHV=     .400
*SECNO 412.830
     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
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   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   412.83     1.55    849.75    849.75      0.00    850.15      .40      1.14       .00     853.40
     45.       0.       45.       0.         0.       9.         0.       29.        9.      853.10
     6.74     0.00     5.04      0.00       .080     .045       .080     .039     848.20    102.92
  .034259      43.      43.       43.         2        5          0      0.00      11.48    114.40

*SECNO 412.840

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  854.20 MAX ELLC=  853.50

         ** D/S FACE FOOTBRIDGE 412A

   412.84     1.78    849.98    849.75      0.00    850.21      .23       .02       .03     853.40
     45.       0.       45.       0.         0.       12.        0.       29.        9.      853.10
     6.74     0.00     3.81      0.00       .080     .045       .080     .039     848.20    102.01
  .016219      1.       1.        1.         13       13          0      0.00      13.21    115.22

*SECNO 412.860

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  854.20 MAX ELLC=  853.50

   412.86     1.91    850.11      0.00      0.00    850.28      .17       .07       .01     853.40
     45.       0.       45.       0.         0.       13.        0.       29.        9.      853.10
     6.75     0.00     3.35      0.00       .080     .045       .080     .039     848.20    101.54
  .011513      5.       5.        5.         0        0          0      0.00      14.09    115.63

*SECNO 412.870
   412.87     1.93    850.13      0.00      0.00    850.30      .17       .01       .00     853.40
     45.       0.       45.       0.         0.       14.        0.       29.        9.      853.10
     6.75     0.00     3.29      0.00       .080     .045       .080     .039     848.20    101.48
  .010986      1.       1.        1.         0        0          0      0.00      14.21    115.69

CCHV=    .300 CEHV=    .500
*SECNO 412.980
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     104.0     114.0  TYPE=      1  TARGET=      10.000

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

         ** D/S FACE SUNNINGDALE

   412.98     2.19    850.89      0.00      0.00    851.03      .14       .72      .01100000.00
     45.       0.       45.       0.         0.       15.        0.       29.        9. 100000.00
     6.75     0.00     3.00      0.00       .080     .045       .080     .039     848.70    104.00
  .006105      90.      90.       90.         2        0          0      0.00      10.00    114.00
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SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.90	2.90	0.00	4.10	0.00	12.30	0.00	848.80	847.50

*SECNO 413.020
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
851.49	851.07	0.00	0.	45.	12.	5.	850.00	862.60

3470 ENCROACHMENT STATIONS= 65.0 74.0 TYPE= 1 TARGET= 9.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99998.60 ELREA= 99998.60

413.02	2.63	851.43	0.00	0.00	851.49	.06	.46	0.00	99998.60
45.	0.	45.	0.	0.	24.	0.	29.	9.	99998.60
6.78	0.00	1.90	0.00	.080	.045	.080	.039	848.80	65.00
.001681	190.	190.	190.	2	0	0	0.00	9.00	74.00

*SECNO 413.500

413.50	1.36	851.46	0.00	0.00	851.58	.11	.06	.03	857.90
45.	0.	45.	0.	0.	17.	0.	29.	9.	856.10
6.78	0.00	2.68	0.00	.080	.045	.080	.039	850.10	61.69
.006259	20.	20.	20.	2	0	0	0.00	15.61	77.31

*SECNO 413.520

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

** D/S FACE DAM 413A

413.52	.46	854.36	854.36	0.00	854.59	.23	.01	.06	858.00
45.	0.	45.	0.	0.	12.	0.	29.	9.	856.20
6.78	0.00	3.82	0.00	.080	.045	.080	.039	853.90	55.88
.039729	1.	1.	1.	20	17	0	0.00	26.32	82.20

*SECNO 413.530

413.53	.68	854.58	0.00	0.00	854.68	.10	.05	.04	858.00
45.	0.	45.	0.	0.	18.	0.	29.	9.	856.20
6.78	0.00	2.52	0.00	.080	.045	.080	.039	853.90	55.33
.010446	3.	3.	3.	2	0	0	0.00	26.97	82.30

*SECNO 413.550

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
413.55	4.10	854.70	0.00	0.00	854.71	.01	.00	.03	858.40
45.	0.	45.	0.	0.	77.	0.	29.	9.	856.60
6.78	0.00	.58	0.00	.080	.045	.080	.039	850.60	55.22
.000086	1.	1.	1.	2	0	0	0.00	27.08	82.30

*SECNO 413.800

413.80	4.51	854.71	0.00	0.00	854.71	.00	.01	.00	858.00
45.	0.	45.	0.	0.	88.	0.	29.	9.	856.20
6.84	0.00	.51	0.00	.080	.045	.080	.040	850.20	54.31
.000058	100.	100.	100.	2	0	0	0.00	28.14	82.45

*SECNO 413.980

3470 ENCROACHMENT STATIONS= 65.0 74.0 TYPE= 1 TARGET= 9.000

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

** D/S FACE CULVERT PARALLEL TO SOUTH WILLOWAY COURT

413.98	2.72	854.72	0.00	0.00	854.77	.05	.03	.02	100000.00
45.	0.	45.	0.	0.	25.	0.	29.	10.	100000.00
6.87	0.00	1.84	0.00	.080	.045	.080	.040	852.00	65.00
.001526	200.	200.	200.	0	0	0	0.00	9.00	74.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.00	2.75	0.00	4.80	0.00	14.87	0.00	853.50	852.50

*SECNO 414.020
PRESS FLOW BECAUSE EGLWC OF 856.25 EXCEEDS 1.5 DEPTH
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
855.15	856.25	0.00	0.	45.	15.	2.	854.00	863.80

3470 ENCROACHMENT STATIONS= 260.0 271.0 TYPE= 1 TARGET= 11.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99999.50 ELREA= 99999.50

414.02	1.54	855.04	0.00	0.00	855.15	.11	.37	0.00	99999.50
45.	0.	45.	0.	0.	17.	0.	29.	10.	99999.50
6.88	0.00	2.66	0.00	.080	.045	.080	.040	853.50	260.00
.005100	145.	145.	145.	2	0	0	0.00	11.00	271.00

*SECNO 414.800

414.80	1.52	855.52	0.00	0.00	855.60	.08	.44	.01	858.90
45.	0.	45.	0.	0.	20.	0.	29.	10.	858.40
6.90	0.00	2.24	0.00	.080	.045	.080	.040	854.00	258.10
.003529	105.	105.	105.	2	0	0	0.00	15.43	273.53

*SECNO 414.850

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
414.85	1.48	855.98	0.00	0.00	856.06	.08	.46	.00	859.40
45.	0.	45.	0.	0.	19.	0.	29.	10.	858.90
6.91	0.00	2.32	0.00	.080	.045	.080	.041	854.50	258.16
.003882	125.	125.	125.	2	0	0	0.00	15.30	273.46

*SECNO 414.980

414.98	1.40	856.40	0.00	0.00	856.49	.09	.43	.01	859.90
45.	0.	45.	0.	0.	18.	0.	29.	10.	859.40
6.92	0.00	2.47	0.00	.080	.045	.080	.041	855.00	258.25
.004682	100.	100.	100.	2	0	0	0.00	15.08	273.33

PROFILE FOR STREAM SODON LAKE BRANCH

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

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ELEVATION-FT   840.      845.      850.      855.      860.      865.      870.      875.      880.      885.
    SECNO   CUMDIS-FT
  409.50      0.  . I   E L .R  M     .         .         .         .         .         .         .         .
             10.  C I   WEL .R   M    .         .         .         .         .         .         .         .
             20.  C  I   EL . R  M    .         .         .         .         .         .         .         .
             30.  C  I   WEL. R   M   .         .         .         .         .         .         .         .
             40.  C  I    EL. R   M   .         .         .         .         .         .         .         .
             50.  C   I   EL.  R  M   .         .         .         .         .         .         .         .
             60.  C   I    EL  R   M  .         .         .         .         .         .         .         .
             70.  C   I    EL  R   M  .         .         .         .         .         .         .         .
             80.  C    I   WEL  R  M  .         .         .         .         .         .         .         .
             90.  C    I    EL  R   M .         .         .         .         .         .         .         .
            100.  C     I   EL   R  M .         .         .         .         .         .         .         .
            110.  C     I   .EL  R   M.         .         .         .         .         .         .         .
            120.  C     I   .EL  R   M.         .         .         .         .         .         .         .
            130.  C      I  . E   R  M.         .         .         .         .         .         .         .
            140.  C      I  . EL  R   M         .         .         .         .         .         .         .
  410.00    150.  C      I  . EL  R   M         .         .         .         .         .         .         .
            160.  C       I . EL  R  .M         .         .         .         .         .         .         .
            170.  C       I. EL   R .M         .         .         .         .         .         .         .
            180.  C       I.  EL  R . M        .         .         .         .         .         .         .
            190.  C        I  E L  R. M        .         .         .         .         .         .         .
  410.10    200.  C        I   EL  R.  M       .         .         .         .         .         .         .
  411.10    210.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            220.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            230.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            240.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            250.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            260.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            270.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            280.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            290.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            300.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            310.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            320.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            330.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            340.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            350.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            360.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            370.  C    I L  .   E    .    M     .         .         .         .         .         .         .
  411.12    380.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            390.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            400.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            410.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            420.  C    I L  .   E    .    M     .         .         .         .         .         .         .
  411.14    430.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            440.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            450.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            460.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            470.  C    I L  .   E    .    M     .         .         .         .         .         .         .
            480.  C    I L  .   E    .    M     .         .         .         .         .         .         .
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	490.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	500.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	510.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	520.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	530.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	540.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	550.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
411.20	560.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	570.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	580.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	590.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	600.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	610.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	620.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
411.22	630.	C		I	L	.		E	.		M	.	.	.	.	.	.	.	
	640.	C		I		.		E	.		M	.	.	.	.	.	.	L	
	650.	C		I		.		E	.		M	.	.	.	.	.	.	L	
	660.	C		I		.		E	.		M	.	.	.	.	.	.	L	
	670.	C		I		.		E	.		M	.	.	.	.	.	.	L	
	680.	C		I		.		E	.		M	.	.	.	.	.	.	L	
	690.	C		I		.		E	.		M	.	.	.	.	.	.	L	
410.98	700.	C		I		.		E	.		M	.	.	.	.	.	.	L	
	710.	C			I	.		E	.		M	.	.	.	.	.	.	L	
	720.	C			I	.			E	.	M	.	.	.	.	.	.	L	
	730.	C				I	.		E	.	M	.	.	.	.	.	.	L	
	740.	C				.	I		E	.	M	.	.	.	.	.	.	L	
	750.	C				.		I	E	.	M	.	.	.	.	.	.	L	
411.02	760.	C				.		I	E	.	M	.	.	.	.	.	.	L	
	770.	C				.		I	E	.	M	.	.	.	.	.	.	L	
	780.	C				.		I	E	.	M	.	.	.	.	.	.	L	
	790.	C				.		I	E	.	M	.	.	.	.	.	.	L	
	800.	C				.		I	E	.	M	.	.	.	.	.	.	L	
411.80	810.	C				.		I	E	RL	M	.	.	.	.	.	.	.	
	820.	C				.		I	E	RL	M	.	.	.	.	.	.	.	
	830.	C				.		I	E	RL	M	.	.	.	.	.	.	.	
	840.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	850.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	860.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	870.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	880.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	890.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	900.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	910.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	920.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	930.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	940.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	950.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	960.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	970.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	980.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	990.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1000.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1010.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1020.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
411.90	1030.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1040.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1050.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1060.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1070.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1080.	C				.		I	E	L.	M	.	.	.	.	.	.	.	
	1090.	C				.		I	E	L.	M	.	.	.	.	.	.	.	

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        1100.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1110.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1120.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1130.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1140.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1150.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1160.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1170.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1180.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1190.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1200.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1210.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1220.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1230.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1240.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1250.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1260.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1270.  C     .  I  E L.     M  .  .  .  .  .  .  .
412.00  1280.  C     .  I  EWL.     M  .  .  .  .  .  .  .
        1290.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1300.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1310.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1320.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1330.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1340.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1350.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1360.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1370.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1380.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1390.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1400.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1410.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1420.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1430.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1440.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1450.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1460.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1470.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1480.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1490.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1500.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1510.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1520.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1530.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1540.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1550.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1560.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1570.  C     .  I  E L.     M  .  .  .  .  .  .  .
412.10  1580.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1590.  C     .  I  E L.     M  .  .  .  .  .  .  .
        1600.  C     .  I  WEL.     M  .  .  .  .  .  .  .
        1610.  C     .  I  WEL.     M  .  .  .  .  .  .  .
        1620.  C     .  I  WEL.     M  .  .  .  .  .  .  .
        1630.  C     .  I  WERL     M  .  .  .  .  .  .  .
        1640.  C     .  I  WE L     M  .  .  .  .  .  .  .
        1650.  C     .  I  WE L     M  .  .  .  .  .  .  .
        1660.  C     .  I  WE L     M  .  .  .  .  .  .  .
        1670.  C     .  I  WE L     M  .  .  .  .  .  .  .
        1680.  C     .  I  WE RL    M  .  .  .  .  .  .  .
        1690.  C     .  I  WE .L    M  .  .  .  .  .  .  .
        1700.  C     .  I  WE .L    M  .  .  .  .  .  .  .
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| | | |

	2930.	C	.	.	I.	E	RL.	M	.	.	.	.	.	.
	2940.	C	.	.	I.	E	RL.	M	.	.	.	.	.	.
	2950.	C	.	.	I.	E	RL.	M	.	.	.	.	.	.
	2960.	C	.	.	I.	WE	RL.	M	.	.	.	.	.	.
	2970.	C	.	.	I	WE	RL.	M	.	.	.	.	.	.
	2980.	C	.	.	I	E	RL	M	.	.	.	.	.	.
	2990.	C	.	.	I	E	RL	M	.	.	.	.	.	.
	3000.	C	.	.	I	E	RL	M	.	.	.	.	.	.
414.98	3010.	C	.	.	I	E	RL	M	.	.	.	.	.	.

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

T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      FLOODWAY DETERMINATION

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        6.         0.         0.  0.000000       0.00       -1.0         0.    842.940       0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    15.000     0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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*PROF 2

CCHV=    .500 CEHV=   1.000
*SECNO 409.500
 2800 NAT Q1=       3.25  WSEL=    842.98  ENC Q1=       3.84  WSEL=    843.08  RATIO=  -.1827
 NAT Q1=       5.  RATIOS LOB,CH,ROB=    .1529    .8461    .0010  WSEL=    843.08
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      212.0     340.0  TYPE=      4  TARGET=         .154
   409.50      2.07    842.97    842.97    842.98    843.24       .28      0.00      0.00    843.80
     100.        0.      100.        0.        0.       24.        0.        0.        0.    845.40
     0.00      0.00      4.23      0.00      .150      .075      .150     0.000    840.90    237.00
  .133223        0.        0.        0.         0         7         0      0.00     52.39    289.39


*SECNO 410.000
 2800 NAT Q1=      11.03  WSEL=    846.20  ENC Q1=      11.03  WSEL=    846.30  RATIO=   .0000
 NAT Q1=      14.  RATIOS LOB,CH,ROB=    .2618    .6836    .0546  WSEL=    846.30

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      106.6     475.3  TYPE=      4  TARGET=         .211
   410.00      2.62    846.32      0.00    846.20    846.35       .03      2.98       .12    846.60
     100.       14.       86.        0.       24.       58.        0.        0.        0.    848.20
      .03       .57      1.49       .15      .150      .075      .150      .074    843.70    106.65
  .007633      150.      150.      250.         9         0         0      0.00    121.94    475.25


*SECNO 410.100
 2800 NAT Q1=       3.98  WSEL=    847.34  ENC Q1=       4.49  WSEL=    847.44  RATIO=  -.1269
 NAT Q1=       5.  RATIOS LOB,CH,ROB=    .1693    .8262    .0045  WSEL=    847.44

3470 ENCROACHMENT STATIONS=      212.0     340.0  TYPE=      4  TARGET=         .174

        ** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

   410.10      2.13    847.33      0.00    847.34    847.54       .21      1.01       .18    848.10
     100.        0.      100.        0.        0.       27.        0.        0.        0.    849.70
      .03      0.00      3.69      0.00      .150      .075      .150      .072    845.20    235.08
  .089702      125.       50.       50.         2         0         0      0.00     54.60    289.68


CCHV=    .300 CEHV=    .500
*SECNO 411.100
 2800 NAT Q1=    5290.14  WSEL=    847.51  ENC Q1=    5446.14  WSEL=    847.61  RATIO=  -.0295
 NAT Q1=    5462.  RATIOS LOB,CH,ROB=    .0010    .9971    .0019  WSEL=    847.61

3470 ENCROACHMENT STATIONS=       30.0     830.0  TYPE=      4  TARGET=         .003
   411.10      5.30    847.60      0.00    847.51    847.60       .00       .00       .06    843.70
     45.        0.       45.        0.        0.      4221.        0.        0.        0.    843.70
      .06      0.00       .01      0.00      .080      .035      .080      .072    842.30     30.00
  .000000        1.        1.        1.         2         0         0      0.00    800.00    830.00
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*SECNO 411.120
 2800 NAT Q1=    5290.14  WSEL=     847.51  ENC Q1=    5446.14  WSEL=     847.61  RATIO=   -.0295
 NAT Q1=    5462.  RATIOS LOB,CH,ROB=    .0010    .9971    .0019  WSEL=     847.61
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       30.0      830.0  TYPE=      4  TARGET=         .003
   411.12      5.30    847.60      0.00    847.51    847.60       .00       .00       .00    843.70
      45.        0.       45.        0.       0.     4221.        0.       17.        4.    843.70
     4.62      0.00       .01      0.00      .080      .035      .080      .055    842.30     30.00
  .000000       175.      175.      175.         0         0         0      0.00    800.00    830.00

*SECNO 411.140
 2800 NAT Q1=     435.90  WSEL=     847.51  ENC Q1=     435.90  WSEL=     847.61  RATIO=    .0000
 NAT Q1=     451.  RATIOS LOB,CH,ROB=    .0125    .9651    .0224  WSEL=     847.61

3470 ENCROACHMENT STATIONS=       30.0      100.3  TYPE=      4  TARGET=         .034
   411.14      5.30    847.60      0.00    847.51    847.60       .00       .00       .00    843.70
      45.        0.       45.        0.       0.      350.        1.       20.        4.    843.70
     4.73      0.00       .13       .01      .080      .035      .080      .053    842.30     30.00
  .000001        50.       50.      200.         0         0         0      0.00     70.26    100.26

*SECNO 411.200
 2800 NAT Q1=     435.89  WSEL=     847.51  ENC Q1=     435.89  WSEL=     847.61  RATIO=    .0000
 NAT Q1=     451.  RATIOS LOB,CH,ROB=    .0125    .9651    .0224  WSEL=     847.61

3470 ENCROACHMENT STATIONS=       30.0      100.2  TYPE=      4  TARGET=         .034
   411.20      5.30    847.60      0.00    847.51    847.60       .00       .00       .00    843.70
      45.        0.       45.        0.       0.      350.        1.       21.        4.    843.70
     5.00      0.00       .13       .01      .080      .035      .080      .049    842.30     30.00
  .000001       125.      125.      125.         0         0         0      0.00     70.24    100.24

*SECNO 411.220
 2800 NAT Q1=     307.19  WSEL=     847.51  ENC Q1=     307.19  WSEL=     847.61  RATIO=    .0000
 NAT Q1=     318.  RATIOS LOB,CH,ROB=    .0177    .9607    .0216  WSEL=     847.61

3470 ENCROACHMENT STATIONS=       29.9       81.1  TYPE=      4  TARGET=         .035
   411.22      5.30    847.60      0.00    847.51    847.60       .00       .00       .00    843.70
      45.        0.       45.        0.       0.      248.        4.       21.        4.    843.70
     5.11        .01       .18       .03      .080      .035      .080      .047    842.30     29.89
  .000002        70.       70.       70.         0         0         0      0.00     51.23     81.12


*SECNO 410.980

3470 ENCROACHMENT STATIONS=       33.0       43.0  TYPE=      1  TARGET=       10.000

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


         ** D/S FACE CULVERT BETWEEN LAKES

   410.98      5.11    847.60      0.00    847.50    847.61       .01       .00       .01100000.00
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      45.       0.      45.       0.       0.      46.       0.      22.       5. 100000.00
      5.13    0.00      .97    0.00     .080     .035     .080     .046   842.49     33.00
   .000161     75.      75.      75.        0        0        0     0.00    10.00     43.00


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       1.90       2.90       0.00       3.00       0.00       7.10       0.00     844.40     842.30

*SECNO 411.020
 PRESS FLOW BECAUSE EGLWC OF    848.99  EXCEEDS 1.5 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

PRESSURE FLOW

 EGPRS      EGLWC      H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                    AREA
   848.78     848.99       0.00         0.       45.        7.         9.     847.50     853.60


3470 ENCROACHMENT STATIONS=       62.0       72.0   TYPE=       1   TARGET=       10.000

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

   411.02       1.67    848.67       0.00    848.56    848.78       .11      1.17       0.00100000.00
      45.         0.       45.         0.        0.       17.         0.       22.         5. 100000.00
      5.13      0.00      2.70       0.00      .080      .035      .080      .045    847.00     62.00
   .002994       55.      55.        55.         2         0         0      0.00    10.00     72.00

*SECNO 411.800
 2800 NAT Q1=      58.05  WSEL=     848.73  ENC Q1=      64.10  WSEL=     848.83  RATIO=  -.1042
 NAT Q1=      64.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     848.83

3470 ENCROACHMENT STATIONS=       32.0      122.0   TYPE=       4   TARGET=       0.000
   411.80       1.82    848.82       0.00    848.73    848.82       .00       .01       .03    849.80
      45.         0.       45.         0.        0.       113.        0.       22.         5.    849.30
      5.17      0.00       .40       0.00      .080      .035      .080      .044    847.00     45.76
   .000051       50.      50.        50.         2         0         0      0.00    73.73    119.49


*SECNO 411.900
 2800 NAT Q1=     198.56  WSEL=     848.74  ENC Q1=     218.12  WSEL=     848.84  RATIO=  -.0985
 NAT Q1=     218.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     848.84

3470 ENCROACHMENT STATIONS=       22.0      222.0   TYPE=       4   TARGET=       0.000
   411.90       1.82    848.82       0.00    848.74    848.82       .00       .00       .00    849.30
      45.         0.       45.         0.        0.       347.        0.       23.         5.    849.30
      5.65      0.00       .13       0.00      .080      .035      .080      .042    847.00     23.65
   .000004      225.     225.       225.         0         0         0      0.00   196.70    220.35


*SECNO 412.000
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wSEL on upG
should be 846.9
loss at structural appears
questionable see pic of inlet structure

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 2800 NAT Q1=     200.16  WSEL=     848.74  ENC Q1=     218.37  WSEL=     848.84  RATIO=  -.0910
 NAT Q1=     218.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     848.84

3470 ENCROACHMENT STATIONS=      22.0     222.0  TYPE=      4  TARGET=       0.000
   412.00      1.83    848.83      0.00    848.74    848.83       .00       .00       .00    849.30
      45.        0.       45.        0.        0.       348.        0.       25.        6.    849.30
     6.19      0.00       .13      0.00      .080      .035      .080      .041    847.00     23.65
  .000004      250.      250.      250.         0         0         0      0.00    196.70    220.35


*SECNO 412.100
 2800 NAT Q1=     199.14  WSEL=     848.74  ENC Q1=     218.67  WSEL=     848.84  RATIO=  -.0981
 NAT Q1=     219.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     848.84

3470 ENCROACHMENT STATIONS=      22.0     222.0  TYPE=      4  TARGET=       0.000
   412.10      1.83    848.83      0.00    848.74    848.83       .00       .00       .00    849.30
      45.        0.       45.        0.        0.       348.        0.       27.        8.    849.30
     6.83      0.00       .13      0.00      .080      .035      .080      .040    847.00     23.65
  .000004      300.      300.      300.         0         0         0      0.00    196.71    220.35


*SECNO 413.200
 2800 NAT Q1=       3.11  WSEL=     848.55  ENC Q1=       3.67  WSEL=     848.65  RATIO=  -.1814
 NAT Q1=       4.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     848.65
   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

3470 ENCROACHMENT STATIONS=      90.0     121.0  TYPE=      4  TARGET=       0.000
   413.20      1.69    848.69      0.00    848.55    848.97       .28       .01       .14    852.20
      45.        0.       45.        0.        0.        11.        0.       29.        8.    851.90
     6.85      0.00      4.25      0.00      .080      .035      .080      .039    847.00    102.37
  .013098      300.      300.      300.         4         3         0      0.00     12.52    114.89


CCHV=     .200 CEHV=     .400
*SECNO 412.830
 2800 NAT Q1=       2.43  WSEL=     849.75  ENC Q1=       2.87  WSEL=     849.85  RATIO=  -.1810
 NAT Q1=       3.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     849.85
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      90.0     121.0  TYPE=      4  TARGET=       0.000
   412.83      1.55    849.75    849.75    849.75    850.15       .40       .86       .05    853.40
      45.        0.       45.        0.        0.        9.        0.       29.        8.    853.10
     6.85      0.00      5.07      0.00      .080      .045      .080      .039    848.20    102.93
  .034647       43.       43.       43.         2        11         0      0.00     11.46    114.39


*SECNO 412.840
 2800 NAT Q1=       3.53  WSEL=     849.98  ENC Q1=       4.04  WSEL=     850.08  RATIO=  -.1439
 NAT Q1=       4.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     850.08
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3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  854.20 MAX ELLC=  853.50


3470 ENCROACHMENT STATIONS=      90.0     121.0  TYPE=      4  TARGET=       0.000

         ** D/S FACE FOOTBRIDGE 412A

   412.84     1.78   849.98   849.75   849.98   850.21      .22      .02      .03   853.40
     45.       0.      45.      0.       0.       12.       0.       29.       8.    853.10
     6.85    0.00     3.80     0.00     .080     .045     .080     .039   848.20   102.00
  .016134      1.       1.       1.       17       18        0     0.00    13.22   115.22

*SECNO 412.860
 2800 NAT Q1=       4.19  WSEL=    850.11  ENC Q1=       4.83  WSEL=    850.21  RATIO=  -.1506
 NAT Q1=       5.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    850.21

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  854.20 MAX ELLC=  853.50


3470 ENCROACHMENT STATIONS=      90.0     121.0  TYPE=      4  TARGET=       0.000
   412.86     1.91   850.11     0.00   850.11   850.28      .17      .07      .01   853.40
     45.       0.      45.      0.       0.       14.       0.       29.       8.    853.10
     6.85    0.00     3.32     0.00     .080     .045     .080     .039   848.20   101.51
  .011249      5.       5.       5.        2        0        0     0.00    14.15   115.66


*SECNO 412.870
 2800 NAT Q1=       4.29  WSEL=    850.13  ENC Q1=       4.94  WSEL=    850.23  RATIO=  -.1517
 NAT Q1=       5.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    850.23

3470 ENCROACHMENT STATIONS=      90.0     121.0  TYPE=      4  TARGET=       0.000
   412.87     1.93   850.13     0.00   850.13   850.30      .17      .01      .00   853.40
     45.       0.      45.      0.       0.       14.       0.       29.       8.    853.10
     6.85    0.00     3.30     0.00     .080     .045     .080     .039   848.20   101.48
  .011008      1.       1.       1.        0        0        0     0.00    14.21   115.69


CCHV=     .300 CEHV=     .500
*SECNO 412.980
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     104.0     114.0  TYPE=      1  TARGET=      10.000

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


         ** D/S FACE SUNNINGDALE

   412.98     2.19   850.89     0.00   850.89   851.03      .14      .72      .01100000.00
     45.       0.      45.      0.       0.       15.       0.       29.       9. 100000.00
     6.86    0.00     2.99     0.00     .080     .045     .080     .039   848.70   104.00
  .006099     90.      90.      90.        2        0        0     0.00    10.00   114.00
```

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.90	2.90	0.00	4.10	0.00	12.30	0.00	848.80	847.50

*SECNO 413.020
PRESS FLOW BECAUSE EGLWC OF 852.78 EXCEEDS 1.5 DEPTH
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
851.49	852.78	0.00	0.	45.	12.	5.	850.00	862.60

3470 ENCROACHMENT STATIONS= 65.0 74.0 TYPE= 1 TARGET= 9.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99998.60 ELREA= 99998.60

413.02	2.63	851.43	0.00	851.43	851.49	.06	.46	0.00	99998.60
45.	0.	45.	0.	0.	24.	0.	29.	9.	99998.60
6.89	0.00	1.90	0.00	.080	.045	.080	.040	848.80	65.00
.001681	190.	190.	190.	2	0	0	0.00	9.00	74.00

*SECNO 413.500
2800 NAT Q1= 5.69 WSEL= 851.46 ENC Q1= 6.47 WSEL= 851.56 RATIO= -.1377
NAT Q1= 6. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 851.56

3470 ENCROACHMENT STATIONS= 47.0 83.0 TYPE= 4 TARGET= 0.000

413.50	1.36	851.46	0.00	851.46	851.58	.11	.06	.03	857.90
45.	0.	45.	0.	0.	17.	0.	29.	9.	856.10
6.89	0.00	2.68	0.00	.080	.045	.080	.040	850.10	61.69
.006260	20.	20.	20.	2	0	0	0.00	15.61	77.31

*SECNO 413.520
2800 NAT Q1= 2.26 WSEL= 854.36 ENC Q1= 3.13 WSEL= 854.46 RATIO= -.3885
NAT Q1= 3. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 854.46

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SST-A
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= 47.0 83.0 TYPE= 4 TARGET= 0.000

** D/S FACE DAM 413A

413.52	.46	854.36	854.36	854.36	854.59	.23	.01	.06	858.00
45.	0.	45.	0.	0.	12.	0.	29.	9.	856.20
6.89	0.00	3.82	0.00	.080	.045	.080	.040	853.90	55.88
.039729	1.	1.	1.	20	17	0	0.00	26.32	82.20

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*SECNO 413.530
 2800 NAT Q1=       4.40  WSEL=     854.58  ENC Q1=       5.45  WSEL=     854.68  RATIO=  -.2379
 NAT Q1=       5.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     854.68

3470 ENCROACHMENT STATIONS=       47.0       83.0  TYPE=       4  TARGET=         0.000
   413.53       .68    854.58      0.00    854.58    854.68       .10       .06       .04    858.00
      45.        0.       45.        0.        0.       18.        0.       29.        9.    856.20
     6.89      0.00      2.57      0.00      .080      .045      .080      .040    853.90     55.35
  .011015         3.        3.        3.         3         0         0      0.00     26.94     82.29

*SECNO 413.550
 2800 NAT Q1=      48.60  WSEL=     854.70  ENC Q1=      51.09  WSEL=     854.80  RATIO=  -.0512
 NAT Q1=      51.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     854.80
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       47.0       83.0  TYPE=       4  TARGET=         0.000
   413.55      4.10    854.70      0.00    854.70    854.71       .01       .00       .03    858.40
      45.        0.       45.        0.        0.       77.        0.       29.        9.    856.60
     6.89      0.00       .58      0.00      .080      .045      .080      .040    850.60     55.21
  .000086         1.        1.        1.         2         0         0      0.00     27.08     82.30

*SECNO 413.800
 2800 NAT Q1=      59.12  WSEL=     854.71  ENC Q1=      61.84  WSEL=     854.81  RATIO=  -.0460
 NAT Q1=      62.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     854.81

3470 ENCROACHMENT STATIONS=       47.0       83.0  TYPE=       4  TARGET=         0.000
   413.80      4.51    854.71      0.00    854.71    854.72       .00       .01       .00    858.00
      45.        0.       45.        0.        0.       88.        0.       29.        9.    856.20
     6.95      0.00       .51      0.00      .080      .045      .080      .040    850.20     54.31
  .000058       100.      100.      100.         0         0         0      0.00     28.14     82.45

*SECNO 413.980

3470 ENCROACHMENT STATIONS=       65.0       74.0  TYPE=       1  TARGET=         9.000

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

         ** D/S FACE CULVERT PARALLEL TO SOUTH WILLOWAY COURT

   413.98      2.72    854.72      0.00    854.72    854.77       .05       .03       .02100000.00
      45.        0.       45.        0.        0.       25.        0.       29.        9. 100000.00
     6.98      0.00      1.83      0.00      .080      .045      .080      .040    852.00     65.00
  .001523       200.      200.      200.         0         0         0      0.00      9.00     74.00


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       3.00       2.75       0.00       4.80       0.00       14.87      0.00       853.50     852.50

*SECNO 414.020
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 PRESS FLOW BECAUSE EGLWC OF     855.54  EXCEEDS 1.5 DEPTH
PRESSURE FLOW

 EGPRS       EGLWC       H3        QWEIR       QPR        BAREA    TRAPEZOID      ELLC      ELTRD
                                                                      AREA
   855.15     855.54      0.00          0.        45.         15.         2.      854.00     863.80


3470 ENCROACHMENT STATIONS=      260.0      271.0  TYPE=      1  TARGET=       11.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=    99999.50 ELREA=    99999.50

   414.02      1.54    855.04      0.00    855.04    855.15       .11       .37      0.00 99999.50
     45.         0.       45.        0.       0.       17.         0.       29.       9.  99999.50
     6.99      0.00      2.66      0.00      .080      .045       .080      .040    853.50   260.00
  .005077      145.      145.      145.         2         0          0      0.00     11.00   271.00


*SECNO 414.800
 2800 NAT Q1=       7.57  WSEL=     855.52  ENC Q1=       8.44  WSEL=     855.62  RATIO=  -.1141
 NAT Q1=       8.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     855.62

3470 ENCROACHMENT STATIONS=      237.0      300.0  TYPE=      4  TARGET=       0.000
   414.80      1.52    855.52      0.00    855.52    855.60       .08       .44       .01    858.90
     45.         0.       45.        0.       0.       20.         0.       29.       9.     858.40
     7.01      0.00      2.24      0.00      .080      .045       .080      .041    854.00   258.10
  .003519      105.      105.      105.         2         0          0      0.00     15.43   273.53


*SECNO 414.850
 2800 NAT Q1=       7.22  WSEL=     855.98  ENC Q1=       8.11  WSEL=     856.08  RATIO=  -.1226
 NAT Q1=       8.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     856.08
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      237.0      300.0  TYPE=      4  TARGET=       0.000
   414.85      1.48    855.98      0.00    855.98    856.06       .08       .46       .00    859.40
     45.         0.       45.        0.       0.       19.         0.       29.       9.     858.90
     7.02      0.00      2.32      0.00      .080      .045       .080      .041    854.50   258.15
  .003871      125.      125.      125.         2         0          0      0.00     15.31   273.46


*SECNO 414.980
 2800 NAT Q1=       6.58  WSEL=     856.40  ENC Q1=       7.41  WSEL=     856.50  RATIO=  -.1266
 NAT Q1=       7.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     856.50

3470 ENCROACHMENT STATIONS=      237.0      300.0  TYPE=      4  TARGET=       0.000
   414.98      1.40    856.40      0.00    856.40    856.49       .09       .43       .01    859.90
     45.         0.       45.        0.       0.       18.         0.       29.       9.     859.40
     7.03      0.00      2.47      0.00      .080      .045       .080      .041    855.00   258.25
  .004695      100.      100.      100.         2         0          0      0.00     15.07   273.33
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
*	409.500	0.00	0.00	0.00	840.90	100.00	842.98	842.98	843.16	948.97	3.62	34.62	3.25
*	409.500	0.00	0.00	0.00	840.90	100.00	842.97	842.97	843.24	1332.23	4.23	23.65	2.74
	410.000	150.00	0.00	0.00	843.70	100.00	846.20	0.00	846.22	82.25	1.46	105.20	11.03
	410.000	150.00	0.00	0.00	843.70	100.00	846.32	0.00	846.35	76.33	1.49	81.73	11.45
	410.100	50.00	0.00	0.00	845.20	100.00	847.34	0.00	847.47	629.91	3.12	40.90	3.98
	410.100	50.00	0.00	0.00	845.20	100.00	847.33	0.00	847.54	897.02	3.69	27.07	3.34
	411.100	1.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.00	.01	4197.75	5290.14
	411.100	1.00	0.00	0.00	842.30	45.00	847.60	0.00	847.60	.00	.01	4220.67	5395.43
	411.120	175.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.00	.01	4197.76	5290.14
	411.120	175.00	0.00	0.00	842.30	45.00	847.60	0.00	847.60	.00	.01	4220.68	5395.43
	411.140	50.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.01	.13	393.56	435.90
	411.140	50.00	0.00	0.00	842.30	45.00	847.60	0.00	847.60	.01	.13	351.16	418.98
	411.200	125.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.01	.13	393.56	435.89
	411.200	125.00	0.00	0.00	842.30	45.00	847.60	0.00	847.60	.01	.13	351.06	418.96
	411.220	70.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.02	.18	285.49	307.19
	411.220	70.00	0.00	0.00	842.30	45.00	847.60	0.00	847.60	.02	.18	252.21	305.52
	410.980	75.00	0.00	0.00	842.49	45.00	847.50	0.00	847.52	1.70	.99	45.58	34.48
	410.980	75.00	0.00	0.00	842.49	45.00	847.60	0.00	847.61	1.61	.97	46.48	35.41
	411.020	55.00	853.60	847.50	847.00	45.00	848.56	0.00	848.69	36.52	2.88	15.62	7.45
	411.020	55.00	853.60	847.50	847.00	45.00	848.67	0.00	848.78	29.94	2.70	16.68	8.22
	411.800	50.00	0.00	0.00	847.00	45.00	848.73	0.00	848.74	.60	.42	106.31	58.05
	411.800	50.00	0.00	0.00	847.00	45.00	848.82	0.00	848.82	.51	.40	112.55	63.19
	411.900	225.00	0.00	0.00	847.00	45.00	848.74	0.00	848.74	.05	.14	330.67	198.56
	411.900	225.00	0.00	0.00	847.00	45.00	848.82	0.00	848.82	.04	.13	347.49	215.23
	412.000	250.00	0.00	0.00	847.00	45.00	848.74	0.00	848.74	.05	.14	332.31	200.16
	412.000	250.00	0.00	0.00	847.00	45.00	848.83	0.00	848.83	.04	.13	347.52	215.26

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	412.100	300.00	0.00	0.00	847.00	45.00	848.74	0.00	848.74	.05	.14	331.26	199.14
	412.100	300.00	0.00	0.00	847.00	45.00	848.83	0.00	848.83	.04	.13	347.77	215.51
*	413.200	300.00	0.00	0.00	847.00	45.00	848.55	848.55	848.95	209.86	5.07	8.88	3.11
	413.200	300.00	0.00	0.00	847.00	45.00	848.69	0.00	848.97	130.98	4.25	10.60	3.93
*	412.830	43.00	0.00	0.00	848.20	45.00	849.75	849.75	850.15	342.59	5.04	8.92	2.43
*	412.830	43.00	0.00	0.00	848.20	45.00	849.75	849.75	850.15	346.47	5.07	8.88	2.42
	412.840	1.00	854.20	853.50	848.20	45.00	849.98	849.75	850.21	162.19	3.81	11.81	3.53
	412.840	1.00	854.20	853.50	848.20	45.00	849.98	849.75	850.21	161.34	3.80	11.83	3.54
	412.860	5.00	854.20	853.50	848.20	45.00	850.11	0.00	850.28	115.13	3.35	13.43	4.19
	412.860	5.00	854.20	853.50	848.20	45.00	850.11	0.00	850.28	112.49	3.32	13.54	4.24
	412.870	1.00	0.00	0.00	848.20	45.00	850.13	0.00	850.30	109.86	3.29	13.67	4.29
	412.870	1.00	0.00	0.00	848.20	45.00	850.13	0.00	850.30	110.08	3.30	13.66	4.29
	412.980	90.00	0.00	0.00	848.70	45.00	850.89	0.00	851.03	61.05	3.00	15.02	5.76
	412.980	90.00	0.00	0.00	848.70	45.00	850.89	0.00	851.03	60.99	2.99	15.03	5.76
	413.020	190.00	862.60	850.00	848.80	45.00	851.43	0.00	851.49	16.81	1.90	23.70	10.98
	413.020	190.00	862.60	850.00	848.80	45.00	851.43	0.00	851.49	16.81	1.90	23.70	10.98
	413.500	20.00	0.00	0.00	850.10	45.00	851.46	0.00	851.58	62.59	2.68	16.79	5.69
	413.500	20.00	0.00	0.00	850.10	45.00	851.46	0.00	851.58	62.60	2.68	16.79	5.69
*	413.520	1.00	0.00	0.00	853.90	45.00	854.36	854.36	854.59	397.29	3.82	11.79	2.26
*	413.520	1.00	0.00	0.00	853.90	45.00	854.36	854.36	854.59	397.29	3.82	11.79	2.26
	413.530	3.00	0.00	0.00	853.90	45.00	854.58	0.00	854.68	104.46	2.52	17.83	4.40
	413.530	3.00	0.00	0.00	853.90	45.00	854.58	0.00	854.68	110.15	2.57	17.53	4.29
	413.550	1.00	0.00	0.00	850.60	45.00	854.70	0.00	854.71	.86	.58	76.97	48.60
	413.550	1.00	0.00	0.00	850.60	45.00	854.70	0.00	854.71	.86	.58	77.03	48.65
	413.800	100.00	0.00	0.00	850.20	45.00	854.71	0.00	854.71	.58	.51	88.26	59.12
	413.800	100.00	0.00	0.00	850.20	45.00	854.71	0.00	854.72	.58	.51	88.26	59.13
	413.980	200.00	0.00	0.00	852.00	45.00	854.72	0.00	854.77	15.26	1.84	24.52	11.52
	413.980	200.00	0.00	0.00	852.00	45.00	854.72	0.00	854.77	15.23	1.83	24.54	11.53
	414.020	145.00	863.80	854.00	853.50	45.00	855.04	0.00	855.15	51.00	2.66	16.89	6.30
	414.020	145.00	863.80	854.00	853.50	45.00	855.04	0.00	855.15	50.77	2.66	16.92	6.32
	414.800	105.00	0.00	0.00	854.00	45.00	855.52	0.00	855.60	35.29	2.24	20.05	7.57
	414.800	105.00	0.00	0.00	854.00	45.00	855.52	0.00	855.60	35.19	2.24	20.07	7.59
	414.850	125.00	0.00	0.00	854.50	45.00	855.98	0.00	856.06	38.82	2.32	19.41	7.22
	414.850	125.00	0.00	0.00	854.50	45.00	855.98	0.00	856.06	38.71	2.32	19.43	7.23
	414.980	100.00	0.00	0.00	855.00	45.00	856.40	0.00	856.49	46.82	2.47	18.22	6.58
	414.980	100.00	0.00	0.00	855.00	45.00	856.40	0.00	856.49	46.95	2.47	18.21	6.57

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	409.500	100.00	842.98	0.00	0.00	.04	100.30	0.00
*	409.500	100.00	842.97	-.01	0.00	-.01	52.39	0.00
	410.000	100.00	846.20	0.00	3.22	0.00	229.64	150.00
	410.000	100.00	846.32	.12	3.35	.12	121.94	150.00
	410.100	100.00	847.34	0.00	1.14	0.00	112.83	50.00
	410.100	100.00	847.33	-.01	1.01	-.01	54.60	50.00
	411.100	45.00	847.51	0.00	.17	0.00	827.57	1.00
	411.100	45.00	847.60	.09	.28	.09	800.00	1.00
	411.120	45.00	847.51	0.00	.00	0.00	827.57	175.00
	411.120	45.00	847.60	.09	.00	.09	800.00	175.00
	411.140	45.00	847.51	0.00	-.00	0.00	97.57	50.00
	411.140	45.00	847.60	.09	-.00	.09	70.26	50.00
	411.200	45.00	847.51	0.00	.00	0.00	97.57	125.00
	411.200	45.00	847.60	.09	.00	.09	70.24	125.00
	411.220	45.00	847.51	0.00	-.00	0.00	72.26	70.00
	411.220	45.00	847.60	.09	-.00	.09	51.23	70.00
	410.980	45.00	847.50	0.00	-.01	0.00	10.00	75.00
	410.980	45.00	847.60	.09	-.01	.09	10.00	75.00
	411.020	45.00	848.56	0.00	1.06	0.00	10.00	55.00
	411.020	45.00	848.67	.11	1.07	.11	10.00	55.00
	411.800	45.00	848.73	0.00	.17	0.00	72.62	50.00
	411.800	45.00	848.82	.09	.15	.09	73.73	50.00
	411.900	45.00	848.74	0.00	.01	0.00	196.10	225.00
	411.900	45.00	848.82	.08	.01	.08	196.70	225.00
	412.000	45.00	848.74	0.00	.00	0.00	196.16	250.00
	412.000	45.00	848.83	.08	.00	.08	196.70	250.00
	412.100	45.00	848.74	0.00	.00	0.00	196.12	300.00
	412.100	45.00	848.83	.08	.00	.08	196.71	300.00
*	413.200	45.00	848.55	0.00	-.19	0.00	11.46	300.00
	413.200	45.00	848.69	.14	-.13	.14	12.52	300.00
*	412.830	45.00	849.75	0.00	1.20	0.00	11.48	43.00
*	412.830	45.00	849.75	-.00	1.06	-.00	11.46	43.00
	412.840	45.00	849.98	0.00	.23	0.00	13.21	1.00
	412.840	45.00	849.98	.00	.23	.00	13.22	1.00
	412.860	45.00	850.11	0.00	.13	0.00	14.09	5.00

412.860	45.00	850.11	.00	.13	.00	14.15	5.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	412.870	45.00	850.13	0.00	.02	0.00	14.21	1.00
	412.870	45.00	850.13	-.00	.01	-.00	14.21	1.00
	412.980	45.00	850.89	0.00	.76	0.00	10.00	90.00
	412.980	45.00	850.89	-.00	.76	-.00	10.00	90.00
	413.020	45.00	851.43	0.00	.55	0.00	9.00	190.00
	413.020	45.00	851.43	-.00	.55	-.00	9.00	190.00
	413.500	45.00	851.46	0.00	.03	0.00	15.61	20.00
	413.500	45.00	851.46	-.00	.03	-.00	15.61	20.00
*	413.520	45.00	854.36	0.00	2.90	0.00	26.32	1.00
*	413.520	45.00	854.36	.00	2.90	.00	26.32	1.00
	413.530	45.00	854.58	0.00	.22	0.00	26.97	3.00
	413.530	45.00	854.58	-.00	.22	-.00	26.94	3.00
	413.550	45.00	854.70	0.00	.12	0.00	27.08	1.00
	413.550	45.00	854.70	.00	.13	.00	27.08	1.00
	413.800	45.00	854.71	0.00	.01	0.00	28.14	100.00
	413.800	45.00	854.71	.00	.01	.00	28.14	100.00
	413.980	45.00	854.72	0.00	.01	0.00	9.00	200.00
	413.980	45.00	854.72	.00	.01	.00	9.00	200.00
	414.020	45.00	855.04	0.00	.32	0.00	11.00	145.00
	414.020	45.00	855.04	.00	.32	.00	11.00	145.00
	414.800	45.00	855.52	0.00	.48	0.00	15.43	105.00
	414.800	45.00	855.52	.00	.48	.00	15.43	105.00
	414.850	45.00	855.98	0.00	.46	0.00	15.30	125.00
	414.850	45.00	855.98	-.00	.46	-.00	15.31	125.00
	414.980	45.00	856.40	0.00	.42	0.00	15.08	100.00
	414.980	45.00	856.40	-.00	.42	-.00	15.07	100.00

SUMMARY OF ERRORS

```
CAUTION   SECNO=   409.500  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   409.500  PROFILE= 2  CRITICAL DEPTH ASSUMED

CAUTION   SECNO=   413.200  PROFILE= 1  CRITICAL DEPTH ASSUMED

CAUTION   SECNO=   412.830  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   412.830  PROFILE= 2  CRITICAL DEPTH ASSUMED

CAUTION   SECNO=   413.520  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   413.520  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   413.520  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   413.520  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   413.520  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
```

CAUTION SECNO= 413.520 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA, SODON LAKE BRANCH
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
409.500	52.	24.	4.2	843.0	843.0	0.0
410.000	369.	82.	1.2	846.3	846.2	.1
410.100	55.	27.	3.7	847.3	847.3	0.0
411.100	800.	4221.	.0	847.6	847.5	.1
411.120	800.	4221.	.0	847.6	847.5	.1
411.140	70.	351.	.1	847.6	847.5	.1
411.200	70.	351.	.1	847.6	847.5	.1
411.220	51.	252.	.2	847.6	847.5	.1
410.980	10.	46.	1.0	847.6	847.5	.1
411.020	10.	17.	2.7	848.7	848.6	.1
411.800	74.	113.	.4	848.8	848.7	.1
411.900	197.	347.	.1	848.8	848.7	.1
412.000	197.	348.	.1	848.8	848.7	.1
412.100	197.	348.	.1	848.8	848.7	.1
413.200	13.	11.	4.2	848.6	848.5	.1
412.830	11.	9.	5.1	849.8	849.8	0.0
412.840	13.	12.	3.8	850.0	850.0	0.0
412.860	14.	14.	3.3	850.1	850.1	0.0
412.870	14.	14.	3.3	850.1	850.1	0.0
412.980	10.	15.	3.0	850.9	850.9	0.0
413.020	9.	24.	1.9	851.4	851.4	0.0
413.500	16.	17.	2.7	851.5	851.5	0.0
413.520	26.	12.	3.8	854.4	854.4	0.0
413.530	27.	18.	2.6	854.6	854.6	0.0
413.550	27.	77.	.6	854.7	854.7	0.0
413.800	28.	88.	.5	854.7	854.7	0.0
413.980	9.	25.	1.8	854.7	854.7	0.0
414.020	11.	17.	2.7	855.0	855.0	0.0
414.800	15.	20.	2.2	855.5	855.5	0.0
414.850	15.	19.	2.3	856.0	856.0	0.0
414.980	15.	18.	2.5	856.4	856.4	0.0

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SODUS LAKE DRAIN

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

FLOOD INSURANCE STUDY HYDRAULIC REPORT

PROJECT: HUD-FIA-H-4705 Bloomfield Twp., Oakland County, Michigan

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

WATERCOURSE: Long Lake-Forest Lake Branch and Sodon Lake Branch

STUDY LIMITS: Long Lake-Forest Lake Branch: Lahser Road at corporate boundary (downstream limit) to Club Drive (upstream limit). Sodon Lake Branch: Lahser Road at corporate boundary (downstream limit) to Telegraph Road (upstream limit).

DATE OF AERIAL SURVEY: November 1978 Abrams Aerial Survey

DATE OF LAND SURVEY: 3/5/79-6/5/79, 2/27/80-3/4/80 McNamee, Porter and Seeley field crew

SOURCE OF FLOWS: Discharges were computed by MP&S/SH&G and approved by MDNR on May 29, 1979. Revised hydrology in August 1980 enclosed.

TOPOGRAPHIC INFORMATION: USGS 10 foot topographic maps: 1" = 2000'
Abrams 2 foot topographic maps 1" = 400'

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

VARIABLES AND COEFFICIENTS:

Channel "n"	0.035-0.075
Overbank "n"	0.08-0.15
n values thru bridges	0.013-0.025
Contraction Coefficients	0.15-0.5
Expansion Coefficients	0.35-1.0

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return.

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

XKOR CALCULATIONS: See Table 2

REFERENCES:

1. "Hec-2 Water Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.
2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.
3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey Water Supply Paper 1849.
4. "Floodway Determination using computer Program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.
5. "Flood Study and Drainage Plan, Quarton Branch of Rouge River Flood Plain Information", Birmingham, Bloomfield Hills, Bloomfield Township, Oakland County, Michigan, Hubbell, Roth & Clark, Inc., Bloomfield, Michigan, September 1970, supplemented July 1974.

Starting Conditions

Long Lake-Forest Lake Branch has its mouth in Bloomfield Hills at the confluence with the Quarton Branch. Sodon Lake Branch has its mouth in Bloomfield Hills at the confluence with Lone Lake-Forest Lake Branch. Starting elevations were determined at each drain's mouth in Bloomfield Hills and modeled upstream to the corporate limits with Bloomfield Township. Elevations for the various flows at the corporate limits (Lahser Road) obtained from the Bloomfield Hills models were then used for starting elevations for the limit of study in Bloomfield Township. Long Lake-Forest Lake was started in Bloomfield Hills at normal depth using the slope-area method. Sodon Lake Branch was determined to be coincident with Long Lake-Forst Lake Branch, therefore Sodon Lake Branch was started at the elevation in Long Lake-Forest Lake Branch at their confluence. Convergence tests were run on the 100 year flows for both drains by changing the starting elevation by ± 15%. Convergence was obtained in both drains downstream of Lahser Road in Bloomfield Hills.

High Water Marks and Calibration

There was no high water information available, therefore a calibration test was not possible.

A sensitivity analysis was performed on the 100 year flows for both drains in Bloomfield Township by raising and lowering all Manning "n" values by 30%.

Designated Floodway

Encroachment method 4 in the HEC-2 program was used to determine encroachment stations based on an allowable surcharge of 0.1 feet. At field surveyed sections the designated floodway was established using the computer determined encroachment stations. Between field surveyed sections, the available topographic information was used to complete the floodway information.

Computer Outputs

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

Comments

We have not delineated the complete 100 or 500 year flood plains at this time since this will be done by Abrams after DNR approval of the 100 year and 500 year flood elevations. (See the enclosed profile for the 100 year natural computed water surface profile.)

Various footbridges and dams in Bloomfield Hills for both drains and a few footbridges on Long Lake-Forest Lake Branch in Bloomfield Township were not modeled as preliminary computer runs indicated submergence and therefore negligible loss. Final computer runs showed high submergence and therefore it was determined that the footbridges would not have to be modeled. Table 3 includes data on footbridges not modeled. Long Lake-

Forset Lake Branch has an underground storm drain located at the upstream end. Minimal flow is expected through this drain due to the high submergence in this area. Therefore, this drain was not modeled. Data on this drain can be found with the enclosed bridge sketch information.

A 1945 foot long storm drain is located on the Sodon Lake Branch from the open channel upstream to the lakes located downstream of the limit of study. The storm drain cannot handle all of the flow, therefore, there is a divided flow condition. Hand calculations determined the drain can handle approximately 40 cfs (see attached sheet). Overland flow was modeled by computer as field surveyed sections were available.

Various bridges on both drains, both in Bloomfield Hills and Bloomfield Township, were modeled with the elevations of the low chords lowered by some amount from the actual low chord in order to correctly model pressure flow for the 10 year flow. Bridges altered in this manner on Sodon Lake Branch include Vaughn Road, Sunningdale Rd., Willoway Court and the culvert located between the two lakes downstream of Sunningdale Rd. Bridges altered in this manner on Long Lake-Forest Lake Branch include Valley Way, Footbridge 305A (see profile and Table 1), Vaughn Road, Orchard Ridge Road, Overbrook Road, Pine Valley Way and Franklin Road.

The Sodon Lake Branch was modeled to downstream of two sound barriers located just downstream of Telegraph Road. Hand calculations were performed to determine elevations at the two sound barriers and at Telegraph Road. Backup data for these

calculations were the routing data at Sunningdale, which are enclosed. Hand calculations are also enclosed.

The profile indicates pressure flow is not occurring at Willoway Court on Sodon Lake Branch. The bridge was modeled by special bridge with the low chord lowered to correctly model pressure flow. The enclosed hand calculation verifies the accuracy of this particular model. If the bridge were modeled as a normal bridge, no significant differences would result.

The flood study and drainage plan report (Reference #5) contains flood water surface profiles developed with the aid of high water marks on the Quarton Branch of the Rouge River from a June 1968 flood. Efforts made by MPS/SHG to obtain these high water marks from Hubbell, Roth and Clark, Inc. of Bloomfield Hills, Michigan, were unsuccessful. The MDNR log informed MPS/SHG that several other consulting firms have tried without success to obtain the 1968 flood highwater marks from HRC. Without this data, a meaningful comparison between the two studies cannot be made.

Sodon Lake Branch Hydrology Revisions

Field data has shown that a high, restrictive "sound barrier" has been placed on Sodon Lake Branch just downstream of Telegraph Road. Therefore, the storage values used for the previous Sodon Lake Branch routings at Sunningdale were lower than could presently be expected. The storage-outflow relationship was modified based on the new information. A sample HEC-1 routing run is enclosed. The 100 year flow downstream of Sunningdale has been reduced to 45 cfs. Since the flows have been reduced much more than had been previously

calculated, it was felt that this flow would act much more like a base flow, adding on to peak flows downstream, up to the confluence with Long Lake-Forest Lake Branch. The calculated flows and the flows proposed to be used for this reach of study are enclosed.

HUD - FIA 11-4105
Bloomfield Hydrology
VPK 8/13/80

Summary of Proposed Discharges

Sudden Lake Branch	Drainage Area (sq. mi.)	Peak Discharge (cfs) 10	50	100	500
From Long Lake Forestlake Branch	2.3				
To Sunken Bridge Drain D/S = 2.0 U/S = 1.5		240	340	400	550
		120	170	190	270
To Stoneleigh Drive	1.2				
		90	120	140	190
To D/S Lakes	1.2				
		35	40	45	50
To Telegraph Road	1.0				

HUD-FIA 11-4405
Bloomfield hydrology
VPR 8/12/80

Location	Drainage Area (mi²)	Population Density (p/mi²)		Resultant flows (cfs) 10 Yr	50 Yr	100 Yr	500 Yr
at Summerdale	1.0	1000		35	40	45	50
at Stoneleigh	1.5	1000	*0.12	55 35 90	50 40 120	95 45 140	140 50 190
just u/s Sunken Bridge Drain	1.5	1000	*0.3	85 35 120	130 40 170	145 45 190	220 50 270
just d/s Sunken Bridge Drain	1.95	1000	*0.81	155 35 190	230 40 270	270 45 315	380 50 430
at Long Lake Forest Lake Brook	2.32	1000	*1.75	200 35 235	300 40 340	350 45 395	500 50 550

*Effective drainage areas (excluding base flows)

Flows u/s of Summerdale are considered as a base flow. It is not expected that the Long Lake-Forest Lake Brook flows would be affected.

```
*sav
$lnh 210-450
00210A1    HUD-F1A H-470 TO5 HEC1 FLOOD ROUTING
00220A2    BLOOMFIELD TWP. - SODON LAKE BRANCH
00230A3    FREQUENCY - 200 YEAR SUMMER
00240B      33                30                                          0        5
00250B1      3
00260K       0         1                                    0         1
00270K1    INPUT HYDROGRAPH AT U/S END
00280M      -1                  1.1
00290N       1         7        17        28        45        85       175       275       371       360
00300N     310       265       238       210       185       160       146       125       110        97
00310N      87        73        64        55        47        40        33        27        21        15
00320N      10         5         1
00340K       1         2                                              1
00350K1    ROUTING THRU SUNNINGDALE RD BRIDGE
00360Y                                  1
00365Y1      1                                                        -1
00370Y2      0         2       125       760       800       834       848       862       868       876
00380Y3      0        25        50       100       125       150       170       215       250       275
00390K      99
00400A
00410A
00420A
00430A
00440A
00450/EOF
$lan bc1
$bat sod


SON       12:30     AUG 12,'80
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...
(S) SELECTED...
-2080

HUD-FIA H-470 T05 HEC1 FLOOD ROUTING
BLOOMFIELD TWP. - SODON LAKE BRANCH
FREQUENCY - 200 YEAR SUMMER

JOB SPECIFICATION

NQ	NHR	NMIN	IDAY	IHR	IMIN	METRC	IPLT	IPRT	NSTAN
33	0	30	0	0	0	0	0	5	0
			JOPER	NWT	LROPT	TRACE			
			3	0	0	0			

RUNOFF SUMMARY, AVERAGE FLOW IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES(SQUARE KILOMETERS)

		PEAK	6-HOUR	24-HOUR	72-HOUR	AREA
HYDROGRAPH AT	1	371.	233.	112.	112.	1.10
	(	10.51)(	6.61)(	3.16)(	3.16)(	2.85)
ROUTED TO	2	47.	47.	36.	36.	1.10
	(	1.34)(	1.33)(	1.02)(	1.02)(	2.85)

****
JOD HYDROGRAPH PACKAGE (HEC-1)
1 SAFETY VERSION JULY 1978
LAST MODIFICATION 26 FEB 79
****

12:48 AUG 12,'80

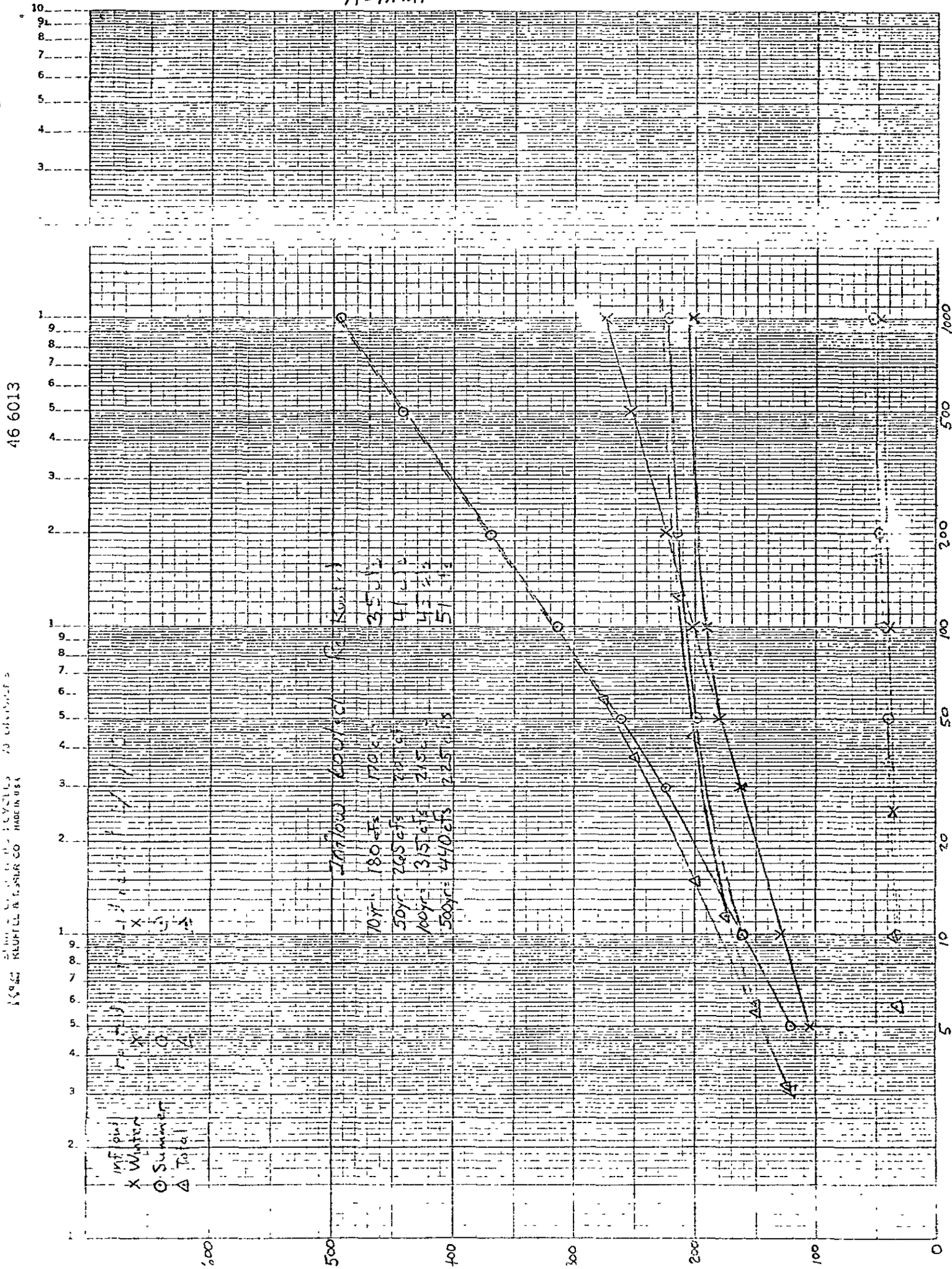
JC SUBMITTED 12:48 AUG 12,'80

) FOUND.

Bloomfield - Sodon Lake Br. @ Sunningdale

$A = 1.1\ mi^2$

3/19/79
JSW



Sodon Lake - Revised Routing

8/12/80

Q	F_s	F_w	F_T
		14	5.8
32	10	25	9.9
35	16	130	36.1
[illegible]	50	640	101.1
45	120	1000	166.7
47	200		

HUT - FIA 1/1
Block - Sodon Lake Br
Storage u/s Surrogate

ELEVATION (1" = 200')

PLAN (1" = 200')

	Elev	Volume		acres
u/s Pond				
③		3.15 + 3.24 + 2.67 =	9.06	3,168,000	8.97
		3.57 + 3.15 + 2.75 =	9.47	3,901,000	8.95
		3.99 + 3.21 + 3.09 =	10.29	4,356,000	10.00
	AREA 2				
u/s Willows/ ct ②		0.60		249,000	0.55	6.5
		1.05		429,000	0.96
		1.51		654,000	1.39
		3.81		1,534,000	3.50
	AREA 3				
u/s Sunningdale ①		0.15		60,000	0.14	1.5
		0.21		84,000	0.19
		0.22		92,000	0.21
		0.38		150,000	0.35
	AREA A				
		TOTAL			
				3,749,000	85.9
				4,192,000	96.2
				4,578,000	105.5
				6,032,000	138.5

* use % to calculate storage from elev. 858 which contributes to each area.
elev 858 = 68.8 acre
71.5 acre-ft

	area	vol.
①	1.0	1.1
②	4.5	4.6
③	63.3	65.8

HUD-FIA 11-4705
Bloomfield - Cedar Lake Branch
JSW Storage u/s Sunnyside

Total Storage

Area @ 858 = 2,998,000 ft², Vol. @ 858 = 71.5 acre-ft
= 68.8 acres

Vol @ 860 = 2/2 (85.9 - 68.8) + 2 × 68.8 + 71.5
= 17.1 + 137.6 + 71.5 = 226.2 acre-ft

Vol @ 862 = 2/2 (96.2 - 85.9) + 2 × 85.9 + 226.2
= 10.3 + 171.8 + 226.2 = 408.3 acre-ft

Vol @ 864 = 2/2 (105.5 - 96.2) + 2 × 96.2 + 408.3
= 9.3 + 192.4 + 408.3 = 610. acre-ft

Vol @ 868 = 4/2 (138.5 - 105.5) + 4 × 105.5 + 610.
= 66 + 422 + 610. = 1098. acre-ft

Breakdown of Storage -
① Sunnyside to Williams
② Williams to Telegraph
③ u/s Telegraph

elev
860 ① 2/2 (1.4 - 1.0) + 2 × 1.0 + 1.1 = 3.5
② 2/2 (5.5 - 4.5) + 2 × 4.5 + 4.6 = 14.6
③ 2/2 (79 - 63.3) + 2 × 63.3 + 65.8 = 208.1

862 ① 2/2 (1.9 - 1.4) + 2 × 1.4 + 3.5 = 6.8
② 2/2 (9.6 - 5.5) + 2 × 5.5 + 14.6 = 29.7
③ 2/2 (84.7 - 79) + 2 × 79 + 208.1 = 371.8

864 ① 1/2 (2.1 - 1.9) + 2 × 1.9 + 6.8 = 10.6
② 2/2 (13.9 - 9.6) + 2 × 9.6 + 29.7 = 53.2
③ 2/2 (89.5 - 84.7) + 2 × 84.7 + 371.8 = 546.

868 ① 4/2 (3.5 - 2.1) + 4 × 2.1 + 10.8 = 22
② 4/2 (35 - 13.9) + 4 × 13.9 + 53.2 = 151
③ 4/2 (110 - 89.5) + 4 × 89.5 + 546 = 925

HUD-FIA H-4705 T-06
Bloomfield - Sodas Lake Branch - Storage u/s Summerdale
JSW 8/8/80

)DON LAKE FRANCE

JMMARY PRINTOUT TABLE 150 Various Flows Used For Rating Date at Sunnydale

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
409.500	170.00	843.17	0.00	0.00	0.00	147.02	0.00
409.500	205.00	843.28	.11	0.00	0.00	213.76	0.00
409.500	220.00	843.32	.04	0.00	0.00	220.74	0.00
409.500	255.00	843.44	.12	0.00	0.00	234.31	0.00
409.500	125.00	843.05	-.39	0.00	0.00	113.64	0.00
409.500	150.00	843.10	.05	0.00	0.00	128.71	0.00
409.500	275.00	843.55	.45	0.00	0.00	246.75	0.00
410.000	170.00	846.43	0.00	3.26	0.00	255.54	150.00
410.000	205.00	846.50	.07	3.22	0.00	264.14	150.00
410.000	220.00	846.53	.03	3.21	0.00	267.60	150.00
410.000	255.00	846.58	.04	3.14	0.00	273.08	150.00
410.000	125.00	846.29	-.29	3.24	0.00	240.10	150.00
410.000	150.00	846.38	.09	3.28	0.00	250.02	150.00
410.000	275.00	846.58	.20	3.03	0.00	272.70	150.00
410.100	170.00	847.57	0.00	1.14	0.00	212.18	50.00
410.100	205.00	847.67	.10	1.17	0.00	226.70	50.00
410.100	220.00	847.71	.04	1.18	0.00	231.15	50.00
410.100	255.00	847.81	.09	1.23	0.00	241.74	50.00
410.100	125.00	847.43	-.38	1.14	0.00	136.51	50.00
410.100	150.00	847.50	.07	1.13	0.00	195.63	50.00
410.100	275.00	847.87	.37	1.29	0.00	249.34	50.00
411.100	170.00	847.73	0.00	.16	0.00	829.42	1.00
411.100	205.00	847.83	.09	.15	0.00	830.19	1.00
411.100	215.00	847.86	.03	.15	0.00	830.47	1.00
411.100	225.00	847.94	.08	.14	0.00	831.16	1.00
411.100	125.00	847.60	-.34	.17	0.00	828.33	1.00
411.100	150.00	847.68	.08	.18	0.00	828.99	1.00
411.100	275.00	847.99	.31	.12	0.00	831.60	1.00
411.120	170.00	847.73	0.00	.00	0.00	829.42	175.00
411.120	205.00	847.83	.09	.00	0.00	830.19	175.00
411.120	215.00	847.86	.03	.00	0.00	830.47	175.00
411.120	225.00	847.94	.08	.00	0.00	831.16	175.00
411.120	125.00	847.60	-.34	.00	0.00	828.33	175.00
411.120	150.00	847.68	.08	.00	0.00	828.99	175.00
411.120	275.00	847.99	.31	.00	0.00	831.60	175.00
411.140	170.00	847.73	0.00	-.00	0.00	99.42	50.00
411.140	205.00	847.82	.09	-.00	0.00	100.19	50.00
411.140	215.00	847.86	.03	-.00	0.00	100.47	50.00
411.140	225.00	847.94	.08	-.00	0.00	101.16	50.00
411.140	125.00	847.60	-.34	-.00	0.00	98.33	50.00
411.140	150.00	847.68	.08	-.00	0.00	98.99	50.00
411.140	275.00	847.99	.31	-.00	0.00	101.60	50.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
411.200	170.00	847.73	0.00	.00	0.00	99.41	125.00
411.200	205.00	847.83	.09	.00	0.00	100.18	125.00
411.200	215.00	847.86	.03	.00	0.00	100.46	125.00
411.200	225.00	847.94	.08	.00	0.00	101.15	125.00
411.200	125.00	847.60	-.34	.00	0.00	98.33	125.00
411.200	150.00	847.68	.08	.00	0.00	98.99	125.00
411.200	275.00	847.99	.31	.00	0.00	101.58	125.00
411.220	170.00	847.73	0.00	-.00	0.00	73.56	70.00
411.220	205.00	847.82	.09	-.00	0.00	74.10	70.00
411.220	215.00	847.86	.03	-.00	0.00	74.30	70.00
411.220	225.00	847.94	.08	-.00	0.00	74.78	70.00
411.220	125.00	847.60	-.34	-.00	0.00	72.80	70.00
411.220	150.00	847.68	.08	-.00	0.00	73.26	70.00
411.220	275.00	847.99	.31	-.00	0.00	75.10	70.00
410.980	170.00	847.73	0.00	.00	0.00	73.56	75.00
410.980	205.00	847.83	.09	.00	0.00	74.10	75.00
410.980	215.00	847.86	.03	.00	0.00	74.31	75.00
410.980	225.00	847.94	.08	.00	0.00	74.78	75.00
410.980	125.00	847.60	-.34	.00	0.00	72.80	75.00
410.980	150.00	847.68	.08	.00	0.00	73.26	75.00
410.980	275.00	848.00	.31	.00	0.00	75.10	75.00
411.020	170.00	854.48	0.00	6.74	0.00	113.19	55.00
411.020	205.00	854.66	.19	6.84	0.00	114.21	55.00
411.020	215.00	854.71	.05	6.85	0.00	114.47	55.00
411.020	225.00	854.76	.05	6.82	0.00	114.74	55.00
411.020	125.00	854.11	-.65	6.51	0.00	111.21	55.00
411.020	150.00	854.34	.23	6.66	0.00	112.46	55.00
411.020	275.00	854.97	.63	6.97	0.00	115.86	55.00
411.800	170.00	854.48	0.00	.00	0.00	144.97	50.00
411.800	205.00	854.67	.19	.00	0.00	146.77	50.00
411.800	215.00	854.72	.05	.00	0.00	147.24	50.00
411.800	225.00	854.76	.05	.00	0.00	147.71	50.00
411.800	125.00	854.11	-.65	.00	0.00	141.44	50.00
411.800	150.00	854.34	.23	.00	0.00	143.66	50.00
411.800	275.00	854.97	.63	.01	0.00	149.71	50.00
411.900	170.00	854.48	0.00	.00	0.00	243.62	225.00
411.900	205.00	854.67	.19	.00	0.00	245.21	225.00
411.900	215.00	854.72	.05	.00	0.00	245.63	225.00
411.900	225.00	854.77	.05	.00	0.00	246.04	225.00
411.900	125.00	854.11	-.66	.00	0.00	240.52	225.00
411.900	150.00	854.34	.23	.00	0.00	242.47	225.00
411.900	275.00	854.98	.63	.00	0.00	247.81	225.00
412.000	170.00	854.48	0.00	.00	0.00	243.63	250.00
412.000	205.00	854.67	.19	.00	0.00	245.21	250.00
412.000	215.00	854.72	.05	.00	0.00	245.63	250.00
412.000	225.00	854.77	.05	.00	0.00	246.04	250.00
412.000	125.00	854.11	-.66	.00	0.00	240.52	250.00
412.000	150.00	854.34	.23	.00	0.00	242.47	250.00
412.000	275.00	854.98	.63	.00	0.00	247.81	250.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
412.100	170.00	854.48	0.00	.00	0.00	243.62	300.00
412.100	205.00	854.67	.19	.00	0.00	245.21	300.00
412.100	215.00	854.72	.05	.00	0.00	245.63	300.00
412.100	225.00	854.77	.05	.00	0.00	246.04	300.00
412.100	125.00	854.11	-.66	.00	0.00	240.52	300.00
412.100	150.00	854.34	.23	.00	0.00	242.47	300.00
412.100	275.00	854.98	.63	.00	0.00	247.81	300.00
413.200	170.00	854.48	0.00	-.00	0.00	167.41	300.00
413.200	205.00	854.66	.19	-.00	0.00	174.53	300.00
413.200	215.00	854.71	.05	-.00	0.00	176.39	300.00
413.200	225.00	854.76	.05	-.01	0.00	178.23	300.00
413.200	125.00	854.11	-.65	-.00	0.00	153.51	300.00
413.200	150.00	854.34	.23	-.00	0.00	162.26	300.00
413.200	275.00	854.97	.63	-.01	0.00	186.16	300.00
412.830	170.00	854.47	0.00	-.00	0.00	119.98	43.00
412.830	205.00	854.66	.19	-.00	0.00	129.14	43.00
412.830	215.00	854.71	.05	-.01	0.00	130.99	43.00
412.830	225.00	854.76	.05	-.01	0.00	132.83	43.00
412.830	125.00	854.11	-.65	-.00	0.00	99.91	43.00
412.830	150.00	854.34	.23	-.00	0.00	112.55	43.00
412.830	275.00	854.96	.63	-.01	0.00	140.71	43.00
412.840	170.00	854.46	0.00	-.01	0.00	119.70	1.00
412.840	205.00	854.65	.19	-.01	0.00	128.91	1.00
412.840	215.00	854.70	.05	-.01	0.00	130.75	1.00
412.840	225.00	854.75	.05	-.01	0.00	132.58	1.00
412.840	125.00	854.10	-.65	-.01	0.00	99.69	1.00
412.840	150.00	854.33	.23	-.01	0.00	112.30	1.00
412.840	275.00	854.96	.63	-.01	0.00	140.42	1.00
412.860	170.00	854.47	0.00	.01	0.00	119.53	5.00
412.860	205.00	854.66	.19	.01	0.00	128.81	5.00
412.860	215.00	854.71	.05	.01	0.00	130.66	5.00
412.860	225.00	854.76	.05	.01	0.00	132.50	5.00
412.860	125.00	854.10	-.66	.01	0.00	99.52	5.00
412.860	150.00	854.34	.23	.01	0.00	112.12	5.00
412.860	275.00	854.97	.63	.01	0.00	140.41	5.00
412.870	170.00	854.49	0.00	.02	0.00	120.40	1.00
412.870	205.00	854.68	.19	.02	0.00	129.44	1.00
412.870	215.00	854.73	.05	.02	0.00	131.29	1.00
412.870	225.00	854.78	.05	.02	0.00	133.13	1.00
412.870	125.00	854.12	-.66	.01	0.00	100.02	1.00
412.870	150.00	854.36	.24	.02	0.00	112.95	1.00
412.870	275.00	854.99	.63	.02	0.00	141.02	1.00
412.980	170.00	854.52	0.00	.02	0.00	94.83	90.00
412.980	205.00	854.71	.19	.03	0.00	105.31	90.00
412.980	215.00	854.76	.05	.03	0.00	108.04	90.00
412.980	225.00	854.81	.05	.03	0.00	110.74	90.00
412.980	125.00	854.14	-.67	.02	0.00	66.12	90.00
412.980	150.00	854.38	.24	.02	0.00	89.37	90.00
412.980	275.00	855.02	.64	.03	0.00	122.37	90.00

SECNO	Q	CWSEI	DIFWSE	DIFWSX	DIFKWS	TOPWID	XLCH
413.020	170.00	863.02	0.00	8.50	0.00	111.78	190.00
413.020	205.00	863.50	.48	8.79	0.00	115.28	190.00
413.020	215.00	863.56	.06	8.81	0.00	115.75	190.00
413.020	225.00	863.63	.07	8.83	0.00	116.00	190.00
413.020	125.00	858.79	-4.85	4.65	0.00	36.00	190.00
413.020	150.00	861.07	2.29	6.69	0.00	36.00	190.00
413.020	275.00	863.88	2.81	8.86	0.00	116.00	190.00
413.500	170.00	863.02	0.00	-.00	0.00	136.74	20.00
413.500	205.00	863.50	.48	-.00	0.00	143.48	20.00
413.500	215.00	863.56	.06	-.00	0.00	144.39	20.00
413.500	225.00	863.63	.07	-.00	0.00	145.36	20.00
413.500	125.00	858.79	-4.85	-.00	0.00	71.30	20.00
413.500	150.00	861.07	2.29	.00	0.00	109.52	20.00
413.500	275.00	863.88	2.81	-.00	0.00	148.86	20.00
413.520	170.00	863.02	0.00	-.00	0.00	135.28	1.00
413.520	205.00	863.50	.48	-.00	0.00	142.01	1.00
413.520	215.00	863.56	.06	-.00	0.00	142.92	1.00
413.520	225.00	863.63	.07	-.00	0.00	143.88	1.00
413.520	125.00	858.78	-4.85	-.00	0.00	69.47	1.00
413.520	150.00	861.07	2.29	-.00	0.00	108.07	1.00
413.520	275.00	863.88	2.81	-.00	0.00	147.38	1.00
413.530	170.00	863.02	0.00	.00	0.00	135.27	3.00
413.530	205.00	863.50	.48	.00	0.00	142.01	3.00
413.530	215.00	863.56	.06	.00	0.00	142.92	3.00
413.530	225.00	863.63	.07	.00	0.00	143.88	3.00
413.530	125.00	858.78	-4.85	.00	0.00	69.44	3.00
413.530	150.00	861.07	2.29	.00	0.00	108.07	3.00
413.530	275.00	863.88	2.81	.00	0.00	147.37	3.00
413.550	170.00	863.02	0.00	.00	0.00	129.68	1.00
413.550	205.00	863.50	.48	.00	0.00	136.42	1.00
413.550	215.00	863.56	.06	.00	0.00	137.32	1.00
413.550	225.00	863.63	.07	.00	0.00	138.28	1.00
413.550	125.00	858.79	-4.85	.00	0.00	62.39	1.00
413.550	150.00	861.07	2.29	.00	0.00	102.47	1.00
413.550	275.00	863.88	2.81	.00	0.00	141.78	1.00
413.800	170.00	863.02	0.00	.00	0.00	135.29	100.00
413.800	205.00	863.50	.48	.00	0.00	142.03	100.00
413.800	215.00	863.57	.07	.00	0.00	142.94	100.00
413.800	225.00	863.63	.07	.00	0.00	143.90	100.00
413.800	125.00	858.79	-4.84	.00	0.00	69.62	100.00
413.800	150.00	861.08	2.28	.00	0.00	108.10	100.00
413.800	275.00	863.88	2.81	.00	0.00	147.39	100.00
413.980	170.00	863.02	0.00	.00	0.00	110.13	200.00
413.980	205.00	863.50	.48	.00	0.00	116.87	200.00
413.980	215.00	863.57	.07	.00	0.00	117.79	200.00
413.980	225.00	863.64	.07	.00	0.00	118.75	200.00
413.980	125.00	858.80	-4.84	.01	0.00	42.48	200.00
413.980	150.00	861.08	2.28	.00	0.00	78.16	200.00
413.980	275.00	863.89	2.81	.00	0.00	122.26	200.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
414.020	170.00	865.01	0.00	1.99	0.00	222.00	145.0
414.020	205.00	865.24	.23	1.74	0.00	222.00	145.0
414.020	215.00	865.29	.05	1.73	0.00	222.00	145.0
414.020	225.00	865.33	.04	1.70	0.00	222.00	145.0
414.020	125.00	862.09	-3.25	3.29	0.00	63.00	145.0
414.020	150.00	864.49	2.40	3.41	0.00	222.00	145.0
414.020	275.00	865.54	1.05	1.65	0.00	222.00	145.0
414.800	170.00	865.01	0.00	.00	0.00	222.00	105.0
414.800	205.00	865.24	.23	.00	0.00	222.00	105.0
414.800	215.00	865.29	.05	.00	0.00	222.00	105.0
414.800	225.00	865.33	.04	.00	0.00	222.00	105.0
414.800	125.00	862.09	-3.24	.00	0.00	222.00	105.0
414.800	150.00	864.49	2.40	.00	0.00	222.00	105.0
414.800	275.00	865.54	1.05	.00	0.00	222.00	105.0
414.850	170.00	865.01	0.00	.00	0.00	222.00	125.0
414.850	205.00	865.24	.23	.00	0.00	222.00	125.0
414.850	215.00	865.29	.05	.00	0.00	222.00	125.0
414.850	225.00	865.33	.04	.00	0.00	222.00	125.0
414.850	125.00	862.09	-3.24	.00	0.00	222.00	125.0
414.850	150.00	864.49	2.40	.00	0.00	222.00	125.0
414.850	275.00	865.54	1.05	.00	0.00	222.00	125.0
414.980	170.00	865.01	0.00	.00	0.00	222.00	100.0
414.980	205.00	865.24	.23	.00	0.00	222.00	100.0
414.980	215.00	865.30	.05	.00	0.00	222.00	100.0
414.980	225.00	865.34	.04	.00	0.00	222.00	100.0
414.980	125.00	862.09	-3.24	.00	0.00	222.00	100.0
414.980	150.00	864.49	2.40	.00	0.00	222.00	100.0
414.980	275.00	865.54	1.05	.00	0.00	222.00	100.0

SUMMARY OF ERRORS

C 3.0, L=250 Q = 750 $H^{3/2}$

OLD DATA - used for computing storage-outflow

Q	H
170	.37
205	.42
215	.43
225	.45
125	.30
150	.34
275	.51

Culvert D/s Telegraph + Telegraph

3' ϕ → A = 7.1 $l = 28' + 1.0' + 2.8 = 5.4$ + weir flow over Culv.

P = 9.4 n = .032 $k_f = \frac{29n^2 l}{R^{4/3}}$ R = .76 k_F = 3.8

Q = 125 h_v = 4.8

	Sunningdale (2.9)	Willoway (3.0)	Culvert + Telegraph (5.4)		
100 cfs	A=12.3 h_v = 1.0	A=14.9 h_v = 0.7	A=7.1 h_v = 3.1		
50 cfs	h_v = .25	h_v = .18	h_v = .77		
25	h_v = .06	h_v = .04	h_v = .2		
	stor(ac-ft)	stor(ac-ft)	stor(ac-ft)	Storage (ac-Ft.)	
100	854	856.1	866.26	758	760
50	854	854.6	858.8	122	125
25	854	854.5	855.6	1	2

culvert D/s Telegraph

45 cfs h_v = .62 $h_L = (1+.7)\cdot .7 = 2.4$

856.1 → 857.6

Telegraph 1 + 0.5 + 1. = 2.0

h_L = 1.7 → 858.9

LEGEND

500 - YEAR FLOOD

100 - YEAR FLOOD

50 - YEAR FLOOD

10 - YEAR FLOOD

FLOOD PROFILES

SODDY LAKE DRAIN

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Federal Insurance Administration

OF BERKELEY, [illegible]

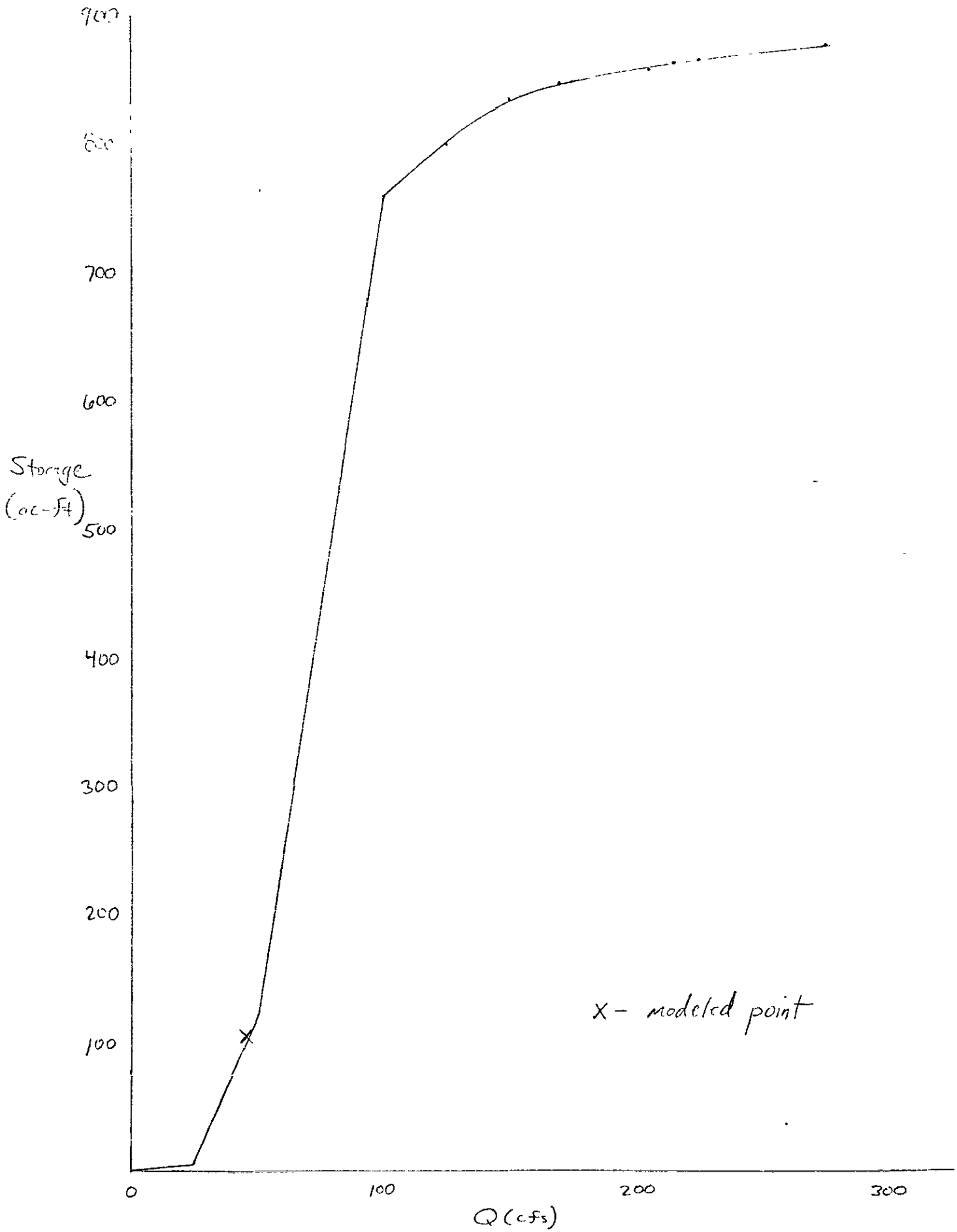
MARYLAND (CO.)

HJS-FIA H-4705 T-06
Bloomfield - Sodon Lake Branch - Storage u/s Sunnydale
JSW 8/9/00

Storage (acre-ft)

Q		elev	Area 1 u/s Sunnydale (Wilson)	Area 2 u/s culvert - Telegraph	Area 3	Total
	⑤	862.1		51		800
	④	866.3			765	
150	⑥	861.1	5			
	②	864.5		61		834
	③	866.34			768	
170	⑦	863.0	9			
	①	865.0		71		848
	⑧	866.37			768	
205	⑨	863.5	10			
	⑫	865.25		74		857
	⑩	866.42			773	
215	⑪	863.56	10			
	⑤	865.29		76		862
	⑬	866.43			776	
225	⑭	863.63	10			
	⑥	865.33		77		865
	⑮	866.45			778	
275	⑯	863.86	11			
	⑦	865.54		80		876
	⑰	866.51			785	

HUD-FIA H-4705 T-06
Bloomfield Twp - Sodon Lake Branch - Storage u/s Sunningdale
JSW 8/20/90
Storage - Outflow @ Sunningdale



HUD-FIA H-4705
Twp of Bloomfield FIS
SODON LAKE BRANCH

JSW
8/20/80

OLD SOUND BARRIER
$\ell = 31'$ 48" Ø CMP 1.5' deep w/ sediment

Ratio: $\frac{2.5}{4} = .63 \Rightarrow A = .521 \times 4^2 = 8.34 \text{ FT}^2$

Handbook of Hydraulics, pg 7-30

$R = .284 \times 4 = 1.14 \rightarrow P = 7.32$

XKOR coeff: $1 + 0.9 + .5 = 2.4$

$n = .025$

$K_F = \frac{29 \times .025^2 \times 31}{1.14^{4/3}} = .5$

NEW SOUND BARRIER AND TELEGRAPH RD
$\ell = 221'$ 5' Ø RCP $n = .012$
$\approx 2.8'$ deep w/ sediment

$\frac{2.2}{5} = .44 \Rightarrow A = .3328 \times 5^2 = 8.32$

$R = .229 \times 5 = 1.15 \rightarrow P = 7.27$

XKOR Coeff. $1 + 0.4 + .8 = 2.2$

$K_F = \frac{29 \times .012^2 \times 221}{1.15^{4/3}} = .8$

$Q = 45$ cfs – (100 yr)

@ old Sound Barrier
D/s elev = 856.4
$Q = 45$ cfs $V = 5.4$ $h_v = .45$ $h_L = 1.1$
u/s elev = 857.5

@ new Sound Barrier + Telegraph
D/s elev = 857.5
$Q = 45$ cfs $V = 5.4$ $h_v = .45$ $h_L = 1.0$
u/s elev = 858.5

Computer Model + hand calculated results are close to expected storage-outflow relationship derived from topo info. and hand calculations. Therefore hydrology and model are good.

Compute 10, 50 + 500 year flows by hand to determine elevations @ Old Sound Barrier + at Telegraph.

HUD-FIA H-4705 T-06
Bloomfield Twp FIS
SODDN LAKE BRANCH

JSW
8/20/80

Loss Computations Thru Old Sound Barrier & New Sound Barrier + Telegraph.

(1) Old Sound Barrier

10 yr - Q = 35 cfs D/s elev = 856.2
h_v = .28 h_L = .7
u/s elev = 856.9

50 yr - Q = 40 cfs
h_v = .36 h_L = .9
D/s elev = 856.3 u/s elev = 857.2

500yr - Q = 50 cfs
h_v = .56 h_L = 1.3
D/s elev = 856.5 u/s elev = 857.8

(2) @ New Sound Barrier + Telegraph Rd.

10 yr - Q = 35 cfs
h_v = .28 h_L = 0.6
D/s elev = 856.9 u/s elev = 857.5

50 yr - Q = 40 cfs
h_v = .36 h_L = 0.8
D/s elev = 857.2 u/s elev = 858.0

500yr - Q = 50 cfs
h_v = .56 h_L = 1.2
D/s elev = 857.8 u/s elev = 859.0

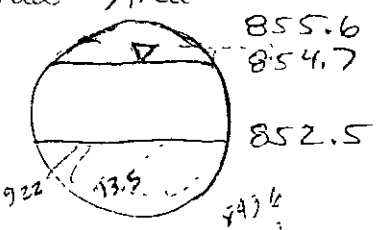
MUD-FIA M-4705 T-06
Bloomfield Twp
Sodon Lake Branch JSW 8/20/80
Check modeling @ Willaway Ct.

② Willaway Ct.

6' Ø CMP 29' Deep w/ Sediment
$\ell = 145'$ $A = 14.9\ ft^2$
$A = 28.3\ ft^2$ $R = 1.54 \rightarrow P = 9.7\ ft.$
reference Brater's Handbook of Hydr.

D/s invert 852.5 (ELLC = 855.6) / U/s invert = 853.5 (ELLC = 856.6)
D/s elev = 854.72

Actual Area



$A \Rightarrow \frac{0.9}{6} = .15$
$.0739 \times 6^2 = 2.7\ ft^2$
$\therefore Area_{act.} = 14.9 - 2.7 = 12.2\ ft^2$

$S_{pipe} = 1/145 = .0069$

$R = .093 \times 6 = 0.56$
$P = 4.8$
$\therefore P_{act} \approx 9.7 - .3(2.4) = 9.0$

$R_{act} = 12.2/9.0 = 1.36$

$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$

$45 = \frac{1.49}{.015} 12.2 (1.36)^{2/3} S^{1/2} \rightarrow S = .00092$

$.00092 \times 145 = .13'$

$1.5 \times h_v \Rightarrow h_v = \frac{(45/12.2)^2}{2g} = .2 \quad h_L = 0.3$

Loss from computer for 100 yr flow thru Willaway = 0.3' Therefore model is good to use as is.

CONSULTING ENGINEERS
ANN ARBOR MICHIGAN

COMMUNITY: Bloomfield Twp FILE NO
WATERCOURSE: Sodon Lake Branch
DATE CHK BY DATE

TABLE 1 - SECTIONS

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

SECTION NO.		SECTION TYPE	REMARKS
399.8		4	Valley Section - Developed from Abrams Topographic Map & Confluence with Long Lake-Harvest Lake Branch
400		1	Valley Section
401.2		3	D/S Face Footbridge 401.2A - Repeat 400
401.22		4	U/S Face Footbridge 401.2A - Developed from 401.2 and Abrams Topographic Map
401.3		4	Valley Section - Repeat 401.22
400.98		4	D/S Face Orchard Ridge Rd. - Repeat 401.3
401.02		3	U/S Face Orchard Ridge Rd - Repeat 401.8
401.8		1	Valley Section
401.83		3	Valley Section - Repeat 401.8
401.85		3	Valley Section - Repeat 401.8
401.95		3	Valley Section - Repeat 402
402		1	Valley Section
402.1		3	Valley Section - Repeat 402
402.9		3	Valley Section - Repeat 403.2
403.2		1	Valley Section
402.98		3	D/S Face Vaughn Rd - Repeat 403.2
403.02		3	U/S Face Vaughn Rd - Repeat 403.2
403.8		1	Valley Section
404		1	Valley Section
405.2		1	Valley Section
404.98	A	3	D/S Face Lahser Rd - Repeat 405.2 Bloomfield Hills & Bloomfield Twp Boundary
405.02		3	U/S Face Lahser Rd - Repeat 405.8
405.8	B	1	Valley Section
405.81		3	Valley Section - Repeat 405.8
405.84		4	D/S Face Driveway Bridge 405A - Developed from Bridge Details and Abrams Topographic Maps
405.81	C		
405.86		4	U/S Face Driveway Bridge 405A - Repeat 405.84
405.99		3	Valley Section - Repeat 406
406	D	1	Valley Section

CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

JOB COMMUNITY: Bloomfield Twp. FILE NO
WATERCOURSE: Sodon Lake Branch
COMPUTED DATE CHK BY DATE

TABLE 1 - SECNO

Section Types

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

Section No.		Section Type	Remarks
406.1		3	Valley Section - Repeat 406
406.5	E	3	Valley Section - Repeat 406 - D/S end of storm drain at Stoneleigh Drive.
407.1		3	Overland Flow Section - Revised to eliminate ineffective flow area taken up by structures + Repeat 407.2
407.2	F	2	Overland Flow Section - Revised to eliminate ineffective flow area taken up by structures
407	G	2	Overland Flow Section - Revised to eliminate ineffective flow area taken up by structures
407.8	H	2	Overland Flow Section - Revised to eliminate ineffective flow area taken up by structures
408	I	1	Overland Flow Section
409	J	1	Overland Flow Section
409.1		3	Overland Flow Section - Repeat 409
409.5		3	Overland Flow Section - Repeat 410
410	K	2	Overland Flow Section - Revised to eliminate ineffective flow area taken up by structures
410.1		3	Overland Flow Section - Repeat 410 - U/S end of storm drain at lake
411.1	L	4	Lake Section - Developed from 411.2 and Abrams Topographic Map. Upstream end of storm drain
411.12		4	Lake Section - Repeat 411.1
411.14		3	Lake Section - Repeat 411.12
411.2	M	1	Lake Section
411.22		4	Lake Section - Developed from 411.2 and Abrams Topographic Map
410.98		4	D/S Face Culvert between Lakes - Repeat 411.22
411.02	N	4	U/S Face Culvert between Lakes - Developed from 411.8 and Abrams Topographic Map
411.8	O	1	Lake Section
411.9		3	Lake Section - Repeat 412
412	P	1	Lake Section
413.2	Q	1	Valley Section

CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

JOB: HUD-FIA 14-4105
COMMUNITY: Bloomfield Twp FILE NO.
WATERCOURSE: Sodon Lake Branch
COMPUTED BY DATE CHK BY DATE

TABLE 1 - SECNO

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

SECTION NO.	SECTION TYPE	REMARKS
412.83	3	Valley Section - Repeat 413.2
412.84	3	D/s Face Foot Bridge - 412A + Repeat 413.2
R 412.86	3	U/s Face Foot Bridge 412A + Repeat 413.2
412.87	3	Valley Section - Repeat 413.2
412.98	3	D/s Face Sunningdale - Repeat 413.2
S 413.02	3	U/s Face Sunningdale - Repeat 413.8
413.5	3	Valley Section - Repeat 413.8
413.52	4	D/s Face Dam 413A - Developed From 413.8 and Dam Details
T 413.53	4	U/s Face Dam 413A - Repeat 413.52
413.55	3	Valley Section - Repeat 413.8
413.8 U	1	Valley Section
413.98	3	D/s Face Culvert Parallel to Walloway Ct. - Repeat 413.8
V 414.02	3	U/s Face Culvert Parallel to Walloway Ct. - Repeat 414.8
414.8 W	1	Valley Section
414.85	3	Valley Section
414.98	3	Valley Section

WILLIAM, PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

JOB: JOB : HUD-HA H-4103 SHEET NO
SUBJ: COMMUNITY : Bloomfield Twp FILE NO
COMPUTED BY: WATERCOURSE : Sodon Lake Branch CHKD BY DATE

TABLE-2 — XKOR CALCULATIONS

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

Cross Section Location	K_e	A	P	R	n	l	K_F	XKOR	REMARKS
401.2-401.22	0.4	14.2	18.8	0.7	0.013	96'	0.75	2.15	Footbridge 401.2A
400.98-401.02	0.5	16.4	10.8	1.5	0.025	36'	0.4	1.9	Orchard Ridge
402.98-403.02	0.5	9.6	11.	0.9	0.025	30'	0.65	2.15	Vaughn Rd.
404.98-405.02	0.4	3.3	4.5	0.7	0.013	45'	0.35	1.75	Lahser Rd.
405.84-405.86	0.7	14.1	12.4	1.1	0.025	56'	0.85	2.55	Driveway Bridge 405A
Storm Drain	= See "Comments" Section and hand calculations							enclosed	
410.98-411.02	0.5 L_2	7.1	9.4	0.8	0.013	55'	0.4	1.9	Culvert between lakes (see attached sheet)
	includes 0.1 coefficient for box entrance and 0.4 coefficient for culvert entrance								
412.98-413.02	0.5	12.3	8.9	1.4	0.025	120'	1.4	2.9	Sunningdale
413.98-414.02	0.5	14.9	9.7	1.5	0.025	145'	1.5	3.0	Culvert parallel Willoway Ct.

JOB: HUD-FIA H-4705
COMMUNITY: Bloomfield Twp.
WATERCOURSE: Sodon Lake Branch

TABLE 3 - Uncoded Bridge, Dam, Obstruction Data

Description	Location	Data	100 Yr Floodplain: Area and Elevation
Weir 401A	≈75' u/s Orchard Ridge Rd	3.7' high, 20' wide Area - 74 Ft² Top elev - 817.7	633 Ft² elev 820.3

HUD-FIA H-4705 T-06
BLOOMFIELD TWP
SOOON LAKE

JSW
7/9/80

1945' long storm drain from Stoneleigh to Lakes

24"×45" - 190'
24"×45" - 125'
24"×36" - 150'
24"×36" - 275'
24"×36" - 175'
24"×36" - 315'
} 1945

24×45" ≈ 33"Ø
24"×36" ≈ 30"Ø

approximate 100 yr level @ D/s end : 831.86

all flow overland = ~~260~~ 140 cfs @ 847.5 ⇒ elev = 848.1 847.5

Flow in pipe : $S = \frac{848.1 - 831.86}{1945'} = \frac{16.24}{1945} = .00834 = .84\%$ .82%

use 24"×36" → Q = ~~88~~ 317 cfs

Assume 40 cfs through storm drain -
take off 40 cfs from all flows at D/s
end of stormdrain for overland flow.

Freq	Q	New Q
10	~~215~~ 90	~~175~~ 50
50	~~245~~ 120	~~200~~ 80
100	~~260~~ 140	~~220~~ 100
500	275 190	~~255~~ 150

Hydraulic Analysis

Subject: Bridges

Project: HUD-FIA-H-4705

Community Bloomfield Twp

Watercourse Sodon

Remarks

Bridge Location X-sec 411 (between lakes) (410.98 - 411.02)

Routine: Special

n values .013 - 3'ϕ - 55' long concrete

skew angle

enroachment option

shock coefficients .3 + .5

BT cards YES

$\frac{29n^2l}{R^{4/3}}$

Special Bridge Coefficients

Pier shape (XK) 0.

Orifice coeff. (XKOR) 1 + .1 (exit area) x.2 + 0.4 (box entrance) = ~~1.6~~ 1.9

Weir coef. (COFQ) 2.9 +0.4 for 3'ϕ entr.

Weir Length (RDLEN) —

Bottom of trapezoid (BWC) 3.0

Area of trapezoid (BAREA) 7.1

Side Slope (SS) 0.

U/s Invert of trap. (ELCHU) 844.4

D/S Invert of trapezoid (ELCHD) 842.3

Pressure Elev. (ELLC) 852.5

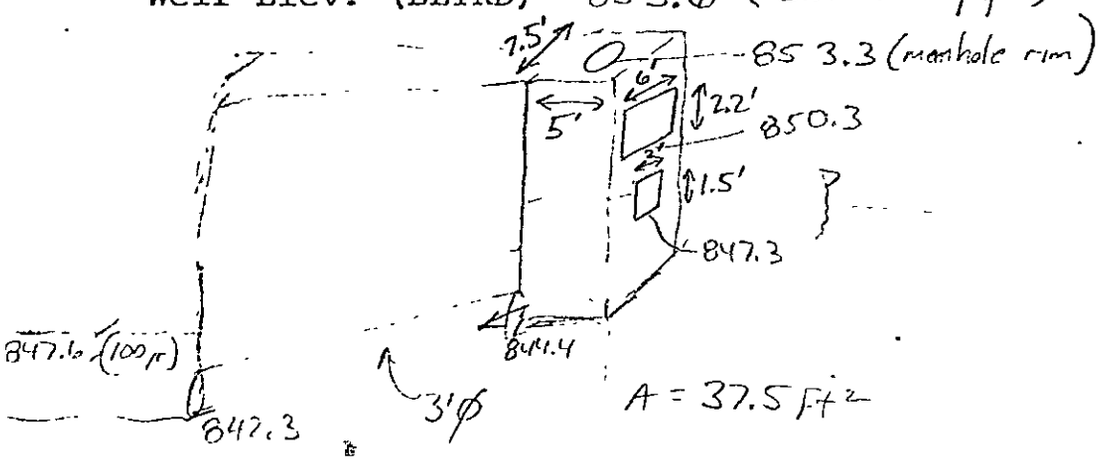
Weir Elev. (ELTRD) 853.6 (Grd over pipe)

3'ϕ → A = 7.1 Ft²
P = 9.4
R = .76

Entrance Area
= 2.2×6 + 1.5×2
= 13.2 + 3 = 16.2 ft

h_v @ 215 = 2.75

$\frac{2.75}{14.25} = .2$



A = 37.5 Ft²

3'ϕ - A = 7.1
Q = 215 v = 30.3'/sec
$h_v = \frac{v^2}{2g} = 14.25$
weir flow

1/15/81 Acceptance letter
(Report being xeroxed)

MP&S
SH&G
3131 S. State
~~2223 Packard Road~~
Ann Arbor, Michigan
48104
~~(313) 788-8220~~
(313) 665-6000
455 W. Fort St.
Detroit, Michigan
48226
(313) 964-3000

A Joint Venture

December 19, 1980

Mr. Frank Finch
Insurance & Mitigation Division
Region V - FEMA
One N. Dearborn
Chicago, Illinois 60602

RECEIVED
JAN 1981
WATER MANAGEMENT

Re: FIS Bloomfield Township
Oakland County
Sodon Lake Drain - Hydraulics

Dear Mr. Finch:

This letter is in regards to comments made by the Michigan Department of Natural Resources in a letter to you dated November 26, 1980. The points in question were reviewed, with the following analysis:

1. 411.02-413.2

This comment refers to the apparent discrepancy between the 100-year flood level upstream of the culvert and the water surface shown on the topographic map. The calculated loss through the structure has been rechecked and does model the inlet correctly. Please note that during the field survey, the water surface on the upstream side of the structure was below the top of the first box opening. This is in agreement with our analysis. Refer to the photo at this location and the field sketch, which has been included. This information indicates the present lake level is closer to an elevation of 848. rather than an elevation of 849.3 indicated on the topographic map.

2. 409-Lake

Within this reach, the field surveyed section at 409 has been repeated at 409.1, with an overall elevation increase of 2' for the section, while Section 409.5 and the u/s sections include modelling of the houses in this region.

As requested by the DNR, we will include the following statement in the text of the flood insurance study:

NOTE: Additional field measured cross-sections may be needed to verify the water surface profile between the cross sections used in this report. When the difference in the elevation of the channel bottom between cross-sections exceeds 2/3 the depth of flood flows, variations in the channel bottom can cause significant changes in the flood profiles.

3. 410.1

The flow out of the lake is limited to an effective width of 55' to account for the structures (homes) in this region. The effective flow at this location includes only the main spillway flow and not the divided portions of the flow. Although at section 410, 14% of the flow is in the left overbank, u/s and d/s of this location the flow is completely contained in the main channel at approximately 55'. Therefore, the floodway delineation is shown as such.

The plan has been modified where these comments have required it. Please contact me if you have any questions concerning these comments.

Very truly yours,

McNAMEE, PORTER AND SEELEY

BY Carol Miller
Carol J. Miller, E.I.T.

CJM:gh

cc: Suzanne Elms

Hydraulic Analysis

Subject: Bridges

Project: HUD-FIA-H-4705

Community Bloomfield Twp

Watercourse Soden

Remarks

Bridge Location X-sec 411 (between lakes) (410.98 - 411.02)

Routine: Special

n values .013 - 3'ϕ - 55' long concrete

skew angle

enroachment option

shock coefficients .3 + .5

BT cards YES

$\frac{29n^2l}{R^{4/3}}$

Special Bridge Coefficients

Pier shape (XK) =0.

Orifice coeff. (XKOR) 1 + (box entrance 0.4) + (eq. circ. .1 x.2) + 0.4 = ~~1.9~~

Weir coef. (COFQ) 2.9 +0.4 for 3'ϕ entr.

Weir Length (RDLEN) —

Bottom of trapezoid (BWC) 3.0

Area of trapezoid (BAREA) 7.1

Side Slope (SS) 0.

U/s Invert of trap. (ELCHU) 844.4

D/S Invert of trapezoid (ELCHD) 842.3

Pressure Elev. (ELLC) 852.5

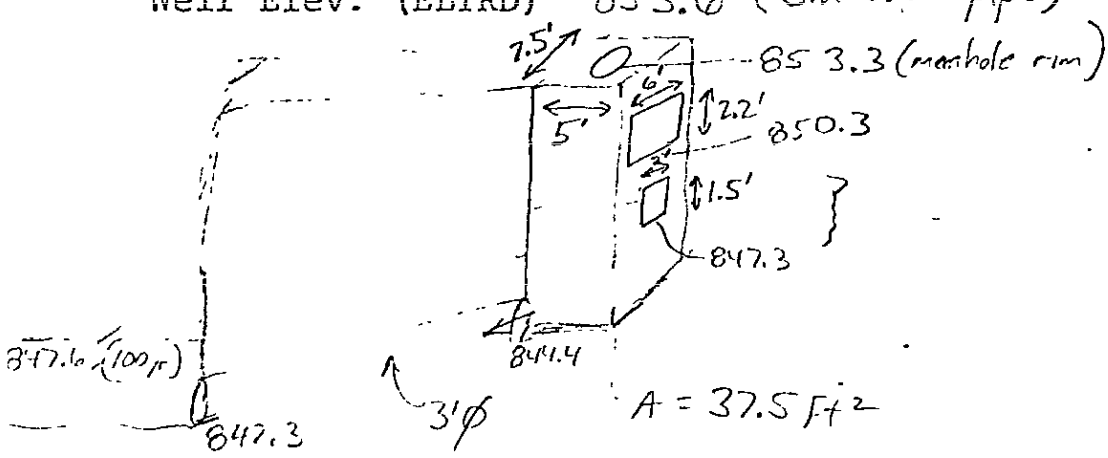
Weir Elev. (ELTRD) 853.6 (Grd over pipe)

3'ϕ → A = 7.1 Ft²
P = 9.4
R = .76

Entrance Area
= 2.2×6 + 1.5×2
= 13.2 + 3 = 16.2 ft

h_v @ 215 = 2.75

$\frac{2.75}{14.25} = .2$



3'ϕ - A = 7.1
Q = 215 v = 30.3 f/sec
$h_v = \frac{v^2}{2g} = 14.25$
weir flow

3-3-60

476 D/5

Sodon Lake Branch

X-sec #11

Sta.	+	HI	-	Elev.	
				843.40	Water Surface of Lake (see p 6)
	13.32	856.72			
			14.4	842.3	D. S. invert 3' ϕ pipe, 55' long
			3.41	853.31	MH rim on dam
			12.3	844.4	U.S. invert 3' pipe
			9.4	847.3	invert, 2' wide x 1.7' high opening
			6.4	850.3	invert, 6' wide x 2.2' high opening
			3.1	853.6	low spot, ground over dam
			9.7	847.0	lake invert, U S of dam
			14.8	841.9	lake invert, D S of dam
			10.58	846.14	D S. headwall center
	5.33	851.47			
B.M.			8.07	843.40	

3-3-80

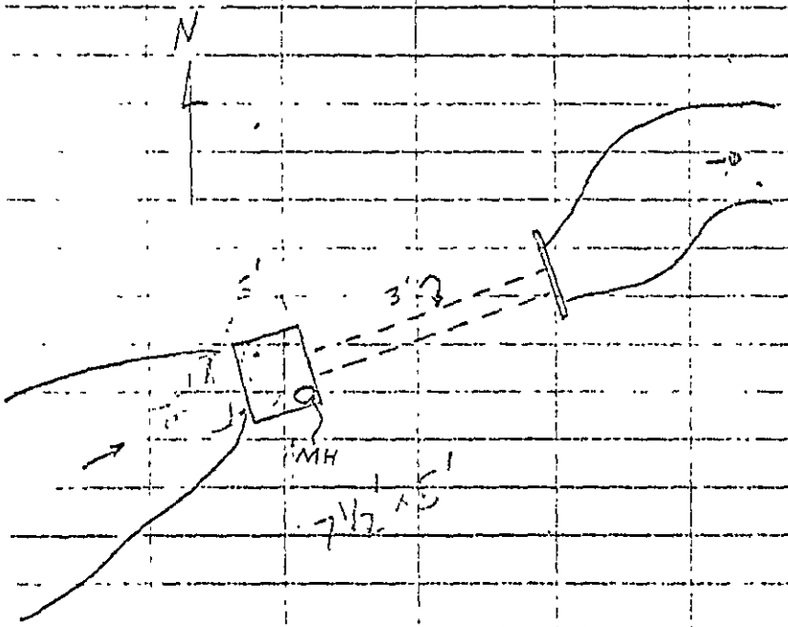
1760/8

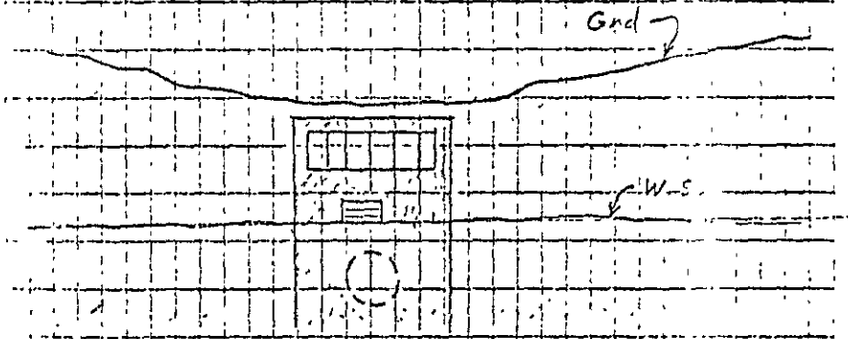
Soden Lake Branch
X-sec # 411

picture # 3
Looking U.S

picture # 4
Looking D.S.

picture # 5
Looking D.S.





Openings: 6' wide x 2.2' high
2' wide x 1.5' high

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

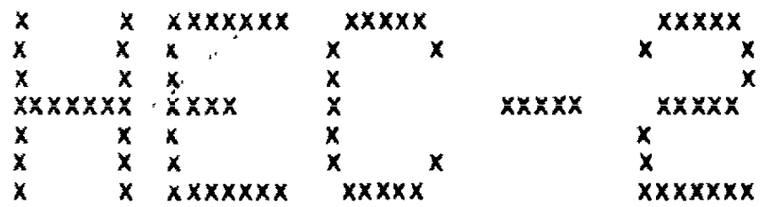
3) WATERCOURSE: SODUN LAKE DRAIN

4) DOCUMENT TYPE: PRODUCTION RUN

00BREAK00

```
**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED JULY 1979                                     *
*                                                        *
*  RUN DATE  08/18/80  TIME  .11.31.34.                  *
**********************************************************
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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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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HUD-FIA H-4705
T2      BLOOMFIELD HILLS
T3      SODON LAKE BRANCH

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        2.        0.        0.  0.000000      0.00     -1.0       0.   817.070     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    203.000    23.000    31.000    63.000     0.000   150.000     0.000     0.000     0.000     0.000

NC      .085      .085      .055      .150      .350     0.000     0.000     0.000     0.000     0.000
QT     5.000   240.000   340.000   400.000   550.000   400.000     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

         ** CONFLUENCE WITH LONG LAKE - FOREST LAKE BRANCH

X1   399.800    10.000    48.000   220.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   820.000     0.000   818.000    48.000   816.000    56.000   814.000    66.000   812.400   100.000
GR   812.400   170.000   814.000   208.000   816.000   216.000   818.000   220.000   820.000   280.000

X1   400.000    10.000    51.000   129.000   200.000   200.000   200.000     0.000     0.000     0.000
GR   822.000     0.000   821.800    30.000   821.200    51.000   820.000    60.000   812.100    72.000
GR   812.100    95.000   815.600   108.000   818.400   129.000   818.800   243.000   822.000   285.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

         ** D/S FACE FOOTBRIDGE 401.2A

X1   401.200     0.000     0.000     0.000   200.000   200.000   200.000     0.000      .300     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   816.100   816.100     0.000
SB     0.000     2.150     2.700   175.000     4.730     0.000    14.200     0.000   813.100   812.700

X1   401.220    11.000   131.000   291.000    96.000    96.000    96.000     0.000     0.000     0.000
X2     0.000     0.000     1.000   816.100   819.500     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   819.500   819.500     0.000
GR   825.100     0.000   819.400   100.000   819.000   131.000   817.100   178.000   813.100   195.000
GR   813.100   225.000   817.000   250.000   818.500   270.000   822.100   291.000   823.700   331.000
GR   825.100   487.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   401.300     0.000     0.000     0.000     7.000     7.000     7.000     0.000     0.000     0.000

         ** D/S FACE ORCHARD RIDGE RD.
```

X1	400.980	0.000	0.000	0.000	8.000	8.000	8.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	817.400	817.400	0.000
SB	0.000	1.900	2.800	275.000	4.210	0.000	16.430	0.000	813.500	813.200
X1	401.020	13.000	192.000	241.000	36.000	36.000	36.000	0.000	-.600	0.000
X2	0.000	0.000	1.000	817.400	819.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	819.400	819.400	0.000
GR	825.000	0.000	821.900	16.000	822.000	145.000	819.800	192.000	814.800	223.000
GR	814.100	226.000	814.100	230.000	814.800	233.000	816.600	241.000	815.900	296.000
GR	818.800	365.000	821.000	386.000	825.000	464.000	0.000	0.000	0.000	0.000
X1	401.800	0.000	0.000	0.000	75.000	75.000	75.000	0.000	.600	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	401.830	0.000	0.000	0.000	205.000	205.000	205.000	0.000	.400	0.000
X1	401.850	0.000	0.000	0.000	235.000	235.000	235.000	0.000	.500	0.000
X1	401.950	13.000	363.000	383.000	230.000	230.000	230.000	0.000	-.400	0.000
GR	826.000	0.000	821.500	257.000	818.000	333.000	817.200	363.000	816.200	371.000
GR	815.800	373.000	815.800	377.000	816.200	379.000	817.400	383.000	817.400	416.000
GR	820.200	496.000	820.700	542.000	826.000	656.000	0.000	0.000	0.000	0.000
X1	402.000	0.000	0.000	0.000	230.000	230.000	230.000	0.000	.400	0.000
QT	5.000	120.000	170.000	190.000	270.000	190.000	0.000	0.000	0.000	0.000
X1	402.100	0.000	0.000	0.000	225.000	225.000	225.000	0.000	1.900	0.000
X1	402.900	13.000	204.000	238.000	250.000	250.000	250.000	0.000	-2.800	0.000
GR	832.000	0.000	829.800	74.000	824.200	204.000	822.000	216.000	821.900	219.000
GR	821.900	222.000	822.000	225.000	823.500	238.000	824.700	296.000	826.400	324.000
GR	828.700	343.000	830.000	366.000	830.800	409.000	0.000	0.000	0.000	0.000
X1	403.200	0.000	0.000	0.000	250.000	250.000	250.000	0.000	2.800	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE VAUGHN RD.

X1	402.980	0.000	0.000	0.000	95.000	95.000	95.000	0.000	.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.000	825.000	0.000
SB	0.000	2.150	2.800	175.000	2.750	0.000	9.620	0.000	822.600	822.600
X1	403.020	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	825.000	828.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.100	828.100	0.000
X1	403.800	10.000	123.000	213.000	80.000	80.000	80.000	0.000	0.000	0.000
GR	832.000	0.000	827.800	40.000	825.500	123.000	823.500	136.000	821.000	154.000

GR	821.000	183.000	823.500	201.000	824.900	213.000	827.100	273.000	832.000	316.000
NC	.095	.095	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	404.000	10.000	131.000	245.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	834.000	0.000	828.100	50.000	828.000	131.000	823.500	158.000	822.200	183.000
GR	822.200	211.000	823.500	236.000	825.400	245.000	826.800	284.000	834.000	345.000
X1	405.200	12.000	146.000	175.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	835.000	0.000	829.000	32.000	829.000	101.000	826.100	118.000	826.000	146.000
GR	825.300	152.000	823.200	156.000	823.200	162.000	826.000	175.000	826.700	236.000
GR	829.000	293.000	835.000	338.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE LAHSER RD.

X1	404.980	0.000	0.000	0.000	75.000	75.000	75.000	0.000	-.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	823.900	823.900	0.000
SB	0.000	1.750	2.900	0.000	2.330	0.000	3.260	0.000	822.500	822.500
X1	405.020	12.000	151.000	191.000	45.000	45.000	45.000	0.000	-.200	0.000
X2	0.000	0.000	1.000	823.900	830.500	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	830.500	830.500	0.000
BT	6.000	0.000	835.400	0.000	73.000	832.200	0.000	145.000	830.500	0.000
BT	165.000	830.500	0.000	234.000	832.000	0.000	310.000	835.400	0.000	0.000
GR	835.000	0.000	833.000	50.000	830.200	98.000	825.400	151.000	823.600	162.000
GR	822.700	168.000	822.700	179.000	823.600	185.000	824.600	191.000	825.600	234.000
GR	831.100	257.000	835.000	293.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	405.800	0.000	0.000	0.000	50.000	50.000	50.000	0.000	-.200	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	405.810	0.000	0.000	0.000	250.000	250.000	250.000	0.000	-.100	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE DRIVEWAY BRIDGE 405A

X1	405.840	9.000	125.000	165.000	44.000	44.000	44.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.800	825.800	0.000
GR	836.600	0.000	830.600	50.000	828.200	100.000	825.000	125.000	822.600	145.000
GR	825.000	165.000	829.400	200.000	831.800	300.000	835.800	400.000	0.000	0.000
SB	0.000	2.550	3.000	0.000	4.030	0.000	14.100	0.000	822.600	822.600
X1	405.860	0.000	0.000	0.000	56.000	56.000	56.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	825.800	828.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.100	828.100	0.000
BT	7.000	0.000	836.600	0.000	50.000	830.600	0.000	100.000	828.200	0.000
BT	145.000	828.100	0.000	200.000	829.400	0.000	300.000	831.800	0.000	400.000
BT	835.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	405.990	14.000	238.000	295.000	100.000	100.000	100.000	0.000	-.300	0.000
GR	836.000	0.000	829.400	33.000	826.400	102.000	825.000	238.000	824.400	247.000
GR	823.600	251.000	823.100	259.000	823.600	266.000	827.000	285.000	827.900	295.000

GR	827.800	317.000	829.000	373.000	830.300	396.000	836.000	437.000	0.000	0.000
X1	406.000	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.300	0.000
X1	406.100	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.700	0.000

** D/S STORM DRAIN

X1	406.500	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.600	0.000
NC	.150	.150	.075	.500	1.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	50.000	80.000	100.000	150.000	100.000	0.000	0.000	0.000	0.000
X1	407.100	24.000	450.000	600.000	1.000	325.000	1.000	0.000	-2.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	838.000	0.000
GR	835.000	150.000	832.300	160.000	829.700	170.000	828.200	195.000	829.100	296.000
GR	830.000	320.000	831.800	345.000	838.000	346.000	838.000	449.000	831.800	450.000
GR	829.800	458.000	830.600	510.000	831.200	512.000	831.200	528.000	830.500	534.000
GR	830.600	560.000	834.400	600.000	838.000	601.000	838.000	646.000	834.400	647.000
GR	831.500	652.000	831.400	684.000	832.700	720.000	838.000	750.000	0.000	0.000
X1	407.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	838.000	0.000
X1	407.000	13.000	369.000	501.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	840.000	80.000	833.400	81.000	832.000	98.000	830.700	150.000	832.500	208.000
GR	832.900	234.000	832.300	286.000	840.000	287.000	840.000	369.000	831.400	370.000
GR	832.000	460.000	832.200	500.000	840.000	501.000	0.000	0.000	0.000	0.000
X1	407.800	11.000	424.000	600.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	840.400	344.000	839.000	375.000	834.100	406.000	832.800	424.000	832.500	510.000
GR	832.000	524.000	832.100	548.000	831.800	562.000	833.200	600.000	834.400	638.000
GR	840.000	639.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	408.000	13.000	712.000	805.000	325.000	325.000	325.000	0.000	0.000	0.000
GR	840.500	578.000	839.200	670.000	835.800	712.000	833.100	732.000	833.100	740.000
GR	835.200	745.000	835.100	770.000	833.600	774.000	836.300	805.000	838.600	830.000
GR	839.200	846.000	839.200	930.000	840.000	942.000	0.000	0.000	0.000	0.000
X1	409.000	10.000	83.000	200.000	475.000	475.000	475.000	0.000	0.000	0.000
GR	842.000	0.000	840.200	83.000	837.700	94.000	837.800	100.000	839.400	110.000
GR	839.000	132.000	837.800	136.000	838.600	200.000	838.900	258.000	840.600	300.000
X1	409.100	0.000	0.000	0.000	500.000	175.000	375.000	0.000	2.000	0.000
X1	409.500	21.000	212.000	340.000	150.000	250.000	150.000	0.000	-2.800	0.000
GR	850.000	0.000	846.000	35.000	846.000	75.000	845.500	92.000	845.500	118.000
GR	846.600	165.000	852.000	166.000	852.000	211.000	846.600	212.000	845.400	248.000
GR	845.700	265.000	845.400	275.000	843.700	280.000	847.000	295.000	848.200	340.000
GR	852.000	341.000	852.000	441.000	847.400	442.000	845.800	485.000	846.100	522.000
GR	852.000	523.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	410.000	0.000	0.000	0.000	150.000	250.000	150.000	0.000	2.800	0.000

** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

X1	410.100	0.000	0.000	0.000	125.000	50.000	50.000	0.000	1.500	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
399.800	0.00	0.00	0.00	812.40	240.00	817.07	0.00	817.07	.31	.37	646.23	429.83
399.800	0.00	0.00	0.00	812.40	340.00	818.12	0.00	818.12	.29	.41	824.63	63[illegible].02
399.800	0.00	0.00	0.00	812.40	400.00	818.66	0.00	818.66	.28	.44	928.88	753.70
399.800	0.00	0.00	0.00	812.40	550.00	820.12	0.00	820.12	.23	.46	1289.20	1149.48
400.000	200.00	0.00	0.00	812.10	240.00	817.07	0.00	817.10	4.90	1.31	183.37	108.38
400.000	200.00	0.00	0.00	812.10	340.00	818.12	0.00	818.15	4.60	1.38	245.68	158.59
400.000	200.00	0.00	0.00	812.10	400.00	818.66	0.00	818.69	4.28	1.42	291.39	193.36
400.000	200.00	0.00	0.00	812.10	550.00	820.12	0.00	820.14	2.45	1.27	566.02	351.24
401.200	200.00	0.00	0.00	812.40	240.00	817.17	0.00	817.20	5.74	1.39	172.52	100.15
401.200	200.00	0.00	0.00	812.40	340.00	818.21	0.00	818.25	5.32	1.46	232.32	147.43
401.200	200.00	0.00	0.00	812.40	400.00	818.75	0.00	818.78	5.10	1.50	267.06	177.20
401.200	200.00	0.00	0.00	812.40	550.00	820.17	0.00	820.20	2.96	1.37	515.39	319.64
401.220	96.00	819.50	816.10	813.10	240.00	819.88	0.00	819.88	.47	.44	563.52	348.99
401.220	96.00	819.50	816.10	813.10	340.00	820.12	0.00	820.12	.77	.58	608.82	387.24
401.220	96.00	819.50	816.10	813.10	400.00	820.24	0.00	820.25	.96	.66	632.76	407.82
401.220	96.00	819.50	816.10	813.10	550.00	820.57	0.00	820.58	1.40	.84	697.83	464.98
401.300	7.00	0.00	0.00	813.10	240.00	819.88	0.00	819.88	.47	.44	563.37	348.86
401.300	7.00	0.00	0.00	813.10	340.00	820.12	0.00	820.12	.77	.58	608.23	386.73
401.300	7.00	0.00	0.00	813.10	400.00	820.24	0.00	820.25	.97	.66	631.86	407.05
401.300	7.00	0.00	0.00	813.10	550.00	820.57	0.00	820.58	1.40	.84	697.06	464.29
400.980	8.00	0.00	0.00	813.20	240.00	819.88	0.00	819.89	.52	.45	544.56	333.27
400.980	8.00	0.00	0.00	813.20	340.00	820.12	0.00	820.13	.84	.60	588.95	370.34
400.980	8.00	0.00	0.00	813.20	400.00	820.24	0.00	820.25	1.05	.68	612.35	390.26
400.980	8.00	0.00	0.00	813.20	550.00	820.57	0.00	820.58	1.52	.86	677.03	446.52
401.020	36.00	819.40	817.40	813.50	240.00	819.95	0.00	819.95	.51	.49	680.13	334.99
401.020	36.00	819.40	817.40	813.50	340.00	820.18	0.00	820.19	.84	.65	729.28	370.56
401.020	36.00	819.40	817.40	813.50	400.00	820.31	0.00	820.31	1.05	.74	756.84	390.75
401.020	36.00	819.40	817.40	813.50	550.00	820.65	0.00	820.65	1.51	.94	832.67	447.29
401.800	75.00	0.00	0.00	814.10	240.00	819.95	0.00	819.96	.90	.59	562.51	252.31
401.800	75.00	0.00	0.00	814.10	340.00	820.19	0.00	820.19	1.44	.78	607.45	283.49
401.800	75.00	0.00	0.00	814.10	400.00	820.32	0.00	820.33	1.76	.88	632.71	301.24
401.800	75.00	0.00	0.00	814.10	550.00	820.66	0.00	820.67	2.46	1.10	702.03	350.77

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
401.830	205.00	0.00	0.00	814.50	240.00	819.98	0.00	819.98	1.35	.68	492.32	206.83
401.830	205.00	0.00	0.00	814.50	340.00	820.22	0.00	820.23	2.09	.87	537.54	235.20
401.830	205.00	0.00	0.00	814.50	400.00	820.36	0.00	820.37	2.51	.98	562.55	252.33
401.830	205.00	0.00	0.00	814.50	550.00	820.71	0.00	820.73	3.36	1.21	630.79	299.88
401.850	235.00	0.00	0.00	815.00	240.00	820.01	0.00	820.02	2.26	.83	411.68	159.56
401.850	235.00	0.00	0.00	815.00	340.00	820.28	0.00	820.29	3.34	1.04	457.88	186.14
401.850	235.00	0.00	0.00	815.00	400.00	820.43	0.00	820.44	3.90	1.15	485.50	202.67
401.850	235.00	0.00	0.00	815.00	550.00	820.81	0.00	820.83	4.98	1.37	554.08	246.51
401.950	230.00	0.00	0.00	815.40	240.00	820.06	0.00	820.07	2.04	.97	468.49	168.03
401.950	230.00	0.00	0.00	815.40	340.00	820.35	0.00	820.36	2.85	1.20	542.58	201.48
401.950	230.00	0.00	0.00	815.40	400.00	820.51	0.00	820.52	3.26	1.32	585.86	221.65
401.950	230.00	0.00	0.00	815.40	550.00	820.91	0.00	820.93	3.92	1.53	699.92	277.93
402.000	230.00	0.00	0.00	815.80	240.00	820.12	0.00	820.13	3.22	1.15	392.78	133.71
402.000	230.00	0.00	0.00	815.80	340.00	820.43	0.00	820.44	4.26	1.40	461.33	164.78
402.000	230.00	0.00	0.00	815.80	400.00	820.60	0.00	820.62	4.74	1.51	503.16	183.69
402.000	230.00	0.00	0.00	815.80	550.00	821.01	0.00	821.03	5.40	1.72	617.03	236.61
402.100	225.00	0.00	0.00	817.70	120.00	820.22	0.00	820.26	22.92	1.97	103.00	25.06
402.100	225.00	0.00	0.00	817.70	170.00	820.56	0.00	820.60	19.79	2.05	145.49	38.21
402.100	225.00	0.00	0.00	817.70	190.00	820.74	0.00	820.77	16.76	1.98	170.10	46.42
402.100	225.00	0.00	0.00	817.70	270.00	821.17	0.00	821.20	14.87	2.08	235.90	70.01
402.900	250.00	0.00	0.00	819.10	120.00	821.10	0.00	821.22	71.99	2.75	47.01	14.14
402.900	250.00	0.00	0.00	819.10	170.00	821.37	0.00	821.51	79.31	3.16	61.99	19.09
402.900	250.00	0.00	0.00	819.10	190.00	821.45	0.00	821.61	81.85	3.31	67.56	21.00
402.900	250.00	0.00	0.00	819.10	270.00	821.79	0.00	821.97	77.33	3.66	95.78	30.70
403.200	250.00	0.00	0.00	821.90	120.00	823.62	823.24	823.82	158.75	3.58	33.80	9.52
403.200	250.00	0.00	0.00	821.90	170.00	823.92	823.49	824.15	142.83	3.88	47.25	14.22
403.200	250.00	0.00	0.00	821.90	190.00	824.02	823.58	824.26	139.98	3.99	52.77	16.06
403.200	250.00	0.00	0.00	821.90	270.00	824.30	823.93	824.60	145.57	4.51	71.49	22.38
402.980	95.00	0.00	0.00	822.60	120.00	824.66	0.00	824.78	66.52	2.69	44.56	14.71
402.980	95.00	0.00	0.00	822.60	170.00	824.96	0.00	825.11	72.28	3.12	54.47	20.00
402.980	95.00	0.00	0.00	822.60	190.00	825.04	0.00	825.17	65.66	3.08	74.56	23.45
402.980	95.00	0.00	0.00	822.60	270.00	825.37	0.00	825.54	66.21	3.47	103.07	33.18
403.020	30.00	828.10	825.00	822.60	120.00	824.86	0.00	824.94	43.99	2.35	51.10	18.09
403.020	30.00	828.10	825.00	822.60	170.00	828.38	0.00	828.38	.39	.49	586.19	273.63
403.020	30.00	828.10	825.00	822.60	190.00	828.43	0.00	828.43	.46	.54	596.11	279.60
403.020	30.00	828.10	825.00	822.60	270.00	828.60	0.00	828.61	.80	.72	634.06	302.70
403.800	80.00	0.00	0.00	821.00	120.00	824.99	0.00	824.99	1.01	.52	231.06	119.44
403.800	80.00	0.00	0.00	821.00	170.00	828.38	0.00	828.39	.09	.27	831.61	555.39
403.800	80.00	0.00	0.00	821.00	190.00	828.43	0.00	828.43	.11	.30	843.34	564.87
403.800	80.00	0.00	0.00	821.00	270.00	828.61	0.00	828.61	.20	.41	887.88	601.35
404.000	300.00	0.00	0.00	822.20	120.00	825.03	0.00	825.03	1.81	.60	200.53	89.31
404.000	300.00	0.00	0.00	822.20	170.00	828.39	0.00	828.39	.14	.29	685.41	459.92
404.000	300.00	0.00	0.00	822.20	190.00	828.44	0.00	828.44	.16	.32	697.50	468.57
404.000	300.00	0.00	0.00	822.20	270.00	828.61	0.00	828.62	.29	.43	743.63	502.30

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	10K*S	VCH	AREA	.01K
*	405.200	250.00	0.00	0.00	823.20	120.00	824.90	824.90	825.48	448.68	6.12	19.60	5.67
	405.200	250.00	0.00	0.00	823.20	170.00	828.39	0.00	828.40	1.67	.85	354.24	131.57
	405.200	250.00	0.00	0.00	823.20	190.00	828.44	0.00	828.45	1.97	.93	362.62	135.51
	405.200	250.00	0.00	0.00	823.20	270.00	828.62	0.00	828.64	3.20	1.22	394.96	150.98
	404.980	75.00	0.00	0.00	822.50	120.00	825.93	0.00	825.97	15.36	1.73	96.78	30.62
	404.980	75.00	0.00	0.00	822.50	170.00	828.40	0.00	828.41	.75	.64	491.46	196.63
	404.980	75.00	0.00	0.00	822.50	190.00	828.46	0.00	828.46	.88	.70	504.51	202.11
	404.980	75.00	0.00	0.00	822.50	270.00	828.65	0.00	828.66	1.44	.91	555.89	224.76
	405.020	45.00	830.50	823.90	822.50	120.00	831.22	0.00	831.22	.04	.22	862.20	575.04
	405.020	45.00	830.50	823.90	822.50	170.00	831.46	0.00	831.46	.08	.30	906.76	613.46
	405.020	45.00	830.50	823.90	822.50	190.00	831.52	0.00	831.52	.09	.33	919.04	624.05
	405.020	45.00	830.50	823.90	822.50	270.00	831.74	0.00	831.74	.17	.45	962.19	661.37
	405.800	50.00	0.00	0.00	822.70	120.00	831.22	0.00	831.22	.05	.23	826.11	543.99
	405.800	50.00	0.00	0.00	822.70	170.00	831.46	0.00	831.46	.09	.31	869.68	581.48
	405.800	50.00	0.00	0.00	822.70	190.00	831.52	0.00	831.52	.10	.34	881.65	591.79
	405.800	50.00	0.00	0.00	822.70	270.00	831.74	0.00	831.75	.18	.47	923.75	628.12
	405.810	250.00	0.00	0.00	822.60	120.00	831.22	0.00	831.22	.05	.23	844.20	559.56
	405.810	250.00	0.00	0.00	822.60	170.00	831.46	0.00	831.46	.08	.31	888.26	597.50
	405.810	250.00	0.00	0.00	822.60	190.00	831.52	0.00	831.52	.10	.34	900.42	607.98
	405.810	250.00	0.00	0.00	822.60	270.00	831.75	0.00	831.75	.18	.46	943.26	644.99
	405.840	44.00	0.00	0.00	822.60	120.00	831.22	0.00	831.22	.07	.28	714.29	440.08
	405.840	44.00	0.00	0.00	822.60	170.00	831.46	0.00	831.46	.13	.37	771.26	475.68
	405.840	44.00	0.00	0.00	822.60	190.00	831.52	0.00	831.53	.15	.41	787.16	485.66
	405.840	44.00	0.00	0.00	822.60	270.00	831.75	0.00	831.75	.27	.55	843.69	521.27
	405.860	56.00	828.10	825.80	822.60	120.00	831.23	0.00	831.23	.07	.28	717.89	442.33
	405.860	56.00	828.10	825.80	822.60	170.00	831.48	0.00	831.48	.13	.37	776.21	478.79
	405.860	56.00	828.10	825.80	822.60	190.00	831.54	0.00	831.55	.15	.41	792.67	489.12
	405.860	56.00	828.10	825.80	822.60	270.00	831.77	0.00	831.78	.26	.55	851.31	526.09
	405.990	100.00	0.00	0.00	822.80	120.00	831.23	0.00	831.23	.02	.12	1734.62	948.42
	405.990	100.00	0.00	0.00	822.80	170.00	831.48	0.00	831.48	.03	.16	1828.75	1024.44
	405.990	100.00	0.00	0.00	822.80	190.00	831.55	0.00	831.55	.03	.18	1854.58	1045.67
	405.990	100.00	0.00	0.00	822.80	270.00	831.78	0.00	831.78	.06	.24	1944.31	1120.65
	406.000	250.00	0.00	0.00	823.10	120.00	831.24	0.00	831.24	.02	.13	1621.03	859.62
	406.000	250.00	0.00	0.00	823.10	170.00	831.48	0.00	831.48	.03	.17	1714.73	932.63
	406.000	250.00	0.00	0.00	823.10	190.00	831.55	0.00	831.55	.04	.19	1740.54	953.14
	406.000	250.00	0.00	0.00	823.10	270.00	831.78	0.00	831.78	.07	.25	1830.44	1025.83
	406.100	300.00	0.00	0.00	824.80	120.00	831.24	0.00	831.24	.08	.20	997.52	435.51
	406.100	300.00	0.00	0.00	824.80	170.00	831.48	0.00	831.48	.12	.27	1084.41	487.97
	406.100	300.00	0.00	0.00	824.80	190.00	831.55	0.00	831.55	.14	.29	1108.46	502.88
	406.100	300.00	0.00	0.00	824.80	270.00	831.78	0.00	831.79	.24	.39	1192.61	556.31
	406.500	300.00	0.00	0.00	826.40	120.00	831.24	0.00	831.24	.45	.37	502.50	178.48
	406.500	300.00	0.00	0.00	826.40	170.00	831.49	0.00	831.49	.66	.47	568.14	209.80
	406.500	300.00	0.00	0.00	826.40	190.00	831.56	0.00	831.56	.75	.51	586.92	218.92
	406.500	300.00	0.00	0.00	826.40	270.00	831.80	0.00	831.80	1.15	.66	654.68	252.30

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	407.100	1.00	0.00	0.00	825.70	50.00	831.24	0.00	831.24	.02	.05	1244.31	391.27
	407.100	1.00	0.00	0.00	825.70	80.00	831.49	0.00	831.49	.03	.08	1328.29	434.85
	407.100	1.00	0.00	0.00	825.70	100.00	831.56	0.00	831.56	.05	.09	1351.72	447.29
	407.100	1.00	0.00	0.00	825.70	150.00	831.80	0.00	831.80	.09	.13	1433.92	491.93
	407.200	200.00	0.00	0.00	829.80	50.00	831.24	0.00	831.25	14.41	.60	82.75	13.17
	407.200	200.00	0.00	0.00	829.80	80.00	831.49	0.00	831.50	13.99	.71	112.10	21.39
	407.200	200.00	0.00	0.00	829.80	100.00	831.56	0.00	831.58	17.41	.83	120.44	23.97
	407.200	200.00	0.00	0.00	828.20	150.00	831.81	0.00	831.81	1.36	.26	627.20	128.76
	407.000	150.00	0.00	0.00	830.70	50.00	831.78	0.00	831.80	203.95	.94	53.28	3.50
	407.000	150.00	0.00	0.00	830.70	80.00	831.98	0.00	831.99	141.40	1.04	86.22	5.73
	407.000	150.00	0.00	0.00	830.70	100.00	832.10	0.00	832.12	113.34	1.02	109.36	9.39
	407.000	150.00	0.00	0.00	830.70	150.00	831.88	0.00	831.96	953.13	2.36	67.96	4.86
	407.800	50.00	0.00	0.00	831.80	50.00	832.64	0.00	832.66	144.79	1.21	41.26	4.16
	407.800	50.00	0.00	0.00	831.80	80.00	832.76	0.00	832.79	174.89	1.37	58.30	6.05
	407.800	50.00	0.00	0.00	831.80	100.00	832.82	0.00	832.86	187.80	1.49	67.21	7.30
	407.800	50.00	0.00	0.00	831.80	150.00	833.05	0.00	833.09	95.78	1.41	106.89	15.33
	408.000	325.00	0.00	0.00	833.10	50.00	834.88	0.00	834.91	40.35	1.20	41.54	7.87
	408.000	325.00	0.00	0.00	833.10	80.00	835.32	0.00	835.35	44.32	1.19	67.50	12.02
	408.000	325.00	0.00	0.00	833.10	100.00	835.46	0.00	835.49	44.74	1.28	77.90	14.95
	408.000	325.00	0.00	0.00	833.10	150.00	835.60	0.00	835.64	65.03	1.67	90.02	18.60
	409.000	475.00	0.00	0.00	837.70	50.00	838.55	0.00	838.59	202.53	1.56	32.03	3.51
	409.000	475.00	0.00	0.00	837.70	80.00	838.76	0.00	838.80	138.91	1.63	51.41	6.79
	409.000	475.00	0.00	0.00	837.70	100.00	838.86	0.00	838.90	131.96	1.73	62.98	8.71
	409.000	475.00	0.00	0.00	837.70	150.00	839.16	0.00	839.20	87.14	1.66	107.06	16.07
	409.100	375.00	0.00	0.00	839.70	50.00	840.88	0.00	840.89	29.26	.83	66.25	9.24
	409.100	375.00	0.00	0.00	839.70	80.00	841.06	0.00	841.07	34.29	1.01	92.52	13.66
	409.100	375.00	0.00	0.00	839.70	100.00	841.16	0.00	841.18	35.91	1.08	110.65	16.69
	409.100	375.00	0.00	0.00	839.70	150.00	841.35	0.00	841.37	45.01	1.28	141.63	22.36
*	409.500	150.00	0.00	0.00	840.90	50.00	842.49	842.49	842.92	999.09	5.26	9.51	1.58
*	409.500	150.00	0.00	0.00	840.90	80.00	842.89	842.89	843.09	1171.18	3.68	26.36	2.34
*	409.500	150.00	0.00	0.00	840.90	100.00	842.94	842.94	843.17	1235.50	3.98	31.12	2.84
	409.500	150.00	0.00	0.00	840.90	150.00	843.15	0.00	843.32	720.94	3.66	54.80	5.59
	410.000	150.00	0.00	0.00	843.70	50.00	845.95	0.00	845.97	77.16	1.20	55.71	5.69
	410.000	150.00	0.00	0.00	843.70	80.00	846.13	0.00	846.15	77.72	1.35	88.21	9.07
	410.000	150.00	0.00	0.00	843.70	100.00	846.22	0.00	846.25	76.40	1.42	108.64	11.44
	410.000	150.00	0.00	0.00	843.70	150.00	846.36	0.00	846.39	89.05	1.65	142.92	15.90
*	410.100	50.00	0.00	0.00	845.20	50.00	847.07	847.07	847.24	868.88	3.33	16.71	1.70
	410.100	50.00	0.00	0.00	845.20	80.00	847.24	0.00	847.39	785.80	3.17	31.20	2.85
	410.100	50.00	0.00	0.00	845.20	100.00	847.32	0.00	847.46	680.29	3.21	39.61	3.83
	410.100	50.00	0.00	0.00	845.20	150.00	847.52	0.00	847.65	471.57	3.12	67.09	6.91

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SODUN LAKE DRAIN

4) DOCUMENT TYPE: PRODUCTION RUN
UPSTREAM STORM DRAIN

00BREAK00

JOB NO. UM4479 UNIVERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 16:58:31 08-20-80

SOOON LAKE - U/S STORM DRAIN

10, 50, 100 & 500 YR FLOWS

U/S [illegible]

PARAMETERS: ,ID=IDUK,PW=

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

IIIIIIIIII   DDDDDDDDD     UU         UU  KK        KK
IIIIIIIIII   DDDDDDDDDD    UU         UU  KK       KK
    II       DD       DD   UU         UU  KK      KK
    II       DD        DD  UU         UU  KK     KK
    II       DD        DD  UU         UU  KK    KK
    II       DD        DD  UU         UU  KKKKKKK
    II       DD        DD  UU         UU  KKKKKKK
    II       DD        DD  UU         UU  KK    KK
    II       DD        DD  UU         UU  KK     KK
    II       DD       DD   UU         UU  KK      KK
IIIIIIIIII   DDDDDDDDDD    UUUUUUUUUUU   KK       KK
IIIIIIIIII   DDDDDDDDD      UUUUUUUUU    KK        KK
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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED JULY 1979                                     *
*                                                        *
*  RUN DATE  08/20/80  TIME .16.56.45.                   *
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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
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************


C
T1      HUD-FIA H-4705
T2      BLOOMFIELD HILLS
T3      SODON LAKE BRANCH

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -1.       2.        0.        0.  0.000000      0.00      -1.0       0.   842.490     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    201.000     0.000   150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

QT      5.000    50.000    80.000   100.000   150.000   100.000     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       .150      .150      .075      .500     1.000     0.000     0.000     0.000     0.000     0.000

X1    409.500    21.000   212.000   340.000     0.000     0.000     0.000     0.000    -2.800     0.000
GR    850.000     0.000   846.000    35.000   846.000    75.000   845.500    92.000   845.500   118.000
GR    846.600   165.000   852.000   166.000   852.000   211.000   846.600   212.000   845.400   248.000
GR    845.700   265.000   845.400   275.000   843.700   280.000   847.000   295.000   848.200   340.000
GR    852.000   341.000   852.000   441.000   847.400   442.000   845.800   485.000   846.100   522.000
GR    852.000   523.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    410.000     0.000     0.000     0.000   150.000   250.000   150.000     0.000     2.800     0.000

        ** D/S LAKES AT SPILLWAY(U/S END STORM DRAIN)

X1    410.100     0.000     0.000     0.000   125.000    50.000    50.000     0.000     1.500     0.000
QT      5.000    35.000    40.000    45.000    50.000    45.000     0.000     0.000     0.000     0.000
NC       .080      .080      .035      .300      .500     0.000     0.000     0.000     0.000     0.000

X1    411.100     7.000    30.000   830.000     1.000     1.000     1.000     0.000     0.000     0.000
GR    855.000     0.000   843.700    30.000   842.300    45.000   842.300   815.000   843.700   830.000
GR    846.200   840.000   855.000   890.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    411.120     0.000     0.000     0.000   175.000   175.000   175.000     0.000     0.000     0.000

X1    411.140     7.000    30.000   100.000    50.000   200.000    50.000     0.000     0.000     0.000
GR    855.000     0.000   843.700    30.000   842.300    45.000   842.300    85.000   843.700   100.000
GR    846.200   110.000   855.000   160.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    411.200     0.000     0.000     0.000   125.000   125.000   125.000     0.000     0.000     0.000
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X1    411.220      6.000     30.000     80.000     70.000     70.000     70.000      0.000      0.000      0.000
GR    855.000      0.000    843.700     30.000    842.300     45.000    842.300     70.000    843.700     80.000
GR    855.000    116.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        ** D/S FACE CULVERT BETWEEN LAKES
X1    410.980      0.000      0.000      0.000     75.000     75.000     75.000      0.000      0.000      0.000
X3     10.000      0.000      0.000     33.000      0.000     43.000      0.000      0.000      0.000      0.000
SB      0.000      1.900      2.900      0.000      3.000      0.000      7.100      0.000    844.400    842.300

X1    411.020     10.000     42.000     84.000     55.000     55.000     55.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    847.500    853.600      0.000      0.000      0.000      0.000      0.000
X3     10.000      0.000      0.000     62.000      0.000     72.000      0.000      0.000      0.000      0.000
BT      6.000      0.000    855.900      0.000     32.000    855.100      0.000     60.000    853.600      0.000
BT     74.000    853.700      0.000     97.000    854.400      0.000    116.000    855.900      0.000      0.000
GR    855.000      0.000    852.400     10.000    849.800     32.000    849.300     42.000    847.000     60.000
GR    847.000     74.000    849.300     84.000    850.500     97.000    852.400    112.000    855.000    116.000

X1    411.800     10.000     32.000    122.000     50.000     50.000     50.000      0.000      0.000      0.000
GR    855.000      0.000    852.400     10.000    849.800     32.000    849.300     42.000    847.000     60.000
GR    847.000    110.000    849.300    122.000    849.600    130.000    852.400    135.000    855.000    150.000

X1    411.900      6.000     22.000    222.000    225.000    225.000    225.000      0.000      0.000      0.000
GR    855.000      0.000    849.300     22.000    847.000     30.000    847.000    214.000    849.300    222.000
GP    855.000    248.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    412.000      0.000      0.000      0.000    250.000    250.000    250.000      0.000      0.000      0.000

X1    412.100      0.000      0.000      0.000    300.000    300.000    300.000      0.000      0.000      0.000

X1    413.200     10.000     90.000    121.000    300.000    300.000    300.000      0.000      0.000      0.000
GR    855.000      0.000    852.600     47.000    852.200     90.000    849.300    100.000    847.000    109.000
GR    849.300    117.000    851.900    121.000    852.800    137.000    853.400    158.000    855.000    187.000
NC      0.000      0.000       .045       .200       .400      0.000      0.000      0.000      0.000      0.000

X1    412.830      0.000      0.000      0.000     43.000     43.000     43.000      0.000      1.200      0.000

        ** D/S FACE FOOTBRIDGE 412A
X1    412.840      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    853.500    854.200      0.000      0.000      0.000      0.000      0.000

X1    412.860      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    853.500    854.200      0.000      0.000      0.000      0.000      0.000

X1    412.870      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000
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** D/S FACE SUNNINGDALE

X1	412.980	0.000	0.000	0.000	90.000	90.000	90.000	0.000	.500	0.000
X3	10.000	0.000	0.000	104.000	0.000	114.000	0.000	0.000	0.000	0.000
SB	0.000	2.900	2.900	0.000	4.100	0.000	12.300	0.000	848.800	847.500
X1	413.020	9.000	47.000	83.000	190.000	190.000	190.000	0.000	-1.400	0.000
X2	0.000	0.000	1.000	850.000	862.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	65.000	0.000	74.000	0.000	0.000	0.000	0.000
BT	7.000	0.000	872.000	0.000	95.000	866.200	0.000	144.000	864.200	0.000
BT	200.000	862.800	0.000	255.000	864.100	0.000	322.000	866.900	0.000	400.000
BT	872.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	865.000	0.000	858.000	47.000	853.500	57.000	850.200	65.000	850.200	74.000
GR	853.500	82.000	856.200	83.000	860.600	131.000	865.000	163.000	0.000	0.000
X1	413.500	0.000	0.000	0.000	20.000	20.000	20.000	0.000	1.300	0.000

** D/S FACE DAM 413A

X1	413.520	7.000	47.000	83.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	865.000	0.000	858.000	47.000	853.900	57.000	853.900	82.000	856.200	83.000
GR	860.600	131.000	865.000	163.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	413.530	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
X1	413.550	9.000	47.000	83.000	1.000	1.000	1.000	0.000	.400	0.000
GR	865.000	0.000	858.000	47.000	853.500	57.000	850.200	65.000	850.200	74.000
GR	853.500	82.000	856.200	83.000	860.600	131.000	865.000	163.000	0.000	0.000
X1	413.800	0.000	0.000	0.000	100.000	100.000	100.000	0.000	-.400	0.000

** D/S FACE CULVERT PARALLEL TO SOUTH WILLOWAY COURT

X1	413.980	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.800	0.000
X3	10.000	0.000	0.000	65.000	0.000	74.000	0.000	0.000	0.000	0.000
SB	0.000	3.000	2.750	0.000	4.800	0.000	14.870	0.000	853.500	852.500
X1	414.020	9.000	237.000	300.000	145.000	145.000	145.000	0.000	-.500	0.000
X2	0.000	0.000	1.000	854.000	863.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	260.000	0.000	271.000	0.000	0.000	0.000	0.000
BT	7.000	27.000	867.200	0.000	45.000	863.800	0.000	57.000	863.800	0.000
BT	73.000	866.100	0.000	90.000	864.900	0.000	111.000	864.600	0.000	170.000
BT	867.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	861.600	100.000	861.400	170.000	858.900	237.000	855.600	258.000	854.000	260.000
GR	854.000	271.000	855.800	274.000	858.400	300.000	860.000	322.000	0.000	0.000
X1	414.800	0.000	0.000	0.000	105.000	105.000	105.000	0.000	.500	0.000
X1	414.850	0.000	0.000	0.000	125.000	125.000	125.000	0.000	.500	0.000

X1	414.980	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.500	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
*	409.500	0.00	0.00	0.00	840.90	50.00	842.51	842.51	842.92	958.43	5.17	9.66	1.62
*	409.500	0.00	0.00	0.00	840.90	80.00	842.92	842.92	843.08	994.22	3.45	28.36	2.54
*	409.500	0.00	0.00	0.00	840.90	100.00	842.98	842.98	843.16	948.97	3.62	34.62	3.25
	409.500	0.00	0.00	0.00	840.90	150.00	843.15	0.00	843.32	714.86	3.65	55.00	5.61
	410.000	150.00	0.00	0.00	843.70	50.00	845.95	0.00	845.97	78.41	1.21	55.32	5.65
	410.000	150.00	0.00	0.00	843.70	80.00	846.12	0.00	846.14	81.65	1.38	86.18	8.85
	410.000	150.00	0.00	0.00	843.70	100.00	846.20	0.00	846.22	82.25	1.46	105.20	11.03
	410.000	150.00	0.00	0.00	843.70	150.00	846.36	0.00	846.39	89.35	1.65	142.72	15.87
*	410.100	50.00	0.00	0.00	845.20	50.00	847.07	847.07	847.24	869.48	3.33	16.70	1.70
	410.100	50.00	0.00	0.00	845.20	80.00	847.26	0.00	847.39	719.56	3.07	32.33	2.98
	410.100	50.00	0.00	0.00	845.20	100.00	847.34	0.00	847.47	629.91	3.12	40.90	3.98
	410.100	50.00	0.00	0.00	845.20	150.00	847.53	0.00	847.65	468.74	3.12	67.31	6.93
	411.100	1.00	0.00	0.00	842.30	35.00	847.29	0.00	847.29	.00	.01	4013.78	4915.89
	411.100	1.00	0.00	0.00	842.30	40.00	847.43	0.00	847.43	.00	.01	4129.09	5149.27
	411.100	1.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.00	.01	4197.75	5290.14
	411.100	1.00	0.00	0.00	842.30	50.00	847.69	0.00	847.69	.00	.01	4343.37	5593.58
	411.120	175.00	0.00	0.00	842.30	35.00	847.29	0.00	847.29	.00	.01	4013.78	4915.89
	411.120	175.00	0.00	0.00	842.30	40.00	847.43	0.00	847.43	.00	.01	4129.10	5149.27
	411.120	175.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.00	.01	4197.76	5290.14
	411.120	175.00	0.00	0.00	842.30	50.00	847.69	0.00	847.69	.00	.01	4343.37	5593.59
	411.140	50.00	0.00	0.00	842.30	35.00	847.29	0.00	847.29	.01	.10	372.06	402.30
	411.140	50.00	0.00	0.00	842.30	40.00	847.43	0.00	847.43	.01	.11	385.49	423.23
	411.140	50.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.01	.13	393.56	435.90
	411.140	50.00	0.00	0.00	842.30	50.00	847.69	0.00	847.69	.01	.14	410.84	463.29
	411.200	125.00	0.00	0.00	842.30	35.00	847.29	0.00	847.29	.01	.10	372.05	402.29
	411.200	125.00	0.00	0.00	842.30	40.00	847.43	0.00	847.43	.01	.11	385.49	423.22
	411.200	125.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.01	.13	393.56	435.89
	411.200	125.00	0.00	0.00	842.30	50.00	847.69	0.00	847.69	.01	.14	410.84	463.28
	411.220	70.00	0.00	0.00	842.30	35.00	847.29	0.00	847.29	.02	.15	269.55	283.26
	411.220	70.00	0.00	0.00	842.30	40.00	847.43	0.00	847.43	.02	.16	279.51	298.17
	411.220	70.00	0.00	0.00	842.30	45.00	847.51	0.00	847.51	.02	.18	285.49	307.19
	411.220	70.00	0.00	0.00	842.30	50.00	847.69	0.00	847.69	.02	.19	298.28	326.71

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	410.980	75.00	0.00	0.00	842.49	35.00	847.28	0.00	847.29	1.18	.81	43.35	32.22
	410.980	75.00	0.00	0.00	842.49	40.00	847.42	0.00	847.44	1.41	.89	44.75	33.64
	410.980	75.00	0.00	0.00	842.49	45.00	847.50	0.00	847.52	1.70	.99	45.58	34.48
	410.980	75.00	0.00	0.00	842.49	50.00	847.68	0.00	847.70	1.90	1.06	47.33	36.29
*	411.020	55.00	853.60	847.50	847.00	35.00	847.73	847.72	848.09	232.37	4.79	7.30	2.30
	411.020	55.00	853.60	847.50	847.00	40.00	848.18	0.00	848.36	66.43	3.37	11.88	4.91
	411.020	55.00	853.60	847.50	847.00	45.00	848.56	0.00	848.69	36.52	2.88	15.62	7.45
	411.020	55.00	853.60	847.50	847.00	50.00	849.05	0.00	849.14	20.03	2.44	20.50	11.17
	411.800	50.00	0.00	0.00	847.00	35.00	848.21	0.00	848.22	1.30	.50	69.71	30.72
	411.800	50.00	0.00	0.00	847.00	40.00	848.42	0.00	848.43	.95	.47	84.32	41.01
	411.800	50.00	0.00	0.00	847.00	45.00	848.73	0.00	848.74	.60	.42	106.31	58.05
	411.800	50.00	0.00	0.00	847.00	50.00	849.17	0.00	849.17	.33	.36	139.42	86.68
	411.900	225.00	0.00	0.00	847.00	35.00	848.22	0.00	848.22	.10	.15	229.90	109.74
	411.900	225.00	0.00	0.00	847.00	40.00	848.43	0.00	848.43	.08	.15	270.22	142.92
	411.900	225.00	0.00	0.00	847.00	45.00	848.74	0.00	848.74	.05	.14	330.67	198.56
	411.900	225.00	0.00	0.00	847.00	50.00	849.18	0.00	849.18	.03	.12	416.96	289.15
	412.000	250.00	0.00	0.00	847.00	35.00	848.22	0.00	848.22	.10	.15	231.88	111.30
	412.000	250.00	0.00	0.00	847.00	40.00	848.43	0.00	848.43	.08	.15	271.84	144.32
	412.000	250.00	0.00	0.00	847.00	45.00	848.74	0.00	848.74	.05	.14	332.31	200.16
	412.000	250.00	0.00	0.00	847.00	50.00	849.18	0.00	849.18	.03	.12	417.87	290.17
	412.100	300.00	0.00	0.00	847.00	35.00	848.23	0.00	848.23	.10	.15	231.02	110.62
	412.100	300.00	0.00	0.00	847.00	40.00	848.44	0.00	848.44	.08	.15	271.23	143.80
	412.100	300.00	0.00	0.00	847.00	45.00	848.74	0.00	848.74	.05	.14	331.26	199.14
	412.100	300.00	0.00	0.00	847.00	50.00	849.18	0.00	849.18	.03	.12	417.30	289.52
*	413.200	300.00	0.00	0.00	847.00	35.00	848.41	848.41	848.76	210.86	4.77	7.34	2.41
*	413.200	300.00	0.00	0.00	847.00	40.00	848.48	848.48	848.86	213.28	4.95	8.08	2.74
*	413.200	300.00	0.00	0.00	847.00	45.00	848.55	848.55	848.95	209.86	5.07	8.88	3.11
	413.200	300.00	0.00	0.00	847.00	50.00	849.11	0.00	849.25	49.94	3.04	16.46	7.07
*	412.830	43.00	0.00	0.00	848.20	35.00	849.60	849.60	849.96	357.46	4.81	7.27	1.85
*	412.830	43.00	0.00	0.00	848.20	40.00	849.68	849.68	850.06	347.97	4.93	8.12	2.14
*	412.830	43.00	0.00	0.00	848.20	45.00	849.75	849.75	950.15	342.59	5.04	8.92	2.43
*	412.830	43.00	0.00	0.00	848.20	50.00	849.82	849.82	850.23	341.88	5.17	9.66	2.70
	412.840	1.00	854.20	853.50	848.20	35.00	849.82	0.00	850.02	163.48	3.59	9.75	2.74
	412.840	1.00	854.20	853.50	848.20	40.00	849.90	0.00	850.11	162.17	3.70	10.81	3.14
	412.840	1.00	854.20	853.50	848.20	45.00	849.98	849.75	850.21	162.19	3.81	11.81	3.53
	412.840	1.00	854.20	853.50	848.20	50.00	850.06	849.82	850.29	159.33	3.89	12.86	3.96
	412.860	5.00	854.20	853.50	848.20	35.00	849.95	0.00	850.09	110.60	3.10	11.29	3.33
	412.860	5.00	854.20	853.50	848.20	40.00	850.03	0.00	850.19	113.13	3.23	12.37	3.76
	412.860	5.00	854.20	853.50	848.20	45.00	850.11	0.00	850.28	115.13	3.35	13.43	4.19
	412.860	5.00	854.20	853.50	848.20	50.00	850.18	0.00	850.37	115.35	3.44	14.52	4.66
	412.870	1.00	0.00	0.00	848.20	35.00	849.96	0.00	850.11	106.95	3.06	11.43	3.38
	412.870	1.00	0.00	0.00	848.20	40.00	850.05	0.00	850.20	108.69	3.18	12.56	3.84
	412.870	1.00	0.00	0.00	848.20	45.00	850.13	0.00	850.30	109.86	3.29	13.67	4.29
	412.870	1.00	0.00	0.00	848.20	50.00	850.20	0.00	850.38	110.41	3.39	14.76	4.76

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	412.980	90.00	0.00	0.00	848.70	35.00	850.69	0.00	850.80	56.80	2.69	13.02	4.64
	412.980	90.00	0.00	0.00	848.70	40.00	850.79	0.00	850.92	58.86	2.84	14.06	5.21
	412.980	90.00	0.00	0.00	848.70	45.00	850.89	0.00	851.03	61.05	3.00	15.02	5.76
	412.980	90.00	0.00	0.00	848.70	50.00	850.97	0.00	851.13	63.47	3.14	15.91	6.28
	413.020	190.00	862.60	850.00	848.80	35.00	851.00	0.00	851.05	16.93	1.76	19.84	8.51
	413.020	190.00	862.60	850.00	848.80	40.00	851.21	0.00	851.27	17.01	1.84	21.73	9.70
	413.020	190.00	862.60	850.00	848.80	45.00	851.43	0.00	851.49	16.81	1.90	23.70	10.98
	413.020	190.00	862.60	850.00	848.80	50.00	851.66	0.00	851.72	16.43	1.94	25.74	12.34
	413.500	20.00	0.00	0.00	850.10	35.00	851.02	0.00	851.20	157.51	3.40	10.28	2.79
	413.500	20.00	0.00	0.00	850.10	40.00	851.24	0.00	851.38	94.75	2.98	13.40	4.11
	413.500	20.00	0.00	0.00	850.10	45.00	851.46	0.00	851.58	62.59	2.68	16.79	5.69
	413.500	20.00	0.00	0.00	850.10	50.00	851.69	0.00	851.79	43.68	2.44	20.50	7.57
*	413.520	1.00	0.00	0.00	853.90	35.00	854.29	854.29	854.48	415.97	3.51	9.96	1.72
*	413.520	1.00	0.00	0.00	853.90	40.00	854.33	854.33	854.53	407.10	3.67	10.89	1.98
*	413.520	1.00	0.00	0.00	853.90	45.00	854.36	854.36	854.59	397.29	3.82	11.79	2.26
*	413.520	1.00	0.00	0.00	853.90	50.00	854.39	854.39	854.63	389.82	3.95	12.66	2.53
	413.530	3.00	0.00	0.00	853.90	35.00	854.49	0.00	854.57	103.97	2.29	15.27	3.43
	413.530	3.00	0.00	0.00	853.90	40.00	854.54	0.00	854.63	104.35	2.41	16.57	3.92
	413.530	3.00	0.00	0.00	853.90	45.00	854.58	0.00	854.68	104.46	2.52	17.83	4.40
	413.530	3.00	0.00	0.00	853.90	50.00	854.62	0.00	854.73	104.03	2.62	19.06	4.90
	413.550	1.00	0.00	0.00	850.60	35.00	854.59	0.00	854.59	.58	.47	73.97	45.89
	413.550	1.00	0.00	0.00	850.60	40.00	854.65	0.00	854.65	.72	.53	75.51	47.27
	413.550	1.00	0.00	0.00	850.60	45.00	854.70	0.00	854.71	.86	.58	76.97	48.60
	413.550	1.00	0.00	0.00	850.60	50.00	854.75	0.00	854.76	1.00	.64	78.39	49.89
	413.800	100.00	0.00	0.00	850.20	35.00	854.60	0.00	854.60	.39	.41	85.05	56.08
	413.800	100.00	0.00	0.00	850.20	40.00	854.65	0.00	854.66	.48	.46	86.69	57.63
	413.800	100.00	0.00	0.00	850.20	45.00	854.71	0.00	854.71	.58	.51	88.26	59.12
	413.800	100.00	0.00	0.00	850.20	50.00	854.76	0.00	854.77	.68	.56	89.77	60.57
	413.980	200.00	0.00	0.00	852.00	35.00	854.60	0.00	854.64	10.48	1.49	23.45	10.81
	413.980	200.00	0.00	0.00	852.00	40.00	854.66	0.00	854.70	12.82	1.67	24.00	11.17
	413.980	200.00	0.00	0.00	852.00	45.00	854.72	0.00	854.77	15.26	1.84	24.52	11.52
	413.980	200.00	0.00	0.00	852.00	50.00	854.77	0.00	854.84	17.78	2.00	25.02	11.86
	414.020	145.00	863.80	854.00	853.50	35.00	854.76	0.00	854.86	56.32	2.52	13.88	4.66
	414.020	145.00	863.80	854.00	853.50	40.00	854.89	0.00	855.00	54.18	2.61	15.33	5.43
	414.020	145.00	863.80	854.00	853.50	45.00	855.04	0.00	855.15	51.00	2.66	16.89	6.30
	414.020	145.00	863.80	854.00	853.50	50.00	855.19	0.00	855.30	47.26	2.69	18.57	7.27
	414.800	105.00	0.00	0.00	854.00	35.00	855.28	0.00	855.35	38.35	2.13	16.46	5.65
	414.800	105.00	0.00	0.00	854.00	40.00	855.40	0.00	855.47	37.01	2.20	18.22	6.57
	414.800	105.00	0.00	0.00	854.00	45.00	855.52	0.00	855.60	35.29	2.24	20.05	7.57
	414.800	105.00	0.00	0.00	854.00	50.00	855.65	0.00	855.73	33.66	2.27	22.00	8.62
	414.850	125.00	0.00	0.00	854.50	35.00	855.77	0.00	855.84	39.73	2.15	16.27	5.55
	414.850	125.00	0.00	0.00	854.50	40.00	855.88	0.00	855.95	39.45	2.24	17.84	6.37
	414.850	125.00	0.00	0.00	854.50	45.00	855.98	0.00	856.06	38.82	2.32	19.41	7.22
	414.850	125.00	0.00	0.00	854.50	50.00	856.09	0.00	856.17	37.54	2.37	21.08	8.16

SECNO	XLCH	ELTRD	ELIC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
414.980	100.00	0.00	0.00	855.00	35.00	856.20	0.00	856.28	47.91	2.29	15.29	5.06
414.980	100.00	0.00	0.00	855.00	40.00	856.30	0.00	856.39	47.33	2.38	16.78	5.81
414.980	100.00	0.00	0.00	855.00	45.00	856.40	0.00	856.49	46.82	2.47	18.22	6.58
414.980	100.00	0.00	0.00	855.00	50.00	856.49	0.00	856.59	45.98	2.54	19.69	7.37

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	409.500	50.00	842.51	0.00	0.00	.02	12.03	0.00
*	409.500	80.00	842.92	.41	0.00	.03	93.11	0.00
*	409.500	100.00	842.98	.06	0.00	.04	100.30	0.00
	409.500	150.00	843.15	.17	0.00	0.00	141.79	0.00
	410.000	50.00	845.95	0.00	3.44	0.00	142.37	150.00
	410.000	80.00	846.12	.17	3.20	0.00	220.08	150.00
	410.000	100.00	846.20	.08	3.22	0.00	229.64	150.00
	410.000	150.00	846.36	.16	3.21	0.00	247.43	150.00
*	410.100	50.00	847.07	0.00	1.12	0.00	65.00	50.00
	410.100	80.00	847.26	.19	1.14	0.00	97.74	50.00
	410.100	100.00	847.34	.08	1.14	0.00	112.83	50.00
	410.100	150.00	847.53	.19	1.17	0.00	200.70	50.00
	411.100	35.00	847.29	0.00	.22	0.00	825.71	1.00
	411.100	40.00	847.43	.14	.17	0.00	826.88	1.00
	411.100	45.00	847.51	.08	.17	0.00	827.57	1.00
	411.100	50.00	847.69	.18	.16	0.00	829.03	1.00
	411.120	35.00	847.29	0.00	.00	0.00	825.71	175.00
	411.120	40.00	847.43	.14	.00	0.00	826.88	175.00
	411.120	45.00	847.51	.08	.00	0.00	827.57	175.00
	411.120	50.00	847.69	.18	.00	0.00	829.03	175.00
	411.140	35.00	847.29	0.00	-.00	0.00	95.71	50.00
	411.140	40.00	847.43	.14	-.00	0.00	96.88	50.00
	411.140	45.00	847.51	.08	-.00	0.00	97.57	50.00
	411.140	50.00	847.69	.18	-.00	0.00	99.03	50.00
	411.200	35.00	847.29	0.00	.00	0.00	95.71	125.00
	411.200	40.00	847.43	.14	.00	0.00	96.88	125.00
	411.200	45.00	847.51	.08	.00	0.00	97.57	125.00
	411.200	50.00	847.69	.18	.00	0.00	99.03	125.00
	411.220	35.00	847.29	0.00	-.00	0.00	70.96	70.00
	411.220	40.00	847.43	.14	-.00	0.00	71.78	70.00
	411.220	45.00	847.51	.08	-.00	0.00	72.26	70.00
	411.220	50.00	847.69	.18	-.00	0.00	73.29	70.00
	410.980	35.00	847.28	0.00	-.00	0.00	10.00	75.00
	410.980	40.00	847.42	.14	-.01	0.00	10.00	75.00
	410.980	45.00	847.50	.08	-.01	0.00	10.00	75.00
	410.980	50.00	847.68	.17	-.01	0.00	10.00	75.00
*	411.020	35.00	847.73	0.00	.45	0.00	10.00	55.00
	411.020	40.00	848.18	.45	.76	0.00	10.00	55.00
	411.020	45.00	848.56	.38	1.06	0.00	10.00	55.00
	411.020	50.00	849.05	.49	1.37	0.00	10.00	55.00
	411.800	35.00	848.21	0.00	.48	0.00	65.71	50.00
	411.800	40.00	848.42	.21	.24	0.00	68.55	50.00

411.800	45.00	848.73	.31	.17	0.00	72.62	50.00
411.800	50.00	849.17	.44	.12	0.00	78.34	50.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XICH
	411.900	35.00	848.22	0.00	.01	0.00	192.50	225.00
	411.900	40.00	848.43	.21	.01	0.00	193.95	225.00
	411.900	45.00	848.74	.31	.01	0.00	196.10	225.00
	411.900	50.00	849.18	.44	.00	0.00	199.14	225.00
	412.000	35.00	848.22	0.00	.00	0.00	192.57	250.00
	412.000	40.00	848.43	.21	.00	0.00	194.01	250.00
	412.000	45.00	848.74	.31	.00	0.00	196.16	250.00
	412.000	50.00	849.18	.44	.00	0.00	199.17	250.00
	412.100	35.00	848.23	0.00	.00	0.00	192.54	300.00
	412.100	40.00	848.44	.21	.00	0.00	193.98	300.00
	412.100	45.00	848.74	.31	.00	0.00	196.12	300.00
	412.100	50.00	849.18	.44	.00	0.00	199.15	300.00
*	413.200	35.00	848.41	0.00	.18	0.00	10.42	300.00
*	413.200	40.00	848.48	.07	.04	0.00	10.93	300.00
*	413.200	45.00	848.55	.07	-.19	0.00	11.46	300.00
	413.200	50.00	849.11	.56	-.07	0.00	15.60	300.00
*	412.830	35.00	849.60	0.00	1.19	0.00	10.37	43.00
*	412.830	40.00	849.68	.08	1.20	0.00	10.96	43.00
*	412.830	45.00	849.75	.07	1.20	0.00	11.48	43.00
*	412.830	50.00	849.82	.06	.71	0.00	11.95	43.00
	412.840	35.00	849.82	0.00	.21	0.00	12.01	1.00
	412.840	40.00	849.90	.08	.22	0.00	12.64	1.00
	412.840	45.00	849.98	.08	.23	0.00	13.21	1.00
	412.840	50.00	850.06	.08	.24	0.00	13.79	1.00
	412.860	35.00	849.95	0.00	.13	0.00	12.92	5.00
	412.860	40.00	850.03	.08	.13	0.00	13.52	5.00
	412.860	45.00	850.11	.08	.13	0.00	14.09	5.00
	412.860	50.00	850.18	.08	.13	0.00	14.65	5.00
	412.870	35.00	849.96	0.00	.02	0.00	13.00	1.00
	412.870	40.00	850.05	.09	.02	0.00	13.63	1.00
	412.870	45.00	850.13	.08	.02	0.00	14.21	1.00
	412.870	50.00	850.20	.08	.02	0.00	14.77	1.00
	412.980	35.00	850.69	0.00	.73	0.00	10.00	90.00
	412.980	40.00	850.79	.10	.74	0.00	10.00	90.00
	412.980	45.00	850.89	.10	.76	0.00	10.00	90.00
	412.980	50.00	850.97	.09	.77	0.00	10.00	90.00
	413.020	35.00	851.00	0.00	.32	0.00	9.00	190.00
	413.020	40.00	851.21	.21	.42	0.00	9.00	190.00
	413.020	45.00	851.43	.22	.55	0.00	9.00	190.00
	413.020	50.00	851.66	.23	.69	0.00	9.00	190.00
	413.500	35.00	851.02	0.00	.01	0.00	13.44	20.00
	413.500	40.00	851.24	.22	.02	0.00	14.52	20.00
	413.500	45.00	851.46	.22	.03	0.00	15.61	20.00
	413.500	50.00	851.69	.23	.03	0.00	16.73	20.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XICH
*	413.520	35.00	854.29	0.00	3.27	0.00	26.12	1.00
*	413.520	40.00	854.33	.04	3.09	0.00	26.22	1.00
*	413.520	45.00	854.36	.03	2.90	0.00	26.32	1.00
*	413.520	50.00	854.39	.03	2.70	0.00	26.41	1.00
	413.530	35.00	854.49	0.00	.20	0.00	26.70	3.00
	413.530	40.00	854.54	.05	.21	0.00	26.84	3.00
	413.530	45.00	854.58	.04	.22	0.00	26.97	3.00
	413.530	50.00	854.62	.04	.23	0.00	27.10	3.00
	413.550	35.00	854.59	0.00	.10	0.00	26.79	1.00
	413.550	40.00	854.65	.06	.11	0.00	26.94	1.00
	413.550	45.00	854.70	.05	.12	0.00	27.08	1.00
	413.550	50.00	854.75	.05	.13	0.00	27.21	1.00
	413.800	35.00	854.60	0.00	.01	0.00	27.84	100.00
	413.800	40.00	854.65	.06	.01	0.00	27.99	100.00
	413.800	45.00	854.71	.06	.01	0.00	28.14	100.00
	413.800	50.00	854.76	.05	.01	0.00	28.28	100.00
	413.980	35.00	854.60	0.00	.01	0.00	9.00	200.00
	413.980	40.00	854.66	.06	.01	0.00	9.00	200.00
	413.980	45.00	854.72	.06	.01	0.00	9.00	200.00
	413.980	50.00	854.77	.05	.01	0.00	9.00	200.00
	414.020	35.00	854.76	0.00	.16	0.00	11.00	145.00
	414.020	40.00	854.89	.13	.23	0.00	11.00	145.00
	414.020	45.00	855.04	.14	.32	0.00	11.00	145.00
	414.020	50.00	855.19	.15	.41	0.00	11.00	145.00
	414.800	35.00	855.28	0.00	.52	0.00	14.73	105.00
	414.800	40.00	855.40	.12	.51	0.00	15.08	105.00
	414.800	45.00	855.52	.12	.48	0.00	15.43	105.00
	414.800	50.00	855.65	.13	.46	0.00	16.00	105.00
	414.850	35.00	855.77	0.00	.49	0.00	14.69	125.00
	414.850	40.00	855.88	.11	.48	0.00	15.00	125.00
	414.850	45.00	855.98	.10	.46	0.00	15.30	125.00
	414.850	50.00	856.09	.11	.44	0.00	15.62	125.00
	414.980	35.00	856.20	0.00	.43	0.00	14.50	100.00
	414.980	40.00	856.30	.10	.43	0.00	14.79	100.00
	414.980	45.00	856.40	.10	.42	0.00	15.08	100.00
	414.980	50.00	856.49	.10	.41	0.00	15.36	100.00

SUMMARY OF ERRORS

CAUTION SECNO= 409.500 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 409.500 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 409.500 PROFILE= 3 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 410.100 PROFILE= 1 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 411.020 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF

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CAUTION  SECNO=  411.020  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  413.200  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  413.200  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  413.200  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  413.200  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  413.200  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  413.200  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  413.200  PROFILE= 3  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=  412.830  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  412.830  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  412.830  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  412.830  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  412.830  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  412.830  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  413.520  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  413.520  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  413.520  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  413.520  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  413.520  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  413.520  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  413.520  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  413.520  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  413.520  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  413.520  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  413.520  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  413.520  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
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1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SUTTON LAKE DRAIN

4) DOCUMENT TYPE: SUMMARY



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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
399.800	0.00	0.00	0.00	812.40	400.00	818.66	0.00	818.66	.28	.44	928.88	753.70
399.800	0.00	0.00	0.00	812.40	400.00	818.66	0.00	818.66	.29	.44	917.12	748.92
400.000	200.00	0.00	0.00	812.10	400.00	818.66	0.00	818.69	4.28	1.42	291.39	193.36
400.000	200.00	0.00	0.00	812.10	400.00	818.66	0.00	818.69	4.35	1.43	280.68	191.72
401.200	200.00	0.00	0.00	812.40	400.00	818.75	0.00	818.78	5.10	1.50	267.06	177.20
401.200	200.00	0.00	0.00	812.40	400.00	818.75	0.00	818.78	5.10	1.50	266.69	177.06
401.220	96.00	819.50	816.10	813.10	400.00	820.24	0.00	820.25	.96	.66	632.76	407.82
401.220	96.00	999999.00	0.00	813.10	400.00	820.24	0.00	820.25	1.01	.67	593.14	398.26
401.300	7.00	0.00	0.00	813.10	400.00	820.24	0.00	820.25	.97	.66	631.86	407.05
401.300	7.00	0.00	0.00	813.10	400.00	820.24	0.00	820.25	1.01	.67	593.24	398.37
400.980	8.00	0.00	0.00	813.20	400.00	820.24	0.00	820.25	1.05	.68	612.35	390.26
400.980	8.00	0.00	0.00	813.20	400.00	820.24	0.00	820.25	1.09	.69	578.48	383.14
401.020	36.00	819.40	817.40	813.50	400.00	820.31	0.00	820.31	1.05	.74	756.84	390.75
401.020	36.00	999999.00	0.00	813.50	400.00	820.31	0.00	820.32	1.14	.77	700.29	374.45
401.800	75.00	0.00	0.00	814.10	400.00	820.32	0.00	820.33	1.76	.88	632.71	301.24
401.800	75.00	0.00	0.00	814.10	400.00	820.32	0.00	820.33	1.92	.91	579.98	288.34
401.830	205.00	0.00	0.00	814.50	400.00	820.36	0.00	820.37	2.51	.98	562.55	252.33
401.830	205.00	0.00	0.00	814.50	400.00	820.36	0.00	820.38	2.75	1.03	509.70	241.12
401.850	235.00	0.00	0.00	815.00	400.00	820.43	0.00	820.44	3.90	1.15	485.50	202.67
401.850	235.00	0.00	0.00	815.00	400.00	820.44	0.00	820.46	4.25	1.20	436.58	194.56
401.950	230.00	0.00	0.00	815.40	400.00	820.51	0.00	820.52	3.26	1.32	585.86	221.65
401.950	230.00	0.00	0.00	815.40	400.00	820.53	0.00	820.55	3.56	1.38	497.25	212.01
402.000	230.00	0.00	0.00	815.80	400.00	820.60	0.00	820.62	4.74	1.51	503.16	183.69
402.000	230.00	0.00	0.00	815.80	400.00	820.63	0.00	820.65	5.15	1.58	426.05	176.24
402.100	225.00	0.00	0.00	817.70	190.00	820.74	0.00	820.77	16.76	1.98	170.10	46.42
402.100	225.00	0.00	0.00	817.70	190.00	820.77	0.00	820.82	18.73	2.12	140.80	43.90

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
402.900	250.00	0.00	0.00	819.10	190.00	821.45	0.00	821.61	81.85	3.31	67.56	21.00
402.900	250.00	0.00	0.00	819.10	190.00	821.54	0.00	821.71	79.75	3.33	57.1[illegible]	21.28
403.200	250.00	0.00	0.00	821.90	190.00	824.02	823.58	824.26	139.98	3.99	52.77	16.06
403.200	250.00	0.00	0.00	821.90	190.00	824.06	0.00	824.31	137.73	3.97	47.82	16.19
402.980	95.00	0.00	0.00	822.60	190.00	825.04	0.00	825.17	65.66	3.08	74.56	23.45
402.980	95.00	0.00	0.00	822.60	190.00	825.09	0.00	825.25	71.90	3.22	58.98	22.41
403.020	30.00	828.10	825.00	822.60	190.00	828.43	0.00	828.43	.46	.54	596.11	279.60
403.020	30.00	999999.00	0.00	822.60	190.00	828.48	0.00	828.49	.48	.55	530.51	274.85
403.800	80.00	0.00	0.00	821.00	190.00	828.43	0.00	828.43	.11	.30	843.34	564.87
403.800	80.00	0.00	0.00	821.00	190.00	828.49	0.00	828.49	.12	.30	761.68	556.98
404.000	300.00	0.00	0.00	822.20	190.00	828.44	0.00	828.44	.16	.32	697.50	468.57
404.000	300.00	0.00	0.00	822.20	190.00	828.49	0.00	828.49	.17	.32	620.71	460.37
405.200	250.00	0.00	0.00	823.20	190.00	828.44	0.00	828.45	1.97	.93	362.62	135.51
405.200	250.00	0.00	0.00	823.20	190.00	828.50	0.00	828.51	2.05	.96	326.00	132.85
404.980	75.00	0.00	0.00	822.50	190.00	828.46	0.00	828.46	.88	.70	504.51	202.11
404.980	75.00	0.00	0.00	822.50	190.00	828.51	0.00	828.52	.93	.72	442.91	197.17
405.020	45.00	830.50	823.90	822.50	190.00	831.52	0.00	831.52	.09	.33	919.04	624.05
405.020	45.00	999999.00	0.00	822.50	190.00	831.58	0.00	831.58	.09	.34	864.66	618.14
405.800	50.00	0.00	0.00	822.70	190.00	831.52	0.00	831.52	.10	.34	881.65	591.79
405.800	50.00	0.00	0.00	822.70	190.00	831.58	0.00	831.58	.11	.35	826.36	585.86
405.810	250.00	0.00	0.00	822.60	190.00	831.52	0.00	831.52	.10	.34	900.42	607.98
405.810	250.00	0.00	0.00	822.60	190.00	831.58	0.00	831.58	.10	.34	845.05	602.04
405.840	44.00	0.00	0.00	822.60	190.00	831.52	0.00	831.53	.15	.41	787.16	485.66
405.840	44.00	0.00	0.00	822.60	190.00	831.58	0.00	831.58	.16	.42	704.14	480.06
405.860	56.00	828.10	825.80	822.60	190.00	831.54	0.00	831.55	.15	.41	792.67	489.12
405.860	56.00	999999.00	0.00	822.60	190.00	831.60	0.00	831.60	.15	.42	709.90	483.45
405.990	100.00	0.00	0.00	822.80	190.00	831.55	0.00	831.55	.03	.18	1854.58	1045.67
405.990	100.00	0.00	0.00	822.80	190.00	831.60	0.00	831.60	.03	.18	1771.95	1034.40
406.000	250.00	0.00	0.00	823.10	190.00	831.55	0.00	831.55	.04	.19	1740.54	953.14
406.000	250.00	0.00	0.00	823.10	190.00	831.61	0.00	831.61	.04	.19	1658.16	941.57
406.100	300.00	0.00	0.00	824.80	190.00	831.55	0.00	831.55	.14	.29	1108.46	502.88
406.100	300.00	0.00	0.00	824.80	190.00	831.61	0.00	831.61	.15	.30	1008.88	494.45
406.500	300.00	0.00	0.00	826.40	190.00	831.56	0.00	831.56	.75	.51	586.92	218.92
406.500	300.00	0.00	0.00	826.40	190.00	831.61	0.00	831.62	.79	.53	526.11	213.88
407.100	1.00	0.00	0.00	825.70	100.00	831.56	0.00	831.56	.05	.09	1351.72	447.29
407.100	1.00	0.00	0.00	825.70	100.00	831.62	0.00	831.62	.05	.10	1311.62	440.50
407.200	200.00	0.00	0.00	829.80	100.00	831.56	0.00	831.58	17.41	.83	120.44	23.97
407.200	200.00	0.00	0.00	829.80	100.00	831.62	0.00	831.63	14.77	.79	126.86	26.02

	SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	407.000	150.00	0.00	0.00	830.70	100.00	832.10	0.00	832.12	113.34	1.02	109.36	9.39
	407.000	150.00	0.00	0.00	830.70	100.00	832.14	0.00	832.16	157.71	1.24	86.02	7.96
	407.800	50.00	0.00	0.00	831.80	100.00	832.82	0.00	832.86	187.80	1.49	67.21	7.30
	407.800	50.00	0.00	0.00	831.80	100.00	832.87	0.00	832.93	134.59	1.34	74.50	8.62
	408.000	325.00	0.00	0.00	833.10	100.00	835.46	0.00	835.49	44.74	1.28	77.90	14.95
	408.000	325.00	0.00	0.00	833.10	100.00	835.42	0.00	835.45	51.27	1.34	74.49	13.97
	409.000	475.00	0.00	0.00	837.70	100.00	838.86	0.00	838.90	131.96	1.73	62.98	8.71
	409.000	475.00	0.00	0.00	837.70	100.00	838.90	0.00	838.94	113.33	1.66	60.29	9.39
	409.100	375.00	0.00	0.00	839.70	100.00	841.16	0.00	841.18	35.91	1.08	110.65	16.69
	409.100	375.00	0.00	0.00	839.70	100.00	841.21	0.00	841.23	37.67	1.11	89.84	16.29
*	409.500	150.00	0.00	0.00	840.90	100.00	842.94	842.94	843.17	1235.50	3.98	31.12	2.84
*	409.500	150.00	0.00	0.00	840.90	100.00	842.99	842.99	843.24	1133.64	4.00	24.99	2.97
	410.000	150.00	0.00	0.00	843.70	100.00	846.22	0.00	846.25	76.40	1.42	108.64	11.44
	410.000	150.00	0.00	0.00	843.70	100.00	846.31	0.00	846.34	79.90	1.52	79.58	11.19
	410.100	50.00	0.00	0.00	845.20	100.00	847.32	0.00	847.46	680.29	3.21	39.61	3.83
	410.100	50.00	0.00	0.00	845.20	100.00	847.34	0.00	847.54	856.85	3.64	27.50	3.42

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
399.800	400.00	818.66	0.00	0.00	0.00	207.64	0.00
399.800	400.00	818.66	0.00	0.00	0.00	172.00	0.00
400.000	400.00	818.66	0.00	-.00	0.00	142.68	200.00
400.000	400.00	818.66	-.00	-.00	-.00	66.96	200.00
401.200	400.00	818.75	0.00	.09	0.00	80.11	200.00
401.200	400.00	818.75	.00	.09	.00	66.64	200.00
401.220	400.00	820.24	0.00	1.49	0.00	195.06	96.00
401.220	400.00	820.24	.00	1.49	.00	149.16	96.00
401.300	400.00	820.24	0.00	.00	0.00	194.95	7.00
401.300	400.00	820.24	.00	.00	.00	149.16	7.00
400.980	400.00	820.24	0.00	.00	0.00	192.60	8.00
400.980	400.00	820.24	.00	.00	.00	148.59	8.00
401.020	400.00	820.31	0.00	.07	0.00	216.98	36.00
401.020	400.00	820.31	.00	.07	.00	163.78	36.00
401.800	400.00	820.32	0.00	.01	0.00	198.51	75.00
401.800	400.00	820.32	.00	.01	.00	152.70	75.00
401.830	400.00	820.36	0.00	.04	0.00	187.27	205.00
401.830	400.00	820.36	.01	.05	.01	145.49	205.00
401.850	400.00	820.43	0.00	.07	0.00	178.29	235.00
401.850	400.00	820.44	.01	.08	.01	138.10	235.00
401.950	400.00	820.51	0.00	.08	0.00	276.42	230.00
401.950	400.00	820.53	.02	.09	.02	158.62	230.00
402.000	400.00	820.60	0.00	.09	0.00	255.73	230.00
402.000	400.00	820.63	.03	.09	.03	143.50	230.00
402.100	190.00	820.74	0.00	.14	0.00	142.13	225.00
402.100	190.00	820.77	.04	.15	.04	84.63	225.00
402.900	190.00	821.45	0.00	.71	0.00	71.20	250.00
402.900	190.00	821.54	.09	.77	.09	34.00	250.00
403.200	190.00	824.02	0.00	2.58	0.00	57.99	250.00
403.200	190.00	824.06	.04	2.52	.04	33.25	250.00
402.980	190.00	825.04	0.00	1.01	0.00	77.92	95.00
402.980	190.00	825.09	.06	1.03	.06	34.00	95.00
403.020	190.00	828.43	0.00	3.39	0.00	212.95	30.00
403.020	190.00	828.48	.06	3.39	.06	143.97	30.00
403.800	190.00	828.43	0.00	.00	0.00	250.70	80.00

403.800	190.00	828.49	.06	.00	.06	172.78	80.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
404.000	190.00	828.44	0.00	.00	0.00	250.78	300.00
404.000	190.00	828.49	.06	.00	.06	132.92	300.00
405.200	190.00	828.44	0.00	.01	0.00	174.80	250.00
405.200	190.00	828.50	.06	.01	.06	123.32	250.00
404.980	190.00	828.46	0.00	.01	0.00	262.91	75.00
404.980	190.00	828.51	.06	.02	.06	137.33	75.00
405.020	190.00	831.52	0.00	3.07	0.00	190.83	45.00
405.020	190.00	831.58	.06	3.07	.06	138.64	45.00
405.800	190.00	831.52	0.00	.00	0.00	185.59	50.00
405.800	190.00	831.58	.06	.00	.06	134.52	50.00
405.810	190.00	831.52	0.00	.00	0.00	188.24	250.00
405.810	190.00	831.58	.06	.00	.06	136.31	250.00
405.840	190.00	831.52	0.00	.00	0.00	246.20	44.00
405.840	190.00	831.58	.06	.00	.06	148.29	44.00
405.860	190.00	831.54	0.00	.02	0.00	247.32	56.00
405.860	190.00	831.60	.06	.02	.06	149.78	56.00
405.990	190.00	831.55	0.00	.00	0.00	386.35	100.00
405.990	190.00	831.60	.06	.00	.06	329.89	100.00
406.000	190.00	831.55	0.00	.00	0.00	382.74	250.00
406.000	190.00	831.61	.06	.00	.06	324.00	250.00
406.100	190.00	831.55	0.00	.00	0.00	357.27	300.00
406.100	190.00	831.61	.06	.00	.06	258.31	300.00
406.500	190.00	831.56	0.00	.01	0.00	278.74	300.00
406.500	190.00	831.61	.06	.01	.06	182.57	300.00
407.100	100.00	831.56	0.00	.00	0.00	338.70	1.00
407.100	100.00	831.62	.06	.00	.06	317.94	1.00
407.200	100.00	831.56	0.00	.00	0.00	119.28	200.00
407.200	100.00	831.62	.06	.00	.06	120.06	200.00
407.000	100.00	832.10	0.00	.54	0.00	210.38	150.00
407.000	100.00	832.14	.04	.52	.04	173.03	150.00
407.800	100.00	832.82	0.00	.72	0.00	165.92	50.00
407.800	100.00	832.87	.05	.73	.05	166.85	50.00
408.000	100.00	835.46	0.00	2.64	0.00	80.79	325.00
408.000	100.00	835.42	-.04	2.55	-.04	79.99	325.00
409.000	100.00	838.86	0.00	3.40	0.00	134.30	475.00
409.000	100.00	838.90	.04	3.48	.04	85.76	475.00
409.100	100.00	841.16	0.00	2.31	0.00	163.22	375.00
409.100	100.00	841.21	.04	2.31	.04	101.50	375.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	409.500	100.00	842.94	0.00	1.78	0.00	96.35	150.00
*	409.500	100.00	842.99	.05	1.78	.05	53.27	150.00
	410.000	100.00	846.22	0.00	3.28	0.00	231.33	150.00
	410.000	100.00	846.31	.09	3.32	.09	119.23	150.00
	410.100	100.00	847.32	0.00	1.10	0.00	109.79	50.00
	410.100	100.00	847.34	.01	1.03	.01	54.87	50.00

SUMMARY OF ERRORS

CAUTION SECNO= 409.500 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 409.500 PROFILE= 1 SLOPE TOO STEEP
CAUTION SECNO= 409.500 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 409.500 PROFILE= 2 SLOPE TOO STEEP

FLOODWAY DATA, SODON LAKE BRANCH
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
399.800	172.	917.	.4	818.7	818.7	0.0
400.000	67.	281.	1.4	818.7	818.7	0.0
401.200	67.	267.	1.5	818.7	818.7	0.0
401.220	149.	593.	.7	820.2	820.2	0.0
401.300	149.	593.	.7	820.2	820.2	0.0
400.980	149.	578.	.7	820.2	820.2	0.0
401.020	164.	700.	.6	820.3	820.3	0.0
401.800	153.	580.	.7	820.3	820.3	0.0
401.830	145.	510.	.8	820.4	820.4	0.0
401.850	138.	437.	.9	820.4	820.4	0.0
401.950	159.	497.	.8	820.5	820.5	0.0
402.000	144.	426.	.9	820.6	820.6	0.0
402.100	85.	141.	1.3	820.7	820.7	0.0
402.900	34.	57.	3.3	821.5	821.4	.1
403.200	33.	48.	4.0	824.0	824.0	0.0
402.980	34.	59.	3.2	825.1	825.0	.1
403.020	144.	531.	.4	828.5	828.4	.1
403.800	173.	762.	.2	828.5	828.4	.1
404.000	133.	621.	.3	828.5	828.4	.1
405.200	123.	326.	.6	828.5	828.4	.1
404.980	137.	443.	.4	828.6	828.5	.1
405.020	139.	865.	.2	831.6	831.5	.1
405.800	135.	826.	.2	831.6	831.5	.1
405.810	136.	845.	.2	831.6	831.5	.1
405.840	148.	704.	.3	831.6	831.5	.1
405.860	150.	710.	.3	831.6	831.5	.1
405.990	330.	1772.	.1	831.6	831.5	.1
406.000	324.	1658.	.1	831.6	831.5	.1
406.100	258.	1009.	.2	831.6	831.5	.1
406.500	183.	526.	.4	831.7	831.6	.1
407.100	422.	1312.	.1	831.7	831.6	.1
407.200	120.	127.	.8	831.7	831.6	.1
407.000	346.	86.	1.2	832.1	832.1	0.0
407.800	167.	74.	1.3	832.8	832.8	0.0
408.000	80.	74.	1.3	835.5	835.5	0.0
409.000	111.	60.	1.7	838.9	838.9	0.0
409.100	113.	90.	1.1	841.2	841.2	0.0
409.500	53.	25.	4.0	842.9	842.9	0.0
410.000	367.	80.	1.3	846.3	846.2	.1
410.100	55.	28.	3.6	847.3	847.3	0.0



1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SODUN LAKE DRAIN

4) DOUNSTREAM LAKES ALTERED

4) DOCUMENT TYPE: SUMMARY



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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
399.800	0.00	0.00	0.00	812.40	400.00	818.66	0.00	818.66	.28	.44	928.88	753.70
399.800	0.00	0.00	0.00	812.40	400.00	818.66	0.00	818.66	.29	.44	917.12	748.92
400.000	200.00	0.00	0.00	812.10	400.00	818.66	0.00	818.69	4.28	1.42	291.39	193.36
400.000	200.00	0.00	0.00	812.10	400.00	818.66	0.00	818.69	4.35	1.43	280.68	191.72
401.200	200.00	0.00	0.00	812.40	400.00	818.75	0.00	818.78	5.10	1.50	267.06	177.20
401.200	200.00	0.00	0.00	812.40	400.00	818.75	0.00	818.78	5.10	1.50	266.69	177.06
401.220	96.00	819.50	816.10	813.10	400.00	820.24	0.00	820.25	.96	.66	632.76	407.82
401.220	96.00	999999.00	0.00	813.10	400.00	820.24	0.00	820.25	1.01	.67	593.14	398.26
401.300	7.00	0.00	0.00	813.10	400.00	820.24	0.00	820.25	.97	.66	631.86	407.05
401.300	7.00	0.00	0.00	813.10	400.00	820.24	0.00	820.25	1.01	.67	593.24	398.37
400.980	8.00	0.00	0.00	813.20	400.00	820.24	0.00	820.25	1.05	.68	612.35	390.26
400.980	8.00	0.00	0.00	813.20	400.00	820.24	0.00	820.25	1.09	.69	578.48	383.14
401.020	36.00	819.40	817.40	813.50	400.00	820.31	0.00	820.31	1.05	.74	756.84	390.75
401.020	36.00	999999.00	0.00	813.50	400.00	820.31	0.00	820.32	1.14	.77	700.29	374.45
401.800	75.00	0.00	0.00	814.10	400.00	820.32	0.00	820.33	1.76	.88	632.71	301.24
401.800	75.00	0.00	0.00	814.10	400.00	820.32	0.00	820.33	1.92	.91	579.98	288.34
401.830	205.00	0.00	0.00	814.50	400.00	820.36	0.00	820.37	2.51	.98	562.55	252.33
401.830	205.00	0.00	0.00	814.50	400.00	820.36	0.00	820.38	2.75	1.03	509.70	241.12
401.850	235.00	0.00	0.00	815.00	400.00	820.43	0.00	820.44	3.90	1.15	485.50	202.67
401.850	235.00	0.00	0.00	815.00	400.00	820.44	0.00	820.46	4.25	1.20	436.58	194.06
401.950	230.00	0.00	0.00	815.40	400.00	820.51	0.00	820.52	3.26	1.32	585.86	221.65
401.950	230.00	0.00	0.00	815.40	400.00	820.53	0.00	820.55	3.56	1.38	497.25	212.01
402.000	230.00	0.00	0.00	815.80	400.00	820.60	0.00	820.62	4.74	1.51	503.16	183.69
402.000	230.00	0.00	0.00	815.80	400.00	820.63	0.00	820.65	5.15	1.58	426.05	176.24
402.100	225.00	0.00	0.00	817.70	190.00	820.74	0.00	820.77	16.76	1.98	170.10	46.42
402.100	225.00	0.00	0.00	817.70	190.00	820.77	0.00	820.82	18.73	2.12	140.80	43.90

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
402.900	250.00	0.00	0.00	819.10	190.00	821.45	0.00	821.61	81.85	3.31	67.56	21.00
402.900	250.00	0.00	0.00	819.10	190.00	821.54	0.00	821.71	79.75	3.33	57.10	21.28
403.200	250.00	0.00	0.00	821.90	190.00	824.02	823.58	824.26	139.98	3.99	52.77	16.06
403.200	250.00	0.00	0.00	821.90	190.00	824.06	0.00	824.31	137.73	3.97	47.82	16.19
402.980	95.00	0.00	0.00	822.60	190.00	825.04	0.00	825.17	65.66	3.08	74.56	23.45
402.980	95.00	0.00	0.00	822.60	190.00	825.09	0.00	825.25	71.90	3.22	58.98	22.41
403.020	30.00	828.10	825.00	822.60	190.00	828.43	0.00	828.43	.46	.54	596.11	279.60
403.020	30.00	999999.00	0.00	822.60	190.00	828.48	0.00	828.49	.48	.55	530.51	274.85
403.800	80.00	0.00	0.00	821.00	190.00	828.43	0.00	828.43	.11	.30	843.34	564.87
403.800	80.00	0.00	0.00	821.00	190.00	828.49	0.00	828.49	.12	.30	761.68	556.98
404.000	300.00	0.00	0.00	822.20	190.00	828.44	0.00	828.44	.16	.32	697.50	468.57
404.000	300.00	0.00	0.00	822.20	190.00	828.49	0.00	828.49	.17	.32	620.71	460.37
405.200	250.00	0.00	0.00	823.20	190.00	828.44	0.00	828.45	1.97	.93	362.62	135.51
405.200	250.00	0.00	0.00	823.20	190.00	828.50	0.00	828.51	2.05	.96	326.00	132.85
404.980	75.00	0.00	0.00	822.50	190.00	828.46	0.00	828.46	.88	.70	504.51	202.11
404.980	75.00	0.00	0.00	822.50	190.00	828.51	0.00	828.52	.93	.72	442.91	197.17
405.020	45.00	830.50	823.90	822.50	190.00	831.52	0.00	831.52	.09	.33	919.04	624.05
405.020	45.00	999999.00	0.00	822.50	190.00	831.58	0.00	831.58	.09	.34	864.66	618.14
405.800	50.00	0.00	0.00	822.70	190.00	831.52	0.00	831.52	.10	.34	881.65	591.79
405.800	50.00	0.00	0.00	822.70	190.00	831.58	0.00	831.58	.11	.35	826.36	585.86
405.810	250.00	0.00	0.00	822.60	190.00	831.52	0.00	831.52	.10	.34	900.42	607.98
405.810	250.00	0.00	0.00	822.60	190.00	831.58	0.00	831.58	.10	.34	845.05	602.04
405.840	44.00	0.00	0.00	822.60	190.00	831.52	0.00	831.53	.15	.41	787.16	485.66
405.840	44.00	0.00	0.00	822.60	190.00	831.58	0.00	831.58	.16	.42	704.14	480.06
405.860	56.00	828.10	825.80	822.60	190.00	831.54	0.00	831.55	.15	.41	792.67	489.12
405.860	56.00	999999.00	0.00	822.60	190.00	831.60	0.00	831.60	.15	.42	709.90	483.45
405.990	100.00	0.00	0.00	822.80	190.00	831.55	0.00	831.55	.03	.18	1854.58	1045.67
405.990	100.00	0.00	0.00	822.80	190.00	831.60	0.00	831.60	.03	.18	1771.95	1034.40
406.000	250.00	0.00	0.00	823.10	190.00	831.55	0.00	831.55	.04	.19	1740.54	953.14
406.000	250.00	0.00	0.00	823.10	190.00	831.61	0.00	831.61	.04	.19	1658.16	941.57
406.100	300.00	0.00	0.00	824.80	190.00	831.55	0.00	831.55	.14	.29	1108.46	502.88
406.100	300.00	0.00	0.00	824.80	190.00	831.61	0.00	831.61	.15	.30	1008.88	494.45
406.500	300.00	0.00	0.00	826.40	190.00	831.56	0.00	831.56	.75	.51	586.92	218.92
406.500	300.00	0.00	0.00	826.40	190.00	831.61	0.00	831.62	.79	.53	526.11	213.88
407.100	1.00	0.00	0.00	825.70	100.00	831.56	0.00	831.56	.05	.09	1351.72	447.29
407.100	1.00	0.00	0.00	825.70	100.00	831.62	0.00	831.62	.05	.10	1311.62	440.50
407.200	200.00	0.00	0.00	829.80	100.00	831.56	0.00	831.58	17.41	.83	120.44	23.97
407.200	200.00	0.00	0.00	829.80	100.00	831.62	0.00	831.63	14.77	.79	126.86	26.02

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	407.000	150.00	0.00	0.00	831.40	100.00	832.24	0.00	832.29	292.25	1.87	53.56	5.85
	407.000	150.00	0.00	0.00	831.40	100.00	832.22	0.00	832.28	320.07	1.92	52.12	5.59
	407.800	50.00	0.00	0.00	831.80	100.00	832.95	0.00	832.97	74.66	1.12	89.55	11.57
	407.800	50.00	0.00	0.00	831.80	100.00	832.95	0.00	832.97	72.59	1.11	90.22	11.74
	408.000	325.00	0.00	0.00	833.10	100.00	835.32	0.00	835.35	71.07	1.49	66.93	11.86
	408.000	325.00	0.00	0.00	833.10	100.00	835.31	0.00	835.35	72.90	1.51	66.37	11.71
	409.000	475.00	0.00	0.00	837.70	100.00	838.95	0.00	838.98	82.39	1.48	76.73	11.02
	409.000	475.00	0.00	0.00	837.70	100.00	838.98	0.00	839.01	81.84	1.50	66.83	11.05
	409.100	375.00	0.00	0.00	839.70	100.00	841.11	0.00	841.13	44.16	1.17	101.01	15.05
	409.100	375.00	0.00	0.00	839.70	100.00	841.17	0.00	841.19	43.15	1.17	85.20	15.22
	409.500	150.00	0.00	0.00	840.90	100.00	842.96	842.96	843.15	995.44	3.68	33.96	3.17
*	409.500	150.00	0.00	0.00	840.90	100.00	842.99	842.99	843.24	1165.96	4.04	24.75	2.93
	410.000	150.00	0.00	0.00	843.70	100.00	846.20	0.00	846.23	81.34	1.45	105.72	11.09
	410.000	150.00	0.00	0.00	843.70	100.00	846.31	0.00	846.34	78.99	1.51	80.70	11.25
	410.100	50.00	0.00	0.00	845.20	100.00	847.34	0.00	847.47	640.47	3.14	40.62	3.95
	410.100	50.00	0.00	0.00	845.20	100.00	847.33	0.00	847.54	856.23	3.64	27.51	3.42

SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
399.800	400.00	818.66	0.00	0.00	0.00	207.64	0.00
399.800	400.00	818.66	0.00	0.00	0.00	172.00	0.00
400.000	400.00	818.66	0.00	-.00	0.00	142.68	200.00
400.000	400.00	818.66	-.00	-.00	-.00	66.96	200.00
401.200	400.00	818.75	0.00	.09	0.00	80.11	200.00
401.200	400.00	818.75	.00	.09	.00	66.64	200.00
401.220	400.00	820.24	0.00	1.49	0.00	195.06	96.00
401.220	400.00	820.24	.00	1.49	.00	149.16	96.00
401.300	400.00	820.24	0.00	.00	0.00	194.95	7.00
401.300	400.00	820.24	.00	.00	.00	149.16	7.00
400.980	400.00	820.24	0.00	.00	0.00	192.60	8.00
400.980	400.00	820.24	.00	.00	.00	148.59	8.00
401.020	400.00	820.31	0.00	.07	0.00	216.98	36.00
401.020	400.00	820.31	.00	.07	.00	163.78	36.00
401.800	400.00	820.32	0.00	.01	0.00	198.51	75.00
401.800	400.00	820.32	.00	.01	.00	152.70	75.00
401.830	400.00	820.36	0.00	.04	0.00	187.27	205.00
401.830	400.00	820.36	.01	.05	.01	145.49	205.00
401.850	400.00	820.43	0.00	.07	0.00	178.29	235.00
401.850	400.00	820.44	.01	.08	.01	138.10	235.00
401.950	400.00	820.51	0.00	.08	0.00	276.42	230.00
401.950	400.00	820.53	.02	.09	.02	158.62	230.00
402.000	400.00	820.60	0.00	.09	0.00	255.73	230.00
402.000	400.00	820.63	.03	.09	.03	143.50	230.00
402.100	190.00	820.74	0.00	.14	0.00	142.13	225.00
402.100	190.00	820.77	.04	.15	.04	84.63	225.00
402.900	190.00	821.45	0.00	.71	0.00	71.20	250.00
402.900	190.00	821.54	.09	.77	.09	34.00	250.00
403.200	190.00	824.02	0.00	2.58	0.00	57.99	250.00
403.200	190.00	824.06	.04	2.52	.04	33.25	250.00
402.980	190.00	825.04	0.00	1.01	0.00	77.92	95.00
402.980	190.00	825.09	.06	1.03	.06	34.00	95.00
403.020	190.00	828.43	0.00	3.39	0.00	212.95	30.00
403.020	190.00	828.48	.06	3.39	.06	143.97	30.00
403.800	190.00	828.43	0.00	.00	0.00	250.70	80.00

403.800	190.00	828.49	.06	.00	.06	172.78	80.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
404.000	190.00	828.44	0.00	.00	0.00	250.78	300.00
404.000	190.00	828.49	.06	.00	.06	132.92	300.00
405.200	190.00	828.44	0.00	.01	0.00	174.80	250.00
405.200	190.00	828.50	.06	.01	.06	123.32	250.00
404.980	190.00	828.46	0.00	.01	0.00	262.91	75.00
404.980	190.00	828.51	.06	.02	.06	137.33	75.00
405.020	190.00	831.52	0.00	3.07	0.00	190.83	45.00
405.020	190.00	831.58	.06	3.07	.06	138.64	45.00
405.800	190.00	831.52	0.00	.00	0.00	185.59	50.00
405.800	190.00	831.58	.06	.00	.06	134.52	50.00
405.810	190.00	831.52	0.00	.00	0.00	188.24	250.00
405.810	190.00	831.58	.06	.00	.06	136.31	250.00
405.840	190.00	831.52	0.00	.00	0.00	246.20	44.00
405.840	190.00	831.58	.06	.00	.06	148.29	44.00
405.860	190.00	831.54	0.00	.02	0.00	247.32	56.00
405.860	190.00	831.60	.06	.02	.06	149.78	56.00
405.990	190.00	831.55	0.00	.00	0.00	386.35	100.00
405.990	190.00	831.60	.06	.00	.06	329.89	100.00
406.000	190.00	831.55	0.00	.00	0.00	382.74	250.00
406.000	190.00	831.61	.06	.00	.06	324.00	250.00
406.100	190.00	831.55	0.00	.00	0.00	357.27	300.00
406.100	190.00	831.61	.06	.00	.06	258.31	300.00
406.500	190.00	831.56	0.00	.01	0.00	278.74	300.00
406.500	190.00	831.61	.06	.01	.06	182.57	300.00
407.100	100.00	831.56	0.00	.00	0.00	338.70	1.00
407.100	100.00	831.62	.06	.00	.06	317.94	1.00
407.200	100.00	831.56	0.00	.00	0.00	119.28	200.00
407.200	100.00	831.62	.06	.00	.06	120.06	200.00
407.000	100.00	832.24	0.00	.67	0.00	130.10	150.00
407.000	100.00	832.22	-.02	.60	-.02	130.10	150.00
407.800	100.00	832.95	0.00	.71	0.00	171.35	50.00
407.800	100.00	832.95	-.00	.72	-.00	169.39	50.00
408.000	100.00	835.32	0.00	2.37	0.00	78.18	325.00
408.000	100.00	835.31	-.01	2.36	-.01	78.05	325.00
409.000	100.00	838.95	0.00	3.63	0.00	145.79	475.00
409.000	100.00	838.98	.03	3.67	.03	86.82	475.00
409.100	100.00	841.11	0.00	2.16	0.00	157.79	375.00
409.100	100.00	841.17	.06	2.19	.06	98.45	375.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	409.500	100.00	842.96	0.00	1.85	0.00	99.57	150.00
*	409.500	100.00	842.99	.03	1.82	.03	53.11	150.00
	410.000	100.00	846.20	0.00	3.24	0.00	229.90	150.00
	410.000	100.00	846.31	.11	3.32	.11	121.10	150.00
	410.100	100.00	847.34	0.00	1.14	0.00	112.17	50.00
	410.100	100.00	847.33	-.00	1.02	-.00	54.87	50.00

SUMMARY OF ERRORS

CAUTION SECNO= 409.500 PROFILE= 2 SLOPE TOO STEEP

FLOODWAY DATA, SODON LAKE BRANCH
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
399.800	172.	917.	.4	818.7	818.7	0.0
400.000	67.	281.	1.4	818.7	818.7	0.0
401.200	67.	267.	1.5	818.7	818.7	0.0
401.220	149.	593.	.7	820.2	820.2	0.0
401.300	149.	593.	.7	820.2	820.2	0.0
400.980	149.	578.	.7	820.2	820.2	0.0
401.020	164.	700.	.6	820.3	820.3	0.0
401.800	153.	580.	.7	820.3	820.3	0.0
401.830	145.	510.	.8	820.4	820.4	0.0
401.850	138.	437.	.9	820.4	820.4	0.0
401.950	159.	497.	.8	820.5	820.5	0.0
402.000	144.	426.	.9	820.6	820.6	0.0
402.100	85.	141.	1.3	820.7	820.7	0.0
402.900	34.	57.	3.3	821.5	821.4	.1
403.200	33.	48.	4.0	824.0	824.0	0.0
402.980	34.	59.	3.2	825.1	825.0	.1
403.020	144.	531.	.4	828.5	828.4	.1
403.800	173.	762.	.2	828.5	828.4	.1
404.000	133.	621.	.3	828.5	828.4	.1
405.200	123.	326.	.6	828.5	828.4	.1
404.980	137.	443.	.4	828.6	828.5	.1
405.020	139.	865.	.2	831.6	831.5	.1
405.800	135.	826.	.2	831.6	831.5	.1
405.810	136.	845.	.2	831.6	831.5	.1
405.840	148.	704.	.3	831.6	831.5	.1
405.860	150.	710.	.3	831.6	831.5	.1
405.990	330.	1772.	.1	831.6	831.5	.1
406.000	324.	1658.	.1	831.6	831.5	.1
406.100	258.	1009.	.2	831.6	831.5	.1
406.500	183.	526.	.4	831.7	831.6	.1
407.100	422.	1312.	.1	831.7	831.6	.1
407.200	120.	127.	.8	831.7	831.6	.1
407.000	130.	52.	1.9	832.2	832.2	0.0
407.800	169.	90.	1.1	833.0	833.0	0.0
408.000	78.	66.	1.5	835.3	835.3	0.0
409.000	112.	67.	1.5	838.9	838.9	0.0
409.100	112.	85.	1.2	841.2	841.1	.1
409.500	53.	25.	4.0	843.0	843.0	0.0
410.000	369.	81.	1.2	846.3	846.2	.1
410.100	55.	28.	3.6	847.3	847.3	0.0

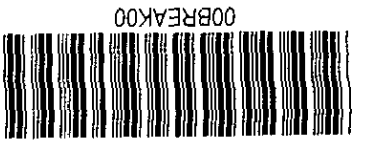


1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SODUN LAKE DRAIN

4) DOCUMENT TYPE: SUMMARY - PRODUCTION RUN



SODON LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
399.800	240.00	817.07	0.00	0.00	0.00	166.42	0.00
399.800	340.00	818.12	1.05	0.00	0.00	178.48	0.00
399.800	400.00	818.66	.54	0.00	0.00	207.64	0.00
399.800	550.00	820.12	1.46	0.00	0.00	280.00	0.00
400.000	240.00	817.07	0.00	.00	0.00	54.63	200.00
400.000	340.00	818.12	1.05	-.00	0.00	64.10	200.00
400.000	400.00	818.66	.54	-.00	0.00	142.68	200.00
400.000	550.00	820.12	1.46	-.00	0.00	201.32	200.00
401.200	240.00	817.17	0.00	.10	0.00	52.81	200.00
401.200	340.00	818.21	1.04	.10	0.00	62.19	200.00
401.200	400.00	818.75	.53	.09	0.00	80.11	200.00
401.200	550.00	820.17	1.42	.05	0.00	196.85	200.00
401.220	240.00	819.88	0.00	2.71	0.00	186.58	96.00
401.220	340.00	820.12	.24	1.90	0.00	192.17	96.00
401.220	400.00	820.24	.12	1.49	0.00	195.06	96.00
401.220	550.00	820.57	.33	.40	0.00	202.71	96.00
401.300	240.00	819.88	0.00	.00	0.00	186.56	7.00
401.300	340.00	820.12	.24	.00	0.00	192.10	7.00
401.300	400.00	820.24	.12	.00	0.00	194.95	7.00
401.300	550.00	820.57	.33	.00	0.00	202.62	7.00
400.980	240.00	819.88	0.00	.00	0.00	184.19	8.00
400.980	340.00	820.12	.24	.00	0.00	189.74	8.00
400.980	400.00	820.24	.12	.00	0.00	192.60	8.00
400.980	550.00	820.57	.33	.00	0.00	200.29	8.00
401.020	240.00	819.95	0.00	.07	0.00	205.76	36.00
401.020	340.00	820.18	.23	.06	0.00	213.02	36.00
401.020	400.00	820.31	.13	.07	0.00	216.98	36.00
401.020	550.00	820.65	.34	.07	0.00	230.01	36.00
401.800	240.00	819.95	0.00	.00	0.00	187.27	75.00
401.800	340.00	820.19	.24	.01	0.00	194.54	75.00
401.800	400.00	820.32	.13	.01	0.00	198.51	75.00
401.800	550.00	820.66	.34	.01	0.00	209.03	75.00
401.830	240.00	819.98	0.00	.02	0.00	178.89	205.00
401.830	340.00	820.22	.25	.03	0.00	183.10	205.00
401.830	400.00	820.36	.14	.04	0.00	187.27	205.00
401.830	550.00	820.71	.36	.06	0.00	198.22	205.00
401.850	240.00	820.01	0.00	.04	0.00	171.65	235.00
401.850	340.00	820.28	.27	.06	0.00	175.83	235.00
401.850	400.00	820.43	.15	.07	0.00	178.29	235.00
401.850	550.00	820.81	.38	.09	0.00	185.87	235.00
401.950	240.00	820.06	0.00	.05	0.00	239.82	230.00
401.950	340.00	820.35	.29	.07	0.00	269.56	230.00

401.950	400.00	820.51	.16	.08	0.00	276.42	230.00
401.950	550.00	820.91	.40	.11	0.00	293.71	230.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	402.000	240.00	820.12	0.00	.06	0.00	206.39	230.00
	402.000	340.00	820.43	.31	.08	0.00	236.40	230.00
	402.000	400.00	820.60	.17	.09	0.00	255.73	230.00
	402.000	550.00	821.01	.42	.10	0.00	281.25	230.00
	402.100	120.00	820.22	0.00	.10	0.00	115.99	225.00
	402.100	170.00	820.56	.34	.13	0.00	133.14	225.00
	402.100	190.00	820.74	.18	.14	0.00	142.13	225.00
	402.100	270.00	821.17	.43	.15	0.00	163.77	225.00
	402.900	120.00	821.10	0.00	.89	0.00	52.37	250.00
	402.900	170.00	821.37	.26	.81	0.00	65.99	250.00
	402.900	190.00	821.45	.08	.71	0.00	71.20	250.00
	402.900	270.00	821.79	.34	.62	0.00	95.43	250.00
	403.200	120.00	823.62	0.00	2.52	0.00	36.36	250.00
	403.200	170.00	823.92	.30	2.55	0.00	52.62	250.00
	403.200	190.00	824.02	.11	2.58	0.00	57.99	250.00
	403.200	270.00	824.30	.28	2.52	0.00	75.04	250.00
	402.980	120.00	824.66	0.00	1.04	0.00	32.71	95.00
	402.980	170.00	824.96	.29	1.04	0.00	34.00	95.00
	402.980	190.00	825.04	.08	1.01	0.00	77.92	95.00
	402.980	270.00	825.37	.33	1.07	0.00	100.75	95.00
	403.020	120.00	824.86	0.00	.20	0.00	33.78	30.00
	403.020	170.00	828.38	3.52	3.43	0.00	211.48	30.00
	403.020	190.00	828.43	.05	3.39	0.00	212.95	30.00
	403.020	270.00	828.60	.17	3.23	0.00	218.49	30.00
	403.800	120.00	824.99	0.00	.13	0.00	89.10	80.00
	403.800	170.00	828.38	3.40	.00	0.00	249.84	80.00
	403.800	190.00	828.43	.05	.00	0.00	250.70	80.00
	403.800	270.00	828.61	.18	.01	0.00	253.93	80.00
	404.000	120.00	825.03	0.00	.04	0.00	94.40	300.00
	404.000	170.00	828.39	3.36	.00	0.00	249.96	300.00
	404.000	190.00	828.44	.05	.00	0.00	250.78	300.00
	404.000	270.00	828.61	.18	.01	0.00	253.87	300.00
*	405.200	120.00	824.90	0.00	-.13	0.00	17.11	250.00
	405.200	170.00	828.39	3.50	.00	0.00	173.33	250.00
	405.200	190.00	828.44	.05	.01	0.00	174.80	250.00
	405.200	270.00	828.62	.18	.01	0.00	180.38	250.00
	404.980	120.00	825.93	0.00	1.03	0.00	115.05	75.00
	404.980	170.00	828.40	2.48	.01	0.00	262.27	75.00
	404.980	190.00	828.46	.05	.01	0.00	262.91	75.00
	404.980	270.00	828.65	.19	.02	0.00	265.40	75.00
	405.020	120.00	831.22	0.00	5.29	0.00	182.80	45.00
	405.020	170.00	831.46	.24	3.05	0.00	189.12	45.00
	405.020	190.00	831.52	.06	3.07	0.00	190.83	45.00
	405.020	270.00	831.74	.22	3.09	0.00	196.70	45.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
405.800	120.00	831.22	0.00	.00	0.00	177.52	50.00
405.800	170.00	831.46	.24	.00	0.00	183.88	50.00
405.800	190.00	831.52	.06	.00	0.00	185.59	50.00
405.800	270.00	831.74	.22	.00	0.00	191.48	50.00
405.810	120.00	831.22	0.00	.00	0.00	180.19	250.00
405.810	170.00	831.46	.24	.00	0.00	186.52	250.00
405.810	190.00	831.52	.06	.00	0.00	188.24	250.00
405.810	270.00	831.75	.22	.00	0.00	194.14	250.00
405.840	120.00	831.22	0.00	.00	0.00	230.93	44.00
405.840	170.00	831.46	.24	.00	0.00	242.95	44.00
405.840	190.00	831.52	.06	.00	0.00	246.20	44.00
405.840	270.00	831.75	.22	.00	0.00	257.43	44.00
405.860	120.00	831.23	0.00	.01	0.00	231.71	56.00
405.860	170.00	831.48	.24	.02	0.00	243.97	56.00
405.860	190.00	831.54	.07	.02	0.00	247.32	56.00
405.860	270.00	831.77	.23	.03	0.00	258.90	56.00
405.990	120.00	831.23	0.00	.00	0.00	382.55	100.00
405.990	170.00	831.48	.25	.00	0.00	385.54	100.00
405.990	190.00	831.55	.07	.00	0.00	386.35	100.00
405.990	270.00	831.78	.23	.00	0.00	389.17	100.00
406.000	120.00	831.24	0.00	.00	0.00	378.91	250.00
406.000	170.00	831.48	.25	.00	0.00	381.91	250.00
406.000	190.00	831.55	.07	.00	0.00	382.74	250.00
406.000	270.00	831.78	.23	.00	0.00	385.59	250.00
406.100	120.00	831.24	0.00	.00	0.00	350.15	300.00
406.100	170.00	831.48	.25	.00	0.00	355.74	300.00
406.100	190.00	831.55	.07	.00	0.00	357.27	300.00
406.100	270.00	831.78	.23	.00	0.00	362.58	300.00
406.500	120.00	831.24	0.00	.00	0.00	256.77	300.00
406.500	170.00	831.49	.25	.01	0.00	274.00	300.00
406.500	190.00	831.56	.07	.01	0.00	278.74	300.00
406.500	270.00	831.80	.24	.01	0.00	295.18	300.00
407.100	50.00	831.24	0.00	.00	0.00	334.05	1.00
407.100	80.00	831.49	.25	.00	0.00	337.69	1.00
407.100	100.00	831.56	.07	.00	0.00	338.70	1.00
407.100	150.00	831.80	.24	.01	0.00	342.21	1.00
407.200	50.00	831.24	0.00	.00	0.00	114.59	200.00
407.200	80.00	831.49	.25	.00	0.00	118.26	200.00
407.200	100.00	831.56	.07	.00	0.00	119.28	200.00
407.200	150.00	831.81	.24	.00	0.00	305.92	200.00
407.000	50.00	831.78	0.00	.54	0.00	135.57	150.00
407.000	80.00	831.98	.20	.49	0.00	181.73	150.00
407.000	100.00	832.10	.12	.54	0.00	210.38	150.00
407.000	150.00	831.88	-.22	.08	0.00	157.82	150.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	407.800	50.00	832.64	0.00	.85	0.00	113.82	50.00
	407.800	80.00	832.76	.13	.78	0.00	153.78	50.00
	407.800	100.00	832.82	.06	.72	0.00	165.92	50.00
	407.800	150.00	833.05	.23	1.17	0.00	175.45	50.00
	408.000	50.00	834.88	0.00	2.25	0.00	43.64	325.00
	408.000	80.00	835.32	.44	2.56	0.00	78.32	325.00
	408.000	100.00	835.46	.14	2.64	0.00	80.79	325.00
	408.000	150.00	835.60	.13	2.54	0.00	83.57	325.00
	409.000	50.00	838.55	0.00	3.66	0.00	77.47	475.00
	409.000	80.00	838.76	.21	3.44	0.00	115.06	475.00
	409.000	100.00	838.86	.09	3.40	0.00	134.30	475.00
	409.000	150.00	839.16	.30	3.56	0.00	161.21	475.00
	409.100	50.00	840.88	0.00	2.33	0.00	139.26	375.00
	409.100	80.00	841.06	.18	2.29	0.00	152.85	375.00
	409.100	100.00	841.16	.11	2.31	0.00	163.22	375.00
	409.100	150.00	841.35	.19	2.19	0.00	179.55	375.00
*	409.500	50.00	842.49	0.00	1.61	0.00	11.93	150.00
*	409.500	80.00	842.89	.40	1.84	0.00	90.08	150.00
*	409.500	100.00	842.94	.05	1.78	0.00	96.35	150.00
	409.500	150.00	843.15	.20	1.80	0.00	141.40	150.00
	410.000	50.00	845.95	0.00	3.46	0.00	143.09	150.00
	410.000	80.00	846.13	.18	3.23	0.00	221.12	150.00
	410.000	100.00	846.22	.10	3.28	0.00	231.33	150.00
	410.000	150.00	846.36	.14	3.21	0.00	247.52	150.00
*	410.100	50.00	847.07	0.00	1.12	0.00	65.04	50.00
	410.100	80.00	847.24	.18	1.12	0.00	96.44	50.00
	410.100	100.00	847.32	.08	1.10	0.00	109.79	50.00
	410.100	150.00	847.52	.20	1.17	0.00	200.44	50.00

SUMMARY OF ERRORS

CAUTION SECNO= 405.200 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 405.200 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 405.200 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 409.500 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 409.500 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 409.500 PROFILE= 2 SLOPE TOO STEEP
CAUTION SECNO= 409.500 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 409.500 PROFILE= 3 SLOPE TOO STEEP

CAUTION SECNO= 410.100 PROFILE= 1 CRITICAL DEPTH ASSUMED

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: STONY CROFT DRAIN

10-YR

4) DOCUMENT TYPE: PRODUCTION RUNS

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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C
T1      HUD-FIA H-4705
T2      BLOOMFIELD TWP. FIS
T3      STONYCROFT BRANCH

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
          0.       2.        0.        0.   .003640      0.00     -1.0        0.   822.500     0.000

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

NC      .095      .095      .065      .100      .300    0.000     0.000     0.000     0.000     0.000
QT     5.000   395.000   560.000   650.000   865.000   650.000     0.000     0.000     0.000     0.000

        ***CONFLUENCE WITH QUARTON BRANCH AND AMY DRAIN

X1   126.100     9.000   170.000   195.000     0.000     0.000     0.000     0.000     .700     0.000
X3     0.000     0.000     0.000     0.000     0.000   280.000     0.000     0.000     0.000     0.000
GR   826.000   140.000   820.500   160.000   820.500   170.000   819.500   175.000   819.500   185.000
GR   820.700   195.000   820.700   280.000   820.900   380.000   829.000   450.000     0.000     0.000

X1   126.200     0.000     0.000     0.000   180.000   180.000   180.000     0.000     .800     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

        **D/S FACE LONG LAKE - RCP AND CMP ARCH

X1   126.300     0.000     0.000     0.000    60.000    60.000    60.000     0.000     0.000     0.000
X3     0.000     0.000     0.000     0.000     0.000   280.000     0.000     0.000     0.000     0.000
SB     0.000     2.600     3.000   150.000     8.000     0.000    20.200     0.000     0.000     0.000

X1   126.700     9.000   230.000   245.000    84.000    84.000    84.000     0.000     0.000     0.000
X2     0.000     0.000     1.000   822.000   825.500     0.000     0.000     0.000     0.000     0.000
X3     0.000     0.000     0.000     0.000     0.000   280.000     0.000     0.000     0.000     0.000
GR   827.500   170.000   824.000   220.000   822.500   230.000   821.600   235.000   821.600   242.000
GR   822.800   245.000   824.000   275.000   824.500   310.000   832.000   345.000     0.000     0.000
NC      .080      .080      .060     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   126.800     0.000     0.000     0.000    60.000    60.000    60.000     0.000     0.000     0.000
NC     0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000

X1   126.850     0.000     0.000     0.000   320.000   320.000   320.000     0.000     2.200     0.000
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X1	126.950	0.000	0.000	0.000	350.000	350.000	350.000	0.000	2.500	0.000
NC	.070	.070	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	126.960	10.000	130.000	150.000	280.000	280.000	280.000	0.000	-.400	0.000
GR	840.000	10.000	836.600	65.000	834.000	80.000	832.700	110.000	831.000	130.000
GR	828.900	132.000	828.900	140.000	830.500	150.000	834.500	210.000	835.000	240.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE CONCRETE FOOTBRIDGE

X1	126.970	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	830.700	832.300	0.000	0.000	0.000	0.000	0.000
X1	126.980	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	830.700	832.300	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	126.990	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	127.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.400	0.000
X1	127.500	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.300	0.000
X1	128.100	9.000	188.000	230.000	150.000	150.000	150.000	0.000	-2.000	0.000
GR	844.200	170.000	837.000	188.000	836.600	190.000	835.000	197.000	835.000	207.000
GR	836.600	215.000	837.500	230.000	837.000	280.000	845.000	400.000	0.000	0.000
X1	128.150	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.300	0.000
X1	128.200	0.000	0.000	0.000	90.000	90.000	90.000	0.000	1.200	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**D/S FACE STRUCTURE ON GOLFCOURCE

X1	128.300	0.000	0.000	0.000	190.000	190.000	190.000	0.000	1.000	0.000
SB	0.000	2.200	2.900	100.000	10.000	0.000	18.000	0.000	0.000	0.000
X1	128.700	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.800	841.800	0.000	0.000	0.000	0.000	0.000
X1	128.800	7.000	50.000	160.000	65.000	65.000	65.000	0.000	0.000	0.000
GR	845.000	0.000	841.000	50.000	837.000	70.000	831.600	100.000	837.000	140.000
GR	841.500	160.000	843.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	128.900	6.000	70.000	140.000	135.000	135.000	135.000	0.000	0.700	0.000
GR	845.000	0.000	841.000	50.000	837.000	70.000	837.000	140.000	841.500	160.000

RECEIVED
MAY 2 0 2004
WATER MANAGEMENT DISTRICT
ENGINEERING CENTER

GR	843.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	129.000	8.000	200.000	230.000	450.000	450.000	450.000	0.000	0.000	0.000
GR	844.300	0.000	841.800	80.000	841.300	110.000	841.300	200.000	838.000	220.000
GR	842.300	230.000	842.500	260.000	844.300	300.000	0.000	0.000	0.000	0.000

**D/S FACE CONCRETE FOOTBRIDGE

X1	129.300	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	842.200	842.200	0.000
SB	0.000	1.300	2.900	150.000	12.000	0.000	49.000	0.000	0.000	0.000
X1	129.700	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.200	842.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	842.600	0.000
X1	129.900	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.400	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	130.000	11.000	220.000	280.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	851.000	115.000	848.000	140.000	847.000	160.000	846.500	200.000	846.800	220.000
GR	846.000	230.000	843.400	240.000	845.000	255.000	846.700	270.000	848.500	280.000
GR	849.000	300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**CONFLUENCE WITH HAMLIN AND MURPHY DRAINS

X1	130.500	0.000	0.000	0.000	80.000	80.000	80.000	0.000	.600	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 126.100

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

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

***CONFLUENCE WITH QUARTON BRANCH AND AMY DRAIN

126.10	2.92	823.12	0.00	822.50	823.18	.06	0.00	0.00	821.20
395.	34.	166.	195.	26.	64.	146.	0.	0.	821.40
0.00	1.31	2.58	1.33	.095	.065	.095	0.000	820.20	153.03
.003637	0.	0.	0.	0	0	5	0.00	126.97	280.00

*SECNO 126.200

126.20	2.68	823.68	0.00	0.00	823.71	.03	.53	.00	822.00
395.	22.	115.	259.	22.	58.	270.	1.	1.	822.20
.04	.98	1.96	.96	.095	.065	.095	.065	821.00	153.90
.002392	180.	180.	180.	2	0	0	0.00	237.13	391.04

CCHV= .300 CEHV= .500
*SECNO 126.300

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

**D/S FACE LONG LAKE - RCP AND CMP ARCH

126.30	2.84	823.84	0.00	0.00	823.91	.06	.18	.02	822.00
395.	34.	168.	193.	25.	63.	140.	2.	1.	822.20
.05	1.36	2.68	1.38	.095	.065	.095	.064	821.00	153.27
.004071	60.	60.	60.	1	0	0	0.00	126.73	280.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.60	3.00	150.00	8.00	0.00	20.20	0.00	821.00	821.00

*SECNO 126.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
839.28	825.48	0.00	243.	153.	20.	8.	822.00	825.50

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

E UNIV RS Y O MICHIGAN COMPUTING CENTER

126.70	4.48	826.08	0.00	0.00	826.16	.08	2.26	0.00	822.50
395.	70.	190.	135.	59.	63.	91.	2.	1.	822.80
.06	1.19	3.01	1.49	.095	.065	.095	.064	821.60	190.28
.002617	84.	84.	84.	2	0	6	0.00	89.72	280.00

*SECNO 126.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.80	4.64	826.24	0.00	0.00	826.28	.04	.10	.01	822.50
395.	64.	147.	184.	66.	66.	162.	2.	1.	822.80
.07	.98	2.25	1.14	.080	.060	.080	.064	821.60	188.04
.001188	60.	60.	60.	2	0	0	0.00	130.07	318.11

CCHV= .100 CEHV= .300

*SECNO 126.850

126.85	3.14	826.94	0.00	0.00	827.23	.29	.88	.08	824.70
395.	43.	231.	121.	19.	43.	58.	4.	2.	825.00
.09	2.29	5.37	2.09	.080	.060	.080	.062	823.80	209.42
.011853	320.	320.	320.	2	0	0	0.00	101.71	311.12

*SECNO 126.950

126.95	3.54	829.84	0.00	0.00	829.99	.15	2.75	.01	827.20
395.	49.	198.	147.	28.	49.	85.	5.	3.	827.50
.13	1.73	4.03	1.73	.080	.060	.080	.061	826.30	203.55
.005582	350.	350.	350.	4	0	0	0.00	109.49	313.04

*SECNO 126.960

126.96	3.36	831.86	0.00	0.00	832.30	.44	2.22	.09	830.60
395.	16.	330.	49.	9.	57.	23.	6.	4.	830.10
.14	1.71	5.78	2.14	.070	.055	.070	.060	828.50	115.23
.012116	280.	280.	280.	2	0	0	0.00	61.11	176.33

*SECNO 126.970

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 830.700 EGLC= 832.752 EGC= 833.522 WSEL= 833.009

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 830.700 EGLC= 832.752 EGC= 832.755 WSEL= 830.697

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

** D/S FACE CONCRETE FOOTBRIDGE

126.97	2.25	830.75	830.70	0.00	832.80	2.05	.02	.48	830.60
395.	0.	391.	4.	0.	34.	3.	6.	4.	830.10
.14	.05	11.55	1.32	.070	.025	.070	.060	828.50	128.21
.048669	1.	1.	1.	4	21	0	-1.61	31.57	159.78

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*SECNO 126.980

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 830.700 EGLC= 832.752 EGC= 833.522 WSEL= 833.009

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 830.700 EGLC= 832.752 EGC= 832.755 WSEL= 830.697

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

126.98	2.40	830.90	830.70	0.00	832.95	2.05	.15	0.00	830.60
395.	0.	391.	4.	0.	34.	3.	6.	4.	830.10
.14	.05	11.55	1.32	.070	.025	.070	.060	828.50	126.49
.048669	3.	3.	3.	4	21	0	-6.50	35.48	161.97

*SECNO 126.990

3301 HV CHANGED MORE THAN HVINS

126.99	4.53	833.03	831.39	0.00	833.15	.12	.01	.19	830.60
395.	48.	261.	86.	38.	81.	64.	6.	4.	830.10
.14	1.27	3.24	1.34	.070	.055	.070	.060	828.50	93.15
.002403	1.	1.	1.	10	11	0	0.00	100.80	193.95

*SECNO 127.000

127.00	4.22	833.12	0.00	0.00	833.28	.16	.12	.01	831.00
395.	39.	278.	78.	28.	74.	52.	6.	4.	830.50
.14	1.41	3.74	1.52	.070	.055	.070	.059	828.90	100.25
.003560	40.	40.	40.	2	0	0	0.00	89.08	189.33

*SECNO 127.500

3301 HV CHANGED MORE THAN HVINS

127.50	2.99	834.19	834.09	0.00	834.89	.70	1.44	.16	833.30
395.	8.	351.	35.	5.	50.	14.	7.	4.	832.80
.15	1.82	7.08	2.45	.070	.055	.070	.059	831.20	119.57
.021814	200.	200.	200.	6	14	0	0.00	51.24	170.80

*SECNO 128.100

3301 HV CHANGED MORE THAN HVINS

128.10	3.26	836.26	0.00	0.00	836.40	.14	1.45	.06	835.00
395.	2.	300.	93.	2.	91.	62.	7.	4.	835.50
.17	1.10	3.31	1.50	.070	.055	.070	.058	833.00	184.85
.005457	150.	150.	150.	3	0	0	0.00	114.03	298.89

*SECNO 128.150

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
128.15	2.73	837.03	0.00	0.00	837.38	.35	.92	.07	836.30
395.	1.	346.	48.	1.	68.	28.	7.	5.	836.80
.17	1.41	5.06	1.73	.070	.055	.070	.058	834.30	186.18
.018616	100.	100.	100.	2	0	0	0.00	104.76	290.94

*SECNO 128.200

128.20	2.93	838.43	0.00	0.00	838.67	.24	1.28	.01	837.50
395.	1.	326.	68.	1.	77.	41.	7.	5.	838.00
.18	1.28	4.24	1.67	.070	.055	.070	.058	835.50	185.67
.011178	90.	90.	90.	3	0	0	0.00	108.30	293.97

CCHV= .300 CEHV= .500

*SECNO 128.300

**D/S FACE STRUCTURE ON GOLFCOURCE

128.30	3.36	839.86	0.00	0.00	839.98	.12	1.27	.04	838.50
395.	2.	293.	100.	2.	95.	70.	8.	5.	839.00
.20	1.04	3.09	1.44	.070	.055	.070	.058	836.50	184.60
.004461	190.	190.	190.	4	0	0	0.00	115.83	300.43

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.90	100.00	10.00	0.00	18.00	0.00	836.50	836.50

*SECNO 128.700

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.31	839.98	0.00	232.	163.	18.	33.	839.80	841.80

128.70	6.15	842.65	0.00	0.00	842.66	.01	2.68	0.00	838.50
395.	9.	205.	181.	22.	212.	326.	8.	5.	839.00
.21	.40	.97	.56	.070	.055	.070	.058	836.50	177.59
.000149	14.	14.	14.	0	0	6	0.00	164.85	342.44

*SECNO 128.800

128.80	11.06	842.66	0.00	0.00	842.67	.00	.00	.00	841.00
395.	2.	391.	2.	17.	727.	27.	9.	6.	841.50
.24	.11	.54	.08	.070	.055	.070	.058	831.60	29.20
.000033	65.	65.	65.	2	0	0	0.00	177.36	206.56

CCHV= .100 CEHV= .300

*SECNO 128.900

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

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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
128.90	4.97	842.67	0.00	0.00	842.68	.01	.01	.00	837.70
395.	32.	335.	28.	65.	348.	59.	11.	6.	837.70
.28	.50	.96	.47	.070	.055	.070	.057	837.70	37.80
.000149	135.	135.	135.	0	0	0	0.00	141.26	179.05

CCHV= .300 CEHV= .500

*SECNO 129.000

129.00	4.81	842.81	0.00	0.00	842.85	.04	.16	.02	841.30
395.	195.	194.	6.	190.	90.	13.	15.	8.	842.30
.36	1.03	2.16	.44	.070	.055	.070	.057	838.00	47.76
.001562	450.	450.	450.	2	0	0	0.00	219.08	266.84

*SECNO 129.300

**D/S FACE CONCRETE FOOTBRIDGE

129.30	4.74	842.84	0.00	0.00	842.89	.05	.03	.00	841.40
395.	191.	200.	4.	178.	87.	11.	15.	8.	842.40
.36	1.07	2.28	.42	.070	.055	.070	.057	838.10	50.20
.001806	20.	20.	20.	1	0	0	0.00	214.94	265.14

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.30	2.90	150.00	12.00	0.00	49.00	0.00	838.10	838.10

*SECNO 129.700

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
844.15	842.89	0.00	191.	204.	49.	49.	842.20	842.60

129.70	5.06	843.16	0.00	0.00	843.19	.03	.30	0.00	841.40
395.	207.	177.	11.	229.	97.	23.	15.	8.	842.40
.37	.90	1.82	.47	.070	.055	.070	.057	838.10	39.79
.000999	5.	5.	5.	2	0	4	0.00	232.58	272.37

*SECNO 129.900

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

129.90	3.73	844.23	844.23	0.00	844.65	.42	.52	.20	843.80
395.	68.	327.	0.	44.	58.	0.	16.	9.	844.80

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.38	1.55	5.68	0.00	.070	.055	.070	.057	840.50	84.47
.018244	200.	200.	200.	20	16	0	0.00	144.19	228.66

CCHV= .100 CEHV= .300

*SECNO 130.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
130.00	3.96	847.36	0.00	0.00	847.51	.15	2.83	.03	846.80
395.	47.	348.	0.	40.	108.	0.	17.	10.	848.50
.40	1.18	3.23	0.00	.070	.055	.070	.057	843.40	152.78
.005758	300.	300.	300.	4	0	0	0.00	120.90	273.67

*SECNO 130.500

**CONFLUENCE WITH HAMLIN AND MURPHY DRAINS

130.50	3.85	847.85	0.00	0.00	848.03	.17	.51	.01	847.40
395.	39.	356.	0.	33.	102.	0.	17.	10.	849.10
.41	1.18	3.50	0.00	.070	.055	.070	.057	844.00	154.92
.007148	80.	80.	80.	3	0	0	0.00	118.16	273.08

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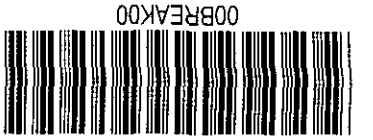


1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: STONYCREEK DRAIN

4) DOCUMENT TYPE: 50 YR. PROJECTED RUN

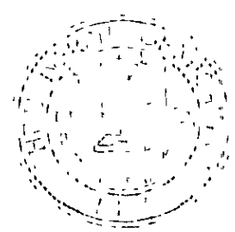


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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      50 YEAR FLOW

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -1.       3.        0.        0.   .003640      0.00     -1.0        0.   823.000     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

*PROF 2

CCHV= .100 CEHV= .300

*SECNO 126.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.10	3.38	823.58	0.00	823.00	823.66	.07	0.00	0.00	821.20
560.	51.	219.	290.	34.	76.	186.	0.	0.	821.40
0.00	1.49	2.88	1.56	.095	.065	.095	0.000	820.20	151.33
.003639	0.	0.	0.	0	0	5	0.00	128.67	280.00

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

***CONFLUENCE WITH QUARTON BRANCH AND AMY DRAIN

*SECNO 126.200

126.20	3.12	824.12	0.00	0.00	824.15	.03	.49	.00	822.00
560.	31.	144.	385.	29.	70.	358.	2.	1.	822.20
.04	1.06	2.07	1.08	.095	.065	.095	.065	821.00	152.29
.002116	180.	180.	180.	2	0	0	0.00	242.58	394.87

CCHV= .300 CEHV= .500

*SECNO 126.300

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

**D/S FACE LONG LAKE - RCP AND CMP ARCH

126.30	3.27	824.27	0.00	0.00	824.35	.08	.17	.03	822.00
560.	50.	223.	287.	32.	73.	176.	2.	1.	822.20
.05	1.56	3.04	1.63	.095	.065	.095	.064	821.00	151.75
.004258	60.	60.	60.	2	0	0	0.00	128.25	280.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.60	3.00	150.00	8.00	0.00	20.20	0.00	821.00	821.00

*SECND 126.700

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
855.30	825.79	0.00	412.	148.	20.	8.	822.00	825.50

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

PROPERTY OF HEC HYDROLOGIC ENGINEERING CENTER

126.70	4.70	826.30	0.00	0.00	826.44	.14	2.09	0.00	822.50
560.	106.	260.	194.	69.	67.	99.	3.	1.	822.80
.05	1.55	3.91	1.97	.095	.065	.095	.064	821.60	187.06
.004128	84.	84.	84.	2	0	7	0.00	92.94	280.00

*SECNO 126.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.80	4.95	826.55	0.00	0.00	826.62	.06	.15	.02	822.50
560.	97.	196.	268.	80.	70.	185.	3.	1.	822.80
.06	1.21	2.78	1.45	.080	.060	.080	.064	821.60	183.48
.001655	60.	60.	60.	0	0	0	0.00	136.12	319.60

CCHV= .100 CEHV= .300

*SECNO 126.850

126.85	3.66	827.46	0.00	0.00	827.72	.25	1.04	.06	824.70
560.	72.	270.	217.	32.	51.	93.	5.	2.	825.00
.09	2.28	5.30	2.33	.080	.060	.080	.062	823.80	201.86
.009206	320.	320.	320.	1	0	0	0.00	111.74	313.59

*SECNO 126.950

126.95	3.90	830.20	0.00	0.00	830.39	.19	2.66	.01	827.20
560.	77.	252.	232.	39.	54.	109.	6.	3.	827.50
.12	1.99	4.62	2.12	.080	.060	.080	.061	826.30	198.53
.006393	350.	350.	350.	4	0	0	0.00	116.15	314.68

*SECNO 126.960

126.96	3.86	832.36	0.00	0.00	832.85	.50	2.37	.09	830.60
560.	39.	426.	95.	18.	67.	38.	7.	4.	830.10
.13	2.15	6.35	2.49	.070	.055	.070	.060	828.50	108.70
.011779	280.	280.	280.	1	0	0	0.00	75.15	183.85

*SECNO 126.970

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

** D/S FACE CONCRETE FOOTBRIDGE

126.97	4.78	833.28	833.28	0.00	833.91	.62	.01	.04	830.60
560.	72.	396.	91.	31.	54.	42.	7.	4.	830.10
.13	2.34	7.40	2.15	.070	.025	.070	.060	828.50	87.31
.018452	1.	1.	1.	20	6	0	-82.54	110.44	197.75

E U.S. ARMY CORPS OF ENGINEERS HYDROLOGIC ENGINEERING CENTER

*SECNO 126.980

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.98	5.10	833.60	0.00	0.00	833.97	.37	.04	.03	830.60
560.	94.	356.	110.	46.	60.	58.	7.	4.	830.10
.13	2.05	5.94	1.89	.070	.025	.070	.060	828.50	79.99
.010239	3.	3.	3.	6	0	0	-82.54	122.52	202.52

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

*SECNO 126.990

126.99	5.41	833.91	0.00	0.00	834.00	.10	.00	.03	830.60
560.	104.	308.	148.	78.	98.	109.	7.	4.	830.10
.13	1.33	3.14	1.36	.070	.055	.070	.060	828.50	78.20
.001733	1.	1.	1.	2	0	0	0.00	128.97	207.17

*SECNO 127.000

127.00	5.06	833.96	0.00	0.00	834.10	.14	.08	.01	831.00
560.	89.	332.	139.	61.	91.	90.	8.	4.	830.50
.14	1.47	3.64	1.55	.070	.055	.070	.059	828.90	80.82
.002559	40.	40.	40.	2	0	0	0.00	121.15	201.97

*SECNO 127.500

3301 HV CHANGED MORE THAN HVINS

127.50	3.42	834.62	834.60	0.00	835.46	.84	1.14	.21	833.30
560.	24.	463.	73.	10.	58.	25.	8.	4.	832.80
.14	2.39	7.98	2.97	.070	.055	.070	.059	831.20	114.62
.022505	200.	200.	200.	4	14	0	0.00	62.50	177.11

*SECNO 128.100

3301 HV CHANGED MORE THAN HVINS

128.10	3.71	836.71	0.00	0.00	836.86	.15	1.34	.07	835.00
560.	5.	386.	169.	4.	110.	96.	9.	5.	835.50
.16	1.26	3.51	1.76	.070	.055	.070	.058	833.00	183.69
.004738	150.	150.	150.	2	0	0	0.00	122.16	305.85

*SECNO 128.150

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
128.15	3.06	837.36	0.00	0.00	837.73	.38	.80	.07	836.30
560.	2.	445.	112.	1.	82.	49.	9.	5.	836.80
.16	1.71	5.41	2.28	.070	.055	.070	.058	834.30	185.34

UNIVERSITY OF MICHIGAN COMPUTING CENTER

.016524	100.	100.	100.	2	0	0	0.00	110.63	295.97

*SECNO 128.200

128.20	3.21	838.71	0.00	0.00	839.00	.30	1.26	.01	837.50
560.	3.	429.	128.	2.	89.	59.	10.	5.	838.00
.17	1.59	4.85	2.16	.070	.055	.070	.058	835.50	184.97
.012040	90.	90.	90.	2	0	0	0.00	113.23	298.20

CCHV= .300 CEHV= .500

*SECNO 128.300

**D/S FACE STRUCTURE ON GOLFCOURCE

128.30	3.74	840.24	0.00	0.00	840.38	.14	1.33	.05	838.50
560.	5.	385.	170.	4.	111.	98.	10.	6.	839.00
.19	1.25	3.47	1.75	.070	.055	.070	.058	836.50	183.64
.004581	190.	190.	190.	3	0	0	0.00	122.53	306.17

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.20	2.90	100.00	10.00	0.00	18.00	0.00	836.50	836.50

*SECNO 128.700

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
873.30	840.38	0.00	402.	163.	18.	33.	839.80	841.80

128.70	6.53	843.03	0.00	0.00	843.04	.02	2.66	0.00	838.50
560.	13.	283.	264.	26.	228.	368.	11.	6.	839.00
.19	.52	1.24	.72	.070	.055	.070	.058	836.50	176.66
.000224	14.	14.	14.	1	0	6	0.00	171.36	348.02

*SECNO 128.800

3280 CROSS SECTION 128.80 EXTENDED .04 FEET

128.80	11.44	843.04	0.00	0.00	843.05	.01	.01	.00	841.00
560.	4.	550.	6.	26.	769.	48.	12.	6.	841.50
.22	.16	.71	.13	.070	.055	.070	.058	831.60	24.46
.000053	65.	65.	65.	2	0	0	0.00	195.54	220.00

CCHV= .100 CEHV= .300

*SECNO 128.900

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

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128.90	5.35	843.05	0.00	0.00	843.07	.02	.01	.00	837.70
560.	50.	466.	44.	79.	375.	77.	14.	7.	837.70
.25	.64	1.24	.58	.070	.055	.070	.057	837.70	33.07
.000226	135.	135.	135.	1	0	0	0.00	161.12	194.19

CCHV= .300 CEHV= .500
*SECNO 129.000

129.00	5.24	843.24	0.00	0.00	843.29	.05	.21	.01	841.30
560.	303.	236.	21.	259.	103.	31.	19.	9.	842.30
.33	1.17	2.30	.67	.070	.055	.070	.057	838.00	33.77
.001471	450.	450.	450.	2	0	0	0.00	242.77	276.55

*SECNO 129.300

**D/S FACE CONCRETE FOOTBRIDGE

129.30	5.17	843.27	0.00	0.00	843.32	.05	.03	.00	841.40
560.	299.	242.	19.	246.	101.	28.	19.	9.	842.40
.33	1.21	2.41	.67	.070	.055	.070	.057	838.10	36.25
.001668	20.	20.	20.	1	0	0	0.00	238.58	274.83

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.30	2.90	150.00	12.00	0.00	49.00	0.00	838.10	838.10

*SECNO 129.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
845.91	843.32	0.00	376.	184.	49.	49.	842.20	842.60

129.70	5.42	843.52	0.00	0.00	843.56	.04	.23	0.00	841.40
560.	310.	224.	26.	289.	108.	40.	19.	9.	842.40
.33	1.07	2.07	.65	.070	.055	.070	.057	838.10	28.17
.001120	5.	5.	5.	2	0	4	0.00	252.26	280.44

*SECNO 129.900

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

129.90	4.01	844.51	844.51	0.00	844.92	.41	.57	.19	843.80
560.	165.	395.	0.	78.	66.	0.	20.	10.	844.80
.34	2.12	6.00	0.00	.070	.055	.070	.057	840.50	73.39
.017603	200.	200.	200.	20	13	0	0.00	155.93	229.32

UNIVERSITY OF WISCONSIN COMPUTING CENTER

CCHV= .100 CEHV= .300
*SECNO 130.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
130.00	4.30	847.70	0.00	0.00	847.88	.18	2.93	.02	846.80
560.	101.	459.	0.	64.	126.	0.	21.	11.	848.50
.37	1.59	3.64	0.00	.070	.055	.070	.057	843.40	146.05
.006202	300.	300.	300.	4	0	0	0.00	129.49	275.54

*SECNO 130.500

**CONFLUENCE WITH HAMLIN AND MURPHY DRAINS

130.50	4.22	848.22	0.00	0.00	848.42	.20	.53	.01	847.40
560.	93.	467.	0.	57.	121.	0.	22.	11.	849.10
.37	1.62	3.86	0.00	.070	.055	.070	.057	844.00	147.78
.007228	80.	80.	80.	2	0	0	0.00	127.28	275.06

THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: STONY CREEK

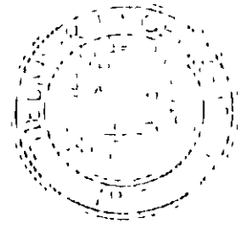
4) DOCUMENT TYPE: 100 YEAR PRODUCTION RUN

00BREAK00

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

T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      100 YEAR FLOW

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -1.       4.        0.        0.   .003640      0.00     -1.0        0.   823.000     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
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THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

*PROF 3

CCHV= .100 CEHV= .300
*SECNO 126.100

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	IOC	ICONT	CORAR	TOPWID	ENDST
126.10	3.60	823.80	0.00	823.00	823.88	.08	0.00	0.00	821.20
650.	60.	248.	342.	38.	81.	204.	0.	0.	821.40
0.00	1.58	3.05	1.68	.095	.065	.095	0.000	820.20	150.55
.003710	0.	0.	0.	0	0	4	0.00	129.45	280.00

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

***CONFLUENCE WITH QUARTON BRANCH AND AMY DRAIN

*SECNO 126.200

126.20	3.34	824.34	0.00	0.00	824.37	.03	.48	.00	822.00
650.	37.	160.	454.	33.	75.	401.	2.	1.	822.20
.04	1.10	2.13	1.13	.095	.065	.095	.065	821.00	151.51
.002034	180.	180.	180.	2	0	0	0.00	245.21	396.72

CCHV= .300 CEHV= .500
*SECNO 126.300

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

**D/S FACE LONG LAKE - RCP AND CMP ARCH

126.30	3.48	824.48	0.00	0.00	824.57	.09	.17	.03	822.00
650.	60.	252.	339.	36.	78.	194.	2.	1.	822.20
.04	1.66	3.21	1.75	.095	.065	.095	.064	821.00	150.99
.004323	60.	60.	60.	2	0	0	0.00	129.01	280.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.60	3.00	150.00	8.00	0.00	20.20	0.00	821.00	821.00

*SECNO 126.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
866.28	825.93	0.00	505.	146.	20.	8.	822.00	825.50

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

FOR ... BY MEMBERS OF MICHIGAN COMPUTING CENTER

126.70	4.81	826.41	0.00	0.00	826.58	.17	2.01	0.00	822.50
650.	126.	297.	226.	73.	68.	102.	3.	1.	822.80
.05	1.73	4.37	2.21	.095	.065	.095	.064	821.60	185.56
.004989	84.	84.	84.	2	0	7	0.00	94.43	280.00

*SECNO 126.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.80	5.11	826.71	0.00	0.00	826.78	.07	.17	.03	822.50
650.	115.	220.	314.	87.	73.	197.	3.	1.	822.80
.06	1.32	3.04	1.60	.080	.060	.080	.064	821.60	181.27
.001886	60.	60.	60.	2	0	0	0.00	139.05	320.32

CCHV= .100 CEHV= .300

*SECNO 126.850

126.85	3.91	827.71	0.00	0.00	827.96	.25	1.12	.05	824.70
650.	89.	292.	269.	39.	55.	110.	5.	2.	825.00
.08	2.30	5.35	2.46	.080	.060	.080	.062	823.80	198.48
.008571	320.	320.	320.	2	0	0	0.00	116.21	314.70

*SECNO 126.950

126.95	4.08	830.38	0.00	0.00	830.58	.20	2.62	.00	827.20
650.	93.	277.	279.	45.	57.	122.	7.	3.	827.50
.11	2.09	4.85	2.29	.080	.060	.080	.061	826.30	195.94
.006613	350.	350.	350.	4	0	0	0.00	119.58	315.53

*SECNO 126.960

126.96	4.08	832.58	0.00	0.00	833.10	.52	2.42	.10	830.60
650.	56.	472.	122.	23.	71.	46.	8.	4.	830.10
.13	2.41	6.61	2.65	.070	.055	.070	.060	828.50	103.66
.011735	280.	280.	280.	1	0	0	0.00	83.46	187.12

*SECNO 126.970

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

** D/S FACE CONCRETE FOOTBRIDGE

126.97	4.92	833.42	833.42	0.00	834.09	.66	.01	.04	830.60
650.	95.	438.	116.	37.	56.	49.	8.	4.	830.10
.13	2.57	7.78	2.36	.070	.025	.070	.060	828.50	84.10
.019064	1.	1.	1.	20	9	0	-82.54	115.74	199.84

UNIVERSITY OF MICHIGAN COMPUTING CENTER

*SECNO 126.980

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
126.98	5.27	833.77	0.00	0.00	834.16	.39	.04	.03	830.60
650.	122.	391.	137.	54.	63.	67.	8.	4.	830.10
.13	2.27	6.20	2.04	.070	.025	.070	.060	828.50	79.06
.010382	3.	3.	3.	6	0	0	-82.54	125.88	204.94

*SECNO 126.990

126.99	5.58	834.08	0.00	0.00	834.19	.11	.00	.03	830.60
650.	128.	346.	176.	87.	101.	119.	8.	4.	830.10
.13	1.47	3.41	1.48	.070	.055	.070	.060	828.50	77.23
.001949	1.	1.	1.	2	0	0	0.00	132.46	209.70

*SECNO 127.000

127.00	5.24	834.14	0.00	0.00	834.29	.15	.09	.01	831.00
650.	112.	371.	167.	70.	95.	99.	8.	4.	830.50
.13	1.62	3.92	1.68	.070	.055	.070	.059	828.90	79.19
.002823	40.	40.	40.	2	0	0	0.00	125.41	204.60

*SECNO 127.500

3301 HV CHANGED MORE THAN HVINS

127.50	3.67	834.87	834.83	0.00	835.70	.83	1.20	.20	833.30
650.	38.	512.	100.	14.	63.	32.	9.	5.	832.80
.14	2.59	8.10	3.12	.070	.055	.070	.059	831.20	111.54
.020668	200.	200.	200.	5	16	0	0.00	69.50	181.04

*SECNO 128.100

3301 HV CHANGED MORE THAN HVINS

128.10	3.91	836.91	0.00	0.00	837.07	.16	1.30	.07	835.00
650.	6.	434.	210.	5.	118.	111.	10.	5.	835.50
.15	1.35	3.68	1.89	.070	.055	.070	.058	833.00	183.21
.004725	150.	150.	150.	2	0	0	0.00	125.52	308.73

*SECNO 128.150

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
128.15	3.23	837.53	0.00	0.00	837.91	.38	.78	.07	836.30
650.	4.	495.	152.	2.	90.	61.	10.	5.	836.80
.16	1.82	5.51	2.48	.070	.055	.070	.058	834.30	184.90

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.015302	100.	100.	100.	2	0	0	0.00	113.73	298.63

*SECNO 128.200

128.20	3.34	838.84	0.00	0.00	839.17	.33	1.25	.01	837.50
650.	4.	484.	162.	2.	94.	68.	11.	5.	838.00
.16	1.74	5.16	2.39	.070	.055	.070	.058	835.50	184.66
.012676	90.	90.	90.	2	0	0	0.00	115.39	300.05

CCHV= .300 CEHV= .500
*SECNO 128.300

**D/S FACE STRUCTURE ON GOLFCOURCE

128.30	3.93	840.43	0.00	0.00	840.58	.16	1.36	.05	838.50
650.	6.	433.	211.	5.	119.	112.	12.	6.	839.00
.18	1.34	3.64	1.88	.070	.055	.070	.058	836.50	183.17
.004604	190.	190.	190.	3	0	0	0.00	125.82	308.99

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.20	2.90	100.00	10.00	0.00	18.00	0.00	836.50	836.50

*SECNO 128.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.98	840.58	0.00	488.	163.	18.	33.	839.80	841.80

128.70	6.69	843.19	0.00	0.00	843.21	.02	2.63	0.00	838.50
650.	16.	324.	310.	28.	235.	389.	12.	6.	839.00
.18	.58	1.38	.80	.070	.055	.070	.058	836.50	176.24
.000265	14.	14.	14.	1	0	7	0.00	174.33	350.57

*SECNO 128.800
3280 CROSS SECTION 128.80 EXTENDED .22 FEET

128.80	11.62	843.22	0.00	0.00	843.22	.01	.01	.00	841.00
650.	6.	635.	10.	31.	788.	58.	13.	6.	841.50
.21	.18	.81	.17	.070	.055	.070	.058	831.60	22.31
.000066	65.	65.	65.	2	0	0	0.00	197.69	220.00

CCHV= .100 CEHV= .300
*SECNO 128.900

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

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128.90	5.52	843.22	0.00	0.00	843.25	.03	.02	.00	837.70
650.	60.	535.	54.	85.	387.	87.	15.	7.	837.70
.24	.71	1.38	.63	.070	.055	.070	.057	837.70	30.89
.000268	135.	135.	135.	1	0	0	0.00	170.25	201.14

CCHV= .300 CEHV= .500

*SECNO 129.000

129.00	5.44	843.44	0.00	0.00	843.49	.05	.24	.01	841.30
650.	361.	258.	31.	293.	109.	41.	20.	9.	842.30
.31	1.23	2.37	.75	.070	.055	.070	.057	838.00	27.36
.001453	450.	450.	450.	2	0	0	0.00	253.64	281.00

*SECNO 129.300

**D/S FACE CONCRETE FOOTBRIDGE

129.30	5.37	843.47	0.00	0.00	843.53	.05	.03	.00	841.40
650.	357.	264.	28.	280.	107.	37.	20.	9.	842.40
.32	1.28	2.48	.76	.070	.055	.070	.057	838.10	29.84
.001634	20.	20.	20.	1	0	0	0.00	249.44	279.28

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.30	2.90	150.00	12.00	0.00	49.00	0.00	838.10	838.10

*SECNO 129.700

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HB	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
847.03	843.53	0.00	473.	176.	49.	49.	842.20	842.60

129.70	5.59	843.69	0.00	0.00	843.73	.04	.21	0.00	841.40
650.	367.	247.	36.	319.	113.	49.	20.	9.	842.40
.32	1.15	2.18	.73	.070	.055	.070	.057	838.10	22.57
.001167	5.	5.	5.	2	0	4	0.00	261.75	284.32

*SECNO 129.900

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

129.90	4.10	844.60	844.60	0.00	845.05	.45	.60	.21	843.80
650.	214.	436.	0.	90.	69.	0.	22.	10.	844.80
.33	2.39	6.36	0.00	.070	.055	.070	.057	840.50	70.45
.018962	200.	200.	200.	20	13	0	0.00	159.09	229.53

E MIC COMPUTING CENTER

CCHV= .100 CEHV= .300
*SECNO 130.000

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	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
130.00	4.48	847.88	0.00	0.00	848.06	.18	2.99	.03	846.80
650.	136.	514.	0.	78.	136.	0.	23.	11.	848.50
.35	1.75	3.77	0.00	.070	.055	.070	.057	843.40	142.36
.006126	300.	300.	300.	3	0	0	0.00	134.21	276.57

*SECNO 130.500

**CONFLUENCE WITH HAMLIN AND MURPHY DRAINS

130.50	4.39	848.39	0.00	0.00	848.60	.21	.53	.01	847.40
650.	127.	523.	0.	70.	131.	0.	24.	11.	849.10
.36	1.80	4.00	0.00	.070	.055	.070	.057	844.00	144.29
.007189	80.	80.	80.	2	0	0	0.00	131.74	276.03

THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

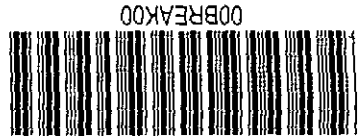


1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: STONY CREEK DRAIN

4) DOCUMENT TYPE: CONVERGENCE RUN



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

C
T1      HUD-FIA H-4705
T2      BLOOMFIELD TWP. FIS
T3      STONYCROFT BRANCH

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       4.        0.        0.    .003640      0.00     -1.0       0.    823.000     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      .095      .095      .065      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     5.000   395.000   560.000   650.000   865.000   650.000     0.000     0.000     0.000     0.000

        ***CONFLUENCE WITH QUARTON BRANCH AND AMY DRAIN

X1   126.100     9.000   170.000   195.000     0.000     0.000     0.000     0.000      .700     0.000
X3     0.000     0.000     0.000     0.000     0.000   280.000     0.000     0.000     0.000     0.000
GR   826.000   140.000   820.500   160.000   820.500   170.000   819.500   175.000   819.500   185.000
GR   820.700   195.000   820.700   280.000   820.900   380.000   829.000   450.000     0.000     0.000

X1   126.200     0.000     0.000     0.000   180.000   180.000   180.000     0.000      .800     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

        **D/S FACE LONG LAKE - RCP AND CMP ARCH

X1   126.300     0.000     0.000     0.000    60.000    60.000    60.000     0.000     0.000     0.000
X3     0.000     0.000     0.000     0.000     0.000   280.000     0.000     0.000     0.000     0.000
SB     0.000     2.600     3.000   150.000     8.000     0.000    20.200     0.000     0.000     0.000

X1   126.700     9.000   230.000   245.000    84.000    84.000    84.000     0.000     0.000     0.000
X2     0.000     0.000     1.000   822.000   825.500     0.000     0.000     0.000     0.000     0.000
X3     0.000     0.000     0.000     0.000     0.000   280.000     0.000     0.000     0.000     0.000
GR   827.500   170.000   824.000   220.000   822.500   230.000   821.600   235.000   821.600   242.000
GR   822.800   245.000   824.000   275.000   824.500   310.000   832.000   345.000     0.000     0.000
NC      .080      .080      .060     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   126.800     0.000     0.000     0.000    60.000    60.000    60.000     0.000     0.000     0.000
NC     0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000

X1   126.850     0.000     0.000     0.000   320.000   320.000   320.000     0.000     2.200     0.000
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X1	126.950	0.000	0.000	0.000	350.000	350.000	350.000	0.000	2.500	0.000
NC	.070	.070	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	126.960	10.000	130.000	150.000	280.000	280.000	280.000	0.000	-.400	0.000
GR	840.000	10.000	836.600	65.000	834.000	80.000	832.700	110.000	831.000	130.000
GR	828.900	132.000	828.900	140.000	830.500	150.000	834.500	210.000	835.000	240.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE CONCRETE FOOTBRIDGE

X1	126.970	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	830.700	832.300	0.000	0.000	0.000	0.000	0.000
X1	126.980	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	830.700	832.300	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	126.990	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	127.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.400	0.000
X1	127.500	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.300	0.000
X1	128.100	9.000	188.000	230.000	150.000	150.000	150.000	0.000	-2.000	0.000
GR	844.200	170.000	837.000	188.000	836.600	190.000	835.000	197.000	835.000	207.000
GR	836.600	215.000	837.500	230.000	837.000	280.000	845.000	400.000	0.000	0.000
X1	128.150	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.300	0.000
X1	128.200	0.000	0.000	0.000	90.000	90.000	90.000	0.000	1.200	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**D/S FACE STRUCTURE ON GOLFCOURCE

X1	128.300	0.000	0.000	0.000	190.000	190.000	190.000	0.000	1.000	0.000
SB	0.000	2.200	2.900	100.000	10.000	0.000	18.000	0.000	0.000	0.000
X1	128.700	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.800	841.800	0.000	0.000	0.000	0.000	0.000
X1	128.800	7.000	50.000	160.000	65.000	65.000	65.000	0.000	0.000	0.000
GR	845.000	0.000	841.000	50.000	837.000	70.000	831.600	100.000	837.000	140.000
GR	841.500	160.000	843.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	128.900	6.000	70.000	140.000	135.000	135.000	135.000	0.000	.700	0.000
GR	845.000	0.000	841.000	50.000	837.000	70.000	837.000	140.000	841.500	160.000

GR	843.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	129.000	8.000	200.000	230.000	450.000	450.000	450.000	0.000	0.000	0.000
GR	844.300	0.000	841.800	80.000	841.300	110.000	841.300	200.000	838.000	220.000
GR	842.300	230.000	842.500	260.000	844.300	300.000	0.000	0.000	0.000	0.000

**D/S FACE CONCRETE FOOTBRIDGE

X1	129.300	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	842.200	842.200	0.000
SB	0.000	1.300	2.900	150.000	12.000	0.000	49.000	0.000	0.000	0.000
X1	129.700	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.200	842.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	842.600	0.000
X1	129.900	0.000	0.000	0.300	200.000	200.000	200.000	0.000	2.400	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	130.000	11.000	220.000	280.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	851.000	115.000	848.000	140.000	847.000	160.000	846.500	200.000	846.800	220.000
GR	846.000	230.000	843.400	240.000	845.000	255.000	846.700	270.000	848.500	280.000
GR	849.000	300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**CONFLUENCE WITH HAMLIN AND MURPHY DRAINS

X1	130.500	0.000	0.000	0.000	80.000	80.000	80.000	0.000	.600	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: SIGNECRAFT DRAIN

4) DOCUMENT TYPE: FLOODWAY

00BREAK00

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

C
T1      HUD-FIA H-4705
T2      BLOOMFIELD TWP. FIS
T3      STONYCROFT BRANCH

J1  ICHECK     INQ        NINV       IDIP       STRT       METRIC     HVINS      Q          WSEL       FQ
        0.        4.         0.         0.    .003640       0.00      -1.0         0.    823.000    0.000

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

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    200.000    0.000    150.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000

ET      0.000      0.000      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000
NC       .095       .095       .065       .100       .300      0.000      0.000      0.000      0.000      0.000
QT      5.000    395.000    560.000    650.000    865.000    650.000      0.000      0.000      0.000      0.000

        ***CONFLUENCE WITH QUARTON BRANCH AND AMY DRAIN

X1    126.100      9.000    170.000    195.000      0.000      0.000      0.000      0.000       .700      0.000
X3      0.000      0.000      0.000      0.000      0.000    280.000      0.000      0.000      0.000      0.000
GR    826.000    140.000    820.500    160.000    820.500    170.000    819.500    175.000    819.500    185.000
GR    820.700    195.000    820.700    280.000    820.900    380.000    829.000    450.000      0.000      0.000

X1    126.200      0.000      0.000      0.000    180.000    180.000    180.000      0.000       .800      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

        **D/S FACE LONG LAKE - RCP AND CMP ARCH

X1    126.300      0.000      0.000      0.000     60.000     60.000     60.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    280.000      0.000      0.000      0.000      0.000
SB      0.000      2.600      3.000    150.000      8.000      0.000     20.200      0.000      0.000      0.000

X1    126.700      9.000    230.000    245.000     84.000     84.000     84.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    822.000    825.500      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    280.000      0.000      0.000      0.000      0.000
GR    827.500    170.000    824.000    220.000    822.500    230.000    821.600    235.000    821.600    242.000
GR    822.800    245.000    824.000    275.000    824.500    310.000    832.000    345.000      0.000      0.000
NC       .080       .080       .060      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    126.800      0.000      0.000      0.000     60.000     60.000     60.000      0.000      0.000      0.000
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NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	126.850	0.000	0.000	0.000	320.000	320.000	320.000	0.000	2.200	0.000
X1	126.950	0.000	0.000	0.000	350.000	350.000	350.000	0.000	2.500	0.000
NC	.070	.070	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	126.960	10.000	130.000	150.000	280.000	280.000	280.000	0.000	-.400	0.000
GR	840.000	10.000	836.600	65.000	834.000	80.000	832.700	110.000	831.000	130.000
GR	828.900	132.000	828.900	140.000	830.500	150.000	834.500	210.000	835.000	240.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE CONCRETE FOOTBRIDGE

X1	126.970	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	830.700	832.300	0.000	0.000	0.000	0.000	0.000
X1	126.980	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	830.700	832.300	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	126.990	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	127.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.400	0.000
X1	127.500	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.300	0.000
X1	128.100	9.000	188.000	230.000	150.000	150.000	150.000	0.000	-2.000	0.000
GR	844.200	170.000	837.000	188.000	836.600	190.000	835.000	197.000	835.000	207.000
GR	836.600	215.000	837.500	230.000	837.000	280.000	845.000	400.000	0.000	0.000
X1	128.150	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.300	0.000
X1	128.200	0.000	0.000	0.000	90.000	90.000	90.000	0.000	1.200	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**D/S FACE STRUCTURE ON GOLFCOURCE

X1	128.300	0.000	0.000	0.000	190.000	190.000	190.000	0.000	1.000	0.000
SB	0.000	2.200	2.900	100.000	10.000	0.000	18.000	0.000	0.000	0.000
X1	128.700	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.800	841.800	0.000	0.000	0.000	0.000	0.000
X1	128.800	7.000	50.000	160.000	65.000	65.000	65.000	0.000	0.000	0.000
GR	845.000	0.000	841.000	50.000	837.000	70.000	831.600	100.000	837.000	140.000
GR	841.500	160.000	843.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	128.900	6.000	70.000	140.000	135.000	135.000	135.000	0.000	.700	0.000
GR	845.000	0.000	841.000	50.000	837.000	70.000	837.000	140.000	841.500	160.000
GR	843.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	129.000	8.000	200.000	230.000	450.000	450.000	450.000	0.000	0.000	0.000
GR	844.300	0.000	841.800	80.000	841.300	110.000	841.300	200.000	838.000	220.000
GR	842.300	230.000	842.500	260.000	844.300	300.000	0.000	0.000	0.000	0.000

**D/S FACE CONCRETE FOOTBRIDGE

X1	129.300	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	842.200	842.200	0.000
SB	0.000	1.300	2.000	150.000	12.000	0.000	49.000	0.000	0.000	0.000
X1	129.700	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.200	842.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	842.600	0.000
X1	129.900	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.400	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	130.000	11.000	220.000	280.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	851.000	115.000	848.000	140.000	847.000	160.000	846.500	200.000	846.800	220.000
GR	846.000	230.000	843.400	240.000	845.000	255.000	846.700	270.000	848.500	280.000
GR	849.000	300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**CONFLUENCE WITH HAMLIN AND MURPHY DRAINS

X1	130.500	0.000	0.000	0.000	80.000	80.000	80.000	0.000	.600	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 126.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.10	3.60	823.80	0.00	823.00	823.88	.08	0.00	0.00	821.20
650.	60.	248.	342.	38.	81.	204.	0.	0.	821.40
0.00	1.58	3.05	1.68	.095	.065	.095	0.000	820.20	150.55
.003710	0.	0.	0.	0	0	4	0.00	129.45	280.00

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

***CONFLUENCE WITH QUARTON BRANCH AND AMY DRAIN

*SECNO 126.200

126.20	3.34	824.34	0.00	0.00	824.37	.03	.48	.00	822.00
650.	37.	160.	454.	33.	75.	401.	2.	1.	822.20
.04	1.10	2.13	1.13	.095	.065	.095	.065	821.00	151.51
.002034	180.	180.	180.	2	0	0	0.00	245.21	396.72

CCHV= .300 CEHV= .500
*SECNO 126.300

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

**D/S FACE LONG LAKE - RCP AND CMP ARCH

126.30	3.48	824.48	0.00	0.00	824.57	.09	.17	.03	822.00
650.	60.	252.	339.	36.	78.	194.	2.	1.	822.20
.04	1.66	3.21	1.75	.095	.065	.095	.064	821.00	150.99
.004323	60.	60.	60.	2	0	0	0.00	129.01	280.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	ROUGH	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.60	3.00	150.00	8.00	0.00	20.20	0.00	821.00	821.00

*SECNO 126.700
PRESSURE AND WEIR FLOW

+.3' if limited to 200'

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
866.28	825.93	0.00	505.	146.	20.	8.	822.00	825.50

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

126.70	4.81	826.41	0.00	0.00	826.58	.17	2.01	0.00	822.50
650.	126.	297.	226.	73.	68.	102.	3.	1.	822.80
.05	1.73	4.37	2.21	.095	.065	.095	.064	821.60	185.56
.004989	84.	84.	84.	2	0	7	0.00	94.43	280.00

*SECNO 126.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.80	5.11	826.71	0.00	0.00	826.78	.07	.17	.03	822.50
650.	115.	220.	314.	87.	73.	197.	3.	1.	822.80
.06	1.32	3.04	1.60	.080	.060	.080	.064	821.60	181.27
.001886	60.	60.	60.	2	0	0	0.00	139.05	320.32

CCHV= .100 CEHV= .300

*SECNO 126.850

126.85	3.91	827.71	0.00	0.00	827.96	.25	1.12	.05	824.70
650.	89.	292.	269.	39.	55.	110.	5.	2.	825.00
.08	2.30	5.35	2.46	.080	.060	.080	.062	823.80	198.48
.008571	320.	320.	320.	2	0	0	0.00	116.21	314.70

*SECNO 126.950

126.95	4.08	830.38	0.00	0.00	830.58	.20	2.62	.00	827.20
650.	93.	277.	279.	45.	57.	122.	7.	3.	827.50
.11	2.09	4.85	2.29	.080	.060	.080	.061	826.30	195.94
.006613	350.	350.	350.	4	0	0	0.00	119.58	315.53

*SECNO 126.960

126.96	4.08	832.58	0.00	0.00	833.10	.52	2.42	.10	830.60
650.	56.	472.	122.	23.	71.	46.	8.	4.	830.10
.13	2.41	6.61	2.65	.070	.055	.070	.060	828.50	103.66
.011735	280.	280.	280.	1	0	0	0.00	83.46	187.12

*SECNO 126.970

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

** D/S FACE CONCRETE FOOTBRIDGE

126.97	4.92	833.42	833.42	0.00	834.09	.66	.01	.04	830.60
650.	95.	438.	116.	37.	56.	49.	8.	4.	830.10
.13	2.57	7.78	2.36	.070	.025	.070	.060	828.50	84.10
.019064	1.	1.	1.	20	9	0	-82.54	115.74	199.84

*SECNO 126.980

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.98	5.27	833.77	0.00	0.00	834.16	.39	.04	.03	830.60
650.	122.	391.	137.	54.	63.	67.	8.	4.	830.10
.13	2.27	6.20	2.04	.070	.025	.070	.060	828.50	79.06
.010382	3.	3.	3.	6	0	0	-82.54	125.88	204.94

3370 NORMAL BRIDGE,NPD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

*SECNO 126.990

126.99	5.58	834.08	0.00	0.00	834.19	.11	.00	.03	830.60
650.	128.	346.	176.	87.	101.	119.	8.	4.	830.10
.13	1.47	3.41	1.48	.070	.055	.070	.060	828.50	77.23
.001949	1.	1.	1.	2	0	0	0.00	132.46	209.70

*SECNO 127.000

127.00	5.24	834.14	0.00	0.00	834.29	.15	.09	.01	831.00
650.	112.	371.	167.	70.	95.	99.	8.	4.	830.50
.13	1.62	3.92	1.68	.070	.055	.070	.059	828.90	79.19
.002823	40.	40.	40.	2	0	0	0.00	125.41	204.60

*SECNO 127.500

Is XSEC appropriate

3301 HV CHANGED MORE THAN HVINS

127.50	3.67	834.87	834.83	0.00	835.70	.83	1.20	.20	833.30
650.	38.	512.	100.	14.	63.	32.	9.	5.	832.80
.14	2.59	8.10	3.12	.070	.055	.070	.059	831.20	111.54
.020668	200.	200.	200.	5	16	0	0.00	69.50	181.04

*SECNO 128.100

3301 HV CHANGED MORE THAN HVINS

128.10	3.91	836.91	0.00	0.00	837.07	.16	1.30	.07	835.00
650.	6.	434.	210.	5.	118.	111.	10.	5.	835.50
.15	1.35	3.68	1.89	.070	.055	.070	.058	833.00	183.21
.004725	150.	150.	150.	2	0	0	0.00	125.52	308.73

*SECNO 128.150

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
128.15	3.23	837.53	0.00	0.00	837.91	.38	.78	.07	836.30
650.	4.	495.	152.	2.	90.	61.	10.	5.	836.80
.16	1.82	5.51	2.48	.070	.055	.070	.058	834.30	184.90

.015302	100.	100.	100.	2	0	0	0.00	113.73	298.63

*SECNO 128.200

128.20	3.34	838.84	0.00	0.00	839.17	.33	1.25	.01	837.50
650.	4.	484.	162.	2.	94.	68.	11.	5.	838.00
.16	1.74	5.16	2.39	.070	.055	.070	.058	835.50	184.66
.012676	90.	90.	90.	2	0	0	0.00	115.39	300.05

CCHV= .300 CEHV= .500
*SECNO 128.300

**D/S FACE STRUCTURE ON GOLFCOURCE

128.30	3.93	840.43	0.00	0.00	840.58	.16	1.36	.05	838.50
650.	6.	433.	211.	5.	119.	112.	12.	6.	839.00
.18	1.34	3.64	1.88	.070	.055	.070	.058	836.50	183.17
.004604	190.	190.	190.	3	0	0	0.00	125.82	308.99

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.90	100.00	10.00	0.00	18.00	0.00	836.50	836.50

*SECNO 128.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIP	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.98	840.58	0.00	488.	163.	18.	33.	839.80	841.80

128.70	6.69	843.19	0.00	0.00	843.21	.02	2.63	0.00	838.50
650.	16.	324.	310.	28.	235.	389.	12.	6.	839.00
.18	.58	1.38	.80	.070	.055	.070	.058	836.50	176.24
.000265	14.	14.	14.	1	0	7	0.00	174.33	350.57

*SECNO 128.800
3280 CROSS SECTION 128.80 EXTENDED .22 FEET

128.80	11.62	843.22	0.00	0.00	843.22	.01	.01	.00	841.00
650.	6.	635.	10.	31.	788.	58.	13.	6.	841.50
.21	.18	.81	.17	.070	.055	.070	.058	831.60	22.31
.000066	65.	65.	65.	2	0	0	0.00	197.69	220.00

CCHV= .100 CEHV= .300
*SECNO 128.900

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

128.90	5.52	843.22	0.00	0.00	843.25	.03	.02	.00	837.70
650.	60.	535.	54.	85.	387.	87.	15.	7.	837.70
.24	.71	1.38	.63	.070	.055	.070	.057	837.70	30.89
.000268	135.	135.	135.	1	0	0	0.00	170.25	201.14

CCHV= .300 CEHV= .500
*SECNO 129.000

129.00	5.44	843.44	0.00	0.00	843.49	.05	.24	.01	841.30
650.	361.	258.	31.	293.	109.	41.	20.	9.	842.30
.31	1.23	2.37	.75	.070	.055	.070	.057	838.00	27.36
.001453	450.	450.	450.	2	0	0	0.00	253.64	281.00

*SECNO 129.300

**D/S FACE CONCRETE FOOTBRIDGE

129.30	5.37	843.47	0.00	0.00	843.53	.05	.03	.00	841.40
650.	357.	264.	28.	280.	107.	37.	20.	9.	842.40
.32	1.28	2.48	.76	.070	.055	.070	.057	838.10	29.84
.001634	20.	20.	20.	1	0	0	0.00	249.44	279.28

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.30	2.90	150.00	12.00	0.00	49.00	0.00	838.10	838.10

*SECNO 129.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
847.03	843.53	0.00	473.	176.	49.	49.	842.20	842.60

129.70	5.59	843.69	0.00	0.00	843.73	.04	.21	0.00	841.40
650.	367.	247.	36.	319.	113.	49.	20.	9.	842.40
.32	1.15	2.18	.73	.070	.055	.070	.057	838.10	22.57
.001167	5.	5.	5.	2	0	4	0.00	261.75	284.32

*SECNO 129.900

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

129.90	4.10	844.60	844.60	0.00	845.05	.45	.60	.21	843.80
650.	214.	436.	0.	90.	69.	0.	22.	10.	844.80
.33	2.39	6.36	0.00	.070	.055	.070	.057	840.50	70.45
.018962	200.	200.	200.	20	13	0	0.00	159.09	229.53

CCHV= .100 CEHV= .300

*SECNO 130.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
130.00	4.48	847.88	0.00	0.00	848.06	.18	2.99	.03	846.80
650.	136.	514.	0.	78.	136.	0.	23.	11.	848.50
.35	1.75	3.77	0.00	.070	.055	.070	.057	843.40	142.36
.006126	300.	300.	300.	3	0	0	0.00	134.21	276.57

*SECNO 130.500

**CONFLUENCE WITH HAMLIN AND MURPHY DRAINS

130.50	4.39	848.39	0.00	0.00	848.60	.21	.53	.01	847.40
650.	127.	523.	0.	70.	131.	0.	24.	11.	849.10
.36	1.80	4.00	0.00	.070	.055	.070	.057	844.00	144.29
.007189	80.	80.	80.	2	0	0	0.00	131.74	276.03

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      FLOODWAY DETERMINATION

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        6.         0.         0.  0.000000       0.00      -1.0          0.    823.900      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
```

*PROF 2

CCHV= .100 CEHV= .300
*SECNO 126.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.10	3.70	823.90	0.00	823.90	823.97	.07	0.00	0.00	821.20
650.	61.	245.	344.	40.	84.	212.	0.	0.	821.40
0.00	1.52	2.92	1.62	.095	.065	.095	0.000	820.20	150.18
.003274	0.	0.	0.	0	0	0	0.00	129.82	280.00

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

***CONFLUENCE WITH QUARTON BRANCH AND AMY DRAIN

*SECNO 126.200

126.20	3.39	824.39	0.00	0.00	824.42	.03	.44	.00	822.00
650.	37.	158.	455.	34.	76.	412.	2.	1.	822.20
.04	1.07	2.08	1.11	.095	.065	.095	.065	821.00	151.32
.001883	180.	180.	180.	2	0	0	0.00	245.85	397.17

CCHV= .300 CEHV= .500
*SECNO 126.300

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

**D/S FACE LONG LAKE - RCP AND CMP ARCH

126.30	3.52	824.52	0.00	0.00	824.61	.09	.16	.03	822.00
650.	60.	250.	340.	37.	79.	197.	2.	1.	822.20
.04	1.63	3.15	1.72	.095	.065	.095	.064	821.00	150.84
.004098	60.	60.	60.	2	0	0	0.00	129.16	280.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.60	3.00	150.00	8.00	0.00	20.20	0.00	821.00	821.00

*SECNO 126.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
866.32	825.88	0.00	507.	144.	20.	8.	822.00	825.50

3470 ENCROACHMENT STATIONS= .0 280.0 TYPE= 1 TARGET= 279.999

126.70	4.81	826.41	0.00	0.00	826.58	.17	1.98	0.00	822.50
650.	127.	297.	226.	73.	68.	102.	3.	1.	822.80
.05	1.73	4.36	2.21	.095	.065	.095	.064	821.60	185.53
.004978	84.	84.	84.	2	0	7	0.00	94.47	280.00

*SECNO 126.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.80	5.11	826.71	0.00	0.00	826.79	.07	.17	.03	822.50
650.	115.	220.	314.	87.	73.	197.	3.	1.	822.80
.06	1.32	3.03	1.60	.080	.060	.080	.064	821.60	181.25
.001883	60.	60.	60.	2	0	0	0.00	139.08	320.33

CCHV= .100 CEHV= .300

*SECNO 126.850

126.85	3.91	827.71	0.00	0.00	827.96	.25	1.12	.05	824.70
650.	89.	292.	269.	39.	55.	110.	5.	2.	825.00
.08	2.30	5.35	2.46	.080	.060	.080	.062	823.80	198.48
.008568	320.	320.	320.	2	0	0	0.00	116.22	314.70

*SECNO 126.950

126.95	4.08	830.38	0.00	0.00	830.58	.20	2.62	.00	827.20
650.	93.	277.	279.	45.	57.	122.	7.	3.	827.50
.11	2.09	4.85	2.29	.080	.060	.080	.061	826.30	195.94
.006614	350.	350.	350.	4	0	0	0.00	119.58	315.53

*SECNO 126.960

126.96	4.08	832.58	0.00	0.00	833.10	.52	2.42	.10	830.60
650.	56.	472.	122.	23.	71.	46.	8.	4.	830.10
.13	2.41	6.61	2.65	.070	.055	.070	.060	828.50	103.66
.011734	280.	280.	280.	1	0	0	0.00	83.47	187.12

*SECNO 126.970

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

** D/S FACE CONCRETE FOOTBRIDGE

126.97	4.92	833.42	833.42	0.00	834.09	.66	.01	.04	830.60
650.	95.	438.	116.	37.	56.	49.	8.	4.	830.10
.13	2.57	7.78	2.36	.070	.025	.070	.060	828.50	84.10
.019064	1.	1.	1.	20	9	0	-82.54	115.74	199.84

*SECNO 126.980

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
126.98	5.27	833.77	0.00	0.00	834.16	.39	.04	.03	830.60
650.	122.	391.	137.	54.	63.	67.	8.	4.	830.10
.13	2.27	6.20	2.04	.070	.025	.070	.060	828.50	79.06
.010382	3.	3.	3.	6	0	0	-82.54	125.88	204.94

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 832.30 MAX ELLC= 830.70

*SECNO 126.990

126.99	5.58	834.08	0.00	0.00	834.19	.11	.00	.03	830.60
650.	128.	346.	176.	87.	101.	119.	8.	4.	830.10
.13	1.47	3.41	1.48	.070	.055	.070	.060	828.50	77.23
.001949	1.	1.	1.	2	0	0	0.00	132.46	209.70

*SECNO 127.000

127.00	5.24	834.14	0.00	0.00	834.29	.15	.09	.01	831.00
650.	112.	371.	167.	70.	95.	99.	9.	4.	830.50
.13	1.62	3.92	1.68	.070	.055	.070	.059	828.90	79.19
.002823	40.	40.	40.	2	0	0	0.00	125.41	204.60

*SECNO 127.500

3301 HV CHANGED MORE THAN HVINS

127.50	3.67	834.87	834.83	0.00	835.70	.83	1.20	.20	833.30
650.	38.	512.	100.	14.	63.	32.	9.	5.	832.80
.14	2.59	8.10	3.12	.070	.055	.070	.059	831.20	111.54
.020668	200.	200.	200.	5	16	0	0.00	69.50	181.04

*SECNO 128.100

3301 HV CHANGED MORE THAN HVINS

128.10	3.91	836.91	0.00	0.00	837.07	.16	1.30	.07	835.00
650.	6.	434.	210.	5.	118.	111.	10.	5.	835.50
.15	1.35	3.68	1.89	.070	.055	.070	.058	833.00	183.21
.004725	150.	150.	150.	2	0	0	0.00	125.52	308.73

*SECNO 128.150

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
128.15	3.23	837.53	0.00	0.00	837.91	.38	.78	.07	836.30
650.	4.	495.	152.	2.	90.	61.	10.	5.	836.80
.16	1.82	5.51	2.48	.070	.055	.070	.058	834.30	184.90

.015302	100.	100.	100.	2	0	0	0.00	113.73	298.63

*SECNO 128.200

128.20	3.34	838.84	0.00	0.00	839.17	.33	1.25	.01	837.50
650.	4.	484.	162.	2.	94.	68.	11.	5.	838.00
.16	1.74	5.16	2.39	.070	.055	.070	.058	835.50	184.66
.012676	90.	90.	90.	2	0	0	0.00	115.39	300.05

CCHV= .300 CEHV= .500
*SECNO 128.300

**D/S FACE STRUCTURE ON GOLFCOURCE

128.30	3.93	840.43	0.00	0.00	840.58	.16	1.36	.05	838.50
650.	6.	433.	211.	5.	119.	112.	12.	6.	839.00
.18	1.34	3.64	1.88	.070	.055	.070	.058	836.50	183.17
.004604	190.	190.	190.	3	0	0	0.00	125.82	308.99

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.20	2.90	100.00	10.00	0.00	18.00	0.00	836.50	836.50

*SECNO 128.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.98	840.58	0.00	488.	163.	18.	33.	839.80	841.80

128.70	6.69	843.19	0.00	0.00	843.21	.02	2.63	0.00	838.50
650.	16.	324.	310.	28.	235.	389.	12.	6.	839.00
.19	.58	1.38	.80	.070	.055	.070	.058	836.50	176.24
.000265	14.	14.	14.	1	0	7	0.00	174.33	350.57

*SECNO 128.800
3280 CROSS SECTION 128.80 EXTENDED .22 FEET

128.80	11.62	843.22	0.00	0.00	843.22	.01	.01	.00	841.00
650.	6.	635.	10.	31.	788.	58.	13.	6.	841.50
.21	.18	.81	.17	.070	.055	.070	.058	831.60	22.31
.000066	65.	65.	65.	2	0	0	0.00	197.69	220.00

CCHV= .100 CEHV= .300
*SECNO 128.900

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

128.90	5.52	843.22	0.00	0.00	843.25	.03	.02	.00	837.70
650.	60.	535.	54.	85.	387.	87.	15.	7.	837.70
.24	.71	1.38	.63	.070	.055	.070	.057	837.70	30.89
.000268	135.	135.	135.	1	0	0	0.00	170.25	201.14

CCHV= .300 CEHV= .500
*SECNO 129.000

129.00	5.44	843.44	0.00	0.00	843.49	.05	.24	.01	841.30
650.	361.	258.	31.	293.	109.	41.	20.	9.	842.30
.31	1.23	2.37	.75	.070	.055	.070	.057	838.00	27.36
.001453	450.	450.	450.	2	0	0	0.00	253.64	281.00

*SECNO 129.300

**D/S FACE CONCRETE FOOTBRIDGE

129.30	5.37	843.47	0.00	0.00	843.53	.05	.03	.00	841.40
650.	357.	264.	28.	280.	107.	37.	20.	9.	842.40
.32	1.28	2.48	.76	.070	.055	.070	.057	838.10	29.84
.001634	20.	20.	20.	1	0	0	0.00	249.44	279.28

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.30	2.90	150.00	12.00	0.00	49.00	0.00	838.10	838.10

*SECNO 129.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
847.03	843.53	0.00	473.	176.	49.	49.	842.20	842.60

129.70	5.59	843.69	0.00	0.00	843.73	.04	.21	0.00	841.40
650.	367.	247.	36.	319.	113.	49.	21.	9.	842.40
.32	1.15	2.18	.73	.070	.055	.070	.057	838.10	22.57
.001167	5.	5.	5.	2	0	4	0.00	261.75	284.32

*SECNO 129.900

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

129.90	4.10	844.60	844.60	0.00	845.05	.45	.60	.21	843.80
650.	214.	436.	0.	90.	69.	0.	22.	10.	844.80
.33	2.39	6.36	0.00	.070	.055	.070	.057	840.50	70.45
.018962	200.	200.	200.	20	13	0	0.00	159.09	229.53

CCHV= .100 CEHV= .300

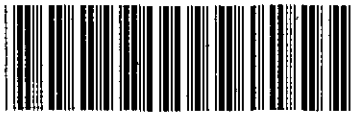
*SECNO 130.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
130.00	4.48	847.88	0.00	0.00	848.06	.18	2.99	.03	846.80
650.	136.	514.	0.	78.	136.	0.	23.	11.	848.50
.35	1.75	3.77	0.00	.070	.055	.070	.057	843.40	142.36
.006126	300.	300.	300.	3	0	0	0.00	134.21	276.57

*SECNO 130.500

**CONFLUENCE WITH HAMLIN AND MURPHY DRAINS

130.50	4.39	848.39	0.00	0.00	848.60	.21	.53	.01	847.40
650.	127.	523.	0.	70.	131.	0.	24.	11.	849.10
.36	1.80	4.00	0.00	.070	.055	.070	.057	844.00	144.29
.007189	80.	80.	80.	2	0	0	0.00	131.74	276.03



1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: STONYCROFT DRAIN

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS



FLOOD INSURANCE STUDY HYDRAULIC REPORT

RECEIVED
SEP 1 1980
WATER MANAGEMENT

PROJECT: HUD-FIA-H-4705 City of Bloomfield Hills, Oakland Co., Michigan

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

WATERCOURSE: Stonycroft Drain

STUDY LIMITS: Confluene with Quarton Drain (downstream limit) to Confluence with Murphy and Hamlin Drains (upstream limit)

DATE OF AERIAL SURVEY: November, 1978 by Abrams Aerial Survey

DATE OF LAND SURVEY: 4/3/79 - 4/19/79 and 5/9/79
McNamee, Porter and Seeley field crew

SOURCE OF FLOWS: Discharges were computed by MP&S/SH&G and approved by MDNR on May 29, 1979

TOPOGRAPHIC INFORMATION: Abrams 2' topographic map 1" = 200'

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

VARIABLES AND COEFFICIENTS:

Channel "n"	.055-.065
Overbank "n"	.070-.095
n values thru bridges	.012-.030
Contraction Coefficients	.10-.30
Expansion Coefficients	.30-.50

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return.

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

XKOR CALCULATIONS : See Table 2

REFERENCES:

1. "Hec-2 Water Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.
2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.
3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey Water Supply Paper 1849.
4. "Floodway Determination using computer Program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.
5. "Flood Study and Drainage Plan, Quarton, Branch of Rouge River, Flood Plain Information", Birmingham, Bloomfield Hills, Bloomfield Township, Oakland County, Michigan. Hubbell, Roth and Clark, Inc. September 1970.

Starting Conditions

Normal depth starting conditions were used for the Stonycroft Drain. Use of a coincident timing of flood peaks at the Quarton/Stonycroft confluence resulted in critical depth at the downstream section. The water surface at the upstream end of the drain was insensitive to the starting condition employed.

High Water Marks and Calibration

There was no high water information available. Therefore, a calibration test was not possible.

A sensitivity analysis was performed on the 100 year flow by raising and lowering all Manning "n" values by 30%.

Designated Floodway

Encroachment method 4 in the HEC-2 program was used to determine encroachment stations based on an allowable surcharge of 0.1 ft. At field surveyed sections the designated floodway was established using the computer determined encroachment stations. Between field surveyed sections, the available topographic information was used to complete the floodway information.

Computer Outputs

Enclosed are complete computer outputs for (i) 100-year natural and 100-year designated floodway, (ii) 10, 50 and 500 year flood plain elevations, (iii) the sensitivity analysis, and (iv) the starting elevation convergence test for your review.

Comments

We have delineated only the 100 year flood plain at this time since the entire Stonycroft Drain is within the City of Bloomfield Hills, which is not included in our study area. Stonycroft Drain was modeled to obtain appropriate starting elevations for the two upstream drains, Murphy and Hamlin.

Special Modelling Notes

Several structures were observed in Stonycroft Drain during the initial field survey, which were deleted from modelling in the HEC-II program. A data sheet is enclosed for these structures detailling the pertinent information. They were not included in the model as the opening at the structure was not restrictive or the structure was excessively submerged. Any losses encountered at these structures would be negligible.

Also included for your review are the calculations used to model the golfcourse structure at Section 128, as this is a multiple-opening structure. The upstream end of the weir is restricted, giving a much smaller open area than appears in the field photos. The weir length of 100' was arrived at by use of the Abrams cross-section and field notes of the concrete walls at the side of the weir. Preliminary hand calculations determined pressure flow should occur at this structure. To ensure pressure flow, the low chord was modeled at 839.8 rather than 840.8.

Additional

The flood study and drainage plan report (Reference #5) contains flood water surface profiles developed with the aid of high water marks on the Quarton branch of the Rouge River from June 1968 flood. Efforts made by MPS/SHG to obtain these high water marks from Hubbell, Roth and Clark, Inc. of Bloomfield Hills, Michigan were unsuccessful. The MDNR log

informed MPS/SHG that several other consulting firms have tried without success to obtain the 1968 flood high water marks from HRC.

CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

COMMUNITY: BLOOMFIELD HILLS, HUD-FIA 14-4103 FILE NO.
WATERCOURSE: STONYCROFT DRAIN
DATE CHK BY DATE

TABLE 1 - SECNO

Section Types — Description

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

SECTION NO.	SECTION TYPE	REMARKS
126.1	3	Confluence w/ Quarton and Army Drain. Repeat 126.2
126.2	1	Valley Section
126.3	3	D/S face Long Lake Rd. Repeat 126.2
126.7	3	U/S face Long Lake Rd. Repeat 126.8
126.8	1	Valley Section
126.85	3	Valley Section, repeat 126.8
126.95	3	" , repeat 126.8
126.96	3	repeat 127 — D/S of concrete footbridge
126.97	1	D/S face of concrete footbridge
126.98	1	U/S face of concrete footbridge
126.991	3	repeat 127 — U/S of concrete footbridge
127	1	Valley Section
127.5	2	Valley Section, Repeat 127
128.1	3	Valley Section, Repeat 128.2
128.15	3	Valley Section, Repeat 128.2
128.2	1	Valley Section
128.3	3	D/S face Golf Course Structure Repeat 128.2
128.7	3	U/S face Golf Course Structure Repeat 128.2
128.8	1	Valley Section
128.91	2	Valley Section use 128.8 for lower bank & Field Undercut
129	1	Valley Section, Abrams above water used. Invert interpolated.
129.3	3	Repeat 129 — U/S face concrete footbridge
129.4	3	D/S face concrete "
130	1	Valley Section, repeat 129
130.5	3	Valley Section, Abrams above water used, invert interpolated
		Confluence with Murphy Ditch, Repeat 127

...ER & SELLEY — JOB — SHEET

...G ENGINEERS — SUBJ. COMMUNITY : BLOOMFIELD TWP. — FILE NO.

...ARBOR, MICHIGAN — COMPUTED WATERCOURSE : STONYCROFT DRAIN — DATE

TABLE - XKOR CALCULATIONS

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

Cross Section Location	K_e	A	P	R	n	l	K_F	XKOR	REMARKS
126 (Long Lake Rd)	.43	20.2	11 12.34	1.8? .65	.030 .012	84	.42 2.72	2.37	Pressure Elevation Lowered. Double Opening
128 (Golf course structure)	.9	12.6	12.6	1	.025	14	.25	1.95	2 Openings Pressure Elevation Lowered
129.3, 129.7 (Concrete footbridge)	.3	49	32.2	1.52	.012	5	negligible	1.3	

Job: Hud-Fip H-4705

Community: Bloomfield ~~Twp.~~ Hills – Stonycroft Drain

TABLE 3 Uncoded Structures

Description	Location		Data	100 yr Floodplain Elevation
Weir, 126.8-A	100' u/s	126.8	concrete & stone, 15' wide w/ 1.8' drop Top = 823.8	elev = 826.9
Footbridge, 128.8-A	370' u/s	128.8	10' x 24 wood & steel Large opening Top = 842.3	elev = 843.4
Footbridge 129-A	300' u/s	128.8-B	14'x6' wood & steel footbridge, large opening Top = 844.5	elev = 845.6
Footbridge 129-B	110' u/s	129-A	20' long x 6' wide opening under wooden planks (wood & steel) Top = 845.0	elev = 847.

All are outside of Bloomfield Township limits

Job: Hud Fir H-4705

Bloomfield - Stony Drain

Special Modelling Notes

New Field Info @ Long Lake Rd #126 8-19-80 surveyed

Two Culverts See 4 136, 39, 40 and 136-E135

photo 7, 8, 9 roll 129

42" ϕ RCP, CMP Arch

n = .012 .030 deposition, debris $= \frac{29n^2L}{R^{4/3}}$

k_e = . K_e = .4 (hand ... edge)

17.41 272 = 4.12

$A = \frac{\pi}{4}\left(\frac{42}{12}\right)^2 = 9.62$ $A = 10.55$

$P = 11.$ $P = 12.34$

$R = .91$ $R = .85$

$K_f = \frac{29n^2L}{R^{4/3}} = .42$ $K_f = 2.72$ and (2 ϕ

14.71.42 = 1.72

$K_{equivalent} = \frac{(9.62+10.55)^2}{\left(\sqrt{\frac{9.62^2}{1.72}} + \sqrt{\frac{10.55^2}{2.72}}\right)^2} = \boxed{2.6}$ ✓

... use ellipse appr

$r = (2.4)(1.4) = 10.55$

$P = \pi\left(\sqrt{2\left(2.4^2+1.4^2\right)}\right) = 12.34$

... 811.34 ... 822, lower to 822 (inside pressure)

TC - 82 ...

$C = \frac{Y}{...} = .62$

$Q_{100\ yr} = C_d(A)\sqrt{2g(H)}$ $= .62(10.2)\sqrt{2g(7.16)} = 147.7$

$Q_w = 3(150)\left(\frac{1}{...}\right)^{1/2} = \frac{450}{...}$

okay, proceed ... little high ...

JOB = HUD FIA H-4705
BLOOMFIELD ~~AVE~~ STONY DRAIN

Self-course structure @ 12L



Ke=.7 (grating)
n=.025
Length = 35'
R=1.0



open area = 1.3(4) = 5.2
using invert = 836.5

n=.020
Ke=.5
L=14'
R = 5.2/10.6 = .49

b=4' @ u/s end

for R use
K pipe = 4/4 = 1.0

actual is somewhat lower but friction in the box shouldn't due to the inlet constricted being by weir.

$K_f = 29\frac{n^2L}{C^{4/3}}$ = .634 .42 Box

$1+K_e+K_f = 1+.7+.634 = 2.334$
$1+.5+.42 = 1.92$

$K_{equivalent} = \frac{17.8^2}{\left(\sqrt{\frac{12.6^2}{2.334}} + \sqrt{\frac{5.2^2}{1.92}}\right)^2} = \frac{17.8^2}{(8.25+3.75)^2} = 2.2$

$\frac{1}{\sqrt{2.2}} = .67$ $Q_{100} = 650$ cfs TW = 839

T/R = 841.8

HW = 841.8, A = 3

$Q_p = .67(16)\sqrt{2g(3)} = 167$

∴ Weir Flow Occurs

Lower Low Chord to 839.8 to insure pressure flow

476-B
39

Stony Croft Branch

X-Sections 128, 128-2, 128-8

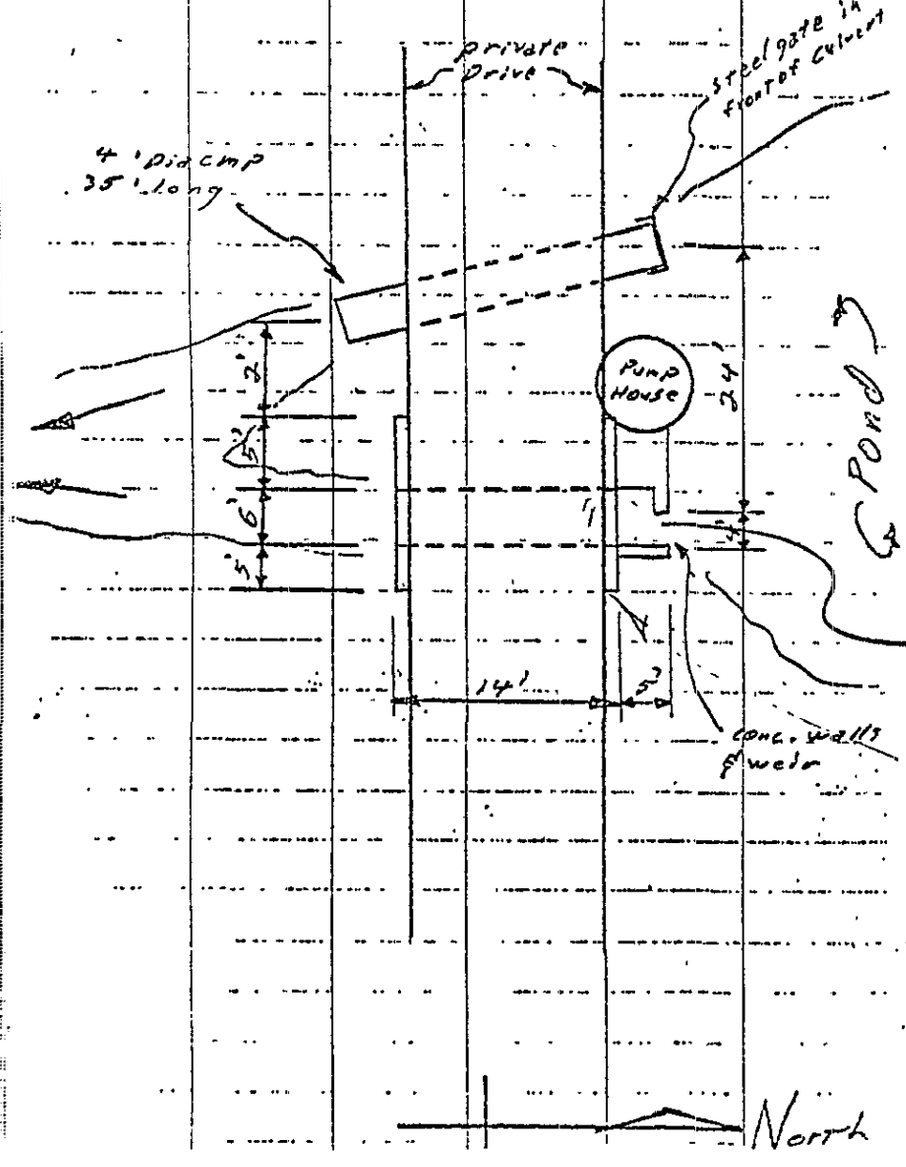
4-19-29

clear - 60°

D. Coin. ft

D. Jeffries ft

N. Shamont ft



photos 12 - 4/5 Film 127

13 - D/S

14 - Face D/S

15 - Face 4/5 west

16 - Face 4/5 east

Max height of weir is 842.1

Sec 476C/28

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: STONY CREEK DRAIN

4) DOCUMENT TYPE: SUMMARY - CONVERGENCE

00BREAK00

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

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

STONYCROFT BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
D	126.100	0.00	0.00	0.00	820.20	650.00	823.80	0.00	823.88	37.10	3.05	323.51	106.71
D*1.15	126.100	0.00	0.00	0.00	820.20	650.00	824.30	0.00	824.36	20.87	2.51	388.97	142.29
D*.85	126.100	0.00	0.00	0.00	820.20	650.00	823.30	0.00	823.43	73.66	3.84	259.52	75.74
	126.200	180.00	0.00	0.00	821.00	650.00	824.34	0.00	824.37	20.34	2.13	509.19	144.12
	126.200	180.00	0.00	0.00	821.00	650.00	824.63	0.00	824.66	13.37	1.84	582.44	177.74
	126.200	180.00	0.00	0.00	821.00	650.00	824.15	0.00	824.19	26.94	2.36	465.26	125.22
	126.300	60.00	0.00	0.00	821.00	650.00	824.48	0.00	824.57	43.23	3.21	308.04	98.86
	126.300	60.00	0.00	0.00	821.00	650.00	824.72	0.00	824.80	31.44	2.88	341.15	115.93
	126.300	60.00	0.00	0.00	821.00	650.00	824.34	0.00	824.44	51.95	3.41	290.38	90.18
	126.700	84.00	825.50	822.00	821.60	650.00	826.41	0.00	826.58	49.89	4.37	243.40	92.02
	126.700	84.00	825.50	822.00	821.60	650.00	826.42	0.00	826.59	49.20	4.35	244.69	92.66
	126.700	84.00	825.50	822.00	821.60	650.00	826.40	0.00	826.57	50.27	4.38	242.71	91.68
	126.800	60.00	0.00	0.00	821.60	650.00	826.71	0.00	826.78	18.86	3.04	356.61	149.66
	126.800	60.00	0.00	0.00	821.60	650.00	826.72	0.00	826.79	18.66	3.02	358.00	150.46
	126.800	60.00	0.00	0.00	821.60	650.00	826.71	0.00	826.78	18.91	3.04	356.27	149.47
	126.850	320.00	0.00	0.00	823.80	650.00	827.71	0.00	827.96	85.71	5.35	202.83	70.21
	126.850	320.00	0.00	0.00	823.80	650.00	827.71	0.00	827.96	85.56	5.34	202.96	70.27
	126.850	320.00	0.00	0.00	823.80	650.00	827.70	0.00	827.95	86.04	5.36	202.53	70.07
	126.950	350.00	0.00	0.00	826.30	650.00	830.38	0.00	830.58	66.13	4.85	223.79	79.93
	126.950	350.00	0.00	0.00	826.30	650.00	830.38	0.00	830.58	66.18	4.85	223.73	79.90
	126.950	350.00	0.00	0.00	826.30	650.00	830.38	0.00	830.59	66.02	4.85	223.93	79.99
	126.960	280.00	0.00	0.00	828.50	650.00	832.58	0.00	833.10	117.35	6.61	140.70	60.00
	126.960	280.00	0.00	0.00	828.50	650.00	832.58	0.00	833.10	117.30	6.61	140.72	60.02
	126.960	280.00	0.00	0.00	828.50	650.00	832.58	0.00	833.10	117.45	6.61	140.64	59.98
*	126.970	1.00	832.30	830.70	828.50	650.00	833.42	833.42	834.09	190.64	7.78	142.57	47.08
*	126.970	1.00	832.30	830.70	828.50	650.00	833.42	833.42	834.09	190.64	7.78	142.57	47.08
*	126.970	1.00	832.30	830.70	828.50	650.00	833.42	833.42	834.09	190.64	7.78	142.57	47.08
	126.980	3.00	832.30	830.70	828.50	650.00	833.77	0.00	834.16	103.82	6.20	183.92	63.79
	126.980	3.00	832.30	830.70	828.50	650.00	833.77	0.00	834.16	103.82	6.20	183.92	63.79
	126.980	3.00	832.30	830.70	828.50	650.00	833.77	0.00	834.16	103.82	6.20	183.92	63.79

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	126.990	1.00	0.00	0.00	828.50	650.00	834.08	0.00	834.19	19.49	3.41	307.43	147.24
	126.990	1.00	0.00	0.00	828.50	650.00	834.08	0.00	834.19	19.49	3.41	307.43	147.24
	126.990	1.00	0.00	0.00	828.50	650.00	834.08	0.00	834.19	19.49	3.41	307.43	147.24
	127.000	40.00	0.00	0.00	828.90	650.00	834.14	0.00	834.29	28.23	3.92	263.64	122.34
	127.000	40.00	0.00	0.00	828.90	650.00	834.14	0.00	834.29	28.23	3.92	263.64	122.34
	127.000	40.00	0.00	0.00	828.90	650.00	834.14	0.00	834.29	28.23	3.92	263.64	122.34
	127.500	200.00	0.00	0.00	831.20	650.00	834.87	834.83	835.70	206.68	8.10	109.87	45.21
	127.500	200.00	0.00	0.00	831.20	650.00	834.87	834.83	835.70	206.68	8.10	109.87	45.21
	127.500	200.00	0.00	0.00	831.20	650.00	834.87	834.83	835.70	206.68	8.10	109.87	45.21
	128.100	150.00	0.00	0.00	833.00	650.00	836.91	0.00	837.07	47.25	3.68	233.46	94.56
	128.100	150.00	0.00	0.00	833.00	650.00	836.91	0.00	837.07	47.25	3.68	233.46	94.56
	128.100	150.00	0.00	0.00	833.00	650.00	836.91	0.00	837.07	47.25	3.68	233.46	94.56
	128.150	100.00	0.00	0.00	834.30	650.00	837.53	0.00	837.91	153.02	5.51	152.88	52.55
	128.150	100.00	0.00	0.00	834.30	650.00	837.53	0.00	837.91	153.02	5.51	152.88	52.55
	128.150	100.00	0.00	0.00	834.30	650.00	837.53	0.00	837.91	153.02	5.51	152.88	52.55
	128.200	90.00	0.00	0.00	835.50	650.00	838.84	0.00	839.17	126.76	5.16	163.77	57.73
	128.200	90.00	0.00	0.00	835.50	650.00	838.84	0.00	839.17	126.76	5.16	163.77	57.73
	128.200	90.00	0.00	0.00	835.50	650.00	838.84	0.00	839.17	126.76	5.16	163.77	57.73
	128.300	190.00	0.00	0.00	836.50	650.00	840.43	0.00	840.58	46.04	3.64	235.62	95.79
	128.300	190.00	0.00	0.00	836.50	650.00	840.43	0.00	840.58	46.04	3.64	235.62	95.79
	128.300	190.00	0.00	0.00	836.50	650.00	840.43	0.00	840.58	46.04	3.64	235.62	95.79
	128.700	14.00	841.80	839.80	836.50	650.00	843.19	0.00	843.21	2.65	1.38	651.65	399.33
	128.700	14.00	841.80	839.80	836.50	650.00	843.19	0.00	843.21	2.65	1.38	651.65	399.33
	128.700	14.00	841.80	839.80	836.50	650.00	843.19	0.00	843.21	2.65	1.38	651.65	399.33
	128.800	65.00	0.00	0.00	831.60	650.00	843.22	0.00	843.22	.66	.81	876.22	801.34
	128.800	65.00	0.00	0.00	831.60	650.00	843.22	0.00	843.22	.66	.81	876.22	801.34
	128.800	65.00	0.00	0.00	831.60	650.00	843.22	0.00	843.22	.66	.81	876.22	801.34
	128.900	135.00	0.00	0.00	837.70	650.00	843.22	0.00	843.25	2.68	1.38	558.91	396.91
	128.900	135.00	0.00	0.00	837.70	650.00	843.22	0.00	843.25	2.68	1.38	558.91	396.91
	128.900	135.00	0.00	0.00	837.70	650.00	843.22	0.00	843.25	2.68	1.38	558.91	396.91
	129.000	450.00	0.00	0.00	838.00	650.00	843.44	0.00	843.49	14.53	2.37	443.30	170.55
	129.000	450.00	0.00	0.00	838.00	650.00	843.44	0.00	843.49	14.53	2.37	443.30	170.55
	129.000	450.00	0.00	0.00	838.00	650.00	843.44	0.00	843.49	14.53	2.37	443.30	170.55
	129.300	20.00	0.00	0.00	838.10	650.00	843.47	0.00	843.53	16.34	2.48	423.83	160.81
	129.300	20.00	0.00	0.00	838.10	650.00	843.47	0.00	843.53	16.34	2.48	423.83	160.81
	129.300	20.00	0.00	0.00	838.10	650.00	843.47	0.00	843.53	16.34	2.48	423.83	160.81
	129.700	5.00	842.60	842.20	838.10	650.00	843.69	0.00	843.73	11.67	2.18	481.85	190.30
	129.700	5.00	842.60	842.20	838.10	650.00	843.69	0.00	843.73	11.67	2.18	481.85	190.30
	129.700	5.00	842.60	842.20	838.10	650.00	843.69	0.00	843.73	11.67	2.18	481.85	190.30
*	129.900	200.00	0.00	0.00	840.50	650.00	844.60	844.60	845.05	189.62	6.36	158.26	47.20
*	129.900	200.00	0.00	0.00	840.50	650.00	844.60	844.60	845.05	189.62	6.36	158.26	47.20
*	129.900	200.00	0.00	0.00	840.50	650.00	844.60	844.60	845.05	189.62	6.36	158.26	47.20

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
130.000	300.00	0.00	0.00	843.40	650.00	847.88	0.00	848.06	61.26	3.77	213.94	83.05
130.000	300.00	0.00	0.00	843.40	650.00	847.88	0.00	848.06	61.26	3.77	213.94	83.05
130.000	300.00	0.00	0.00	843.40	650.00	847.88	0.00	848.06	61.26	3.77	213.94	83.05
130.500	80.00	0.00	0.00	844.00	650.00	848.39	0.00	848.60	71.89	4.00	201.09	76.66
130.500	80.00	0.00	0.00	844.00	650.00	848.39	0.00	848.60	71.89	4.00	201.09	76.66
130.500	80.00	0.00	0.00	844.00	650.00	848.39	0.00	848.60	71.89	4.00	201.09	76.66

STONYCROFT BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	126.100	650.00	823.80	0.00	0.00	.80	129.45	0.00
	126.100	650.00	824.30	.50	0.00	0.00	131.27	0.00
	126.100	650.00	823.30	-1.00	0.00	0.00	127.64	0.00
	126.200	650.00	824.34	0.00	.54	0.00	245.21	180.00
	126.200	650.00	824.63	.30	.33	0.00	248.85	180.00
	126.200	650.00	824.15	-.48	.85	0.00	243.00	180.00
	126.300	650.00	824.48	0.00	.14	0.00	129.01	60.00
	126.300	650.00	824.72	.25	.09	0.00	129.94	60.00
	126.300	650.00	824.34	-.38	.19	0.00	128.51	60.00
	126.700	650.00	826.41	0.00	1.93	0.00	94.43	84.00
	126.700	650.00	826.42	.01	1.70	0.00	94.63	84.00
	126.700	650.00	826.40	-.02	2.06	0.00	94.33	84.00
	126.800	650.00	826.71	0.00	.30	0.00	139.05	60.00
	126.800	650.00	826.72	.01	.30	0.00	139.24	60.00
	126.800	650.00	826.71	-.02	.30	0.00	139.00	60.00
	126.850	650.00	827.71	0.00	.99	0.00	116.21	320.00
	126.850	650.00	827.71	.00	.99	0.00	116.24	320.00
	126.850	650.00	827.70	-.00	1.00	0.00	116.16	320.00
	126.950	650.00	830.38	0.00	2.68	0.00	119.58	350.00
	126.950	650.00	830.38	-.00	2.68	0.00	119.57	350.00
	126.950	650.00	830.38	.00	2.68	0.00	119.60	350.00
	126.960	650.00	832.58	0.00	2.19	0.00	83.46	280.00
	126.960	650.00	832.58	.00	2.19	0.00	83.47	280.00
	126.960	650.00	832.58	-.00	2.19	0.00	83.44	280.00
*	126.970	650.00	833.42	0.00	.85	0.00	115.74	1.00
*	126.970	650.00	833.42	0.00	.85	0.00	115.74	1.00
*	126.970	650.00	833.42	0.00	.85	0.00	115.74	1.00
	126.980	650.00	833.77	0.00	.35	0.00	125.88	3.00
	126.980	650.00	833.77	0.00	.35	0.00	125.88	3.00
	126.980	650.00	833.77	0.00	.35	0.00	125.88	3.00
	126.990	650.00	834.08	0.00	.31	0.00	132.46	1.00
	126.990	650.00	834.08	0.00	.31	0.00	132.46	1.00
	126.990	650.00	834.08	0.00	.31	0.00	132.46	1.00
	127.000	650.00	834.14	0.00	.06	0.00	125.41	40.00
	127.000	650.00	834.14	0.00	.06	0.00	125.41	40.00
	127.000	650.00	834.14	0.00	.06	0.00	125.41	40.00
	127.500	650.00	834.87	0.00	.73	0.00	69.50	200.00
	127.500	650.00	834.87	0.00	.73	0.00	69.50	200.00
	127.500	650.00	834.87	0.00	.73	0.00	69.50	200.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	128.100	650.00	836.91	0.00	2.04	0.00	125.52	150.00
	128.100	650.00	836.91	0.00	2.04	0.00	125.52	150.00
	128.100	650.00	836.91	0.00	2.04	0.00	125.52	150.00
	128.150	650.00	837.53	0.00	.62	0.00	113.73	100.00
	128.150	650.00	837.53	0.00	.62	0.00	113.73	100.00
	128.150	650.00	837.53	0.00	.62	0.00	113.73	100.00
	128.200	650.00	838.84	0.00	1.31	0.00	115.39	90.00
	128.200	650.00	838.84	0.00	1.31	0.00	115.39	90.00
	128.200	650.00	838.84	0.00	1.31	0.00	115.39	90.00
	128.300	650.00	840.43	0.00	1.59	0.00	125.82	190.00
	128.300	650.00	840.43	0.00	1.59	0.00	125.82	190.00
	128.300	650.00	840.43	0.00	1.59	0.00	125.82	190.00
	128.700	650.00	843.19	0.00	2.77	0.00	174.33	14.00
	128.700	650.00	843.19	0.00	2.77	0.00	174.33	14.00
	128.700	650.00	843.19	0.00	2.77	0.00	174.33	14.00
	128.800	650.00	843.22	0.00	.02	0.00	197.69	65.00
	128.800	650.00	843.22	0.00	.02	0.00	197.69	65.00
	128.800	650.00	843.22	0.00	.02	0.00	197.69	65.00
	128.900	650.00	843.22	0.00	.00	0.00	170.25	135.00
	128.900	650.00	843.22	0.00	.00	0.00	170.25	135.00
	128.900	650.00	843.22	0.00	.00	0.00	170.25	135.00
	129.000	650.00	843.44	0.00	.22	0.00	253.64	450.00
	129.000	650.00	843.44	0.00	.22	0.00	253.64	450.00
	129.000	650.00	843.44	0.00	.22	0.00	253.64	450.00
	129.300	650.00	843.47	0.00	.03	0.00	249.44	20.00
	129.300	650.00	843.47	0.00	.03	0.00	249.44	20.00
	129.300	650.00	843.47	0.00	.03	0.00	249.44	20.00
	129.700	650.00	843.69	0.00	.22	0.00	261.75	5.00
	129.700	650.00	843.69	0.00	.22	0.00	261.75	5.00
	129.700	650.00	843.69	0.00	.22	0.00	261.75	5.00
*	129.900	650.00	844.60	0.00	.90	0.00	159.09	200.00
*	129.900	650.00	844.60	0.00	.90	0.00	159.09	200.00
*	129.900	650.00	844.60	0.00	.90	0.00	159.09	200.00
	130.000	650.00	847.88	0.00	3.28	0.00	134.21	300.00
	130.000	650.00	847.88	0.00	3.28	0.00	134.21	300.00
	130.000	650.00	847.88	0.00	3.28	0.00	134.21	300.00
	130.500	650.00	848.39	0.00	.51	0.00	131.74	80.00
	130.500	650.00	848.39	0.00	.51	0.00	131.74	80.00
	130.500	650.00	848.39	0.00	.51	0.00	131.74	80.00

SUMMARY OF ERRORS

```
 CAUTION  SECNO=  126.970  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  126.970  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  126.970  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  126.970  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  126.970  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  126.970  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  126.970  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  126.970  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  126.970  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=  129.900  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  129.900  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  129.900  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  129.900  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  129.900  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  129.900  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  129.900  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  129.900  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  129.900  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: STONY CREEK TRIB 1

4) DOCUMENT TYPE: SUMMARY - FLOODWAY

00BREAK00

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**********
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

STONYCROFT BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	126.100	0.00	0.00	0.00	820.20	650.00	823.80	0.00	823.88	37.10	3.05	323.51	106.71
	126.100	0.00	0.00	0.00	820.20	650.00	823.90	0.00	823.97	32.74	2.92	336.75	113.60
	126.200	180.00	0.00	0.00	821.00	650.00	824.34	0.00	824.37	20.34	2.13	509.19	144.12
	126.200	180.00	0.00	0.00	821.00	650.00	824.39	0.00	824.42	18.83	2.08	521.97	149.80
	126.300	60.00	0.00	0.00	821.00	650.00	824.48	0.00	824.57	43.23	3.21	308.04	98.86
	126.300	60.00	0.00	0.00	821.00	650.00	824.52	0.00	824.61	40.98	3.15	313.36	101.53
	126.700	84.00	825.50	822.00	821.60	650.00	826.41	0.00	826.58	49.89	4.37	243.40	92.02
	126.700	84.00	825.50	822.00	821.60	650.00	826.41	0.00	826.58	49.78	4.36	243.61	92.13
	126.800	60.00	0.00	0.00	821.60	650.00	826.71	0.00	826.78	18.86	3.04	356.61	149.66
	126.800	60.00	0.00	0.00	821.60	650.00	826.71	0.00	826.79	18.83	3.03	356.84	149.79
	126.850	320.00	0.00	0.00	823.80	650.00	827.71	0.00	827.96	85.71	5.35	202.83	70.21
	126.850	320.00	0.00	0.00	823.80	650.00	827.71	0.00	827.96	85.68	5.35	202.85	70.22
	126.950	350.00	0.00	0.00	826.30	650.00	830.38	0.00	830.58	66.13	4.85	223.79	79.93
	126.950	350.00	0.00	0.00	826.30	650.00	830.38	0.00	830.58	66.14	4.85	223.78	79.93
	126.960	280.00	0.00	0.00	828.50	650.00	832.58	0.00	833.10	117.35	6.61	140.70	60.00
	126.960	280.00	0.00	0.00	828.50	650.00	832.58	0.00	833.10	117.34	6.61	140.70	60.01
*	126.970	1.00	832.30	830.70	828.50	650.00	833.42	833.42	834.09	190.64	7.78	142.57	47.08
*	126.970	1.00	832.30	830.70	828.50	650.00	833.42	833.42	834.09	190.64	7.78	142.57	47.08
	126.980	3.00	832.30	830.70	828.50	650.00	833.77	0.00	834.16	103.82	6.20	183.92	63.79
	126.980	3.00	832.30	830.70	828.50	650.00	833.77	0.00	834.16	103.82	6.20	183.92	63.79
	126.990	1.00	0.00	0.00	828.50	650.00	834.08	0.00	834.19	19.49	3.41	307.43	147.24
	126.990	1.00	0.00	0.00	828.50	650.00	834.08	0.00	834.19	19.49	3.41	307.43	147.24
	127.000	40.00	0.00	0.00	828.90	650.00	834.14	0.00	834.29	28.23	3.92	263.64	122.34
	127.000	40.00	0.00	0.00	828.90	650.00	834.14	0.00	834.29	28.23	3.92	263.64	122.34
	127.500	200.00	0.00	0.00	831.20	650.00	834.87	834.83	835.70	206.68	8.10	109.87	45.21
	127.500	200.00	0.00	0.00	831.20	650.00	834.87	834.83	835.70	206.68	8.10	109.87	45.21

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	128.100	150.00	0.00	0.00	833.00	650.00	836.91	0.00	837.07	47.25	3.68	233.46	94.56
	128.100	150.00	0.00	0.00	833.00	650.00	836.91	0.00	837.07	47.25	3.68	233.46	94.56
	128.150	100.00	0.00	0.00	834.30	650.00	837.53	0.00	837.91	153.02	5.51	152.88	52.55
	128.150	100.00	0.00	0.00	834.30	650.00	837.53	0.00	837.91	153.02	5.51	152.88	52.55
	128.200	90.00	0.00	0.00	835.50	650.00	838.84	0.00	839.17	126.76	5.16	163.77	57.73
	128.200	90.00	0.00	0.00	835.50	650.00	838.84	0.00	839.17	126.76	5.16	163.77	57.73
	128.300	190.00	0.00	0.00	836.50	650.00	840.43	0.00	840.58	46.04	3.64	235.62	95.79
	128.300	190.00	0.00	0.00	836.50	650.00	840.43	0.00	840.58	46.04	3.64	235.62	95.79
	128.700	14.00	841.80	839.80	836.50	650.00	843.19	0.00	843.21	2.65	1.38	651.65	399.33
	128.700	14.00	841.80	839.80	836.50	650.00	843.19	0.00	843.21	2.65	1.38	651.65	399.33
	128.800	65.00	0.00	0.00	831.60	650.00	843.22	0.00	843.22	.66	.81	876.22	801.34
	128.800	65.00	0.00	0.00	831.60	650.00	843.22	0.00	843.22	.66	.81	876.22	801.34
	128.900	135.00	0.00	0.00	837.70	650.00	843.22	0.00	843.25	2.68	1.38	558.91	396.91
	128.900	135.00	0.00	0.00	837.70	650.00	843.22	0.00	843.25	2.68	1.38	558.91	396.91
	129.000	450.00	0.00	0.00	838.00	650.00	843.44	0.00	843.49	14.53	2.37	443.30	170.55
	129.000	450.00	0.00	0.00	838.00	650.00	843.44	0.00	843.49	14.53	2.37	443.30	170.55
	129.300	20.00	0.00	0.00	838.10	650.00	843.47	0.00	843.53	16.34	2.48	423.83	160.81
	129.300	20.00	0.00	0.00	838.10	650.00	843.47	0.00	843.53	16.34	2.48	423.83	160.81
	129.700	5.00	842.60	842.20	838.10	650.00	843.69	0.00	843.73	11.67	2.18	481.85	190.30
*	129.900	200.00	0.00	0.00	840.50	650.00	844.60	844.60	845.05	189.62	6.36	158.26	47.20
*	129.900	200.00	0.00	0.00	840.50	650.00	844.60	844.60	845.05	189.62	6.36	158.26	47.20
	130.000	300.00	0.00	0.00	843.40	650.00	847.88	0.00	848.06	61.26	3.77	213.94	83.05
	130.000	300.00	0.00	0.00	843.40	650.00	847.88	0.00	848.06	61.26	3.77	213.94	83.05
	130.500	80.00	0.00	0.00	844.00	650.00	848.39	0.00	848.60	71.89	4.00	201.09	76.66
	130.500	80.00	0.00	0.00	844.00	650.00	848.39	0.00	848.60	71.89	4.00	201.09	76.66

STONYCROFT BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	126.100	650.00	823.80	0.00	0.00	.80	129.45	0.00
	126.100	650.00	823.90	.10	0.00	0.00	129.82	0.00
	126.200	650.00	824.34	0.00	.54	0.00	245.21	180.00
	126.200	650.00	824.39	.05	.49	0.00	245.85	180.00
	126.300	650.00	824.48	0.00	.14	0.00	129.01	60.00
	126.300	650.00	824.52	.04	.13	0.00	129.16	60.00
	126.700	650.00	826.41	0.00	1.93	0.00	94.43	84.00
	126.700	650.00	826.41	.00	1.89	0.00	94.47	84.00
	126.800	650.00	826.71	0.00	.30	0.00	139.05	60.00
	126.800	650.00	826.71	.00	.30	0.00	139.08	60.00
	126.850	650.00	827.71	0.00	.99	0.00	116.21	320.00
	126.850	650.00	827.71	.00	.99	0.00	116.22	320.00
	126.950	650.00	830.38	0.00	2.68	0.00	119.58	350.00
	126.950	650.00	830.38	-.00	2.68	0.00	119.58	350.00
	126.960	650.00	832.58	0.00	2.19	0.00	83.46	280.00
	126.960	650.00	832.58	.00	2.19	0.00	83.47	280.00
*	126.970	650.00	833.42	0.00	.85	0.00	115.74	1.00
*	126.970	650.00	833.42	0.00	.85	0.00	115.74	1.00
	126.980	650.00	833.77	0.00	.35	0.00	125.88	3.00
	126.980	650.00	833.77	0.00	.35	0.00	125.88	3.00
	126.990	650.00	834.08	0.00	.31	0.00	132.46	1.00
	126.990	650.00	834.08	0.00	.31	0.00	132.46	1.00
	127.000	650.00	834.14	0.00	.06	0.00	125.41	40.00
	127.000	650.00	834.14	0.00	.06	0.00	125.41	40.00
	127.500	650.00	834.87	0.00	.73	0.00	69.50	200.00
	127.500	650.00	834.87	0.00	.73	0.00	69.50	200.00
	128.100	650.00	836.91	0.00	2.04	0.00	125.52	150.00
	128.100	650.00	836.91	0.00	2.04	0.00	125.52	150.00
	128.150	650.00	837.53	0.00	.62	0.00	113.73	100.00
	128.150	650.00	837.53	0.00	.62	0.00	113.73	100.00
	128.200	650.00	838.84	0.00	1.31	0.00	115.39	90.00
	128.200	650.00	838.84	0.00	1.31	0.00	115.39	90.00
	128.300	650.00	840.43	0.00	1.59	0.00	125.82	190.00
	128.300	650.00	840.43	0.00	1.59	0.00	125.82	190.00
	128.700	650.00	843.19	0.00	2.77	0.00	174.33	14.00

128.700	650.00	843.19	0.00	2.77	0.00	174.33	14.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	128.800	650.00	843.22	0.00	.02	0.00	197.69	65.00
	128.800	650.00	843.22	0.00	.02	0.00	197.69	65.00
	128.900	650.00	843.22	0.00	.00	0.00	170.25	135.00
	128.900	650.00	843.22	0.00	.00	0.00	170.25	135.00
	129.000	650.00	843.44	0.00	.22	0.00	253.64	450.00
	129.000	650.00	843.44	0.00	.22	0.00	253.64	450.00
	129.300	650.00	843.47	0.00	.03	0.00	249.44	20.00
	129.300	650.00	843.47	0.00	.03	0.00	249.44	20.00
	129.700	650.00	843.69	0.00	.22	0.00	261.75	5.00
	129.700	650.00	843.69	0.00	.22	0.00	261.75	5.00
*	129.900	650.00	844.60	0.00	.90	0.00	159.09	200.00
*	129.900	650.00	844.60	0.00	.90	0.00	159.09	200.00
	130.000	650.00	847.88	0.00	3.28	0.00	134.21	300.00
	130.000	650.00	847.88	0.00	3.28	0.00	134.21	300.00
	130.500	650.00	848.39	0.00	.51	0.00	131.74	80.00
	130.500	650.00	848.39	0.00	.51	0.00	131.74	80.00

SUMMARY OF ERRORS

```
CAUTION  SECNO=  126.970  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  126.970  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  126.970  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  126.970  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  126.970  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  126.970  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  129.900  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  129.900  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  129.900  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  129.900  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  129.900  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  129.900  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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FLOODWAY DATA, STONYCROFT BRANCH
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
126.100	130.	337.	1.9	823.9	823.8	.1
126.200	246.	522.	1.2	824.4	824.3	.1
126.300	129.	313.	2.1	824.5	824.5	0.0
126.700	94.	244.	2.7	826.4	826.4	0.0
126.800	139.	357.	1.8	826.7	826.7	0.0
126.850	116.	203.	3.2	827.7	827.7	0.0
126.950	120.	224.	2.9	830.4	830.4	0.0
126.960	83.	141.	4.6	832.6	832.6	0.0
126.970	116.	143.	4.6	833.4	833.4	0.0
126.980	126.	184.	3.5	833.8	833.8	0.0
126.990	132.	307.	2.1	834.1	834.1	0.0
127.000	125.	264.	2.5	834.1	834.1	0.0
127.500	69.	110.	5.9	834.9	834.9	0.0
128.100	126.	233.	2.8	836.9	836.9	0.0
128.150	114.	153.	4.3	837.5	837.5	0.0
128.200	115.	164.	4.0	838.8	838.8	0.0
128.300	126.	236.	2.8	840.4	840.4	0.0
128.700	174.	652.	1.0	843.2	843.2	0.0
128.830	198.	876.	.7	843.2	843.2	0.0
128.900	170.	559.	1.2	843.2	843.2	0.0
129.000	254.	443.	1.5	843.4	843.4	0.0
129.300	249.	424.	1.5	843.5	843.5	0.0
129.700	262.	482.	1.3	843.7	843.7	0.0
129.900	159.	158.	4.1	844.6	844.6	0.0
130.000	134.	214.	3.0	847.9	847.9	0.0
130.500	132.	201.	3.2	848.4	848.4	0.0

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: [illegible]

4) DOCUMENT TYPE: ~~[illegible]~~ SUMMARY - PRODUCTION

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

STONYCROFT BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
126.100	0.00	0.00	0.00	820.20	395.00	823.12	0.00	823.18	36.37	2.58	236.27	65.50
126.100	0.00	0.00	0.00	820.20	560.00	823.58	0.00	823.66	36.39	2.88	295.84	92.83
126.100	0.00	0.00	0.00	820.20	650.00	823.80	0.00	823.88	37.10	3.05	323.51	106.71
126.100	0.00	0.00	0.00	820.20	865.00	824.30	0.00	824.40	36.83	3.34	389.38	142.52
126.200	180.00	0.00	0.00	821.00	395.00	823.68	0.00	823.71	23.92	1.96	350.61	80.76
126.200	180.00	0.00	0.00	821.00	560.00	824.12	0.00	824.15	21.16	2.07	456.90	121.74
126.200	180.00	0.00	0.00	821.00	650.00	824.34	0.00	824.37	20.34	2.13	509.19	144.12
126.200	180.00	0.00	0.00	821.00	865.00	824.83	0.00	824.86	18.44	2.25	631.03	201.41
126.300	60.00	0.00	0.00	821.00	395.00	823.84	0.00	823.91	40.71	2.68	227.78	61.91
126.300	60.00	0.00	0.00	821.00	560.00	824.27	0.00	824.35	42.58	3.04	281.28	85.82
126.300	60.00	0.00	0.00	821.00	650.00	824.48	0.00	824.57	43.23	3.21	308.04	98.86
126.300	60.00	0.00	0.00	821.00	865.00	824.95	0.00	825.06	43.36	3.53	369.58	131.36
126.700	84.00	825.50	822.00	821.60	395.00	826.08	0.00	826.16	26.17	3.01	213.04	77.22
126.700	84.00	825.50	822.00	821.60	560.00	826.30	0.00	826.44	41.28	3.91	233.57	87.16
126.700	84.00	825.50	822.00	821.60	650.00	826.41	0.00	826.58	49.89	4.37	243.40	92.02
126.700	84.00	825.50	822.00	821.60	865.00	826.63	0.00	826.88	70.83	5.37	264.71	102.78
126.800	60.00	0.00	0.00	821.60	395.00	826.24	0.00	826.28	11.88	2.25	292.83	114.59
126.800	60.00	0.00	0.00	821.60	560.00	826.55	0.00	826.62	16.55	2.78	335.34	137.67
126.800	60.00	0.00	0.00	821.60	650.00	826.71	0.00	826.78	18.86	3.04	356.61	149.66
126.800	60.00	0.00	0.00	821.60	865.00	827.06	0.00	827.16	23.40	3.54	406.44	178.81
126.850	320.00	0.00	0.00	823.80	395.00	826.94	0.00	827.23	118.53	5.37	119.42	36.28
126.850	320.00	0.00	0.00	823.80	560.00	827.46	0.00	827.72	92.06	5.30	175.91	58.37
126.850	320.00	0.00	0.00	823.80	650.00	827.71	0.00	827.96	85.71	5.35	202.83	70.21
126.850	320.00	0.00	0.00	823.80	865.00	828.20	0.00	828.45	76.78	5.51	262.15	98.72
126.950	350.00	0.00	0.00	826.30	395.00	829.84	0.00	829.99	55.82	4.03	162.77	52.87
126.950	350.00	0.00	0.00	826.30	560.00	830.20	0.00	830.39	63.93	4.62	202.44	70.04
126.950	350.00	0.00	0.00	826.30	650.00	830.38	0.00	830.58	66.13	4.85	223.79	79.93
126.950	350.00	0.00	0.00	826.30	865.00	830.78	0.00	831.01	69.74	5.31	271.69	103.58
126.960	280.00	0.00	0.00	828.50	395.00	831.86	0.00	832.30	121.16	5.78	89.40	35.89
126.960	280.00	0.00	0.00	828.50	560.00	832.36	0.00	832.85	117.79	6.35	123.38	51.60
126.960	280.00	0.00	0.00	828.50	650.00	832.58	0.00	833.10	117.35	6.61	140.70	60.00
126.960	280.00	0.00	0.00	828.50	865.00	833.02	0.00	833.59	116.09	7.12	182.04	80.28

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	126.970	1.00	832.30	830.70	828.50	395.00	830.75	830.70	832.80	486.69	11.55	36.66	17.90
*	126.970	1.00	832.30	830.70	828.50	560.00	833.28	833.28	833.91	184.52	7.40	126.84	41.23
*	126.970	1.00	832.30	830.70	828.50	650.00	833.42	833.42	834.09	190.64	7.78	142.57	47.08
*	126.970	1.00	832.30	830.70	828.50	865.00	833.74	833.74	834.45	191.64	8.38	180.89	62.49
	126.980	3.00	832.30	830.70	828.50	395.00	830.90	830.70	832.95	486.69	11.55	36.66	17.90
	126.980	3.00	832.30	830.70	828.50	560.00	833.60	0.00	833.97	102.39	5.94	163.87	55.34
	126.980	3.00	832.30	830.70	828.50	650.00	833.77	0.00	834.16	103.82	6.20	183.92	63.79
	126.980	3.00	832.30	830.70	828.50	865.00	834.08	0.00	834.52	110.21	6.80	224.78	82.39
	126.990	1.00	0.00	0.00	828.50	395.00	833.03	831.39	833.15	24.03	3.24	182.64	80.58
	126.990	1.00	0.00	0.00	828.50	560.00	833.91	0.00	834.00	17.33	3.14	285.42	134.52
	126.990	1.00	0.00	0.00	828.50	650.00	834.08	0.00	834.19	19.49	3.41	307.43	147.24
	126.990	1.00	0.00	0.00	828.50	865.00	834.41	0.00	834.55	23.81	3.93	355.66	177.27
	127.000	40.00	0.00	0.00	828.90	395.00	833.12	0.00	833.28	35.60	3.74	153.42	66.20
	127.000	40.00	0.00	0.00	828.90	560.00	833.96	0.00	834.10	25.59	3.64	241.97	110.69
	127.000	40.00	0.00	0.00	828.90	650.00	834.14	0.00	834.29	28.23	3.92	263.64	122.34
	127.000	40.00	0.00	0.00	828.90	865.00	834.49	0.00	834.68	34.20	4.52	308.57	147.90
	127.500	200.00	0.00	0.00	831.20	395.00	834.19	834.09	834.89	218.14	7.08	68.69	26.74
	127.500	200.00	0.00	0.00	831.20	560.00	834.62	834.60	835.46	225.05	7.98	92.62	37.33
	127.500	200.00	0.00	0.00	831.20	650.00	834.87	834.83	835.70	206.68	8.10	109.87	45.21
	127.500	200.00	0.00	0.00	831.20	865.00	835.38	835.29	836.20	180.31	8.36	149.77	64.42
	128.100	150.00	0.00	0.00	833.00	395.00	836.26	0.00	836.40	54.57	3.31	154.85	53.47
	128.100	150.00	0.00	0.00	833.00	560.00	836.71	0.00	836.86	47.38	3.51	209.72	81.36
	128.100	150.00	0.00	0.00	833.00	650.00	836.91	0.00	837.07	47.25	3.68	233.46	94.56
	128.100	150.00	0.00	0.00	833.00	865.00	837.32	0.00	837.50	47.15	4.02	286.20	125.98
	128.150	100.00	0.00	0.00	834.30	395.00	837.03	0.00	837.38	186.16	5.06	96.87	28.95
	128.150	100.00	0.00	0.00	834.30	560.00	837.36	0.00	837.73	165.24	5.41	133.03	43.56
	128.150	100.00	0.00	0.00	834.30	650.00	837.53	0.00	837.91	153.02	5.51	152.88	52.55
	128.150	100.00	0.00	0.00	834.30	865.00	837.91	0.00	838.31	134.78	5.76	196.92	74.51
	128.200	90.00	0.00	0.00	835.50	395.00	838.43	0.00	838.67	111.78	4.24	118.40	37.36
	128.200	90.00	0.00	0.00	835.50	560.00	838.71	0.00	839.00	120.40	4.85	149.63	51.04
	128.200	90.00	0.00	0.00	835.50	650.00	838.84	0.00	839.17	126.76	5.16	163.77	57.73
	128.200	90.00	0.00	0.00	835.50	865.00	839.12	0.00	839.52	134.20	5.75	197.22	74.67
	128.300	190.00	0.00	0.00	836.50	395.00	839.86	0.00	839.98	44.61	3.09	166.67	59.14
	128.300	190.00	0.00	0.00	836.50	560.00	840.24	0.00	840.38	45.81	3.47	212.26	82.74
	128.300	190.00	0.00	0.00	836.50	650.00	840.43	0.00	840.58	46.04	3.64	235.62	95.79
	128.300	190.00	0.00	0.00	836.50	865.00	840.82	0.00	841.00	47.47	4.03	285.51	125.55
	128.700	14.00	841.80	839.80	836.50	395.00	842.65	0.00	842.66	1.49	.97	559.77	323.31
	128.700	14.00	841.80	839.80	836.50	560.00	843.03	0.00	843.04	2.24	1.24	622.26	374.57
	128.700	14.00	841.80	839.80	836.50	650.00	843.19	0.00	843.21	2.65	1.38	651.65	399.33
	128.700	14.00	841.80	839.80	836.50	865.00	843.58	0.00	843.61	3.58	1.67	718.28	456.90
	128.800	65.00	0.00	0.00	831.60	395.00	842.66	0.00	842.67	.33	.54	771.45	691.91
	128.800	65.00	0.00	0.00	831.60	560.00	843.04	0.00	843.05	.53	.71	842.48	765.67
	128.800	65.00	0.00	0.00	831.60	650.00	843.22	0.00	843.22	.66	.81	876.22	801.34
	128.800	65.00	0.00	0.00	831.60	865.00	843.61	0.00	843.62	.95	1.00	954.86	887.08

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	128.900	135.00	0.00	0.00	837.70	395.00	842.67	0.00	842.68	1.49	.96	472.89	323.52
	128.900	135.00	0.00	0.00	837.70	560.00	843.05	0.00	843.07	2.26	1.24	530.10	372.72
	128.900	135.00	0.00	0.00	837.70	650.00	843.22	0.00	843.25	2.68	1.38	558.91	396.91
	128.900	135.00	0.00	0.00	837.70	865.00	843.61	0.00	843.65	3.62	1.68	628.59	454.49
	129.000	450.00	0.00	0.00	838.00	395.00	842.81	0.00	842.85	15.62	2.16	292.68	99.96
	129.000	450.00	0.00	0.00	838.00	560.00	843.24	0.00	843.29	14.71	2.30	393.58	146.01
	129.000	450.00	0.00	0.00	838.00	650.00	843.44	0.00	843.49	14.53	2.37	443.30	170.55
	129.000	450.00	0.00	0.00	838.00	865.00	843.89	0.00	843.94	13.74	2.49	562.31	233.35
	129.300	20.00	0.00	0.00	838.10	395.00	842.84	0.00	842.89	18.06	2.28	276.10	92.95
	129.300	20.00	0.00	0.00	838.10	560.00	843.27	0.00	843.32	16.68	2.41	374.96	137.11
	129.300	20.00	0.00	0.00	838.10	650.00	843.47	0.00	843.53	16.34	2.48	423.83	160.81
	129.300	20.00	0.00	0.00	838.10	865.00	843.92	0.00	843.98	15.33	2.60	539.52	220.92
	129.700	5.00	842.60	842.20	838.10	395.00	843.16	0.00	843.19	9.99	1.82	348.91	124.95
	129.700	5.00	842.60	842.20	838.10	560.00	843.52	0.00	843.56	11.20	2.07	436.89	167.32
	129.700	5.00	842.60	842.20	838.10	650.00	843.69	0.00	843.73	11.67	2.18	481.85	190.30
	129.700	5.00	842.60	842.20	838.10	865.00	844.16	0.00	844.20	11.16	2.31	608.26	258.95
*	129.900	200.00	0.00	0.00	840.50	395.00	844.23	844.23	844.65	182.44	5.68	101.37	29.24
*	129.900	200.00	0.00	0.00	840.50	560.00	844.51	844.51	844.92	176.03	6.00	143.79	42.21
*	129.900	200.00	0.00	0.00	840.50	650.00	844.60	844.60	845.05	189.62	6.36	158.26	47.20
*	129.900	200.00	0.00	0.00	840.50	865.00	844.82	844.82	845.32	201.85	6.91	194.77	60.88
	130.000	300.00	0.00	0.00	843.40	395.00	847.36	0.00	847.51	57.58	3.23	147.50	52.05
	130.000	300.00	0.00	0.00	843.40	560.00	847.70	0.00	847.88	62.02	3.64	189.61	71.11
	130.000	300.00	0.00	0.00	843.40	650.00	847.88	0.00	848.06	61.26	3.77	213.94	83.05
	130.000	300.00	0.00	0.00	843.40	865.00	848.24	0.00	848.45	62.63	4.09	263.13	109.30
	130.500	80.00	0.00	0.00	844.00	395.00	847.85	0.00	848.03	71.48	3.50	134.68	46.72
	130.500	80.00	0.00	0.00	844.00	560.00	848.22	0.00	848.42	72.28	3.86	178.49	65.87
	130.500	80.00	0.00	0.00	844.00	650.00	848.39	0.00	848.60	71.89	4.00	201.09	76.66
	130.500	80.00	0.00	0.00	844.00	865.00	848.75	0.00	848.99	71.04	4.29	251.17	102.63

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SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	126.100	395.00	823.12	0.00	0.00	.62	126.97	0.00
	126.100	560.00	823.58	.47	0.00	.58	128.67	0.00
	126.100	650.00	823.80	.21	0.00	.80	129.45	0.00
	126.100	865.00	824.30	.51	0.00	.80	131.28	0.00
	126.200	395.00	823.68	0.00	.56	0.00	237.13	180.00
	126.200	560.00	824.12	.44	.54	0.00	242.58	180.00
	126.200	650.00	824.34	.21	.54	0.00	245.21	180.00
	126.200	865.00	824.83	.49	.52	0.00	251.23	180.00
	126.300	395.00	823.84	0.00	.17	0.00	126.73	60.00
	126.300	560.00	824.27	.43	.15	0.00	128.25	60.00
	126.300	650.00	824.48	.21	.14	0.00	129.01	60.00
	126.300	865.00	824.95	.47	.13	0.00	130.73	60.00
	126.700	395.00	826.08	0.00	2.24	0.00	89.72	84.00
	126.700	560.00	826.30	.22	2.03	0.00	92.94	84.00
	126.700	650.00	826.41	.10	1.93	0.00	94.43	84.00
	126.700	865.00	826.63	.22	1.68	0.00	97.61	84.00
	126.800	395.00	826.24	0.00	.16	0.00	130.07	60.00
	126.800	560.00	826.55	.32	.25	0.00	136.12	60.00
	126.800	650.00	826.71	.16	.30	0.00	139.05	60.00
	126.800	865.00	827.06	.35	.43	0.00	145.68	60.00
	126.850	395.00	826.94	0.00	.70	0.00	101.71	320.00
	126.850	560.00	827.46	.52	.91	0.00	111.74	320.00
	126.850	650.00	827.71	.24	.99	0.00	116.21	320.00
	126.850	865.00	828.20	.49	1.14	0.00	125.52	320.00
	126.950	395.00	829.84	0.00	2.90	0.00	109.49	350.00
	126.950	560.00	830.20	.36	2.74	0.00	116.15	350.00
	126.950	650.00	830.38	.18	2.68	0.00	119.58	350.00
	126.950	865.00	830.78	.39	2.58	0.00	126.95	350.00
	126.960	395.00	831.86	0.00	2.01	0.00	61.11	280.00
	126.960	560.00	832.36	.50	2.16	0.00	75.15	280.00
	126.960	650.00	832.58	.22	2.19	0.00	83.46	280.00
	126.960	865.00	833.02	.45	2.25	0.00	100.57	280.00
	126.970	395.00	830.75	0.00	-1.10	0.00	31.57	1.00
*	126.970	560.00	833.28	2.53	.93	0.00	110.44	1.00
*	126.970	650.00	833.42	.14	.85	0.00	115.74	1.00
*	126.970	865.00	833.74	.32	.71	0.00	125.37	1.00
	126.980	395.00	830.90	0.00	.15	0.00	35.48	3.00
	126.980	560.00	833.60	2.71	.32	0.00	122.52	3.00
	126.980	650.00	833.77	.17	.35	0.00	125.88	3.00
	126.980	865.00	834.08	.31	.34	0.00	132.45	3.00
	126.990	395.00	833.03	0.00	2.13	0.00	100.80	1.00
	126.990	560.00	833.91	.87	.30	0.00	128.97	1.00

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126.990	650.00	834.08	.17	.31	0.00	132.46	1.00
126.990	865.00	834.41	.34	.33	0.00	153.78	1.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
127.000	395.00	833.12	0.00	.08	0.00	89.08	40.00
127.000	560.00	833.96	.85	.06	0.00	121.15	40.00
127.000	650.00	834.14	.18	.06	0.00	125.41	40.00
127.000	865.00	834.49	.35	.08	0.00	132.64	40.00
127.500	395.00	834.19	0.00	1.07	0.00	51.24	200.00
127.500	560.00	834.62	.43	.65	0.00	62.50	200.00
127.500	650.00	834.87	.25	.73	0.00	69.50	200.00
127.500	865.00	835.38	.51	.89	0.00	87.50	200.00
128.100	395.00	836.26	0.00	2.07	0.00	114.03	150.00
128.100	560.00	836.71	.45	2.10	0.00	122.16	150.00
128.100	650.00	836.91	.19	2.04	0.00	125.52	150.00
128.100	865.00	837.32	.41	1.94	0.00	132.67	150.00
128.150	395.00	837.03	0.00	.77	0.00	104.76	100.00
128.150	560.00	837.36	.33	.64	0.00	110.63	100.00
128.150	650.00	837.53	.18	.62	0.00	113.73	100.00
128.150	865.00	837.91	.38	.59	0.00	120.32	100.00
128.200	395.00	838.43	0.00	1.41	0.00	108.30	90.00
128.200	560.00	838.71	.28	1.35	0.00	113.23	90.00
128.200	650.00	838.84	.13	1.31	0.00	115.39	90.00
128.200	865.00	839.12	.28	1.21	0.00	120.36	90.00
128.300	395.00	839.86	0.00	1.43	0.00	115.83	190.00
128.300	560.00	840.24	.38	1.53	0.00	122.53	190.00
128.300	650.00	840.43	.19	1.59	0.00	125.82	190.00
128.300	865.00	840.82	.39	1.70	0.00	132.58	190.00
128.700	395.00	842.65	0.00	2.79	0.00	164.85	14.00
128.700	560.00	843.03	.37	2.79	0.00	171.36	14.00
128.700	650.00	843.19	.17	2.77	0.00	174.33	14.00
128.700	865.00	843.58	.38	2.76	0.00	180.90	14.00
128.800	395.00	842.66	0.00	.01	0.00	177.36	65.00
128.800	560.00	843.04	.38	.02	0.00	195.54	65.00
128.800	650.00	843.22	.17	.02	0.00	197.69	65.00
128.800	865.00	843.61	.39	.03	0.00	202.60	65.00
128.900	395.00	842.67	0.00	.00	0.00	141.26	135.00
128.900	560.00	843.05	.38	.00	0.00	161.12	135.00
128.900	650.00	843.22	.17	.00	0.00	170.25	135.00
128.900	865.00	843.61	.40	.01	0.00	190.53	135.00
129.000	395.00	842.81	0.00	.14	0.00	219.08	450.00
129.000	560.00	843.24	.44	.20	0.00	242.77	450.00
129.000	650.00	843.44	.20	.22	0.00	253.64	450.00
129.000	865.00	843.89	.45	.28	0.00	277.92	450.00
129.300	395.00	842.84	0.00	.03	0.00	214.94	20.00
129.300	560.00	843.27	.44	.03	0.00	238.58	20.00
129.300	650.00	843.47	.20	.03	0.00	249.44	20.00
129.300	865.00	843.92	.45	.03	0.00	273.43	20.00

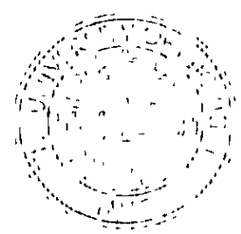
THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	129.700	395.00	843.16	0.00	.32	0.00	232.58	5.00
	129.700	560.00	843.52	.36	.25	0.00	252.26	5.00
	129.700	650.00	843.69	.17	.22	0.00	261.75	5.00
	129.700	865.00	844.16	.46	.24	0.00	286.74	5.00
*	129.900	395.00	844.23	0.00	1.07	0.00	144.19	200.00
*	129.900	560.00	844.51	.28	.99	0.00	155.93	200.00
*	129.900	650.00	844.60	.09	.90	0.00	159.09	200.00
*	129.900	865.00	844.82	.22	.67	0.00	170.09	200.00
	130.000	395.00	847.36	0.00	3.14	0.00	120.90	300.00
	130.000	560.00	847.70	.34	3.19	0.00	129.49	300.00
	130.000	650.00	847.88	.18	3.28	0.00	134.21	300.00
	130.000	865.00	848.24	.36	3.41	0.00	140.54	300.00
	130.500	395.00	847.85	0.00	.49	0.00	118.16	80.00
	130.500	560.00	848.22	.36	.52	0.00	127.28	80.00
	130.500	650.00	848.39	.17	.51	0.00	131.74	80.00
	130.500	865.00	848.75	.36	.52	0.00	139.35	80.00

SUMMARY OF ERRORS

CAUTION SECNO= 126.970 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 126.970 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 126.970 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 126.970 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 126.970 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 126.970 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 126.970 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 126.970 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 126.970 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 129.900 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 129.900 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 129.900 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 129.900 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 129.900 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 129.900 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 129.900 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 129.900 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 129.900 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 129.900 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 129.900 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 129.900 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL



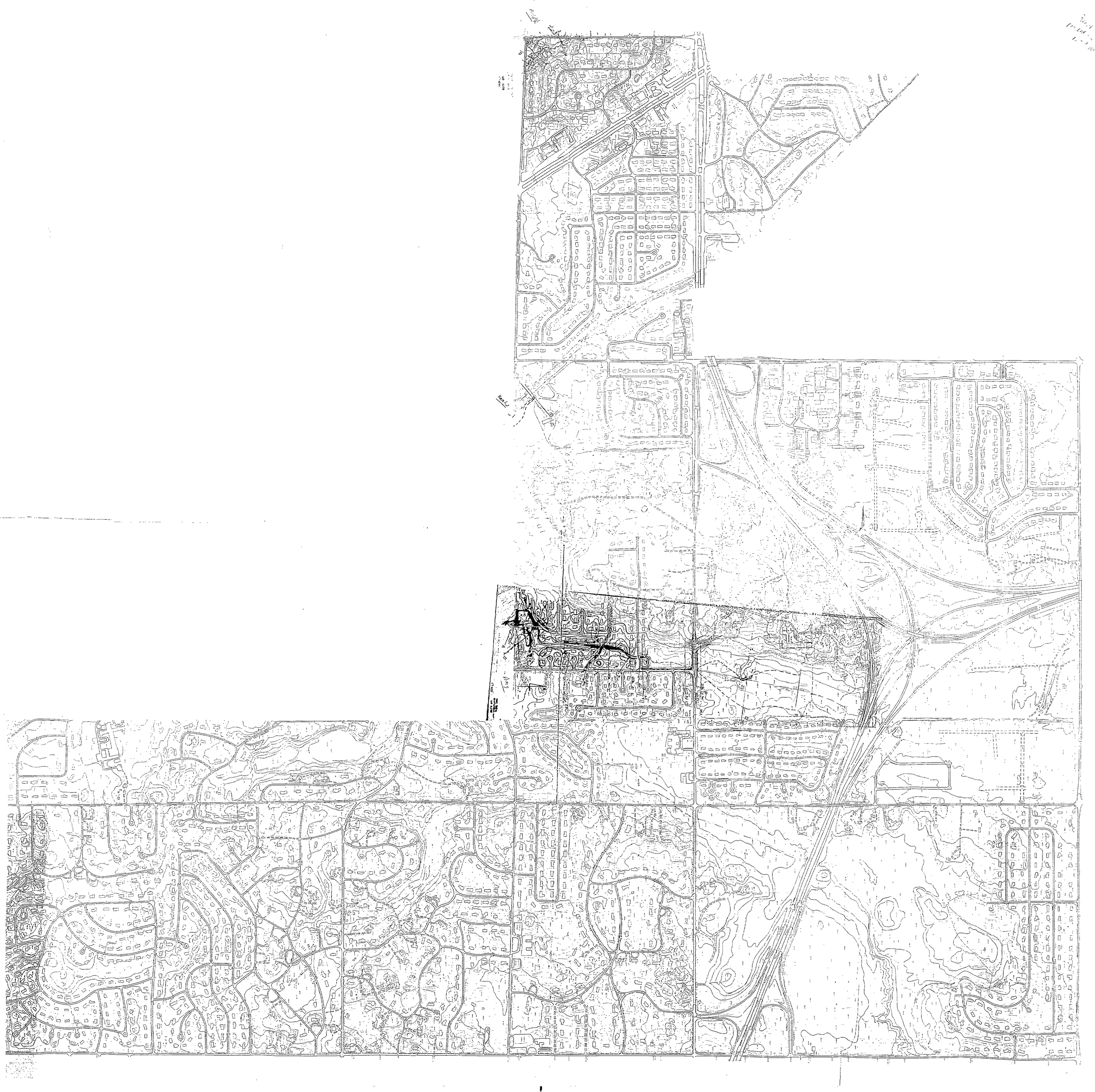
THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

EXHIBIT 1
AMY DRAIN TRIBUTARY AREA MAP
THE HEATHERS
HYDRAULIC EVALUATION OF THE AMY DRAIN

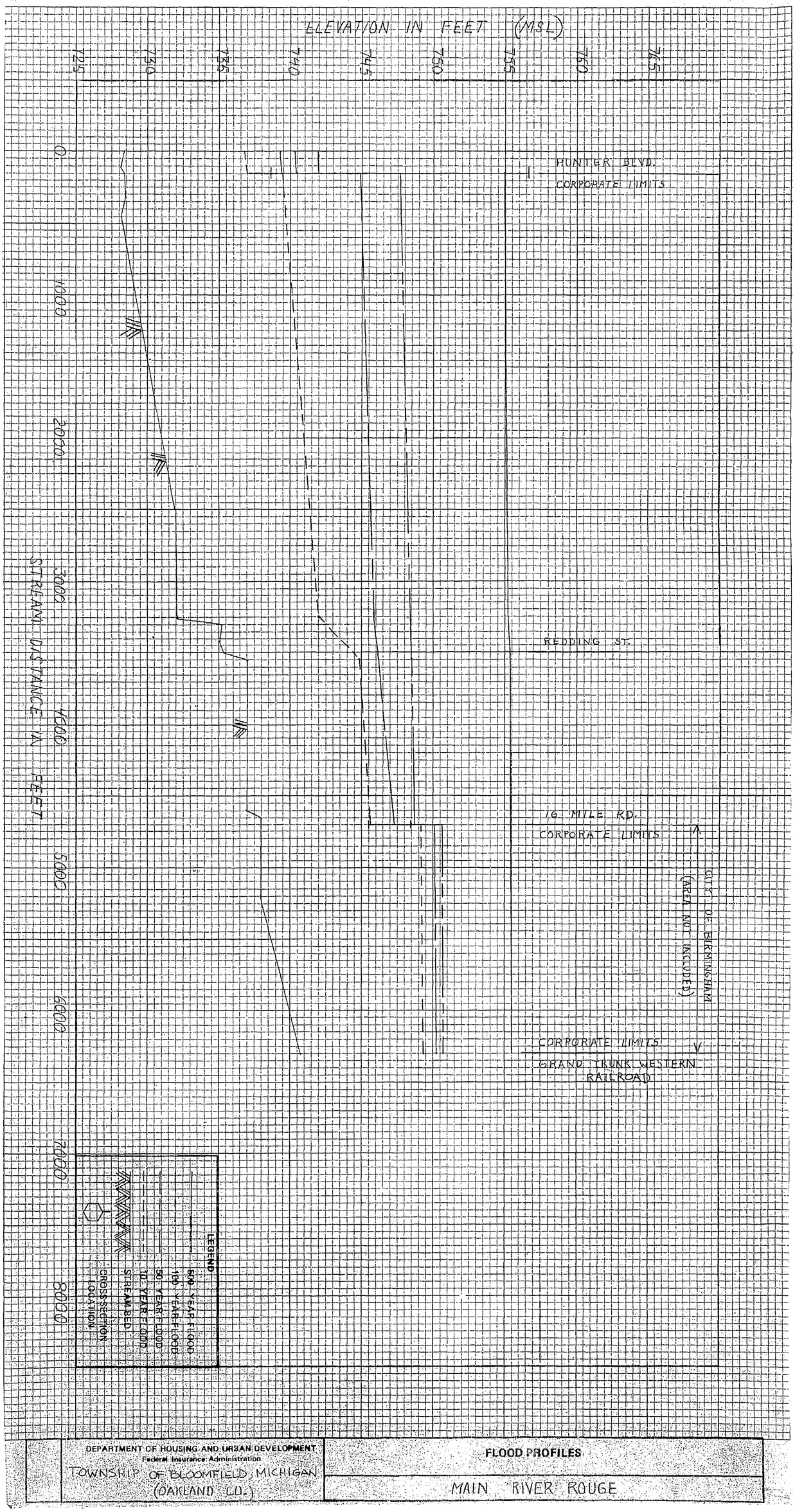
DATE FEB 1987	SCALE 1"= 200'	Giffels-Webster Engineers, Inc.
DRAWN ATH	DESIGNED O.C.	Consulting Engineers, Land Surveyors & Planners
CKD. BY	SECTION 2	3731 Alpine Road • Pontiac, Michigan 48057
F.B.	T. 2 N. R. 10 E.	Phone 313/852-2100 or 313/334-2296
SHEET 1	OF 5 SHEETS	FLORIDA MICHIGAN

NO. 9726-2

FEB 20 1987



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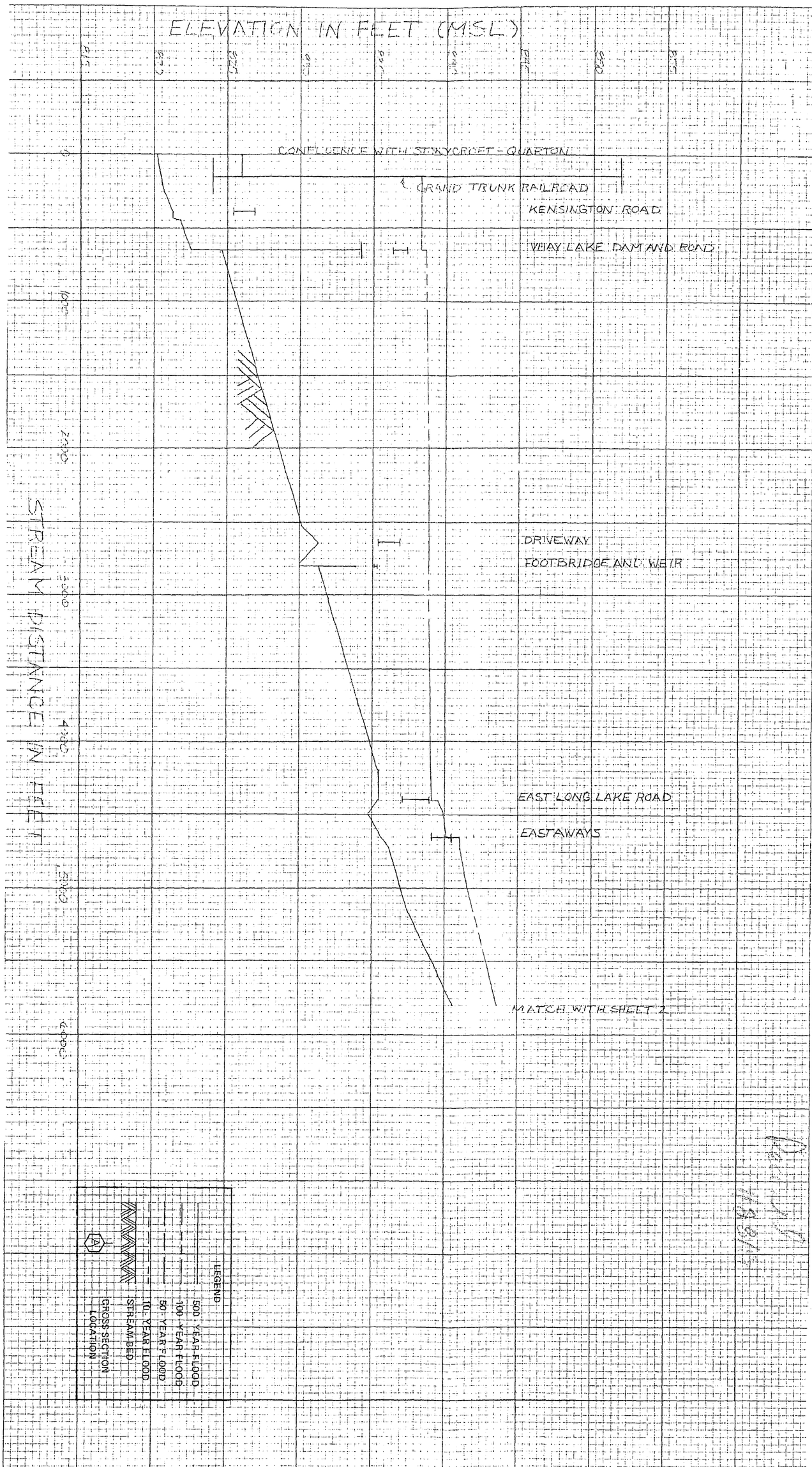
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

TOWNSHIP OF BLOOMFIELD, MICHIGAN
(OAKLAND CO.)

FLOOD PROFILES

MAIN RIVER ROUGE

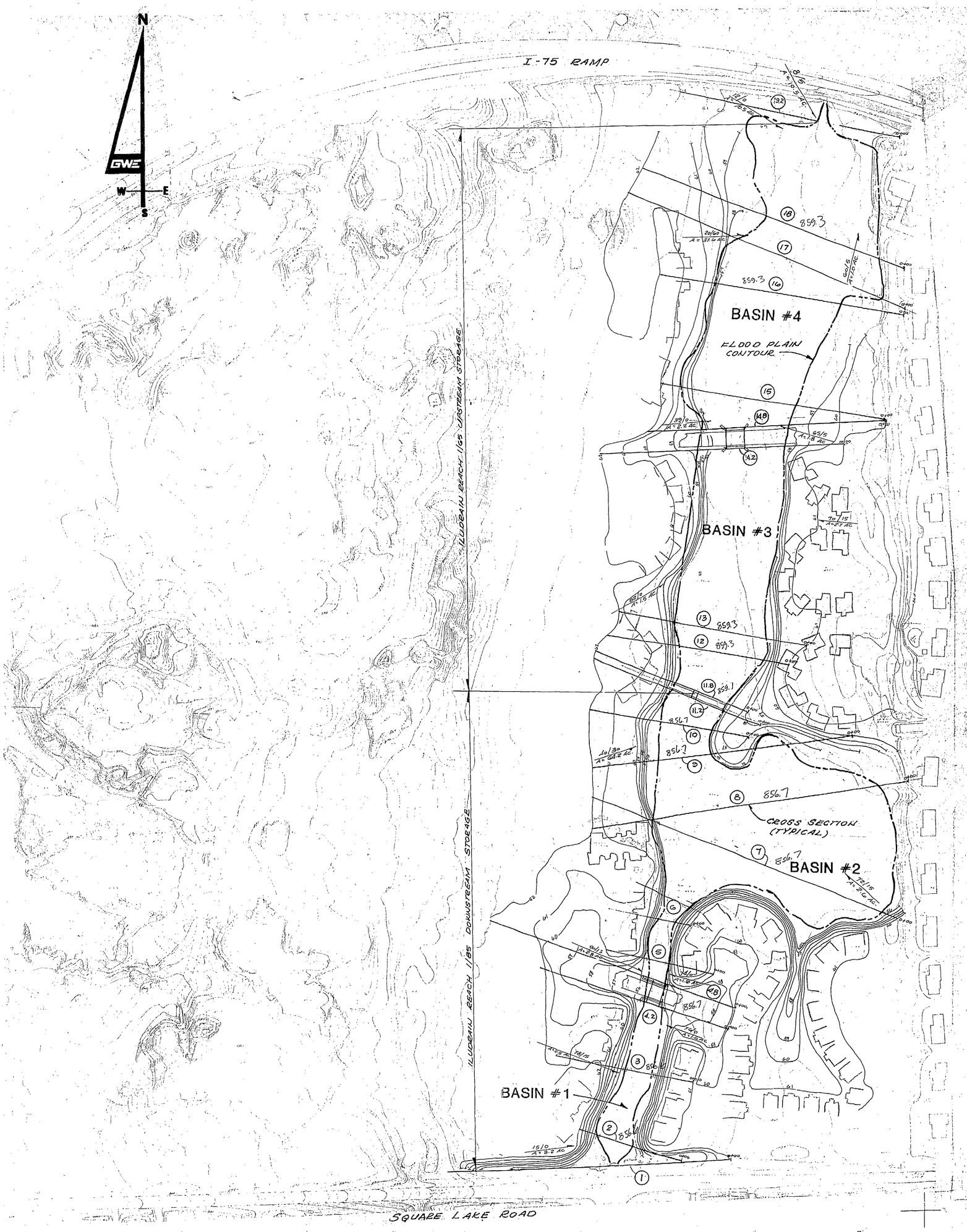
PRINTED IN U.S.A.



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

FLOOD PROFILES

AMY DRAIN



LEGEND

(2) HEC 2 CROSS SECTION NUMBER

1/85 ILUDRAIN BRANCH & REACH DESIGNATION (REACH 85 OF BRANCH 1)

EXHIBIT 2 Bloomfield Twp

PLAN

THE HEATHERS
HYDRAULIC EVALUATION
OF THE AMY DRAIN

DATE FEB 1987	SCALE 1" = 100'	GWE	Giffels-Webster Engineers, Inc.
DRAWN ATK	DESIGNED D.S.		CONSULTING ENGINEERS, LAND SURVEYORS & PLANNERS
CKD. BY	SECTION 2		2731 Adams Road • Pontiac, Michigan 48057
F.B.	T- 2 N.-R- 10 E		Phone: 313/852-3100 or 313/758-2266
SHEET 2	OF 5 SHEETS		FLORIDA MICHIGAN

NO. 9726-2

FEB 20 1987

KEY TO MAP

500-year Flood Boundary

100-year Flood Boundary

FLOODWAY FRINGE — FLOODWAY

100-year Flood Boundary

500-year Flood Boundary

Elevation Reference Mark — 897

Cross Section Line — A — A

Approximate 100-year Flood Boundary

Zone Designation — Zone A

Limited Detail 100-Year Flood Boundary

Base Flood Elevation Line (with elevation in feet) — 954

NOTES TO USER

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

This map was prepared to support minimum flood plain management regulations; it may not show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

EXPLANATION OF ZONE DESIGNATIONS

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by the FIA are:

Zone	Explanation
A	Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods, no base flood elevations shown or FHF's determined.
AO	Special Flood Hazard Areas innundated by types of 100-year shallow flooding where depths are between 1.0 and 3.0 feet; depths are shown, but no FHF's are determined.
AH	Special Flood Hazard Areas innundated by types of 100-year shallow flooding where depths are between 1.0 and 3.0 feet; base flood elevations are shown, but no FHF's are determined.
A1 – A30	Special Flood Hazard Areas inundated by by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHF's.
B	Areas between zones A1-A3- and the limits of the 500-year flood.

N

0 200 400 800 1200
SCALE 1"=400

EXHIBIT 2

FLOOD BOUNDARY AND FLOODWAY MAP
FLOOD INSURANCE RATE MAP

TOWNSHIP OF BLOOMFIELD
MICHIGAN
OAKLAND COUNTY

PANEL 2 OF 4

PRELIMINARY
DATE MAY 19 1981
McNAMEE, PORTER AND SEELEY

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

CONTINUATION ON PANEL 1

CONTINUATION ON PANEL 4

NE 1/4

LIMIT OF DETAILED STUDY

LIMIT OF APPROXIMATE STUDY

ZONE A1

ZONE A2

ZONE A

ZONE B

ZONE 3

MURPHY DRAIN

HAMLIN DRAIN

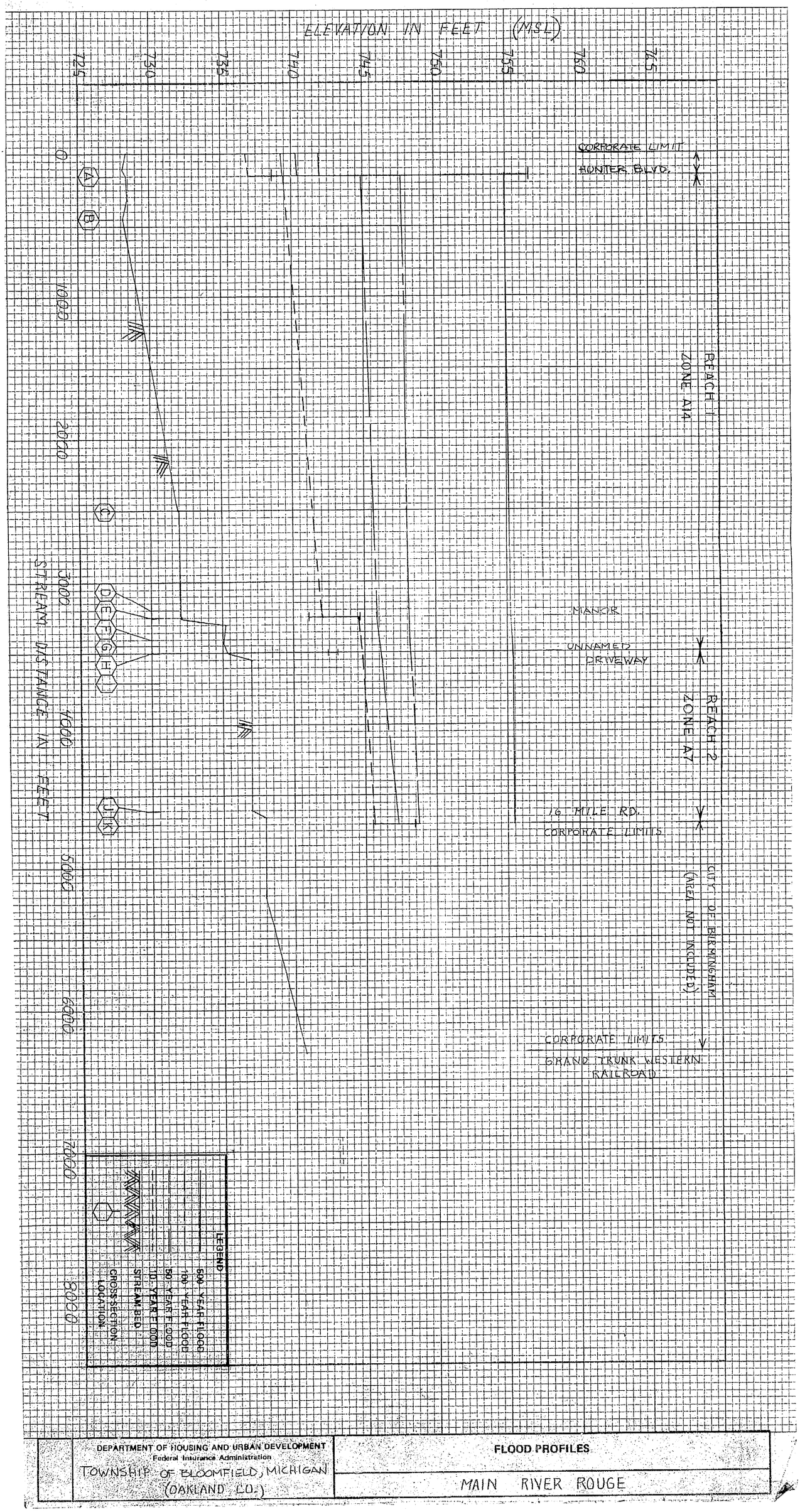
RM 7

RM 8

RM 9

RM 13

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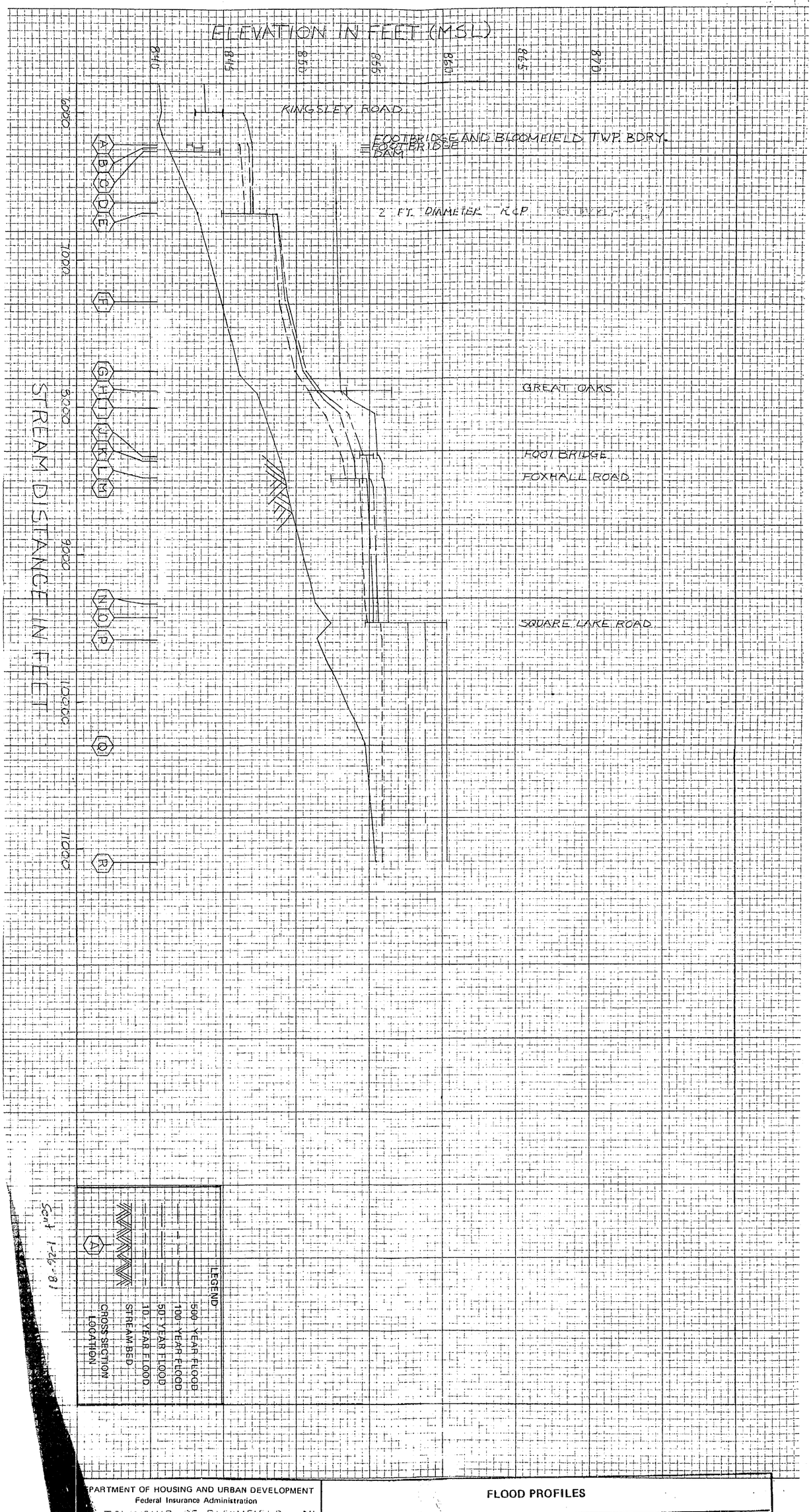
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

TOWNSHIP OF BLOOMFIELD, MICHIGAN
(OAKLAND CO.)

FLOOD PROFILES

MAIN RIVER ROUGE

PRINTED IN U.S.A.



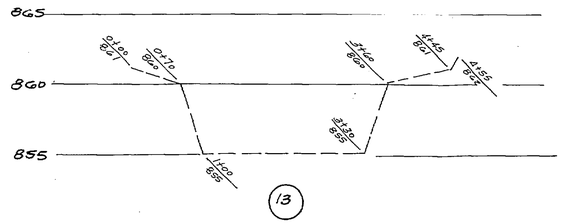
Sent 1-26-81

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

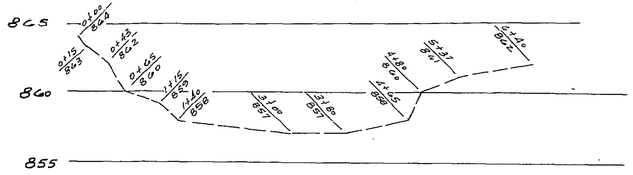
TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

FLOOD PROFILES

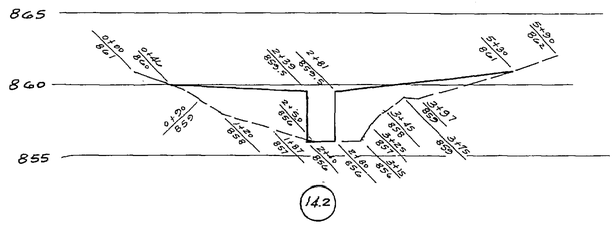
AMY DRAIN



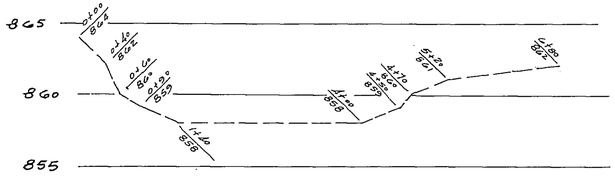
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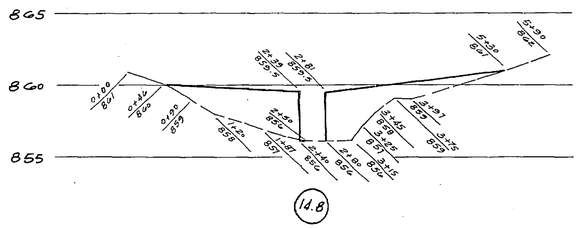
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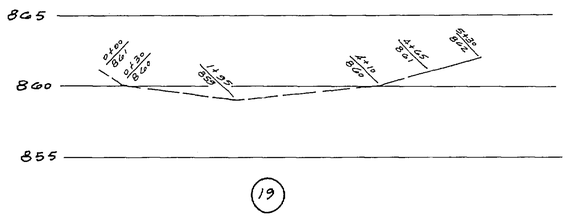
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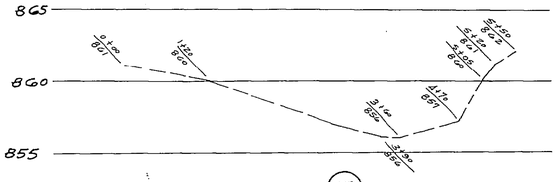
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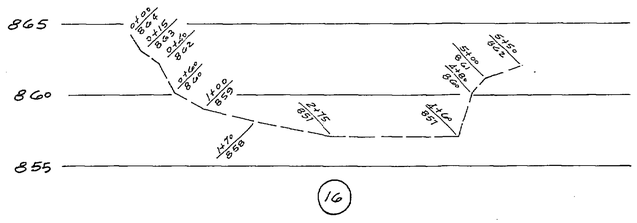
14.8



19



15



16

NOTE:
FOR CROSS SECTION LOCATION
SEE EXHIBIT 2

EXHIBIT 4

CROSS SECTIONS

THE HEATHERS
HYDRAULIC EVALUATION
OF THE AMY DRAIN

REVISIONS	DESCRIPTION	INT.

DATE FEB 1987
DRAWN ATW
CKD. BY
F.B.
SHEET 4

SCALE 1"=100' (HEATHERS 1"=5')
DESIGNED D.C.
SECTION 2
T. 2 N. R. 10 E
OF 5 SHEETS

Giffels-Webster Engineers, Inc.
CONSULTING ENGINEERS LAND SURVEYORS & PLANNERS
2731 Adams Road • Pontiac, Michigan 48057
Phone: 313/852-3100 or 313/358-2268
FLORIDA MICHIGAN TEXAS

NO. 9726-

KEY TO MAP

500-year Flood Boundary
100-year Flood Boundary
FLOODWAY FRINGE — FLOODWAY
100-year Flood Boundary
500-year Flood Boundary
Elevation Reference Mark — RM7
Cross Section Line — A — A
Approximate 100-year Flood Boundary
Zone Designation — Zone A
Base Flood Elevation Line (with elevation in feet) — 974

NOTES TO USER

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

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B	Areas between zones A1-A3- and the limits of the 500-year flood.

N

0 200 400 800 1200
SCALE 1" = 400'

EXHIBIT 2

FLOOD BOUNDARY AND FLOODWAY MAP
FLOOD INSURANCE RATE MAP

TOWNSHIP OF BLOOMFIELD
MICHIGAN
OAKLAND COUNTY

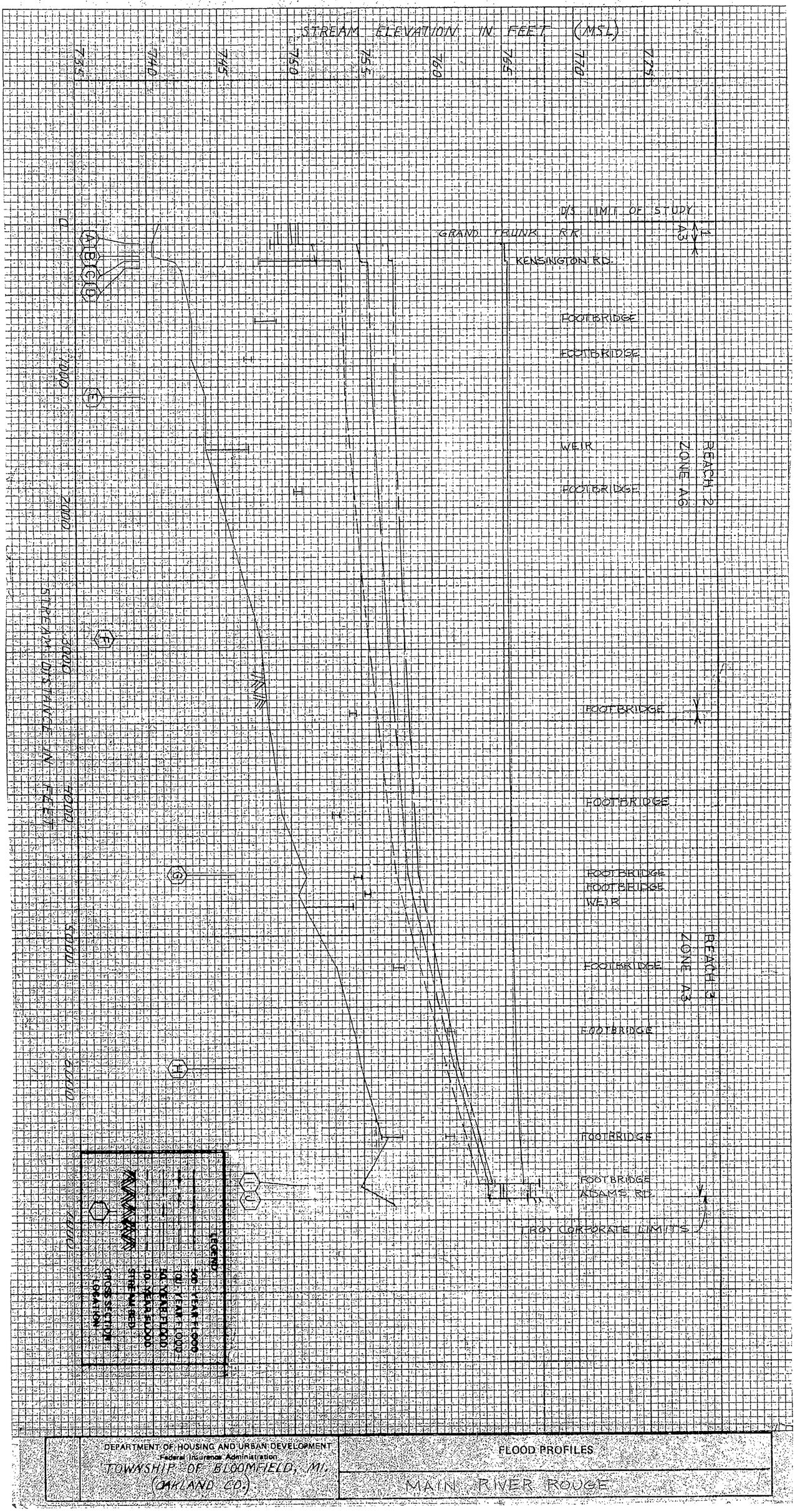
PANEL 1 OF 4

PRELIMINARY
DATE MAY 19 1981
McNAMEE, PORTER AND SEELEY

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

NW 1/4

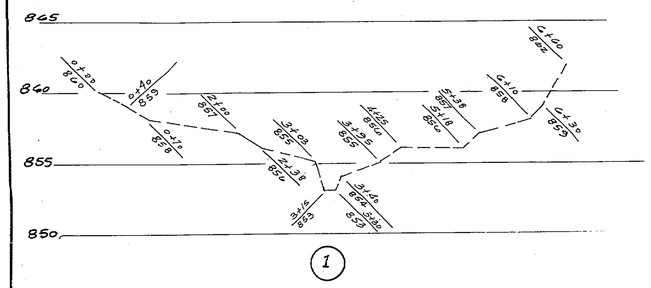
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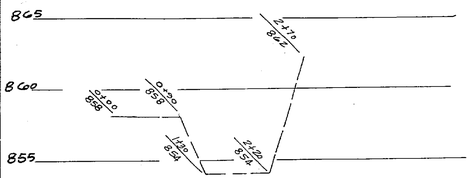


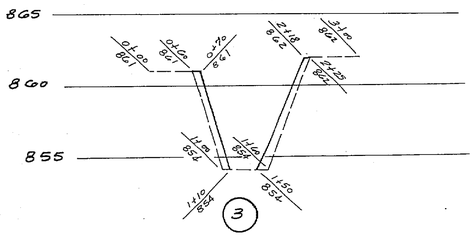
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration
TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

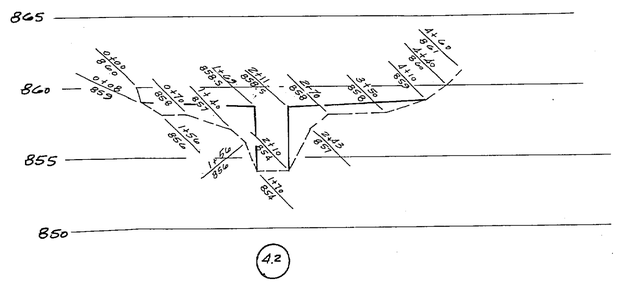
FLOOD PROFILES

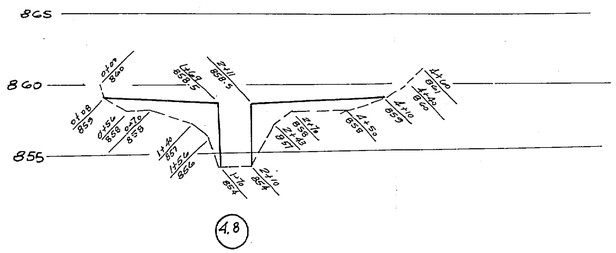
MAIN RIVER ROUGE

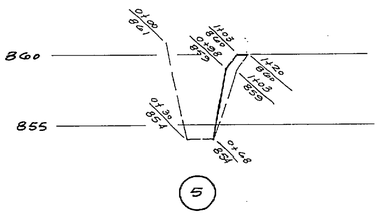


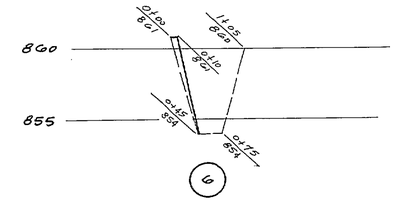


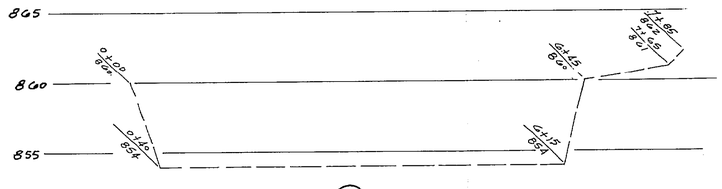


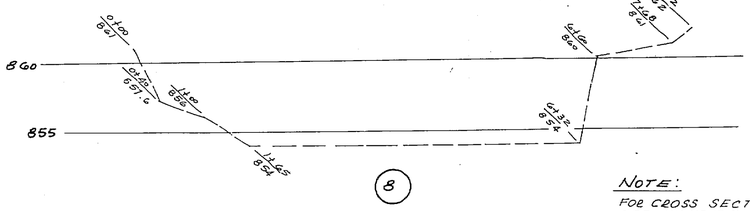




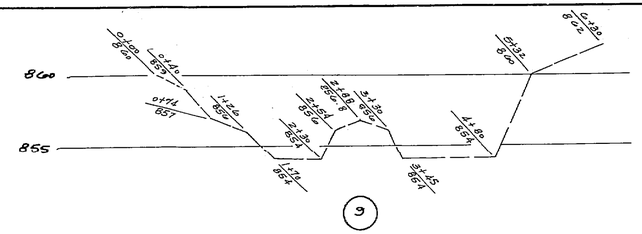


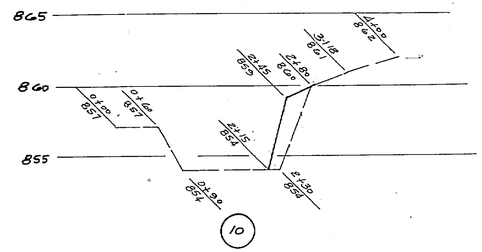


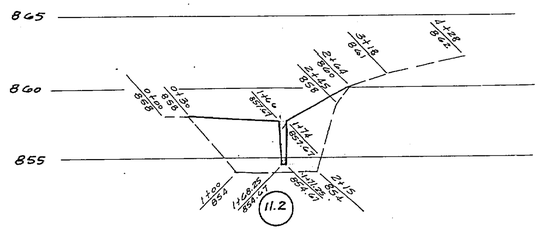


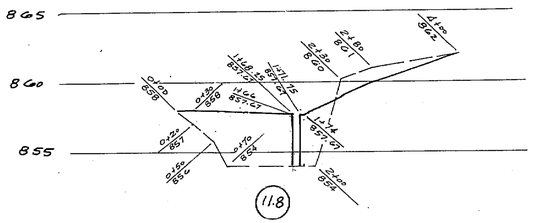


NOTE:
FOR CROSS SECTION LOCATION
SEE EXHIBIT 2









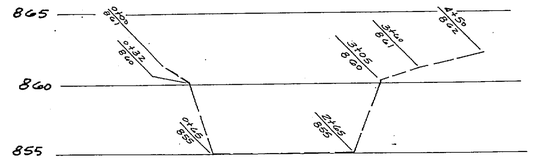


EXHIBIT 3

CROSS SECTIONS

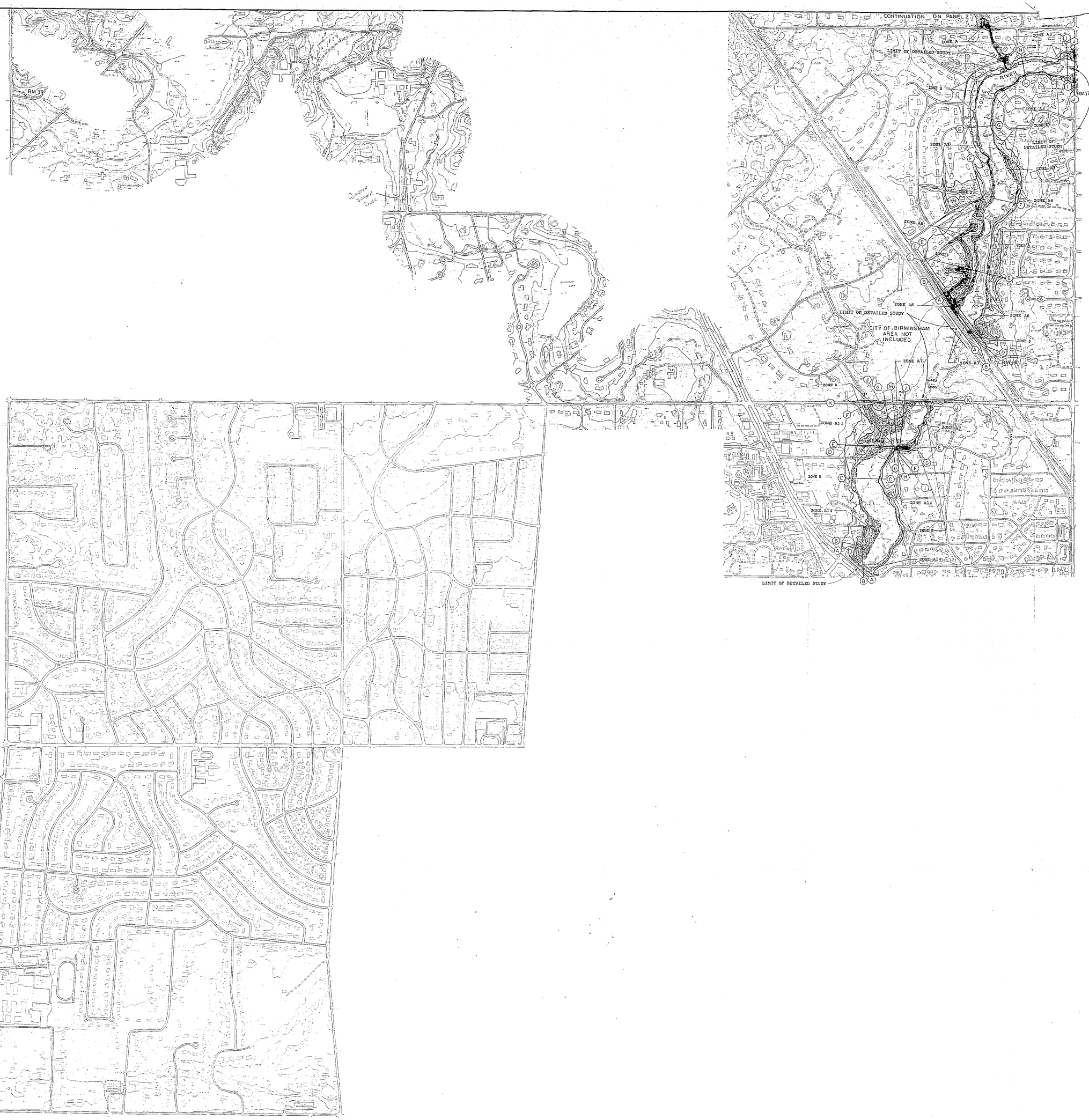
THE HEATHERS
HYDRAULIC EVALUATION
OF THE AMY DRAIN

REVISIONS	DESCRIPTION	INT.

DATE FEB 1987 SCALE H:1"=20' V:1"=100'
DRAWN ATW DESIGNED
CKD. BY SECTION 2
F.B. T. 2 N., R. 10 E.
SHEET 3 OF 5 SHEETS

Giffels-Webster Engineers, Inc.
CONSULTING ENGINEERS, LAND SURVEYORS & PLANNERS
2731 Adams Road • Pontiac, Michigan 48057
Phone: 313/852-3100 or 313/358-2046
FLORIDA MICHIGAN TEXAS

NO. 9726-2


CONTINUATION ON PANEL 2
RM 19
RM 17
RM 15
ROUGE RIVER
ENDICOTT CREEK
LIMIT OF DETAILED STUDY
CITY OF BIRMINGHAM AREA NOT INCLUDED
ZONE A
ZONE A3
ZONE A6
ZONE A7
ZONE A14
ZONE B
ZONE C
KEY TO MAP
500-year Flood Boundary
100-year Flood Boundary
FLOODWAY FRINGE
FLOODWAY
100-year Flood Boundary
500-year Flood Boundary
Elevation Reference Mark
Cross Section Line
Approximate 100-year Flood Boundary
Zone Designation
Base Flood Elevation Line (with elevation in feet)
NOTES TO USER
Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations without regard to economic, legal, or political factors.
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A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by the FIA are:
Zone
Explanation
A
Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods, no base flood elevations shown or FHF's determined.
AO
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AH
Special Flood Hazard Areas inundated by types of 100-year shallow flooding where depths are between 1.0 and 3.0 feet; base flood elevations are shown, but no FHF's are determined.
A1 - A30
Special Flood Hazard Areas inundated by by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHF's.
B
Areas between zones A1-A3- and the limits of the 500-year flood.
N
0 200 400 800 1200
SCALE 1"=400
EXHIBIT 2
FLOOD BOUNDARY AND FLOODWAY MAP
FLOOD INSURANCE RATE MAP
TOWNSHIP OF BLOOMFIELD
MICHIGAN
OAKLAND COUNTY
PANEL 4 OF 4
PRELIMINARY
DATE MAY 19 1981
McNAMEE, PORTER AND SEELEY
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION
SE 1/4

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

REACH 1
ZONE A2

REACH 2
ZONE A5

REACH 3
ZONE A2

SEE SHEET 17

ELEVATION IN FEET (MSL)

785
780
775
770
765
760
755
750

FRANKLIN VILLAGE LIMITS

¼ MILE RD.

FRANKLIN RD.

PRIVATE DRIVE
FOOT BRIDGE

FRANKLIN MILL DAM (REMOVED)

A1 B C D E F G H I J

0 500 1000 1500 2000 2500 3000 4000 5000 6000 7000 8000

STREAM DISTANCE IN FEET

LEGEND
- 500 - YEAR FLOOD
- 100 - YEAR FLOOD
- 50 - YEAR FLOOD
- 10 - YEAR FLOOD
- STREAM BED
- CROSS SECTION LOCATION

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

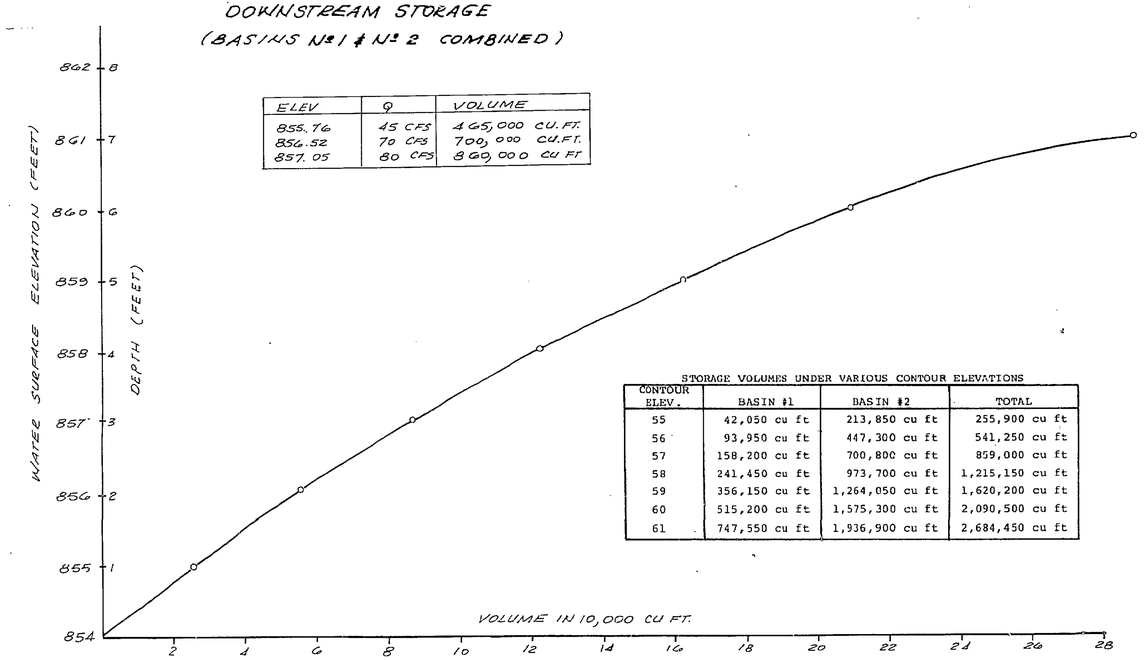
FLOOD PROFILES

FRANKLIN BRANCH - RIVER ROUGE

TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

DOWNSTREAM STORAGE
(BASINS Nº 1 & Nº 2 COMBINED)

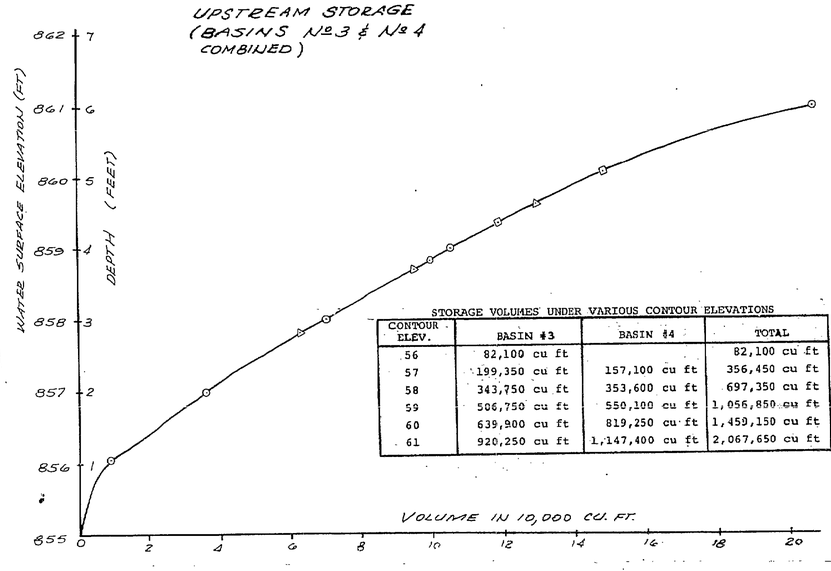
ELEV	Q	VOLUME
855.76	45 CFS	465,000 CU.FT.
854.52	70 CFS	700,000 CU.FT.
857.05	80 CFS	860,000 CU FT



STORAGE VOLUMES UNDER VARIOUS CONTOUR ELEVATIONS

CONTOUR ELEV.	BASIN #1	BASIN #2	TOTAL
55	42,050 cu ft	213,850 cu ft	255,900 cu ft
56	93,950 cu ft	447,300 cu ft	541,250 cu ft
57	158,200 cu ft	700,800 cu ft	859,000 cu ft
58	241,450 cu ft	973,700 cu ft	1,215,150 cu ft
59	356,150 cu ft	1,264,050 cu ft	1,620,200 cu ft
60	515,200 cu ft	1,575,300 cu ft	2,090,500 cu ft
61	747,550 cu ft	1,936,900 cu ft	2,684,450 cu ft

UPSTREAM STORAGE
(BASINS Nº 3 & Nº 4 COMBINED)



STORAGE VOLUMES UNDER VARIOUS CONTOUR ELEVATIONS

CONTOUR ELEV.	BASIN #3	BASIN #4	TOTAL
56	82,100 cu ft		82,100 cu ft
57	199,350 cu ft	157,100 cu ft	356,450 cu ft
58	343,750 cu ft	353,600 cu ft	697,350 cu ft
59	506,750 cu ft	550,100 cu ft	1,056,850 cu ft
60	639,900 cu ft	819,250 cu ft	1,459,150 cu ft
61	920,250 cu ft	1,147,400 cu ft	2,067,650 cu ft

EXHIBIT 5

VOLUME VS. DEPTH CURVES FOR DETENTION BASINS

THE HEATHERS
HYDRAULIC EVALUATION
OF THE AMY DRAIN

REVISIONS	DESCRIPTION	INT.

DATE FEB 1987 SCALE
DRAWN ATW DESIGNED D.C
CKD. BY SECTION 2
F.B. T. 2 N., R. 10 E.
SHEET 5 OF 5 SHEETS

Giffels-Webster Engineers, Inc.
CONSULTING ENGINEERS, LAND SURVEYORS & PLANNERS
2731 Adams Road • Pontiac, Michigan 48057
Phone: 313/852-3100 or 313/358-2266
FLORIDA MICHIGAN TEXAS

FEB 24 1987

NO. 9726-2

CONTINUATION ON PANEL 1

CONTINUATION ON PANEL 1

ZONE A

ZONE A1

LIMIT OF DETAILED STUDY

LIMIT OF APPROXIMATE STUDY

MEADOW LAKE DRAIN

FRANKLIN BRANCH-ROUGE

GILBERT LAKE

RM 12

RM 15

SW 1/4

KEY TO MAP

100-year Flood Boundary

100-year Flood Boundary

FLOODWAY FRINGE

FLOODWAY

100-year Flood Boundary

500-year Flood Boundary

Elevation Reference Mark RM7

Cross Section Line

Approximate 100-year Flood Boundary

Zone Designation Zone A

Base Flood Elevation Line (with elevation in feet) 708

NOTES TO USER

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A1 - A30	Special Flood Hazard Areas inundated by by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHF's.
B	Areas between zones A1-A3- and the limits of the 500-year flood.

N

0 200 400 600 1200

SCALE 1:400

EXHIBIT 2

FLOOD BOUNDARY AND FLOODWAY MAP
FLOOD INSURANCE RATE MAP

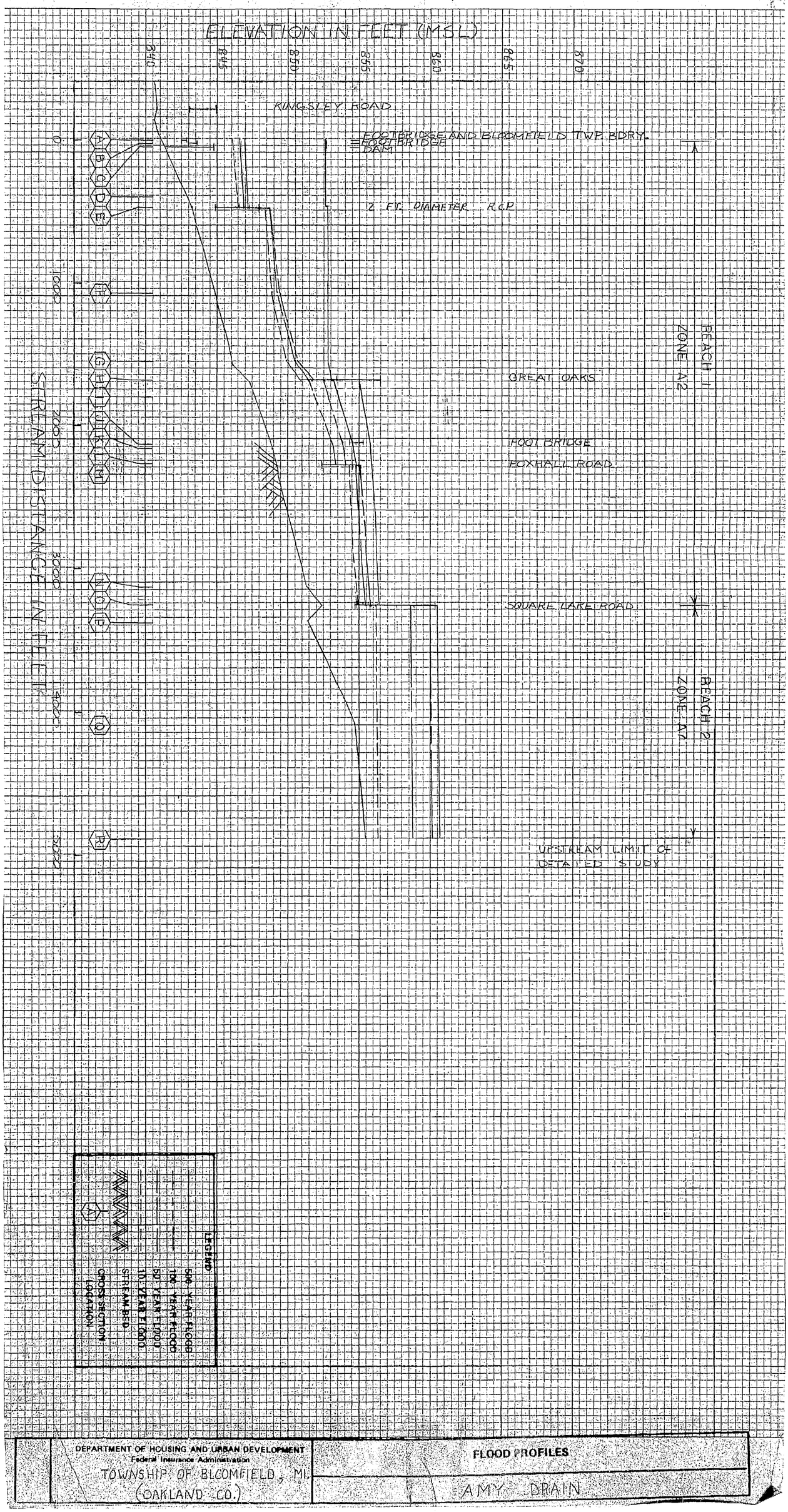
TOWNSHIP OF BLOOMFIELD
MICHIGAN
OAKLAND COUNTY

PANEL 3 OF 4

PRELIMINARY
DATE MAY 19 1981
McNAMEE, PORTER AND SEELEY

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

PRINTED IN U.S.A.

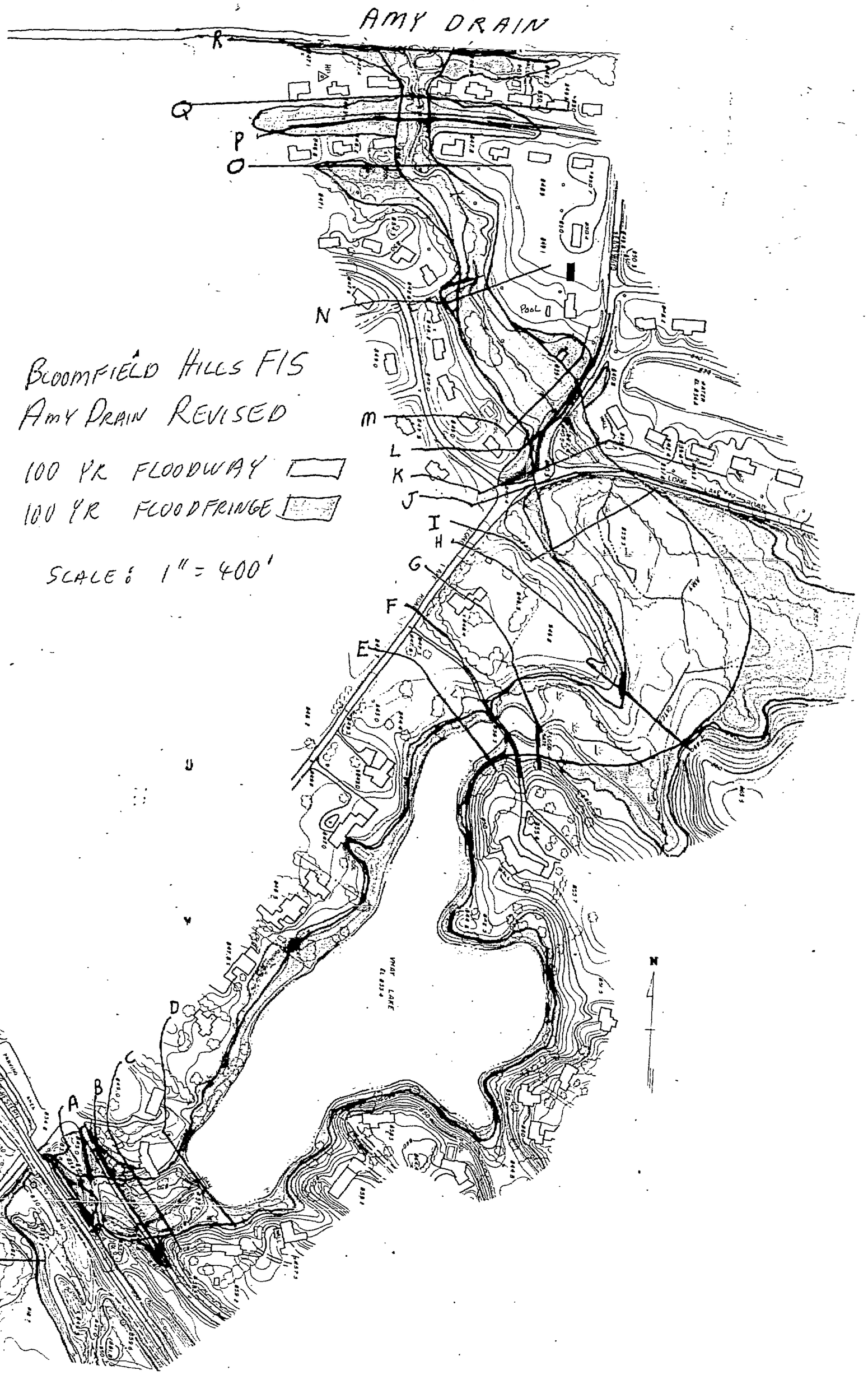


DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

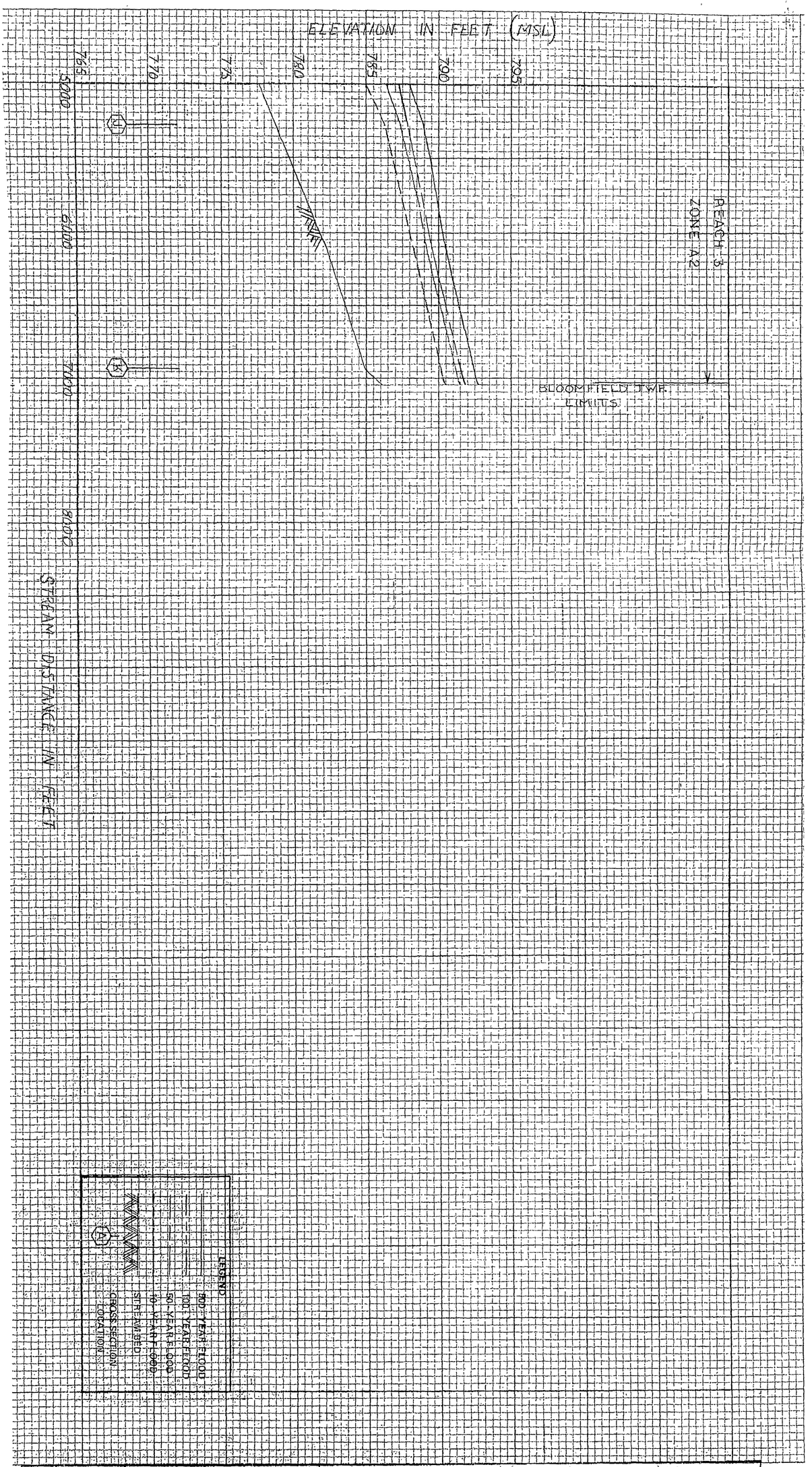
TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

FLOOD PROFILES

AMY DRAIN


AMY DRAIN
R
Q
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
Pool
BLOOMFIELD HILLS FIS
AMY DRAIN REVISED
100 YR FLOODWAY
100 YR FLOODFRINGE
SCALE: 1" = 400'

"PERFECT" CROSS SECTION
10 X 10 = ONE INCH
EUGENE DIETZGEN CO



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

FLOOD PROFILES
FRANKLIN BRANCH - RIVER ROUGE

PRINTED IN U.S.A.

ELEVATION IN FEET (MSL)

840 845 850 855 860 865 870 875

CONFLUENCE WITH MURPHY & STONYCROFT

ROAD BRIDGE

CULVERT

GRAND TRUNK R.R.

KENSINGTON ROAD

SUBDIVISION ROAD

ROUTED HILLS CITY LIMIT

REACH 1

ZONE A2

OUTFALL: CONCRETE PIPE

UPSTREAM LIMIT OF DETAILED STUDY

A

B

0 1000

STREAM DISTANCE IN FEET

LEGEND

500 YEAR FLOOD

100 YEAR FLOOD

50 YEAR FLOOD

10 YEAR FLOOD

STREAM BED

CROSS SECTION LOCATION

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

FLOOD PROFILES

HAMLIN DRAIN

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

PRINTED IN U.S.A.

ELEVATION IN FEET (MSL)

840 845 850 855 860 865 870 875 880

CONFLUENCE W/ STONYCROFT & HAMLIN

ORCHARD RD. FOOTBRIDGE

DRIVEWAY CULVERT

PRIVATE DRIVE

WOODWARD

MATCH TO SHEET 2

0 1000 2000 3000 4000 5000 6000 7000 8000

STREAM DISTANCE IN FEET

LEGEND

500-YEAR FLOOD

100-YEAR FLOOD

50-YEAR FLOOD

10-YEAR FLOOD

STREAMBED

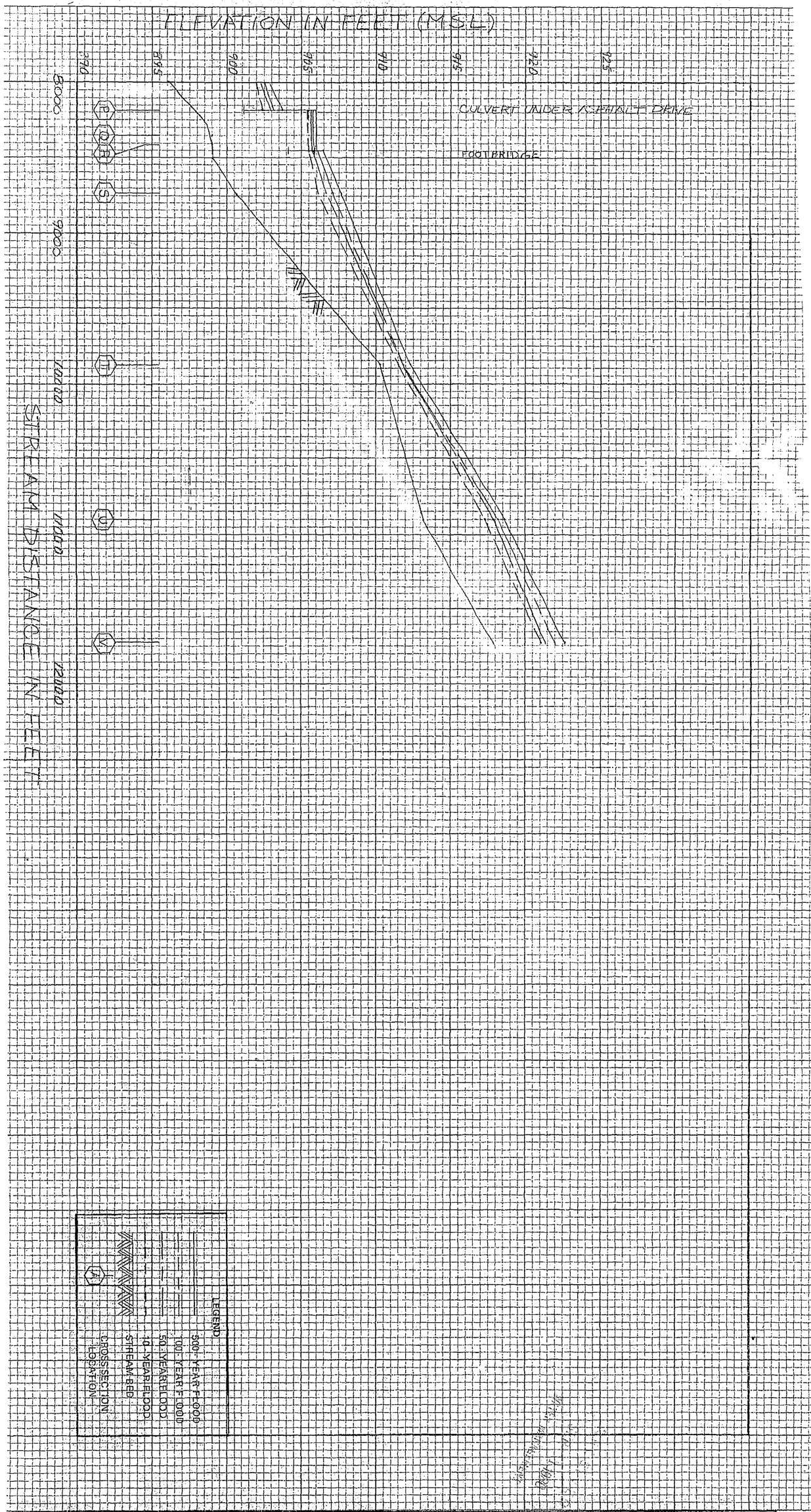
CROSS SECTION LOCATION

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration
CITY OF BLOOMFIELD HILLS
(OAKLAND CO.)

FLOOD PROFILES

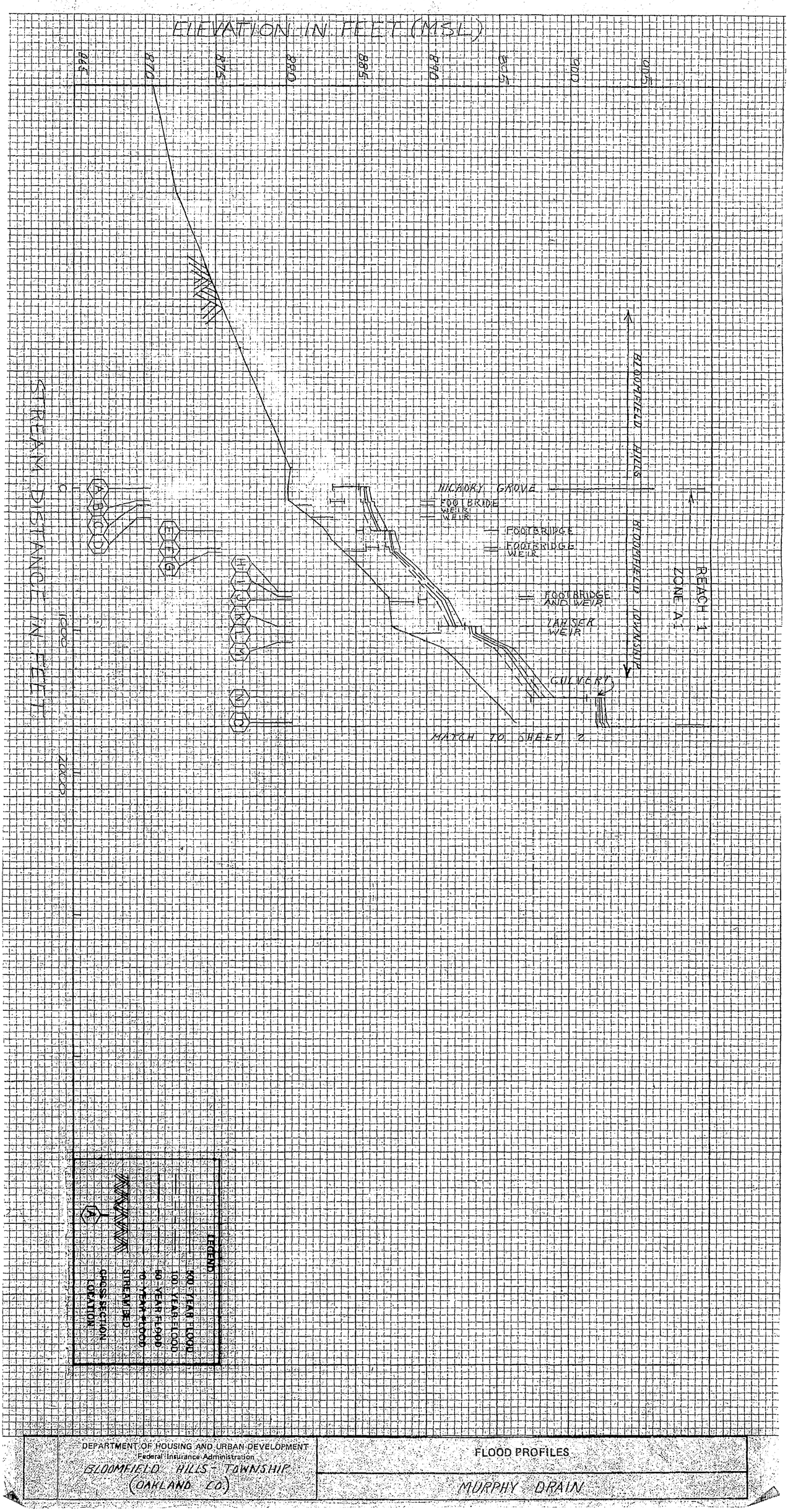
MURPHY DRAIN

PRINTED IN U.S.A.



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Federal Insurance Administration TOWNSHIP OF BLOOMFIELD (OAKLAND CO.)	FLOOD PROFILES MURPHY DRAIN

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



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

FLOOD PROFILES

MURPHY DRAIN

REACH 1

ZONE A1

CULVERT UNDER TOWNHALL AVENUE

FOOTBRIDGE

ELEVATION IN FEET (MSL)

925

920

915

910

905

900

895

890

P Q R S T U V

7000 3000 4000 5000 6000

STREAM DISTANCE IN FEET

LEGEND

500-YEAR FLOOD

100-YEAR FLOOD

50-YEAR FLOOD

10-YEAR FLOOD

STREAM BED

CROSS SECTION LOCATION

A

FLOOD PROFILES

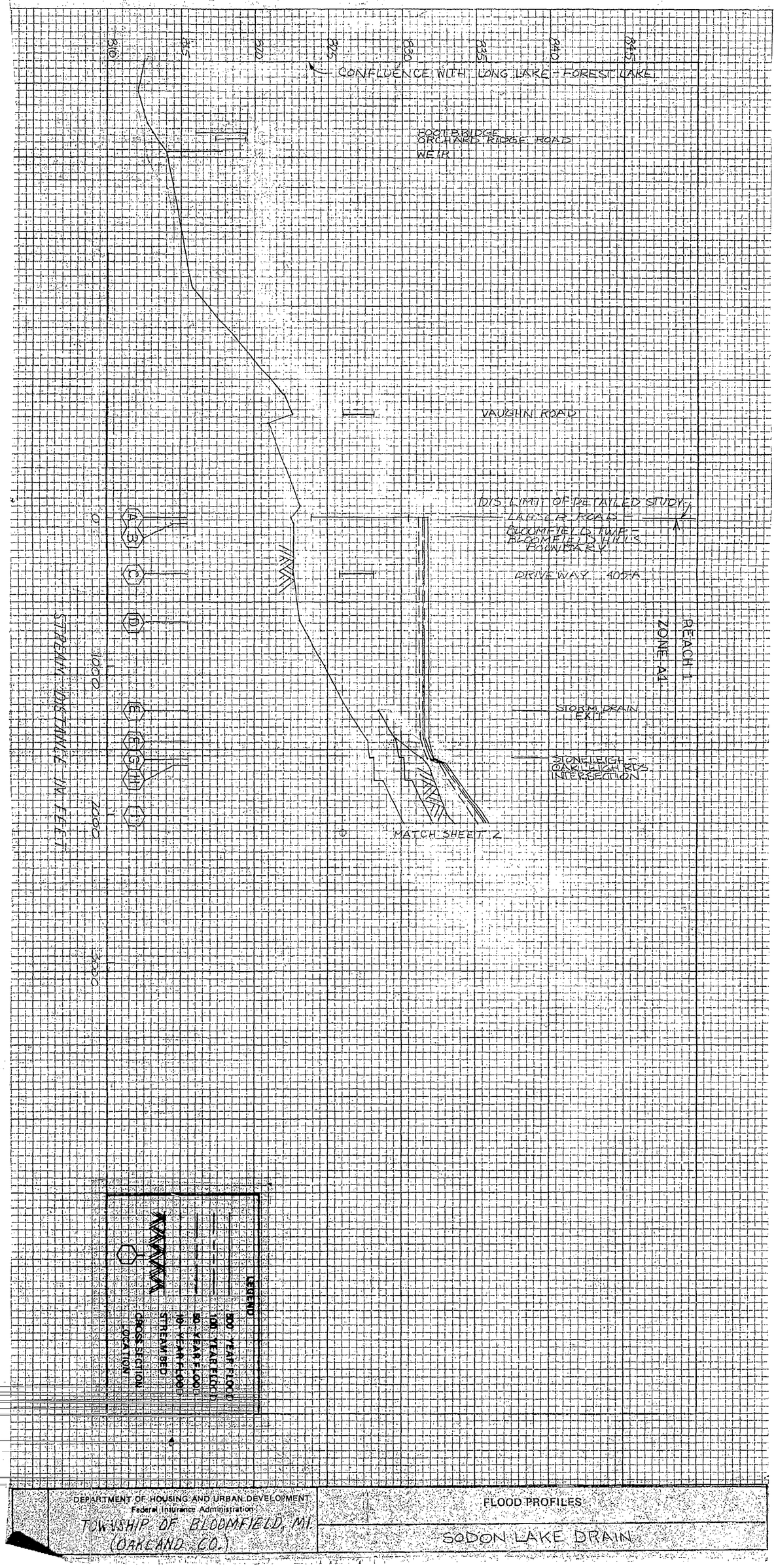
MURPHY DRAIN

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

TOWNSHIP OF BLOOMFIELD
(OAKLAND CO.)

PRINTED IN U.S.A.

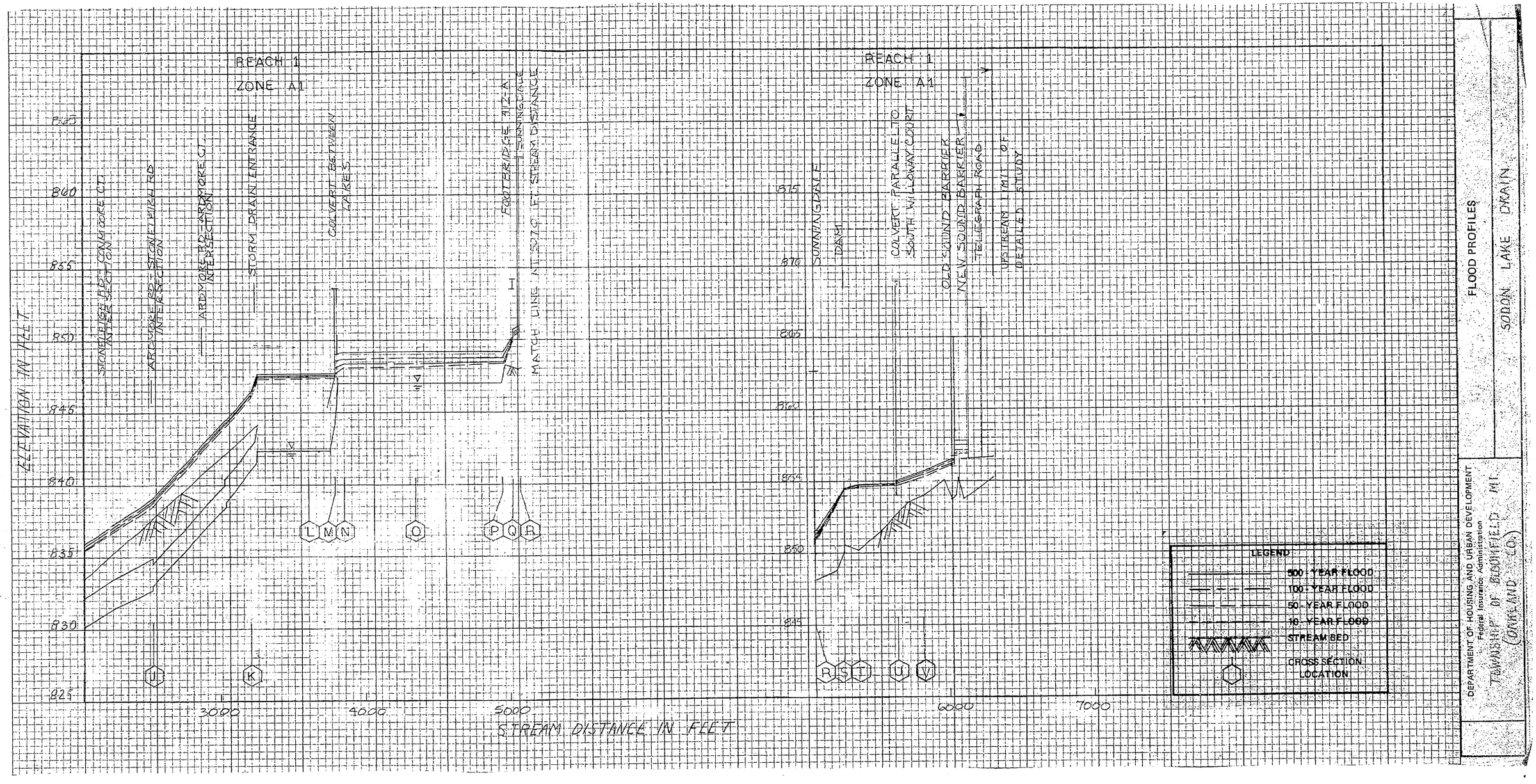
"PERFECT" CROSS SECTION
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EUGENE DIETZGEN CO.



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

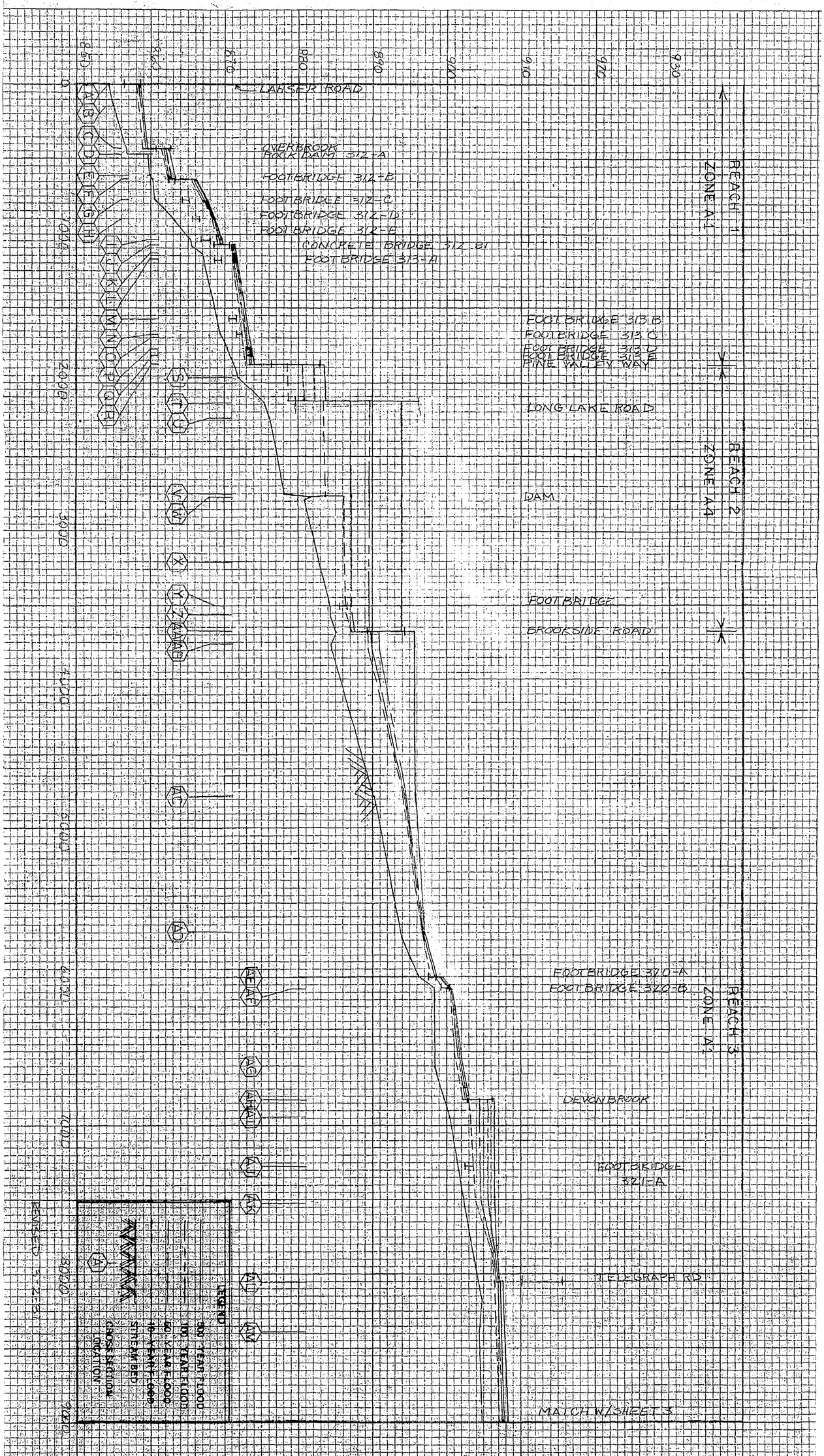
FLOOD PROFILES

SODON LAKE DRAIN



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PRINTED IN U.S.A.

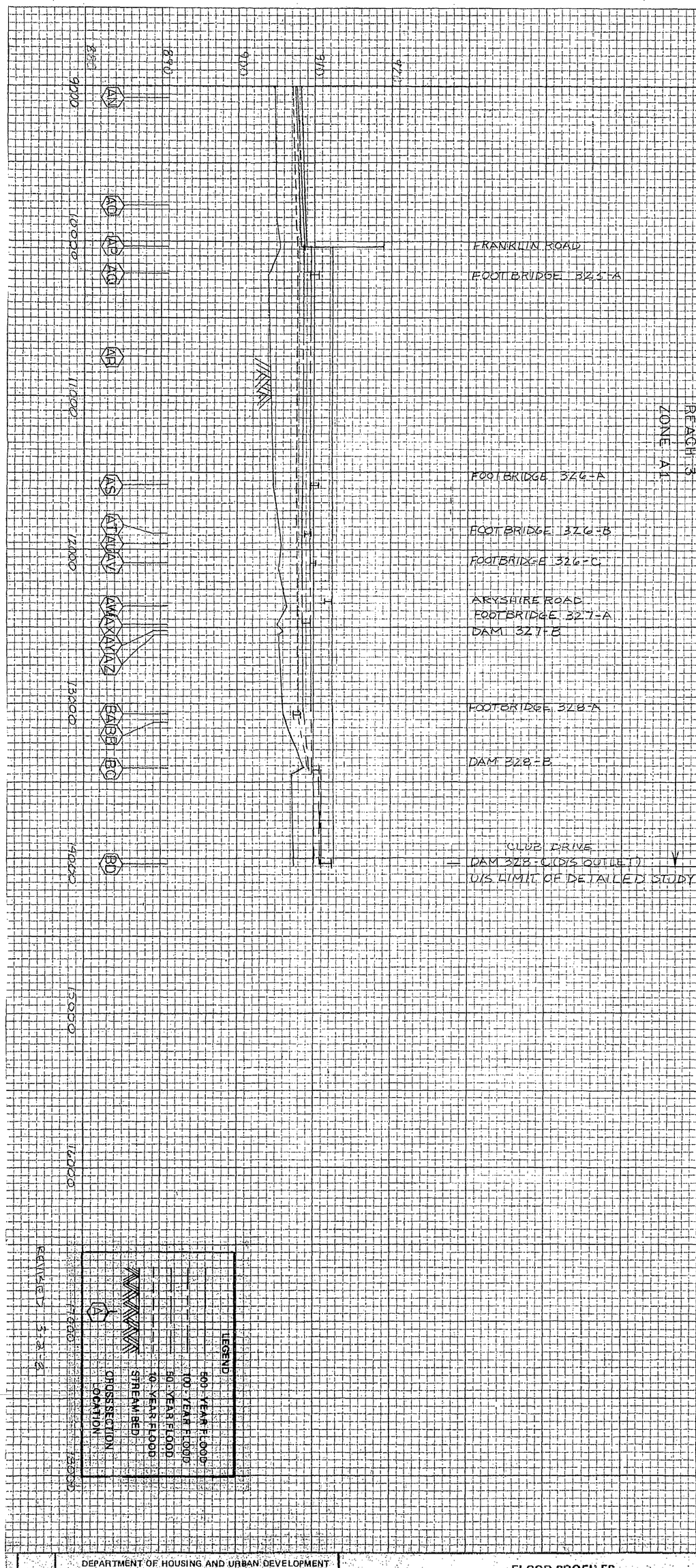


DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration
TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

FLOOD PROFILES

LONG LAKE - FOREST LAKE

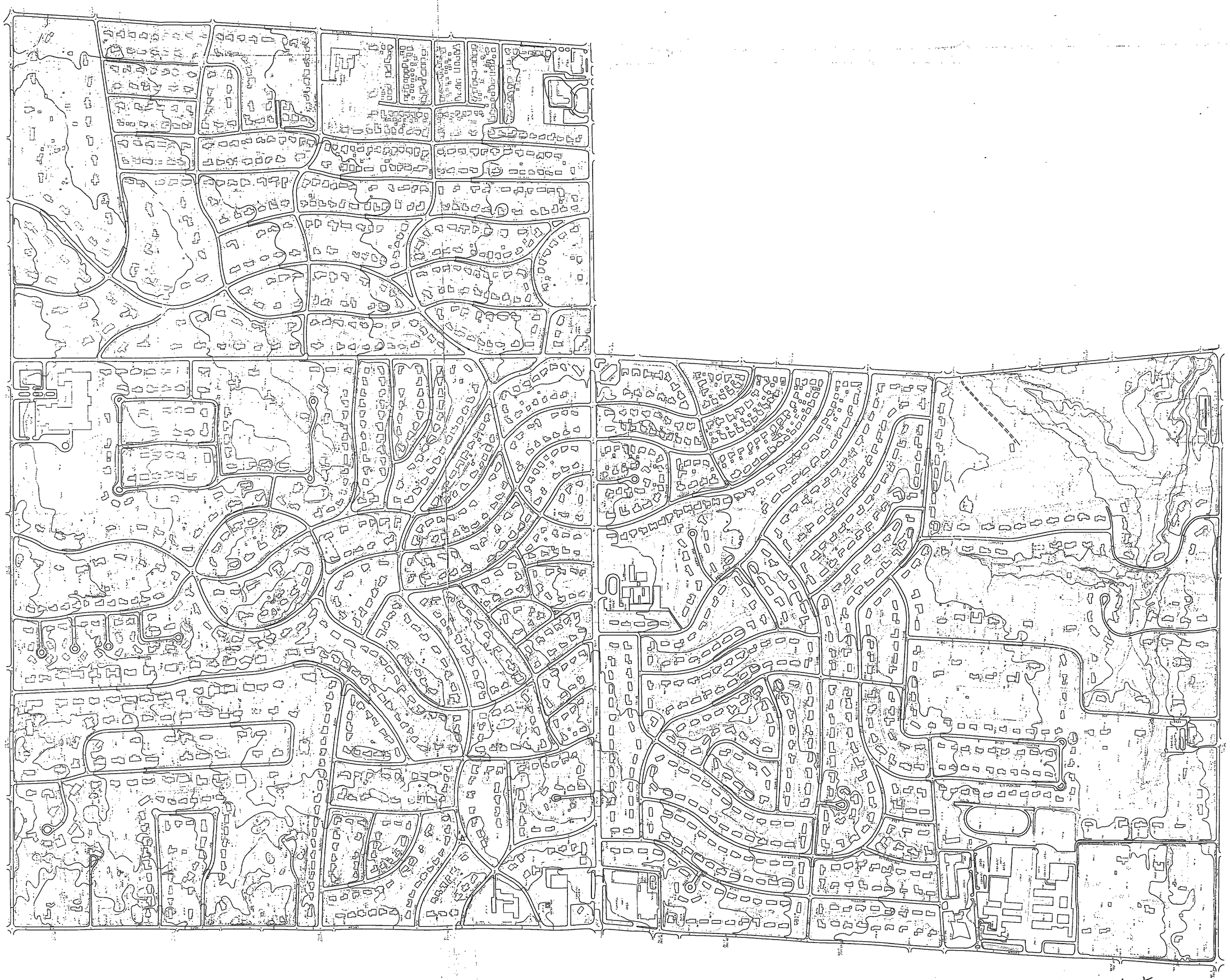
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DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration
TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

FLOOD PROFILES

LONG LAKE - FOREST LAKE



Bloomfield Twp.

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: HAMLIN DRAIN

4) DOCUMENT TYPE: 10 YR

00BREAK00

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


T1       JOB HUD-FIA H-4705  T06
T2       FLOOD INSURANCE STUDIES
T3       10 YEAR FLOW

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       -1.         2.         0.         0.  0.000000       0.00      -1.0          0.    847.800      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
```

*PROF 2

CCHV= .100 CEHV= .300
*SECNO 500.100

SECNO	DEPTH	CWSEL	CRIWS	WS LK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	AL B	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	IT IAL	IDC	ICONT	CORAR	TOPWID	ENDST
	** CONFLUENCE WITH MURPHY AND STONYCROFT DRAINS								
500.10	3.80	847.80	0.00	847.80	847.80	.00	0.00	0.00	847.40
55.	3.	52.	0.	29.	99.	0.	0.	0.	849.10
0.00	.11	.52	0.00	.095	.050	.095	0.000	844.00	156.00
.000136	0.	0.	0.	0	0	0	0.00	116.78	272.78

CCHV= .300 CEHV= .500
*SECNO 500.200

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 608.0 739.0 TYPE= 1 TARGET= 131.000

500.20	.93	851.63	851.63	0.00	851.93	.30	.24	.15	852.00
55.	0.	55.	0.	0.	13.	0.	1.	1.	852.20
.03	0.00	4.36	0.00	095	.050	.095	.050	850.70	646.53
.045685	500.	500.	500.	20	11	0	0.00	22.06	668.59

CCHV= .400 CEHV= .800
*SECNO 500.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 853.50 ELREA= 853.50

** D/S FACE CONCRETE BRIDGE AND CULVERT

500.30	1.99	852.19	0.00	.00	852.21	.03	.18	.11	851.50
55.	0.	55.	0.	0.	42.	0.	1.	1.	851.70
.04	0.00	1.29	0.00	.095	.050	.095	.050	850.20	642.00
.001203	50.	50.	50.	4	0	0	0.00	30.00	672.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.20	2.90	50.00	2.50	0.00	4.91	0.00	850.20	850.20

*SECNO 500.400
3280 CROSS SECTION 500.40 EXTENDED 1.73 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
854.53	852.21	0.00	7.	49.	5.	4.	852.00	853.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 855.00 ELREA= 855.00

500.40	3.82	854.02	0.00	0.00	854.03	.00	1.81	0.00	851.50
55.	0.	55.	0.	0.	98.	0.	1.	1.	851.70
.05	0.00	.56	0.00	.095	.050	.095	.050	850.20	642.00
.000075	17.	17.	17.	0	0	4	0.00	30.00	672.00

CCHV= .300 CEHV= .500
*SECNO 500.500
3280 CROSS SECTION 500.50 EXTENDED 1.45 FEET

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

3470 ENCROACHMENT STATIONS= 658.0 663.0 TYPE= 1 TARGET= 5.000

** D/S FACE GRAND TRUNK RAILROAD CULVERT

500.50	3.55	853.95	0.00	0.00	854.10	.15	.00	.07	100000.00
55.	0.	55.	0.	0.	18.	0.	1.	1.	100000.00
.05	0.00	3.10	0.00	.095	.050	.095	.050	850.40	658.00
.006505	15.	15.	15.	2	0	0	0.00	5.00	663.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	ROLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	7.10	2.90	150.00	3.00	0.00	7.10	0.00	851.97	849.80

*SECNO 500.600
3280 CROSS SECTION 500.60 EXTENDED 4.54 FEET

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860.57	855.67	0.00	0.	55.	7.	4.	853.30	873.40

```
3470 ENCROACHMENT STATIONS=      658.0      663.0  TYPE=      1  TARGET=         5.000
   500.60      8.64    860.54      0.00      0.00    860.57       .03      6.47      0.00100000.00
      55.        0.        55.        0.        0.       43.        0.        1.         1. 100000.00
      .09      0.00      1.27      0.00      .095      .050      .095      .050    851.90    658.00
  .000758      167.      167.      167.         2         0         0      0.00      5.00    663.00

*SECNO 501.800
3280 CROSS SECTION    501.80 EXTENDED       .38 FEET


3470 ENCROACHMENT STATIONS=      313.0      437.0  TYPE=      1  TARGET=       124.000
   501.80      6.98    860.58      0.00      0.00    860.58       .00       .00       .01    854.90
      240.        0.       240.        0.        0.       777.        0.        2.         1. 100000.00
      .18      0.00       .31      0.00      .095      .050      .095      .050    853.60    313.00
  .000010      100.      100.      100.         2         0         0      0.00    124.00    437.00

*SECNO 501.900

        ** D/S FACE CULVERT UNDER DRIVE TO SUBDIVISION

   501.90      7.18    860.58      0.00      0.00    860.58       .00       .00       .00    853.40
      240.        87.       40.       113.       68.       72.       455.        7.         2.    853.40
      .44        .24       .55       .25       .095      .050      .095      .050    853.40     72.00
  .000025      280.      280.      280.         2         0         0      0.00    174.68    246.68

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        .09       2.90     100.00       3.00       0.00       7.10       0.00     853.40     853.40

*SECNO 501.950
PRESSURE FLOW

 EGPRS       EGLWC        H3         QWEIR       QPR        BAREA    TRAPEZOID       ELLC       ELTRD
                                                                        AREA
   862.18     860.88       0.00          0.       240.          7.         9.       856.40     867.80


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       867.80 ELREA=       867.80

   501.95      6.85    861.99      0.00      0.00    862.18       .19      1.60      0.00    855.14
      240.        0.       240.        0.        0.       68.        0.        8.         2.    855.14
      .45      0.00      3.50      0.00      .095      .050      .095      .050    855.14    150.00
  .001069       90.       90.       90.         2         0         0      0.00     10.00    160.00

LCHV=     .100 CEHV=     .300
*SECNO 502.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITIAL     IDC       ICONT     CORAR     TOPWID      ENDST
```

502.00	3.28	862.42	0.00	0.00	862.44	.01	.24	.02	859.14
240.	85.	53.	103.	17.	33.	152.	10.	3.	859.14
.54	.72	1.61	.68	.095	.050	.095	.050	859.14	99.69
.000605	305.	305.	305.	2	0	0	0.00	128.98	228.67

*SECNO 502.200

502.20	2.37	862.51	0.00	0.00	862.55	.04	.11	.01	860.14
240.	86.	62.	92.	74.	24.	91.	10.	3.	860.14
.56	1.16	2.61	1.01	.095	.050	.095	.050	860.14	106.18
.002450	100.	100.	100.	0	0	0	0.00	118.27	224.45

*SECNO 502.500

502.50	1.75	862.89	0.00	0.00	863.00	.11	.43	.02	861.14
240.	90.	74.	76.	49.	18.	53.	11.	3.	861.14
.57	1.84	4.21	1.45	.095	.050	.095	.050	861.14	110.51
.009467	100.	100.	100.	2	0	0	0.00	111.14	221.64

*SECNO 502.700

502.70	1.81	864.31	864.22	0.00	864.49	.18	1.47	.02	864.10
240.	0.	240.	0.	0.	70.	0.	11.	3.	863.90
.58	.55	3.43	.86	.095	.050	.095	.050	862.50	47.96
.025717	100.	100.	100.	13	6	0	0.00	117.35	165.30

*SECNO 502.800

502.80	2.06	864.93	0.00	0.00	865.02	.09	.52	.01	864.47
240.	0.	239.	1.	1.	99.	1.	11.	4.	864.27
.59	.52	2.41	.66	.095	.050	.095	.050	862.87	46.66
.007893	40.	40.	40.	1	0	0	0.00	120.10	166.77

*SECNO 502.850

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	INITIAL	IDC	ICONT	CORAR	TOPWID	ENDST
502.85	2.05	865.10	0.00	0.00	865.19	.09	.17	.00	864.65
240.	0.	239.	1.	0.	97.	1.	11.	4.	864.45
.59	.53	2.47	.68	.095	.050	.095	.050	863.05	46.78
.008637	20.	20.	20.	2	0	0	0.00	119.86	166.63

*SECNO 502.900

502.90	2.04	865.27	0.00	0.00	865.37	.10	.18	.00	864.83
240.	0.	239.	1.	0.	95.	1.	11.	4.	864.63
.59	.53	2.51	.68	.095	.050	.095	.050	863.23	46.84
.009097	20.	20.	20.	0	0	0	0.00	119.72	166.56

*SECNO 503.000

503.00	2.03	865.63	0.00	0.00	865.73	.10	.36	.00	865.20
240.	0.	239.	1.	0.	95.	1.	11.	4.	865.00
.60	.53	2.51	.68	.095	.050	.095	.050	863.60	46.84
.009072	40.	40.	40.	1	0	0	0.00	119.73	166.57

*SECNO 503.500

503.50	2.21	866.31	0.00	0.00	866.38	.07	.64	.00	865.70
240.	0.	238.	1.	1.	115.	2.	11.	4.	865.50
.61	.48	2.07	.59	.095	.050	.095	.050	864.10	45.96
.004788	100.	100.	100.	2	0	0	0.00	121.59	167.55

*SECNO 503.600

503.60	2.19	867.29	0.00	0.00	867.36	.07	.98	.00	866.70
240.	0.	239.	1.	1.	114.	2.	12.	5.	866.50
.64	.49	2.09	.59	.095	.050	.095	.050	865.10	46.02
.004986	200.	200.	200.	2	0	0	0.00	121.46	167.49

*SECNO 504.000

3301 HV CHANGED MORE THAN HVINS

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

504.00	3.14	869.34	869.34	0.00	870.43	1.09	2.30	.31	874.00
240.	0.	240.	0.	0.	29.	0.	12.	5.	874.00
.64	0.00	8.36	0.00	.095	.050	.095	.050	866.20	110.86
.034450	220.	220.	220.	3	11	0	0.00	13.27	124.14

*SECNO 504.100

3301 HV CHANGED MORE THAN HVINS

504.10	5.50	870.80	0.00	0.00	871.04	.24	.53	.08	874.00
240.	0.	240.	0.	0.	61.	0.	12.	5.	874.00
.65	0.00	3.93	0.00	.095	.050	.095	.050	865.30	108.00
.005047	50.	50.	50.	2	0	0	0.00	20.00	128.00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: HAMLIN DRAIN

4) DOCUMENT TYPE: 50 YR

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


T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      50 YEAR FLOW

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       3.        0.        0.   0.000000      0.00     -1.0       0.    848.200    0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=     .100 CEHV=     .300
*SECNO 500.100
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XN        XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


         ** CONFLUENCE WITH MURPHY AND STANYCROFT DRAINS

   500.10      4.20    848.20      0.00    848.20    848.20       .00      0.00      0.00    847.40
     60.         7.        53.        0.       57.      121.        0.        0.        0.     849.10
     0.00      .12       .44       0.00      .095      .050      .095     0.000    844.00    148.00
  .000078        0.        0.        0.         0         0         0      0.00    127.00    275.00

CCHV=     .300 CEHV=     .500
*SECNO 500.200
    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      XN        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=      608.0      739.0  TYPE=      1  TARGET=      131.000
   500.20       .98    851.68    851.68      0.00    851.98       .30       .14       .15    852.00
     60.         0.        60.        0.        0.       14.        0.        1.        1.     852.20
      .03      0.00      4.42      0.00      .095      .050      .095      .050    850.70    646.00
  .044556      500.      500.      500.        20        17         0      0.00     22.85    668.85


CCHV=     .400 CEHV=     .800
*SECNO 500.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       853.50 ELREA=       853.50


         ** D/S FACE CONCRETE BRIDGE AND CULVERT

   500.30      2.04    852.24      0.00      0.00    852.27       .03       .18       .11    851.50
     60.         0.        60.        0.        0.       44.        0.        1.        1.     851.70
      .04      0.00      1.36      0.00      .095      .050      .095      .050    850.20    642.00
  .001257        50.       50.       50.         4         0         0      0.00     30.00    672.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        1.20        2.90       50.00        2.50        0.00        4.91        0.00      850.20      850.20
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*SECNO 500.400
3280 CROSS SECTION 500.40 EXTENDED 1.78 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
855.03	852.27	0.00	11.	49.	5.	4.	852.00	853.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 855.00 ELREA= 855.00

500.40	3.88	854.08	0.00	.00	854.08	.01	1.81	0.00	851.50
60.	0.	60.	0.	0.	99.	0.	1.	1.	851.70
.05	0.00	.60	0.00	.095	.050	.095	.050	850.20	642.00
.000084	17.	17.	17.	0	0	5	0.00	30.00	672.00

CCHV= .300 CEHV= .500
*SECNO 500.500
3280 CROSS SECTION 500.50 EXTENDED 1.50 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	XN	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 658.0 663.0 TYPE= 1 TARGET= 5.000

** D/S FACE GRAND TRUNK RAILROAD CULVERT

500.50	3.60	854.00	0.00	0.00	854.17	.17	.00	.08	100000.00
60.	0.	60.	0.	0.	18.	0.	1.	1.	100000.00
.05	0.00	3.34	0.00	.095	.050	.095	.050	850.40	658.00
.007508	15.	15.	15.	2	0	0	0.00	5.00	663.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	7.10	2.90	150.00	3.00	0.00	7.10	0.00	851.97	849.80

*SECNO 500.600
3280 CROSS SECTION 500.60 EXTENDED 5.85 FEET

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
861.87	855.73	0.00	0.	60.	7.	4.	853.30	873.40

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3470 ENCROACHMENT STATIONS=      658.0      663.0  TYPE=      1  TARGET=        5.000
   500.60      9.95   861.85       0.00       0.00   861.87       .02       7.70       0.00100000.00
     60.         0.     60.          0.         0.     50.          0.         1.          1. 100000.00
     .09       0.00     1.21       0.00       .095     .050       .095       .050    851.90    658.00
 .000655       167.     167.       167.          2        0          0       0.00      5.00    663.00

*SECND 501.800
3280 CROSS SECTION    501.80 EXTENDED       1.68 FEET


3470 ENCROACHMENT STATIONS=      313.0      437.0  TYPE=      1  TARGET=      124.000
   501.80      8.28   861.88       0.00       0.00   861.88       .00        .00        .01    854.90
    360.         0.    360.          0.         0.    938.          0.         2.          1. 100000.00
     .16       0.00      .38       0.00       .095     .050       .095       .050    853.60    313.00
 .000013       100.     100.       100.          2        0          0       0.00     124.00    437.00

*SECND 501.900

        ** D/S FACE CULVERT UNDER DRIVE TO SUBDIVISION

   501.90      8.48   861.88       0.00       0.00   861.88        .00        .01        .00    853.40
    360.       133.     56.        171.       75.     85.        572.         9.         2.     853.40
     .38        .28      .67        .30       .095     .050       .095       .050    853.40     62.78
 .000029       280.     280.       280.          2        0          0       0.00     189.90    252.68
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SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        .09       2.90      100.00       3.00       0.00       7.10       0.00     853.40     853.40

*SECND 501.950
PRESSURE FLOW

 EGPRS       EGLWC       H3        QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                     AREA
   865.47     862.32       0.00          0.       360.          7.          9.      856.40     867.80


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       867.80 ELREA=       867.80

   501.95      10.14   865.28       0.00       0.00   865.47        .20       3.59       0.00    855.14
    360.         0.    360.          0.         0.    101.          0.        10.          2.     855.14
     .39       0.00      3.55       0.00       .095     .050       .095       .050    855.14    150.00
 .000650       90.      90.        90.           2        0          0       0.00     10.00     160.00

CCHV=     .100 CEHV=     .300
*SECND 502.000
   SECNO      DEPTH      CWSEL      CRIWS      WSLLK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALCB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      IT IAL     IDC        ICONT      CORAR      TOPWID      ENDST
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502.00	6.41	865.55	0.00	0.00	865.55	.00	.06	.02	859.14
360.	129.	62.	169.	109.	64.	389.	13.	3.	859.14
.55	.42	.97	.43	.095	.050	.095	.050	859.14	77.50
.000089	305.	305.	305.	2	0	0	0.00	165.60	243.11

*SECNO 502.200

502.20	5.42	865.56	0.00	0.00	865.56	.01	.01	.00	860.14
360.	128.	66.	167.	241.	54.	309.	15.	3.	860.14
.60	.53	1.21	.54	.095	.050	.095	.050	860.14	84.53
.000175	100.	100.	100.	2	0	0	0.00	154.01	238.54

*SECNO 502.500

502.50	4.44	865.58	0.00	0.00	865.59	.01	.03	.00	861.14
360.	127.	71.	163.	180.	44.	234.	16.	4.	861.14
.63	.70	1.59	.70	.095	.050	.095	.050	861.14	91.53
.000395	100.	100.	100.	0	0	0	0.00	142.45	233.98

*SECNO 502.700

502.70	3.12	865.62	0.00	0.00	865.66	.04	.06	.01	864.10
360.	3.	353.	4.	6.	219.	8.	17.	4.	863.90
.65	.45	1.62	.49	.095	.050	.095	.050	862.50	41.43
.001242	100.	100.	100.	1	0	0	0.00	131.25	172.67

*SECNO 502.800

502.80	2.81	865.68	0.00	0.00	865.73	.06	.07	.01	864.47
360.	2.	355.	3.	4.	184.	6.	17.	4.	864.27
.65	.52	1.93	.58	.095	.050	.095	.050	862.87	42.97
.002244	40.	40.	40.	2	0	0	0.00	127.97	170.94

*SECNO 502.850

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITIAL	IDC	ICONT	CORAR	TOPWID	ENDST
502.85	2.67	865.72	0.00	0.00	865.79	.07	.05	.00	864.65
360.	2.	356.	3.	3.	167.	4.	17.	4.	864.45
.65	.56	2.13	.63	.095	.050	.095	.050	863.05	43.69
.003087	20.	20.	20.	0	0	0	0.00	126.43	170.12

*SECNO 502.900

502.90	2.55	865.78	0.00	0.00	865.86	.08	.07	.00	864.83
360.	1.	356.	3.	2.	154.	4.	17.	4.	864.63
.66	.60	2.32	.68	.095	.050	.095	.050	863.23	44.28
.004096	20.	20.	20.	0	0	0	0.00	125.17	169.45

*SECNO 503.000

503.00	2.37	865.97	0.00	0.00	866.08	.11	.20	.01	865.20
360.	1.	357.	2.	1.	134.	3.	17.	4.	865.00
.66	.66	2.67	.77	.095	.050	.095	.050	863.60	45.16
.006568	40.	40.	40.	2	0	0	0.00	123.30	168.46

*SECNO 503.500

503.50	2.46	866.56	0.00	0.00	866.65	.09	.58	.00	865.70
360.	1.	357.	2.	2.	144.	3.	18.	5.	865.50
.67	.63	2.47	.72	.095	.050	.095	.050	864.10	44.70
.005083	100.	100.	100.	2	0	0	0.00	124.28	168.98

*SECNO 503.600

503.60	2.47	867.57	0.00	0.00	867.67	.09	1.01	.00	866.70
360.	1.	357.	2.	2.	144.	3.	18.	5.	866.50
.69	.63	2.47	.72	.095	.050	.095	.050	865.10	44.68
.005041	200.	200.	200.	1	0	0	0.00	124.32	169.00

*SECNO 504.000

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

504.00	3.91	870.11	870.11	0.00	871.39	1.27	2.29	.35	874.00
360.	0.	360.	0.	0.	40.	0.	19.	5.	874.00
.70	0.00	9.06	0.00	.095	.050	.095	.050	866.20	109.72
.033057	220.	220.	220.	20	14	0	0.00	15.71	125.42

*SECNO 504.100

3301 HV CHANGED MORE THAN HVINS

504.10	6.45	871.75	0.00	0.00	872.04	.29	.56	.10	874.00
360.	0.	360.	0.	0.	83.	0.	19.	6.	874.00
.70	0.00	4.34	0.00	.095	.050	.095	.050	865.30	105.60
.005543	50.	50.	50.	1	0	0	0.00	25.99	131.59

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: HAMLIN DRAIN

4) DOCUMENT TYPE: 500 YR

*PROF 4

CCHV= .100 CEHV= .300
*SECNO 500.100

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

** CONFLUENCE WITH MURPHY AND STONYCROFT DRAINS

500.10	4.80	848.80	0.00	848.80	848.80	.00	0.00	0.00	847.40
65.	12.	53.	0.	.03.	155.	0.	0.	0.	849.10
0.00	.12	.34	0.00	.095	.050	.095	0.000	844.00	138.33
.000037	0.	0.	0.	0	0	0	0.00	140.00	278.33

CCHV= .300 CEHV= .500
*SECNO 500.200

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	IT.IAL	IDC	ICONT	CORAR	TOPWID	ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 608.0 739.0 TYPE= 1 TARGET= 131.000

500.20	1.01	851.71	851.71	0.00	852.03	.31	.07	.16	852.00
65.	0.	65.	0.	0.	14.	0.	2.	1.	852.20
.03	0.00	4.49	0.00	.095	.050	.095	.050	850.70	645.53
.044078	500.	500.	500.	20	21	0	0.00	23.55	669.08

CCHV= .400 CEHV= .800
*SECNO 500.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 853.50 ELREA= 853.50

** D/S FACE CONCRETE BRIDGE AND CULVERT

500.30	2.10	852.30	0.00	0.00	852.33	.03	.19	.11	851.50
65.	0.	65.	0.	0.	46.	0.	2.	1.	851.70
.04	0.00	1.42	0.00	.095	.050	.095	.050	850.20	642.00
.001306	50.	50.	50.	4	0	0	0.00	30.00	672.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.20	2.90	50.00	2.50	0.00	4.91	0.00	850.20	850.20

*SECNO 500.400
3280 CROSS SECTION 500.40 EXTENDED 1.83 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
855.56	852.33	0.00	16.	49.	5.	4.	852.00	853.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 855.00 ELREA= 855.00

500.40	3.93	854.13	0.00	.00	854.13	.01	1.80	0.00	851.50
65.	0.	65.	0.	0.	101.	0.	2.	1.	851.70
.05	0.00	.64	0.00	095	.050	.095	.050	850.20	642.00
.000094	17.	17.	17.	0	0	5	0.00	30.00	672.00

CCHV= .300 CEHV= .500
*SECNO 500.500
3280 CROSS SECTION 500.50 EXTENDED 1.54 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	XN	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	INITIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 658.0 663.0 TYPE= 1 TARGET= 5.000

** D/S FACE GRAND TRUNK RAILROAD CULVERT

500.50	3.64	854.04	0.00	0.00	854.23	.20	.00	.10	100000.00
65.	0.	65.	0.	0.	18.	0.	2.	1.	100000.00
.05	0.00	3.58	0.00	.095	.050	.095	.050	850.40	658.00
.008575	15.	15.	15.	2	0	0	0.00	5.00	663.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	ROLEN	BnC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	7.10	2.90	150.00	3.00	0.00	7.10	0.00	851.97	849.80

*SECNO 500.600
3280 CROSS SECTION 500.60 EXTENDED 7.26 FEET

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
863.28	855.80	0.00	0.	65.	7.	4.	853.30	873.40

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3470 ENCROACHMENT STATIONS=      658.0      663.0  TYPE=      1  TARGET=        5.000
   500.60     11.36    863.26      0.00      0.00    863.28      .02       9.04      0.00100000.00
     65.        0.       65.        0.        0.       57.        0.         2.        1. 100000.00
     .09       0.00      1.15      0.00      .095      .050      .095       .050    851.90    658.00
 .000570      167.      167.      167.         2         0         0       0.00      5.00    663.00

*SECNO 501.800
3280 CROSS SECTION     501.80 EXTENDED       3.08 FEET


3470 ENCROACHMENT STATIONS=      313.0      437.0  TYPE=      1  TARGET=      124.000
   501.80      9.68    863.28      0.00      0.00    863.28      .00       .00       .00    854.90
    600.        0.       600.        0.        0.      1112.        0.         3.        1. 100000.00
     .14       0.00       .54      0.00      .095      .050      .095       .050    853.60    313.00
 .000021      100.      100.      100.         2         0         0       0.00    124.00    437.00

*SECNO 501.900

         ** D/S FACE CULVERT UNDER DRIVE 10 SUBDIVISION

   501.90      9.89    863.29      0.00      .00    863.29       .00       .01       .00    853.40
    600.       226.       89.       285.      605.       99.       706.       11.        2.    853.40
     .31        .37       .90        .40      .095      .050      .095       .050    853.40     52.80
 .000043      280.      280.      280.         2         0         0       0.00    206.38    259.17
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SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        .09       2.90      100.00       3.00       0.00       7.10       0.00     853.40     853.40

*SECNO 501.950
3280 CROSS SECTION     501.95 EXTENDED        .25 FEET


PRESSURE AND WEIR FLOW

 EGPRS       EGLWC        H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                      AREA
   873.27     864.13       0.00       167.       433.        7.         9.       856.40     867.80


   501.95     13.35     868.49      0.00      0.00    868.49       .00       5.20      0.00    855.14
    600.       237.       80.       284.      984.      134.      1078.       15.        3.    855.14
     .39        .24       .60        .26      .095      .050      .095       .050    855.14     30.00
 .000013       90.       90.       90.          0         0         5       0.00    245.17    275.17

CCHV=     .100 CEHV=     .300
*SECNO 502.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      IT IAL     IDC        ICONT      CORAR      TOPWID      ENDST
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502.00	9.36	868.50	0.00	0.00	868.50	.00	.01	.00	859.14
600.	224.	91.	285.	554.	94.	655.	27.	4.	859.14
.56	.40	.97	.43	.095	.050	.095	.050	859.14	56.54
.000054	305.	305.	305.	0	0	0	0.00	200.19	256.74

*SECNO 502.200

502.20	8.36	868.50	0.00	0.00	868.51	.01	.01	.00	860.14
600.	221.	94.	284.	464.	84.	560.	30.	5.	860.14
.61	.48	1.13	.51	.095	.050	.095	.050	860.14	63.64
.000085	100.	100.	100.	0	0	0	0.00	188.48	252.12

*SECNO 502.500

502.50	7.37	868.51	0.00	0.00	868.52	.01	.01	.00	861.14
600.	218.	99.	283.	82.	74.	471.	32.	5.	861.14
.65	.57	1.34	.60	.095	.050	.095	.050	861.14	70.68
.000141	100.	100.	100.	0	0	0	0.00	176.87	247.55

*SECNO 502.700

502.70	6.02	868.52	0.00	0.00	868.54	.02	.01	.00	864.10
600.	16.	565.	20.	49.	550.	60.	34.	5.	863.90
.67	.32	1.03	.33	.095	.050	.095	.050	862.50	26.89
.000147	100.	100.	100.	0	0	0	0.00	162.18	189.07

*SECNO 502.800

502.80	5.65	868.52	0.00	0.00	868.54	.02	.01	.00	864.47
600.	14.	568.	18.	41.	508.	51.	35.	6.	864.27
.68	.34	1.12	.36	.095	.050	.095	.050	862.87	28.72
.000193	40.	40.	40.	0	0	0	0.00	158.29	187.01

*SECNO 502.850

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	IT IAL	IDC	ICONT	CORAR	TOPWID	ENDST
502.85	5.48	868.53	0.00	0.00	868.55	.02	.00	.00	864.65
600.	13.	569.	17.	38.	488.	47.	35.	6.	864.45
.69	.36	1.17	.37	.095	.050	.095	.050	863.05	29.61
.000222	20.	20.	20.	0	0	0	0.00	156.40	186.01

*SECNO 502.900

502.90	5.30	868.53	0.00	0.00	868.55	.02	.00	.00	864.83
600.	13.	571.	17.	34.	468.	43.	35.	6.	864.63
.69	.37	1.22	.39	.095	.050	.095	.050	863.23	30.49
.000256	20.	20.	20.	0	0	0	0.00	154.52	185.01

*SECNO 503.000

503.00	4.94	868.54	0.00	0.00	868.57	.03	.01	.00	865.20
600.	11.	574.	15.	28.	427.	35.	36.	6.	865.00
.70	.41	1.34	.43	.095	.050	.095	.050	863.60	32.30
.000352	40.	40.	40.	0	0	0	0.00	150.68	182.97

*SECNO 503.500

503.50	4.48	868.58	0.00	0.00	868.61	.04	.04	.00	865.70
600.	10.	577.	13.	21.	373.	27.	37.	6.	865.50
.72	.46	1.55	.49	.095	.050	.095	.050	864.10	34.65
.000559	100.	100.	100.	0	0	0	0.00	145.67	180.32

*SECNO 503.600

503.60	3.63	868.73	0.00	0.00	868.80	.07	.17	.01	866.70
600.	6.	585.	9.	10.	277.	14.	38.	7.	866.50
.75	.61	2.11	.65	.095	.050	.095	.050	865.10	38.85
.001540	200.	200.	200.	2	0	0	0.00	136.72	175.58

*SECNO 504.000

3301 HV CHANGED MORE THAN HVINS

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

504.00	5.14	871.34	871.34	0.00	872.72	1.38	.91	.39	874.00
600.	0.	600.	0.	0.	64.	0.	39.	7.	874.00
.75	0.00	9.41	0.00	.095	.050	.095	.050	866.20	106.65
.030920	220.	220.	220.	20	11	0	0.00	23.39	130.03

*SECNO 504.100

3301 HV CHANGED MORE THAN HVINS

504.10	7.72	873.02	0.00	0.00	873.40	.38	.59	.10	874.00
600.	0.	600.	0.	0.	121.	0.	39.	7.	874.00
.76	0.00	4.97	0.00	.095	.050	.095	.050	865.30	102.45
.006104	50.	50.	50.	2	0	0	0.00	33.86	136.32

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: HAMLIN DRAIN

4) DOCUMENT TYPE: CONVERENCE RUN

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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C
T1      HUD-FIA H-4705
T2      BLOOMFIELD TWP FIS
T3      HAMLIN DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ

       0.        4.         0.         0.  0.000000       0.00      -1.0         0.    848.400      0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     1.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

QT      5.000     55.000     60.000     62.000     65.000     62.000      0.000      0.000      0.000      0.000
NC       .095       .095       .050       .100       .300      0.000      0.000      0.000      0.000      0.000

        ** CONFLUENCE WITH MURPHY AND STONYCROFT DRAINS

X1    500.100     11.000    220.000    280.000      0.000      0.000      0.000      0.000       .600      0.000
GR    851.000    115.000    848.000    140.000    847.000    160.000    846.500    200.000    846.800    220.000
GR    846.000    230.000    843.400    240.000    845.000    255.000    846.700    270.000    848.500    280.000
GR    849.000    300.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

X1    500.200      9.000    642.000    672.000    500.000    500.000    500.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    608.000      0.000    739.000      0.000      0.000      0.000      0.000
GR    852.800    479.000    852.200    608.000    852.000    642.000    850.700    658.000    850.700    663.000
GR    852.200    672.000    853.000    704.000    852.700    739.000    854.800    795.000      0.000      0.000
NC      0.000      0.000      0.000       .400       .800      0.000      0.000      0.000      0.000      0.000

        ** D/S FACE CONCRETE BRIDGE AND CULVERT

X1    500.300      0.000      0.000      0.000     50.000     50.000     50.000      0.000       -.500     0.000
X3     10.000      0.000      0.000      0.000      0.000      0.000      0.000    853.500    853.500     0.000
SB      0.000      1.200      2.900     50.000      2.500      0.000      4.910      0.000      0.000     0.000

X1    500.400      0.000      0.000      0.000     17.000     17.000     17.000      0.000      0.000     0.000
X2      0.000      0.000      1.000    852.000    853.900      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    855.000    855.000     0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000     0.000

        ** D/S FACE GRAND TRUNK RAILROAD CULVERT

X1    500.500      0.000      0.000      0.000     15.000     15.000     15.000      0.000       .200     0.000
X3      0.000      0.000      0.000    658.000      0.000    663.000      0.000      0.000      0.000     0.000
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SB	0.000	7.100	2.900	150.000	3.000	0.000	7.100	0.000	851.970	849.800
X1	500.600	0.000	0.000	0.000	167.000	167.000	167.000	0.000	1.500	0.000
X2	0.000	0.000	1.000	853.300	873.400	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	658.000	0.000	663.000	0.000	0.000	0.000	0.000
QT	5.000	240.000	360.000	430.000	600.000	430.000	0.000	0.000	0.000	0.000
X1	501.800	11.000	313.000	437.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	313.000	0.000	437.000	0.000	0.000	0.000	0.000
GR	866.800	56.000	861.000	190.000	856.400	268.000	854.900	313.000	854.100	320.000
GR	853.600	340.000	853.600	360.000	854.100	389.000	856.000	437.000	857.500	515.000
GR	860.200	585.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE CULVERT UNDER DRIVE TO SUBDIVISION

X1	501.900	7.000	150.000	160.000	280.000	280.000	280.000	0.000	-5.700	0.000
GR	872.200	30.000	859.800	118.000	859.100	150.000	859.100	160.000	859.700	170.000
GR	860.500	220.000	873.500	280.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.780	2.900	100.000	3.000	0.000	7.100	0.000	0.000	0.000
X1	501.950	0.000	0.000	0.000	90.000	90.000	90.000	0.000	1.740	0.000
X2	0.000	0.000	1.000	856.400	867.800	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	867.800	867.800	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	502.000	0.000	0.000	0.000	305.000	305.000	305.000	0.000	4.000	0.000
X1	502.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.000	0.000
X1	502.500	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.000	0.000
X1	502.700	10.000	49.000	163.000	100.000	100.000	100.000	0.000	-1.100	0.000
GR	875.000	0.000	865.200	49.000	864.900	100.000	864.200	115.000	863.600	118.000
GR	863.600	120.000	864.200	123.000	864.800	137.000	865.000	163.000	872.800	207.000
X1	502.800	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.370	0.000
X1	502.850	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.180	0.000
X1	502.900	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.180	0.000
X1	503.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.370	0.000
X1	503.500	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.500	0.000
X1	503.600	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.000	0.000

X1	504.000	8.000	100.000	140.000	220.000	220.000	220.000	0.000	0.000	0.000
GR	878.000	15.000	876.000	85.000	874.000	100.000	870.000	110.000	866.200	115.000
GR	866.200	120.000	870.000	125.000	874.000	140.000	0.000	0.000	0.000	0.000
X1	504.100	8.000	100.000	140.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	878.000	15.000	876.000	85.000	874.000	100.000	870.000	110.000	865.300	115.000
GR	865.300	120.000	870.000	125.000	874.000	140.000	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

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

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

HAMLIN DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
D	500.100	0.00	0.00	0.00	844.00	62.00	848.40	0.00	848.40	.60	.40	203.01	79.81
D*1.15	500.100	0.00	0.00	0.00	844.00	62.00	849.10	0.00	849.10	.23	.28	300.29	130.42
D*.85	500.100	0.00	0.00	0.00	844.00	62.00	847.70	0.00	847.71	2.11	.63	116.79	42.73
*	500.200	500.00	0.00	0.00	850.70	62.00	851.69	851.69	852.00	442.52	4.44	13.95	2.95
*	500.200	500.00	0.00	0.00	850.70	62.00	851.69	851.69	852.00	443.44	4.45	13.94	2.94
*	500.200	500.00	0.00	0.00	850.70	62.00	851.69	851.69	852.00	442.71	4.45	13.95	2.95
	500.300	50.00	0.00	0.00	850.20	62.00	852.27	0.00	852.30	12.77	1.38	44.83	17.35
	500.300	50.00	0.00	0.00	850.20	62.00	852.27	0.00	852.30	12.77	1.38	44.84	17.35
	500.300	50.00	0.00	0.00	850.20	62.00	852.27	0.00	852.30	12.77	1.38	44.83	17.35
	500.400	17.00	853.90	852.00	850.20	62.00	854.10	0.00	854.10	.88	.62	99.95	66.01
	500.400	17.00	853.90	852.00	850.20	62.00	854.10	0.00	854.10	.88	.62	99.95	66.01
	500.400	17.00	853.90	852.00	850.20	62.00	854.10	0.00	854.10	.88	.62	99.95	66.01
	500.500	15.00	0.00	0.00	850.40	62.00	854.01	0.00	854.20	79.25	3.43	18.06	6.96
	500.500	15.00	0.00	0.00	850.40	62.00	854.01	0.00	854.20	79.25	3.43	18.06	6.96
	500.500	15.00	0.00	0.00	850.40	62.00	854.01	0.00	854.20	79.25	3.43	18.06	6.96
	500.600	167.00	873.40	853.30	851.90	62.00	862.40	0.00	862.42	6.19	1.18	52.48	24.92
	500.600	167.00	873.40	853.30	851.90	62.00	862.40	0.00	862.42	6.19	1.18	52.48	24.92
	500.600	167.00	873.40	853.30	851.90	62.00	862.40	0.00	862.42	6.19	1.18	52.48	24.92
	501.800	100.00	0.00	0.00	853.60	430.00	862.42	0.00	862.43	.15	.43	1006.14	1124.17
	501.800	100.00	0.00	0.00	853.60	430.00	862.42	0.00	862.43	.15	.43	1006.14	1124.18
	501.800	100.00	0.00	0.00	853.60	430.00	862.42	0.00	862.43	.15	.43	1006.14	1124.17
	501.900	280.00	0.00	0.00	853.40	430.00	862.43	0.00	862.43	.32	.73	1237.64	759.31
	501.900	280.00	0.00	0.00	853.40	430.00	862.43	0.00	862.43	.32	.73	1237.65	759.32
	501.900	280.00	0.00	0.00	853.40	430.00	862.43	0.00	862.43	.32	.73	1237.65	759.31
	501.950	90.00	867.80	856.40	855.14	430.00	868.87	0.00	868.87	.06	.41	2289.20	1790.39
	501.950	90.00	867.80	856.40	855.14	430.00	868.87	0.00	868.87	.06	.41	2289.20	1790.39
	501.950	90.00	867.80	856.40	855.14	430.00	868.87	0.00	868.87	.06	.41	2289.20	1790.39
	502.000	305.00	0.00	0.00	859.14	430.00	868.88	0.00	868.88	.24	.66	1379.64	884.26
	502.000	305.00	0.00	0.00	859.14	430.00	868.88	0.00	868.88	.24	.66	1379.64	884.26
	502.000	305.00	0.00	0.00	859.14	430.00	868.88	0.00	868.88	.24	.66	1379.64	884.26

	SECNO	XLCH	FLTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	502.200	100.00	0.00	0.00	860.14	430.00	868.88	0.00	868.88	.37	.76	1180.45	710.38
	502.200	100.00	0.00	0.00	860.14	430.00	868.88	0.00	868.88	.37	.76	1180.45	710.38
	502.200	100.00	0.00	0.00	860.14	430.00	868.88	0.00	868.88	.37	.76	1180.45	710.38
	502.500	100.00	0.00	0.00	861.14	430.00	868.88	0.00	868.89	.60	.90	994.12	556.98
	502.500	100.00	0.00	0.00	861.14	430.00	868.88	0.00	868.89	.60	.90	994.12	556.98
	502.500	100.00	0.00	0.00	861.14	430.00	868.88	0.00	868.89	.60	.90	994.12	556.98
	502.700	100.00	0.00	0.00	862.50	430.00	868.89	0.00	868.89	.58	.68	719.11	562.51
	502.700	100.00	0.00	0.00	862.50	430.00	868.89	0.00	868.89	.58	.68	719.11	562.51
	502.700	100.00	0.00	0.00	862.50	430.00	868.89	0.00	868.89	.58	.68	719.11	562.51
	502.800	40.00	0.00	0.00	862.87	430.00	868.89	0.00	868.90	.75	.74	658.64	494.94
	502.800	40.00	0.00	0.00	862.87	430.00	868.89	0.00	868.90	.75	.74	658.64	494.94
	502.800	40.00	0.00	0.00	862.87	430.00	868.89	0.00	868.90	.75	.74	658.64	494.94
	502.850	20.00	0.00	0.00	863.05	430.00	868.89	0.00	868.90	.86	.77	629.76	463.47
	502.850	20.00	0.00	0.00	863.05	430.00	868.89	0.00	868.90	.86	.77	629.76	463.47
	502.850	20.00	0.00	0.00	863.05	430.00	868.89	0.00	868.90	.86	.77	629.76	463.47
	502.900	20.00	0.00	0.00	863.23	430.00	868.89	0.00	868.90	.99	.80	601.31	433.03
	502.900	20.00	0.00	0.00	863.23	430.00	868.89	0.00	868.90	.99	.80	601.31	433.03
	502.900	20.00	0.00	0.00	863.23	430.00	868.89	0.00	868.90	.99	.80	601.31	433.03
	503.000	40.00	0.00	0.00	863.60	430.00	868.89	0.00	868.90	1.33	.88	543.97	373.42
	503.000	40.00	0.00	0.00	863.60	430.00	868.89	0.00	868.90	1.33	.88	543.97	373.42
	503.000	40.00	0.00	0.00	863.60	430.00	868.89	0.00	868.90	1.33	.88	543.97	373.42
	503.500	100.00	0.00	0.00	864.10	430.00	868.91	0.00	868.92	2.05	1.00	469.74	300.02
	503.500	100.00	0.00	0.00	864.10	430.00	868.91	0.00	868.92	2.05	1.00	469.74	300.02
	503.500	100.00	0.00	0.00	864.10	430.00	868.91	0.00	868.92	2.05	1.00	469.74	300.02
	503.600	200.00	0.00	0.00	865.10	430.00	868.96	0.00	868.99	5.79	1.37	333.78	178.68
	503.600	200.00	0.00	0.00	865.10	430.00	868.96	0.00	868.99	5.79	1.37	333.78	178.68
	503.600	200.00	0.00	0.00	865.10	430.00	868.96	0.00	868.99	5.79	1.37	333.78	178.68
*	504.000	220.00	0.00	0.00	866.20	430.00	870.55	870.55	871.84	322.83	9.11	47.19	23.93
*	504.000	220.00	0.00	0.00	866.20	430.00	870.55	870.55	871.84	322.83	9.11	47.19	23.93
*	504.000	220.00	0.00	0.00	866.20	430.00	870.55	870.55	871.84	322.83	9.11	47.19	23.93
	504.100	50.00	0.00	0.00	865.30	430.00	872.18	0.00	872.50	57.49	4.54	94.67	56.71
	504.100	50.00	0.00	0.00	865.30	430.00	872.18	0.00	872.50	57.49	4.54	94.67	56.71
	504.100	50.00	0.00	0.00	865.30	430.00	872.18	0.00	872.50	57.49	4.54	94.67	56.71

HAMLIN DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	500.100	62.00	848.40	0.00	0.00	0.00	132.11	0.00
	500.100	62.00	849.10	.70	0.00	0.00	144.17	0.00
	500.100	62.00	847.70	-1.40	0.00	0.00	114.22	0.00
*	500.200	62.00	851.69	0.00	3.29	0.00	23.15	500.00
*	500.200	62.00	851.69	-.00	2.59	0.00	23.14	500.00
*	500.200	62.00	851.69	.00	3.99	0.00	23.14	500.00
	500.300	62.00	852.27	0.00	.57	0.00	30.00	50.00
	500.300	62.00	852.27	.00	.58	0.00	30.00	50.00
	500.300	62.00	852.27	-.00	.57	0.00	30.00	50.00
	500.400	62.00	854.10	0.00	1.83	0.00	30.00	17.00
	500.400	62.00	854.10	.00	1.83	0.00	30.00	17.00
	500.400	62.00	854.10	-.00	1.83	0.00	30.00	17.00
	500.500	62.00	854.01	0.00	-.08	0.00	5.00	15.00
	500.500	62.00	854.01	.00	-.08	0.00	5.00	15.00
	500.500	62.00	854.01	-.00	-.08	0.00	5.00	15.00
	500.600	62.00	862.40	0.00	8.39	0.00	5.00	167.00
	500.600	62.00	862.40	.00	8.39	0.00	5.00	167.00
	500.600	62.00	862.40	-.00	8.39	0.00	5.00	167.00
	501.800	430.00	862.42	0.00	.03	0.00	124.00	100.00
	501.800	430.00	862.42	.00	.03	0.00	124.00	100.00
	501.800	430.00	862.42	-.00	.03	0.00	124.00	100.00
	501.900	430.00	862.43	0.00	.01	0.00	196.34	280.00
	501.900	430.00	862.43	.00	.01	0.00	196.34	280.00
	501.900	430.00	862.43	-.00	.01	0.00	196.34	280.00
	501.950	430.00	868.87	0.00	6.44	0.00	246.93	90.00
	501.950	430.00	868.87	.00	6.44	0.00	246.93	90.00
	501.950	430.00	868.87	-.00	6.44	0.00	246.93	90.00
	502.000	430.00	868.88	0.00	.00	0.00	204.64	305.00
	502.000	430.00	868.88	.00	.00	0.00	204.64	305.00
	502.000	430.00	868.88	-.00	.00	0.00	204.64	305.00
	502.200	430.00	868.88	0.00	.00	0.00	192.90	100.00
	502.200	430.00	868.88	.00	.00	0.00	192.90	100.00
	502.200	430.00	868.88	-.00	.00	0.00	192.90	100.00
	502.500	430.00	868.88	0.00	.00	0.00	181.24	100.00
	502.500	430.00	868.88	.00	.00	0.00	181.24	100.00
	502.500	430.00	868.88	-.00	.00	0.00	181.24	100.00
	502.700	430.00	868.89	0.00	.00	0.00	166.06	100.00
	502.700	430.00	868.89	.00	.00	0.00	166.06	100.00
	502.700	430.00	868.89	-.00	.00	0.00	166.06	100.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSK	DIFKWS	TOPWID	XLCH
	502.800	430.00	868.89	0.00	.00	0.00	162.14	40.00
	502.800	430.00	868.89	.00	.00	0.00	162.14	40.00
	502.800	430.00	868.89	-.00	.00	0.00	162.14	40.00
	502.850	430.00	868.89	0.00	.00	0.00	160.24	20.00
	502.850	430.00	868.89	.00	.00	0.00	160.24	20.00
	502.850	430.00	868.89	-.00	.00	0.00	160.24	20.00
	502.900	430.00	868.89	0.00	.00	0.00	158.34	20.00
	502.900	430.00	868.89	.00	.00	0.00	158.34	20.00
	502.900	430.00	868.89	-.00	.00	0.00	158.34	20.00
	503.000	430.00	868.89	0.00	.00	0.00	154.43	40.00
	503.000	430.00	868.89	.00	.00	0.00	154.43	40.00
	503.000	430.00	868.89	-.00	.00	0.00	154.43	40.00
	503.500	430.00	868.91	0.00	.01	0.00	149.23	100.00
	503.500	430.00	868.91	.00	.01	0.00	149.23	100.00
	503.500	430.00	868.91	-.00	.01	0.00	149.23	100.00
	503.600	430.00	868.96	0.00	.06	0.00	139.20	200.00
	503.600	430.00	868.96	.00	.06	0.00	139.20	200.00
	503.600	430.00	868.96	-.00	.06	0.00	139.20	200.00
*	504.000	430.00	870.55	0.00	1.59	0.00	18.44	220.00
*	504.000	430.00	870.55	-.00	1.59	0.00	18.44	220.00
*	504.000	430.00	870.55	.00	1.59	0.00	18.44	220.00
	504.100	430.00	872.18	0.00	1.63	0.00	28.65	50.00
	504.100	430.00	872.18	.00	1.63	0.00	28.65	50.00
	504.100	430.00	872.18	-.00	1.63	0.00	28.65	50.00

SUMMARY OF ERRORS

CAUTION SECNO= 500.200 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 500.200 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 500.200 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 500.200 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 500.200 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 500.200 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 500.200 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 500.200 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 500.200 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 504.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 504.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 504.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 504.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 504.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 504.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 504.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 504.000 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 504.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL



1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: HAMLIN DRAIN

4) DOCUMENT TYPE: PRODUCTION RUNS



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

C
T1      HUD-FIA H-4705
T2      BLOOMFIELD TWP FIS
T3      HAMLIN DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.         4.         0.         0.   0.000000       0.00      -1.0         0.    848.400      0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     1.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

QT      5.000     55.000     60.000     62.000     65.000     62.000      0.000      0.000      0.000      0.000
NC       .095       .095       .050       .100       .300      0.000      0.000      0.000      0.000      0.000

         ** CONFLUENCE WITH MURPHY AND STONYCROFT DRAINS

X1    500.100     11.000    220.000    260.000      0.000      0.000      0.000      0.000       .600      0.000
GR    851.000    115.000    848.000    140.000    847.000    160.000    846.500    200.000    846.800    220.000
GR    846.000    230.000    843.400    240.000    845.000    255.000    846.700    270.000    848.500    280.000
GR    849.000    300.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

X1    500.200      9.000    642.000    672.000    500.000    500.000    500.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    608.000      0.000    739.000      0.000      0.000      0.000      0.000
GR    852.800    479.000    852.200    618.000    852.000    642.000    850.700    658.000    850.700    663.000
GR    852.200    672.000    853.000    704.000    852.700    739.000    854.800    795.000      0.000      0.000
NC      0.000      0.000      0.000       .400       .800      0.000      0.000      0.000      0.000      0.000

         ** D/S FACE CONCRETE BRIDGE AND CULVERT

X1    500.300      0.000      0.000      0.000     50.000     50.000     50.000      0.000      -.500      0.000
X3     10.000      0.000      0.000      0.000      0.000      0.000      0.000    853.500    853.500      0.000
SB      0.000      1.200      2.900     50.000      2.500      0.000      4.910      0.000      0.000      0.000

X1    500.400      0.000      0.000      0.000     17.000     17.000     17.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    852.000    853.900      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    855.000    855.000      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

         ** D/S FACE GRAND TRUNK RAILROAD CULVERT

X1    500.500      0.000      0.000      0.000     15.000     15.000     15.000      0.000       .200      0.000
X3      0.000      0.000      0.000    658.000      0.000    663.000      0.000      0.000      0.000      0.000
```

SB	0.000	7.100	2.900	150.000	3.000	0.000	7.100	0.000	851.970	849.800
X1	500.600	0.000	0.000	0.000	167.000	167.000	167.000	0.000	1.500	0.000
X2	0.000	0.000	1.000	853.300	873.400	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	658.000	0.000	663.000	0.000	0.000	0.000	0.000
QT	5.000	240.000	360.000	480.000	600.000	430.000	0.000	0.000	0.000	0.000
X1	501.800	11.000	313.000	437.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	313.000	0.000	437.000	0.000	0.000	0.000	0.000
GR	866.800	50.000	861.000	190.000	856.400	268.000	854.900	313.000	854.100	320.000
GR	853.600	340.000	853.600	360.000	854.100	389.000	856.000	437.000	857.500	515.000
GR	860.200	585.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE CULVERT UNDER DRIVE TO SUBDIVISION

X1	501.900	7.000	150.000	160.000	280.000	280.000	280.000	0.000	-5.700	0.000
GR	872.200	30.000	859.800	118.000	859.100	150.000	859.100	160.000	859.700	170.000
GR	860.500	220.000	873.500	280.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	.090	2.900	160.000	3.000	0.000	7.100	0.000	0.000	0.000
X1	501.950	0.000	0.000	0.000	90.000	90.000	90.000	0.000	1.740	0.000
X2	0.000	0.000	1.000	866.400	867.800	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	867.800	867.800	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	502.000	0.000	0.000	0.000	305.000	305.000	305.000	0.000	4.000	0.000
X1	502.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.000	0.000
X1	502.500	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.000	0.000
X1	502.700	10.000	49.000	163.000	100.000	100.000	100.000	0.000	-1.100	0.000
GR	875.000	0.000	865.200	49.000	864.900	100.000	864.200	115.000	863.600	118.000
GR	863.600	120.000	864.200	123.000	864.800	137.000	865.000	163.000	872.800	207.000
X1	502.800	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.370	0.000
X1	502.850	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.180	0.000
X1	502.900	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.180	0.000
X1	503.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.370	0.000
X1	503.500	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.500	0.000
X1	503.600	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.000	0.000

X1	504.000	8.000	100.000	140.000	220.000	220.000	220.000	0.000	0.000	0.000
GR	878.000	15.000	876.000	85.000	874.000	100.000	870.000	110.000	866.200	115.000
GR	866.200	120.000	870.000	1 5.000	874.000	140.000	0.000	0.000	0.000	0.000
X1	504.100	8.000	100.000	140.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	878.000	15.000	876.000	85.000	874.000	100.000	870.000	110.000	865.300	115.000
GR	865.300	120.000	870.000	1 5.000	874.000	140.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 500.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XN	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
500.10	4.40	848.40	0.00	844.40	848.40	.00	0.00	0.00	847.40
62.	9.	53.	0.	71.	132.	0.	0.	0.	849.10
0.00	.12	.40	0.00	.095	.050	.095	0.000	844.00	144.00
.000060	0.	0.	0.	0	0	0	0.00	132.11	276.11

** CONFLUENCE WITH MURPHY AND STENYCROFT DRAINS

CCHV= .300 CEHV= .500
*SECNO 500.200

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	XN	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= 608.0 739.0 TYPE= 1 TARGET= 131.000

500.20	.99	851.69	851.69	0.00	852.00	.31	.11	.15	852.00
62.	0.	62.	0.	0.	14.	0.	1.	1.	852.20
.03	0.00	4.44	0.00	.095	.050	.095	.050	850.70	645.80
.044252	500.	500.	500.	20	17	0	0.00	23.15	668.95

CCHV= .400 CEHV= .800
*SECNO 500.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 853.50 ELREA= 853.50

** D/S FACE CONCRETE BRIDGE AND CULVERT

500.30	2.07	852.27	0.00	0.00	852.30	.03	.19	.11	851.50
62.	0.	62.	0.	0.	45.	0.	1.	1.	851.70
.04	0.00	1.38	0.00	.095	.050	.095	.050	850.20	642.00
.001277	50.	50.	50.	4	0	0	0.00	30.00	672.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.20	2.90	50.00	2.50	0.00	4.91	0.00	850.20	850.20

*SECNO 500.400
3280 CROSS SECTION 500.40 EXTENDED 1.80 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
855.24	852.30	0.00	13.	49.	.5.	4.	852.00	853.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 855.00 ELREA= 855.00

500.40	3.90	854.10	0.00	.00	854.10	.01	1.81	0.00	851.50
62.	0.	62.	0.	0.	100.	0.	1.	1.	851.70
.05	0.00	.62	0.00	.095	.050	.095	.050	850.20	642.00
.000088	17.	17.	17.	0	0	5	0.00	30.00	672.00

CCHV= .300 CEHV= .500
*SECNO 500.500
3280 CROSS SECTION 500.50 EXTENDED 1.51 FEET

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

3470 ENCROACHMENT STATIONS= 658.0 663.0 TYPE= 1 TARGET= 5.000

** D/S FACE GRAND TRUNK RAILROAD CULVERT

500.50	3.61	854.01	0.00	0.00	854.20	.18	.00	.09	100000.00
62.	0.	62.	0.	0.	18.	0.	1.	1.	100000.00
.05	0.00	3.43	0.00	.095	.050	.095	.050	850.40	658.00
.007925	15.	15.	15.	2	0	0	0.00	5.00	663.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	7.10	2.90	150.00	3.00	0.00	7.10	0.00	851.97	849.80

*SECNO 500.600
3280 CROSS SECTION 500.60 EXTENDED 6.40 FEET

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
862.42	855.76	0.00	0.	62.	7.	4.	853.30	873.40

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3470 ENCROACHMENT STATIONS=      658.0      663.0  TYPE=      1  TARGET=        5.000
   500.60     10.50    862.40      0.00      0.00    862.42      .02       8.22       0.00100000.00
      62.        0.       62.        0.        0.       52.       0.         1.          1. 100000.00
      .09       0.00      1.18      0.00       095      .050      .095       .050     851.90    658.00
  .000619      167.      167.      167.         2         0         0       0.00       5.00    663.00

*SECNO 501.800
3280 CROSS SECTION     501.80 EXTENDED      2.22 FEET


3470 ENCROACHMENT STATIONS=      313.0      437.0  TYPE=      1  TARGET=      124.000
   501.80      8.82    862.42      0.00      0.00    862.43      .00       .00        .01    854.90
      430.        0.      430.        0.        0.      1006.       0.         3.          1. 100000.00
      .15       0.00       .43      0.00       .095      .050      .095       .050     853.60    313.00
  .000015      100.      100.      100.         2         0         0       0.00     124.00    437.00

*SECNO 501.900

         ** D/S FACE CULVERT UNDER DRIVE TO SUBDIVISION

   501.90      9.03    862.43      0.00      0.00    862.43      .00       .01        .00    853.40
      430.      160.       66.      204.       524.      90.      623.       10.          2.    853.40
      .36       .31        .73       .33       .095      .050      .095       .050     853.40    58.88
  .000032      280.      280.      280.         2         0         0       0.00     196.34    255.22
```

check invert

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SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        .09       2.90      100.00       3.00       0.00       7.10       0.00     853.40     853.40

*SECNO 501.950
PRESSURE FLOW


 EGPRS       EGLWC       H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                      AREA
   867.56     862.97       0.00          0.       430.         7.         9.       856.40     867.80


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       867.80 ELREA=       867.80

   501.95     12.22    867.36      0.00      0.00    867.56      .19       5.12       0.00    855.14
      430.        0.      430.        0.        0.      122.       0.         11.         2.    855.14
      .37       0.00       3.52      0.00       .095      .050      .095       .050     855.14    150.00
  .000497       90.       90.       90.         2         0         0       0.00      10.00    160.00


CCHV=      .100 CEHV=      .300
*SECNO 502.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XN         XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      IT IAL     IDC        ICONT      CORAR      TOPWID      ENDST
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502.00	8.40	867.60	0.00	0.00	867.61	.00	.03	.02	859.14
430.	159.	67.	204.	473.	85.	570.	16.	3.	859.14
.57	.34	.80	.36	.095	.050	.095	.050	859.14	62.90
.000042	305.	305.	305.	2	0	0	0.00	189.70	252.60

*SECNO 502.200

502.20	7.47	867.61	0.00	0.00	867.61	.00	.01	.00	860.14
430.	157.	70.	203.	90.	75.	480.	18.	3.	860.14
.62	.40	.94	.42	095	.050	.095	.050	860.14	69.97
.000069	100.	100.	100.	2	0	0	0.00	178.03	248.01

*SECNO 502.500

502.50	6.48	867.62	0.00	0.00	867.62	.01	.01	.00	861.14
430.	155.	74.	202.	14.	65.	395.	20.	4.	861.14
.67	.49	1.14	.51	095	.050	.095	.050	861.14	77.03
.000122	100.	100.	100.	0	0	0	0.00	166.39	243.42

*SECNO 502.700

502.70	5.12	867.62	0.00	0.00	867.64	.01	.01	.00	864.10
430.	9.	410.	11.	31.	448.	39.	22.	4.	863.90
.70	.28	.92	.29	.095	.050	.095	.050	862.50	31.38
.000153	100.	100.	100.	0	0	0	0.00	152.63	184.01

*SECNO 502.800

502.80	4.76	867.63	0.00	0.00	867.65	.02	.01	.00	864.47
430.	8.	412.	10.	25.	406.	32.	22.	4.	864.27
.71	.31	1.01	.32	.095	.050	.095	.050	862.87	33.20
.000214	40.	40.	40.	0	0	0	0.00	148.76	181.96

*SECNO 502.850

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
502.85	4.58	867.63	0.00	.00	867.65	.02	.00	.00	864.65
430.	7.	413.	10.	22.	386.	29.	22.	4.	864.45
.72	.32	1.07	.34	.095	.050	.095	.050	863.05	34.08
.000255	20.	20.	20.	0	0	0	0.00	146.88	180.96

*SECNO 502.900

502.90	4.41	867.64	0.00	0.00	867.66	.02	.01	.00	864.83
430.	7.	414.	9.	20.	366.	26.	22.	5.	864.63
.72	.34	1.13	.36	.095	.050	.095	.050	863.23	34.96
.000306	20.	20.	20.	0	0	0	0.00	145.01	179.97

*SECNO 503.000

503.00	4.05	867.65	0.00	0.00	867.67	.02	.01	.00	865.20
430.	6.	416.	8.	15.	325.	20.	23.	5.	865.00
.73	.38	1.28	.40	.095	.050	.095	.050	863.60	36.76
.000460	40.	40.	40.	0	0	0	0.00	141.19	177.94

*SECNO 503.500

503.50	3.60	867.70	0.00	0.00	867.74	.04	.06	.00	865.70
430.	4.	419.	6.	10.	273.	14.	23.	5.	865.50
.75	.44	1.53	.47	.095	.050	.095	.050	864.10	39.03
.000831	100.	100.	100.	1	0	0	0.00	136.35	175.38

*SECNO 503.600

503.60	2.85	867.95	0.00	0.00	868.03	.08	.28	.01	866.70
430.	2.	424.	4.	4.	189.	6.	25.	6.	866.50
.77	.61	2.24	.67	.095	.050	.095	.050	865.10	42.73
.002902	200.	200.	200.	2	0	0	0.00	128.48	171.21

*SECNO 504.000

3301 HV CHANGED MORE THAN HVINS

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

504.00	4.34	870.54	870.54	0.00	871.84	1.29	1.51	.37	874.00
430.	0.	430.	0.	0.	47.	0.	25.	6.	874.00
.78	0.00	9.13	0.00	.095	.050	.095	.050	866.20	108.64
.032448	220.	220.	220.	20	14	0	0.00	18.40	127.04

*SECNO 504.100

3301 HV CHANGED MORE THAN HVINS

504.10	6.89	872.19	0.00	0.00	872.51	.32	.57	.10	874.00
430.	0.	430.	0.	0.	94.	0.	25.	6.	874.00
.78	0.00	4.55	0.00	.095	.050	.095	.050	865.30	104.56
.005780	50.	50.	50.	1	0	0	0.00	28.60	133.16

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD HILLS

3) WATERCOURSE: HAMLIN DRAIN

4) DOCUMENT TYPE: SUMMARY - PRODUCTION

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

HAMLIN DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	LOK*S	VCH	AREA	.01K
	500.100	0.00	0.00	0.00	844.00	62.00	848.40	0.00	848.40	.60	.40	203.01	79.81
	500.100	0.00	0.00	0.00	844.00	55.00	847.80	0.00	847.80	1.36	.52	128.34	47.20
	500.100	0.00	0.00	0.00	844.00	60.00	848.20	0.00	848.20	.78	.44	177.10	67.85
	500.100	0.00	0.00	0.00	844.00	65.00	848.80	0.00	848.80	.37	.34	257.67	107.07
*	500.200	500.00	0.00	0.00	850.70	62.00	851.69	851.69	852.00	442.52	4.44	13.95	2.95
*	500.200	500.00	0.00	0.00	850.70	55.00	851.63	851.63	851.93	456.85	4.36	12.61	2.57
*	500.200	500.00	0.00	0.00	850.70	60.00	851.68	851.68	851.98	445.56	4.42	13.58	2.84
*	500.200	500.00	0.00	0.00	850.70	65.00	851.71	851.71	852.03	440.78	4.49	14.47	3.10
	500.300	50.00	0.00	0.00	850.20	62.00	852.27	0.00	852.30	12.77	1.38	44.83	17.35
	500.300	50.00	0.00	0.00	850.20	55.00	852.19	0.00	852.21	12.03	1.29	42.48	15.86
	500.300	50.00	0.00	0.00	850.20	60.00	852.24	0.00	852.27	12.57	1.36	44.17	16.92
	500.300	50.00	0.00	0.00	850.20	65.00	852.30	0.00	852.33	13.06	1.42	45.81	17.99
	500.400	17.00	853.90	852.00	850.20	62.00	854.10	0.00	854.10	.88	.62	99.95	66.01
	500.400	17.00	853.90	852.00	850.20	55.00	854.02	0.00	854.03	.75	.56	97.67	63.52
	500.400	17.00	853.90	852.00	850.20	60.00	854.08	0.00	854.08	.84	.60	99.32	65.31
	500.400	17.00	853.90	852.00	850.20	65.00	854.13	0.00	854.13	.94	.64	100.86	67.01
	500.500	15.00	0.00	0.00	850.40	62.00	854.01	0.00	854.20	79.25	3.43	18.06	6.96
	500.500	15.00	0.00	0.00	850.40	55.00	853.95	0.00	854.13	65.05	3.10	17.77	6.82
	500.500	15.00	0.00	0.00	850.40	60.00	854.00	0.00	854.17	75.08	3.34	17.98	6.92
	500.500	15.00	0.00	0.00	850.40	65.00	854.04	0.00	854.23	85.75	3.58	18.18	7.02
	500.600	167.00	873.40	853.30	851.90	62.00	862.40	0.00	862.42	6.19	1.18	52.48	24.92
	500.600	167.00	873.40	853.30	851.90	55.00	860.54	0.00	860.57	7.58	1.27	43.22	19.97
	500.600	167.00	873.40	853.3	851.90	60.00	861.85	0.00	861.87	6.55	1.21	49.73	23.44
	500.600	167.00	873.40	853.3	851.90	65.00	863.26	0.00	863.28	5.70	1.15	56.77	27.21
	501.800	100.00	0.00	0.00	853.60	430.00	862.42	0.00	862.43	.15	.43	1006.14	1124.17
	501.800	100.00	0.00	0.0	853.60	240.00	860.58	0.00	860.58	.10	.31	777.00	744.08
	501.800	100.00	0.00	0.00	853.60	360.00	861.88	0.00	861.88	.13	.38	938.06	1005.61
	501.800	100.00	0.00	0.00	853.60	600.00	863.28	0.00	863.28	.21	.54	1111.99	1317.29
	501.900	280.00	0.00	0.00	853.40	430.00	862.43	0.00	862.43	.32	.73	1237.64	759.31
	501.900	280.00	0.00	0.0	853.40	240.00	860.58	0.00	860.58	.25	.55	894.48	479.11
	501.900	280.00	0.00	0.00	853.40	360.00	861.88	0.00	861.88	.29	.67	1131.45	669.12
	501.900	280.00	0.00	0.00	853.40	600.00	863.29	0.00	863.29	.43	.90	1410.10	911.68

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
501.950	90.00	867.80	856.40	855.14	430.00	867.36	0.00	867.56	4.97	3.52	122.25	192.83
501.950	90.00	867.80	856.4	855.14	240.00	861.99	0.00	862.18	10.69	3.50	68.48	73.39
501.950	90.00	867.80	856.40	855.14	360.00	865.28	0.00	865.47	6.50	3.55	101.38	141.16
501.950	90.00	867.80	856.4	855.14	600.00	868.49	0.00	868.49	.13	.60	2195.31	1685.12
502.000	305.00	0.00	0.00	859.14	430.00	867.60	0.00	867.61	.42	.80	1128.06	666.29
502.000	305.00	0.00	0.0	859.14	240.00	862.42	0.00	862.44	6.05	1.61	302.07	97.60
502.000	305.00	0.00	0.0	859.14	360.00	865.55	0.00	865.55	.89	.97	762.62	381.05
502.000	305.00	0.00	0.0	859.14	600.00	868.50	0.00	868.50	.54	.97	1302.79	816.04
502.200	100.00	0.00	0.00	860.14	430.00	867.61	0.00	867.61	.69	.94	945.00	518.21
502.200	100.00	0.00	0.0	860.14	240.00	862.51	0.00	862.55	24.50	2.61	189.02	48.49
502.200	100.00	0.00	0.00	860.14	360.00	865.56	0.00	865.56	1.75	1.21	604.44	272.03
502.200	100.00	0.00	0.00	860.14	600.00	868.50	0.00	868.51	.85	1.13	1108.40	649.93
502.500	100.00	0.00	0.0	861.14	430.00	867.62	0.00	867.62	1.22	1.14	773.74	389.08
502.500	100.00	0.00	0.00	861.14	240.00	862.89	0.00	863.00	94.67	4.21	119.14	24.67
502.500	100.00	0.00	0.00	861.14	360.00	865.58	0.00	865.59	3.95	1.59	458.17	181.18
502.500	100.00	0.00	0.0	861.14	600.00	868.51	0.00	868.52	1.41	1.34	927.39	504.48
502.700	100.00	0.00	0.0	862.50	430.00	867.62	0.00	867.64	1.53	.92	518.01	347.24
502.700	100.00	0.00	0.00	862.50	240.00	864.31	864.22	864.49	257.17	3.43	70.36	14.97
502.700	100.00	0.00	0.0	862.50	360.00	865.62	0.00	865.66	12.42	1.62	232.74	102.17
502.700	100.00	0.00	0.00	862.50	600.00	868.52	0.00	868.54	1.47	1.03	659.21	495.56
502.800	40.00	0.00	0.00	862.87	430.00	867.63	0.00	867.65	2.14	1.01	463.09	293.68
502.800	40.00	0.00	0.0	862.87	240.00	864.93	0.00	865.02	78.93	2.41	101.09	27.01
502.800	40.00	0.00	0.00	862.87	360.00	865.68	0.00	865.73	22.44	1.93	192.82	75.99
502.800	40.00	0.00	0.0	862.87	600.00	868.52	0.00	868.54	1.93	1.12	600.61	432.29
502.850	20.00	0.00	0.00	863.05	430.00	867.63	0.00	867.65	2.55	1.07	436.98	269.13
502.850	20.00	0.00	0.00	863.05	240.00	865.10	0.00	865.19	86.37	2.47	98.32	25.82
502.850	20.00	0.00	0.0	863.05	360.00	865.72	0.00	865.79	30.87	2.13	174.36	64.79
502.850	20.00	0.00	0.0	863.05	600.00	868.53	0.00	868.55	2.22	1.17	572.65	402.93
502.900	20.00	0.00	0.00	863.23	430.00	867.64	0.00	867.66	3.06	1.13	411.36	245.66
502.900	20.00	0.00	0.00	863.23	240.00	865.27	0.00	865.37	90.97	2.51	96.76	25.16
502.900	20.00	0.00	0.00	863.23	360.00	865.78	0.00	865.86	40.96	2.32	159.53	56.25
502.900	20.00	0.00	0.00	863.23	600.00	868.53	0.00	868.55	2.56	1.22	545.24	374.71
503.000	40.00	0.00	0.00	863.60	430.00	867.65	0.00	867.67	4.60	1.28	359.94	200.54
503.000	40.00	0.00	0.0	863.60	240.00	865.63	0.00	865.73	90.72	2.51	96.84	25.20
503.000	40.00	0.00	0.00	863.60	360.00	865.97	0.00	866.08	65.68	2.67	137.62	44.42
503.000	40.00	0.00	0.0	863.60	600.00	868.54	0.00	868.57	3.52	1.34	490.13	319.73
503.500	100.00	0.00	0.0	864.10	430.00	867.70	0.00	867.74	8.31	1.53	296.85	149.17
503.500	100.00	0.00	0.00	864.10	240.00	866.31	0.00	866.38	47.88	2.07	118.00	34.69
503.500	100.00	0.00	0.0	864.10	360.00	866.56	0.00	866.65	50.83	2.47	149.10	50.49
503.500	100.00	0.00	0.00	864.10	600.00	868.58	0.00	868.61	5.59	1.55	420.40	253.87
503.600	200.00	0.00	0.00	865.10	430.00	867.95	0.00	868.03	29.02	2.24	198.93	79.83
503.600	200.00	0.00	0.00	865.10	240.00	867.29	0.00	867.36	49.86	2.09	116.52	33.99
503.600	200.00	0.00	0.0	865.10	360.00	867.57	0.00	867.67	50.41	2.47	149.49	50.71
503.600	200.00	0.00	0.00	865.10	600.00	868.73	0.00	868.80	15.40	2.11	301.66	152.92

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
*	504.000	220.00	0.00	0.00	866.20	430.00	870.54	870.54	871.84	324.48	9.13	47.09	23.87
*	504.000	220.00	0.00	0.00	866.20	240.00	869.34	869.34	870.43	344.50	8.36	28.71	12.93
*	504.000	220.00	0.00	0.00	866.20	360.00	870.11	870.11	871.39	330.57	9.06	39.74	19.80
*	504.000	220.00	0.00	0.00	866.20	600.00	871.34	871.34	872.72	309.20	9.41	63.75	34.12
	504.100	50.00	0.00	0.00	865.30	430.00	872.19	0.00	872.51	57.80	4.55	94.46	56.56
	504.100	50.00	0.00	0.00	865.30	240.00	870.80	0.00	871.04	50.47	3.93	61.00	33.78
	504.100	50.00	0.00	0.00	865.30	360.00	871.75	0.00	872.04	55.43	4.34	83.04	48.35
	504.100	50.00	0.00	0.00	865.30	600.00	873.02	0.00	873.40	61.04	4.97	120.74	76.80

HAMLIN DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	500.100	62.00	848.40	0.00	0.00	0.00	132.11	0.00
	500.100	55.00	847.80	-.6	0.00	0.00	116.78	0.00
	500.100	60.00	848.20	.40	0.00	0.00	127.00	0.00
	500.100	65.00	848.80	.60	0.00	0.00	140.00	0.00
*	500.200	62.00	851.69	0.0	3.29	0.00	23.15	500.00
*	500.200	55.00	851.63	-.06	3.83	0.00	22.06	500.00
*	500.200	60.00	851.68	.0	3.48	0.00	22.85	500.00
*	500.200	65.00	851.71	.04	2.91	0.00	23.55	500.00
	500.300	62.00	852.27	0.00	.57	0.00	30.00	50.00
	500.300	55.00	852.19	-.08	.55	0.00	30.00	50.00
	500.300	60.00	852.24	.06	.57	0.00	30.00	50.00
	500.300	65.00	852.30	.0	.59	0.00	30.00	50.00
	500.400	62.00	854.10	0.00	1.83	0.00	30.00	17.00
	500.400	55.00	854.02	-.08	1.84	0.00	30.00	17.00
	500.400	60.00	854.08	.0	1.83	0.00	30.00	17.00
	500.400	65.00	854.13	.0	1.83	0.00	30.00	17.00
	500.500	62.00	854.01	0.00	-.08	0.00	5.00	15.00
	500.500	55.00	853.95	-.06	-.07	0.00	5.00	15.00
	500.500	60.00	854.00	.04	-.08	0.00	5.00	15.00
	500.500	65.00	854.04	.04	-.09	0.00	5.00	15.00
	500.600	62.00	862.40	0.00	8.39	0.00	5.00	167.00
	500.600	55.00	860.54	-1.8	6.59	0.00	5.00	167.00
	500.600	60.00	861.85	1.30	7.85	0.00	5.00	167.00
	500.600	65.00	863.26	1.4	9.22	0.00	5.00	167.00
	501.800	430.00	862.42	0.00	.03	0.00	124.00	100.00
	501.800	240.00	860.58	-1.85	.03	0.00	124.00	100.00
	501.800	360.00	861.88	1.30	.03	0.00	124.00	100.00
	501.800	600.00	863.28	1.40	.02	0.00	124.00	100.00
	501.900	430.00	862.43	0.00	.01	0.00	196.34	280.00
	501.900	240.00	860.58	-1.85	.00	0.00	174.68	280.00
	501.900	360.00	861.88	1.3	.01	0.00	189.90	280.00
	501.900	600.00	863.29	1.41	.01	0.00	206.38	280.00
	501.950	430.00	867.36	0.0	4.93	0.00	10.00	90.00
	501.950	240.00	861.99	-5.3	1.41	0.00	10.00	90.00
	501.950	360.00	865.28	3.29	3.40	0.00	10.00	90.00
	501.950	600.00	868.49	3.21	5.20	0.00	245.17	90.00
	502.000	430.00	867.60	0.00	.24	0.00	189.70	305.00
	502.000	240.00	862.42	-5.18	.43	0.00	128.98	305.00
	502.000	360.00	865.55	3.13	.27	0.00	165.60	305.00
	502.000	600.00	868.50	2.95	.00	0.00	200.19	305.00
	502.200	430.00	867.61	0.00	.00	0.00	178.03	100.00
	502.200	240.00	862.51	-5.1	.09	0.00	118.27	100.00

502.200	360.00	865.56	3.05	.01	0.00	154.01	100.00
502.200	600.00	868.50	2.9.	.01	0.00	188.48	100.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	502.500	430.00	867.62	0.0(	.01	0.00	166.39	100.00
	502.500	240.00	862.89	-4.7>	.38	0.00	111.14	100.00
	502.500	360.00	865.58	2.6?	.02	0.00	142.45	100.00
	502.500	600.00	868.51	2.9>	.01	0.00	176.87	100.00
	502.700	430.00	867.62	0.0(	.01	0.00	152.63	100.00
	502.700	240.00	864.31	-3.3	1.42	0.00	117.35	100.00
	502.700	360.00	865.62	1.31	.05	0.00	131.25	100.00
	502.700	600.00	868.52	2.9	.01	0.00	162.18	100.00
	502.800	430.00	867.63	0.0(	.01	0.00	148.76	40.00
	502.800	240.00	864.93	-2.7(	.63	0.00	120.10	40.00
	502.800	360.00	865.68	.7	.05	0.00	127.97	40.00
	502.800	600.00	868.52	2.8	.00	0.00	158.29	40.00
	502.850	430.00	867.63	0.0(	.00	0.00	146.88	20.00
	502.850	240.00	865.10	-2.5	.16	0.00	119.86	20.00
	502.850	360.00	865.72	.6	.04	0.00	126.43	20.00
	502.850	600.00	868.53	2.81	.00	0.00	156.40	20.00
	502.900	430.00	867.64	0.0	.00	0.00	145.01	20.00
	502.900	240.00	865.27	-2.3	.18	0.00	119.72	20.00
	502.900	360.00	865.78	.5	.06	0.00	125.17	20.00
	502.900	600.00	868.53	2.75	.00	0.00	154.52	20.00
	503.000	430.00	867.65	0.0	.01	0.00	141.19	40.00
	503.000	240.00	865.63	-2.0	.36	0.00	119.73	40.00
	503.000	360.00	865.97	.3	.19	0.00	123.30	40.00
	503.000	600.00	868.54	2.5	.01	0.00	150.68	40.00
	503.500	430.00	867.70	0.0(	.05	0.00	136.35	100.00
	503.500	240.00	866.31	-1.3	.68	0.00	121.59	100.00
	503.500	360.00	866.56	.25	.59	0.00	124.28	100.00
	503.500	600.00	868.58	2.0	.04	0.00	145.67	100.00
	503.600	430.00	867.95	0.0(	.25	0.00	128.48	200.00
	503.600	240.00	867.29	-.67	.98	0.00	121.46	200.00
	503.600	360.00	867.57	.29	1.01	0.00	124.32	200.00
	503.600	600.00	868.73	1.1(	.15	0.00	136.72	200.00
*	504.000	430.00	870.54	0.0	2.59	0.00	18.40	220.00
*	504.000	240.00	869.34	-1.2(	2.06	0.00	13.27	220.00
*	504.000	360.00	870.11	.77	2.54	0.00	15.71	220.00
*	504.000	600.00	871.34	1.23	2.61	0.00	23.39	220.00
	504.100	430.00	872.19	0.0(	1.64	0.00	28.60	50.00
	504.100	240.00	870.80	-1.3	1.46	0.00	20.00	50.00
	504.100	360.00	871.75	.95	1.64	0.00	25.99	50.00
	504.100	600.00	873.02	1.2	1.68	0.00	33.86	50.00

SUMMARY OF ERRORS

CAUTION SECNO= 500.200 PROFILE= 1 CRI ICAL DEPTH ASSUMED
CAUTION SECNO= 500.200 PROBABLE MINIMUM SPECIFIC ENERGY

```
CAUTION   SECNO=   500.200   PROFILE= 1   20 IRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   500.200   PROFILE= 2   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   500.200   PROFILE= 2   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   500.200   PROFILE= 2   20  RIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   500.200   PROFILE= 3   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   500.200   PROFILE= 3   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   500.200   PROFILE= 3   20  RIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   500.200   PROFILE= 4   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   500.200   PROFILE= 4   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   500.200   PROFILE= 4   20  RIALS ATTEMPTED TO BALANCE WSEL

CAUTION   SECNO=   504.000   PROFILE= 1   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   504.000   PROFILE= 1   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   504.000   PROFILE= 1   20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   504.000   PROFILE= 2   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   504.000   PROFILE= 3   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   504.000   PROFILE= 3   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   504.000   PROFILE= 3   20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   504.000   PROFILE= 4   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   504.000   PROFILE= 4   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   504.000   PROFILE= 4   20 TRIALS ATTEMPTED TO BALANCE WSEL
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: 50 YR PRODUCTION RUN

00BREAK00

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

T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      50 YEAR FLOW

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -1.       3.        0.        0.  0.000000      0.00     -1.0       0.    848.200     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 130.900
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XAL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    ICC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=     326.0     376.0  TYPE=     1  TARGET=     50.000

        **CONFLUENCE WITH STONYCROFT DRAIN

    130.90      4.20    848.20      0.00    848.20    848.82      .62      0.00      0.00    846.00
     480.       30.       424.       26.       14.       64.       14.       0.        0.     846.00
      0.00      2.12      6.66      1.84      .100      .063      .100    0.000    844.00    326.00
   .015552       0.        0.        0.         0         0         0     0.00     50.00    376.00

*SECNO 131.000

3301 HV CHANGED MORE THAN HVINS

    131.00      3.80    850.30      0.00      0.00    850.31      .02      1.44      .06    901.40
     480.       0.        221.      259.      0.        199.      294.      3.        2.     848.20
      .13       0.00      1.11       .88      .100      .063      .100      .063    846.50    221.02
   .001315      455.      455.      455.         6         0         0     0.00     285.54    506.57

*SECNO 132.200

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      XAL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    132.20      2.86    851.96    851.96      0.00    852.57      .61      1.97      .18    854.80
     480.       0.        359.      121.      0.        51.       44.       7.        4.     850.80
      .15       0.00      7.07      2.74      .100      .063      .100      .063    849.10    326.57
   .038569      525.      525.      525.         4        19         0     0.00     79.64    406.21

CCHV=     .400 CEHV=     .800
*SECNO 132.400

3301 HV CHANGED MORE THAN HVINS

        **D/S FACE OPDYKE RD.

    132.40      4.38    853.78      0.00      0.00    853.87      .08      1.09      .21    855.10
     480.       0.        273.      207.      0.        96.       151.      7.        4.     851.10
```

.17	0.00	2.85	1.38	.063	.063	.100	.063	849.40	320.47
.003552	130.	130.	130.	5	0	0	0.00	119.48	439.96

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.25	3.00	150.00	4.00	0.00	12.60	0.00	849.40	849.40

*SECNO 132.600
3280 CROSS SECTION 132.60 EXTENDED 1.40 FEET

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
881.95	854.23	0.00	321.	160.	13.	12.	852.50	856.10

132.60	7.29	856.89	0.00	0.00	856.90	.01	3.03	0.00	855.30
480.	33.	192.	255.	98.	216.	506.	7.	4.	851.30
.18	.34	.89	.50	.063	.063	.100	.063	849.60	224.00
.000174	31.	31.	31.	0	0	7	0.00	264.00	488.00

CCHV= .300 CEHV= .500
*SECNO 133.000

**CONCRETE FOOTBRIDGE

133.00	5.90	856.90	0.00	0.00	856.92	.02	.02	.01	854.50
480.	322.	135.	22.	335.	89.	54.	8.	5.	855.00
.20	.96	1.53	.41	.063	.063	.100	.063	851.00	171.36
.000648	60.	60.	60.	2	0	0	0.00	270.94	442.30

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.37	2.70	200.00	9.00	0.00	37.80	0.00	851.00	851.00

*SECNO 133.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860.33	856.92	0.00	400.	80.	38.	38.	855.20	855.80

133.10	5.98	856.98	0.00	0.00	857.00	.02	.08	0.00	854.50
480.	325.	131.	23.	352.	90.	59.	8.	5.	855.00
.20	.92	1.46	.40	.063	.063	.100	.063	851.00	165.35
.000573	8.	8.	8.	1	0	6	0.00	279.11	444.46

CCHV= .400 CEHV= .800
*SECNO 134.000

**D/S FACE DRIVEWAY - STONE ARCH

134.00	4.41	857.21	0.00	0.00	857.45	.24	.27	.18	856.30
480.	193.	284.	2.	98.	59.	4.	10.	6.	856.80
.21	1.98	4.84	.67	.063	.063	.100	.063	852.80	229.09
.011224	180.	180.	180.	2	0	0	0.00	176.19	405.28

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.63	2.60	100.00	9.00	0.00	17.50	0.00	852.80	852.80

*SECNO 134.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
876.25	858.25	0.00	342.	139.	18.	22.	855.20	857.60

134.10	5.98	858.78	0.00	0.00	858.80	.02	1.35	0.00	856.30
480.	325.	131.	23.	353.	90.	59.	10.	6.	856.80
.22	.92	1.45	.40	.063	.063	.100	.063	852.80	165.26
.000572	26.	26.	26.	1	0	6	0.00	279.24	444.50

*SECNO 135.000

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	ICC	ICONT	CORAR	TOPWID	ENDST

**D/S FACE DRIVEWAY - 3 FT. DIA. CMP

135.00	5.93	858.83	0.00	0.00	858.85	.02	.05	.00	856.40
480.	323.	134.	23.	340.	89.	56.	11.	6.	856.90
.24	.95	1.50	.41	.063	.063	.100	.063	852.90	169.39
.000622	85.	85.	85.	2	0	0	0.00	273.63	443.02

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD

0.00	2.35	2.90	100.00	3.00	0.00	7.10	0.00	852.90	852.90

*SECNO 135.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1025.61	858.85	0.00	464.	17.	7.	8.	855.70	857.20

135.10	6.11	859.01	0.00	0.00	859.03	.02	.18	0.00	856.40
480.	329.	126.	25.	380.	93.	66.	11.	7.	856.90
.25	.87	1.35	.38	.063	.063	.100	.063	852.90	156.15
.000477	32.	32.	32.	1	0	10	0.00	291.62	447.77

CCHV= .150 CEHV= .350
*SECNO 136.000

136.00	3.03	859.53	0.00	0.00	859.68	.16	.60	.05	858.00
480.	27.	154.	299.	18.	32.	145.	15.	9.	858.20
.29	1.51	4.77	2.07	.100	.063	.100	.063	856.50	127.63
.012922	450.	450.	450.	3	0	0	0.00	151.25	278.88

CCHV= .200 CEHV= .400
*SECNO 136.100

136.10	3.25	863.45	0.00	0.00	863.63	.17	3.94	.01	862.00
480.	15.	451.	15.	16.	131.	16.	17.	10.	862.00
.33	.92	3.43	.92	.100	.063	.100	.063	860.20	138.14
.005866	470.	470.	470.	4	0	0	0.00	93.71	231.86

*SECNO 137.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 864.60 ELREA= 864.60

**D/S FACE CONCRETE DRIVEWAY

137.30	3.13	864.43	0.00	0.00	864.75	.32	1.06	.06	864.00
480.	0.	480.	0.	0.	105.	0.	17.	10.	862.00
.34	0.00	4.57	0.00	.100	.063	.100	.063	861.30	280.00
.012176	130.	130.	130.	2	0	0	0.00	45.00	325.00

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.33	3.00	180.00	11.00	0.00	29.70	0.00	861.30	861.30

*SECNO 137.700

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
869.82	865.21	0.00	225.	256.	30.	36.	864.60	865.40
137.70	4.64	865.94	0.00	0.00	865.96	.01	1.21	0.00	861.80
480.	247.	146.	87.	367.	103.	121.	18.	10.	861.80
.35	.67	1.42	.72	.100	.063	.100	.063	861.30	57.61
.000494	14.	14.	14.	1	0	5	0.00	202.47	260.09

CCHV= .100 CEHV= .300

*SECNO 137.800

137.80	3.12	866.12	0.00	0.00	866.18	.06	.21	.01	863.50
480.	201.	188.	91.	173.	67.	64.	20.	11.	863.50
.38	1.17	2.78	1.42	.100	.063	.100	.063	863.00	81.41
.003319	200.	200.	200.	2	0	0	0.00	170.28	251.69

*SECNO 138.000

138.00	2.50	867.00	0.00	0.00	867.16	.16	.95	.03	865.00
480.	160.	225.	95.	105.	53.	45.	21.	12.	865.00
.39	1.52	4.22	2.13	.100	.063	.100	.063	864.50	90.99
.010466	175.	175.	175.	3	0	0	0.00	157.32	248.31

*SECNO 138.200

138.20	2.64	867.94	0.00	0.00	868.06	.12	.90	.00	865.80
480.	171.	214.	94.	120.	56.	49.	21.	12.	865.80
.40	1.43	3.80	1.92	.100	.063	.100	.063	865.30	88.86
.007858	100.	100.	100.	2	0	0	0.00	160.20	249.06

*SECNO 138.500

3301 HV CHANGED MORE THAN HVINS

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

138.50	3.63	870.73	870.73	0.00	871.69	.96	3.22	.25	875.30
480.	0.	480.	0.	0.	61.	0.	22.	13.	874.00
.41	0.00	7.86	0.00	.100	.063	.100	.063	867.10	248.91
.049899	200.	200.	200.	6	11	0	0.00	32.27	281.19

*SECNO 139.200

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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3470 ENCROACHMENT STATIONS=      100.0      382.0  TYPE=      1  TARGET=     -100.000
   139.20      5.54    874.14      0.00      0.00    874.32       .18      2.55       .08    876.80
    480.         0.      480.         0.        0.      142.        0.       22.        13.    875.50
     .43      0.00      3.39      0.00      .100      .063      .100      .063    868.60    245.19
 .005702      200.      200.      200.         6         0         0      0.00     52.25    297.43

CCHV=     .400 CEHV=     .600
*SECNO 139.300

3470 ENCROACHMENT STATIONS=      100.0      382.0  TYPE=      1  TARGET=     -100.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      876.50 ELREA=      876.50

        **D/S FACE HOODWARD AVE.

   139.30      4.88    875.18      0.00      0.00    875.48       .30      1.09       .07    878.50
    480.         0.      480.         0.        0.      109.        0.       23.        13.    877.20
     .44      0.00      4.39      0.00      .100      .063      .100      .063    870.30    246.48
 .011202      140.      140.      140.         4         0         0      0.00     45.30    291.79


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR      COFQ      RDLEN     BWC       BHP       BAREA     SS        ELCHU     ELCHD
     0.00      2.58      3.00     180.00     12.00     0.00      52.80     0.00      870.30    870.30

*SECNO 139.700
PRESSURE FLOW

 EGPRS      EGLWC      H3       QWEIR     QPR       BAREA     TRAPEZOID AREA     ELLC      ELTRD
 878.49     875.48     0.00        0.       480.       53.        53.          874.70    878.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      878.80 ELREA=      878.80

   139.70      8.15    878.45      0.00      0.00    878.49       .04      3.01       0.00    878.50
    480.         0.      480.         0.        0.      307.        0.       24.        13.    877.20
     .47      0.00      1.56      0.00      .100      .063      .100      .063    870.30    240.10
 .000629      200.      200.      200.         2         0         0      0.00     68.90    309.00

*SECNO 139.800

3470 ENCROACHMENT STATIONS=      200.0      400.0  TYPE=      1  TARGET=      200.000
   139.80      8.30    878.50      0.00      0.00    878.50       .00       .00        .01100000.00
    445.         0.      445.         0.        0.      1583.       0.       24.        14. 100000.00
     .50      0.00       .28      0.00      .100      .063      .100      .063    870.20    200.00
 .000010       30.       30.       30.         2         0         0      0.00     200.00    400.00

CCHV=     .200 CEHV=     .400
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*SECNO 140.000
   140.00      6.16    878.52      0.00      0.00    878.52       .00       .02       .00    873.10
     445.       237.       53.       155.       763.       93.       537.       56.       19.    873.40
    1.27       .31       .57       .29       .100      .063      .100      .063    872.36     28.99
 .000056       925.       925.       925.         2          0          0      0.00    340.66    369.64

CCHV=     .150 CEHV=     .300
*SECNO 141.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    ICC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      200.0     472.0  TYPE=     1  TARGET=     272.000
   141.00      1.67    878.67      0.00      0.00    878.77       .10       .22       .03    877.50
     445.       87.       81.       277.       53.       20.       127.       76.       26.    877.40
    1.40      1.65      3.96      2.18       .100      .063      .100      .063    877.00    236.33
 .015506      1100.      1100.      1100.         2          0          0      0.00    187.63    423.96

*SECNO 142.200

3470 ENCROACHMENT STATIONS=        .0     324.0  TYPE=     1  TARGET=     323.999
   142.20      2.48    882.88      0.00      0.00    882.90       .02      4.12       .01    881.40
     445.       47.       60.       338.       61.       30.       328.       82.       30.    881.50
    1.60       .77      2.01      1.03       .100      .063      .100      .063    880.40     48.97
 .002539      800.       800.       800.         5          0          0      0.00    275.03    324.00

CCHV=     .400 CEHV=     .800
*SECNO 142.300

3470 ENCROACHMENT STATIONS=        .0     324.0  TYPE=     1  TARGET=     323.999

        **D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

   142.30      2.89    883.09      0.00      0.00    883.10       .01       .20       .00    881.20
     445.       56.       54.       335.       86.       35.       410.       83.       31.    881.30
    1.63       .65      1.54       .82       .100      .063      .100      .063    880.20     46.35
 .001188      120.       120.       120.         3          0          0      0.00    277.65    324.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.16      3.00    200.00      8.50      0.00     30.90      0.00    880.20    880.20

*SECNO 142.700
3280 CROSS SECTION     142.70 EXTENDED        .60 FEET


PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID      ELLC      ELTRD
                                                              AREA
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890.05	883.97	0.00	177.	271.	31.	27.	883.33	885.23	
142.70	5.37	885.60	0.00	0.00	885.67	.07	2.57	0.00	882.00
445.	64.	305.	76.	71.	122.	84.	83.	31.	882.00
1.64	.90	2.50	.90	.100	.063	.100	.063	880.23	38.97
.001402	41.	41.	41.	2	0	5	0.00	109.03	148.00

CCHV= .300 CEHV= .600
*SECNO 142.800
3280 CROSS SECTION 142.80 EXTENDED .70 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

**TWO 3 FT. CMP'S

142.80	5.47	885.70	0.00	0.00	885.79	.09	.10	.01	882.00
445.	77.	279.	89.	59.	99.	65.	84.	31.	882.00
1.64	1.31	2.81	1.37	.100	.063	.100	.063	880.23	37.52
.009829	35.	35.	35.	2	0	0	-64.77	110.48	148.00

*SECNO 142.810
3280 CROSS SECTION 142.81 EXTENDED .82 FEET

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	IOC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

142.81	5.59	885.82	0.00	0.00	885.90	.08	.11	.00	882.00
445.	81.	271.	93.	64.	102.	70.	84.	31.	882.00
1.64	1.27	2.64	1.32	.100	.063	.100	.063	880.23	35.68
.008371	12.	12.	12.	2	0	0	-64.77	112.32	148.00

*SECNO 142.820
3280 CROSS SECTION 142.82 EXTENDED .75 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

**WCOD WEIR

142.82	5.52	885.85	0.00	0.00	885.95	.10	.04	.02	882.10
445.	64.	306.	75.	78.	101.	90.	84.	31.	882.10
1.65	.82	3.03	.84	.100	.025	.100	.063	880.33	36.79
.001111	15.	15.	15.	2	0	0	-24.49	111.21	148.00

*SECNO 142.830
3280 CROSS SECTION 142.83 EXTENDED .75 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

142.83	5.52	885.85	0.00	0.00	885.95	.10	.00	.00	882.10
445.	64.	306.	75.	78.	101.	90.	84.	31.	882.10
1.65	.82	3.02	.84	.100	.025	.100	.063	880.33	36.72
.001106	1.	1.	1.	0	0	0	-24.49	111.28	148.00

*SECNO 142.840

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

**CONC WEIR

142.84	4.56	886.06	0.00	0.00	886.18	.12	.22	.01	882.70
445.	150.	229.	66.	82.	66.	53.	84.	32.	884.00
1.66	1.82	3.45	1.24	.100	.063	.100	.063	881.50	79.03
.006444	100.	100.	100.	2	0	0	-46.54	129.50	208.54

*SECNO 142.850

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

142.85	4.57	886.07	0.00	0.00	886.19	.12	.01	.00	882.70
445.	150.	229.	66.	83.	66.	54.	84.	32.	884.00
1.66	1.82	3.44	1.24	.100	.063	.100	.063	881.50	78.98
.006406	1.	1.	1.	0	0	0	-46.54	129.75	208.73

*SECNO 142.860

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

**TWO 2.5°CMP°S

142.86	3.89	886.49	0.00	0.00	886.66	.18	.44	.04	883.80
445.	79.	347.	19.	55.	92.	24.	85.	32.	885.10
1.66	1.43	3.77	.80	.100	.063	.100	.063	882.60	89.21
.004769	80.	80.	80.	2	0	0	0.00	100.43	189.65

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.97	2.90	130.00	9.00	0.00	25.50	0.00	882.60	882.60

*SECNO 142.870
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
895.80	886.85	0.00	310.	138.	26.	31.	886.00	886.50
142.87	4.70	887.30	0.00	0.00	887.38	.08	.71	0.00	883.80
445.	99.	302.	43.	93.	112.	61.	85.	32.	885.10
1.67	1.07	2.69	.71	.100	.063	.100	.063	882.60	77.06
.001867	20.	20.	20.	2	0	5	0.00	138.72	215.78

*SECNO 142.500

**TWO 2.5 CMP'S

142.90	4.19	887.49	0.00	0.00	887.63	.13	.22	.03	884.50
445.	87.	330.	27.	68.	100.	36.	85.	32.	885.80
1.68	1.27	3.31	.76	.100	.063	.100	.063	883.30	84.58
.003306	90.	90.	90.	2	0	0	0.00	112.79	197.37

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	3.00	170.00	5.00	0.00	9.82	0.00	883.30	883.30

*SECNO 142.510

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
956.05	887.63	0.00	422.	22.	10.	12.	885.70	886.60
142.91	4.24	887.54	0.00	0.00	887.66	.13	.04	0.00	884.50
445.	88.	328.	29.	70.	101.	38.	85.	32.	885.80
1.68	1.25	3.25	.76	.100	.063	.100	.063	883.30	83.91
.003141	15.	15.	15.	2	0	8	0.00	114.57	198.48

*SECNO 142.530

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 885.70 MAX ELLC= 883.20

**CMC AND STONE WEIR

142.93	4.24	887.54	0.00	0.00	887.76	.21	.04	.05	884.50
445.	155.	218.	72.	60.	46.	38.	85.	32.	885.80
1.68	2.58	4.72	1.89	.100	.063	.100	.063	883.30	83.75
.019252	6.	6.	6.	1	0	0	-66.13	115.01	198.76

*SECNO 142.540

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

```
     TIME      VLOB      VCH       VROB      XAL       XACH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    ICC       ICONT     CORAR     TOPWID    ENDST

 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  885.70 MAX ELLC=  883.20

    142.94      4.26    887.56      0.00      0.00    887.78      .21       .02       .00     884.50
      445.       155.      218.       72.       60.       46.       38.       85.       32.     885.80
      1.68      2.58      4.71      1.88      .100      .063      .100      .063    883.30     83.71
   .019147        1.        1.        1.         0         0         0    -66.13    115.11    198.82

 CCHV=     .100 CEHV=     .300
 *SECNO 143.200

 3470 ENCROACHMENT STATIONS=       60.0      214.0  TYPE=       1  TARGET=      -60.000
    143.20      3.71    891.01      0.00      0.00    891.14      .13      3.36      .01     889.00
      445.       44.       244.      157.       37.       65.      107.       87.       33.     888.70
      1.71      1.20      3.76      1.46      .100      .063      .100      .063    887.30     64.71
   .005751       350.      350.      350.         4         0         0      0.00    139.43    204.14

 CCHV=     .300 CEHV=     .500
 *SECNO 143.210

 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20

 3470 ENCROACHMENT STATIONS=       60.0      214.0  TYPE=       1  TARGET=      -60.000

          **SIONE WEIR

     143.21      4.09    891.29      0.00      0.00    891.35      .06       .19       .02     888.90
       445.       78.       130.      237.       51.       48.      137.       87.       33.     888.60
       1.72      1.54      2.70      1.73      .100      .063      .100      .063    887.20     60.67
    .006703       30.       30.       30.         2         0         0    -28.22    152.97    213.64

 *SECNO 143.220

 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20

 3470 ENCROACHMENT STATIONS=       60.0      214.0  TYPE=       1  TARGET=      -60.000
    143.22      4.09    891.29      0.00      0.00    891.36      .06       .01       .00     888.90
      445.       78.       130.      237.       51.       48.      137.       87.       33.     888.60
      1.72      1.54      2.69      1.73      .100      .063      .100      .063    887.20     60.60
   .006627        1.        1.        1.         0         0         0    -28.22    153.19    213.79

 *SECNO 143.700
 3280 CROSS SECTION    143.70 EXTENDED       .20 FEET.

          **D/S FACE LAHSER RD.

     143.70      4.31    891.81      0.00      0.00    891.87      .06       .51       .00     889.20
       445.       59.       208.      178.       60.       77.      160.       88.       34.     888.90
       1.74       .99      2.69      1.11      .100      .063      .100      .063    887.50     58.34
```

.002333	140.	140.	140.	2	0	0	0.00	155.66	214.00

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.88	3.00	200.00	5.50	0.00	23.56	0.00	887.50	887.50

*SECNO 143.750

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
902.22	891.92	0.00	283.	163.	24.	18.	890.82	892.60
143.75	5.67	893.17	0.00	0.00	893.21	.03	1.33	0.00	893.70
445.	0.	445.	0.	0.	298.	0.	88.	34.	897.10
1.75	0.00	1.49	0.00	.100	.063	.100	.063	887.50	34.94
.001147	35.	35.	35.	2	0	6	0.00	116.23	151.16

CCHV= .100 CEHV= .300

*SECNO 143.760

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

143.76	2.30	893.30	893.30	0.00	893.98	.68	.03	.19	896.60
445.	0.	445.	0.	0.	67.	0.	88.	34.	900.00
1.75	0.00	6.61	0.00	.100	.063	.100	.063	891.00	82.03
.054552	10.	10.	10.	20	18	0	0.00	50.91	132.95

*SECNO 143.800

3301 HV CHANGED MORE THAN HVINS

143.80	4.09	895.29	0.00	0.00	895.44	.15	1.40	.05	897.40
445.	0.	445.	0.	0.	145.	0.	88.	34.	897.70
1.76	0.00	3.06	0.00	.100	.063	.100	.063	891.20	70.03
.005555	110.	110.	110.	5	0	0	0.00	62.38	132.41

```
CCHV=     .400 CEHV=     .800
*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      900.00 ELREA=      900.00

        **PLUGGED 3' DIA RCP

    144.30      3.39    897.89      0.00      0.00    898.17       .28      2.63       .11    900.70
     445.         0.     445.         0.        0.     105.         0.      89.        34.     901.00
      1.78      0.00      4.23      0.00      .100      .063      .100      .063    894.50     79.07
   .012808      325.     325.      325.         5         0         0      0.00     52.00     131.07


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR      COFQ       RDLEN      BWC       BWP       BAREA      SS        ELCHU      ELCHD
     0.00       2.20      2.90     150.00       3.00      0.00       7.07      0.00     894.50     894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

 EGPRS       EGLWC       H3        QWEIR       QPR       BAREA    TRAPEZOID      ELLC       ELTRD
                                                                     AREA
 1033.23     898.56      0.00        370.       78.         7.         8.      897.00     901.20

    144.70      7.58    902.08      0.00      0.00    902.10       .02      3.93       0.00    904.30
     445.         0.     445.         0.        0.     373.         0.      90.        35.     902.80
      1.79      0.00      1.19      0.00      .100      .063      .100      .063    894.50     22.25
   .000473       71.      71.       71.         2         0         9      0.00    103.44     125.68

CCHV=     .100 CEHV=     .300
*SECNO 145.000
   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      XAL        XNCH       XNR       WTN       ELMIN      SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IOC        ICONT     CORAR     TOPWID     ENDST

    145.00      5.78    902.18      0.00      0.00    902.25       .07       .14       .01    906.20
     445.         0.     445.         0.        0.     211.         0.      91.        35.     904.70
      1.82      0.00      2.11      0.00      .100      .063      .100      .063    896.40     40.15
   .002142      160.     160.      160.         2         0         0      0.00     77.34     117.49

CCHV=     .400 CEHV=     .800
*SECNO 146.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      903.00 ELREA=      903.00

        **CULVERT UNDER ASPHALT DRIVE

    146.30      4.31    902.91      0.00      0.00    903.15       .24       .77       .14    908.40
     445.         0.     445.         0.        0.     113.         0.      91.        35.     906.90
      1.83      0.00      3.92      0.00      .100      .063      .100      .063    898.60     54.84
```

.011114	185.	185.	185.	2	0	0	0.00	55.92	110.76

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.60	898.60

*SECNO 146.700
3280 CROSS SECTION 146.70 EXTENDED .04 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1041.33	903.07	0.00	383.	62.	7.	6.	900.50	905.00

146.70	7.03	905.63	0.00	0.00	905.64	.00	2.49	0.00	899.80
445.	249.	193.	3.	751.	289.	26.	93.	36.	904.40
1.89	.33	.67	.11	.100	.063	.100	.063	898.60	0.00
.000096	100.	100.	100.	0	0	10	0.00	338.00	338.00

CCHV= .100 CEHV= .300
*SECNO 146.800

146.80	6.64	905.64	0.00	0.00	905.65	.01	.01	.00	900.20
445.	243.	201.	1.	656.	266.	12.	54.	36.	904.80
1.92	.37	.76	.10	.100	.063	.100	.063	899.00	6.56
.000136	60.	60.	60.	2	0	0	0.00	319.46	326.03

CCHV= .300 CEHV= .500
*SECNO 146.900

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

**FOOTBRIDGE

146.90	6.65	905.65	0.00	0.00	905.71	.06	.04	.03	905.90
445.	0.	445.	0.	0.	234.	0.	95.	37.	905.90
1.93	0.00	1.90	0.00	.100	.063	.100	.063	899.00	174.29
.004569	90.	90.	90.	0	0	0	-153.39	122.31	296.59

*SECNO 146.910

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

146.91	6.80	905.80	0.00	0.00	905.85	.06	.15	0.00	905.90

445.	0.	445.	0.	0.	234.	0.	96.	37.	905.90
1.94	0.00	1.90	0.00	.100	.063	.100	.063	899.00	171.77
.004569	32.	32.	32.	2	0	0	-171.47	125.64	297.42

CCHV= .100 CEHV= .300

*SECNO 147.000

147.00	5.99	906.69	0.00	0.00	906.76	.07	.90	.00	905.10
445.	96.	348.	1.	130.	147.	4.	97.	38.	905.80
1.98	.74	2.37	.38	.100	.063	.100	.063	900.70	146.42
.002000	310.	310.	310.	3	0	0	0.00	174.17	320.58

*SECNO 148.000

148.00	1.57	911.87	911.50	0.00	912.10	.23	5.30	.05	914.20
445.	0.	445.	0.	0.	116.	0.	102.	41.	914.00
2.06	0.00	3.83	0.00	.100	.063	.100	.063	910.30	308.24
.021683	1125.	1125.	1125.	17	21	0	0.00	100.38	408.62

CCHV= .200 CEHV= .400

*SECNO 149.000

149.00	4.61	917.81	0.00	0.00	917.86	.05	5.72	.04	915.00
445.	151.	140.	154.	121.	55.	134.	107.	44.	915.40
2.23	1.25	2.57	1.14	.100	.063	.100	.063	913.20	150.83
.002506	1025.	1025.	1025.	7	0	0	0.00	155.85	306.68

*SECNO 150.000

150.00	4.01	921.81	0.00	0.00	922.25	.43	4.23	.15	922.00
445.	0.	445.	0.	0.	84.	0.	111.	46.	922.10
2.28	0.00	5.27	0.00	.100	.063	.100	.063	917.80	167.98
.015850	825.	825.	825.	4	0	0	0.00	33.78	201.76

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD HILLS

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: 100 YR, PRODUCTION RUN

00BREAK00

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

T1      JCB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      100 YEAR FLOW

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -1.       4.        0.        0.  0.000000      0.00     -1.0       0.   848.400     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
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*PROF 3

CCHV= .100 CEHV= .300
*SECNO 130.900

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

3470 ENCROACHMENT STATIONS= 326.0 376.0 TYPE= 1 TARGET= 50.000

**CONFLUENCE WITH STONYCROFT DRAIN

130.90	4.40	848.40	0.00	848.40	849.13	.73	0.00	0.00	846.00
570.	40.	492.	38.	16.	67.	18.	0.	0.	846.00
0.00	2.45	7.32	2.09	.100	.063	.100	0.000	844.00	326.00
.017412	0.	0.	0.	0	0	0	0.00	50.00	376.00

*SECNO 131.000

3301 HV CHANGED MORE THAN HVINS

131.00	4.06	850.56	0.00	0.00	850.58	.02	1.38	.07	901.40
570.	0.	266.	304.	0.	236.	334.	4.	2.	848.20
.12	0.00	1.13	.91	.100	.063	.100	.063	846.50	209.27
.001211	455.	455.	455.	7	0	0	0.00	301.60	510.87

*SECNO 132.200

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

132.20	3.02	852.12	852.12	0.00	852.78	.66	1.84	.19	854.80
570.	0.	410.	160.	0.	55.	53.	8.	4.	850.80
.15	0.00	7.43	3.01	.100	.063	.100	.063	849.10	325.91
.039330	525.	525.	525.	20	19	0	0.00	83.96	409.87

CCHV= .400 CEHV= .800
*SECNO 132.400

3301 HV CHANGED MORE THAN HVINS

**D/S FACE OPDYKE RD.

132.40	4.64	854.04	0.00	0.00	854.14	.09	1.13	.23	855.10

570.	0.	311.	259.	0.	104.	174.	8.	4.	851.10	
.16	0.00	2.98	1.48	.063	.063	.100	.063	849.40	318.68	
.003716	130.	130.	130.	5	0	0	0.00	127.09	445.77	

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.25	3.00	150.00	4.00	0.00	12.60	0.00	849.40	849.40

*SECNO 132.600
3280 CROSS SECTION 132.60 EXTENDED 1.55 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	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	ICC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
893.77	854.57	0.00	415.	157.	13.	12.	852.50	856.10

132.60	7.44	857.04	0.00	0.00	857.05	.01	2.91	0.00	855.30
570.	45.	224.	301.	110.	223.	526.	9.	5.	851.30
.18	.41	1.01	.57	.063	.063	.100	.063	849.60	224.00
.000215	31.	31.	31.	0	0	7	0.00	264.00	488.00

CCHV= .300 CEHV= .500
*SECNO 133.000

**CONCRETE FOOTBRIDGE

133.00	6.05	857.05	0.00	0.00	857.08	.02	.02	.01	854.50
570.	388.	153.	29.	365.	92.	62.	10.	5.	855.00
.19	1.06	1.67	.46	.063	.063	.100	.063	851.00	161.00
.000740	60.	60.	60.	2	0	0	0.00	285.03	446.03

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.37	2.70	200.00	9.00	0.00	37.80	0.00	851.00	851.00

*SECNO 133.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
861.89	857.08	0.00	484.	86.	38.	38.	855.20	855.80

133.10	6.14	857.14	0.00	0.00	857.16	.02	.09	0.00	854.50
570.	391.	149.	30.	384.	93.	67.	10.	5.	855.00
.19	1.02	1.59	.45	.063	.063	.100	.063	851.00	154.95
.000657	8.	8.	8.	2	0	8	0.00	293.25	448.20

CCHV= .400 CEHV= .800
*SECNO 134.000

**D/S FACE DRIVEWAY - STONE ARCH

134.00	4.60	857.40	0.00	0.00	857.61	.21	.30	.15	856.30
570.	269.	295.	6.	125.	63.	7.	11.	6.	856.80
.21	2.16	4.72	.81	.063	.063	.100	.063	852.80	226.91
.009839	180.	180.	180.	2	0	0	0.00	183.07	409.98

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.63	2.60	100.00	9.00	0.00	17.50	0.00	852.80	852.80

*SECNO 134.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.25	858.69	0.00	432.	139.	18.	22.	855.20	857.60

134.10	6.18	858.98	0.00	0.00	859.00	.02	1.39	0.00	856.30
570.	393.	147.	31.	393.	94.	70.	11.	6.	856.80
.21	1.00	1.56	.44	.063	.063	.100	.063	852.80	152.01
.000620	26.	26.	26.	2	0	6	0.00	297.24	449.25

*SECNO 135.000

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

**D/S FACE DRIVEWAY - 3 FT. DIA. CMP

135.00	6.14	859.04	0.00	0.00	859.06	.02	.05	.00	856.40
570.	391.	149.	30.	383.	93.	67.	12.	7.	856.90
.23	1.02	1.60	.45	.063	.063	.100	.063	852.90	155.24
.000660	85.	85.	85.	2	0	0	0.00	292.86	448.09

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.35	2.90	100.00	3.00	0.00	7.10	0.00	852.90	852.90

*SECNO 135.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1094.22	859.06	0.00	553.	18.	7.	8.	855.70	857.20

135.10	6.34	859.24	0.00	0.00	859.26	.02	.20	0.00	856.40
570.	398.	139.	33.	431.	97.	80.	13.	7.	856.90
.24	.92	1.43	.41	.063	.063	.100	.063	852.90	140.39
.000497	32.	32.	32.	1	0	10	0.00	313.03	453.42

CCHV= .150 CEHV= .350
*SECNO 136.000

136.00	3.27	859.77	0.00	0.00	859.91	.15	.61	.05	858.00
570.	39.	166.	365.	25.	35.	172.	17.	9.	858.20
.29	1.52	4.68	2.12	.100	.063	.100	.063	856.50	121.31
.010933	450.	450.	450.	2	0	0	0.00	159.32	280.62

CCHV= .200 CEHV= .400
*SECNO 136.100

136.10	3.43	863.63	0.00	0.00	863.84	.21	3.90	.02	862.00
570.	21.	528.	21.	20.	140.	20.	19.	11.	862.00
.32	1.05	3.77	1.05	.100	.063	.100	.063	860.20	135.55
.006516	470.	470.	470.	3	0	0	0.00	98.91	234.45

*SECNO 137.300

**D/S FACE CONCRETE DRIVEWAY

137.30	3.33	864.63	0.00	0.00	864.90	.26	1.04	.02	864.00
570.	14.	498.	58.	20.	114.	32.	20.	11.	862.00
.33	.69	4.37	1.78	.100	.063	.100	.063	861.30	216.69
.009998	130.	130.	130.	2	0	0	0.00	133.00	349.69

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.33	3.00	180.00	11.00	0.00	29.70	0.00	861.30	861.30

*SECNO 137.700

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
872.24	865.60	0.00	321.	251.	30.	36.	864.60	865.40
137.70	4.79	866.09	0.00	0.00	866.11	.02	1.21	0.00	861.80
570.	296.	170.	103.	387.	106.	127.	20.	11.	861.80
.34	.77	1.60	.81	.100	.063	.100	.063	861.30	55.32
.000604	14.	14.	14.	1	0	5	0.00	205.57	260.89

CCHV= .100 CEHV= .300

*SECNO 137.800

137.80	3.29	866.29	0.00	0.00	866.36	.07	.24	.02	863.50
570.	249.	214.	107.	194.	72.	70.	22.	12.	863.50
.36	1.29	2.99	1.53	.100	.063	.100	.063	863.00	78.64
.003548	200.	200.	200.	2	0	0	0.00	174.03	252.67

*SECNO 138.000

138.00	2.70	867.20	0.00	0.00	867.36	.16	.97	.03	865.00
570.	209.	249.	111.	126.	58.	51.	23.	13.	865.00
.38	1.66	4.31	2.18	.100	.063	.100	.063	864.50	87.88
.009769	175.	175.	175.	3	0	0	0.00	161.54	249.41

*SECNO 138.200

138.20	2.81	868.11	0.00	0.00	868.24	.13	.88	.00	865.80
570.	218.	242.	110.	138.	60.	54.	24.	13.	865.80
.39	1.58	4.01	2.04	.100	.063	.100	.063	865.30	86.25
.008010	100.	100.	100.	2	0	0	0.00	163.73	249.98

*SECNO 138.500

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	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	ICC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

138.50	3.91	871.01	871.01	0.00	872.03	1.01	3.24	.26	875.30
570.	0.	570.	0.	0.	71.	0.	25.	14.	874.00
.40	0.00	8.07	0.00	.100	.063	.100	.063	867.10	248.36
.048712	200.	200.	200.	7	11	0	0.00	35.23	283.59

*SECNO 139.200

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	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	ICC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 100.0 382.0 TYPE= 1 TARGET= -100.000

139.20	5.88	874.48	0.00	0.00	874.68	.20	2.57	.08	876.80
570.	0.	570.	0.	0.	160.	0.	25.	14.	875.50
.41	0.00	3.55	0.00	.100	.063	.100	.063	868.60	244.52
.005825	200.	200.	200.	6	0	0	0.00	55.84	300.36

CCHV= .400 CEHV= .600
*SECNO 139.300

3470 ENCROACHMENT STATIONS= 100.0 382.0 TYPE= 1 TARGET= -100.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 876.50 ELREA= 876.50

**D/S FACE WOODWARD AVE.

139.30	5.23	875.53	0.00	0.00	875.84	.32	1.09	.07	878.50
570.	0.	570.	0.	0.	126.	0.	26.	14.	877.20
.42	0.00	4.53	0.00	.100	.063	.100	.063	870.30	245.80
.010973	140.	140.	140.	4	0	0	0.00	48.96	294.76

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.58	3.00	180.00	12.00	0.00	52.80	0.00	870.30	870.30

*SECNO 139.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
880.20	875.84	0.00	76.	497.	53.	53.	874.70	878.80

139.70	8.73	879.03	0.00	0.00	879.07	.04	3.23	0.00	878.50
570.	5.	555.	9.	30.	347.	26.	27.	15.	877.20
.46	.18	1.60	.35	.100	.063	.100	.063	870.30	146.91
.000560	200.	200.	200.	2	0	4	0.00	195.93	342.84

*SECNO 139.800

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

139.80	8.88	879.08	0.00	0.00	879.09	.00	.00	.01	100000.00
525.	0.	525.	0.	0.	1699.	0.	28.	15.	100000.00
.48	0.00	.31	0.00	.100	.063	.100	.063	870.20	200.00
.000011	30.	30.	30.	2	0	0	0.00	200.00	400.00

CCHV= .200 CEHV= .400
*SECNO 140.000

140.00	6.74	879.10	0.00	0.00	879.11	.00	.02	.00	873.10
525.	279.	60.	186.	866.	102.	627.	63.	21.	873.40
1.23	.32	.58	.30	.100	.063	.100	.063	872.36	25.21
.000052	925.	925.	925.	2	0	0	0.00	354.35	379.56

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 CCHV=     .150 CEHV=     .300
 *SECNO 141.000
    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     ICC        ICONT      CORAR      TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=      200.0      472.0  TYPE=      1  TARGET=      272.000
    141.00       2.26     879.26       0.00       0.00     879.31       .05        .19        .02     877.50
      525.        129.       82.        314.       100.       28.        190.       87.        28.      877.40
      1.41       1.30       2.92       1.65       .100       .063       .100       .063     877.00     218.24
   .005541     1100.      1100.      1100.          2          0          0       0.00     212.08     430.31

 *SECNO 142.200

 3470 ENCROACHMENT STATIONS=        .0       324.0  TYPE=      1  TARGET=      323.999
    142.20       2.45     882.85       0.00       0.00     882.89       .03       3.57        .00     881.40
      525.         55.       71.        399.        60.       29.        324.       94.        32.      881.50
      1.57        .92       2.41       1.23       .100       .063       .100       .063     880.40     49.09
   .003676      800.       800.       800.          2          0          0       0.00     274.91     324.00


 CCHV=     .400 CEHV=     .800
 *SECNO 142.300

 3470 ENCROACHMENT STATIONS=        .0       324.0  TYPE=      1  TARGET=      323.999
      **D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

    142.30       2.95     883.15       0.00       0.00     883.16       .02        .27        .01     881.20
      525.         67.       63.        395.        90.       36.        420.       95.        33.      881.30
      1.60        .75       1.76       .94        .100       .063       .100       .063     880.20     46.02
   .001520      120.       120.       120.          2          0          0       0.00     277.98     324.00


 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       0.00       2.16       3.00     200.00       8.50       0.00      30.90       0.00     880.20     880.20

 *SECNO 142.700
 3280 CROSS SECTION     142.70 EXTENDED        .70 FEET


 PRESSURE AND WEIR FLOW

  EGPRS      EGLWC      H3         QWEIR      QPR        BAREA    TRAPEZOID AREA    ELLC       ELTRD
    892.83     884.31       0.00       251.       274.       31.        27.      883.33     885.23


    142.70       5.47     885.70       0.00       0.00     885.79       .09       2.63       0.00     882.00
      525.         78.       356.        92.        76.       124.        88.       95.        33.      882.00
      1.61        1.03       2.86       1.05       .100       .063       .100       .063     880.23     37.53
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.001781	41.	41.	41.	2	0	6	0.00	110.47	148.00

CCHV= .300 CEHV= .600
*SECNO 142.800
3280 CROSS SECTION 142.80 EXTENDED .82 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

**TWO 3 FT. CMP'S

142.80	5.59	885.82	0.00	0.00	885.93	.11	.13	.01	882.00
525.	96.	319.	110.	64.	102.	70.	95.	33.	882.00
1.61	1.49	3.12	1.56	.100	.063	.100	.063	880.23	35.69
.011662	35.	35.	35.	2	0	0	-64.77	112.31	148.00

*SECNO 142.810
3280 CROSS SECTION 142.81 EXTENDED .97 FEET

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

142.81	5.74	885.97	0.00	0.00	886.06	.09	.13	.00	882.00
525.	102.	309.	114.	71.	106.	76.	96.	33.	882.00
1.61	1.43	2.91	1.50	.100	.063	.100	.063	880.23	33.48
.009691	12.	12.	12.	2	0	0	-64.77	114.52	148.00

*SECNO 142.820
3280 CROSS SECTION 142.82 EXTENDED .90 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

**WOOD WEIR

142.82	5.67	886.00	0.00	0.00	886.12	.13	.04	.02	882.10
525.	78.	355.	92.	85.	105.	96.	96.	33.	882.10
1.62	.92	3.39	.96	.100	.025	.100	.063	880.33	34.55
.001336	15.	15.	15.	2	0	0	-24.49	113.45	148.00

*SECNO 142.830
3280 CROSS SECTION 142.83 EXTENDED .90 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

142.83	5.67	886.00	0.00	0.00	886.12	.12	.00	.00	882.10
525.	78.	355.	92.	85.	105.	96.	96.	33.	882.10
1.62	.92	3.39	.96	.100	.025	.100	.063	880.33	34.47
.001329	1.	1.	1.	0	0	0	-24.49	113.53	148.00

*SECNO 142.840

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

**CONC WEIR

142.84	4.75	886.25	0.00	0.00	886.38	.13	.25	.00	882.70
525.	178.	258.	88.	92.	71.	64.	96.	34.	884.00
1.63	1.93	3.63	1.37	.100	.063	.100	.063	881.50	76.22
.006601	100.	100.	100.	2	0	0	-46.54	142.63	218.85

*SECNO 142.850

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

142.85	4.76	886.26	0.00	0.00	886.38	.12	.01	.00	882.70
525.	178.	258.	88.	92.	71.	65.	96.	34.	884.00
1.63	1.93	3.63	1.37	.100	.063	.100	.063	881.50	76.17
.006563	1.	1.	1.	0	0	0	-46.54	142.89	219.06

*SECNO 142.860

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

**TWO 2.5'CMP'S

142.86	4.09	886.69	0.00	0.00	886.90	.20	.46	.05	883.80
525.	100.	396.	29.	64.	97.	32.	97.	34.	885.10
1.63	1.56	4.07	.92	.100	.063	.100	.063	882.60	86.11
.005181	80.	80.	80.	2	0	0	0.00	108.72	194.82

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.97	2.90	130.00	9.00	0.00	25.50	0.00	882.60	882.60

*SECNO 142.870
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
899.66	886.90	0.00	392.	133.	26.	31.	886.00	886.50

142.87	4.83	887.43	0.00	0.00	887.53	.10	.63	0.00	883.80
525.	121.	347.	57.	100.	116.	69.	97.	34.	885.10
1.64	1.20	3.00	.82	.100	.063	.100	.063	882.60	75.06
.002235	20.	20.	20.	2	0	6	0.00	148.06	223.12

*SECNO 142.900

**TWO 2.5 CMP'S

142.90	4.36	887.66	0.00	0.00	887.82	.16	.26	.03	884.50
525.	108.	379.	38.	76.	104.	43.	97.	34.	885.80
1.64	1.41	3.64	.87	.100	.063	.100	.063	883.30	82.04
.003795	90.	90.	90.	2	0	0	0.00	119.55	201.60

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	3.00	170.00	5.00	0.00	9.82	0.00	883.30	883.30

*SECNO 142.910
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
983.09	887.82	0.00	500.	22.	10.	12.	885.70	886.60

142.91	4.38	887.68	0.00	0.00	887.84	.15	.02	0.00	884.50
525.	108.	378.	39.	77.	105.	44.	97.	34.	885.80
1.65	1.40	3.61	.87	.100	.063	.100	.063	883.30	81.74
.003711	15.	15.	15.	2	0	8	0.00	120.36	202.10

*SECNO 142.930

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 885.70 MAX ELLC= 883.20

**CONC AND STONE WEIR

142.93	4.39	887.69	0.00	0.00	887.93	.24	.04	.05	884.50
525.	183.	251.	91.	67.	50.	45.	97.	34.	885.80
1.65	2.73	5.02	2.02	.100	.063	.100	.063	883.30	81.50
.019812	6.	6.	6.	1	0	0	-66.13	121.00	202.50

*SECNO 142.940

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 885.70 MAX ELLC= 883.20

```
      142.94      4.42    887.72      0.00      0.00    887.95       .24       .02       .00    884.50
        525.       183.      251.       92.       67.       50.       46.       97.       34.    885.80
        1.65      2.71      4.99      2.01      .100      .063      .100      .063    883.30     81.35
     .019436        1.        1.        1.         1         0         0    -66.13    121.39    202.74

 CCHV=     .100 CEHV=     .300
 *SECNO 143.200

 3470 ENCROACHMENT STATIONS=      60.0     214.0  TYPE=      1  TARGET=     -60.000
      143.20      3.91    891.21      0.00      0.00    891.35       .14      3.39       .01    889.00
        525.       59.      271.      195.       44.       69.      124.       99.       35.    888.70
        1.68      1.33      3.93      1.56      .100      .063      .100      .063    887.30     62.54
     .005776       350.      350.      350.         4         0         0      0.00    146.71    209.25

 CCHV=     .300 CEHV=     .500
 *SECNO 143.210
 3280 CROSS SECTION     143.21 EXTENDED        .18 FEET

 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20

 3470 ENCROACHMENT STATIONS=      60.0     214.0  TYPE=      1  TARGET=     -60.000

        **STONE WEIR

      143.21      4.28    891.48      0.00      0.00    891.55       .07       .18       .02    888.90
        525.       96.      147.      282.       59.       52.      155.       99.       35.    888.60
        1.69      1.64      2.81      1.82      .100      .063      .100      .063    887.20     60.00
     .006510       30.       30.       30.         2         0         0    -28.22    154.00    214.00

 *SECNO 143.220
 3280 CROSS SECTION     143.22 EXTENDED        .19 FEET

 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20

 3470 ENCROACHMENT STATIONS=      60.0     214.0  TYPE=      1  TARGET=     -60.000
      143.22      4.29    891.49      0.00      0.00    891.56       .07       .01       .00    888.90
        525.       96.      147.      282.       59.       52.      156.       99.       35.    888.60
        1.69      1.63      2.80      1.81      .100      .063      .100      .063    887.20     60.00
     .006442        1.        1.        1.         0         0         0    -28.22    154.00    214.00

 *SECNO 143.700
 3280 CROSS SECTION     143.70 EXTENDED        .41 FEET

        **D/S FACE LAHSER RD.

      143.70      4.52    892.02      0.00      0.00    892.09       .07       .52       .00    889.20
        525.       74.      233.      218.       69.       82.      180.      100.       36.    888.90
        1.71      1.08      2.86      1.21      .100      .063      .100      .063    887.50     56.08
```

.002448	140.	140.	140.	2	0	0	0.00	157.92	214.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BHP	BAREA	SS	ELCHU	ELCHD
	0.00	1.88	3.00	200.00	5.50	0.00	23.56	0.00	887.50	887.50

*SECNO 143.750

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
906.51	892.14	0.00	365.	158.	24.	18.	890.82	892.60

143.75	5.78	893.28	0.00	0.00	893.32	.04	1.24	0.00	893.70
525.	0.	525.	0.	0.	311.	0.	100.	36.	897.10
1.71	0.00	1.69	0.00	.100	.063	.100	.063	887.50	32.30
.001443	35.	35.	35.	2	0	6	0.00	119.58	151.87

CCHV= .100 CEHV= .300

*SECNO 143.760

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

143.76	2.47	893.47	893.47	0.00	894.21	.74	.04	.21	896.60
525.	0.	525.	0.	0.	76.	0.	100.	36.	900.00
1.71	0.00	6.89	0.00	.100	.063	.100	.063	891.00	80.99
.053063	10.	10.	10.	20	18	0	0.00	53.08	134.07

*SECNO 143.800

3301 HV CHANGED MORE THAN HVINS

143.80	4.35	895.55	0.00	0.00	895.71	.16	1.45	.06	897.40
525.	0.	525.	0.	0.	162.	0.	101.	36.	897.70
1.72	0.00	3.24	0.00	.100	.063	.100	.063	891.20	66.67
.005841	110.	110.	110.	5	0	0	0.00	66.23	132.90

CCHV= .400 CEHV= .800
*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.00 ELREA= 900.00

**PLUGGED 3' DIA RCP

144.30	3.69	898.19	0.00	0.00	898.48	.29	2.66	.10	900.70
525.	0.	525.	0.	0.	121.	0.	102.	37.	901.00
1.74	0.00	4.32	0.00	.100	.063	.100	.063	894.50	75.27
.012300	325.	325.	325.	5	0	0	0.00	56.37	131.64

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1086.56	898.84	0.00	450.	77.	7.	8.	897.00	901.20

144.70	7.69	902.19	0.00	0.00	902.22	.03	3.75	0.00	904.30
525.	0.	525.	0.	0.	386.	0.	102.	37.	902.80
1.76	0.00	1.36	0.00	.100	.063	.100	.063	894.50	21.05
.000603	71.	71.	71.	2	0	9	0.00	105.18	126.23

CCHV= .100 CEHV= .300
*SECNO 145.000

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

145.00	5.93	902.33	0.00	0.00	902.42	.09	.18	.02	906.20
525.	0.	525.	0.	0.	223.	0.	103.	37.	904.70
1.78	0.00	2.36	0.00	.100	.063	.100	.063	896.40	38.67
.002588	160.	160.	160.	2	0	0	0.00	79.49	118.16

CCHV= .400 CEHV= .800
*SECNO 146.300

**CULVERT UNDER ASPHALT DRIVE

146.30	4.57	903.17	0.00	0.00	903.43	.26	.87	.14	908.40
525.	0.	525.	0.	0.	128.	0.	104.	37.	906.90
1.79	0.00	4.10	0.00	.100	.063	.100	.063	898.60	52.29
.011215	185.	185.	185.	2	0	0	0.00	59.63	111.93

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.60	898.60

*SECNO 146.700
3280 CROSS SECTION 146.70 EXTENDED .13 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1095.82	903.36	0.00	465.	60.	7.	6.	900.50	905.00

146.70	7.12	905.72	0.00	0.00	905.73	.01	2.30	0.00	899.80
525.	295.	226.	4.	772.	294.	29.	105.	38.	904.40
1.84	.38	.77	.13	.100	.063	.100	.063	898.60	0.00
.000123	100.	100.	100.	0	0	10	0.00	338.00	338.00

CCHV= .100 CEHV= .300
*SECNO 146.800

146.80	6.73	905.73	0.00	0.00	905.74	.01	.01	.00	900.20
525.	288.	235.	2.	677.	271.	14.	107.	38.	904.80
1.87	.43	.87	.12	.100	.063	.100	.063	899.00	4.95
.000175	60.	60.	60.	2	0	0	0.00	324.03	328.98

CCHV= .300 CEHV= .500
*SECNO 146.900

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

**FOOTBRIDGE

146.90	6.74	905.74	0.00	0.00	905.82	.08	.05	.04	905.90
525.	0.	525.	0.	0.	234.	0.	108.	39.	905.90
1.88	0.00	2.25	0.00	.100	.063	.100	.063	899.00	172.71
.006359	90.	90.	90.	0	0	0	-164.66	124.40	297.11

*SECNO 146.910

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

146.91	7.01	906.01	0.00	0.00	906.08	.07	.26	.00	905.90
525.	0.	525.	0.	0.	248.	0.	108.	39.	905.90
1.88	.22	2.12	.22	.100	.063	.100	.063	899.00	165.40
.010723	32.	32.	32.	6	0	0	-184.52	136.63	302.03

CCHV= .100 CEHV= .300

*SECNO 147.000

147.00	6.38	907.08	0.00	0.00	907.14	.06	1.06	.00	905.10
525.	143.	379.	4.	181.	163.	8.	110.	40.	905.80
1.93	.79	2.32	.45	.100	.063	.100	.063	900.70	134.62
.001661	310.	310.	310.	4	0	0	0.00	189.77	324.39

*SECNO 148.000

148.00	1.55	911.85	0.00	0.00	912.18	.33	4.96	.08	914.20
525.	0.	525.	0.	0.	114.	0.	116.	44.	914.00
1.99	0.00	4.62	0.00	.100	.063	.100	.063	910.30	308.59
.032108	1125.	1125.	1125.	3	0	0	0.00	99.54	408.13

CCHV= .200 CEHV= .400

*SECNO 149.000

149.00	4.92	918.12	0.00	0.00	918.17	.05	5.93	.06	915.00
525.	180.	156.	188.	141.	60.	159.	122.	47.	915.40
2.17	1.28	2.62	1.18	.100	.063	.100	.063	913.20	147.08
.002330	1025.	1025.	1025.	8	0	0	0.00	165.04	312.12

*SECNO 150.000

150.00	4.20	922.00	0.00	0.00	922.52	.52	4.16	.19	922.00
525.	0.	525.	0.	0.	91.	0.	126.	49.	922.10
2.21	0.00	5.78	0.00	.100	.063	.100	.063	917.80	166.84
.018075	825.	825.	825.	4	0	0	0.00	35.08	201.92



1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: 500 YR - PRODUCTION RUN



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**************************************************
* HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
* ERROR CORR -  01,02,03
* MODIFICATION -  50,51,52,53
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T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      500 YEAR FLOW

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -1.       5.        0.        0.  0.000000      0.00     -1.0       0.     848.800     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 4

CCHV= .100 CEHV= .300
*SECNO 130.900

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS=		326.0	376.0	TYPE=	1	TARGET=		50.000	
**CONFLUENCE WITH STONYCROFT DRAIN									
130.90	4.80	848.80	0.00	848.80	849.78	.98	0.00	0.00	846.00
780.	64.	643.	73.	21.	74.	27.	0.	0.	846.00
0.00	3.10	8.65	2.71	.100	.063	.100	0.000	844.00	326.00
.021233	0.	0.	0.	0	0	0	0.00	50.00	376.00

*SECNO 131.000

3301 HV CHANGED MORE THAN HVINS

131.00	4.61	851.11	0.00	0.00	851.13	.02	1.25	.10	901.40
780.	0.	378.	402.	0.	322.	423.	5.	2.	848.20
.12	0.00	1.18	.95	.100	.063	.100	.063	846.50	189.88
.001025	455.	455.	455.	6	0	0	0.00	330.08	519.95

*SECNO 132.200

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

132.20	3.36	852.46	852.46	0.00	853.20	.75	1.60	.22	854.80
780.	0.	523.	257.	0.	64.	73.	10.	5.	850.80
.14	0.00	8.11	3.51	.100	.063	.100	.063	849.10	324.57
.040668	525.	525.	525.	20	19	0	0.00	92.67	417.25

CCHV= .400 CEHV= .800
*SECNO 132.400

3301 HV CHANGED MORE THAN HVINS

**D/S FACE OPDYKE RD.

132.40	5.16	854.56	0.00	0.00	854.66	.10	1.19	.26	855.10

780.	0.	390.	390.	0.	124.	227.	11.	5.	851.10
.16	0.00	3.15	1.72	.063	.063	.100	.063	849.40	313.91
.003950	130.	130.	130.	4	0	0	0.00	148.94	462.86

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.25	3.00	150.00	4.00	0.00	12.60	0.00	849.40	849.40

*SECNO 132.600
3280 CROSS SECTION 132.60 EXTENDED 1.84 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	XAL	XACH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	ICC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
928.94	855.26	0.00	629.	151.	13.	12.	852.50	856.10

132.60	7.74	857.34	0.00	0.00	857.35	.01	2.69	0.00	855.30
780.	76.	298.	406.	135.	236.	566.	11.	5.	851.30
.17	.56	1.26	.72	.063	.063	.100	.063	849.60	224.00
.000313	31.	31.	31.	1	0	8	0.00	264.00	488.00

CCHV= .300 CEHV= .500
*SECNO 133.000

**CONCRETE FOOTBRIDGE

133.00	6.36	857.36	0.00	0.00	857.39	.03	.03	.01	854.50
780.	545.	190.	45.	432.	98.	80.	12.	5.	855.00
.18	1.26	1.95	.56	.063	.063	.100	.063	851.00	139.88
.000923	60.	60.	60.	2	0	0	0.00	313.72	453.60

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.37	2.70	200.00	9.00	0.00	37.80	0.00	851.00	851.00

*SECNO 133.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
866.42	857.39	0.00	684.	96.	38.	38.	855.20	855.80

133.10	6.47	857.47	0.00	0.00	857.50	.03	.11	0.00	854.50
780.	549.	184.	47.	458.	100.	88.	12.	5.	855.00
.18	1.20	1.84	.54	.063	.063	.100	.063	851.00	132.29
.000803	8.	8.	8.	2	0	7	0.00	324.04	456.33

CCHV= .400 CEHV= .800
*SECNO 134.000

**D/S FACE DRIVEWAY - STONE ARCH

134.00	4.97	857.77	0.00	0.00	857.96	.19	.34	.13	856.30
780.	439.	325.	16.	178.	70.	16.	14.	7.	856.80
.19	2.47	4.65	.99	.063	.063	.100	.063	852.80	222.65
.008209	180.	180.	180.	2	0	0	0.00	196.49	419.14

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.63	2.60	100.00	9.00	0.00	17.50	0.00	852.80	852.80

*SECNO 134.100
3280 CROSS SECTION 134.10 EXTENDED .10 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
908.05	857.96	0.00	635.	141.	18.	22.	855.20	857.60

134.10	6.60	859.40	0.00	0.00	859.42	.02	1.46	0.00	856.30
780.	554.	177.	49.	489.	102.	96.	14.	7.	856.80
.20	1.13	1.73	.51	.063	.063	.100	.063	852.80	130.00
.000683	26.	26.	26.	2	0	7	0.00	329.53	459.53

*SECNO 135.000
3280 CROSS SECTION 135.00 EXTENDED .05 FEET

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

**D/S FACE DRIVEWAY - 3 FT. DIA. CMP

135.00	6.56	859.46	0.00	0.00	859.48	.03	.06	.00	856.40
780.	552.	179.	48.	479.	102.	93.	16.	7.	856.90
.22	1.15	1.76	.52	.063	.063	.100	.063	852.90	130.00
.000719	85.	85.	85.	2	0	0	0.00	328.50	458.50

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.35	2.90	100.00	3.00	0.00	7.10	0.00	852.90	852.90

*SECNO 135.100
3280 CROSS SECTION 135.10 EXTENDED .32 FEET

PRESSURE ANC WEIR FLOW

EGPRS	EGLAC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRO
1299.86	859.48	0.00	762.	20.	7.	8.	855.70	857.20
135.10	6.82	859.72	0.00	0.00	859.74	.02	.25	0.00	856.40
780.	561.	166.	52.	541.	107.	112.	16.	8.	856.90
.23	1.04	1.56	.47	.063	.063	.100	.063	852.90	130.00
.000523	32.	32.	32.	2	0	9	0.00	334.98	464.98

CCHV= .150 CEHV= .350
*SECNO 136.000

136.00	3.75	860.25	0.00	0.00	860.39	.14	.61	.04	858.00
780.	70.	196.	514.	44.	42.	227.	22.	10.	858.20
.27	1.59	4.71	2.27	.100	.063	.100	.063	856.50	109.22
.008959	450.	450.	450.	2	0	0	0.00	174.74	283.95

CCHV= .200 CEHV= .400
*SECNO 136.100
3280 CROSS SECTION 136.10 EXTENDED .01 FEET

136.10	3.81	864.01	0.00	0.00	864.29	.27	3.84	.05	862.00
780.	39.	701.	39.	30.	159.	30.	25.	12.	862.00
.30	1.30	4.41	1.29	.100	.063	.100	.063	860.20	129.20
.007497	470.	470.	470.	4	0	0	0.00	110.80	240.00

*SECNO 137.300

**D/S FACE CONCRETE DRIVEWAY

137.30	3.79	865.09	0.00	0.00	865.38	.29	1.09	.01	864.00
780.	57.	637.	86.	59.	134.	45.	25.	12.	862.00
.31	.96	4.74	1.92	.100	.063	.100	.063	861.30	171.23
.009431	130.	130.	130.	1	0	0	0.00	182.71	353.95

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.33	3.00	180.00	11.00	0.00	29.70	0.00	861.30	861.30

*SECNO 137.700

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	IOC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
879.33	866.46	0.00	543.	237.	30.	36.	864.60	865.40

137.70	5.08	866.38	0.00	0.00	866.40	.03	1.02	0.00	861.80
780.	413.	226.	141.	427.	112.	139.	25.	12.	861.80
.32	.97	2.01	1.02	.100	.063	.100	.063	861.30	51.01
.000876	14.	14.	14.	2	0	6	0.00	211.40	262.41

CCHV= .100 CEHV= .300

*SECNO 137.800

137.80	3.66	866.66	0.00	0.00	866.75	.09	.33	.02	863.50
780.	363.	273.	144.	237.	80.	83.	28.	13.	863.50
.34	1.53	3.42	1.75	.100	.063	.100	.063	863.00	73.01
.003999	200.	200.	200.	2	0	0	0.00	181.65	254.66

*SECNO 138.000

138.00	3.11	867.61	0.00	0.00	867.77	.16	1.00	.02	865.00
780.	327.	305.	148.	172.	67.	64.	29.	14.	865.00
.36	1.90	4.54	2.32	.100	.063	.100	.063	864.50	81.53
.008873	175.	175.	175.	2	0	0	0.00	170.12	251.65

*SECNO 138.200

138.20	3.17	868.47	0.00	0.00	868.62	.15	.85	.00	865.80
780.	331.	302.	147.	178.	69.	66.	30.	14.	865.80
.37	1.86	4.40	2.25	.100	.063	.100	.063	865.30	80.69
.008139	100.	100.	100.	2	0	0	0.00	171.26	251.95

*SECNO 138.500

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	IOC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

138.50	4.47	871.57	871.57	0.00	872.69	1.12	3.24	.29	875.30
780.	0.	780.	0.	0.	92.	0.	31.	15.	874.00
.37	0.00	8.50	0.00	.100	.063	.100	.063	867.10	247.28
.046635	200.	200.	200.	3	11	0	0.00	41.02	288.31

*SECNO 139.200

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 100.0 382.0 TYPE= 1 TARGET= -100.000

139.20	6.57	875.17	0.00	0.00	875.40	.24	2.62	.09	876.80
780.	0.	780.	0.	0.	200.	0.	32.	15.	875.50
.39	0.00	3.89	0.00	.100	.063	.100	.063	868.60	243.20
.006076	200.	200.	200.	5	0	0	0.00	62.90	306.10

CCHV= .400 CEHV= .600

*SECNO 139.300

3470 ENCROACHMENT STATIONS= 100.0 382.0 TYPE= 1 TARGET= -100.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 876.50 ELREA= 876.50

**D/S FACE WOODWARD AVE.

139.30	5.92	876.22	0.00	0.00	876.57	.36	1.10	.07	878.50
780.	0.	780.	0.	0.	163.	0.	32.	15.	877.20
.39	0.00	4.80	0.00	.100	.063	.100	.063	870.30	244.44
.010521	140.	140.	140.	3	0	0	0.00	56.26	300.70

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.58	3.00	180.00	12.00	0.00	52.80	0.00	870.30	870.30

*SECNO 139.700

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.96	876.58	0.00	305.	477.	53.	53.	874.70	878.80

139.70	9.13	879.43	0.00	0.00	879.48	.06	2.91	0.00	878.50
780.	22.	739.	19.	77.	374.	42.	34.	16.	877.20
.42	.28	1.97	.47	.100	.063	.100	.063	870.30	92.70
.000771	200.	200.	200.	2	0	5	0.00	260.66	353.36

*SECNO 139.800

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

139.80	9.30	879.50	0.00	0.00	879.51	.00	.00	.02100000.00

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      730.        0.      730.        0.        0.     1783.        0.       35.       16.  100000.00
       .44       0.00       .41       0.00      .100      .063      .100      .063   870.20    200.00
  .000018        30.       30.        30.         2         0         0      0.00   200.00    400.00


 CCHV=     .200 CEHV=     .400
 *SECNO 140.000
    140.00      7.17   879.53      0.00      0.00   879.54       .00       .03       .00   873.10
       730.      387.      80.      263.      944.      109.      698.      72.       22.    873.40
      1.04       .41       .74       .38      .100      .063      .100      .063   872.36    22.43
  .000076       925.      925.      925.         2         0         0      0.00   364.45    386.88


 CCHV=     .150 CEHV=     .300
 *SECNO 141.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XAL       XACH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 3470 ENCROACHMENT STATIONS=      200.0     472.0  TYPE=      1  TARGET=     272.000
    141.00      2.76   879.76      0.00      0.00   879.81       .05       .26       .02   877.50
       730.      205.     103.      422.      146.       35.      248.      100.       30.    877.40
      1.21       1.40      2.99      1.70      .100      .063      .100      .063   877.00    208.96
  .004398       1100.     1100.     1100.         2         0         0      0.00   226.80    435.77


 *SECNO 142.200
 3470 ENCROACHMENT STATIONS=        .0     324.0  TYPE=      1  TARGET=     323.999
    142.20      2.75   883.15      0.00      0.00   883.19       .04      3.38       .00   881.40
       730.       87.      91.      552.       78.       33.      382.      108.       34.    881.50
      1.35       1.12      2.74      1.44      .100      .063      .100      .063   880.40    47.23
  .004057       800.      800.      800.         5         0         0      0.00   276.77    324.00


 CCHV=     .400 CEHV=     .800
 *SECNO 142.300
 3470 ENCROACHMENT STATIONS=        .0     324.0  TYPE=      1  TARGET=     323.999

         **D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

    142.30      3.28   883.48      0.00      0.00   883.51       .02       .31       .01   881.20
       730.      102.      82.      546.      112.       40.      489.      110.       35.    881.30
      1.38       .91      2.05      1.12      .100      .063      .100      .063   880.20    43.82
  .001756       120.      120.      120.         2         0         0      0.00   280.18    324.00


 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       0.00      2.16      3.00    200.00      8.50      0.00     30.90      0.00    880.20    880.20

 *SECNO 142.700
 3280 CROSS SECTION    142.70 EXTENDED        .92 FEET
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PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
902.20	885.22	0.00	461.	271.	31.	27.	883.33	885.23
142.70	5.69	885.92	0.00	0.00	886.07	.15	2.56	0.00	882.00
730.	115.	480.	135.	86.	130.	97.	110.	35.	882.00
1.38	1.33	3.70	1.40	.100	.063	.100	.063	880.23	34.20
.002809	41.	41.	41.	2	0	6	0.00	113.80	148.00

CCHV= .300 CEHV= .600
*SECNO 142.800
3280 CROSS SECTION 142.80 EXTENDED 1.11 FEET

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

**TWO 3 FT. CMP'S

142.80	5.88	886.11	0.00	0.00	886.26	.15	.19	.00	882.00
730.	152.	415.	164.	79.	110.	82.	110.	35.	882.00
1.38	1.93	3.78	2.00	.100	.063	.100	.063	880.23	32.16
.015630	35.	35.	35.	2	0	0	-64.77	115.84	148.00

*SECNO 142.810
3280 CROSS SECTION 142.81 EXTENDED 1.31 FEET

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

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

142.81	6.08	886.31	0.00	0.00	886.44	.13	.17	.01	882.00
730.	165.	396.	169.	89.	115.	90.	110.	35.	882.00
1.38	1.85	3.45	1.88	.100	.063	.100	.063	880.23	30.65
.012282	12.	12.	12.	2	0	0	-64.77	117.35	148.00

*SECNO 142.820
3280 CROSS SECTION 142.82 EXTENDED 1.25 FEET

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

**WOOD WEIR

```
    142.82      6.02    886.35      0.00      0.00    886.53       .19       .06       .04   882.10
     730.       119.     476.       135.      103.     114.      110.      110.       35.    882.10
     1.39       1.16     4.19       1.23      .100     .025      .100      .063   880.33    31.15
  .001864        15.      15.        15.         2        0         0    -24.49   116.85   148.00

 *SECNO 142.830
 3280 CROSS SECTION     142.83 EXTENDED       1.25 FEET


 3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   881.80 MAX ELLC=   880.35

    142.83      6.02    886.35      0.00      0.00    886.53       .18       .00       .00   882.10
     730.       119.     476.       135.      103.     114.      110.      110.       35.    882.10
     1.39       1.16     4.18       1.23      .100     .025      .100      .063   880.33    31.10
  .001853          1.       1.         1.         0        0         0    -24.49   116.90   148.00

 *SECNO 142.840

 3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   883.40 MAX ELLC=   881.40

        **CCNC WEIR

    142.84      5.23    886.73      0.00      0.00    886.86       .14       .31       .01   882.70
     730.       251.     324.       156.      120.      83.      101.      111.       36.    884.00
     1.40       2.10     3.90       1.54      .100     .063      .100      .063   881.50    69.08
  .006324        100.     100.       100.         2        0         0    -46.54   175.95   245.03

 *SECNO 142.850

 3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   883.40 MAX ELLC=   881.40

    142.85      5.23    886.73      0.00      0.00    886.87       .14       .01       .00   882.70
     730.       251.     324.       156.      120.      83.      101.      111.       36.    884.00
     1.40       2.09     3.90       1.54      .100     .063      .100      .063   881.50    69.06
  .006313          1.       1.         1.         0        0         0    -46.54   176.04   245.10

 *SECNO 142.860
    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      XAL        XACH      XNR       WTN      ELMIN       SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID      ENDST

        **TWO 2.5'CMP'S

    142.86      4.57    887.17      0.00      0.00    887.42       .25       .48       .07   883.80
     730.       158.     509.       63.       87.      109.      54.       112.       36.    885.10
     1.40       1.82     4.65       1.18      .100     .063      .100      .063   882.60    78.94
  .005803         80.      80.        80.         2        0         0      0.00   129.97   208.90


 SPECIAL BRIDGE
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5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.97	2.90	130.00	9.00	0.00	25.50	0.00	882.60	882.60

*SECNO 142.870
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
912.24	887.42	0.00	607.	124.	26.	31.	886.00	886.50

142.87	5.16	887.76	0.00	0.00	887.90	.14	.48	0.00	883.80
730.	178.	452.	100.	119.	124.	95.	112.	36.	885.10
1.40	1.49	3.65	1.05	.100	.063	.100	.063	882.60	70.08
.003010	20.	20.	20.	2	0	6	0.00	171.28	241.37

*SECNO 142.900

**TWO 2.5 CMP'S

142.90	4.77	888.07	0.00	0.00	888.27	.20	.33	.04	884.50
730.	165.	489.	76.	97.	114.	65.	112.	36.	885.80
1.41	1.71	4.28	1.16	.100	.063	.100	.063	883.30	75.99
.004634	90.	90.	90.	2	0	0	0.00	143.70	219.69

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	3.00	170.00	5.00	0.00	9.82	0.00	883.30	883.30

*SECNO 142.910
6870 D.S. ENERGY OF 888.27 HIGHER THAN COMPUTED ENERGY OF 888.25
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1072.56	888.27	0.00	707.	23.	10.	12.	885.70	886.60

142.91	4.77	888.07	0.00	0.00	888.27	.20	0.00	0.00	884.50
730.	166.	489.	76.	97.	114.	65.	113.	36.	885.80
1.41	1.71	4.28	1.16	.100	.063	.100	.063	883.30	75.96
.004622	15.	15.	15.	2	0	10	0.00	143.86	219.82

*SECNO 142.930

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 885.70 MAX ELLC= 883.20

**CONC AND STONE WEIR

142.93	4.79	888.09	0.00	0.00	888.35	.26	.05	.03	884.50
730.	256.	320.	155.	87.	60.	67.	113.	36.	885.80

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      1.41      2.93      5.34      2.30      .100      .063      .100      .063   883.30    75.57
   .017977        6.        6.        6.         0         0         0    -66.13   145.67   221.24

 *SECNO 142.940
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALCB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XAL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    ICC       ICONT     CORAR     TOPWID      ENDST

 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  885.70 MAX ELLC=  883.20

    142.94      4.82   888.12      0.00      0.00   888.37       .25       .02       .00   884.50
     730.       256.      319.      156.       88.       60.       68.      113.       36.    885.80
      1.41      2.90      5.29      2.28      .100      .063      .100      .063   883.30    75.33
   .017476        1.        1.        1.         1         0         0    -66.13   146.78   222.11

 CCHV=     .100 CEHV=     .300
 *SECNO 143.200
 3280 CROSS SECTION    143.20 EXTENDED       .21 FEET

 3470 ENCROACHMENT STATIONS=      60.0      214.0  TYPE=      1  TARGET=      -60.000
    143.20      4.31   891.61      0.00      0.00   891.78       .16      3.40       .01   889.00
     730.       97.       340.      293.       60.       77.      161.      115.       38.    888.70
      1.45      1.62      4.38      1.82      .100      .063      .100      .063   887.30    60.00
   .006167       350.      350.      350.         3         0         0      0.00   154.00   214.00

 CCHV=     .300 CEHV=     .500
 *SECNO 143.210
 3280 CROSS SECTION    143.21 EXTENDED       .61 FEET

 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20

 3470 ENCROACHMENT STATIONS=      60.0      214.0  TYPE=      1  TARGET=      -60.000

        **STONE WEIR

    143.21      4.71   891.91      0.00      0.00   891.99       .09       .19       .02   888.90
     730.       142.      190.      398.       76.       61.      194.      115.       38.    888.60
      1.45      1.88      3.11      2.05      .100      .063      .100      .063   887.20    60.00
   .006466       30.       30.       30.         2         0         0    -28.22   154.00   214.00

 *SECNO 143.220
 3280 CROSS SECTION    143.22 EXTENDED       .61 FEET

 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20

 3470 ENCROACHMENT STATIONS=      60.0      214.0  TYPE=      1  TARGET=      -60.000
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143.22	4.71	891.91	0.00	0.00	892.00	.08	.01	.00	888.90
730.	142.	190.	398.	76.	61.	195.	115.	38.	888.60
1.45	1.88	3.11	2.04	.100	.063	.100	.063	887.20	60.00
.006408	1.	1.	1.	0	0	0	-28.22	154.00	214.00

*SECNO 143.700
3280 CROSS SECTION 143.70 EXTENDED .87 FEET

**D/S FACE LAHSER RD.

143.70	4.97	892.47	0.00	0.00	892.56	.08	.56	.00	889.20
730.	115.	296.	319.	90.	91.	222.	116.	38.	888.90
1.47	1.28	3.24	1.44	.100	.063	.100	.063	887.50	51.13
.002715	140.	140.	140.	2	0	0	0.00	162.87	214.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.88	3.00	200.00	5.50	0.00	23.56	0.00	887.50	887.50

*SECNO 143.750

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
920.50	892.64	0.00	585.	145.	24.	18.	890.82	892.60

143.75	6.01	893.51	0.00	0.00	893.58	.07	1.03	0.00	893.70
730.	0.	730.	0.	0.	340.	0.	116.	38.	897.10
1.47	0.00	2.15	0.00	.100	.063	.100	.063	887.50	26.61
.002247	35.	35.	35.	2	0	7	0.00	126.80	153.40

CCHV= .100 CEHV= .300
*SECNO 143.760

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

143.76	2.88	893.88	893.88	0.00	894.72	.84	.06	.23	896.60
730.	0.	730.	0.	0.	99.	0.	116.	38.	900.00
1.47	0.00	7.36	0.00	.100	.063	.100	.063	891.00	77.92
.049019	10.	10.	10.	20	11	0	0.00	58.86	136.78

*SECNO 143.800

3301 HV CHANGED MORE THAN HVINS

143.80	4.95	896.15	0.00	0.00	896.35	.19	1.56	.06	897.40
730.	0.	730.	0.	0.	207.	0.	117.	39.	897.70
1.48	0.00	3.53	0.00	.100	.063	.100	.063	891.20	52.44
.006620	110.	110.	110.	4	0	0	0.00	81.62	134.06

CCHV= .400 CEHV= .800

*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.00 ELREA= 900.00

**PLUGGED 3' DIA RCP

144.30	4.37	898.87	0.00	0.00	899.18	.31	2.74	.09	900.70
730.	0.	730.	0.	0.	163.	0.	118.	39.	901.00
1.50	0.00	4.48	0.00	.100	.063	.100	.063	894.50	66.47
.011111	325.	325.	325.	5	0	0	0.00	66.46	132.93

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1263.07	899.48	0.00	65E.	73.	7.	8.	897.00	901.20

144.70	7.97	902.47	0.00	0.00	902.52	.05	3.34	0.00	904.30
730.	0.	730.	0.	0.	415.	0.	119.	39.	902.80
1.51	0.00	1.76	0.00	.100	.063	.100	.063	894.50	18.30
.000959	71.	71.	71.	2	0	9	0.00	109.18	127.49

CCHV= .100 CEHV= .300

*SECNO 145.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	ICC	ICONT	CORAR	TOPWID	ENDST
145.00	6.28	902.68	0.00	0.00	902.81	.13	.27	.02	906.20

```
      730.       0.      730.       0.       0.     251.       0.     120.      40.    904.70
      1.53     0.00      2.90     0.00     .100     .063     .100     .063  896.40     35.18
   .003629     160.      160.      160.        2        0        0     0.00   84.58    119.76

CCHV=     .400 CEHV=     .800
*SECNO 146.300

        **CULVERT UNDER ASPHALT DRIVE

    146.30      5.14   903.74     0.00     0.00   904.04      .31     1.09     .14    908.40
      730.       0.      730.       0.       0.     164.       0.     121.      40.    906.90
      1.54     0.00      4.45     0.00     .100     .063     .100     .063  898.60     46.64
   .011257     185.      185.      185.        2        0        0     0.00   67.87    114.51


SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR      COFQ      RDLEN      BWC       BWP       BAREA      SS        ELCHU     ELCHD
     0.00      2.25      3.00     250.00      3.00      0.00       7.07      0.00     898.60    898.60

*SECNO 146.700
3280 CROSS SECTION    146.70 EXTENDED       .34 FEET


PRESSURE AND WEIR FLOW

  EGPRS      EGLWC      H3       QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                              AREA
 1276.22    903.99     0.00       675.       56.        7.        6.      900.50    905.00


    146.70     7.33   905.93     0.00     0.00   905.94      .01     1.89     0.00    899.80
      730.     414.      308.       7.      822.     306.      37.     122.      40.    904.40
      1.58      .50      1.01      .20     .100     .063     .100     .063  898.60      0.00
   .000200     100.      100.      100.        0        0        9     0.00   338.00    338.00


CCHV=     .100 CEHV=     .300
*SECNO 146.800
    146.80     6.94   905.94     0.00     0.00   905.95      .01      .01      .00    900.20
      730.     406.      320.       4.      727.     283.      22.     124.      41.    904.80
      1.60      .56      1.13      .17     .100     .063     .100     .063  899.00      1.12
   .000280      60.       60.       60.        2        0        0     0.00   334.85    335.97


CCHV=     .300 CEHV=     .500
*SECNO 146.900

3370 NORMAL BRIDGE.NRD=   0 MIN ELTRD=  905.90 MAX ELLC=  904.20


        **FCOTBRIDGE

    146.90     6.96   905.96     0.00     0.00   906.10      .14      .08      .07    905.90
      730.       0.      730.       0.       0.     241.       0.     125.      41.    905.90
      1.61      .02      3.02      .02     .100     .063     .100     .063  899.00   -167.49
   .022645      90.       90.       90.        0        0        0 -184.52   132.71    300.20
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*SECNO 146.510

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

146.91	7.49	906.49	0.00	0.00	906.57	.08	.46	.02	905.90
730.	5.	721.	4.	7.	309.	6.	125.	41.	905.90
1.61	.65	2.34	.65	.100	.063	.100	.063	899.00	145.74
.009760	32.	32.	32.	2	0	0	-184.52	173.53	319.27

CCHV= .100 CEHV= .300

*SECNO 147.000

147.00	6.88	907.58	0.00	0.00	907.65	.07	1.08	.00	905.10
730.	241.	480.	9.	252.	184.	15.	128.	43.	905.80
1.65	.96	2.60	.58	.100	.063	.100	.063	900.70	119.58
.001780	310.	310.	310.	5	0	0	0.00	209.67	329.25

*SECNO 148.000

148.00	2.00	912.30	0.00	0.00	912.62	.31	4.89	.07	914.20
730.	0.	730.	0.	0.	163.	0.	136.	47.	914.00
1.72	0.00	4.49	0.00	.100	.063	.100	.063	910.30	302.25
.022737	1125.	1125.	1125.	3	0	0	0.00	114.77	417.02

CCHV= .200 CEHV= .400

*SECNO 149.000

149.00	5.38	918.58	0.00	0.00	918.65	.06	5.98	.05	915.00
730.	255.	202.	274.	173.	67.	200.	143.	50.	915.40
1.88	1.47	3.01	1.37	.100	.063	.100	.063	913.20	141.45
.002615	1025.	1025.	1025.	6	0	0	0.00	178.86	320.31

*SECNO 150.000

3301 HV CHANGED MORE THAN HVINS

150.00	4.85	922.65	0.00	0.00	923.26	.61	4.39	.22	922.00
730.	10.	719.	1.	12.	113.	1.	148.	53.	922.10
1.91	.89	6.33	.80	.100	.063	.100	.063	917.80	131.32
.016232	825.	825.	825.	4	0	0	0.00	75.01	206.33

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN – CHESTNUT RUN

4) DOCUMENT TYPE: FLOODPLAIN

00BREAK00

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FR
*FIX
C
C      17
C   144.3 **PLUGGED 3' DIA. RCP
C   144.7 FIS SECTION J
C   145.0 FIS SECTION K
C   146.3 **CULVERT UNDER ASPHALT DRIVE
C   146.7 FIS SECTION L
C   146.9 FIS SECTION M   **FOOTBRIDGE
C  146.91 FIS SECTION N
C   147.0 FIS SECTION O
C   148.0 FIS SECTION P
C   148.1 FIS SECTION Q ** DOWNSTREAM OF CONTROL STRUCTURE
C   148.2 FIS SECTION R ** UPSTREAM OF CONTROL STRUCTURE
C   152.0 FIS SECTION S
C   153.0 FIS SECTION T
C   155.0 ** DOWNSTREAM END OF 2-96"X63" RCP
C   156.0 ** UPSTREAM END OF 2-96"X63" RCP
C   158.0 FIS SECTION U
C   159.0 FIS SECTION V
T1        HUD-FIA  H-4705
T2        MURPHY DRAIN
T3        CHESTNUT RUN II&III BLOOMFIELD TWP. JOB 840251; FILE CHNTP  **PROPOSED
*FREE
J1 0,4,0,0,0,0,-1,0,895.55,0
J2 1,0,-1
J3 200,0,150
ET 0,0,0,0,0,1.4
NC .1,.1,.063,.1,.3
QT 5,300,445,525,730,525
X1 143.8,9,22,137,0,0,0,0,.8
GR 897,0,896.6,22,894.8,66,893.8,79,890.4,96
GR 890.4,103,892.4,120,892.7,129,896.9,137
NC 0,0,0,.4,.8
X1 144.3,0,0,0,325,325,325,0,3.3
X3 10,0,0,0,0,0,0,900,900
SB 0,2.2,2.9,150,3,0,7.07
X1 144.7,7,0,129,71,71,71,0,-.8
X2 0,0,1,897,901.2
X3 10,0,0,0,0,0,0,901.2,901.2
GR 905.1,0,896.6,85,895.3,86,895.3,91,903.6,129
GR 904,170,905.2,194
NC 0,0,0,.1,.3
X1 145,0,0,0,160,160,160,0,1.9
NC 0,0,0,.4,.8
X1 146.3,0,0,0,185,185,185,0,2.2
X3 10,0,0,0,0,0,0,0,903,903
SB 0,2.25,3,250,3,0,7.07,0
X1 146.7,8,240,298,100,100,100,0,-.4
X2 0,0,1,900.5,905
X3 10,0,0,0,0,0,0,0,905,905
GR 906,0,903.1,53,903.5,130,900.2,240,899,250
GR 899,259,904.8,298,906,338
NC 0,0,0,.1,.3
X1 146.8,0,0,0,60,60,60,0,.4
NC 0,0,0,.3,.5
X1 146.9,8,170,298,90,90,90
X2 0,0,0,904.2,905.9
GR 910,0,905.9,170,903,220,900.2,240,899,250
GR 899,259,905.9,298,907,338
X1146.91   0,0,0,32,32,32
X2 0,0,0,904.2,905.9
NC 0,0,0,.1,.3
X1 147,12,270,312,310,310,310
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CR 901.,296,900.7,298,900.7,300,901.8,302,905.8,312
CR 909,343,910,360
X1 148,8,276,450,1035,1035,1035,,-.8
GR 918.1,0,915.8,156,914.2,276,910.3,330,910.3,370
GR 910.4,380,914,450,914,500
NC ,,,.3,.5
X1 148.1,0,0,0,90,90,90,,+.8
X3 ,,,335,,390
SB 1.05,1,3.04,,1,.01,.01
NC ,,0.03
X1 148.2,,,,2,2,2
X2 ,,1,911.9,912
X3 ,,,335,,390
BT 14,330,915.4,0,334,914.4,0,342,912.4,0
BT 348,912.4,0,350,911.9,0,352,911.9,0,354
BT 911.4,0,370,911.4,0,372,911.9,0,374,911.9
BT 0,376,912.4,0,382,912.4,0,390,914.4,0
BT 394,915.4,0
NC ,,0.02,.1,.3
X1 148.3,4,36,214,160,160,160,,-.6
GR 916,36,912,60,912,190,916,214
X1 149,4,26,524,245,245,245,,-.6
X3 ,,,100,,450
GR 916,26,912,50,912,500,916,524
X1 150,4,97,304,315,315,315,,-.6
GR 916,97,912,120,912,280,916,304
X1 151,4,97,374,265,265,265,,-.6
X3 ,,,145,,325
GR 916,97,912,120,912,350,916,374
NC ,,0.04,.4,.8
X1 152,6,168,251,260,260,260,,-.6
GR 920,168,918,174,912,192,912,228,918,246
GR 920,251
NC ,,,.3,.5
X1 153,6,133,208,280,280,280,,-.6
X3 ,,,153,,188
GR 920,133,918.5,138,913.4,153,913.4,188,918.5,203
GR 920,208
X1 154,18,145.92,164.08,30,30,30,,-.6
X3 10,,,,,,,923,923
GR 916.13  145.92,915.08,146.22,914.4,146.92,913.8,148.42
GR 913.5,150,913.8,151.58,914.4,153.08,915.08,153.78,916.13,154.08
GR 916.13  155.92,915.08,156.22,914.4,156.92,913.8,158.42,913.5,160
GR 913.8,161.58,914.4,163.08,915.08,163.78,916.13,164.08
NC ,,.013
X1 155,,,,2,2,2
BT 18,145.92,922.4,915.53,146.22,922.4,916.58
BT 146.92  922.4,917.26,148.42,922.4,917.91,150,922.4,918.15,151.58
BT 922.4,917.91,153.08,922.4,917.26,153.78,922.4,916.58,154.08,922.4
BT 915.53  155.92,922.4,915.53,156.22,922.4,916.58,156.92,922.4,917.26
BT 158.42  922.4,917.91,160,922.4,918.15,161.58,922.4,917.91,163.08
BT 922.4,917.26,163.78,922.4,916.58,164.08,922.4,915.53
X1 156,,,,146,146,146,,.5
X2 ,,,,,,1
NC ,,.04
X1 157,,,,2,2,2
X3 10,,,,,,,924,924
X1 158,5,60,290,80,80,80,,-.6
GR 924,60,914,115,914,220,920,270,924,290
NC ,,,.1,.3
X1 159,,,,150,150,150
EJ
T1       HUD-F1A  H-4705
T2       MURPHY DRAIN
T3       CHESTNUT RUN II&III BLOOMFIELD TWP. JOB 840251; FILE CHNTP  **PROPOSED
J1 0,6,,,,,-1,,895.55
J2 15,0,-1
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************

FR
C
T1       HUD-FIA  H-4705
T2       MURPHY DRAIN
T3       CHESTNUT RUN II&III BLOOMFIELD TWP. JOB 840251; FILE CHNTP  **PROPOSED
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         #SEL      FQ
       0.        4.        0.        0.  0.000000      0.00     -1.0       0.   895.550      0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    200.000     0.000   150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

ET      0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000
NC       .100      .100      .063      .100      .300     0.000     0.000     0.000     0.000     0.000
QT      5.000   300.000   445.000   525.000   730.000   525.000     0.000     0.000     0.000     0.000
X1    143.800     9.000    22.000   137.000     0.000     0.000     0.000     0.000      .800     0.000
GR    897.000     0.000   896.600    22.000   894.800    66.000   893.800    79.000   890.400    96.000
GR    890.400   103.000   892.400   120.000   892.700   129.000   896.900   137.000     0.000     0.000

NC      0.000     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000
          **PLUGGED 3' DIA. RCP
X1    144.300     0.000     0.000     0.000   325.000   325.000   325.000     0.000     3.300     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   900.000   900.000     0.000

SB      0.000     2.200     2.900   150.000     3.000     0.000     7.070     0.000     0.000     0.000
          FIS SECTION J
X1    144.700     7.000     0.000   129.000    71.000    71.000    71.000     0.000     -.800     0.000
X2      0.000     0.000     1.000   897.000   901.200     0.000     0.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   901.200   901.200     0.000
GR    905.100     0.000   896.600    85.000   895.300    86.000   895.300    91.000   903.600   129.000
GR    904.000   170.000   905.200   194.000     0.000     0.000     0.000     0.000     0.000     0.000
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NC      0.000       0.000       0.000       .100        .300        0.000       0.000       0.000       0.000       0.000
          FIS SECTION K
X1    145.000       0.000       0.000       0.000     160.000     160.000     160.000       0.000       1.900       0.000

NC      0.000       0.000       0.000       .400        .800        0.000       0.000       0.000       0.000       0.000
          **CULVERT UNDER ASPHALT DRIVE
X1    146.300       0.000       0.000       0.000     185.000     185.000     185.000       0.000       2.200       0.000
X3     10.000       0.000       0.000       0.000       0.000       0.000       0.000     903.000     903.000       0.000

SB      0.000       2.250       3.000     250.000       3.000       0.000       7.070       0.000       0.000       0.000
          FIS SECTION L
X1    146.700       8.000     240.000     298.000     100.000     100.000     100.000       0.000       -.400       0.000
X2      0.000       0.000       1.000     900.500     905.000       0.000       0.000       0.000       0.000       0.000
X3     10.000       0.000       0.000       0.000       0.000       0.000       0.000     905.000     905.000       0.000
GR    906.000       0.000     903.100      53.000     903.500     130.000     900.200     240.000     899.000     250.000
GR    899.000     259.000     904.800     298.000     906.000     338.000       0.000       0.000       0.000       0.000

NC      0.000       0.000       0.000       .100        .300        0.000       0.000       0.000       0.000       0.000
X1    146.800       0.000       0.000       0.000      60.000      60.000      60.000       0.000        .400       0.000

NC      0.000       0.000       0.000       .300        .500        0.000       0.000       0.000       0.000       0.000
          FIS SECTION M  **FOOTBRIDGE
X1    146.900       8.000     170.000     298.000      90.000      90.000      90.000       0.000       0.000       0.000
X2      0.000       0.000       0.000     904.200     905.900       0.000       0.000       0.000       0.000       0.000
GR    910.000       0.000     905.900     170.000     903.000     220.000     900.200     240.000     899.000     250.000
GR    899.000     259.000     905.900     298.000     907.000     338.000       0.000       0.000       0.000       0.000

          FIS SECTION N
X1    146.910       0.000       0.000       0.000      32.000      32.000      32.000       0.000       0.000       0.000
X2      0.000       0.000       0.000     904.200     905.900       0.000       0.000       0.000       0.000       0.000

NC      0.000       0.000       0.000       .100        .300        0.000       0.000       0.000       0.000       0.000
          FIS SECTION O
X1    147.000      12.000     270.000     312.000     310.000     310.000     310.000       0.000       0.000       0.000
GR    910.000       0.000     909.000      77.000     906.000     167.000     905.600     200.000     905.100     270.000
GR    901.800     296.000     900.700     298.000     900.700     300.000     901.800     302.000     905.800     312.000
GR    909.000     343.000     910.000     360.000       0.000       0.000       0.000       0.000       0.000       0.000

          FIS SECTION P
X1    148.000       8.000     276.000     450.000    1035.000    1035.000    1035.000       0.000       -.800       0.000
GR    918.100       0.000     915.800     156.000     914.200     276.000     910.300     330.000     910.300     370.000
GR    910.400     380.000     914.000     450.000     914.000     500.000       0.000       0.000       0.000       0.000

NC      0.000       0.000       0.000       .300        .500        0.000       0.000       0.000       0.000       0.000
          FIS SECTION Q ** DOWNSTREAM OF CONTROL STRUCTURE
X1    148.100       0.000       0.000       0.000      90.000      90.000      90.000       0.000        .800       0.000
X3      0.000       0.000       0.000     335.000       0.000     390.000       0.000       0.000       0.000       0.000
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      SB      1.050       1.000       3.040       0.000       1.000        .010        .010       0.000       0.000       0.000
      NC      0.000       0.000        .030       0.000       0.000       0.000       0.000       0.000       0.000       0.000
                    FIS SECTION R ** UPSTREAM OF CONTROL STRUCTURE
      X1    148.200       0.000       0.000       0.000       2.000       2.000       2.000       0.000       0.000       0.000
      X2      0.000       0.000       1.000     911.900     912.000       0.000       0.000       0.000       0.000       0.000
      X3      0.000       0.000       0.000     335.000       0.000     390.000       0.000       0.000       0.000       0.000
      BT     14.000     330.000     915.400       0.000     334.000     914.400       0.000     342.000     912.400       0.000
      BT    348.000     912.400       0.000     350.000     911.900       0.000     352.000     911.900       0.000     354.000
      BT    911.400       0.000     370.000     911.400       0.000     372.000     911.900       0.000     374.000     911.900
      BT      0.000     376.000     912.400       0.000     382.000     912.400       0.000     390.000     914.400       0.000
      BT    394.000     915.400       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

      NC      0.000       0.000        .020        .100        .300       0.000       0.000       0.000       0.000       0.000
#2    X1    148.300       4.000      36.000     214.000     160.000     160.000     160.000       0.000       -.600       0.000
      GR    916.000      36.000     912.000      60.000     912.000     190.000     916.000     214.000       0.000       0.000

#3    X1    149.000       4.000      26.000     524.000     245.000     245.000     245.000       0.000       -.600       0.000
      X3      0.000       0.000       0.000     100.000       0.000     450.000       0.000       0.000       0.000       0.000
      GR    916.000      26.000     912.000      50.000     912.000     500.000     916.000     524.000       0.000       0.000

#4    X1    150.000       4.000      97.000     304.000     315.000     315.000     315.000       0.000       -.600       0.000
      GR    916.000      97.000     912.000     120.000     912.000     280.000     916.000     304.000       0.000       0.000
                                   ≈FIS XSEC 0
#5    X1    151.000       4.000      97.000     374.000     265.000     265.000     265.000       0.000       -.600       0.000
      X3      0.000       0.000       0.000     145.000       0.000     325.000       0.000       0.000       0.000       0.000
      GR    916.000      97.000     912.000     120.000     912.000     350.000     916.000     374.000       0.000       0.000

      NC      0.000       0.000        .040        .400        .800       0.000       0.000       0.000       0.000       0.000
                    FIS SECTION S
#6    X1    152.000       6.000     168.000     251.000     260.000     260.000     260.000       0.000       -.600       0.000
      GR    920.000     168.000     918.000     174.000     912.000     192.000     912.000     228.000     916.000     246.000
      GR    920.000     251.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

      NC      0.000       0.000       0.000        .300        .500       0.000       0.000       0.000       0.000       0.000
                    FIS SECTION T
      X1    153.000       6.000     133.000     208.000     280.000     280.000     280.000       0.000       -.600       0.000
      X3      0.000       0.000       0.000     153.000       0.000     188.000       0.000       0.000       0.000       0.000
      GR    920.000     133.000     918.500     138.000     913.400     153.000     913.400     188.000     918.500     203.000
      GR    920.000     208.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

      X1    154.000      18.000     145.920     164.080      30.000      30.000      30.000       0.000       -.600       0.000
      X3     10.000       0.000       0.000       0.000       0.000       0.000       0.000     923.000     923.000       0.000
      GR    916.130     145.920     915.080     146.220     914.400     146.920     913.800     148.420     913.500     150.000
      GR    913.800     151.580     914.400     153.080     915.080     153.780     916.130     154.080     916.130     155.920
      GR    915.080     156.220     914.400     156.920     913.800     158.420     913.500     160.000     913.800     161.560
      GR    914.400     163.080     915.080     163.780     916.130     164.080       0.000       0.000       0.000       0.000

      NC      0.000       0.000        .013       0.000       0.000       0.000       0.000       0.000       0.000       0.000
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          ** DOWNSTREAM END OF 2-96"X63" RCP
X1    155.000     0.000     0.000     0.000     2.000     2.000     2.000     0.000     0.000     0.000
BT     18.000   145.920   922.400   915.530   146.220   922.400   916.580   146.920   922.400   917.260
BT    148.420   922.400   917.910   150.000   922.400   916.580   151.580   922.400   917.910   153.080
BT    922.400   917.260   153.780   922.400   916.580   154.080   922.400   915.530   155.920   922.400
BT    915.530   156.220   922.400   916.580   156.920   922.400   917.260   158.420   922.400   917.910
BT    160.000   922.400   918.150   161.580   922.400   917.910   163.080   922.400   917.260   163.780
BT    922.400   916.580   164.080   922.400   915.530     0.000     0.000     0.000     0.000     0.000

          ** UPSTREAM END OF 2-96"X63" RCP
X1    156.000     0.000     0.000     0.000   146.000   146.000   146.000     0.000     .500      0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000

NC      0.000     0.000      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000
X1    157.000     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     0.000     0.000     0.000     0.000   924.000   924.000     0.000

          FIS SECTION U
X1    158.000     5.000    60.000   290.000    80.000    80.000    80.000     0.000    -.600      0.000
GR    924.000    60.000   914.000   115.000   914.000   220.000   920.000   270.000   924.000   290.000

NC      0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000
          FIS SECTION V
X1    159.000     0.000     0.000     0.000   150.000   150.000   150.000     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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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
*SECNO 143.800

143.80	4.35	895.55	0.00	895.55	895.71	.16	0.00	0.00	897.40
525.	0.	525.	0.	0.	162.	0.	0.	0.	897.70
0.00	0.00	3.24	0.00	0.000	.063	0.000	0.000	891.20	66.65
.005832	0.	0.	0.	0	0	0	0.00	66.25	132.90

CCHV= .400 CEHV= .800
*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.00 ELREA= 900.00

**PLUGGED 3' DIA. RCP

144.30	3.69	898.19	0.00	0.00	898.48	.29	2.66	.10	900.70
525.	0.	525.	0.	0.	121.	0.	1.	0.	901.00
.02	0.00	4.33	0.00	0.000	.063	0.000	0.000	894.50	75.30
.012327	325.	325.	325.	3	0	0	0.00	56.34	131.64

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1086.56	898.84	0.00	450.	77.	7.	8.	897.00	901.20

FIS SECTION J

144.70	7.69	902.19	0.00	0.00	902.22	.03	3.75	0.00	904.30
525.	0.	525.	0.	0.	386.	0.	1.	1.	902.80
.04	0.00	1.36	0.00	0.000	.063	0.000	0.000	894.50	21.05
.000603	71.	71.	71.	2	0	9	0.00	105.16	126.23

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

CCHV= .100 CEHV= .300
*SECNO 145.000
FIS SECTION K

145.00	5.93	902.33	0.00	0.00	902.42	.09	.18	.02	906.20
525.	0.	525.	0.	0.	223.	0.	3.	1.	904.70
.05	0.00	2.36	0.00	0.000	.063	0.000	0.000	896.40	38.67
.002588	160.	160.	160.	2	0	0	0.00	79.49	118.16

CCHV= .400 CEHV= .800
*SECNO 146.300
**CULVERT UNDER ASPHALT DRIVE

146.30	4.57	903.17	0.00	0.00	903.43	.26	.87	.14	908.40
525.	0.	525.	0.	0.	128.	0.	3.	1.	906.90
.07	0.00	4.10	0.00	0.000	.063	0.000	0.000	898.60	52.29
.011215	185.	185.	185.	2	0	0	0.00	59.63	111.93

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.50	898.60

*SECNO 146.700
3280 CROSS SECTION 146.70 EXTENDED .13 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1095.82	903.36	0.00	465.	60.	7.	6.	900.50	905.00

FIS SECTION L

146.70	7.12	905.72	0.00	0.00	905.73	.01	2.30	0.00	899.80
525.	295.	226.	4.	772.	294.	29.	5.	2.	904.40
.12	.38	.77	.13	.100	.063	.100	0.000	898.60	0.00
.000123	100.	100.	100.	0	0	10	0.00	338.00	338.00

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
*SECNO 146.800									
146.80	6.73	905.73	0.00	0.00	905.74	.01	.01	.00	900.20
525.	288.	235.	2.	677.	271.	14.	6.	2.	904.80
.14	.43	.87	.12	.100	.063	.100	0.000	B99.00	4.95
.000175	60.	60.	60.	2	0	0	0.00	324.03	328.98
CCHV= .300 CEHV= .500									
*SECNO 146.900									
3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20									
FIS SECTION M **FOOTBRIDGE									
146.90	6.74	905.74	0.00	0.00	905.82	.08	.05	.04	905.90
525.	0.	525.	0.	0.	234.	0.	7.	3.	905.90
.16	0.00	2.25	0.00	0.000	.063	0.000	0.000	899.00	172.71
.006359	90.	90.	90.	0	0	0	-164.66	124.40	297.11
*SECNO 146.910									
3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20									
FIS SECTION N									
146.91	7.01	906.01	0.00	0.00	906.08	.07	.26	.00	905.90
525.	0.	525.	0.	0.	248.	0.	8.	3.	905.90
.16	.22	2.12	.22	.100	.063	.100	0.000	899.00	165.40
.010723	32.	32.	32.	6	0	0	-184.52	136.63	302.03
CCHV= .100 CEHV= .300									
*SECNO 147.000									
FIS SECTION O									
147.00	6.38	907.08	0.00	0.00	907.14	.06	1.06	.00	905.10
525.	143.	379.	4.	181.	163.	8.	10.	4.	905.80
.21	.79	2.32	.45	.100	.063	.100	0.000	900.70	134.62
.001661	310.	310.	310.	4	0	0	0.00	189.77	324.39
*SECNO 148.000									
FIS SECTION P									
148.00	1.70	911.20	0.00	0.00	911.45	.26	4.25	.06	913.40
525.	0.	525.	0.	0.	129.	0.	15.	7.	913.20
.28	0.00	4.07	0.00	0.000	.063	0.000	0.000	909.50	306.53
.022572	1035.	1035.	1035.	3	0	0	0.00	104.49	411.02

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLDSS    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    IOC       ICONT     CORAR     TOPWID     ENDST

CCHV=    .300 CEHV=    .500
*SECNO 148.100

3470 ENCROACHMENT STATIONS=     335.0     390.0  TYPE=     1  TARGET=      55.000
        FIS SECTION Q ** DOWNSTREAM OF CONTROL STRUCTURE
   148.10      2.33    912.63      0.00      0.00    912.90       .28      1.44       .01100000.00
      525.        0.      525.        0.        0.      124.        0.       16.         8. 100000.00
      .28      0.00      4.22      0.00     0.000      .063     0.000     0.000    910.30    335.00
  .011901       90.       90.       90.         2         0         0      0.00     55.00    390.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.00      3.04      0.00      1.00       .01       .01      0.00     910.30    910.30

*SECNO 148.200
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3       QWEIR     QPR       BAREA    TRAPEZOID     ELLC      ELTRD
                                                              AREA
**********  912.91       .01       525.       0.        0.        2.     911.90    912.00


3470 ENCROACHMENT STATIONS=     335.0     390.0  TYPE=     1  TARGET=      55.000
        FIS SECTION R ** UPSTREAM OF CONTROL STRUCTURE
   148.20      3.96    914.26      0.00      0.00    914.35       .09      1.45       0.00100000.00
      525.        0.      525.        0.        0.      214.        0.       16.         8. 100000.00
      .28      0.00      2.46      0.00     0.000      .030     0.000     0.000    910.30    335.00
  .000476        2.        2.        2.         2         0         9      0.00     55.00    390.00


CCHV=    .100 CEHV=    .300
*SECNO 148.300
   148.30      2.96    914.36      0.00      0.00    914.38       .02       .02        .01    915.40
      525.        0.      525.        0.        0.      437.        0.       17.         8.    915.40
      .32      0.00      1.20      0.00     0.000      .020     0.000     0.000    911.40     42.24
  .000072      160.      160.      160.         2         0         0      0.00    165.52    207.76
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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

*SECNO 149.000

3470 ENCROACHMENT STATIONS= 100.0 450.0 TYPE= 1 TARGET= 350.000

149.00	2.99	914.39	0.00	0.00	914.39	.00	.01	.00	99999.40
525.	0.	525.	0.	0.	1045.	0.	21.	9.	99999.40
.45	0.00	.50	0.00	0.000	.020	0.000	0.000	911.40	100.00
.000011	245.	245.	245.	2	0	0	0.00	350.00	450.00

*SECNO 150.000

150.00	2.98	914.38	0.00	0.00	914.40	.02	.01	.00	915.40
525.	0.	525.	0.	0.	531.	0.	27.	11.	915.40
.54	0.00	.99	0.00	0.000	.020	0.000	0.000	911.40	102.80
.000047	315.	315.	315.	1	0	0	0.00	195.15	297.95

*SECNO 151.000 ≈ FIS XSEC 149.00 (Q)

3470 ENCROACHMENT STATIONS= 145.0 325.0 TYPE= 1 TARGET= 180.000

151.00	3.00	914.40	0.00	0.00	914.41	.01	.01	.00	99999.40
525.	0.	525.	0.	0.	539.	0.	30.	12.	99999.40
.62	0.00	.97	0.00	0.000	.020	0.000	0.000	911.40	145.00
.000042	265.	265.	265.	0	0	0	0.00	180.00	325.00

CCHV= .400 CEHV= .800

*SECNO 152.000

FIS SECTION S

152.00	2.99	914.39	0.00	0.00	914.62	.24	.04	.18	919.40
525.	0.	525.	0.	0.	134.	0.	32.	13.	919.40
.64	0.00	3.91	0.00	0.000	.040	0.000	0.000	911.40	183.04
.003359	260.	260.	260.	2	0	0	0.00	53.92	236.96

CCHV= .300 CEHV= .500

*SECNO 153.000

3470 ENCROACHMENT STATIONS= 153.0 188.0 TYPE= 1 TARGET= 35.000

FIS SECTION T

153.00	2.77	915.57	0.00	0.00	916.02	.46	1.29	.11	99999.40
525.	0.	525.	0.	0.	97.	0.	33.	13.	99999.40
.65	0.00	5.43	0.00	0.000	.040	0.000	0.000	912.80	153.00
.006701	280.	280.	280.	2	0	0	0.00	35.00	188.00

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 154.000
3280 CROSS SECTION 154.00 EXTENDED 1.17 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 923.00 ELREA= 923.00

154.00	3.80	916.70	916.70	0.00	918.19	1.49	.34	.51	915.53
525.	0.	525.	0.	0.	54.	0.	33.	13.	915.53
.65	0.00	9.78	0.00	0.000	.040	0.000	0.000	912.90	145.92
.023962	30.	30.	30.	20	11	0	0.00	18.16	164.08

*SECNO 155.000
3280 CROSS SECTION 155.00 EXTENDED 1.12 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.15

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
** DOWNSTREAM END OF 2-96"X63" RCP

155.00	3.75	916.65	916.65	0.00	918.37	1.72	.01	.12	915.53
525.	0.	525.	0.	0.	50.	0.	33.	13.	915.53
.65	0.00	10.52	0.00	0.000	.013	0.000	0.000	912.90	145.92
.003538	2.	2.	2.	2	12	0	-2.78	18.16	164.08

*SECNO 156.000
3280 CROSS SECTION 156.00 EXTENDED 1.50 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.65

** UPSTREAM END OF 2-96"X63" RCP

156.00	4.12	917.52	917.15	0.00	918.92	1.40	.46	.09	916.03
525.	0.	525.	0.	0.	55.	0.	33.	14.	916.03
.66	0.00	9.51	0.00	0.000	.013	0.000	0.000	913.40	145.92
.002809	146.	146.	146.	19	12	0	-4.33	18.16	164.08

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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

*SECNO 157.000
3280 CROSS SECTION 157.00 EXTENDED 2.33 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 924.00 ELREA= 924.00

157.00	4.95	918.35	0.00	0.00	919.12	.77	.01	.19	916.03
525.	0.	525.	0.	0.	75.	0.	33.	14.	916.03
.66	0.00	7.04	0.00	0.000	.040	0.000	0.000	913.40	145.92
.008497	2.	2.	2.	5	0	0	0.00	18.16	164.08

9918 with control

*SECNO 158.000

3301 HV CHANGED MORE THAN HVINS

FIS SECTION U

158.00	5.95	919.35	0.00	0.00	919.36	.01	.01	.23	923.40
525.	0.	525.	0.	0.	870.	0.	34.	14.	923.40
.69	0.00	.60	0.00	0.000	.040	0.000	0.000	913.40	82.26
.000034	80.	80.	80.	2	0	0	0.00	187.34	269.60

CCHV= .100 CEHV= .300
*SECNO 159.000

FIS SECTION V

159.00	5.96	919.36	0.00	0.00	919.36	.01	.01	.00	923.40
525.	0.	525.	0.	0.	871.	0.	37.	14.	923.40
.76	0.00	.60	0.00	0.000	.040	0.000	0.000	913.40	82.23
.000034	150.	150.	150.	2	0	0	0.00	187.42	269.65

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

T1       HUD-FIA  H-4705
T2       MURPHY DRAIN
T3       CHESTNUT RUN II&III BLOOMFIELD TWP. JOB 840251; FILE CHNTP  **PROPOSED
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.       6.        0.        0.  0.000000       0.00     -1.0        0.   895.550     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    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 2

CCHV=    .100 CEHV=    .300
*SECNO 143.800
 2800 NAT Q1=      68.75  WSEL=    895.55  ENC Q1=      72.07  WSEL=    895.65  RATIO=  -.0484
 NAT Q1=     72.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    895.65

3470 ENCROACHMENT STATIONS=      22.0      137.0  TYPE=      4  TARGET=       0.000
   143.80      4.35   895.55     0.00   895.55   895.71      .16      0.00      0.00   897.40
      525.       0.      525.      0.      0.      162.       0.       0.        0.     897.70
     0.00      0.00     3.24     0.00    0.000     .063    0.000    0.000    891.20    66.65
  .005832       0.       0.       0.        0        0        0     0.00     66.25   132.90

CCHV=    .400 CEHV=    .800
*SECNO 144.300
 2800 NAT Q1=      47.29  WSEL=    898.19  ENC Q1=      50.19  WSEL=    898.29  RATIO=  -.0614
 NAT Q1=     50.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    898.29

3470 ENCROACHMENT STATIONS=      22.0      137.0  TYPE=      4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      900.00 ELREA=      900.00
        **PLUGGED 3' DIA. RCP
   144.30      3.69   898.19     0.00   898.19   898.48      .29      2.66      .10    900.70
      525.       0.      525.      0.      0.      121.       0.       1.        0.     901.00
      .02      0.00     4.33     0.00    0.000     .063    0.000    0.000    894.50    75.29
  .012321      325.     325.     325.        2        0        0     0.00     56.35   131.64


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR      COEQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      2.20      2.90    150.00      3.00      0.00      7.07      0.00    894.50    894.50

*SECND 144.700
 2800 NAT Q1=     213.77  WSEL=    902.19  ENC Q1=     221.61  WSEL=    902.29  RATIO=  -.0367
 NAT Q1=    222.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    902.29
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
          FIS SECTION J
   144.70      7.69   902.19     0.00   902.19   902.22      .03       .11      .10    904.30
      525.       0.      525.      0.      0.      385.       0.       1.        1.     902.80
      .04      0.00     1.36     0.00    0.000     .063    0.000    0.000    894.50    21.06
  .000603       71.      71.      71.        0        0        9     0.00    105.17   126.23
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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=    .100 CEHV=    .300
*SECNO 145.000
 2800 NAT Q1=     103.20  WSEL=     902.33  ENC Q1=     108.02  WSEL=     902.43  RATIO=  -.0467
 NAT Q1=     108.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     902.43
        FIS SECTION K
   145.00      5.93    902.33      0.00    902.33    902.42       .09       .18       .02    906.20
     525.        0.       525.       0.       0.      223.        0.        3.        1.     904.70
      .05       0.00      2.36      0.00     0.000     .063     0.000     0.000   896.40     38.70
  .002596      160.      160.      160.         2        0         0      0.00     79.45    118.15

CCHV=    .400 CEHV=    .800
*SECNO 146.300
 2800 NAT Q1=      49.57  WSEL=     903.17  ENC Q1=      52.63  WSEL=     903.27  RATIO=  -.0618
 NAT Q1=      53.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     903.27
      **CULVERT UNDER ASPHALT DRIVE
   146.30      4.57    903.17      0.00    903.17    903.43       .26       .88       .14    908.40
     525.        0.       525.       0.       0.      128.        0.        3.        1.     905.90
      .07       0.00      4.10      0.00     0.000     .063     0.000     0.000   898.60     52.30
  .011223      185.      185.      185.         2        0         0      0.00     59.62    111.92

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        2.25        3.00      250.00        3.00        0.00        7.07        0.00      898.60      898.60

*SECNO 146.700
 2800 NAT Q1=     472.85  WSEL=     905.72  ENC Q1=     472.85  WSEL=     905.82  RATIO=   .0000
 NAT Q1=     492.  RATIOS LOB,CH,ROB=   .5644    .4270    .0087  WSEL=     905.82
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION     146.70 EXTENDED        .12 FEET

3470 ENCROACHMENT STATIONS=       49.0      298.0  TYPE=      4  TARGET=         .039
        FIS SECTION L
   146.70      7.12    905.72      0.00    905.72    905.73       .01       .04       .10    899.80
     525.      292.       233.       0.      699.      294.        0.        5.        2.     904.40
      .11        .42       .79      0.00      .100      .063     0.000     0.000   898.60     48.95
  .000135      100.      100.      100.         0        0        10      0.00     249.05    298.00
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   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=    .100 CEHV=    .300
*SECNO 146.800
 2800 NAT Q1=     397.14  WSEL=    905.73  ENC Q1=     397.14  WSEL=    905.83  RATIO=    .0000
 NAT Q1=    415.  RATIOS LOB,CH,ROB=    .5524    .4436    .0041  WSEL=    905.83

3470 ENCROACHMENT STATIONS=      56.7     298.0  TYPE=     4  TARGET=         .044
   146.80      6.73   905.73      0.00   905.73   905.74      .01       .01       .00    900.20
     525.       281.      244.       0.      605.      271.       0.        6.        2.     904.80
      .14        .47       .90      0.00      .100      .063     0.000     0.000   899.00     56.65
  .000191        60.       60.       60.         0         0         0      0.00   241.35    298.00

CCHV=    .300 CEHV=    .500
*SECNO 146.900

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  905.90 MAX ELLC=  904.20

        FIS SECTION M  **FOOTBRIDGE
   146.90      6.75   905.75      0.00   905.74   905.82      .08       .05       .04    905.90
     525.         0.      525.       0.       0.      234.       0.        7.        2.     905.90
      .15        0.00      2.25      0.00     0.000     .063     0.000     0.000   899.00   172.66
  .006359        90.       90.       90.         2         0         0   -165.07   124.47   297.13

*SECNO 146.910
 2800 NAT Q1=      50.70  WSEL=    906.01  ENC Q1=      55.13  WSEL=    906.11  RATIO=   -.0873
 NAT Q1=     55.  RATIOS LOB,CH,ROB=    .0006    .9990    .0005  WSEL=    906.11

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  905.90 MAX ELLC=  904.20

3470 ENCROACHMENT STATIONS=     170.0     298.0  TYPE=     4  TARGET=         .001
        FIS SECTION N
   146.91      7.02   906.02      0.00   906.01   906.09      .07       .26       .00    905.90
     525.         0.      525.       0.       0.      249.       0.        7.        2.     905.90
      .15        0.00      2.11      0.00     0.000     .063     0.000     0.000   899.00   170.00
  .010630        32.       32.       32.         2         0         0   -184.52   128.00   298.00

CCHV=    .100 CEHV=    .300
*SECNO 147.000
 2800 NAT Q1=     128.82  WSEL=    907.08  ENC Q1=     128.82  WSEL=    907.18  RATIO=    .0000
 NAT Q1=    137.  RATIOS LOB,CH,ROB=    .2847    .7075    .0078  WSEL=    907.18
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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=      187.5      312.0  TYPE=      4  TARGET=         .060
        FIS SECTION O
   147.00      6.43    907.13      0.00    907.08    907.20       .07      1.12       .00    905.10
     525.       130.      395.        0.       143.      166.        0.         9.        3.     905.80
      .20        .90      2.39      0.00       .100      .063     0.000     0.000    900.70    187.46
  .001795       310.      310.       310.         3         0         0      0.00    124.54    312.00

*SECNO 148.000
 2800 NAT Q1=      34.94  WSEL=     911.20  ENC Q1=      39.14  WSEL=     911.30  RATIO=  -.1200
 NAT Q1=      39.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     911.30

3470 ENCROACHMENT STATIONS=      276.0      450.0  TYPE=      4  TARGET=         0.000
        FIS SECTION P
   148.00      1.81    911.31      0.00    911.20    911.52       .22      4.27       .04    913.40
     525.         0.      525.        0.         0.      141.        0.        15.        6.     913.20
      .27        0.00     3.73      0.00     0.000       .063     0.000     0.000    909.50    305.00
  .017673      1035.     1035.      1035.         4         0         0      0.00    108.17    413.17

CCHV=     .300 CEHV=     .500
*SECNO 148.100

3470 ENCROACHMENT STATIONS=      335.0      390.0  TYPE=      1  TARGET=        55.000
        FIS SECTION Q ** DOWNSTREAM OF CONTROL STRUCTURE
   148.10      2.30    912.60      0.00    912.63    912.88       .29      1.33       .03100000.00
     525.         0.      525.        0.         0.      122.        0.        15.        6. 100000.00
      .28        0.00     4.29      0.00     0.000       .063     0.000     0.000    910.30    335.00
  .012474        90.       90.        90.         2         0         0      0.00     55.00    390.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      1.05      1.00      3.04      0.00      1.00       .01       .01      0.00     910.30    910.30

*SECNO 148.200
PRESSURE AND WEIR FLOW
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 EGPRS       EGLWC        H3        QWEIR       QPR         BAREA    TRAPEZOID       ELLC      ELTRD
                                                                        AREA
**********     915.61       .01        525.         0.          0.         2.       911.90     912.00


3470 ENCROACHMENT STATIONS=      335.0      390.0  TYPE=      1  TARGET=       55.000
        FIS SECTION R ** UPSTREAM OF CONTROL STRUCTURE
   148.20      3.96   914.26      0.00   914.26   914.35       .09      1.47      0.00100000.00
      525.        0.      525.        0.       0.      214.        0.       15.        6. 100000.00
      .28      0.00     2.46      0.00     0.000     .030     0.000     0.000   910.30    335.00
  .000477        2.        2.        2.         2         0         9      0.00    55.00    390.00

CCHV=     .100 CEHV=     .300
*SECNO 148.300
 2800 NAT Q1=      619.85  WSEL=      914.36  ENC Q1=      656.45  WSEL=      914.46  RATIO=  -.0591
 NAT Q1=      656.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=      914.46

3470 ENCROACHMENT STATIONS=       36.0      214.0  TYPE=      4  TARGET=        0.000
   148.30      2.96   914.36      0.00   914.36   914.38       .02       .02       .01    915.40
      525.        0.      525.        0.       0.      437.        0.       16.        7.    915.40
      .32      0.00     1.20      0.00     0.000     .020     0.000     0.000   911.40     42.25
  .000072       160.      160.      160.         2         0         0      0.00   165.51    207.75

*SECNO 149.000

3470 ENCROACHMENT STATIONS=      100.0      450.0  TYPE=      1  TARGET=      350.000
   149.00      2.98   914.38      0.00   914.39   914.39       .00       .01       .00 99999.40
      525.        0.      525.        0.       0.     1045.        0.       20.        8.  99999.40
      .45      0.00      .50      0.00     0.000     .020     0.000     0.000   911.40    100.00
  .000011       245.      245.      245.         2         0         0      0.00   350.00    450.00

*SECNO 150.000
 2800 NAT Q1=      768.20  WSEL=      914.38  ENC Q1=      809.36  WSEL=      914.48  RATIO=  -.0536
 NAT Q1=      809.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=      914.48

3470 ENCROACHMENT STATIONS=       97.0      304.0  TYPE=      4  TARGET=        0.000
   150.00      2.98   914.38      0.00   914.38   914.40       .02       .01       .00    915.40
      525.        0.      525.        0.       0.      532.        0.       26.       10.    915.40
      .54      0.00      .99      0.00     0.000     .020     0.000     0.000   911.40    102.79
  .000047       315.      315.      315.         0         0         0      0.00   195.17    297.96
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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

*SECNO 151.000

3470 ENCROACHMENT STATIONS=      145.0      325.0  TYPE=      1  TARGET=      180.000
   151.00      3.00   914.40      0.00   914.40   914.41       .01       .01       .00 99999.40
      525.       0.      525.       0.       0.      538.       0.      29.       11.  99999.40
      .62      0.00       .98      0.00    0.000     .020    0.000     0.000   911.40   145.00
  .000042      265.      265.      265.        0         0        0      0.00   180.00   325.00

CCHV=     .400 CEHV=     .800
*SECNO 152.000
 2800 NAT Q1=      90.59  WSEL=     914.39  ENC Q1=      96.03  WSEL=     914.49  RATIO=  -.0601
 NAT Q1=      96.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     914.49

3470 ENCROACHMENT STATIONS=      168.0      251.0  TYPE=      4  TARGET=        0.000
         FIS SECTION S
   152.00      2.99   914.39      0.00   914.39   914.62       .24       .04       .18   919.40
      525.       0.      525.       0.       0.      134.       0.      31.       12.    919.40
      .64      0.00      3.91      0.00    0.000     .040    0.000     0.000   911.40   183.04
  .003357      260.      260.      260.        2         0        0      0.00    53.92   236.96

CCHV=     .300 CEHV=     .500
*SECNO 153.000

3470 ENCROACHMENT STATIONS=      153.0      188.0  TYPE=      1  TARGET=       35.000
         FIS SECTION T
   153.00      2.77   915.57      0.00   915.57   916.02       .46      1.29       .11 99999.40
      525.       0.      525.       0.       0.       97.       0.      32.       12.  99999.40
      .65      0.00      5.43      0.00    0.000     .040    0.000     0.000   912.80   153.00
  .006708      280.      280.      280.        2         0        0      0.00    35.00   188.00

*SECNO 154.000
 2800 NAT Q1=      33.92  WSEL=     916.70  ENC Q1=      35.75  WSEL=     916.80  RATIO=  -.0541
 NAT Q1=      36.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     916.80
3280 CROSS SECTION     154.00 EXTENDED        1.17 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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   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     CURAR     TOPWID      ENDST

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     145.9     164.1  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      923.00 ELREA=      923.00

   154.00      3.80    916.70    916.70    916.70    918.19      1.49       .34       .51    915.53
     525.        0.      525.        0.        0.       54.        0.       32.       12.     915.53
      .65      0.00      9.78      0.00     0.000      .040     0.000     0.000   912.90    145.92
  .023961       30.       30.       30.        20        11         0      0.00    18.16    164.08

*SECND 155.000
 2800 NAT Q1=      88.27  WSEL=     916.65  ENC Q1=      91.28  WSEL=     916.75  RATIO=  -.0341
 NAT Q1=     91.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     916.75
3280 CROSS SECTION     155.00 EXTENDED        1.12 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  922.40 MAX ELLC=  918.15

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     145.9     164.1  TYPE=     4  TARGET=       0.000
        ** DOWNSTREAM END OF 2-96"X63" RCP
   155.00      3.75    916.65    916.65    916.65    918.37      1.72       .01       .12    915.53
     525.        0.      525.        0.        0.       50.        0.       32.       12.     915.53
      .65      0.00     10.52      0.00     0.000      .013     0.000     0.000   912.90    145.92
  .003538        2.        2.        2.         2        12         0     -2.78    18.16    164.08

*SECND 156.000
 2800 NAT Q1=      99.05  WSEL=     917.52  ENC Q1=     101.36  WSEL=     917.62  RATIO=  -.0233
 NAT Q1=    101.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     917.62
3280 CROSS SECTION     156.00 EXTENDED        1.50 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  922.40 MAX ELLC=  918.65

3470 ENCROACHMENT STATIONS=     145.9     164.1  TYPE=     4  TARGET=       0.000
        ** UPSTREAM END OF 2-96"X63" RCP
   156.00      4.12    917.52    917.15    917.52    918.92      1.40       .46       .09    916.03
     525.        0.      525.        0.        0.       55.        0.       32.       12.     915.03
      .65      0.00      9.51      0.00     0.000      .013     0.000     0.000   913.40    145.92
  .002809      146.      146.      146.        18        12         0     -4.33    18.16    164.08
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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

*SECNO 157.000
 2800 NAT Q1=      56.95  WSEL=     918.35  ENC Q1=      59.02  WSEL=     918.45  RATIO=  -.0363
 NAT Q1=     59.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     918.45
3280 CROSS SECTION     157.00 EXTENDED       2.33 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      145.9      164.1  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       924.00 ELREA=       924.00

   157.00      4.95    918.35      0.00    918.35    919.12       .77       .01       .19    916.03
      525.       0.       525.       0.       0.       75.       0.       32.       12.     916.03
       .65      0.00      7.04      0.00     0.000      .040     0.000    0.000    913.40    145.92
  .008499        2.         2.        2.         5         0         0     0.00     18.16    164.08

*SECNO 158.000
 2800 NAT Q1=     896.92  WSEL=     919.35  ENC Q1=     925.50  WSEL=     919.45  RATIO=  -.0319
 NAT Q1=     926.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     919.45
3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=       60.0       290.0  TYPE=      4  TARGET=        0.000
          FIS SECTION U
   158.00      5.95    919.35      0.00    919.35    919.36       .01       .01       .23    923.40
      525.       0.       525.       0.       0.       870.      0.       33.       12.     923.40
       .69      0.00       .60      0.00     0.000      .040     0.000    0.000    913.40     82.26
  .000034        80.        80.       80.         2         0         0     0.00    187.34    269.60

CCHV=     .100 CEHV=     .300
*SECNO 159.000
 2800 NAT Q1=     898.43  WSEL=     919.36  ENC Q1=     927.01  WSEL=     919.46  RATIO=  -.0318
 NAT Q1=     927.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     919.46

3470 ENCROACHMENT STATIONS=       60.0       290.0  TYPE=      4  TARGET=        0.000
          FIS SECTION V
   159.00      5.96    919.36      0.00    919.36    919.36       .01       .01       .00    923.40
      525.       0.       525.       0.       0.       871.      0.       36.       13.     923.40
       .76      0.00       .60      0.00     0.000      .040     0.000    0.000    913.40     82.23
  .000034        150.       150.      150.        0         0         0     0.00    187.41    269.65
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN - CHESTNUT RUN

4) DOCUMENT TYPE: ~~CHESTNUT RUN~~ PRODUCTION

00BREAK00

LOCAL	DLIFQLO	0532	SYSOUT	10:20:50	22 OCT 84	HRCRFB	298600.002
LOCAL	DLIFQLO	0532	SYSOUT	10:20:50	22 OCT 84	HRCRFB	298600.002
LOCAL	DLIFQLO	0532	SYSOUT	10:20:50	22 OCT 84	HRCRFB	298600.002

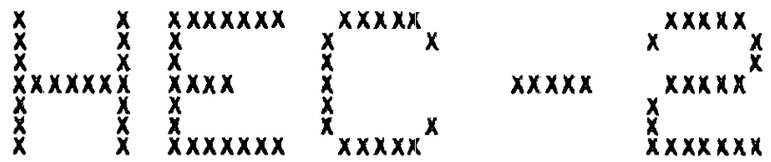
10, Bolton Street

F.I.S

Mersey Board

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**************************************************
*  WATER SURFACE PROFILES                        *
*  VERSION OF NOVEMBER 1976                      *
*  UPDATED MAY 1984                              *
*                                                *
*  RUN DATE  84/10/22. TIME  10.03.33.           *
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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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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************

FR
C
T1       HUD-FIA  H-4705
T2       MURPHY DRAIN
T3       CHESTNUT RUN II&III     BLOOMFIELD TWP. JOB 840251; FILE CHNT4P  **PROPO
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.       2.        0.        0.  0.000000      0.00      -1.0       0.   894.730     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    200.000     0.000   150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .100      .100      .063      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     5.000   300.000   445.000   525.000   730.000   525.000     0.000     0.000     0.000     0.000
X1   143.800     9.000    22.000   137.000     0.000     0.000     0.000     0.000      .800     0.000
GR   897.000     0.000   896.600    22.000   894.800    66.000   893.800    79.000   890.400    96.000
GR   890.400   103.000   892.400   120.000   892.700   129.000   896.900   137.000     0.000     0.000

NC     0.000     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000
          **PLUGGED 3' DIA. RCP
X1   144.300     0.000     0.000     0.000   325.000   325.000   325.000     0.000     3.300     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   900.000   900.000     0.000

SB     0.000     2.200     2.900   150.000     3.000     0.000     7.070     0.000     0.000     0.000
          FIS SECTION J
X1   144.700     7.000     0.000   129.000    71.000    71.000    71.000     0.000      -.800     0.000
X2     0.000     0.000     1.000   897.000   901.200     0.000     0.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   901.200   901.200     0.000
GR   905.100     0.000   896.600    85.000   895.300    86.000   895.300    91.000   903.600   129.000
GR   904.000   170.000   905.200   194.000     0.000     0.000     0.000     0.000     0.000     0.000
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NC      0.000       0.000       0.000       .100        .300        0.000       0.000       0.000       0.000       0.000
          FIS SECTION K
X1    145.000       0.000       0.000       0.000     160.000     160.000     160.000       0.000       1.900       0.000

NC      0.000       0.000       0.000       .400        .800        0.000       0.000       0.000       0.000       0.000
          **CULVERT UNDER  ASPHALT DRIVE
X1    146.300       0.000       0.000       0.000     185.000     185.000     185.000       0.000       2.200       0.000
X3     10.000       0.000       0.000       0.000       0.000       0.000       0.000     903.000     903.000       0.000

SB      0.000       2.250       3.000     250.000       3.000       0.000       7.070       0.000       0.000       0.000
          FIS SECTION L
X1    146.700       8.000     240.000     298.000     100.000     100.000     100.000       0.000       -.400       0.000
X2      0.000       0.000       1.000     900.500     905.000       0.000       0.000       0.000       0.000       0.000
X3     10.000       0.000       0.000       0.000       0.000       0.000       0.000     905.000     905.000       0.000
GR    906.000       0.000     903.100      53.000     903.500     130.000     900.200     240.000     899.000     250.000
GR    899.000     259.000     904.800     298.000     906.000     338.000       0.000       0.000       0.000       0.000

NC      0.000       0.000       0.000       .100        .300        0.000       0.000       0.000       0.000       0.000
X1    146.800       0.000       0.000       0.000      60.000      60.000      60.000       0.000        .400       0.000

NC      0.000       0.000       0.000       .300        .500        0.000       0.000       0.000       0.000       0.000
          FIS SECTION M   **FOOTBRIDGE
X1    146.900       8.000     170.000     298.000      90.000      90.000      90.000       0.000       0.000       0.000
X2      0.000       0.000       0.000     904.200     905.900       0.000       0.000       0.000       0.000       0.000
GR    910.000       0.000     905.900     170.000     903.000     220.000     900.200     240.000     899.000     250.000
GR    899.000     259.000     905.900     298.000     907.000     338.000       0.000       0.000       0.000       0.000

          FIS SECTION N
X1    146.910       0.000       0.000       0.000      32.000      32.000      32.000       0.000       0.000       0.000
X2      0.000       0.000       0.000     904.200     905.900       0.000       0.000       0.000       0.000       0.000

NC      0.000       0.000       0.000       .100        .300        0.000       0.000       0.000       0.000       0.000
          FIS SECTION O
X1    147.000      12.000     270.000     312.000     310.000     310.000     310.000       0.000       0.000       0.000
GR    910.000       0.000     909.000      77.000     906.000     167.000     905.600     200.000     905.100     270.000
GR    901.800     296.000     900.700     298.000     900.700     300.000     901.800     302.000     905.800     312.000
GR    909.000     343.000     910.000     360.000       0.000       0.000       0.000       0.000       0.000       0.000

          FIS SECTION P
X1    148.000       8.000     276.000     450.000    1035.000    1035.000    1035.000       0.000       -.800       0.000
GR    918.100       0.000     915.800     156.000     914.200     276.000     910.300     330.000     910.300     370.000
GR    910.400     380.000     914.000     450.000     914.000     500.000       0.000       0.000       0.000       0.000

NC      0.000       0.000       0.000       .300        .500        0.000       0.000       0.000       0.000       0.000
          FIS SECTION Q ** DOWNSTREAM OF CONTROL STRUCTURE
X1    148.100       0.000       0.000       0.000      90.000      90.000      90.000       0.000        .800       0.000
X3      0.000       0.000       0.000     335.000       0.000     390.000       0.000       0.000       0.000       0.000
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SB      1.050       1.000       3.040       0.000       1.000        .010        .010       0.000       0.000       0.000
NC      0.000       0.000        .030       0.000       0.000       0.000       0.000       0.000       0.000       0.000
          FIS SECTION R ** UPSTREAM OF CONTROL STRUCTURE
X1    148.200       0.000       0.000       0.000       2.000       2.000       2.000       0.000       0.000       0.000
X2      0.000       0.000       1.000     911.900     912.000       0.000       0.000       0.000       0.000       0.000
X3      0.000       0.000       0.000     335.000       0.000     390.000       0.000       0.000       0.000       0.000
BT     14.000     330.000     915.400       0.000     334.000     914.400       0.000     342.000     912.400       0.000
BT    348.000     912.400       0.000     350.000     911.900       0.000     352.000     911.900       0.000     354.000
BT    911.400       0.000     370.000     911.400       0.000     372.000     911.900       0.000     374.000     911.900
BT      0.000     376.000     912.400       0.000     382.000     912.400       0.000     390.000     914.400       0.000
BT    394.000     915.400       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

NC      0.000       0.000        .020        .100        .300       0.000       0.000       0.000       0.000       0.000
X1    148.300       4.000      36.000     214.000     160.000     160.000     160.000       0.000       -.600       0.000
GR    916.000      36.000     912.000      60.000     912.000     190.000     916.000     214.000       0.000       0.000

X1    149.000       4.000      26.000     524.000     245.000     245.000     245.000       0.000       -.600       0.000
X3      0.000       0.000       0.000     100.000       0.000     450.000       0.000       0.000       0.000       0.000
GR    916.000      26.000     912.000      50.000     912.000     500.000     916.000     524.000       0.000       0.000

X1    150.000       4.000      97.000     304.000     315.000     315.000     315.000       0.000       -.600       0.000
GR    916.000      97.000     912.000     120.000     912.000     280.000     916.000     304.000       0.000       0.000

X1    151.000       4.000      97.000     374.000     265.000     265.000     265.000       0.000       -.600       0.000
X3      0.000       0.000       0.000     145.000       0.000     325.000       0.000       0.000       0.000       0.000
GR    916.000      97.000     912.000     120.000     912.000     350.000     916.000     374.000       0.000       0.000

NC      0.000       0.000        .040        .400        .800       0.000       0.000       0.000       0.000       0.000
          FIS SECTION S
X1    152.000       6.000     168.000     251.000     260.000     260.000     260.000       0.000       -.600       0.000
GR    920.000     168.000     918.000     174.000     912.000     192.000     912.000     228.000     918.000     246.000
GR    920.000     251.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

NC      0.000       0.000       0.000        .300        .500       0.000       0.000       0.000       0.000       0.000
          FIS SECTION T
X1    153.000       6.000     133.000     208.000     280.000     280.000     280.000       0.000       -.600       0.000
X3      0.000       0.000       0.000     153.000       0.000     188.000       0.000       0.000       0.000       0.000
GR    920.000     133.000     918.500     138.000     913.400     153.000     913.400     188.000     918.500     203.000
GR    920.000     208.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

X1    154.000      18.000     145.920     164.080      30.000      30.000      30.000       0.000       -.600       0.000
X3     10.000       0.000       0.000       0.000       0.000       0.000       0.000     923.000     923.000       0.000
GR    916.130     145.920     915.080     146.220     914.400     146.920     913.800     148.420     913.500     150.000
GR    913.800     151.580     914.400     153.080     915.080     153.780     916.130     154.080     916.130     155.920
GR    915.080     156.220     914.400     156.920     913.800     158.420     913.500     160.000     913.800     161.580
GR    914.400     163.080     915.080     163.780     916.130     164.080       0.000       0.000       0.000       0.000

NC      0.000       0.000        .013       0.000       0.000       0.000       0.000       0.000       0.000       0.000
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          ** DOWNSTREAM END OF 2-96"X63" RCP
X1    155.000     0.000     0.000     0.000     2.000     2.000     2.000     0.000     0.000     0.000
BT     18.000   145.920   922.400   915.530   146.220   922.400   916.580   146.920   922.400   917.260
BT    148.420   922.400   917.910   150.000   922.400   918.150   151.580   922.400   917.910   153.080
BT    922.400   917.260   153.780   922.400   916.580   154.080   922.400   915.530   155.920   922.400
BT    915.530   156.220   922.400   916.580   156.920   922.400   917.260   158.420   922.400   917.910
BT    160.000   922.400   918.150   161.580   922.400   917.910   163.080   922.400   917.260   163.780
BT    922.400   916.580   164.080   922.400   915.530     0.000     0.000     0.000     0.000     0.000

          ** UPSTREAM END OF 2-96"X63" RCP
X1    156.000     0.000     0.000     0.000   146.000   146.000   146.000     0.000      .500     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000

NC      0.000     0.000      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000
X1    157.000     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     0.000     0.000     0.000     0.000   924.000   924.000     0.000

          FIS SECTION U
X1    158.000     5.000    60.000   290.000    80.000    80.000    80.000     0.000     -.600     0.000
GR    924.000    60.000   914.000   115.000   914.000   220.000   920.000   270.000   924.000   290.000

NC      0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000
          FIS SECTION V
X1    159.000     0.000     0.000     0.000   150.000   150.000   150.000     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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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 143.800

143.80	3.53	894.73	0.00	894.73	894.84	.11	0.00	0.00	897.40
300.	0.	300.	0.	0.	113.	0.	0.	0.	897.70
0.00	0.00	2.66	0.00	0.000	.063	0.000	0.000	891.20	77.31
.004855	0.	0.	0.	0	0	0	0.00	54.03	131.34

CCHV= .400 CEHV= .800
*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.00 ELREA= 900.00

**PLUGGED 3' DIA. RCP

144.30	2.80	897.30	0.00	0.00	897.54	.24	2.59	.11	900.70
300.	0.	300.	0.	0.	76.	0.	1.	0.	901.00
.02	0.00	3.96	0.00	0.000	.063	0.000	0.000	894.50	82.01
.015502	325.	325.	325.	3	0	0	0.00	47.94	129.95

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
958.81	897.98	0.00	220.	81.	7.	8.	897.00	901.20

FIS SECTION J

144.70	7.32	901.82	0.00	0.00	901.83	.01	4.29	0.00	904.30
300.	0.	300.	0.	0.	348.	0.	1.	1.	902.80
.05	0.00	.86	0.00	0.000	.063	0.000	0.000	894.50	24.72
.000259	71.	71.	71.	1	0	8	0.00	99.83	124.55

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 145.000
FIS SECTION K

145.00	5.48	901.88	0.00	0.00	901.92	.04	.08	.01	906.20
300.	0.	300.	0.	0.	189.	0.	2.	1.	904.70
.07	0.00	1.59	0.00	0.000	.063	0.000	0.000	896.40	43.15
.001314	160.	160.	160.	2	0	0	0.00	72.96	116.11

CCHV= .400 CEHV= .800
*SECNO 146.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 903.00 ELREA= 903.00

**CULVERT UNDER ASPHALT DRIVE

146.30	3.78	902.38	0.00	0.00	902.57	.19	.53	.12	908.40
300.	0.	300.	0.	0.	86.	0.	3.	1.	906.90
.09	0.00	3.50	0.00	0.000	.063	0.000	0.000	898.60	60.15
.010535	185.	185.	185.	2	0	0	0.00	48.18	108.33

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.50	898.60

*SECNO 146.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
965.29	902.49	0.00	234.	66.	7.	6.	900.50	905.00

FIS SECTION L

146.70	6.86	905.46	0.00	0.00	905.46	.00	2.89	0.00	899.80
300.	166.	133.	1.	708.	279.	19.	4.	2.	904.40
.17	.23	.48	.07	.100	.063	.100	0.000	898.60	2.56
.000051	100.	100.	100.	0	0	9	0.00	330.76	333.32

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

CCHV=    .100 CEHV=    .300
*SECNO 146.800
   146.80      6.46    905.46      0.00      0.00    905.46       .00       .00       .00    900.20
      300.      162.      138.        0.      615.      256.        7.        5.        2.     904.80
      .21       .26       .54       .06       .100      .063      .100    0.000    899.00      9.85
  .000073       60.       60.       60.         2         0         0     0.00    310.18    320.03

CCHV=    .300 CEHV=    .500
*SECNO 146.900

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  905.90 MAX ELLC=  904.20

        FIS SECTION M  **FOOTBRIDGE
   146.90      6.47    905.47      0.00      0.00    905.49       .03       .02       .01    905.90
      300.        0.      300.        0.        0.      234.        0.        6.        2.     905.90
      .23       0.00      1.28      0.00    0.000      .063    0.000    0.000    899.00    177.47
  .002076       90.       90.       90.         0         0         0  -131.18    118.08    295.55

*SECNO 146.910

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  905.90 MAX ELLC=  904.20

        FIS SECTION N
   146.91      6.53    905.53      0.00      0.00    905.56       .03       .07       0.00   905.90
      300.        0.      300.        0.        0.      234.        0.        6.        2.     905.90
      .24       0.00      1.28      0.00    0.000      .063    0.000    0.000    899.00    176.30
  .002076       32.       32.       32.         2         0         0  -139.27    119.63    295.93

CCHV=    .100 CEHV=    .300
*SECNO 147.000
        FIS SECTION O
   147.00      5.44    906.14      0.00      0.00    906.21       .06       .64       .01    905.10
      300.       36.      264.        0.       67.      124.        1.        8.        3.     905.80
      .28        .53      2.13       .21       .100      .063      .100    0.000    900.70    162.68
  .002024      310.      310.      310.         2         0         0     0.00    152.66    315.33

*SECNO 148.000
        FIS SECTION P
   148.00      1.32    910.82      0.00      0.00    910.99       .16      4.75       .03    913.40
      300.        0.      300.        0.        0.       93.        0.       11.        6.     913.20
      .37       0.00      3.24      0.00    0.000      .063    0.000    0.000    909.50    311.63
  .018764     1035.     1035.     1035.         2         0         0     0.00     92.21    403.85
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 148.100

3470 ENCROACHMENT STATIONS= 335.0 390.0 TYPE= 1 TARGET= 55.000
FIS SECTION Q ** DOWNSTREAM OF CONTROL STRUCTURE

148.10	1.75	912.05	0.00	0.00	912.21	.17	1.23	.00	100000.00
300.	0.	300.	0.	0.	92.	0.	12.	7.	100000.00
.38	0.00	3.26	0.00	0.000	.063	0.000	0.000	910.30	335.00
.010336	90.	90.	90.	3	0	0	0.00	55.00	390.00

SPECIAL BRIDGE

5070 VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.00	3.04	0.00	1.00	.01	.01	0.00	910.30	910.30

*SECNO 148.200
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
**********	912.22	.00	301.	0.	0.	2.	911.90	912.00

3470 ENCROACHMENT STATIONS= 335.0 390.0 TYPE= 1 TARGET= 55.000
FIS SECTION R ** UPSTREAM OF CONTROL STRUCTURE

148.20	3.26	913.56	0.00	0.00	913.61	.05	1.39	0.00	100000.00
300.	0.	300.	0.	0.	175.	0.	12.	7.	100000.00
.38	0.00	1.71	0.00	0.000	.030	0.000	0.000	910.30	335.00
.000292	2.	2.	2.	2	0	9	0.00	55.00	390.00

CCHV= .100 CEHV= .300
*SECNO 148.300

148.30	2.21	913.61	0.00	0.00	913.63	.01	.02	.00	915.40
300.	0.	300.	0.	0.	317.	0.	12.	7.	915.40
.43	0.00	.95	0.00	0.000	.020	0.000	0.000	911.40	46.72
.000063	160.	160.	160.	2	0	0	0.00	156.56	203.28

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 149.000

3470 ENCROACHMENT STATIONS=			100.0	450.0	TYPE=	1	TARGET=	350.000	
149.00	2.23	913.63	0.00	0.00	913.63	.00	.00	.00	99999.40
300.	0.	300.	0.	0.	781.	0.	16.	8.	99999.40
.60	0.00	.38	0.00	0.000	.020	0.000	0.000	911.40	100.00
.000009	245.	245.	245.	2	0	0	0.00	350.00	450.00

*SECNO 150.000

150.00	2.23	913.63	0.00	0.00	913.64	.01	.01	.00	915.40
300.	0.	300.	0.	0.	387.	0.	20.	10.	915.40
.72	0.00	.77	0.00	0.000	.020	0.000	0.000	911.40	107.13
.000041	315.	315.	315.	1	0	0	0.00	186.29	293.42

*SECNO 151.000

3470 ENCROACHMENT STATIONS=			145.0	325.0	TYPE=	1	TARGET=	180.000	
151.00	2.24	913.64	0.00	0.00	913.65	.01	.01	.00	99999.40
300.	0.	300.	0.	0.	403.	0.	22.	11.	99999.40
.82	0.00	.74	0.00	0.000	.020	0.000	0.000	911.40	145.00
.000035	265.	265.	265.	0	0	0	0.00	180.00	325.00

CCHV= .400 CEHV= .800

*SECNO 152.000

FIS SECTION S									
152.00	2.24	913.64	0.00	0.00	913.79	.15	.03	.11	919.40
300.	0.	300.	0.	0.	96.	0.	24.	12.	919.40
.84	0.00	3.11	0.00	0.000	.040	0.000	0.000	911.40	185.24
.002951	260.	260.	260.	0	0	0	0.00	49.52	234.76

CCHV= .300 CEHV= .500

*SECNO 153.000

3470 ENCROACHMENT STATIONS=			153.0	188.0	TYPE=	1	TARGET=	35.000	
FIS SECTION T									
153.00	1.96	914.76	0.00	0.00	915.06	.30	1.19	.07	99999.40
300.	0.	300.	0.	0.	68.	0.	24.	12.	99999.40
.86	0.00	4.39	0.00	0.000	.040	0.000	0.000	912.80	153.00
.006597	280.	280.	280.	2	0	0	0.00	35.00	188.00

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 154.000
3280 CROSS SECTION 154.00 EXTENDED .26 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 923.00 ELREA= 923.00

154.00	2.89	915.79	915.79	0.00	916.81	1.02	.35	.36	915.53
300.	0.	300.	0.	0.	37.	0.	24.	12.	915.53
.86	0.00	8.10	0.00	0.000	.040	0.000	0.000	912.90	145.92
.025592	30.	30.	30.	20	11	0	0.00	18.16	164.08

*SECNO 155.000
3280 CROSS SECTION 155.00 EXTENDED .24 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.15

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
** DOWNSTREAM END OF 2-96"X63" RCP

155.00	2.88	915.78	915.71	0.00	916.84	1.06	.01	.02	915.53
300.	0.	300.	0.	0.	36.	0.	24.	12.	915.53
.86	0.00	8.27	0.00	0.000	.013	0.000	0.000	912.90	145.92
.002712	2.	2.	2.	29	15	0	-.48	18.16	164.08

*SECNO 156.000
3280 CROSS SECTION 156.00 EXTENDED .18 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.65

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
** UPSTREAM END OF 2-96"X63" RCP

156.00	2.81	916.21	916.21	0.00	917.33	1.12	.41	.03	916.03
300.	0.	300.	0.	0.	35.	0.	24.	12.	915.03
.86	0.00	8.49	0.00	0.000	.013	0.000	0.000	913.40	145.92
.002918	146.	146.	146.	5	15	0	-.36	18.16	164.08

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 157.000
3280 CROSS SECTION 157.00 EXTENDED .85 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 924.00 ELREA= 924.00

157.00	3.48	916.88	0.00	0.00	917.49	.61	.01	.15	916.03
300.	0.	300.	0.	0.	48.	0.	24.	12.	916.03
.86	0.00	6.28	0.00	0.000	.040	0.000	0.000	913.40	145.92
.011333	2.	2.	2.	5	0	0	0.00	18.16	164.08

*SECNO 158.000

3301 HV CHANGED MORE THAN HVINS

FIS SECTION U

158.00	4.28	917.68	0.00	0.00	917.69	.00	.01	.18	923.40
300.	0.	300.	0.	0.	577.	0.	25.	13.	923.40
.91	0.00	.52	0.00	0.000	.040	0.000	0.000	913.40	91.44
.000037	80.	80.	80.	2	0	0	0.00	164.25	255.69

CCHV= .100 CEHV= .300
*SECNO 159.000
FIS SECTION V

159.00	4.29	917.69	0.00	0.00	917.69	.00	.01	.00	923.40
300.	0.	300.	0.	0.	577.	0.	27.	13.	923.40
.99	0.00	.52	0.00	0.000	.040	0.000	0.000	913.40	91.41
.000037	150.	150.	150.	2	0	0	0.00	164.32	255.74

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

T1       HUD-F1A  H-4705
T2       MURPHY DRAIN
T3       CHESTNUT RUN II&III    BLOOMFIELD TWP. JOB 840251; FILE CHNT4P  **PROPO
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.       3.        0.        0.  0.000000      0.00      -1.0       0.   895.290     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 143.800

143.80	4.09	895.29	0.00	895.29	895.44	.15	0.00	0.00	897.40
445.	0.	445.	0.	0.	145.	0.	0.	0.	897.70
0.00	0.00	3.06	0.00	0.000	.063	0.000	0.000	891.20	70.03
.005556	0.	0.	0.	0	0	0	0.00	62.38	132.41

CCHV= .400 CEHV= .800
*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.00 ELREA= 900.00

**PLUGGED 3' DIA. RCP

144.30	3.39	897.89	0.00	0.00	898.17	.28	2.63	.11	900.70
445.	0.	445.	0.	0.	105.	0.	1.	0.	901.00
.02	0.00	4.23	0.00	0.000	.063	0.000	0.000	894.50	79.07
.012830	325.	325.	325.	3	0	0	0.00	51.99	131.07

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1033.23	898.56	0.00	370.	78.	7.	8.	897.00	901.20

FIS SECTION J

144.70	7.58	902.08	0.00	0.00	902.10	.02	3.93	0.00	904.30
445.	0.	445.	0.	0.	373.	0.	1.	1.	902.80
.04	0.00	1.19	0.00	0.000	.063	0.000	0.000	894.50	22.25
.000473	71.	71.	71.	2	0	9	0.00	103.44	125.68

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

CCHV= .100 CEHV= .300
*SECNO 145.000
FIS SECTION K

145.00	5.78	902.18	0.00	0.00	902.25	.07	.14	.01	906.20
445.	0.	445.	0.	0.	211.	0.	2.	1.	904.70
.06	0.00	2.11	0.00	0.000	.063	0.000	0.000	896.40	40.15
.002142	160.	160.	160.	2	0	0	0.00	77.34	117.49

CCHV= .400 CEHV= .800
*SECNO 146.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 903.00 ELREA= 903.00

**CULVERT UNDER ASPHALT DRIVE

146.30	4.31	902.91	0.00	0.00	903.15	.24	.77	.14	908.40
445.	0.	445.	0.	0.	113.	0.	3.	1.	906.90
.07	0.00	3.92	0.00	0.000	.063	0.000	0.000	898.60	54.84
.011114	185.	185.	185.	2	0	0	0.00	55.92	110.76

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.60	898.60

*SECNO 146.700
3280 CROSS SECTION 146.70 EXTENDED .04 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1041.33	903.07	0.00	383.	62.	7.	6.	900.50	905.00

FIS SECTION L

146.70	7.03	905.63	0.00	0.00	905.64	.00	2.49	0.00	899.80
445.	249.	193.	3.	751.	289.	26.	4.	2.	904.40
.13	.33	.67	.11	.100	.063	.100	0.000	898.60	0.00
.000096	100.	100.	100.	0	0	10	0.00	338.00	338.00

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   SECNO     DEPTH     CWSEL     CR1WS     WSELK     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

CCHV=    .100 CEHV=    .300
*SECNO 146.800
   146.80      6.64    905.64      0.00      0.00    905.65       .01       .01       .00    900.20
      445.      243.      201.        1.      656.      266.       12.        6.        2.     904.80
      .16       .37       .76       .10      .100      .063      .100     0.000    899.00      6.56
  .000136       60.       60.       60.         2         0         0      0.00    319.46    326.03

CCHV=    .300 CEHV=    .500
*SECNO 146.900

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  905.90 MAX ELLC=  904.20

        FIS SECTION M  **FOOTBRIDGE
   146.90      6.65    905.65      0.00      0.00    905.71       .06       .04       .03    905.90
      445.        0.      445.        0.        0.      234.        0.        7.        3.     905.90
      .17      0.00      1.90      0.00     0.000      .063     0.000     0.000    899.00    174.29
  .004569       90.       90.       90.         0         0         0   -153.39    122.31    296.59

*SECNO 146.910

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  905.90 MAX ELLC=  904.20

        FIS SECTION N
   146.91      6.80    905.80      0.00      0.00    905.85       .06       .15      0.00    905.90
      445.        0.      445.        0.        0.      234.        0.        7.        3.     905.90
      .18      0.00      1.90      0.00     0.000      .063     0.000     0.000    899.00    171.77
  .004569       32.       32.       32.         2         0         0   -171.47    125.64    297.42

CCHV=    .100 CEHV=    .300
*SECNO 147.000
        FIS SECTION O
   147.00      5.99    906.69      0.00      0.00    906.76       .07       .90       .00    905.10
      445.       96.      348.        1.      130.      147.        4.        9.        4.     905.80
      .22       .74      2.37       .38      .100      .063      .100     0.000    900.70    146.42
  .002000       310.      310.      310.         3         0         0      0.00    174.17    320.58

*SECNO 148.000
        FIS SECTION P
   148.00      1.68    911.18    910.70      0.00    911.37       .19      4.58       .04    913.40
      445.        0.      445.        0.        0.      127.        0.       14.        7.     913.20
      .30      0.00      3.50      0.00     0.000      .063     0.000     0.000    909.50    306.77
  .016863      1035.     1035.     1035.        10        21         0      0.00    103.92    410.68
```

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

CCHV= .300 CEHV= .500
*SECNO 148.100

3470 ENCROACHMENT STATIONS= 335.0 390.0 TYPE= 1 TARGET= 55.000

FIS SECTION	Q	** DOWNSTREAM OF	CONTROL	STRUCTURE				
148.10	2.12	912.42	0.00	0.00	912.66	.24	1.26	.03100000.00
445.	0.	445.	0.	0.	113.	0.	14.	7. 100000.00
.31	0.00	3.95	0.00	0.000	.063	0.000	0.000	910.30 335.00
.011771	90.	90.	90.	2	0	0	0.00	55.00 390.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.00	3.04	0.00	1.00	.01	.01	0.00	910.30	910.30

*SECNO 148.200
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
**********	912.67	.01	445.	0.	0.	2.	911.90	912.00

3470 ENCROACHMENT STATIONS= 335.0 390.0 TYPE= 1 TARGET= 55.000

FIS SECTION	R	** UPSTREAM OF	CONTROL	STRUCTURE				
148.20	3.73	914.03	0.00	0.00	914.10	.08	1.45	0.00100000.00
445.	0.	445.	0.	0.	201.	0.	14.	7. 100000.00
.31	0.00	2.21	0.00	0.000	.030	0.000	0.000	910.30 335.00
.000415	2.	2.	2.	2	0	9	0.00	55.00 390.00

CCHV= .100 CEHV= .300
*SECNO 148.300

148.30	2.71	914.11	0.00	0.00	914.13	.02	.02	.01	915.40
445.	0.	445.	0.	0.	397.	0.	15.	8.	915.40
.35	0.00	1.12	0.00	0.000	.020	0.000	0.000	911.40	43.72
.000070	160.	160.	160.	2	0	0	0.00	162.56	206.28

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

*SECNO 149.000

3470 ENCROACHMENT STATIONS= 100.0 450.0 TYPE= 1 TARGET= 350.000

149.00	2.74	914.14	0.00	0.00	914.14	.00	.01	.00	99999.40
445.	0.	445.	0.	0.	958.	0.	19.	9.	99999.40
.50	0.00	.46	0.00	0.000	.020	0.000	0.000	911.40	100.00
.000010	245.	245.	245.	2	0	0	0.00	350.00	450.00

*SECNO 150.000

150.00	2.74	914.14	0.00	0.00	914.15	.01	.01	.00	915.40
445.	0.	445.	0.	0.	483.	0.	24.	11.	915.40
.59	0.00	.92	0.00	0.000	.020	0.000	0.000	911.40	104.23
.000045	315.	315.	315.	1	0	0	0.00	192.22	296.45

*SECNO 151.000

3470 ENCROACHMENT STATIONS= 145.0 325.0 TYPE= 1 TARGET= 180.000

151.00	2.75	914.15	0.00	0.00	914.16	.01	.01	.00	99999.40
445.	0.	445.	0.	0.	494.	0.	27.	12.	99999.40
.67	0.00	.90	0.00	0.000	.020	0.000	0.000	911.40	145.00
.000040	265.	265.	265.	0	0	0	0.00	180.00	325.00

CCHV= .400 CEHV= .800

*SECNO 152.000

FIS SECTION S

152.00	2.74	914.14	0.00	0.00	914.35	.21	.03	.16	919.40
445.	0.	445.	0.	0.	122.	0.	29.	13.	919.40
.69	0.00	3.66	0.00	0.000	.040	0.000	0.000	911.40	183.75
.003229	260.	260.	260.	1	0	0	0.00	52.50	236.25

CCHV= .300 CEHV= .500

*SECNO 153.000

3470 ENCROACHMENT STATIONS= 153.0 188.0 TYPE= 1 TARGET= 35.000

FIS SECTION I

153.00	2.50	915.30	0.00	0.00	915.70	.40	1.26	.10	99999.40
445.	0.	445.	0.	0.	87.	0.	30.	13.	99999.40
.71	0.00	5.10	0.00	0.000	.040	0.000	0.000	912.80	153.00
.006641	280.	280.	280.	2	0	0	0.00	35.00	188.00

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 154.000
3280 CROSS SECTION 154.00 EXTENDED .86 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 923.00 ELREA= 923.00

154.00	3.49	916.39	916.39	0.00	917.72	1.33	.34	.46	915.53
445.	0.	445.	0.	0.	48.	0.	30.	13.	915.53
.71	0.00	9.27	0.00	0.000	.040	0.000	0.000	912.90	145.92
.024483	30.	30.	30.	20	11	0	0.00	18.16	164.08

*SECNO 155.000
3280 CROSS SECTION 155.00 EXTENDED .82 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.15

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
** DOWNSTREAM END OF 2-96"X63" RCP

155.00	3.45	916.35	916.35	0.00	917.84	1.49	.01	.08	915.53
445.	0.	445.	0.	0.	45.	0.	30.	13.	915.53
.71	0.00	9.81	0.00	0.000	.013	0.000	0.000	912.90	145.92
.003250	2.	2.	2.	2	15	0	-1.89	18.16	164.08

*SECNO 156.000
3280 CROSS SECTION 156.00 EXTENDED .82 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.65

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
** UPSTREAM END OF 2-96"X63" RCP

156.00	3.45	916.85	916.85	0.00	918.34	1.49	.47	0.00	916.03
445.	0.	445.	0.	0.	45.	0.	30.	13.	916.03
.71	0.00	9.81	0.00	0.000	.013	0.000	0.000	913.40	145.92
.003250	146.	146.	146.	0	15	0	-1.89	18.16	164.08

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 157.000
3280 CROSS SECTION 157.00 EXTENDED 1.85 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 924.00 ELREA= 924.00

157.00	4.48	917.88	0.00	0.00	918.59	.71	.01	.24	916.03
445.	0.	445.	0.	0.	66.	0.	30.	13.	916.03
.71	0.00	6.74	0.00	0.000	.040	0.000	0.000	913.40	145.92
.008963	2.	2.	2.	6	0	0	0.00	18.16	164.08

*SECNO 158.000
3301 HV CHANGED MORE THAN HVINS
FIS SECTION U

158.00	5.40	918.80	0.00	0.00	918.81	.01	.01	.21	923.40
445.	0.	445.	0.	0.	770.	0.	31.	13.	923.40
.75	0.00	.58	0.00	0.000	.040	0.000	0.000	913.40	85.27
.000035	80.	80.	80.	2	0	0	0.00	179.77	265.04

CCHV= .100 CEHV= .300
*SECNO 159.000
FIS SECTION V

159.00	5.41	918.81	0.00	0.00	918.82	.01	.01	.00	923.40
445.	0.	445.	0.	0.	771.	0.	33.	14.	923.40
.82	0.00	.58	0.00	0.000	.040	0.000	0.000	913.40	85.24
.000035	150.	150.	150.	2	0	0	0.00	179.84	265.09

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

T1       HUD-FIA  H-4705
T2       MURPHY DRAIN
T3       CHESTNUT RUN IIGIII    BLOOMFIELD TWP. JOB 840251; FILE CHNT4P  **PROPO
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JI	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	-1.0	0.	895.550	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	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 3

CCHV= .100 CEHV= .300
*SECNO 143.800

143.80	4.35	895.55	0.00	895.55	895.71	.16	0.00	0.00	897.40
525.	0.	525.	0.	0.	162.	0.	0.	0.	897.70
0.00	0.00	3.24	0.00	0.000	.063	0.000	0.000	891.20	66.65
.005832	0.	0.	0.	0	0	0	0.00	66.25	132.90

CCHV= .400 CEHV= .800
*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.00 ELREA= 900.00

**PLUGGED 3' DIA. RCP

144.30	3.69	898.19	0.00	0.00	898.48	.29	2.66	.10	900.70
525.	0.	525.	0.	0.	121.	0.	1.	0.	901.00
.02	0.00	4.33	0.00	0.000	.063	0.000	0.000	894.50	75.30
.012327	325.	325.	325.	3	0	0	0.00	56.34	131.64

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1086.56	898.84	0.00	450.	77.	7.	8.	897.00	901.20

FIS SECTION J

144.70	7.69	902.19	0.00	0.00	902.22	.03	3.75	0.00	904.30
525.	0.	525.	0.	0.	386.	0.	1.	1.	902.80
.04	0.00	1.36	0.00	0.000	.063	0.000	0.000	894.50	21.05
.000603	71.	71.	71.	2	0	9	0.00	105.18	126.23

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	CURAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
*SECNO 145.000
FIS SECTION K

145.00	5.93	902.33	0.00	0.00	902.42	.09	.18	.02	906.20
525.	0.	525.	0.	0.	223.	0.	3.	1.	904.70
.05	0.00	2.36	0.00	0.000	.063	0.000	0.000	896.40	38.67
.002588	160.	160.	160.	2	0	0	0.00	79.49	118.16

CCHV= .400 CEHV= .800
*SECNO 146.300
**CULVERT UNDER ASPHALT DRIVE

146.30	4.57	903.17	0.00	0.00	903.43	.26	.87	.14	908.40
525.	0.	525.	0.	0.	128.	0.	3.	1.	905.90
.07	0.00	4.10	0.00	0.000	.063	0.000	0.000	898.60	52.29
.011215	185.	185.	185.	2	0	0	0.00	59.63	111.93

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.50	898.60

*SECNO 146.700
3280 CROSS SECTION 146.70 EXTENDED .13 FEET
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1095.82	903.36	0.00	465.	60.	7.	6.	900.50	905.00

FIS SECTION L

146.70	7.12	905.72	0.00	0.00	905.73	.01	2.30	0.00	899.80
525.	295.	226.	4.	772.	294.	29.	5.	2.	904.40
.12	.38	.77	.13	.100	.063	.100	0.000	898.60	0.00
.000123	100.	100.	100.	0	0	10	0.00	338.00	338.00

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	1TR1AL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 146.800									
146.80	6.73	905.73	0.00	0.00	905.74	.01	.01	.00	900.20
525.	288.	235.	2.	677.	271.	14.	6.	2.	904.80
.14	.43	.87	.12	.100	.063	.100	0.000	899.00	4.95
.000175	60.	60.	60.	2	0	0	0.00	324.03	328.98
CCHV= .300 CEHV= .500									
*SECNO 146.900									
3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20									
FIS SECTION M **FOOTBRIDGE									
146.90	6.74	905.74	0.00	0.00	905.82	.08	.05	.04	905.90
525.	0.	525.	0.	0.	234.	0.	7.	3.	905.90
.16	0.00	2.25	0.00	0.000	.063	0.000	0.000	899.00	172.71
.006359	90.	90.	90.	0	0	0	-164.66	124.40	297.11
*SECNO 146.910									
3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20									
FIS SECTION N									
146.91	7.01	906.01	0.00	0.00	906.08	.07	.26	.00	905.90
525.	0.	525.	0.	0.	248.	0.	8.	3.	905.90
.16	.22	2.12	.22	.100	.063	.100	0.000	899.00	165.40
.010723	32.	32.	32.	6	0	0	-184.52	136.63	302.03
CCHV= .100 CEHV= .300									
*SECNO 147.000									
FIS SECTION O									
147.00	6.38	907.08	0.00	0.00	907.14	.06	1.06	.00	905.10
525.	143.	379.	4.	181.	163.	8.	10.	4.	905.80
.21	.79	2.32	.45	.100	.063	.100	0.000	900.70	134.62
.001661	310.	310.	310.	4	0	0	0.00	189.77	324.39
*SECNO 148.000									
FIS SECTION P									
148.00	1.70	911.20	0.00	0.00	911.45	.26	4.25	.06	913.40
525.	0.	525.	0.	0.	129.	0.	15.	7.	913.20
.28	0.00	4.07	0.00	0.000	.063	0.000	0.000	909.50	306.53
.022572	1035.	1035.	1035.	3	0	0	0.00	104.49	411.02

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

CCHV= .300 CEHV= .500
*SECNO 148.100

3470 ENCROACHMENT STATIONS= 335.0 390.0 TYPE= 1 TARGET= 55.000
FIS SECTION Q ** DOWNSTREAM OF CONTROL STRUCTURE

148.10	2.33	912.63	0.00	0.00	912.90	.28	1.44	.01	100000.00
525.	0.	525.	0.	0.	124.	0.	16.	8.	100000.00
.28	0.00	4.22	0.00	0.000	.063	0.000	0.000	910.30	335.00
.011901	90.	90.	90.	2	0	0	0.00	55.00	390.00

SPECIAL BRIDGE

5070 VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.00	3.04	0.00	1.00	.01	.01	0.00	910.30	910.30

*SECNO 148.200
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
**********	912.91	.01	525.	0.	0.	2.	911.90	912.00

3470 ENCROACHMENT STATIONS= 335.0 390.0 TYPE= 1 TARGET= 55.000
FIS SECTION R ** UPSTREAM OF CONTROL STRUCTURE

148.20	3.96	914.26	0.00	0.00	914.35	.09	1.45	0.00	100000.00
525.	0.	525.	0.	0.	214.	0.	16.	8.	100000.00
.28	0.00	2.46	0.00	0.000	.030	0.000	0.000	910.30	335.00
.000476	2.	2.	2.	2	0	9	0.00	55.00	390.00

CCHV= .100 CEHV= .300
*SECNO 148.300

148.30	2.96	914.36	0.00	0.00	914.38	.02	.02	.01	915.40
525.	0.	525.	0.	0.	437.	0.	17.	8.	915.40
.32	0.00	1.20	0.00	0.000	.020	0.000	0.000	911.40	42.24
.000072	160.	160.	160.	2	0	0	0.00	165.52	207.76

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

*SECNO 149.000

3470 ENCROACHMENT STATIONS= 100.0 450.0 TYPE= 1 TARGET= 350.000

149.00	2.99	914.39	0.00	0.00	914.39	.00	.01	.00	99999.40
525.	0.	525.	0.	0.	1045.	0.	21.	9.	99999.40
.45	0.00	.50	0.00	0.000	.020	0.000	0.000	911.40	100.00
.000011	245.	245.	245.	2	0	0	0.00	350.00	450.00

*SECNO 150.000

150.00	2.98	914.38	0.00	0.00	914.40	.02	.01	.00	915.40
525.	0.	525.	0.	0.	531.	0.	27.	11.	915.40
.54	0.00	.99	0.00	0.000	.020	0.000	0.000	911.40	102.80
.000047	315.	315.	315.	1	0	0	0.00	195.15	297.95

*SECNO 151.000

3470 ENCROACHMENT STATIONS= 145.0 325.0 TYPE= 1 TARGET= 180.000

151.00	3.00	914.40	0.00	0.00	914.41	.01	.01	.00	99999.40
525.	0.	525.	0.	0.	539.	0.	30.	12.	99999.40
.62	0.00	.97	0.00	0.000	.020	0.000	0.000	911.40	145.00
.000042	265.	265.	265.	0	0	0	0.00	180.00	325.00

CCHV= .400 CEHV= .800
*SECNO 152.000
FIS SECTION S

152.00	2.99	914.39	0.00	0.00	914.62	.24	.04	.18	919.40
525.	0.	525.	0.	0.	134.	0.	32.	13.	919.40
.64	0.00	3.91	0.00	0.000	.040	0.000	0.000	911.40	183.04
.003359	260.	260.	260.	2	0	0	0.00	53.92	236.96

CCHV= .300 CEHV= .500
*SECNO 153.000

3470 ENCROACHMENT STATIONS= 153.0 188.0 TYPE= 1 TARGET= 35.000
FIS SECTION T

153.00	2.77	915.57	0.00	0.00	916.02	.46	1.29	.11	99999.40
525.	0.	525.	0.	0.	97.	0.	33.	13.	99999.40
.65	0.00	5.43	0.00	0.000	.040	0.000	0.000	912.80	153.00
.006701	280.	280.	280.	2	0	0	0.00	35.00	188.00

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	CURAR	TOPWID	ENDST

*SECNO 154.000
3280 CROSS SECTION 154.00 EXTENDED 1.17 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 923.00 ELREA= 923.00

154.00	3.80	916.70	916.70	0.00	918.19	1.49	.34	.51	915.53
525.	0.	525.	0.	0.	54.	0.	33.	13.	915.53
.65	0.00	9.78	0.00	0.000	.040	0.000	0.000	912.90	145.92
.023962	30.	30.	30.	20	11	0	0.00	18.16	164.08

*SECNO 155.000
3280 CROSS SECTION 155.00 EXTENDED 1.12 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.15

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
** DOWNSTREAM END OF 2-96"X63" RCP

155.00	3.75	916.65	916.65	0.00	918.37	1.72	.01	.12	915.53
525.	0.	525.	0.	0.	50.	0.	33.	13.	915.53
.65	0.00	10.52	0.00	0.000	.013	0.000	0.000	912.90	145.92
.003538	2.	2.	2.	2	12	0	-2.78	18.16	164.08

*SECNO 156.000
3280 CROSS SECTION 156.00 EXTENDED 1.50 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.65

** UPSTREAM END OF 2-96"X63" RCP

156.00	4.12	917.52	917.15	0.00	918.92	1.40	.46	.09	916.03
525.	0.	525.	0.	0.	55.	0.	33.	14.	915.03
.66	0.00	9.51	0.00	0.000	.013	0.000	0.000	913.40	145.92
.002809	146.	146.	146.	19	12	0	-4.33	18.16	164.08

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 157.000
3280 CROSS SECTION 157.00 EXTENDED 2.33 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 924.00 ELREA= 924.00

157.00	4.95	918.35	0.00	0.00	919.12	.77	.01	.19	916.03
525.	0.	525.	0.	0.	75.	0.	33.	14.	916.03
.66	0.00	7.04	0.00	0.000	.040	0.000	0.000	913.40	145.92
.008497	2.	2.	2.	5	0	0	0.00	18.16	164.08

*SECNO 158.000
3301 HV CHANGED MORE THAN HVINS

FIS SECTION U

158.00	5.95	919.35	0.00	0.00	919.36	.01	.01	.23	923.40
525.	0.	525.	0.	0.	870.	0.	34.	14.	923.40
.69	0.00	.60	0.00	0.000	.040	0.000	0.000	913.40	82.26
.000034	80.	80.	80.	2	0	0	0.00	187.34	269.60

CCHV= .100 CEHV= .300
*SECNO 159.000
FIS SECTION V

159.00	5.96	919.36	0.00	0.00	919.36	.01	.01	.00	923.40
525.	0.	525.	0.	0.	871.	0.	37.	14.	923.40
.76	0.00	.60	0.00	0.000	.040	0.000	0.000	913.40	82.23
.000034	150.	150.	150.	2	0	0	0.00	187.42	269.65

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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T1       HUD-FIA  H-4705
T2       MURPHY DRAIN
T3       CHESTNUT RUN II&III    BLOOMFIELD TWP. JOB 840251; FILE CHNT4P  **PROPO
J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        5.        0.        0.  0.000000      0.00      -1.0       0.    895.150     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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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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									
*SECNO 143.800									
143.80	4.95	896.15	0.00	896.15	896.34	.19	0.00	0.00	897.40
730.	0.	730.	0.	0.	206.	0.	0.	0.	897.70
0.00	0.00	3.54	0.00	0.000	.063	0.000	0.000	891.20	52.56
.006648	0.	0.	0.	0	0	0	0.00	81.49	134.05
CCHV= .400 CEHV= .800									
*SECNO 144.300									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.00 ELREA= 900.00									
**PLUGGED 3' DIA. RCP									
144.30	4.37	898.87	0.00	0.00	899.18	.31	2.74	.09	900.70
730.	0.	730.	0.	0.	163.	0.	1.	1.	901.00
.02	0.00	4.47	0.00	0.000	.063	0.000	0.000	894.50	66.42
.011065	325.	325.	325.	3	0	0	0.00	66.52	132.94

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1263.07	899.48	0.00	658.	73.	7.	8.	897.00	901.20

FIS SECTION J

144.70	7.97	902.47	0.00	0.00	902.52	.05	3.34	0.00	904.30
730.	0.	730.	0.	0.	415.	0.	2.	1.	902.80
.03	0.00	1.76	0.00	0.000	.063	0.000	0.000	894.50	18.30
.000959	71.	71.	71.	2	0	9	0.00	109.18	127.49

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

CCHV= .100 CEHV= .300
*SECNO 145.000
FIS SECTION K

145.00	6.28	902.68	0.00	0.00	902.81	.13	.27	.02	906.20
730.	0.	730.	0.	0.	251.	0.	3.	1.	904.70
.05	0.00	2.90	0.00	0.000	.063	0.000	0.000	896.40	35.18
.003629	160.	160.	160.	2	0	0	0.00	84.58	119.76

CCHV= .400 CEHV= .800
*SECNO 146.300
**CULVERT UNDER ASPHALT DRIVE

146.30	5.14	903.74	0.00	0.00	904.04	.31	1.09	.14	908.40
730.	0.	730.	0.	0.	164.	0.	4.	1.	905.90
.06	0.00	4.45	0.00	0.000	.063	0.000	0.000	898.60	46.64
.011256	185.	185.	185.	2	0	0	0.00	67.87	114.51

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	ROLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.60	898.60

*SECNO 146.700
3280 CROSS SECTION 146.70 EXTENDED .34 FEET
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1276.22	903.99	0.00	679.	56.	7.	6.	900.50	905.00

FIS SECTION L

146.70	7.33	905.93	0.00	0.00	905.94	.01	1.89	0.00	909.80
730.	414.	308.	7.	822.	306.	37.	5.	2.	904.40
.10	.50	1.01	.20	.100	.063	.100	0.000	898.60	0.00
.000200	100.	100.	100.	0	0	9	0.00	338.00	338.00

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
*SECNO 146.800									
146.80	6.94	905.94	0.00	0.00	905.95	.01	.01	.00	900.20
730.	406.	320.	4.	727.	283.	22.	7.	2.	904.80
.12	.56	1.13	.17	.100	.063	.100	0.000	899.00	1.12
.000280	60.	60.	60.	2	0	0	0.00	334.85	335.97
CCHV= .300 CEHV= .500									
*SECNO 146.900									
3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20									
FIS SECTION M **FOOTBRIDGE									
146.90	6.96	905.96	0.00	0.00	906.10	.14	.08	.07	905.90
730.	0.	730.	0.	0.	241.	0.	8.	3.	905.90
.13	.02	3.02	.02	.100	.063	.100	0.000	899.00	167.49
.022645	90.	90.	90.	0	0	0	-184.52	132.71	300.20
*SECNO 146.910									
3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20									
FIS SECTION N									
146.91	7.49	906.49	0.00	0.00	906.57	.08	.46	.02	905.90
730.	5.	721.	4.	7.	309.	6.	9.	3.	905.90
.13	.65	2.34	.65	.100	.063	.100	0.000	899.00	145.74
.009760	32.	32.	32.	2	0	0	-184.52	173.53	319.27
CCHV= .100 CEHV= .300									
*SECNO 147.000									
FIS SECTION O									
147.00	6.88	907.58	0.00	0.00	907.65	.07	1.08	.00	905.10
730.	241.	480.	9.	252.	184.	15.	11.	4.	905.80
.17	.96	2.60	.58	.100	.063	.100	0.000	900.70	119.58
.001780	310.	310.	310.	5	0	0	0.00	209.67	329.25
*SECNO 148.000									
FIS SECTION P									
148.00	2.16	911.66	0.00	0.00	911.91	.25	4.20	.05	913.40
730.	0.	730.	0.	0.	181.	0.	19.	8.	913.20
.24	0.00	4.04	0.00	0.000	.063	0.000	0.000	909.50	300.11
.016948	1035.	1035.	1035.	3	0	0	0.00	119.91	420.03

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	CURAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 148.100

3470 ENCROACHMENT STATIONS= 335.0 390.0 TYPE= 1 TARGET= 55.000

FIS SECTION	Q	** DOWNSTREAM OF	CONTROL	STRUCTURE				
148.10	2.69	912.99	0.00	0.00	913.39	.40	1.40	.07100000.00
730.	0.	730.	0.	0.	144.	0.	19.	8. 100000.00
.25	0.00	5.08	0.00	0.000	.063	0.000	0.000	910.30 335.00
.014422	90.	90.	90.	2	0	0	0.00	55.00 390.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.00	3.04	0.00	1.00	.01	.01	0.00	910.30	910.30

*SECNO 148.200
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
**********	913.41	.02	734.	0.	0.	2.	911.90	912.00

3470 ENCROACHMENT STATIONS= 335.0 390.0 TYPE= 1 TARGET= 55.000

FIS SECTION	R	** UPSTREAM OF	CONTROL	STRUCTURE				
148.20	4.46	914.76	0.00	0.00	914.91	.14	1.52	0.00100000.00
730.	0.	730.	0.	0.	242.	0.	19.	8. 100000.00
.25	0.00	3.02	0.00	0.000	.030	0.000	0.000	910.30 335.00
.000625	2.	2.	2.	2	0	8	0.00	55.00 390.00

CCHV= .100 CEHV= .300
*SECNO 148.300

148.30	3.52	914.92	0.00	0.00	914.94	.03	.03	.01	915.40
730.	0.	730.	0.	0.	531.	0.	21.	9.	915.40
.28	0.00	1.37	0.00	0.000	.020	0.000	0.000	911.40	38.90
.000076	160.	160.	160.	2	0	0	0.00	172.19	211.10

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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

*SECNO 149.000

3470 ENCROACHMENT STATIONS=      100.0      450.0  TYPE=      1  TARGET=      350.000
   149.00       3.55     914.95       0.00       0.00     914.95        .01        .01        .00   99999.40
     730.         0.      730.         0.         0.       1242.         0.        26.        10.   99999.40
      .40       0.00        .59       0.00      0.000       .020      0.000      0.000     911.40     100.00
  .000012       245.       245.       245.          2          0          0       0.00     350.00     450.00

*SECNO 150.000
   150.00       3.54     914.94       0.00       0.00     914.96        .02        .01        .00     915.40
     730.         0.      730.         0.         0.       643.         0.        32.        12.     915.40
      .47       0.00       1.14       0.00      0.000       .020      0.000      0.000     911.40      99.57
  .000050       315.       315.       315.          1          0          0       0.00     201.75     301.32

*SECNO 151.000

3470 ENCROACHMENT STATIONS=      145.0      325.0  TYPE=      1  TARGET=      180.000
   151.00       3.56     914.96       0.00       0.00     914.98        .02        .01        .00   99999.40
     730.         0.      730.         0.         0.       639.         0.        36.        13.   99999.40
      .54       0.00       1.14       0.00      0.000       .020      0.000      0.000     911.40     145.00
  .000046       265.       265.       265.          0          0          0       0.00     180.00     325.00

CCHV=     .400 CEHV=     .800
*SECNO 152.000
         FIS SECTION S
   152.00       3.54     914.94       0.00       0.00     915.24        .30        .04        .23     919.40
     730.         0.      730.         0.         0.       165.         0.        39.        14.     919.40
      .55       0.00       4.43       0.00      0.000       .040      0.000      0.000     911.40     181.38
  .003552       260.       260.       260.          2          0          0       0.00      57.23     238.62

CCHV=     .300 CEHV=     .500
*SECNO 153.000

3470 ENCROACHMENT STATIONS=      153.0      188.0  TYPE=      1  TARGET=       35.000
         FIS SECTION T
   153.00       3.35     916.15       0.00       0.00     916.75        .60       1.36        .15   99999.40
     730.         0.      730.         0.         0.       117.         0.        40.        14.   99999.40
      .57       0.00       6.22       0.00      0.000       .040      0.000      0.000     912.80     153.00
  .007066       280.       280.       280.          2          0          0       0.00      35.00     188.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CURAR	TOPWID	ENDST

*SECNO 154.000
3280 CROSS SECTION 154.00 EXTENDED 1.89 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 923.00 ELREA= 923.00

154.00	4.52	917.42	917.42	0.00	919.28	1.86	.35	.63	915.53
730.	0.	730.	0.	0.	67.	0.	40.	14.	915.53
.57	0.00	10.93	0.00	0.000	.040	0.000	0.000	912.90	145.92
.023254	30.	30.	30.	20	11	0	0.00	18.16	164.08

*SECNO 155.000
3280 CROSS SECTION 155.00 EXTENDED 1.73 FEET

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.15

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
** DOWNSTREAM END OF 2-96"X63" RCP

155.00	4.36	917.26	917.26	0.00	919.70	2.44	.02	.29	915.53
730.	0.	730.	0.	0.	58.	0.	40.	14.	915.53
.57	0.00	12.53	0.00	0.000	.013	0.000	0.000	912.90	145.92
.004844	2.	2.	2.	3	15	0	-5.60	18.16	164.08

*SECNO 156.000
3280 CROSS SECTION 156.00 EXTENDED 2.60 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 922.40 MAX ELLC= 918.65
** UPSTREAM END OF 2-96"X63" RCP

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
156.00	5.23	918.63	917.77	0.00	920.59	1.96	.74	.14	916.03
730.	0.	730.	0.	0.	65.	0.	40.	14.	916.03
.57	0.00	11.23	0.00	0.000	.013	0.000	0.000	913.40	145.92
.005351	146.	146.	146.	14	15	0	-14.54	18.16	164.08

*SECNO 157.000
3280 CROSS SECTION 157.00 EXTENDED 4.25 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 924.00 ELREA= 924.00

157.00	6.89	920.29	0.00	0.00	920.98	.69	.01	.38	916.03
730.	0.	730.	0.	0.	110.	0.	40.	14.	916.03
.57	0.00	6.66	0.00	0.000	.040	0.000	0.000	913.40	145.92
.005023	2.	2.	2.	4	0	0	0.00	18.16	164.08

*SECNO 158.000

3301 HV CHANGED MORE THAN HVINS

FIS SECTION U

158.00	7.79	921.19	0.00	0.00	921.19	.01	.01	.20	923.40
730.	0.	730.	0.	0.	1232.	0.	41.	15.	923.40
.61	0.00	.59	0.00	0.000	.040	0.000	0.000	913.40	72.18
.000024	80.	80.	80.	2	0	0	0.00	206.75	278.93

CCHV= .100 CEHV= .300
*SECNO 159.000

FIS SECTION V

159.00	7.79	921.19	0.00	0.00	921.20	.01	.00	.00	923.40
730.	0.	730.	0.	0.	1232.	0.	45.	15.	923.40
.68	0.00	.59	0.00	0.000	.040	0.000	0.000	913.40	72.16
.000024	150.	150.	150.	2	0	0	0.00	206.79	278.95



1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN — CHESTNUT RUN

4) DOCUMENT TYPE: SUMMARY



****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CODE = 01 02 03 04 05 06
MODIFICATION = 30 31 32 33 34 35 36
****

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

CHESTNUT RUN II&III

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK*S	VCH	AREA	.01K
143.800	0.00	0.00	0.00	891.20	300.00	894.73	0.00	894.84	48.56	2.66	112.80	43.05
143.800	0.00	0.00	0.00	891.20	445.00	895.29	0.00	895.44	55.56	3.06	145.40	58.70
143.800	0.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.32	3.24	162.12	68.75
143.800	0.00	0.00	0.00	891.20	730.00	896.15	0.00	896.34	66.48	3.54	206.29	89.53
144.300	326.00	0.00	0.00	894.50	300.00	897.30	0.00	897.54	155.02	3.96	75.81	26.10
144.300	329.00	0.00	0.00	894.50	445.00	897.89	0.00	898.17	128.30	4.23	105.13	39.29
144.300	326.00	0.00	0.00	894.50	525.00	898.19	0.00	898.48	123.27	4.33	121.35	47.29
144.300	329.00	0.00	0.00	894.50	730.00	898.87	0.00	899.18	110.65	4.47	163.50	69.40
144.700	11.00	901.00	900.50	898.60	300.00	901.82	0.00	901.83	2.59	.86	347.95	186.52
144.700	11.00	901.00	900.50	898.60	445.00	902.08	0.00	902.10	4.73	1.19	373.08	204.64
144.700	11.00	901.00	900.50	898.60	525.00	902.19	0.00	902.22	6.03	1.36	385.52	213.77
144.700	11.00	901.00	900.50	898.60	730.00	902.47	0.00	902.52	9.59	1.76	414.98	235.77
145.000	160.00	0.00	0.00	896.40	300.00	901.88	0.00	901.92	13.14	1.59	188.67	82.76
145.000	160.00	0.00	0.00	896.40	445.00	902.18	0.00	902.25	21.42	2.11	211.27	98.16
145.000	160.00	0.00	0.00	896.40	525.00	902.33	0.00	902.42	25.88	2.36	222.85	103.20
145.000	160.00	0.00	0.00	896.40	730.00	902.68	0.00	902.81	36.29	2.90	251.49	121.17
146.300	185.00	0.00	0.00	898.60	300.00	902.38	0.00	902.57	105.35	3.50	85.74	29.23
146.300	185.00	0.00	0.00	898.60	445.00	902.91	0.00	903.15	111.14	3.92	113.38	42.21
146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.45	112.15	4.10	128.07	49.57
146.300	185.00	0.00	0.00	898.60	730.00	903.74	0.00	904.04	112.56	4.45	164.11	68.81
146.700	100.00	905.00	900.50	898.60	300.00	905.46	0.00	905.46	.51	.48	1005.25	421.03
146.700	100.00	905.00	900.50	898.60	445.00	905.63	0.00	905.64	.96	.67	1065.28	455.22
146.700	100.00	905.00	900.50	898.60	525.00	905.72	0.00	905.73	1.23	.77	1095.02	472.85
146.700	100.00	905.00	900.50	898.60	730.00	905.93	0.00	905.94	2.00	1.01	1165.54	515.99
146.800	80.00	0.00	0.00	899.00	300.00	905.46	0.00	905.46	.73	.54	877.44	350.35
146.800	80.00	0.00	0.00	899.00	445.00	905.64	0.00	905.65	1.36	.76	934.09	381.38
146.800	80.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.75	.87	962.54	397.14
146.800	80.00	0.00	0.00	899.00	730.00	905.94	0.00	905.95	2.80	1.13	1031.62	435.90

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
146.900	90.00	905.90	904.20	899.00	300.00	905.47	0.00	905.49	20.76	1.28	233.63	65.84
146.900	90.00	905.90	904.20	899.00	445.00	905.65	0.00	905.71	45.69	1.90	233.63	65.84
146.900	90.00	905.90	904.20	899.00	525.00	905.74	0.00	905.82	63.59	2.25	233.63	65.84
146.900	90.00	905.90	904.20	899.00	730.00	905.96	0.00	906.10	226.45	3.02	241.53	48.51
146.910	32.00	905.90	904.20	899.00	300.00	905.53	0.00	905.56	20.76	1.28	233.63	65.84
146.910	32.00	905.90	904.20	899.00	445.00	905.80	0.00	905.85	45.69	1.90	233.63	65.84
146.910	32.00	905.90	904.20	899.00	525.00	906.01	0.00	906.08	107.23	2.12	248.31	50.70
146.910	32.00	905.90	904.20	899.00	730.00	906.49	0.00	906.57	97.60	2.34	321.83	73.89
147.000	310.00	0.00	0.00	900.70	300.00	906.14	0.00	906.21	20.24	2.13	191.79	66.68
147.000	310.00	0.00	0.00	900.70	445.00	906.69	0.00	906.76	20.00	2.37	280.36	99.49
147.000	310.00	0.00	0.00	900.70	525.00	907.08	0.00	907.14	16.61	2.32	351.91	128.82
147.000	310.00	0.00	0.00	900.70	730.00	907.58	0.00	907.65	17.80	2.60	452.01	173.03
148.000	1035.00	0.00	0.00	909.50	300.00	910.82	0.00	910.99	187.64	3.24	92.63	21.90
148.000	1035.00	0.00	0.00	909.50	445.00	911.18	910.70	911.37	168.63	3.50	127.11	34.27
148.000	1035.00	0.00	0.00	909.50	525.00	911.20	0.00	911.45	225.72	4.07	128.89	34.94
148.000	1035.00	0.00	0.00	909.50	730.00	911.66	0.00	911.91	169.48	4.04	180.88	56.08
148.100	90.00	0.00	0.00	910.30	300.00	912.05	0.00	912.21	103.36	3.26	91.92	29.51
148.100	90.00	0.00	0.00	910.30	445.00	912.42	0.00	912.66	117.71	3.95	112.57	41.02
148.100	90.00	0.00	0.00	910.30	525.00	912.63	0.00	912.90	119.01	4.22	124.26	48.13
148.100	90.00	0.00	0.00	910.30	730.00	912.99	0.00	913.39	144.22	5.08	143.64	60.79
148.200	2.00	912.00	911.90	910.30	300.00	913.56	0.00	913.61	2.92	1.71	175.24	175.58
148.200	2.00	912.00	911.90	910.30	445.00	914.03	0.00	914.10	4.15	2.21	201.01	218.45
148.200	2.00	912.00	911.90	910.30	525.00	914.26	0.00	914.35	4.76	2.46	213.60	240.54
148.200	2.00	912.00	911.90	910.30	730.00	914.76	0.00	914.91	6.25	3.02	241.50	292.00
148.300	160.00	0.00	0.00	911.40	300.00	913.61	0.00	913.63	.63	.95	317.13	376.64
148.300	160.00	0.00	0.00	911.40	445.00	914.11	0.00	914.13	.70	1.12	396.85	533.64
148.300	160.00	0.00	0.00	911.40	525.00	914.36	0.00	914.38	.72	1.20	437.34	619.85
148.300	160.00	0.00	0.00	911.40	730.00	914.92	0.00	914.94	.76	1.37	531.24	834.66
149.000	245.00	0.00	0.00	911.40	300.00	913.63	0.00	913.63	.09	.38	781.01	982.60
149.000	245.00	0.00	0.00	911.40	445.00	914.14	0.00	914.14	.10	.46	957.76	1377.92
149.000	245.00	0.00	0.00	911.40	525.00	914.39	0.00	914.39	.11	.50	1045.05	1592.04
149.000	245.00	0.00	0.00	911.40	730.00	914.95	0.00	914.95	.12	.59	1241.74	2117.71
150.000	315.00	0.00	0.00	911.40	300.00	913.63	0.00	913.64	.41	.77	387.40	468.33
150.000	315.00	0.00	0.00	911.40	445.00	914.14	0.00	914.15	.45	.92	482.95	662.13
150.000	315.00	0.00	0.00	911.40	525.00	914.38	0.00	914.40	.47	.99	531.23	768.20
150.000	315.00	0.00	0.00	911.40	730.00	914.94	0.00	914.96	.50	1.14	642.66	1031.74
151.000	265.00	0.00	0.00	911.40	300.00	913.64	0.00	913.65	.35	.74	402.95	504.02
151.000	265.00	0.00	0.00	911.40	445.00	914.15	0.00	914.16	.40	.90	493.73	704.59
151.000	265.00	0.00	0.00	911.40	525.00	914.40	0.00	914.41	.42	.97	538.53	812.90
151.000	265.00	0.00	0.00	911.40	730.00	914.96	0.00	914.98	.46	1.14	639.45	1078.03

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	152.000	260.00	0.00	0.00	911.40	300.00	913.64	0.00	913.79	29.51	3.11	96.32	55.22
	152.000	260.00	0.00	0.00	911.40	445.00	914.14	0.00	914.35	32.29	3.66	121.71	78.31
	152.000	260.00	0.00	0.00	911.40	525.00	914.39	0.00	914.62	33.59	3.91	134.30	90.59
	152.000	260.00	0.00	0.00	911.40	730.00	914.94	0.00	915.24	35.52	4.43	164.95	122.48
	153.000	280.00	0.00	0.00	912.80	300.00	914.76	0.00	915.06	65.97	4.39	68.31	36.94
	153.000	280.00	0.00	0.00	912.80	445.00	915.30	0.00	915.70	66.41	5.10	87.32	54.61
	153.000	280.00	0.00	0.00	912.80	525.00	915.57	0.00	916.02	67.01	5.43	96.68	64.13
	153.000	280.00	0.00	0.00	912.80	730.00	916.15	0.00	916.75	70.66	6.22	117.30	86.84
*	154.000	30.00	0.00	0.00	912.90	300.00	915.79	915.79	916.81	255.92	8.10	37.03	18.75
*	154.000	30.00	0.00	0.00	912.90	445.00	916.39	916.39	917.72	244.83	9.27	48.03	26.44
*	154.000	30.00	0.00	0.00	912.90	525.00	916.70	916.70	918.19	239.62	9.78	53.66	33.92
*	154.000	30.00	0.00	0.00	912.90	730.00	917.42	917.42	919.28	232.54	10.93	66.76	47.87
*	155.000	2.00	922.40	918.15	912.90	300.00	915.78	915.71	916.84	27.12	8.27	36.29	57.61
*	155.000	2.00	922.40	918.15	912.90	445.00	916.35	916.35	917.84	32.50	9.81	45.38	78.06
*	155.000	2.00	922.40	918.15	912.90	525.00	916.65	916.65	918.37	35.38	10.52	49.90	88.27
*	155.000	2.00	922.40	918.15	912.90	730.00	917.26	917.26	919.70	48.44	12.53	58.26	104.88
*	156.000	146.00	922.40	918.65	913.40	300.00	916.21	916.21	917.33	29.18	8.49	35.34	55.53
*	156.000	146.00	922.40	918.65	913.40	445.00	916.85	916.85	918.34	32.50	9.81	45.38	78.06
	156.000	146.00	922.40	918.65	913.40	525.00	917.52	917.15	918.92	28.09	9.51	55.23	99.05
	156.000	146.00	922.40	918.65	913.40	730.00	918.63	917.77	920.59	53.51	11.23	65.02	99.79
	157.000	2.00	0.00	0.00	913.40	300.00	916.88	0.00	917.49	113.33	6.26	47.75	28.18
	157.000	2.00	0.00	0.00	913.40	445.00	917.88	0.00	918.59	89.63	6.74	65.99	47.00
	157.000	2.00	0.00	0.00	913.40	525.00	918.35	0.00	919.12	84.97	7.04	74.61	56.95
	157.000	2.00	0.00	0.00	913.40	730.00	920.29	0.00	920.98	50.23	6.66	109.63	103.00
	158.000	80.00	0.00	0.00	913.40	300.00	917.68	0.00	917.69	.37	.52	576.56	493.47
	158.000	80.00	0.00	0.00	913.40	445.00	918.80	0.00	918.81	.35	.58	769.53	751.49
	158.000	80.00	0.00	0.00	913.40	525.00	919.35	0.00	919.36	.34	.60	870.05	896.92
	158.000	80.00	0.00	0.00	913.40	730.00	921.19	0.00	921.19	.24	.59	1231.52	1497.47
	159.000	150.00	0.00	0.00	913.40	300.00	917.69	0.00	917.69	.37	.52	577.50	494.65
	159.000	150.00	0.00	0.00	913.40	445.00	918.81	0.00	918.82	.35	.58	770.53	752.89
	159.000	150.00	0.00	0.00	913.40	525.00	919.36	0.00	919.36	.34	.60	871.07	898.43
	159.000	150.00	0.00	0.00	913.40	730.00	921.19	0.00	921.20	.24	.59	1232.27	1498.81

CHESTNUT RUN II&III

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
143.800	300.00	894.73	0.00	0.00	0.00	54.03	0.00
143.800	445.00	895.29	.56	0.00	0.00	62.38	0.00
143.800	525.00	895.55	.26	0.00	0.00	66.25	0.00
143.800	730.00	896.15	.60	0.00	0.00	81.49	0.00
144.300	300.00	897.30	0.00	2.57	0.00	47.94	325.00
144.300	445.00	897.89	.59	2.60	0.00	51.99	325.00
144.300	525.00	898.19	.29	2.64	0.00	56.34	325.00
144.300	730.00	898.87	.68	2.72	0.00	66.52	325.00
144.700	300.00	901.82	0.00	4.52	0.00	99.83	71.00
144.700	445.00	902.08	.25	4.18	0.00	103.44	71.00
144.700	525.00	902.19	.12	4.01	0.00	105.18	71.00
144.700	730.00	902.47	.27	3.60	0.00	109.18	71.00
145.000	300.00	901.88	0.00	.06	0.00	72.96	160.00
145.000	445.00	902.18	.30	.11	0.00	77.34	160.00
145.000	525.00	902.33	.15	.14	0.00	79.49	160.00
145.000	730.00	902.68	.35	.21	0.00	84.56	160.00
146.300	300.00	902.38	0.00	.50	0.00	48.18	185.00
146.300	445.00	902.91	.53	.73	0.00	55.92	185.00
146.300	525.00	903.17	.25	.84	0.00	59.63	185.00
146.300	730.00	903.74	.57	1.06	0.00	67.87	185.00
146.700	300.00	905.46	0.00	3.07	0.00	330.76	100.00
146.700	445.00	905.63	.18	2.72	0.00	338.00	100.00
146.700	525.00	905.72	.09	2.55	0.00	338.00	100.00
146.700	730.00	905.93	.20	2.19	0.00	338.00	100.00
146.800	300.00	905.46	0.00	.00	0.00	310.18	60.00
146.800	445.00	905.64	.18	.01	0.00	319.46	60.00
146.800	525.00	905.73	.09	.01	0.00	324.03	60.00
146.800	730.00	905.94	.21	.01	0.00	334.85	60.00
146.900	300.00	905.47	0.00	.01	0.00	118.08	90.00
146.900	445.00	905.65	.18	.01	0.00	122.31	90.00
146.900	525.00	905.74	.09	.01	0.00	124.40	90.00
146.900	730.00	905.96	.22	.02	0.00	132.71	90.00
146.910	300.00	905.53	0.00	.07	0.00	119.63	32.00
146.910	445.00	905.80	.26	.15	0.00	125.64	32.00
146.910	525.00	906.01	.21	.27	0.00	136.63	32.00
146.910	730.00	906.49	.48	.53	0.00	173.53	32.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
147.000	300.00	906.14	0.00	.61	0.00	152.66	310.00
147.000	445.00	906.69	.54	.89	0.00	174.17	310.00
147.000	525.00	907.08	.39	1.07	0.00	189.77	310.00
147.000	730.00	907.58	.50	1.09	0.00	209.67	310.00
148.000	300.00	910.82	0.00	4.68	0.00	92.21	1035.00
148.000	445.00	911.18	.36	4.50	0.00	103.92	1035.00
148.000	525.00	911.20	.01	4.12	0.00	104.49	1035.00
148.000	730.00	911.66	.46	4.08	0.00	119.91	1035.00
148.100	300.00	912.05	0.00	1.22	0.00	55.00	90.00
148.100	445.00	912.42	.37	1.23	0.00	55.00	90.00
148.100	525.00	912.63	.21	1.43	0.00	55.00	90.00
148.100	730.00	912.99	.36	1.33	0.00	55.00	90.00
148.200	300.00	913.56	0.00	1.51	0.00	55.00	2.00
148.200	445.00	914.03	.47	1.61	0.00	55.00	2.00
148.200	525.00	914.26	.23	1.63	0.00	55.00	2.00
148.200	730.00	914.76	.51	1.78	0.00	55.00	2.00
148.300	300.00	913.61	0.00	.05	0.00	156.56	160.00
148.300	445.00	914.11	.50	.08	0.00	162.56	160.00
148.300	525.00	914.36	.25	.10	0.00	165.52	160.00
148.300	730.00	914.92	.56	.15	0.00	172.19	160.00
149.000	300.00	913.63	0.00	.02	0.00	350.00	245.00
149.000	445.00	914.14	.50	.02	0.00	350.00	245.00
149.000	525.00	914.39	.25	.03	0.00	350.00	245.00
149.000	730.00	914.95	.56	.03	0.00	350.00	245.00
150.000	300.00	913.63	0.00	.00	0.00	186.29	315.00
150.000	445.00	914.14	.50	-.00	0.00	192.22	315.00
150.000	525.00	914.38	.25	-.00	0.00	195.15	315.00
150.000	730.00	914.94	.56	-.00	0.00	201.75	315.00
151.000	300.00	913.64	0.00	.01	0.00	180.00	265.00
151.000	445.00	914.15	.50	.01	0.00	180.00	265.00
151.000	525.00	914.40	.25	.01	0.00	180.00	265.00
151.000	730.00	914.96	.56	.01	0.00	180.00	265.00
152.000	300.00	913.64	0.00	.00	0.00	49.52	260.00
152.000	445.00	914.14	.50	-.01	0.00	52.50	260.00
152.000	525.00	914.39	.24	-.01	0.00	53.92	260.00
152.000	730.00	914.94	.55	-.02	0.00	57.23	260.00
153.000	300.00	914.76	0.00	1.11	0.00	35.00	280.00
153.000	445.00	915.30	.54	1.16	0.00	35.00	280.00
153.000	525.00	915.57	.27	1.18	0.00	35.00	280.00
153.000	730.00	916.15	.59	1.21	0.00	35.00	280.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	154.000	300.00	915.79	0.00	1.03	0.00	18.16	30.00
*	154.000	445.00	916.39	.61	1.09	0.00	18.16	30.00
*	154.000	525.00	916.70	.31	1.14	0.00	18.16	30.00
*	154.000	730.00	917.42	.72	1.27	0.00	18.16	30.00
*	155.000	300.00	915.78	0.00	-.01	0.00	18.16	2.00
*	155.000	445.00	916.35	.57	-.04	0.00	18.16	2.00
*	155.000	525.00	916.65	.30	-.05	0.00	18.16	2.00
*	155.000	730.00	917.26	.62	-.16	0.00	18.16	2.00
*	156.000	300.00	916.21	0.00	.44	0.00	18.16	146.00
*	156.000	445.00	916.85	.64	.50	0.00	18.16	146.00
	156.000	525.00	917.52	.67	.87	0.00	18.16	146.00
	156.000	730.00	918.63	1.11	1.37	0.00	18.16	146.00
	157.000	300.00	916.88	0.00	.67	0.00	18.16	2.00
	157.000	445.00	917.88	1.00	1.03	0.00	18.16	2.00
	157.000	525.00	918.35	.47	.83	0.00	18.16	2.00
	157.000	730.00	920.29	1.94	1.66	0.00	18.16	2.00
	158.000	300.00	917.68	0.00	.80	0.00	164.25	80.00
	158.000	445.00	918.80	1.12	.92	0.00	179.77	80.00
	158.000	525.00	919.35	.55	1.00	0.00	187.34	80.00
	158.000	730.00	921.19	1.83	.89	0.00	206.75	80.00
	159.000	300.00	917.69	0.00	.01	0.00	164.32	150.00
	159.000	445.00	918.81	1.12	.01	0.00	179.84	150.00
	159.000	525.00	919.36	.55	.01	0.00	187.42	150.00
	159.000	730.00	921.19	1.83	.00	0.00	206.79	150.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION   SECNO=   154.000   PROFILE= 1   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   154.000   PROFILE= 1   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   154.000   PROFILE= 1   20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   154.000   PROFILE= 2   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   154.000   PROFILE= 2   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   154.000   PROFILE= 2   20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   154.000   PROFILE= 3   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   154.000   PROFILE= 3   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   154.000   PROFILE= 3   20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   154.000   PROFILE= 4   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   154.000   PROFILE= 4   PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   154.000   PROFILE= 4   20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION   SECNO=   155.000   PROFILE= 1   20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=   155.000   PROFILE= 2   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   155.000   PROFILE= 2   MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   155.000   PROFILE= 3   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   155.000   PROFILE= 3   MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   155.000   PROFILE= 4   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   155.000   PROFILE= 4   MINIMUM SPECIFIC ENERGY

CAUTION   SECNO=   156.000   PROFILE= 1   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   156.000   PROFILE= 1   MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   156.000   PROFILE= 2   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   156.000   PROFILE= 2   MINIMUM SPECIFIC ENERGY
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FLOODWAY DATA, CHESTNUT RUN II&III
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
143.800	62.	145.	3.1	895.3	894.7	.6
144.300	52.	105.	4.2	897.9	897.3	.6
144.700	103.	373.	1.2	902.1	901.8	.3
145.000	77.	211.	2.1	902.2	901.9	.3
146.300	56.	113.	3.9	902.9	902.4	.5
146.700	338.	1065.	.4	905.7	905.5	.2
146.800	319.	934.	.5	905.7	905.5	.2
146.900	122.	234.	1.9	905.7	905.5	.2
146.910	126.	234.	1.9	905.8	905.5	.3
147.000	174.	280.	1.6	906.6	906.1	.5
148.000	104.	127.	3.5	911.2	910.8	.4
148.100	55.	113.	4.0	912.4	912.0	.4
148.200	55.	201.	2.2	914.1	913.6	.5
148.300	163.	397.	1.1	914.1	913.6	.5
149.000	350.	958.	.5	914.1	913.6	.5
150.000	192.	483.	.9	914.1	913.6	.5
151.000	180.	494.	.9	914.1	913.6	.5
152.000	53.	122.	3.7	914.1	913.6	.5
153.000	35.	87.	5.1	915.3	914.8	.5
154.000	18.	48.	9.3	916.4	915.8	.6
155.000	18.	45.	9.8	916.4	915.8	.6
156.000	18.	45.	9.8	916.8	916.2	.6
157.000	18.	66.	6.7	917.9	916.9	1.0
158.000	180.	770.	.6	918.8	917.7	1.1
159.000	180.	771.	.6	918.8	917.7	1.1

FLOODWAY DATA, CHESTNUT RUN II&III
PROFILE NO. 3

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
143.800	66.	162.	3.2	895.5	894.7	.8
144.300	56.	121.	4.3	898.2	897.3	.9
144.700	105.	386.	1.4	902.2	901.8	.4
145.000	79.	223.	2.4	902.3	901.9	.4
146.300	60.	128.	4.1	903.2	902.4	.8
146.700	338.	1095.	.5	905.8	905.5	.3
146.800	324.	963.	.5	905.8	905.5	.3
146.900	124.	234.	2.2	905.8	905.5	.3
146.910	137.	248.	2.1	906.0	905.5	.5
147.000	190.	352.	1.5	907.0	906.1	.9
148.000	104.	129.	4.1	911.2	910.8	.4
148.100	55.	124.	4.2	912.6	912.0	.6
148.200	55.	214.	2.5	914.3	913.6	.7
148.300	166.	437.	1.2	914.3	913.6	.7
149.000	350.	1045.	.5	914.4	913.6	.8
150.000	195.	531.	1.0	914.4	913.6	.8
151.000	180.	539.	1.0	914.4	913.6	.8
152.000	54.	134.	3.9	914.3	913.6	.7
153.000	35.	97.	5.4	915.6	914.8	.8
154.000	18.	54.	9.8	916.7	915.8	.9
155.000	18.	50.	10.5	916.7	915.8	.9
156.000	18.	55.	9.5	917.5	916.2	1.3
157.000	18.	75.	7.0	918.4	916.9	1.5
158.000	187.	870.	.6	919.4	917.7	1.7
159.000	187.	871.	.6	919.4	917.7	1.7

FLOODWAY DATA, CHESTNUT RUN I1&III
PROFILE NO. 4

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
143.800	81.	206.	3.5	896.1	894.7	1.4
144.300	67.	163.	4.5	898.9	897.3	1.6
144.700	109.	415.	1.8	902.4	901.8	.6
145.000	85.	251.	2.9	902.7	901.9	.8
146.300	68.	164.	4.4	903.8	902.4	1.4
146.700	338.	1166.	.6	906.0	905.5	.5
146.800	335.	1032.	.7	906.0	905.5	.5
146.900	133.	242.	3.0	906.0	905.5	.5
146.910	174.	322.	2.3	906.5	905.5	1.0
147.000	210.	452.	1.6	907.5	906.1	1.4
148.000	120.	181.	4.0	911.6	910.8	.8
148.100	55.	144.	5.1	912.9	912.0	.9
148.200	55.	242.	3.0	914.8	913.6	1.2
148.300	172.	531.	1.4	914.9	913.6	1.3
149.000	350.	1242.	.6	914.9	913.6	1.3
150.000	202.	643.	1.1	914.9	913.6	1.3
151.000	180.	639.	1.1	914.9	913.6	1.3
152.000	57.	165.	4.4	914.9	913.6	1.3
153.000	35.	117.	6.2	916.2	914.8	1.4
154.000	18.	67.	10.9	917.4	915.8	1.6
155.000	18.	58.	12.5	917.3	915.8	1.5
156.000	18.	65.	11.2	918.6	916.2	2.4
157.000	18.	110.	6.7	920.3	916.9	3.4
158.000	207.	1232.	.6	921.2	917.7	3.5
159.000	207.	1232.	.6	921.2	917.7	3.5



1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN-- CHESTNUT RUN

4) DOCUMENT TYPE: SUMMARY - FLOODWAY



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

CHESTNUT RUN II&III BLD

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
143.800	0.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.32	3.24	162.12	68.75
143.800	0.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.32	3.24	162.12	68.75
144.300	325.00	0.00	0.00	894.50	525.00	898.19	0.00	898.48	123.27	4.33	121.35	47.29
144.300	325.00	0.00	0.00	894.50	525.00	898.19	0.00	898.48	123.21	4.33	121.37	47.30
144.700	71.00	901.20	897.00	894.50	525.00	902.19	0.00	902.22	6.03	1.36	385.52	213.77
144.700	71.00	999999.00	0.00	894.50	525.00	902.19	0.00	902.22	6.03	1.36	385.47	213.73
145.000	160.00	0.00	0.00	896.40	525.00	902.33	0.00	902.42	25.88	2.36	222.85	103.20
145.000	160.00	0.00	0.00	896.40	525.00	902.33	0.00	902.42	25.96	2.36	222.59	103.05
146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.43	112.15	4.10	128.07	49.57
146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.43	112.23	4.10	128.04	49.56
146.700	100.00	905.00	900.50	898.60	525.00	905.72	0.00	905.73	1.23	.77	1095.02	472.85
146.700	100.00	999999.00	0.00	898.60	525.00	905.72	0.00	905.73	1.35	.79	993.25	451.44
146.800	60.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.75	.87	962.54	397.14
146.800	60.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.91	.90	876.06	379.39
146.900	90.00	905.90	904.20	899.00	525.00	905.74	0.00	905.82	63.59	2.25	233.63	65.84
146.900	90.00	905.90	904.20	899.00	525.00	905.75	0.00	905.82	63.59	2.25	233.63	65.84
146.910	32.00	905.90	904.20	899.00	525.00	906.01	0.00	906.08	107.23	2.12	248.31	50.70
146.910	32.00	905.90	904.20	899.00	525.00	906.02	0.00	906.09	106.30	2.11	248.59	50.92
147.000	310.00	0.00	0.00	900.70	525.00	907.08	0.00	907.14	16.61	2.32	351.91	128.82
147.000	310.00	0.00	0.00	900.70	525.00	907.13	0.00	907.20	17.95	2.39	308.97	123.91
148.000	1035.00	0.00	0.00	909.50	525.00	911.20	0.00	911.45	225.72	4.07	128.89	34.94
148.000	1035.00	0.00	0.00	909.50	525.00	911.31	0.00	911.52	176.73	3.73	140.64	39.49

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	148.100	90.00	0.00	0.00	910.30	525.00	912.63	0.00	912.90	119.01	4.22	124.26	48.13
	148.100	90.00	0.00	0.00	910.30	525.00	912.60	0.00	912.88	124.74	4.29	122.47	47.01
	148.200	2.00	912.00	911.90	910.30	525.00	914.26	0.00	914.35	4.76	2.46	213.60	240.54
	148.200	2.00	912.00	911.90	910.30	525.00	914.26	0.00	914.35	4.77	2.46	213.54	240.44
	148.300	160.00	0.00	0.00	911.40	525.00	914.36	0.00	914.38	.72	1.20	437.34	619.85
	148.300	160.00	0.00	0.00	911.40	525.00	914.36	0.00	914.38	.72	1.20	437.21	619.56
	149.000	245.00	0.00	0.00	911.40	525.00	914.39	0.00	914.39	.11	.50	1045.05	1592.04
	149.000	245.00	0.00	0.00	911.40	525.00	914.38	0.00	914.39	.11	.50	1044.70	1591.17
	150.000	315.00	0.00	0.00	911.40	525.00	914.38	0.00	914.40	.47	.99	531.23	768.20
	150.000	315.00	0.00	0.00	911.40	525.00	914.38	0.00	914.40	.47	.99	531.55	768.93
	151.000	265.00	0.00	0.00	911.40	525.00	914.40	0.00	914.41	.42	.97	538.53	812.90
	151.000	265.00	0.00	0.00	911.40	525.00	914.40	0.00	914.41	.42	.98	538.35	812.46
	152.000	260.00	0.00	0.00	911.40	525.00	914.39	0.00	914.62	33.59	3.91	134.30	90.59
	152.000	260.00	0.00	0.00	911.40	525.00	914.39	0.00	914.62	33.57	3.91	134.32	90.61
	153.000	280.00	0.00	0.00	912.80	525.00	915.57	0.00	916.02	67.01	5.43	96.68	64.13
	153.000	280.00	0.00	0.00	912.80	525.00	915.57	0.00	916.02	67.08	5.43	96.65	64.10
*	154.000	30.00	0.00	0.00	912.90	525.00	916.70	916.70	918.19	239.62	9.78	53.66	33.92
*	154.000	30.00	0.00	0.00	912.90	525.00	916.70	916.70	918.19	239.61	9.78	53.66	33.92
*	155.000	2.00	922.40	918.15	912.90	525.00	916.65	916.65	918.37	35.38	10.52	49.90	88.27
*	155.000	2.00	922.40	918.15	912.90	525.00	916.65	916.65	918.37	35.38	10.52	49.90	88.27
	156.000	146.00	922.40	918.65	913.40	525.00	917.52	917.15	918.92	28.09	9.51	55.23	99.05
	156.000	146.00	922.40	918.65	913.40	525.00	917.52	917.15	918.92	28.09	9.51	55.23	99.05
	157.000	2.00	0.00	0.00	913.40	525.00	918.35	0.00	919.12	84.97	7.04	74.61	56.95
	157.000	2.00	0.00	0.00	913.40	525.00	918.35	0.00	919.12	84.99	7.04	74.61	56.95
	158.000	80.00	0.00	0.00	913.40	525.00	919.35	0.00	919.36	.34	.60	870.05	896.92
	158.000	80.00	0.00	0.00	913.40	525.00	919.35	0.00	919.36	.34	.60	870.02	896.89
	159.000	150.00	0.00	0.00	913.40	525.00	919.36	0.00	919.36	.34	.60	871.07	898.43
	159.000	150.00	0.00	0.00	913.40	525.00	919.36	0.00	919.36	.34	.60	871.02	898.36

CHESTNUT RUN II&III BLD

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
143.800	525.00	895.55	0.00	0.00	0.00	66.25	0.00
143.800	525.00	895.55	0.00	0.00	0.00	66.25	0.00
144.300	525.00	898.19	0.00	2.64	0.00	56.34	325.00
144.300	525.00	898.19	-.00	2.64	-.00	56.35	325.00
144.700	525.00	902.19	0.00	4.01	0.00	105.18	71.00
144.700	525.00	902.19	-.00	4.01	-.00	105.17	71.00
145.000	525.00	902.33	0.00	.14	0.00	79.49	160.00
145.000	525.00	902.33	-.00	.14	-.00	79.45	160.00
146.300	525.00	903.17	0.00	.84	0.00	59.63	185.00
146.300	525.00	903.17	.00	.84	.00	59.62	185.00
146.700	525.00	905.72	0.00	2.55	0.00	338.00	100.00
146.700	525.00	905.72	.00	2.55	.00	249.05	100.00
146.800	525.00	905.73	0.00	.01	0.00	324.03	60.00
146.800	525.00	905.73	.00	.01	.00	241.35	60.00
146.900	525.00	905.74	0.00	.01	0.00	124.40	90.00
146.900	525.00	905.75	.01	.01	.01	124.47	90.00
146.910	525.00	906.01	0.00	.27	0.00	136.63	32.00
146.910	525.00	906.02	.01	.27	.01	128.00	32.00
147.000	525.00	907.08	0.00	1.07	0.00	189.77	310.00
147.000	525.00	907.13	.06	1.12	.06	124.54	310.00
148.000	525.00	911.20	0.00	4.12	0.00	104.49	1035.00
148.000	525.00	911.31	.11	4.17	.11	108.17	1035.00
148.100	525.00	912.63	0.00	1.43	0.00	55.00	90.00
148.100	525.00	912.60	-.03	1.29	-.03	55.00	90.00
148.200	525.00	914.26	0.00	1.63	0.00	55.00	2.00
148.200	525.00	914.26	-.00	1.66	-.00	55.00	2.00
148.300	525.00	914.36	0.00	.10	0.00	165.52	160.00
148.300	525.00	914.36	-.00	.10	-.00	165.51	160.00
149.000	525.00	914.39	0.00	.03	0.00	350.00	245.00
149.000	525.00	914.38	-.00	.03	-.00	350.00	245.00
150.000	525.00	914.38	0.00	-.00	0.00	195.15	315.00
150.000	525.00	914.38	-.00	-.00	-.00	195.17	315.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	151.000	525.00	914.40	0.00	.01	0.00	180.00	265.00
	151.000	525.00	914.40	-.00	.01	-.00	180.00	265.00
	152.000	525.00	914.39	0.00	-.01	0.00	53.92	260.00
	152.000	525.00	914.39	-.00	-.01	-.00	53.92	260.00
	153.000	525.00	915.57	0.00	1.18	0.00	35.00	280.00
	153.000	525.00	915.57	-.00	1.18	-.00	35.00	280.00
*	154.000	525.00	916.70	0.00	1.14	0.00	18.16	30.00
*	154.000	525.00	916.70	.00	1.14	.00	18.16	30.00
*	155.000	525.00	916.65	0.00	-.05	0.00	18.16	2.00
*	155.000	525.00	916.65	0.00	-.05	0.00	18.16	2.00
	156.000	525.00	917.52	0.00	.87	0.00	18.16	146.00
	156.000	525.00	917.52	0.00	.87	0.00	18.16	146.00
	157.000	525.00	918.35	0.00	.83	0.00	18.16	2.00
	157.000	525.00	918.35	-.00	.83	-.00	18.16	2.00
	158.000	525.00	919.35	0.00	1.00	0.00	187.34	80.00
	158.000	525.00	919.35	.00	1.00	.00	187.34	80.00
	159.000	525.00	919.36	0.00	.01	0.00	187.42	150.00
	159.000	525.00	919.36	.00	.01	.00	187.41	150.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO=   154.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   154.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   154.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=   154.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   154.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   154.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   155.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   155.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   155.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   155.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
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FLOODWAY DATA, CHESTNUT RUN 11&III BLO
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
143.800	66.	162.	3.2	895.5	895.6	0.0
144.300	56.	121.	4.3	898.2	898.2	0.0
144.700	105.	385.	1.4	902.2	902.2	0.0
145.000	79.	223.	2.4	902.3	902.3	0.0
146.300	60.	128.	4.1	903.2	903.2	0.0
146.700	249.	993.	.5	905.7	905.7	0.0
146.800	241.	876.	.6	905.7	905.7	0.0
146.900	124.	234.	2.2	905.7	905.7	0.0
146.910	128.	249.	2.1	906.0	906.0	0.0
147.000	125.	309.	1.7	907.2	907.1	.1
148.000	108.	141.	3.7	911.3	911.2	.1
148.100	55.	122.	4.3	912.6	912.6	0.0
148.200	55.	214.	2.5	914.3	914.3	0.0
148.300	166.	437.	1.2	914.4	914.4	0.0
149.000	350.	1045.	.5	914.4	914.4	0.0
150.000	195.	532.	1.0	914.4	914.4	0.0
151.000	180.	538.	1.0	914.4	914.4	0.0
152.000	54.	134.	3.9	914.4	914.4	0.0
153.000	35.	97.	5.4	915.6	915.6	0.0
154.000	18.	54.	9.8	916.7	916.7	0.0
155.000	18.	50.	10.5	916.6	916.6	0.0
156.000	18.	55.	9.5	917.5	917.5	0.0
157.000	18.	75.	7.0	918.4	918.4	0.0
158.000	187.	870.	.6	919.4	919.4	0.0
159.000	187.	871.	.6	919.4	919.4	0.0

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: CONVERGENCE RUN

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

C
T1      HUD-FIA H-4705
T2      MURPHY BRANCH
T3      BLOOMFIELD TOWNSHIP FIS

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.  0.000000      0.00      -1.0        0.   848.400     0.000

J2  NPROF      IPLOT     PFFVS     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       .100      .100      .063      .10C      .300     0.000     0.000     0.000     0.000     0.000
QT      5.000   330.000   480.000   570.000   780.000   570.000     0.000     0.000     0.000     0.000

        **CONFLUENCE WITH STONYCROFT DRAIN

X1    130.900    11.000   337.000   355.000     0.000     0.000     0.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   326.000     0.000   376.000     0.000     0.000     0.000     0.000
GR    850.000   110.000   848.000   260.000   848.000   325.000   846.000   337.000   844.000   343.000
GR    844.000   349.000   846.000   355.000   848.000   365.000   848.000   410.000   849.000   500.000
GR    850.000   740.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    131.000    10.000   337.000   355.000   455.000   455.000   455.000     0.000     0.000     0.000
GR    851.400   180.000   850.400   215.000   849.000   300.000   846.500   346.000   846.500   350.000
GR    848.200   355.000   847.800   392.000   847.800   440.000   849.900   500.000   854.600   577.000

X1    132.200     9.000   309.000   353.000   525.000   525.000   525.000     0.000     0.000     0.000
GR    855.700   224.000   854.800   309.000   853.600   320.000   849.100   338.000   849.200   344.000
GR    850.800   353.000   851.000   385.000   853.800   447.000   855.000   488.000     0.000     0.000
NC       .063     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000

        **D/S FACE OPDYKE R.D.

X1    132.400     0.000     0.000     0.000   130.000   130.000   130.000     0.000      .300     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   853.000   853.000     0.000
SB      0.000     1.250     3.000   150.000     4.000     0.000    12.600     0.000     0.000     0.000

X1    132.600     0.000     0.000     0.000    31.000    31.000    31.000     0.000      .200     0.000
X2      0.000     0.000     1.000   852.500   856.100     0.000     0.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   856.100   856.100     0.000
NC      0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
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**CONCRETE FOOTBRIDGE

X1	133.000	9.000	370.000	390.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	855.600	855.600	0.000
GR	857.500	130.000	856.200	220.000	854.900	235.000	854.500	370.000	851.000	380.000
GR	851.000	384.000	855.000	390.000	855.200	400.000	858.500	482.000	0.000	0.000
SB	0.000	1.370	2.700	200.000	9.000	0.000	37.800	0.000	0.000	0.000
X1	133.100	0.000	0.000	0.000	8.000	8.000	8.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	855.200	855.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	855.800	855.800	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**D/S FACE DRIVEWAY - STONE ARCH

X1	134.000	0.000	0.000	0.000	180.000	180.000	180.000	0.000	1.800	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
SB	0.000	1.630	2.600	100.000	9.000	0.000	17.500	0.000	0.000	0.000
X1	134.100	0.000	0.000	0.000	26.000	26.000	26.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	855.200	857.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	857.600	857.600	0.000

**D/S FACE DRIVEWAY - 3 FT. DIA. CMP

X1	135.000	0.000	0.000	0.000	85.000	85.000	85.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.400	856.400	0.000
SB	0.000	2.350	2.900	100.000	3.000	0.000	7.100	0.000	0.000	0.000
X1	135.100	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	855.700	857.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	857.200	857.200	0.000
NC	.100	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	136.000	11.000	155.000	168.000	450.000	450.000	450.000	0.000	0.000	0.000
GR	865.000	0.000	861.400	80.000	859.000	141.000	858.000	155.000	856.500	160.000
GR	856.500	164.000	858.200	168.000	858.200	190.000	857.700	239.000	859.400	278.000
GR	864.400	313.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	136.100	7.000	160.000	210.000	470.000	470.000	470.000	0.000	0.000	0.000
GR	866.000	0.000	864.000	130.000	862.000	160.000	860.200	175.000	860.200	190.000
GR	862.000	210.000	864.000	240.000	0.000	0.000	0.000	0.000	0.000	0.000

**D/S FACE CONCRETE DRIVEWAY

X1	137.300	7.000	280.000	325.000	130.000	130.000	130.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	864.600	864.600	0.000
GR	870.000	0.000	866.000	80.000	864.000	280.000	862.000	295.000	861.300	310.000
GR	862.000	325.000	870.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.330	3.000	180.000	11.000	0.000	29.700	0.000	0.000	0.000

X1	137.700	9.000	196.000	219.000	14.000	14.000	14.000	0.000	-3.200	0.000
X2	0.000	0.000	1.000	864.600	865.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	865.400	865.400	0.000
GR	875.000	0.000	870.800	32.000	867.000	91.000	865.000	196.000	864.500	202.000
GR	864.500	208.000	865.000	219.000	865.300	239.000	873.700	285.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	137.800	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.700	0.000
X1	138.000	0.000	0.000	0.000	175.000	175.000	175.000	0.000	1.500	0.000
X1	138.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X1	138.500	11.000	240.000	309.000	200.000	200.000	200.000	0.000	-1.500	0.000
GR	882.000	0.000	878.000	55.000	876.800	220.000	876.800	240.000	868.600	256.000
GR	868.600	262.000	870.800	269.000	875.500	309.000	876.700	326.000	878.200	366.000
GR	878.400	382.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	139.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.500	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.600	0.000	0.000	0.000	0.000	0.000

**D/S FACE WOODWARD AVE.

X1	139.300	0.000	0.000	0.000	140.000	140.000	140.000	0.000	1.700	0.000
X3	10.000	0.000	0.000	100.000	0.000	0.000	0.000	876.500	876.500	0.000
SB	0.000	2.580	3.000	180.000	12.000	0.000	52.800	0.000	0.000	0.000
X1	139.700	0.000	0.000	0.000	200.000	200.000	200.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	874.700	878.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	878.800	878.800	0.000
QT	5.000	300.000	445.000	525.000	730.000	525.000	0.000	0.000	0.000	0.000
X1	139.800	12.000	196.000	404.000	30.000	30.000	30.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	400.000	0.000	0.000	0.000	0.000
GR	882.000	0.000	877.200	50.000	873.400	136.000	872.000	196.000	870.200	242.000
GR	870.200	359.000	872.500	404.000	873.300	428.000	873.400	465.000	878.200	560.000
GR	878.900	589.000	882.000	614.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	140.000	11.000	204.000	220.000	925.000	925.000	925.000	0.000	1.000	0.000
GR	882.000	0.000	876.900	33.000	872.400	91.000	872.100	204.000	871.360	206.000
GR	871.360	211.000	872.400	220.000	872.600	286.000	875.600	337.000	879.600	405.000
GR	882.000	422.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.150	.300	0.000	0.000	0.000	0.000	0.000
X1	141.000	12.000	306.000	319.000	1100.000	1100.000	1100.000	0.000	1.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	472.000	0.000	0.000	0.000	0.000
GR	887.100	65.000	885.100	92.000	878.000	223.000	876.600	280.000	876.500	306.000
GR	876.000	308.000	876.000	315.000	876.400	319.000	876.000	374.000	877.400	421.000
GR	882.100	472.000	887.000	502.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	142.200	12.000	110.000	123.000	800.000	800.000	800.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	324.000	0.000	0.000	0.000	0.000
GR	890.000	0.000	881.600	54.000	881.300	91.000	880.900	110.000	879.900	112.000
GR	879.900	120.000	881.000	123.000	880.500	324.000	880.400	439.000	882.300	531.000
GR	882.100	558.000	886.400	609.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

X1	142.300	0.000	0.000	0.000	120.000	120.000	120.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	324.000	0.000	0.000	0.000	0.000
SB	0.000	2.160	3.000	200.000	8.500	0.000	30.900	0.000	0.000	0.000

X1	142.700	9.000	83.000	108.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	883.330	885.230	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	885.230	885.230	0.000
GR	890.000	0.000	888.000	18.000	886.000	33.000	884.000	63.000	882.000	83.000
GR	880.230	87.000	880.230	98.000	882.000	108.000	885.000	148.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.600	0.000	0.000	0.000	0.000	0.000

**TWO 3 FT. CMP'S

X1	142.800	0.000	0.000	0.000	35.000	35.000	35.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	884.200	0.000	0.000	0.000	0.000	0.000

X1	142.810	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	884.200	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**WOOD WEIR

X1	142.820	0.000	0.000	0.000	15.000	15.000	15.000	0.000	.100	0.000
X2	0.000	0.000	0.000	880.350	881.800	0.000	0.000	0.000	0.000	0.000

X1	142.830	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	880.350	881.800	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**CONC WEIR

X1	142.840	10.000	130.000	155.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	881.400	883.400	0.000	0.000	0.000	0.000	0.000
GR	890.000	0.000	888.000	50.000	886.000	80.000	884.000	110.000	882.700	130.000
GR	881.500	132.000	881.500	152.000	884.000	155.000	886.000	205.000	887.000	260.000

X1	142.850	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	881.400	883.400	0.000	0.000	0.000	0.000	0.000

**TWO 2.5'CMP'S

X1	142.860	0.000	0.000	0.000	80.000	80.000	80.000	0.000	1.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	886.200	886.200	0.000
SB	0.000	1.970	2.900	130.000	9.000	0.000	25.500	0.000	0.000	0.000
X1	142.870	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	886.000	886.500	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	886.500	886.500	0.000
**TWO 2.5 CMP'S										
X1	142.900	0.000	0.000	0.000	90.000	90.000	90.000	0.000	.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	886.200	886.200	0.000
SB	0.000	2.150	3.000	170.000	5.000	0.000	9.820	0.000	0.000	0.000
X1	142.910	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	885.700	886.600	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	886.600	886.600	0.000
**CONC AND STONE WEIR										
X1	142.930	0.000	0.000	0.000	6.000	6.000	6.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	885.700	0.000	0.000	0.000	0.000	0.000
X1	142.940	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	885.700	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	143.200	8.000	100.000	121.000	350.000	350.000	350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	897.000	0.000	890.800	67.000	889.000	100.000	887.300	108.000	887.300	112.000
GR	888.700	121.000	890.100	181.000	891.400	214.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
**STONE WEIR										
X1	143.210	0.000	0.000	0.000	30.000	30.000	30.000	0.000	-.100	0.000
X2	0.000	0.000	0.000	887.200	889.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	143.220	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	887.200	889.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000
**D/S FACE LAHSER RD.										
X1	143.700	0.000	0.000	0.000	140.000	140.000	140.000	0.000	.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	891.500	891.500	0.000
SB	0.000	1.880	3.000	200.000	5.500	0.000	23.560	0.000	0.000	0.000
X1	143.750	9.000	22.000	177.000	35.000	35.000	35.000	0.000	-2.900	0.000
X2	0.000	0.000	1.000	890.820	892.600	0.000	0.000	0.000	0.000	0.000

X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	892.600	892.600	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	890.400	96.000
GR	890.400	103.000	892.400	120.000	892.700	129.000	900.000	177.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	143.760	9.000	22.000	177.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	891.000	96.000
GR	891.000	103.000	892.400	120.000	892.700	129.000	900.000	177.000	0.000	0.000
X1	143.800	9.000	22.000	137.000	110.000	110.000	110.000	0.000	.800	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	890.400	96.000
GR	890.400	103.000	892.400	120.000	892.700	129.000	896.900	137.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**PLUGGED 3' DIA RCP

X1	144.300	0.000	0.000	0.000	325.000	325.000	325.000	0.000	3.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	900.000	900.000	0.000
SB	0.000	2.200	2.900	150.000	3.000	0.000	7.070	0.000	0.000	0.000
X1	144.700	7.000	0.000	129.000	71.000	71.000	71.000	0.000	-.800	0.000
X2	0.000	0.000	1.000	897.000	901.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	901.200	901.200	0.000
GR	905.100	0.000	896.600	85.000	895.300	86.000	895.300	91.000	903.600	129.000
GR	904.000	170.000	905.200	194.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	145.000	0.000	0.000	0.000	160.000	160.000	160.000	0.000	1.900	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**CULVERT UNDER ASPHALT DRIVE

X1	146.300	0.000	0.000	0.000	185.000	185.000	185.000	0.000	2.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	903.000	903.000	0.000
SB	0.000	2.250	3.000	250.000	3.000	0.000	7.070	0.000	0.000	0.000
X1	146.700	8.000	240.000	298.000	100.000	100.000	100.000	0.000	-.400	0.000
X2	0.000	0.000	1.000	900.500	905.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	905.000	905.000	0.000
GR	906.000	0.000	903.100	53.000	903.500	130.000	900.200	240.000	899.000	250.000
GR	899.000	259.000	904.800	298.000	906.000	338.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	146.800	0.000	0.000	0.000	60.000	60.000	60.000	0.000	.400	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**FOOTBRIDGE

X1	146.900	8.000	170.000	298.000	90.000	90.000	90.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	904.200	905.900	0.000	0.000	0.000	0.000	0.000
GR	910.000	0.000	905.900	170.000	903.000	220.000	900.200	240.000	899.000	250.000
GR	899.000	259.000	905.900	298.000	907.000	338.000	0.000	0.000	0.000	0.000

X1	146.910	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	904.200	905.900	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	147.000	12.000	270.000	312.000	310.000	310.000	310.000	0.000	0.000	0.000
GR	910.000	0.000	909.000	77.000	906.000	167.000	905.600	200.000	905.100	270.000
GR	901.800	296.000	900.700	298.000	900.700	300.000	901.800	302.000	905.800	312.000
GR	909.000	343.000	910.000	360.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	148.000	8.000	276.000	450.000	1125.000	1125.000	1125.000	0.000	0.000	0.000
GR	918.100	0.000	915.800	156.000	914.200	276.000	910.300	330.000	910.300	370.000
GR	910.400	380.000	914.000	450.000	914.000	500.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	149.000	12.000	213.000	229.000	1025.000	1025.000	1025.000	0.000	0.000	0.000
GR	920.000	0.000	919.800	109.000	919.200	134.000	915.400	180.000	915.000	213.000
GR	914.400	220.000	913.200	222.000	913.200	224.000	914.400	225.000	915.400	229.000
GR	915.500	266.000	920.100	347.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	150.000	11.000	167.000	202.000	825.000	825.000	825.000	0.000	0.000	0.000
GR	925.000	0.000	924.400	67.000	924.200	96.000	922.800	123.000	922.000	167.000
GR	918.600	185.000	917.800	190.000	917.800	195.000	918.600	199.000	922.100	202.000
GP	924.000	217.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

HUD FIA F-4.05
BLOOMFIELD
TOG

CJH
11-26-80

HAMLIN DRAIN

Grand Trunk Railroad

1) used XKOR = 7.1 (very restrictive) Mostly friction losses
Ke used = .5
if used .9 then Kf = 7.5

> No Difference because XKOR so large

854.01 = TW expect HW = 862.42 Kf = 7.1
(7.1) .365 $\sqrt{2gh}$ expect HW = 862.42 Kf = 7.5

.375 .365 vs .375 for e

New Subdivision Road

2) Note that U/s stage = 867.03 the HGL @ weir < 867.03, friction losses

a) XKOR of 2.49 only includes flow through 7' section
b) 862.43 + losses through 7' CMP + 36" RCP

⇒ looks like elevation should be below top of road
Now, will this affect actual area of study?

discharge in stage, set Ke use 3.0 ⇒ $Q = 7\pi(3.0(EG - 861.03)^{1.5}) =$
EG more like 867.5

Input weir →

see next sheet

return with Ke reduced

867.5 = HGL @ weir
vs HGL $867.5 + (.2+1)\frac{V^2}{A^2 2g}$ = or assume no flow in 36" pipe

Note: don't include additive area because velocity head will be too small XKOR = smaller.

Upstream effect would be negligible (i.e. would not change elevations in area of study) as critical depth occurs at limit of study. The elevation of 872.18 U/s for the 100 yr flow remains. (Although elevation at 504 will be lower)

3) Many sections were input in this reach as an attempt to consider the sensitivity of the critical depth message. All trials resulted in the critical depth remaining. Note the USGS Topo map indicates a section which is much more restrictive at 504 than that encountered downstream

12-4-80
CJM

HAMLIN2 MODIFICATIONS

XSEC 501.9 - 501.95

utilize 7' ϕ drop inlet circular weir.. however, this cannot be input directly because HEC-II will not compute flow through structure, it will assume flow passes over weir - not into weir & through structure.

So: use model as set-up w/ original analysis using equivalent length of 3' ϕ pipe.

decrease XKOR let ke = .1

100 yr

$C(7.1)\sqrt{2g}\ h^{3/2} = 430$ cfs

TW = 862.43

HW = 867.3 - 867.5

h = 4.97

$Q_{ev} = 7.1(h)$

C = 3.387

XKOR = .0872

use XKOR = .09

Now, all flow goes through structure w/ correct losses calculated. yes - see computed HW now = 867.4

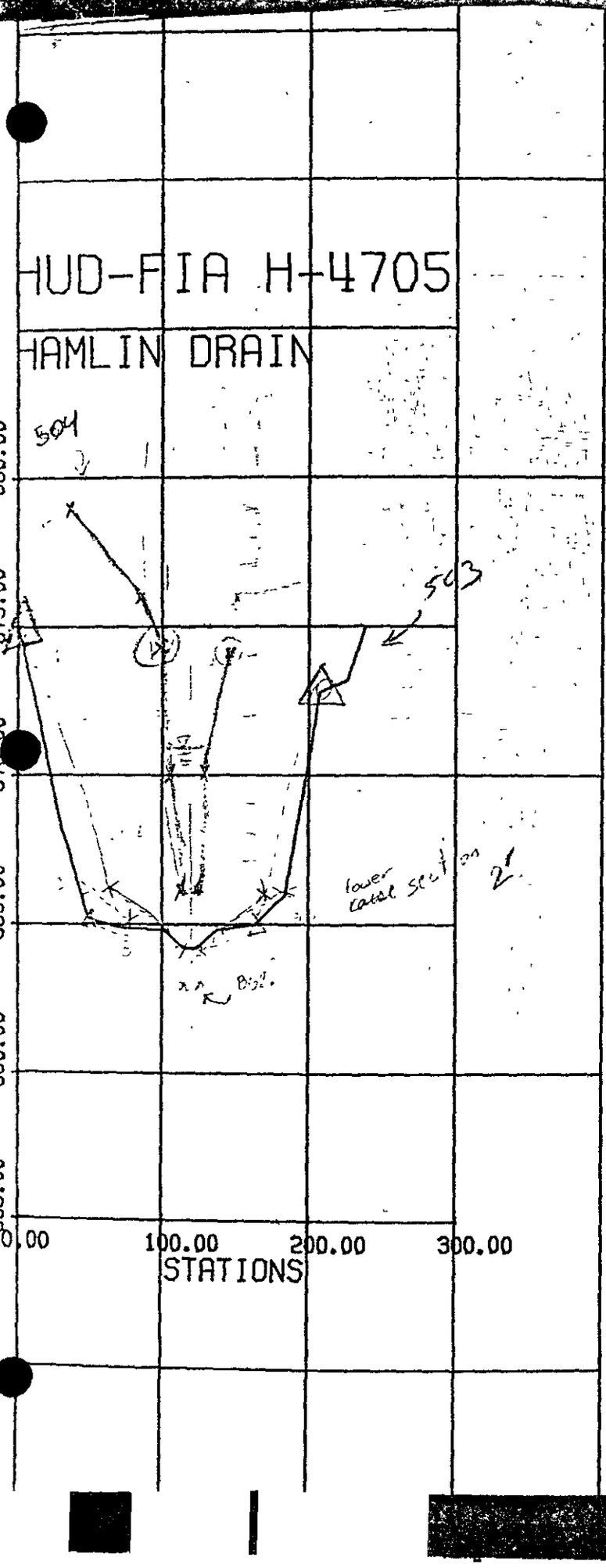
Compare to DNR estimate of: 867.3

ok
E

HUD-FIA H-4705

HAMLIN DRAIN

SECTION 503.00



open stream

BG4

RECEIVED
SEP 1 1980
WATER MANAGEMENT

FLOOD INSURANCE STUDY HYDRAULIC REPORT

PROJECT: HUD-FIA-H-4705 City of Bloomfield Hills and Bloomfield Township Oakland Co., Michigan

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

WATERCOURSE: Hamlin Drain

STUDY LIMITS: Confluence with Murphy and Stonycroft Drains (downstream limit) to about 500' upstream of Bloomfield Hills City limits

DATE OF AERIAL SURVEY: November, 1978, by Abrams Aerial Survey

DATE OF LAND SURVEY: 3/5/79 - 4/19/79, 6/6/79, and 8/20/80

SOURCE OF FLOWS: Discharges were computed by MP&S/SH&G and approved by MDNR on May 29, 1979

TOPOGRAPHIC INFORMATION: Abrams 2' topographic map 1" =200'

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

VARIABLES AND COEFFICIENTS:

Channel "n"	.050
Overbank "n"	.095
n values thru bridges	.012 - .028
Contraction Coefficients	.1 - .4
Expansion Coefficients	.3 - .8

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return.

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

REFERENCES:

1. "Hec-2 Water Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.
2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.
3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey Water Supply Paper 1849.
4. "Floodway Determination using computer Program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.
5. "Flood Study and Drainage Plan, Quarton Branch of Rouge River Flood Plain Information", Birmingham, Bloomfield Hills, Bloomfield Township, Oakland County, Michigan. Hubbell, Roth & Clark, Inc.

Starting Conditions

Starting water surface elevations for Hamlin Drain were obtained from the Stonycroft Drain 10, 50, 100 and 500 year flood elevations at the confluence of the two drains. One Stonycroft Study is included in this submittal.

High Water Marks and Calibration

There was no high water information available. Therefore, a calibration test was not possible. A convergence test of the 100 year flood plain elevations was run by starting the calculations with a depth at the downstream end 15% greater than, and less than, the water surface used in the natural floodway run.

A sensitivity analysis was performed on the 100 year flow by raising and lowering all Manning "n" values by 30%.

Designated Floodway

Encroachment method 4 in the HEC-2 program was used to determine encroachment stations based on an allowable surcharge of .1 feet. At field surveyed sections the designated floodway was established using the computer determined encroachment stations. Between field surveyed sections, the available topographic information was used to complete the floodway information. Please note that the floodway was designated only on that portion of Hamlin Drain falling outside of the City of Bloomfield Hills limits. (See the enclosed 1" = 200' and 1" = 400' topographic maps for delineation.)

Computer Outputs

Enclosed are computer outputs for (i) 100-year natural and 100-year designated floodway, (ii) 10, 50, and 500 year flood plain elevations, (iii) the sensitivity analysis, and (iv) the convergence test for 100 year starting elevations.

Comments

We have delineated only the 100 year flood plain within the City Limits, as it is not included in our study area. However, for the small portion of Hamlin Drain within Bloomfield Township we have delineated the 100 year designated floodway, as the 100 and 500 year natural water surface elevations will be delineated by Abrams after DNR approval of the elevations. (See the enclosed profile for the 10, 50, 100 and 500 year natural computed water profiles within the Township.)

The flood study and drainage plan report (Reference #5) contains flood water surface profiles developed with the aid of highwater marks on the Quarton branch of the Rouge River from June 1968 flood. Efforts made by MPS/SHG to obtain these highwater marks from Hubbell, Roth and Clark, Inc. of Bloomfield Hills, Michigan were unsuccessful. The MDNR log informed MPS/SHG that several other consulting firms have tried without success to obtain the 1968 flood highwater marks from HRC.

Additional Modelling Notes

All structures noted in the field survey of Hamlin Drain have been included in the computer model, with the exception of the footbridge approximately 400' upstream of the confluence.

From the photograph provided and the field information taken by the survey crew, of the total open area, only about 15 square feet is obstructed by the wooden planks of the bridge. Inspection of the 100 year water surface on the Hamlin profile shows it is below the low chord elevation. Therefore the effective open area is not affected by the presence of the planks.

Although the road elevation at Kensington Road is not included in the model, the culvert under Kensington Road has been included, as it is the same as runs under Grand Trunk Western Railroad. Therefore, the loss between the two bridges is included in the consideration of the 167' culvert under both roads. Only the top of road elevation at Grand Trunk Western Railroad was considered as it controls the occurrence of weir flow over the culvert.

The culvert under the new subdivision road at section number 501.9, 501.95 has been modelled by considering the total length to be 36" diameter pipe, as exists at the upstream end of the culvert. Friction losses in the 7' diameter culvert and loss due to flow expansion have been included in the XKOR value by calculation of the equivalent length of 36" diameter pipe required to produce equivalent losses. Calculations and bridge details at this section have been included for your review. This culvert and road are both newly constructed, the road not quite completed at the date of this submittal. (Previously a 36" diameter culvert and private drive existed at this location).

BLOOMFIELD FIS
HAMLIN DRAIN CULVERTS @ 501-BA
501.BA CJM 8-25-80

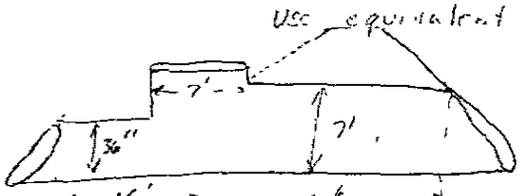
Modelling of 7'ϕ culvert under New Subdivision Road

36"ϕ throttling section to 7'ϕ section and overflow

36 inch will be control

Use equivalent sections h_{f_1} h_{f_2}

$$\frac{f_1 L_1}{D_1^5} = \frac{f_2 L_2}{D_2^5}$$



L_2 16' + ? = L_2 (equivalent length of 36" pipe) · $\frac{L_1}{\text{CMP}} \frac{f_1}{f_2} \left(\frac{D_2}{D_1}\right)^5$ RCP

Q = 430cfs for 100 year flow Steeter Wylie 297

$\frac{\epsilon_1}{D} = \frac{.008}{7} = .001$ $\frac{\epsilon_2}{D} = \frac{.005}{3/5} = .0017$

V = 1.61 V = 8.77

$VD'' = 1.61(1\times12) = 135.2$ $VD'' = 8.77 \times 3\times12 = 316$

$f_1 = .020$ $f_2 = .023$ From Moody diagram

$$L_2 = (10-7.3)\frac{.020}{.023}\left(\frac{3}{7}\right)^5 = 1.06$$

also take minor losses into account

entrance for 7'-0" pipe

$$K = \left[1-\left(\frac{D_1}{D_2}\right)^2\right]^2 = \left[1-\left(\frac{3}{7}\right)^2\right]^2 = .67$$

$h_L = .67 V_1^2/2g$

EQUIVALENT LENGTH: $L_e = \frac{KD}{f} = \frac{.67(3)}{.023} = 87$

SO: Total Length of 36" ϕ pipe (equivalent) = 95' to model

CALCULATE $K_e R^{4/3}$:

Area open $\frac{\pi}{4}(3)^2$ 7.1 $K_e = .2$ $n = .012$ RCP

$P = 9.66$ '

$R = .75$ '

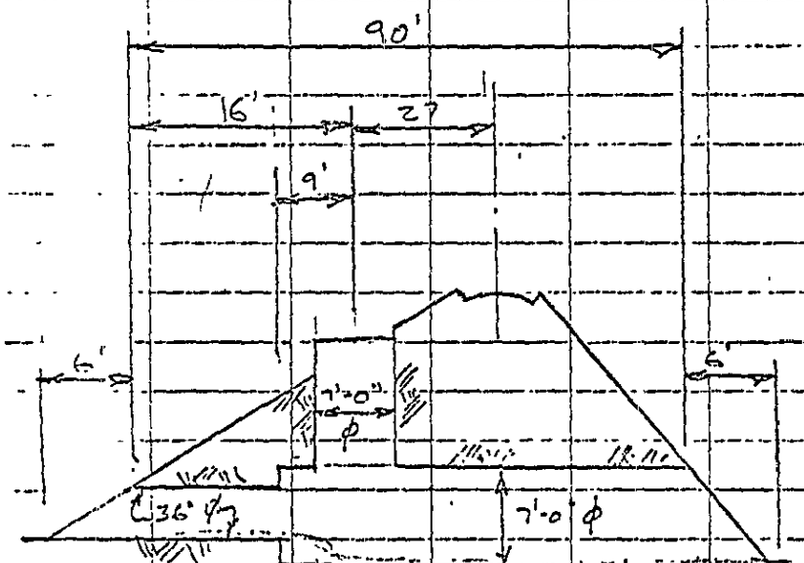
$$K_e = \frac{29n^2 L}{R^{4/3}} = \frac{29(.012)^2(95)}{.75^{4/3}} = .58$$

$K_e R^{4/3} = .21.58 \div 1 = 1.78$

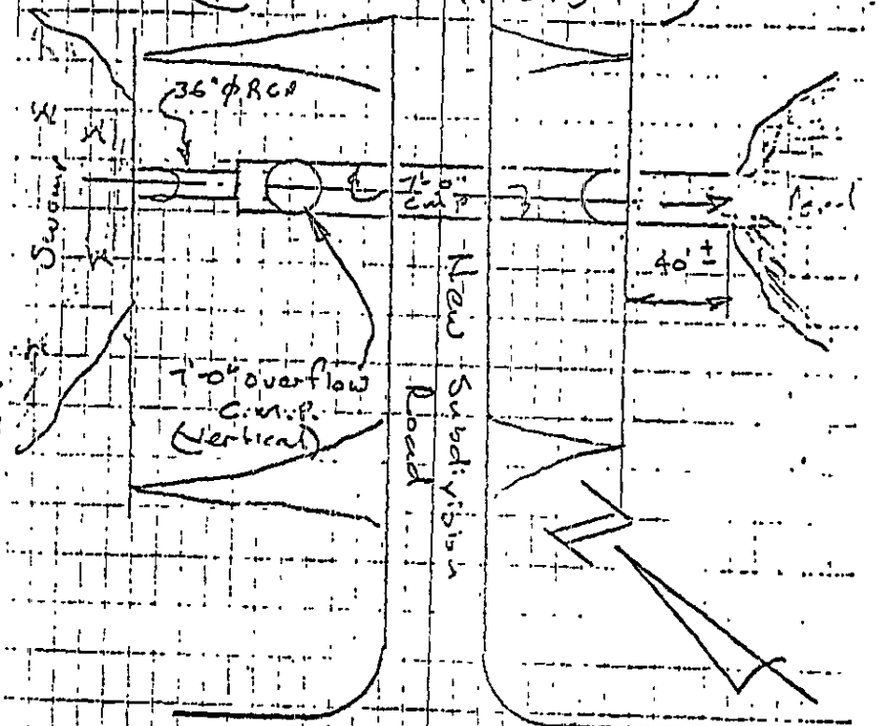
Bloomfield Twp.
X-Section #501.8 A

8-20-80 478 C/44

Hunt Club Estates
(Hannat Inc. Realtors 645-5700)
May have internal Storm Retention Areas



Sectional View



Plan View

Bloomfield Twp

X-Section #501.8-A

	+	HI	−	elev
TBM				866.81
	4.16	870.97		
			17.58	853.39
			3.2	867.8
			19.70	851.27
			6.94	864.03
			16.56	854.41
			16.16	854.81
			—	
T.P.			3.74	867.23
	4.65	871.88		
TBM			5.07	866.81
			16.74	855.14

Butterfield 8-20-20 478 C / 6.2

℄ Street

S'ly Invert 7'-0" cmp Culvert

Top / Curb ℄ Culvert

W.S. Pond 5 Ft. D/S of S. end culvert

Top of 7'-0" cmp overflow

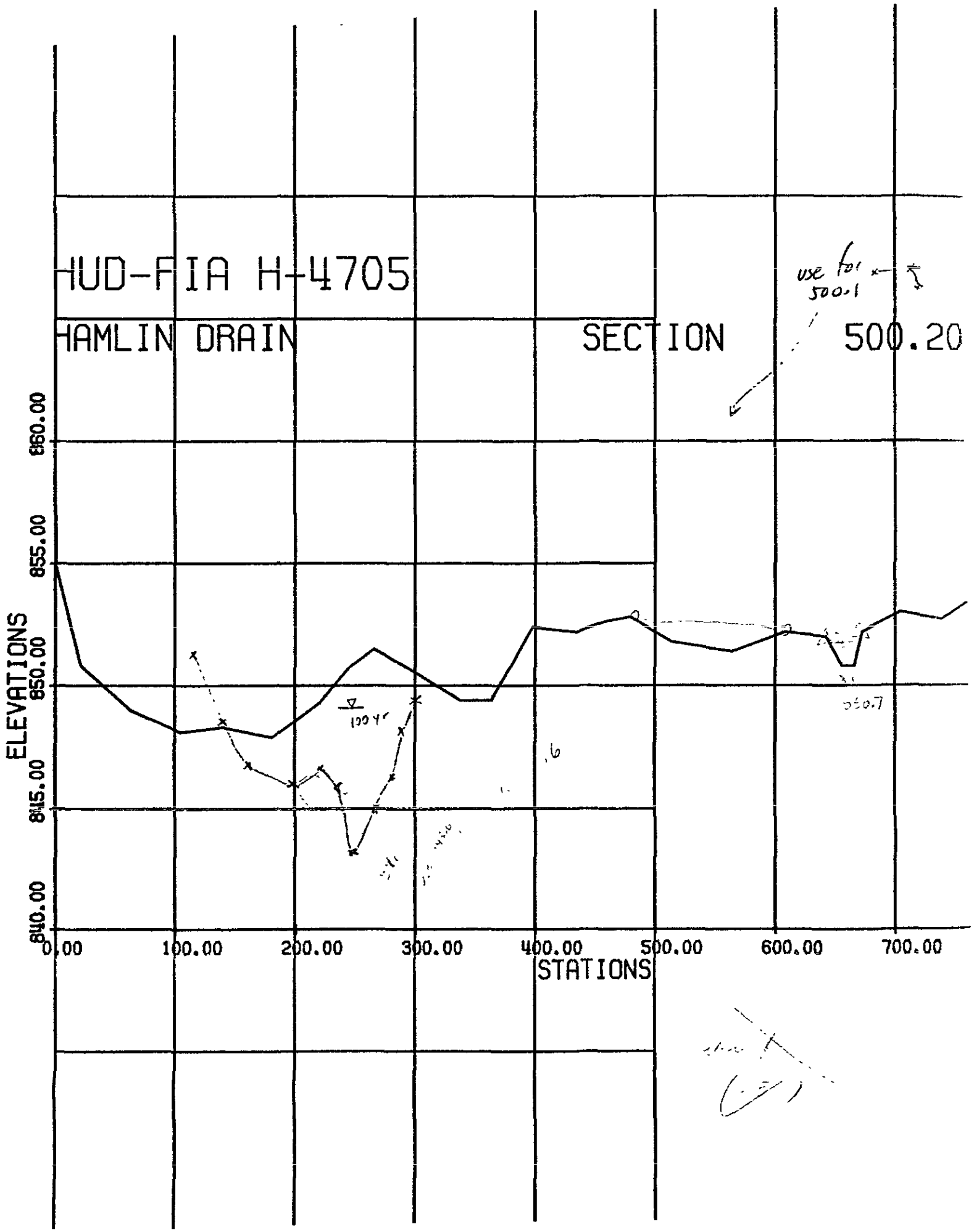
N'ly Invert 7'-0" cmp Culvert

S'ly Invert 36" RCP Culvert

N'ly Invert 36" RCP Culvert

N'ly Invert 36" RCP Culvert

Note: See F.B. 477C-15 P.46 for original Sol.8-A. It has been completely Redone for a new Subdivision Entrance....


HUD-FIA H-4705
HAMLIN DRAIN
SECTION 500.20
use for 500.1
ELEVATIONS
860.00
855.00
850.00
845.00
840.00
0.00
100.00
200.00
300.00
400.00
500.00
600.00
700.00
STATIONS

McNAMEE, PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

COMMUNITY: BLOOMFIELD FILE NO.
WATERCOURSE: HAMLIN
DATE CHK BY DATE

TABLE 1 - TI SECNO

Section Types	Description
1	Surveyed (See Remarks if Other Than MPS and/or Abram)
2	Field Survey Section, Partly Modified for Modelling
3	Synthetic - Repeat of nearby surveyed section with an invert adjustment (See Remarks)
4	Synthetic - Developed from Topo, surveyed sections, or other information

SECTION NO.	SECTION TYPE	REMARKS
500.1	4	Valley Section Confluence with Stoody Creek - Developed from topo
500.2	1	Valley Section
500.3	2	D/S Face Concrete Bridge and Culvert - Adopted 500.2 Hdt. River Banks
500.4	2	U/S Face Bridge - Repeat 500.2 Hdt + River Banks
500.5	2	D/S Face Branch Trunk Railroad Culvert - Repeat 500.2 River Banks
500.6	2	U/S Face Railroad Culvert Repeat 500.2 River Banks
501.8	1	Valley Section
501.9	2	D/S Face Culvert under Subdivision and Repeat 502 with modified Hdt
501.95	2	U/S Face Culvert Repeat 500.12 restricting U/S Hdt
502	1	Valley Section
502.2	3	Repeat 502, Valley Section
502.5	3	Repeat 502, Valley Section
502.7		
502.8		
502.85	3	Repeat 503, Valley Section
502.9		
503	1	Valley Section, Limit of Bloomfield Hills City.
503.5	3	Valley Section, Repeat 503
503.6	3	Valley Section, Repeat 503
504 (A)	1	Valley section, Blue banks from topo.
504.1 (B)	1	U/S Limit of study, outfall 18" diameter concrete pipe

TABLE — XKOR CALCULATIONS

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

Cross Section Location	K_e	A	P	R	n	l	K_F	XKOR	REMARKS
500.2-A (500.3, 500.4)	.1 .2	4.9	7.85	.62	.012	17	.13	1.2	2.5' DIA RCP
500, 501 (500.5, 500.6)	.5	7.1	9.4	.75	.0281	167	5.6	7.1	GTWRR (Kensington also overpasses culvert)
501.8-A (501.9, 501.95)	.2	7.1	9.4	.75	.012	95 (equivalent)	.58	1.78	New Subdivision Road Culvert

McNamee Porter & Seeley

Transmittal

CONSULTING ENGINEERS
2223 Packard Road • Ann Arbor, Michigan 48104 • Phone (313) 769-9220

To: Daniel H. Morgan
Michigan DNR
attn: Suzanne Elms

Date: 12-22-80

By:

RECEIVED
JAN 0 1981
WATER MANAGEMENT

Attn:

Project: HUD-FIA H-4705

Project No.:

Contract No.:

Subject: Review Comments

Specification:

Drawing:

☐ Enclosed ☐ Sending Seperate Cover ☐ Receipt ☐

For Your ☐ Approval ☐ Corrections ☐ Comments ☐ Use ☐ File

Quantity	Description	Sheet No.	Date	Action

Comments on Bloomfield Township:

Amy Drain
Sodon
Murphy
Hamlin

Revised Maps, Computer Runs,
2 Profiles

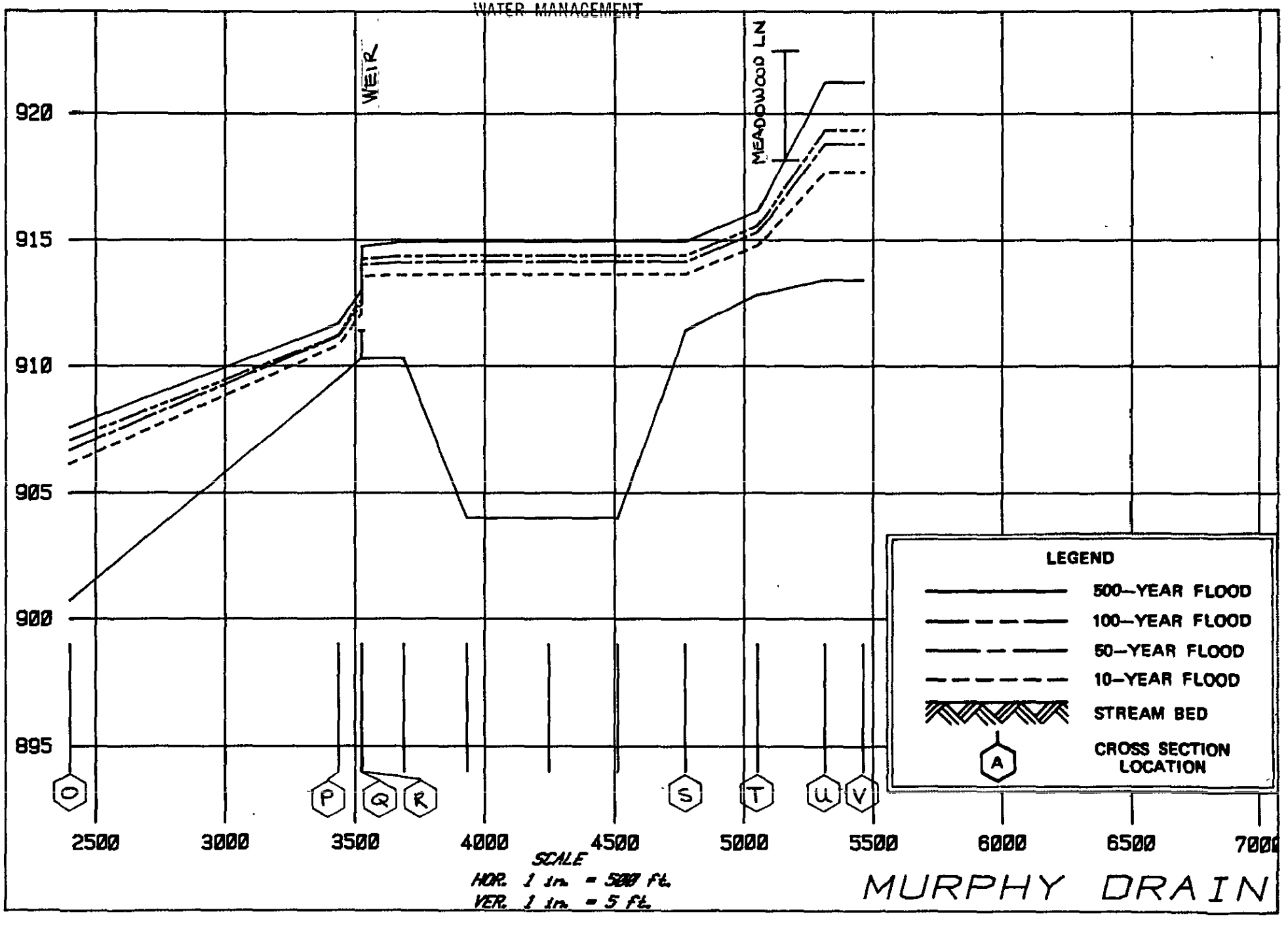
Carol Miller

A - Approved AN - Approved as Noted RR - Revise & Resubmit NA - Not Approved

CC:

mps

RECEIVED
OCT 26 1984
WATER MANAGEMENT



1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: PRODUCTION RUNS

00BREAK00

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

C
T1      HUD-FIA H-4705
T2      MURPHY BRANCH
T3      BLOOMFIELD TOWNSHIP FIS

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        2.        0.        0.  0.000000      0.00     -1.0       0.   847.800     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .100      .100      .063      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     5.000   330.000   480.000   570.000   780.000   570.000     0.000     0.000     0.000     0.000

        **CONFLUENCE WITH STONYCROFT DRAIN

X1   130.900    11.000   337.000   355.000     0.000     0.000     0.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   326.000     0.000   376.000     0.000     0.000     0.000     0.000
GR   850.000   110.000   848.000   260.000   848.000   325.000   846.000   337.000   844.000   343.000
GR   844.000   349.000   846.000   355.000   848.000   365.000   848.000   410.000   849.000   500.000
GR   850.000   740.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   131.000    10.000   337.000   355.000   455.000   455.000   455.000     0.000     0.000     0.000
GR   851.400   180.000   850.400   215.000   849.000   300.000   846.500   346.000   846.500   350.000
GR   848.200   355.000   847.800   392.000   847.800   440.000   849.900   500.000   854.600   577.000

X1   132.200     9.000   309.000   353.000   525.000   525.000   525.000     0.000     0.000     0.000
GR   855.700   224.000   854.800   309.000   853.600   320.000   849.100   338.000   849.200   344.000
GR   850.800   353.000   851.000   385.000   853.800   447.000   855.000   488.000     0.000     0.000
NC      .063     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000

        **O/S FACE OPDYKE RD.

X1   132.400     0.000     0.000     0.000   130.000   130.000   130.000     0.000      .300     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   853.000   853.000     0.000
SB     0.000     1.250     3.000   150.000     4.000     0.000    12.600     0.000     0.000     0.000

X1   132.600     0.000     0.000     0.000    31.000    31.000    31.000     0.000      .200     0.000
X2     0.000     0.000     1.000   852.500   856.100     0.000     0.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   856.100   856.100     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
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**CONCRETE FOOTBRIDGE

X1	133.000	9.000	370.000	390.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	855.600	855.600	0.000
GR	857.500	130.000	856.200	220.000	854.900	235.000	854.500	370.000	851.000	380.000
GR	851.000	384.000	855.000	390.000	855.200	400.000	858.500	482.000	0.000	0.000
SB	0.000	1.370	2.700	200.000	9.000	0.000	37.800	0.000	0.000	0.000
X1	133.100	0.000	0.000	0.000	8.000	8.000	8.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	855.200	855.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	855.800	855.800	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**D/S FACE DRIVEWAY - STONE ARCH

X1	134.000	0.000	0.000	0.000	180.000	180.000	180.000	0.000	1.800	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
SB	0.000	1.630	2.600	100.000	9.000	0.000	17.500	0.000	0.000	0.000
X1	134.100	0.000	0.000	0.000	26.000	26.000	26.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	855.200	857.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	857.600	857.600	0.000

**D/S FACE DRIVEWAY - 3 FT. DIA. CMP

X1	135.000	0.000	0.000	0.000	85.000	85.000	85.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.400	856.400	0.000
SB	0.000	2.350	2.900	100.000	3.000	0.000	7.100	0.000	0.000	0.000
X1	135.100	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	855.700	857.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	857.200	857.200	0.000
NC	.100	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	136.000	11.000	155.000	168.000	450.000	450.000	450.000	0.000	0.000	0.000
GR	865.000	0.000	861.400	80.000	859.000	141.000	858.000	155.000	856.500	160.000
GR	856.500	164.000	858.200	168.000	858.200	190.000	857.700	239.000	859.400	278.000
GR	864.400	313.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	136.100	7.000	160.000	210.000	470.000	470.000	470.000	0.000	0.000	0.000
GR	866.000	0.000	864.000	130.000	862.000	160.000	860.200	175.000	860.200	190.000
GR	862.000	210.000	864.000	240.000	0.000	0.000	0.000	0.000	0.000	0.000

**D/S FACE CONCRETE DRIVEWAY

X1	137.300	7.000	280.000	325.000	130.000	130.000	130.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	864.600	864.600	0.000
GR	870.000	0.000	866.000	80.000	864.000	280.000	862.000	295.000	861.300	310.000
GR	862.000	325.000	870.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.330	3.000	180.000	11.000	0.000	29.700	0.000	0.000	0.000

X1	137.700	9.000	196.000	219.000	14.000	14.000	14.000	0.000	-3.200	0.000
X2	0.000	0.000	1.000	864.600	865.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	865.400	865.400	0.000
GR	875.000	0.000	870.800	32.000	867.000	91.000	865.000	196.000	864.500	202.000
GR	864.500	208.000	865.000	219.000	865.300	239.000	873.700	285.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	137.800	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.700	0.000
X1	138.000	0.000	0.000	0.000	175.000	175.000	175.000	0.000	1.500	0.000
X1	138.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X1	138.500	11.000	240.000	309.000	200.000	200.000	200.000	0.000	-1.500	0.000
GR	882.000	0.000	878.000	55.000	876.800	220.000	876.800	240.000	868.600	256.000
GR	868.600	262.000	870.800	269.000	875.500	309.000	876.700	326.000	878.200	366.000
GR	878.400	382.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	139.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.500	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.600	0.000	0.000	0.000	0.000	0.000

**D/S FACE WOODWARD AVE.

X1	139.300	0.000	0.000	0.000	140.000	140.000	140.000	0.000	1.700	0.000
X3	10.000	0.000	0.000	100.000	0.000	0.000	0.000	876.500	876.500	0.000
SB	0.000	2.580	3.000	180.000	12.000	0.000	52.800	0.000	0.000	0.000
X1	139.700	0.000	0.000	0.000	200.000	200.000	200.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	874.700	878.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	878.800	878.800	0.000
QT	5.000	300.000	445.000	525.000	730.000	525.000	0.000	0.000	0.000	0.000
X1	139.800	12.000	196.000	404.000	30.000	30.000	30.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	400.000	0.000	0.000	0.000	0.000
GR	882.000	0.000	877.200	50.000	873.400	136.000	872.000	196.000	870.200	242.000
GR	870.200	359.000	872.500	404.000	873.300	428.000	873.400	465.000	878.200	560.000
GR	878.900	589.000	882.000	614.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	140.000	11.000	204.000	220.000	925.000	925.000	925.000	0.000	1.000	0.000
GR	882.000	0.000	876.900	33.000	872.400	91.000	872.100	204.000	871.360	206.000
GR	871.360	211.000	872.400	220.000	872.600	286.000	875.600	337.000	879.600	405.000
GR	882.000	422.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.150	.300	0.000	0.000	0.000	0.000	0.000
X1	141.000	12.000	306.000	319.000	1100.000	1100.000	1100.000	0.000	1.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	472.000	0.000	0.000	0.000	0.000
GR	887.100	65.000	885.100	92.000	878.000	223.000	876.600	280.000	876.500	306.000
GR	876.000	308.000	876.000	315.000	876.400	319.000	876.000	374.000	877.400	421.000
GR	882.100	472.000	887.000	502.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	142.200	12.000	110.000	123.000	800.000	800.000	800.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	324.000	0.000	0.000	0.000	0.000
GR	890.000	0.000	881.600	54.000	881.300	91.000	880.900	110.000	879.900	112.000
GR	879.900	120.000	881.000	123.000	880.500	324.000	880.400	439.000	882.300	531.000
GR	882.100	558.000	886.400	609.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

X1	142.300	0.000	0.000	0.000	120.000	120.000	120.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	324.000	0.000	0.000	0.000	0.000
SB	0.000	2.160	3.000	200.000	8.500	0.000	30.900	0.000	0.000	0.000
X1	142.700	9.000	83.000	108.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	883.330	885.230	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	885.230	885.230	0.000
GR	890.000	0.000	888.000	18.000	886.000	33.000	884.000	63.000	882.000	83.000
GR	880.230	87.000	880.230	98.000	882.000	108.000	885.000	148.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.600	0.000	0.000	0.000	0.000	0.000

**TWO 3 FT. CMP'S

X1	142.800	0.000	0.000	0.000	35.000	35.000	35.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	884.200	0.000	0.000	0.000	0.000	0.000
X1	142.810	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	884.200	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**WOOD WEIR

X1	142.820	0.000	0.000	0.000	15.000	15.000	15.000	0.000	.100	0.000
X2	0.000	0.000	0.000	880.350	881.800	0.000	0.000	0.000	0.000	0.000
X1	142.830	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	880.350	881.800	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**CONC WEIR

X1	142.840	10.000	130.000	155.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	881.400	883.400	0.000	0.000	0.000	0.000	0.000
GR	890.000	0.000	888.000	50.000	886.000	80.000	884.000	110.000	882.700	130.000
GR	881.500	132.000	881.500	152.000	884.000	155.000	886.000	205.000	887.000	260.000
X1	142.850	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	881.400	883.400	0.000	0.000	0.000	0.000	0.000

**TWO 2.5'CMP'S

X1	142.860	0.000	0.000	0.000	80.000	80.000	80.000	0.000	1.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	886.200	886.200	0.000
SB	0.000	1.970	2.900	130.000	9.000	0.000	25.500	0.000	0.000	0.000
X1	142.870	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	886.000	886.500	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	886.500	886.500	0.000

**TWO 2.5 CMP'S

X1	142.900	0.000	0.000	0.000	90.000	90.000	90.000	0.000	.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	886.200	886.200	0.000
SB	0.000	2.150	3.000	170.000	5.000	0.000	9.820	0.000	0.000	0.000
X1	142.910	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	885.700	886.600	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	886.600	886.600	0.000

**CONC AND STONE WEIR

X1	142.930	0.000	0.000	0.000	6.000	6.000	6.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	885.700	0.000	0.000	0.000	0.000	0.000
X1	142.940	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	885.700	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	143.200	8.000	100.000	121.000	350.000	350.000	350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	897.000	0.000	890.800	67.000	889.000	100.000	887.300	108.000	887.300	112.000
GR	888.700	121.000	890.100	181.000	891.400	214.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**STONE WEIR

X1	143.210	0.000	0.000	0.000	30.000	30.000	30.000	0.000	-.100	0.000
X2	0.000	0.000	0.000	887.200	889.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	143.220	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	887.200	889.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000

**D/S FACE LAHSER RD.

X1	143.700	0.000	0.000	0.000	140.000	140.000	140.000	0.000	.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	891.500	891.500	0.000
SB	0.000	1.880	3.000	200.000	5.500	0.000	23.560	0.000	0.000	0.000
X1	143.750	9.000	22.000	177.000	35.000	35.000	35.000	0.000	-2.900	0.000
X2	0.000	0.000	1.000	890.820	892.600	0.000	0.000	0.000	0.000	0.000

X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	892.600	892.600	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	890.400	96.000
GR	890.400	103.000	892.400	120.000	892.700	129.000	900.000	177.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	143.760	9.000	22.000	177.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	891.000	96.000
GR	891.000	103.000	892.400	120.000	892.700	129.000	900.000	177.000	0.000	0.000
X1	143.800	9.000	22.000	137.000	110.000	110.000	110.000	0.000	.800	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	890.400	96.000
GR	890.400	103.000	892.400	120.000	892.700	129.000	896.900	137.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**PLUGGED 3" DIA RCP

X1	144.300	0.000	0.000	0.000	325.000	325.000	325.000	0.000	3.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	900.000	900.000	0.000
SB	0.000	2.200	2.900	150.000	3.000	0.000	7.070	0.000	0.000	0.000
X1	144.700	7.000	0.000	129.000	71.000	71.000	71.000	0.000	-.800	0.000
X2	0.000	0.000	1.000	897.000	901.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	901.200	901.200	0.000
GR	905.100	0.000	896.600	85.000	895.300	86.000	895.300	91.000	903.600	129.000
GR	904.000	170.000	905.200	194.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	145.000	0.000	0.000	0.000	160.000	160.000	160.000	0.000	1.900	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**CULVERT UNDER ASPHALT DRIVE

X1	146.300	0.000	0.000	0.000	185.000	185.000	185.000	0.000	2.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	903.000	903.000	0.000
SB	0.000	2.250	3.000	250.000	3.000	0.000	7.070	0.000	0.000	0.000
X1	146.700	8.000	240.000	298.000	100.000	100.000	100.000	0.000	-.400	0.000
X2	0.000	0.000	1.000	900.500	905.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	905.000	905.000	0.000
GR	906.000	0.000	903.100	53.000	903.500	130.000	900.200	240.000	899.000	250.000
GR	899.000	259.000	904.800	298.000	906.000	338.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	146.800	0.000	0.000	0.000	60.000	60.000	60.000	0.000	.400	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**FOOTBRIDGE

X1	146.900	8.000	170.000	298.000	90.000	90.000	90.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	904.200	905.900	0.000	0.000	0.000	0.000	0.000
GR	910.000	0.000	905.900	170.000	903.000	220.000	900.200	240.000	899.000	250.000
GR	899.000	259.000	905.900	298.000	907.000	338.000	0.000	0.000	0.000	0.000

X1	146.910	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	904.200	905.900	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	147.000	12.000	270.000	312.000	310.000	310.000	310.000	0.000	0.000	0.000
GR	910.000	0.000	909.000	77.000	906.000	167.000	905.600	200.000	905.100	270.000
GR	901.800	296.000	900.700	298.000	900.700	300.000	901.800	302.000	905.800	312.000
GR	909.000	343.000	910.000	360.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	148.000	8.000	276.000	450.000	1125.000	1125.000	1125.000	0.000	0.000	0.000
GR	918.100	0.000	915.800	156.000	914.200	276.000	910.300	330.000	910.300	370.000
GR	910.400	380.000	914.000	450.000	914.000	500.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	149.000	12.000	213.000	229.000	1025.000	1025.000	1025.000	0.000	0.000	0.000
GR	920.000	0.000	919.800	109.000	919.200	134.000	915.400	180.000	915.000	213.000
GR	914.400	220.000	913.200	222.000	913.200	224.000	914.400	225.000	915.400	229.000
GR	915.500	266.000	920.100	347.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	150.000	11.000	167.000	202.000	825.000	825.000	825.000	0.000	0.000	0.000
GR	925.000	0.000	924.400	67.000	924.200	96.000	922.800	123.000	922.000	167.000
GR	918.600	185.000	917.800	190.000	917.800	195.000	918.600	199.000	922.100	202.000
GR	924.000	217.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 130.900
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XAL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      326.0      376.0  TYPE=      1  TARGET=      50.000

        **CONFLUENCE WITH STONYCROFT DRAIN

    130.90      3.80    847.80      0.00    847.80    848.22      .42      0.00      0.00    846.00
     330.        15.       303.       12.       10.       56.       8.        0.        0.     846.00
      0.00      1.50      5.38      1.49      .100      .063      .100     0.000    844.00    326.20
   .011890        0.        0.        0.         0         0         0      0.00     37.80    364.00

*SECNO 131.000
    131.00      3.27    849.77      0.00      0.00    849.79      .01      1.53      .04    901.40
     330.         0.       154.       176.       0.       136.      216.       2.        1.     848.20
      .13      0.00      1.13       .82      .100      .063      .100      .063    846.50    253.08
   .001559       455.      455.      455.         6         0         0      0.00    243.28    496.36

*SECNO 132.200
    132.20      2.56    851.66    851.63      0.00    852.15      .49      2.22      .14    854.80
     330.         0.       267.       63.       0.        43.       29.       5.        3.     850.80
      .16      0.00      6.17      2.14      .100      .063      .100      .063    849.10    327.73
   .034150       525.      525.      525.         6        19         0      0.00     72.05    399.78

CCHV=     .400 CEHV=     .800
*SECNO 132.400

        **D/S FACE OPDYKE RD.

    132.40      3.86    853.26      0.00      0.00    853.33      .07      1.01      .17    855.10
     330.         0.       202.       128.       0.        79.      108.       5.        4.     851.10
      .18      0.00      2.55      1.18      .063      .063      .100      .063    849.40    322.56
   .003345       130.      130.      130.         3         0         0      0.00    105.86    428.41

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        1.25       3.00     150.00       4.00       0.00      12.60       0.00     849.40     849.40

*SECNO 132.600
3280 CROSS SECTION     132.60 EXTENDED       1.11 FEET

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

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
866.57	853.57	0.00	165.	166.	13.	12.	852.50	856.10

132.60	7.01	856.61	0.00	0.00	856.61	.00	3.28	0.00	855.30
330.	16.	137.	177.	73.	204.	467.	6.	4.	851.30
.19	.22	.67	.38	.063	.063	.100	.063	849.60	224.00
.000107	31.	31.	31.	0	0	6	0.00	264.00	488.00

CCHV= .300 CEHV= .500
*SECNO 133.000

**CONCRETE FOOTBRIDGE

133.00	5.62	856.62	0.00	0.00	856.63	.01	.01	.00	854.50
330.	214.	103.	13.	281.	83.	40.	6.	4.	855.00
.21	.76	1.25	.32	.063	.063	.100	.063	851.00	191.18
.000471	60.	60.	60.	2	0	0	0.00	244.01	435.19

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.37	2.70	200.00	9.00	0.00	37.80	0.00	851.00	851.00

*SECNO 133.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
858.24	856.63	0.00	263.	70.	38.	38.	855.20	855.80

133.10	5.68	856.68	0.00	0.00	856.69	.01	.06	0.00	854.50
330.	216.	101.	13.	293.	84.	43.	6.	4.	855.00
.22	.74	1.20	.31	.063	.063	.100	.063	851.00	186.52
.000424	8.	8.	8.	1	0	6	0.00	250.35	436.87

CCHV= .400 CEHV= .800
*SECNO 134.000

**D/S FACE DRIVEWAY - STONE ARCH

134.00	4.04	856.84	856.80	0.00	857.18	.34	.22	.26	856.30
330.	65.	265.	0.	46.	51.	0.	7.	5.	856.80
.23	1.42	5.18	.02	.063	.063	.100	.063	852.80	233.42
.015452	180.	180.	180.	4	17	0	0.00	158.41	391.83

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.63	2.60	100.00	9.00	0.00	17.50	0.00	852.80	852.80

*SECNO 134.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
865.84	857.48	0.00	193.	138.	18.	22.	855.20	857.60

134.10	5.61	858.41	0.00	0.00	858.42	.01	1.24	0.00	856.30
330.	214.	103.	13.	280.	83.	40.	8.	5.	856.80
.23	.76	1.25	.32	.063	.063	.100	.063	852.80	191.42
.000474	26.	26.	26.	1	0	5	0.00	243.69	435.11

*SECNO 135.000

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

**D/S FACE DRIVEWAY - 3 FT. DIA. CMP

135.00	5.55	858.45	0.00	0.00	858.46	.01	.04	.00	856.40
330.	212.	106.	12.	269.	81.	37.	8.	6.	856.90
.26	.79	1.30	.33	.063	.063	.100	.063	852.90	195.96
.000526	85.	85.	85.	2	0	0	0.00	237.52	433.48

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.35	2.90	100.00	3.00	0.00	7.10	0.00	852.90	852.90

*SECNO 135.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
937.28	858.46	0.00	315.	15.	7.	8.	855.70	857.20

135.10	5.69	858.59	0.00	0.00	858.60	.01	.14	0.00	856.40
330.	216.	100.	14.	296.	84.	44.	9.	6.	856.90
.27	.73	1.18	.31	.063	.063	.100	.063	852.90	185.47
.000415	32.	32.	32.	1	0	9	0.00	251.77	437.24

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 CCHV=     .150 CEHV=     .350
 *SECNO 136.000
    136.00      2.54    859.04      0.00      0.00    859.24       .20       .57       .07    858.00
     330.        10.       133.       186.         7.        26.        92.        11.         8.     858.20
      .31      1.39      5.16      2.03      .100      .063      .100      .063    856.50    140.13
  .020356       450.       450.       450.         3         0         0      0.00    129.47    269.61

 CCHV=     .200 CEHV=     .400
 *SECNO 136.100
    136.10      2.92    863.12      0.00      0.00    863.23       .11      3.97       .02    862.00
     330.         6.       317.         6.         9.       114.         9.        13.         9.     862.00
      .36       .68      2.77       .68      .100      .063      .100      .063    860.20    143.21
  .004597       470.       470.       470.         5         0         0      0.00     83.58    226.79

 *SECNO 137.300

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      864.60 ELREA=      864.60

        **D/S FACE CONCRETE DRIVEWAY

    137.30      2.66    863.96      0.00      0.00    864.20       .24       .92       .05    864.00
     330.         0.       330.         0.         0.        84.         0.        13.         9.     862.00
      .37      0.00      3.95      0.00      .100      .063      .100      .063    861.30    280.32
  .012211       130.       130.       130.         2         0         0      0.00     44.68    325.00

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       0.00       1.33       3.00     180.00      11.00       0.00      29.70       0.00     861.30     861.30

 *SECNO 137.700

 6070.LOW FLOW BY NORMAL BRIDGE

 EGPRS=      0.000  EGLWC=    864.481  ELLC=    864.600  PCWSE=    863.959  ELTRD=    865.400
    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


 3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  865.40 MAX ELLC=  864.60

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      865.40 ELREA=      865.40

    137.70      2.70    864.00      0.00      0.00    864.51       .50       .20       .10    861.80
     330.         0.       330.         0.         0.        58.         0.        13.         9.     861.80
      .37      0.00      5.70      0.00      .100      .063      .100      .063    861.30    196.00
  .017064        14.        14.        14.         2         0         0      0.00     23.00    219.00

 CCHV=     .100 CEHV=     .300
 *SECNO 137.800
```

137.80	2.73	865.73	0.00	0.00	865.78	.05	1.22	.05	863.50
330.	123.	143.	64.	129.	58.	52.	14.	10.	863.50
.40	.95	2.45	1.24	.100	.063	.100	.063	863.00	87.48
.003118	200.	200.	200.	4	0	0	0.00	162.07	249.55

*SECNO 138.000

138.00	2.10	866.60	0.00	0.00	866.75	.14	.94	.03	865.00
330.	93.	172.	65.	68.	44.	34.	15.	10.	865.00
.42	1.37	3.90	1.92	.100	.063	.100	.063	864.50	111.76
.011475	175.	175.	175.	3	0	0	0.00	134.38	246.14

*SECNO 138.200

138.20	2.28	867.58	0.00	0.00	867.68	.10	.93	.00	865.80
330.	101.	164.	65.	84.	48.	39.	15.	10.	865.80
.43	1.21	3.39	1.69	.100	.063	.100	.063	865.30	102.30
.007682	100.	100.	100.	1	0	0	0.00	144.83	247.13

*SECNO 138.500

3301 HV CHANGED MORE THAN HVINS

138.50	3.12	870.22	0.00	0.00	871.02	.80	3.13	.21	875.30
330.	0.	330.	0.	0.	46.	0.	16.	11.	874.00
.44	0.00	7.17	0.00	.100	.063	.100	.063	867.10	249.91
.047905	200.	200.	200.	4	0	0	0.00	26.93	276.84

*SECNO 139.200

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	ICC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 100.0 382.0 TYPE= 1 TARGET= -100.000

139.20	4.83	873.43	0.00	0.00	873.57	.15	2.49	.07	876.80
330.	0.	330.	0.	0.	107.	0.	16.	11.	875.50
.45	0.00	3.08	0.00	.100	.063	.100	.063	868.60	246.58
.005592	200.	200.	200.	4	0	0	0.00	44.77	291.35

CCHV= .400 CEHV= .600

*SECNO 139.300

3470 ENCROACHMENT STATIONS= 100.0 382.0 TYPE= 1 TARGET= -100.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 876.50 ELREA= 876.50

**D/S FACE WOODWARD AVE.

139.30	4.18	874.48	0.00	0.00	874.74	.26	1.10	.07	878.50
330.	0.	330.	0.	0.	80.	0.	16.	11.	877.20
.46	0.00	4.11	0.00	.100	.063	.100	.063	870.30	247.85

.011774	140.	140.	140.	4	0	0	0.00	37.98	285.83

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BHC	BHP	BAREA	SS	ELCHU	ELCHD
	0.00	2.58	3.00	180.00	12.00	0.00	52.80	0.00	870.30	870.30

*SECNO 139.700
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
876.04	874.74	0.00	0.	330.	53.	53.	874.70	878.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.80 ELREA= 878.80

139.70	5.67	875.97	0.00	0.00	876.04	.08	1.30	0.00	878.50
330.	0.	330.	0.	0.	148.	0.	17.	11.	877.20
.49	0.00	2.22	0.00	.100	.063	.100	.063	870.30	244.94
.002393	200.	200.	200.	2	0	0	0.00	53.55	298.50

*SECNO 139.800

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

139.80	5.87	876.07	0.00	0.00	876.07	.00	.00	.03100000.00	
300.	0.	300.	0.	0.	1097.	0.	17.	11.	100000.00
.52	0.00	.27	0.00	.100	.063	.100	.063	870.20	200.00
.000015	30.	30.	30.	2	0	0	0.00	200.00	400.00

CCHV= .200 CEHV= .400
*SECNO 140.000

140.00	3.75	876.11	0.00	0.00	876.11	.00	.03	.00	873.10
300.	165.	45.	90.	370.	55.	225.	36.	16.	873.40
1.04	.44	.83	.40	.100	.063	.100	.063	872.36	56.11
.000245	925.	925.	925.	2	0	0	0.00	272.50	328.61

CCHV= .150 CEHV= .300
*SECNO 141.000

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 200.0 472.0 TYPE= 1 TARGET= 272.000

141.00	.96	877.96	877.96	0.00	878.24	.29	.97	.08	877.50
300.	30.	72.	198.	13.	11.	57.	45.	22.	877.40
1.12	2.27	6.44	3.49	.100	.063	.100	.063	877.00	265.50

.092540	1100.	1100.	1100.	20	14	0	0.00	140.60	406.10

*SECNO 142.200

3470 ENCROACHMENT STATIONS= .0 324.0 TYPE= 1 TARGET= 323.999

142.20	2.29	882.69	0.00	0.00	882.71	.01	4.42	.04	881.40
300.	28.	43.	229.	49.	27.	288.	49.	25.	881.50
1.37	.57	1.59	.80	.100	.063	.100	.063	880.40	50.25
.001793	800.	800.	800.	8	0	0	0.00	273.75	324.00

CCHV= .400 CEHV= .800
*SECNO 142.300

3470 ENCROACHMENT STATIONS= .0 324.0 TYPE= 1 TARGET= 323.999

**D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

142.30	2.64	882.84	0.00	0.00	882.85	.01	.14	.00	881.20
300.	34.	38.	227.	71.	32.	360.	50.	26.	881.30
1.42	.49	1.21	.63	.100	.063	.100	.063	880.20	47.96
.000843	120.	120.	120.	3	0	0	0.00	276.04	324.00

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	ROLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.16	3.00	200.00	8.50	0.00	30.90	0.00	880.20	880.20

*SECNO 142.700
3280 CROSS SECTION 142.70 EXTENDED .34 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
886.00	883.34	0.00	34.	265.	31.	27.	883.33	885.23

142.70	5.11	885.34	0.00	0.00	885.38	.04	2.53	0.00	882.00
300.	39.	214.	47.	60.	115.	73.	51.	26.	882.00
1.43	.66	1.85	.64	.100	.063	.100	.063	880.23	42.95
.000828	41.	41.	41.	2	0	4	0.00	105.05	148.00

CCHV= .300 CEHV= .600
*SECNO 142.800
3280 CROSS SECTION 142.80 EXTENDED .39 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

**TWO 3 FT. CMP'S

142.80	5.16	885.39	0.00	0.00	885.45	.06	.06	.01	882.00
300.	44.	203.	53.	45.	92.	53.	51.	26.	882.00
1.43	.97	2.22	1.00	.100	.063	.100	.063	880.23	42.10
.006822	35.	35.	35.	2	0	0	-64.77	105.90	148.00

*SECNO 142.810
3280 CROSS SECTION 142.81 EXTENDED .48 FEET

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

142.81	5.25	885.48	0.00	0.00	885.53	.05	.08	.00	882.00
300.	46.	199.	55.	49.	94.	56.	51.	27.	882.00
1.43	.94	2.12	.98	.100	.063	.100	.063	880.23	40.83
.006048	12.	12.	12.	2	0	0	-64.77	107.17	148.00

*SECNO 142.820
3280 CROSS SECTION 142.82 EXTENDED .40 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

**WOOD WEIR

142.82	5.17	885.50	0.00	0.00	885.56	.06	.02	.01	882.10
300.	39.	215.	46.	63.	92.	76.	51.	27.	882.10
1.44	.62	2.33	.61	.100	.025	.100	.063	880.33	42.04
.000728	15.	15.	15.	2	0	0	-24.49	105.96	148.00

*SECNO 142.830
3280 CROSS SECTION 142.83 EXTENDED .40 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

142.83	5.17	885.50	0.00	0.00	885.56	.06	.00	.00	882.10
300.	39.	215.	46.	63.	92.	76.	51.	27.	882.10
1.44	.62	2.32	.61	.100	.025	.100	.063	880.33	41.99
.000725	1.	1.	1.	0	0	0	-24.49	106.01	148.00

*SECNO 142.840

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

**CONC WEIR

142.84	4.15	885.65	0.00	0.00	885.74	.09	.16	.02	882.70
300.	99.	167.	34.	62.	56.	34.	51.	27.	884.00
1.45	1.59	2.98	1.01	.100	.063	.100	.063	881.50	85.31
.005947	100.	100.	100.	2	0	0	-46.54	110.84	196.15

*SECNO 142.850

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

142.85	4.15	885.65	0.00	0.00	885.74	.09	.01	.00	882.70
300.	99.	167.	34.	63.	56.	34.	51.	27.	884.00
1.45	1.58	2.98	1.00	.100	.063	.100	.063	881.50	85.26
.005913	1.	1.	1.	0	0	0	-46.54	110.97	196.23

*SECNO 142.860

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	ICC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 886.20 ELREA= 886.20

**TAB 2.5 CMP'S

142.86	3.46	886.06	0.00	0.00	886.27	.21	.45	.07	883.80
300.	0.	300.	0.	0.	81.	0.	51.	27.	885.10
1.45	0.00	3.68	0.00	.100	.063	.100	.063	882.60	130.00
.005386	80.	80.	80.	2	0	0	0.00	25.00	155.00

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.97	2.90	130.00	9.00	0.00	25.50	0.00	882.60	882.60

*SECNO 142.870
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
890.29	886.27	0.00	155.	146.	26.	31.	886.00	886.50

142.87	4.40	887.00	0.00	0.00	887.05	.05	.79	0.00	883.80
300.	62.	215.	22.	78.	105.	45.	52.	27.	885.10
1.46	.79	2.05	.49	.100	.063	.100	.063	882.60	81.45
.001186	20.	20.	20.	2	0	5	0.00	121.12	202.58

*SECNO 142.900

**TAB 2.5 CMP'S

142.90	3.83	887.13	0.00	0.00	887.22	.09	.14	.02	884.50
300.	52.	236.	12.	53.	91.	22.	52.	27.	885.80
1.47	.98	2.60	.54	.100	.063	.100	.063	883.30	90.00
.002311	90.	90.	90.	2	0	0	0.00	98.34	188.34

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.15	3.00	170.00	5.00	0.00	9.82	0.00	883.30	883.30

*SECNO 142.910
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
918.29	887.22	0.00	278.	23.	10.	12.	885.70	886.60

142.91	3.93	887.23	0.00	0.00	887.31	.08	.09	0.00	884.50
300.	54.	232.	14.	57.	93.	26.	52.	27.	885.80
1.47	.94	2.49	.54	.100	.063	.100	.063	883.30	88.48
.002043	15.	15.	15.	2	0	7	0.00	102.38	190.86

*SECNO 142.930

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 885.70 MAX ELLC= 883.20

**CONC AND STONE WEIR

142.93	3.93	887.23	0.00	0.00	887.39	.17	.03	.05	884.50
300.	104.	155.	41.	46.	38.	25.	52.	27.	885.80
1.47	2.27	4.08	1.60	.100	.063	.100	.063	883.30	88.61
.018296	6.	6.	6.	2	0	0	-66.13	102.04	190.65

*SECNO 142.940

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

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 885.70 MAX ELLC= 883.20

142.94	3.95	887.25	0.00	0.00	887.41	.16	.02	.00	884.50
300.	104.	155.	41.	46.	39.	26.	52.	27.	885.80
1.47	2.24	4.02	1.58	.100	.063	.100	.063	883.30	88.37
.017584	1.	1.	1.	1	0	0	-66.13	102.68	191.05

CCHV= .100 CEHV= .300
*SECNO 143.200

3470 ENCROACHMENT STATIONS= 60.0 214.0 TYPE= 1 TARGET= -60.000

143.20	3.27	890.57	0.00	0.00	890.69	.12	3.27	.00	889.00
300.	22.	189.	89.	23.	56.	73.	53.	28.	888.70
1.51	.96	3.40	1.22	.100	.063	.100	.063	887.30	71.23
.005793	350.	350.	350.	3	0	0	0.00	121.68	192.91

CCHV= .300 CEHV= .500
*SECNO 143.210

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 889.00 MAX ELLC= 887.20

3470 ENCROACHMENT STATIONS= 60.0 214.0 TYPE= 1 TARGET= -60.000

**STONE WEIR

143.21	3.65	890.85	0.00	0.00	890.91	.06	.20	.02	888.90
300.	46.	97.	157.	35.	39.	99.	53.	28.	888.60
1.51	1.32	2.48	1.59	.100	.063	.100	.063	887.20	65.37
.007508	30.	30.	30.	2	0	0	-28.22	137.24	202.60

*SECNO 143.220

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 889.00 MAX ELLC= 887.20

3470 ENCROACHMENT STATIONS= 60.0 214.0 TYPE= 1 TARGET= -60.000

143.22	3.66	890.86	0.00	0.00	890.91	.06	.01	.00	888.90
300.	46.	96.	158.	35.	39.	99.	53.	28.	888.60
1.51	1.32	2.47	1.58	.100	.063	.100	.063	887.20	65.30
.007394	1.	1.	1.	0	0	0	-28.22	137.48	202.77

*SECNO 143.700

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

**D/S FACE LAHSER RD.

143.70	4.04	891.54	889.96	0.00	891.58	.04	.41	2.18	889.20
300.	36.	150.	114.	49.	72.	136.	54.	29.	888.90
1.54	.73	2.09	.84	.100	.063	.100	.063	887.50	61.16
.001551	140.	140.	140.	20	19	0	0.00	151.33	212.49

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.88	3.00	200.00	5.50	0.00	23.56	0.00	887.50	887.50

*SECNO 143.750

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XAL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
896.27	891.60	0.00	137.	165.	24.	18.	890.82	892.60

143.75	5.45	892.95	0.00	0.00	892.97	.02	1.39	0.00	893.70
300.	0.	300.	0.	0.	275.	0.	54.	29.	897.10
1.55	0.00	1.09	0.00	.100	.063	.100	.063	887.50	40.00
.000635	35.	35.	35.	1	0	5	0.00	109.80	149.80

CCHV= .100 CEHV= .300
*SECNO 143.760

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

143.76	1.95	892.95	892.95	0.00	893.50	.56	.02	.16	896.60
300.	0.	300.	0.	0.	50.	0.	54.	29.	900.00
1.55	0.00	5.98	0.00	.100	.063	.100	.063	891.00	84.18
.058533	10.	10.	10.	20	22	0	0.00	46.45	130.63

*SECNO 143.800

143.80	3.53	894.73	0.00	0.00	894.84	.11	1.29	.04	897.40
300.	0.	300.	0.	0.	113.	0.	54.	29.	897.70
1.56	0.00	2.66	0.00	.100	.063	.100	.063	891.20	77.33
.004865	110.	110.	110.	6	0	0	0.00	54.01	131.34

CCHV= .400 CEHV= .800
*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.00 ELREA= 900.00

**PLUGGED 3' DIA RCP

144.30	2.80	897.30	0.00	0.00	897.54	.24	2.60	.11	900.70
300.	0.	300.	0.	0.	76.	0.	55.	29.	901.00
1.58	0.00	3.96	0.00	.100	.063	.100	.063	894.50	82.00
.015480	325.	325.	325.	4	0	0	0.00	47.95	129.95

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
958.81	897.98	0.00	220.	81.	7.	8.	897.00	901.20
144.70	7.32	901.82	0.00	0.00	901.83	.01	4.29	0.00	904.30
300.	0.	300.	0.	0.	348.	0.	55.	29.	902.80
1.61	0.00	.86	0.00	.100	.063	.100	.063	894.50	24.72
.000259	71.	71.	71.	1	0	8	0.00	99.83	124.55

CCHV= .100 CEHV= .300
*SECNO 145.000

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
145.00	5.48	901.88	0.00	0.00	901.92	.04	.08	.01	906.20
300.	0.	300.	0.	0.	189.	0.	56.	30.	904.70
1.63	0.00	1.59	0.00	.100	.063	.100	.063	896.40	43.15
.001314	160.	160.	160.	2	0	0	0.00	72.96	116.11

CCHV= .400 CEHV= .800
*SECNO 146.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 903.00 ELREA= 903.00

**CULVERT UNDER ASPHALT DRIVE

146.30	3.78	902.38	0.00	0.00	902.57	.19	.53	.12	908.40
300.	0.	300.	0.	0.	86.	0.	57.	30.	906.90
1.65	0.00	3.50	0.00	.100	.063	.100	.063	898.60	60.15
.010535	185.	185.	185.	2	0	0	0.00	48.18	108.33

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.60	898.60

*SECNO 146.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID	ELLC	ELTRD

					AREA				
965.29	902.49	0.00	234.	66.	7.	6.	900.50	905.00	

146.70	6.86	905.46	0.00	0.00	905.46	.00	2.89	0.00	899.80
300.	166.	133.	1.	708.	279.	19.	58.	30.	904.40
1.73	.23	.48	.07	.100	.063	.100	.063	898.60	2.56
.000051	100.	100.	100.	0	0	9	0.00	330.76	333.32

CCHV= .100 CEHV= .300
*SECNO 146.800

146.80	6.46	905.46	0.00	0.00	905.46	.00	.00	.00	900.20
300.	162.	138.	0.	615.	256.	7.	60.	31.	904.80
1.77	.26	.54	.06	.100	.063	.100	.063	899.00	9.85
.000073	60.	60.	60.	2	0	0	0.00	310.18	320.03

CCHV= .300 CEHV= .500
*SECNO 146.900

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

**FCOTBRIDGE

146.90	6.47	905.47	0.00	0.00	905.49	.03	.02	.01	905.90
300.	0.	300.	0.	0.	234.	0.	61.	31.	905.90
1.79	0.00	1.28	0.00	.100	.063	.100	.063	899.00	177.47
.002076	90.	90.	90.	0	0	0	-131.18	118.08	295.55

*SECNO 146.910

SECNO	DEPTH	CHSEL	CRIHS	HSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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

3370 NORMAL BRIDGE.NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

146.91	6.53	905.53	0.00	0.00	905.56	.03	.07	0.00	905.90
300.	0.	300.	0.	0.	234.	0.	61.	31.	905.90
1.80	0.00	1.28	0.00	.100	.063	.100	.063	899.00	176.30
.002076	32.	32.	32.	2	0	0	-139.27	119.63	295.93

CCHV= .100 CEHV= .300
*SECNO 147.000

147.00	5.44	906.14	0.00	0.00	906.21	.06	.64	.01	905.10
300.	36.	264.	0.	67.	124.	1.	62.	32.	905.80
1.84	.53	2.13	.21	.100	.063	.100	.063	900.70	162.68
.002024	310.	310.	310.	2	0	0	0.00	152.66	315.33

*SECNO 148.000

148.00	1.24	911.54	0.00	0.00	911.73	.20	5.49	.04	914.20
300.	0.	300.	0.	0.	85.	0.	66.	36.	914.00
1.93	0.00	3.55	0.00	.100	.063	.100	.063	910.30	312.86
.024296	1125.	1125.	1125.	2	0	0	0.00	89.27	402.13

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 CCHV=     .200 CEHV=     .400
 *SECNO 149.000
    149.00      4.12    917.32      0.00      0.00    917.36       .04      5.60       .03    915.00
      300.       99.       105.       96.       93.       47.       99.       70.       38.    915.40
     2.13      1.07      2.24       .97       .100      .063      .100      .063    913.20    156.70
  .002346    1025.     1025.     1025.         7         0         0      0.00    141.43    298.13

 *SECNO 150.000
    150.00      3.35    921.15      0.00      0.00    921.50       .35      4.02       .12    922.00
      300.         0.       300.         0.         0.       64.         0.       73.       40.    922.10
     2.18      0.00      4.72      0.00       .100      .063      .100      .063    917.80    171.45
  .015551    825.      825.      825.         3         0         0      0.00     29.75    201.19
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: SUMMARY - CONVERGENCE RUN

00BREAK00

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

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

BLOOMFIELD TOWNSHIP FIS

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
D	130.900	0.00	0.00	0.00	844.00	570.00	848.40	0.00	849.13	174.12	7.32	101.92	43.20
Dx.15	130.900	0.00	0.00	0.00	844.00	570.00	849.10	0.00	849.52	84.51	5.72	136.92	62.00
*Dx.85	130.900	0.00	0.00	0.00	844.00	570.00	847.89	847.89	849.04	317.93	8.96	77.65	31.97
	131.000	455.00	0.00	0.00	846.50	570.00	850.56	0.00	850.58	12.11	1.13	569.56	163.79
	131.000	455.00	0.00	0.00	846.50	570.00	850.63	0.00	850.64	11.01	1.09	588.12	171.81
	131.000	455.00	0.00	0.00	846.50	570.00	850.61	0.00	850.62	11.44	1.11	580.53	168.52
*	132.200	525.00	0.00	0.00	849.10	570.00	852.12	852.12	852.78	393.30	7.43	108.32	28.74
*	132.200	525.00	0.00	0.00	849.10	570.00	852.12	852.12	852.78	393.23	7.43	108.33	28.74
*	132.200	525.00	0.00	0.00	849.10	570.00	852.12	852.12	852.78	393.27	7.43	108.32	28.74
	132.400	130.00	0.00	0.00	849.40	570.00	854.04	0.00	854.14	37.16	2.98	278.88	93.50
	132.400	130.00	0.00	0.00	849.40	570.00	854.04	0.00	854.14	37.17	2.98	278.87	93.50
	132.400	130.00	0.00	0.00	849.40	570.00	854.04	0.00	854.14	37.17	2.98	278.87	93.50
	132.600	31.00	856.10	852.50	849.60	570.00	857.04	0.00	857.05	2.15	1.01	858.73	388.71
	132.600	31.00	856.10	852.50	849.60	570.00	857.04	0.00	857.05	2.15	1.01	858.73	388.71
	132.600	31.00	856.10	852.50	849.60	570.00	857.04	0.00	857.05	2.15	1.01	858.73	388.71
	133.000	60.00	0.00	0.00	851.00	570.00	857.05	0.00	857.08	7.40	1.67	518.93	209.54
	133.000	60.00	0.00	0.00	851.00	570.00	857.05	0.00	857.08	7.40	1.67	518.93	209.54
	133.000	60.00	0.00	0.00	851.00	570.00	857.05	0.00	857.08	7.40	1.67	518.93	209.54
	133.100	8.00	855.80	855.20	851.00	570.00	857.14	0.00	857.16	6.57	1.59	544.20	222.46
	133.100	8.00	855.80	855.20	851.00	570.00	857.14	0.00	857.16	6.57	1.59	544.20	222.46
	133.100	8.00	855.80	855.20	851.00	570.00	857.14	0.00	857.16	6.57	1.59	544.20	222.46
	134.000	180.00	0.00	0.00	852.80	570.00	857.40	0.00	857.61	98.39	4.72	194.09	57.46
	134.000	180.00	0.00	0.00	852.80	570.00	857.40	0.00	857.61	98.39	4.72	194.09	57.46
	134.000	180.00	0.00	0.00	852.80	570.00	857.40	0.00	857.61	98.39	4.72	194.09	57.46
	134.100	26.00	857.60	855.20	852.80	570.00	858.98	0.00	859.00	6.20	1.56	556.71	228.90
	134.100	26.00	857.60	855.20	852.80	570.00	858.98	0.00	859.00	6.20	1.56	556.71	228.90
	134.100	26.00	857.60	855.20	852.80	570.00	858.98	0.00	859.00	6.20	1.56	556.71	228.90
	135.000	85.00	0.00	0.00	852.90	570.00	859.04	0.00	859.06	6.60	1.60	542.97	221.83
	135.000	85.00	0.00	0.00	852.90	570.00	859.04	0.00	859.06	6.60	1.60	542.97	221.83
	135.000	85.00	0.00	0.00	852.90	570.00	859.04	0.00	859.06	6.60	1.60	542.97	221.83

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	135.100	32.00	857.20	855.70	852.90	570.00	859.24	0.00	859.26	4.97	1.43	607.94	255.57
	135.100	32.00	857.20	855.70	852.90	570.00	859.24	0.00	859.26	4.97	1.43	607.94	255.57
	135.100	32.00	857.20	855.70	852.90	570.00	859.24	0.00	859.26	4.97	1.43	607.94	255.57
	136.000	450.00	0.00	0.00	856.50	570.00	859.77	0.00	859.91	109.33	4.68	233.22	54.51
	136.000	450.00	0.00	0.00	856.50	570.00	859.77	0.00	859.91	109.33	4.68	233.22	54.51
	136.000	450.00	0.00	0.00	856.50	570.00	859.77	0.00	859.91	109.33	4.68	233.22	54.51
	136.100	470.00	0.00	0.00	860.20	570.00	863.63	0.00	863.84	65.16	3.77	179.88	70.61
	136.100	470.00	0.00	0.00	860.20	570.00	863.63	0.00	863.84	65.16	3.77	179.88	70.61
	136.100	470.00	0.00	0.00	860.20	570.00	863.63	0.00	863.84	65.16	3.77	179.88	70.61
	137.300	130.00	0.00	0.00	861.30	570.00	864.63	0.00	864.90	99.98	4.37	166.53	57.00
	137.300	130.00	0.00	0.00	861.30	570.00	864.63	0.00	864.90	99.98	4.37	166.53	57.00
	137.300	130.00	0.00	0.00	861.30	570.00	864.63	0.00	864.90	99.98	4.37	166.53	57.00
	137.700	14.00	865.40	864.60	861.30	570.00	866.09	0.00	866.11	6.04	1.60	620.10	232.00
	137.700	14.00	865.40	864.60	861.30	570.00	866.09	0.00	866.11	6.04	1.60	620.10	232.00
	137.700	14.00	865.40	864.60	861.30	570.00	866.09	0.00	866.11	6.04	1.60	620.10	232.00
	137.800	200.00	0.00	0.00	863.00	570.00	866.29	0.00	866.36	35.48	2.99	335.06	95.69
	137.800	200.00	0.00	0.00	863.00	570.00	866.29	0.00	866.36	35.48	2.99	335.06	95.69
	137.800	200.00	0.00	0.00	863.00	570.00	866.29	0.00	866.36	35.48	2.99	335.06	95.69
	138.000	175.00	0.00	0.00	864.50	570.00	867.20	0.00	867.36	97.69	4.31	235.24	57.67
	138.000	175.00	0.00	0.00	864.50	570.00	867.20	0.00	867.36	97.69	4.31	235.24	57.67
	138.000	175.00	0.00	0.00	864.50	570.00	867.20	0.00	867.36	97.69	4.31	235.24	57.67
	138.200	100.00	0.00	0.00	865.30	570.00	868.11	0.00	868.24	80.10	4.01	252.24	63.69
	138.200	100.00	0.00	0.00	865.30	570.00	868.11	0.00	868.24	80.10	4.01	252.24	63.69
	138.200	100.00	0.00	0.00	865.30	570.00	868.11	0.00	868.24	80.10	4.01	252.24	63.69
*	138.500	200.00	0.00	0.00	867.10	570.00	871.01	871.01	872.03	487.12	8.07	70.64	25.83
*	138.500	200.00	0.00	0.00	867.10	570.00	871.01	871.01	872.03	487.12	8.07	70.64	25.83
*	138.500	200.00	0.00	0.00	867.10	570.00	871.01	871.01	872.03	487.12	8.07	70.64	25.83
	139.200	200.00	0.00	0.00	868.60	570.00	874.48	0.00	874.68	58.25	3.55	160.37	74.68
	139.200	200.00	0.00	0.00	868.60	570.00	874.48	0.00	874.68	58.25	3.55	160.37	74.68
	139.200	200.00	0.00	0.00	868.60	570.00	874.48	0.00	874.68	58.25	3.55	160.37	74.68
	139.300	140.00	0.00	0.00	870.30	570.00	875.53	0.00	875.84	109.73	4.53	125.87	54.42
	139.300	140.00	0.00	0.00	870.30	570.00	875.53	0.00	875.84	109.73	4.53	125.87	54.42
	139.300	140.00	0.00	0.00	870.30	570.00	875.53	0.00	875.84	109.73	4.53	125.87	54.42
	139.700	200.00	878.80	874.70	870.30	570.00	879.03	0.00	879.07	5.60	1.60	403.49	240.79
	139.700	200.00	878.80	874.70	870.30	570.00	879.03	0.00	879.07	5.60	1.60	403.49	240.79
	139.700	200.00	878.80	874.70	870.30	570.00	879.03	0.00	879.07	5.60	1.60	403.49	240.79
	139.800	30.00	0.00	0.00	870.20	525.00	879.08	0.00	879.09	.11	.31	1699.49	1595.17
	139.800	30.00	0.00	0.00	870.20	525.00	879.08	0.00	879.09	.11	.31	1699.49	1595.17
	139.800	30.00	0.00	0.00	870.20	525.00	879.08	0.00	879.09	.11	.31	1699.49	1595.17
	140.000	925.00	0.00	0.00	872.36	525.00	879.10	0.00	879.11	.52	.58	1596.17	729.30
	140.000	925.00	0.00	0.00	872.36	525.00	879.10	0.00	879.11	.52	.58	1596.17	729.30
	140.000	925.00	0.00	0.00	872.36	525.00	879.10	0.00	879.11	.52	.58	1596.17	729.30

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
141.000	1100.00	0.00	0.00	877.00	525.00	879.26	0.00	879.31	55.41	2.92	318.14	70.53
141.000	1100.00	0.00	0.00	877.00	525.00	879.26	0.00	879.31	55.41	2.92	318.14	70.53
141.000	1100.00	0.00	0.00	877.00	525.00	879.26	0.00	879.31	55.41	2.92	318.14	70.53
142.200	800.00	0.00	0.00	880.40	525.00	882.85	0.00	882.89	36.76	2.41	413.30	86.59
142.200	800.00	0.00	0.00	880.40	525.00	882.85	0.00	882.89	36.76	2.41	413.30	86.59
142.200	800.00	0.00	0.00	880.40	525.00	882.85	0.00	882.89	36.76	2.41	413.30	86.59
142.300	120.00	0.00	0.00	880.20	525.00	883.15	0.00	883.16	15.20	1.76	545.57	134.67
142.300	120.00	0.00	0.00	880.20	525.00	883.15	0.00	883.16	15.20	1.76	545.57	134.67
142.300	120.00	0.00	0.00	880.20	525.00	883.15	0.00	883.16	15.20	1.76	545.57	134.67
142.700	41.00	885.23	883.33	880.23	525.00	885.70	0.00	885.79	17.81	2.86	287.80	124.39
142.700	41.00	885.23	883.33	880.23	525.00	885.70	0.00	885.79	17.81	2.86	287.80	124.39
142.700	41.00	885.23	883.33	880.23	525.00	885.70	0.00	885.79	17.81	2.86	287.80	124.39
142.800	35.00	884.20	883.20	880.23	525.00	885.82	0.00	885.93	116.62	3.12	236.73	48.61
142.800	35.00	884.20	883.20	880.23	525.00	885.82	0.00	885.93	116.62	3.12	236.73	48.61
142.800	35.00	884.20	883.20	880.23	525.00	885.82	0.00	885.93	116.62	3.12	236.73	48.61
142.810	12.00	884.20	883.20	880.23	525.00	885.97	0.00	886.06	96.91	2.91	253.38	53.33
142.810	12.00	884.20	883.20	880.23	525.00	885.97	0.00	886.06	96.91	2.91	253.38	53.33
142.810	12.00	884.20	883.20	880.23	525.00	885.97	0.00	886.06	96.91	2.91	253.38	53.33
142.820	15.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.36	3.39	285.55	143.61
142.820	15.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.36	3.39	285.55	143.61
142.820	15.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.36	3.39	285.55	143.61
142.830	1.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.29	3.39	286.17	143.99
142.830	1.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.29	3.39	286.17	143.99
142.830	1.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.29	3.39	286.17	143.99
142.840	100.00	883.40	881.40	881.50	525.00	886.25	0.00	886.38	66.01	3.63	227.72	64.62
142.840	100.00	883.40	881.40	881.50	525.00	886.25	0.00	886.38	66.01	3.63	227.72	64.62
142.840	100.00	883.40	881.40	881.50	525.00	886.25	0.00	886.38	66.01	3.63	227.72	64.62
142.850	1.00	883.40	881.40	881.50	525.00	886.26	0.00	886.38	65.63	3.63	228.25	64.81
142.850	1.00	883.40	881.40	881.50	525.00	886.26	0.00	886.38	65.63	3.63	228.25	64.81
142.850	1.00	883.40	881.40	881.50	525.00	886.26	0.00	886.38	65.63	3.63	228.25	64.81
142.860	80.00	0.00	0.00	882.60	525.00	886.69	0.00	886.90	51.81	4.07	192.98	72.94
142.860	80.00	0.00	0.00	882.60	525.00	886.69	0.00	886.90	51.81	4.07	192.98	72.94
142.860	80.00	0.00	0.00	882.60	525.00	886.69	0.00	886.90	51.81	4.07	192.98	72.94
142.870	20.00	886.50	886.00	882.60	525.00	887.43	0.00	887.53	22.35	3.00	285.52	111.05
142.870	20.00	886.50	886.00	882.60	525.00	887.43	0.00	887.53	22.35	3.00	285.52	111.05
142.870	20.00	886.50	886.00	882.60	525.00	887.43	0.00	887.53	22.35	3.00	285.52	111.05
142.900	90.00	0.00	0.00	883.30	525.00	887.66	0.00	887.82	37.95	3.64	223.90	85.22
142.900	90.00	0.00	0.00	883.30	525.00	887.66	0.00	887.82	37.95	3.64	223.90	85.22
142.900	90.00	0.00	0.00	883.30	525.00	887.66	0.00	887.82	37.95	3.64	223.90	85.22
142.910	15.00	886.60	885.70	883.30	525.00	887.68	0.00	887.84	37.11	3.61	226.31	86.19
142.910	15.00	886.60	885.70	883.30	525.00	887.68	0.00	887.84	37.11	3.61	226.31	86.19
142.910	15.00	886.60	885.70	883.30	525.00	887.68	0.00	887.84	37.11	3.61	226.31	86.19

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	142.930	6.00	885.70	883.20	883.30	525.00	887.69	0.00	887.93	198.12	5.02	162.11	37.30
	142.930	6.00	885.70	883.20	883.30	525.00	887.69	0.00	887.93	198.12	5.02	162.11	37.30
	142.930	6.00	885.70	883.20	883.30	525.00	887.69	0.00	887.93	198.12	5.02	162.11	37.30
	142.940	1.00	885.70	883.20	883.30	525.00	887.72	0.00	887.95	194.36	4.99	163.30	37.66
	142.940	1.00	885.70	883.20	883.30	525.00	887.72	0.00	887.95	194.36	4.99	163.30	37.66
	142.940	1.00	885.70	883.20	883.30	525.00	887.72	0.00	887.95	194.36	4.99	163.30	37.66
	143.200	350.00	0.00	0.00	887.30	525.00	891.21	0.00	891.35	57.76	3.93	237.82	69.08
	143.200	350.00	0.00	0.00	887.30	525.00	891.21	0.00	891.35	57.76	3.93	237.82	69.08
	143.200	350.00	0.00	0.00	887.30	525.00	891.21	0.00	891.35	57.76	3.93	237.82	69.08
	143.210	30.00	889.00	887.20	887.20	525.00	891.48	0.00	891.55	65.10	2.81	266.03	65.07
	143.210	30.00	889.00	887.20	887.20	525.00	891.48	0.00	891.55	65.10	2.81	266.03	65.07
	143.210	30.00	889.00	887.20	887.20	525.00	891.48	0.00	891.55	65.10	2.81	266.03	65.07
	143.220	1.00	889.00	887.20	887.20	525.00	891.49	0.00	891.56	64.42	2.80	266.96	65.41
	143.220	1.00	889.00	887.20	887.20	525.00	891.49	0.00	891.56	64.42	2.80	266.96	65.41
	143.220	1.00	889.00	887.20	887.20	525.00	891.49	0.00	891.56	64.42	2.80	266.96	65.41
	143.700	140.00	0.00	0.00	887.50	525.00	892.02	0.00	892.09	24.48	2.86	329.85	106.11
	143.700	140.00	0.00	0.00	887.50	525.00	892.02	0.00	892.09	24.48	2.86	329.85	106.11
	143.700	140.00	0.00	0.00	887.50	525.00	892.02	0.00	892.09	24.48	2.86	329.85	106.11
	143.750	35.00	892.60	890.82	887.50	525.00	893.28	0.00	893.32	14.43	1.69	311.13	138.23
	143.750	35.00	892.60	890.82	887.50	525.00	893.28	0.00	893.32	14.43	1.69	311.13	138.23
	143.750	35.00	892.60	890.82	887.50	525.00	893.28	0.00	893.32	14.43	1.69	311.13	138.23
*	143.760	10.00	0.00	0.00	891.00	525.00	893.47	893.47	894.21	530.63	6.89	76.22	22.79
*	143.760	10.00	0.00	0.00	891.00	525.00	893.47	893.47	894.21	530.63	6.89	76.22	22.79
*	143.760	10.00	0.00	0.00	891.00	525.00	893.47	893.47	894.21	530.63	6.89	76.22	22.79
	143.800	110.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.41	3.24	162.02	68.69
	143.800	110.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.41	3.24	162.02	68.69
	143.800	110.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.41	3.24	162.02	68.69
	144.300	325.00	0.00	0.00	894.50	525.00	898.19	0.00	898.48	123.00	4.32	121.45	47.34
	144.300	325.00	0.00	0.00	894.50	525.00	898.19	0.00	898.48	123.00	4.32	121.45	47.34
	144.300	325.00	0.00	0.00	894.50	525.00	898.19	0.00	898.48	123.00	4.32	121.45	47.34
	144.700	71.00	901.20	897.00	894.50	525.00	902.19	0.00	902.22	6.03	1.36	385.52	213.77
	144.700	71.00	901.20	897.00	894.50	525.00	902.19	0.00	902.22	6.03	1.36	385.52	213.77
	144.700	71.00	901.20	897.00	894.50	525.00	902.19	0.00	902.22	6.03	1.36	385.52	213.77
	145.000	160.00	0.00	0.00	896.40	525.00	902.33	0.00	902.42	25.88	2.36	222.85	103.20
	145.000	160.00	0.00	0.00	896.40	525.00	902.33	0.00	902.42	25.88	2.36	222.85	103.20
	145.000	160.00	0.00	0.00	896.40	525.00	902.33	0.00	902.42	25.88	2.36	222.85	103.20
	146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.43	112.15	4.10	128.07	49.57
	146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.43	112.15	4.10	128.07	49.57
	146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.43	112.15	4.10	128.07	49.57
	146.700	100.00	905.00	900.50	898.60	525.00	905.72	0.00	905.73	1.23	.77	1095.02	472.85
	146.700	100.00	905.00	900.50	898.60	525.00	905.72	0.00	905.73	1.23	.77	1095.02	472.85
	146.700	100.00	905.00	900.50	898.60	525.00	905.72	0.00	905.73	1.23	.77	1095.02	472.85

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
146.800	60.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.75	.87	962.54	397.14
146.800	60.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.75	.87	962.54	397.14
146.800	60.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.75	.87	962.54	397.14
146.900	90.00	905.90	904.20	899.00	525.00	905.74	0.00	905.82	63.59	2.25	233.63	65.84
146.900	90.00	905.90	904.20	899.00	525.00	905.74	0.00	905.82	63.59	2.25	233.63	65.84
146.900	90.00	905.90	904.20	899.00	525.00	905.74	0.00	905.82	63.59	2.25	233.63	65.84
146.910	32.00	905.90	904.20	899.00	525.00	906.01	0.00	906.08	107.23	2.12	248.31	50.70
146.910	32.00	905.90	904.20	899.00	525.00	906.01	0.00	906.08	107.23	2.12	248.31	50.70
146.910	32.00	905.90	904.20	899.00	525.00	906.01	0.00	906.08	107.23	2.12	248.31	50.70
147.000	310.00	0.00	0.00	900.70	525.00	907.08	0.00	907.14	16.61	2.32	351.91	128.82
147.000	310.00	0.00	0.00	900.70	525.00	907.08	0.00	907.14	16.61	2.32	351.91	128.82
147.000	310.00	0.00	0.00	900.70	525.00	907.08	0.00	907.14	16.61	2.32	351.91	128.82
148.000	1125.00	0.00	0.00	910.30	525.00	911.85	0.00	912.18	321.08	4.62	113.73	29.30
148.000	1125.00	0.00	0.00	910.30	525.00	911.85	0.00	912.18	321.08	4.62	113.73	29.30
148.000	1125.00	0.00	0.00	910.30	525.00	911.85	0.00	912.18	321.08	4.62	113.73	29.30
149.000	1025.00	0.00	0.00	913.20	525.00	918.12	0.00	918.17	23.30	2.62	359.87	108.76
149.000	1025.00	0.00	0.00	913.20	525.00	918.12	0.00	918.17	23.30	2.62	359.87	108.76
149.000	1025.00	0.00	0.00	913.20	525.00	918.12	0.00	918.17	23.30	2.62	359.87	108.76
150.000	825.00	0.00	0.00	917.80	525.00	922.00	0.00	922.52	180.75	5.78	90.86	39.05
150.000	825.00	0.00	0.00	917.80	525.00	922.00	0.00	922.52	180.75	5.78	90.86	39.05
150.000	825.00	0.00	0.00	917.80	525.00	922.00	0.00	922.52	180.75	5.78	90.86	39.05

BLOOMFIELD TOWNSHIP FIS

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	130.900	570.00	848.40	0.00	0.00	0.00	50.00	0.00
	130.900	570.00	849.10	.70	0.00	0.00	50.00	0.00
*	130.900	570.00	847.89	-1.21	0.00	.19	38.45	0.00
	131.000	570.00	850.56	0.00	2.16	0.00	301.60	455.00
	131.000	570.00	850.63	.06	1.53	0.00	304.74	455.00
	131.000	570.00	850.61	-.02	2.72	0.00	303.46	455.00
*	132.200	570.00	852.12	0.00	1.56	0.00	83.96	525.00
*	132.200	570.00	852.12	.00	1.50	0.00	83.96	525.00
*	132.200	570.00	852.12	-.00	1.52	0.00	83.96	525.00
	132.400	570.00	854.04	0.00	1.92	0.00	127.09	130.00
	132.400	570.00	854.04	-.00	1.92	0.00	127.09	130.00
	132.400	570.00	854.04	.00	1.92	0.00	127.09	130.00
	132.600	570.00	857.04	0.00	2.99	0.00	264.00	31.00
	132.600	570.00	857.04	-.00	2.99	0.00	264.00	31.00
	132.600	570.00	857.04	.00	2.99	0.00	264.00	31.00
	133.000	570.00	857.05	0.00	.01	0.00	285.03	60.00
	133.000	570.00	857.05	-.00	.01	0.00	285.03	60.00
	133.000	570.00	857.05	.00	.01	0.00	285.03	60.00
	133.100	570.00	857.14	0.00	.09	0.00	293.25	8.00
	133.100	570.00	857.14	-.00	.09	0.00	293.25	8.00
	133.100	570.00	857.14	.00	.09	0.00	293.25	8.00
	134.000	570.00	857.40	0.00	.26	0.00	183.07	180.00
	134.000	570.00	857.40	-.00	.26	0.00	183.07	180.00
	134.000	570.00	857.40	.00	.26	0.00	183.07	180.00
	134.100	570.00	858.98	0.00	1.58	0.00	297.24	26.00
	134.100	570.00	858.98	-.00	1.58	0.00	297.24	26.00
	134.100	570.00	858.98	.00	1.58	0.00	297.24	26.00
	135.000	570.00	859.04	0.00	.05	0.00	292.86	85.00
	135.000	570.00	859.04	-.00	.05	0.00	292.86	85.00
	135.000	570.00	859.04	.00	.05	0.00	292.86	85.00
	135.100	570.00	859.24	0.00	.21	0.00	313.03	32.00
	135.100	570.00	859.24	-.00	.21	0.00	313.03	32.00
	135.100	570.00	859.24	.00	.21	0.00	313.03	32.00
	136.000	570.00	859.77	0.00	.52	0.00	159.32	450.00
	136.000	570.00	859.77	-.00	.52	0.00	159.32	450.00
	136.000	570.00	859.77	.00	.52	0.00	159.32	450.00
	136.100	570.00	863.63	0.00	3.87	0.00	98.91	470.00
	136.100	570.00	863.63	.00	3.87	0.00	98.91	470.00
	136.100	570.00	863.63	-.00	3.87	0.00	98.91	470.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	137.300	570.00	864.63	0.00	1.00	0.00	133.00	130.00
	137.300	570.00	864.63	-.00	1.00	0.00	133.00	130.00
	137.300	570.00	864.63	.00	1.00	0.00	133.00	130.00
	137.700	570.00	866.09	0.00	1.46	0.00	205.57	14.00
	137.700	570.00	866.09	-.00	1.46	0.00	205.57	14.00
	137.700	570.00	866.09	.00	1.46	0.00	205.57	14.00
	137.800	570.00	866.29	0.00	.21	0.00	174.03	200.00
	137.800	570.00	866.29	-.00	.21	0.00	174.03	200.00
	137.800	570.00	866.29	.00	.21	0.00	174.03	200.00
	138.000	570.00	867.20	0.00	.91	0.00	161.54	175.00
	138.000	570.00	867.20	0.00	.91	0.00	161.54	175.00
	138.000	570.00	867.20	-.00	.91	0.00	161.54	175.00
	138.200	570.00	868.11	0.00	.91	0.00	163.73	100.00
	138.200	570.00	868.11	0.00	.91	0.00	163.73	100.00
	138.200	570.00	868.11	-.00	.91	0.00	163.73	100.00
*	138.500	570.00	871.01	0.00	2.91	0.00	35.23	200.00
*	138.500	570.00	871.01	0.00	2.91	0.00	35.23	200.00
*	138.500	570.00	871.01	-.00	2.91	0.00	35.23	200.00
	139.200	570.00	874.48	0.00	3.47	0.00	55.84	200.00
	139.200	570.00	874.48	0.00	3.47	0.00	55.84	200.00
	139.200	570.00	874.48	0.00	3.47	0.00	55.84	200.00
	139.300	570.00	875.53	0.00	1.04	0.00	48.96	140.00
	139.300	570.00	875.53	0.00	1.04	0.00	48.96	140.00
	139.300	570.00	875.53	-.00	1.04	0.00	48.96	140.00
	139.700	570.00	879.03	0.00	3.51	0.00	195.93	200.00
	139.700	570.00	879.03	0.00	3.51	0.00	195.93	200.00
	139.700	570.00	879.03	0.00	3.51	0.00	195.93	200.00
	139.800	525.00	879.08	0.00	.05	0.00	200.00	30.00
	139.800	525.00	879.08	0.00	.05	0.00	200.00	30.00
	139.800	525.00	879.08	0.00	.05	0.00	200.00	30.00
	140.000	525.00	879.10	0.00	.02	0.00	354.35	925.00
	140.000	525.00	879.10	0.00	.02	0.00	354.35	925.00
	140.000	525.00	879.10	0.00	.02	0.00	354.35	925.00
	141.000	525.00	879.26	0.00	.15	0.00	212.08	1100.00
	141.000	525.00	879.26	0.00	.15	0.00	212.08	1100.00
	141.000	525.00	879.26	0.00	.15	0.00	212.08	1100.00
	142.200	525.00	882.85	0.00	3.60	0.00	274.91	800.00
	142.200	525.00	882.85	0.00	3.60	0.00	274.91	800.00
	142.200	525.00	882.85	0.00	3.60	0.00	274.91	800.00
	142.300	525.00	883.15	0.00	.29	0.00	277.98	120.00
	142.300	525.00	883.15	0.00	.29	0.00	277.98	120.00
	142.300	525.00	883.15	0.00	.29	0.00	277.98	120.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
142.700	525.00	885.70	0.00	2.55	0.00	110.47	41.00
142.700	525.00	885.70	0.00	2.55	0.00	110.47	41.00
142.700	525.00	885.70	0.00	2.55	0.00	110.47	41.00
142.800	525.00	885.82	0.00	.12	0.00	112.31	35.00
142.800	525.00	885.82	0.00	.12	0.00	112.31	35.00
142.800	525.00	885.82	0.00	.12	0.00	112.31	35.00
142.810	525.00	885.97	0.00	.15	0.00	114.52	12.00
142.810	525.00	885.97	0.00	.15	0.00	114.52	12.00
142.810	525.00	885.97	0.00	.15	0.00	114.52	12.00
142.820	525.00	886.00	0.00	.03	0.00	113.45	15.00
142.820	525.00	886.00	0.00	.03	0.00	113.45	15.00
142.820	525.00	886.00	0.00	.03	0.00	113.45	15.00
142.830	525.00	886.00	0.00	.00	0.00	113.53	1.00
142.830	525.00	886.00	0.00	.00	0.00	113.53	1.00
142.830	525.00	886.00	0.00	.00	0.00	113.53	1.00
142.840	525.00	886.25	0.00	.25	0.00	142.63	100.00
142.840	525.00	886.25	0.00	.25	0.00	142.63	100.00
142.840	525.00	886.25	0.00	.25	0.00	142.63	100.00
142.850	525.00	886.26	0.00	.01	0.00	142.89	1.00
142.850	525.00	886.26	0.00	.01	0.00	142.89	1.00
142.850	525.00	886.26	0.00	.01	0.00	142.89	1.00
142.860	525.00	886.69	0.00	.43	0.00	108.72	80.00
142.860	525.00	886.69	0.00	.43	0.00	108.72	80.00
142.860	525.00	886.69	0.00	.43	0.00	108.72	80.00
142.870	525.00	887.43	0.00	.74	0.00	148.06	20.00
142.870	525.00	887.43	0.00	.74	0.00	148.06	20.00
142.870	525.00	887.43	0.00	.74	0.00	148.06	20.00
142.900	525.00	887.66	0.00	.23	0.00	119.55	90.00
142.900	525.00	887.66	0.00	.23	0.00	119.55	90.00
142.900	525.00	887.66	0.00	.23	0.00	119.55	90.00
142.910	525.00	887.68	0.00	.02	0.00	120.36	15.00
142.910	525.00	887.68	0.00	.02	0.00	120.36	15.00
142.910	525.00	887.68	0.00	.02	0.00	120.36	15.00
142.930	525.00	887.69	0.00	.01	0.00	121.00	6.00
142.930	525.00	887.69	0.00	.01	0.00	121.00	6.00
142.930	525.00	887.69	0.00	.01	0.00	121.00	6.00
142.940	525.00	887.72	0.00	.02	0.00	121.39	1.00
142.940	525.00	887.72	0.00	.02	0.00	121.39	1.00
142.940	525.00	887.72	0.00	.02	0.00	121.39	1.00
143.200	525.00	891.21	0.00	3.49	0.00	146.71	350.00
143.200	525.00	891.21	0.00	3.49	0.00	146.71	350.00
143.200	525.00	891.21	0.00	3.49	0.00	146.71	350.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	143.210	525.00	891.48	0.00	.28	0.00	154.00	30.00
	143.210	525.00	891.48	0.00	.28	0.00	154.00	30.00
	143.210	525.00	891.48	0.00	.28	0.00	154.00	30.00
	143.220	525.00	891.49	0.00	.01	0.00	154.00	1.00
	143.220	525.00	891.49	0.00	.01	0.00	154.00	1.00
	143.220	525.00	891.49	0.00	.01	0.00	154.00	1.00
	143.700	525.00	892.02	0.00	.53	0.00	157.92	140.00
	143.700	525.00	892.02	0.00	.53	0.00	157.92	140.00
	143.700	525.00	892.02	0.00	.53	0.00	157.92	140.00
	143.750	525.00	893.28	0.00	1.26	0.00	119.58	35.00
	143.750	525.00	893.28	0.00	1.26	0.00	119.58	35.00
	143.750	525.00	893.28	0.00	1.26	0.00	119.58	35.00
*	143.760	525.00	893.47	0.00	.19	0.00	53.08	10.00
*	143.760	525.00	893.47	0.00	.19	0.00	53.08	10.00
*	143.760	525.00	893.47	0.00	.19	0.00	53.08	10.00
	143.800	525.00	895.55	0.00	2.08	0.00	66.23	110.00
	143.800	525.00	895.55	0.00	2.08	0.00	66.23	110.00
	143.800	525.00	895.55	0.00	2.08	0.00	66.23	110.00
	144.300	525.00	898.19	0.00	2.64	0.00	56.37	325.00
	144.300	525.00	898.19	0.00	2.64	0.00	56.37	325.00
	144.300	525.00	898.19	0.00	2.64	0.00	56.37	325.00
	144.700	525.00	902.19	0.00	4.01	0.00	105.18	71.00
	144.700	525.00	902.19	0.00	4.01	0.00	105.18	71.00
	144.700	525.00	902.19	0.00	4.01	0.00	105.18	71.00
	145.000	525.00	902.33	0.00	.14	0.00	79.49	160.00
	145.000	525.00	902.33	0.00	.14	0.00	79.49	160.00
	145.000	525.00	902.33	0.00	.14	0.00	79.49	160.00
	146.300	525.00	903.17	0.00	.84	0.00	59.63	185.00
	146.300	525.00	903.17	0.00	.84	0.00	59.63	185.00
	146.300	525.00	903.17	0.00	.84	0.00	59.63	185.00
	146.700	525.00	905.72	0.00	2.55	0.00	338.00	100.00
	146.700	525.00	905.72	0.00	2.55	0.00	338.00	100.00
	146.700	525.00	905.72	0.00	2.55	0.00	338.00	100.00
	146.800	525.00	905.73	0.00	.01	0.00	324.03	60.00
	146.800	525.00	905.73	0.00	.01	0.00	324.03	60.00
	146.800	525.00	905.73	0.00	.01	0.00	324.03	60.00
	146.900	525.00	905.74	0.00	.01	0.00	124.40	90.00
	146.900	525.00	905.74	0.00	.01	0.00	124.40	90.00
	146.900	525.00	905.74	0.00	.01	0.00	124.40	90.00
	146.910	525.00	906.01	0.00	.27	0.00	136.63	32.00
	146.910	525.00	906.01	0.00	.27	0.00	136.63	32.00
	146.910	525.00	906.01	0.00	.27	0.00	136.63	32.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
147.000	525.00	907.08	0.00	1.07	0.00	189.77	310.00
147.000	525.00	907.08	0.00	1.07	0.00	189.77	310.00
147.000	525.00	907.08	0.00	1.07	0.00	189.77	310.00
148.000	525.00	911.85	0.00	4.77	0.00	99.54	1125.00
148.000	525.00	911.85	0.00	4.77	0.00	99.54	1125.00
148.000	525.00	911.85	0.00	4.77	0.00	99.54	1125.00
149.000	525.00	918.12	0.00	6.27	0.00	165.04	1025.00
149.000	525.00	918.12	0.00	6.27	0.00	165.04	1025.00
149.000	525.00	918.12	0.00	6.27	0.00	165.04	1025.00
150.000	525.00	922.00	0.00	3.88	0.00	35.08	825.00
150.000	525.00	922.00	0.00	3.88	0.00	35.08	825.00
150.000	525.00	922.00	0.00	3.88	0.00	35.08	825.00

SUMMARY OF ERRORS

CAUTION SECNO= 130.900 PROFILE= 3 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 132.200 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 132.200 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 132.200 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 132.200 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 132.200 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 132.200 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 132.200 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 132.200 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 132.200 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 138.500 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 138.500 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 138.500 PROFILE= 3 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 143.760 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 143.760 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 143.760 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: SUMMARY - FLOODWAY RUN

00BREAK00

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BLOOMFIELD TOWNSHIP FIS

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	130.900	0.00	0.00	0.00	844.00	570.00	848.40	0.00	849.13	174.12	7.32	101.92	43.20
	130.900	0.00	0.00	0.00	844.00	570.00	848.50	0.00	849.17	155.78	7.04	106.92	45.67
	131.000	455.00	0.00	0.00	846.50	570.00	850.56	0.00	850.58	12.11	1.13	569.56	163.79
	131.000	455.00	0.00	0.00	846.50	570.00	850.62	0.00	850.64	12.83	1.18	519.88	159.14
*	132.200	525.00	0.00	0.00	849.10	570.00	852.12	852.12	852.78	393.30	7.43	108.32	28.74
*	132.200	525.00	0.00	0.00	849.10	570.00	852.15	852.15	852.95	440.64	7.92	91.63	27.15
	132.400	130.00	0.00	0.00	849.40	570.00	854.04	0.00	854.14	37.16	2.98	278.88	93.50
	132.400	130.00	0.00	0.00	849.40	570.00	854.23	0.00	854.33	34.20	2.88	256.85	97.47
	132.600	31.00	856.10	852.50	849.60	570.00	857.04	0.00	857.05	2.15	1.01	858.73	388.71
	132.600	31.00	999999.00	0.00	849.60	570.00	857.23	0.00	857.24	2.01	1.00	835.53	402.50
	133.000	60.00	0.00	0.00	851.00	570.00	857.05	0.00	857.08	7.40	1.67	518.93	209.54
	133.000	60.00	0.00	0.00	851.00	570.00	857.24	0.00	857.26	6.61	1.62	476.51	221.76
	133.100	8.00	855.80	855.20	851.00	570.00	857.14	0.00	857.16	6.57	1.59	544.20	222.46
	133.100	8.00	999999.00	0.00	851.00	570.00	857.33	0.00	857.35	5.95	1.56	494.96	233.71
	134.000	180.00	0.00	0.00	852.80	570.00	857.40	0.00	857.61	98.39	4.72	194.09	57.46
	134.000	180.00	0.00	0.00	852.80	570.00	857.56	0.00	857.77	89.03	4.54	180.24	60.41
	134.100	26.00	857.60	855.20	852.80	570.00	858.98	0.00	859.00	6.20	1.56	556.71	228.90
	134.100	26.00	999999.00	0.00	852.80	570.00	859.14	0.00	859.16	5.80	1.54	501.22	236.61
	135.000	85.00	0.00	0.00	852.90	570.00	859.04	0.00	859.06	6.60	1.60	542.97	221.83
	135.000	85.00	0.00	0.00	852.90	570.00	859.19	0.00	859.22	6.20	1.58	488.01	228.92
	135.100	32.00	857.20	855.70	852.90	570.00	859.24	0.00	859.26	4.97	1.43	607.94	255.57
	135.100	32.00	999999.00	0.00	852.90	570.00	859.40	0.00	859.42	4.69	1.41	548.37	263.12
	136.000	450.00	0.00	0.00	856.50	570.00	859.77	0.00	859.91	109.33	4.68	233.22	54.51
	136.000	450.00	0.00	0.00	856.50	570.00	859.88	0.00	860.04	106.72	4.74	211.65	55.17
	136.100	470.00	0.00	0.00	860.20	570.00	863.63	0.00	863.84	65.16	3.77	179.88	70.61
	136.100	470.00	0.00	0.00	860.20	570.00	863.72	0.00	863.96	65.89	3.88	151.36	70.22

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	137.300	130.00	0.00	0.00	861.30	570.00	864.63	0.00	864.90	99.98	4.37	166.53	57.00
	137.300	130.00	0.00	0.00	861.30	570.00	864.74	0.00	865.04	102.17	4.49	135.08	56.39
	137.700	14.00	865.40	864.60	861.30	570.00	866.09	0.00	866.11	6.04	1.60	620.10	232.00
	137.700	14.00	999999.00	0.00	861.30	570.00	866.19	0.00	866.21	6.06	1.63	579.87	231.51
	137.800	200.00	0.00	0.00	863.00	570.00	866.29	0.00	866.36	35.48	2.99	335.06	95.69
	137.800	200.00	0.00	0.00	863.00	570.00	866.39	0.00	866.47	35.02	3.04	305.68	96.31
	138.000	175.00	0.00	0.00	864.50	570.00	867.20	0.00	867.36	97.69	4.31	235.24	57.67
	138.000	175.00	0.00	0.00	864.50	570.00	867.29	0.00	867.47	99.81	4.45	199.15	57.05
	138.200	100.00	0.00	0.00	865.30	570.00	868.11	0.00	868.24	80.10	4.01	252.24	63.69
	138.200	100.00	0.00	0.00	865.30	570.00	868.21	0.00	868.36	79.98	4.11	218.02	63.74
*	138.500	200.00	0.00	0.00	867.10	570.00	871.01	871.01	872.03	487.12	8.07	70.64	25.83
*	138.500	200.00	0.00	0.00	867.10	570.00	871.01	871.01	872.03	491.02	8.09	70.42	25.72
	139.200	200.00	0.00	0.00	868.60	570.00	874.48	0.00	874.68	58.25	3.55	160.37	74.68
	139.200	200.00	0.00	0.00	868.60	570.00	874.49	0.00	874.68	58.13	3.55	160.51	74.76
	139.300	140.00	0.00	0.00	870.30	570.00	875.53	0.00	875.84	109.73	4.53	125.87	54.42
	139.300	140.00	0.00	0.00	870.30	570.00	875.53	0.00	875.85	109.67	4.53	125.90	54.43
	139.700	200.00	878.80	874.70	870.30	570.00	879.03	0.00	879.07	5.60	1.60	403.49	240.79
	139.700	200.00	999999.00	0.00	870.30	570.00	879.03	0.00	879.07	6.16	1.64	347.22	229.64
	139.800	30.00	0.00	0.00	870.20	525.00	879.08	0.00	879.09	.11	.31	1699.49	1595.17
	139.800	30.00	0.00	0.00	870.20	525.00	879.09	0.00	879.09	.11	.31	1700.45	1596.63
	140.000	925.00	0.00	0.00	872.36	525.00	879.10	0.00	879.11	.52	.58	1596.17	729.30
	140.000	925.00	0.00	0.00	872.36	525.00	879.11	0.00	879.11	.54	.60	1499.54	712.93
	141.000	1100.00	0.00	0.00	877.00	525.00	879.26	0.00	879.31	55.41	2.92	318.14	70.53
	141.000	1100.00	0.00	0.00	877.00	525.00	879.27	0.00	879.32	53.96	2.89	320.97	71.47
	142.200	800.00	0.00	0.00	880.40	525.00	882.85	0.00	882.89	36.76	2.41	413.30	86.59
	142.200	800.00	0.00	0.00	880.40	525.00	882.86	0.00	882.89	37.48	2.43	410.77	85.75
	142.300	120.00	0.00	0.00	880.20	525.00	883.15	0.00	883.16	15.20	1.76	545.57	134.67
	142.300	120.00	0.00	0.00	880.20	525.00	883.15	0.00	883.17	15.01	1.75	547.71	135.51
	142.700	41.00	885.23	883.33	880.23	525.00	885.70	0.00	885.79	17.81	2.86	287.80	124.39
	142.700	41.00	999999.00	0.00	880.23	525.00	885.71	0.00	885.81	19.22	2.97	250.75	119.76
	142.800	35.00	884.20	883.20	880.23	525.00	885.82	0.00	885.93	116.62	3.12	236.73	48.61
	142.800	35.00	884.20	883.20	880.23	525.00	885.83	0.00	886.01	174.43	3.82	174.83	39.75
	142.810	12.00	884.20	883.20	880.23	525.00	885.97	0.00	886.06	96.91	2.91	253.38	53.33
	142.810	12.00	884.20	883.20	880.23	525.00	886.05	0.00	886.20	134.77	3.48	192.87	45.22
	142.820	15.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.36	3.39	285.55	143.61
	142.820	15.00	881.80	880.35	880.33	525.00	886.12	0.00	886.25	13.12	3.42	253.58	144.94
	142.830	1.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.29	3.39	286.17	143.99
	142.830	1.00	881.80	880.35	880.33	525.00	886.12	0.00	886.25	13.06	3.41	254.88	145.28

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	142.840	100.00	883.40	881.40	881.50	525.00	886.25	0.00	886.38	66.01	3.63	227.72	64.62
	142.840	100.00	883.40	881.40	881.50	525.00	886.37	0.00	886.51	65.03	3.69	198.29	65.10
	142.850	1.00	883.40	881.40	881.50	525.00	886.26	0.00	886.38	65.63	3.63	228.25	64.81
	142.850	1.00	883.40	881.40	881.50	525.00	886.37	0.00	886.52	64.65	3.69	198.35	65.30
	142.860	80.00	0.00	0.00	882.60	525.00	886.69	0.00	886.90	51.81	4.07	192.98	72.94
	142.860	80.00	0.00	0.00	882.60	525.00	886.80	0.00	887.02	51.27	4.13	165.46	73.32
	142.870	20.00	886.50	886.00	882.60	525.00	887.43	0.00	887.53	22.35	3.00	285.52	111.05
	142.870	20.00	999999.00	0.00	882.60	525.00	887.54	0.00	887.64	22.21	3.04	250.64	111.41
	142.900	90.00	0.00	0.00	883.30	525.00	887.66	0.00	887.82	37.95	3.64	223.90	85.22
	142.900	90.00	0.00	0.00	883.30	525.00	887.77	0.00	887.94	37.89	3.70	191.82	85.29
	142.910	15.00	886.60	885.70	883.30	525.00	887.68	0.00	887.84	37.11	3.61	226.31	86.19
	142.910	15.00	999999.00	0.00	883.30	525.00	887.79	0.00	887.96	37.04	3.67	193.93	86.26
	142.930	6.00	885.70	883.20	883.30	525.00	887.69	0.00	887.93	198.12	5.02	162.11	37.30
	142.930	6.00	885.70	883.20	883.30	525.00	887.78	0.00	888.07	201.35	5.19	135.78	37.00
	142.940	1.00	885.70	883.20	883.30	525.00	887.72	0.00	887.95	194.36	4.99	163.30	37.66
	142.940	1.00	885.70	883.20	883.30	525.00	887.80	0.00	888.09	199.79	5.20	135.00	37.14
	143.200	350.00	0.00	0.00	887.30	525.00	891.21	0.00	891.35	57.76	3.93	237.82	69.08
	143.200	350.00	0.00	0.00	887.30	525.00	891.25	0.00	891.39	54.19	3.84	243.86	71.32
	143.210	30.00	889.00	887.20	887.20	525.00	891.48	0.00	891.55	65.10	2.81	266.03	65.07
	143.210	30.00	889.00	887.20	887.20	525.00	891.51	0.00	891.58	61.79	2.76	270.70	66.79
	143.220	1.00	889.00	887.20	887.20	525.00	891.49	0.00	891.56	64.42	2.80	266.96	65.41
	143.220	1.00	889.00	887.20	887.20	525.00	891.52	0.00	891.59	61.19	2.76	271.57	67.11
	143.700	140.00	0.00	0.00	887.50	525.00	892.02	0.00	892.09	24.48	2.86	329.85	106.11
	143.700	140.00	0.00	0.00	887.50	525.00	892.05	0.00	892.13	26.33	2.99	292.78	102.31
	143.750	35.00	892.60	890.82	887.50	525.00	893.28	0.00	893.32	14.43	1.69	311.13	138.23
	143.750	35.00	999999.00	0.00	887.50	525.00	893.31	0.00	893.36	13.95	1.66	315.41	140.55
*	143.760	10.00	0.00	0.00	891.00	525.00	893.47	893.47	894.21	530.63	6.89	76.22	22.79
*	143.760	10.00	0.00	0.00	891.00	525.00	893.47	893.47	894.21	530.66	6.89	76.22	22.79
	143.800	110.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.41	3.24	162.02	68.69
	143.800	110.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.09	3.23	162.36	68.88
	144.300	325.00	0.00	0.00	894.50	525.00	898.19	0.00	898.48	123.00	4.32	121.45	47.34
	144.300	325.00	0.00	0.00	894.50	525.00	898.18	0.00	898.47	123.84	4.33	121.13	47.18
	144.700	71.00	901.20	897.00	894.50	525.00	902.19	0.00	902.22	6.03	1.36	385.52	213.77
	144.700	71.00	999999.00	0.00	894.50	525.00	902.19	0.00	902.22	6.06	1.36	384.81	213.25
	145.000	160.00	0.00	0.00	896.40	525.00	902.33	0.00	902.42	25.88	2.36	222.85	103.20
	145.000	160.00	0.00	0.00	896.40	525.00	902.32	0.00	902.41	26.09	2.36	222.15	102.78
	146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.43	112.15	4.10	128.07	49.57
	146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.43	112.48	4.10	127.93	49.50

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
146.700	100.00	905.00	900.50	898.60	525.00	905.72	0.00	905.73	1.23	.77	1095.02	472.85
146.700	100.00	999999.00	0.00	898.60	525.00	905.72	0.00	905.73	1.35	.79	992.80	451.11
146.800	60.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.75	.87	962.54	397.14
146.800	60.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.92	.90	875.61	379.09
146.900	90.00	905.90	904.20	899.00	525.00	905.74	0.00	905.82	63.59	2.25	233.63	65.84
146.900	90.00	905.90	904.20	899.00	525.00	905.74	0.00	905.82	63.59	2.25	233.63	65.84
146.910	32.00	905.90	904.20	899.00	525.00	906.01	0.00	906.08	107.23	2.12	248.31	50.70
146.910	32.00	905.90	904.20	899.00	525.00	906.02	0.00	906.08	106.59	2.11	248.38	50.85
147.000	310.00	0.00	0.00	900.70	525.00	907.08	0.00	907.14	16.61	2.32	351.91	128.82
147.000	310.00	0.00	0.00	900.70	525.00	907.13	0.00	907.20	17.96	2.39	308.93	123.89
148.000	1125.00	0.00	0.00	910.30	525.00	911.85	0.00	912.18	321.08	4.62	113.73	29.30
148.000	1125.00	0.00	0.00	910.30	525.00	911.97	0.00	912.24	238.59	4.15	126.37	33.99
149.000	1025.00	0.00	0.00	913.20	525.00	918.12	0.00	918.17	23.30	2.62	359.87	108.76
149.000	1025.00	0.00	0.00	913.20	525.00	918.15	0.00	918.21	25.42	2.75	312.57	104.13
150.000	825.00	0.00	0.00	917.80	525.00	922.00	0.00	922.52	180.75	5.78	90.86	39.05
150.000	825.00	0.00	0.00	917.80	525.00	922.14	0.00	922.60	153.22	5.48	95.80	42.41

BLOOMFIELD TOWNSHIP FIS

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	130.900	570.00	848.40	0.00	0.00	0.00	50.00	0.00
	130.900	570.00	848.50	.10	0.00	.10	50.00	0.00
	131.000	570.00	850.56	0.00	2.16	0.00	301.60	455.00
	131.000	570.00	850.62	.06	2.12	.06	249.63	455.00
*	132.200	570.00	852.12	0.00	1.56	0.00	83.96	525.00
*	132.200	570.00	852.15	.03	1.53	.03	55.33	525.00
	132.400	570.00	854.04	0.00	1.92	0.00	127.09	130.00
	132.400	570.00	854.23	.19	2.08	.19	87.54	130.00
	132.600	570.00	857.04	0.00	2.99	0.00	264.00	31.00
	132.600	570.00	857.23	.19	2.99	.19	216.53	31.00
	133.000	570.00	857.05	0.00	.01	0.00	285.03	60.00
	133.000	570.00	857.24	.19	.01	.19	173.07	60.00
	133.100	570.00	857.14	0.00	.09	0.00	293.25	8.00
	133.100	570.00	857.33	.19	.09	.19	175.80	8.00
	134.000	570.00	857.40	0.00	.26	0.00	183.07	180.00
	134.000	570.00	857.56	.16	.23	.16	123.16	180.00
	134.100	570.00	858.98	0.00	1.58	0.00	297.24	26.00
	134.100	570.00	859.14	.16	1.58	.16	177.92	26.00
	135.000	570.00	859.04	0.00	.05	0.00	292.86	85.00
	135.000	570.00	859.19	.16	.05	.16	175.38	85.00
	135.100	570.00	859.24	0.00	.21	0.00	313.03	32.00
	135.100	570.00	859.40	.16	.21	.16	190.00	32.00
	136.000	570.00	859.77	0.00	.52	0.00	159.32	450.00
	136.000	570.00	859.88	.11	.48	.11	108.73	450.00
	136.100	570.00	863.63	0.00	3.87	0.00	98.91	470.00
	136.100	570.00	863.72	.09	3.84	.09	53.87	470.00
	137.300	570.00	864.63	0.00	1.00	0.00	133.00	130.00
	137.300	570.00	864.74	.10	1.01	.10	51.92	130.00
	137.700	570.00	866.09	0.00	1.46	0.00	205.57	14.00
	137.700	570.00	866.19	.10	1.46	.10	158.23	14.00
	137.800	570.00	866.29	0.00	.21	0.00	174.03	200.00
	137.800	570.00	866.39	.10	.20	.10	126.71	200.00
	138.000	570.00	867.20	0.00	.91	0.00	161.54	175.00
	138.000	570.00	867.29	.09	.89	.09	98.38	175.00
	138.200	570.00	868.11	0.00	.91	0.00	163.73	100.00

	138.200	570.00	868.21	.10	.92	.10	103.40	100.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	138.500	570.00	871.01	0.00	2.91	0.00	35.23	200.00
*	138.500	570.00	871.01	-.01	2.80	-.01	35.16	200.00
	139.200	570.00	874.48	0.00	3.47	0.00	55.84	200.00
	139.200	570.00	874.49	.00	3.48	.00	55.87	200.00
	139.300	570.00	875.53	0.00	1.04	0.00	48.96	140.00
	139.300	570.00	875.53	.00	1.04	.00	48.96	140.00
	139.700	570.00	879.03	0.00	3.51	0.00	195.93	200.00
	139.700	570.00	879.03	.00	3.51	.00	69.00	200.00
	139.800	525.00	879.08	0.00	.05	0.00	200.00	30.00
	139.800	525.00	879.09	.00	.06	.00	200.00	30.00
	140.000	525.00	879.10	0.00	.02	0.00	354.35	925.00
	140.000	525.00	879.11	.00	.02	.00	283.07	925.00
	141.000	525.00	879.26	0.00	.15	0.00	212.08	1100.00
	141.000	525.00	879.27	.01	.16	.01	212.47	1100.00
	142.200	525.00	882.85	0.00	3.60	0.00	274.91	800.00
	142.200	525.00	882.86	.01	3.59	.01	274.85	800.00
	142.300	525.00	883.15	0.00	.29	0.00	277.98	120.00
	142.300	525.00	883.15	.01	.29	.01	278.03	120.00
	142.700	525.00	885.70	0.00	2.55	0.00	110.47	41.00
	142.700	525.00	885.71	.01	2.55	.01	71.72	41.00
	142.800	525.00	885.82	0.00	.12	0.00	112.31	35.00
	142.800	525.00	885.83	.00	.12	.00	60.81	35.00
	142.810	525.00	885.97	0.00	.15	0.00	114.52	12.00
	142.810	525.00	886.05	.09	.23	.09	63.19	12.00
	142.820	525.00	886.00	0.00	.03	0.00	113.45	15.00
	142.820	525.00	886.12	.12	.07	.12	74.16	15.00
	142.830	525.00	886.00	0.00	.00	0.00	113.53	1.00
	142.830	525.00	886.12	.12	.00	.12	74.78	1.00
	142.840	525.00	886.25	0.00	.25	0.00	142.63	100.00
	142.840	525.00	886.37	.12	.25	.12	80.41	100.00
	142.850	525.00	886.26	0.00	.01	0.00	142.89	1.00
	142.850	525.00	886.37	.11	.01	.11	80.04	1.00
	142.860	525.00	886.69	0.00	.43	0.00	108.72	80.00
	142.860	525.00	886.80	.11	.43	.11	56.69	80.00
	142.870	525.00	887.43	0.00	.74	0.00	148.06	20.00
	142.870	525.00	887.54	.11	.74	.11	80.44	20.00
	142.900	525.00	887.66	0.00	.23	0.00	119.55	90.00
	142.900	525.00	887.77	.11	.23	.11	63.99	90.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	142.910	525.00	887.68	0.00	.02	0.00	120.36	15.00
	142.910	525.00	887.79	.11	.02	.11	64.55	15.00
	142.930	525.00	887.69	0.00	.01	0.00	121.00	6.00
	142.930	525.00	887.78	.09	-.00	.09	70.28	6.00
	142.940	525.00	887.72	0.00	.02	0.00	121.39	1.00
	142.940	525.00	887.80	.09	.02	.09	68.84	1.00
	143.200	525.00	891.21	0.00	3.49	0.00	146.71	350.00
	143.200	525.00	891.25	.05	3.45	.05	148.20	350.00
	143.210	525.00	891.48	0.00	.28	0.00	154.00	30.00
	143.210	525.00	891.51	.03	.26	.03	154.00	30.00
	143.220	525.00	891.49	0.00	.01	0.00	154.00	1.00
	143.220	525.00	891.52	.03	.01	.03	154.00	1.00
	143.700	525.00	892.02	0.00	.53	0.00	157.92	140.00
	143.700	525.00	892.05	.04	.53	.04	111.50	140.00
	143.750	525.00	893.28	0.00	1.26	0.00	119.58	35.00
	143.750	525.00	893.31	.04	1.26	.04	120.68	35.00
*	143.760	525.00	893.47	0.00	.19	0.00	53.08	10.00
*	143.760	525.00	893.47	-.00	.16	-.00	53.08	10.00
	143.800	525.00	895.55	0.00	2.08	0.00	66.23	110.00
	143.800	525.00	895.55	-.01	2.07	-.01	66.31	110.00
	144.300	525.00	898.19	0.00	2.64	0.00	56.37	325.00
	144.300	525.00	898.18	-.01	2.63	-.01	56.28	325.00
	144.700	525.00	902.19	0.00	4.01	0.00	105.18	71.00
	144.700	525.00	902.19	-.01	4.01	-.01	105.08	71.00
	145.000	525.00	902.33	0.00	.14	0.00	79.49	160.00
	145.000	525.00	902.32	-.01	.14	-.01	79.37	160.00
	146.300	525.00	903.17	0.00	.84	0.00	59.63	185.00
	146.300	525.00	903.17	-.00	.84	-.00	59.60	185.00
	146.700	525.00	905.72	0.00	2.55	0.00	338.00	100.00
	146.700	525.00	905.72	-.00	2.55	-.00	249.05	100.00
	146.800	525.00	905.73	0.00	.01	0.00	324.03	60.00
	146.800	525.00	905.73	.00	.01	.00	241.35	60.00
	146.900	525.00	905.74	0.00	.01	0.00	124.40	90.00
	146.900	525.00	905.74	.00	.01	.00	124.43	90.00
	146.910	525.00	906.01	0.00	.27	0.00	136.63	32.00
	146.910	525.00	906.02	.00	.27	.00	128.00	32.00
	147.000	525.00	907.08	0.00	1.07	0.00	189.77	310.00
	147.000	525.00	907.13	.06	1.12	.06	124.54	310.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
148.000	525.00	911.85	0.00	4.77	0.00	99.54	1125.00
148.000	525.00	911.97	.12	4.84	.12	103.68	1125.00
149.000	525.00	918.12	0.00	6.27	0.00	165.04	1025.00
149.000	525.00	918.15	.03	6.18	.03	110.49	1025.00
150.000	525.00	922.00	0.00	3.88	0.00	35.08	825.00
150.000	525.00	922.14	.14	3.99	.14	35.00	825.00

SUMMARY OF ERRORS

CAUTION SECNO= 132.200 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 132.200 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 132.200 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 132.200 PROFILE= 2 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 138.500 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 138.500 PROFILE= 2 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 143.760 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 143.760 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA, BLOOMFIELD TOWNSHIP FIS
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
130.900	50.	107.	5.3	848.5	848.4	.1
131.000	250.	520.	1.1	850.7	850.6	.1
132.200	55.	92.	6.2	852.1	852.1	0.0
132.400	88.	257.	2.2	854.2	854.0	.2
132.600	217.	836.	.7	857.2	857.0	.2
133.000	173.	477.	1.2	857.3	857.1	.2
133.100	176.	495.	1.2	857.3	857.1	.2
134.000	123.	180.	3.2	857.6	857.4	.2
134.100	178.	501.	1.1	859.2	859.0	.2
135.000	175.	488.	1.2	859.2	859.0	.2
135.100	190.	548.	1.0	859.4	859.2	.2
136.000	109.	212.	2.7	859.9	859.8	.1
136.100	54.	151.	3.8	863.7	863.6	.1
137.300	52.	135.	4.2	864.7	864.6	.1
137.700	158.	580.	1.0	866.2	866.1	.1
137.800	127.	306.	1.9	866.4	866.3	.1
138.000	98.	199.	2.9	867.3	867.2	.1
138.200	103.	218.	2.6	868.2	868.1	.1
138.500	35.	70.	8.1	871.0	871.0	0.0
139.200	56.	161.	3.6	874.5	874.5	0.0
139.300	49.	126.	4.5	875.5	875.5	0.0
139.700	69.	347.	1.6	879.0	879.0	0.0
139.800	200.	1700.	.3	879.1	879.1	0.0
140.000	283.	1500.	.4	879.1	879.1	0.0
141.000	212.	321.	1.6	879.3	879.3	0.0
142.200	275.	411.	1.3	882.9	882.9	0.0
142.300	278.	548.	1.0	883.1	883.1	0.0
142.700	72.	251.	2.1	885.7	885.7	0.0
142.800	61.	175.	3.0	885.8	885.8	0.0
142.810	63.	193.	2.7	886.1	886.0	.1
142.820	74.	254.	2.1	886.1	886.0	.1
142.830	75.	255.	2.1	886.1	886.0	.1
142.840	80.	198.	2.6	886.4	886.3	.1
142.850	80.	198.	2.6	886.4	886.3	.1
142.860	57.	165.	3.2	886.8	886.7	.1
142.870	80.	251.	2.1	887.5	887.4	.1
142.900	64.	192.	2.7	887.8	887.7	.1
142.910	65.	194.	2.7	887.8	887.7	.1
142.930	70.	136.	3.9	887.8	887.7	.1
142.940	69.	135.	3.9	887.8	887.7	.1
143.200	148.	244.	2.2	891.2	891.2	0.0
143.210	154.	271.	1.9	891.5	891.5	0.0
143.220	154.	272.	1.9	891.5	891.5	0.0
143.700	111.	293.	1.8	892.0	892.0	0.0
143.750	121.	315.	1.7	893.3	893.3	0.0
143.760	53.	76.	6.9	893.5	893.5	0.0
143.800	66.	162.	3.2	895.6	895.6	0.0
144.300	56.	121.	4.3	898.2	898.2	0.0
144.700	105.	385.	1.4	902.2	902.2	0.0
145.000	79.	222.	2.4	902.3	902.3	0.0

FLOODWAY DATA, BLOOMFIELD TOWNSHIP FIS
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
146.300	60.	128.	4.1	903.2	903.2	0.0
146.700	249.	993.	.5	905.7	905.7	0.0
146.800	241.	876.	.6	905.7	905.7	0.0
146.900	124.	234.	2.2	905.7	905.7	0.0
146.910	128.	248.	2.1	906.0	906.0	0.0
147.000	125.	309.	1.7	907.2	907.1	.1
148.000	104.	126.	4.2	912.0	911.9	.1
149.000	110.	313.	1.7	918.1	918.1	0.0
150.000	35.	96.	5.5	922.1	922.0	.1

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: BLOOMFIELD TOWNSHIP

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: SUMMARY - PRODUCTION RUN

00BREAK00

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BLOOMFIELD TOWNSHIP FIS

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	130.900	0.00	0.00	0.00	844.00	330.00	847.80	0.00	848.22	118.90	5.38	74.22	30.26
	130.900	0.00	0.00	0.00	844.00	480.00	848.20	0.00	848.82	155.52	6.66	91.92	38.49
	130.900	0.00	0.00	0.00	844.00	570.00	848.40	0.00	849.13	174.12	7.32	101.92	43.20
	130.900	0.00	0.00	0.00	844.00	780.00	848.80	0.00	849.78	212.33	8.65	121.92	53.53
	131.000	455.00	0.00	0.00	846.50	330.00	849.77	0.00	849.79	15.59	1.13	352.26	83.57
	131.000	455.00	0.00	0.00	846.50	480.00	850.30	0.00	850.31	13.15	1.11	492.20	132.38
	131.000	455.00	0.00	0.00	846.50	570.00	850.56	0.00	850.58	12.11	1.13	569.56	163.79
	131.000	455.00	0.00	0.00	846.50	780.00	851.11	0.00	851.13	10.25	1.18	744.60	243.65
	132.200	525.00	0.00	0.00	849.10	330.00	851.66	851.63	852.15	341.50	6.17	72.78	17.86
*	132.200	525.00	0.00	0.00	849.10	480.00	851.96	851.96	852.57	385.69	7.07	94.81	24.44
*	132.200	525.00	0.00	0.00	849.10	570.00	852.12	852.12	852.78	393.30	7.43	108.32	28.74
*	132.200	525.00	0.00	0.00	849.10	780.00	852.46	852.46	853.20	406.68	8.11	137.76	38.68
	132.400	130.00	0.00	0.00	849.40	330.00	853.26	0.00	853.33	33.45	2.55	187.81	57.06
	132.400	130.00	0.00	0.00	849.40	480.00	853.78	0.00	853.87	35.52	2.85	246.55	80.54
	132.400	130.00	0.00	0.00	849.40	570.00	854.04	0.00	854.14	37.16	2.98	278.88	93.50
	132.400	130.00	0.00	0.00	849.40	780.00	854.56	0.00	854.66	39.50	3.15	350.43	124.10
	132.600	31.00	856.10	852.50	849.60	330.00	856.61	0.00	856.61	1.07	.67	744.24	318.66
	132.600	31.00	856.10	852.50	849.60	480.00	856.89	0.00	856.90	1.74	.89	819.40	363.76
	132.600	31.00	856.10	852.50	849.60	570.00	857.04	0.00	857.05	2.15	1.01	858.73	388.71
	132.600	31.00	856.10	852.50	849.60	780.00	857.34	0.00	857.35	3.13	1.26	936.95	440.58
	133.000	60.00	0.00	0.00	851.00	330.00	856.62	0.00	856.63	4.71	1.25	403.60	152.04
	133.000	60.00	0.00	0.00	851.00	480.00	856.90	0.00	856.92	6.48	1.53	477.30	188.51
	133.000	60.00	0.00	0.00	851.00	570.00	857.05	0.00	857.08	7.40	1.67	518.93	209.54
	133.000	60.00	0.00	0.00	851.00	780.00	857.36	0.00	857.39	9.23	1.95	610.24	256.77
	133.100	8.00	855.80	855.20	851.00	330.00	856.68	0.00	856.69	4.24	1.20	420.25	160.20
	133.100	8.00	855.80	855.20	851.00	480.00	856.98	0.00	857.00	5.73	1.46	501.17	200.53
	133.100	8.00	855.80	855.20	851.00	570.00	857.14	0.00	857.16	6.57	1.59	544.20	222.46
	133.100	8.00	855.80	855.20	851.00	780.00	857.47	0.00	857.50	8.03	1.84	645.22	275.26
	134.000	180.00	0.00	0.00	852.80	330.00	856.84	856.80	857.18	154.52	5.18	96.81	26.55
	134.000	180.00	0.00	0.00	852.80	480.00	857.21	0.00	857.45	112.24	4.84	160.14	45.31
	134.000	180.00	0.00	0.00	852.80	570.00	857.40	0.00	857.61	98.39	4.72	194.09	57.46
	134.000	180.00	0.00	0.00	852.80	780.00	857.77	0.00	857.96	82.09	4.65	264.10	86.09

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	134.100	26.00	857.60	855.20	852.80	330.00	858.41	0.00	858.42	4.74	1.25	402.76	151.63
	134.100	26.00	857.60	855.20	852.80	480.00	858.78	0.00	858.80	5.72	1.45	501.57	200.73
	134.100	26.00	857.60	855.20	852.80	570.00	858.98	0.00	859.00	6.20	1.56	556.71	228.90
	134.100	26.00	857.60	855.20	852.80	780.00	859.40	0.00	859.42	6.83	1.73	687.47	298.54
	135.000	85.00	0.00	0.00	852.90	330.00	858.45	0.00	858.46	5.26	1.30	386.98	143.95
	135.000	85.00	0.00	0.00	852.90	480.00	858.83	0.00	858.85	6.22	1.50	485.08	192.42
	135.000	85.00	0.00	0.00	852.90	570.00	859.04	0.00	859.06	6.60	1.60	542.97	221.83
	135.000	85.00	0.00	0.00	852.90	780.00	859.46	0.00	859.48	7.19	1.76	673.83	290.88
	135.100	32.00	857.20	855.70	852.90	330.00	858.59	0.00	858.60	4.15	1.18	424.05	162.06
	135.100	32.00	857.20	855.70	852.90	480.00	859.01	0.00	859.03	4.77	1.35	539.12	219.85
	135.100	32.00	857.20	855.70	852.90	570.00	859.24	0.00	859.26	4.97	1.43	607.94	255.57
	135.100	32.00	857.20	855.70	852.90	780.00	859.72	0.00	859.74	5.23	1.56	760.29	340.93
	136.000	450.00	0.00	0.00	856.50	330.00	859.04	0.00	859.24	203.56	5.16	125.18	23.13
	136.000	450.00	0.00	0.00	856.50	480.00	859.53	0.00	859.68	129.22	4.77	194.59	42.23
	136.000	450.00	0.00	0.00	856.50	570.00	859.77	0.00	859.91	109.33	4.68	233.22	54.51
	136.000	450.00	0.00	0.00	856.50	780.00	860.25	0.00	860.39	89.59	4.71	312.66	82.41
	136.100	470.00	0.00	0.00	860.20	330.00	863.12	0.00	863.23	45.97	2.77	133.25	48.67
	136.100	470.00	0.00	0.00	860.20	480.00	863.45	0.00	863.63	58.66	3.43	163.20	62.67
	136.100	470.00	0.00	0.00	860.20	570.00	863.63	0.00	863.84	65.16	3.77	179.88	70.61
	136.100	470.00	0.00	0.00	860.20	780.00	864.01	0.00	864.29	74.97	4.41	219.87	90.09
	137.300	130.00	0.00	0.00	861.30	330.00	863.96	0.00	864.20	122.11	3.95	83.59	29.86
	137.300	130.00	0.00	0.00	861.30	480.00	864.43	0.00	864.75	121.76	4.57	105.05	43.50
	137.300	130.00	0.00	0.00	861.30	570.00	864.63	0.00	864.90	99.98	4.37	166.53	57.00
	137.300	130.00	0.00	0.00	861.30	780.00	865.09	0.00	865.38	94.31	4.74	238.29	80.32
	137.700	14.00	865.40	864.60	861.30	330.00	864.00	0.00	864.51	170.64	5.70	57.92	25.26
	137.700	14.00	865.40	864.60	861.30	480.00	865.94	0.00	865.96	4.94	1.42	590.00	216.05
	137.700	14.00	865.40	864.60	861.30	570.00	866.09	0.00	866.11	6.04	1.60	620.10	232.00
	137.700	14.00	865.40	864.60	861.30	780.00	866.38	0.00	866.40	8.76	2.01	677.95	263.51
	137.800	200.00	0.00	0.00	863.00	330.00	865.73	0.00	865.78	31.18	2.45	239.34	59.10
	137.800	200.00	0.00	0.00	863.00	480.00	866.12	0.00	866.18	33.19	2.78	304.30	83.31
	137.800	200.00	0.00	0.00	863.00	570.00	866.29	0.00	866.36	35.48	2.99	335.06	95.69
	137.800	200.00	0.00	0.00	863.00	780.00	866.66	0.00	866.75	39.99	3.42	399.59	123.35
	138.000	175.00	0.00	0.00	864.50	330.00	866.60	0.00	866.75	114.75	3.90	145.49	30.81
	138.000	175.00	0.00	0.00	864.50	480.00	867.00	0.00	867.16	104.66	4.22	203.25	46.92
	138.000	175.00	0.00	0.00	864.50	570.00	867.20	0.00	867.36	97.69	4.31	235.24	57.67
	138.000	175.00	0.00	0.00	864.50	780.00	867.61	0.00	867.77	88.73	4.54	303.01	82.81
	138.200	100.00	0.00	0.00	865.30	330.00	867.58	0.00	867.68	76.82	3.39	170.64	37.65
	138.200	100.00	0.00	0.00	865.30	480.00	867.94	0.00	868.06	78.58	3.80	225.01	54.15
	138.200	100.00	0.00	0.00	865.30	570.00	868.11	0.00	868.24	80.10	4.01	252.24	63.69
	138.200	100.00	0.00	0.00	865.30	780.00	868.47	0.00	868.62	81.39	4.40	312.25	86.46
	138.500	200.00	0.00	0.00	867.10	330.00	870.22	0.00	871.02	479.05	7.17	46.00	15.08
*	138.500	200.00	0.00	0.00	867.10	480.00	870.73	870.73	871.69	498.99	7.86	61.11	21.49
*	138.500	200.00	0.00	0.00	867.10	570.00	871.01	871.01	872.03	487.12	8.07	70.64	25.83
*	138.500	200.00	0.00	0.00	867.10	780.00	871.57	871.57	872.69	466.35	8.50	91.77	36.12

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	139.200	200.00	0.00	0.00	868.60	330.00	873.43	0.00	873.57	55.92	3.08	107.13	44.13
	139.200	200.00	0.00	0.00	868.60	480.00	874.14	0.00	874.32	57.02	3.39	141.79	63.56
	139.200	200.00	0.00	0.00	868.60	570.00	874.48	0.00	874.68	58.25	3.55	160.37	74.68
	139.200	200.00	0.00	0.00	868.60	780.00	875.17	0.00	875.40	60.76	3.89	200.41	100.07
	139.300	140.00	0.00	0.00	870.30	330.00	874.48	0.00	874.74	117.74	4.11	80.28	30.41
	139.300	140.00	0.00	0.00	870.30	480.00	875.18	0.00	875.48	112.02	4.39	109.42	45.35
	139.300	140.00	0.00	0.00	870.30	570.00	875.53	0.00	875.84	109.73	4.53	125.87	54.42
	139.300	140.00	0.00	0.00	870.30	780.00	876.22	0.00	876.57	105.21	4.80	162.60	76.04
	139.700	200.00	878.80	874.70	870.30	330.00	875.97	0.00	876.04	23.93	2.22	148.39	67.46
	139.700	200.00	878.80	874.70	870.30	480.00	878.45	0.00	878.49	6.29	1.56	307.07	191.41
	139.700	200.00	878.80	874.70	870.30	570.00	879.03	0.00	879.07	5.60	1.60	403.49	240.79
	139.700	200.00	878.80	874.70	870.30	780.00	879.43	0.00	879.48	7.71	1.97	493.50	280.92
	139.800	30.00	0.00	0.00	870.20	300.00	876.07	0.00	876.07	.15	.27	1097.18	784.03
	139.800	30.00	0.00	0.00	870.20	445.00	878.50	0.00	878.50	.10	.28	1583.06	1422.38
	139.800	30.00	0.00	0.00	870.20	525.00	879.08	0.00	879.09	.11	.31	1699.49	1595.17
	139.800	30.00	0.00	0.00	870.20	730.00	879.50	0.00	879.51	.18	.41	1783.36	1724.03
	140.000	925.00	0.00	0.00	872.36	300.00	876.11	0.00	876.11	2.45	.83	649.99	191.68
	140.000	925.00	0.00	0.00	872.36	445.00	878.52	0.00	878.52	.56	.57	1393.53	596.19
	140.000	925.00	0.00	0.00	872.36	525.00	879.10	0.00	879.11	.52	.58	1596.17	729.30
	140.000	925.00	0.00	0.00	872.36	730.00	879.53	0.00	879.54	.76	.74	1750.91	835.96
*	141.000	1100.00	0.00	0.00	877.00	300.00	877.96	877.96	878.24	925.40	6.44	81.20	9.86
	141.000	1100.00	0.00	0.00	877.00	445.00	878.67	0.00	878.77	155.06	3.96	200.16	35.74
	141.000	1100.00	0.00	0.00	877.00	525.00	879.26	0.00	879.31	55.41	2.92	318.14	70.53
	141.000	1100.00	0.00	0.00	877.00	730.00	879.76	0.00	879.81	43.98	2.99	428.43	110.07
	142.200	800.00	0.00	0.00	880.40	300.00	882.69	0.00	882.71	17.93	1.59	363.87	70.84
	142.200	800.00	0.00	0.00	880.40	445.00	882.88	0.00	882.90	25.39	2.01	418.51	88.32
	142.200	800.00	0.00	0.00	880.40	525.00	882.85	0.00	882.89	36.76	2.41	413.30	86.59
	142.200	800.00	0.00	0.00	880.40	730.00	883.15	0.00	883.19	40.57	2.74	493.14	114.62
	142.300	120.00	0.00	0.00	880.20	300.00	882.84	0.00	882.85	8.43	1.21	461.96	103.30
	142.300	120.00	0.00	0.00	880.20	445.00	883.09	0.00	883.10	11.88	1.54	531.33	129.10
	142.300	120.00	0.00	0.00	880.20	525.00	883.15	0.00	883.16	15.20	1.76	545.57	134.67
	142.300	120.00	0.00	0.00	880.20	730.00	883.48	0.00	883.51	17.56	2.05	640.85	174.23
	142.700	41.00	885.23	883.33	880.23	300.00	885.34	0.00	885.38	8.28	1.85	248.85	104.23
	142.700	41.00	885.23	883.33	880.23	445.00	885.60	0.00	885.67	14.02	2.50	277.26	118.84
	142.700	41.00	885.23	883.33	880.23	525.00	885.70	0.00	885.79	17.81	2.86	287.80	124.39
	142.700	41.00	885.23	883.33	880.23	730.00	885.92	0.00	886.07	28.09	3.70	312.67	137.74
	142.800	35.00	884.20	883.20	880.23	300.00	885.39	0.00	885.45	68.22	2.22	190.11	36.32
	142.800	35.00	884.20	883.20	880.23	445.00	885.70	0.00	885.79	98.29	2.81	223.12	44.88
	142.800	35.00	884.20	883.20	880.23	525.00	885.82	0.00	885.93	116.62	3.12	236.73	48.61
	142.800	35.00	884.20	883.20	880.23	730.00	886.11	0.00	886.26	156.30	3.78	270.09	58.39
	142.810	12.00	884.20	883.20	880.23	300.00	885.48	0.00	885.53	60.48	2.12	199.08	38.58
	142.810	12.00	884.20	883.20	880.23	445.00	885.82	0.00	885.90	83.71	2.64	236.81	48.64
	142.810	12.00	884.20	883.20	880.23	525.00	885.97	0.00	886.06	96.91	2.91	253.38	53.33
	142.810	12.00	884.20	883.20	880.23	730.00	886.31	0.00	886.44	122.82	3.45	293.47	65.87

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
142.820	15.00	881.80	880.35	880.33	300.00	885.50	0.00	885.56	7.28	2.33	230.80	111.22
142.820	15.00	881.80	880.35	880.33	445.00	885.85	0.00	885.95	11.11	3.03	268.78	133.50
142.820	15.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.36	3.39	285.55	143.61
142.820	15.00	881.80	880.35	880.33	730.00	886.35	0.00	886.53	18.64	4.19	325.97	169.06
142.830	1.00	881.80	880.35	880.33	300.00	885.50	0.00	885.56	7.25	2.32	231.15	111.42
142.830	1.00	881.80	880.35	880.33	445.00	885.85	0.00	885.95	11.06	3.02	269.30	133.82
142.830	1.00	881.80	880.35	880.33	525.00	886.00	0.00	886.12	13.29	3.39	286.17	143.99
142.830	1.00	881.80	880.35	880.33	730.00	886.35	0.00	886.53	18.53	4.18	326.78	169.58
142.840	100.00	883.40	881.40	881.50	300.00	885.65	0.00	885.74	59.47	2.98	152.26	38.90
142.840	100.00	883.40	881.40	881.50	445.00	886.06	0.00	886.18	64.44	3.45	202.20	55.43
142.840	100.00	883.40	881.40	881.50	525.00	886.25	0.00	886.38	66.01	3.63	227.72	64.62
142.840	100.00	883.40	881.40	881.50	730.00	886.73	0.00	886.86	63.24	3.90	303.55	91.80
142.850	1.00	883.40	881.40	881.50	300.00	885.65	0.00	885.74	59.13	2.98	152.62	39.01
142.850	1.00	883.40	881.40	881.50	445.00	886.07	0.00	886.19	64.06	3.44	202.66	55.60
142.850	1.00	883.40	881.40	881.50	525.00	886.26	0.00	886.38	65.63	3.63	228.25	64.81
142.850	1.00	883.40	881.40	881.50	730.00	886.73	0.00	886.87	63.13	3.90	303.76	91.88
142.860	80.00	0.00	0.00	882.60	300.00	886.06	0.00	886.27	53.86	3.68	81.44	40.88
142.860	80.00	0.00	0.00	882.60	445.00	886.49	0.00	886.66	47.69	3.77	171.32	64.44
142.860	80.00	0.00	0.00	882.60	525.00	886.69	0.00	886.90	51.81	4.07	192.98	72.94
142.860	80.00	0.00	0.00	882.60	730.00	887.17	0.00	887.42	58.03	4.65	249.60	95.83
142.870	20.00	886.50	886.00	882.60	300.00	887.00	0.00	887.05	11.86	2.05	228.62	87.11
142.870	20.00	886.50	886.00	882.60	445.00	887.30	0.00	887.38	18.67	2.69	266.39	103.00
142.870	20.00	886.50	886.00	882.60	525.00	887.43	0.00	887.53	22.35	3.00	285.52	111.05
142.870	20.00	886.50	886.00	882.60	730.00	887.76	0.00	887.90	30.10	3.65	338.50	133.06
142.900	90.00	0.00	0.00	883.30	300.00	887.13	0.00	887.22	23.11	2.60	166.13	62.41
142.900	90.00	0.00	0.00	883.30	445.00	887.49	0.00	887.63	33.06	3.31	204.25	77.39
142.900	90.00	0.00	0.00	883.30	525.00	887.66	0.00	887.82	37.95	3.64	223.90	85.22
142.900	90.00	0.00	0.00	883.30	730.00	888.07	0.00	888.27	46.34	4.28	276.43	107.23
142.910	15.00	886.60	885.70	883.30	300.00	887.23	0.00	887.31	20.43	2.49	176.26	66.37
142.910	15.00	886.60	885.70	883.30	445.00	887.54	0.00	887.66	31.41	3.25	209.30	79.40
142.910	15.00	886.60	885.70	883.30	525.00	887.68	0.00	887.84	37.11	3.61	226.31	86.19
142.910	15.00	886.60	885.70	883.30	730.00	888.07	0.00	888.27	46.22	4.28	276.77	107.38
142.930	6.00	885.70	883.20	883.30	300.00	887.23	0.00	887.39	182.96	4.08	109.26	22.18
142.930	6.00	885.70	883.20	883.30	445.00	887.54	0.00	887.76	192.52	4.72	144.44	32.07
142.930	6.00	885.70	883.20	883.30	525.00	887.69	0.00	887.93	198.12	5.02	162.11	37.30
142.930	6.00	885.70	883.20	883.30	730.00	888.09	0.00	888.35	179.77	5.34	214.38	54.45
142.940	1.00	885.70	883.20	883.30	300.00	887.25	0.00	887.41	175.84	4.02	110.90	22.62
142.940	1.00	885.70	883.20	883.30	445.00	887.56	0.00	887.78	191.47	4.71	144.74	32.16
142.940	1.00	885.70	883.20	883.30	525.00	887.72	0.00	887.95	194.36	4.99	163.30	37.66
142.940	1.00	885.70	883.20	883.30	730.00	888.12	0.00	888.37	174.76	5.29	216.69	55.22
143.200	350.00	0.00	0.00	887.30	300.00	890.57	0.00	890.69	57.93	3.40	151.07	39.41
143.200	350.00	0.00	0.00	887.30	445.00	891.01	0.00	891.14	57.51	3.76	209.04	58.68
143.200	350.00	0.00	0.00	887.30	525.00	891.21	0.00	891.35	57.76	3.93	237.82	69.08
143.200	350.00	0.00	0.00	887.30	730.00	891.61	0.00	891.78	61.67	4.38	298.86	92.96

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	143.210	30.00	889.00	887.20	887.20	300.00	890.85	0.00	890.91	75.08	2.48	172.42	34.62
	143.210	30.00	889.00	887.20	887.20	445.00	891.29	0.00	891.35	67.03	2.70	235.50	54.35
	143.210	30.00	889.00	887.20	887.20	525.00	891.48	0.00	891.55	65.10	2.81	266.03	65.07
	143.210	30.00	889.00	887.20	887.20	730.00	891.91	0.00	891.99	64.66	3.11	331.03	90.78
	143.220	1.00	889.00	887.20	887.20	300.00	890.86	0.00	890.91	73.94	2.47	173.33	34.89
	143.220	1.00	889.00	887.20	887.20	445.00	891.29	0.00	891.36	66.27	2.69	236.43	54.66
	143.220	1.00	889.00	887.20	887.20	525.00	891.49	0.00	891.56	64.42	2.80	266.96	65.41
	143.220	1.00	889.00	887.20	887.20	730.00	891.91	0.00	892.00	64.08	3.11	332.00	91.19
*	143.700	140.00	0.00	0.00	887.50	300.00	891.54	889.96	891.58	15.51	2.09	256.84	76.17
	143.700	140.00	0.00	0.00	887.50	445.00	891.81	0.00	891.87	23.33	2.69	297.05	92.12
	143.700	140.00	0.00	0.00	887.50	525.00	892.02	0.00	892.09	24.48	2.86	329.85	106.11
	143.700	140.00	0.00	0.00	887.50	730.00	892.47	0.00	892.56	27.15	3.24	403.26	140.09
	143.750	35.00	892.60	890.82	887.50	300.00	892.95	0.00	892.97	6.35	1.09	274.99	119.08
	143.750	35.00	892.60	890.82	887.50	445.00	893.17	0.00	893.21	11.47	1.49	298.41	131.39
	143.750	35.00	892.60	890.82	887.50	525.00	893.28	0.00	893.32	14.43	1.69	311.13	138.23
	143.750	35.00	892.60	890.82	887.50	730.00	893.51	0.00	893.58	22.47	2.15	339.81	153.99
*	143.760	10.00	0.00	0.00	891.00	300.00	892.95	892.95	893.50	585.33	5.98	50.14	12.40
*	143.760	10.00	0.00	0.00	891.00	445.00	893.30	893.30	893.98	545.52	6.61	67.31	19.05
*	143.760	10.00	0.00	0.00	891.00	525.00	893.47	893.47	894.21	530.63	6.89	76.22	22.79
*	143.760	10.00	0.00	0.00	891.00	730.00	893.88	893.88	894.72	490.19	7.36	99.16	32.97
	143.800	110.00	0.00	0.00	891.20	300.00	894.73	0.00	894.84	48.65	2.66	112.71	43.01
	143.800	110.00	0.00	0.00	891.20	445.00	895.29	0.00	895.44	55.55	3.06	145.41	59.71
	143.800	110.00	0.00	0.00	891.20	525.00	895.55	0.00	895.71	58.41	3.24	162.02	68.69
	143.800	110.00	0.00	0.00	891.20	730.00	896.15	0.00	896.35	66.20	3.53	206.68	89.72
	144.300	325.00	0.00	0.00	894.50	300.00	897.30	0.00	897.54	154.80	3.96	75.84	24.11
	144.300	325.00	0.00	0.00	894.50	445.00	897.89	0.00	898.17	128.08	4.23	105.19	39.32
	144.300	325.00	0.00	0.00	894.50	525.00	898.19	0.00	898.48	123.00	4.32	121.45	47.34
	144.300	325.00	0.00	0.00	894.50	730.00	898.87	0.00	899.18	111.11	4.48	163.04	69.25
	144.700	71.00	901.20	897.00	894.50	300.00	901.82	0.00	901.83	2.59	.86	347.95	186.52
	144.700	71.00	901.20	897.00	894.50	445.00	902.08	0.00	902.10	4.73	1.19	373.07	204.64
	144.700	71.00	901.20	897.00	894.50	525.00	902.19	0.00	902.22	6.03	1.36	385.52	213.77
	144.700	71.00	901.20	897.00	894.50	730.00	902.47	0.00	902.52	9.59	1.76	414.98	235.77
	145.000	160.00	0.00	0.00	896.40	300.00	901.88	0.00	901.92	13.14	1.59	188.67	82.76
	145.000	160.00	0.00	0.00	896.40	445.00	902.18	0.00	902.25	21.42	2.11	211.27	96.16
	145.000	160.00	0.00	0.00	896.40	525.00	902.33	0.00	902.42	25.88	2.36	222.85	103.20
	145.000	160.00	0.00	0.00	896.40	730.00	902.68	0.00	902.81	36.29	2.90	251.50	121.17
	146.300	185.00	0.00	0.00	898.60	300.00	902.38	0.00	902.57	105.35	3.50	85.74	29.23
	146.300	185.00	0.00	0.00	898.60	445.00	902.91	0.00	903.15	111.14	3.92	113.38	42.21
	146.300	185.00	0.00	0.00	898.60	525.00	903.17	0.00	903.43	112.15	4.10	128.07	49.57
	146.300	185.00	0.00	0.00	898.60	730.00	903.74	0.00	904.04	112.57	4.45	164.11	68.81
	146.700	100.00	905.00	900.50	898.60	300.00	905.46	0.00	905.46	.51	.48	1005.25	421.03
	146.700	100.00	905.00	900.50	898.60	445.00	905.63	0.00	905.64	.96	.67	1065.28	455.22
	146.700	100.00	905.00	900.50	898.60	525.00	905.72	0.00	905.73	1.23	.77	1095.02	472.85
	146.700	100.00	905.00	900.50	898.60	730.00	905.93	0.00	905.94	2.00	1.01	1165.54	515.99

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
146.800	60.00	0.00	0.00	899.00	300.00	905.46	0.00	905.46	.73	.54	877.44	350.35
146.800	60.00	0.00	0.00	899.00	445.00	905.64	0.00	905.65	1.36	.76	934.09	381.38
146.800	60.00	0.00	0.00	899.00	525.00	905.73	0.00	905.74	1.75	.87	962.54	397.14
146.800	60.00	0.00	0.00	899.00	730.00	905.94	0.00	905.95	2.80	1.13	1031.62	435.90
146.900	90.00	905.90	904.20	899.00	300.00	905.47	0.00	905.49	20.76	1.28	233.63	65.84
146.900	90.00	905.90	904.20	899.00	445.00	905.65	0.00	905.71	45.69	1.90	233.63	65.84
146.900	90.00	905.90	904.20	899.00	525.00	905.74	0.00	905.82	63.59	2.25	233.63	65.84
146.900	90.00	905.90	904.20	899.00	730.00	905.96	0.00	906.10	226.45	3.02	241.53	48.51
146.910	32.00	905.90	904.20	899.00	300.00	905.53	0.00	905.56	20.76	1.28	233.63	65.84
146.910	32.00	905.90	904.20	899.00	445.00	905.80	0.00	905.85	45.69	1.90	233.63	65.84
146.910	32.00	905.90	904.20	899.00	525.00	906.01	0.00	906.08	107.23	2.12	248.31	50.70
146.910	32.00	905.90	904.20	899.00	730.00	906.49	0.00	906.57	97.60	2.34	321.83	73.89
147.000	310.00	0.00	0.00	900.70	300.00	906.14	0.00	906.21	20.24	2.13	191.79	66.68
147.000	310.00	0.00	0.00	900.70	445.00	906.69	0.00	906.76	20.00	2.37	280.36	99.49
147.000	310.00	0.00	0.00	900.70	525.00	907.08	0.00	907.14	16.61	2.32	351.91	128.82
147.000	310.00	0.00	0.00	900.70	730.00	907.58	0.00	907.65	17.80	2.60	452.01	173.03
148.000	1125.00	0.00	0.00	910.30	300.00	911.54	0.00	911.73	242.96	3.55	84.61	19.25
148.000	1125.00	0.00	0.00	910.30	445.00	911.87	911.50	912.10	216.83	3.83	116.25	30.22
148.000	1125.00	0.00	0.00	910.30	525.00	911.85	0.00	912.18	321.08	4.62	113.73	29.30
148.000	1125.00	0.00	0.00	910.30	730.00	912.30	0.00	912.62	227.37	4.49	162.73	48.41
149.000	1025.00	0.00	0.00	913.20	300.00	917.32	0.00	917.36	23.46	2.24	238.11	61.94
149.000	1025.00	0.00	0.00	913.20	445.00	917.81	0.00	917.86	25.06	2.57	310.25	88.89
149.000	1025.00	0.00	0.00	913.20	525.00	918.12	0.00	918.17	23.30	2.62	359.87	108.76
149.000	1025.00	0.00	0.00	913.20	730.00	918.58	0.00	918.65	26.15	3.01	439.86	142.75
150.000	825.00	0.00	0.00	917.80	300.00	921.15	0.00	921.50	155.51	4.72	63.59	24.06
150.000	825.00	0.00	0.00	917.80	445.00	921.81	0.00	922.25	158.50	5.27	84.43	35.35
150.000	825.00	0.00	0.00	917.80	525.00	922.00	0.00	922.52	180.75	5.78	90.86	39.05
150.000	825.00	0.00	0.00	917.80	730.00	922.65	0.00	923.26	162.32	6.33	126.21	57.30

BLOOMFIELD TOWNSHIP FIS

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	130.900	330.00	847.80	0.00	0.00	0.00	37.80	0.00
	130.900	480.00	848.20	.40	0.00	0.00	50.00	0.00
	130.900	570.00	848.40	.20	0.00	0.00	50.00	0.00
	130.900	780.00	848.80	.40	0.00	0.00	50.00	0.00
	131.000	330.00	849.77	0.00	1.97	0.00	243.28	455.00
	131.000	480.00	850.30	.53	2.10	0.00	285.54	455.00
	131.000	570.00	850.56	.27	2.16	0.00	301.60	455.00
	131.000	780.00	851.11	.55	2.31	0.00	330.08	455.00
	132.200	330.00	851.66	0.00	1.89	0.00	72.05	525.00
*	132.200	480.00	851.96	.30	1.66	0.00	79.64	525.00
*	132.200	570.00	852.12	.17	1.56	0.00	83.96	525.00
*	132.200	780.00	852.46	.33	1.34	0.00	92.67	525.00
	132.400	330.00	853.26	0.00	1.60	0.00	105.86	130.00
	132.400	480.00	853.78	.52	1.82	0.00	119.48	130.00
	132.400	570.00	854.04	.26	1.92	0.00	127.09	130.00
	132.400	780.00	854.56	.51	2.10	0.00	148.94	130.00
	132.600	330.00	856.61	0.00	3.35	0.00	264.00	31.00
	132.600	480.00	856.89	.28	3.11	0.00	264.00	31.00
	132.600	570.00	857.04	.15	2.99	0.00	264.00	31.00
	132.600	780.00	857.34	.30	2.78	0.00	264.00	31.00
	133.000	330.00	856.62	0.00	.01	0.00	244.01	60.00
	133.000	480.00	856.90	.29	.01	0.00	270.94	60.00
	133.000	570.00	857.05	.15	.01	0.00	285.03	60.00
	133.000	780.00	857.36	.30	.02	0.00	313.72	60.00
	133.100	330.00	856.68	0.00	.06	0.00	250.35	8.00
	133.100	480.00	856.98	.30	.08	0.00	279.11	8.00
	133.100	570.00	857.14	.16	.09	0.00	293.25	8.00
	133.100	780.00	857.47	.33	.11	0.00	324.04	8.00
	134.000	330.00	856.84	0.00	.16	0.00	158.41	180.00
	134.000	480.00	857.21	.37	.23	0.00	176.19	180.00
	134.000	570.00	857.40	.19	.26	0.00	183.07	180.00
	134.000	780.00	857.77	.37	.30	0.00	196.49	180.00
	134.100	330.00	858.41	0.00	1.57	0.00	243.69	26.00
	134.100	480.00	858.78	.38	1.57	0.00	279.24	26.00
	134.100	570.00	858.98	.20	1.58	0.00	297.24	26.00
	134.100	780.00	859.40	.41	1.63	0.00	329.53	26.00
	135.000	330.00	858.45	0.00	.04	0.00	237.52	85.00
	135.000	480.00	858.83	.38	.05	0.00	273.63	85.00
	135.000	570.00	859.04	.20	.05	0.00	292.86	85.00
	135.000	780.00	859.46	.42	.06	0.00	328.50	85.00
	135.100	330.00	858.59	0.00	.14	0.00	251.77	32.00
	135.100	480.00	859.01	.42	.18	0.00	291.62	32.00

135.100	570.00	859.24	.23	.21	0.00	313.03	32.00
135.100	780.00	859.72	.47	.26	0.00	334.98	32.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	136.000	330.00	859.04	0.00	.45	0.00	129.47	450.00
	136.000	480.00	859.53	.49	.51	0.00	151.25	450.00
	136.000	570.00	859.77	.24	.52	0.00	159.32	450.00
	136.000	780.00	860.25	.48	.53	0.00	174.74	450.00
	136.100	330.00	863.12	0.00	4.08	0.00	83.58	470.00
	136.100	480.00	863.45	.34	3.93	0.00	93.71	470.00
	136.100	570.00	863.63	.18	3.87	0.00	98.91	470.00
	136.100	780.00	864.01	.38	3.77	0.00	110.80	470.00
	137.300	330.00	863.96	0.00	.84	0.00	44.68	130.00
	137.300	480.00	864.43	.47	.97	0.00	45.00	130.00
	137.300	570.00	864.63	.21	1.00	0.00	133.00	130.00
	137.300	780.00	865.09	.46	1.08	0.00	182.71	130.00
	137.700	330.00	864.00	0.00	.04	0.00	23.00	14.00
	137.700	480.00	865.94	1.94	1.52	0.00	202.47	14.00
	137.700	570.00	866.09	.15	1.46	0.00	205.57	14.00
	137.700	780.00	866.38	.29	1.28	0.00	211.40	14.00
	137.800	330.00	865.73	0.00	1.72	0.00	162.07	200.00
	137.800	480.00	866.12	.39	.17	0.00	170.28	200.00
	137.800	570.00	866.29	.18	.21	0.00	174.03	200.00
	137.800	780.00	866.66	.36	.28	0.00	181.65	200.00
	138.000	330.00	866.60	0.00	.88	0.00	134.38	175.00
	138.000	480.00	867.00	.40	.89	0.00	157.32	175.00
	138.000	570.00	867.20	.20	.91	0.00	161.54	175.00
	138.000	780.00	867.61	.41	.95	0.00	170.12	175.00
	138.200	330.00	867.58	0.00	.97	0.00	144.83	100.00
	138.200	480.00	867.94	.36	.94	0.00	160.20	100.00
	138.200	570.00	868.11	.17	.91	0.00	163.73	100.00
	138.200	780.00	868.47	.36	.86	0.00	171.26	100.00
	138.500	330.00	870.22	0.00	2.65	0.00	26.93	200.00
*	138.500	480.00	870.73	.51	2.79	0.00	32.27	200.00
*	138.500	570.00	871.01	.28	2.91	0.00	35.23	200.00
*	138.500	780.00	871.57	.55	3.10	0.00	41.02	200.00
	139.200	330.00	873.43	0.00	3.20	0.00	44.77	200.00
	139.200	480.00	874.14	.71	3.41	0.00	52.25	200.00
	139.200	570.00	874.48	.35	3.47	0.00	55.84	200.00
	139.200	780.00	875.17	.68	3.60	0.00	62.90	200.00
	139.300	330.00	874.48	0.00	1.05	0.00	37.98	140.00
	139.300	480.00	875.18	.70	1.04	0.00	45.30	140.00
	139.300	570.00	875.53	.35	1.04	0.00	48.96	140.00
	139.300	780.00	876.22	.69	1.05	0.00	56.26	140.00
	139.700	330.00	875.97	0.00	1.49	0.00	53.55	200.00
	139.700	480.00	878.45	2.48	3.27	0.00	68.90	200.00
	139.700	570.00	879.03	.58	3.51	0.00	195.93	200.00
	139.700	780.00	879.43	.39	3.21	0.00	260.66	200.00

SECNO	Q	CHSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
139.800	300.00	876.07	0.00	.11	0.00	200.00	30.00
139.800	445.00	878.50	2.43	.05	0.00	200.00	30.00
139.800	525.00	879.08	.58	.05	0.00	200.00	30.00
139.800	730.00	879.50	.42	.08	0.00	200.00	30.00
140.000	300.00	876.11	0.00	.03	0.00	272.50	925.00
140.000	445.00	878.52	2.41	.02	0.00	340.66	925.00
140.000	525.00	879.10	.58	.02	0.00	354.35	925.00
140.000	730.00	879.53	.43	.03	0.00	364.45	925.00
* 141.000	300.00	877.96	0.00	1.85	0.00	140.60	1100.00
141.000	445.00	878.67	.71	.15	0.00	187.63	1100.00
141.000	525.00	879.26	.59	.15	0.00	212.08	1100.00
141.000	730.00	879.76	.50	.23	0.00	226.80	1100.00
142.200	300.00	882.69	0.00	4.74	0.00	273.75	800.00
142.200	445.00	882.88	.18	4.21	0.00	275.03	800.00
142.200	525.00	882.85	-.02	3.60	0.00	274.91	800.00
142.200	730.00	883.15	.30	3.39	0.00	276.77	800.00
142.300	300.00	882.84	0.00	.15	0.00	276.04	120.00
142.300	445.00	883.09	.25	.21	0.00	277.65	120.00
142.300	525.00	883.15	.06	.29	0.00	277.98	120.00
142.300	730.00	883.48	.34	.33	0.00	280.18	120.00
142.700	300.00	885.34	0.00	2.49	0.00	105.05	41.00
142.700	445.00	885.60	.27	2.51	0.00	109.03	41.00
142.700	525.00	885.70	.10	2.55	0.00	110.47	41.00
142.700	730.00	885.92	.22	2.44	0.00	113.80	41.00
142.800	300.00	885.39	0.00	.06	0.00	105.90	35.00
142.800	445.00	885.70	.31	.10	0.00	110.48	35.00
142.800	525.00	885.82	.12	.12	0.00	112.31	35.00
142.800	730.00	886.11	.29	.19	0.00	115.84	35.00
142.810	300.00	885.48	0.00	.08	0.00	107.17	12.00
142.810	445.00	885.82	.34	.12	0.00	112.32	12.00
142.810	525.00	885.97	.15	.15	0.00	114.52	12.00
142.810	730.00	886.31	.35	.20	0.00	117.35	12.00
142.820	300.00	885.50	0.00	.02	0.00	105.96	15.00
142.820	445.00	885.85	.35	.03	0.00	111.21	15.00
142.820	525.00	886.00	.15	.03	0.00	113.45	15.00
142.820	730.00	886.35	.35	.03	0.00	116.85	15.00
142.830	300.00	885.50	0.00	.00	0.00	106.01	1.00
142.830	445.00	885.85	.35	.00	0.00	111.28	1.00
142.830	525.00	886.00	.15	.00	0.00	113.53	1.00
142.830	730.00	886.35	.35	.00	0.00	116.90	1.00
142.840	300.00	885.65	0.00	.15	0.00	110.84	100.00
142.840	445.00	886.06	.42	.22	0.00	129.50	100.00
142.840	525.00	886.25	.19	.25	0.00	142.63	100.00
142.840	730.00	886.73	.47	.38	0.00	175.95	100.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	142.850	300.00	885.65	0.00	.01	0.00	110.97	1.00
	142.850	445.00	886.07	.42	.01	0.00	129.75	1.00
	142.850	525.00	886.26	.19	.01	0.00	142.89	1.00
	142.850	730.00	886.73	.47	.01	0.00	176.04	1.00
	142.860	300.00	886.06	0.00	.40	0.00	25.00	80.00
	142.860	445.00	886.49	.43	.41	0.00	100.43	80.00
	142.860	525.00	886.69	.21	.43	0.00	108.72	80.00
	142.860	730.00	887.17	.48	.44	0.00	129.97	80.00
	142.870	300.00	887.00	0.00	.95	0.00	121.12	20.00
	142.870	445.00	887.30	.29	.81	0.00	138.72	20.00
	142.870	525.00	887.43	.13	.74	0.00	148.06	20.00
	142.870	730.00	887.76	.33	.59	0.00	171.28	20.00
	142.900	300.00	887.13	0.00	.13	0.00	98.34	90.00
	142.900	445.00	887.49	.36	.20	0.00	112.79	90.00
	142.900	525.00	887.66	.17	.23	0.00	119.55	90.00
	142.900	730.00	888.07	.40	.31	0.00	143.70	90.00
	142.910	300.00	887.23	0.00	.10	0.00	102.38	15.00
	142.910	445.00	887.54	.30	.04	0.00	114.57	15.00
	142.910	525.00	887.68	.15	.02	0.00	120.36	15.00
	142.910	730.00	888.07	.38	.00	0.00	143.86	15.00
	142.930	300.00	887.23	0.00	-.01	0.00	102.04	6.00
	142.930	445.00	887.54	.32	.00	0.00	115.01	6.00
	142.930	525.00	887.69	.15	.01	0.00	121.00	6.00
	142.930	730.00	888.09	.40	.03	0.00	145.67	6.00
	142.940	300.00	887.25	0.00	.02	0.00	102.68	1.00
	142.940	445.00	887.56	.31	.02	0.00	115.11	1.00
	142.940	525.00	887.72	.16	.02	0.00	121.39	1.00
	142.940	730.00	888.12	.40	.03	0.00	146.78	1.00
	143.200	300.00	890.57	0.00	3.32	0.00	121.68	350.00
	143.200	445.00	891.01	.44	3.45	0.00	139.43	350.00
	143.200	525.00	891.21	.20	3.49	0.00	146.71	350.00
	143.200	730.00	891.61	.41	3.49	0.00	154.00	350.00
	143.210	300.00	890.85	0.00	.28	0.00	137.24	30.00
	143.210	445.00	891.29	.43	.28	0.00	152.97	30.00
	143.210	525.00	891.48	.20	.28	0.00	154.00	30.00
	143.210	730.00	891.91	.42	.29	0.00	154.00	30.00
	143.220	300.00	890.86	0.00	.01	0.00	137.48	1.00
	143.220	445.00	891.29	.43	.01	0.00	153.19	1.00
	143.220	525.00	891.49	.20	.01	0.00	154.00	1.00
	143.220	730.00	891.91	.42	.01	0.00	154.00	1.00
*	143.700	300.00	891.54	0.00	.68	0.00	151.33	140.00
	143.700	445.00	891.81	.27	.52	0.00	155.66	140.00
	143.700	525.00	892.02	.21	.53	0.00	157.92	140.00
	143.700	730.00	892.47	.46	.56	0.00	162.87	140.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	143.750	300.00	892.95	0.00	1.41	0.00	109.80	35.00
	143.750	445.00	893.17	.22	1.36	0.00	116.23	35.00
	143.750	525.00	893.28	.11	1.26	0.00	119.58	35.00
	143.750	730.00	893.51	.23	1.04	0.00	126.80	35.00
*	143.760	300.00	892.95	0.00	-.01	0.00	46.45	10.00
*	143.760	445.00	893.30	.35	.13	0.00	50.91	10.00
*	143.760	525.00	893.47	.17	.19	0.00	53.08	10.00
*	143.760	730.00	893.88	.41	.37	0.00	58.86	10.00
	143.800	300.00	894.73	0.00	1.78	0.00	54.01	110.00
	143.800	445.00	895.29	.56	1.99	0.00	62.38	110.00
	143.800	525.00	895.55	.26	2.08	0.00	66.23	110.00
	143.800	730.00	896.15	.60	2.27	0.00	81.62	110.00
	144.300	300.00	897.30	0.00	2.57	0.00	47.95	325.00
	144.300	445.00	897.89	.59	2.60	0.00	52.00	325.00
	144.300	525.00	898.19	.30	2.64	0.00	56.37	325.00
	144.300	730.00	898.87	.68	2.72	0.00	66.46	325.00
	144.700	300.00	901.82	0.00	4.52	0.00	99.83	71.00
	144.700	445.00	902.08	.25	4.19	0.00	103.44	71.00
	144.700	525.00	902.19	.12	4.01	0.00	105.18	71.00
	144.700	730.00	902.47	.27	3.60	0.00	109.18	71.00
	145.000	300.00	901.88	0.00	.06	0.00	72.96	160.00
	145.000	445.00	902.18	.30	.11	0.00	77.34	160.00
	145.000	525.00	902.33	.15	.14	0.00	79.49	160.00
	145.000	730.00	902.68	.35	.21	0.00	84.58	160.00
	146.300	300.00	902.38	0.00	.50	0.00	48.18	185.00
	146.300	445.00	902.91	.53	.73	0.00	55.92	185.00
	146.300	525.00	903.17	.25	.84	0.00	59.63	185.00
	146.300	730.00	903.74	.57	1.06	0.00	67.87	185.00
	146.700	300.00	905.46	0.00	3.07	0.00	330.76	100.00
	146.700	445.00	905.63	.18	2.72	0.00	338.00	100.00
	146.700	525.00	905.72	.09	2.55	0.00	338.00	100.00
	146.700	730.00	905.93	.20	2.19	0.00	338.00	100.00
	146.800	300.00	905.46	0.00	.00	0.00	310.18	60.00
	146.800	445.00	905.64	.18	.01	0.00	319.46	60.00
	146.800	525.00	905.73	.09	.01	0.00	324.03	60.00
	146.800	730.00	905.94	.21	.01	0.00	334.85	60.00
	146.900	300.00	905.47	0.00	.01	0.00	118.08	90.00
	146.900	445.00	905.65	.18	.01	0.00	122.31	90.00
	146.900	525.00	905.74	.09	.01	0.00	124.40	90.00
	146.900	730.00	905.96	.22	.02	0.00	132.71	90.00
	146.910	300.00	905.53	0.00	.07	0.00	119.63	32.00
	146.910	445.00	905.80	.26	.15	0.00	125.64	32.00
	146.910	525.00	906.01	.21	.27	0.00	136.63	32.00
	146.910	730.00	906.49	.48	.53	0.00	173.53	32.00

SECNO	Q	CWSEL	DIFWSP	DIFKSX	DIFKWS	TOPWID	XLCH
147.000	300.00	906.14	0.00	.61	0.00	152.66	310.00
147.000	445.00	906.69	.54	.89	0.00	174.17	310.00
147.000	525.00	907.08	.39	1.07	0.00	189.77	310.00
147.000	730.00	907.58	.50	1.09	0.00	209.67	310.00
148.000	300.00	911.54	0.00	5.39	0.00	89.27	1125.00
148.000	445.00	911.87	.33	5.19	0.00	100.38	1125.00
148.000	525.00	911.85	-.02	4.77	0.00	99.54	1125.00
148.000	730.00	912.30	.45	4.72	0.00	114.77	1125.00
149.000	300.00	917.32	0.00	5.79	0.00	141.43	1025.00
149.000	445.00	917.81	.49	5.94	0.00	155.85	1025.00
149.000	525.00	918.12	.31	6.27	0.00	165.04	1025.00
149.000	730.00	918.58	.46	6.28	0.00	178.86	1025.00
150.000	300.00	921.15	0.00	3.83	0.00	29.75	825.00
150.000	445.00	921.81	.66	4.00	0.00	33.78	825.00
150.000	525.00	922.00	.19	3.88	0.00	35.08	825.00
150.000	730.00	922.65	.65	4.06	0.00	75.01	825.00

SUMMARY OF ERRORS

CAUTION SECNO= 132.200 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 132.200 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 132.200 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 132.200 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 132.200 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 132.200 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 132.200 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 138.500 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 138.500 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 138.500 PROFILE= 4 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 141.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 141.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 141.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 143.700 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 143.700 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 143.760 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 143.760 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 143.760 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 143.760 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 143.760 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 143.760 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL



1) COUNTY: OAKLAND

2) STUDY NAME: CITY OF BLOOMFIELD HILLS & BLOOMFIELD TOWNSHIP

3) WATERCOURSE: LONG LAKE & FOREST LAKE

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS



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WATER MANAGEMENT

CITY OF BLOOMFIELD HILLS
BLOOMFIED TOWNSHIP
OAKLAND COUNTY
MICHIGAN

FLOOD INSURANCE STUDY

CITY OF BLOOMFIELD HILLS

HYDRAULIC ANALYSIS
REFERENCES
SECNO TABLE
BRIDGE SKETCHES AND CALCULATIONS
SUPPLEMENTAL HAND CALCULATIONS

AUGUST, 1981

JOHNSON & ANDERSON, INC.
2300 DIXIE HIGHWAY
PONTIAC, MICHIGAN 48055

J&A FILE NO. 6504-02-1

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Appendix B - Bridge Sketches and Calculations	
Appendix C - Supplemental Hand Calculations	

HYDRAULIC ANALYSIS

INTRODUCTION

The stream being studied in this analysis is the Quarton Branch of the Rouge River including the Long Lake - Forest Lake Branch, the Sodon Lake Branch, Stoneycroft Branch, Amy Drain, Hamlin Drain and Murphy Drain in the City of Bloomfield Hills, Oakland County, Michigan. The drainage area at the downstream end of the study is 16.7 square miles. The 10-, 50-, 100- and 500- year flood frequency flows were calculated by McNamee, Porter and Seeley using Brater's unit-hydrograph-infiltration capacity method. These flows have been approved by the Michigan Department of Natural Resources (MDNR), Water Management Division. The project manager for this study is Robert Petersen.

METHOD OF ANALYSIS

The flood profiles were calculated by the HEC-2 computer program developed by the Hydraulic Engineering Center of the U.S. Army Corps of Engineers (Reference 1). All bridges and dams have been modeled by the requirements of the HEC-2 normal and special bridge routine.

VARIABLES AND COEFFICIENTS

The roughness factors (Manning's "n") were determined by comparing the descriptions in Ven Te Chow's Open Channel Hydraulics (Reference 2) with photographs and field descriptions taken in Bloomfield Hills by survey crews in 1980 and 1981. The contraction and expansion coefficients used in this study were .3 and .5 respectively; "n" values were indicative of spring conditions.

The inlet loss coefficients and outlet loss coefficients used in this study were taken from Hydraulic Charts for the Selection of Highway Culverts (Reference 3).

The weir discharge coefficients were taken from charts of the U.S. Geological Survey (Reference 4) and Bureau of Public Roads (Reference 5) supplied by the MDNR.

STARTING CONDITIONS

The starting water surface elevations were obtained from the MDNR (Personal communication Suzanne Elms) Higher Than The d/s FIS as the Q's are 100% high.

SPECIAL PROBLEMS

There were three different occasions in this study where island problems were encountered.

Endicott Lake has two outlet structures with a long retaining wall between them. Stage discharge curves were developed for the outlet structures and the retaining wall. A combined stage-discharge curve was then used to determine the lake stage at each of the flood frequency flows. Flow over the retaining wall was added to the main branch in proportion to its length downstream of the dam.

Cranbrook Lake has three outlets. One outlet for flow is a man made channel to a mill. A weir is used to control the water surface elevation upstream of the mill. Communications with the director of maintenance indicated that lake levels were controlled so that flood levels would not exceed the bank of the man made channel. The other two outlets combine a short way downstream and were modeled as a bridge. The wier flow between these two structures was modeled as top of road.

Near the mouth of Amy Drain is the GTWRR line that has a small culvert under a high embankment. During flood stage, water upstream of the embankment will build to a level that will cross overland to the Long Lake Road underpass. This flow proceeds down Long Lake Road to join the Stoneycroft Branch downstream of the Long Lake Road culvert. The overland flow has been modeled as a branch from the main flow of Amy Drain.

Hand calculations were needed for Amy Drain at the new road upstream of the GTRWRR culvert. The culvert also had flow from a morning glory spillway made out of a vertical culvert. Water surface elevations upstream of the road were entered on an X5 card.

REFERENCES

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

2. Chow, Ven Te, Ph.D., Open-Channel Hydraulics, McGraw-Hill Book Company, 1959.

3. Herr, Lester A., Hydraulic Charts for the Selection of Highway Culverts, Hydraulic Engineering Circular No. 5, Bureau of Public Roads, U.S. Department of Commerce, Dec. 1965.

4. U.S. Geological Survey, Measurements of Peak Discharge at Dams by Indirect Methods, Book 3, Chapter A5, 1976.

5. Bureau of Public Roads, Hydraulics of Bridge Waterways, 1970.

APPENDIX A

SECNO TABLES

City of Bloomfield Hills
Oakland County, Michigan
6504-02

MAIN[1] BRANCH

CROSS SECTION	SECNO	DESCRIPTION[2]
A	0	MPS field section #101.2
B	199	MPS field section #101 with bridge data
C	249	MPS field section 101.8
D	270	MPS field section #101.8A
E	668	MPS field section #102.2
F	838	MPS field section #102 with bridge data
G	888	MPS field section #102.8
H	1525	JA field section #1
I	2257	JA field section #2
J	3092	JA field section #3
K	3978	MPS field section #105C
L	4260	MPS field section #105D
M	4400	HRC construction drawings with bridge data
N	4410	MPS field section #106A
O	4450	MPS field section 106.8
P	4538	MPS field section #106.8A
Q	4830	MPS field section #107.2
R	5020	MPS field section #107 with dam data
S	6100	JA field section #5
T	6655	MPS field section #109.2
U	6873	MPS field section #109 with bridge data
V	6923	MPS field section #109.8
W	7205	JA field section #7 with bridge data
X	7250	MPS field section #110.8
Y	7421	JA field section #8 with bridge data
Z	7473	MPS field section #111.8
AA	7841	MPS field section #112 with bridge data
AB	7892	MPS field section #112.8
AC	8822	MPS field section #114.2
AD	8998	MPS field section #114 with bridge data
AE	9048	MPS field section #114.8
AF	9155	MPS field section #114.8A
AG	9901	JA field section #10 with bridge data
AH	10287	MPS field section #114.8C with bridge data
AI	10448	MPS field section #116.2
AJ	10689	MPS field section #116 with bridge data
AK	11133	MPS field section #117 with bridge data
AL	11553	MPS field section #117.8A with bridge data
AM	11776	Cranbrook Lake Dam
AN	13076	MPS field section #118 with bridge data
AO	13250	MPS field section #118.8
AP	13582	MPS field section #118.8A with bridge data

[1] Includes Quarton and Stoneycroft branches and Murphy Drain
[2] JA (Johnson & Anderson, Inc.)
JA-PEG (previous study by Johnson & Anderson, Inc.)
MPS (McNamee, Porter & Seeley)

City of Bloomfield Hills
Oakland County, Michigan
6504-02

MAIN[1] BRANCH

CROSS SECTION	SECNO	DESCRIPTION[2]
AQ	13983	JA-PEG field section #4
AR	14187	JA-PEG field section #5
AS	14250	MPS field seciton #119 with bridge data
AT	14300	MPS field section #119.8
AU	14331	JA-PEG field section #7A
AV	14361	JA-PEG field section #7
AW	14561	JA-PEG field section #8
AX	14736	JA-PEG field section #9
AY	14855	JA-PEG field section #10
AZ	15086	JA-PEG field section #11
BA	15286	JA-PEG field section #12
BB	15490	MPS field section #121.2
BC	15659	MPS field section #121 with bridge data
BD	15709	MPS field section #121.8
BE	16483	JA field section #13
BF	16895	MPS field section #123.2
BG	17205	JA field section #14 with bridge data
BH	17380	MPS field section #123.8
BI	18220	JA field section #15
BJ	19020	JA field section #16
BK	20140	JA field section #17 with bridge data
BL	20354	MPS field section #126 with bridge data
BM	21380	JA field section #43
BN	21953	MPS field section #128.2
BO	22025	New bridge at golfcourse
BP	22112	MPS field section #128 with bridge data
BQ	22762	JA field section #44
BR	23310	JA field section #45
BS	23400	JA field section #49
BT	23755	JA field section #50
BU	24230	MPS field section #132.2
BV	24411	MPS field section #132 with bridge data
BW	24496	MPS field section #133 with bridge data
BX	24692	MPS field section #134 with bridge data
BY	24832	MPS field section #135 with bridge data
BZ	25280	JA field section #51
CA	25880	MPS field section #137 with bridge data
CB	26760	MPS field section #139.2
CC	27090	JA field section #139 with bridge data
CD	27130	JA field section #139.8
CE	27830	JA field section #52
CF	28510	JA field section #53

[1] Includes Quarton and Stoneycroft branches and Murphy Drain
[2] JA (Johnson & Anderson, Inc.)
JA-PEG (previous study by Johnson & Anderson, Inc.)
MPS (McNamee, Porter & Seeley)

City of Bloomfield Hills
Oakland County, Michigan
6504-02

MAIN[1] BRANCH

CROSS SECTION	SECNO	DESCRIPTION[2]
CG	29440	JA field section #54
CH	30000	MPS field section #142.2
CI	30199	MPS field section #142 with bridge data
L	470	JA field section #4
M	625	MPS field section #106B with bridge data
A	269	JA field section #11
B	904	JA field section #12 with bridge data

[1] Includes Quarton and Stoneycroft branches and Murphy Drain
[2] JA (Johnson & Anderson, Inc.)
JA-PEG (previous study by Johnson & Anderson, Inc.)
MPS (McNamee, Porter & Seeley)

City of Bloomfield Hills
Oakland County, Michigan
6504-02

LONG LAKE-FOREST LAKE BRANCH

CROSS SECTION	SECNO	DESCRIPTION[1]
A	170	JA field section #18
B	550	JA field section #19
C	1060	MPS field section #301.2
D	1237	MPS field section #301 with bridge data
E	1290	MPS field section #301.8
F	1790	JA field section #20
G	2350	MPS field section #303.2
H	2556	MPS field section #303 with bridge data
I	2610	JA field section #21
J	3490	JA field section #22
K	4398	JA field section #23 with bridge data
L	4678	JA field section #24 with bridge data
M	5430	JA field section #25
N	6000	MPS field section #306.2
O	6196	MPS field section #306 with bridge data
P	6211	MPS field section #306A
Q	6243	MPS field section #306.8
R	6440	JA field section #26
S	6960	MPS field section #308.2
T	7096	MPS field section #308 with bridge data
U	7150	MPS field section #308.8
V	7231	MPS field section #308.8A
W	8074	JA field section #27
X	8414	JA field section #28
Y	9064	MPS field section #311.2
Z	9214	MPS field section #311 with bridge data

[1] JA (Johnson & Anderson, Inc.)
MPS (McNamee, Porter & Seeley)

City of Bloomfield Hills
Oakland County, Michigan
6504-02

SODON LAKE BRANCH

CROSS SECTION	SECNO	DESCRIPTION[1]
A	100	JA field section #23.5
B	446	MPS field section #401.2
C	500	MPS field section #401 with bridge data
D	550	MPS field section #401.8
E	1220	JA field section #29
F	1705	JA field section #30 -
G	1805	JA field section #31
H	2195	MPS field section $403.2
I	2375	MPS field section #403 with bridge data
J	2425	MPS field section #403.8
K	2630	JA field section #32
L	2830	MPS field section #405.2
M	3025	JA field section #39

[1] JA (Johnson & Anderson, Inc.)
MPS (McNamee, Porter & Seeley)

City of Bloomfield Hills
Oakland County, Michigan
6504-02

HAMLIN DRAIN

CROSS SECTION	SECNO	DESCRIPTION[1]
A	80	JA field section #46
B	440	MPS field section #500.2
C	507	MPS field section #500.2A with bridge data
D	727	MPS field section #501 with bridge data
E	770	MPS field section #501.8
F	1020	JA field section #46A
G	1320	JA field section #47
H	1730	JA field section #48

[1] JA (Johnson & Anderson, Inc.)
MPS (McNamee, Porter & Seeley)

City of Bloomfield Hills
Oakland County, Michigan
6504-02

AMY DRAIN

CROSS SECTION	SECNO	DESCRIPTION[1]
A	320	MPS field section #201 with bridge data at GTWRR
B	436	MPS field section #202 with bridge data at Kensington Road
C	486	MPS field section #202.8
D	663	MPS field section #203 with dam data at Vhay Lake Dam
E	2550	MPS field section #205.2
F	2654	MPS field section #205 with bridge data
G	2763	MPS field section #205.8
H	3250	JA field section #40
I	4140	MPS field section #207.2
J	4365	MPS field section #207 with bridge data at Long Lake Road
K	4415	MPS field section #208.8
L	4595	MPS field section #208 with bridge data at Eastways Road
M	4645	MPS field section #208.2
N	5105	JA field section #41
O	5760	MPS field section #210.2
P	5953	MPS field section #210 with bridge data at Kingsley Terrace
Q	6000	MPS field section #210.8
R	6204	JA field section #42

[1] JA (Johnson & Anderson, Inc.)
MPS (McNamee, Porter & Seeley)

APPENDIX B

BRIDGE SKETCHES

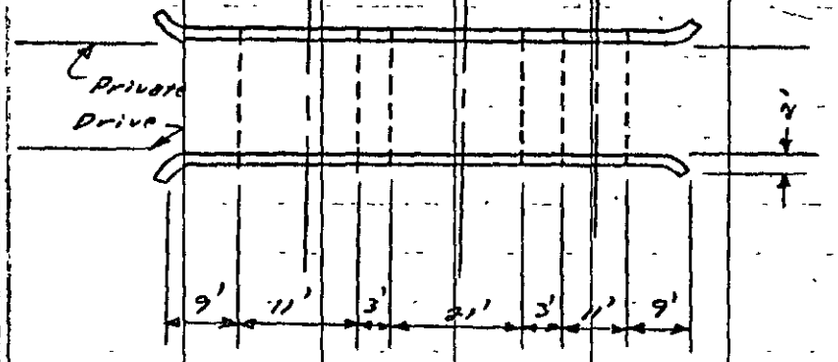
476/

Quarton Branch

Bridge at X-section #102

3-21-79

S2



width of openings in bridge measured at water surface

pictures 8, 9, & 10

Film 121

476

Quaker Branch

Bridge details & photos

3-22-79

106.6-C = 230' D/S from #107

stone & conc. weir 20' long with 3' drop

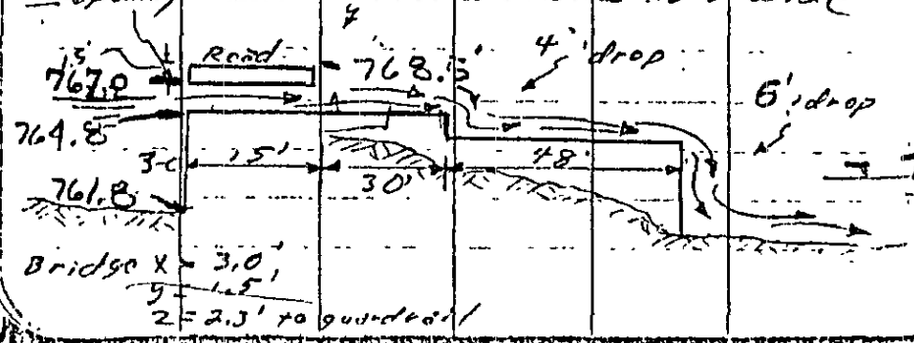
106-A = 20' U/S from #106

stone weir 25' wide with 2.5' drop

106-B = 230' east of Bridge on #106 along Chesterfield - small weir forming counterbranch of the creek

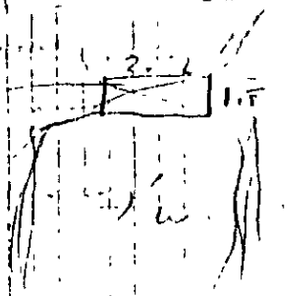
Pictures 19 & 20

Film 12)



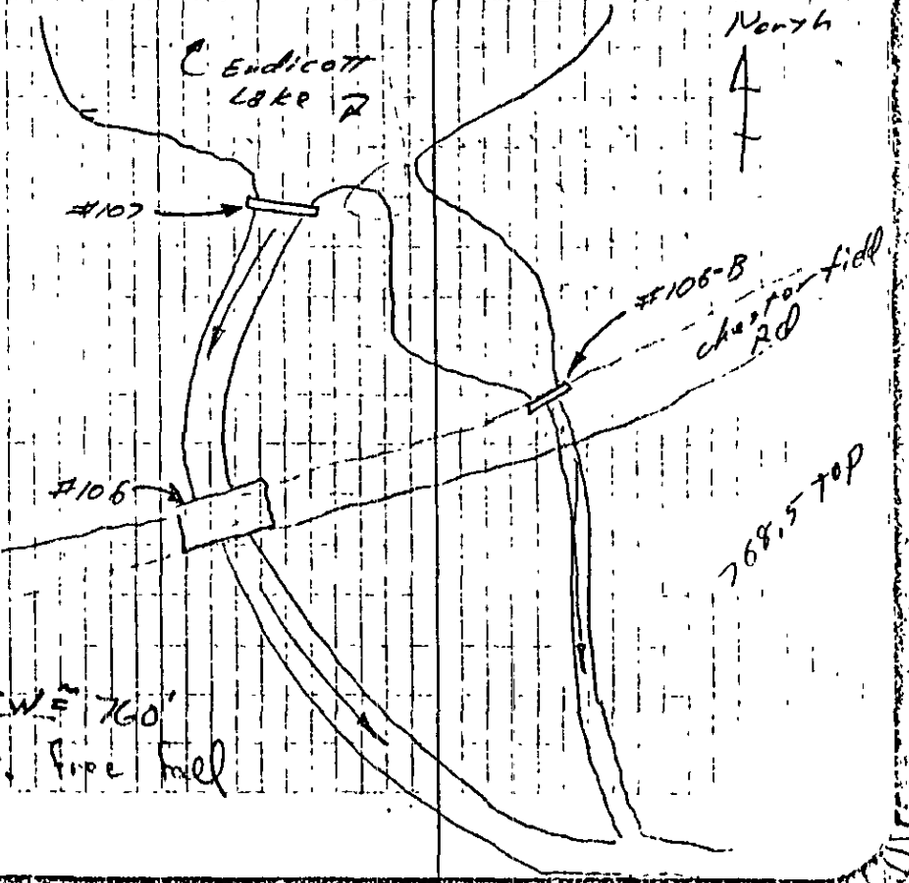
Picture #17

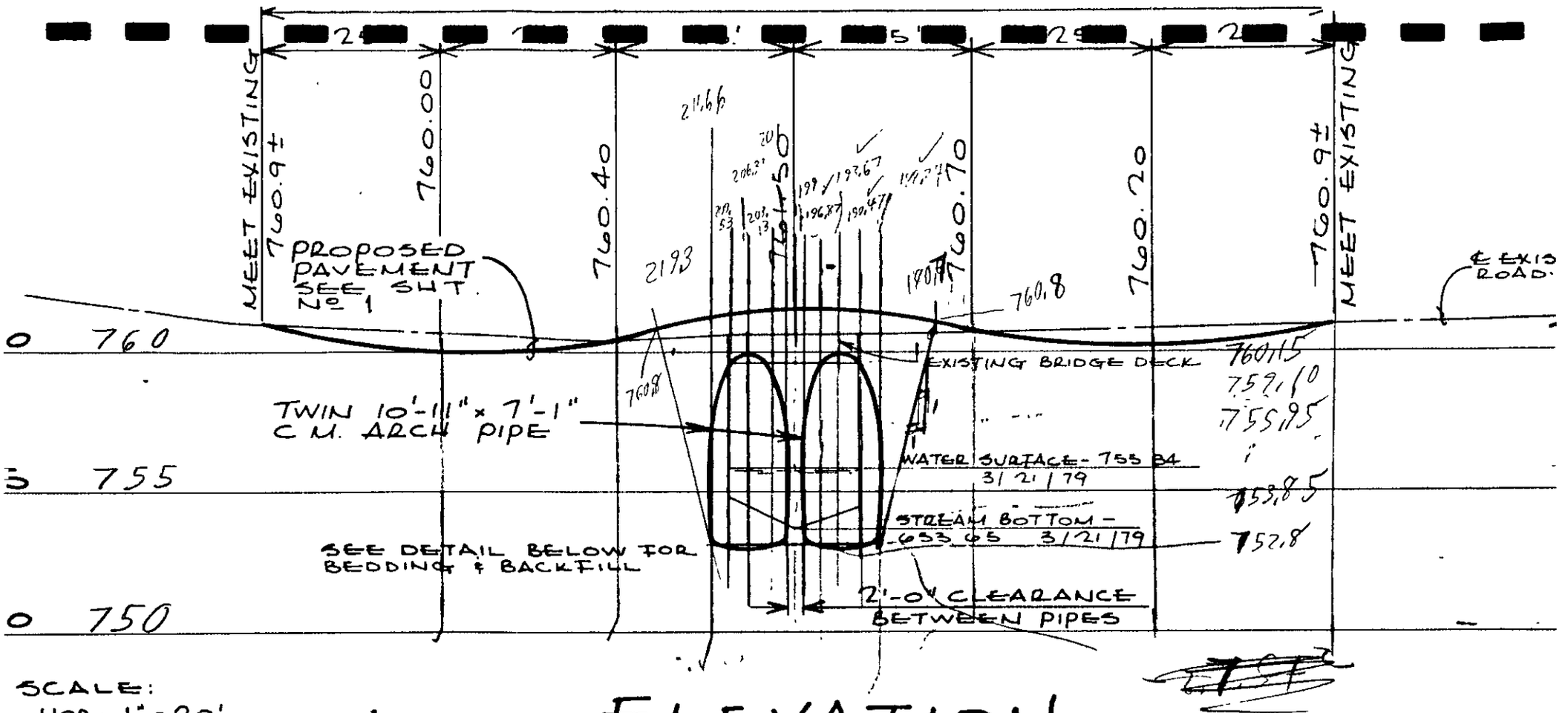
Film 12)



Picture #18

Film 12)





SCALE:
HOR. 1" = 20'
VERT. 1" = 5'

ELEVATION

(LOOKING NORTH)

CHESTERFIELD ROAD

STEEL PIPE-ARCHES

)'-11" SPAN × 7'-1" RISE
2" × 6"
8"
).138"
ASHTO M167
ASHTO M120, AVE 2.0 OZ./S.F.
H20 TRUCK
.0'
)OLTS: 3/4" ASTM A 449-78a
JUTS: ASTM A 563-78a, GRADE C
SURFACE FINISH FOR BOLTS & NUTS:
HOT DIP GALVANIZED - ASTM A 153

'S PREPARED; ERECT PIPE ARCH
H MANUFACTURES WRITTEN

℄ PROPOSED ARCH C.M.P.'s TO MATCH ℄ EXISTING 60' R.O.W.

Elevations per page 5?

Water surface = 766.1 which is

T/ concrete = 766.1
wood planks

T/ planks 767.8

T/ sub = 765.1

T/ sand 774.8

Profile of weir

3-21-79
Pictures 13
Film 181

Bottom Cont 759.8

Bottom Cont 767.2

Cont.

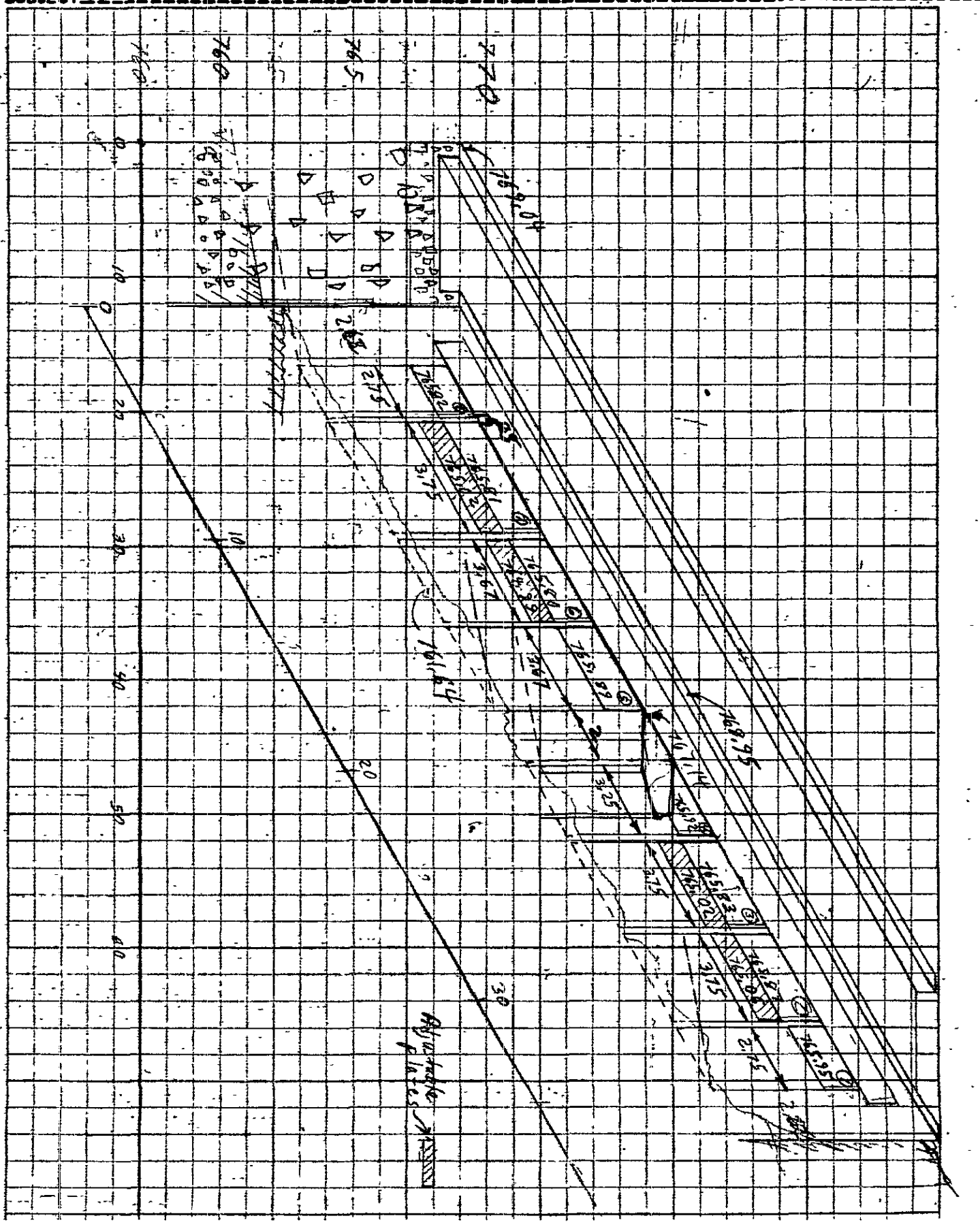
Quarter Branch
Weir at X-section #10
Englecrest Lodge

2'
1'
2'
2'
3'
1.5'
1'
2.5'
2'
2'
2

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RCL DATE 10/11/80 JOB DESCRIPTION Boomerang Hills FLS SHEET 1 OF 1

SUBJECT Enclosure - Lake Rim JOB NO. 6-504


770
795
790
768.04
765.95
765.95
765.95

Quarton Branch

X-Sections 109, 109.2 & 109.8

at driveway bridges

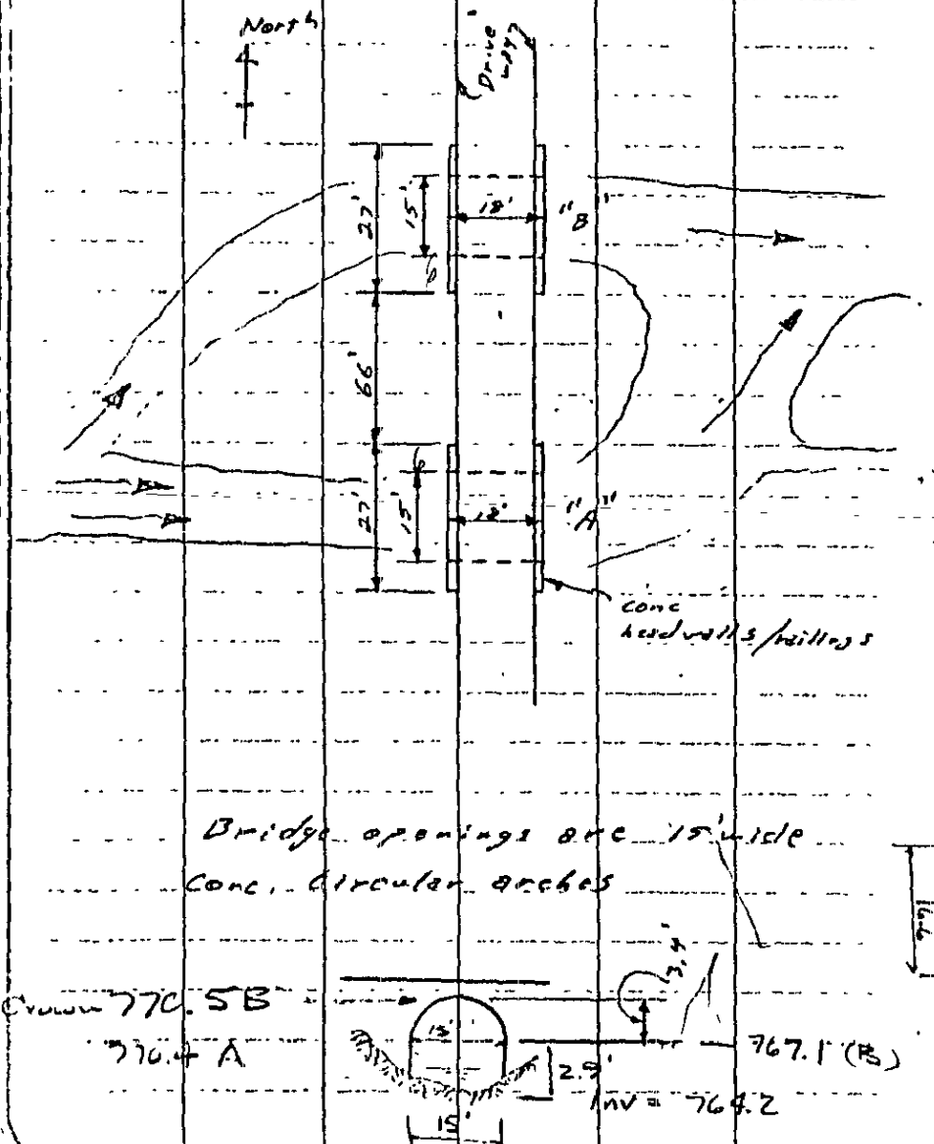
3-26-79 D Coin ☐

poly Chlg - 30° G Airspark ✈

D Vortrieps ϕ

Pictures 16 - 21

Film 122



Foot Bridge #109.8 - A is 3.1' x 20'

wood 100' u/s from bridge #109-B

'X' = 3.5'

'Y' = 0.4'

Assuming A is a circular opening



$X = R\left(1 - \cos\left(\Delta \arcsin\left(\frac{y}{R}\right)\right)\right)$

$3.4 = R\left(1 - \cos\left(\Delta \arcsin\left(\frac{7.5}{R}\right)\right)\right)$

Guess R = 27' 3.4 = 1.3 (No Good)

R = 25' 3.4 = 1.1

20' 3.4 = 1.5

R = 10'

D = 20'

Total Area = $\frac{\pi(20)^2}{4} = 314\ ft^2$

Area above 14.5 chord = (Table 7.4) 10' $\Delta = 286$

$d = 20 - 3.4 - \frac{16.6}{2} = 8.3$

$\Delta_{chord} = .7(20) = 280$ $\Delta_{above} = 314 - 286 = 28\ ft^2 + 1.5\ X$

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Consulting Engineers
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HYDRAULIC STRUCTURAL DATA

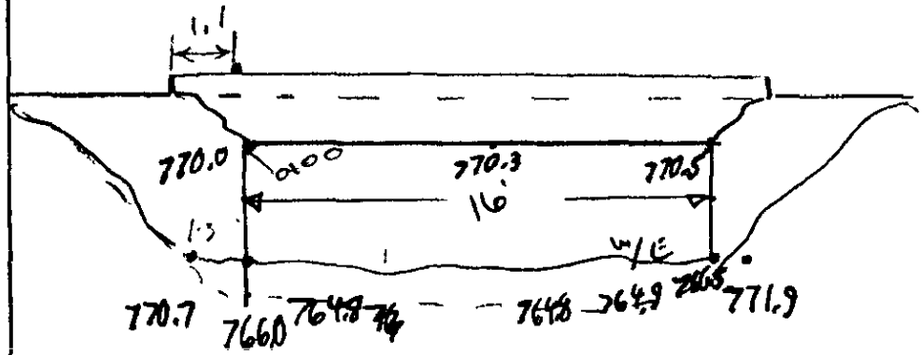
#7

Code No. 6504-02

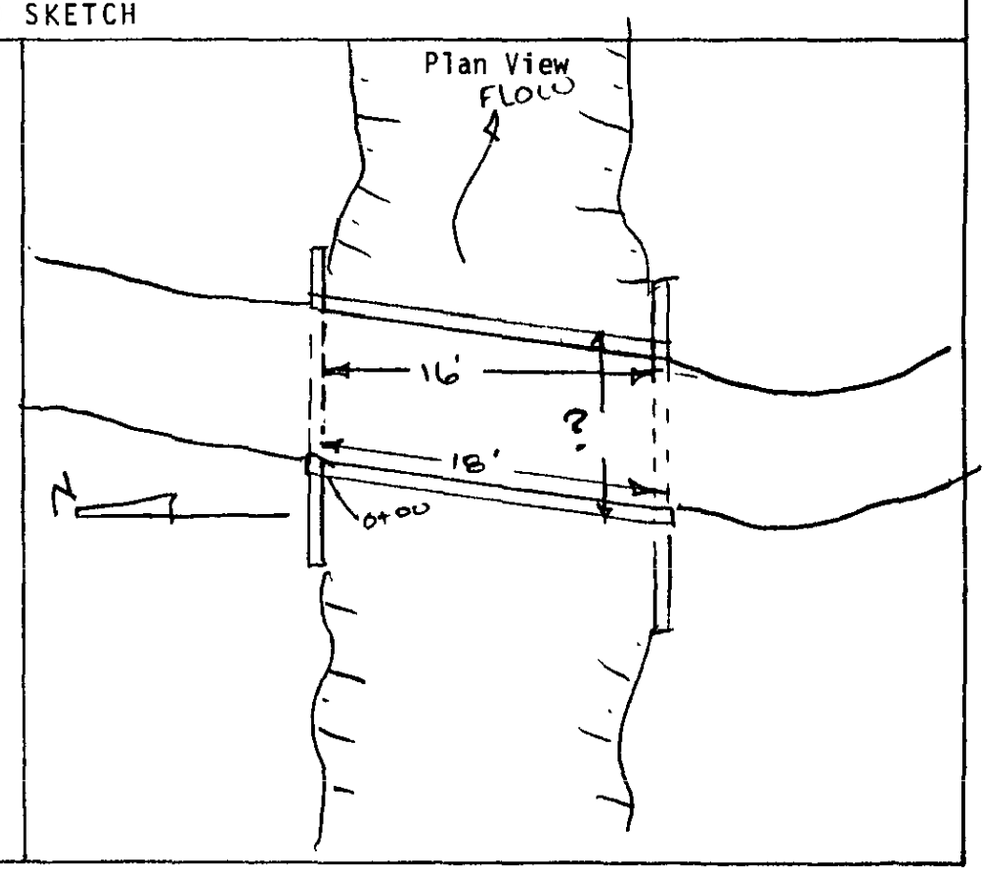
Job Name: Bloomfield Hills F.I.S.			By: R. Moses
Date: 10-17-80	Feature:		Water Course: Quarton Branch
Remarks: Bridge is on Driveway To 225 Lone Pine Rd Per Map			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 766.7	Length: 18'	Width of Deck:	Skew:

FIELD SKETCH

Profile View



Plan View



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Consulting Engineers
2300 Dixie Hwy., Pontiac, MI 48055

HYDRAULIC STRUCTURAL DATA

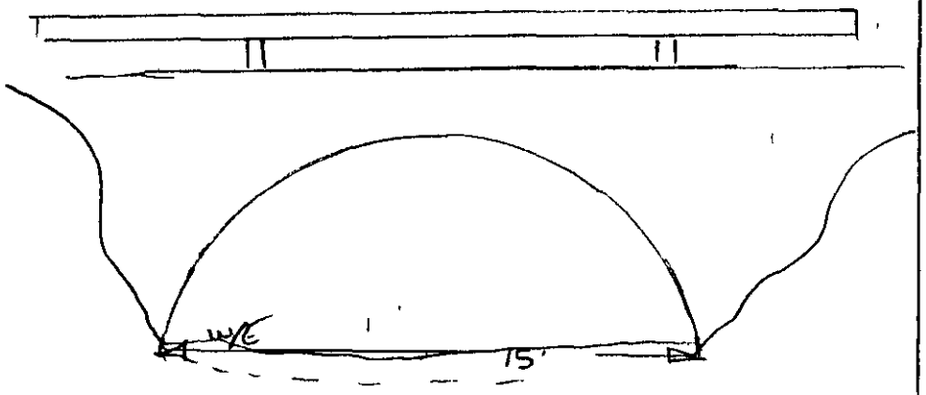
B.S. #8

Code No. 6504-02

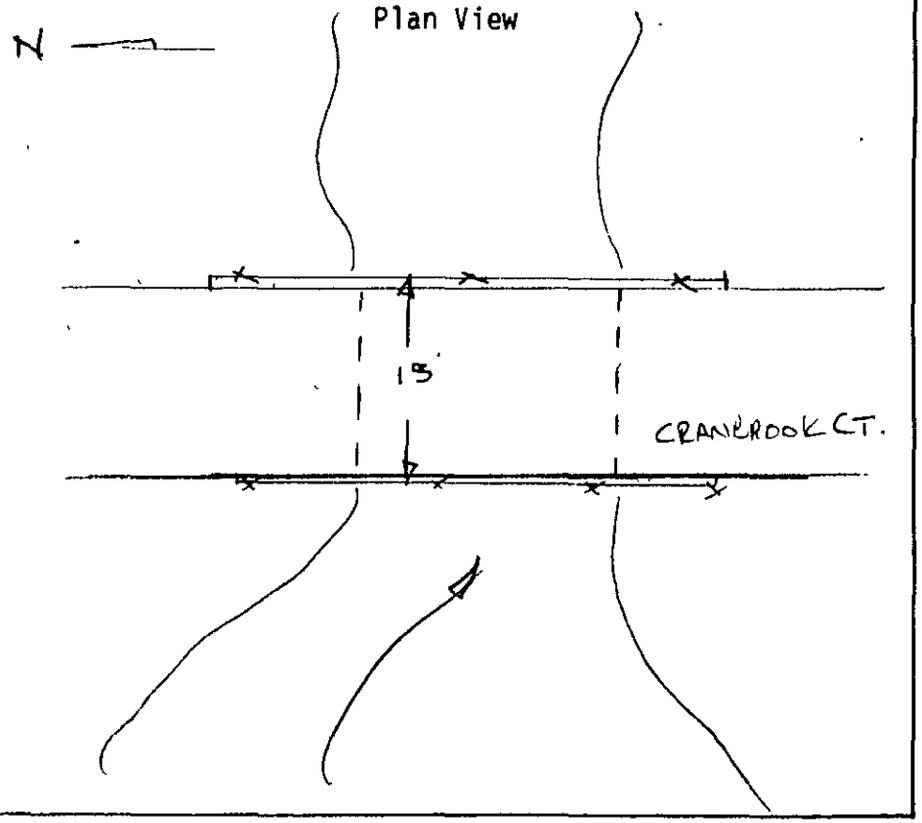
Job Name: Bloomfield Hills F.I.S.			By: R. Moses
Date: 10-17-80	Feature: Multi-Plate Arch		Water Course: Quarton Branch
Remarks: Arch is on Cranbrook Ct			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 767.5	Length: 15'	Width of Deck: 15'	Skew: 70°

FIELD SKETCH

Profile View



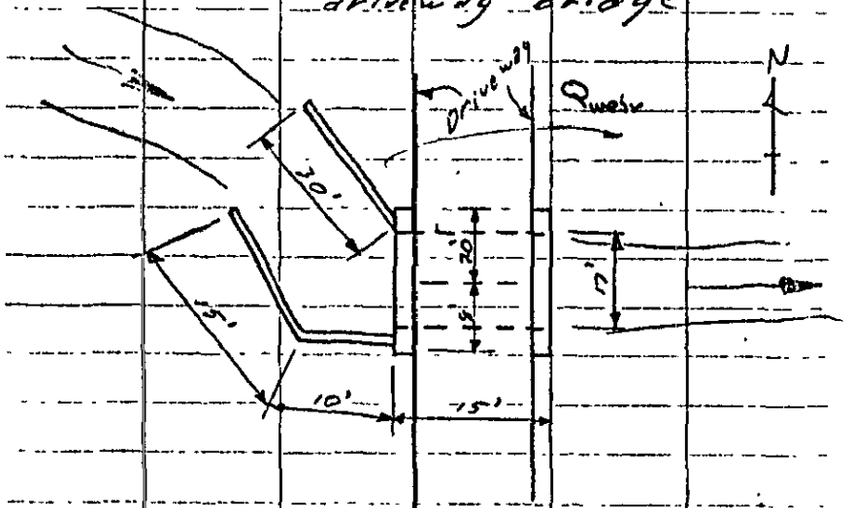
Plan View



Quarton Drain

X-Sections 112 & 112+18

driveway bridge



Culvert arch is 12' wide x 15' long x 1.9' high ? Lc b inver | = 5.5'

Sta	+s	HI	-s	Elev
New BM				788.96
	0.20	789.16		
TP			9.02	780.14
	1.00	781.14		
TP			3.80	777.34
	5.99	783.33		
TP			9.65	773.68
	6.47	780.15		

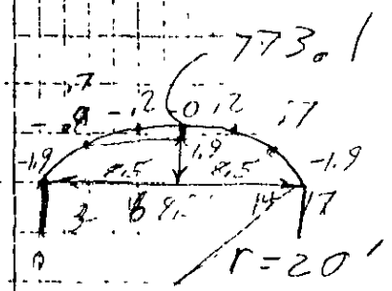
3-29-79 R. Cain - ϕ 476-B 20

cldy - 50° G. Albrecht

Need wall profile N. of opening to define invin

Pictures 12, 13 & 14

Film 124



Description

corner of Lone Pine & Cranbrook, pg 76, FB 476

476/75

Overton Branch

X-Sections 114, 114.2, & 114.8

3-26-79

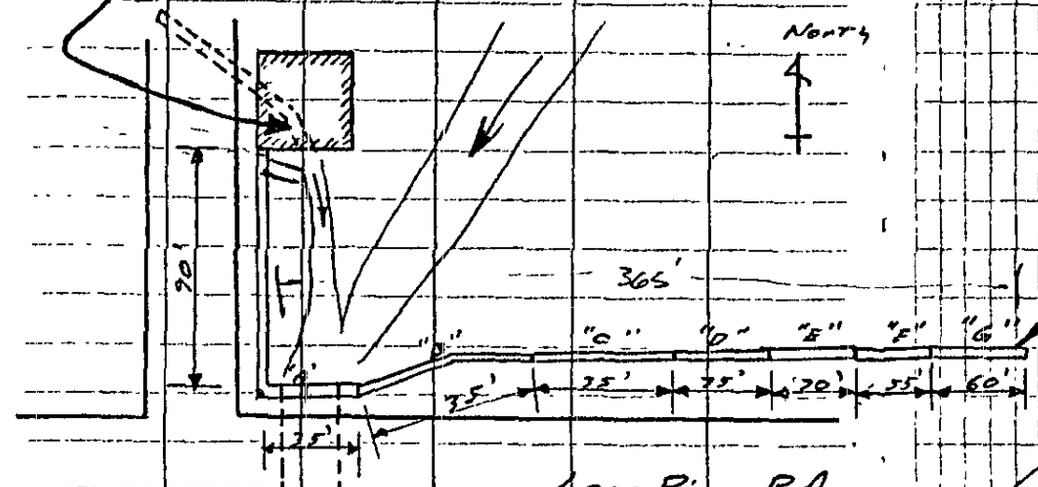
Cldy - 30°

C. Cain AM

P. Jeffries "

G. Aspatch "

Use Normal Bridge



Culvert is
1.7' Dia Conc X
25' long

Rough Area = $\frac{\pi (17)^2}{4} / 2$

= 113 ft²

V_s = 12.8 h_{s_2} = 2.5

h_L = 1.7 (2.5) = 4.4

782-1

17

Inv. 771.4

13

771.4

Std	+s	HI	-s	Elev
Bm ?				822.35
	0.93	823.28		
T.P.			14.86	808.42
	0.57	808.99		
TP			13.63	795.36

Description

Chis. square on north edge of Conc. Lamp post base at south side of Lone Pine Rd @ Church Rd

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HYDRAULIC STRUCTURAL DATA

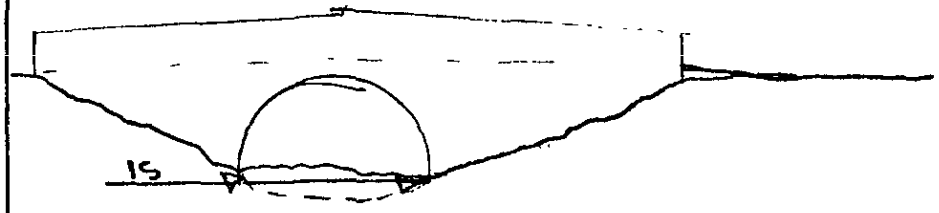
B.S. #10

Code No. 6504-02

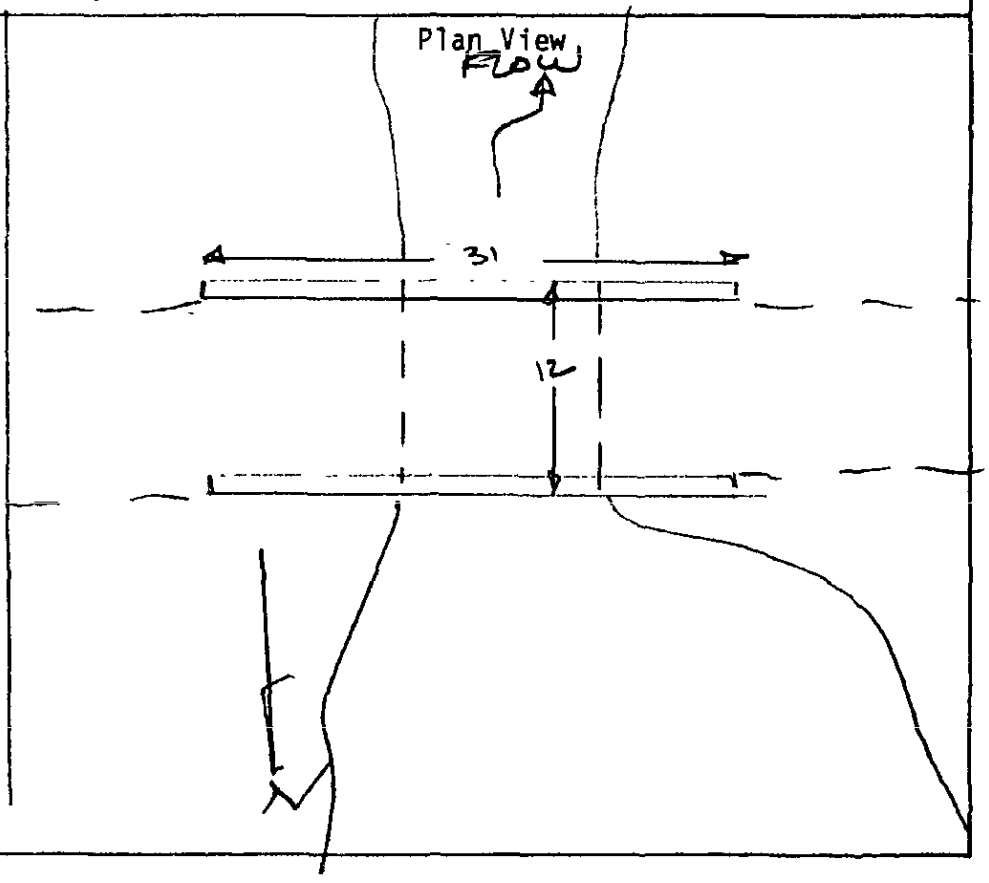
Job Name: Bloomfield Hills F.I.S			By: R. Moser
Date: 10-17-80	Feature: Conc. Arch		Water Course: Quarton Branch
Remarks: East of Cranbrook Rd Behind Brookside School			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 777.2	Length: 15'	Width of Deck: 12	Skew: —

FIELD SKETCH

Profile View



Plan View



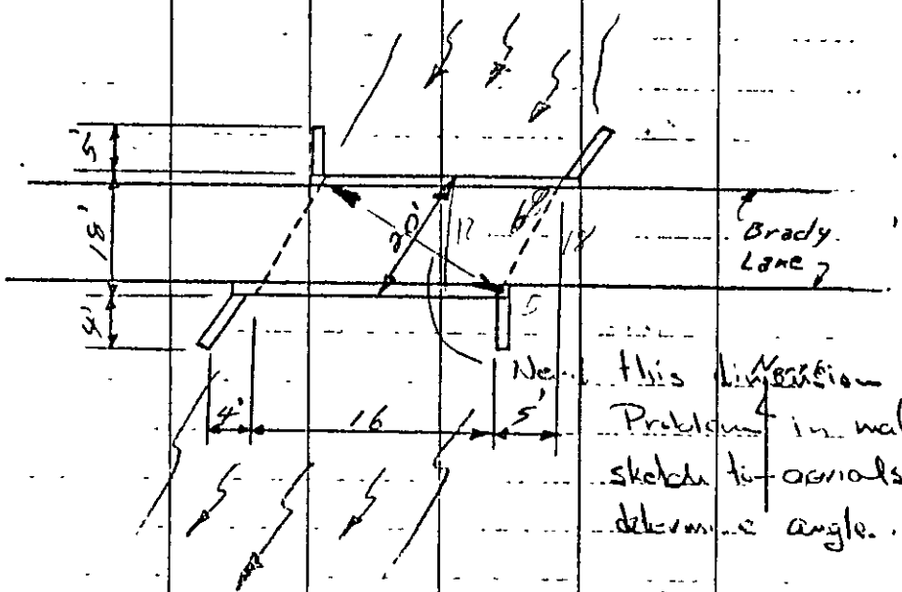
Quarter Branch

X-Sections 116, 116.2 & 116.8

Bridge at Brady Lane

3-27-79

476-B
2



Need this dimension

Problems in making sketch tie-ondals to determine angle.

pictures 4, 5 & 6

Film 123

Weir flow can get around wall.

Conc railing = 12" long on each side

Sag Q = 1200 cfs

Inv. – low chord = 9.5' box culvert

A = 16(9.5) = 152 V_B^3 16 fps ⇒ Weir flow will occur

Sta	+S	HI	-S	Elev	Description
BM 100				795.42	tied in, pgs. 75-76, F.B. 476
	0.14	795.56			
BM 101			7.21	788.35	
		791.58			
	3.20	791.55			

cont. next pg.

V3, 788.38 .03 low

3-27-79

476-B

Quarton Branch
footbridges & weirs
between #116 & #117

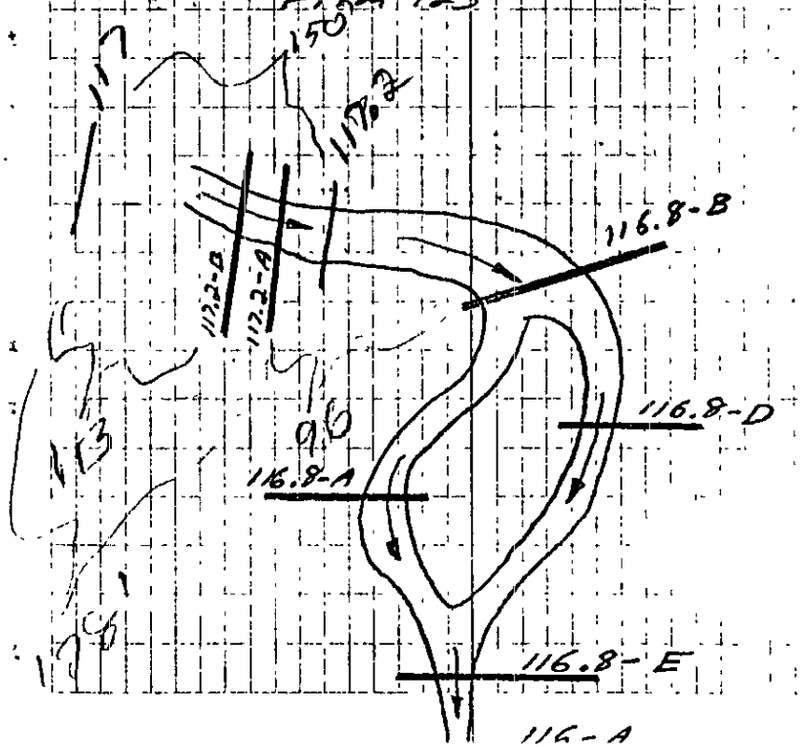
116.8-E = 110' D/s from #116.8-D
= conc weir 14' wide with 3' drop
and wood footbridge 18.1 x 3'
'x' = 3.2'
'y' = 0.4'

117.2-B = 113' D/s from #117
= conc weir 20' wide with 2.7' drop

footbridge & weir
Locations

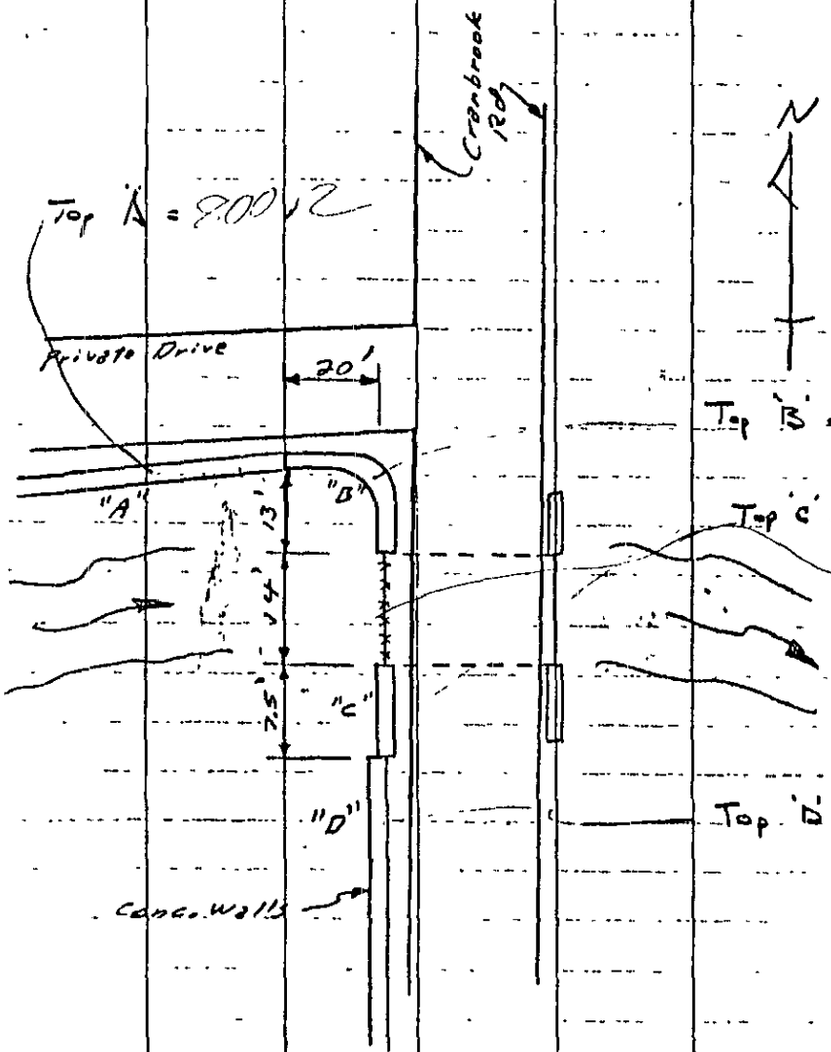
picture #12
Film 123

picture #13
Film 123



Gayton Branch 3-27-79 476-B

X-Sections 117, 117.2 & 117.8



Top of wall "A" 4.7' above top of wall "B"

Inv 782.5 ⌀ d = 6.1 (14) = 85 ft²

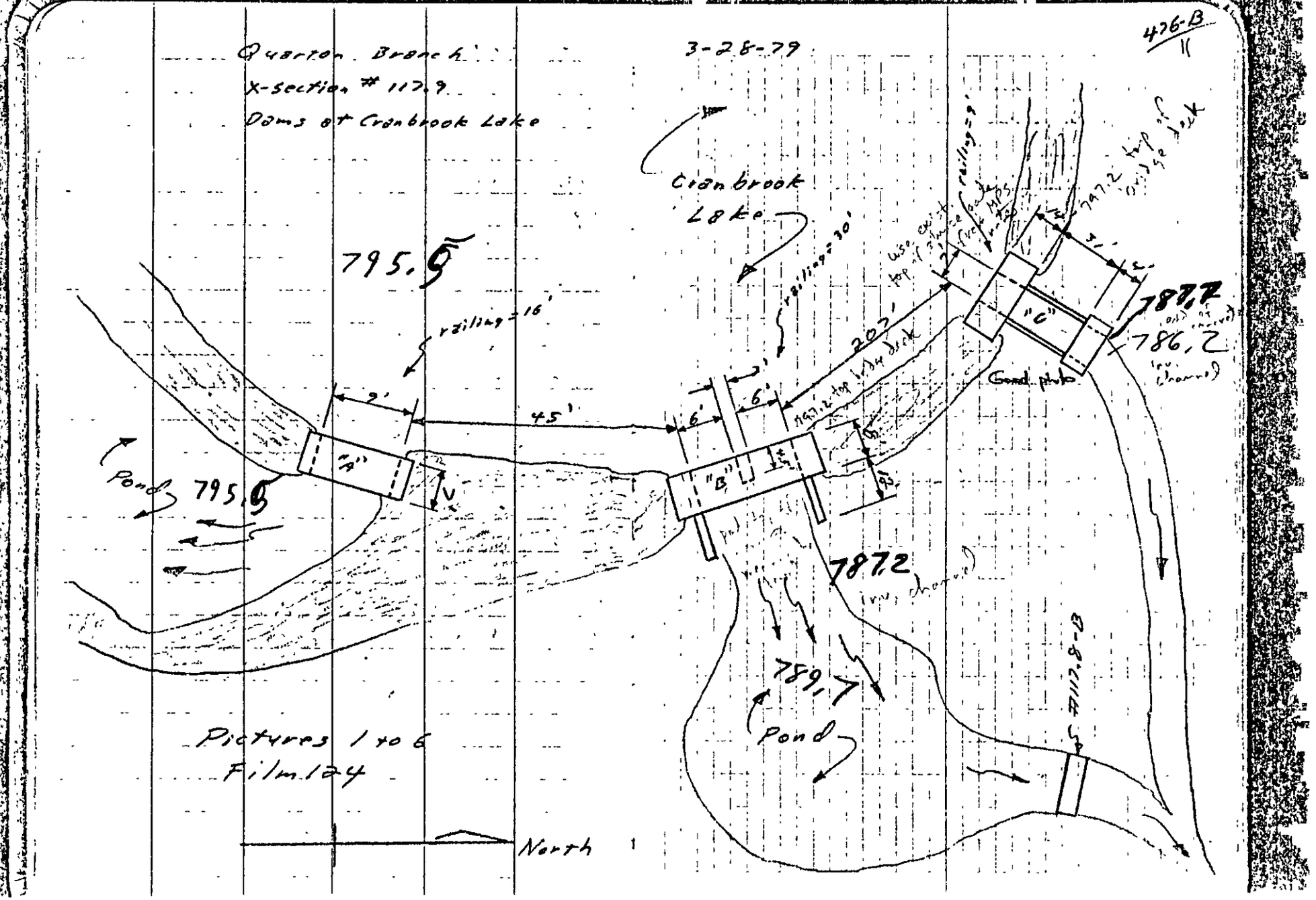
Lc = 788.6

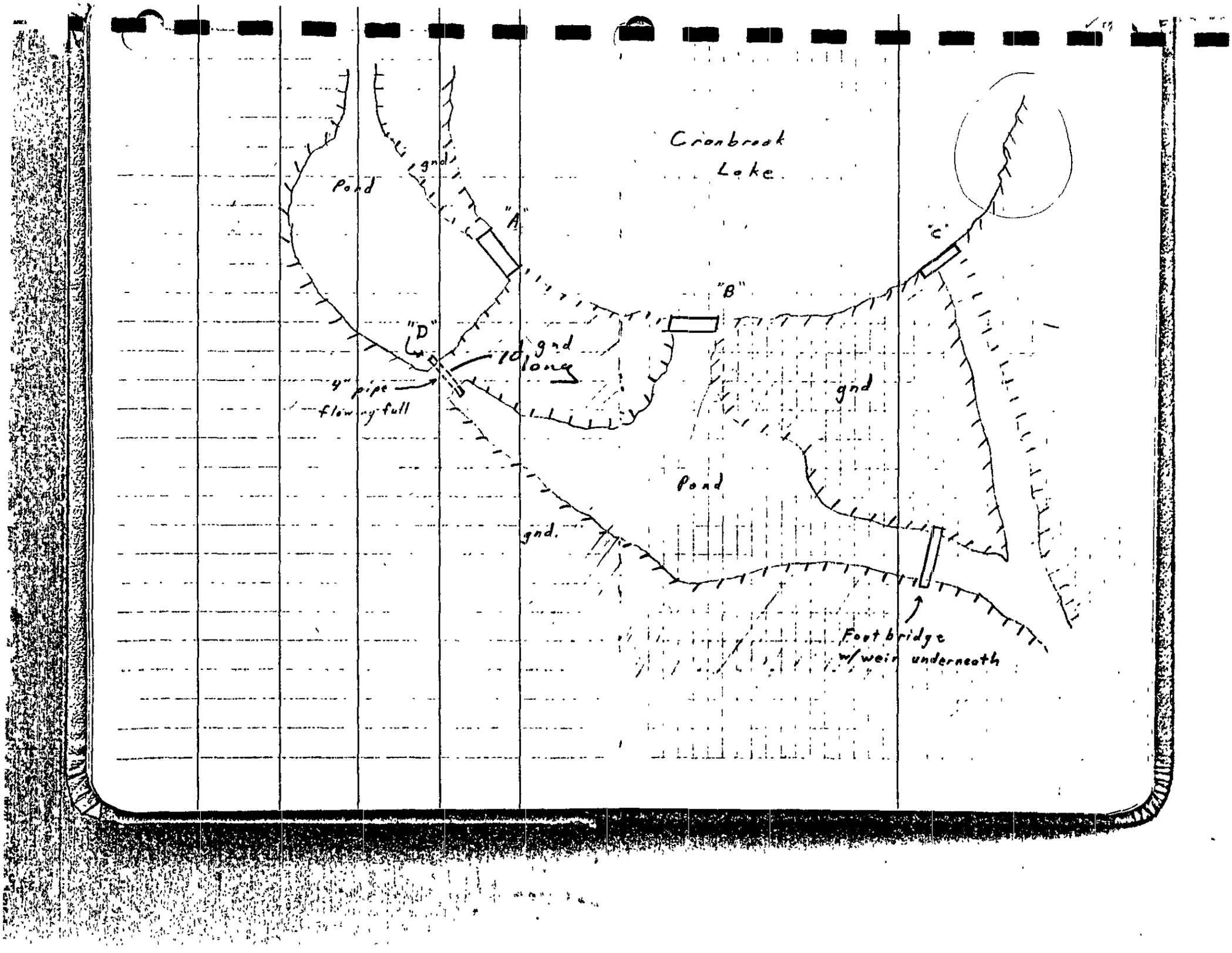
790.9

14' wide Box culvert 33' long

Compute Q_w for 1 head using Kindsvater freefall

$Q_w = 2.6 (14) 1 = 36$ cfs


476-B
11
Quarton Branch
X-section # 117.9
Dams at Cranbrook Lake
3-28-79
Cranbrook Lake
795.5
railing = 16'
railing = 30'
45'
203'
"A"
"B"
"C"
Pond
795.5
787.2
(rip rap)
787.2
(rip rap)
786.2
(rip channel)
Good photo
789.7
Pond
Pictures 1 to 6
Film 124
North


Cranbrook
Lake
Pond
gnd
"A"
"B"
"C"
"D"
10' gnd along
4" pipe flowing full
gnd
Pond
gnd.
Foot bridge
w/weir underneath

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Consulting Engineers
2300 Dixie Hwy., Pontiac, MI 48055

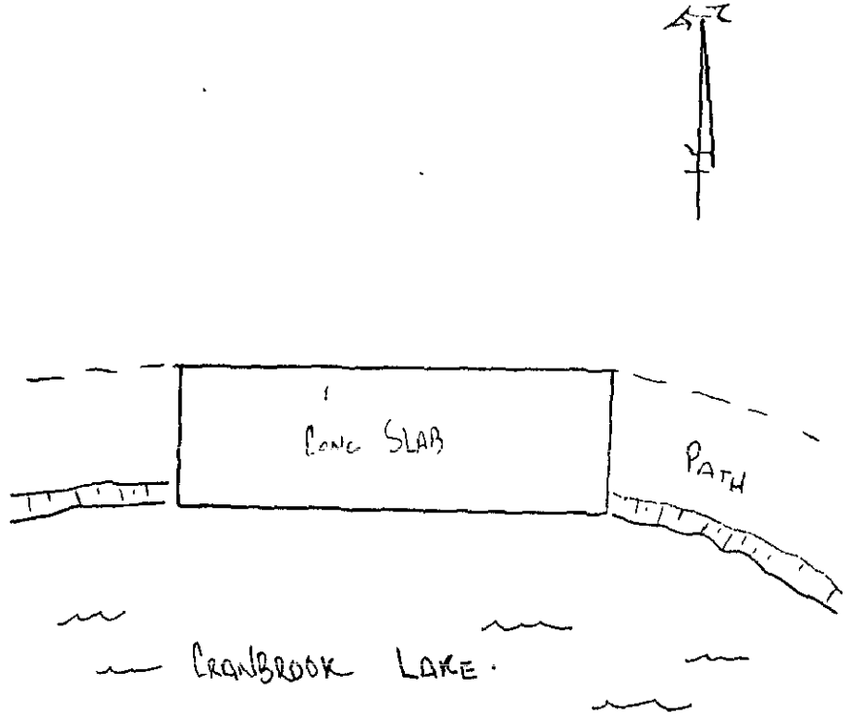
HYDRAULIC STRUCTURAL DATA

Code No. 6004 02

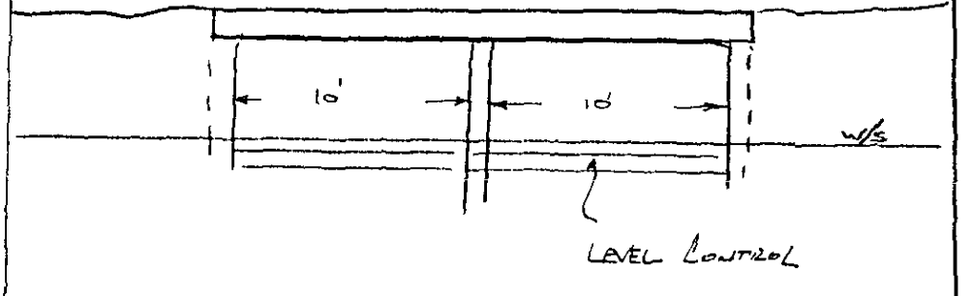
Job Name: Bloomfield Hills F.I.S			By: MK Inc
Date: 4-7-81	Feature: BRIDGE		Water Course: CRANBROOK LK.
Remarks: No Visible outlet			
Width of Piers: 1.1'	Pier Shape: SQ	No. of Piers: 1	Area:
Water Elevation:	Length: 23.4'	Width of Deck: 37.7'	Skew: 0°

FIELD SKETCH

Profile View



Plan View



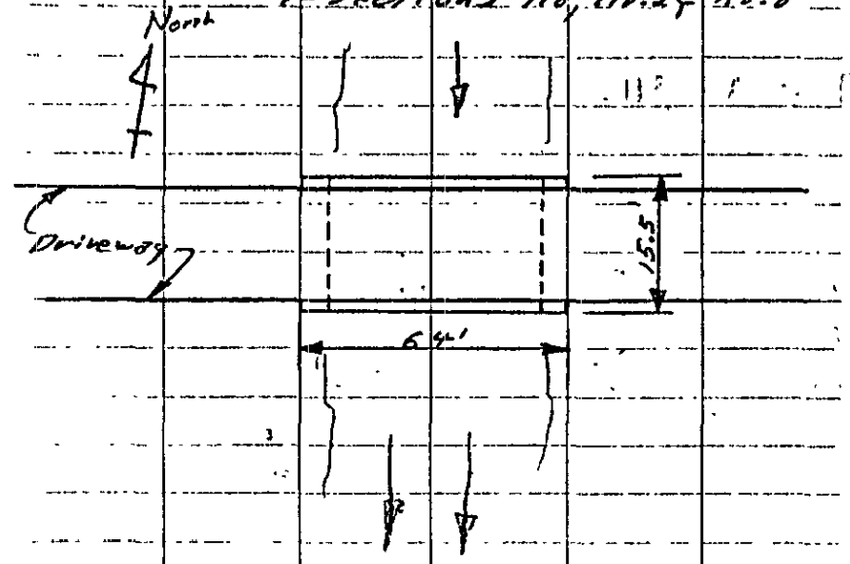
Ryerson Brook

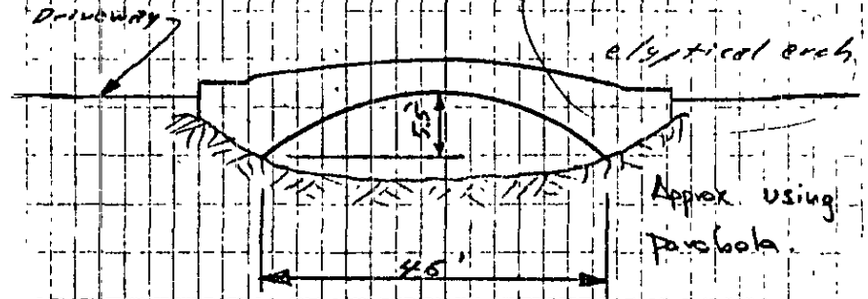
X-Sections 118, 118.2 & 118.8

3-28-79

476-B
18

Pictures 17, 18 & 19
Film 123





Approx using parabola

$A = \frac{2}{3}(46)(5.5)$

$= 169 ft^2$

Start X-section #118 at 4½ face

STA	+S	HI	−S	Elev.	
New BM				802.62	Description
	3.18	805.80			on corner of conc. railing, p914, this book
			0.9	804.9	top of conc railing / headwall
			3.2	802.6	top of ends of conc. railing / headwall
			4.8	801.0	ΔArea crown of arch (bottom conc)
			4.0	801.8	℄ road over ℄ bridge
0+00			8.3	797.5	on left looking D/S
0+02			10.3	795.5	edge creek ℄ water surface 5
0+07			12.3	793.5	35
0+22			13.0	792.8	41
0+37			12.9	792.9	23

$A_{Tot} = 272 ft^2$

Σ Area below 795.5 = $104 ft^2$

℄ creek

476-13
IS

Quarter Branch

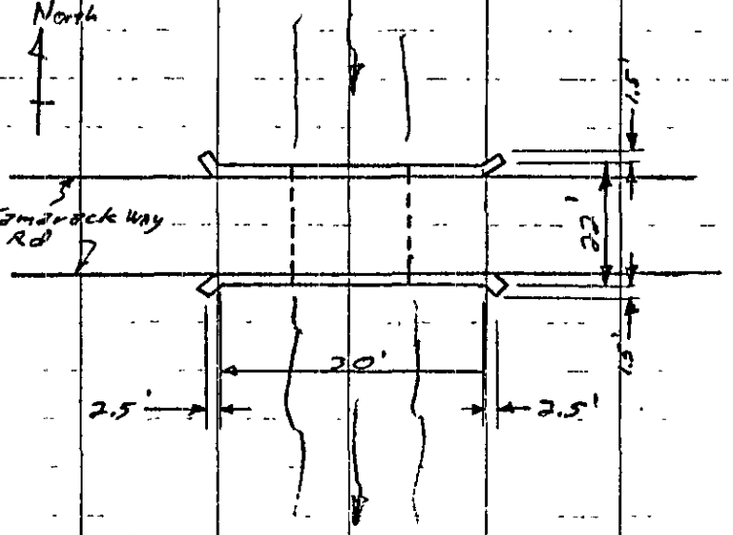
x-sections 119, 119.2 & 119.8

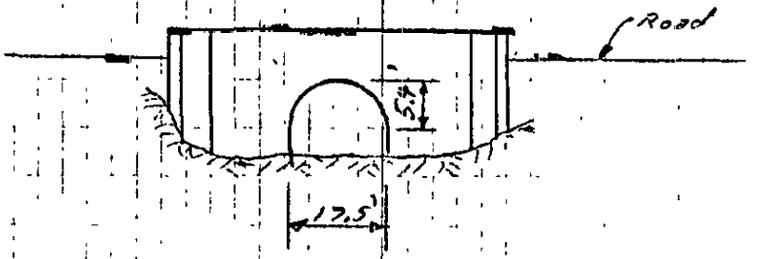
Bridge at Tamarack Way

3-28-79 D. Cain

Clear-30° G. Aigpach

D. Jeffries





Pictures 14, 15 & 16
Film 123

Sta	+S	HI	-S	Elev	Description
New BM				806.78	Chis. figure on bridge, p 914, this book
	2.75	809.53			

Start x-section #119
at u/s face of bridge

2.7	806.8	Top of headwall, railing
4.6	804.9	℄ road over ℄ bridge
7.2	802.3	crown of arch

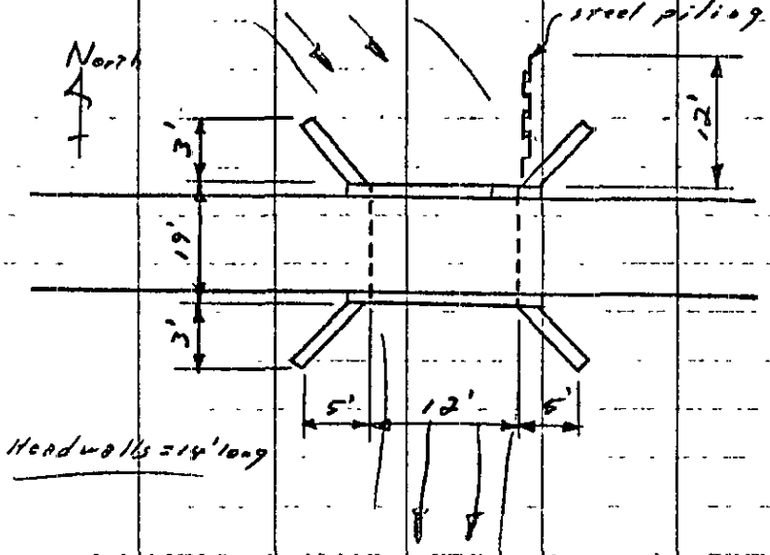
476-13

25

Quarton Branch

3-29-79

X-sections 121, 121.2 & 121.8



Headwalls = 14' long

pictures 18, 19 & 20
Film 124

X-sections on pg 28, this book

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HYDRAULIC STRUCTURAL DATA

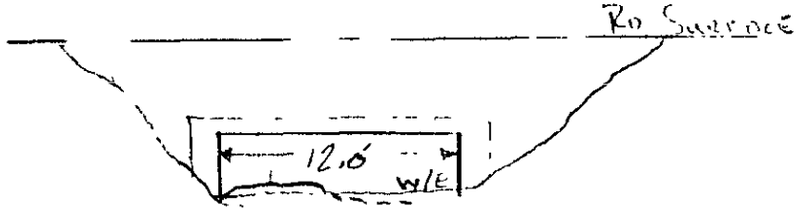
BS #14

Code No. 6504-02

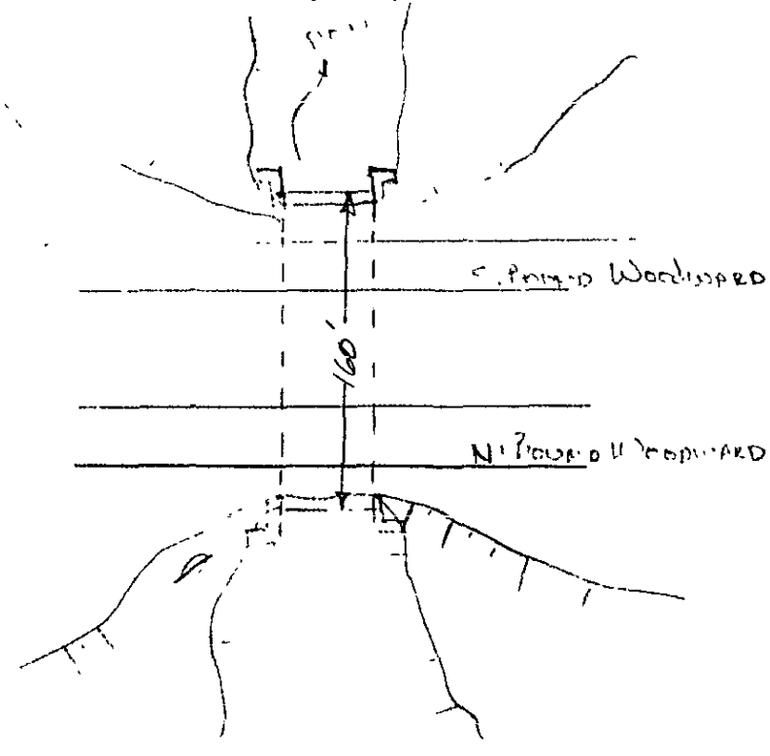
Job Name: [illegible] FIS			By: [illegible]
Date: 2-5-81	Feature: [illegible]		Water Course: [illegible]
Remarks: upstream end has sand & gravel restriction in half the channel			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: ~~9.02~~ 9.01 ~~9.11.6~~	Length: 160	Width of Deck: 12.0	Skew: —

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

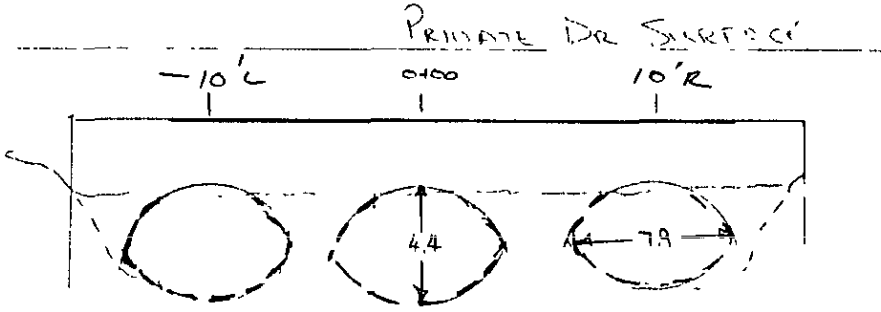
BC #17

Code No. 6504-02

Job Name: Bloomfield Hills			By: R. Moses
Date: 1-16-81	Feature: 3-ELLIP Corr. Culvert		Water Course: Quarton Branch
Remarks: New DR Hwy culvert. Approved by DNR for Office Complex			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 817	Length: 136'	Width of Deck: 3-4.4 x 7.9	Skew: 90° to DR.

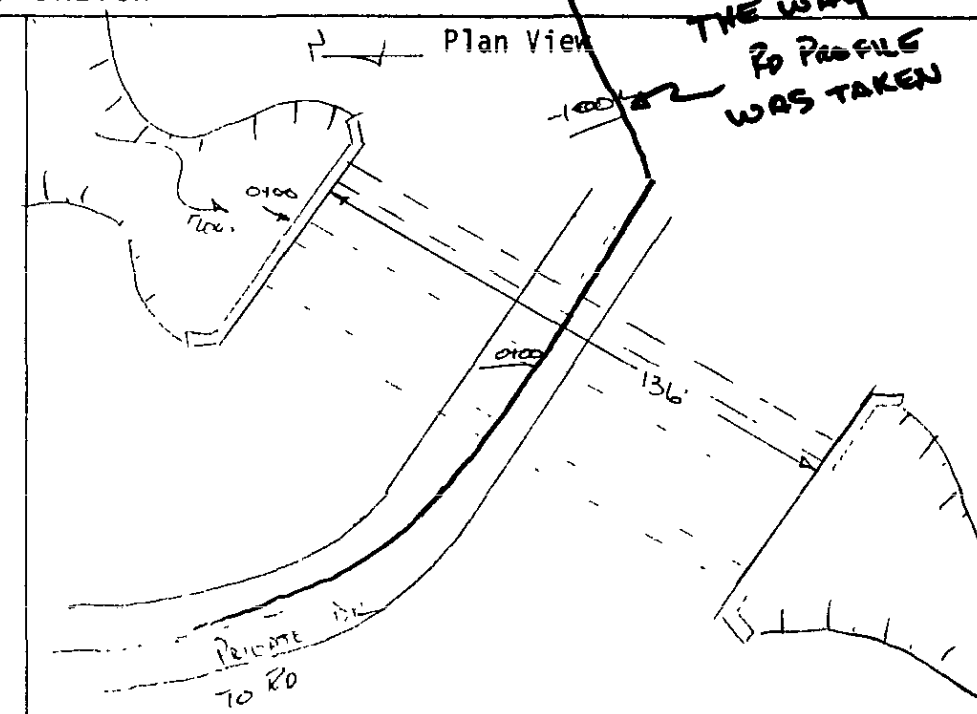
FIELD SKETCH

Profile View



4.4 x 7.9' TYP

Plan View



THE WAY TO PROFILE WAS TAKEN

476-B
35

Stonycroft Branch

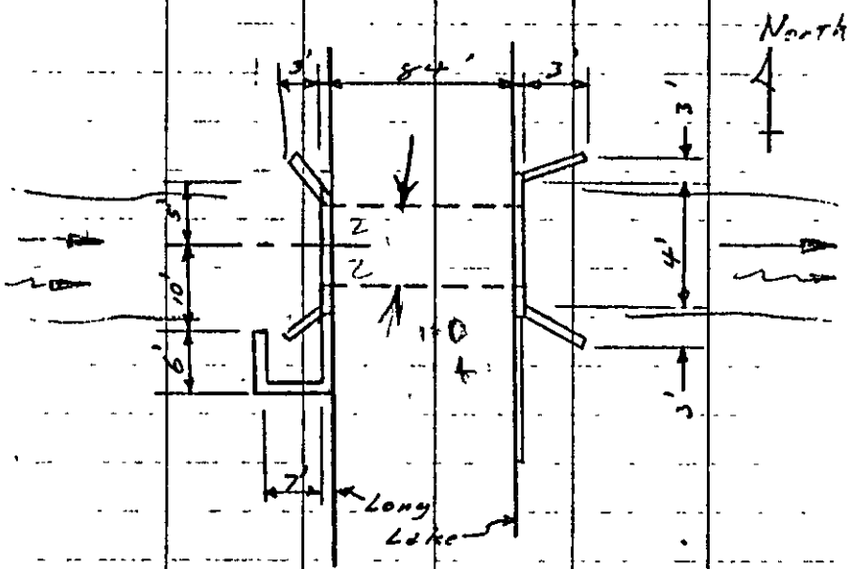
x-sections 126, 126.2 & 126.8

culvert @ Long Lake Rd

4-3-79 D. Cain ☐

clear - 55° D. Jeffries π

N. Shoemaker ϕ



pictures 7 4/s

8 o/s

9 face

Film 129

Culvert = Dio 'Long

story x-section #126 - @ 4/s face

Sta	+s	HI	-s	Elev	Description
BM 7				832.45	
	2.26	834.71			
TP			9.79	824.92	
	4.89	829.81			
			4.3	825.5	℄ road over culvert
			6.4	823.4	inside top of culvert
			4.9		top of headwall

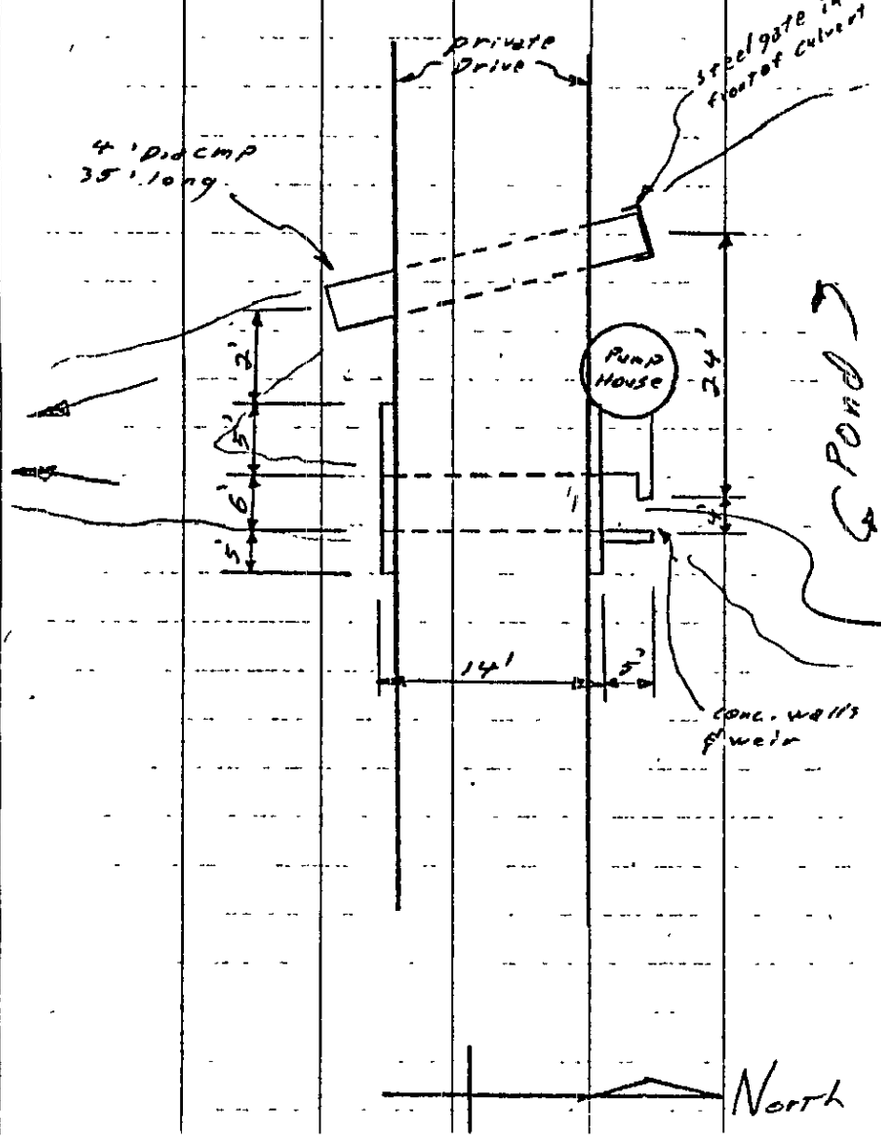
476:D
39

Stonycroft Branch

X-Sections 128, 128.2 & 128.8

4-19-79 — clear - 60°

D. Cain
D. Jeffries
N. Shamoon



photos 12 - N/S — Film 127
13 - O/S
14 - face O/S
15 - face N/S west
16 - face N/S east

Max height of weir is 842.1

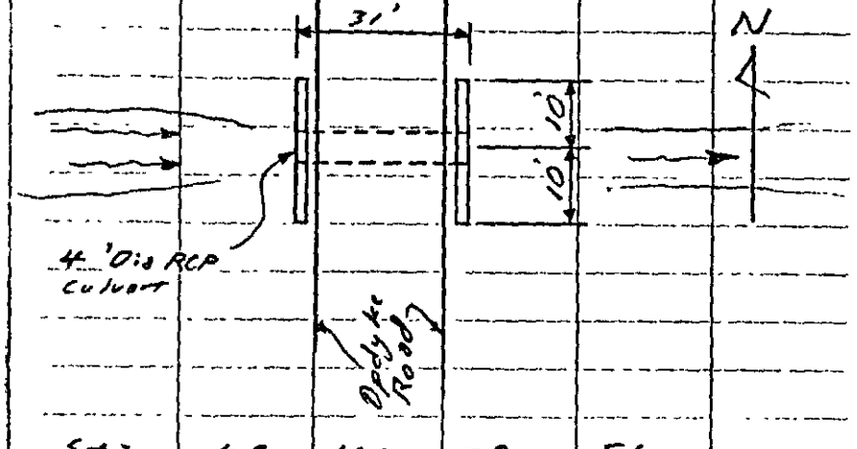
Sec 476C/28

Murphy Drain Branch

Bridge @ #132

at u/s face of Bridge

3-14-79



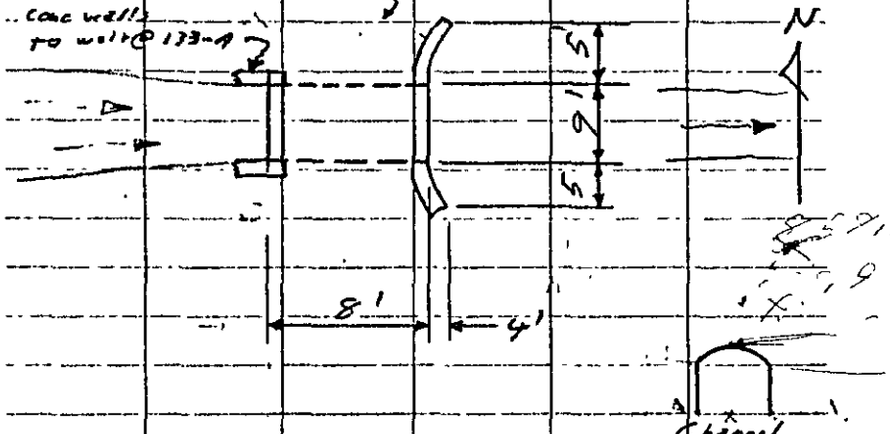
Std	+S	HI	-S	Elev.	Description
Nov Bm				858.92	on Bridge, pg 18, this book
	0.82	859.74			
			1.4	858.3	top of railing
			3.6	856.1	top of road & Rd over & culvert
			7.2	852.5	inside top of culvert
			3.8	855.9	top of headwall
0+00			4.7	855.0	on left looking downstream
0+03			6.2	853.5	
0+05			8.6	851.1	edge of creek & water surface
0+08			9.8	849.9	
0+10			10.0	849.7	& culvert
0+13			10.3	849.4	
0+15			8.6	851.1	
0+18			7.1	852.6	

Reduced DJ

Murphy Drain

Foot Bridge @ #133

3-14-79



See picture #1, Film 120

For creek bottom shots see pg 29, this book

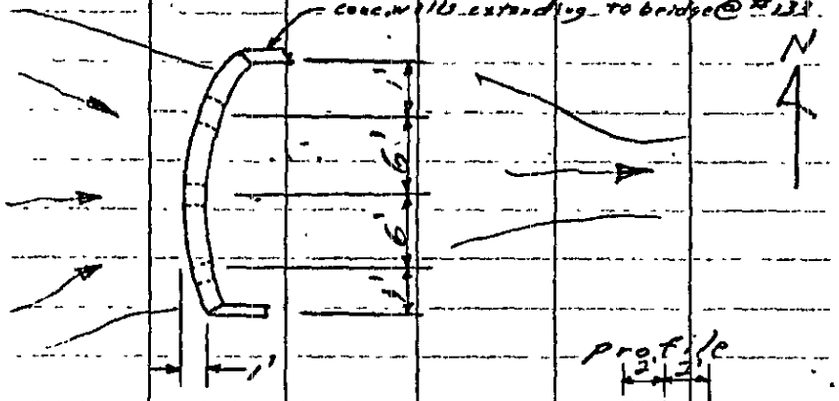
BS	+S	HI	-S	Elev	Description
New BM				858.92	on Bridge, pg 18, this book
	0.74	859.66			
			1.6	858.1	Top of headwall
			4.5	855.2	Bottom corners of headwall — also top of weir @ 133-A
			4.5	855.2	inside top of creek chan.
			5.5	854.2	top of walls in chan
			3.8	855.9	Top of lawn at ℄ bridge
BM 15-23			0.79	858.91	
New BM			0.75	858.91	on Bridge, pg 18, this book

Reduced DJ

Murphy Drain

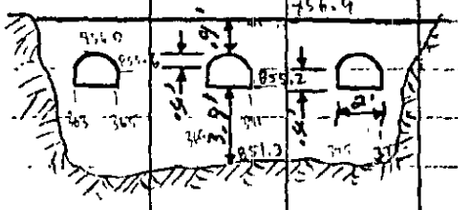
Weir at #133-A

12' u/s from #133





Looking u/s



Top of weir = 955.02 msl

364 370 376

3-14-79

47

22

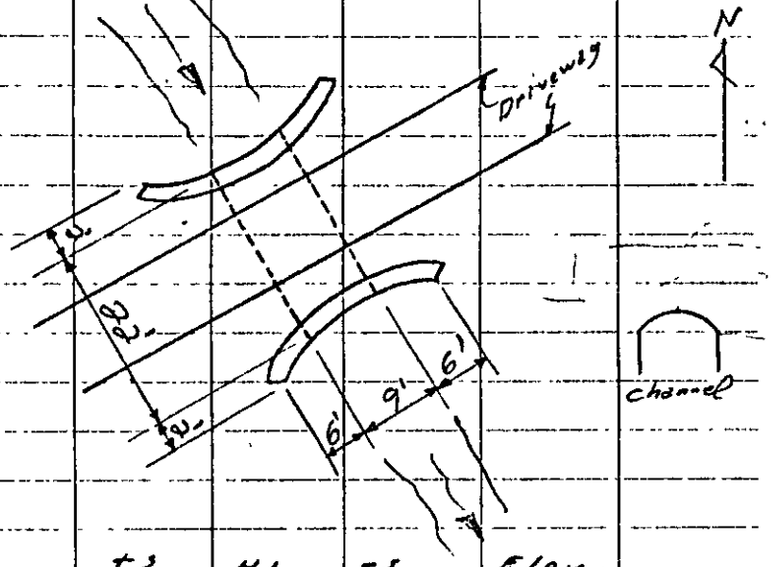
See picture #2, Film 120

3-14-79

Murphy Drain

Bridge at #134

150'+/- from #133-A



Sta	+S	HI	-S	Elev.	Description
New Bm				858.92	on bridge, pg 18 this Book
	2.99	861.91			
			3.7	858.2	Top of head wall
			5.4	856.6	Bottom ends of headwall
			6.8	855.2	inside top of arch
			7.7	854.3	top of channel walls
			4.4	857.6	& driveway over culvert
0+00			6.2	855.8	on left looking downstream
0+06			7.9	854.1	edge creek & water surface
0+12			9.2	852.8	& creek
0+17			8.0	853.0	

see picture #3, Film 120

X-Section taken at 4/s face

Reduced D.J

Murphy draw

#134 cont.

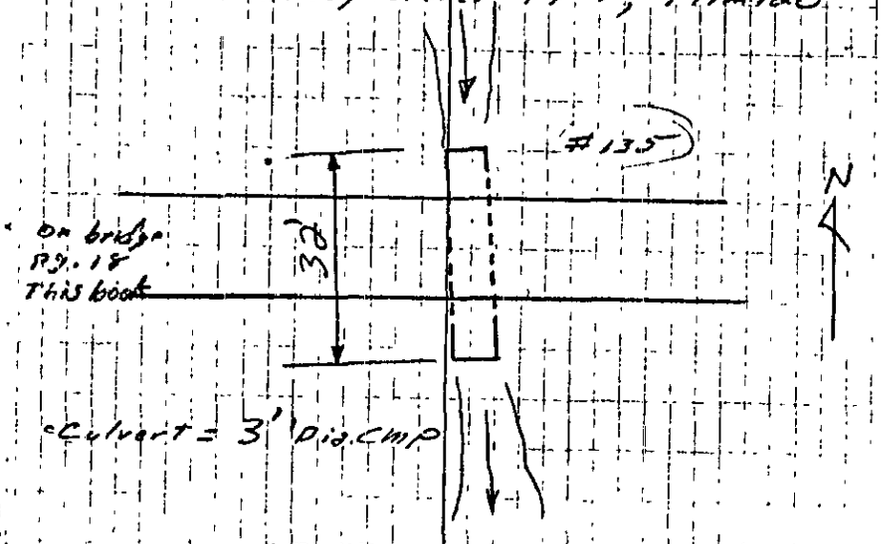
St 2	+3	H.I	-S	Elev
0+17		861.91	8.0	854.0
0+24			6.2	855.8
		Start culvert @ #135		
	126' u/s from #134			
			4.2	857.8
			6.1	855.9
			4.8	857.2
0+00			6.4	855.6
0+02			7.9	854.1
0+03			8.5	853.5
0+05			7.1	852.9
0+07			7.8	854.2
0+10			5.9	856.1
TP			4.01	857.90
	3.85	861.75		
New Bm			2.83	858.92

Reduced D.J

3-14-79

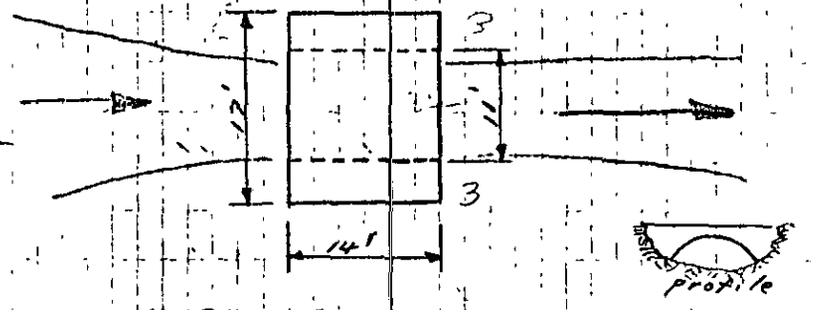
Description

- X-section taken at u/s face
Top curb over ℄ culvert
inside top of culvert
℄ driveway over ℄ culvert
on left looking D/S
edge creek & water surface
℄ creek



X-section #137 cont. 3-15-79

Sta	+S	HI	-S	Elev	Adj. Elev.	Description
0+07		873.34	12.0		861.3	℄ creek
0+10			11.7		861.6	
0+11			11.6		861.7	
0+12			10.2		863.1	water surface ℄ edge creek
0+15			8.5		864.8	
Set BM			7.84	865.50	865.48	top of conc bridge deck, ℄ of arch on northside, for private drive
	7.75	873.28				
TP 6			2.18	871.10		over Murphy Drain, midway
	9.34	880.44				between Opdyke Rd ℄ Woodward Ave
TP 5			0.97	879.47		
	8.58	888.05				
TP 4			6.68	881.37		
	4.70	886.07				
BM15-25			9.04	877.03	877.01	
	8.07	885.10				
TP 7			1.90	883.20		
	10.03	893.23				
TP 8			1.22	892.01		
	13.05	905.06				
BM10-6			2.84	902.22		vs 902.18 .04 high
	8.82	911.04				
BM10-7			1.76	909.28		vs 909.19 .09 high



(pictures 6, 7 & 8, Film 120)

Reduced acc.

476/

29

3-15-79 D. Cala ϕ

poly chdy - 30° N. Shamait ϕ

Murphy Drain

X-Sections 138.2, 138.4 138.8

At Woodward Ave

Start X-section #138.2 - 350' D/s from #137 - 150' D/s from D/s face of Bridge

Description

Note: use MPS Elev. for this BM, page 2228 This book

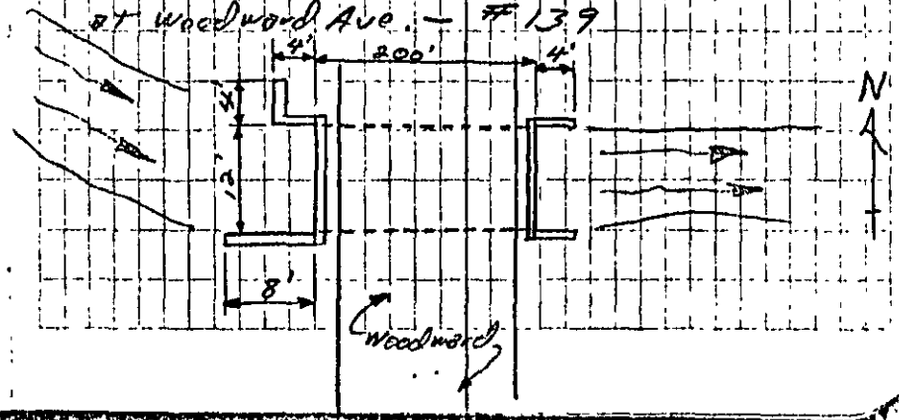
on left looking D/s

Water Surface ℄ edge of creek

Center Line creek

STA	+s	HI	-s	Elev
BM 15-25				877.01
	4.50	881.51		
0+00			11.5	870.0
0+02			11.8	869.7
0+03			12.5	869.0
0+04			12.8	868.7
0+06			12.9	868.6
0+10			12.4	869.1
0+11			11.6	869.9
0+15			11.2	870.3
TP			6.00	875.51
	6.07	881.58		
BM 15-25			4.55	877.03
		Reduced - ocl		

12' wide x 200' long box culvert at Woodward Ave. - #139



476/32

3-15-29

Murphy Drain

x-section 142 cont.

Sta	+s	HI	-	Elev
			8.9 ~~9.1~~	
0+02			~~9.6~~	
0+03			~~10.0~~	
0+07			10.1 ~~10.5~~	
0+10			~~10.4~~	
0+12			~~9.7~~	
0+14			~~9.4~~	
0+16			~~7.5~~	
			2.28 ~~1.22~~	
T.P.	8.88	~~8.96~~		
			6.40 ~~6.38~~	
Bm 15-15				

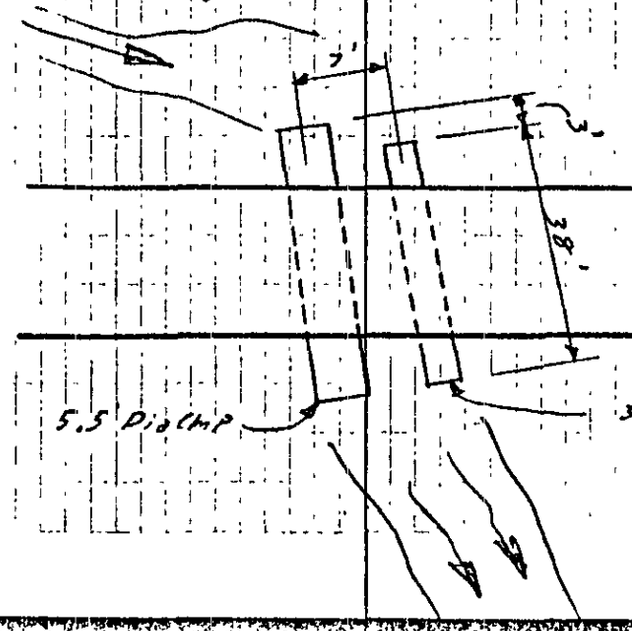
Description

℄ left culvert

℄ right culvert

edge creek & water surface

Culverts at Hickory Grove - #142



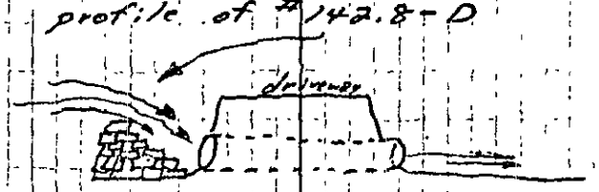
476/26

Murphy Drain
Bridge Details

3-14-79

#142.8-D = 6 1/4's from #142.8-C conc. & stone weir 48' wide with 2.5' drop

(Picture #14, Film 120)



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HYDRAULIC STRUCTURAL DATA

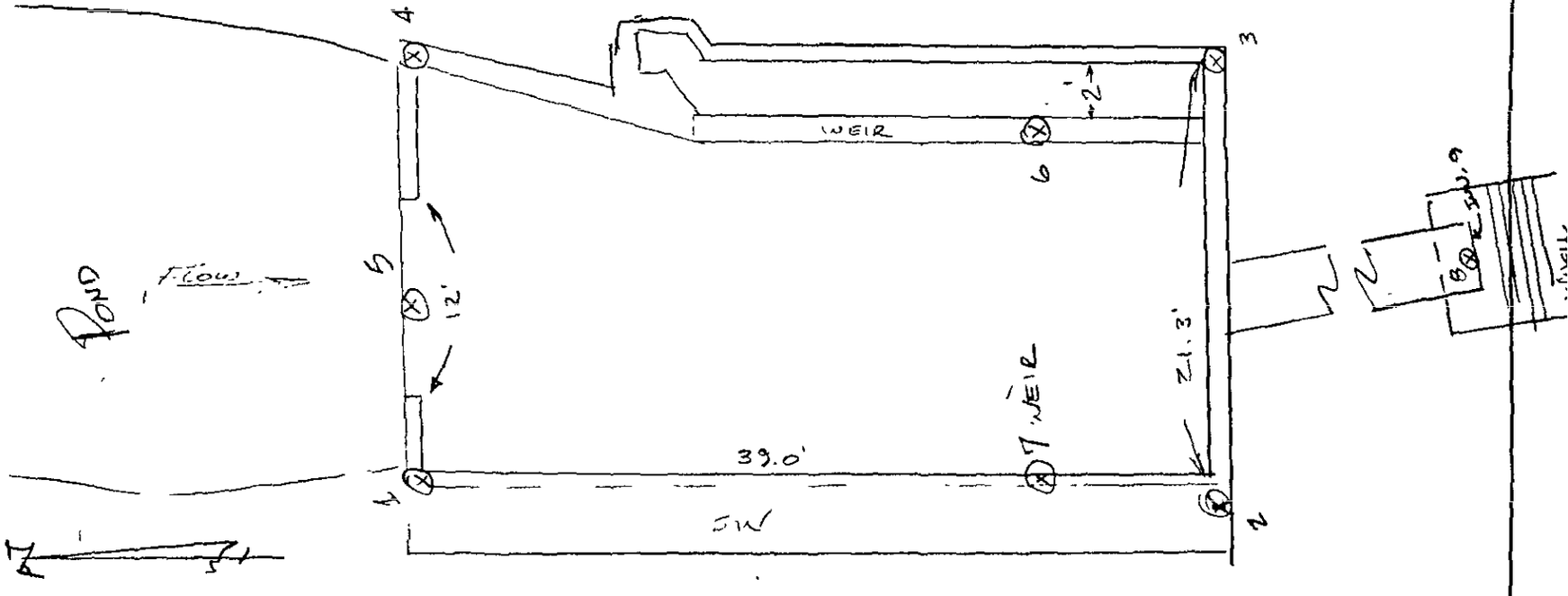
Code No. 6504-02

Name: Bloomfield Hills E.T.S.			By: McInnes
Date: 4-7-81	Feature: Morris Mill		Water Course:
Remarks:			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

Profile View

Plan View



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HYDRAULIC STRUCTURAL DATA

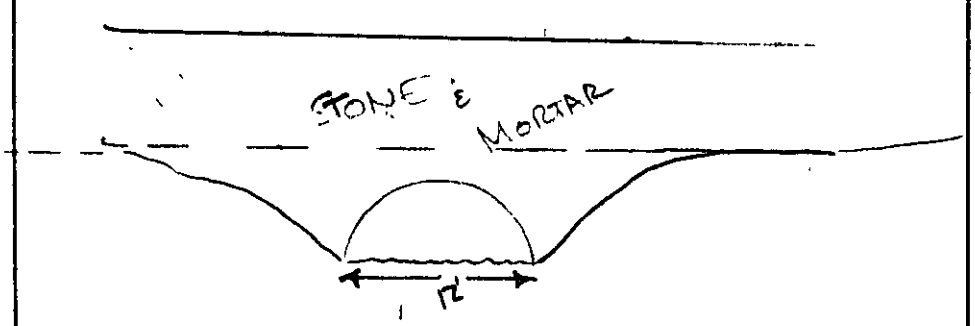
B.S. # 12

Code No. 6504.02

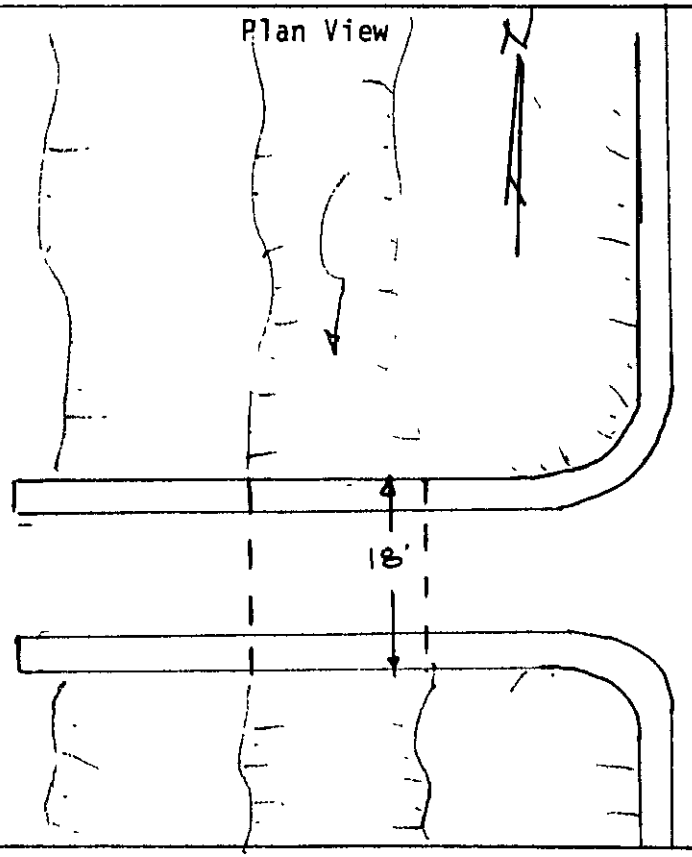
Job Name: Bloomfield Hills F.T.S.			By: R. Moses
Date: 10-17-80	Feature: Conc. Arch		Water Course: Quarton Branch
Remarks: Arch Bridge is opposite Address 700 Cranbrook per Map			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 795.7	Length: 18	Width of Deck: 12	Skew: —

FIELD SKETCH

Profile View



Plan View



476-A/60

Long Lake - Forest Lake Branch

X-Sections #303 & 303.2

4-30-79 D. Crim ☔

cloudy ~45° M. Shamont ✓

D. Jeffries ✓

Sta	+S	HI	-S	Elev	
BM 62				847.15	
	6.76	853.91			
TP			3.94	849.97	
	0.18	850.15			
TP			9.72	840.43	
	2.72	843.15			
TP			8.14	835.01	
	1.73	836.74			
TP			10.87	825.87	
	5.84	831.71			
TP			5.58	826.13	
	2.84	828.97			
TP			6.57	822.40	
	1.11	823.51			
TP			8.29	815.22	
	5.24	820.46			
Set BM		821.00	5.70	814.76	814.92
	6.08	820.84			

Start X-section #303 at n/s face of bridge

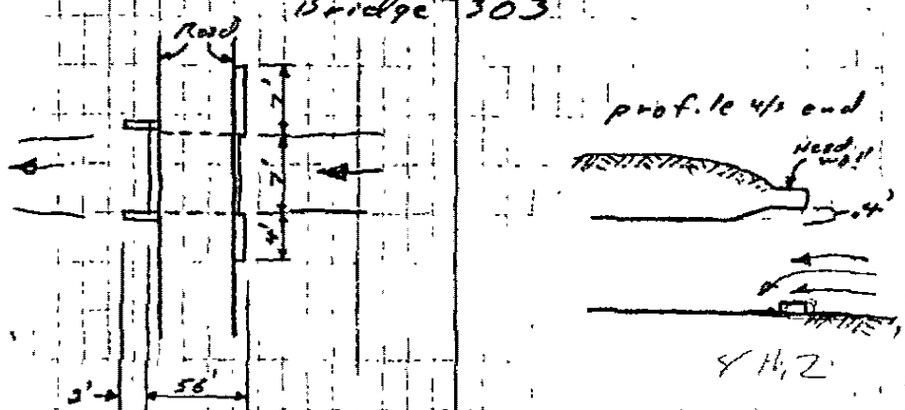
5.5 — 815.5

6.3 — 814.7

Remarks

Vaughn & Koswick, Hydrin p931, FB 476-B

Bridge #303



photos 7, 8, 9

Film 133

South west corner of east wing wall on south side of Valley Way Road approx 3/8 mile east of Vaughn Road

℄ Rd over bridge

Bottom conc on bridge

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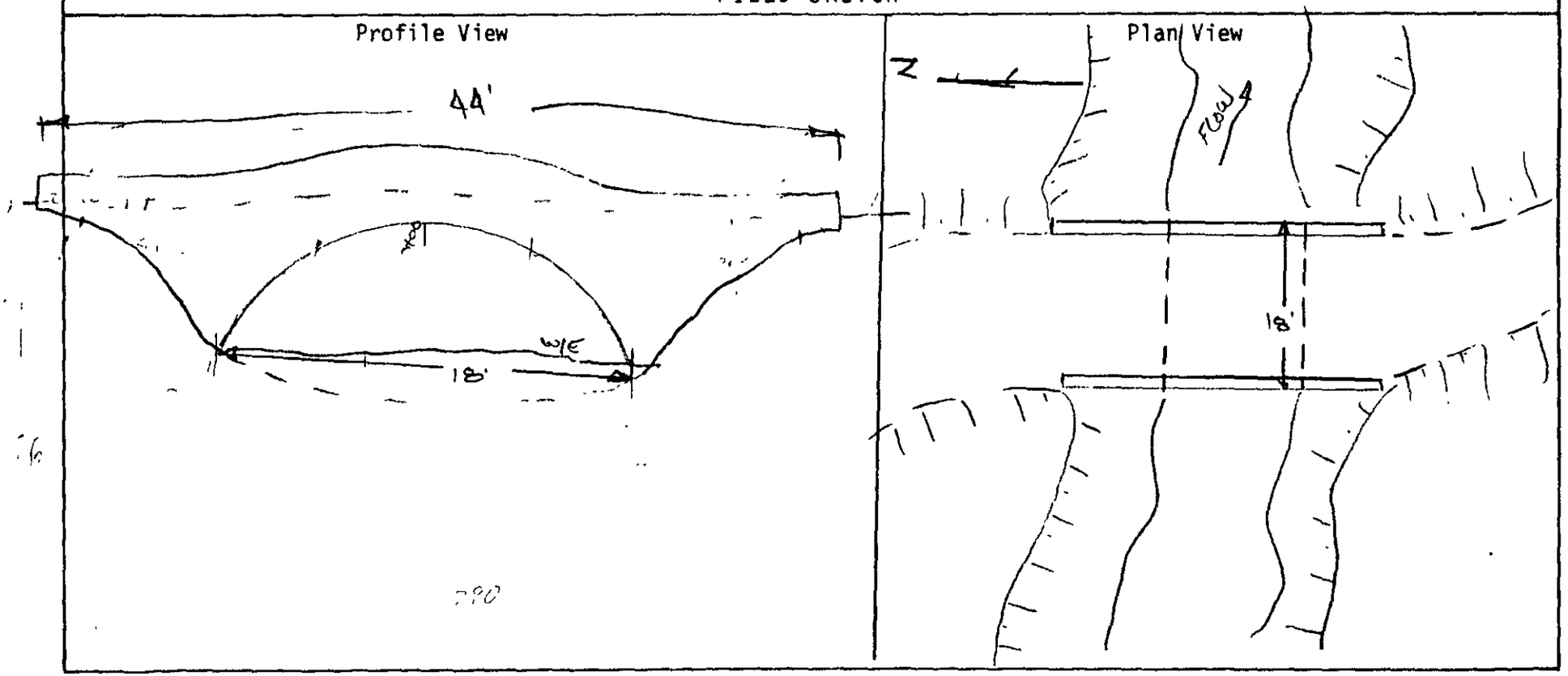
HYDRAULIC STRUCTURAL DATA

B.S. 23

Code No. 6504-02

Job Name: Bloomfield Hills F.I.S.			By: R Moses
Date: 10-21-80	Feature: Stone & Mortar Arch		Water Course: Forrest Lk Br.
Remarks: Bridge is in Cranbrook Inst. Prop.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 812.5	Length: 18'	Width of Deck: 18'	Skew: —

FIELD SKETCH



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

HYDRAULIC STRUCTURE DATA

BS # 24

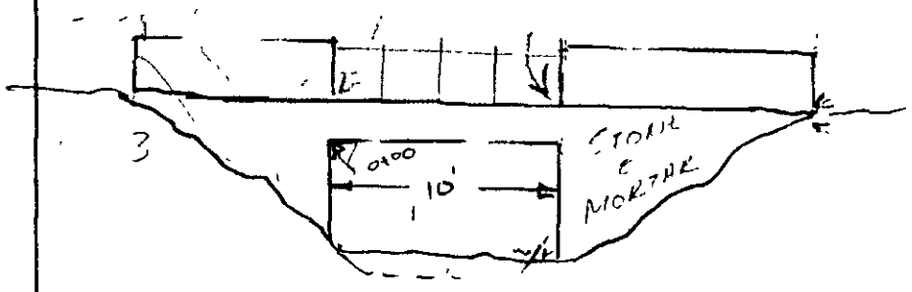
Code No. 6504-02

Job Name: Bloomfield Hills		By: R Moses
Date: 10-21-80	Feature: Stone & Mortar Box Culvert	Water Course: Forrest Lk Br.
Remarks: Bridge is on Cranbrook Insit. Prop		

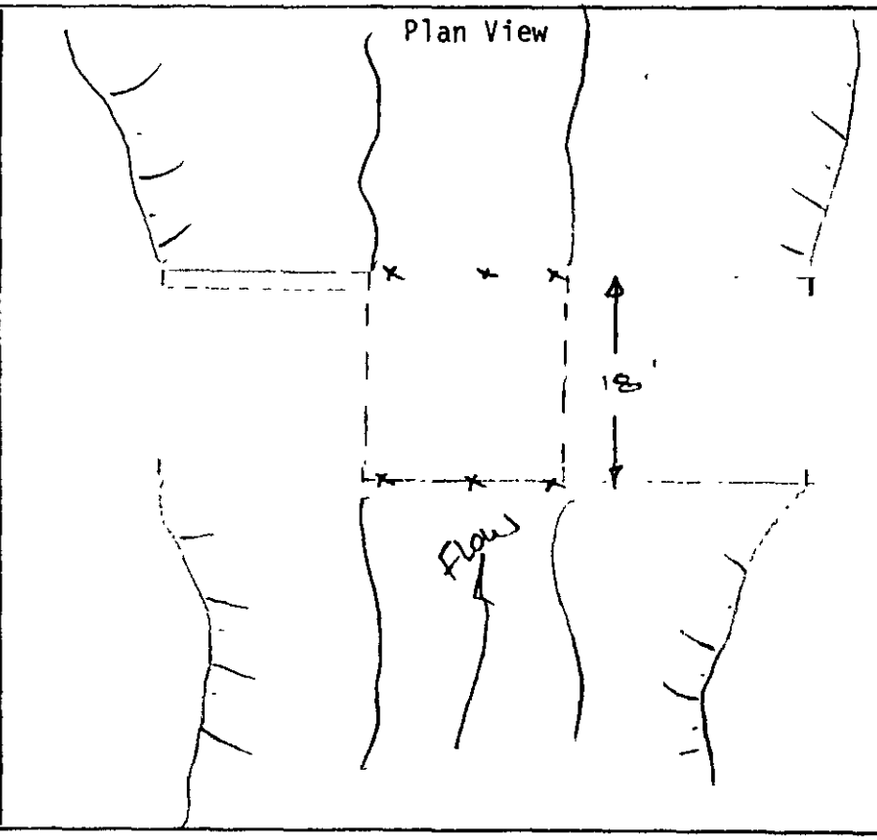
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 812.3	Length: 10'	Width of Deck: 18	Skew: —

FIELD SKETCH

Profile View



Plan View



476-A/58

Long Lake - Forest Lake Branch

photos, weirs & foot bridges

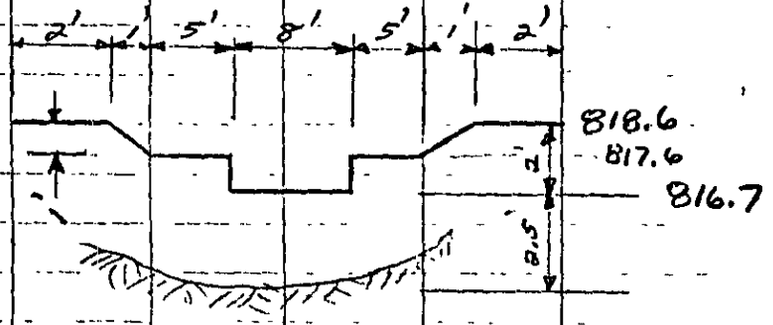
4-27-39

#305-A = 275' u/s from Bridge #304-A — photo #15 — Film 133

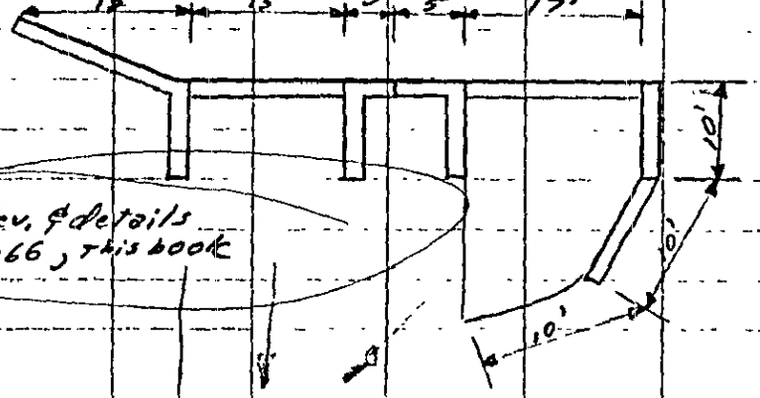
- 10' wide x 18' deep conc. box culvert
- railing opening = 10'
- conc. railing 20' each side culvert.

X = 5.6' Y = 1.2' Z = 2.4'

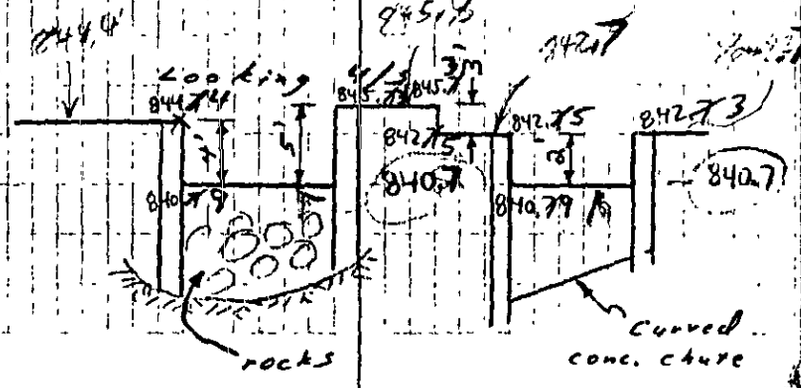
#305-B = 75' u/s from #305-A — photo #16 — Film 133



#308.8-A = 50' u/s from #308.5 — photo #17 — Film 133



Elev. & details p4.66, this book



3-7-79

476-A

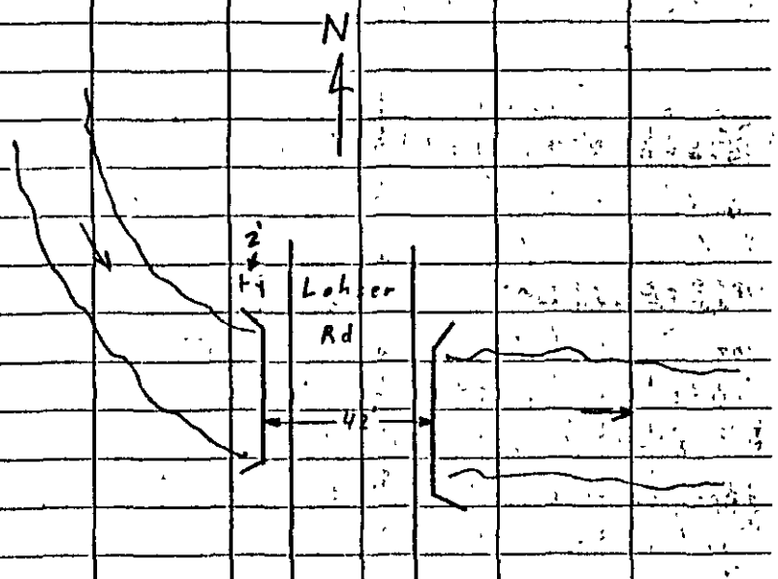
2

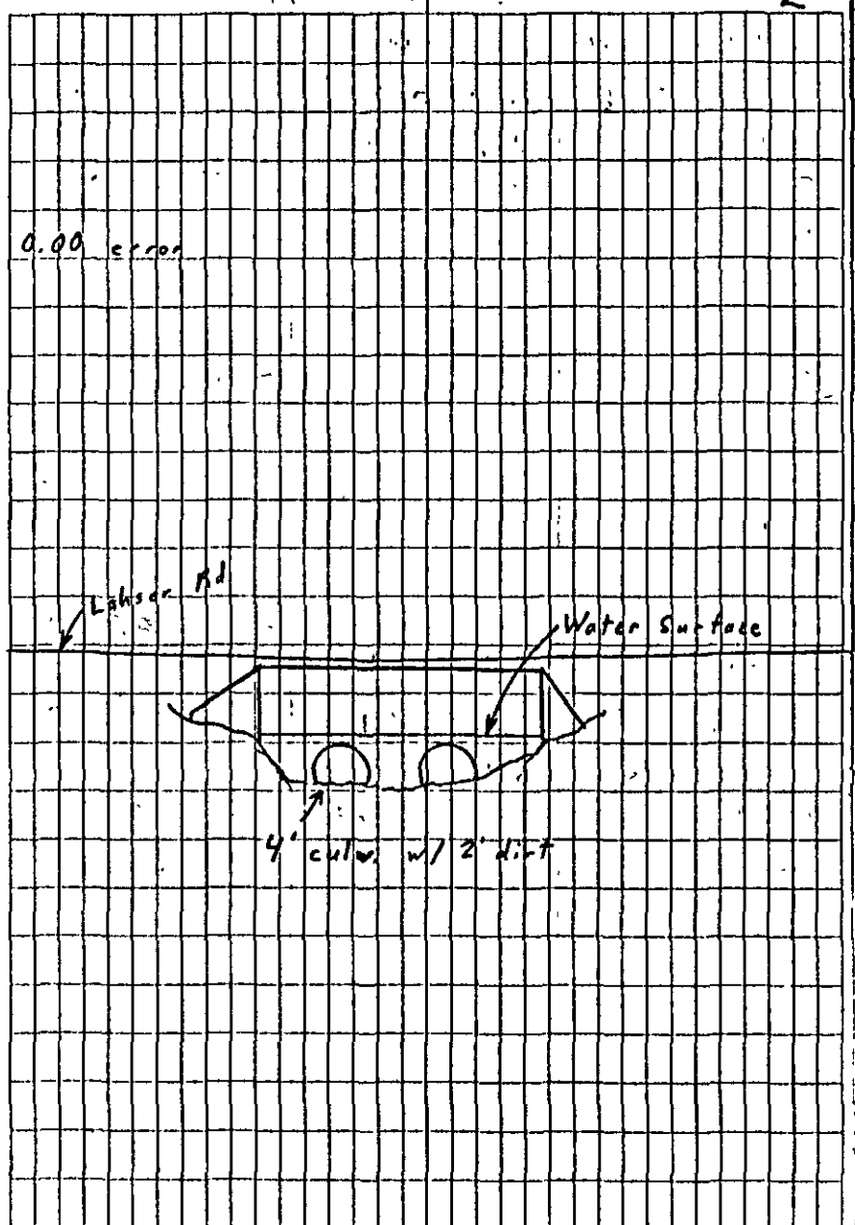
HUD-FIA H-4705

X-sec # 311 (cont'd)

Sta	+	HI	Elev
	2.96	863.53	
16-4		5.99	857.54

0.00 error





Long Lake Forest Lake

Stone arch footbridge 120' downstream 5

$K_e = 0.5$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $n = 0.033$, $R = .926$, $L = 14$

$K_f = 0.50$

$\Sigma K_{OR} = 1 + K_e + K_f = 1 + 0.5 + 0.5 = 2.0$

Private driveway

CMP with headwall

$K_e = 0.5$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $n = 0.024$, $L = 26$, $R = 1.2+$

$K_f = 0.33$

$\Sigma K_{OR} = 1 + K_e + K_f = 1 + 0.5 + 0.3 = 1.8$

Vacant Wood

Abandoned CMP

$K_e = 0.5$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $n = 0.024$, $L = 46$, $R = .5$

$K_f = 0.95$

$\Sigma K_{OR} = 1 + K_e + K_f = 1 + 0.5 + 0.45 = 1.95$

Footbridge over L

Flood plain

$K_e = 0.5$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $n = 0.026$, $L = 16$, $R = 1.85$

$K_f = 0.16$

$\Sigma K_{OR} = 1 + K_e + K_f = 1 + 0.5 + .16 = 1.66$

Long Lake - Fourth Lake

Std. and footbridge at section 14

$K_e = 0.5$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $n = 0.032$, $L = 18$, $R = 2.0$

$K_f = 0.21$

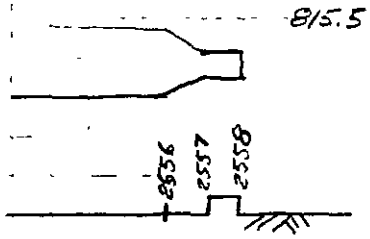
$\Sigma K.O.K = 1 + K_e + K_f = 1 + 0.5 + 0.21 = 1.7$

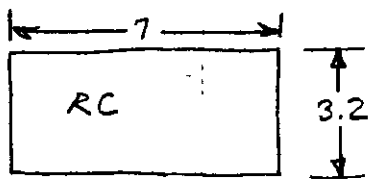
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY JMP DATE 3-31-81 JOB DESCRIPTION ELM HILL FIS LONGFOR BR SHEET ____ OF ____
SUBJECT SPECIAL BRIDGE PARAMETERS BRIDGE SECTION H JOB NO 6504-02

MPS 303
under bridge flowpath description:

profile





exit k is 1.0
∴ entrance k is 0.5
manning is 0.015 for R.C.
path length is 56'
area is 22.4'²
wetted perimeter is 20.4'
hydraulic radius is 1.098'
∴ friction k is 0.324
∴ XKOR is 1.824

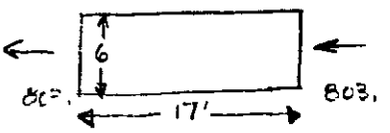
1ST ESTIMATE COFQ = 2.9

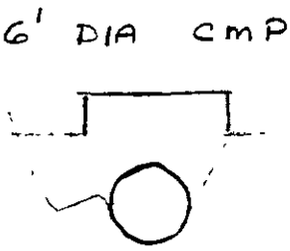
PIER SHAPE	0
XKOR	1.824
COFQ	
RDLEN	0
BWC	7.
PIERWIDTH	0
BAREA	22.4
SIDESLOPE	0
ELCHU	811.1
ELCHD	810.6

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY JMP DATE 3-31-81 JOB DESCRIPTION BLMHILL FIS LONGFOR BR SHEET ____ OF ____
SUBJECT SPECIAL BRIDGE PARAMETERS BRIDGE SECTION D JOB NO. 6504-02

MPS 301





exit k is 1.0

entrance k is 0.5

manning is 0.024 for CMP

path length is 17'

area is 28.27'²

wetted perimeter is 18.85'

hydraulic radius is 1.5'

∴ friction k is 0.166

∴ XKOR is 1.666

LET ESTIMATE COFQ = 2.9

XK	0
XKOR	1.666
COFQ	
RDLEN	0
BWC	6
BWP	0
BAREA	28.27
SS	0
ELCHU	803.
ELCHD	803.

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2300 Dixie Hwy., Pontiac, MI 48055

HYDRAULIC STRUCTURAL DATA

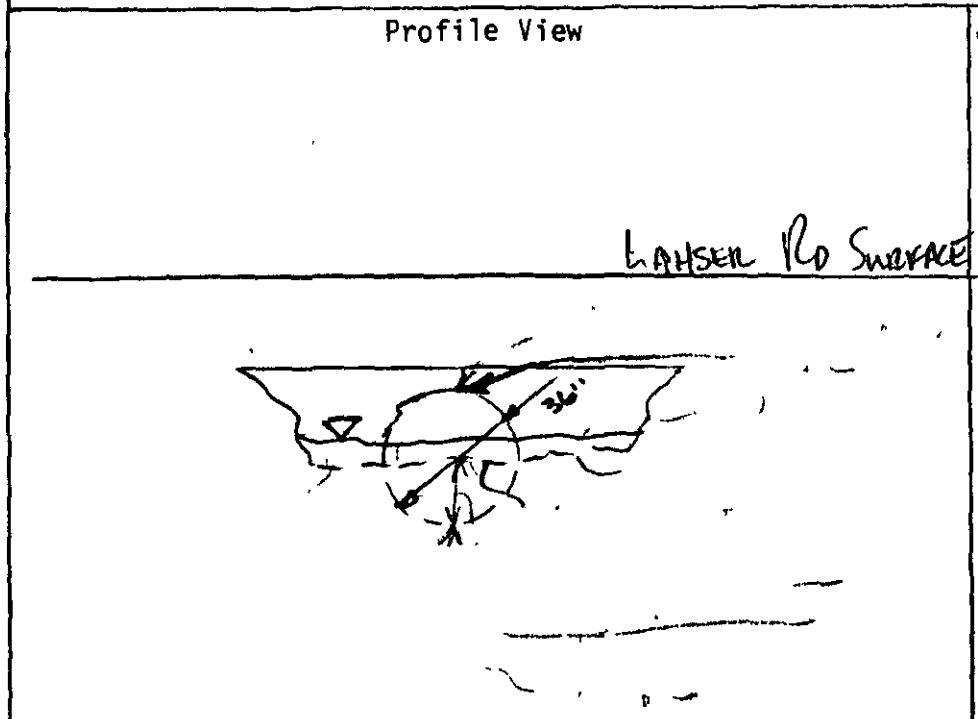
B.S. #36 39

Code No. 6504-02

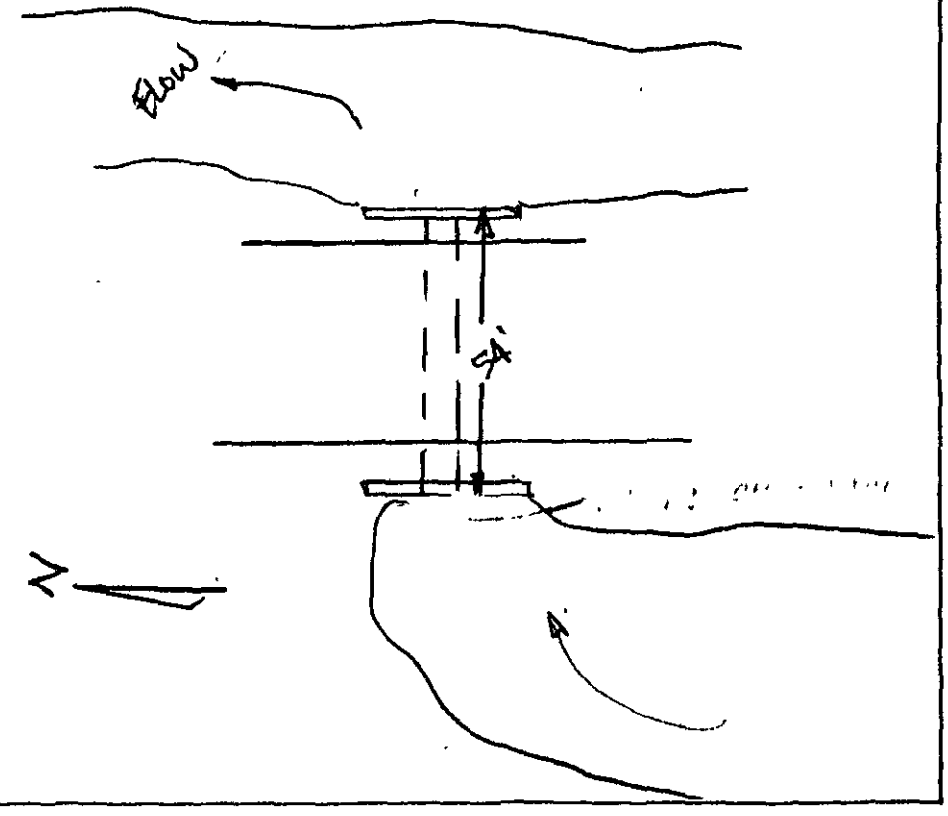
Job Name: BLOOMFIELD TWP.			By: R. MOSES
Date: 11-12-80	Feature: 36" CONC. X-CULVERT		Water Course: SODON LK. BRANCH
Remarks: ON LAHSER RD : PIPE HAS 33'± OF MUCK IN IT.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 820.1	Length: 54'	Width of Deck: 36"	Skew: —

FIELD SKETCH

Profile View



Plan View



Sonora Lake Branch

Down stream Orchard Ridge Road

Twin concrete pipes projecting from fill

$K_e = 0.9$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $L = 96'$, $n = 0.015$, $R = 1.5$

$K_f = \frac{29.1 \cdot 0.015^2 \cdot 96}{1.5^{4/3}} = 1.08$

$\Sigma K OR = 1 + K_e + K_f = 1 + 0.9 + 1.08 = 3.0$

Vaughn Creek

Bridge Culvert CMP

$K_e = 0.9$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $n = 0.024$ $L = 30$ $R = 1.25$

$K_f = 0.60$

$\Sigma K OR = 1 + K_e + K_f = 1 + 0.9 + 0.6 = 2.5$

Unnamed Unpaved Road

Corrugated metal pipe

$K_e = 0.9$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $n = 0.024$, $L = 36$, $R = 1.25$

$K_f = 0.81$

$\Sigma K OR = 1 + K_e + K_f = 1 + 0.9 + 0.8 = 2.7$

Laban

Headwall on a RCP

$K_e = 0.5$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ where $n = 0.015$, $L = 45$, $R = 0.75$

$K_f = 1.0$

$\Sigma K OR = 1 + K_e + K_f = 1 + .5 + 1 = 2.5$

Amy Drain Branch

4-20-79

D. Cain ☆

476-B/47

X-sections 201, ~~201.8~~, 202 & 202.8

clear - 60°

D. Jeffries ϕ

4' measured by R.C.P. on 3/19/81

M. Shonert ϕ

#201 is 4' Dia RCP, 280' long

#202 is 4' Dia CMP, 36' long

Sta	+S	HI	-S	Elev	
Bm #7				832.45	
	8.84	841.29			
TP			1.94	839.35	
	16.94	856.29			
TP			4.40	851.89	451.88
	2.68	854.57			
	Start X-section #201				
TP			23.46	831.11	
	2.34	833.45			
			9.3	824 ±5	
0+00			11.3		
0+02			12.1	821.35	
0+03			12.3	821.15	
0+06			12.7	820.75	
0+09			12.6	820.85	

Remarks

45.65

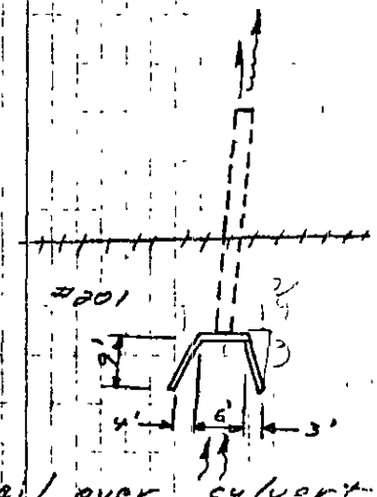
inside top of culvert (u/s)

on left looking D/S

edge creek & water surface

℄ creek

#201



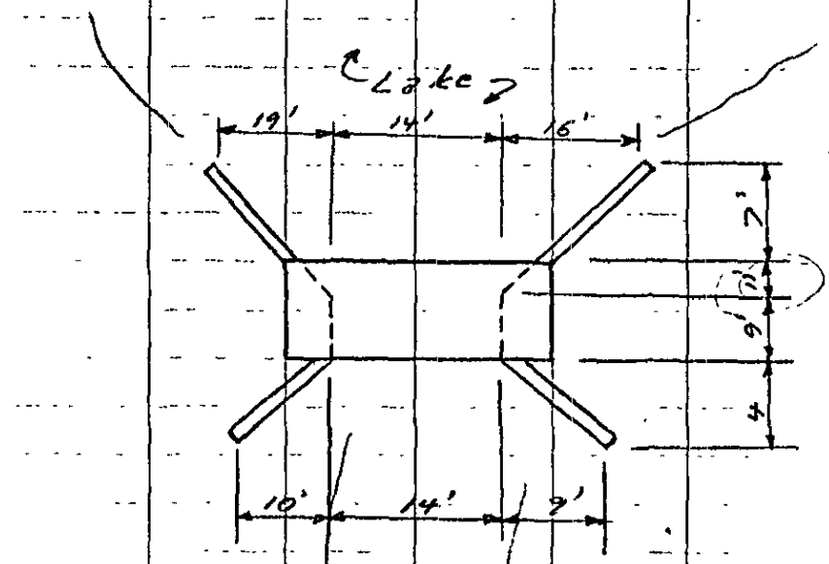
Top of highway rail over culvert at #201

at u/s face of culvert

Amy Drain Branch
x-section #203
Vhay Lake Dam

4-20-79

476-B



?

≈ 4

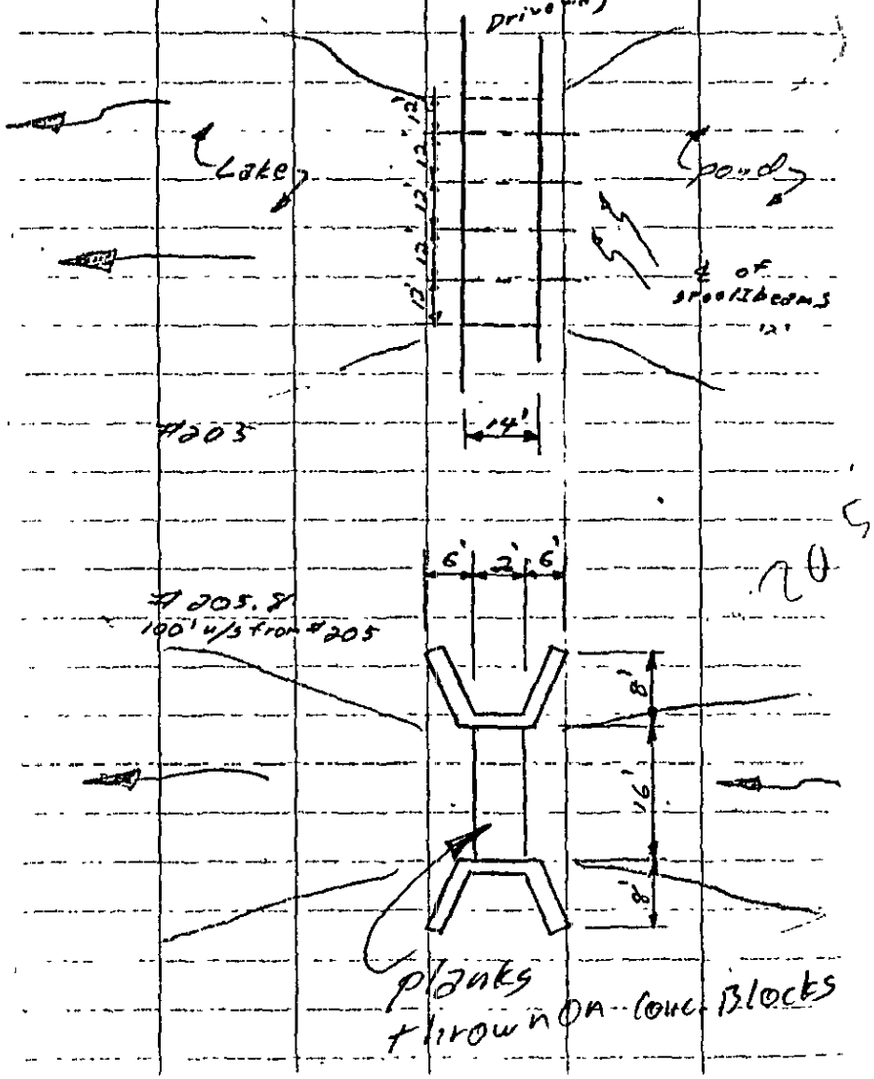
≈ 4.1

≈ 7

Amy Drain Branch

X-Section #205 &

footbridge # 205.8



4-20-79

4768
52

Photos 7, 8, 9 Film 13.0

Photo 10 Film 13.0

Top of weir = 833.8

Lake bottom u/s side weir = 831.3

Top of 2" thick bridge deck = 835.3

Lake bottom o/s side weir = 830.0

weir is 0.2' under water surface

476-B
63

4-23-79

Any Drain

Foot bridges

#210.8-A = 165' u/s from #210.8
4'x6' wood foot bridge
x = 1.5' y = 0.4'

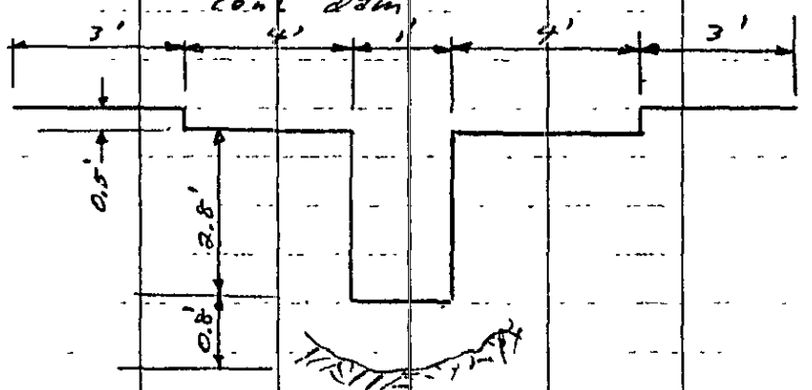
top=643.9 / 643.5 / 643.0 photo #14, F, 1m 130

#210.8-B = 25' u/s from #210.8-A
4'x13' wood foot bridge
x = 2' y = 0.6' z = 3.2'

top=643.7 / 643.1 / 642.5 photo #15, F, 1m 130

#210.8-C = 25' u/s from #210.8-B
Conc dam

photo #16, F, 1m 130



Amy Drain

Kingsley Terrace

Twin CMP mitred to slope

$K_e = 0.7$

$K_f = \frac{29 n^2 L}{R^{4/3}}$ where $n = 0.024$, $R = 0.75$, $L = 43$

$K_f = 1.05$

$XHOR = 1 + K_e + K_f = 1 + 0.7 + 1.05 = 2.75$

Eastwaye

CMP drop inlet mitred to existing slope

$K_e = 0.7$

$K_f = \frac{29 n^2 L}{R^{4/3}}$ where $n = 0.024$, $L = 50$, $R = 1.25$

$K_f = 0.53$

$XHOR = 1 + K_e + K_f = 1 + 0.7 + 0.5 = 2.2$

Bridge Detail

Culvert under Kensington & RR tracks

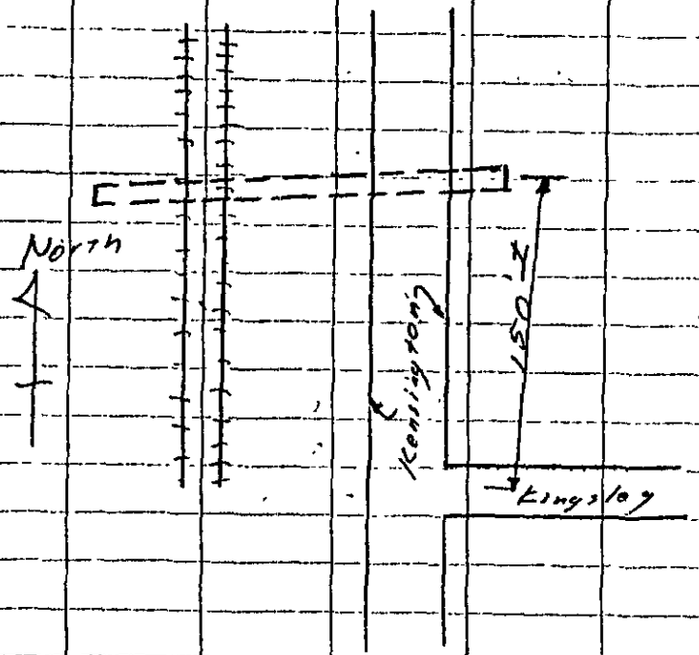
#2

Hamlin Drain Branch

3-5-79 D. Cain ☐

cldy - 35° N. Shandrick ☐

D. Jeffries ☐



Looking downstream

Top of RR tracks

Top of Kensington Road



Culvert is 3' DIA CMP, 167' long

STA	+S	HI	-S	Elev	Description
BM10-10				888.18	
	1.92	890.10			
TP 1			9.32	880.78	
	2.04	882.82			
TP 2			5.63	877.19	
	0.72	877.91			Paint bolt on 12-90 SP

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HYDRAULIC STRUCTURAL DATA

B.S. 46-A

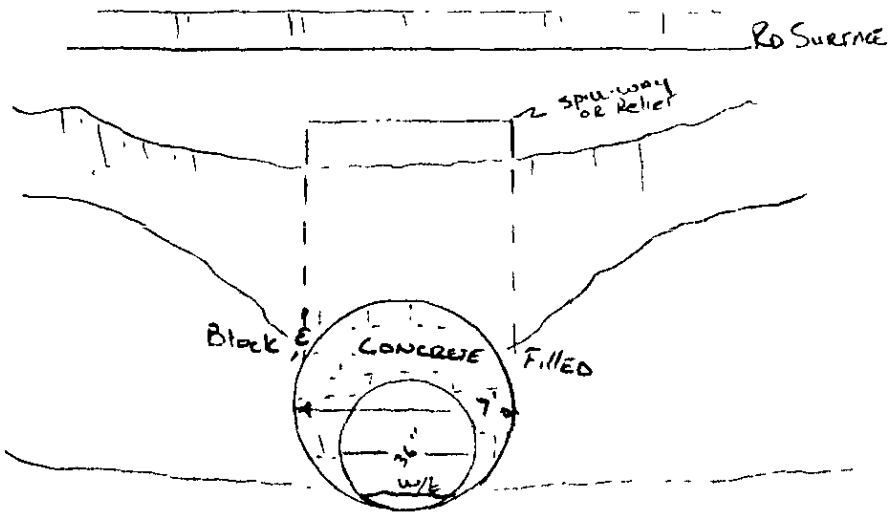
Code No. 6504-02

Job Name: Bloomfield Hills F.I.S.		By: R. Moses
Date: 1-15-81	Feature: 36" conc into 84" CMP	Water Course: Hamlin Drain
Remarks: New Bridge in New Sub Hunt Club Estates		

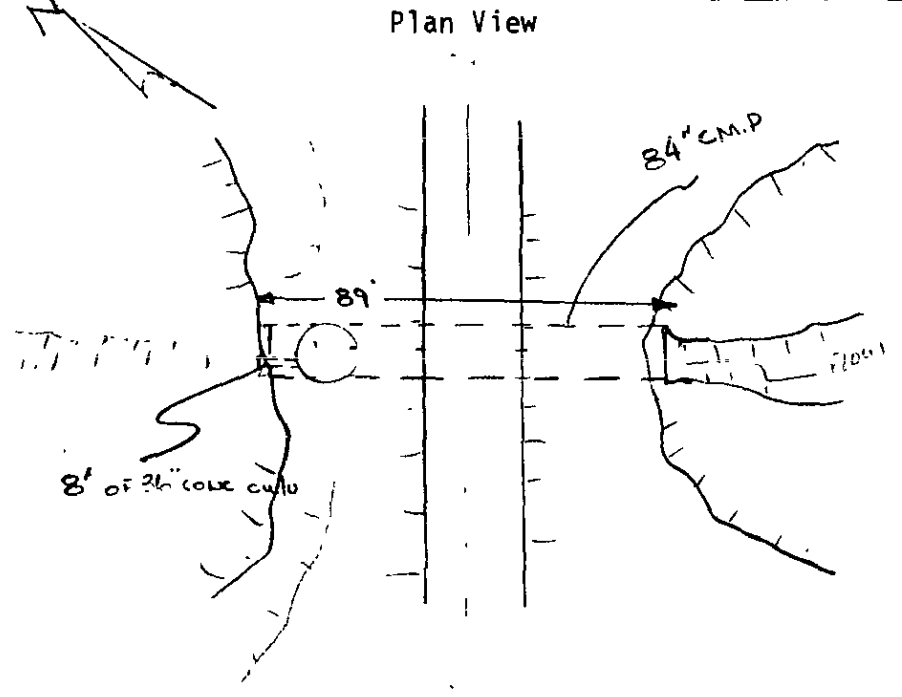
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 855.4	Length: 89	Width of Deck: 7	Skew: —

FIELD SKETCH

Profile View



Plan View



SPECIAL BRIDGE COEFFICIENTS

QUARTON RD. – Section 101 (145/199)

14' diameter C.M.P. mitered to slope; no wingwalls. ($K_e = 0.7$)

$XKOR = 1 + K_e + K_f + piers$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$

$K_f = \frac{29.1\,(.024)^2(54)}{(3.500)^{4/3}} = 0.17$ (.0307, 0.279)

$A = \pi r^2$

$A = 153.94$ sq. ft

$WP = \pi d$

$WP = 43.98$ ft.

$R = A/WP = 3.500$

$XKOR = 1 + 0.7 + 0.17 = 1.87$ (1.979)

COEFFICIENT OF DISCHARGE (C), Assume $H = 0.5$ ft.

From Fig 23 of Measurement of Peak Q at Dams by Indirect Methods, $C = 3.02$

PRIVATE ROADWAY BRIDGE – M.P.S. section #102 (798/838)

Concrete open span bridge w/3 openings. Assume no wingwalls & square nose & tail for piers"

Pier shape coefficient "K" (Variable XK) = 1.25

$K_e = 0.5$

$XKOR = 1 + K_e + K_f + piers$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .020$, $A = 173.8$ sq ft, $L = 40'$, $WP = 109.2$ ft.

$K_f = \frac{15.6955\,(.020)^2(40)}{} \quad \frac{29.1}{R^{4/3}} = 15.6955$

$K_f = 0.25$

$XKOR = 1 + 0.5 + 0.25 + .05 = 1.80$

COEFFICIENT OF DISCHARGE (C). Assume $H = 1.5$ ft. (paved)

XKOR = 1 + K_e + K_f + piers

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$

$K_f = \frac{29.1\,(.024)^2(54)}{(3.500)^{4/3}} = 0.17$

$A = \pi r$

$A = 153.94$ sq. ft

$WP = \pi d$

$WP = 43.98$ ft.

$R = A/WP = 3.500$

XKOR = 1 + 0.17 + 0.17 = 1.87

COEFFICIENT OF DISCHARGE (C), Assume H = 0.5 ft.
From Fig 23 of Measurement of Peak Q at Dams by Indirect Method, C = 3.02

PRIVATE ROADWAY BRIDGE - M.P.S. section #102 (798/838)
Concrete open span bridge w/3 openings. Assume no wingwalls & square nose & tail for piers"
Pier shape coefficient "K" (Variable XK) = 1.25
K_e = 0.5

XKOR = 1 + K_e + K_f + piers

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where n = .020, A = 173.8 sq ft
L = 40', WP = 109.2 ft

$K_f = 15.6955\,(.020)^2(40)$ $\quad \frac{29.1}{R^{4/3}} = 15.6955$

$K_f = 0.25$

XKOR = 1 + 0.5 + 0.25 + .05 = 1.80

COEFFICIENT OF DISCHARGE (C). Assume H = 1.5 ft. (paved)
From Fig. 23 of Measurement of Peak Discharge At Dams By Indirect Methods, C = 3.04

PRIVATE WALKWAY BRIDGE MPS Section # 103-B (2187/2197)

Concrete open span bridge; wingwalls are extension of sides ($K_e = 0.7$). Paved roadway only directly over stream → grass elsewhere

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where $n = .020$, $L = 10$ ft., $\frac{29.1}{R^{4/3}} = 13.6414$

$K_f = 13.6414 (.020)^2 (10) = 0.05$

$XKOR = 1 + 0.7 + 0.05 = \underline{1.75}$

COEFFICIENT OF DISCHARGE (c). Assume $H = 1.0$ ft. From Measurement of Peak Discharge At Dams by Indirect Methods, Fig. 23, $c = 2.83$ (assume gravel).

ENDICOTT LAKE DAM –

Concrete dam with wood stop logs or metal gates. Assume water thru gates as orifice flow & flow over top of dam as weir flow. Wingwalls are an extension of sides; $K_e = 0.7$

$XKOR = 1 + K_e + K_f + pier$

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where $n = .015$, $L = 1'$, $A = 53.7$ sq. ft

$wp = 90.2$ ft.

$K_f = \frac{29.1 (.015)^2 (1)}{(53.7/90.2)^{4/3}} = 0.01$

$XKOR = 1 + 0.7 + 0.01 + 0.05 = \underline{1.76}$

VARIABLE XK for pier shape coefficient = 1.05 (90° triangular nose & tail).

COEFFICIENT OF DISCHARGE (c). Assume $H = 0.5$ ft. From Measurement of Peak Discharge at Dams by Indirect Methods, Fig. 23, $c = 3.02$ (paved).

SPECIAL BRIDGE COEFFICIENTS
cont

Chesterfield Rd. WEST — New bridge — data taken from construction plans. Twin 10'11" x 7'-1" CMP-arches ; mitered to slope (no wingwalls), $K_e = 0.7$

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $R = 2.07$ $A = 61 \times 2 = 162$

$n = .0315$ $L = 44$ ft.

$K_f = \frac{29.1\,(.0315)^2(44)}{(2.07)^{4/3}} = 0.48$

$XKOR = 1 + 0.7 + 0.48 = 2.18$

Coefficient of discharge (c): Assume $H = 1.0'$. From Measurement of Peak Discharge At Dams By Indirect Method, Fig. 23, $C = 3.04$ (paved).

Chesterfield Rd. (EAST) — Concrete box 3.4' x 7' with paved concrete flume channel continuing dis of bridge. Wingwalls are an extension of sides ; $K_e = 0.7$.

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .015$, $L = 15'$, $A = 3.4' \times 7' = 23.8'$

$WP = 3.4 + 3.4 + 7 + 7 = 20.8$ ft.

$K_f = \frac{29.1\,(.015)^2(15)}{(23.8/20.8)^{4/3}} = 0.08$

$XKOR = 1 + 0.7 + 0.08 = 1.78$

Coefficient of discharge (c) ; Assume $H = 0.5'$. From Measurement of Peak Discharge at Dams By Indirect Methods, Fig. 23, $C = 3.02$ (paved).

SPECIAL BRIDGE COEFFICIENTS

(6855)

M.P.S. BRIDGE SECTION # 109 — Twin concrete circular arches (2 channels) (natural stream bottom) — concrete headwalls parallel to embankment

$K_e = 0.5$.

$XKOR = 1 + K_e + K_f + pier$

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where $n = .020$, $L = 18$ ft.

$A = 125.8$ sq. ft., $WP = 70.5$

$29.1/R^{4/3} = 13.4835$

$K_f = 13.4835(.020)^2(18)$

$K_f = 0.10$

$XKOR = 1 + 0.5 + 0.10 + 0.05 = \underline{1.65}$

COEFFICIENT OF DISCHARGE (C): Assume $H = 0.5$ ft., From Measurement of Peak Discharge by Indirect Methods, Fig 23, $c = 3.02$ (paved).

(7406)

M.P.S. BRIDGE SECTION # 111. - CRANBROOK COURT. - ½ of 15' diam. CMP pipe (natural stream bottom), Wingwalls ≈30° to barrel; $K_e = 0.4$.

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where $n = .035$, $L = 15$ ft.,

$A = 66.5$ sq. ft., $WP = 34.5$ ft.

$29.1/R^{4/3} = 12.1892$

$K_f = 12.1892(.035)^2(15)$

$K_f = 0.22$

$XKOR = 1 + 0.4 + 0.22 = \underline{1.62}$

COEFFICIENT OF DISCHARGE (c): Assume $H = 1.0$ ft. From Measurement of Peak Discharge @ Dams by Indirect Methods Fig. 23, $c = 3.04$ (paved)

SPECIAL BRIDGE CALCULATIONS

(11133)
CRANBROOK RD. - MPS Section 117. Box culvert w/ Concrete natural bottom; headwall parallel to embankment (no wingwalls), $K_e = 0.5$

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .020$, $L = 33$ ft., $A = 82.2$ sq. ft., $29.1/R^{4/3} = 10.6388$

$K_f = 10.6388 (.020)^2 (33)$

$K_f = 0.14$

$XKOR = 1 + 0.5 + 0.14 = \underline{1.64}$

COEFFICIENT OF DISCHARGE (C): Assume $H = 1.0$ ft.; $C = 3.04$ (paved)

(9889)
PRIVATE BRIDGE - F&A Section #10. Concrete arch w/natural bottom. No wingwalls (headwall ∥ to embankment); $K_e = 0.5$

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .020$, $L = 12'$, $A = 76.7$ sq. ft., $29.1/R^{4/3} = 10.3951$

$K_f = 10.3951 (.020)^2 (12)$

$K_f = 0.05$

$XKOR = 1 + 0.5 + 0.05 = \underline{1.55}$

Coefficient of discharge (C): Assume $H = 1.0$ ft.; $C = 3.04$ (paved).

STONE & MORTAR ARCH BRIDGE on channel between CRANBROOK LAKE & MORRIS MILL (opposite 700 Cranbrook Rd).

Stone & mortar arch w/ natural stream bottom; headwall parallel to embankment, $K_e = 0.5$.

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .020$, $L = 18'$, $A = 40.2\ \square'$

$29.1/R^{4/3} = 42.8587$

$K_f = 42.8587\,(.020)^2(18)$

$K_f = 0.31$

$XKOR = 1 + 0.5 + 0.31 = 1.81$

COEFFICIENT OF DISCHARGE (C): Assume H = 1.0 ft.; From Measurement of Peak Discharge at Dams by Indirect Methods, fig. 23, C = 3.04 (pave

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(10689)

BRADY STREET BRIDGE - Concrete box w/ wingwalls extension of sides & natural bottom. $K_e = 0.7$

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $L = 20'$, $n = .020$, $A = 73.4$ sq. ft.

$29.1/R^{4/3} = 14.1278$

$K_f = 14.1278\,(20)(.020)^2 = 0.11$

$XKOR = 1 + 0.7 + 0.11 = \underline{1.81}$

COEFFICIENT OF DISCHARGE (C): Assume H = 1.0 ft.; From Measurement of Peak Discharge at Dams By Indirect Methods, Fig. 23, C = 3.04 paved.

STAIRWAY BRIDGE ATTACHED TO KINGSWOOD – Sect. 11553

Concrete bridge w/natural bottom. No wingwalls (headwall parallel to embankment); $K_e = 0.5$.

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where $n = .020$, $L = 11$ ft., $A = 62.9$ ft^2

$29.1 / R^{4/3} = 14.3750$

$K_f = (14.3750)(.020)^2(11)$

$K_f = 0.06$

$XKOR = 1 + 0.5 + 0.06 = \underline{1.56}$

Coefficient of discharge (C): Assume $H = 3.0$ ft.; For gravel surface $C = 3.05$

CRANBROOK LAKE DAMS – 2 concrete dams; one with sluice gate, the other with stop logs. Assume wingwalls are extension of sides; $K_e = 0.7$. One dam has 2' pier w/sq. nose & tail

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where $n = .017$, $L = 1$ ft., $A = 17.1$ ft^2

$29.1 / R^{4/3} = 100.7795$

$K_f = 100.7795(.017)^2(1) = 0.03$

$XKOR = 1 + 0.7 + 0.03 = \underline{1.73}$

Coefficient of Discharge (C): Assume $H = 2.0$ ft.; For Paved surface, $C = 3.04$.

SPECIAL BRIDGE COEFFICIENTS

TAMARAC WAY BRIDGE – (Sect. 14250) – Concrete arch bridge w/ natural bottom; wingwalls very small – assume headwall parallel to embankment, $K_e = 0.5$.

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .020$, $L = 23$ ft., $A = 110.2^{\square'}$

$29.1 / R^{4/3} = 8.7477$

$K_f = 8.7477 (.020)^2 (23)$

$K_f = 0.08$

$XKOR = 1 + 0.5 + 0.08 = \underline{1.58}$

COEFFICIENT OF DISCHARGE (c): Assume H = 1.0 ft. From Measurement of Peak Discharge @ dams by indirect methods, fig. 23, c = 3.04 (paved).

PROPOSED DRIVEWAY BRIDGE – (Sect. 14870); concrete open span bridge w/ 2 concrete piers (2' wide each). Assume piers to be square nose & tail. No wingwalls (headwall ∥ embankment, $K_e = 0.5$)

$XKOR = 1 + K_e + K_f + \text{piers}$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .025$, $L = 14'$,

$A = 372.4^{\square'}$, $29.1 / R^{4/3} = 10.8036$

$K_f = 10.8036 (.025)^2 (14)$

$K_f = 0.09$

$XKOR = 1 + 0.5 + 0.09 + .05 = \underline{1.64}$

COEFFICIENT OF DISCHARGE (c): Assume H = 0.5 ft. c = 3.02 (paved)

GUILFORD BRIDGE (15659) - concrete arch bridge with natural stream bottom & wingwalls at ≈45° to barrel, ($K_e = 0.4$).

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .020$, $L = 19'$; $A = 59.5^{D'}$

$29.1 / R^{4/3} = 15.3324$

$K_f = 15.3324 (.020)^2 (19) = 0.12$

$XKOR = 1 + 0.4 + 0.12 = \underline{1.52}$

COEFFICIENT OF DISCHARGE (c): Assume $H = 1.0$ ft. For gravel surface, $c = 2.83$

WOODWARD AVE. BRIDGE (17205) - concrete box (rather poor condition) with natural bottom, wingwalls are an extension of sides, $K_e = 0.7$.

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\, n^2 L}{R^{4/3}}$ where $n = .020$, $L = 160$ ft., $A = 35.4^{D}$ ~~37.3~~

~~$29.1 / R^{4/3} = 24.1864$~~

~~$K_f = 24.1864 (.020)^2 (160)$~~

~~$K_f = 1.55$~~

~~$XKOR = 1 + 0.7 + 1.55 = 3.25$~~

WP - 3.6 ft.

R - 1.13

$R^{1/3}$ - 1.130

COEFFICIENT OF DISCHARGE (c): Assume $H = 0.5'$. $c = 3.02$ (paved)

$K_f = \frac{29.1 (.020)^2 (160)}{1.3960} = \underline{1.33}$

$XKOR = 1 + 0.7 + 1.33 = \underline{3.03}$

PRIVATE DRIVEWAY BRIDGE TO OFFICE COMPLEX (dls of Long Lake Rd.) - Sect. 20140 (J&A-17): Triple 6.9' x 4.4' eliptical concrete culverts; wingwalls @ ≈ 60° to barrel, $K_e = 0.4$.

$$XKOR = 1 + K_e + K_f$$

$$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$$ where $n = .015$, $L = 136$ ft., $A = 3 \times 24.8 = 74.4$ sq. ft., $R = 1.352$

$$K_f = \frac{29.1\ (.015)^2\ (136)}{(1.352)^{4/3}}$$

$$K_f = 0.60$$

$$XKOR = 1 + 0.4 + 0.60 = \underline{2.00}$$

Coefficient of discharge (c): Assume H = 1.5 ft.; From Measurement of Peak Discharge @ Dams by indirect methods, fig. 23, c = 3.04 (paved)

LONG LAKE ROAD BRIDGE (20354)(MPS #126): 2 CMP culverts, one 4' diameter RCP, the other a 4'-2" x 2'-7" CMP arch. Wingwalls Pipe #1 ≈ 60° to barrel ($K_e = 0.4$); Wingwall Pipe #2 assumed to be an extension of sides ($K_e = 0.7$)

PIPE #1 → 4' diam

A = 12.566
R = 1.0
n = .015
L = 84'

PIPE #2 → (4'-2" x 2'-7")

A = 8.7 sq ft.
R = 0.791
n = .025
L = 84'

PIPE #1

$$K_f = \frac{29.1\ (.015)^2\ (84)}{(1.0)^{4/3}} = 0.55$$

$XKOR = 1 + 0.4 + 0.55 = \underline{1.95}$

PIPE #2

$$K_f = \frac{29.1\ (.025)^2 (84)}{(0.791)^{4/3}} = 2.09$$

$XKOR = 1 + 0.7 + 2.09 = 3.79$

$$K_{equiv.} = \left[\frac{(12.566 + 8.7)}{\frac{12.566}{\sqrt{1.95}} + \frac{8.7}{\sqrt{3.79}}}\right]^2 = \left[\frac{21.266}{8.999 + 4.469}\right]^2 = \underline{2.49}$$

Coefficient of discharge (C): Assume H = 1.5 ft. ; C = 3.04 (pa

---

NEW GOLF COURSE BRIDGE ≈75' dls of IRRIGATION LAKE OUTLET (22013/22025): Smooth homemade sheet metal eliptical pipe, approximately 6'-1" x 4'-7" in size (looks like an old boiler pipe). Projecting pipe w/no headwall, $K_e = 0.9$.

$$XKOR = 1 + K_e + K_f$$

$$K_f = \frac{29.1\, n^2 L}{R^{4/3}} \quad \text{where } n = .016,\ L = 12 \text{ ft.},\ A = 22.0 \text{ ft}^2,\ R = 1.29$$

$$K_f = \frac{29.1\,(.016)^2(12)}{(1.29)^{4/3}} = 0.06$$

$$XKOR = 1 + 0.9 + 0.06 = \underline{1.96}$$

COEFF. of DISCHARGE (C): Assume H = 1.0 ft. ; C = 2.83 (gravel)

GOLF COURSE BRIDGE @ IRRIGATION LAKE OUTLET (22098/22112): 2 outlets one concrete box w/natural bottom & one 48" CMP pipe. Assume box culvert to have wingwalls as an extension of sides; $K_e = 0.7$. Assume square edge headwall with 48" CMP; $K_e = 0.5$

PIPE #1 (box culvert)

A = 12.6 sq. ft. ; WP = 17.1 ft.

R = 12.6/17.1 = 0.737

n = .020 , L = 14 ft.

$$K_f = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.020)^2(14)}{(0.737)^{4/3}}$$

$K_f = 0.24$

$XKOR = 1 + 0.7 + 0.24 = \underline{1.94}$

PIPE #2 (48" CMP)

A = 12.566 , R = 1.0

n = .025 , L = 35 ft.

$$K_f = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.025)^2(35)}{(1.0)^{4/3}}$$

$K_f = 0.64$

$XKOR = 1 + 0.5 + 0.64 = 2.14$

REVISION for PIPE #2 XKOR K_e (K_f ...)

$$K_{equiv.} = \left[\frac{(A_1 + A_2)}{\frac{A_1}{\sqrt{K_1}} + \frac{A_2}{\sqrt{K_2}}}\right]^2 = \left[\frac{(12.6 + 12.6)}{\frac{12.6}{\sqrt{1.94}} + \frac{12.6}{\sqrt{2.14}}}\right]^2 = \left[\frac{25.2}{9.05 + 8.61}\right]^2 = \underline{2.04}$$

COEFF of DISC (C): Assume H 2.0 ft. C = 3.04 (pa

4.5 x 4.5

$A_1 = 12.57\ D'$ $A_2 = 20.25\ D'$

SECTION 1:

(4') $A = 12.57\ D'$

$R = 1.0$

$n = .025$

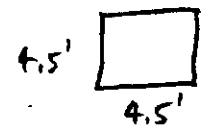
$L = 35$ ft.

$$K_{f_1} = \frac{29.1\, n^2 L}{R^{4/3}} =$$

$$K_{f_1} = \frac{29.1(.025)^2(35)}{(1.0)^{4/3}}$$

$$K_{f_1} = 0.64$$

SECTION 2:



$A = 20.25\ D'$

$WP = 18.0$, $R =$

$n = .025$

$L = 4$ ft.

$$K_{f_2} = \frac{29.1\, n^2 L}{R^{4/3}}$$

$$K_{f_2} = \frac{29.1(.025)^2(4)}{(20.25/18.0)^{4/3}}$$

$$K_{f_2} = 0.06$$

TOTAL LOSS FOR ENCLOSURE $= \frac{V_1^2}{2g} + K_{f_1}\frac{V_1^2}{2g} + K_b\frac{V_1^2}{2g} +$

$$K_{f_2}\frac{V_2^2}{2g} + K_e\frac{V_2^2}{2g} = XKOR\ \frac{V_2^2}{2g}$$

where $V_1 = \frac{A_2 V_2}{A_1}$

$V_1 = 1.61\ V_2$

TOT. LOSS $= \overset{2.59}{(1.61)^2}\frac{V_2^2}{2g} + \overset{1.66}{(0.64)(1.61)^2}\frac{V_2^2}{2g} + \overset{0.26}{0.1(1.61)^2}\frac{V_2^2}{2g}$

$$+ 0.06\frac{V_2^2}{2g} + 0.7\frac{V_2^2}{2g} = XKOR\frac{V_2^2}{2g} \quad ; \quad XKOR = 5.27$$

$$K_{equiv.} = \left[\frac{A_1 + A_2}{\frac{A_1}{\sqrt{K_1}} + \frac{A_2}{\sqrt{K_2}}}\right]^2 = \left[\frac{12.6 + 20.25}{\frac{12.6}{\sqrt{1.94}} + \frac{20.25}{\sqrt{5.27}}}\right]^2 = \left[\frac{(12.6 + 20.25)}{(9.04 + 8.82)}\right]^2 = \frac{(32.85)}{(17.86)} = 3.38$$

(24411) SPECIAL BRIDGE COEFFICIENTS

OPPYKE ROAD BRIDGE – 4' diam. RCP w/no wingwalls (headwall parallel to embankment), $K_e = 0.5$

$XKOR = 1 + K_e + K_f$

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where $n = .015$, $L = 31$ ft., $A = 12.57$, $R = 1.0$

$K_f = \frac{29.1\ (.015)^2 (31)}{(1)^{4/3}} = 0.20$

$XKOR = 1 + 0.5 + 0.20 = \underline{1.70}$

COEFFICIENT OF DISCHARGE (c): Assume $H = 1.5$ ft.; From Measurement of Peak Discharge @ Dams by Indirect Methods, fig. 23, $c = 3.04$ (paved).

WOODWARD AVE. BRIDGE – concrete box culvert w/natural channel bottom. Wingwalls are an extension of sides, $K_e = 0.7$

$XKOR = 1 + K_e + K_f$

$K_f = 29.1 \frac{n^2 L}{R^{4/3}}$ where $n = .020$, $L = 200$ ft., $A = 46.0$ ft., $29.1/R^{4/3} = 16.8199$

$K_f = (16.8199)(.020)^2 (200)$

$K_f = 1.35$

$XKOR = 1 + 0.7 + 1.35 = \underline{3.05}$

COEFFICIENT OF DISCHARGE (C): Assume $H = 1.0$ ft.; $C = 3.04$ (paved).

Bridge 1 in St. Louis County - Concrete arch w/ natural channel bottom; wingwalls in an arc along embankment & wingwalls @ 30° to 75° to barrel), Ke = 0.4.

XKOR = 1 + Ke + Kf

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where n = .020, L = 22', A = 14.7 sq. ft.

$29.1/R^{4/3} = 44.3158$

$K_f = 44.3158\,(.020)^2(22)$

$K_f = 0.39$

XKOR = 1 + 0.4 + 0.39 = **1.79**

Coefficient of Discharge (C): Assume H = 1.0 ft., c = 3.04 (paved)

PRIVATE DRIVEWAY BRIDGE (between Opdyke & Woodward) – MPS 137 (25894): Concrete arch w/ natural bottom; headwall parallel to embankment, Ke = 0.5.

XKOR = 1 + Ke + Kf

$K_f = \frac{29.1\ n^2 L}{R^{4/3}}$ where n = .020, L = 14 ft., A = 22.3 sq. ft.

$29.1/R^{4/3} = 42.6553$

$K_f = (42.6553)(.020)^2(14)$

$K_f = 0.24$

XKOR = 1 + 0.5 + 0.24 = **1.74**

Coefficient of discharge (c): Assume H = 1.5 ft., c = 3.04 (paved)

SPECIAL BRIDGE COEFFICIENTS

HICKORY GROVE RD. BRIDGE – MPS 142 – 2 pipes; one 5.5' diam CMP (assumed to be projecting from fill → $K_e = 0.9$), the other a 3' diam. CMP (also assumed to be projecting from fill).

PIPE #1 (5.5' CMP, 41 ft long)

- $n_1 = 0.024$; $R_1 = 1.375$ ft ; $L_1 = 41$ ft

$$K_{f_1} = \frac{29.1\, n_1^2 L_1}{R_1^{4/3}} = 0.45 \quad ; \quad A_1 = 23.76 \text{ ft}^2$$

$$XK\Phi R_1 = 1 + K_{e_1} + K_{f_1} = 2.35$$

Pipe #2 : (3' CMP ; 38 ft long)

$$n_2 = 0.024 \; ; \quad R_2 = 0.75 \text{ ft} \; ; \quad L_2 = 38 \text{ ft}$$

$$K_{f_2} = \frac{29.1\, n_2^2 L_2}{R_2^{4/3}} = 0.93 \quad ; \quad A_2 = 7.07 \text{ ft}^2$$

$$XK\Phi R_2 = 1 + K_{e_2} + K_{f_2} = 2.83$$

$$XK\Phi R_{eq} = \frac{(23.76 + 7.07)^2}{\left\{ \frac{23.76}{\sqrt{2.35}} + \frac{7.07}{\sqrt{2.83}} \right\}^2} = 2.45$$

$$BWC = A/D = (23.76 + 7.07)/5.5 = 5.61 \text{ ft}$$

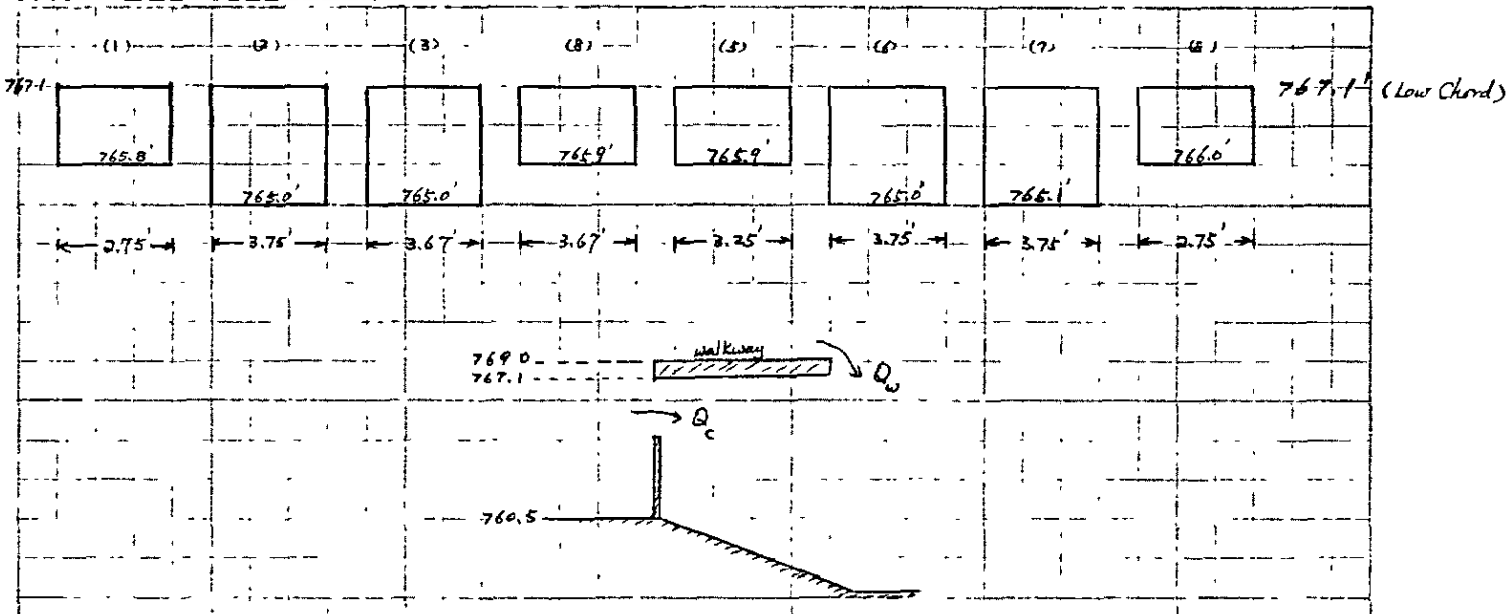
$$C = 3.04 \quad \text{(paved Road)}$$

APPENDIX C

SUPPLEMENTAL HAND CALCULATIONS

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY MSC DATE 6/9/81 JOB DESCRIPTION FIS - Bloomfield Hills SHEET 1 OF 5
SUBJECT Outflow Characteristics of Endicott Lake Dam JOB NO. 650a-02-L



There are eight (8) openings at Endicott Lake Dam (see above). Since tailwater elevations for the 10-, 50-, 100-, and 500-year floods are all lower than the minimum lower edges of the openings, hand calculation is used to determine headwater. From pp 4-4 and 4-5 of "Handbook of Hydraulics" by Brater & King (see attachment), if neglecting velocity of approach, the discharge through a rectangular orifice is

$$Q = \frac{2}{3} L \left(h_2^{3/2} - h_1^{3/2} \right)$$ (see Figure 4-4 of "Handbook of Hydraulics")

see eq. 4-16, $V^2/2g$ has been left off.

or introducing the value of h from Eq. (4-4),

$$h_l = \left(\frac{1}{C_v^2} - 1\right)\frac{v^2}{2g} \qquad (4\text{-}12)$$

Path of Jet. Figure 4-3 illustrates a jet discharging from a vertical orifice under a head h. x and y are, respectively, abscissa and ordinate of any point m in the path of the jet. If v is the velocity in the vena contracta, at the end of time t,

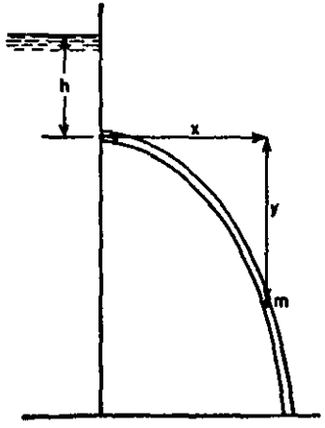


Fig. 4-3. Path of jet.

$$x = vt \qquad (4\text{-}13)$$

From the law of falling bodies,

$$y = \tfrac{1}{2}gt^2 \qquad (4\text{-}14)$$

and eliminating t from Eqs. (4-13) and (4-14),

$$x^2 = \frac{2v^2}{g}y \qquad (4\text{-}15a)$$

which is the equation of a parabola with its vertex at the orifice. Since

$$v = C_v\sqrt{2gh} \qquad (4\text{-}7)$$

Eq. (4-15a) can also be written

$$x^2 = 4C_v^2hy \qquad (4\text{-}15b)$$

Orifices under Low Heads. In deriving Eq. (4-10), the head producing discharge was assumed to be the head on the center of the orifice. Where the head on a vertical orifice is small in comparison with the height of the orifice, there is an appreciable difference between the true theoretical discharge and the discharge given by Eq. (4-10).

Figure 4-4 shows a rectangular orifice of width L and height M. h_1 and h_2 are the respective heads on the upper and lower edges of the orifice. Neglecting velocity of approach, the theoretical discharge through any elementary strip of area $L\,dy$,

discharging under a head y, is

$$dQ_t = L\sqrt{2gy}\,dy$$

which, integrated between the limits h_2 and h_1, gives

$$Q_t = \tfrac{2}{3}L\sqrt{2g}\,(h_2^{3/2} - h_1^{3/2}) \qquad (4\text{-}16)$$

When h_1 is zero

$$Q_t = \tfrac{2}{3}L\sqrt{2g}\,h_2^{3/2} \qquad (4\text{-}17)$$

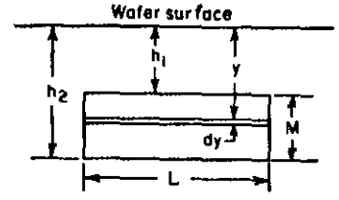


Fig. 4-4. Rectangular orifice.

which is the theoretical formula, without velocity-of-approach correction, for discharge over a weir.

Equation (4-16) gives the theoretical discharge for rectangular orifices. A similar but more complicated formula could be derived for circular orifices. For $h_1 = M$, Eq. (4-10) gives results about 1 per cent greater than Eq. (4-16), and for $h_1 = 2M$, about 0.3 per cent greater.

Equation (4-10) is generally employed for all orifices, including those discharging under low heads, deviation from the theoretical form of the formula being corrected for in the coefficient.

Discharge under Falling Head. Figure 4-5 shows a vessel filled with water to a depth h_1. The time required to lower the water surface to a depth h_2 is required. a is the area of orifice, and A is the area of water surface for a depth y. C is the coefficient of discharge. The increment of time dt required to lower the water the infinitesimal distance dy is

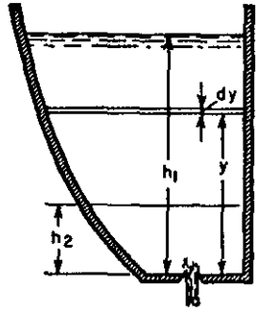


Fig. 4-5. Discharge under falling head.

$$dt = \frac{A\,dy}{Ca\sqrt{2gy}} \qquad (4\text{-}18)$$

From (4-18), if A can be expressed in terms of y, by integrating between limits h_1 and h_2, the time needed to lower the water surface the distance $h_1 - h_2$ can be gotten. Placing $h_2 = 0$ gives the time of emptying the vessel. Equation (4-18) applies to horizontal or inclined orifices provided the water surface does not fall below the top

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CONSULTING ENGINEERS

BY MSC DATE 6/9/81 JOB DESCRIPTION FIS - Bloomfield Hills SHEET 1 OF 5
SUBJECT Discharge from Endicott Lake Dam JOB NO. 6504-02-1

Headwater Elevation = 767.5 ft.

Opening No.	h_1	h_2	L	Q
1	0.4	1.7	2.75	3.6
2	0.4	2.5	3.75	9.3
3	0.4	2.5	3.67	9.1
4	0.4	1.6	3.67	4.3
5	0.4	1.6	3.25	3.8
6	0.4	2.5	3.75	9.3
7	0.4	2.4	3.75	8.7
8	0.4	1.5	2.75	2.9

Total Q = 51.0

$\sqrt{2g} \times$ = 409 cfs

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BY MSC DATE 6/9/81 JOB DESCRIPTION FIS - Bloomfield Hills SHEET 2 OF 5
SUBJECT Discharge from Endicott Lake Dam JOB NO. 6504-02-1

Headwater Elevation = 768.0 ft

Opening No.	h_1	h_2	L	Q
1	0.9	2.2	2.75	4.4
2	0.9	3.0	3.75	10.9
3	0.9	3.0	3.67	10.6
4	0.9	2.1	3.67	5.4
5	0.9	2.1	3.25	4.7
6	0.9	3.0	3.75	10.9
7	0.9	2.9	3.75	10.2
8	0.9	2.0	2.75	3.62

Total Q = 60.7

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BY MSC DATE 6/9/81 JOB DESCRIPTION FIS - Bloomfield Hills SHEET 3 OF 5
SUBJECT Discharge from Endicott Lake Dam JOB NO. 6504-02-1

Headwater Elevation = 769.0 ft.

Opening No.	h_1	h_2	L	Q
1	1.9	3.2	2.75	5.7
2	1.9	4.0	3.75	13.5
3	1.9	4.0	3.67	13.2
4	1.9	3.1	3.67	6.0
5	1.9	3.1	3.25	6.2
6	1.9	4.0	3.75	13.5
7	1.9	3.9	3.75	12.7
8	1.9	3.0	2.75	4.7

Total Q = 76.5

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CONSULTING ENGINEERS

BY MSC DATE 6/9/81 JOB DESCRIPTION FIS - Bloomfield Hills SHEET 4 OF 5
SUBJECT Discharge from Endicott Lake Dam JOB NO. 650d-02-1

Headwater Elevation = 769.5 ft

Opening No.	h_1	h_2	L	Q
1	2.4	3.7	2.75	6.2
2	2.4	4.5	3.75	14.6
3	2.4	4.5	3.67	14.3
4	2.4	3.6	3.67	7.6
5	2.4	3.6	3.25	6.7
6	2.4	4.5	3.75	14.6
7	2.4	4.4	3.75	13.8
8	2.4	3.5	2.75	5.2

Total Q = 83.0

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CONSULTING ENGINEERS

BY MSC DATE 6/9/81 JOB DESCRIPTION FIS - Bloomfield Hills SHEET 5 OF 5
SUBJECT Discharge from Endicott Lake Dam JOB NO. 6504-02-1

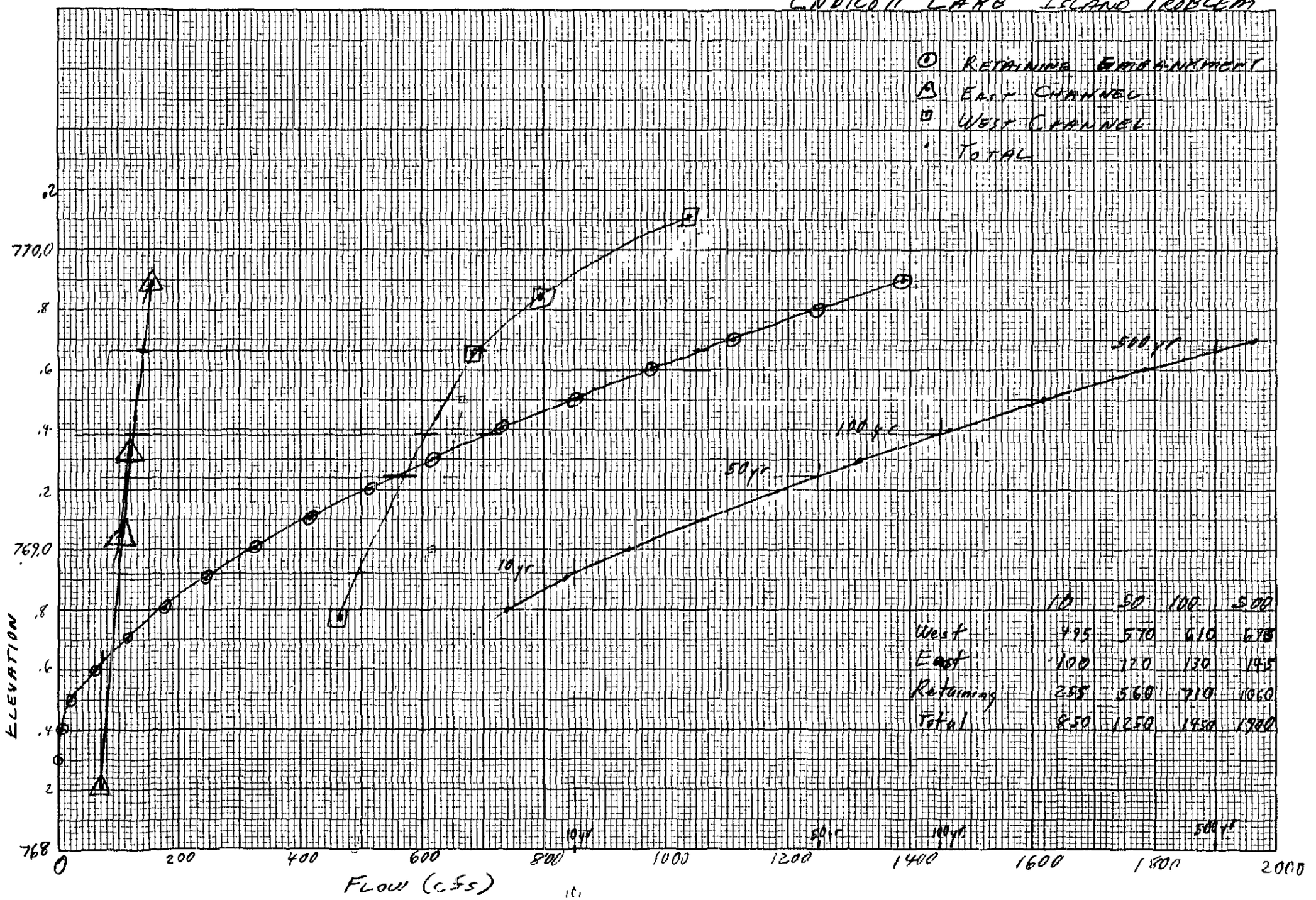
Headwater Elevation = 770.0 ft

Opening No.	h_1	h_2	L	Q
1	2.9	4.2	2.75	6.7
2	2.9	5.0	3.75	15.6
3	2.9	5.0	3.67	15.3
4	2.9	4.1	3.67	8.2
5	2.9	4.1	3.25	7.3
6	2.9	5.0	3.75	15.6
7	2.9	4.9	3.75	14.8
8	2.9	4.0	2.75	5.6

Total Q = 89.1

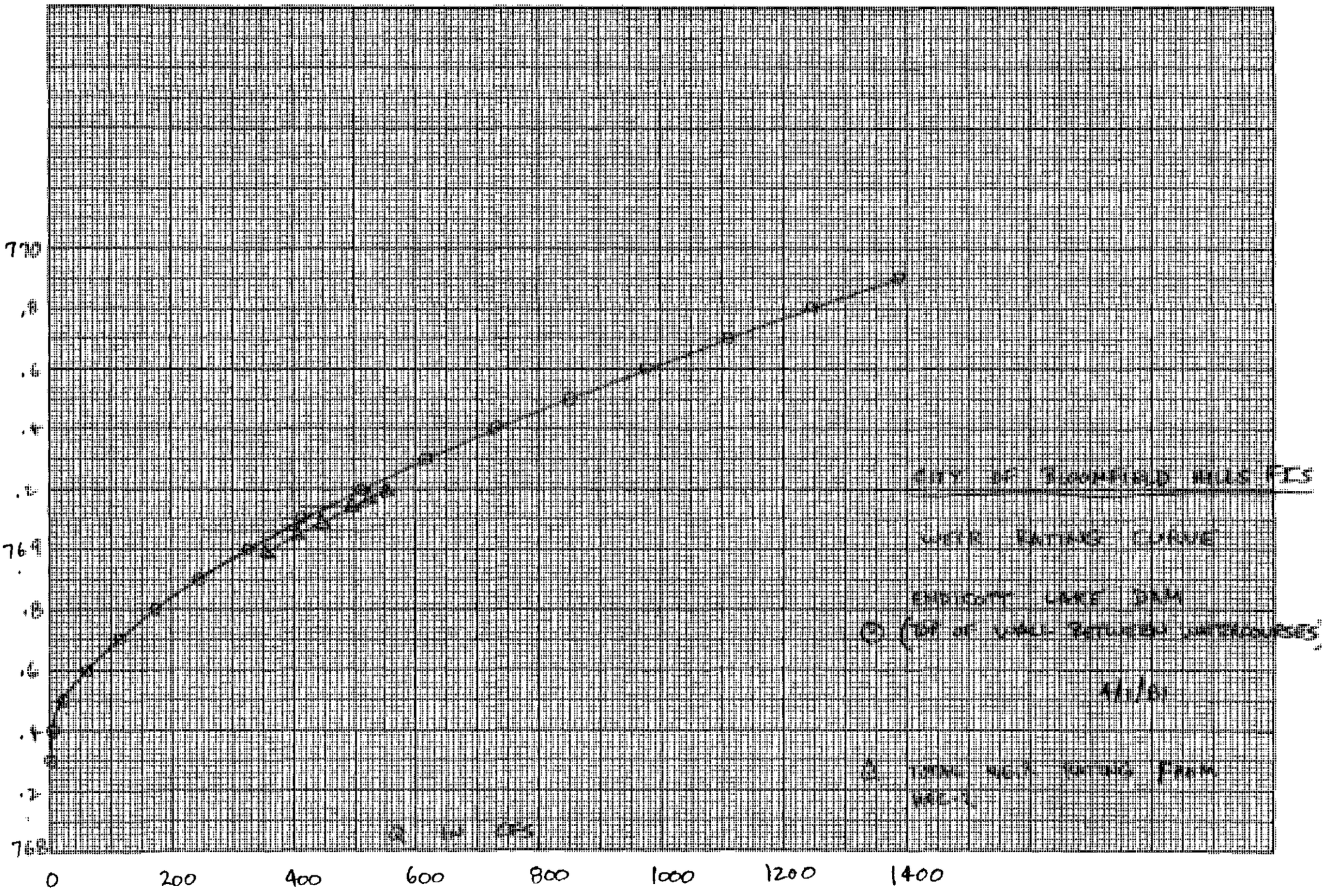
K&E 20 X 20 TO THE INCH • 7 X 9 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.

ENDICOTT LAKE ISLAND PROBLEM



	10	50	100	500
West	495	570	610	675
East	100	120	130	145
Retaining	255	560	710	1060
Total	850	1250	1450	1900

20 X 20 TO THE INCH • 7 X 10 INCHES
46 1040



Bridge over Hamlin Drain

36" ø culvert to an 84" ø CMP culvert
Secondary spillway (drop inlet) above principal

Stage-discharge of principal spillway

8' of 36" ø R.C.P. pipe extending from existing slope — n = 0.013, Ke = 0.9

81 of 84" ø C.M.P — n = 0.024

$A_1 = \pi (3/2)^2 = 7.07$ $A_2 = \pi (7/2)^2 = 38.48$ ft²

$Q = A_1 V_1 = A_2 V_2 = Q_2$

$V_1 = \frac{A_2}{A_1} V_2 = 5.44 V_2$

$\frac{D_2}{D_1} = \frac{84}{36} = 2.33$

$\theta = 180°$

$K = 1.0$

from Figure 5.37 Streeter & Wylie Fluid Mechanics

h_L at expansion $= 1.0 \frac{(V_1 - V_2)^2}{2g}$

$h_L = \frac{(5.44 V_2 - V_2)^2}{2g} = 4.44^2 \frac{V_2^2}{2g}$

$h_L = 19.71 \frac{V_2^2}{2g}$

$h_L = 0.66 \frac{V_1^2}{2g}$

Inlet Control is not likely for the range of flows of the flood study (240 to 600 cfs). (See Chart 2)

Check for when full pipe flow in the 84" C.M.P. would occur at normal depth -

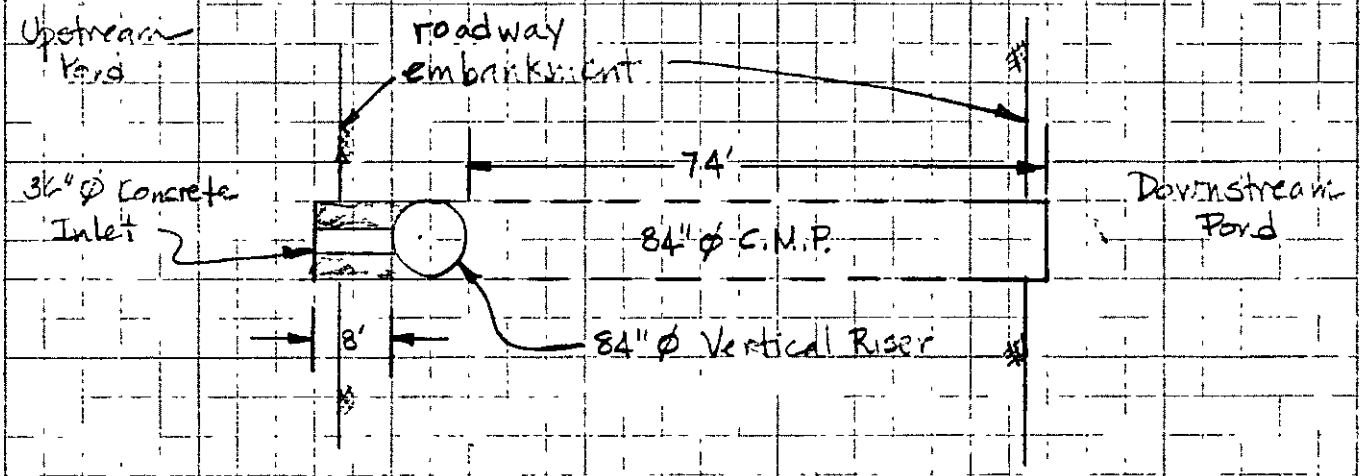
$n = 0.024$

$S = (854.6 - 848.7)/81 = 0.0111$

$$\frac{Q n}{D^{8/3} S^{1/2}} = 0.498 \quad \text{(@ 95\% full)}$$

$$Q = \frac{0.498 (7)^{8/3} (.0111)^{1/2}}{0.024} = 390.22 \text{ cfs.}$$

Section 46-A (New Subdivision Road with Culvert)



Full pipe flow through this system is assumed because for initial HEC-2 runs the E.G.L. at the vertical riser is about at the top of the riser for the 100-year flow.

Full Pipe Flow -- 36" ϕ Concrete Section

$$H = \left(0.5 + 0.2 + \frac{29.1 \quad 0.013^2 \quad 8}{(3/4)^{1.333}}\right) \frac{8}{\pi^2 g\, 3^4} Q^2$$

(entrance, expansion, friction)

$$H = 2.355 \times 10^{-4}\, Q^2$$

$$Q = 65.16 \sqrt{H}$$

Full Pipe Flow -- 84" ϕ Vertical Riser

$$H = \left(0.9 + \frac{29.1\ 0.024^2\ 6}{(7/4)^{1.333}}\right)\frac{8}{\pi^2\ g\ 7^4}\ Q^2$$

(0.9: entrance; 0.024: friction)

$$H = 9.936 \times 10^{-6}\ Q^2$$

Full Pipe Flow -- 84" ϕ C.M.P.

$$XKOR = \left(1 + 0.2 + \frac{29.1\ 0.024^2\ 74}{(7/4)^{1.333}}\right)$$

$$XKOR = 1.788$$

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY KEZ DATE 3-17-81 JOB DESCRIPTION Bloomfield Hills F1S SHEET 1 OF
SUBJECT Storm Drain JOB NO. 6504-02

Weir flow over vertical riser

$Q = C \; L \; H^{3/2}$ (cfs)

H = head above crest

$L = \pi D$ (circumference of pipe)

C varies with $\frac{H}{R}$ (R is D/2)

approach depth $P \approx 3.5$ $\frac{P}{R} \cong 1$

Figure 282 of Design of Small Dams gives the relationship between $\frac{H}{R}$ & C.

Weir flow depends on producing an aerated nappe. Weir flow will occur for $H/R < .45$. Orifice flow will take over at $H/R > 1$. From $.45 < H/R < 1$ exists some transition region.

R = 3.5' L = 22'

H (ft)	H/R	C	Q	W.S.E. (ft)
0.25	0.07	3.9	11	864.45
0.50	0.14	3.9	30	864.70
0.75	0.21	3.9	56	864.95
1.00	0.29	3.75	83	865.2
1.25	0.36	3.65	112	865.45
1.50	0.43	3.5	141	865.70
2.00	0.57	3.2	199	866.2
2.50	0.71	2.8	243	866.7
3.00	0.86	2.3	263	867.2
3.50	1.00	2.0	288	867.7
4.00	1.14	1.8	317	868.2

Top of Roadway 866.9'

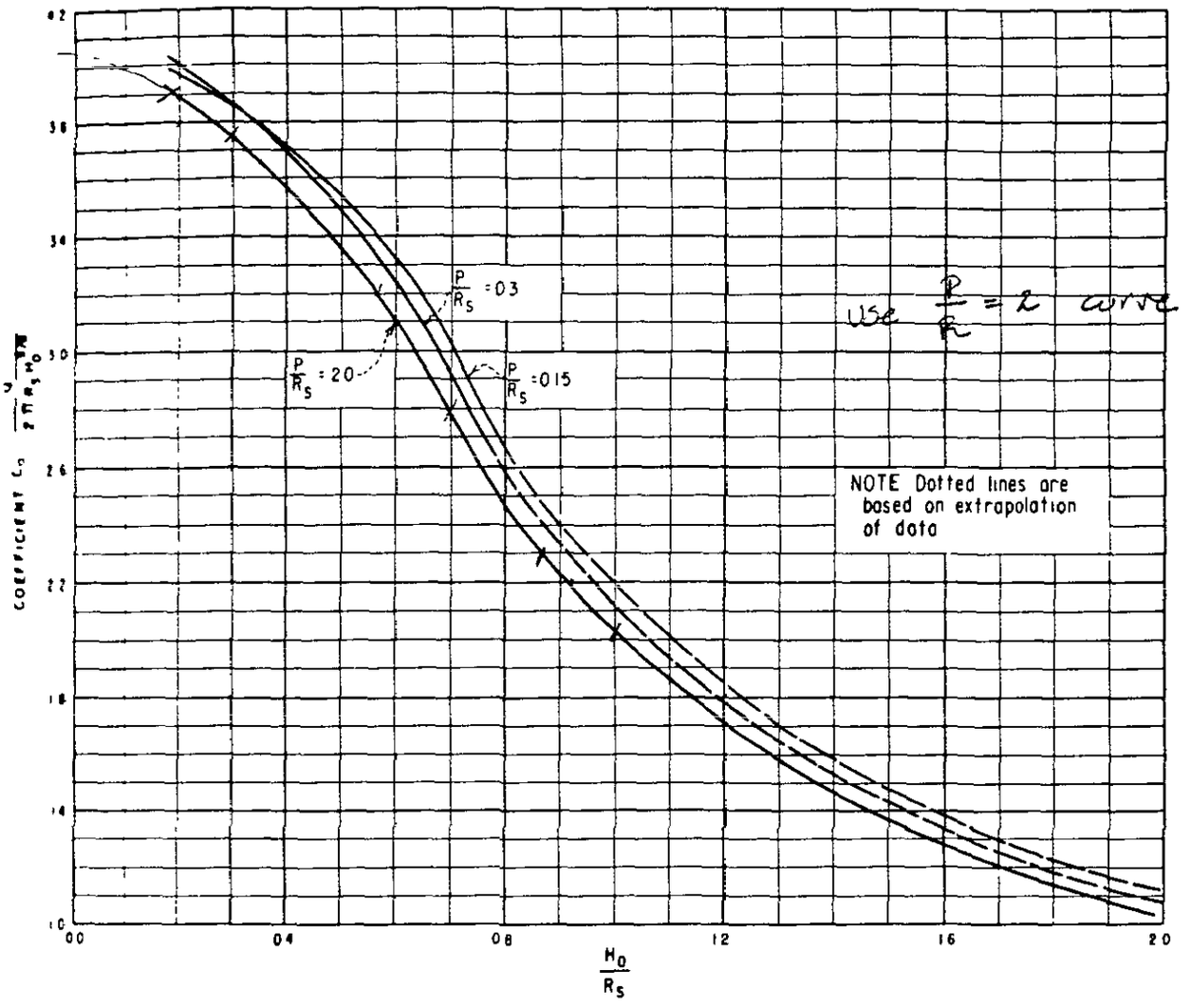


Figure 283 Relationship of circular crest coefficient C_s to $\frac{H_e}{R_s}$ for different approach depths (aerated nappe). 288-D-2441

The profiles become increasingly suppressed for larger $\frac{H_e}{R_s}$ values. Below the high point of the profile the traces cross and the shapes for the higher heads fall inside those for the lower heads. Thus, if the crest profile is designed for heads where $\frac{H_e}{R_s}$ exceeds about 0.25 to 0.3, it appears that subatmospheric pressure will occur along some portion of the profile when heads are less than the designed maximum. If subatmospheric pressures are to be avoided along the crest profile, the crest shape should be selected so that it will give support to the overflow nappe for the smaller $\frac{H_e}{R_s}$ ratios. Figure 288 shows the approximate increase in radius required to minimize subatmospheric pressures on the crest. The crest shape for the enlarged crest radius is then based on a $\frac{H'_e}{R'_s}$ ratio of 0.3.

(d) *Transition Design.*—The diameter of a jet issuing from a horizontal orifice can be determined for any point below the water surface if it is assumed that the continuity equation, $Q=av$, is valid and if friction and other losses are neglected.

Bridge No. 13 100-Year Flood

Downstream W.S.E. = 860.88'

Total Flow = 430 cfs

Trial & Error Solution for upstream W.S.E. involving weir flow over the road and over a drop inlet spillway, and pressure flow through a 3' ϕ concrete pipe and a 7' ϕ CMP.

7' ϕ CMP XKOR = 1.788

Area = 38.48 ft²

H = difference in upstream energy grade line & downstream water surface

$$H = XKOR \frac{Q^2}{2g A^2} = 1.788 \frac{Q^2}{(2)(32.2)(38.48)^2}$$

$$H = 1.875 \times 10^{-5} Q^2$$

Assume a portion of the total flow going through the 7' ϕ CMP.

Q = 300 cfs

$H = 1.875 \times 10^{-5} (300)^2$

H = 1.687'

E.G.L. in vertical riser = 860.88 + 1.687 = 862.57'

E.G.L. in vertical riser = 862.57

Flow over the road = 430 - 300 = 130 cfs

E.G.L. for 130 cfs over road = 867.55'

Flow through drop inlet = 280 cfs

Flow through 3' ϕ concrete pipe = $65.16 (867.55 - 862.57)^{1/2}$

= 145 cfs

280 + 145 = 425 cfs > 300

Assume flow through 7' ϕ CMP is 350 cfs.

Q = 350 cfs

$H = 1.875 \times 10^{-5} (350)^2$

H = 2.30'

E.G.L. in vertical riser = 860.88 + 2.3 = 863.18'

Flow over the road = 430 - 350 = 80 cfs

E.G.L. for 80 cfs over road = 867.45'

Flow through drop inlet = 275 cfs

Flow through 3' ϕ concrete pipe = $65.16 (867.45 - 863.18)^{1/2}$

= 135

275 + 135 = 410 cfs > 350 cfs

Assume 380 cfs through the 7' ø CMP

$Q = 380$ cfs

$H = 1.875 \times 10^{-5} (380)^2 =$

$H = 2.71'$

E.G.L. in vertical riser = 860.88 + 2.71 = 863.59

Flow over the road = 430 - 380 = 50 cfs

EGL for 50 cfs over the road = 867.35'

Flow through drop inlet = 270 cfs

Flow through 3' ø concrete pipe = $65.16 (867.35 - 863.59)^{1/2}$

$= 126$

$270 + 126 = 396$ cfs > 380 cfs

Assume 390 cfs through 7' ø CMP

$Q = 390$ cfs

$H = 1.875 \times 10^{-5} (390)^2$

$H = 2.85'$

E.G.L. in vertical riser = 860.88 + 2.85 = 863.73'

Flow over road = 430 - 390 = 40 cfs

E.G.L. for 40 cfs over road = 867.33'

Flow through drop inlet spillway = 268 cfs

Flow through 3' ϕ concrete pipe = $65.16 (867.33 - 863.73)^{1/2}$

$= 124$

$268 + 124 = 392$ cfs

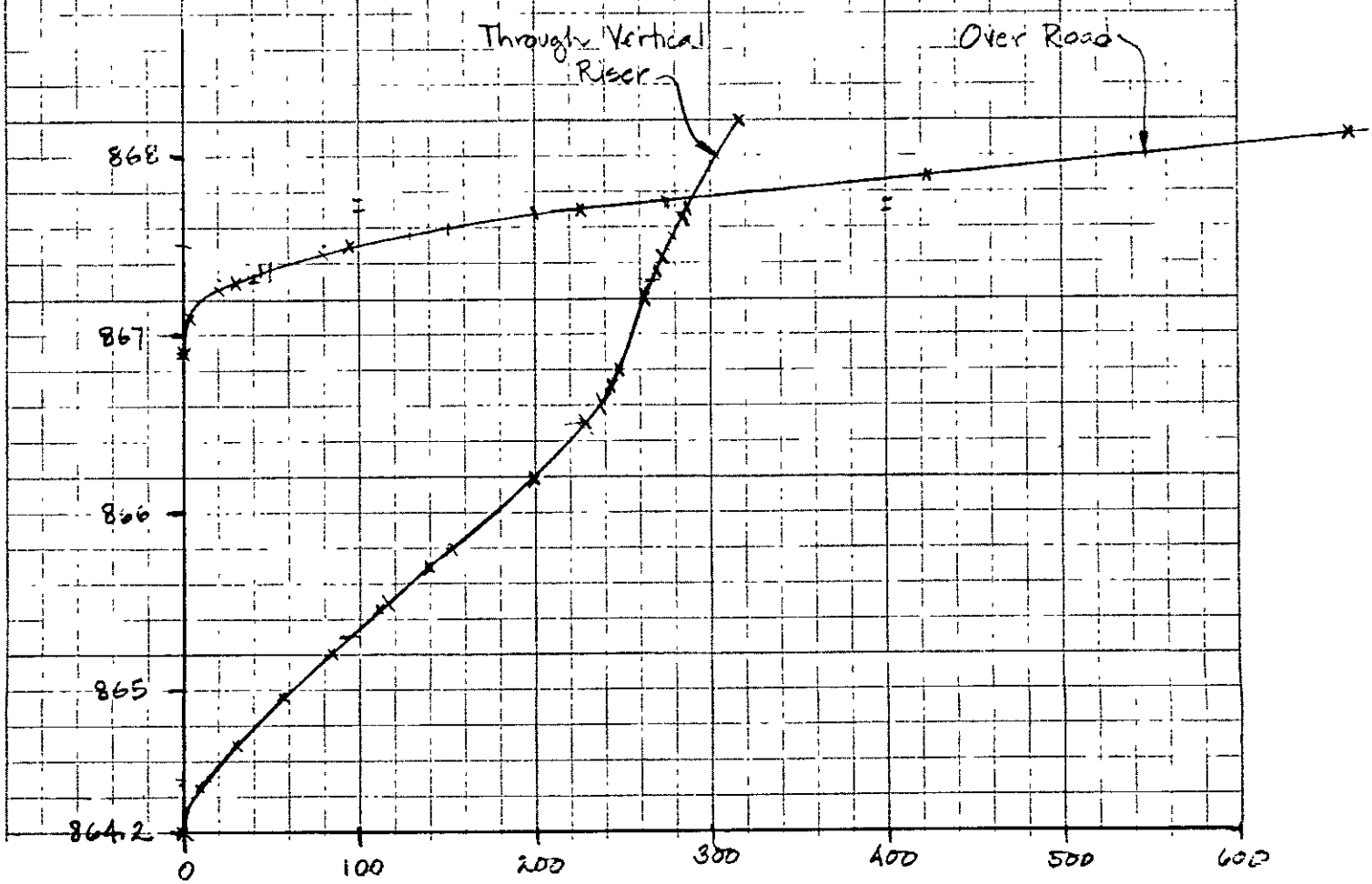
Assume an upstream E.G.L. elevation of 867.33'

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CONSULTING ENGINEERS

BY KEA DATE 3-18-21 JOB DESCRIPTION Blanchfield Hills FIS SHEET 5 OF 7
SUBJECT JOB NO. 6504-02

Weir Flow Stage + Discharge Bridge No. 3

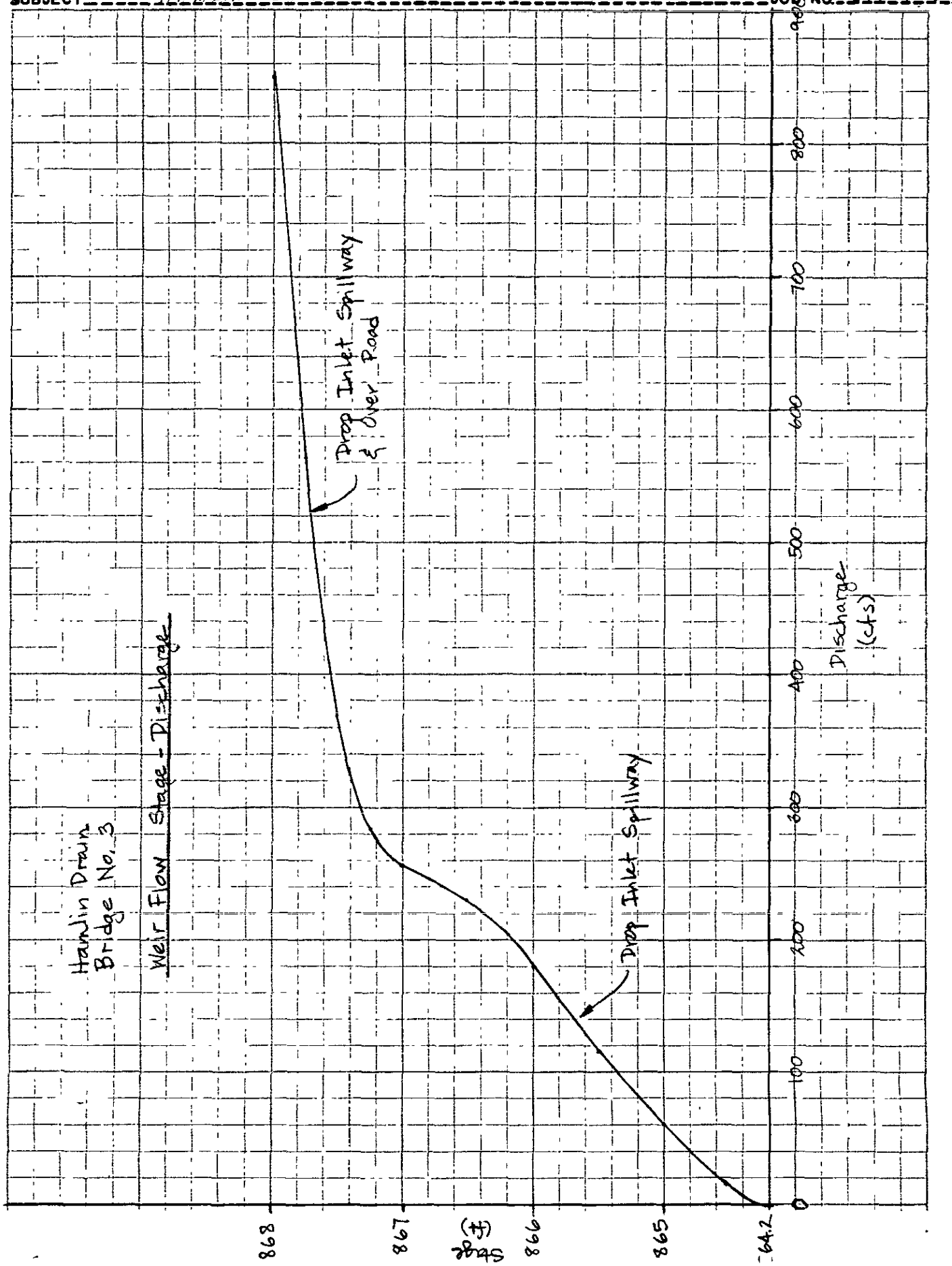
Drop Inlet W.S.E (ft)	Drop Inlet Q (cfs)	Over Road W.S.E (ft)	Over Road Q (cfs)
864.2	0	866.9	0
864.45	11	867.1	5
864.70	30	867.3	30
864.95	56	867.5	94
865.2	83	867.7	228
865.45	112	867.9	425
865.7	141	868.1	665
865.95	199		
866.7	243		
867.2	263		
867.7	288		
868.2	317		



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY KEZ DATE 3-18-81 JOB DESCRIPTION Bloomfield Hills EIS SHEET 6 OF 7

SUBJECT Hamlin Drain JOB NO. 6504-02



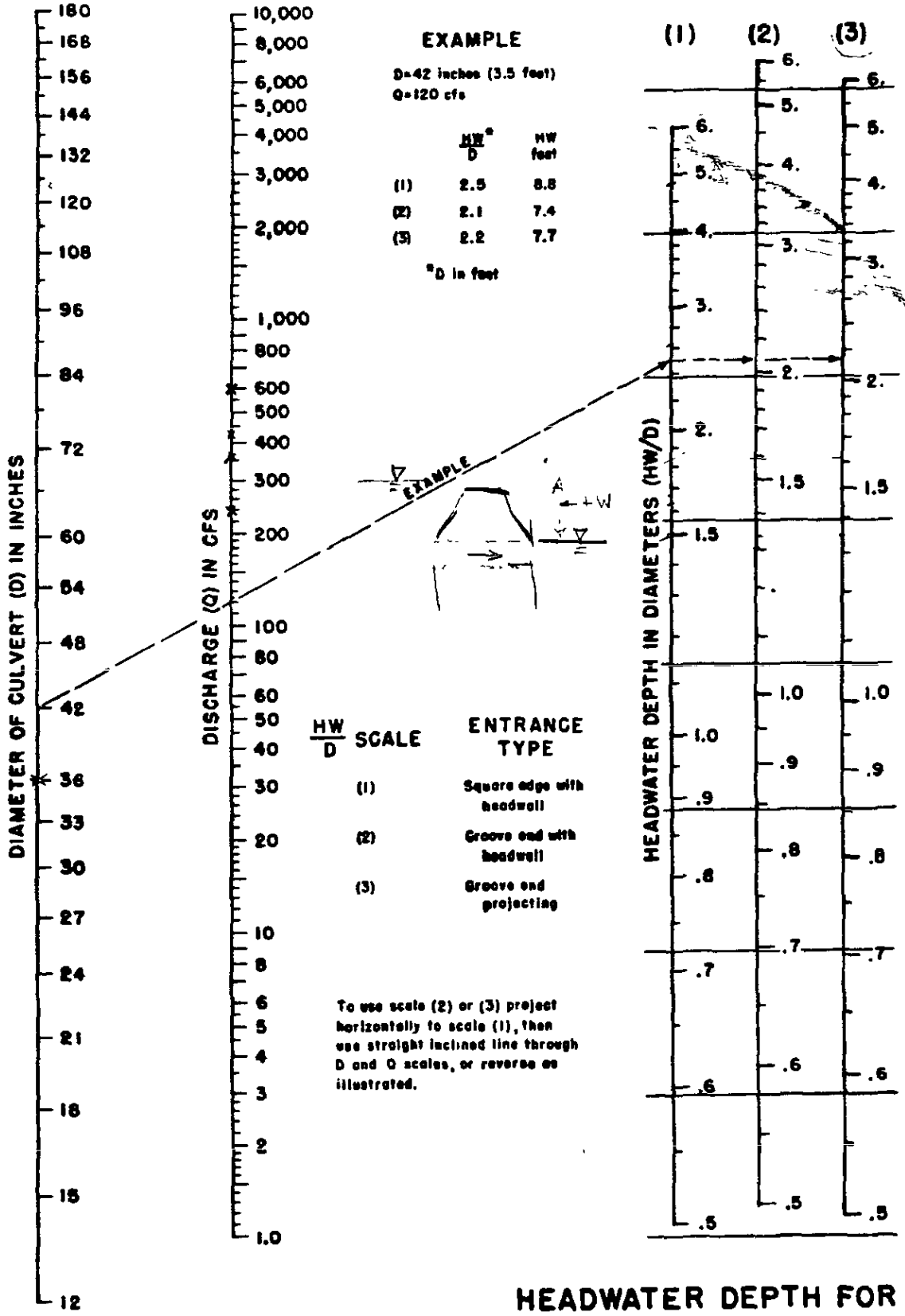
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY KEZ DATE 3-18-81 JOB DESCRIPTION Bloomfield Hills EIS SHEET 7 OF 7
SUBJECT Heron Irrig. JOB NO. 6504-02

Weir Flow Stage-Discharge Bridge No. 5

WSE (ft)	Q (cfs)
864.2	0
864.5	15
865.0	60
865.5	115
866.0	180
866.5	230
867.0	255
867.25	285
867.5	370
867.75	565
868.0	850

CHART 2



HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN 1963

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY KEF DATE 3-10-81 JOB DESCRIPTION Bloomfield Hills F15 SHEET ____ OF ____
SUBJECT Drain - Railroad Bridge JOB NO. ____

5th Card

XK (pier coef) = 0 ... no piers

XKOT (total loss coef) = 5.61

COEF (weir coef) = 2.9 (first estimate)

KLLU = 0 (BT cards provided)

BWC (bottom width of bridge opening) = 3.0

ENP = 0 (no obstructions)

SAREA (net area of opening) = 7.06

SS (side slope for trapezoidal channel) = 0 (vertical)

ELCHU (upstream channel invert) = 850.5

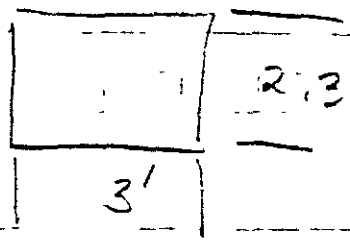
ELCHD (downstream channel invert) = 850.5

$$XK = 1.4\left(0.5\right) + \frac{29.1\,(0.025)^2\,(167)}{0.75^{4/3}} = 5.61$$

0.5 ← CMP, headwall

Field notes show rounded and filled. Use 0.5

$$A = \pi\left(\frac{3}{2}\right)^2$$



(all items not modified remain identical to previous submittal)

revised per revised Long Lake Forest Lake Hydrology report

RECEIVED MAR 4 1981 WATER MANAGEMENT

FLOOD INSURANCE STUDY HYDRAULIC REPORT

PROJECT: HUD-FIA-H-4705 Bloomfield Twp., Oakland County, Michigan

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

WATERCOURSE: Long Lake-Forest Lake Branch and Sodon Lake Branch

STUDY LIMITS: Long Lake-Forest Lake Branch: Lahser Road at corporate boundary (downstream limit) to Club Drive (upstream limit). Sodon Lake Branch: Lahser Road at corporate boundary (downstream limit) to Telegraph Road (upstream limit).

DATE OF AERIAL SURVEY: November 1978 Abrams Aerial Survey

DATE OF LAND SURVEY: 3/5/79-6/5/79, 2/27/80-3/4/80 McNamee, Porter and Seeley field crew

SOURCE OF FLOWS: Discharges were computed by MP&S/SH&G and approved by MDNR on May 29, 1979. Revised hydrology in August 1980 enclosed.

TOPOGRAPHIC INFORMATION: USGS 10 foot topographic maps: 1" = 2000'
Abrams 2 foot topographic maps 1" = 400'

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

VARIABLES AND COEFFICIENTS:

Channel "n"	0.035-0.075
Overbank "n"	0.08-0.15
n values thru bridges	0.013-0.025
Contraction Coefficients	0.15-0.5
Expansion Coefficients	0.35-1.0

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return.

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

XKOR CALCULATIONS: See Table 2

REFERENCES:

1. "Hec-2 Water Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.
2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.
3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey Water Supply Paper 1849.
4. "Floodway Determination using computer Program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.
5. "Flood Study and Drainage Plan, Quarton Branch of Rouge River Flood Plain Information", Birmingham, Bloomfield Hills, Bloomfield Township, Oakland County, Michigan, Hubbell, Roth & Clark, Inc., Bloomfield, Michigan, September 1970, supplemented July 1974

Starting Conditions

Long Lake-Forest Lake Branch has its mouth in Bloomfield Hills at the confluence with the Quarton Branch. Sodon Lake Branch has its mouth in Bloomfield Hills at the confluence with Lone Lake-Forest Lake Branch. Starting elevations were determined at each drain's mouth in Bloomfield Hills and modeled upstream to the corporate limits with Bloomfield Township. Elevations for the various flows at the corporate limits (Lahser Road) obtained from the Bloomfield Hills models were then used for starting elevations for the limit of study in Bloomfield Township. Long Lake-Forest Lake was started in Bloomfield Hills at normal depth using the slope-area method. Sodon Lake Branch was determined to be coincident with Long Lake-Forst Lake Branch, therefore Sodon Lake Branch was started at the elevation in Long Lake-Forest Lake Branch at their confluence. Convergence tests were run on the 100 year flows for both drains by changing the starting elevation by $\pm$ 15%. Convergence was obtained in both drains downstream of Lahser Road in Bloomfield Hills.

High Water Marks and Calibration

There was no high water information available, therefore a calibration test was not possible.

A sensitivity analysis was performed on the 100 year flows for both drains in Bloomfield Township by raising and lowering all Manning "n" values by 30%.

Designated Floodway

Encroachment method 4 in the HEC-2 program was used to determine encroachment stations based on an allowable surcharge of 0.1 feet. At field surveyed sections the designated floodway was established using the computer determined encroachment stations. Between field surveyed sections, the available topographic information was used to complete the floodway information.

Computer Outputs

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

Comments

We have not delineated the complete 100 or 500 year flood plains at this time since this will be done by Abrams after DNR approval of the 100 year and 500 year flood elevations. (See the enclosed profile for the 100 year natural computed water surface profile.)

Various footbridges and dams in Bloomfield Hills for both drains and a few footbridges on Long Lake-Forest Lake Branch in Bloomfield Township were not modeled ~~as preliminary computer runs indicated submergence and therefore negligible loss. Final computer runs showed high submergence and therefore it was determined that the footbridges would not have to be modeled.~~ as the area of the obstruction was much less than the available area or the flow occured completely under the bridge and was therefore unaffected by the plants. Table 3 includes data on footbridges not modeled. Long Lake-

Forset Lake Branch has an underground storm drain located at the upstream end. Minimal flow is expected through this drain due to the high submergence in this area. Therefore, this drain was not modeled. Data on this drain can be found with the enclosed bridge sketch information.

A 1945 foot long storm drain is located on the Sodon Lake Branch from the open channel upstream to the lakes located downstream of the limit of study. The storm drain cannot handle all of the flow, therefore, there is a divided flow condition. Hand calculations determined the drain can handle approximately 40 cfs (see attached sheet). Overland flow was modeled by computer as field surveyed sections were available.

Various bridges on both drains, both in Bloomfield Hills and Bloomfield Township, were modeled with the elevations of the low chords lowered by some amount from the actual low chord in order to correctly model pressure flow for the 10 year flow. Bridges altered in this manner on Sodon Lake Branch include Vaughn Road, Sunningdale Rd., Willoway Court and the culvert located between the two lakes downstream of Sunningdale Rd. Bridges altered in this manner on Long Lake-Forest Lake Branch include Valley Way, Footbridge 305A (see profile and Table 1), Vaughn Road, Orchard Ridge Road, Overbrook Road, Pine Valley Way, ~~and~~ Franklin Road, and Devonbrook Rd.

The Sodon Lake Branch was modeled to downstream of two sound barriers located just downstream of Telegraph Road. Hand calculations were performed to determine elevations at the two sound barriers and at Telegraph Road. Backup data for these

calculations were the routing data at Sunningdale, which are enclosed. Hand calculations are also enclosed.

The profile indicates pressure flow is not occurring at Willoway Court on Sodon Lake Branch. The bridge was modeled by special bridge with the low chord lowered to correctly model pressure flow. The enclosed hand calculation verifies the accuracy of this particular model. If the bridge were modeled as a normal bridge, no significant differences would result.

The flood study and drainage plan report (Reference #5) contains flood water surface profiles developed with the aid of high water marks on the Quarton Branch of the Rouge River from a June 1968 flood. Efforts made by MPS/SHG to obtain these high water marks from Hubbell, Roth and Clark, Inc. of Bloomfield Hills, Michigan, were unsuccessful. The MDNR log informed MPS/SHG that several other consulting firms have tried without success to obtain the 1968 flood highwater marks from HRC. Without this data, a meaningful comparison between the two studies cannot be made.

Sodon Lake Branch Hydrology Revisions

Field data has shown that a high, restrictive "sound barrier" has been placed on Sodon Lake Branch just downstream of Telegraph Road. Therefore, the storage values used for the previous Sodon Lake Branch routings at Sunningdale were lower than could presently be expected. The storage-outflow relationship was modified based on the new information. A sample HEC-1 routing run is enclosed. The 100 year flow downstream of Sunningdale has been reduced to 45 cfs. Since the flows have been reduced much more than had been previously

calculated, it was felt that this flow would act much more like a base flow, adding on to peak flows downstream, up to the confluence with Long Lake-Forest Lake Branch. The calculated flows and the flows proposed to be used for this reach of study are enclosed.

Revised per Revised Hydrology

JOB: HUD-FIA H-4705
COMMUNITY: Bloomfield Twp
WATERCOURSE: Long Lake - Forest Lake Branch

TABLE 3 - Uncoded Bridge, Dam, Obstruction Data

Description	Location	Data	100 Yr Floodplain: Area and Elevation
Concrete Weir	≈50' u/s 301.8	1.2' high - 20' wide Area = 24 ft² top elev ≈ 807.3	429 ft² elev 811.8 okay
Footbridge	≈250' D/s 304	1.1' thick, 30' wide Area = 33 ft² ELLC = 817.2	592 ft² elev 816.5 okay
Footbridge	≈175' D/s 308.2	0.4' thick, 12' wide Area = 4.8 ft² ELLC = 831.	124 ft² 832.8 elev ~~833.3~~ okay
Footbridge (L)	≈50' u/s 313 (K)	0.9' thick, 25' wide Area = 22.5 ft² ELLC = 868.8	233 ft² elev 871.75 okay
Footbridge (M)	≈125' D/s 314.2 (O)	0.8' thick, 20' wide Area = 16 ft² ELLC = 870.9	190 ft² elev 873.8
Footbridge (N)	≈25' D/s 314.2 (O)	0.7' thick, 20' wide Area = 14 ft² ELLC = 871.8	190 ft² elev 874.2
Footbridge (P)	≈75' u/s 314.2 (O)	0.7' thick, 25' wide Area = 17.5 ft² ELLC = 873.0	~~190 ft²~~ 260 elev ~~874.9~~ 873.4
Footbridge (Q)	≈125' u/s 314.2 (O)	0.7' thick, 25' wide Area = 17.5 ft² ELLC = 873.1	~~190 ft²~~ 260 elev ~~875.1~~ 873.6
Footbridge (AJ)	≈ 350' u/s 321.8 (AI)	1.0' thick, 20' wide Area = 20 ft² ELLC = 902.9	~~244 ft²~~ 432 elev ~~906.5~~ 905.5
Footbridge (AQ)	≈ 200' u/s Franklin Rd (AP)	1.0' thick, 50' wide Area = 50 ft² ELLC = 909.9 ← below low chord	~~583 ft²~~ elev ~~917.7~~ 913.6
Footbridge (AS)	≈ 375' D/s 327.2 (AU)	1.0' thick, 35' wide Area = 35 ft² ELLC = 909.7	~~346 ft²~~ 990 ~~917.7~~ → 909.7

JOB: HUD-FIA H-4705
COMMUNITY: Bloomfield Twp
WATERCOURSE: Long Lake - Forest Lake Branch

TABLE 3 - Uncoded Bridge, Dam, Obstruction Data

Description	Location	Data	100 Yr Floodplain: Area and Elevation
Footbridge (AT)	≈ 50' D/s 327.2 (AU)	0.8' thick, 30' wide Area = 24 Ft² ELLC = 908.9	~~346~~ 128 Ft² elev. ~~917.7~~ 909.7
Footbridge (AV)	≈ 150' u/s 327.2 (AU)	0.6' thick, 30' wide Area = 18 Ft² ELLC = 909.6	260 ~~346~~ Ft² elev ~~917.7~~ 909.7
Footbridge (AX)	≈ 30' D/s 327.8 (AY)	1.0' thick, 35' wide Area = 35 Ft² ELLC = 908.6	~~248~~ Ft² 170 elev ~~917.8~~ 909.7
Dam (AZ)	≈ 20' u/s 327.8 (AY)	3.2' high, 11' wide Area = 35.2 Ft² Top elev = 908.6	170 ~~218~~ Ft² elev ~~917.8~~ 909.7
Footbridge (BA)	≈ 50' D/s 328 (BB)	0.8' thick, 35' wide Area = 28 Ft² ELLC = 907.3	784 ~~1522~~ Ft² elev ~~917.8~~ 909.7
Dam (BC)	≈ 300' u/s 328 (BB)	2-15" ∅ 1-12" ∅ - see bridge sketch ≈ 820' of 18" + 24" RCP from DAM (BC) to Arapaho Rd - Area is submerged, ∴ little Flow in this pipe.	4522 Ft² elev 917.8
Dam and Culvert at Club Drive (BD)	≈ 900' u/s 328 (BB)	See Bridge Sketch	4522 Ft² elev 917.8

neglect area

see bridge sketch and notes

Revised Hydrology - Hydraulics at Bloomfield, Long Lake - Forest Lake

HUD-FIA
H-4705
2-27-81
CJM

Long Lake Forest Lake Branch

476-C/2
476-C/73
476-A/44

Check "Dam 328-B" See field notes

500 yr outflow: completely submerges Dam continue back-up curve to limit of study (see profile)

100 yr outflow:
peak lake outflow = 68 cfs, routed flow d/s = 60 cfs Use 68 cfs at dam

consider 18" RCP handles negligible ammount of flow, submerged by ≈2'. Flow will be handled by the 3 CMP's

2-15" CMP's 1-12" CMP

Total area = $2(1.23) + .785 = 3.29\ ft^2$

$P = \pi(1 + 2(1.25)) = 11\ ft$

908.5 + 1.25 = 909.75 + 1.2
top/footbridge → 910.75
Footbridge same design as 327 A

$K_f = \frac{29n^2L}{R^{4/3}} = \frac{29(.025)^2(40)}{(.29)^{4/3}} = 3.7$ $\quad R = A/P = 3.24/11 = .29$

$K = 3.8 + 1 + .9 = 5.7$

$Q = 68 \qquad 68 = \sqrt{\frac{1}{5.7}}\,(3.24)\sqrt{2g}\,h^{1/2}$

weir flow occurs say $H = 1/2$
$Q = 2.9(\sqrt{8})(.5)^{1/2} = 10$
$= 370$

weir elev = 910.75
≈ 180 wier (d/s floodway and topo)
$H = .1$
$Q = 2.9(120)(.1)^{1/2} = 110$
okay - weir flow occur just over road - elev U/s = 910.80

50 yr flow: $Q = 37$ $\quad 37 = \sqrt{1/5.7}\,(3.24)\sqrt{2g}\,h^{1/2}$ $h = 1'$ no - weir occur see profile

10 yr flow $Q = 11$ $\quad TW \approx 909$ assume full flow
$11 \Rightarrow h = 1'$ $\quad HW \approx 910$

WILLIAM, PORTER & SEELEY
CONSULTING ENGINEERS
ANN ARBOR MICHIGAN

JOB: HUD-HA H-4105 SHEET NO.
COMMUNITY: Bloomfield Twp FILE NO.
WATERCOURSE: Long Lake-Forest Lake Branch
DATE CHK BY DATE

RECEIVED
MAR 4 1981
WATER MANAGEMENT

TABLE 1 - SECNO

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

SECTION NO.	SECTION TYPE	REMARKS
299.9	3	Valley Section - Repeat 300 + Confluence with Stagycroft and Quarton in Bloomfield Hills
300	1	Valley Section
300.2	1	Valley Section
300.98	3	D/s Face Country Club Rd - Repeat 301.2
301.02	3	u/s Face Country Club Rd - Repeat 301.8
301.8	1	Valley Section
302	1	Valley Section
303.12	2	Valley Section - eliminate ineffective right overbank flow area
302.98	4	D/s Face Valley Way - Developed from bridge detail and 303.8
303.02	4	u/s Face Valley Way - Repeat 302.98
303.8	1	Valley Section
304	1	Valley Section
305	1	Valley Section
305.18	3	Valley Section - Repeat 305
305.19	4	D/s Face Footbridge 304A - Bridge Details
305.21	4	u/s Face Footbridge 304A - Repeat 305.19
305.27	3	Valley Section - Repeat 305
305.25	3	Valley Section - Repeat 305
305.48	3	D/s Face Footbridge 305A - Repeat 305
305.52	3	u/s Face Footbridge 305A - Repeat 305
305.03	3	Valley Section - Repeat 305.1
305.05	4	D/s Face Dam 305B - Developed From 305.1 and Dam Details
305.06	4	u/s Face Dam 305B - Repeat 305.05
305.08	3	Valley Section - Repeat 305.1
305.1	1	Valley Section
305.2	3	Valley Section - Repeat 305.1
305.3	3	Valley Section - Repeat 305.1
306.05	3	Valley Section - Repeat 306.2

ANN ARBOR, MICHIGAN

WATERCOURSE: Long Lake - Forest Lake Branch

DATE _____ CHK BY _____ DATE _____

TABLE 1 - SECNO

Section Types	Description
1	Surveyed (See Remarks if Other Than MRS and/or Abram's)
2	Field Survey Section Partly Modified for Modelling
3	Synthetic - Repeat of nearby surveyed section with an invert adjustment (See Remarks)
4	Synthetic - Developed from Topo, surveyed sections, or other information

SECTION NO.	SECTION TYPE	REMARKS
3061.1	3	Valley Section - Repeat 306.2
306.2	1	Valley Section
306.21	3	Valley Section - Repeat 306.2
305.98	3	D/s Face Vaughn Rd. - Repeat 306.2
306.02	3	U/s Face Vaughn Rd - Repeat 306.8
306.1	4	D/s Face Brick Man w/ Opening - Developed from 306.8 and Wall Details
306.15	4	U/s Face Brick Wall - Repeat 306.1
306.3	4	Valley Section - Developed from 306.8 and Dam Details
306.4	4	D/s Face Lake 306A - Developed from 306.8 and Dam Details
308.145	4	U/s Face Lake 306A - Repeat 306.4
306.47	3	Valley Section - Repeat 306.8
306.8	1	Valley Section
307	1	Valley Section
307.1	3	Valley Section - Repeat 307
307.5	4	Valley Section - Repeat 308.2
308.2	2	Valley Section - Eliminate ineffective right order bank flow area
307.98	4	D/s Face Orchard Ridge - Repeat 308.2
308.02	3	U/s Face Orchard Ridge - Repeat 308.8
308.8	1	Valley Section
308.85	3	Valley Section - Repeat 308.8
308.87	4	D/s Face Lake Placid Dam 308.8A - Developed from 308.8 and Dam Details
308.88	4	U/s Face Lake Placid Dam 308.8A - Repeat 308.87
308.9	3	Valley Section - Repeat 309
308.95	3	Valley Section - Repeat 309
309	1	Valley Section
309.1	3	Valley Section - Repeat 310
309.9	3	Valley Section - Repeat 310

CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

COMMUNITY: Bloomfield
WATERCOURSE: Long Lake - Forest Lake Branch
DATE: CHK BY: DATE:

TABLE 1 - SECNO

Section Types	Description
1	Surveyed (See Remarks if Other Than MRS and/or Abram)
2	Field Survey Section Partly Modified for Modelling
3	Synthetic - Repeat of Nearby Surveyed Section with an Invert Adjustment (See Remarks)
4	Synthetic - Developed from Topo, Surveyed Sections, or other Information

SECTION NO.		SECTION TYPE	REMARKS
3110		1	Valley Section
3110.1		3	Valley Section - Repeat 3110
3111.12		1	Valley Section
3110.981		3	D/S Face Ladser Rd - Repeat 3111.12
3111.02	A	3	U/S Face Lahser Rd - Repeat 12 Bloomfield Hills - Bloomfield Twp Boundary
3111.81	B	1	Valley Section
3111.91		3	Valley Section - Repeat 3111.81
3111.918		3	D/S Face Overbrook Rd - Repeat 3111.8
3112.02	C	3	U/S Face Overbrook Rd - Repeat 3112.81
3112.411		4	Valley Section - Developed from 3112.8 and Abrams Township Map
3112.151		4	D/S Face Knee Dam 3112A - Developed from 3112.81 and Dam Details
3112.16	D	4	U/S Face Rock Dam 3112A - Repeat 3112.151
3112.17		4	Valley Section - Repeat 3112.151 w/ invert adjustment
3112.18	E	2	D/S Face Foot bridge 3112B - Developed from Cross Section 3112.18 and Foot bridge Details
3112.182	F	3	U/S Face Foot bridge 3112B - Repeat 3112.8
3112.184		3	D/S Face Foot bridge 3112C - Repeat 3113
3112.185	G	3	U/S Face Foot Bridge 3112C - Repeat 3112
3112.187		3	D/S Face Foot bridge 3112D - Repeat 3113
3112.188	H	3	U/S Face Foot bridge 3112D - Repeat 3113
3112.191		3	D/S Face Foot bridge 3112E - Repeat 3113
3112.192	I	3	U/S Face Foot bridge 3112E - Repeat 3113
3112.194		2	Valley Section - Repeat 3113
3112.195		3	D/S Face Concrete Bridge - Repeat 3113
3112.96	J	3	U/S Face Concrete Bridge - Repeat 3113
3113	K	1	Valley Section
	L, M, N		3 Foot bridges not modeled
3114.2	O	2	Valley Section - Eliminate ineffective flow area on left overbank
	P, Q		2 Foot bridges not modeled

ANN ARBOR, MICHIGAN

Vol. [illegible] DATE _____ B _____ C _____

TABLE 1 - SECNO

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

SECTION NO.		SECTION TYPE	REMARKS
313.96		3	D/S Face Pine Valley Way - Repeat 314.2
314.02	R	3	U/S Face Pine Valley Way - Repeat 314.8
314.8	S	1	Valley Section
314.98		3	D/S Face Long Lake Rd - Repeat 314.8
315.02	T	3	U/S Face Long Lake Rd - Repeat 315.8
315.8	U	1	Valley Section
316	V	1	Valley Section
316.2		3	Valley Section - Repeat 316
316.28		4	D/S Face Dam - Developed from 316 and dam details
316.32	W	4	U/S Face Dam - Repeat 316.28
316.3		3	Valley Section - Repeat 316
317	X	1	Valley Section
318.08		3	Valley Section - Repeat 318.2
318.09		0	D/S Face Footbridge B17A - Repeat B18.2
318.11	Y	3	U/S Face Footbridge 317A - Repeat B18.2
318.12		3	Valley Section - Repeat 318.2
318.12	Z	1	Valley Section
317.918		3	D/S Face Brookside Rd - Repeat B18.2
318.02	AA	3	U/S Face Brookside Rd - Repeat B18.8
318.8	AB	1	Valley Section
318.8		3	Valley Section - Repeat 318.8
318.95		3	Valley Section - Repeat 319
319	AC	1	Valley Section
319.1		3	Valley Section - Repeat 319
319.7		3	Valley Section - Repeat 320
320	AD	1	Valley Section
320.18		3	Valley Section - Repeat 320
320.19		3	D/S Face Footbridge 320A - Repeat 320
320.21	AE	3	U/S Face Footbridge 320A - Repeat 320
320.22		3	Valley Section - Repeat 320

ANN ARBOR, MICHIGAN

WATERCOURSE DATE CHK. BY DATE

TABLE 1 - SECNO

Section Types

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

SECTION NO.		SECTION TYPE	REMARKS
320.28		3	Valley Section - Repeat 320
320.89		3	D/S Face Footbridge 320.8 - Repeat 320
320.31	AF	3	U/S Face Footbridge 320.8 - Repeat 320
320.32		3	Valley Section - Repeat 320
321.2	AG	1	Valley Section
320.98		3	D/S Face Devon brook - Repeat 321.2
321.02	AH	3	U/S Face Devon brook - Repeat 321.8
321.8	AI AJ	1	Valley Section Footbridge not modeled
321.2	AK	1	Valley Section
322.2		3	Valley Section - Repeat 321.2
322.97		3	Valley Section - Repeat 322
322.98		4	D/S Face Felgarnon Rd - Developed from Bridge Details
323.02	AL	4	U/S Face Felgarnon Rd - Developed from bridge details
323.03		3	Valley Section - Repeat 323.8
323.8	AM	1	Valley Section
324	AN	2	Valley Section - Eliminate ineffective right overbank flow area
324.1		3	Valley Section - Repeat 324
325.1		3	Valley Section - Repeat 325.12
325.2	AO	1	Valley Section
324.96		3	D/S Face Franklin Rd - Repeat 325.2
325.02	AP	3	U/S Face Franklin Rd - Repeat 325.12
325.18	AQ	3	Footbridge not modeled Valley Section - Repeat 326
326	AR	1	Valley Section
326.5		3	Valley Section - Repeat 327.2
326.7		3	Valley Section - Repeat 327.2 2 Footbridges not modeled
327.2	AS; AT AU	1	Valley Section

CONSULTING ENGINEERS
ANN ARBOR, MICHIGAN

WATERCOURSE: Long Lake-Forest Lake Branch
DATE ____ CHK. BY ____ DATE ____

TABLE 1 - SECNO

Section Types	Description
1	Surveyed (See Remarks if Other Than MRS and/or Abram)
2	Field Survey Section Partly Modified for Modelling
3	Synthetic - Repeat of Nearby Surveyed Section with an Invert Adjustment (See Remarks)
4	Synthetic - Developed from Topo, Surveyed Sections, or Other Information

SECTION NO.	SECTION TYPE	REMARKS
AV		Footbridge not modeled
3287.3	3	Valley Section - Repeat 3287.2
3286.98	3	Valley Section - Repeat 3287.2
AW		
3287.02	3	Valley Section - Repeat 3287.18
AX		Footbridge not modeled
3287.8	AY 1	Valley Section
AZ		Dam not modeled
BA		Footbridge not modeled
3288	BB 1	Valley Section
BC		Footbridge not modeled
BD		Dam and Culvert at Club Drive not modeled

SAMPLE PORTER & SEELEY — JOB JOB : HUD - FIA H-4705 — SHEET NO

CONSULTING ENGINEERS — SUBJECT COMMUNITY : Bloomfield Twp — FILE NO

ANN ARBOR, MICHIGAN — COMPUTED WATERCOURSE : Long Lake - Forest Lake Branch — DATE

TABLE 2 - XKOR CALCULATIONS

From original submittal

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

Cross Section Location	K_e	A	P	R	n	l	K_F	XKOR	REMARKS
300.98 - 301.02	0.6	21.1	11.9	1.8	.025	17'	0.15	1.75	Country Club Rd
302.98 - 303.02	0.4	25.2	21.2	1.2	.020	56'	0.5	1.9	Valley Way
305.48 - 305.52	0.4	55.	31.	1.8	.020	18'	0.1	1.5	Box Culvert Footbridge 305A
305.96 - 306.02	0.9	28.3	18.8	1.5	.025	46'	0.5	2.4	Vaughn Rd.
307.98 - 308.02	0.7	19.6	15.7	1.3	.025	26'	0.35	2.05	Orchard Ridge
310.98 - 311.02	0.4	10.4	11.56	0.9	.013	42'	0.25	1.65	Lahser Rd
311.98 - 312.02	0.9	25.1	25.1	1.0	.025	48'	0.9	2.8	Overbrook Rd
312.95 - 312.96	0.6	9.6	11.0	0.9	.025	20'	0.4	2.0	Concrete Bridge
313.98 - 314.02	0.5	19.6	15.7	1.3	.025	70'	0.95	2.45	Pine Valley Way
314.98 - 315.02	0.4	12.6	12.6	1.0	.013	120'	0.6	2.0	Long Lake Rd
317.98 - 318.02	0.5	29.4	30.8	1.0	.020	25'	0.3	1.8	Brookside Rd
320.96 - 321.02	0.6	12.3	8.9	1.4	.013	50'	0.15	1.75	Devonbrook
324.98 - 325.02	0.9	10.8	8.9	1.2	.025	76'	1.05	2.95	Franklin Rd
326.98 - 327.02	0.4	19.6	15.7	1.3	.013	25'	0.1	1.5	Aryshire Rd

JOB: HUD-FIA H-4705
COMMUNITY: Bloomfield Twp
WATERCOURSE: Long Lake - Forest Lake Branch original

TABLE 3 - Uncoded Bridge, Dam, Obstruction Data

Description	Location	Data	100 Yr Floodplain: Area and Elevation
Concrete Wall	≈50' u/s 301.8	1.2' high - 20' wide Area = 24 ft² top elev ≈ 807.3	429 ft² elev 811.8
Footbridge	≈250' D/s 304	1.1' thick, 30' wide Area = 33 ft² ELLC = 817.2	592 ft² elev 816.5
Footbridge	≈175' D/s 308.2	0.4' thick, 12' wide Area = 4.8 ft² ELLC = 831.	124 ft² elev 833.3
Footbridge (L)	≈50' u/s 312 (K)	0.9' thick, 25' wide Area = 22.5 ft² ELLC = 868.8	233 ft² elev 871.7
Footbridge (M)	≈125' D/s 314.2 (O)	0.8' thick, 20' wide Area = 16 ft² ELLC = 870.9	190 ft² elev 873.8
Footbridge (N)	≈25' D/s 314.2 (O)	0.7' thick, 20' wide Area = 14 ft² ELLC = 871.8	190 ft² elev 874.2
Footbridge (P)	≈75' u/s 314.2 (O)	0.7' thick, 25' wide Area = 17.5 ft² ELLC = 873.0	190 ft² elev 874.9
Footbridge (Q)	≈125' u/s 314.2 (O)	0.7' thick, 25' wide Area = 17.5 ft² ELLC = 873.1	190 ft² elev 875.1
Footbridge (AJ)	≈350' u/s 321.8 (AI)	1.0' thick, 20' wide Area = 20 ft² ELLC = 902.9	244 ft² elev 906.5
Footbridge (AQ)	≈200' u/s Franklin Rd (AP)	1.0' thick, 50' wide Area = 50 ft² ELLC = 909.9	5835 ft² elev 917.7
Footbridge (AS)	≈375' D/s 327.2 (AU)	1.0' thick, 35' wide Area = 35 ft² ELLC = 909.7	3161 ft² elev 917.7

JOB: HUD-FIA H-4705
COMMUNITY: Bloomfield Twp
WATERCOURSE: Long Lake- Forest Lake Branch

original

TABLE 3 - Uncoded Bridge, Dam, Obstruction Data

Description	Location	Data	100 Yr Floodplain: Area and Elevation
Footbridge (AT)	≈50' D/s 327.2 (AU)	0.8' thick, 30' wide Area 24 Ft² ELLC = 908.9	3161 Ft² elev. 917.7
Footbridge (AV)	≈150' u/s 327.2 (AU)	0.6' thick, 30' wide Area = 18 Ft² ELLC = 909.6	3161 Ft² elev 917.7
Footbridge (AX)	≈30' D/s 327.8 (AY)	1.0' thick, 35' wide Area = 35 Ft² ELLC = 908.6	2181 Ft² elev 917.8
Dam (AZ)	≈20' u/s 327.8 (AY)	3.2' high, 11' wide Area = 35.2 Ft² Top elev = 908.6	2181 Ft² elev 917.8
Footbridge (BA)	≈50' D/s 328 (BB)	0.8' thick, 35' wide Area = 28 Ft² ELLC = 907.3	4522 Ft² elev 917.8
Dam (BC)	≈300' u/s 328 (BB)	2-15" ∅ 1-12" ∅ - see bridge sketch ≈820' of 18" + 24" RCP from Dam (BC) to Manhole 2d - Area is submerged, ∴ little flow in this pipe.	4522 Ft² elev 917.8
Dam and Culvert at Club Drive (BD)	≈900' u/s 328 (BB)	See Bridge Sketch	4522 Ft² elev 917.8

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: CITY OF BLOOMFIELD HILLS * BLOOMFIELD TOWNSHIP

3) WATERCOURSE: LONG LAKE / FOREST LAKE DOWNSTREAM LAHSER

4) DOCUMENT TYPE: 100 YR

00BREAK00

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

T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      100 YEAR FLOW

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       4.        0.        0.   .004500      0.00      -1.0        0.   807.500     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

*PROF 3

CCHV= .150 CEHV= .350
*SECNO 299.900

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
	** CONFLUENCE WITH QUARTON BRANCH								
299.90	6.31	806.21	0.00	807.50	806.47	.26	0.00	0.00	804.50
695.	41.	532.	122.	41.	114.	123.	0.	0.	804.30
0.00	1.00	4.65	.99	.090	.055	.090	0.000	799.90	84.13
.004504	0.	0.	0.	0	0	6	0.00	236.57	320.69
*SECNO 300.000									
300.00	6.35	807.65	0.00	0.00	807.89	.24	1.42	.00	805.90
695.	42.	524.	129.	43.	115.	130.	2.	2.	805.70
.02	.98	4.54	.99	.090	.055	.090	.055	801.30	82.91
.004225	325.	325.	325.	1	0	0	0.00	240.92	323.83
*SECNO 301.200									
301.20	5.40	809.70	0.00	0.00	809.84	.14	1.93	.02	808.10
695.	89.	560.	46.	127.	171.	49.	7.	5.	807.80
.09	.70	3.27	.94	.090	.055	.090	.055	804.30	175.02
.002066	675.	675.	675.	2	0	0	0.00	231.11	406.13

CCHV= .300 CEHV= .500
*SECNO 300.980

	** D/S FACE COUNTRY CLUB RD.								
300.98	5.14	809.94	0.00	0.00	810.12	.18	.26	.02	808.60
695.	60.	596.	39.	89.	162.	39.	8.	6.	808.30
.10	.67	3.68	.99	.090	.055	.090	.055	804.80	181.68
.002834	108.	108.	108.	2	0	0	0.00	221.68	403.36

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.75	2.80	225.00	5.00	0.00	21.10	0.00	804.80	804.80

*SECNO 301.020

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
839.42	811.02	0.00	526.	169.	21.	21.	809.00	810.80
301.02	6.86	811.66	0.00	0.00	811.69	.03	1.56	0.00	807.60
695.	243.	239.	213.	314.	121.	290.	8.	6.	808.40
.11	.77	1.97	.73	.090	.055	.090	.055	804.80	128.89
.000581	17.	17.	17.	2	0	7	0.00	281.67	410.56

*SECNO 301.800

301.80	5.71	811.71	0.00	0.00	811.81	.11	.09	.04	808.80
695.	196.	342.	157.	176.	96.	153.	9.	7.	809.60
.11	1.12	3.56	1.03	.100	.055	.100	.055	806.00	153.08
.002601	80.	80.	80.	2	0	0	0.00	236.53	389.61

CCHV= .150 CEHV= .350

*SECNO 302.000

302.00	4.77	812.77	0.00	0.00	812.80	.04	.98	.01	810.20
695.	117.	199.	379.	173.	80.	413.	15.	10.	810.50
.22	.67	2.48	.92	.100	.055	.100	.055	808.00	319.13
.001478	510.	510.	510.	2	0	0	0.00	359.65	678.78

*SECNO 303.200

303.20	3.92	814.32	0.00	0.00	814.45	.13	1.61	.03	813.20
695.	18.	371.	306.	26.	100.	248.	23.	15.	813.00
.29	.71	3.73	1.23	.100	.055	.100	.055	810.40	227.20
.004993	650.	650.	650.	1	0	0	0.00	278.17	505.37

CCHV= .300 CEHV= .400

*SECNO 302.980

** D/S FACE VALLEY WAY

302.98	2.84	814.64	0.00	0.00	814.71	.07	.25	.02	817.60
695.	0.	695.	0.	0.	320.	0.	24.	15.	816.50
.30	0.00	2.17	0.00	.100	.045	.100	.054	811.80	124.59
.001762	89.	89.	89.	2	0	0	0.00	163.21	287.80

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.90	3.00	200.00	7.00	0.00	25.20	0.00	811.10	811.10

*SECNO 303.020

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.08	814.11	0.00	506.	194.	25.	17.	813.50	815.50
303.02	4.57	816.37	0.00	0.00	816.39	.02	1.68	0.00	817.60
695.	0.	695.	0.	0.	615.	0.	25.	15.	816.50
.32	0.00	1.13	0.00	.100	.045	.100	.054	811.80	120.71
.000220	56.	56.	56.	1	0	6	0.00	174.78	295.48

CCHV= .300 CEHV= .500
*SECNO 303.800

303.80	9.70	816.40	0.00	0.00	816.40	.01	.01	.00	816.90
695.	0.	694.	1.	0.	1177.	42.	27.	16.	815.80
.37	0.00	.59	.03	.100	.045	.100	.054	806.70	119.12
.000026	110.	110.	110.	2	0	0	0.00	317.30	436.41

*SECNO 304.000

304.00	7.14	816.44	0.00	0.00	816.47	.03	.06	.01	816.00
695.	0.	695.	0.	5.	485.	0.	45.	21.	817.20
.55	.09	1.43	0.00	.100	.045	.100	.052	809.30	778.30
.000258	925.	925.	925.	2	0	0	0.00	130.99	909.29

*SECNO 305.000

305.00	4.95	816.65	0.00	0.00	816.68	.04	.21	.00	813.30
695.	38.	654.	3.	126.	418.	8.	54.	24.	813.30
.68	.31	1.56	.33	.100	.045	.100	.050	811.70	121.70
.000320	725.	725.	725.	2	0	0	0.00	217.28	338.98

CCHV= .400 CEHV= .800
*SECNO 305.180

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 275.0 295.0 TYPE= 1 TARGET= 20.000

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

** D/S FACE CONCRETE ARCH FOOTBRIDGE 304A

305.18	4.55	816.55	0.00	0.00	817.46	.91	.08	.70	100000.00
695.	0.	695.	0.	0.	91.	0.	54.	24.	100000.00
.69	0.00	7.63	0.00	.100	.055	.100	.050	812.00	275.00
.017454	81.	81.	81.	2	0	0	0.00	20.00	295.00

*SECNO 305.190
3280 CROSS SECTION 305.19 EXTENDED 3.96 FEET

3301 HV CHANGED MORE THAN HVINS

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

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 819.10 MAX ELLC= 818.50

305.19	4.46	816.46	0.00	0.00	817.87	1.41	.01	.40	812.50
695.	0.	695.	0.	0.	73.	0.	54.	24.	813.00
.69	0.00	9.52	0.00	.100	.020	.100	.050	812.00	0.00
.005479	1.	1.	1.	2	0	0	-8.69	19.00	19.00

*SECNO 305.210
3280 CROSS SECTION 305.21 EXTENDED 4.22 FEET

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 819.10 MAX ELLC= 818.50

305.21	4.72	816.72	0.00	0.00	818.01	1.29	.09	.05	812.50
695.	0.	695.	0.	0.	76.	0.	54.	24.	813.00
.69	0.00	9.10	0.00	.100	.020	.100	.050	812.00	0.00
.004960	17.	17.	17.	2	0	0	-10.25	19.00	19.00

*SECNO 305.220

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 275.0 295.0 TYPE= 1 TARGET= 20.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.30 ELREA= 100000.30

305.22	5.72	817.72	0.00	0.00	818.30	.57	.01	.28	100000.30
695.	0.	695.	0.	0.	114.	0.	54.	24.	100000.30
.69	0.00	6.08	0.00	.100	.055	.100	.050	812.00	275.00
.009061	1.	1.	1.	3	0	0	0.00	20.00	295.00

*SECNO 305.250

3301 HV CHANGED MORE THAN HVINS

305.25	6.27	818.57	0.00	0.00	818.58	.02	.06	.22	813.90
695.	97.	593.	5.	288.	546.	16.	56.	24.	813.90
.72	.34	1.09	.29	.100	.055	.100	.050	812.30	106.42
.000161	125.	125.	125.	2	0	0	0.00	234.53	340.95

*SECNO 305.480

** D/S FACE BOX CULVERT FOOTBRIDGE 305A

305.48	6.00	818.60	0.00	0.00	818.60	.00	.01	.00	814.20
355.	45.	308.	2.	253.	520.	14.	58.	25.	814.20
.79	.18	.59	.16	.100	.055	.100	.051	812.60	109.55
.000051	132.	132.	132.	2	0	0	0.00	230.99	340.55

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHJ	ELCHD
	0.00	1.50	2.75	200.00	10.00	0.00	55.00	0.00	812.60	812.60

*SECNO 305.520

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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	TRAPEZOID AREA	ELLC	ELTRD
819.57	818.60	0.00	0.	355.	55.	44.	817.00	820.10

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 820.10 ELREA= 820.10

305.52	6.96	819.56	0.00	0.00	819.57	.01	.97	0.00	814.20
355.	0.	355.	0.	0.	614.	0.	58.	25.	814.20
.80	0.00	.58	0.00	.100	.055	.100	.051	812.60	237.00
.000039	18.	18.	18.	0	0	0	0.00	97.00	334.00

*SECNO 305.030

305.03	6.27	819.57	0.00	0.00	819.58	.01	.00	.00	819.00
355.	0.	355.	0.	3.	422.	0.	59.	25.	821.60
.82	.07	.84	0.00	.100	.055	.100	.051	813.30	46.27
.000136	72.	72.	72.	0	0	0	0.00	106.43	152.70

*SECNO 305.050

** D/S FACE DAM 305B

305.05	2.82	819.52	0.00	0.00	819.75	.23	.00	.17	819.00
355.	2.	353.	0.	3.	92.	0.	59.	25.	821.60
.82	.86	3.84	0.00	.100	.055	.100	.051	816.70	47.06
.020173	2.	2.	2.	2	0	0	0.00	101.48	148.54

*SECNO 305.060

305.06	2.87	819.57	0.00	0.00	819.78	.21	.02	.01	819.00
355.	3.	352.	0.	3.	97.	0.	59.	25.	821.60
.82	.85	3.65	0.00	.100	.055	.100	.051	816.70	46.12
.017189	1.	1.	1.	2	0	0	0.00	102.70	148.82

*SECNO 305.080

305.08	3.63	819.83	0.00	0.00	819.85	.02	.00	.07	818.90
355.	1.	354.	0.	8.	319.	0.	59.	25.	821.50
.82	.17	1.11	0.00	.100	.055	.100	.051	816.20	39.25
.000347	1.	1.	1.	2	0	0	0.00	114.78	154.03

CCHV= .150 CEHV= .350

*SECNO 305.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
305.10	3.56	819.86	0.00	0.00	819.88	.02	.03	.00	819.00
355.	1.	354.	0.	7.	312.	0.	60.	26.	821.60
.84	.16	1.13	0.00	.100	.055	.100	.051	816.30	40.66
.000374	75.	75.	75.	2	0	0	0.00	113.11	153.76

*SECNO 305.200

305.20	3.05	820.05	0.00	0.00	820.08	.03	.19	.00	819.70
355.	0.	355.	0.	1.	263.	0.	63.	26.	822.30
.93	.12	1.35	0.00	.100	.055	.100	.051	817.00	50.39
.000647	400.	400.	400.	2	0	0	0.00	101.54	151.93

*SECNO 305.300

305.30	2.82	820.12	0.00	0.00	820.15	.03	.07	.00	820.00
355.	0.	355.	0.	0.	241.	0.	63.	27.	822.60
.94	.06	1.48	0.00	.100	.055	.100	.051	817.30	54.93
.000863	100.	100.	100.	1	0	0	0.00	96.14	151.07

*SECNO 306.050

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

306.05	4.19	821.99	821.99	0.00	822.72	.73	.52	.24	821.80
355.	2.	353.	0.	3.	51.	0.	64.	27.	823.40
.95	.59	6.87	0.00	.100	.055	.100	.051	817.80	332.13
.035602	200.	200.	200.	20	11	0	0.00	58.61	390.73

*SECNO 306.100

3301 HV CHANGED MORE THAN HVINS

306.10	5.46	823.46	0.00	0.00	823.55	.09	.73	.10	822.00
355.	96.	259.	0.	109.	92.	0.	64.	27.	823.60
.96	.88	2.80	0.00	.100	.055	.100	.051	818.00	255.70
.003070	100.	100.	100.	4	0	0	0.00	137.99	393.69

*SECNO 306.200

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
306.20	5.62	824.42	0.00	0.00	824.50	.07	.94	.00	822.80
355.	106.	249.	0.	126.	98.	0.	66.	28.	824.40
1.01	.84	2.55	.01	.100	.055	.100	.051	818.80	252.54
.002388	350.	350.	350.	5	0	0	0.00	141.64	394.18

*SECNO 306.210

306.21	5.09	824.59	0.00	0.00	824.76	.16	.23	.03	823.50
355.	69.	286.	0.	72.	80.	0.	66.	29.	825.10
1.02	.96	3.57	0.00	.100	.055	.100	.051	819.50	263.03
.005800	64.	64.	64.	0	0	0	0.00	129.81	392.84

CCHV= .400 CEHV= .800

*SECNO 305.980

** D/S FACE VAUGHN RD.

305.98	4.82	825.02	0.00	0.00	825.28	.26	.45	.08	824.20
355.	44.	311.	0.	46.	71.	0.	66.	29.	825.80
1.02	.95	4.36	0.00	.100	.055	.100	.051	820.20	268.50
.009863	60.	60.	60.	3	0	0	0.00	123.70	392.20

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.40	2.90	0.00	4.72	0.00	28.30	0.00	822.40	821.50

*SECNO 306.020

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
830.88	827.23	0.00	45.	311.	28.	17.	826.00	828.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 828.90 ELREA= 829.80

306.02	7.11	829.51	0.00	0.00	829.52	.00	4.24	0.00	826.30
355.	9.	346.	0.	92.	852.	0.	67.	29.	831.00
1.05	.10	.41	0.00	.100	.055	.100	.052	822.40	104.66
.000023	46.	46.	46.	0	0	5	0.00	212.41	317.07

*SECNO 306.100

** D/S FACE BRICK WALL

306.10	6.49	829.49	0.00	0.00	829.60	.10	.00	.08	830.40
355.	0.	355.	0.	0.	138.	0.	67.	29.	830.40
1.06	0.00	2.58	0.00	.100	.055	.100	.052	823.00	240.02
.001327	6.	6.	6.	2	0	0	0.00	24.95	264.98

*SECNO 306.150

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
306.15	6.50	829.50	0.00	0.00	829.60	.10	.00	.00	830.40
355.	0.	355.	0.	0.	138.	0.	67.	29.	830.40
1.06	0.00	2.57	0.00	.100	.020	.100	.051	823.00	240.02
.000175	2.	2.	2.	0	0	0	0.00	24.95	264.98

*SECNO 306.300

306.30	5.63	829.63	0.00	0.00	829.64	.01	.00	.04	827.50
355.	9.	346.	0.	40.	440.	0.	67.	29.	832.20
1.06	.22	.79	0.00	.100	.055	.100	.051	824.00	124.08
.000202	5.	5.	5.	2	0	0	0.00	186.77	310.85

*SECNO 306.400

** D/S FACF DAM 306A

306.40	3.23	829.63	0.00	0.00	829.64	.01	.00	.00	827.50
355.	10.	345.	0.	40.	397.	0.	67.	29.	832.20
1.06	.26	.87	0.00	.100	.055	.100	.051	826.40	124.08
.000280	1.	1.	1.	0	0	0	0.00	186.77	310.85

*SECNO 306.450

306.45	3.23	829.63	0.00	0.00	829.64	.01	.00	.00	827.50
355.	10.	345.	0.	40.	397.	0.	67.	29.	832.20
1.06	.26	.87	0.00	.100	.055	.100	.051	826.40	124.06
.000280	5.	5.	5.	0	0	0	0.00	186.79	310.86

*SECNO 306.470

306.47	6.04	829.64	0.00	0.00	829.64	.00	.00	.00	827.50
355.	4.	351.	0.	41.	686.	0.	67.	29.	832.20
1.06	.11	.51	0.00	.100	.055	.100	.051	823.60	123.96
.000048	1.	1.	1.	1	0	0	0.00	188.77	312.73

CCHV= .150 CEHV= .350

*SECNO 306.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
306.80	6.04	829.64	0.00	0.00	829.65	.00	.00	.00	827.50
355.	4.	351.	0.	41.	689.	0.	68.	29.	832.20
1.09	.11	.51	0.00	.100	.055	.100	.051	823.60	123.70
.000047	60.	60.	60.	0	0	0	0.00	189.10	312.79

*SECNO 307.000

3280 CROSS SECTION 307.00 EXTENDED .64 FEET

307.00	3.14	829.54	0.00	0.00	829.76	.23	.04	.08	828.70
355.	16.	258.	82.	20.	59.	59.	71.	30.	828.20
1.11	.78	4.41	1.37	.100	.055	.100	.052	826.40	309.39
.008773	250.	250.	250.	2	0	0	0.00	132.61	442.00

*SECNO 307.100
3280 CROSS SECTION 307.10 EXTENDED .51 FEET

307.10	3.01	831.01	0.00	0.00	831.30	.29	1.51	.02	830.30
355.	11.	270.	74.	14.	55.	51.	71.	31.	829.80
1.12	.80	4.89	1.44	.100	.055	.100	.052	828.00	316.93
.011659	150.	150.	150.	3	0	0	0.00	125.07	442.00

*SECNO 307.500

307.50	2.98	832.88	0.00	0.00	833.16	.28	1.86	.00	832.70
355.	0.	273.	82.	0.	58.	40.	71.	31.	831.30
1.13	.34	4.70	2.06	.100	.055	.100	.052	829.90	197.57
.013254	150.	150.	150.	3	0	0	0.00	67.52	265.09

*SECNO 308.200

308.20	3.21	834.81	0.00	0.00	835.02	.21	1.85	.01	834.40
355.	1.	267.	86.	3.	65.	47.	72.	31.	833.00
1.15	.48	4.09	1.83	.100	.055	.100	.052	831.60	190.54
.008591	175.	175.	175.	2	0	0	0.00	75.36	265.90

CCHV= .400 CEHV= .800
*SECNO 307.980

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 835.80 ELREA= 835.80

** D/S FACE ORCHARD RIDGE

307.98	4.30	835.50	0.00	0.00	835.70	.20	.68	.00	834.00
355.	0.	355.	0.	0.	99.	0.	72.	31.	832.60
1.16	0.00	3.59	0.00	.100	.055	.100	.052	831.20	203.00
.003800	124.	124.	124.	3	0	0	0.00	31.00	234.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.05	2.80	0.00	3.93	0.00	19.63	0.00	831.20	831.20

*SECNO 308.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
845.91	836.52	0.00	208.	147.	20.	15.	835.00	836.30

308.02	6.00	837.20	0.00	0.00	837.28	.08	1.58	0.00	834.80
355.	124.	230.	1.	113.	87.	3.	72.	31.	836.50
1.16	1.09	2.64	.35	.100	.055	.100	.052	831.20	81.57
.002208	26.	26.	26.	2	0	7	0.00	96.69	178.26

*SECNO 308.800

308.80	6.37	837.37	0.00	0.00	837.43	.06	.14	.01	834.60
355.	132.	221.	3.	137.	97.	7.	73.	32.	836.30
1.17	.96	2.28	.37	.100	.055	.100	.052	831.00	77.80
.001428	80.	80.	80.	2	0	0	0.00	104.81	182.61

*SECNO 308.850

308.85	5.66	837.46	0.00	0.00	837.57	.11	.10	.04	835.40
355.	114.	241.	0.	92.	78.	1.	73.	32.	837.10
1.18	1.24	3.08	.28	.100	.055	.100	.052	831.80	85.08
.003462	47.	47.	47.	0	0	0	0.00	89.13	174.21

*SECNO 308.870

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

** D/S FACE DAM 308.8A

308.87	1.77	842.67	842.67	0.00	843.22	.55	.00	.36	844.40
355.	0.	346.	9.	0.	57.	22.	73.	32.	842.30
1.18	0.00	6.04	.40	.100	.025	.100	.052	840.90	128.05
.007141	1.	1.	1.	20	17	0	0.00	157.79	288.90

*SECNO 308.880

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

308.88	2.20	843.10	0.00	0.00	843.35	.25	.01	.12	844.40
355.	0.	312.	43.	0.	73.	80.	73.	32.	842.30
1.18	0.00	4.28	.54	.100	.025	.100	.052	840.90	128.04
.002692	2.	2.	2.	4	0	0	0.00	179.98	311.04

*SECNO 308.900

308.90	7.04	843.44	0.00	0.00	843.45	.00	.00	.10	841.80
355.	1.	353.	1.	18.	760.	21.	73.	32.	842.00
1.18	.06	.46	.05	.100	.045	.100	.052	836.40	142.65
.000021	1.	1.	1.	2	0	0	0.00	191.22	333.88

CCHV= .150 CEHV= .350

*SECNO 308.950

308.95	5.55	843.45	0.00	0.00	843.46	.01	.01	.00	839.60
355.	6.	339.	10.	34.	460.	55.	78.	33.	839.60
1.31	.18	.74	.18	.100	.045	.100	.052	837.90	162.03
.000061	335.	335.	335.	2	0	0	0.00	142.62	304.64

*SECNO 309.000

309.00	4.38	843.48	0.00	0.00	843.49	.01	.03	.00	840.80
355.	4.	344.	7.	16.	348.	27.	82.	34.	840.80
1.40	.26	.99	.27	.085	.045	.085	.051	839.10	168.72
.000158	330.	330.	330.	1	0	0	0.00	127.14	295.87

Field Measured

*SECNO 309.100

309.10	1.67	843.47	0.00	0.00	843.70	.23	.13	.08	843.50
355.	0.	355.	0.	0.	92.	0.	83.	35.	843.50
1.42	0.00	3.87	0.00	.085	.045	.085	.051	841.90	181.66
.014183	260.	260.	260.	2	0	0	0.00	93.66	275.32

*SECNO 309.900

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
309.90	2.59	847.09	846.92	0.00	847.48	.40	3.72	.06	846.50
355.	3.	332.	20.	3.	64.	16.	84.	35.	846.30
1.44	.91	5.21	1.27	.085	.045	.085	.051	844.50	329.25
.013914	265.	265.	265.	13	14	0	0.00	84.28	413.53

*SECNO 310.000

310.00	2.80	850.00	0.00	0.00	850.28	.28	2.78	.02	849.20
355.	5.	321.	29.	5.	73.	23.	84.	36.	849.00
1.46	.87	4.43	1.25	.085	.045	.085	.051	847.20	325.70
.008481	260.	260.	260.	4	0	0	0.00	89.56	415.27

Field Measured

*SECNO 310.100

310.10	2.59	852.59	0.00	0.00	852.98	.39	2.66	.04	852.00
355.	3.	332.	20.	3.	64.	16.	85.	36.	851.80
1.47	.91	5.19	1.27	.085	.045	.085	.051	850.00	329.17
.013760	250.	250.	250.	3	0	0	0.00	84.39	413.56

*SECNO 311.200

311.20	2.55	854.95	0.00	0.00	855.01	.06	1.98	.05	855.30
355.	0.	308.	47.	0.	147.	76.	86.	38.	853.80
1.54	0.00	2.09	.62	.085	.045	.085	.050	852.40	283.01

.001846	500.	500.	500.	5	0	0	0.00	193.59	476.60

CCHV= .300 CEHV= .500
*SECNO 310.980

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 855.80 ELREA= 855.80

** D/S FACE LAHSER RD.

310.98	1.57	855.07	0.00	0.00	855.29	.21	.20	.08	856.40
270.	0.	270.	0.	0.	73.	0.	87.	38.	854.90
1.55	0.00	3.69	0.00	.085	.045	.085	.050	853.50	293.99
.012005	58.	58.	58.	2	0	0	0.00	71.01	365.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.65	2.90	0.00	6.80	0.00	11.56	0.00	854.50	854.50

*SECNO 311.020

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
869.05	857.54	0.00	140.	132.	12.	12.	856.20	857.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 857.50 ELREA= 858.50

311.02	3.89	858.39	0.00	0.00	858.40	.01	3.12	0.00	856.10
270.	139.	131.	0.	256.	103.	0.	87.	38.	859.00
1.56	.54	1.28	0.00	.085	.045	.085	.050	854.50	128.92
.000402	42.	42.	42.	1	0	8	0.00	173.33	302.24

CCHV= .200 CEHV= .400
*SECNO 311.800

311.80	3.47	858.47	0.00	0.00	858.49	.02	.09	.00	856.60
270.	130.	140.	0.	198.	87.	0.	88.	39.	859.50
1.60	.65	1.61	0.00	.090	.050	.090	.050	855.00	130.83
.000916	150.	150.	150.	2	0	0	0.00	169.45	300.29

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: CITY OF BLOOMFIELD HILLS & BLOOMFIELD TOWNSHIP

3) WATERCOURSE: LONG LAKE/FOREST LAKE

4) DOCUMENT TYPE: FLOODWAY UPSTREAM
LAHSER

00BREAK00

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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED JULY 1979                                     *
*                                                        *
*  RUN DATE  02/24/81  TIME .15.19.54.                   *
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*  U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616           *
*  (916) 440-2105 (FTS) 448-2105     *
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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C
T1      HUD-FIA H-4705
T2      BLOOMFIELD TWP
T3      LONG LAKE - FOREST LAKE BRANCH

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        4.         0.         0.  0.000000       0.00       -1.0        0.    854.950      0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    200.000     0.000   150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .085      .085      .045      .150      .350     0.000     0.000     0.000     0.000     0.000
QT     5.000   225.000   305.000   355.000   460.000   355.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1   311.200    14.000   279.000   365.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   862.000     0.000   858.800   245.000   858.200   262.000   855.300   279.000   853.100   304.000
GR   852.400   324.000   852.400   332.000   853.100   352.000   853.800   365.000   854.200   397.000
GR   854.200   440.000   855.200   489.000   856.000   613.000   859.400   688.000     0.000     0.000
QT     5.000   190.000   245.000   270.000   330.000   270.000     0.000     0.000     0.000     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

        ** D/S FACE LAHSER RD.

X1   310.980     0.000     0.000     0.000    58.000    58.000    58.000     0.000     1.100     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   855.800   855.800     0.000
SB     0.000     1.650     2.900     0.000     6.800     0.000    11.560     0.000   854.500   854.500

X1   311.020    10.000   265.000   305.000    42.000    42.000    42.000     0.000     0.000     0.000
X2     0.000     0.000     1.000   856.200   857.500     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   857.500   858.500     0.000
BT     4.000   250.000   860.500     0.000   532.000   857.500     0.000   615.000   858.500     0.000
BT   800.000   863.200     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   861.600    85.000   858.600   128.000   856.800   136.000   856.100   265.000   855.400   277.000
GR   854.500   280.000   854.500   292.000   856.800   295.000   859.000   305.000   862.900   357.000
NC      .090      .090      .050      .200      .400     0.000     0.000     0.000     0.000     0.000

X1   311.800     0.000     0.000     0.000   150.000   150.000   150.000     0.000      .500     0.000
NC     0.000     0.000     0.000      .150      .350     0.000     0.000     0.000     0.000     0.000

X1   311.900     0.000     0.000     0.000   150.000   150.000   150.000     0.000      .900     0.000
NC     0.000     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000
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** D/S FACE OVERBROOK

X1	311.980	0.000	0.000	0.000	77.000	77.000	77.000	0.000	.900	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	859.000	859.000	0.000
SB	0.000	2.800	2.900	0.000	6.275	0.000	25.100	0.000	856.800	856.800
X1	312.020	9.000	155.000	169.000	48.000	48.000	48.000	0.000	-3.500	0.000
X2	0.000	0.000	1.000	859.000	861.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	861.400	862.800	0.000
BT	2.000	250.000	861.400	0.000	476.000	863.400	0.000	0.000	0.000	0.000
GR	866.000	0.000	865.000	30.000	864.400	155.000	859.800	159.000	859.800	167.000
GR	862.200	169.000	862.100	189.000	864.100	230.000	867.200	264.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	312.410	11.000	168.000	192.000	40.000	40.000	40.000	0.000	-2.000	0.000
GR	866.000	0.000	865.000	30.000	865.000	100.000	862.200	138.000	862.200	168.000
GR	858.800	170.000	858.800	190.000	862.200	192.000	862.200	205.000	864.000	230.000
GR	867.400	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE ROCK DAM 312A

X1	312.150	11.000	168.000	192.000	2.000	2.000	2.000	0.000	-2.000	0.000
GR	866.000	0.000	865.000	30.000	865.000	100.000	862.200	138.000	862.200	168.000
GR	862.200	170.000	862.200	190.000	862.200	192.000	862.200	205.000	864.000	230.000
GR	867.400	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	312.160	0.000	0.000	0.000	2.000	2.000	2.000	0.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	312.170	11.000	168.000	192.000	1.000	1.000	1.000	0.000	-2.000	0.000
GR	866.000	0.000	865.000	30.000	865.000	100.000	862.200	138.000	862.200	168.000
GR	861.500	170.000	861.500	190.000	862.200	192.000	862.200	205.000	864.000	230.000
GR	867.400	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE 312B

X1	312.800	9.000	155.000	169.000	130.000	130.000	130.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	862.400	863.200	0.000	0.000	0.000	0.000	0.000
GR	866.000	0.000	865.000	30.000	864.400	155.000	859.800	159.000	859.800	167.000
GR	863.200	169.000	863.300	189.000	864.100	230.000	867.200	264.000	0.000	0.000
X1	312.820	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	862.400	863.200	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000

** D/S FACE FODTBRIDGE 312C

X1	312.840	12.000	110.000	126.000	155.000	155.000	155.000	0.000	-3.400	0.000
X2	0.000	0.000	0.000	864.200	865.200	0.000	0.000	0.000	0.000	0.000
GR	875.000	0.000	870.400	51.000	869.700	85.000	868.600	110.000	867.600	115.000
GR	867.000	117.000	867.000	119.000	867.600	121.000	869.200	126.000	871.000	160.000

GR	872.900	171.000	873.800	203.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	312.850	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	864.200	865.200	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE 312D

X1	312.870	0.000	0.000	0.000	135.000	135.000	135.000	0.000	1.000	0.000
X2	0.000	0.000	0.000	865.800	866.400	0.000	0.000	0.000	0.000	0.000
X1	312.880	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	865.800	866.400	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE 312E

X1	312.910	0.000	0.000	0.000	120.000	120.000	120.000	0.000	.700	0.000
X2	0.000	0.000	0.000	865.100	866.900	0.000	0.000	0.000	0.000	0.000
X1	312.920	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	865.100	866.900	0.000	0.000	0.000	0.000	0.000
X1	312.940	0.000	0.000	0.000	10.000	10.000	10.000	0.000	.100	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE CONCRETE BRIDGE 312.81

X1	312.950	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	868.500	868.500	0.000
SB	0.000	2.000	2.800	175.000	3.440	0.000	9.620	0.000	865.700	865.700
X1	312.960	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	868.500	870.700	0.000	0.000	0.000	0.000	0.000
X1	313.000	0.000	0.000	0.000	85.000	85.000	85.000	0.000	1.300	0.000
NC	.100	.100	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	314.200	10.000	131.000	143.000	575.000	575.000	575.000	0.000	0.000	0.000
GR	880.300	13.000	873.300	24.000	872.800	131.000	871.000	133.000	870.000	136.000
GR	870.000	139.000	871.000	143.000	873.200	145.000	876.000	192.000	881.400	223.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE PINE VALLEY WAY

X1	313.980	0.000	0.000	0.000	105.000	105.000	105.000	0.000	1.400	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	876.000	876.000	0.000
SB	0.000	2.450	2.800	0.000	3.930	0.000	19.630	0.000	871.400	871.400
X1	314.020	10.000	140.000	152.000	70.000	70.000	70.000	0.000	-.600	0.000
X2	0.000	0.000	1.000	875.000	883.000	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	883.000	883.000	0.000
BT	5.000	0.000	885.300	0.000	60.000	883.700	0.000	126.000	883.000	0.000
BT	162.000	883.900	0.000	190.000	885.300	0.000	0.000	0.000	0.000	0.000
GR	885.000	0.000	883.600	86.000	874.800	140.000	872.600	142.000	872.000	144.000
GR	872.000	146.000	872.600	148.000	874.700	152.000	879.600	183.000	885.000	199.000
X1	314.800	10.000	140.000	152.000	85.000	85.000	85.000	0.000	0.000	0.000
GR	885.000	0.000	883.600	86.000	874.800	140.000	872.600	142.000	872.000	144.000
GR	872.000	146.000	872.600	148.000	874.700	152.000	879.600	183.000	885.000	199.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
QT	5.000	155.000	180.000	195.000	230.000	195.000	0.000	0.000	0.000	0.000

** D/S FACE LONG LAKE RD.

X1	314.980	0.000	0.000	0.000	80.000	80.000	80.000	0.000	1.800	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	885.000	885.000	0.000
SB	0.000	2.000	3.000	0.000	3.140	0.000	12.570	0.000	875.800	873.800
X1	315.020	13.000	300.000	312.000	120.000	120.000	120.000	0.000	-.600	0.000
X2	0.000	0.000	1.000	879.800	896.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	896.100	896.100	0.000
BT	4.000	27.000	899.200	0.000	100.000	897.200	0.000	264.000	895.800	0.000
BT	354.000	897.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	900.000	0.000	892.000	44.000	886.200	93.000	882.400	169.000	878.900	192.000
GR	878.400	300.000	877.100	302.000	876.400	304.000	876.400	310.000	877.100	311.000
GR	880.800	312.000	892.800	359.000	900.000	392.000	0.000	0.000	0.000	0.000
X1	315.800	13.000	285.000	338.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	900.000	0.000	892.000	44.000	886.200	93.000	882.400	169.000	878.900	192.000
GR	878.400	285.000	877.100	289.000	876.400	294.000	876.400	308.000	877.100	313.000
GR	880.800	338.000	892.800	359.000	900.000	392.000	0.000	0.000	0.000	0.000
X1	316.000	11.000	111.000	137.000	465.000	465.000	465.000	0.000	0.000	0.000
GR	900.000	0.000	890.100	46.000	886.200	65.000	881.400	111.000	880.700	122.000
GR	878.000	127.000	878.000	133.000	881.500	137.000	891.200	193.000	891.200	232.000
GR	898.000	302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	316.200	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.100	0.000
NC	0.000	0.000	.065	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE DAM

X1	316.280	11.000	110.000	122.400	1.000	1.000	1.000	0.000	0.000	0.000
GR	900.000	0.000	890.100	46.000	885.300	70.000	885.300	110.000	883.200	110.100
GR	883.200	122.300	885.300	122.400	885.300	160.000	891.200	193.000	891.200	232.000
GR	898.000	302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	316.320	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
NC	0.000	0.000	.055	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	316.300	11.000	111.000	137.000	1.000	1.000	1.000	0.000	.200	0.000
GR	900.000	0.000	890.100	46.000	886.200	65.000	881.400	111.000	880.700	122.000

GR	880.500	127.000	880.500	133.000	881.500	137.000	891.200	193.000	891.200	232.000
GR	898.000	302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	317.000	9.000	88.000	204.000	410.000	410.000	410.000	0.000	0.000	0.000
GR	896.900	26.000	888.000	67.000	886.600	88.000	883.000	102.000	881.800	125.000
GR	881.800	175.000	883.000	197.000	887.100	204.000	896.800	225.000	0.000	0.000
X1	318.080	9.000	81.000	94.000	293.000	293.000	293.000	0.000	0.000	0.000
GR	900.000	0.000	885.200	38.000	885.000	81.000	884.000	84.000	884.000	91.000
GR	885.500	94.000	886.000	180.000	892.700	185.000	898.000	195.000	0.000	0.000

** D/S FACE FOOTBRIDGE 317A

X1	318.090	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	885.000	885.500	0.000	0.000	0.000	0.000	0.000
X1	318.110	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	885.000	885.500	0.000	0.000	0.000	0.000	0.000
X1	318.120	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	318.200	0.000	0.000	0.000	60.000	60.000	60.000	0.000	.100	0.000
X3	0.000	0.000	0.000	38.000	0.000	94.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE BROOKSIDE RD.

X1	317.980	0.000	0.000	0.000	85.000	85.000	85.000	0.000	.900	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	891.000	891.000	0.000
SB	.900	1.800	2.700	160.000	9.000	2.000	29.400	0.000	885.000	885.000
X1	318.020	11.000	62.000	104.000	25.000	25.000	25.000	0.000	.700	0.000
X2	0.000	0.000	1.000	889.200	896.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	75.000	0.000	89.000	0.000	0.000	0.000	0.000
GR	900.000	0.000	895.200	11.000	886.800	36.000	886.600	62.000	885.700	70.000
GR	884.300	72.000	884.300	75.000	885.700	77.000	886.200	89.000	887.800	104.000
GR	900.000	125.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	318.800	0.000	0.000	0.000	80.000	80.000	80.000	0.000	-.700	0.000
NC	.080	.080	.045	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	318.900	0.000	0.000	0.000	340.000	340.000	340.000	0.000	1.900	0.000
X1	318.950	13.000	124.000	159.000	300.000	300.000	300.000	0.000	-3.000	0.000
GR	908.800	21.000	899.600	60.000	895.400	82.000	893.800	103.000	894.000	124.000
GR	892.200	131.000	890.000	133.000	890.000	135.000	892.200	138.000	894.600	159.000
GR	900.800	170.000	902.900	217.000	908.800	275.000	0.000	0.000	0.000	0.000
X1	319.000	0.000	0.000	0.000	360.000	360.000	360.000	0.000	3.000	0.000

X1	319.100	0.000	0.000	0.000	440.000	440.000	440.000	0.000	2.000	0.000
X1	319.700	12.000	447.000	483.000	150.000	150.000	150.000	0.000	-1.200	0.000
GR	903.600	301.000	902.200	341.000	897.800	389.000	896.400	447.000	894.400	461.000
GR	893.800	464.000	893.800	469.000	895.700	483.000	895.600	706.000	896.200	737.000
GR	899.500	800.000	904.100	850.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	320.000	0.000	0.000	0.000	310.000	310.000	310.000	0.000	1.200	0.000
QT	5.000	75.000	110.000	130.000	185.000	130.000	0.000	0.000	0.000	0.000
X1	320.180	0.000	0.000	0.000	283.000	283.000	283.000	0.000	1.000	0.000
** D/S FACE FOOTBRIDGE 320A										
X1	320.190	0.000	0.000	0.000	1.000	1.000	1.000	0.000	2.000	0.000
X2	0.000	0.000	0.000	897.700	898.700	0.000	0.000	0.000	0.000	0.000
X1	320.210	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	897.700	898.700	0.000	0.000	0.000	0.000	0.000
X1	320.220	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	320.280	0.000	0.000	0.000	53.000	53.000	53.000	0.000	.500	0.000
** D/S FACE FOOTBRIDGE 320B										
X1	320.290	0.000	0.000	0.000	1.000	1.000	1.000	0.000	1.000	0.000
X2	0.000	0.000	0.000	899.200	900.200	0.000	0.000	0.000	0.000	0.000
X1	320.310	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	899.200	900.200	0.000	0.000	0.000	0.000	0.000
X1	320.320	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	321.200	15.000	189.000	217.000	530.000	530.000	530.000	0.000	0.000	0.000
GR	909.100	18.000	906.000	47.000	904.100	107.000	902.400	136.000	900.900	189.000
GR	900.000	201.000	898.600	209.000	898.300	210.000	898.600	211.000	900.600	217.000
GR	903.600	264.000	904.500	343.000	904.500	372.000	906.700	399.000	907.400	439.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000
** D/S FACE DEVONBROOK										
X1	320.980	0.000	0.000	0.000	190.000	190.000	190.000	0.000	1.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	902.800	902.800	0.000
SB	0.000	1.750	3.000	300.000	4.100	0.000	12.300	0.000	899.800	899.800

X1	321.020	13.000	155.000	173.000	50.000	50.000	50.000	0.000	-.400	0.000
X2	0.000	0.000	1.000	902.000	906.200	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	906.200	906.200	0.000
GR	910.000	0.000	903.500	108.000	902.400	122.000	901.800	155.000	900.800	162.000
GR	900.200	165.000	900.800	167.000	901.500	173.000	902.800	212.000	905.400	239.000
GR	906.200	280.000	906.800	373.000	910.000	397.000	0.000	0.000	0.000	0.000
X1	321.800	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.400	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	322.000	11.000	149.000	176.000	590.000	590.000	590.000	0.000	0.000	0.000
GR	915.200	43.000	906.900	102.000	904.800	131.000	904.200	149.000	903.200	154.000
GR	902.300	156.000	902.300	158.000	904.200	176.000	906.000	240.000	910.700	331.000
GR	915.000	458.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	323.200	0.000	0.000	0.000	330.000	330.000	330.000	0.000	1.400	0.000
NC	0.000	0.000	0.000	.450	.850	0.000	0.000	0.000	0.000	0.000
X1	322.970	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	0.000
X3	10.000	0.000	0.000	153.000	0.000	171.000	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

** D/S FACE TELEGRAPH RD.

X1	322.980	4.000	0.000	17.500	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	909.200	916.300	0.000	0.000	0.000	0.000	0.000
GR	909.200	0.000	903.900	.100	903.900	17.400	909.200	17.500	0.000	0.000
X1	323.020	4.000	0.000	17.500	260.000	260.000	260.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	910.100	916.300	0.000	0.000	0.000	0.000	0.000
GR	910.100	0.000	904.800	.100	904.800	17.400	910.100	17.500	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	323.030	8.000	273.000	317.000	5.000	5.000	5.000	0.000	.400	0.000
X3	10.000	0.000	0.000	285.000	0.000	303.000	0.000	0.000	0.000	0.000
GR	916.000	70.000	911.400	200.000	907.400	273.000	904.200	290.000	904.200	309.000
GR	905.600	317.000	906.400	333.000	916.600	397.000	0.000	0.000	0.000	0.000
X1	323.800	0.000	0.000	0.000	200.000	200.000	200.000	0.000	-.200	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	324.000	12.000	136.000	162.000	655.000	655.000	655.000	0.000	.200	0.000
GR	920.000	0.000	912.100	40.000	907.400	93.000	906.000	136.000	904.600	146.000
GR	904.600	156.000	906.600	162.000	907.400	183.000	909.600	211.000	910.500	246.000
GR	910.600	425.000	920.000	508.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	324.100	0.000	0.000	0.000	275.000	275.000	275.000	0.000	.100	0.000
X1	325.100	12.000	178.000	202.000	200.000	200.000	200.000	0.000	-.100	0.000
GR	920.000	0.000	913.400	45.000	908.100	122.000	906.900	178.000	905.200	187.000

GR	905.000	190.000	905.000	193.000	905.200	199.000	907.000	202.000	907.100	268.000
GR	911.000	338.000	916.800	401.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	325.200	0.000	0.000	0.000	225.000	225.000	225.000	0.000	.100	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000
QT	5.000	20.000	35.000	60.000	95.000	60.000	0.000	0.000	0.000	0.000

** D/S FACE FRANKLIN RD.

X1	324.980	0.000	0.000	0.000	175.000	175.000	175.000	0.000	.600	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	908.800	908.800	0.000
SB	0.000	2.950	2.650	0.000	3.370	0.000	10.780	0.000	905.600	905.600
X1	325.020	0.000	0.000	0.000	76.000	76.000	76.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	907.000	917.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	917.100	919.000	0.000
BT	4.000	0.000	921.000	0.000	200.000	917.100	0.000	345.000	919.000	0.000
BT	422.000	921.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	325.800	20.000	250.000	527.000	175.000	175.000	175.000	0.000	-.100	0.000
GR	918.000	0.000	911.900	148.000	911.900	190.000	907.500	233.000	907.000	250.000
GR	907.700	257.000	905.700	339.000	906.400	348.000	906.400	378.000	905.900	438.000
GR	905.700	448.000	905.700	458.000	906.000	466.000	906.000	487.000	907.000	517.000
GR	908.700	527.000	909.000	547.000	910.000	565.000	914.500	700.000	917.400	900.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	326.000	0.000	0.000	0.000	560.000	560.000	560.000	0.000	.100	0.000
X1	326.500	13.000	211.000	245.000	290.000	290.000	290.000	0.000	0.000	0.000
GR	920.000	0.000	915.000	42.000	908.400	145.000	908.000	185.000	907.200	211.000
GR	905.800	219.000	905.800	237.000	907.800	245.000	909.500	317.000	911.200	345.000
GR	913.800	423.000	916.600	480.000	917.000	600.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	326.700	0.000	0.000	0.000	450.000	450.000	450.000	0.000	0.000	0.000
X1	327.200	0.000	0.000	0.000	440.000	440.000	440.000	0.000	.100	0.000
X1	327.300	0.000	0.000	0.000	210.000	210.000	210.000	0.000	.200	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE ARYSHIRE RD.

X1	326.980	0.000	0.000	0.000	150.000	150.000	150.000	0.000	.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	911.300	911.300	0.000
SB	0.000	1.500	2.800	300.000	3.930	0.000	19.630	0.000	906.300	906.300
X1	327.020	15.000	268.000	321.000	25.000	25.000	25.000	0.000	.300	0.000
X2	0.000	0.000	1.000	911.300	912.200	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	912.200	912.200	0.000

GR	920.000	0.000	914.800	75.000	913.400	126.000	911.400	145.000	911.100	171.000
GR	908.500	247.000	908.600	268.000	906.100	294.000	906.000	297.000	906.000	301.000
GR	906.100	304.000	911.000	321.000	911.500	344.000	915.800	377.000	920.000	455.000
X1	327.800	0.000	0.000	0.000	155.000	155.000	155.000	0.000	-.300	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	328.000	8.000	365.000	410.000	625.000	625.000	625.000	0.000	0.000	0.000
GR	920.000	0.000	908.000	80.000	907.600	100.000	907.400	365.000	906.400	381.000
GR	908.200	410.000	912.600	505.000	920.000	568.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=     .150 CEHV=     .350
*SECNO 311.200
   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

   311.20      2.55    854.95      0.00    854.95    855.01      .06      0.00       0.00    855.30
      355.        0.      308.       47.       0.      147.      76.        0.         0.     853.80
     0.00      0.00      2.09       .62      .085      .045      .085     0.000    852.40    282.98
  .001835        0.        0.        0.         0         0         0      0.00    193.77    476.75

CCHV=     .300 CEHV=     .500
*SECNO 310.980

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      855.80 ELREA=      855.80

         ** D/S FACE LAHSER RD.

   310.98      1.57    855.07      0.00      0.00    855.29      .22       .20        .08    856.40
      270.        0.      270.        0.        0.      72.        0.        0.         0.     854.90
      .00      0.00      3.76      0.00      .085      .045      .085      .044    853.50    294.20
  .012702        58.       58.       58.         1         0         0      0.00     70.80    365.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.65      2.90      0.00      6.80      0.00     11.56      0.00    854.50    854.50

*SECNO 311.020
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID AREA     ELLC      ELTRD
   869.05    857.55      0.00       140.      132.       12.       12.          856.20    857.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      857.50 ELREA=      858.50

   311.02      3.89    858.39      0.00      0.00    858.40      .01       3.11       0.00    856.10
      270.      139.      131.        0.      256.      103.        0.        0.         0.     859.00
      .02       .54      1.28      0.00      .085      .045      .085      .044    854.50    128.92
  .000403        42.       42.       42.         1         0         8      0.00    173.32    302.24

CCHV=     .200 CEHV=     .400
*SECNO 311.800
   311.80      3.47    858.47      0.00      0.00    858.49      .02       .09        .00    856.60
      270.      130.      140.        0.      198.      87.        0.        2.         1.     859.50
      .05       .65      1.61      0.00      .090      .050      .090      .047    855.00    130.83
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.000916	150.	150.	150.	2	0	0	0.00	169.45	300.28

CCHV= .150 CEHV= .350
*SECNO 311.900

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
311.90	2.77	858.67	0.00	0.00	858.76	.08	.24	.02	857.50
270.	93.	177.	0.	107.	64.	0.	2.	1.	860.40
.07	.87	2.77	0.00	.090	.050	.090	.048	855.90	133.89
.003615	150.	150.	150.	2	0	0	0.00	163.26	297.15

CCHV= .400 CEHV= .800
*SECNO 311.980

** D/S FACE OVERBROOK

311.98	2.31	859.11	0.00	0.00	859.38	.27	.47	.15	858.40
270.	44.	226.	0.	47.	50.	0.	3.	2.	861.30
.08	.94	4.55	0.00	.090	.050	.090	.048	856.80	135.94
.012538	77.	77.	77.	2	0	0	0.00	159.12	295.06

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.80	2.90	0.00	6.28	0.00	25.10	0.00	856.80	856.80

*SECNO 312.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
864.14	860.44	0.00	61.	211.	25.	14.	859.00	861.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 861.40 ELREA= 862.80

312.02	5.77	862.07	0.00	0.00	862.17	.10	2.79	0.00	860.90
270.	66.	204.	0.	113.	69.	0.	3.	2.	858.70
.08	.58	2.95	0.00	.090	.050	.090	.048	856.30	12.93
.001548	48.	48.	48.	2	0	5	0.00	156.07	169.00

*SECNO 312.410

312.41	5.40	862.20	0.00	0.00	862.23	.03	.03	.03	860.20
270.	45.	199.	26.	87.	123.	54.	3.	2.	860.20
.09	.52	1.62	.48	.090	.055	.090	.049	856.80	110.82
.000497	40.	40.	40.	2	0	0	0.00	121.27	232.09

*SECNO 312.150

** D/S FACE ROCK DAM 312A

312.15	2.00	862.20	0.00	0.00	862.24	.04	.00	.00	860.20
270.	111.	95.	64.	87.	48.	54.	3.	2.	860.20
.09	1.27	1.98	1.19	.090	.065	.090	.049	860.20	110.79
.002976	2.	2.	2.	0	0	0	0.00	121.32	232.11

*SECNO 312.160

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
312.16	2.01	862.21	0.00	0.00	862.25	.04	.01	.00	860.20
270.	111.	95.	64.	88.	48.	54.	3.	2.	860.20
.09	1.26	1.98	1.18	.090	.065	.090	.049	860.20	110.76
.002963	2.	2.	2.	0	0	0	0.00	121.37	232.13

*SECNO 312.170

312.17	2.71	862.21	0.00	0.00	862.25	.04	.00	.00	860.20
270.	85.	136.	49.	88.	64.	54.	3.	2.	860.20
.09	.97	2.14	.90	.090	.055	.090	.049	859.50	110.69
.001723	1.	1.	1.	0	0	0	0.00	121.50	232.19

*SECNO 312.800

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 862.400 EGLC= 864.110 EGC= 864.377 WSEL= 863.906

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 862.400 EGLC= 864.110 EGC= 864.116 WSEL= 862.389

3235 SLOPE TOO STEEP,EXCEEDS .10

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 863.20 MAX ELLC= 862.40

** D/S FACE FOOTBRIDGE 312B

312.80	2.81	862.61	862.40	0.00	864.32	1.71	.73	1.33	864.40
270.	0.	270.	0.	0.	26.	0.	3.	2.	863.20
.10	0.00	10.49	0.00	.090	.055	.090	.050	859.80	156.56
.154991	130.	130.	130.	4	22	0	-2.51	12.10	168.65

*SECNO 312.820

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 862.400 EGLC= 864.110 EGC= 864.377 WSEL= 863.906

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 862.400 EGLC= 864.110 EGC= 864.116 WSEL= 862.389

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


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  863.20 MAX ELLC=  862.40

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF
   312.82     3.39   863.19   862.40     0.00   864.90     1.71      .77     -.00   864.40
    270.       0.     270.      0.        0.     26.        0.       3.       2.     863.20
     .10     0.00    10.49     0.00      .090    .055      .090     .050    859.80   156.05
  .154991      5.      5.        5.       20      22         0     -9.82    12.95    169.00


CCHV=    .150 CEHV=    .350
*SECND 312.840

3301 HV CHANGED MORE THAN HVINS


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  865.20 MAX ELLC=  864.20

        ** D/S FACE FOOTBRIDGE 312C

   312.84     4.02   867.62     0.00     0.00   867.68      .06     2.53      .25    865.20
    270.      130.     103.      37.      81.     40.       31.       4.       2.     865.80
     .12      1.60     2.55      1.18     .090    .055      .090     .051    863.60    44.19
 .005810      155.     155.      155.       9       0         0   -10.06    115.89   160.08


*SECNO 312.850
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  865.20 MAX ELLC=  864.20

   312.85     4.05   867.65     0.00     0.00   867.71      .06      .03      .00    865.20
    270.      131.     101.      38.      84.     41.       33.       4.       3.     865.80
     .12      1.55     2.47      1.17     .090    .055      .090     .051    863.60    43.73
 .005317        5.       5.        5.        2       0         0   -10.06    116.60   160.33


*SECNO 312.870

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  866.40 MAX ELLC=  865.80

        ** D/S FACE FOOTBRIDGE 312D

   312.87     3.91   868.51     0.00     0.00   868.58      .06      .87      .00    866.20
    270.      132.     101.      37.      74.     41.       28.       4.       3.     866.80
     .14      1.78     2.47      1.32     .090    .055      .090     .051    864.60    45.32
 .007880      135.     135.      135.       2       0         0    -8.34    113.03   158.35
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*SECNO 312.880

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 866.40 MAX ELLC= 865.80

312.88	3.95	868.55	0.00	0.00	868.61	.06	.04	.00	866.20
270.	133.	100.	37.	77.	42.	29.	4.	3.	866.80
.14	1.74	2.40	1.29	.090	.055	.090	.051	864.60	44.95
.007342	5.	5.	5.	0	0	0	-8.34	114.03	158.98

*SECNO 312.910

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 866.90 MAX ELLC= 865.10

** D/S FACE FOOTBRIDGE 312E

312.91	3.97	869.27	0.00	0.00	869.36	.09	.73	.01	866.90
270.	116.	122.	32.	78.	37.	29.	4.	3.	867.50
.15	1.48	3.26	1.09	.090	.055	.090	.051	865.30	44.71
.005177	120.	120.	120.	2	0	0	-12.46	114.66	159.38

*SECNO 312.920

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 866.90 MAX ELLC= 865.10

312.92	4.00	869.30	0.00	0.00	869.39	.09	.03	.00	866.90
270.	117.	121.	33.	81.	38.	31.	5.	3.	867.50
.16	1.45	3.19	1.07	.090	.055	.090	.051	865.30	44.35
.004847	5.	5.	5.	0	0	0	-12.46	115.65	160.00

*SECNO 312.940

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
312.94	3.93	869.33	0.00	0.00	869.43	.10	.04	.00	867.00
270.	89.	157.	24.	77.	49.	29.	5.	3.	867.60
.16	1.16	3.18	.85	.090	.055	.090	.051	865.40	45.01
.003223	10.	10.	10.	1	0	0	0.00	113.85	158.87

CCHV= .300 CEHV= .500

*SECNO 312.950

** D/S FACE CONCRETE BRIDGE 312.81

312.95	3.76	869.46	0.00	0.00	869.59	.13	.15	.02	867.30
270.	82.	166.	21.	65.	47.	23.	5.	3.	867.90
.16	1.26	3.57	.93	.090	.055	.090	.052	865.70	46.96
.004400	40.	40.	40.	2	0	0	0.00	108.58	155.54

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD

0.00	2.00	2.80	175.00	3.44	0.00	9.62	0.00	865.70	865.70

*SECNO 312.960
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
893.93	869.59	0.00	198.	73.	10.	10.	868.50	870.70

312.96	5.53	871.23	0.00	0.00	871.25	.02	1.65	0.00	867.30
270.	116.	105.	49.	195.	75.	90.	5.	3.	867.90
.17	.60	1.40	.54	.090	.055	.090	.052	865.70	27.28
.000358	20.	20.	20.	1	0	7	0.00	141.63	168.91

*SECNO 313.000

313.00	4.27	871.27	0.00	0.00	871.33	.06	.06	.02	868.60
270.	97.	141.	31.	99.	55.	40.	5.	4.	869.20
.18	.99	2.59	.79	.090	.055	.090	.052	867.00	41.38
.001861	85.	85.	85.	2	0	0	0.00	120.17	161.55

CCHV= .200 CEHV= .400
*SECNO 314.200

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

314.20	3.58	873.58	873.58	0.00	873.97	.39	2.19	.13	872.80
270.	60.	205.	5.	57.	36.	4.	7.	5.	871.00
.22	1.05	5.73	1.29	.100	.055	.100	.053	870.00	23.56
.011674	575.	575.	575.	6	10	0	0.00	127.86	151.42

CCHV= .300 CEHV= .500
*SECNO 313.980

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 876.00 ELREA= 876.00

** D/S FACE PINE VALLEY WAY

313.98	3.54	874.94	0.00	0.00	875.85	.91	1.62	.26	874.20
270.	0.	270.	0.	0.	35.	0.	7.	5.	872.40
.22	0.00	7.67	0.00	.100	.055	.100	.053	871.40	131.00
.021335	105.	105.	105.	2	0	0	0.00	12.00	143.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.45	2.80	0.00	3.93	0.00	19.63	0.00	871.40	871.40

*SECNO 314.020

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
882.14	876.10	0.00	0.	270.	20.	14.	875.00	883.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 883.00 ELREA= 883.00

314.02	10.65	882.05	0.00	0.00	882.14	.08	6.28	0.00	874.20
270.	0.	270.	0.	0.	117.	0.	8.	5.	874.10
.23	0.00	2.31	0.00	.100	.055	.100	.053	871.40	140.00
.000421	70.	70.	70.	2	0	0	0.00	12.00	152.00

*SECNO 314.800

314.80	10.16	882.16	0.00	0.00	882.18	.01	.02	.02	874.80
270.	64.	131.	75.	166.	111.	165.	8.	6.	874.70
.26	.38	1.19	.45	.100	.055	.100	.053	872.00	94.81
.000119	85.	85.	85.	2	0	0	0.00	95.79	190.60

CCHV= .200 CEHV= .400
*SECNO 314.980

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 885.00 ELREA= 885.00

** D/S FACE LONG LAKE RD.

314.98	8.34	882.14	0.00	0.00	882.22	.07	.02	.03	876.60
195.	0.	195.	0.	0.	89.	0.	9.	6.	876.50
.27	0.00	2.19	0.00	.100	.055	.100	.053	873.80	140.00
.000543	80.	80.	80.	2	0	0	0.00	12.00	152.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	3.00	0.00	3.14	0.00	12.57	0.00	875.80	873.80

*SECNO 315.020
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD

889.62	884.21	0.00	0.	195.	13.	13.	879.80	896.10	

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 896.10 ELREA= 896.10

315.02	13.79	889.59	0.00	0.00	889.62	.02	7.40	0.00	877.80
195.	0.	195.	0.	0.	159.	0.	9.	6.	880.20
.29	0.00	1.22	0.00	.100	.055	.100	.053	875.80	300.00
.000092	120.	120.	120.	2	0	0	0.00	12.00	312.00

*SECNO 315.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
315.80	13.22	889.62	0.00	0.00	889.62	.00	.00	.00	878.40
195.	106.	87.	2.	1681.	628.	68.	12.	6.	880.80
.58	.06	.14	.04	.100	.055	.100	.053	876.40	64.07
.000001	100.	100.	100.	0	0	0	0.00	289.38	353.44

*SECNO 316.000

316.00	11.62	889.62	0.00	0.00	889.62	.00	.00	.00	881.40
195.	52.	116.	27.	296.	255.	190.	28.	8.	881.50
.97	.17	.45	.14	.100	.055	.100	.053	878.00	48.33
.000015	465.	465.	465.	2	0	0	0.00	135.55	183.88

*SECNO 316.200

316.20	11.52	889.62	0.00	0.00	889.62	.00	.00	.00	881.50
195.	51.	116.	27.	290.	252.	186.	29.	8.	881.60
.98	.18	.46	.15	.100	.055	.100	.053	878.10	48.82
.000016	20.	20.	20.	0	0	0	0.00	134.49	183.31

CCHV= .400 CEHV= .800

*SECNO 316.280

** D/S FACE DAM

316.28	6.42	889.62	0.00	0.00	889.62	.00	.00	.00	885.30
195.	74.	49.	72.	220.	79.	215.	29.	8.	885.30
.99	.34	.61	.34	.100	.065	.100	.053	883.20	48.39
.000088	1.	1.	1.	0	0	0	0.00	135.78	184.17

*SECNO 316.320

316.32	6.42	889.62	0.00	0.00	889.62	.00	.00	.00	885.30
195.	74.	49.	72.	220.	79.	215.	29.	8.	885.30
.99	.34	.61	.34	.100	.065	.100	.053	883.20	48.39
.000088	3.	3.	3.	0	0	0	0.00	135.78	184.17

CCHV= .200 CEHV= .400

*SECNO 316.300

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
316.30	8.92	889.62	0.00	0.00	889.62	.00	.00	.00	881.60
195.	55.	111.	29.	284.	223.	181.	29.	8.	881.70
.99	.19	.49	.16	.100	.055	.100	.053	880.70	49.31
.000019	1.	1.	1.	0	0	0	0.00	133.43	182.73

*SECNO 317.000

317.00	7.83	889.63	0.00	0.00	889.63	.00	.00	.00	886.60
195.	3.	191.	0.	55.	817.	7.	36.	10.	887.10
1.48	.06	.23	.04	.100	.055	.100	.054	881.80	59.46
.000006	410.	410.	410.	1	0	0	0.00	150.02	209.49

*SECNO 318.080

318.08	5.63	889.63	0.00	0.00	889.63	.00	.00	.00	885.00
195.	63.	41.	91.	220.	69.	339.	41.	11.	885.50
1.72	.29	.59	.27	.100	.055	.100	.054	884.00	26.62
.000054	293.	293.	293.	0	0	0	0.00	156.09	182.71

*SECNO 318.090

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 885.50 MAX ELLC= 885.00

** D/S FACE FOOTBRIDGE 317A

318.09	5.63	889.63	0.00	0.00	889.63	.00	.00	.00	885.00
195.	65.	21.	109.	203.	63.	339.	41.	11.	885.50
1.72	.32	.34	.32	.100	.055	.100	.054	884.00	26.62
.000078	1.	1.	1.	0	0	0	-23.57	156.09	182.71

*SECNO 318.110

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 885.50 MAX ELLC= 885.00

318.11	5.63	889.63	0.00	0.00	889.63	.00	.00	.00	885.00
195.	65.	21.	109.	203.	63.	339.	41.	11.	885.50
1.72	.32	.34	.32	.100	.055	.100	.054	884.00	26.62
.000077	5.	5.	5.	0	0	0	-23.57	156.09	182.71

*SECNO 318.120

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
318.12	5.63	889.63	0.00	0.00	889.63	.00	.00	.00	885.00
195.	63.	41.	91.	220.	69.	339.	41.	11.	885.50
1.72	.29	.59	.27	.100	.055	.100	.054	884.00	26.62
.000054	1.	1.	1.	0	0	0	0.00	156.09	182.71

*SECNO 318.200

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3470 ENCROACHMENT STATIONS=      38.0      94.0  TYPE=     1  TARGET=      56.000
   318.20      5.53   889.63      0.00      0.00   889.64      .01       .01       .00   885.10
    195.       119.     76.        0.       191.     68.        0.       42.       11.  100000.00
     1.74       .63     1.11      0.00      .100     .055      .100      .054   884.10    38.00
  .000276      60.      60.       60.         0        0         0       0.00    56.00    94.00

CCHV=     .300 CEHV=     .500
*SECNO 317.980

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      891.00 ELREA=      891.00

        ** D/S FACE BROOKSIDE RD.

   317.98      4.60   889.60      0.00      0.00   889.78      .19       .05       .09   886.00
    195.         0.     195.        0.        0.     56.        0.       42.       11.   886.50
     1.75      0.00     3.48      0.00      .100     .055      .100      .054   885.00    81.00
  .002495      85.      85.       85.         2        0         0       0.00    13.00    94.00


SPECIAL BRIDGE

SB   XK          XKOR       COEQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .90        1.80       2.70     160.00       9.00       2.00      29.40       0.00     885.00     885.00

*SECNO 318.020
PRESSURE FLOW

 EGPRS       EGLWC        H3         QWEIR       QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                        AREA
  890.83     889.96         .06          0.       195.        29.       29.       889.20     896.20


3470 ENCROACHMENT STATIONS=      75.0      89.0  TYPE=     1  TARGET=      14.000
   318.02      5.65   890.65      0.00      0.00   890.83      .18      1.04      0.001 00000.70
    195.         0.     195.        0.        0.     58.        0.       42.       11.  100000.70
     1.75      0.00     3.37      0.00      .100     .055      .100      .054   885.00    75.00
  .004761      25.      25.       25.         2        0         0       0.00    14.00    89.00

*SECNO 318.800
   318.80      6.59   890.89      0.00      0.00   890.90      .01       .02       .05   886.60
    195.       47.     147.        1.      134.     199.        8.       43.       11.   887.80
     1.79       .35      .74       .18      .100     .055      .100      .054   884.30    23.82
  .000096      80.      80.       80.         2        0         0       0.00    85.51   109.33

CCHV=     .200 CEHV=     .400
*SECNO 318.900
   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

   318.90      4.74   890.94      0.00      0.00   890.96      .02       .06       .01   888.50
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195.	41.	154.	0.	68.	121.	1.	45.	12.	889.70
1.87	.60	1.27	.24	.080	.045	.080	.053	886.20	29.33
.000369	340.	340.	340.	2	0	0	0.00	76.81	106.14

*SECNO 318.950

318.95	4.11	891.11	0.00	0.00	891.37	.26	.31	.10	891.00
195.	3.	192.	0.	5.	46.	0.	46.	12.	891.60
1.89	.64	4.14	0.00	.080	.045	.080	.052	887.00	98.92
.009897	300.	300.	300.	2	0	0	0.00	55.80	154.72

*SECNO 319.000

319.00	4.25	894.25	0.00	0.00	894.46	.21	3.08	.01	894.00
195.	7.	188.	0.	9.	51.	0.	46.	13.	894.60
1.92	.76	3.72	0.00	.080	.045	.080	.052	890.00	97.12
.007462	360.	360.	360.	3	0	0	0.00	58.80	155.92

*SECNO 319.100

319.10	4.61	896.61	0.00	0.00	896.73	.12	2.25	.02	896.00
195.	16.	179.	0.	19.	63.	0.	47.	13.	896.60
1.97	.84	2.86	0.00	.080	.045	.080	.051	892.00	92.42
.003724	440.	440.	440.	3	0	0	0.00	66.59	159.01

*SECNO 319.700

319.70	4.17	896.77	0.00	0.00	896.78	.00	.02	.02	895.20
195.	6.	55.	134.	51.	114.	612.	48.	14.	894.50
2.11	.12	.49	.22	.080	.045	.080	.051	892.60	387.13
.000048	150.	150.	150.	2	0	0	0.00	383.69	770.82

*SECNO 320.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
320.00	3.00	896.80	0.00	0.00	896.81	.01	.03	.00	896.40
195.	0.	76.	118.	3.	72.	289.	52.	17.	895.70
2.24	.13	1.06	.41	.080	.045	.080	.051	893.80	430.28
.000421	310.	310.	310.	2	0	0	0.00	318.24	748.52

*SECNO 320.180

320.18	2.19	896.99	0.00	0.00	897.04	.05	.21	.02	897.40
130.	0.	91.	39.	0.	43.	81.	54.	18.	896.70
2.29	0.00	2.11	.49	.080	.045	.080	.050	894.80	449.84
.002919	283.	283.	283.	2	0	0	0.00	276.57	726.41

*SECNO 320.190

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 898.70 MAX ELLC= 897.70

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

** D/S FACE FOOTBRIDGE 320A

320.19	2.08	898.88	898.88	0.00	899.00	.12	.01	.03	899.40
130.	0.	57.	73.	0.	15.	41.	54.	19.	898.70
2.29	0.00	3.75	1.76	.080	.045	.080	.050	896.80	450.65
.090961	1.	1.	1.	20	15	0	-35.32	269.71	720.37

*SECNO 320.210

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 898.70 MAX ELLC= 897.70

320.21	2.31	899.11	0.00	0.00	899.13	.02	.11	.02	899.40
130.	0.	35.	95.	0.	23.	98.	54.	19.	898.70
2.29	0.00	1.55	.97	.080	.045	.080	.050	896.80	449.04
.009304	5.	5.	5.	3	0	0	-35.32	283.26	732.30

*SECNO 320.220

320.22	2.31	899.11	0.00	0.00	899.14	.03	.00	.00	899.40
130.	0.	80.	50.	0.	47.	108.	54.	19.	898.70
2.29	0.00	1.72	.46	.080	.045	.080	.050	896.80	449.06
.001799	1.	1.	1.	2	0	0	0.00	283.08	732.14

*SECNO 320.280

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
320.28	1.89	899.19	899.18	0.00	899.41	.22	.20	.08	899.90
130.	0.	128.	2.	0.	33.	9.	54.	19.	899.20
2.29	0.00	3.84	.26	.080	.045	.080	.050	897.30	451.97
.012448	53.	53.	53.	6	12	0	0.00	237.79	710.68

*SECNO 320.290

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

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 900.20 MAX ELLC= 899.20

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

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        ** D/S FACE FOOTBRIDGE 320B

   320.29      2.08    900.38    900.38      0.00    900.50      .12       .03       .02    900.90
    130.         0.       57.       73.        0.       15.       41.       54.       19.     900.20
    2.29      0.00      3.75      1.76      .080      .045      .080      .050    898.30    450.65
 .090961         1.        1.        1.        20        15         0    -35.32    269.71    720.37

*SECNO 320.310

3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   900.20 MAX ELLC=   899.20

   320.31      2.31    900.61      0.00      0.00    900.63      .02       .11       .02    900.90
    130.         0.       35.       95.        0.       23.       98.       54.       19.     900.20
    2.29      0.00      1.55       .97      .080      .045      .080      .050    898.30    449.04
 .009304         5.        5.        5.         3         0         0    -35.32    283.26    732.30

*SECNO 320.320
   320.32      2.31    900.61      0.00      0.00    900.64      .03       .00       .00    900.90
    130.         0.       80.       50.        0.       47.      108.       54.       19.     900.20
    2.29      0.00      1.72       .46      .080      .045      .080      .050    898.30    449.06
 .001799         1.        1.        1.         2         0         0      0.00    283.08    732.14

*SECNO 321.200
   321.20      3.34    901.64      0.00      0.00    901.72      .08      1.07       .02    900.90
    130.         4.      121.        5.        10.       52.        9.       55.       21.     900.60
    2.36       .46      2.33       .57      .080      .045      .080      .050    898.30    162.73
 .002263       530.      530.      530.         4         0         0      0.00     70.61    233.35

CCHV=    .400 CEHV=    .800
*SECNO 320.980
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      902.80 ELREA=      902.80

        ** D/S FACE DEVONBROOK

   320.98      2.65    902.45      0.00      0.00    902.70      .25       .85       .14    902.40
    130.         0.       130.       0.        0.       32.       0.        56.       21.     902.10
    2.37      0.00      4.01      0.00      .080      .045      .080      .050    899.80    189.00
 .012490       190.      190.      190.         3         0         0      0.00     28.00    217.00


SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       1.75       3.00     300.00       4.10       0.00      12.30       0.00     899.80     899.80

*SECNO 321.020
PRESSURE FLOW
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EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
905.49	902.70	0.00	0.	130.	12.	9.	902.00	906.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 906.20 ELREA= 906.20

321.02	5.65	905.45	0.00	0.00	905.49	.03	2.79	0.00	901.40
130.	0.	130.	0.	0.	87.	0.	56.	21.	901.10
2.38	0.00	1.50	0.00	.080	.045	.080	.050	899.80	155.00
.000256	50.	50.	50.	2	0	0	0.00	18.00	173.00

*SECNO 321.800

321.80	5.31	905.51	0.00	0.00	905.51	.00	.01	.01	901.80
130.	43.	46.	41.	182.	81.	169.	56.	22.	901.50
2.46	.23	.57	.24	.080	.045	.080	.050	900.20	74.63
.000042	100.	100.	100.	2	0	0	0.00	169.93	244.56

CCHV= .150 CEHV= .350

*SECNO 322.000

322.00	3.25	905.55	0.00	0.00	905.59	.04	.07	.01	904.20
130.	12.	105.	14.	23.	63.	33.	60.	23.	904.20
2.57	.51	1.67	.42	.080	.045	.080	.049	902.30	120.60
.000843	590.	590.	590.	2	0	0	0.00	103.51	224.11

*SECNO 323.200

323.20	2.36	906.06	0.00	0.00	906.22	.16	.59	.04	905.60
130.	2.	126.	2.	3.	39.	4.	61.	24.	905.60
2.60	.55	3.25	.55	.080	.045	.080	.049	903.70	135.10
.006088	330.	330.	330.	3	0	0	0.00	57.38	192.47

CCHV= .450 CEHV= .850

*SECNO 322.970

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

3470 ENCROACHMENT STATIONS= 153.0 171.0 TYPE= 1 TARGET= 18.000

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

322.97	2.48	906.38	0.00	0.00	906.61	.23	.33	.06	100000.00
130.	0.	130.	0.	0.	34.	0.	61.	24.	100000.00
2.61	0.00	3.84	0.00	.080	.045	.080	.049	903.90	153.00
.007073	50.	50.	50.	2	0	0	0.00	18.00	171.00

*SECNO 322.980

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 916.30 MAX ELLC= 909.20

** D/S FACE TELEGRAPH RD.

322.98	2.64	906.54	0.00	0.00	906.66	.13	.01	.05	909.20
130.	0.	130.	0.	0.	46.	0.	61.	24.	909.20
2.61	0.00	2.84	0.00	.080	.020	.080	.049	903.90	.05
.000568	5.	5.	5.	2	0	0	0.00	17.40	17.45

*SECNO 323.020

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 916.30 MAX ELLC= 910.10

323.02	1.95	906.75	0.00	0.00	906.98	.23	.22	.09	910.10
130.	0.	130.	0.	0.	34.	0.	61.	24.	910.10
2.63	0.00	3.85	0.00	.080	.020	.080	.048	904.80	.06
.001446	260.	260.	260.	3	0	0	0.00	17.37	17.44

*SECNO 323.030

3470 ENCROACHMENT STATIONS= 285.0 303.0 TYPE= 1 TARGET= 18.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.40 ELREA= 100000.40

323.03	2.23	906.83	0.00	0.00	907.01	.18	.01	.02	100000.40
130.	0.	130.	0.	0.	38.	0.	61.	24.	100000.40
2.63	0.00	3.45	0.00	.080	.045	.080	.048	904.60	285.00
.005181	5.	5.	5.	2	0	0	0.00	18.00	303.00

*SECNO 323.800

323.80	2.90	907.30	0.00	0.00	907.32	.02	.24	.07	907.60
130.	0.	122.	8.	0.	95.	19.	61.	24.	905.80
2.67	0.00	1.28	.43	.080	.045	.080	.048	904.40	274.61
.000522	200.	200.	200.	2	0	0	0.00	62.76	337.37

CCHV= .200 CEHV= .400

*SECNO 324.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
324.00	2.92	907.72	0.00	0.00	907.76	.04	.43	.01	906.20
130.	17.	109.	4.	36.	63.	11.	63.	25.	906.80
2.79	.48	1.73	.35	.080	.045	.080	.048	904.80	91.59
.000861	655.	655.	655.	3	0	0	0.00	93.00	184.59

*SECNO 324.100

324.10	3.04	907.94	0.00	0.00	907.97	.03	.21	.00	906.30
130.	19.	106.	5.	41.	66.	14.	64.	26.	906.90
2.85	.47	1.60	.36	.080	.045	.080	.048	904.90	90.28
.000695	275.	275.	275.	2	0	0	0.00	95.79	186.07

*SECNO 325.100

325.10	3.17	908.07	0.00	0.00	908.09	.02	.11	.00	906.80
130.	12.	83.	35.	38.	62.	84.	64.	27.	906.90

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     2.90       .31      1.33       .42      .080      .045      .080      .048    904.90    120.95
  .000472      200.      200.      200.         2         0         0      0.00    166.30    287.25

*SECNO 325.200
   325.20      3.18    908.18      0.00      0.00    908.20       .02       .11       .00    906.90
    130.       12.       83.       35.       38.       63.       85.       65.       28.     907.00
     2.97       .31      1.33       .41      .080      .045      .080      .048    905.00    120.87
  .000466      225.      225.      225.         2         0         0      0.00    166.49    287.35

CCHV=     .400 CEHV=     .800
*SECNO 324.980

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      908.80 ELREA=      908.80

         ** D/S FACE FRANKLIN RD.

   324.98      2.66    908.26      0.00      0.00    908.28       .02       .08       .00    907.50
     60.         0.       60.         0.        0.       50.         0.       66.       28.     907.60
     3.01       0.00      1.20       0.00      .080      .045      .080      .048    905.60    178.00
  .000508      175.      175.      175.         0         0         0      0.00     24.00    202.00


SPECIAL BRIDGE

SB   XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        2.95       2.65        0.00      3.37       0.00       10.78      0.00       905.60     905.60

*SECNO 325.020
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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    TRAPEZOID      ELLC       ELTRD
                                                                     AREA
   909.68    908.28       0.00          0.        60.        11.         5.      907.00     917.10


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      917.10 ELREA=      919.00

   325.02      4.07    909.67      0.00      0.00    909.68       .01      1.40       0.00    907.50
     60.         0.       60.         0.        0.       84.         0.       66.       28.     907.60
     3.04       0.00       .71       0.00      .080      .045      .080      .048    905.60    178.00
  .000090       76.       76.       76.         0         0         0      0.00     24.00    202.00

*SECNO 325.800
   325.80      4.08    909.68      0.00      0.00    909.68       .00       .00       .00    906.90
     60.         2.       58.         0.       69.       932.       24.       68.       29.     908.60
     3.83       .02        .06       .01      .080      .045      .080      .047    905.60    210.68
  .000001      175.      175.      175.         2         0         0      0.00    350.42    561.11
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CCHV=     .300 CEHV=     .500
*SECNO 326.000
   326.00      3.98    909.68      0.00      0.00    909.68       .00       .00       .00    907.00
     60.         2.       58.         0.       65.       905.      21.       81.       33.     908.70
    6.31       .03       .06       .01      .080      .045      .080      .047    905.70    211.66
 .000001       560.      560.      560.         2         0         0      0.00    347.66    559.31

*SECNO 326.500
   326.50      3.88    909.68      0.00      0.00    909.69       .00       .00       .00    907.20
     60.        14.       39.         6.      126.      118.      75.       86.       35.     907.80
    6.62       .11       .33       .08      .080      .045      .080      .047    905.80    124.96
 .000019       290.      290.      290.         0         0         0      0.00    195.08    320.04

CCHV=     .150 CEHV=     .350
*SECNO 326.700
   326.70      3.89    909.69      0.00      0.00    909.69       .00       .01       .00    907.20
     60.        14.       39.         6.      127.      119.      75.       89.       37.     907.80
    7.12       .11       .33       .08      .080      .045      .080      .047    905.80    124.89
 .000019       450.      450.      450.         0         0         0      0.00    195.22    320.11

*SECNO 327.200
   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
   327.20      3.80    909.70      0.00      0.00    909.70       .00       .01       .00    907.30
     60.        14.       40.         6.      119.      116.      69.       92.       39.     907.90
    7.57       .12       .35       .08      .080      .045      .080      .047    905.90    126.25
 .000022       440.      440.      440.         0         0         0      0.00    192.42    318.67

*SECNO 327.300
   327.30      3.61    909.71      0.00      0.00    909.71       .00       .01       .00    907.50
     60.        13.       42.         5.      103.      109.      55.       93.       40.     908.10
    7.76       .13       .39       .09      .080      .045      .080      .047    906.10    129.30
 .000029       210.      210.      210.         0         0         0      0.00    183.73    313.03

CCHV=     .400 CEHV=     .800
*SECNO 326.980

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      911.30 ELREA=      911.30

        ** D/S FACE ARYSHIRE RD.

   326.98      3.41    909.71      0.00      0.00    909.72       .01       .01       .00    907.70
     60.         0.       60.         0.        0.      102.       0.       94.       40.     908.30
    7.83       0.00       .59       0.00      .080      .045      .080      .047    906.30    211.00
 .000074       150.      150.      150.         0         0         0      0.00     34.00    245.00


SPECIAL BRIDGE
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SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.80	300.00	3.93	0.00	19.63	0.00	906.30	906.30

*SECNO 327.020

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 909.718 ELLC= 911.300 PCWSE= 909.713 ELTRD= 912.200

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 912.20 MAX ELLC= 911.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 912.20 ELREA= 912.20

327.02	3.42	909.72	0.00	0.00	909.72	.00	.00	.00	908.90
60.	0.	60.	0.	0.	107.	0.	94.	40.	911.30
7.85	0.00	.56	0.00	.080	.045	.080	.047	906.30	268.00
.000101	25.	25.	25.	0	0	0	0.00	47.49	315.49

*SECNO 327.800

327.80	3.73	909.73	0.00	0.00	909.73	.00	.01	.00	908.60
60.	6.	54.	0.	47.	122.	0.	95.	41.	911.00
7.95	.13	.44	0.00	.080	.045	.080	.047	906.00	211.07
.000054	155.	155.	155.	0	0	0	0.00	105.52	316.59

CCHV= .200 CEHV= .400

*SECNO 328.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
328.00	3.34	909.74	0.00	0.00	909.74	.00	.01	.00	907.40
60.	44.	16.	1.	642.	116.	26.	101.	44.	908.20
10.00	.07	.13	.03	.080	.045	.080	.047	906.40	68.40
.000005	625.	625.	625.	2	0	0	0.00	374.85	443.25

PROFILE FOR STREAM LONG LAKE - FOREST LAKE

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

ELEVATION-FT	850.	860.	870.	880.	890.	900.	910.	920.	930.	940.
SECNO	CUMDIS-FT									
311.20	0.	C I RE M.								
	20.	C IREL M								
	40.	C I EL M								
310.98	60.	C IEL .M								
	80.	C I LE .M								
311.02	100.	C IL ER. M								
	120.	C IL ER. M								
	140.	C IL ER. M								
	160.	C IL ER. M								
	180.	C IL ER. M								
	200.	C IL ER. M								
	220.	C IL ER. M								
	240.	C I LER. M								
311.80	260.	C I LE R M								
	280.	C I LWER M								
	300.	C I L ER M								
	320.	C I L ER M								
	340.	C I L ER M								
	360.	C IL ER M								
	380.	C IL ER M								
311.90	400.	C I LER M								
	420.	C I LE.R M								
	440.	C I LE.R M								
	460.	C ILE.R M								
311.98	480.	C ILE.R M								
	500.	C I LWE M								
	520.	C I RL EM								
312.02	540.	C I R.LEM								
	560.	C I R.LEM								
312.41	580.	C I L E M								
312.15	600.	C I E M								
312.16	620.	C I E M								
312.17	640.	C I E M								
	660.	C ILWEM								
	680.	C ILWE M								
312.80	700.	. I CWE M								
312.82	720.	. I CWLEM								
	740.	C I WE M								
	760.	C .I WLEM								
	780.	C .I RWE M								
	800.	C . I WE M								
	820.	C . I LWE M.								
	840.	C . I L E M.								
312.84	860.	C . ILR E M								
312.85	880.	C . ILR E M								
	900.	C . ILR E .M								
	920.	C . ILR E .M								
	940.	C . I L E .M								
	960.	C . I L E .M								

	980.	C	.	I LRE .M	.	.	.	.	.	.	.	.	.	.
312.87	1000.	C	.	ILR E.M	.	.	.	.	.	.	.	.	.	.
312.88	1020.	C	.	ILR E.M	.	.	.	.	.	.	.	.	.	.
	1040.	C	.	ILR E. M	.	.	.	.	.	.	.	.	.	.
	1060.	C	.	ILR E. M	.	.	.	.	.	.	.	.	.	.
	1080.	C	.	I L E. M	.	.	.	.	.	.	.	.	.	.
	1100.	C	.	I L E. M	.	.	.	.	.	.	.	.	.	.
	1120.	C	.	I L E. M	.	.	.	.	.	.	.	.	.	.
312.91	1140.	C	.	I LRE. M	.	.	.	.	.	.	.	.	.	.
312.92	1160.	C	.	I LRE. M	.	.	.	.	.	.	.	.	.	.
312.94	1180.	C	.	I LRE. M	.	.	.	.	.	.	.	.	.	.
312.95	1200.	C	.	ILRWE M	.	.	.	.	.	.	.	.	.	.
312.96	1220.	C	.	ILR .E M	.	.	.	.	.	.	.	.	.	.
	1240.	C	.	I L .E M	.	.	.	.	.	.	.	.	.	.
	1260.	C	.	I LR.E M	.	.	.	.	.	.	.	.	.	.
	1280.	C	.	ILR.E M	.	.	.	.	.	.	.	.	.	.
313.00	1300.	C	.	I L.E M	.	.	.	.	.	.	.	.	.	.
	1320.	C	.	I L.E M	.	.	.	.	.	.	.	.	.	.
	1340.	C	.	I L.WE M	.	.	.	.	.	.	.	.	.	.
	1360.	C	.	I L. E M	.	.	.	.	.	.	.	.	.	.
	1380.	C	.	I L. E M	.	.	.	.	.	.	.	.	.	.
	1400.	C	.	ILR E M	.	.	.	.	.	.	.	.	.	.
	1420.	C	.	ILR E M	.	.	.	.	.	.	.	.	.	.
	1440.	C	.	I L E M	.	.	.	.	.	.	.	.	.	.
	1460.	C	.	I L E M	.	.	.	.	.	.	.	.	.	.
	1480.	C	.	I L E M	.	.	.	.	.	.	.	.	.	.
	1500.	C	.	I L E M	.	.	.	.	.	.	.	.	.	.
	1520.	C	.	I L E M	.	.	.	.	.	.	.	.	.	.
	1540.	C	.	I L E M	.	.	.	.	.	.	.	.	.	.
	1560.	C	.	I L WE M	.	.	.	.	.	.	.	.	.	.
	1580.	C	.	I RLWE M	.	.	.	.	.	.	.	.	.	.
	1600.	C	.	IRLWE M	.	.	.	.	.	.	.	.	.	.
	1620.	C	.	IRL E M	.	.	.	.	.	.	.	.	.	.
	1640.	C	.	IRL E M	.	.	.	.	.	.	.	.	.	.
	1660.	C	.	IRL E M	.	.	.	.	.	.	.	.	.	.
	1680.	C	.	IRL E M	.	.	.	.	.	.	.	.	.	.
	1700.	C	.	IR LE M	.	.	.	.	.	.	.	.	.	.
	1720.	C	.	I.RLE M.	.	.	.	.	.	.	.	.	.	.
	1740.	C	.	I.RLE M.	.	.	.	.	.	.	.	.	.	.
	1760.	C	.	I.RLE M.	.	.	.	.	.	.	.	.	.	.
	1780.	C	.	IRLWE M.	.	.	.	.	.	.	.	.	.	.
	1800.	C	.	IRLWE M.	.	.	.	.	.	.	.	.	.	.
	1820.	C	.	IRLWE M	.	.	.	.	.	.	.	.	.	.
	1840.	C	.	IR WE M	.	.	.	.	.	.	.	.	.	.
314.20	1860.	.	.	IR LE M	.	.	.	.	.	.	.	.	.	.
	1880.	C	.	IR LE .M	.	.	.	.	.	.	.	.	.	.
	1900.	C	.	.IRLWE .M	.	.	.	.	.	.	.	.	.	.
	1920.	C	.	.IR WE .M	.	.	.	.	.	.	.	.	.	.
	1940.	C	.	.IR LE .M	.	.	.	.	.	.	.	.	.	.
	1960.	C	.	.IR LWE . M	.	.	.	.	.	.	.	.	.	.
313.98	1980.	C	.	.IR LWE . M	.	.	.	.	.	.	.	.	.	.
	2000.	C	.	.I RL WE . M	.	.	.	.	.	.	.	.	.	.
	2020.	C	.	.I RL E. M	.	.	.	.	.	.	.	.	.	.
314.02	2040.	C	.	.I L . E M	.	.	.	.	.	.	.	.	.	.
	2060.	C	.	. I L . E M	.	.	.	.	.	.	.	.	.	.
	2080.	C	.	. I L . E M	.	.	.	.	.	.	.	.	.	.
	2100.	C	.	. I L . E M	.	.	.	.	.	.	.	.	.	.
314.80	2120.	C	.	. I L . E M	.	.	.	.	.	.	.	.	.	.
	2140.	C	.	. I L . E M	.	.	.	.	.	.	.	.	.	.
	2160.	C	.	. I L . E M	.	.	.	.	.	.	.	.	.	.
	2180.	C	.	. I L . E M	.	.	.	.	.	.	.	.	.	.

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	8300.	C	.	.	.	.	.	I E	.	M	.	.	.	L
	8320.	C	.	.	.	.	.	I E	.	M	.	.	.	L
	8340.	C	.	.	.	.	.	I E	.	M	.	.	.	L
	8360.	C	.	.	.	.	.	I E	.	M	.	.	.	L
	8380.	C	.	.	.	.	.	I E	.	M	.	.	.	L
	8400.	C	.	.	.	.	.	I E	.	M	.	.	.	L
	8420.	C	.	.	.	.	.	I E	.	M	.	.	.	L
323.80	8440.	C	.	.	.	.	.	I REL	.	M	.	.	.	.
	8460.	C	.	.	.	.	.	I REL	.	M	.	.	.	.
	8480.	C	.	.	.	.	.	I REL	.	M	.	.	.	.
	8500.	C	.	.	.	.	.	I RE	.	M	.	.	.	.
	8520.	C	.	.	.	.	.	I RE	.	M	.	.	.	.
	8540.	C	.	.	.	.	.	I RE	.	M	.	.	.	.
	8560.	C	.	.	.	.	.	I RE	.	M	.	.	.	.
	8580.	C	.	.	.	.	.	I RE	.	M	.	.	.	.
	8600.	C	.	.	.	.	.	I RE	.	M	.	.	.	.
	8620.	C	.	.	.	.	.	IRE	.	M	.	.	.	.
	8640.	C	.	.	.	.	.	IRE	.	M	.	.	.	.
	8660.	C	.	.	.	.	.	IRE	.	M	.	.	.	.
	8680.	C	.	.	.	.	.	IRE	.	M	.	.	.	.
	8700.	C	.	.	.	.	.	IRE	.	M	.	.	.	.
	8720.	C	.	.	.	.	.	IRWE	.	M	.	.	.	.
	8740.	C	.	.	.	.	.	IRWE	.	M	.	.	.	.
	8760.	C	.	.	.	.	.	IRLE	.	M	.	.	.	.
	8780.	C	.	.	.	.	.	IRLE	.	M	.	.	.	.
	8800.	C	.	.	.	.	.	IRLE	.	M	.	.	.	.
	8820.	C	.	.	.	.	.	IRLE	.	M	.	.	.	.
	8840.	C	.	.	.	.	.	IRLE	.	M	.	.	.	.
	8860.	C	.	.	.	.	.	IRLE	.	M	.	.	.	.
	8880.	C	.	.	.	.	.	IRLE	.	M	.	.	.	.
	8900.	C	.	.	.	.	.	I LE	.	M	.	.	.	.
	8920.	C	.	.	.	.	.	I LE	.	M	.	.	.	.
	8940.	C	.	.	.	.	.	I LE	.	M	.	.	.	.
	8960.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	8980.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9000.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9020.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9040.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9060.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9080.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
324.00	9100.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9120.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9140.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9160.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9180.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9200.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9220.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9240.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9260.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9280.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9300.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9320.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9340.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
324.10	9360.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9380.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9400.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9420.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9440.	C	.	.	.	.	.	ILRE	.	M	.	.	.	.
	9460.	C	.	.	.	.	.	I LE	.	M	.	.	.	.
	9480.	C	.	.	.	.	.	I LE	.	M	.	.	.	.
	9500.	C	.	.	.	.	.	I LE	.	M	.	.	.	.

	9520.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9540.	C	.	.	.	.	.	I LE .	M	.	.	.	.
325.10	9560.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9580.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9600.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9620.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9640.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9660.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9680.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9700.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9720.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9740.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9760.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9780.	C	.	.	.	.	.	I LE .	M	.	.	.	.
325.20	9800.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9820.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9840.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9860.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9880.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9900.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9920.	C	.	.	.	.	.	I LE .	M	.	.	.	.
	9940.	C	.	.	.	.	.	I LE .	M	.	.	.	.
324.98	9960.	C	.	.	.	.	.	I E .	M	.	.	.	.
	9980.	C	.	.	.	.	.	I LE.	M	.	.	.	.
	10000.	C	.	.	.	.	.	I LE.	M	.	.	.	.
	10020.	C	.	.	.	.	.	I LE.	M	.	.	.	.
325.02	10040.	C	.	.	.	.	.	I L E	M	.	.	.	.
	10060.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10080.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10100.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10120.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10140.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10160.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10180.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10200.	C	.	.	.	.	.	IL RE	M	.	.	.	.
325.80	10220.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10240.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10260.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10280.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10300.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10320.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10340.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10360.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10380.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10400.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10420.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10440.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10460.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10480.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10500.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10520.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10540.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10560.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10580.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10600.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10620.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10640.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10660.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10680.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10700.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10720.	C	.	.	.	.	.	IL RE	M	.	.	.	.

	10740.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10760.	C	.	.	.	.	.	IL RE	M	.	.	.	.
326.00	10780.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10800.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10820.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10840.	C	.	.	.	.	.	IL RE	M	.	.	.	.
	10860.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10880.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10900.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10920.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10940.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10960.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	10980.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11000.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11020.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11040.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11060.	C	.	.	.	.	.	ILR E	M	.	.	.	.
326.50	11080.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11100.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11120.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11140.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11160.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11180.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11200.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11220.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11240.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11260.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11280.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11300.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11320.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11340.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11360.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11380.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11400.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11420.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11440.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11460.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11480.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11500.	C	.	.	.	.	.	ILR E	M	.	.	.	.
326.70	11520.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11540.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11560.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11580.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11600.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11620.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11640.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11660.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11680.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11700.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11720.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11740.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11760.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11780.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11800.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11820.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11840.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11860.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11880.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11900.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11920.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11940.	C	.	.	.	.	.	ILR E	M	.	.	.	.

327.20	11960.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	11980.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12000.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12020.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12040.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12060.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12080.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12100.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12120.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12140.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	12160.	C	.	.	.	.	.	ILR E	M	.	.	.	.
327.30	12180.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12200.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12220.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12240.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12260.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12280.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12300.	C	.	.	.	.	.	I L E	M	.	.	.	.
326.98	12320.	C	.	.	.	.	.	I L E	M	.	.	.	.
327.02	12340.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12360.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12380.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12400.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12420.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12440.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12460.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12480.	C	.	.	.	.	.	I LER	M	.	.	.	.
327.80	12500.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12520.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12540.	C	.	.	.	.	.	I LER	M	.	.	.	.
	12560.	C	.	.	.	.	.	I L ER	M	.	.	.	.
	12580.	C	.	.	.	.	.	I L ER	M	.	.	.	.
	12600.	C	.	.	.	.	.	I L ER	M	.	.	.	.
	12620.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12640.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12660.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12680.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12700.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12720.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12740.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12760.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12780.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12800.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12820.	C	.	.	.	.	.	I L E	M	.	.	.	.
	12840.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	12860.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	12880.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	12900.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	12920.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	12940.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	12960.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	12980.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	13000.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	13020.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	13040.	C	.	.	.	.	.	I LRE	M	.	.	.	.
	13060.	C	.	.	.	.	.	I L E	M	.	.	.	.
	13080.	C	.	.	.	.	.	ILR E	M	.	.	.	.
	13100.	C	.	.	.	.	.	ILR E	M	.	.	.	.
328.00	13120.	C	.	.	.	.	.	ILR E	M	.	.	.	.

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      FLOODWAY DETERMINATION

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        6.        0.        0.  0.000000      0.00     -1.0         0.   855.050     0.000

J2   NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 2

CCHV=     .150 CEHV=     .350
*SECNO 311.200
 2800 NAT Q1=      82.87  WSEL=     854.95  ENC Q1=      82.87  WSEL=     855.05  RATIO=  0.0000
 NAT Q1=      91.  RATIOS LOB,CH,ROB=  0.0000   .8519   .1481  WSEL=     855.05
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      279.0      390.0  TYPE=      4  TARGET=         .094
   311.20      2.65    855.05      0.00    854.95    855.12       .07      0.00      0.00    855.30
     355.        0.     334.        21.       0.      156.        27.       0.        0.     853.80
     0.00      0.00      2.15       .78      .085      .045      .085     0.000    852.40    281.84
  .001834        0.        0.        0.         0         0         0      0.00    108.12    389.96


CCHV=     .300 CEHV=     .500
*SECNO 310.980
 2800 NAT Q1=      23.96  WSEL=     855.07  ENC Q1=      28.01  WSEL=     855.17  RATIO=  -.1690
 NAT Q1=      28.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     855.17

3470 ENCROACHMENT STATIONS=      279.0      365.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       855.80 ELREA=       855.80

        ** D/S FACE LAHSER RD.

   310.98      1.68    855.18      0.00    855.07    855.35       .18       .18       .05    856.40
     270.        0.     270.        0.       0.       80.        0.        0.        0.     854.90
      .00      0.00      3.36      0.00      .085      .045      .085      .044    853.50    292.85
  .009022        58.       58.       58.         2         0         0      0.00     72.15    365.00


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.65       2.90       0.00       6.80       0.00      11.56       0.00     854.50     854.50

*SECNO 311.020
 2800 NAT Q1=     134.57  WSEL=     858.39  ENC Q1=     134.57  WSEL=     858.49  RATIO=    .0000
 NAT Q1=     143.  RATIOS LOB,CH,ROB=    .5211   .4789  0.0000  WSEL=     858.49
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      152.7      305.0  TYPE=      4  TARGET=         .062

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       857.50 ELREA=       858.50

   311.02      4.00    858.50      0.00    858.39    858.51       .02       .05       .05    856.10
     270.      132.      138.        0.      235.      107.        0.        0.        0.     859.00
      .02       .56      1.29      0.00      .085      .045      .085      .044    854.50    152.66
  .000397        42.       42.       42.         0         0         8      0.00    150.05    302.71
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CCHV=     .200 CEHV=     .400
*SECNO 311.800
 2800 NAT Q1=      89.19  WSEL=     858.47  ENC Q1=      89.19  WSEL=     858.57  RATIO=    .0000
 NAT Q1=      97.  RATIOS LOB,CH,ROB=    .4927    .5073  0.0000  WSEL=     858.57

3470 ENCROACHMENT STATIONS=      163.6      305.0  TYPE=      4  TARGET=          .083
   311.80      3.58    858.58      0.00    858.47    858.60       .03       .09       .00    856.60
     270.      121.      149.        0.      173.       91.        0.        1.        1.     859.50
      .05       .70      1.63      0.00      .090      .050      .090      .047    855.00    163.56
  .000894      150.      150.      150.         0         0         0      0.00    137.28    300.84


CCHV=     .150 CEHV=     .350
*SECNO 311.900
 2800 NAT Q1=      44.91  WSEL=     858.67  ENC Q1=      44.91  WSEL=     858.77  RATIO=    .0000
 NAT Q1=      50.  RATIOS LOB,CH,ROB=    .3713    .6287  0.0000  WSEL=     858.77
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      193.9      305.0  TYPE=      4  TARGET=          .108
   311.90      2.87    858.77      0.00    858.67    858.86       .09       .24       .02    857.50
     270.       80.      190.        0.       77.       67.        0.        2.        1.     860.40
      .07      1.04      2.84      0.00      .090      .050      .090      .048    855.90    193.93
  .003625      150.      150.      150.         2         0         0      0.00    103.67    297.60


CCHV=     .400 CEHV=     .800
*SECNO 311.980
 2800 NAT Q1=      24.11  WSEL=     859.11  ENC Q1=      24.11  WSEL=     859.21  RATIO=    .0000
 NAT Q1=      28.  RATIOS LOB,CH,ROB=    .2084    .7916  0.0000  WSEL=     859.21

3470 ENCROACHMENT STATIONS=      242.4      305.0  TYPE=      4  TARGET=          .129

         ** D/S FACE OVERBROOK

   311.98      2.40    859.20      0.00    859.11    859.51       .31       .47       .18    858.40
     270.       25.      245.        0.       17.       52.        0.        2.        1.     861.30
      .07      1.49      4.69      0.00      .090      .050      .090      .048    856.80    242.36
  .012628       77.       77.       77.         2         0         0      0.00     53.10    295.46


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       ROLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       2.80       2.90       0.00       6.28       0.00       25.10      0.00     856.80     856.80

*SECNO 312.020
 2800 NAT Q1=      68.63  WSEL=     862.07  ENC Q1=      68.63  WSEL=     862.17  RATIO=   0.0000
 NAT Q1=      74.  RATIOS LOB,CH,ROB=    .2723    .7277  0.0000  WSEL=     862.17
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       74.3      169.0  TYPE=      4  TARGET=          .070

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      861.40 ELREA=      862.80

   312.02      5.86    862.16      0.00    862.07    862.27       .10       .19       .08    860.90
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     270.       64.      206.        0.       86.       70.        0.        2.        1.    858.70
      .08       .74      2.92      0.00      .090      .050      .090      .048   856.30    74.27
  .001883       48.       48.       48.         0         0         5      0.00    94.73   169.00


*SECNO 312.410
 2800 NAT Q1=     121.16  WSEL=     862.20  ENC Q1=     121.16  WSEL=     862.30  RATIO=  0.0000
 NAT Q1=     127.  RATIOS LOB,CH,ROB=    .1743    .7233    .1023  WSEL=     862.30

3470 ENCROACHMENT STATIONS=      133.5      210.8  TYPE=      4  TARGET=         .049
   312.41      5.50   862.30      0.00   862.20   862.33       .03       .03       .03   860.20
      270.       42.      206.       22.       72.      125.       38.        3.        1.    860.20
      .09       .59      1.65       .57      .090      .055      .090      .049   856.80   133.48
  .000503       40.       40.       40.         2         0         0      0.00    77.37   210.85


*SECNO 312.150
 2800 NAT Q1=      49.49  WSEL=     862.20  ENC Q1=      49.49  WSEL=     862.30  RATIO=    .0000
 NAT Q1=      54.  RATIOS LOB,CH,ROB=    .4099    .3495    .2406  WSEL=     862.30

3470 ENCROACHMENT STATIONS=      131.5      213.0  TYPE=      4  TARGET=         .087

        ** D/S FACE ROCK DAM 312A

   312.15      2.09   862.29      0.00   862.20   862.34       .04       .00       .01   860.20
      270.      108.      104.       58.       75.       50.       42.        3.        1.    860.20
      .09      1.44      2.06      1.39      .090      .065      .090      .049   860.20   131.46
  .003029         2.        2.        2.         0         0         0      0.00    81.58   213.04


*SECNO 312.160
 2800 NAT Q1=      49.60  WSEL=     862.21  ENC Q1=      49.60  WSEL=     862.31  RATIO=    .0000
 NAT Q1=      55.  RATIOS LOB,CH,ROB=    .4099    .3492    .2409  WSEL=     862.31
   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


3470 ENCROACHMENT STATIONS=      131.7      212.8  TYPE=      4  TARGET=         .090
   312.16      2.10   862.30      0.00   862.21   862.35       .04       .01       .00   860.20
      270.      108.      104.       58.       75.       50.       42.        3.        1.    860.20
      .09      1.44      2.07      1.39      .090      .065      .090      .049   860.20   131.66
  .003036         2.        2.        2.         0         0         0      0.00    81.18   212.83


*SECNO 312.170
 2800 NAT Q1=      65.04  WSEL=     862.21  ENC Q1=      65.04  WSEL=     862.31  RATIO=    .0000
 NAT Q1=      70.  RATIOS LOB,CH,ROB=    .3180    .4951    .1869  WSEL=     862.31

3470 ENCROACHMENT STATIONS=      132.2      212.3  TYPE=      4  TARGET=         .075
   312.17      2.80   862.30      0.00   862.21   862.35       .05       .00       .00   860.20
      270.       81.      145.       43.       74.       66.       41.        3.        1.    860.20
      .09      1.10      2.21      1.06      .090      .055      .090      .049   859.50   132.17
  .001756         1.        1.        1.         0         0         0      0.00    80.10   212.28


*SECNO 312.800

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF   862.400 EGLC=   864.110 EGC=   864.377 WSEL=   863.906
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4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF   862.400 EGLC=   864.110 EGC=   864.116 WSEL=   862.389

3235 SLOPE TOO STEEP,EXCEEDS       .10

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  863.20 MAX ELLC=  862.40

        ** D/S FACE FODTBRIDGE 312B

   312.80      2.92    862.72    862.40    862.61    864.43      1.71       .75      1.33    864.40
     270.        0.     270.       0.        0.       26.        0.        3.        2.     863.20
      .09      0.00     10.49      0.00      .090      .055      .090      .050    859.80    156.46
  .154991      130.     130.      130.         2        22         0     -3.80     12.25    168.72

*SECNO 312.820

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF   862.400 EGLC=   864.110 EGC=   864.377 WSEL=   863.906

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF   862.400 EGLC=   864.110 EGC=   864.116 WSEL=   862.389

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


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  863.20 MAX ELLC=  862.40

3710 WSEL ASSUMED BASED ON MIN DIFF
   312.82      3.27    863.07    862.40    863.19    864.78      1.71       .77       .00    864.40
     270.        0.     270.       0.        0.       26.        0.        3.        2.     863.20
      .09      0.00     10.49      0.00      .090      .055      .090      .050    859.80    156.16
  .154991        5.       5.        5.        19        22         0     -8.22     12.77    168.92


CCHV=    .150 CEHV=    .350
*SECNO 312.840
 2800 NAT Q1=      35.42  WSEL=     867.62  ENC Q1=      35.42  WSEL=     867.72  RATIO=    .0000
 NAT Q1=      39.  RATIOS LOB,CH,RDB=    .4872    .3662    .1466  WSEL=     867.72

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  865.20 MAX ELLC=  864.20

3470 ENCROACHMENT STATIONS=       64.5      136.7  TYPE=      4  TARGET=         .103

        ** D/S FACE FOOTBRIDGE 312C

   312.84      4.07    867.67      0.00    867.62    867.75       .08      2.72       .25    865.20
     270.      130.      112.       28.       72.       41.       17.        3.        2.     865.80
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      .11      1.82      2.70      1.65      .090      .055      .090      .051   863.60    64.54
   .006349     155.      155.      155.         8         0         0    -10.06    72.19   136.72


*SECNO 312.850
 2800 NAT Q1=      37.03  WSEL=     867.65  ENC Q1=      37.03  WSEL=     867.75  RATIO=    .0000
 NAT Q1=      41.  RATIOS LOB,CH,ROB=    .4889    .3616    .1495  WSEL=     867.75
   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    IOC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  865.20 MAX ELLC=  864.20


3470 ENCROACHMENT STATIONS=       62.7      138.0  TYPE=      4  TARGET=          .093
   312.85      4.11    867.71      0.00    867.65    867.78       .07       .03       .00    865.20
     270.      131.      109.       30.       75.       42.       19.        3.        2.    865.80
      .11      1.75      2.60      1.59      .090      .055      .090      .051   863.60    62.72
   .005768        5.        5.        5.         1         0         0    -10.06    75.27   137.99


*SECNO 312.870
 2800 NAT Q1=      30.42  WSEL=     868.51  ENC Q1=      30.42  WSEL=     868.61  RATIO=    .0000
 NAT Q1=      34.  RATIOS LOB,CH,ROB=    .4983    .3591    .1426  WSEL=     868.61

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  866.40 MAX ELLC=  865.80


3470 ENCROACHMENT STATIONS=       65.4      135.8  TYPE=      4  TARGET=          .100

         ** D/S FACE FOOTBRIDGE 312D

   312.87      4.01    868.61      0.00    868.51    868.69       .08       .91       .00    866.20
     270.      135.      108.       27.       68.       43.       15.        4.        2.    866.80
      .13      1.99      2.53      1.81      .090      .055      .090      .051   864.60    65.43
   .007915     135.      135.      135.         2         0         0    -8.34    70.33   135.75


*SECNO 312.880
 2800 NAT Q1=      31.51  WSEL=     868.55  ENC Q1=      31.51  WSEL=     868.65  RATIO=    .0000
 NAT Q1=      35.  RATIOS LOB,CH,ROB=    .5007    .3523    .1469  WSEL=     868.65

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  866.40 MAX ELLC=  865.80


3470 ENCROACHMENT STATIONS=       65.7      135.8  TYPE=      4  TARGET=          .108
   312.88      4.05    868.65      0.00    868.55    868.73       .07       .04       .00    866.20
     270.      135.      107.       28.       69.       43.       16.        4.        2.    866.80
      .13      1.96      2.48      1.78      .090      .055      .090      .051   864.60    65.66
   .007468        5.        5.        5.         0         0         0    -8.34    70.14   135.80


*SECNO 312.910
 2800 NAT Q1=      37.52  WSEL=     869.27  ENC Q1=      37.52  WSEL=     869.37  RATIO=  0.0000
 NAT Q1=      42.  RATIOS LOB,CH,ROB=    .4367    .4355    .1278  WSEL=     869.37

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  866.90 MAX ELLC=  865.10
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3470 ENCROACHMENT STATIONS=      66.0      135.6  TYPE=      4  TARGET=         .098

         ** D/S FACE FOOTBRIDGE 312E

   312.91      4.07    869.37      0.00    869.27    869.48       .11       .74       .01    866.90
     270.       116.      131.       23.       70.       39.       16.        4.        2.     867.50
      .14      1.66      3.35      1.50      .090      .055      .090      .051    865.30     66.05
  .005195       120.      120.      120.         1         0         0    -12.46     69.57    135.62


*SECNO 312.920
 2800 NAT Q1=      38.78  WSEL=     869.30  ENC Q1=      38.78  WSEL=     869.40  RATIO=    .0000
 NAT Q1=      43.  RATIOS LOB,CH,ROB=    .4386    .4308    .1306  WSEL=     869.40

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  866.90 MAX ELLC=  865.10


3470 ENCROACHMENT STATIONS=      65.2      136.2  TYPE=      4  TARGET=         .096
   312.92      4.11    869.41      0.00    869.30    869.51       .10       .03       .00    866.90
     270.       117.      129.       24.       72.       39.       17.        4.        2.     867.50
      .14      1.62      3.27      1.47      .090      .055      .090      .051    865.30     65.24
  .004879         5.        5.        5.         0         0         0    -12.46     70.98    136.22


*SECNO 312.940
 2800 NAT Q1=      47.56  WSEL=     869.33  ENC Q1=      47.56  WSEL=     869.43  RATIO=    .0000
 NAT Q1=      51.  RATIOS LOB,CH,ROB=    .3388    .5644    .0967  WSEL=     869.43
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN       ELMIN    SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR     TOPWID   ENDST


3470 ENCROACHMENT STATIONS=      66.4      135.3  TYPE=      4  TARGET=         .074
   312.94      4.04    869.44      0.00    869.33    869.55       .11       .04       .00    867.00
     270.        88.      164.       17.       69.       51.       15.        4.        2.     867.60
      .15      1.29      3.22      1.16      .090      .055      .090      .051    865.40     66.40
  .003168        10.       10.       10.         0         0         0      0.00     68.88    135.28


CCHV=     .300 CEHV=     .500
*SECNO 312.950
 2800 NAT Q1=      40.70  WSEL=     869.46  ENC Q1=      40.70  WSEL=     869.56  RATIO=  0.0000
 NAT Q1=      45.  RATIOS LOB,CH,ROB=    .3186    .5956    .0857  WSEL=     869.56

3470 ENCROACHMENT STATIONS=      72.1      132.5  TYPE=      4  TARGET=         .086

         ** D/S FACE CONCRETE BRIDGE 312.81

   312.95      3.87    869.57      0.00    869.46    869.71       .15       .15       .02    867.30
     270.        82.      176.       12.       57.       48.       10.        4.        2.     867.90
      .15      1.45      3.64      1.26      .090      .055      .090      .052    865.70     72.13
  .004343        40.       40.       40.         0         0         0      0.00     60.34    132.47


SPECIAL BRIDGE

SB   XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
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     0.00       2.00       2.80     175.00       3.44       0.00       9.62       0.00     865.70     865.70

*SECNO 312.960
 2800 NAT Q1=     142.77  WSEL=     871.23  ENC Q1=     142.77  WSEL=     871.33  RATIO=    .0000
 NAT Q1=     150.  RATIOS LOB,CH,ROB=    .4346    .3822    .1833  WSEL=     871.33
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       48.4      156.2  TYPE=      4  TARGET=         .048
   312.96       5.64    871.34       0.00    871.23    871.35       .02       .02       .04    867.30
      270.       116.       108.        46.       181.        76.       80.         4.         2.     867.90
       .16        .64       1.42        .57       .090       .055       .090       .052    865.70     48.38
  .000357        20.        20.        20.          0          0          7       0.00    107.81    156.19


*SECNO 313.000
 2800 NAT Q1=      62.59  WSEL=     871.27  ENC Q1=      62.59  WSEL=     871.37  RATIO=    .0000
 NAT Q1=      68.  RATIOS LOB,CH,ROB=    .3692    .5074    .1234  WSEL=     871.37

3470 ENCROACHMENT STATIONS=       60.9      140.1  TYPE=      4  TARGET=         .075
   313.00       4.37    871.37       0.00    871.27    871.44       .07       .06       .03    868.60
      270.        97.       148.        25.        90.        56.       25.         5.         2.     869.20
       .17       1.08       2.63        .99       .090       .055       .090       .052    867.00     60.86
  .001858        85.        85.        85.          2          0          0       0.00     79.29    140.14


CCHV=     .200 CEHV=     .400
*SECNO 314.200
 2800 NAT Q1=      24.99  WSEL=     873.58  ENC Q1=      24.99  WSEL=     873.68  RATIO=    .0000
 NAT Q1=      28.  RATIOS LOB,CH,ROB=    .2646    .7139    .0215  WSEL=     873.68

3470 ENCROACHMENT STATIONS=       77.2      143.0  TYPE=      4  TARGET=         .108
   314.20       3.55    873.55    873.50    873.58    874.06       .50       2.45       .17    872.80
      270.        49.       221.         0.        34.        35.       0.         6.         3.     871.00
       .20       1.45       6.26       0.00       .100       .055       .100       .053    870.00     77.15
  .017937        575.       575.       575.          5         16          0       0.00     65.85    143.00


CCHV=     .300 CEHV=     .500
*SECNO 313.980
 2800 NAT Q1=      18.49  WSEL=     874.94  ENC Q1=      19.55  WSEL=     875.04  RATIO=   -.0576
 NAT Q1=      20.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     875.04
   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=      131.0      143.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      876.00 ELREA=      876.00

         ** D/S FACE PINE VALLEY WAY

   313.98       3.95    875.35       0.00    874.94    876.05       .71       1.90       .10    874.20
      270.         0.       270.         0.         0.        40.       0.         6.         4.     872.40
       .20       0.00       6.74       0.00       .100       .055       .100       .053    871.40    131.00
  .018176        105.       105.       105.          2          0          0       0.00     12.00    143.00
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SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        2.45        2.80        0.00        3.93        0.00       19.63        0.00      871.40      871.40

*SECNO 314.020
 2800 NAT Q1=     131.65  WSEL=     882.05  ENC Q1=     133.91  WSEL=     882.15  RATIO=  -.0172
 NAT Q1=     134.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     882.15
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      140.0      152.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       883.00 ELREA=       883.00

   314.02     11.06    882.46      0.00    882.05    882.54       .08       .14       .19    874.20
     270.        0.      270.        0.        0.      122.        0.        7.        4.     874.10
      .21       0.00      2.22      0.00      .100      .055      .100      .053    871.40    140.00
  .000693        70.       70.       70.         0         0         0      0.00     12.00    152.00


*SECNO 314.800
 2800 NAT Q1=     247.99  WSEL=     882.16  ENC Q1=     247.99  WSEL=     882.26  RATIO=   .0000
 NAT Q1=     255.  RATIOS LOB,CH,ROB=   .2379   .4827   .2795  WSEL=     882.26

3470 ENCROACHMENT STATIONS=      114.3      185.2  TYPE=      4  TARGET=         .026
   314.80     10.56    882.56      0.00    882.16    882.58       .01       .02       .02    874.80
     270.       63.      130.       77.      146.      116.      173.        7.        4.     874.70
      .24       .43      1.12       .45      .100      .055      .100      .053    872.00    114.33
  .000100        85.       85.       85.         2         0         0      0.00     70.84    185.17


CCHV=     .200 CEHV=     .400
*SECNO 314.980
 2800 NAT Q1=      83.71  WSEL=     882.14  ENC Q1=      85.61  WSEL=     882.24  RATIO=  -.0226
 NAT Q1=      86.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     882.24

3470 ENCROACHMENT STATIONS=      140.0      152.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       885.00 ELREA=       885.00

          ** D/S FACE  LONG LAKE RD.

   314.98      8.75    882.55      0.00    882.14    882.61       .07       .01       .02    876.60
     195.        0.      195.        0.        0.       94.        0.        8.        4.     876.50
      .25       0.00      2.08      0.00      .100      .055      .100      .053    873.80    140.00
  .000741        80.       80.       80.         2         0         0      0.00     12.00    152.00


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        2.00        3.00        0.00        3.14        0.00       12.57        0.00      875.80      873.80

*SECNO 315.020
 2800 NAT Q1=     202.78  WSEL=     889.59  ENC Q1=     205.34  WSEL=     889.69  RATIO=  -.0126
 NAT Q1=     205.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     889.69
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
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3470 ENCROACHMENT STATIONS=      300.0      312.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       896.10 ELREA=       896.10

  315.02     14.20   890.00     0.00   889.59   890.02      .02      .04      .01   877.80
     195.        0.     195.        0.       0.     164.       0.       8.       4.    880.20
      .28       0.00     1.19      0.00     .100     .055     .100     .053   875.80   300.00
  .000160      120.     120.      120.        0        0        0     0.00    12.00   312.00


*SECNO 315.800
 2800 NAT Q1=    1975.23  WSEL=     889.62  ENC Q1=    1975.23  WSEL=     889.72  RATIO=    .0000
 NAT Q1=    2008.  RATIOS LOB,CH,ROB=    .5449    .4424    .0127  WSEL=     889.72
   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=       92.4      341.2  TYPE=      4  TARGET=         .016
   315.80     13.62   890.02     0.00   889.62   890.02      .00      .00      .00   878.40
     195.      107.       87.       1.     1709.      649.       26.       11.       4.    880.80
      .57       .06       .13       .02       .100       .055       .100       .053   876.40    92.42
  .000001      100.      100.      100.         1         0         0     0.00   248.76   341.18


*SECNO 316.000
 2800 NAT Q1=     505.61  WSEL=     889.62  ENC Q1=     505.61  WSEL=     889.72  RATIO=    .0000
 NAT Q1=     517.  RATIOS LOB,CH,ROB=    .2677    .5899    .1424  WSEL=     889.72

3470 ENCROACHMENT STATIONS=       64.3      162.6  TYPE=      4  TARGET=         .023
   316.00     12.02   890.02     0.00   889.62   890.02      .00      .00      .00   881.40
     195.       52.      116.       27.      289.      265.      161.       27.       6.    881.50
      .96       .18       .44       .17       .100       .055       .100       .053   878.00    64.31
  .000013      465.      465.      465.         0         0         0     0.00    98.24   162.55


*SECNO 316.200
 2800 NAT Q1=     494.12  WSEL=     889.62  ENC Q1=     494.12  WSEL=     889.72  RATIO=  0.0000
 NAT Q1=     506.  RATIOS LOB,CH,ROB=    .2656    .5934    .1410  WSEL=     889.72

3470 ENCROACHMENT STATIONS=       64.8      162.2  TYPE=      4  TARGET=         .023
   316.20     11.92   890.02     0.00   889.62   890.03      .00      .00      .00   881.50
     195.       52.      117.       26.      283.      263.      157.       28.       6.    881.60
      .98       .18       .45       .17       .100       .055       .100       .053   878.10    64.75
  .000014       20.       20.       20.         0         0         0     0.00    97.40   162.15


CCHV=     .400 CEHV=     .800
*SECNO 316.280
 2800 NAT Q1=     208.44  WSEL=     889.62  ENC Q1=     208.44  WSEL=     889.72  RATIO=  0.0000
 NAT Q1=     216.  RATIOS LOB,CH,ROB=    .3832    .2463    .3705  WSEL=     889.72

3470 ENCROACHMENT STATIONS=       62.5      168.8  TYPE=      4  TARGET=         .037

          ** D/S FACE DAM

   316.28      6.82   890.02     0.00   889.62   890.03      .00      .00      .00   885.30
     195.       74.       49.       72.      219.       84.      212.       28.       6.    885.30
      .98       .34       .58       .34       .100       .065       .100       .053   883.20    62.54
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  .000072        1.        1.        1.         0         0         0     0.00    106.26    168.80


*SECNO 316.320
 2800 NAT Q1=     208.44  WSEL=     889.62  ENC Q1=     208.44  WSEL=     889.72  RATIO=    .0000
 NAT Q1=     216.  RATIOS LOB,CH,ROB=    .3832    .2463    .3705  WSEL=     889.72

3470 ENCROACHMENT STATIONS=       62.5     168.8  TYPE=      4  TARGET=         .037
   316.32      6.82    890.02      0.00    889.62    890.03       .00       .00       .00    885.30
    195.       74.       49.       72.      219.       84.      212.       28.        6.    885.30
     .98       .34       .58       .34       .100      .065      .100      .053    883.20     62.55
  .000072        3.        3.        3.         0         0         0     0.00    106.24    168.79


CCHV=    .200 CEHV=    .400
*SECNO 316.300
 2800 NAT Q1=     445.15  WSEL=     889.62  ENC Q1=     445.15  WSEL=     889.72  RATIO=  0.0000
 NAT Q1=     456.  RATIOS LOB,CH,ROB=    .2853    .5635    .1512  WSEL=     889.72
   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=       60.4     161.8  TYPE=      4  TARGET=         .025
   316.30      9.32    890.02      0.00    889.62    890.03       .00       .00       .00    881.60
    195.       57.      111.       28.      291.      234.      153.       28.        6.    881.70
     .98       .19       .47       .18       .100      .055      .100      .053    880.70     60.45
  .000016        1.        1.        1.         0         0         0     0.00    101.35    161.80


*SECNO 317.000
 2800 NAT Q1=     818.64  WSEL=     889.63  ENC Q1=     821.47  WSEL=     889.73  RATIO=  -.0035
 NAT Q1=     837.  RATIOS LOB,CH,ROB=    .0174    .9811    .0015  WSEL=     889.73

3470 ENCROACHMENT STATIONS=       88.0     204.0  TYPE=      4  TARGET=         .019
   317.00      8.23    890.03      0.00    889.63    890.03       .00       .00       .00    886.60
    195.       0.       195.       0.        0.       863.       0.        35.        7.    887.10
    1.49      0.00       .23      0.00       .100      .055      .100      .054    881.80     88.00
  .000005     410.      410.      410.         0         0         0     0.00    116.00    204.00


*SECNO 318.080
 2800 NAT Q1=     264.52  WSEL=     889.63  ENC Q1=     264.52  WSEL=     889.73  RATIO=    .0000
 NAT Q1=     275.  RATIOS LOB,CH,ROB=    .3225    .2096    .4679  WSEL=     889.73

3470 ENCROACHMENT STATIONS=       36.9     179.4  TYPE=      4  TARGET=         .038
   318.08      6.03    890.03      0.00    889.63    890.03       .00       .00       .00    885.00
    195.       61.       42.       92.      217.       75.      366.       40.        8.    885.50
    1.74       .28       .56       .25       .100      .055      .100      .054    884.00     36.91
  .000044     293.      293.      293.         0         0         0     0.00    142.53    179.44


*SECNO 318.090
 2800 NAT Q1=     221.47  WSEL=     889.63  ENC Q1=     221.47  WSEL=     889.73  RATIO=  0.0000
 NAT Q1=     231.  RATIOS LOB,CH,ROB=    .3342    .1086    .5572  WSEL=     889.73

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  885.50 MAX ELLC=  885.00
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3470 ENCROACHMENT STATIONS=      36.5      179.8  TYPE=      4  TARGET=         .041

        ** D/S FACE FOOTBRIDGE 317A

   318.09      6.03   890.03      0.00   889.63   890.03       .00       .00       .00   885.00
     195.       63.       22.      110.      202.       68.      367.       40.        8.    885.50
     1.74       .31       .32       .30       .100      .055      .100      .054   884.00    36.48
  .000062        1.        1.        1.         0         0         0   -23.57   143.31   179.79


*SECNO 318.110
 2800 NAT Q1=     221.56  WSEL=     889.63  ENC Q1=     221.56  WSEL=     889.73  RATIO=    .0000
 NAT Q1=     231.  RATIOS LOB,CH,ROB=    .3342    .1086    .5572  WSEL=     889.73

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  885.50 MAX ELLC=  885.00


3470 ENCROACHMENT STATIONS=      36.5      179.8  TYPE=      4  TARGET=         .040
   318.11      6.03   890.03      0.00   889.63   890.03       .00       .00       .00   885.00
     195.       63.       22.      110.      202.       68.      368.       40.        8.    885.50
     1.74       .31       .32       .30       .100      .055      .100      .054   884.00    36.45
  .000062        5.        5.        5.         0         0         0   -23.57   143.36   179.81


*SECNO 318.120
 2800 NAT Q1=     264.58  WSEL=     889.63  ENC Q1=     264.58  WSEL=     889.73  RATIO=    .0000
 NAT Q1=     275.  RATIOS LOB,CH,ROB=    .3225    .2096    .4679  WSEL=     889.73
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      36.9      179.4  TYPE=      4  TARGET=         .038
   318.12      6.03   890.03      0.00   889.63   890.03       .00       .00       .00   885.00
     195.       61.       42.       92.      217.       75.      366.       40.        8.    885.50
     1.74       .28       .56       .25       .100      .055      .100      .054   884.00    36.92
  .000044        1.        1.        1.         0         0         0      0.00   142.50   179.43


*SECNO 318.200

3470 ENCROACHMENT STATIONS=      38.0       94.0  TYPE=      1  TARGET=        56.000
   318.20      5.93   890.03      0.00   889.63   890.04       .01       .00       .00   885.10
     195.      121.       74.        0.      208.       73.        0.       41.        8. 100000.00
     1.77       .58      1.01       0.00      .100      .055      .100      .054   884.10    38.00
  .000215       60.       60.       60.         0         0         0      0.00    56.00    94.00


CCHV=     .300 CEHV=     .500
*SECNO 317.980
 2800 NAT Q1=      39.04  WSEL=     889.60  ENC Q1=      40.56  WSEL=     889.70  RATIO=   -.0390
 NAT Q1=      41.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     889.70

3470 ENCROACHMENT STATIONS=      81.0       94.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      891.00 ELREA=      891.00


        ** D/S FACE BROOKSIDE RD.
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317.98	5.00	890.00	0.00	889.60	890.16	.16	.04	.07	886.00
195.	0.	195.	0.	0.	61.	0.	41.	8.	886.50
1.77	0.00	3.18	0.00	.100	.055	.100	.054	885.00	81.00
.002512	85.	85.	85.	2	0	0	0.00	13.00	94.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.80	2.70	160.00	9.00	2.00	29.40	0.00	885.00	885.00

*SECNO 318.020
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
891.23	891.17	.04	0.	195.	29.	29.	889.20	896.20

3470 ENCROACHMENT STATIONS=			75.0	89.0	TYPE=	1	TARGET=	14.000	
318.02	6.09	891.09	0.00	890.65	891.23	.14	1.07	0.001	00000.70
195.	0.	195.	0.	0.	64.	0.	41.	8.	100000.70
1.77	0.00	3.05	0.00	.100	.055	.100	.054	885.00	75.00
.003572	25.	25.	25.	2	0	0	0.00	14.00	89.00

*SECNO 318.800
2800 NAT Q1= 198.70 WSEL= 890.89 ENC Q1= 198.70 WSEL= 890.99 RATIO= .0000
NAT Q1= 206. RATIOS LOB,CH,ROB= .2424 .7498 .0078 WSEL= 890.99

3470 ENCROACHMENT STATIONS=			35.8	104.0	TYPE=	4	TARGET=	.036	
318.80	6.99	891.29	0.00	890.89	891.29	.01	.02	.04	886.60
195.	45.	150.	0.	120.	216.	0.	42.	8.	887.80
1.81	.38	.69	0.00	.100	.055	.100	.054	884.30	35.75
.000085	80.	80.	80.	2	0	0	0.00	68.25	104.00

CCHV= .200 CEHV= .400
*SECNO 318.900
2800 NAT Q1= 101.49 WSEL= 890.94 ENC Q1= 101.49 WSEL= 891.04 RATIO= .0000
NAT Q1= 108. RATIOS LOB,CH,ROB= .2135 .7846 .0019 WSEL= 891.04

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=			40.1	104.0	TYPE=	4	TARGET=	.059	
318.90	5.13	891.33	0.00	890.94	891.35	.02	.05	.00	888.50
195.	34.	161.	0.	60.	138.	0.	44.	9.	889.70
1.90	.57	1.17	0.00	.080	.045	.080	.053	886.20	40.10
.000281	340.	340.	340.	2	0	0	0.00	63.90	104.00

*SECNO 318.950
2800 NAT Q1= 19.60 WSEL= 891.11 ENC Q1= 21.08 WSEL= 891.21 RATIO= -.0756

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 NAT Q1=      22.  RATIOS LOB,CH,ROB=    .0287    .9713  0.0000  WSEL=     891.21

3470 ENCROACHMENT STATIONS=      124.0      159.0  TYPE=      4  TARGET=          .029
   318.95      4.46    891.46      0.00    891.11    891.64       .18       .23       .06    891.00
      195.       0.       195.       0.       0.       58.       0.       45.       9.     891.60
     1.92      0.00      3.39      0.00      .080      .045      .080      .052    887.00    124.00
  .005685      300.      300.      300.         3         0         0      0.00     33.77    157.77


*SECNO 319.000
 2800 NAT Q1=      22.57  WSEL=     894.25  ENC Q1=      23.86  WSEL=     894.35  RATIO=  -.0572
 NAT Q1=      25.  RATIOS LOB,CH,ROB=    .0477    .9523  0.0000  WSEL=     894.35

3470 ENCROACHMENT STATIONS=      124.0      159.0  TYPE=      4  TARGET=          .048
   319.00      4.11    894.11      0.00    894.25    894.38       .28      2.71       .04    894.00
      195.       0.       195.       0.       0.       46.       0.       45.       9.     894.60
     1.95      0.00      4.23      0.00      .080      .045      .080      .052    890.00    124.00
  .010400      360.      360.      360.         3         0         0      0.00     30.66    154.66


*SECNO 319.100
 2800 NAT Q1=      31.95  WSEL=     896.61  ENC Q1=      32.28  WSEL=     896.71  RATIO=  -.0104
 NAT Q1=      36.  RATIOS LOB,CH,ROB=    .0942    .9058    .0000  WSEL=     896.71

3470 ENCROACHMENT STATIONS=      124.0      159.0  TYPE=      4  TARGET=          .094
   319.10      4.75    896.75      0.00    896.61    896.88       .13      2.47       .03    896.00
      195.       0.       195.       0.       0.       68.       0.       46.       10.     896.60
     1.99      0.00      2.88      0.00      .080      .045      .080      .051    892.00    124.00
  .003498      440.      440.      440.         3         0         0      0.00     35.00    159.00


*SECNO 319.700
 2800 NAT Q1=     281.85  WSEL=     896.77  ENC Q1=     281.85  WSEL=     896.87  RATIO=   .0000
 NAT Q1=     303.  RATIOS LOB,CH,ROB=    .0341    .2791    .6868  WSEL=     896.87

3470 ENCROACHMENT STATIONS=      447.0      729.9  TYPE=      4  TARGET=          .070
   319.70      4.32    896.92      0.00    896.77    896.93       .00       .02       .03    895.20
      195.       0.       57.       138.       0.       119.       607.       47.       10.     894.50
     2.13      0.00      .48       .23       .080      .045      .080      .051    892.60    447.00
  .000046      150.      150.      150.         2         0         0      0.00     282.89    729.89


*SECNO 320.000
 2800 NAT Q1=      95.03  WSEL=     896.80  ENC Q1=      95.03  WSEL=     896.90  RATIO=   .0000
 NAT Q1=     107.  RATIOS LOB,CH,ROB=    .0036    .3755    .6209  WSEL=     896.90
   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=      447.0      687.4  TYPE=      4  TARGET=          .114
   320.00      3.15    896.95      0.00    896.80    896.96       .01       .03       .00    896.40
      195.       0.       81.       114.       0.       77.       265.       51.       12.     895.70
     2.25      0.00      1.05       .43       .080      .045      .080      .051    893.80    447.00
  .000382      310.      310.      310.         2         0         0      0.00     240.42    687.42


*SECNO 320.180
 2800 NAT Q1=      24.06  WSEL=     896.99  ENC Q1=      24.06  WSEL=     897.09  RATIO=   .0000
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 NAT Q1=      30.  RATIOS LOB,CH,ROB=  0.0000    .6294    .3706  WSEL=     897.09

3470 ENCROACHMENT STATIONS=      447.0      608.2  TYPE=      4  TARGET=         .188
   320.18      2.32    897.12      0.00    896.99    897.17       .05       .19       .02    897.40
     130.        0.      99.       31.        0.       47.       56.       52.       13.     896.70
     2.30      0.00      2.10       .56      .080      .045      .080      .050    894.80    448.98
  .002650      283.      283.      283.         2         0         0      0.00    159.27    608.25


*SECNO 320.190
 2800 NAT Q1=       4.31  WSEL=     898.88  ENC Q1=       4.31  WSEL=     898.98  RATIO=    .0000
 NAT Q1=       8.  RATIOS LOB,CH,ROB=  0.0000    .3376    .6624  WSEL=     898.98
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  898.70 MAX ELLC=  897.70

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      447.0      554.0  TYPE=      4  TARGET=         .441

        ** D/S FACE FOOTBRIDGE 320A

   320.19      2.20    899.00    899.00    898.88    899.19       .19       .01       .06    899.40
     130.        0.      79.       51.        0.       19.       22.       52.       13.     898.70
     2.30      0.00      4.08      2.36      .080      .045      .080      .050    896.80    449.77
  .079759        1.        1.        1.        20        18         0    -25.05    104.23    554.01


*SECNO 320.210
 2800 NAT Q1=      13.48  WSEL=     899.11  ENC Q1=      13.48  WSEL=     899.21  RATIO=    .0000
 NAT Q1=      19.  RATIOS LOB,CH,ROB=  0.0000    .2451    .7549  WSEL=     899.21

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  898.70 MAX ELLC=  897.70


3470 ENCROACHMENT STATIONS=      447.0      617.9  TYPE=      4  TARGET=         .281
   320.21      2.49    899.29      0.00    899.11    899.31       .02       .08       .03    899.40
     130.        0.      45.       85.        0.       29.       79.       52.       13.     898.70
     2.30      0.00      1.55      1.08      .080      .045      .080      .050    896.80    447.80
  .006934        5.        5.        5.         2         0         0    -27.99    170.06    617.86


*SECNO 320.220
 2800 NAT Q1=      30.65  WSEL=     899.11  ENC Q1=      30.65  WSEL=     899.21  RATIO=    .0000
 NAT Q1=      37.  RATIOS LOB,CH,ROB=  0.0000    .5629    .4371  WSEL=     899.21

3470 ENCROACHMENT STATIONS=      447.0      628.4  TYPE=      4  TARGET=         .181
   320.22      2.49    899.29      0.00    899.11    899.31       .03       .00       .00    899.40
     130.        0.      85.       45.        0.       53.       91.       52.       13.     898.70
     2.30      0.00      1.60       .50      .080      .045      .080      .050    896.80    447.77
  .001368        1.        1.        1.         0         0         0      0.00    180.60    628.37


*SECNO 320.280
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 2800 NAT Q1=      11.65  WSEL=    899.19  ENC Q1=      13.04  WSEL=    899.29  RATIO=  -.1194
 NAT Q1=      15.  RATIOS LOB,CH,ROB=  0.0000   .8919   .1081  WSEL=    899.29
   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


3470 ENCROACHMENT STATIONS=     447.0     483.0  TYPE=     4  TARGET=        .108
   320.28     2.04   899.34     0.00   899.19   899.52     .18      .15      .06   899.90
    130.       0.     130.       0.      0.       38.       0.       52.      13.    899.20
    2.30     0.00     3.41     0.00     .080     .045     .080     .050   897.30   450.88
 .008627      53.      53.      53.        2        0        0     0.00    32.13   483.00


*SECNO 320.290
 2800 NAT Q1=       4.31  WSEL=    900.38  ENC Q1=       4.31  WSEL=    900.48  RATIO=   .0000
 NAT Q1=       8.  RATIOS LOB,CH,ROB=  0.0000   .3376   .6624  WSEL=    900.48
   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


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  900.20 MAX ELLC=  899.20

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     447.0     554.0  TYPE=     4  TARGET=        .441

         ** D/S FACE FOOTBRIDGE 320B

   320.29     2.20   900.50   900.50   900.38   900.69     .19      .02      .00   900.90
    130.       0.     79.      51.       0.       19.      22.      52.      13.    900.20
    2.31     0.00     4.08     2.36     .080     .045     .080     .050   898.30   449.77
 .079759       1.       1.       1.       20       18        0   -25.05   104.23   554.01


*SECNO 320.310
 2800 NAT Q1=      13.48  WSEL=    900.61  ENC Q1=      13.48  WSEL=    900.71  RATIO=  0.0000
 NAT Q1=      19.  RATIOS LOB,CH,ROB=  0.0000   .2451   .7549  WSEL=    900.71

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  900.20 MAX ELLC=  899.20


3470 ENCROACHMENT STATIONS=     447.0     617.9  TYPE=     4  TARGET=        .281
   320.31     2.49   900.79     0.00   900.61   900.81     .02      .08      .03   900.90
    130.       0.      45.      85.       0.       29.      79.      52.      13.    900.20
    2.31     0.00     1.55     1.08     .080     .045     .080     .050   898.30   447.80
 .006934       5.       5.       5.        2        0        0   -27.99   170.06   617.86


*SECNO 320.320
 2800 NAT Q1=      30.65  WSEL=    900.61  ENC Q1=      30.65  WSEL=    900.71  RATIO=   .0000
 NAT Q1=      37.  RATIOS LOB,CH,ROB=  0.0000   .5629   .4371  WSEL=    900.71

3470 ENCROACHMENT STATIONS=     447.0     628.4  TYPE=     4  TARGET=        .181
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  320.32     2.49   900.79     0.00   900.61   900.81      .03      .00      .00   900.90
   130.       0.     85.       45.      0.      53.       91.      52.      13.    900.20
    2.31     0.00    1.60      .50     .080     .045     .080     .050   898.30   447.77
 .001368      1.      1.       1.       0        0        0      0.00   180.60   628.37


*SECNO 321.200
 2800 NAT Q1=      27.33  WSEL=    901.64  ENC Q1=      27.67  WSEL=    901.74  RATIO=  -.0124
 NAT Q1=      30.  RATIOS LOB,CH,ROB=    .0432   .9137   .0431  WSEL=    901.74

3470 ENCROACHMENT STATIONS=     189.0     217.0  TYPE=      4  TARGET=        .086
  321.20     3.41   901.71     0.00   901.64   901.80      .09      .96      .03   900.90
   130.       0.     130.      0.       0.      54.       0.       54.      15.    900.60
    2.37     0.00    2.42     0.00     .080     .045     .080     .050   898.30   189.00
 .002534     530.    530.     530.       2        0        0      0.00    28.00   217.00


CCHV=     .400 CEHV=     .800
*SECNO 320.980
 2800 NAT Q1=      11.63  WSEL=    902.45  ENC Q1=      13.37  WSEL=    902.55  RATIO=  -.1492
 NAT Q1=      13.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    902.55
   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


3470 ENCROACHMENT STATIONS=     189.0     217.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      902.80 ELREA=      902.80

        ** D/S FACE DEVONBROOK

  320.98     2.74   902.54     0.00   902.45   902.76      .22      .86      .10   902.40
   130.       0.     130.      0.       0.      35.       0.       54.      15.    902.10
    2.38     0.00    3.74     0.00     .080     .045     .080     .050   899.80   189.00
 .010116     190.    190.     190.       2        0        0      0.00    28.00   217.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    0.00      1.75      3.00     300.00     4.10      0.00      12.30     0.00     899.80    899.80

*SECNO 321.020
 PRESS FLOW BECAUSE EGLWC OF    905.59  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=      81.18  WSEL=    905.45  ENC Q1=      84.00  WSEL=    905.55  RATIO=  -.0348
 NAT Q1=      84.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    905.55
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=     155.0     173.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      906.20 ELREA=      906.20

  321.02     5.74   905.54     0.00   905.45   905.58      .03      .05      .07   901.40
   130.       0.     130.      0.       0.      88.       0.       54.      15.    901.10
    2.39     0.00    1.47     0.00     .080     .045     .080     .050   899.80   155.00
 .000323      50.     50.      50.       0        0        0      0.00    18.00   173.00
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*SECNO 321.800
 2800 NAT Q1=    201.07  WSEL=    905.51  ENC Q1=    201.07  WSEL=    905.61  RATIO=  0.0000
 NAT Q1=    212.  RATIOS LOB,CH,ROB=   .3307   .3515   .3178  WSEL=    905.61

3470 ENCROACHMENT STATIONS=     104.6     218.1  TYPE=     4  TARGET=        .050
   321.80      5.40   905.60      0.00   905.51   905.60      .00      .01      .01   901.80
     130.        42.      48.       40.     159.      82.     150.      54.      15.    901.50
     2.46       .26      .59       .27     .080     .045     .080     .050   900.20   104.56
  .000043      100.     100.      100.        2        0        0     0.00   113.58   218.15


CCHV=    .150 CEHV=    .350
*SECNO 322.000
 2800 NAT Q1=     44.77  WSEL=    905.55  ENC Q1=     44.77  WSEL=    905.65  RATIO=   .0000
 NAT Q1=     49.  RATIOS LOB,CH,ROB=   .0970   .7882   .1147  WSEL=    905.65

3470 ENCROACHMENT STATIONS=     139.1     189.4  TYPE=     4  TARGET=        .088
   322.00      3.34   905.64      0.00   905.55   905.68      .04      .07      .01   904.20
     130.        8.      112.       10.      13.      65.      17.      58.      16.    904.20
AK   2.57       .60     1.73       .60     .080     .045     .080     .049   902.30   139.12
  .000861      590.     590.      590.        2        0        0     0.00    50.24   189.35


*SECNO 323.200
 2800 NAT Q1=     16.66  WSEL=    906.06  ENC Q1=     18.09  WSEL=    906.16  RATIO=  -.0859
 NAT Q1=     19.  RATIOS LOB,CH,ROB=   .0201   .9561   .0238  WSEL=    906.16

3470 ENCROACHMENT STATIONS=     149.0     176.0  TYPE=     4  TARGET=        .044
   323.20      2.45   906.15      0.00   906.06   906.31      .15      .59      .04   905.60
     130.        0.      130.       0.       0.      41.       0.      58.      16.    905.60
     2.60       0.00     3.16       0.00    .080     .045     .080     .049   903.70   149.00
  .005603      330.     330.      330.        2        0        0     0.00    27.00   176.00


CCHV=    .450 CEHV=    .850
*SECNO 322.970
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     153.0     171.0  TYPE=     1  TARGET=      18.000

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

   322.97      2.54   906.44      0.00   906.38   906.66      .22      .30      .05100000.00
     130.        0.      130.       0.       0.      35.       0.      58.      16. 100000.00
     2.60       0.00     3.72       0.00    .080     .045     .080     .049   903.90   153.00
  .006415       50.      50.       50.        2        0        0     0.00    18.00   171.00


*SECNO 322.980
 2800 NAT Q1=     54.53  WSEL=    906.54  ENC Q1=     57.66  WSEL=    906.64  RATIO=  -.0574
 NAT Q1=     58.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    906.64

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  916.30 MAX ELLC=  909.20
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        ** D/S FACE TELEGRAPH RD.

   322.98      2.68    906.58      0.00    906.54    906.71       .12       .01       .04    909.20
     130.        0.      130.        0.        0.       47.        0.       58.       16.    909.20
     2.60      0.00      2.79      0.00      .080      .020      .080      .049    903.90       .05
  .000540        5.        5.        5.         2         0         0      0.00     17.40     17.45


*SECNO 323.020
 2800 NAT Q1=      34.19  WSEL=     906.75  ENC Q1=      36.94  WSEL=     906.85  RATIO=  -.0804
 NAT Q1=      37.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     906.85

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  916.30 MAX ELLC=  910.10

   323.02      1.98    906.78      0.00    906.75    907.00       .22       .21       .09    910.10
     130.        0.      130.        0.        0.       34.        0.       59.       17.    910.10
     2.62      0.00      3.78      0.00      .080      .020      .080      .048    904.80       .06
  .001369       260.      260.      260.         2         0         0      0.00     17.37     17.44


*SECNO 323.030

3470 ENCROACHMENT STATIONS=      285.0      303.0  TYPE=      1  TARGET=       18.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=   100000.40 ELREA=   100000.40

   323.03      2.26    906.86      0.00    906.83    907.03       .18       .01       .02100000.40
     130.        0.      130.        0.        0.       38.        0.       59.       17. 100000.40
     2.62      0.00      3.40      0.00      .080      .045      .080      .048    904.60    285.00
  .004961        5.        5.        5.         2         0         0      0.00     18.00    303.00


   *SECNO 323.800
    2800 NAT Q1=      56.91  WSEL=     907.30  ENC Q1=      56.95  WSEL=     907.40  RATIO=  -.0007
    NAT Q1=      61.  RATIOS LOB,CH,ROB=  0.0000   .9311   .0689  WSEL=     907.40

X  3470 ENCROACHMENT STATIONS=      273.0      317.0  TYPE=      4  TARGET=        .069
      323.80      2.94    907.34      0.00    907.30    907.36       .03       .26       .07    907.60
AM      130.        0.      130.        0.        0.       97.        0.       59.       17.    905.80
        2.66      0.00      1.35      0.00      .080      .045      .080      .048    904.40    274.40
    .000592       200.      200.      200.         2         0         0      0.00     42.60    317.00


   CCHV=     .200 CEHV=     .400
   *SECNO 324.000
    2800 NAT Q1=      44.31  WSEL=     907.72  ENC Q1=      44.31  WSEL=     907.82  RATIO=   .0000
    NAT Q1=      48.  RATIOS LOB,CH,ROB=   .1441   .8192   .0367  WSEL=     907.82
      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


   3470 ENCROACHMENT STATIONS=      120.6      162.0  TYPE=      4  TARGET=        .085
      324.00      3.00    907.80      0.00    907.72    907.85       .04       .48       .01    906.20
AN      130.       14.      116.        0.       21.       65.        0.       60.       17.    906.80
        2.77       .66      1.79      0.00      .080      .045      .080      .048    904.80    120.55
    .000923       655.      655.      655.         2         0         0      0.00     41.45    162.00
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*SECNO 324.100
 2800 NAT Q1=      49.31  WSEL=    907.94  ENC Q1=      49.31  WSEL=    908.04  RATIO=    .0000
 NAT Q1=      54.  RATIOS LOB,CH,ROB=    .1593    .7960    .0447  WSEL=    908.04

3470 ENCROACHMENT STATIONS=      116.4     162.7  TYPE=      4  TARGET=        .084
   324.10      3.13   908.03      0.00   907.94   908.07      .04      .22      .00   906.30
     130.       17.      113.       0.      28.      68.       1.      61.      18.    906.90
     2.82       .60     1.65       .27     .080     .045     .080     .048   904.90   116.44
  .000704      275.      275.      275.        2        0        0     0.00    46.21   162.65


*SECNO 325.100
 2800 NAT Q1=      59.83  WSEL=    908.07  ENC Q1=      59.83  WSEL=    908.17  RATIO=    .0000
 NAT Q1=      66.  RATIOS LOB,CH,ROB=    .1020    .6155    .2824  WSEL=    908.17

3470 ENCROACHMENT STATIONS=      163.7     262.1  TYPE=      4  TARGET=        .098
   325.10      3.27   908.17      0.00   908.07   908.19      .02      .11      .00   906.80
     130.       8.       89.       34.      17.      65.      74.      61.      18.    906.90
     2.87       .44     1.37       .46     .080     .045     .080     .048   904.90   163.71
  .000475      200.      200.      200.        2        0        0     0.00    98.42   262.13


*SECNO 325.200
 2800 NAT Q1=      60.20  WSEL=    908.18  ENC Q1=      60.20  WSEL=    908.28  RATIO=    .0000
 NAT Q1=      67.  RATIOS LOB,CH,ROB=    .1027    .6141    .2831  WSEL=    908.28

3470 ENCROACHMENT STATIONS=      163.5     262.2  TYPE=      4  TARGET=        .098
   325.20      3.28   908.28      0.00   908.18   908.30      .02      .11      .00   906.90
     130.       8.       89.       34.      18.      65.      74.      62.      18.    907.00
     2.93       .44     1.37       .46     .080     .045     .080     .048   905.00   163.48
  .000473      225.      225.      225.        1        0        0     0.00    98.75   262.23


CCHV=     .400 CEHV=     .800
*SECNO 324.980
 2800 NAT Q1=      26.62  WSEL=    908.26  ENC Q1=      28.79  WSEL=    908.36  RATIO=   -.0817
 NAT Q1=      29.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    908.36

3470 ENCROACHMENT STATIONS=      178.0     202.0  TYPE=      4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      908.80 ELREA=      908.80


         ** D/S FACE FRANKLIN RD.

   324.98      2.76   908.36      0.00   908.26   908.38      .02      .08      .00   907.50
     60.        0.       60.       0.       0.      52.       0.      63.      19.    907.60
     2.97       0.00    1.14       0.00    .080     .045     .080     .048   905.60   178.00
  .000457      175.      175.      175.        0        0        0     0.00    24.00   202.00


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        2.95        2.65        0.00        3.37        0.00       10.78        0.00      905.60      905.60

*SECNO 325.020
 PRESS FLOW BECAUSE EGLWC OF     909.78  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=      63.13  WSEL=    909.67  ENC Q1=      65.92  WSEL=    909.77  RATIO=   -.0441
 NAT Q1=      66.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    909.77
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 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=     178.0     202.0  TYPE=     4  TARGET=       0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     917.10 ELREA=     919.00

    325.02      4.17   909.77      0.00   909.67   909.78      .01       .01       .01   907.50
      60.        0.      60.        0.      0.       86.        0.        63.       19.    907.60
      3.00      0.00      .69      0.00     .080     .045      .080      .048   905.60    178.00
    .000093      76.       76.       76.       0        0         0      0.00    24.00    202.00


 *SECNO 325.800
  2800 NAT Q1=     715.14  WSEL=     909.68  ENC Q1=     725.82  WSEL=     909.78  RATIO=  -.0149
  NAT Q1=     752.  RATIOS LOB,CH,ROB=    .0288    .9650    .0062  WSEL=     909.78

 3470 ENCROACHMENT STATIONS=     250.0     527.0  TYPE=     4  TARGET=        .035
    325.80      4.18   909.78      0.00   909.68   909.78      .00       .00       .00   906.90
      60.        0.      60.        0.      0.       958.       0.        65.       19.    908.60
      3.78      0.00      .06      0.00     .080     .045      .080      .047   905.60    250.00
    .000001      175.      175.      175.       0        0         0      0.00   277.00    527.00


 CCHV=     .300 CEHV=     .500
 *SECNO 326.000
  2800 NAT Q1=     679.12  WSEL=     909.68  ENC Q1=     691.40  WSEL=     909.78  RATIO=  -.0181
  NAT Q1=     715.  RATIOS LOB,CH,ROB=    .0280    .9666    .0054  WSEL=     909.78

 3470 ENCROACHMENT STATIONS=     250.0     527.0  TYPE=     4  TARGET=        .033
    326.00      4.08   909.78      0.00   909.68   909.78      .00       .00       .00   907.00
      60.        0.      60.        0.      0.       931.       0.        77.       23.    908.70
      6.19      0.00      .06      0.00     .080     .045      .080      .047   905.70    250.00
    .000001      560.      560.      560.       0        0         0      0.00   277.00    527.00


 *SECNO 326.500
  2800 NAT Q1=     135.98  WSEL=     909.68  ENC Q1=     135.98  WSEL=     909.78  RATIO=   .0000
  NAT Q1=     146.  RATIOS LOB,CH,ROB=    .2460    .6408    .1132  WSEL=     909.78

 3470 ENCROACHMENT STATIONS=     152.3     272.6  TYPE=     4  TARGET=        .069
    326.50      3.98   909.78      0.00   909.68   909.78      .00       .00       .00   907.20
      60.        14.       41.        5.      110.      122.       46.       81.       24.    907.80
      6.49       .12       .34       .11     .080     .045      .080      .047   905.80    152.29
    .000019      290.      290.      290.       0        0         0      0.00   120.28    272.58


 CCHV=     .150 CEHV=     .350
 *SECNO 326.700
  2800 NAT Q1=     136.41  WSEL=     909.69  ENC Q1=     136.41  WSEL=     909.79  RATIO=   .0000
  NAT Q1=     147.  RATIOS LOB,CH,ROB=    .2465    .6395    .1140  WSEL=     909.79

 3470 ENCROACHMENT STATIONS=     152.8     272.2  TYPE=     4  TARGET=        .072
    326.70      3.99   909.79      0.00   909.69   909.79      .00       .01       .00   907.20
      60.        14.       41.        5.      109.      122.       45.       84.       25.    907.80
      6.95       .12       .34       .11     .080     .045      .080      .047   905.80    152.75
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  .000019      450.      450.      450.         0         0         0     0.00    119.44    272.19


*SECNO 327.200
 2800 NAT Q1=     127.94  WSEL=     909.70  ENC Q1=     127.94  WSEL=     909.80  RATIO=    .0000
 NAT Q1=     138.  RATIOS LOB,CH,ROB=    .2406    .6537    .1057  WSEL=     909.80
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      153.8      269.4  TYPE=      4  TARGET=         .071
   327.20      3.90    909.80      0.00    909.70    909.80       .00       .01       .00    907.30
     60.        13.        42.        5.       103.       119.        39.       87.        27.     907.90
    7.38        .13        .36       .12       .080       .045       .080      .047     905.90    153.78
  .000022      440.      440.      440.         0         0         0     0.00    115.63    269.41


*SECNO 327.300
 2800 NAT Q1=     110.50  WSEL=     909.71  ENC Q1=     110.50  WSEL=     909.81  RATIO=    .0000
 NAT Q1=     119.  RATIOS LOB,CH,ROB=    .2263    .6869    .0868  WSEL=     909.81

3470 ENCROACHMENT STATIONS=      157.0      262.5  TYPE=      4  TARGET=         .072
   327.30      3.70    909.80      0.00    909.71    909.80       .00       .01       .00    907.50
     60.        12.        44.        3.        88.       112.        26.       88.        27.     908.10
    7.56        .14        .40       .13       .080       .045       .080      .047     906.10    156.95
  .000030      210.      210.      210.         0         0         0     0.00    105.50    262.45


CCHV=     .400 CEHV=     .800
*SECNO 326.980
 2800 NAT Q1=      69.98  WSEL=     909.71  ENC Q1=      73.98  WSEL=     909.81  RATIO=  -.0571
 NAT Q1=      74.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     909.81

3470 ENCROACHMENT STATIONS=      211.0      245.0  TYPE=      4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      911.30 ELREA=      911.30

          ** D/S FACE ARYSHIRE RD.

   326.98      3.51    909.81      0.00    909.71    909.81       .00       .01       .00    907.70
     60.        0.        60.        0.        0.       106.        0.        88.        27.     908.30
    7.63       0.00        .57       0.00       .080       .045       .080      .047     906.30    211.00
  .000070      150.      150.      150.         0         0         0     0.00     34.00    245.00

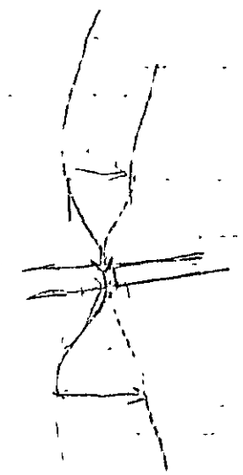

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.50      2.80     300.00      3.93      0.00     19.63      0.00     906.30    906.30

*SECNO 327.020

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      0.000  EGLWC=    909.820  ELLC=    911.300  PCWSE=    909.809  ELTRD=    912.200
 2800 NAT Q1=      59.76  WSEL=     909.72  ENC Q1=      64.08  WSEL=     909.82  RATIO=  -.0723
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 NAT Q1=      64.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    909.82
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=     268.0     321.0  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      912.20 ELREA=      912.20

   327.02      3.51   909.81      0.00   909.72   909.82      .00      .00      .00   908.90
     60.         0.     60.         0.       0.     111.       0.      88.      27.    911.30
    7.64      0.00      .54      0.00     .080     .045     .080     .047   906.30   268.00
 .000088       25.      25.      25.        0        0        0     0.00    47.84   315.84


*SECNO 327.800
 2800 NAT Q1=      81.57  WSEL=    909.73  ENC Q1=      81.57  WSEL=    909.83  RATIO=  0.0000
 NAT Q1=      88.  RATIOS LOB,CH,ROB=   .1089   .8911  0.0000  WSEL=    909.83

3470 ENCROACHMENT STATIONS=     254.4     321.0  TYPE=     4  TARGET=        .069
   327.80      3.82   909.82      0.00   909.73   909.83      .00      .01      .00   908.60
     60.         3.     57.         0.      17.     126.       0.      89.      28.    911.00
    7.74       .15      .46      0.00     .080     .045     .080     .047   906.00   254.45
 .000055      155.     155.     155.        0        0        0     0.00    62.47   316.91


CCHV=     .200 CEHV=     .400
*SECNO 328.000
 2800 NAT Q1=     277.78  WSEL=    909.74  ENC Q1=     277.78  WSEL=    909.84  RATIO=   .0000
 NAT Q1=     299.  RATIOS LOB,CH,ROB=   .7270   .2572   .0158  WSEL=    909.84
   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=     101.3     410.0  TYPE=     4  TARGET=        .070
   328.00      3.43   909.83      0.00   909.74   909.83      .00      .01      .00   907.40
     60.        44.     16.         0.     618.     121.       0.      95.      30.    908.20
    9.71       .07      .14      0.00     .080     .045     .080     .047   906.40   101.30
 .000005      625.     625.     625.        0        0        0     0.00   308.70   410.00
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LONG LAKE - FOREST LAKE

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	LOK*S	VCH	AREA	.01K
	311.200	0.00	0.00	0.00	852.40	355.00	854.95	0.00	855.01	18.35	2.09	223.78	82.87
	311.200	0.00	0.00	0.00	852.40	355.00	855.05	0.00	855.12	18.34	2.15	182.91	82.89
	310.980	58.00	0.00	0.00	853.50	270.00	855.07	0.00	855.29	127.02	3.76	71.88	23.96
	310.980	58.00	0.00	0.00	853.50	270.00	855.18	0.00	855.35	90.22	3.36	80.37	28.43
	311.020	42.00	857.50	856.20	854.50	270.00	858.39	0.00	858.40	4.03	1.28	359.11	134.57
	311.020	42.00	999999.00	0.00	854.50	270.00	858.50	0.00	858.51	3.97	1.29	341.61	135.54
	311.800	150.00	0.00	0.00	855.00	270.00	858.47	0.00	858.49	9.16	1.61	285.26	89.19
	311.800	150.00	0.00	0.00	855.00	270.00	858.58	0.00	858.60	8.94	1.63	264.81	90.31
	311.900	150.00	0.00	0.00	855.90	270.00	858.67	0.00	858.76	36.15	2.77	170.74	44.91
	311.900	150.00	0.00	0.00	855.90	270.00	858.77	0.00	858.86	36.25	2.84	143.79	44.84
	311.980	77.00	0.00	0.00	856.80	270.00	859.11	0.00	859.38	125.38	4.55	96.49	24.11
	311.980	77.00	0.00	0.00	856.80	270.00	859.20	0.00	859.51	126.28	4.69	69.00	24.03
	312.020	48.00	861.40	859.00	856.30	270.00	862.07	0.00	862.17	15.48	2.95	182.66	68.63
	312.020	48.00	999999.00	0.00	856.30	270.00	862.16	0.00	862.27	18.83	2.92	156.78	62.22
	312.410	40.00	0.00	0.00	856.80	270.00	862.20	0.00	862.23	4.97	1.62	264.00	121.16
	312.410	40.00	0.00	0.00	856.80	270.00	862.30	0.00	862.33	5.03	1.65	234.91	120.40
	312.150	2.00	0.00	0.00	860.20	270.00	862.20	0.00	862.24	29.76	1.98	189.43	49.49
	312.150	2.00	0.00	0.00	860.20	270.00	862.29	0.00	862.34	30.29	2.06	167.26	49.06
	312.160	2.00	0.00	0.00	860.20	270.00	862.21	0.00	862.25	29.63	1.98	189.70	49.60
	312.160	2.00	0.00	0.00	860.20	270.00	862.30	0.00	862.35	30.36	2.07	166.80	49.00
	312.170	1.00	0.00	0.00	859.50	270.00	862.21	0.00	862.25	17.23	2.14	205.78	65.04
	312.170	1.00	0.00	0.00	859.50	270.00	862.30	0.00	862.35	17.56	2.21	180.71	64.43
*	312.800	130.00	863.20	862.40	859.80	270.00	862.61	862.40	864.32	1549.91	10.49	25.73	6.86
*	312.800	130.00	863.20	862.40	859.80	270.00	862.72	862.40	864.43	1549.91	10.49	25.73	6.86
*	312.820	5.00	863.20	862.40	859.80	270.00	863.19	862.40	864.90	1549.91	10.49	25.73	6.86
*	312.820	5.00	863.20	862.40	859.80	270.00	863.07	862.40	864.78	1549.91	10.49	25.73	6.86

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	312.840	155.00	865.20	864.20	863.60	270.00	867.62	0.00	867.68	58.10	2.55	153.00	35.42
	312.840	155.00	865.20	864.20	863.60	270.00	867.67	0.00	867.75	63.49	2.70	129.90	33.89
	312.850	5.00	865.20	864.20	863.60	270.00	867.65	0.00	867.71	53.17	2.47	157.90	37.03
	312.850	5.00	865.20	864.20	863.60	270.00	867.71	0.00	867.78	57.68	2.60	135.92	35.55
	312.870	135.00	866.40	865.80	864.60	270.00	868.51	0.00	868.58	78.80	2.47	143.12	30.42
	312.870	135.00	866.40	865.80	864.60	270.00	868.61	0.00	868.69	79.15	2.53	125.56	30.35
	312.880	5.00	866.40	865.80	864.60	270.00	868.55	0.00	868.61	73.42	2.40	146.90	31.51
	312.880	5.00	866.40	865.80	864.60	270.00	868.65	0.00	868.73	74.68	2.48	127.84	31.24
	312.910	120.00	866.90	865.10	865.30	270.00	869.27	0.00	869.36	51.77	3.26	145.18	37.52
	312.910	120.00	866.90	865.10	865.30	270.00	869.37	0.00	869.48	51.95	3.35	124.61	37.46
	312.920	5.00	866.90	865.10	865.30	270.00	869.30	0.00	869.39	48.47	3.19	148.96	38.78
	312.920	5.00	866.90	865.10	865.30	270.00	869.41	0.00	869.51	48.79	3.27	128.22	38.65
	312.940	10.00	0.00	0.00	865.40	270.00	869.33	0.00	869.43	32.23	3.18	154.56	47.56
	312.940	10.00	0.00	0.00	865.40	270.00	869.44	0.00	869.55	31.68	3.22	134.58	47.97
	312.950	40.00	0.00	0.00	865.70	270.00	869.46	0.00	869.59	44.00	3.57	135.00	40.70
	312.950	40.00	0.00	0.00	865.70	270.00	869.57	0.00	869.71	43.43	3.64	114.62	40.97
	312.960	20.00	870.70	868.50	865.70	270.00	871.23	0.00	871.25	3.58	1.40	359.45	142.77
	312.960	20.00	999999.00	0.00	865.70	270.00	871.34	0.00	871.35	3.57	1.42	336.64	142.88
	313.000	85.00	0.00	0.00	867.00	270.00	871.27	0.00	871.33	18.61	2.59	193.04	62.59
	313.000	85.00	0.00	0.00	867.00	270.00	871.37	0.00	871.44	18.58	2.63	171.33	62.64
*	314.200	575.00	0.00	0.00	870.00	270.00	873.58	873.58	873.97	116.74	5.73	96.91	24.99
	314.200	575.00	0.00	0.00	870.00	270.00	873.55	873.50	874.06	179.37	6.26	69.07	20.16
	313.980	105.00	0.00	0.00	871.40	270.00	874.94	0.00	875.85	213.35	7.67	35.18	18.49
	313.980	105.00	0.00	0.00	871.40	270.00	875.35	0.00	876.05	181.76	6.74	40.07	20.03
	314.020	70.00	883.00	875.00	871.40	270.00	882.05	0.00	882.14	4.21	2.31	116.65	131.65
	314.020	70.00	999999.00	0.00	871.40	270.00	882.46	0.00	882.54	6.93	2.22	121.56	102.55
	314.800	85.00	0.00	0.00	872.00	270.00	882.16	0.00	882.18	1.19	1.19	442.36	247.99
	314.800	85.00	0.00	0.00	872.00	270.00	882.56	0.00	882.58	1.00	1.12	434.69	269.50
	314.980	80.00	0.00	0.00	873.80	195.00	882.14	0.00	882.22	5.43	2.19	88.91	83.71
	314.980	80.00	0.00	0.00	873.80	195.00	882.55	0.00	882.61	7.41	2.08	93.76	71.64
	315.020	120.00	896.10	879.80	875.80	195.00	889.59	0.00	889.62	.92	1.22	159.21	202.78
	315.020	120.00	999999.00	0.00	875.80	195.00	890.00	0.00	890.02	1.60	1.19	164.08	153.94
	315.800	100.00	0.00	0.00	876.40	195.00	889.62	0.00	889.62	.01	.14	2377.66	1975.23
	315.800	100.00	0.00	0.00	876.40	195.00	890.02	0.00	890.02	.01	.13	2383.90	2072.91
	316.000	465.00	0.00	0.00	878.00	195.00	889.62	0.00	889.62	.15	.45	741.48	505.61
	316.000	465.00	0.00	0.00	878.00	195.00	890.02	0.00	890.02	.13	.44	715.71	538.35
	316.200	20.00	0.00	0.00	878.10	195.00	889.62	0.00	889.62	.16	.46	728.00	494.12
	316.200	20.00	0.00	0.00	878.10	195.00	890.02	0.00	890.03	.14	.45	702.36	526.28

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
316.280	1.00	0.00	0.00	883.20	195.00	889.62	0.00	889.62	.88	.61	513.64	208.44
316.280	1.00	0.00	0.00	883.20	195.00	890.02	0.00	890.03	.72	.58	515.23	229.85
316.320	3.00	0.00	0.00	883.20	195.00	889.62	0.00	889.62	.88	.61	513.65	208.44
316.320	3.00	0.00	0.00	883.20	195.00	890.02	0.00	890.03	.72	.58	515.18	229.83
316.300	1.00	0.00	0.00	880.70	195.00	889.62	0.00	889.62	.19	.49	688.41	445.15
316.300	1.00	0.00	0.00	880.70	195.00	890.02	0.00	890.03	.16	.47	678.44	480.11
317.000	410.00	0.00	0.00	881.80	195.00	889.63	0.00	889.63	.06	.23	879.36	818.64
317.000	410.00	0.00	0.00	881.80	195.00	890.03	0.00	890.03	.05	.23	862.74	849.62
318.080	293.00	0.00	0.00	884.00	195.00	889.63	0.00	889.63	.54	.59	628.22	264.52
318.080	293.00	0.00	0.00	884.00	195.00	890.03	0.00	890.03	.44	.56	658.49	294.69
318.090	1.00	885.50	885.00	884.00	195.00	889.63	0.00	889.63	.78	.34	604.57	221.47
318.090	1.00	885.50	885.00	884.00	195.00	890.03	0.00	890.03	.62	.32	637.46	247.38
318.110	5.00	885.50	885.00	884.00	195.00	889.63	0.00	889.63	.77	.34	604.71	221.56
318.110	5.00	885.50	885.00	884.00	195.00	890.03	0.00	890.03	.62	.32	637.76	247.51
318.120	1.00	0.00	0.00	884.00	195.00	889.63	0.00	889.63	.54	.59	628.30	264.58
318.120	1.00	0.00	0.00	884.00	195.00	890.03	0.00	890.03	.44	.56	657.76	294.21
318.200	60.00	0.00	0.00	884.10	195.00	889.63	0.00	889.64	2.76	1.11	258.93	117.32
318.200	60.00	0.00	0.00	884.10	195.00	890.03	0.00	890.04	2.15	1.01	281.34	133.14
317.980	85.00	0.00	0.00	885.00	195.00	889.60	0.00	889.78	24.95	3.48	56.01	39.04
317.980	85.00	0.00	0.00	885.00	195.00	890.00	0.00	890.16	25.12	3.18	61.29	38.91
318.020	25.00	896.20	889.20	885.00	195.00	890.65	0.00	890.83	47.61	3.37	57.90	28.26
318.020	25.00	896.20	889.20	885.00	195.00	891.09	0.00	891.23	35.72	3.05	64.04	32.63
318.800	80.00	0.00	0.00	884.30	195.00	890.89	0.00	890.90	.96	.74	341.26	198.70
318.800	80.00	0.00	0.00	884.30	195.00	891.29	0.00	891.29	.85	.69	335.98	210.93
318.900	340.00	0.00	0.00	886.20	195.00	890.94	0.00	890.96	3.69	1.27	191.01	101.49
318.900	340.00	0.00	0.00	886.20	195.00	891.33	0.00	891.35	2.81	1.17	197.61	116.39
318.950	300.00	0.00	0.00	887.00	195.00	891.11	0.00	891.37	98.97	4.14	51.38	19.60
318.950	300.00	0.00	0.00	887.00	195.00	891.46	0.00	891.64	56.85	3.39	57.57	25.86
319.000	360.00	0.00	0.00	890.00	195.00	894.25	0.00	894.46	74.62	3.72	59.24	22.57
319.000	360.00	0.00	0.00	890.00	195.00	894.11	0.00	894.38	104.00	4.23	46.13	19.12
319.100	440.00	0.00	0.00	892.00	195.00	896.61	0.00	896.73	37.24	2.86	81.72	31.95
319.100	440.00	0.00	0.00	892.00	195.00	896.75	0.00	896.88	34.98	2.88	67.82	32.97
319.700	150.00	0.00	0.00	892.60	195.00	896.77	0.00	896.78	.48	.49	776.11	281.85
319.700	150.00	0.00	0.00	892.60	195.00	896.92	0.00	896.93	.46	.48	725.64	288.38
320.000	310.00	0.00	0.00	893.80	195.00	896.80	0.00	896.81	4.21	1.06	363.64	95.03
320.000	310.00	0.00	0.00	893.80	195.00	896.95	0.00	896.96	3.82	1.05	342.02	99.73
320.180	283.00	0.00	0.00	894.80	130.00	896.99	0.00	897.04	29.19	2.11	123.95	24.06
320.180	283.00	0.00	0.00	894.80	130.00	897.12	0.00	897.17	26.50	2.10	102.96	25.25

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
*	320.190	1.00	898.70	897.70	896.80	130.00	898.88	898.88	899.00	909.61	3.75	56.70	4.31
*	320.190	1.00	898.70	897.70	896.80	130.00	899.00	899.00	899.19	797.59	4.08	40.92	4.60
	320.210	5.00	898.70	897.70	896.80	130.00	899.11	0.00	899.13	93.04	1.55	120.54	13.48
	320.210	5.00	898.70	897.70	896.80	130.00	899.29	0.00	899.31	69.34	1.55	107.94	15.61
	320.220	1.00	0.00	0.00	896.80	130.00	899.11	0.00	899.14	17.99	1.72	154.98	30.65
	320.220	1.00	0.00	0.00	896.80	130.00	899.29	0.00	899.31	13.68	1.60	143.67	35.15
	320.280	53.00	0.00	0.00	897.30	130.00	899.19	899.18	899.41	124.48	3.84	42.60	11.65
	320.280	53.00	0.00	0.00	897.30	130.00	899.34	0.00	899.52	86.27	3.41	38.14	14.00
*	320.290	1.00	900.20	899.20	898.30	130.00	900.38	900.38	900.50	909.61	3.75	56.70	4.31
*	320.290	1.00	900.20	899.20	898.30	130.00	900.50	900.50	900.69	797.59	4.08	40.92	4.60
	320.310	5.00	900.20	899.20	898.30	130.00	900.61	0.00	900.63	93.04	1.55	120.54	13.48
	320.310	5.00	900.20	899.20	898.30	130.00	900.79	0.00	900.81	69.34	1.55	107.94	15.61
	320.320	1.00	0.00	0.00	898.30	130.00	900.61	0.00	900.64	17.99	1.72	154.98	30.65
	320.320	1.00	0.00	0.00	898.30	130.00	900.79	0.00	900.81	13.68	1.60	143.67	35.15
	321.200	530.00	0.00	0.00	898.30	130.00	901.64	0.00	901.72	22.63	2.33	70.01	27.33
	321.200	530.00	0.00	0.00	898.30	130.00	901.71	0.00	901.80	25.34	2.42	53.66	25.82
	320.980	190.00	0.00	0.00	899.80	130.00	902.45	0.00	902.70	124.90	4.01	32.39	11.63
	320.980	190.00	0.00	0.00	899.80	130.00	902.54	0.00	902.76	101.16	3.74	34.72	12.93
	321.020	50.00	906.20	902.00	899.80	130.00	905.45	0.00	905.49	2.56	1.50	86.89	81.18
	321.020	50.00	999999.00	0.00	899.80	130.00	905.54	0.00	905.58	3.23	1.47	88.50	72.38
	321.800	100.00	0.00	0.00	900.20	130.00	905.51	0.00	905.51	.42	.57	431.76	201.07
	321.800	100.00	0.00	0.00	900.20	130.00	905.60	0.00	905.60	.43	.59	391.25	199.26
	322.000	590.00	0.00	0.00	902.30	130.00	905.55	0.00	905.59	8.43	1.67	118.26	44.77
	322.000	590.00	0.00	0.00	902.30	130.00	905.64	0.00	905.68	8.61	1.73	94.44	44.31
	323.200	330.00	0.00	0.00	903.70	130.00	906.06	0.00	906.22	60.88	3.25	45.85	16.66
	323.200	330.00	0.00	0.00	903.70	130.00	906.15	0.00	906.31	56.03	3.16	41.16	17.37
	322.970	50.00	0.00	0.00	903.90	130.00	906.38	0.00	906.61	70.73	3.84	33.82	15.46
	322.970	50.00	0.00	0.00	903.90	130.00	906.44	0.00	906.66	64.15	3.72	34.91	16.23
	322.980	5.00	916.30	909.20	903.90	130.00	906.54	0.00	906.66	5.68	2.84	45.80	54.53
	322.980	5.00	916.30	909.20	903.90	130.00	906.58	0.00	906.71	5.40	2.79	46.59	55.95
	323.020	260.00	916.30	910.10	904.80	130.00	906.75	0.00	906.98	14.46	3.85	33.75	34.19
	323.020	260.00	916.30	910.10	904.80	130.00	906.78	0.00	907.00	13.69	3.78	34.35	35.13
	323.030	5.00	0.00	0.00	904.60	130.00	906.83	0.00	907.01	51.81	3.45	37.72	18.06
	323.030	5.00	0.00	0.00	904.60	130.00	906.86	0.00	907.03	49.61	3.40	38.25	18.46
	323.800	200.00	0.00	0.00	904.40	130.00	907.30	0.00	907.32	5.22	1.28	113.97	56.91
	323.800	200.00	0.00	0.00	904.40	130.00	907.34	0.00	907.36	5.92	1.35	96.57	53.43
	324.200	255.00	0.00	0.00	904.80	130.00	907.22	0.00	907.24	3.41	1.23	129.35	64.38
	320.180	283.00	0.00	0.00	894.80	130.00	897.12	0.00	897.17	26.50	2.10	102.96	25.25

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
324.100	275.00	0.00	0.00	904.90	130.00	907.94	0.00	907.97	6.95	1.60	120.71	49.31
324.100	275.00	0.00	0.00	904.90	130.00	908.03	0.00	908.07	7.04	1.65	96.88	48.99
325.100	200.00	0.00	0.00	904.90	130.00	908.07	0.00	908.09	4.72	1.33	184.56	59.83
325.100	200.00	0.00	0.00	904.90	130.00	908.17	0.00	908.19	4.75	1.37	155.68	59.65
325.200	225.00	0.00	0.00	905.00	130.00	908.18	0.00	908.20	4.66	1.33	185.53	60.20
325.200	225.00	0.00	0.00	905.00	130.00	908.28	0.00	908.30	4.73	1.37	156.20	59.80
324.980	175.00	0.00	0.00	905.60	60.00	908.26	0.00	908.28	5.08	1.20	50.20	26.62
324.980	175.00	0.00	0.00	905.60	60.00	908.36	0.00	908.38	4.57	1.14	52.46	28.08
325.020	76.00	917.10	907.00	905.60	60.00	909.67	0.00	909.68	.90	.71	84.28	63.13
325.020	76.00	999999.00	0.00	905.60	60.00	909.77	0.00	909.78	.93	.69	86.40	62.21
325.800	175.00	0.00	0.00	905.60	60.00	909.68	0.00	909.68	.01	.06	1025.24	715.14
325.800	175.00	0.00	0.00	905.60	60.00	909.78	0.00	909.78	.01	.06	958.32	716.50
326.000	560.00	0.00	0.00	905.70	60.00	909.68	0.00	909.68	.01	.06	990.48	679.12
326.000	560.00	0.00	0.00	905.70	60.00	909.78	0.00	909.78	.01	.06	931.46	683.65
326.500	290.00	0.00	0.00	905.80	60.00	909.68	0.00	909.69	.19	.33	319.66	135.98
326.500	290.00	0.00	0.00	905.80	60.00	909.78	0.00	909.78	.19	.34	277.20	135.93
326.700	450.00	0.00	0.00	905.80	60.00	909.69	0.00	909.69	.19	.33	320.52	136.41
326.700	450.00	0.00	0.00	905.80	60.00	909.79	0.00	909.79	.19	.34	276.69	136.10
327.200	440.00	0.00	0.00	905.90	60.00	909.70	0.00	909.70	.22	.35	303.60	127.94
327.200	440.00	0.00	0.00	905.90	60.00	909.80	0.00	909.80	.22	.36	260.82	127.67
327.300	210.00	0.00	0.00	906.10	60.00	909.71	0.00	909.71	.29	.39	266.76	110.50
327.300	210.00	0.00	0.00	906.10	60.00	909.80	0.00	909.80	.30	.40	226.10	110.29
326.980	150.00	0.00	0.00	906.30	60.00	909.71	0.00	909.72	.74	.59	102.37	69.98
326.980	150.00	0.00	0.00	906.30	60.00	909.81	0.00	909.81	.70	.57	105.74	71.78
327.020	25.00	912.20	911.30	906.30	60.00	909.72	0.00	909.72	1.01	.56	106.50	59.76
327.020	25.00	999999.00	0.00	906.30	60.00	909.81	0.00	909.82	.88	.54	111.20	63.90
327.800	155.00	0.00	0.00	906.00	60.00	909.73	0.00	909.73	.54	.44	168.53	81.57
327.800	155.00	0.00	0.00	906.00	60.00	909.82	0.00	909.83	.55	.46	143.22	81.19
328.000	625.00	0.00	0.00	906.40	60.00	909.74	0.00	909.74	.05	.13	784.26	277.78
328.000	625.00	0.00	0.00	906.40	60.00	909.83	0.00	909.83	.05	.14	738.61	276.44

LONG LAKE - FOREST LAKE

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	311.200	355.00	854.95	0.00	0.00	0.00	193.77	0.00
	311.200	355.00	855.05	.10	0.00	.10	108.12	0.00
	310.980	270.00	855.07	0.00	.12	0.00	70.80	58.00
	310.980	270.00	855.18	.11	.13	.11	72.15	58.00
	311.020	270.00	858.39	0.00	3.32	0.00	173.32	42.00
	311.020	270.00	858.50	.11	3.32	.11	150.05	42.00
	311.800	270.00	858.47	0.00	.08	0.00	169.45	150.00
	311.800	270.00	858.58	.11	.08	.11	137.28	150.00
	311.900	270.00	858.67	0.00	.21	0.00	163.26	150.00
	311.900	270.00	858.77	.10	.20	.10	103.67	150.00
	311.980	270.00	859.11	0.00	.43	0.00	159.12	77.00
	311.980	270.00	859.20	.09	.43	.09	53.10	77.00
	312.020	270.00	862.07	0.00	2.96	0.00	156.07	48.00
	312.020	270.00	862.16	.09	2.96	.09	94.73	48.00
	312.410	270.00	862.20	0.00	.13	0.00	121.27	40.00
	312.410	270.00	862.30	.09	.13	.09	77.37	40.00
	312.150	270.00	862.20	0.00	.00	0.00	121.32	2.00
	312.150	270.00	862.29	.09	-.00	.09	81.58	2.00
	312.160	270.00	862.21	0.00	.01	0.00	121.37	2.00
	312.160	270.00	862.30	.09	.01	.09	81.18	2.00
	312.170	270.00	862.21	0.00	.00	0.00	121.50	1.00
	312.170	270.00	862.30	.09	.00	.09	80.10	1.00
*	312.800	270.00	862.61	0.00	.40	0.00	12.10	130.00
*	312.800	270.00	862.72	.11	.41	.11	12.25	130.00
*	312.820	270.00	863.19	0.00	.58	0.00	12.95	5.00
*	312.820	270.00	863.07	-.12	.35	-.12	12.77	5.00
	312.840	270.00	867.62	0.00	4.43	0.00	115.89	155.00
	312.840	270.00	867.67	.05	4.60	.05	72.19	155.00
	312.850	270.00	867.65	0.00	.03	0.00	116.60	5.00
	312.850	270.00	867.71	.06	.04	.06	75.27	5.00
	312.870	270.00	868.51	0.00	.86	0.00	113.03	135.00
	312.870	270.00	868.61	.10	.90	.10	70.33	135.00
	312.880	270.00	868.55	0.00	.04	0.00	114.03	5.00
	312.880	270.00	868.65	.10	.04	.10	70.14	5.00
	312.910	270.00	869.27	0.00	.71	0.00	114.66	120.00

312.910	270.00	869.37	.10	.72	.10	69.57	120.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	312.920	270.00	869.30	0.00	.03	0.00	115.65	5.00
	312.920	270.00	869.41	.11	.03	.11	70.98	5.00
	312.940	270.00	869.33	0.00	.03	0.00	113.85	10.00
	312.940	270.00	869.44	.11	.03	.11	68.88	10.00
	312.950	270.00	869.46	0.00	.13	0.00	108.58	40.00
	312.950	270.00	869.57	.10	.13	.10	60.34	40.00
	312.960	270.00	871.23	0.00	1.77	0.00	141.63	20.00
	312.960	270.00	871.34	.10	1.77	.10	107.81	20.00
	313.000	270.00	871.27	0.00	.04	0.00	120.17	85.00
	313.000	270.00	871.37	.10	.03	.10	79.29	85.00
*	314.200	270.00	873.58	0.00	2.31	0.00	127.86	575.00
	314.200	270.00	873.55	-.03	2.18	-.03	65.85	575.00
	313.980	270.00	874.94	0.00	1.36	0.00	12.00	105.00
	313.980	270.00	875.35	.41	1.80	.41	12.00	105.00
	314.020	270.00	882.05	0.00	7.11	0.00	12.00	70.00
	314.020	270.00	882.46	.41	7.11	.41	12.00	70.00
	314.800	270.00	882.16	0.00	.11	0.00	95.79	85.00
	314.800	270.00	882.56	.40	.10	.40	70.84	85.00
	314.980	195.00	882.14	0.00	-.02	0.00	12.00	80.00
	314.980	195.00	882.55	.40	-.02	.40	12.00	80.00
	315.020	195.00	889.59	0.00	7.45	0.00	12.00	120.00
	315.020	195.00	890.00	.40	7.45	.40	12.00	120.00
	315.800	195.00	889.62	0.00	.03	0.00	289.38	100.00
	315.800	195.00	890.02	.40	.03	.40	248.76	100.00
	316.000	195.00	889.62	0.00	.00	0.00	135.55	465.00
	316.000	195.00	890.02	.40	-.00	.40	98.24	465.00
	316.200	195.00	889.62	0.00	.00	0.00	134.49	20.00
	316.200	195.00	890.02	.40	.00	.40	97.40	20.00
	316.280	195.00	889.62	0.00	-.00	0.00	135.78	1.00
	316.280	195.00	890.02	.40	-.00	.40	106.26	1.00
	316.320	195.00	889.62	0.00	.00	0.00	135.78	3.00
	316.320	195.00	890.02	.40	.00	.40	106.24	3.00
	316.300	195.00	889.62	0.00	.00	0.00	133.43	1.00
	316.300	195.00	890.02	.40	.00	.40	101.35	1.00
	317.000	195.00	889.63	0.00	.01	0.00	150.02	410.00
	317.000	195.00	890.03	.40	.01	.40	116.00	410.00
	318.080	195.00	889.63	0.00	.00	0.00	156.09	293.00
	318.080	195.00	890.03	.40	.00	.40	142.53	293.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	318.090	195.00	889.63	0.00	.00	0.00	156.09	1.00
	318.090	195.00	890.03	.40	.00	.40	143.31	1.00
	318.110	195.00	889.63	0.00	.00	0.00	156.09	5.00
	318.110	195.00	890.03	.40	.00	.40	143.36	5.00
	318.120	195.00	889.63	0.00	-.00	0.00	156.09	1.00
	318.120	195.00	890.03	.40	-.00	.40	142.50	1.00
	318.200	195.00	889.63	0.00	.00	0.00	56.00	60.00
	318.200	195.00	890.03	.40	.00	.40	56.00	60.00
	317.980	195.00	889.60	0.00	-.04	0.00	13.00	85.00
	317.980	195.00	890.00	.41	-.03	.41	13.00	85.00
	318.020	195.00	890.65	0.00	1.05	0.00	14.00	25.00
	318.020	195.00	891.09	.44	1.09	.44	14.00	25.00
	318.800	195.00	890.89	0.00	.24	0.00	85.51	80.00
	318.800	195.00	891.29	.39	.20	.39	68.25	80.00
	318.900	195.00	890.94	0.00	.05	0.00	76.81	340.00
	318.900	195.00	891.33	.39	.04	.39	63.90	340.00
	318.950	195.00	891.11	0.00	.17	0.00	55.80	300.00
	318.950	195.00	891.46	.35	.13	.35	33.77	300.00
	319.000	195.00	894.25	0.00	3.14	0.00	58.80	360.00
	319.000	195.00	894.11	-.15	2.65	-.15	30.66	360.00
	319.100	195.00	896.61	0.00	2.36	0.00	66.59	440.00
	319.100	195.00	896.75	.14	2.65	.14	35.00	440.00
	319.700	195.00	896.77	0.00	.16	0.00	383.69	150.00
	319.700	195.00	896.92	.15	.17	.15	282.89	150.00
	320.000	195.00	896.80	0.00	.03	0.00	318.24	310.00
	320.000	195.00	896.95	.15	.03	.15	240.42	310.00
	320.180	130.00	896.99	0.00	.19	0.00	276.57	283.00
	320.180	130.00	897.12	.13	.16	.13	159.27	283.00
*	320.190	130.00	898.88	0.00	1.89	0.00	269.71	1.00
*	320.190	130.00	899.00	.13	1.89	.13	104.23	1.00
	320.210	130.00	899.11	0.00	.23	0.00	283.26	5.00
	320.210	130.00	899.29	.18	.28	.18	170.06	5.00
	320.220	130.00	899.11	0.00	-.00	0.00	283.08	1.00
	320.220	130.00	899.29	.18	.00	.18	180.60	1.00
	320.280	130.00	899.19	0.00	.08	0.00	237.79	53.00
	320.280	130.00	899.34	.15	.06	.15	32.13	53.00
*	320.290	130.00	900.38	0.00	1.19	0.00	269.71	1.00
*	320.290	130.00	900.50	.13	1.16	.13	104.23	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
320.310	130.00	900.61	0.00	.23	0.00	283.26	5.00
320.310	130.00	900.79	.18	.28	.18	170.06	5.00
320.320	130.00	900.61	0.00	-.00	0.00	283.08	1.00
320.320	130.00	900.79	.18	.00	.18	180.60	1.00
321.200	130.00	901.64	0.00	1.04	0.00	70.61	530.00
321.200	130.00	901.71	.07	.93	.07	28.00	530.00
320.980	130.00	902.45	0.00	.81	0.00	28.00	190.00
320.980	130.00	902.54	.09	.83	.09	28.00	190.00
321.020	130.00	905.45	0.00	3.00	0.00	18.00	50.00
321.020	130.00	905.54	.09	3.00	.09	18.00	50.00
321.800	130.00	905.51	0.00	.05	0.00	169.93	100.00
321.800	130.00	905.60	.09	.05	.09	113.58	100.00
322.000	130.00	905.55	0.00	.04	0.00	103.51	590.00
322.000	130.00	905.64	.09	.04	.09	50.24	590.00
323.200	130.00	906.06	0.00	.51	0.00	57.38	330.00
323.200	130.00	906.15	.09	.51	.09	27.00	330.00
322.970	130.00	906.38	0.00	.32	0.00	18.00	50.00
322.970	130.00	906.44	.06	.29	.06	18.00	50.00
322.980	130.00	906.54	0.00	.16	0.00	17.40	5.00
322.980	130.00	906.58	.05	.14	.05	17.40	5.00
323.020	130.00	906.75	0.00	.21	0.00	17.37	260.00
323.020	130.00	906.78	.03	.20	.03	17.37	260.00
323.030	130.00	906.83	0.00	.08	0.00	18.00	5.00
323.030	130.00	906.86	.03	.07	.03	18.00	5.00
323.800	130.00	907.30	0.00	.47	0.00	62.76	200.00
323.800	130.00	907.34	.04	.48	.04	42.60	200.00
324.000	130.00	907.72	0.00	.42	0.00	93.00	655.00
324.000	130.00	907.80	.08	.47	.08	41.45	655.00
324.100	130.00	907.94	0.00	.22	0.00	95.79	275.00
324.100	130.00	908.03	.09	.23	.09	46.21	275.00
325.100	130.00	908.07	0.00	.13	0.00	166.30	200.00
325.100	130.00	908.17	.10	.13	.10	98.42	200.00
325.200	130.00	908.18	0.00	.11	0.00	166.49	225.00
325.200	130.00	908.28	.10	.11	.10	98.75	225.00
324.980	60.00	908.26	0.00	.08	0.00	24.00	175.00
324.980	60.00	908.36	.10	.08	.10	24.00	175.00
325.020	60.00	909.67	0.00	1.41	0.00	24.00	76.00
325.020	60.00	909.77	.10	1.41	.10	24.00	76.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
325.800	60.00	909.68	0.00	.01	0.00	350.42	175.00
325.800	60.00	909.78	.10	.01	.10	277.00	175.00
326.000	60.00	909.68	0.00	.00	0.00	347.66	560.00
326.000	60.00	909.78	.10	.00	.10	277.00	560.00
326.500	60.00	909.68	0.00	.00	0.00	195.08	290.00
326.500	60.00	909.78	.10	.00	.10	120.28	290.00
326.700	60.00	909.69	0.00	.01	0.00	195.22	450.00
326.700	60.00	909.79	.10	.01	.10	119.44	450.00
327.200	60.00	909.70	0.00	.01	0.00	192.42	440.00
327.200	60.00	909.80	.10	.01	.10	115.63	440.00
327.300	60.00	909.71	0.00	.01	0.00	183.73	210.00
327.300	60.00	909.80	.10	.01	.10	105.50	210.00
326.980	60.00	909.71	0.00	.01	0.00	34.00	150.00
326.980	60.00	909.81	.10	.01	.10	34.00	150.00
327.020	60.00	909.72	0.00	.00	0.00	47.49	25.00
327.020	60.00	909.81	.10	.00	.10	47.84	25.00
327.800	60.00	909.73	0.00	.01	0.00	105.52	155.00
327.800	60.00	909.82	.09	.01	.09	62.47	155.00
328.000	60.00	909.74	0.00	.01	0.00	374.85	625.00
328.000	60.00	909.83	.09	.01	.09	308.70	625.00

SUMMARY OF ERRORS

CAUTION SECNO= 312.800 PROFILE= 1 SLOPE TOO STEEP
CAUTION SECNO= 312.800 PROFILE= 2 SLOPE TOO STEEP

CAUTION SECNO= 312.820 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 312.820 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 312.820 PROFILE= 1 SLOPE TOO STEEP
CAUTION SECNO= 312.820 PROFILE= 2 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 312.820 PROFILE= 2 SLOPE TOO STEEP

CAUTION SECNO= 314.200 PROFILE= 1 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 320.190 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 320.190 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 320.190 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 320.190 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 320.190 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 320.190 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 320.290 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 320.290 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 320.290 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 320.290 PROFILE= 2 CRITICAL DEPTH ASSUMED

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CAUTION  SECNO=  320.290  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  320.290  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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FLOODWAY DATA, LONG LAKE - FOREST LAKE
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
311.200	108.	183.	1.9	855.1	855.0	.1
310.980	72.	80.	3.4	855.2	855.1	.1
311.020	150.	342.	.8	858.5	858.4	.1
311.800	137.	265.	1.0	858.6	858.5	.1
311.900	104.	144.	1.9	858.8	858.7	.1
311.980	53.	69.	3.9	859.2	859.1	.1
312.020	95.	157.	1.7	862.2	862.1	.1
312.410	77.	235.	1.1	862.3	862.2	.1
312.150	82.	167.	1.6	862.3	862.2	.1
312.160	81.	167.	1.6	862.3	862.2	.1
312.170	80.	181.	1.5	862.3	862.2	.1
312.800	12.	26.	10.5	862.7	862.6	.1
312.820	13.	26.	10.5	863.2	863.2	0.0
312.840	72.	130.	2.1	867.7	867.6	.1
312.850	75.	136.	2.0	867.8	867.7	.1
312.870	70.	126.	2.2	868.6	868.5	.1
312.880	70.	128.	2.1	868.7	868.6	.1
312.910	70.	125.	2.2	869.4	869.3	.1
312.920	71.	128.	2.1	869.4	869.3	.1
312.940	69.	135.	2.0	869.4	869.3	.1
312.950	60.	115.	2.4	869.6	869.5	.1
312.960	108.	337.	.8	871.3	871.2	.1
313.000	79.	171.	1.6	871.4	871.3	.1
314.200	66.	69.	3.9	873.6	873.6	0.0
313.980	12.	40.	6.7	875.3	874.9	.4
314.020	12.	122.	2.2	882.5	882.1	.4
314.800	71.	435.	.6	882.6	882.2	.4
314.980	12.	94.	2.1	882.5	882.1	.4
315.020	12.	164.	1.2	890.0	889.6	.4
315.800	249.	2384.	.1	890.0	889.6	.4
316.000	98.	716.	.3	890.0	889.6	.4
316.200	97.	702.	.3	890.0	889.6	.4
316.280	106.	515.	.4	890.0	889.6	.4
316.320	106.	515.	.4	890.0	889.6	.4
316.300	101.	678.	.3	890.0	889.6	.4
317.000	116.	863.	.2	890.0	889.6	.4
318.080	143.	658.	.3	890.0	889.6	.4
318.090	143.	637.	.3	890.0	889.6	.4
318.110	143.	638.	.3	890.0	889.6	.4
318.120	143.	658.	.3	890.0	889.6	.4
318.200	56.	281.	.7	890.0	889.6	.4
317.980	13.	61.	3.2	890.0	889.6	.4
318.020	14.	64.	3.0	891.1	890.7	.4
318.800	68.	336.	.6	891.3	890.9	.4
318.900	64.	198.	1.0	891.3	890.9	.4
318.950	34.	58.	3.4	891.4	891.1	.3
319.000	31.	46.	4.2	894.3	894.3	0.0
319.100	35.	68.	2.9	896.7	896.6	.1
319.700	283.	726.	.3	897.0	896.8	.2
320.000	240.	342.	.6	896.9	896.8	.1

FLOODWAY DATA, LONG LAKE - FOREST LAKE
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
320.180	159.	103.	1.3	897.1	897.0	.1
320.190	104.	41.	3.2	899.0	898.9	.1
320.210	170.	108.	1.2	899.3	899.1	.2
320.220	181.	144.	.9	899.3	899.1	.2
320.280	32.	38.	3.4	899.4	899.2	.2
320.290	104.	41.	3.2	900.5	900.4	.1
320.310	170.	108.	1.2	900.8	900.6	.2
320.320	181.	144.	.9	900.8	900.6	.2
321.200	28.	54.	2.4	901.7	901.6	.1
320.980	28.	35.	3.7	902.6	902.5	.1
321.020	18.	88.	1.5	905.6	905.5	.1
321.800	114.	391.	.3	905.6	905.5	.1
322.000	50.	94.	1.4	905.7	905.6	.1
323.200	27.	41.	3.2	906.2	906.1	.1
322.970	18.	35.	3.7	906.5	906.4	.1
322.980	17.	47.	2.8	906.5	906.5	0.0
323.020	17.	34.	3.8	906.7	906.7	0.0
323.030	18.	38.	3.4	906.8	906.8	0.0
323.800	43.	97.	1.3	907.3	907.3	0.0
324.000	41.	86.	1.5	907.8	907.7	.1
324.100	46.	97.	1.3	908.0	907.9	.1
325.100	98.	156.	.8	908.2	908.1	.1
325.200	99.	156.	.8	908.3	908.2	.1
324.980	24.	52.	1.1	908.4	908.3	.1
325.020	24.	86.	.7	909.8	909.7	.1
325.800	277.	958.	.1	909.8	909.7	.1
326.000	277.	931.	.1	909.8	909.7	.1
326.500	120.	277.	.2	909.8	909.7	.1
326.700	119.	277.	.2	909.8	909.7	.1
327.200	116.	261.	.2	909.8	909.7	.1
327.300	106.	226.	.3	909.8	909.7	.1
326.980	34.	106.	.6	909.8	909.7	.1
327.020	48.	111.	.5	909.8	909.7	.1
327.800	62.	143.	.4	909.8	909.7	.1
328.000	309.	739.	.1	909.8	909.7	.1

Long for 2 floodway

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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1) COUNTY: OAKLAND

2) STUDY NAME: CITY OF BLOOMFIELD HILLS & BLOOMFIELD TOWNSHIP

3) WATERCOURSE: LONG LAKE/FOREST LAKE

4) DOCUMENT TYPE: SUMMARY



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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LONG LAKE - FOREST LAKE

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	LOK*S	VCH	AREA	.01K
311.200	0.00	0.00	0.00	852.40	225.00	854.50	0.00	854.55	20.20	1.90	142.69	50.06
311.200	0.00	0.00	0.00	852.40	305.00	854.80	0.00	854.86	18.53	2.01	195.39	70.85
311.200	0.00	0.00	0.00	852.40	355.00	854.95	0.00	855.01	18.35	2.09	223.78	82.87
311.200	0.00	0.00	0.00	852.40	460.00	855.25	0.00	855.31	17.39	2.20	284.76	110.31
310.980	58.00	0.00	0.00	853.50	190.00	854.64	0.00	854.94	269.08	4.33	43.87	11.58
310.980	58.00	0.00	0.00	853.50	245.00	854.92	0.00	855.17	169.65	3.98	61.57	18.81
310.980	58.00	0.00	0.00	853.50	270.00	855.07	0.00	855.29	127.02	3.76	71.88	23.96
310.980	58.00	0.00	0.00	853.50	330.00	855.35	0.00	855.55	86.08	3.56	92.78	35.57
311.020	42.00	857.50	856.20	854.50	190.00	858.11	0.00	858.12	2.99	1.05	311.71	109.80
311.020	42.00	857.50	856.20	854.50	245.00	858.31	0.00	858.33	3.69	1.21	346.16	127.60
311.020	42.00	857.50	856.20	854.50	270.00	858.39	0.00	858.40	4.03	1.28	359.11	134.57
311.020	42.00	857.50	856.20	854.50	330.00	858.52	0.00	858.54	4.99	1.45	382.79	147.67
311.800	150.00	0.00	0.00	855.00	190.00	858.18	0.00	858.19	7.60	1.39	237.02	68.94
311.800	150.00	0.00	0.00	855.00	245.00	858.39	0.00	858.41	8.67	1.54	271.52	83.20
311.800	150.00	0.00	0.00	855.00	270.00	858.47	0.00	858.49	9.16	1.61	285.26	89.19
311.800	150.00	0.00	0.00	855.00	330.00	858.62	0.00	858.65	10.67	1.79	311.40	101.05
311.900	150.00	0.00	0.00	855.90	190.00	858.35	0.00	858.44	41.17	2.72	118.89	29.61
311.900	150.00	0.00	0.00	855.90	245.00	858.58	0.00	858.67	36.95	2.74	156.27	40.30
311.900	150.00	0.00	0.00	855.90	270.00	858.67	0.00	858.76	36.15	2.77	170.74	44.91
311.900	150.00	0.00	0.00	855.90	330.00	858.85	0.00	858.94	36.07	2.88	200.03	54.95
311.980	77.00	0.00	0.00	856.80	190.00	858.86	0.00	859.17	152.62	4.53	41.90	15.38
311.980	77.00	0.00	0.00	856.80	245.00	859.03	859.01	859.31	132.95	4.54	83.09	21.25
311.980	77.00	0.00	0.00	856.80	270.00	859.11	0.00	859.38	125.38	4.55	96.49	24.11
311.980	77.00	0.00	0.00	856.80	330.00	859.28	0.00	859.53	115.29	4.58	123.14	30.73
312.020	48.00	861.40	859.00	856.30	190.00	861.17	0.00	861.35	26.08	3.36	56.62	37.21
312.020	48.00	861.40	859.00	856.30	245.00	861.93	0.00	862.04	15.53	2.91	162.08	62.17
312.020	48.00	861.40	859.00	856.30	270.00	862.07	0.00	862.17	15.48	2.95	182.66	68.63
312.020	48.00	861.40	859.00	856.30	330.00	862.30	0.00	862.41	16.58	3.15	219.31	81.04
312.410	40.00	0.00	0.00	856.80	190.00	861.41	0.00	861.45	5.68	1.55	176.43	79.73
312.410	40.00	0.00	0.00	856.80	245.00	862.07	0.00	862.10	4.67	1.54	248.53	113.42
312.410	40.00	0.00	0.00	856.80	270.00	862.20	0.00	862.23	4.97	1.62	264.00	121.16
312.410	40.00	0.00	0.00	856.80	330.00	862.43	0.00	862.47	5.89	1.82	292.77	135.92

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	312.150	2.00	0.00	0.00	860.20	190.00	861.41	0.00	861.47	91.27	2.49	101.95	19.89
	312.150	2.00	0.00	0.00	860.20	245.00	862.07	0.00	862.11	31.54	1.95	173.95	43.63
	312.150	2.00	0.00	0.00	860.20	270.00	862.20	0.00	862.24	29.76	1.98	189.43	49.49
	312.150	2.00	0.00	0.00	860.20	330.00	862.44	0.00	862.48	29.33	2.12	218.24	60.94
	312.160	2.00	0.00	0.00	860.20	190.00	861.43	0.00	861.49	90.35	2.48	102.29	19.99
	312.160	2.00	0.00	0.00	860.20	245.00	862.08	0.00	862.12	31.41	1.95	174.19	43.72
	312.160	2.00	0.00	0.00	860.20	270.00	862.21	0.00	862.25	29.63	1.98	189.70	49.60
	312.160	2.00	0.00	0.00	860.20	330.00	862.44	0.00	862.48	29.19	2.11	218.59	61.08
	312.170	1.00	0.00	0.00	859.50	190.00	861.44	0.00	861.50	37.23	2.50	119.52	31.14
	312.170	1.00	0.00	0.00	859.50	245.00	862.08	0.00	862.12	17.61	2.09	190.30	58.38
	312.170	1.00	0.00	0.00	859.50	270.00	862.21	0.00	862.25	17.23	2.14	205.78	65.04
	312.170	1.00	0.00	0.00	859.50	330.00	862.44	0.00	862.49	17.93	2.30	234.68	77.94
	312.800	130.00	863.20	862.40	859.80	190.00	862.38	0.00	863.24	355.34	7.45	25.50	10.08
*	312.800	130.00	863.20	862.40	859.80	245.00	862.54	862.40	863.95	1276.18	9.52	25.73	6.86
*	312.800	130.00	863.20	862.40	859.80	270.00	862.61	862.40	864.32	1549.91	10.49	25.73	6.86
*	312.800	130.00	863.20	862.40	859.80	330.00	864.13	864.13	864.56	538.76	6.03	73.28	14.22
	312.820	5.00	863.20	862.40	859.80	190.00	862.65	0.00	863.50	767.52	7.39	25.73	6.86
*	312.820	5.00	863.20	862.40	859.80	245.00	863.18	862.40	864.59	1276.18	9.52	25.73	6.86
*	312.820	5.00	863.20	862.40	859.80	270.00	863.19	862.40	864.90	1549.91	10.49	25.73	6.86
	312.820	5.00	863.20	862.40	859.80	330.00	864.66	0.00	864.81	163.20	3.70	122.04	25.83
	312.840	155.00	865.20	864.20	863.60	190.00	867.06	0.00	867.15	107.60	2.96	92.15	18.32
	312.840	155.00	865.20	864.20	863.60	245.00	867.46	0.00	867.52	66.52	2.62	135.25	30.04
	312.840	155.00	865.20	864.20	863.60	270.00	867.62	0.00	867.68	58.10	2.55	153.00	35.42
	312.840	155.00	865.20	864.20	863.60	330.00	867.28	0.00	867.44	176.37	4.08	117.06	24.85
	312.850	5.00	865.20	864.20	863.60	190.00	867.12	0.00	867.20	88.37	2.75	99.68	20.21
	312.850	5.00	865.20	864.20	863.60	245.00	867.49	0.00	867.56	60.98	2.54	139.76	31.37
	312.850	5.00	865.20	864.20	863.60	270.00	867.65	0.00	867.71	53.17	2.47	157.90	37.03
	312.850	5.00	865.20	864.20	863.60	330.00	867.39	0.00	867.53	139.26	3.73	128.11	27.96
	312.870	135.00	866.40	865.80	864.60	190.00	868.23	0.00	868.29	73.51	2.22	112.98	22.16
	312.870	135.00	866.40	865.80	864.60	245.00	868.43	0.00	868.49	78.95	2.42	133.09	27.57
	312.870	135.00	866.40	865.80	864.60	270.00	868.51	0.00	868.58	78.80	2.47	143.12	30.42
	312.870	135.00	866.40	865.80	864.60	330.00	868.76	0.00	868.83	69.74	2.46	172.31	39.52
	312.880	5.00	866.40	865.80	864.60	190.00	868.27	0.00	868.32	66.98	2.14	117.02	23.22
	312.880	5.00	866.40	865.80	864.60	245.00	868.47	0.00	868.53	72.32	2.34	137.50	28.81
	312.880	5.00	866.40	865.80	864.60	270.00	868.55	0.00	868.61	73.42	2.40	146.90	31.51
	312.880	5.00	866.40	865.80	864.60	330.00	868.80	0.00	868.86	63.80	2.38	177.68	41.31
	312.910	120.00	866.90	865.10	865.30	190.00	868.95	0.00	869.03	51.26	2.97	110.32	26.54
	312.910	120.00	866.90	865.10	865.30	245.00	869.18	0.00	869.27	51.56	3.18	134.75	34.12
	312.910	120.00	866.90	865.10	865.30	270.00	869.27	0.00	869.36	51.77	3.26	145.18	37.52
	312.910	120.00	866.90	865.10	865.30	330.00	869.47	0.00	869.56	52.03	3.43	168.33	45.75
	312.920	5.00	866.90	865.10	865.30	190.00	868.98	0.00	869.06	47.65	2.89	113.62	27.53
	312.920	5.00	866.90	865.10	865.30	245.00	869.21	0.00	869.29	48.12	3.10	138.46	35.32
	312.920	5.00	866.90	865.10	865.30	270.00	869.30	0.00	869.39	48.47	3.19	148.96	38.78
	312.920	5.00	866.90	865.10	865.30	330.00	869.50	0.00	869.59	49.14	3.36	171.89	47.08

	SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	312.940	10.00	0.00	0.00	865.40	190.00	869.01	0.00	869.10	28.36	2.78	119.96	35.68
	312.940	10.00	0.00	0.00	865.40	245.00	869.24	0.00	869.33	31.14	3.06	144.25	43.90
	312.940	10.00	0.00	0.00	865.40	270.00	869.33	0.00	869.43	32.23	3.18	154.56	47.56
	312.940	10.00	0.00	0.00	865.40	330.00	869.53	0.00	869.64	35.02	3.45	176.18	55.77
	312.950	40.00	0.00	0.00	865.70	190.00	869.13	0.00	869.25	41.19	3.19	100.74	29.61
	312.950	40.00	0.00	0.00	865.70	245.00	869.37	0.00	869.49	43.24	3.46	124.77	37.26
	312.950	40.00	0.00	0.00	865.70	270.00	869.46	0.00	869.59	44.00	3.57	135.00	40.70
	312.950	40.00	0.00	0.00	865.70	330.00	869.67	0.00	869.81	45.69	3.81	158.06	48.82
	312.960	20.00	870.70	868.50	865.70	190.00	871.07	0.00	871.08	2.11	1.05	336.86	130.73
	312.960	20.00	870.70	868.50	865.70	245.00	871.18	0.00	871.20	3.10	1.29	352.58	139.08
	312.960	20.00	870.70	868.50	865.70	270.00	871.23	0.00	871.25	3.58	1.40	359.45	142.77
	312.960	20.00	870.70	868.50	865.70	330.00	871.33	0.00	871.35	4.84	1.65	372.87	150.07
	313.000	85.00	0.00	0.00	867.00	190.00	871.09	0.00	871.13	12.33	2.03	171.99	54.12
	313.000	85.00	0.00	0.00	867.00	245.00	871.22	0.00	871.27	16.67	2.42	186.75	60.01
	313.000	85.00	0.00	0.00	867.00	270.00	871.27	0.00	871.33	18.61	2.59	193.04	62.59
	313.000	85.00	0.00	0.00	867.00	330.00	871.38	0.00	871.46	23.25	2.95	206.97	68.44
	314.200	575.00	0.00	0.00	870.00	190.00	872.56	872.56	873.55	383.08	8.00	24.60	9.71
*	314.200	575.00	0.00	0.00	870.00	245.00	873.52	873.52	873.89	110.56	5.50	89.26	23.30
*	314.200	575.00	0.00	0.00	870.00	270.00	873.58	873.58	873.97	116.74	5.73	96.91	24.99
	314.200	575.00	0.00	0.00	870.00	330.00	873.76	873.66	874.14	117.35	5.97	119.60	30.46
	313.980	105.00	0.00	0.00	871.40	190.00	875.05	0.00	875.47	93.15	5.20	36.54	19.69
	313.980	105.00	0.00	0.00	871.40	245.00	874.83	0.00	875.64	199.92	7.24	33.85	17.33
	313.980	105.00	0.00	0.00	871.40	270.00	874.94	0.00	875.85	213.35	7.67	35.18	18.49
	313.980	105.00	0.00	0.00	871.40	330.00	875.11	0.00	876.33	263.07	8.85	37.27	20.35
	314.020	70.00	883.00	875.00	871.40	190.00	878.51	0.00	878.61	9.44	2.56	74.14	61.85
	314.020	70.00	883.00	875.00	871.40	245.00	880.66	0.00	880.76	5.80	2.45	99.94	101.74
	314.020	70.00	883.00	875.00	871.40	270.00	882.05	0.00	882.14	4.21	2.31	116.65	131.65
	314.020	70.00	883.00	875.00	871.40	330.00	883.59	0.00	883.60	.64	1.00	666.17	411.66
	314.800	85.00	0.00	0.00	872.00	190.00	878.65	0.00	878.70	6.22	1.98	163.48	76.18
	314.800	85.00	0.00	0.00	872.00	245.00	880.79	0.00	880.81	2.19	1.45	319.01	165.39
	314.800	85.00	0.00	0.00	872.00	270.00	882.16	0.00	882.18	1.19	1.19	442.36	247.99
	314.800	85.00	0.00	0.00	872.00	330.00	883.60	0.00	883.61	.86	1.12	588.88	354.89
	314.980	80.00	0.00	0.00	873.80	155.00	878.66	0.00	878.83	28.40	3.29	47.15	29.09
	314.980	80.00	0.00	0.00	873.80	180.00	880.77	0.00	880.86	9.16	2.49	72.43	59.48
	314.980	80.00	0.00	0.00	873.80	195.00	882.14	0.00	882.22	5.43	2.19	88.91	83.71
	314.980	80.00	0.00	0.00	873.80	230.00	883.57	0.00	883.64	4.19	2.17	106.06	112.32
	315.020	120.00	896.10	879.80	875.80	155.00	883.33	0.00	883.38	4.91	1.84	84.08	69.97
	315.020	120.00	896.10	879.80	875.80	180.00	887.11	0.00	887.14	1.57	1.39	129.38	143.50
	315.020	120.00	896.10	879.80	875.80	195.00	889.59	0.00	889.62	.92	1.22	159.21	202.78
	315.020	120.00	896.10	879.80	875.80	230.00	893.95	0.00	893.97	.50	1.09	211.62	325.82
	315.800	100.00	0.00	0.00	876.40	155.00	883.40	0.00	883.40	.11	.29	818.80	458.59
	315.800	100.00	0.00	0.00	876.40	180.00	887.14	0.00	887.14	.02	.17	1693.34	1235.01
	315.800	100.00	0.00	0.00	876.40	195.00	889.62	0.00	889.62	.01	.14	2377.66	1975.23
	315.800	100.00	0.00	0.00	876.40	230.00	893.97	0.00	893.97	.00	.11	3728.90	3710.69

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	316.000	465.00	0.00	0.00	878.00	155.00	883.39	0.00	883.43	6.64	1.55	122.35	60.14
	316.000	465.00	0.00	0.00	878.00	180.00	887.14	0.00	887.15	.47	.66	438.31	262.73
	316.000	465.00	0.00	0.00	878.00	195.00	889.62	0.00	889.62	.15	.45	741.48	505.61
	316.000	465.00	0.00	0.00	878.00	230.00	893.97	0.00	893.97	.04	.28	1557.30	1222.75
	316.200	20.00	0.00	0.00	878.10	155.00	883.41	0.00	883.44	7.34	1.60	117.18	57.21
	316.200	20.00	0.00	0.00	878.10	180.00	887.14	0.00	887.15	.50	.68	427.50	254.76
	316.200	20.00	0.00	0.00	878.10	195.00	889.62	0.00	889.62	.16	.46	728.00	494.12
	316.200	20.00	0.00	0.00	878.10	230.00	893.97	0.00	893.97	.04	.29	1532.78	1199.79
*	316.280	1.00	0.00	0.00	883.20	155.00	884.91	884.91	885.76	707.07	7.40	20.96	5.83
	316.280	1.00	0.00	0.00	883.20	180.00	887.14	0.00	887.16	9.81	1.48	209.82	57.48
	316.280	1.00	0.00	0.00	883.20	195.00	889.62	0.00	889.62	.88	.61	513.64	208.44
	316.280	1.00	0.00	0.00	883.20	230.00	893.97	0.00	893.97	.09	.28	1328.29	756.34
	316.320	3.00	0.00	0.00	883.20	155.00	886.01	0.00	886.10	62.06	2.96	92.12	19.68
	316.320	3.00	0.00	0.00	883.20	180.00	887.14	0.00	887.16	9.82	1.48	209.72	57.45
	316.320	3.00	0.00	0.00	883.20	195.00	889.62	0.00	889.62	.88	.61	513.65	208.44
	316.320	3.00	0.00	0.00	883.20	230.00	893.97	0.00	893.97	.09	.28	1328.34	756.38
	316.300	1.00	0.00	0.00	880.70	155.00	886.11	0.00	886.12	1.16	.86	285.80	143.97
	316.300	1.00	0.00	0.00	880.70	180.00	887.16	0.00	887.16	.71	.76	391.39	214.33
	316.300	1.00	0.00	0.00	880.70	195.00	889.62	0.00	889.62	.19	.49	688.41	445.15
	316.300	1.00	0.00	0.00	880.70	230.00	893.97	0.00	893.97	.04	.30	1483.56	1137.26
	317.000	410.00	0.00	0.00	881.80	155.00	886.14	0.00	886.14	.35	.38	412.97	263.36
	317.000	410.00	0.00	0.00	881.80	180.00	887.18	0.00	887.18	.21	.34	534.66	393.46
	317.000	410.00	0.00	0.00	881.80	195.00	889.63	0.00	889.63	.06	.23	879.36	818.64
	317.000	410.00	0.00	0.00	881.80	230.00	893.97	0.00	893.97	.01	.16	1594.20	1904.03
	318.080	293.00	0.00	0.00	884.00	155.00	886.12	0.00	886.22	69.41	3.29	101.00	18.60
	318.080	293.00	0.00	0.00	884.00	180.00	887.19	0.00	887.20	7.36	1.45	257.32	66.36
	318.080	293.00	0.00	0.00	884.00	195.00	889.63	0.00	889.63	.54	.59	628.22	264.52
	318.080	293.00	0.00	0.00	884.00	230.00	893.97	0.00	893.98	.07	.32	1338.39	866.54
	318.090	1.00	885.50	885.00	884.00	155.00	886.17	0.00	886.23	270.36	2.75	84.26	9.43
	318.090	1.00	885.50	885.00	884.00	180.00	887.20	0.00	887.20	14.61	.92	233.43	47.09
	318.090	1.00	885.50	885.00	884.00	195.00	889.63	0.00	889.63	.78	.34	604.57	221.47
	318.090	1.00	885.50	885.00	884.00	230.00	893.97	0.00	893.98	.09	.18	1314.80	768.09
	318.110	5.00	885.50	885.00	884.00	155.00	886.30	0.00	886.34	149.29	2.16	102.55	12.69
	318.110	5.00	885.50	885.00	884.00	180.00	887.20	0.00	887.21	14.28	.91	235.08	47.63
	318.110	5.00	885.50	885.00	884.00	195.00	889.63	0.00	889.63	.77	.34	604.71	221.56
	318.110	5.00	885.50	885.00	884.00	230.00	893.97	0.00	893.98	.09	.18	1314.83	768.12
	318.120	1.00	0.00	0.00	884.00	155.00	886.29	0.00	886.35	40.75	2.67	125.77	24.28
	318.120	1.00	0.00	0.00	884.00	180.00	887.20	0.00	887.21	7.20	1.44	259.14	67.07
	318.120	1.00	0.00	0.00	884.00	195.00	889.63	0.00	889.63	.54	.59	628.30	264.58
	318.120	1.00	0.00	0.00	884.00	230.00	893.97	0.00	893.98	.07	.32	1338.40	866.56
	318.200	60.00	0.00	0.00	884.10	155.00	886.55	0.00	886.63	49.56	2.96	85.78	22.02
	318.200	60.00	0.00	0.00	884.10	180.00	887.25	0.00	887.30	21.29	2.27	125.79	39.01
	318.200	60.00	0.00	0.00	884.10	195.00	889.63	0.00	889.64	2.76	1.11	258.93	117.32
	318.200	60.00	0.00	0.00	884.10	230.00	893.97	0.00	893.98	.52	.62	501.96	318.42

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	317.980	85.00	0.00	0.00	885.00	155.00	887.09	0.00	887.77	286.06	6.60	23.47	9.16
	317.980	85.00	0.00	0.00	885.00	180.00	887.36	0.00	888.05	241.88	6.67	27.00	11.57
	317.980	85.00	0.00	0.00	885.00	195.00	889.60	0.00	889.78	24.95	3.48	56.01	39.04
	317.980	85.00	0.00	0.00	885.00	230.00	893.98	0.00	893.98	.11	.36	1168.94	701.85
*	318.020	25.00	896.20	889.20	885.00	155.00	888.66	0.00	889.07	210.59	5.16	30.02	10.68
*	318.020	25.00	896.20	889.20	885.00	180.00	889.04	0.00	889.44	172.69	5.09	35.38	13.70
	318.020	25.00	896.20	889.20	885.00	195.00	890.65	0.00	890.83	47.61	3.37	57.90	28.26
	318.020	25.00	896.20	889.20	885.00	230.00	895.64	0.00	895.69	7.55	1.80	127.75	83.70
	318.800	80.00	0.00	0.00	884.30	155.00	889.25	0.00	889.26	2.74	.94	207.29	93.63
	318.800	80.00	0.00	0.00	884.30	180.00	889.61	0.00	889.63	2.53	.96	234.91	113.25
	318.800	80.00	0.00	0.00	884.30	195.00	890.89	0.00	890.90	.96	.74	341.26	198.70
	318.800	80.00	0.00	0.00	884.30	230.00	895.71	0.00	895.71	.11	.40	807.00	696.24
	318.900	340.00	0.00	0.00	886.20	155.00	889.44	0.00	889.51	30.35	2.32	80.72	28.14
	318.900	340.00	0.00	0.00	886.20	180.00	889.77	0.00	889.83	20.14	2.09	104.32	40.11
	318.900	340.00	0.00	0.00	886.20	195.00	890.94	0.00	890.96	3.69	1.27	191.01	101.49
	318.900	340.00	0.00	0.00	886.20	230.00	895.71	0.00	895.71	.16	.51	610.52	573.86
	318.950	300.00	0.00	0.00	887.00	155.00	890.86	0.00	891.11	102.85	3.99	39.09	15.28
	318.950	300.00	0.00	0.00	887.00	180.00	890.87	0.00	891.20	135.79	4.59	39.50	15.45
	318.950	300.00	0.00	0.00	887.00	195.00	891.11	0.00	891.37	98.97	4.14	51.38	19.60
	318.950	300.00	0.00	0.00	887.00	230.00	895.72	0.00	895.72	.52	.75	437.59	320.25
	319.000	360.00	0.00	0.00	890.00	155.00	894.03	0.00	894.22	73.12	3.49	47.28	18.13
	319.000	360.00	0.00	0.00	890.00	180.00	894.25	0.00	894.43	62.72	3.42	59.64	22.73
	319.000	360.00	0.00	0.00	890.00	195.00	894.25	0.00	894.46	74.62	3.72	59.24	22.57
	319.000	360.00	0.00	0.00	890.00	230.00	895.74	0.00	895.78	7.88	1.82	165.84	81.91
	319.100	440.00	0.00	0.00	892.00	155.00	896.36	0.00	896.47	37.22	2.71	66.34	25.41
	319.100	440.00	0.00	0.00	892.00	180.00	896.48	0.00	896.60	39.46	2.87	74.15	28.65
	319.100	440.00	0.00	0.00	892.00	195.00	896.61	0.00	896.73	37.24	2.86	81.72	31.95
	319.100	440.00	0.00	0.00	892.00	230.00	896.42	0.00	896.64	73.67	3.85	69.73	26.80
	319.700	150.00	0.00	0.00	892.60	155.00	896.51	0.00	896.51	.45	.45	675.09	230.47
	319.700	150.00	0.00	0.00	892.60	180.00	896.65	0.00	896.65	.49	.48	727.47	256.53
	319.700	150.00	0.00	0.00	892.60	195.00	896.77	0.00	896.78	.48	.49	776.11	281.85
	319.700	150.00	0.00	0.00	892.60	230.00	896.72	0.00	896.72	.72	.59	755.17	270.84
	320.000	310.00	0.00	0.00	893.80	155.00	896.54	0.00	896.55	5.52	1.11	281.17	65.97
	320.000	310.00	0.00	0.00	893.80	180.00	896.68	0.00	896.69	4.98	1.11	324.07	80.65
	320.000	310.00	0.00	0.00	893.80	195.00	896.80	0.00	896.81	4.21	1.06	363.64	95.03
	320.000	310.00	0.00	0.00	893.80	230.00	896.76	0.00	896.77	6.53	1.31	350.14	90.04
	320.180	283.00	0.00	0.00	894.80	75.00	896.75	0.00	896.80	32.15	2.00	57.39	13.23
	320.180	283.00	0.00	0.00	894.80	110.00	896.89	0.00	896.95	33.25	2.17	97.04	19.08
	320.180	283.00	0.00	0.00	894.80	130.00	896.99	0.00	897.04	29.19	2.11	123.95	24.06
	320.180	283.00	0.00	0.00	894.80	185.00	897.07	0.00	897.14	41.89	2.60	145.67	28.58
*	320.190	1.00	898.70	897.70	896.80	75.00	897.70	897.70	898.65	2975.53	7.81	9.60	1.37
*	320.190	1.00	898.70	897.70	896.80	110.00	898.88	898.88	898.97	628.09	3.13	57.42	4.39
*	320.190	1.00	898.70	897.70	896.80	130.00	898.88	898.88	899.00	909.61	3.75	56.70	4.31
*	320.190	1.00	898.70	897.70	896.80	185.00	898.93	898.93	899.07	974.22	4.14	70.51	5.93

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK*S	VCH	AREA	.01K
	320.210	5.00	898.70	897.70	896.80	75.00	898.96	0.00	898.98	102.30	1.41	81.84	7.42
	320.210	5.00	898.70	897.70	896.80	110.00	899.06	0.00	899.08	101.38	1.53	105.32	10.92
	320.210	5.00	898.70	897.70	896.80	130.00	899.11	0.00	899.13	93.04	1.55	120.54	13.48
	320.210	5.00	898.70	897.70	896.80	185.00	899.19	0.00	899.22	107.72	1.79	144.11	17.83
	320.220	1.00	0.00	0.00	896.80	75.00	898.96	0.00	898.98	11.16	1.29	115.67	22.45
	320.220	1.00	0.00	0.00	896.80	110.00	899.06	0.00	899.09	15.51	1.58	142.64	27.93
	320.220	1.00	0.00	0.00	896.80	130.00	899.11	0.00	899.14	17.99	1.72	154.98	30.65
	320.220	1.00	0.00	0.00	896.80	185.00	899.19	0.00	899.23	26.31	2.14	178.06	36.06
	320.280	53.00	0.00	0.00	897.30	75.00	899.03	0.00	899.14	65.32	2.64	28.42	9.28
	320.280	53.00	0.00	0.00	897.30	110.00	899.14	898.74	899.32	105.74	3.48	33.10	10.70
	320.280	53.00	0.00	0.00	897.30	130.00	899.19	899.18	899.41	124.48	3.84	42.60	11.65
*	320.280	53.00	0.00	0.00	897.30	185.00	899.37	899.37	899.56	109.75	3.89	88.54	17.66
*	320.290	1.00	900.20	899.20	898.30	75.00	899.20	899.20	900.15	2975.53	7.81	9.60	1.37
*	320.290	1.00	900.20	899.20	898.30	110.00	900.38	900.38	900.47	628.09	3.13	57.42	4.39
*	320.290	1.00	900.20	899.20	898.30	130.00	900.38	900.38	900.50	909.61	3.75	56.70	4.31
*	320.290	1.00	900.20	899.20	898.30	185.00	900.43	900.43	900.57	974.22	4.14	70.51	5.93
	320.310	5.00	900.20	899.20	898.30	75.00	900.46	0.00	900.48	102.30	1.41	81.84	7.42
	320.310	5.00	900.20	899.20	898.30	110.00	900.56	0.00	900.58	101.38	1.53	105.32	10.92
	320.310	5.00	900.20	899.20	898.30	130.00	900.61	0.00	900.63	93.04	1.55	120.54	13.48
	320.310	5.00	900.20	899.20	898.30	185.00	900.69	0.00	900.72	107.72	1.79	144.11	17.83
	320.320	1.00	0.00	0.00	898.30	75.00	900.46	0.00	900.48	11.16	1.29	115.67	22.45
	320.320	1.00	0.00	0.00	898.30	110.00	900.56	0.00	900.59	15.51	1.58	142.64	27.93
	320.320	1.00	0.00	0.00	898.30	130.00	900.61	0.00	900.64	17.99	1.72	154.98	30.65
	320.320	1.00	0.00	0.00	898.30	185.00	900.69	0.00	900.73	26.31	2.14	178.06	36.06
	321.200	530.00	0.00	0.00	898.30	75.00	901.22	0.00	901.27	19.91	1.84	44.73	16.81
	321.200	530.00	0.00	0.00	898.30	110.00	901.50	0.00	901.57	21.82	2.18	60.79	23.55
	321.200	530.00	0.00	0.00	898.30	130.00	901.64	0.00	901.72	22.63	2.33	70.01	27.33
	321.200	530.00	0.00	0.00	898.30	185.00	901.97	0.00	902.07	23.57	2.66	96.37	38.11
	320.980	190.00	0.00	0.00	899.80	75.00	901.99	0.00	902.19	141.15	3.66	20.47	6.31
	320.980	190.00	0.00	0.00	899.80	110.00	902.31	0.00	902.54	131.19	3.88	28.37	9.60
	320.980	190.00	0.00	0.00	899.80	130.00	902.45	0.00	902.70	124.90	4.01	32.39	11.63
	320.980	190.00	0.00	0.00	899.80	185.00	902.77	0.00	903.08	112.50	4.48	41.31	17.44
	321.020	50.00	906.20	902.00	899.80	75.00	902.95	0.00	903.00	9.83	1.80	41.74	23.92
	321.020	50.00	906.20	902.00	899.80	110.00	904.44	0.00	904.48	4.03	1.60	68.64	54.80
	321.020	50.00	906.20	902.00	899.80	130.00	905.45	0.00	905.49	2.56	1.50	86.89	81.18
	321.020	50.00	906.20	902.00	899.80	185.00	906.33	0.00	906.34	.27	.54	706.23	357.74
	321.800	100.00	0.00	0.00	900.20	75.00	903.07	0.00	903.08	5.67	1.25	107.21	31.50
	321.800	100.00	0.00	0.00	900.20	110.00	904.51	0.00	904.51	.95	.73	279.42	112.75
	321.800	100.00	0.00	0.00	900.20	130.00	905.51	0.00	905.51	.42	.57	431.76	201.07
	321.800	100.00	0.00	0.00	900.20	185.00	906.34	0.00	906.34	.38	.62	596.68	299.18
	322.000	590.00	0.00	0.00	902.30	75.00	903.89	0.00	904.14	194.48	4.02	18.66	5.38
	322.000	590.00	0.00	0.00	902.30	110.00	904.60	0.00	904.73	51.16	2.89	42.47	15.38
	322.000	590.00	0.00	0.00	902.30	130.00	905.55	0.00	905.59	8.43	1.67	118.26	44.77
	322.000	590.00	0.00	0.00	902.30	185.00	906.38	0.00	906.40	4.22	1.44	219.12	90.01

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
323.200	330.00	0.00	0.00	903.70	75.00	905.96	0.00	906.03	26.33	2.04	40.49	14.62
323.200	330.00	0.00	0.00	903.70	110.00	906.10	0.00	906.21	39.43	2.66	48.14	17.52
323.200	330.00	0.00	0.00	903.70	130.00	906.06	0.00	906.22	60.88	3.25	45.85	16.66
323.200	330.00	0.00	0.00	903.70	185.00	906.62	0.00	906.74	33.38	2.99	86.31	32.02
322.970	50.00	0.00	0.00	903.90	75.00	906.11	0.00	906.22	38.03	2.59	28.98	12.16
322.970	50.00	0.00	0.00	903.90	110.00	906.32	0.00	906.50	55.19	3.34	32.89	14.81
322.970	50.00	0.00	0.00	903.90	130.00	906.38	0.00	906.61	70.73	3.84	33.82	15.46
322.970	50.00	0.00	0.00	903.90	185.00	906.83	0.00	907.13	74.33	4.42	41.88	21.46
322.980	5.00	916.30	909.20	903.90	75.00	906.19	0.00	906.24	2.92	1.89	39.70	43.88
322.980	5.00	916.30	909.20	903.90	110.00	906.44	0.00	906.54	4.57	2.50	44.08	51.47
322.980	5.00	916.30	909.20	903.90	130.00	906.54	0.00	906.66	5.68	2.84	45.80	54.53
322.980	5.00	916.30	909.20	903.90	185.00	907.01	0.00	907.19	7.01	3.42	54.03	69.89
323.020	260.00	916.30	910.10	904.80	75.00	906.31	0.00	906.44	10.68	2.87	26.13	22.95
323.020	260.00	916.30	910.10	904.80	110.00	906.61	0.00	906.80	12.96	3.51	31.38	30.55
323.020	260.00	916.30	910.10	904.80	130.00	906.75	0.00	906.98	14.46	3.85	33.75	34.19
323.020	260.00	916.30	910.10	904.80	185.00	907.25	0.00	907.54	14.47	4.36	42.47	48.63
323.030	5.00	0.00	0.00	904.60	75.00	906.36	0.00	906.46	37.93	2.56	29.25	12.18
323.030	5.00	0.00	0.00	904.60	110.00	906.68	0.00	906.83	46.29	3.13	35.10	16.17
323.030	5.00	0.00	0.00	904.60	130.00	906.83	0.00	907.01	51.81	3.45	37.72	18.06
323.030	5.00	0.00	0.00	904.60	185.00	907.34	0.00	907.58	53.80	3.94	46.95	25.22
323.800	200.00	0.00	0.00	904.40	75.00	906.68	0.00	906.70	4.68	1.05	77.63	34.66
323.800	200.00	0.00	0.00	904.40	110.00	907.10	0.00	907.12	5.04	1.21	101.64	49.01
323.800	200.00	0.00	0.00	904.40	130.00	907.30	0.00	907.32	5.22	1.28	113.97	56.91
323.800	200.00	0.00	0.00	904.40	185.00	907.87	0.00	907.90	4.78	1.40	152.55	84.61
324.000	655.00	0.00	0.00	904.80	75.00	907.10	0.00	907.13	9.68	1.51	60.56	24.10
324.000	655.00	0.00	0.00	904.80	110.00	907.52	0.00	907.56	9.04	1.67	91.48	36.58
324.000	655.00	0.00	0.00	904.80	130.00	907.72	0.00	907.76	8.61	1.73	109.75	44.31
324.000	655.00	0.00	0.00	904.80	185.00	908.25	0.00	908.28	7.12	1.79	161.73	69.31
324.100	275.00	0.00	0.00	904.90	75.00	907.34	0.00	907.37	7.30	1.37	69.50	27.76
324.100	275.00	0.00	0.00	904.90	110.00	907.75	0.00	907.78	7.13	1.54	102.71	41.21
324.100	275.00	0.00	0.00	904.90	130.00	907.94	0.00	907.97	6.95	1.60	120.71	49.31
324.100	275.00	0.00	0.00	904.90	185.00	908.43	0.00	908.47	6.25	1.71	170.86	74.01
325.100	200.00	0.00	0.00	904.90	75.00	907.48	0.00	907.50	6.13	1.28	96.03	30.29
325.100	200.00	0.00	0.00	904.90	110.00	907.88	0.00	907.90	5.07	1.31	153.93	48.88
325.100	200.00	0.00	0.00	904.90	130.00	908.07	0.00	908.09	4.72	1.33	184.56	59.83
325.100	200.00	0.00	0.00	904.90	185.00	908.55	0.00	908.57	3.79	1.34	269.47	95.07
325.200	225.00	0.00	0.00	905.00	75.00	907.61	0.00	907.63	5.52	1.23	101.49	31.93
325.200	225.00	0.00	0.00	905.00	110.00	908.00	0.00	908.01	4.92	1.30	155.96	49.57
325.200	225.00	0.00	0.00	905.00	130.00	908.18	0.00	908.20	4.66	1.33	185.53	60.20
325.200	225.00	0.00	0.00	905.00	185.00	908.64	0.00	908.66	3.93	1.36	265.57	93.33
324.980	175.00	0.00	0.00	905.60	20.00	907.70	0.00	907.71	1.57	.54	36.94	15.97
324.980	175.00	0.00	0.00	905.60	35.00	908.08	0.00	908.09	2.32	.76	45.96	22.98
324.980	175.00	0.00	0.00	905.60	60.00	908.26	0.00	908.28	5.08	1.20	50.20	26.62
324.980	175.00	0.00	0.00	905.60	95.00	908.72	0.00	908.75	6.69	1.56	60.89	36.73

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
325.020	76.00	917.10	907.00	905.60	20.00	907.86	0.00	907.86	1.15	.49	40.58	18.67
325.020	76.00	917.10	907.00	905.60	35.00	908.56	0.00	908.56	1.10	.61	57.45	33.33
325.020	76.00	917.10	907.00	905.60	60.00	909.67	0.00	909.68	.90	.71	84.28	63.13
325.020	76.00	917.10	907.00	905.60	95.00	912.27	0.00	912.27	.36	.65	146.50	158.66
325.800	175.00	0.00	0.00	905.60	20.00	907.86	0.00	907.86	.01	.05	445.13	195.52
325.800	175.00	0.00	0.00	905.60	35.00	908.57	0.00	908.57	.01	.06	653.40	359.33
325.800	175.00	0.00	0.00	905.60	60.00	909.68	0.00	909.68	.01	.06	1025.24	715.14
325.800	175.00	0.00	0.00	905.60	95.00	912.28	0.00	912.28	.00	.05	2082.19	1949.15
326.000	560.00	0.00	0.00	905.70	20.00	907.86	0.00	907.86	.01	.05	413.35	173.78
326.000	560.00	0.00	0.00	905.70	35.00	908.57	0.00	908.57	.01	.06	623.13	333.39
326.000	560.00	0.00	0.00	905.70	60.00	909.68	0.00	909.68	.01	.06	990.48	679.12
326.000	560.00	0.00	0.00	905.70	95.00	912.28	0.00	912.28	.00	.05	2037.48	1895.93
326.500	290.00	0.00	0.00	905.80	20.00	907.86	0.00	907.86	.56	.35	63.74	26.64
326.500	290.00	0.00	0.00	905.80	35.00	908.57	0.00	908.57	.42	.38	132.87	54.02
326.500	290.00	0.00	0.00	905.80	60.00	909.68	0.00	909.69	.19	.33	319.66	135.98
326.500	290.00	0.00	0.00	905.80	95.00	912.28	0.00	912.28	.03	.20	940.69	531.74
326.700	450.00	0.00	0.00	905.80	20.00	907.89	0.00	907.89	.54	.34	64.86	27.19
326.700	450.00	0.00	0.00	905.80	35.00	908.58	0.00	908.59	.41	.37	134.14	54.50
326.700	450.00	0.00	0.00	905.80	60.00	909.69	0.00	909.69	.19	.33	320.52	136.41
326.700	450.00	0.00	0.00	905.80	95.00	912.28	0.00	912.28	.03	.20	940.91	531.90
327.200	440.00	0.00	0.00	905.90	20.00	907.91	0.00	907.91	.63	.36	60.88	25.21
327.200	440.00	0.00	0.00	905.90	35.00	908.60	0.00	908.61	.47	.39	124.45	50.83
327.200	440.00	0.00	0.00	905.90	60.00	909.70	0.00	909.70	.22	.35	303.60	127.94
327.200	440.00	0.00	0.00	905.90	95.00	912.28	0.00	912.28	.03	.20	912.46	511.51
327.300	210.00	0.00	0.00	906.10	20.00	907.93	0.00	907.93	.94	.41	51.46	20.64
327.300	210.00	0.00	0.00	906.10	35.00	908.62	0.00	908.62	.69	.45	100.88	42.23
327.300	210.00	0.00	0.00	906.10	60.00	909.71	0.00	909.71	.29	.39	266.76	110.50
327.300	210.00	0.00	0.00	906.10	95.00	912.28	0.00	912.28	.04	.21	855.91	471.41
326.980	150.00	0.00	0.00	906.30	20.00	907.95	0.00	907.95	1.45	.47	42.43	16.60
326.980	150.00	0.00	0.00	906.30	35.00	908.63	0.00	908.63	1.11	.54	65.42	33.18
326.980	150.00	0.00	0.00	906.30	60.00	909.71	0.00	909.72	.74	.59	102.37	69.98
326.980	150.00	0.00	0.00	906.30	95.00	912.28	0.00	912.28	.05	.23	801.14	433.14
327.020	25.00	912.20	911.30	906.30	20.00	907.95	0.00	907.96	3.29	.61	32.72	11.03
327.020	25.00	912.20	911.30	906.30	35.00	908.63	0.00	908.64	2.20	.61	57.40	23.60
327.020	25.00	912.20	911.30	906.30	60.00	909.72	0.00	909.72	1.01	.56	106.50	59.76
327.020	25.00	912.20	911.30	906.30	95.00	912.37	0.00	912.37	.09	.27	532.83	313.01
327.800	155.00	0.00	0.00	906.00	20.00	907.99	0.00	907.99	1.45	.45	44.27	16.61
327.800	155.00	0.00	0.00	906.00	35.00	908.66	0.00	908.66	1.18	.49	74.21	32.16
327.800	155.00	0.00	0.00	906.00	60.00	909.73	0.00	909.73	.54	.44	168.53	81.57
327.800	155.00	0.00	0.00	906.00	95.00	912.37	0.00	912.37	.07	.25	596.57	359.80
328.000	625.00	0.00	0.00	906.40	20.00	908.04	0.00	908.04	.44	.21	186.03	30.19
328.000	625.00	0.00	0.00	906.40	35.00	908.68	0.00	908.68	.13	.16	403.16	98.20
328.000	625.00	0.00	0.00	906.40	60.00	909.74	0.00	909.74	.05	.13	784.26	277.78
328.000	625.00	0.00	0.00	906.40	95.00	912.37	0.00	912.37	.01	.09	1870.15	1046.61

LONG LAKE - FOREST LAKE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
311.200	225.00	854.50	0.00	0.00	0.00	166.61	0.00
311.200	305.00	854.80	.30	0.00	0.00	184.72	0.00
311.200	355.00	854.95	.15	0.00	0.00	193.77	0.00
311.200	460.00	855.25	.30	0.00	0.00	217.18	0.00
310.980	190.00	854.64	0.00	.14	0.00	61.29	58.00
310.980	245.00	854.92	.28	.12	0.00	69.13	58.00
310.980	270.00	855.07	.15	.12	0.00	70.80	58.00
310.980	330.00	855.35	.28	.10	0.00	74.08	58.00
311.020	190.00	858.11	0.00	3.47	0.00	170.85	42.00
311.020	245.00	858.31	.20	3.39	0.00	172.65	42.00
311.020	270.00	858.39	.07	3.32	0.00	173.32	42.00
311.020	330.00	858.52	.13	3.17	0.00	174.55	42.00
311.800	190.00	858.18	0.00	.06	0.00	166.87	150.00
311.800	245.00	858.39	.21	.08	0.00	168.72	150.00
311.800	270.00	858.47	.08	.08	0.00	169.45	150.00
311.800	330.00	858.62	.15	.10	0.00	170.83	150.00
311.900	190.00	858.35	0.00	.18	0.00	160.38	150.00
311.900	245.00	858.58	.23	.20	0.00	162.46	150.00
311.900	270.00	858.67	.09	.21	0.00	163.26	150.00
311.900	330.00	858.85	.18	.23	0.00	164.87	150.00
311.980	190.00	858.86	0.00	.50	0.00	29.68	77.00
311.980	245.00	859.03	.18	.45	0.00	145.27	77.00
311.980	270.00	859.11	.07	.43	0.00	159.12	77.00
311.980	330.00	859.28	.17	.42	0.00	160.62	77.00
312.020	190.00	861.17	0.00	2.32	0.00	14.00	48.00
312.020	245.00	861.93	.76	2.90	0.00	152.07	48.00
312.020	270.00	862.07	.13	2.96	0.00	156.07	48.00
312.020	330.00	862.30	.23	3.02	0.00	162.97	48.00
312.410	190.00	861.41	0.00	.24	0.00	100.35	40.00
312.410	245.00	862.07	.66	.14	0.00	118.19	40.00
312.410	270.00	862.20	.13	.13	0.00	121.27	40.00
312.410	330.00	862.43	.23	.14	0.00	126.81	40.00
312.150	190.00	861.41	0.00	-.00	0.00	100.44	2.00
312.150	245.00	862.07	.66	.00	0.00	118.23	2.00
312.150	270.00	862.20	.13	.00	0.00	121.32	2.00
312.150	330.00	862.44	.23	.00	0.00	126.86	2.00
312.160	190.00	861.43	0.00	.02	0.00	100.53	2.00
312.160	245.00	862.08	.65	.01	0.00	118.28	2.00
312.160	270.00	862.21	.13	.01	0.00	121.37	2.00
312.160	330.00	862.44	.23	.01	0.00	126.92	2.00
312.170	190.00	861.44	0.00	.00	0.00	101.03	1.00
312.170	245.00	862.08	.65	.00	0.00	118.42	1.00

312.170	270.00	862.21	.13	.00	0.00	121.50	1.00
312.170	330.00	862.44	.23	.00	0.00	127.05	1.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	312.800	190.00	862.38	0.00	.95	0.00	11.76	130.00
*	312.800	245.00	862.54	.16	.46	0.00	12.00	130.00
*	312.800	270.00	862.61	.07	.40	0.00	12.10	130.00
*	312.800	330.00	864.13	1.52	1.69	0.00	75.08	130.00
	312.820	190.00	862.65	0.00	.27	0.00	12.16	5.00
*	312.820	245.00	863.18	.53	.64	0.00	12.93	5.00
*	312.820	270.00	863.19	.01	.58	0.00	12.95	5.00
	312.820	330.00	864.66	1.47	.53	0.00	135.60	5.00
	312.840	190.00	867.06	0.00	4.40	0.00	99.12	155.00
	312.840	245.00	867.46	.40	4.28	0.00	111.39	155.00
	312.840	270.00	867.62	.16	4.43	0.00	115.89	155.00
	312.840	330.00	867.28	-.34	2.62	0.00	106.39	155.00
	312.850	190.00	867.12	0.00	.06	0.00	101.37	5.00
	312.850	245.00	867.49	.37	.04	0.00	112.60	5.00
	312.850	270.00	867.65	.16	.03	0.00	116.60	5.00
	312.850	330.00	867.39	-.26	.11	0.00	109.46	5.00
	312.870	190.00	868.23	0.00	1.11	0.00	104.74	135.00
	312.870	245.00	868.43	.19	.93	0.00	110.34	135.00
	312.870	270.00	868.51	.09	.86	0.00	113.03	135.00
	312.870	330.00	868.76	.25	1.37	0.00	118.42	135.00
	312.880	190.00	868.27	0.00	.04	0.00	105.89	5.00
	312.880	245.00	868.47	.20	.04	0.00	111.53	5.00
	312.880	270.00	868.55	.08	.04	0.00	114.03	5.00
	312.880	330.00	868.80	.25	.04	0.00	119.18	5.00
	312.910	190.00	868.95	0.00	.68	0.00	105.15	120.00
	312.910	245.00	869.18	.23	.71	0.00	111.90	120.00
	312.910	270.00	869.27	.09	.71	0.00	114.66	120.00
	312.910	330.00	869.47	.20	.66	0.00	118.44	120.00
	312.920	190.00	868.98	0.00	.03	0.00	106.09	5.00
	312.920	245.00	869.21	.23	.03	0.00	112.89	5.00
	312.920	270.00	869.30	.09	.03	0.00	115.65	5.00
	312.920	330.00	869.50	.20	.03	0.00	118.95	5.00
	312.940	190.00	869.01	0.00	.03	0.00	104.35	10.00
	312.940	245.00	869.24	.22	.03	0.00	111.11	10.00
	312.940	270.00	869.33	.09	.03	0.00	113.85	10.00
	312.940	330.00	869.53	.20	.03	0.00	117.78	10.00
	312.950	190.00	869.13	0.00	.12	0.00	98.67	40.00
	312.950	245.00	869.37	.24	.13	0.00	105.72	40.00
	312.950	270.00	869.46	.10	.13	0.00	108.58	40.00
	312.950	330.00	869.67	.21	.14	0.00	114.77	40.00
	312.960	190.00	871.07	0.00	1.94	0.00	138.91	20.00
	312.960	245.00	871.18	.11	1.82	0.00	140.81	20.00
	312.960	270.00	871.23	.05	1.77	0.00	141.63	20.00
	312.960	330.00	871.33	.10	1.66	0.00	143.22	20.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	313.000	190.00	871.09	0.00	.02	0.00	117.18	85.00
	313.000	245.00	871.22	.12	.03	0.00	119.29	85.00
	313.000	270.00	871.27	.05	.04	0.00	120.17	85.00
	313.000	330.00	871.38	.11	.05	0.00	122.11	85.00
	314.200	190.00	872.56	0.00	1.47	0.00	13.16	575.00
*	314.200	245.00	873.52	.96	2.31	0.00	126.76	575.00
*	314.200	270.00	873.58	.06	2.31	0.00	127.86	575.00
	314.200	330.00	873.76	.18	2.38	0.00	131.08	575.00
	313.980	190.00	875.05	0.00	2.49	0.00	12.00	105.00
	313.980	245.00	874.83	-.22	1.31	0.00	12.00	105.00
	313.980	270.00	874.94	.11	1.36	0.00	12.00	105.00
	313.980	330.00	875.11	.17	1.36	0.00	12.00	105.00
	314.020	190.00	878.51	0.00	3.46	0.00	12.00	70.00
	314.020	245.00	880.66	2.15	5.83	0.00	12.00	70.00
	314.020	270.00	882.05	1.39	7.11	0.00	12.00	70.00
	314.020	330.00	883.59	1.54	8.48	0.00	147.49	70.00
	314.800	190.00	878.65	0.00	.14	0.00	60.62	85.00
	314.800	245.00	880.79	2.14	.12	0.00	83.25	85.00
	314.800	270.00	882.16	1.38	.11	0.00	95.79	85.00
	314.800	330.00	883.60	1.43	.01	0.00	108.82	85.00
	314.980	155.00	878.66	0.00	.01	0.00	12.00	80.00
	314.980	180.00	880.77	2.11	-.02	0.00	12.00	80.00
	314.980	195.00	882.14	1.37	-.02	0.00	12.00	80.00
	314.980	230.00	883.57	1.43	-.03	0.00	12.00	80.00
	315.020	155.00	883.33	0.00	4.67	0.00	12.00	120.00
	315.020	180.00	887.11	3.78	6.34	0.00	12.00	120.00
	315.020	195.00	889.59	2.49	7.45	0.00	12.00	120.00
	315.020	230.00	893.95	4.36	10.38	0.00	12.00	120.00
	315.800	155.00	883.40	0.00	.07	0.00	193.50	100.00
	315.800	180.00	887.14	3.75	.04	0.00	264.16	100.00
	315.800	195.00	889.62	2.48	.03	0.00	289.38	100.00
	315.800	230.00	893.97	4.35	.02	0.00	331.24	100.00
	316.000	155.00	883.39	0.00	-.00	0.00	56.04	465.00
	316.000	180.00	887.14	3.75	-.00	0.00	109.18	465.00
	316.000	195.00	889.62	2.48	.00	0.00	135.55	465.00
	316.000	230.00	893.97	4.35	.00	0.00	232.62	465.00
	316.200	155.00	883.41	0.00	.01	0.00	54.61	20.00
	316.200	180.00	887.14	3.74	.00	0.00	108.12	20.00
	316.200	195.00	889.62	2.48	.00	0.00	134.49	20.00
	316.200	230.00	893.97	4.35	.00	0.00	231.04	20.00
*	316.280	155.00	884.91	0.00	1.50	0.00	12.36	1.00
	316.280	180.00	887.14	2.24	-.00	0.00	109.54	1.00
	316.280	195.00	889.62	2.48	-.00	0.00	135.78	1.00
	316.280	230.00	893.97	4.35	.00	0.00	232.54	1.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	316.320	155.00	886.01	0.00	1.10	0.00	97.49	3.00
	316.320	180.00	887.14	1.14	.00	0.00	109.53	3.00
	316.320	195.00	889.62	2.48	.00	0.00	135.78	3.00
	316.320	230.00	893.97	4.35	.00	0.00	232.54	3.00
	316.300	155.00	886.11	0.00	.10	0.00	94.70	1.00
	316.300	180.00	887.16	1.05	.01	0.00	107.14	1.00
	316.300	195.00	889.62	2.46	.00	0.00	133.43	1.00
	316.300	230.00	893.97	4.35	-.00	0.00	229.55	1.00
	317.000	155.00	886.14	0.00	.03	0.00	112.58	410.00
	317.000	180.00	887.18	1.04	.02	0.00	124.85	410.00
	317.000	195.00	889.63	2.45	.01	0.00	150.02	410.00
	317.000	230.00	893.97	4.35	.00	0.00	179.41	410.00
	318.080	155.00	886.12	0.00	-.02	0.00	144.46	293.00
	318.080	180.00	887.19	1.07	.01	0.00	148.00	293.00
	318.080	195.00	889.63	2.44	.00	0.00	156.09	293.00
	318.080	230.00	893.97	4.34	.00	0.00	171.94	293.00
	318.090	155.00	886.17	0.00	.05	0.00	144.62	1.00
	318.090	180.00	887.20	1.03	.01	0.00	148.00	1.00
	318.090	195.00	889.63	2.44	.00	0.00	156.09	1.00
	318.090	230.00	893.97	4.34	.00	0.00	171.93	1.00
	318.110	155.00	886.30	0.00	.13	0.00	145.04	5.00
	318.110	180.00	887.20	.91	.01	0.00	148.03	5.00
	318.110	195.00	889.63	2.43	.00	0.00	156.09	5.00
	318.110	230.00	893.97	4.34	.00	0.00	171.94	5.00
	318.120	155.00	886.29	0.00	-.00	0.00	145.03	1.00
	318.120	180.00	887.20	.91	-.00	0.00	148.04	1.00
	318.120	195.00	889.63	2.43	-.00	0.00	156.09	1.00
	318.120	230.00	893.97	4.34	-.00	0.00	171.94	1.00
	318.200	155.00	886.55	0.00	.25	0.00	56.00	60.00
	318.200	180.00	887.25	.70	.05	0.00	56.00	60.00
	318.200	195.00	889.63	2.38	.00	0.00	56.00	60.00
	318.200	230.00	893.97	4.34	-.00	0.00	56.00	60.00
	317.980	155.00	887.09	0.00	.54	0.00	13.00	85.00
	317.980	180.00	887.36	.27	.11	0.00	13.00	85.00
	317.980	195.00	889.60	2.24	-.04	0.00	13.00	85.00
	317.980	230.00	893.98	4.38	.01	0.00	167.49	85.00
*	318.020	155.00	888.66	0.00	1.57	0.00	14.00	25.00
*	318.020	180.00	889.04	.38	1.68	0.00	14.00	25.00
	318.020	195.00	890.65	1.61	1.05	0.00	14.00	25.00
	318.020	230.00	895.64	4.99	1.66	0.00	14.00	25.00
	318.800	155.00	889.25	0.00	.59	0.00	77.80	80.00
	318.800	180.00	889.61	.36	.57	0.00	79.45	80.00
	318.800	195.00	890.89	1.28	.24	0.00	85.51	80.00
	318.800	230.00	895.71	4.81	.07	0.00	107.77	80.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	318.900	155.00	889.44	0.00	.18	0.00	67.69	340.00
	318.900	180.00	889.77	.34	.16	0.00	71.32	340.00
	318.900	195.00	890.94	1.17	.05	0.00	76.81	340.00
	318.900	230.00	895.71	4.77	.00	0.00	99.20	340.00
	318.950	155.00	890.86	0.00	1.43	0.00	34.84	300.00
	318.950	180.00	890.87	.01	1.10	0.00	36.35	300.00
	318.950	195.00	891.11	.24	.17	0.00	55.80	300.00
	318.950	230.00	895.72	4.61	.01	0.00	101.65	300.00
	319.000	155.00	894.03	0.00	3.17	0.00	54.16	360.00
	319.000	180.00	894.25	.22	3.38	0.00	58.94	360.00
	319.000	195.00	894.25	-.00	3.14	0.00	58.80	360.00
	319.000	230.00	895.74	1.49	.03	0.00	80.76	360.00
	319.100	155.00	896.36	0.00	2.33	0.00	61.38	440.00
	319.100	180.00	896.48	.12	2.23	0.00	64.11	440.00
	319.100	195.00	896.61	.13	2.36	0.00	66.59	440.00
	319.100	230.00	896.42	-.19	.68	0.00	62.58	440.00
	319.700	155.00	896.51	0.00	.15	0.00	372.80	150.00
	319.700	180.00	896.65	.14	.17	0.00	379.87	150.00
	319.700	195.00	896.77	.13	.16	0.00	383.69	150.00
	319.700	230.00	896.72	-.06	.30	0.00	382.05	150.00
	320.000	155.00	896.54	0.00	.03	0.00	302.15	310.00
	320.000	180.00	896.68	.14	.03	0.00	310.63	310.00
	320.000	195.00	896.80	.13	.03	0.00	318.24	310.00
	320.000	230.00	896.76	-.04	.04	0.00	315.66	310.00
	320.180	75.00	896.75	0.00	.21	0.00	262.07	283.00
	320.180	110.00	896.89	.14	.21	0.00	270.80	283.00
	320.180	130.00	896.99	.10	.19	0.00	276.57	283.00
	320.180	185.00	897.07	.08	.31	0.00	281.14	283.00
*	320.190	75.00	897.70	0.00	.95	0.00	16.73	1.00
*	320.190	110.00	898.88	1.18	1.99	0.00	269.87	1.00
*	320.190	130.00	898.88	-.00	1.89	0.00	269.71	1.00
*	320.190	185.00	898.93	.05	1.85	0.00	272.70	1.00
	320.210	75.00	898.96	0.00	1.26	0.00	275.13	5.00
	320.210	110.00	899.06	.10	.18	0.00	280.09	5.00
	320.210	130.00	899.11	.05	.23	0.00	283.26	5.00
	320.210	185.00	899.19	.08	.26	0.00	288.10	5.00
	320.220	75.00	898.96	0.00	.00	0.00	274.81	1.00
	320.220	110.00	899.06	.10	-.00	0.00	280.51	1.00
	320.220	130.00	899.11	.04	-.00	0.00	283.08	1.00
	320.220	185.00	899.19	.08	-.00	0.00	287.82	1.00
	320.280	75.00	899.03	0.00	.06	0.00	28.65	53.00
	320.280	110.00	899.14	.11	.07	0.00	113.65	53.00
	320.280	130.00	899.19	.05	.08	0.00	237.79	53.00
*	320.280	185.00	899.37	.18	.18	0.00	268.95	53.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	320.290	75.00	899.20	0.00	.17	0.00	16.73	1.00
*	320.290	110.00	900.38	1.18	1.24	0.00	269.87	1.00
*	320.290	130.00	900.38	-.00	1.19	0.00	269.71	1.00
*	320.290	185.00	900.43	.05	1.06	0.00	272.70	1.00
	320.310	75.00	900.46	0.00	1.26	0.00	275.13	5.00
	320.310	110.00	900.56	.10	.18	0.00	280.09	5.00
	320.310	130.00	900.61	.05	.23	0.00	283.26	5.00
	320.310	185.00	900.69	.08	.26	0.00	288.10	5.00
	320.320	75.00	900.46	0.00	.00	0.00	274.81	1.00
	320.320	110.00	900.56	.10	-.00	0.00	280.51	1.00
	320.320	130.00	900.61	.04	-.00	0.00	283.08	1.00
	320.320	185.00	900.69	.08	-.00	0.00	287.82	1.00
	321.200	75.00	901.22	0.00	.75	0.00	49.07	530.00
	321.200	110.00	901.50	.29	.94	0.00	63.61	530.00
	321.200	130.00	901.64	.14	1.04	0.00	70.61	530.00
	321.200	185.00	901.97	.33	1.29	0.00	87.61	530.00
	320.980	75.00	901.99	0.00	.77	0.00	22.13	190.00
	320.980	110.00	902.31	.32	.80	0.00	26.77	190.00
	320.980	130.00	902.45	.15	.81	0.00	28.00	190.00
	320.980	185.00	902.77	.32	.80	0.00	28.00	190.00
	321.020	75.00	902.95	0.00	.96	0.00	18.00	50.00
	321.020	110.00	904.44	1.49	2.13	0.00	18.00	50.00
	321.020	130.00	905.45	1.01	3.00	0.00	18.00	50.00
	321.020	185.00	906.33	.88	3.56	0.00	308.75	50.00
	321.800	75.00	903.07	0.00	.12	0.00	101.18	100.00
	321.800	110.00	904.51	1.44	.07	0.00	138.48	100.00
	321.800	130.00	905.51	1.00	.05	0.00	169.93	100.00
	321.800	185.00	906.34	.83	.00	0.00	240.26	100.00
	322.000	75.00	903.89	0.00	.82	0.00	22.53	590.00
	322.000	110.00	904.60	.71	.09	0.00	53.38	590.00
	322.000	130.00	905.55	.95	.04	0.00	103.51	590.00
	322.000	185.00	906.38	.82	.04	0.00	138.07	590.00
	323.200	75.00	905.96	0.00	2.07	0.00	50.89	330.00
	323.200	110.00	906.10	.14	1.50	0.00	59.93	330.00
	323.200	130.00	906.06	-.04	.51	0.00	57.38	330.00
	323.200	185.00	906.62	.55	.24	0.00	86.95	330.00
	322.970	75.00	906.11	0.00	.15	0.00	18.00	50.00
	322.970	110.00	906.32	.21	.22	0.00	18.00	50.00
	322.970	130.00	906.38	.06	.32	0.00	18.00	50.00
	322.970	185.00	906.83	.45	.21	0.00	18.00	50.00
	322.980	75.00	906.19	0.00	.07	0.00	17.39	5.00
	322.980	110.00	906.44	.25	.12	0.00	17.40	5.00
	322.980	130.00	906.54	.10	.16	0.00	17.40	5.00
	322.980	185.00	907.01	.47	.18	0.00	17.42	5.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
323.020	75.00	906.31	0.00	.12	0.00	17.36	260.00
323.020	110.00	906.61	.30	.17	0.00	17.37	260.00
323.020	130.00	906.75	.13	.21	0.00	17.37	260.00
323.020	185.00	907.25	.50	.24	0.00	17.39	260.00
323.030	75.00	906.36	0.00	.05	0.00	18.00	5.00
323.030	110.00	906.68	.32	.07	0.00	18.00	5.00
323.030	130.00	906.83	.15	.08	0.00	18.00	5.00
323.030	185.00	907.34	.51	.09	0.00	18.00	5.00
323.800	75.00	906.68	0.00	.33	0.00	55.65	200.00
323.800	110.00	907.10	.41	.42	0.00	60.44	200.00
323.800	130.00	907.30	.20	.47	0.00	62.76	200.00
323.800	185.00	907.87	.58	.54	0.00	72.97	200.00
324.000	75.00	907.10	0.00	.42	0.00	61.65	655.00
324.000	110.00	907.52	.42	.42	0.00	85.57	655.00
324.000	130.00	907.72	.20	.42	0.00	93.00	655.00
324.000	185.00	908.25	.52	.37	0.00	105.57	655.00
324.100	75.00	907.34	0.00	.24	0.00	69.42	275.00
324.100	110.00	907.75	.41	.23	0.00	91.17	275.00
324.100	130.00	907.94	.19	.22	0.00	95.79	275.00
324.100	185.00	908.43	.49	.19	0.00	107.63	275.00
325.100	75.00	907.48	0.00	.14	0.00	130.31	200.00
325.100	110.00	907.88	.40	.13	0.00	156.41	200.00
325.100	130.00	908.07	.19	.13	0.00	166.30	200.00
325.100	185.00	908.55	.48	.12	0.00	182.13	200.00
325.200	75.00	907.61	0.00	.13	0.00	132.99	225.00
325.200	110.00	908.00	.38	.11	0.00	157.24	225.00
325.200	130.00	908.18	.18	.11	0.00	166.49	225.00
325.200	185.00	908.64	.46	.09	0.00	181.43	225.00
324.980	20.00	907.70	0.00	.09	0.00	24.00	175.00
324.980	35.00	908.08	.38	.08	0.00	24.00	175.00
324.980	60.00	908.26	.18	.08	0.00	24.00	175.00
324.980	95.00	908.72	.45	.08	0.00	24.00	175.00
325.020	20.00	907.86	0.00	.15	0.00	24.00	76.00
325.020	35.00	908.56	.70	.48	0.00	24.00	76.00
325.020	60.00	909.67	1.12	1.41	0.00	24.00	76.00
325.020	95.00	912.27	2.59	3.55	0.00	24.00	76.00
325.800	20.00	907.86	0.00	.01	0.00	294.31	175.00
325.800	35.00	908.57	.70	.01	0.00	305.18	175.00
325.800	60.00	909.68	1.12	.01	0.00	350.42	175.00
325.800	95.00	912.28	2.59	.01	0.00	499.80	175.00
326.000	20.00	907.86	0.00	.00	0.00	292.61	560.00
326.000	35.00	908.57	.70	.00	0.00	303.63	560.00
326.000	60.00	909.68	1.12	.00	0.00	347.66	560.00
326.000	95.00	912.28	2.59	.00	0.00	494.92	560.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
326.500	20.00	907.86	0.00	.00	0.00	58.18	290.00
326.500	35.00	908.57	.70	.00	0.00	135.04	290.00
326.500	60.00	909.68	1.12	.00	0.00	195.08	290.00
326.500	95.00	912.28	2.59	.00	0.00	292.75	290.00
326.700	20.00	907.89	0.00	.02	0.00	59.60	450.00
326.700	35.00	908.58	.70	.02	0.00	135.59	450.00
326.700	60.00	909.69	1.11	.01	0.00	195.22	450.00
326.700	95.00	912.28	2.58	.00	0.00	292.79	450.00
327.200	20.00	907.91	0.00	.03	0.00	54.37	440.00
327.200	35.00	908.60	.69	.02	0.00	131.38	440.00
327.200	60.00	909.70	1.10	.01	0.00	192.42	440.00
327.200	95.00	912.28	2.58	.00	0.00	288.32	440.00
327.300	20.00	907.93	0.00	.02	0.00	47.12	210.00
327.300	35.00	908.62	.69	.01	0.00	113.06	210.00
327.300	60.00	909.71	1.09	.01	0.00	183.73	210.00
327.300	95.00	912.28	2.57	.00	0.00	279.23	210.00
326.980	20.00	907.95	0.00	.02	0.00	32.56	150.00
326.980	35.00	908.63	.68	.01	0.00	34.00	150.00
326.980	60.00	909.71	1.08	.01	0.00	34.00	150.00
326.980	95.00	912.28	2.57	.00	0.00	270.14	150.00
327.020	20.00	907.95	0.00	.00	0.00	31.44	25.00
327.020	35.00	908.63	.68	.00	0.00	40.90	25.00
327.020	60.00	909.72	1.08	.00	0.00	47.49	25.00
327.020	95.00	912.37	2.65	.09	0.00	209.73	25.00
327.800	20.00	907.99	0.00	.04	0.00	36.17	155.00
327.800	35.00	908.66	.67	.03	0.00	70.47	155.00
327.800	60.00	909.73	1.07	.01	0.00	105.52	155.00
327.800	95.00	912.37	2.64	.00	0.00	214.89	155.00
328.000	20.00	908.04	0.00	.05	0.00	327.57	625.00
328.000	35.00	908.68	.65	.02	0.00	344.92	625.00
328.000	60.00	909.74	1.06	.01	0.00	374.85	625.00
328.000	95.00	912.37	2.63	.00	0.00	449.31	625.00

SUMMARY OF ERRORS

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CAUTION  SECNO=  312.800  PROFILE= 2  SLOPE TOO STEEP
CAUTION  SECNO=  312.800  PROFILE= 3  SLOPE TOO STEEP
CAUTION  SECNO=  312.800  PROFILE= 4  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=  312.820  PROFILE= 2  SLOPE TOO STEEP
CAUTION  SECNO=  312.820  PROFILE= 3  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=  312.820  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  312.820  PROFILE= 3  SLOPE TOO STEEP

CAUTION  SECNO=  314.200  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  314.200  PROFILE= 3  CRITICAL DEPTH ASSUMED
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 CAUTION  SECNO=  316.280  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  316.280  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  316.280  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=  318.020  PROFILE= 1  HYDRAULIC JUMP D.S.
 CAUTION  SECNO=  318.020  PROFILE= 2  HYDRAULIC JUMP D.S.

 CAUTION  SECNO=  320.190  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  320.190  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  320.190  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  320.190  PROFILE= 1  SLOPE TOO STEEP
 CAUTION  SECNO=  320.190  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  320.190  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  320.190  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  320.190  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  320.190  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  320.190  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  320.190  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  320.190  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  320.190  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=  320.280  PROFILE= 4  CRITICAL DEPTH ASSUMED

 CAUTION  SECNO=  320.290  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  320.290  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  320.290  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  320.290  PROFILE= 1  SLOPE TOO STEEP
 CAUTION  SECNO=  320.290  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  320.290  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  320.290  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  320.290  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  320.290  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  320.290  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  320.290  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  320.290  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  320.290  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
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FLOOD INSURANCE ZONE DATA FOR LONG LAKE - FOREST LAKE

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10_	2_	0.2_
311.200	0.	-.45	-.15	.30
310.980	58.	-.43	-.15	.28
311.020	100.	-.27	-.07	.13
311.800	250.	-.29	-.08	.15
311.900	400.	-.32	-.09	.18
311.980	477.	-.25	-.07	.17
312.020	525.	-.90	-.13	.23
312.410	565.	-.79	-.13	.23
312.150	567.	-.79	-.13	.23
312.160	569.	-.78	-.13	.23
312.170	570.	-.78	-.13	.23
312.800	700.	-.23	-.07	1.52
312.820	705.	-.54	-.01	1.47
312.840	860.	-.56	-.16	-.34
312.850	865.	-.53	-.16	-.26
312.870	1000.	-.28	-.09	.25
312.880	1005.	-.28	-.08	.25
312.910	1125.	-.32	-.09	.20
312.920	1130.	-.32	-.09	.20
312.940	1140.	-.32	-.09	.20
312.950	1180.	-.33	-.10	.21
312.960	1200.	-.16	-.05	.10
313.000	1285.	-.18	-.05	.11
314.200	1860.	-1.02	-.06	.18
313.980	1965.	.11	-.11	.17
314.020	2035.	-3.54	-1.39	1.54
314.800	2120.	-3.51	-1.38	1.43
314.980	2200.	-3.48	-1.37	1.43
315.020	2320.	-6.26	-2.49	4.36
315.800	2420.	-6.22	-2.48	4.35
316.000	2885.	-6.23	-2.48	4.35
316.200	2905.	-6.21	-2.48	4.35
316.280	2906.	-4.71	-2.48	4.35
316.320	2909.	-3.61	-2.48	4.35
316.300	2910.	-3.51	-2.46	4.35
317.000	3320.	-3.49	-2.45	4.35
318.080	3613.	-3.51	-2.44	4.34
318.090	3614.	-3.46	-2.44	4.34
318.110	3619.	-3.34	-2.43	4.34
318.120	3620.	-3.34	-2.43	4.34
318.200	3680.	-3.09	-2.38	4.34
317.980	3765.	-2.51	-2.24	4.38
318.020	3790.	-1.99	-1.61	4.99
318.800	3870.	-1.64	-1.28	4.81
318.900	4210.	-1.51	-1.17	4.77
318.950	4510.	-.25	-.24	4.61
319.000	4870.	-.22	.00	1.49
319.100	5310.	-.25	-.13	-.19
319.700	5460.	-.27	-.13	-.06

320.000	5770.	-.27	-.13	-.04
320.180	6053.	-.24	-.10	.08
320.190	6054.	-1.18	.00	.05
320.210	6059.	-.14	-.05	.08
320.220	6060.	-.14	-.04	.08
320.280	6113.	-.16	-.05	.18
320.290	6114.	-1.18	.00	.05
320.310	6119.	-.14	-.05	.08
320.320	6120.	-.14	-.04	.08
321.200	6650.	-.42	-.14	.33
320.980	6840.	-.47	-.15	.32
321.020	6890.	-2.51	-1.01	.88
321.800	6990.	-2.44	-1.00	.83
322.000	7580.	-1.66	-.95	.82
323.200	7910.	-.10	.04	.55
322.970	7960.	-.27	-.06	.45
322.980	7965.	-.35	-.10	.47
323.020	8225.	-.44	-.13	.50
323.030	8230.	-.47	-.15	.51
323.800	8430.	-.61	-.20	.58
324.000	9085.	-.62	-.20	.52
324.100	9360.	-.60	-.19	.49
325.100	9560.	-.59	-.19	.48
325.200	9785.	-.57	-.18	.46
324.980	9960.	-.56	-.18	.45
325.020	10036.	-1.82	-1.12	2.59
325.800	10211.	-1.82	-1.12	2.59
326.000	10771.	-1.82	-1.12	2.59
326.500	11061.	-1.82	-1.12	2.59
326.700	11511.	-1.81	-1.11	2.58
327.200	11951.	-1.79	-1.10	2.58
327.300	12161.	-1.78	-1.09	2.57
326.980	12311.	-1.77	-1.08	2.57
327.020	12336.	-1.77	-1.08	2.65
327.800	12491.	-1.74	-1.07	2.64
328.000	13116.	-1.70	-1.06	2.63
WEIGHTED AVG FOR REACH		-1.45	-.75	1.71

FHF FOR THE REACH = 015 WITH 28.2_ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 3

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	AVG ELEVATION DATA 10_	1_	DIFF.	WTD. AVG.	FHF	PERCENT WITHIN
	0.				SEC.	311.200	
	58.				SEC.	310.980	
1	100.	856.31	856.67	-.36	-.36	005	100.
	100.				SEC.	311.020	
2	200.	858.13	858.41	-.28	-.32	005	100.
	250.				SEC.	311.800	
3	300.	858.19	858.49	-.30	-.31	005	100.
	400.				SEC.	311.900	

4	400.	858.29	858.60	-.31	-.31 005	100.
	477.				SEC.	311.980
5	500.	859.16	859.60	-.44	-.34 005	100.
	525.				SEC.	312.020
	565.				SEC.	312.410
	567.				SEC.	312.150
	569.				SEC.	312.160
	570.				SEC.	312.170
6	600.	860.81	861.41	-.60	-.38 005	100.
	700.				SEC.	312.800
7	700.	862.02	862.46	-.44	-.39 005	100.
	705.				SEC.	312.820
8	800.	863.87	864.26	-.39	-.39 005	100.
	860.				SEC.	312.840
	865.				SEC.	312.850
9	900.	866.38	866.89	-.51	-.40 005	100.
	1000.				SEC.	312.870
10	1000.	867.82	868.19	-.37	-.40 005	100.
	1005.				SEC.	312.880
11	1100.	868.52	868.82	-.30	-.39 005	100.
	1125.				SEC.	312.910
	1130.				SEC.	312.920
	1140.				SEC.	312.940
	1180.				SEC.	312.950
12	1200.	869.94	870.18	-.24	-.38 005	100.
	1200.				SEC.	312.960
	1285.				SEC.	313.000
13	1300.	871.10	871.28	-.18	-.36 005	100.
14	1400.	871.26	871.53	-.27	-.36 005	100.
15	1500.	871.51	871.93	-.42	-.36 005	100.
16	1600.	871.77	872.33	-.56	-.37 005	100.
17	1700.	872.02	872.74	-.72	-.39 005	100.
18	1800.	872.28	873.14	-.86	-.42 005	100.
	1860.				SEC.	314.200
19	1900.	872.96	873.72	-.76	-.44 005	100.
	1965.				SEC.	313.980
20	2000.	875.15	876.30	-1.15	-.47 005	95.
	2035.				SEC.	314.020
21	2100.	877.70	880.32	-2.62	-.58 005	90.
	2120.				SEC.	314.800
22	2200.	878.64	882.14	-3.50	-.71 005	86.
	2200.				SEC.	314.980
23	2300.	880.61	885.25	-4.64	-.88 010	48.
	2320.				SEC.	315.020

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ELEVATION DIFFERENCE
BETWEEN BASE FLOOD AND

	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-.88	-.27	.46

FHF FOR REACH 1 = 010 WITH 48._ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2

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24	2400.	882.97	888.98	-6.01	-6.01 060	100.
	2420.				SEC.	315.800
25	2500.	883.39	889.62	-6.23	-6.12 060	100.
26	2600.	883.40	889.62	-6.22	-6.15 060	100.
27	2700.	883.40	889.62	-6.22	-6.17 060	100.
28	2800.	883.39	889.62	-6.23	-6.18 060	100.
	2885.				SEC.	316.000

29	2900.	883.40	889.62	-6.22	-6.19	060	100.
	2905.				SEC.		316.200
	2906.				SEC.		316.280
	2909.				SEC.		316.320
	2910.				SEC.		316.300
30	3000.	884.76	889.62	-4.86	-6.00	060	86.
31	3100.	886.12	889.62	-3.50	-5.69	055	88.
32	3200.	886.13	889.63	-3.50	-5.44	055	78.
33	3300.	886.14	889.63	-3.49	-5.25	055	70.
	3320.				SEC.		317.000
34	3400.	886.14	889.63	-3.49	-5.09	050	18.
35	3500.	886.13	889.63	-3.50	-4.96	050	8.
36	3600.	886.13	889.63	-3.50	-4.84	050	8.
	3613.				SEC.		318.080
	3614.				SEC.		318.090
	3619.				SEC.		318.110
	3620.				SEC.		318.120
	3680.				SEC.		318.200
37	3700.	886.40	889.63	-3.23	-4.73	045	7.
	3765.				SEC.		317.980
	3790.				SEC.		318.020
38	3800.	887.70	890.15	-2.45	-4.58	045	7.
	3870.				SEC.		318.800
39	3900.	889.00	890.79	-1.79	-4.40	045	44.
40	4000.	889.30	890.91	-1.61	-4.24	040	41.
41	4100.	889.35	890.92	-1.57	-4.09	040	44.
42	4200.	889.40	890.93	-1.53	-3.96	040	42.
	4210.				SEC.		318.900
43	4300.	889.65	890.97	-1.32	-3.82	040	35.
44	4400.	890.10	891.02	-.92	-3.69	035	33.
45	4500.	890.58	891.08	-.50	-3.54	035	32.
	4510.				SEC.		318.950
46	4600.	891.23	891.50	-.27	-3.40	035	35.
47	4700.	892.09	892.33	-.24	-3.27	035	33.
48	4800.	892.97	893.20	-.23	-3.15	030	32.
	4870.				SEC.		319.000
49	4900.	893.80	894.03	-.23	-3.03	030	31.
50	5000.	894.45	894.68	-.23	-2.93	030	30.
51	5100.	894.98	895.22	-.24	-2.83	030	29.
52	5200.	895.51	895.75	-.24	-2.74	025	31.

ELEVATION DIFFERENCE
BETWEEN BASE FLOOD AND

	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-2.74	-1.52	3.89

FHF FOR REACH 2 = 025 WITH 31._ OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 5

53	5300.	896.04	896.29	-.25	-.25	005	100.
	5310.				SEC.		319.100
54	5400.	896.38	896.63	-.25	-.25	005	100.
	5460.				SEC.		319.700
55	5500.	896.48	896.74	-.26	-.25	005	100.
56	5600.	896.52	896.78	-.26	-.26	005	100.
57	5700.	896.53	896.79	-.26	-.26	005	100.
	5770.				SEC.		320.000
58	5800.	896.54	896.81	-.27	-.26	005	100.
59	5900.	896.60	896.86	-.26	-.26	005	100.
60	6000.	896.67	896.92	-.25	-.26	005	100.

	6053.				SEC.	320.180	
	6054.				SEC.	320.190	
	6059.				SEC.	320.210	
	6060.				SEC.	320.220	
61	6100.	897.86	898.06	-.20	-.25	005	100.
	6113.				SEC.	320.280	
	6114.				SEC.	320.290	
	6119.				SEC.	320.310	
	6120.				SEC.	320.320	
62	6200.	899.80	899.97	-.17	-.24	005	100.
63	6300.	900.65	900.86	-.21	-.24	005	100.
64	6400.	900.79	901.06	-.27	-.24	005	100.
65	6500.	900.93	901.25	-.32	-.25	005	100.
66	6600.	901.08	901.45	-.37	-.26	005	100.
	6650.				SEC.	321.200	
67	6700.	901.28	901.70	-.42	-.27	005	100.
68	6800.	901.62	902.07	-.45	-.28	005	100.
	6840.				SEC.	320.980	
	6890.				SEC.	321.020	

ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND

	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-.28	-.11	.09

FHF FOR REACH 3 = 005 WITH 100._ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 1

69	6900.	902.39	903.87	-1.48	-1.48	015	100.
	6990.				SEC.	321.800	
70	7000.	903.02	905.48	-2.46	-1.97	020	100.
71	7100.	903.15	905.51	-2.36	-2.10	020	100.
72	7200.	903.29	905.52	-2.23	-2.13	020	100.
73	7300.	903.43	905.53	-2.10	-2.13	020	100.
74	7400.	903.57	905.54	-1.97	-2.10	020	100.
75	7500.	903.71	905.54	-1.83	-2.06	020	100.
	7580.				SEC.	322.000	
76	7600.	903.90	905.57	-1.67	-2.01	020	100.
77	7700.	904.33	905.66	-1.33	-1.94	020	78.
78	7800.	904.96	905.82	-.86	-1.83	020	70.

ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND

	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-1.83	-.86	.78

FHF FOR REACH 4 = 020 WITH 70._ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 4

79	7900.	905.59	905.97	-.38	-.38	005	100.
	7910.				SEC.	323.200	
	7960.				SEC.	322.970	
	7965.				SEC.	322.980	
80	8000.	906.05	906.31	-.26	-.32	005	100.
81	8100.	906.23	906.61	-.38	-.34	005	100.
82	8200.	906.27	906.69	-.42	-.36	005	100.
	8225.				SEC.	323.020	
	8230.				SEC.	323.030	
83	8300.	906.38	906.86	-.48	-.38	005	100.

84	8400.	906.55	907.11	-.56	-.41	005	100.
	8430.				SEC.		323.800
85	8500.	906.68	907.29	-.61	-.44	005	100.
86	8600.	906.76	907.38	-.62	-.46	005	100.
87	8700.	906.82	907.44	-.62	-.48	005	100.
88	8800.	906.89	907.51	-.62	-.49	005	100.
89	8900.	906.95	907.57	-.62	-.51	005	100.
90	9000.	907.02	907.63	-.61	-.51	005	100.
	9085.				SEC.		324.000
91	9100.	907.08	907.70	-.62	-.52	005	100.
92	9200.	907.16	907.77	-.61	-.53	005	100.
93	9300.	907.24	907.85	-.61	-.53	005	100.
	9360.				SEC.		324.100
94	9400.	907.33	907.93	-.60	-.54	005	100.
95	9500.	907.40	908.00	-.60	-.54	005	100.
	9560.				SEC.		325.100
96	9600.	907.47	908.06	-.59	-.54	005	100.
97	9700.	907.53	908.11	-.58	-.55	005	100.
	9785.				SEC.		325.200
98	9800.	907.59	908.16	-.57	-.55	005	100.
99	9900.	907.65	908.21	-.56	-.55	005	100.
	9960.				SEC.		324.980
100	10000.	907.73	908.62	-.89	-.56	005	100.
	10036.				SEC.		325.020

	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND		
	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-.56	-.19	.54

FHF FOR REACH 5 = 005 WITH 100._ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 1

101	10100.	907.82	909.34	-1.52	-1.52	015	100.
102	10200.	907.86	909.68	-1.82	-1.67	015	100.
	10211.				SEC.		325.800
103	10300.	907.86	909.68	-1.82	-1.72	015	100.
104	10400.	907.86	909.68	-1.82	-1.74	015	100.
105	10500.	907.86	909.68	-1.82	-1.76	020	100.
106	10600.	907.86	909.68	-1.82	-1.77	020	100.
107	10700.	907.86	909.68	-1.82	-1.78	020	100.
	10771.				SEC.		326.000
108	10800.	907.86	909.68	-1.82	-1.78	020	100.
109	10900.	907.86	909.68	-1.82	-1.79	020	100.
110	11000.	907.86	909.68	-1.82	-1.79	020	100.
	11061.				SEC.		326.500
111	11100.	907.86	909.68	-1.82	-1.79	020	100.
112	11200.	907.87	909.69	-1.82	-1.79	020	100.
113	11300.	907.87	909.69	-1.82	-1.80	020	100.
114	11400.	907.88	909.69	-1.81	-1.80	020	100.
115	11500.	907.88	909.69	-1.81	-1.80	020	100.
	11511.				SEC.		326.700
116	11600.	907.89	909.69	-1.80	-1.80	020	100.
117	11700.	907.90	909.70	-1.80	-1.80	020	100.
118	11800.	907.90	909.70	-1.80	-1.80	020	100.
119	11900.	907.91	909.70	-1.79	-1.80	020	100.
	11951.				SEC.		327.200
120	12000.	907.91	909.70	-1.79	-1.80	020	100.
121	12100.	907.92	909.70	-1.78	-1.80	020	100.
	12161.				SEC.		327.300

122	12200.	907.93	909.71	-1.78	-1.80	020	100.
123	12300.	907.94	909.71	-1.77	-1.80	020	100.
	12311.				SEC.		326.980
	12336.				SEC.		327.020
124	12400.	907.95	909.72	-1.77	-1.79	020	100.
	12491.				SEC.		327.800
125	12500.	907.98	909.73	-1.75	-1.79	020	100.
126	12600.	907.99	909.73	-1.74	-1.79	020	100.
127	12700.	908.00	909.73	-1.73	-1.79	020	100.
128	12800.	908.01	909.73	-1.72	-1.79	020	100.
129	12900.	908.01	909.74	-1.73	-1.78	020	100.
130	13000.	908.02	909.74	-1.72	-1.78	020	100.
131	13100.	908.03	909.74	-1.71	-1.78	020	100.
	13116.				SEC.		328.000

	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND		
	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-1.78	-1.09	2.58

FHF FOR REACH 6 = 020 WITH 100._ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 4

	10036.				SEC.		325.020

	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND		
	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-.56	-.19	.54

FHF FOR REACH 5 = 005 WITH 100._ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 1

101	10100.	907.82	909.34	-1.52	-1.52	015	100.
102	10200.	907.86	909.68	-1.82	-1.67	015	100.
	10211.				SEC.		325.800
103	10300.	907.86	909.68	-1.82	-1.72	015	100.
104	10400.	907.86	909.68	-1.82	-1.74	015	100.
105	10500.	907.86	909.68	-1.82	-1.76	020	100.
106	10600.	907.86	909.68	-1.82	-1.77	020	100.
107	10700.	907.86	909.68	-1.82	-1.78	020	100.
	10771.				SEC.		326.000
108	10800.	907.86	909.68	-1.82	-1.78	020	100.
109	10900.	907.86	909.68	-1.82	-1.79	020	100.
110	11000.	907.86	909.68	-1.82	-1.79	020	100.
	11061.				SEC.		326.500
111	11100.	907.86	909.68	-1.82	-1.79	020	100.
112	11200.	907.87	909.69	-1.82	-1.79	020	100.
113	11300.	907.87	909.69	-1.82	-1.80	020	100.
114	11400.	907.88	909.69	-1.81	-1.80	020	100.
115	11500.	907.88	909.69	-1.81	-1.80	020	100.
	11511.				SEC.		326.700
116	11600.	907.89	909.69	-1.80	-1.80	020	100.
117	11700.	907.90	909.70	-1.80	-1.80	020	100.
118	11800.	907.90	909.70	-1.80	-1.80	020	100.
119	11900.	907.91	909.70	-1.79	-1.80	020	100.
	11951.				SEC.		327.200
120	12000.	907.91	909.70	-1.79	-1.80	020	100.
121	12100.	907.92	909.70	-1.78	-1.80	020	100.
	12161.				SEC.		327.300

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: CITY OF BLOOMFIELD HILLS & BLOOMFIELD TOWNSHIP

3) WATERCOURSE: LONG LAKE/FOREST LAKE

4) DOCUMENT TYPE: UPSTREAM LAKSER

PRODUCTION RUN

00BREAK00

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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED JULY 1979                                     *
*                                                        *
*  RUN DATE  02/24/81  TIME .15.14.25.                   *
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*  U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616           *
*  (916) 440-2105 (FTS) 448-2105     *
**************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X         X     X          X     X
X     X  X         X                      X
XXXXXXX  XXXX      X          XXXXX   XXXXX
X     X  X         X                X
X     X  X         X     X          X
X     X  XXXXXXX    XXXXX           XXXXXXX
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************


C
T1      HUD-FIA H-4705
T2      BLOOMFIELD TWP
T3      LONG LAKE - FOREST LAKE BRANCH

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        2.        0.        0.  0.000000      0.00      -1.0       0.   854.500     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    206.000    23.000    52.000    68.000    78.000   100.000   131.000     0.000   150.000     0.000

NC      .085      .085      .045      .150      .350     0.000     0.000     0.000     0.000     0.000
QT     5.000   225.000   305.000   355.000   460.000   355.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1   311.200    14.000   279.000   365.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   862.000     0.000   858.800   245.000   858.200   262.000   855.300   279.000   853.100   304.000
GR   852.400   324.000   852.400   332.000   853.100   352.000   853.800   365.000   854.200   397.000
GR   854.200   440.000   855.200   489.000   856.000   613.000   859.400   688.000     0.000     0.000
QT     5.000   190.000   245.000   270.000   330.000   270.000     0.000     0.000     0.000     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

        ** D/S FACE LAHSER RD.

X1   310.980     0.000     0.000     0.000    58.000    58.000    58.000     0.000     1.100     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   855.800   855.800     0.000
SB     0.000     1.650     2.900     0.000     6.800     0.000    11.560     0.000   854.500   854.500

X1   311.020    10.000   265.000   305.000    42.000    42.000    42.000     0.000     0.000     0.000
X2     0.000     0.000     1.000   856.200   857.500     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   857.500   858.500     0.000
BT     4.000   250.000   860.500     0.000   532.000   857.500     0.000   615.000   858.500     0.000
BT   800.000   863.200     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   861.600    85.000   858.600   128.000   856.800   136.000   856.100   265.000   855.400   277.000
GR   854.500   280.000   854.500   292.000   856.800   295.000   859.000   305.000   862.900   357.000
NC      .090      .090      .050      .200      .400     0.000     0.000     0.000     0.000     0.000

X1   311.800     0.000     0.000     0.000   150.000   150.000   150.000     0.000      .500     0.000
NC     0.000     0.000     0.000      .150      .350     0.000     0.000     0.000     0.000     0.000

X1   311.900     0.000     0.000     0.000   150.000   150.000   150.000     0.000      .900     0.000
NC     0.000     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000
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** D/S FACE OVERBROOK

X1	311.980	0.000	0.000	0.000	77.000	77.000	77.000	0.000	.900	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	859.000	859.000	0.000
SB	0.000	2.800	2.900	0.000	6.275	0.000	25.100	0.000	856.800	856.800
X1	312.020	9.000	155.000	169.000	48.000	48.000	48.000	0.000	-3.500	0.000
X2	0.000	0.000	1.000	859.000	861.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	861.400	862.800	0.000
BT	2.000	250.000	861.400	0.000	476.000	863.400	0.000	0.000	0.000	0.000
GR	866.000	0.000	865.000	30.000	864.400	155.000	859.800	159.000	859.800	167.000
GR	862.200	169.000	862.100	189.000	864.100	230.000	867.200	264.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	312.410	11.000	168.000	192.000	40.000	40.000	40.000	0.000	-2.000	0.000
GR	866.000	0.000	865.000	30.000	865.000	100.000	862.200	138.000	862.200	168.000
GR	858.800	170.000	858.800	190.000	862.200	192.000	862.200	205.000	864.000	230.000
GR	867.400	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE ROCK DAM 312A

X1	312.150	11.000	168.000	192.000	2.000	2.000	2.000	0.000	-2.000	0.000
GR	866.000	0.000	865.000	30.000	865.000	100.000	862.200	138.000	862.200	168.000
GR	862.200	170.000	862.200	190.000	862.200	192.000	862.200	205.000	864.000	230.000
GR	867.400	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	312.160	0.000	0.000	0.000	2.000	2.000	2.000	0.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	312.170	11.000	168.000	192.000	1.000	1.000	1.000	0.000	-2.000	0.000
GR	866.000	0.000	865.000	30.000	865.000	100.000	862.200	138.000	862.200	168.000
GR	861.500	170.000	861.500	190.000	862.200	192.000	862.200	205.000	864.000	230.000
GR	867.400	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE 312B

X1	312.800	9.000	155.000	169.000	130.000	130.000	130.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	862.400	863.200	0.000	0.000	0.000	0.000	0.000
GR	866.000	0.000	865.000	30.000	864.400	155.000	859.800	159.000	859.800	167.000
GR	863.200	169.000	863.300	189.000	864.100	230.000	867.200	264.000	0.000	0.000
X1	312.820	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	862.400	863.200	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE 312C

X1	312.840	12.000	110.000	126.000	155.000	155.000	155.000	0.000	-3.400	0.000
X2	0.000	0.000	0.000	864.200	865.200	0.000	0.000	0.000	0.000	0.000
GR	875.000	0.000	870.400	51.000	869.700	85.000	868.600	110.000	867.600	115.000
GR	867.000	117.000	867.000	119.000	867.600	121.000	869.200	126.000	871.000	160.000

GR	872.900	171.000	873.800	203.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	312.850	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	864.200	865.200	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE 312D

X1	312.870	0.000	0.000	0.000	135.000	135.000	135.000	0.000	1.000	0.000
X2	0.000	0.000	0.000	865.800	866.400	0.000	0.000	0.000	0.000	0.000
X1	312.880	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	865.800	866.400	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE 312E

X1	312.910	0.000	0.000	0.000	120.000	120.000	120.000	0.000	.700	0.000
X2	0.000	0.000	0.000	865.100	866.900	0.000	0.000	0.000	0.000	0.000
X1	312.920	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	865.100	866.900	0.000	0.000	0.000	0.000	0.000
X1	312.940	0.000	0.000	0.000	10.000	10.000	10.000	0.000	.100	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE CONCRETE BRIDGE 312.81

X1	312.950	0.000	0.000	0.000	40.000	40.000	40.000	0.000	.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	868.500	868.500	0.000
SB	0.000	2.000	2.800	175.000	3.440	0.000	9.620	0.000	865.700	865.700
X1	312.960	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	868.500	870.700	0.000	0.000	0.000	0.000	0.000
X1	313.000	0.000	0.000	0.000	85.000	85.000	85.000	0.000	1.300	0.000
NC	.100	.100	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	314.200	10.000	131.000	143.000	575.000	575.000	575.000	0.000	0.000	0.000
GR	880.300	13.000	873.300	24.000	872.800	131.000	871.000	133.000	870.000	136.000
GR	870.000	139.000	871.000	143.000	873.200	145.000	876.000	192.000	881.400	223.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE PINE VALLEY WAY

X1	313.980	0.000	0.000	0.000	105.000	105.000	105.000	0.000	1.400	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	876.000	876.000	0.000
SB	0.000	2.450	2.800	0.000	3.930	0.000	19.630	0.000	871.400	871.400
X1	314.020	10.000	140.000	152.000	70.000	70.000	70.000	0.000	-.600	0.000
X2	0.000	0.000	1.000	875.000	883.000	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	883.000	883.000	0.000
BT	5.000	0.000	885.300	0.000	60.000	883.700	0.000	126.000	883.000	0.000
BT	162.000	883.900	0.000	190.000	885.300	0.000	0.000	0.000	0.000	0.000
GR	885.000	0.000	883.600	86.000	874.800	140.000	872.600	142.000	872.000	144.000
GR	872.000	146.000	872.600	148.000	874.700	152.000	879.600	183.000	885.000	199.000
X1	314.800	10.000	140.000	152.000	85.000	85.000	85.000	0.000	0.000	0.000
GR	885.000	0.000	883.600	86.000	874.800	140.000	872.600	142.000	872.000	144.000
GR	872.000	146.000	872.600	148.000	874.700	152.000	879.600	183.000	885.000	199.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
QT	5.000	155.000	180.000	195.000	230.000	195.000	0.000	0.000	0.000	0.000

** D/S FACE LONG LAKE RD.

X1	314.980	0.000	0.000	0.000	80.000	80.000	80.000	0.000	1.800	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	885.000	885.000	0.000
SB	0.000	2.000	3.000	0.000	3.140	0.000	12.570	0.000	875.800	873.800
X1	315.020	13.000	300.000	312.000	120.000	120.000	120.000	0.000	-.600	0.000
X2	0.000	0.000	1.000	879.800	896.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	896.100	896.100	0.000
BT	4.000	27.000	899.200	0.000	100.000	897.200	0.000	264.000	895.800	0.000
BT	354.000	897.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	900.000	0.000	892.000	44.000	886.200	93.000	882.400	169.000	878.900	192.000
GR	878.400	300.000	877.100	302.000	876.400	304.000	876.400	310.000	877.100	311.000
GR	880.800	312.000	892.800	359.000	900.000	392.000	0.000	0.000	0.000	0.000
X1	315.800	13.000	285.000	338.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	900.000	0.000	892.000	44.000	886.200	93.000	882.400	169.000	878.900	192.000
GR	878.400	285.000	877.100	289.000	876.400	294.000	876.400	308.000	877.100	313.000
GR	880.800	338.000	892.800	359.000	900.000	392.000	0.000	0.000	0.000	0.000
X1	316.000	11.000	111.000	137.000	465.000	465.000	465.000	0.000	0.000	0.000
GR	900.000	0.000	890.100	46.000	886.200	65.000	881.400	111.000	880.700	122.000
GR	878.000	127.000	878.000	133.000	881.500	137.000	891.200	193.000	891.200	232.000
GR	898.000	302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	316.200	0.000	0.000	0.000	20.000	20.000	20.000	0.000	.100	0.000
NC	0.000	0.000	.065	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE DAM

X1	316.280	11.000	110.000	122.400	1.000	1.000	1.000	0.000	0.000	0.000
GR	900.000	0.000	890.100	46.000	885.300	70.000	885.300	110.000	883.200	110.100
GR	883.200	122.300	885.300	122.400	885.300	160.000	891.200	193.000	891.200	232.000
GR	898.000	302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	316.320	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
NC	0.000	0.000	.055	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	316.300	11.000	111.000	137.000	1.000	1.000	1.000	0.000	.200	0.000
GR	900.000	0.000	890.100	46.000	886.200	65.000	881.400	111.000	880.700	122.000

GR	880.500	127.000	880.500	133.000	881.500	137.000	891.200	193.000	891.200	232.000
GR	898.000	302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	317.000	9.000	88.000	204.000	410.000	410.000	410.000	0.000	0.000	0.000
GR	896.900	26.000	888.000	67.000	886.600	88.000	883.000	102.000	881.800	125.000
GR	881.800	175.000	883.000	197.000	887.100	204.000	896.800	225.000	0.000	0.000
X1	318.080	9.000	81.000	94.000	293.000	293.000	293.000	0.000	0.000	0.000
GR	900.000	0.000	885.200	38.000	885.000	81.000	884.000	84.000	884.000	91.000
GR	885.500	94.000	886.000	180.000	892.700	185.000	898.000	195.000	0.000	0.000

** D/S FACE FOOTBRIDGE 317A

X1	318.090	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	885.000	885.500	0.000	0.000	0.000	0.000	0.000
X1	318.110	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	885.000	885.500	0.000	0.000	0.000	0.000	0.000
X1	318.120	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	318.200	0.000	0.000	0.000	60.000	60.000	60.000	0.000	.100	0.000
X3	0.000	0.000	0.000	38.000	0.000	94.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

** D/S FACE BROOKSIDE RD.

X1	317.980	0.000	0.000	0.000	85.000	85.000	85.000	0.000	.900	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	891.000	891.000	0.000
SB	.900	1.800	2.700	160.000	9.000	2.000	29.400	0.000	885.000	885.000
X1	318.020	11.000	62.000	104.000	25.000	25.000	25.000	0.000	.700	0.000
X2	0.000	0.000	1.000	889.200	896.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	75.000	0.000	89.000	0.000	0.000	0.000	0.000
GR	900.000	0.000	895.200	11.000	886.800	36.000	886.600	62.000	885.700	70.000
GR	884.300	72.000	884.300	75.000	885.700	77.000	886.200	89.000	887.800	104.000
GR	900.000	125.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	318.800	0.000	0.000	0.000	80.000	80.000	80.000	0.000	-.700	0.000
NC	.080	.080	.045	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	318.900	0.000	0.000	0.000	340.000	340.000	340.000	0.000	1.900	0.000
X1	318.950	13.000	124.000	159.000	300.000	300.000	300.000	0.000	-3.000	0.000
GR	908.800	21.000	899.600	60.000	895.400	82.000	893.800	103.000	894.000	124.000
GR	892.200	131.000	890.000	133.000	890.000	135.000	892.200	138.000	894.600	159.000
GR	900.800	170.000	902.900	217.000	908.800	275.000	0.000	0.000	0.000	0.000
X1	319.000	0.000	0.000	0.000	360.000	360.000	360.000	0.000	3.000	0.000

X1	319.100	0.000	0.000	0.000	440.000	440.000	440.000	0.000	2.000	0.000
X1	319.700	12.000	447.000	483.000	150.000	150.000	150.000	0.000	-1.200	0.000
GR	903.600	301.000	902.200	341.000	897.800	389.000	896.400	447.000	894.400	461.000
GR	893.800	464.000	893.800	469.000	895.700	483.000	895.600	706.000	896.200	737.000
GR	899.500	800.000	904.100	850.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	320.000	0.000	0.000	0.000	310.000	310.000	310.000	0.000	1.200	0.000
QT	5.000	75.000	110.000	130.000	185.000	130.000	0.000	0.000	0.000	0.000
X1	320.180	0.000	0.000	0.000	283.000	283.000	283.000	0.000	1.000	0.000

** D/S FACE FOOTBRIDGE 320A

X1	320.190	0.000	0.000	0.000	1.000	1.000	1.000	0.000	2.000	0.000
X2	0.000	0.000	0.000	897.700	898.700	0.000	0.000	0.000	0.000	0.000
X1	320.210	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	897.700	898.700	0.000	0.000	0.000	0.000	0.000
X1	320.220	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	320.280	0.000	0.000	0.000	53.000	53.000	53.000	0.000	.500	0.000

** D/S FACE FOOTBRIDGE 320B

X1	320.290	0.000	0.000	0.000	1.000	1.000	1.000	0.000	1.000	0.000
X2	0.000	0.000	0.000	899.200	900.200	0.000	0.000	0.000	0.000	0.000
X1	320.310	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	899.200	900.200	0.000	0.000	0.000	0.000	0.000
X1	320.320	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	321.200	15.000	189.000	217.000	530.000	530.000	530.000	0.000	0.000	0.000
GR	909.100	18.000	906.000	47.000	904.100	107.000	902.400	136.000	900.900	189.000
GR	900.000	201.000	898.600	209.000	898.300	210.000	898.600	211.000	900.600	217.000
GR	903.600	264.000	904.500	343.000	904.500	372.000	906.700	399.000	907.400	439.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE DEVONBROOK

X1	320.980	0.000	0.000	0.000	190.000	190.000	190.000	0.000	1.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	902.800	902.800	0.000
SB	0.000	1.750	3.000	300.000	4.100	0.000	12.300	0.000	899.800	899.800

X1	321.020	13.000	155.000	173.000	50.000	50.000	50.000	0.000	-.400	0.000
X2	0.000	0.000	1.000	902.000	906.200	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	906.200	906.200	0.000
GR	910.000	0.000	903.500	108.000	902.400	122.000	901.800	155.000	900.800	162.000
GR	900.200	165.000	900.800	167.000	901.500	173.000	902.800	212.000	905.400	239.000
GR	906.200	280.000	906.800	373.000	910.000	397.000	0.000	0.000	0.000	0.000
X1	321.800	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.400	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	322.000	11.000	149.000	176.000	590.000	590.000	590.000	0.000	0.000	0.000
GR	915.200	43.000	906.900	102.000	904.800	131.000	904.200	149.000	903.200	154.000
GR	902.300	156.000	902.300	158.000	904.200	176.000	906.000	240.000	910.700	331.000
GR	915.000	458.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	323.200	0.000	0.000	0.000	330.000	330.000	330.000	0.000	1.400	0.000
NC	0.000	0.000	0.000	.450	.850	0.000	0.000	0.000	0.000	0.000
X1	322.970	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	0.000
X3	10.000	0.000	0.000	153.000	0.000	171.000	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

** D/S FACE TELEGRAPH RD.

X1	322.980	4.000	0.000	17.500	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	909.200	916.300	0.000	0.000	0.000	0.000	0.000
GR	909.200	0.000	903.900	.100	903.900	17.400	909.200	17.500	0.000	0.000
X1	323.020	4.000	0.000	17.500	260.000	260.000	260.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	910.100	916.300	0.000	0.000	0.000	0.000	0.000
GR	910.100	0.000	904.800	.100	904.800	17.400	910.100	17.500	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	323.030	8.000	273.000	317.000	5.000	5.000	5.000	0.000	.400	0.000
X3	10.000	0.000	0.000	285.000	0.000	303.000	0.000	0.000	0.000	0.000
GR	916.000	70.000	911.400	200.000	907.400	273.000	904.200	290.000	904.200	309.000
GR	905.600	317.000	906.400	333.000	916.600	397.000	0.000	0.000	0.000	0.000
X1	323.800	0.000	0.000	0.000	200.000	200.000	200.000	0.000	-.200	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	324.000	12.000	136.000	162.000	655.000	655.000	655.000	0.000	.200	0.000
GR	920.000	0.000	912.100	40.000	907.400	93.000	906.000	136.000	904.600	146.000
GR	904.600	156.000	906.600	162.000	907.400	183.000	909.600	211.000	910.500	246.000
GR	910.600	425.000	920.000	508.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	324.100	0.000	0.000	0.000	275.000	275.000	275.000	0.000	.100	0.000
X1	325.100	12.000	178.000	202.000	200.000	200.000	200.000	0.000	-.100	0.000
GR	920.000	0.000	913.400	45.000	908.100	122.000	906.900	178.000	905.200	187.000

GR	905.000	190.000	905.000	193.000	905.200	199.000	907.000	202.000	907.100	268.000
GR	911.000	338.000	916.800	401.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	325.200	0.000	0.000	0.000	225.000	225.000	225.000	0.000	.100	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000
QT	5.000	20.000	35.000	60.000	95.000	60.000	0.000	0.000	0.000	0.000

** D/S FACE FRANKLIN RD.

X1	324.980	0.000	0.000	0.000	175.000	175.000	175.000	0.000	.600	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	908.800	908.800	0.000
SB	0.000	2.950	2.650	0.000	3.370	0.000	10.780	0.000	905.600	905.600
X1	325.020	0.000	0.000	0.000	76.000	76.000	76.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	907.000	917.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	917.100	919.000	0.000
BT	4.000	0.000	921.000	0.000	200.000	917.100	0.000	345.000	919.000	0.000
BT	422.000	921.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	325.800	20.000	250.000	527.000	175.000	175.000	175.000	0.000	-.100	0.000
GR	918.000	0.000	911.900	148.000	911.900	190.000	907.500	233.000	907.000	250.000
GR	907.700	257.000	905.700	339.000	906.400	348.000	906.400	378.000	905.900	438.000
GR	905.700	448.000	905.700	458.000	906.000	466.000	906.000	487.000	907.000	517.000
GR	908.700	527.000	909.000	547.000	910.000	565.000	914.500	700.000	917.400	900.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	326.000	0.000	0.000	0.000	560.000	560.000	560.000	0.000	.100	0.000
X1	326.500	13.000	211.000	245.000	290.000	290.000	290.000	0.000	0.000	0.000
GR	920.000	0.000	915.000	42.000	908.400	145.000	908.000	185.000	907.200	211.000
GR	905.800	219.000	905.800	237.000	907.800	245.000	909.500	317.000	911.200	345.000
GR	913.800	423.000	916.600	480.000	917.000	600.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000
X1	326.700	0.000	0.000	0.000	450.000	450.000	450.000	0.000	0.000	0.000
X1	327.200	0.000	0.000	0.000	440.000	440.000	440.000	0.000	.100	0.000
X1	327.300	0.000	0.000	0.000	210.000	210.000	210.000	0.000	.200	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE ARYSHIRE RD.

X1	326.980	0.000	0.000	0.000	150.000	150.000	150.000	0.000	.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	911.300	911.300	0.000
SB	0.000	1.500	2.800	300.000	3.930	0.000	19.630	0.000	906.300	906.300
X1	327.020	15.000	268.000	321.000	25.000	25.000	25.000	0.000	.300	0.000
X2	0.000	0.000	1.000	911.300	912.200	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	912.200	912.200	0.000

GR	920.000	0.000	914.800	75.000	913.400	126.000	911.400	145.000	911.100	171.000
GR	908.500	247.000	908.600	268.000	906.100	294.000	906.000	297.000	906.000	301.000
GR	906.100	304.000	911.000	321.000	911.500	344.000	915.800	377.000	920.000	455.000
X1	327.800	0.000	0.000	0.000	155.000	155.000	155.000	0.000	-.300	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	328.000	8.000	365.000	410.000	625.000	625.000	625.000	0.000	0.000	0.000
GR	920.000	0.000	908.000	80.000	907.600	100.000	907.400	365.000	906.400	381.000
GR	908.200	410.000	912.600	505.000	920.000	568.000	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

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: CITY OF BLOOMFIELD HILLS & BLOOMFIELD TOWNSHIP

3) WATERCOURSE: LONG LAKE / FOREST LAKE

4) DOCUMENT TYPE: SUMMARY

00BREAK00

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LONG LAKE - FOREST LAKE

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
299.900	0.00	0.00	0.00	799.90	440.00	805.51	0.00	805.76	45.87	4.19	147.01	64.96
299.900	0.00	0.00	0.00	799.90	555.00	805.88	0.00	806.13	45.12	4.42	207.13	82.63
299.900	0.00	0.00	0.00	799.90	695.00	806.21	0.00	806.47	45.04	4.65	278.29	103.56
299.900	0.00	0.00	0.00	799.90	945.00	806.63	0.00	806.89	45.04	4.95	387.47	140.80
300.000	325.00	0.00	0.00	801.30	440.00	806.97	0.00	807.20	42.70	4.08	154.95	67.34
300.000	325.00	0.00	0.00	801.30	555.00	807.31	0.00	807.56	42.42	4.32	216.01	85.22
300.000	325.00	0.00	0.00	801.30	695.00	807.65	0.00	807.89	42.25	4.54	288.69	106.92
300.000	325.00	0.00	0.00	801.30	945.00	808.07	0.00	808.31	42.29	4.82	399.76	145.31
301.200	675.00	0.00	0.00	804.30	440.00	808.99	0.00	809.11	19.79	2.85	197.79	98.92
301.200	675.00	0.00	0.00	804.30	555.00	809.36	0.00	809.49	20.22	3.07	270.72	123.41
301.200	675.00	0.00	0.00	804.30	695.00	809.70	0.00	809.84	20.66	3.27	347.73	152.89
301.200	675.00	0.00	0.00	804.30	945.00	810.17	0.00	810.32	21.75	3.58	462.13	202.61
300.980	108.00	0.00	0.00	804.80	440.00	809.22	0.00	809.37	26.82	3.17	160.46	84.96
300.980	108.00	0.00	0.00	804.80	555.00	809.59	0.00	809.76	27.92	3.45	216.01	105.03
300.980	108.00	0.00	0.00	804.80	695.00	809.94	0.00	810.12	28.34	3.68	290.30	130.55
300.980	108.00	0.00	0.00	804.80	945.00	810.42	0.00	810.61	29.16	4.01	400.43	175.01
301.020	17.00	810.80	809.00	804.80	440.00	811.33	0.00	811.35	3.31	1.43	636.91	241.92
301.020	17.00	810.80	809.00	804.80	555.00	811.50	0.00	811.52	4.37	1.67	682.88	265.49
301.020	17.00	810.80	809.00	804.80	695.00	811.66	0.00	811.69	5.81	1.97	725.94	288.23
301.020	17.00	810.80	809.00	804.80	945.00	811.92	0.00	811.96	8.23	2.41	801.27	329.48
301.800	80.00	0.00	0.00	806.00	440.00	811.36	0.00	811.42	17.30	2.74	344.53	105.80
301.800	80.00	0.00	0.00	806.00	555.00	811.53	0.00	811.62	21.26	3.13	383.60	120.36
301.800	80.00	0.00	0.00	806.00	695.00	811.71	0.00	811.81	26.01	3.56	424.71	136.27
301.800	80.00	0.00	0.00	806.00	945.00	811.99	0.00	812.13	33.06	4.19	494.01	164.36
302.000	510.00	0.00	0.00	808.00	440.00	812.21	0.00	812.25	14.87	2.24	475.21	114.11
302.000	510.00	0.00	0.00	808.00	555.00	812.48	0.00	812.52	14.72	2.35	566.01	144.66
302.000	510.00	0.00	0.00	808.00	695.00	812.77	0.00	812.80	14.78	2.48	665.94	180.78
302.000	510.00	0.00	0.00	808.00	945.00	813.20	0.00	813.24	15.04	2.69	826.76	243.69
303.200	650.00	0.00	0.00	810.40	440.00	813.84	0.00	813.96	55.95	3.48	245.61	58.82
303.200	650.00	0.00	0.00	810.40	555.00	814.06	0.00	814.19	52.92	3.63	304.88	76.29
303.200	650.00	0.00	0.00	810.40	695.00	814.32	0.00	814.45	49.93	3.73	372.85	98.35
303.200	650.00	0.00	0.00	810.40	945.00	814.71	0.00	814.84	45.08	3.88	490.30	140.74

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
302.980	89.00	0.00	0.00	811.80	440.00	814.18	0.00	814.23	16.37	1.78	246.95	108.76
302.980	89.00	0.00	0.00	811.80	555.00	814.40	0.00	814.46	17.06	1.97	281.41	134.38
302.980	89.00	0.00	0.00	811.80	695.00	814.64	0.00	814.71	17.62	2.17	320.27	165.58
302.980	89.00	0.00	0.00	811.80	945.00	815.00	0.00	815.10	19.00	2.49	378.76	216.81
303.020	56.00	815.50	813.50	811.80	440.00	816.03	0.00	816.04	1.21	.79	556.47	400.01
303.020	56.00	815.50	813.50	811.80	555.00	816.20	0.00	816.21	1.65	.95	584.09	431.80
303.020	56.00	815.50	813.50	811.80	695.00	816.37	0.00	816.39	2.20	1.13	615.40	468.82
303.020	56.00	815.50	813.50	811.80	945.00	816.64	0.00	816.67	3.25	1.43	661.95	524.31
303.800	110.00	0.00	0.00	806.70	440.00	816.05	0.00	816.05	.12	.39	1121.96	1252.65
303.800	110.00	0.00	0.00	806.70	555.00	816.21	0.00	816.22	.18	.48	1164.50	1307.26
303.800	110.00	0.00	0.00	806.70	695.00	816.40	0.00	816.40	.26	.59	1218.83	1369.09
303.800	110.00	0.00	0.00	806.70	945.00	816.67	0.00	816.68	.41	.77	1308.66	1467.46
304.000	925.00	0.00	0.00	809.30	440.00	816.07	0.00	816.08	1.35	.99	445.14	378.87
304.000	925.00	0.00	0.00	809.30	555.00	816.24	0.00	816.27	1.89	1.20	465.45	403.92
304.000	925.00	0.00	0.00	809.30	695.00	816.44	0.00	816.47	2.58	1.43	490.05	432.68
304.000	925.00	0.00	0.00	809.30	945.00	816.74	0.00	816.79	3.89	1.82	532.15	479.10
305.000	725.00	0.00	0.00	811.70	440.00	816.18	0.00	816.20	1.97	1.14	452.67	313.31
305.000	725.00	0.00	0.00	811.70	555.00	816.40	0.00	816.43	2.55	1.34	498.95	347.47
305.000	725.00	0.00	0.00	811.70	695.00	816.65	0.00	816.68	3.20	1.56	551.97	388.50
305.000	725.00	0.00	0.00	811.70	945.00	817.04	0.00	817.09	4.24	1.91	637.68	458.72
305.180	81.00	0.00	0.00	812.00	440.00	816.15	0.00	816.58	91.92	5.31	82.93	45.89
305.180	81.00	0.00	0.00	812.00	555.00	816.34	0.00	816.98	127.84	6.39	86.82	49.09
305.180	81.00	0.00	0.00	812.00	695.00	816.55	0.00	817.46	174.54	7.63	91.33	52.61
305.180	81.00	0.00	0.00	812.00	945.00	816.86	0.00	818.33	266.53	9.72	97.22	57.88
305.190	1.00	819.10	818.50	812.00	440.00	816.11	0.00	816.76	25.78	6.47	68.04	86.67
305.190	1.00	819.10	818.50	812.00	555.00	816.28	0.00	817.24	37.74	7.87	70.53	90.34
305.190	1.00	819.10	818.50	812.00	695.00	816.46	0.00	817.87	54.79	9.52	72.98	93.89
305.190	1.00	819.10	818.50	812.00	945.00	816.69	816.40	819.09	92.74	12.44	75.97	98.13
305.210	17.00	819.10	818.50	812.00	440.00	816.18	0.00	816.81	24.91	6.37	69.05	88.16
305.210	17.00	819.10	818.50	812.00	555.00	816.42	0.00	817.33	35.49	7.66	72.47	93.16
305.210	17.00	819.10	818.50	812.00	695.00	816.72	0.00	818.01	49.60	9.10	76.37	98.69
305.210	17.00	819.10	818.50	812.00	945.00	817.54	0.00	819.43	73.70	11.04	85.61	110.08
305.220	1.00	0.00	0.00	812.00	440.00	816.56	0.00	816.92	69.18	4.82	91.38	52.90
305.220	1.00	0.00	0.00	812.00	555.00	817.03	0.00	817.51	83.13	5.51	100.66	60.87
305.220	1.00	0.00	0.00	812.00	695.00	817.72	0.00	818.30	90.61	6.08	114.28	73.01
305.220	1.00	0.00	0.00	812.00	945.00	819.28	0.00	819.94	84.68	6.49	145.67	102.69
305.250	125.00	0.00	0.00	812.30	440.00	817.12	0.00	817.13	2.09	1.02	524.85	304.01
305.250	125.00	0.00	0.00	812.30	555.00	817.75	0.00	817.76	1.93	1.07	662.42	400.00
305.250	125.00	0.00	0.00	812.30	695.00	818.57	0.00	818.58	1.61	1.09	850.70	547.23
305.250	125.00	0.00	0.00	812.30	945.00	820.22	0.00	820.24	1.06	1.04	1280.63	918.66
305.480	132.00	0.00	0.00	812.60	225.00	817.15	0.00	817.16	.78	.59	379.93	254.95
305.480	132.00	0.00	0.00	812.60	305.00	817.78	0.00	817.78	.87	.69	440.44	326.17
305.480	132.00	0.00	0.00	812.60	355.00	818.60	0.00	818.60	.51	.59	787.61	496.06
305.480	132.00	0.00	0.00	812.60	460.00	820.25	0.00	820.25	.29	.54	1204.79	849.35

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	305.520	18.00	820.10	817.00	812.60	225.00	817.54	0.00	817.54	.57	.54	417.74	298.63
	305.520	18.00	820.10	817.00	812.60	305.00	818.49	0.00	818.49	.54	.60	509.98	416.45
	305.520	18.00	820.10	817.00	812.60	355.00	819.56	0.00	819.57	.39	.58	614.17	567.69
	305.520	18.00	820.10	817.00	812.60	460.00	820.66	0.00	820.66	.23	.50	1318.24	953.65
	305.030	72.00	0.00	0.00	813.30	225.00	817.54	0.00	817.56	3.10	.94	238.40	127.74
	305.030	72.00	0.00	0.00	813.30	305.00	818.49	0.00	818.51	2.31	.95	321.64	200.85
	305.030	72.00	0.00	0.00	813.30	355.00	819.57	0.00	819.58	1.36	.84	424.92	304.05
	305.030	72.00	0.00	0.00	813.30	460.00	820.66	0.00	820.67	1.12	.86	554.80	434.03
*	305.050	2.00	0.00	0.00	816.70	225.00	819.08	819.08	819.37	521.60	4.31	52.30	9.85
*	305.050	2.00	0.00	0.00	816.70	305.00	819.23	819.23	819.57	449.23	4.63	66.28	14.39
	305.050	2.00	0.00	0.00	816.70	355.00	819.52	0.00	819.75	201.73	3.84	94.56	24.99
	305.050	2.00	0.00	0.00	816.70	460.00	820.65	0.00	820.72	26.55	2.23	224.75	89.28
	305.060	1.00	0.00	0.00	816.70	225.00	819.30	0.00	819.45	193.04	3.18	71.45	16.19
	305.060	1.00	0.00	0.00	816.70	305.00	819.46	0.00	819.65	178.77	3.49	89.09	22.81
	305.060	1.00	0.00	0.00	816.70	355.00	819.57	0.00	819.78	171.89	3.65	99.65	27.08
	305.060	1.00	0.00	0.00	816.70	460.00	820.65	0.00	820.72	26.75	2.23	224.14	88.94
	305.080	1.00	0.00	0.00	816.20	225.00	819.50	0.00	819.51	1.96	.78	291.09	160.86
	305.080	1.00	0.00	0.00	816.20	305.00	819.71	0.00	819.72	2.91	.99	313.34	178.78
	305.080	1.00	0.00	0.00	816.20	355.00	819.83	0.00	819.85	3.47	1.11	327.78	190.50
	305.080	1.00	0.00	0.00	816.20	460.00	820.73	0.00	820.75	2.64	1.11	439.27	282.90
	305.100	75.00	0.00	0.00	816.30	225.00	819.52	0.00	819.53	2.15	.80	282.03	153.60
	305.100	75.00	0.00	0.00	816.30	305.00	819.73	0.00	819.74	3.15	1.02	304.67	171.78
	305.100	75.00	0.00	0.00	816.30	355.00	819.86	0.00	819.88	3.74	1.13	319.35	183.65
	305.100	75.00	0.00	0.00	816.30	460.00	820.75	0.00	820.77	2.82	1.13	428.53	273.86
	305.200	400.00	0.00	0.00	817.00	225.00	819.63	0.00	819.65	4.34	1.00	224.19	108.04
	305.200	400.00	0.00	0.00	817.00	305.00	819.89	0.00	819.91	5.76	1.23	248.68	127.10
	305.200	400.00	0.00	0.00	817.00	355.00	820.05	0.00	820.08	6.47	1.35	264.38	139.53
	305.200	400.00	0.00	0.00	817.00	460.00	820.88	0.00	820.91	4.60	1.33	357.17	214.53
	305.300	100.00	0.00	0.00	817.30	225.00	819.68	0.00	819.70	6.17	1.12	200.21	90.56
	305.300	100.00	0.00	0.00	817.30	305.00	819.95	0.00	819.98	7.85	1.35	225.25	108.83
	305.300	100.00	0.00	0.00	817.30	355.00	820.12	0.00	820.15	8.63	1.48	240.76	120.86
	305.300	100.00	0.00	0.00	817.30	460.00	820.93	0.00	820.96	5.87	1.44	326.96	189.83
*	306.050	200.00	0.00	0.00	817.80	225.00	821.28	821.28	822.04	434.92	6.99	32.17	10.79
*	306.050	200.00	0.00	0.00	817.80	305.00	821.74	821.74	822.49	426.80	6.98	43.72	14.76
*	306.050	200.00	0.00	0.00	817.80	355.00	821.99	821.99	822.72	356.02	6.87	54.12	18.81
*	306.050	200.00	0.00	0.00	817.80	460.00	822.46	822.46	823.05	232.67	6.41	97.56	30.16
	306.100	100.00	0.00	0.00	818.00	225.00	822.89	0.00	822.99	34.83	2.63	125.53	38.13
	306.100	100.00	0.00	0.00	818.00	305.00	823.28	0.00	823.37	31.20	2.72	175.45	54.61
	306.100	100.00	0.00	0.00	818.00	355.00	823.46	0.00	823.55	30.70	2.80	201.30	64.07
	306.100	100.00	0.00	0.00	818.00	460.00	823.72	0.00	823.83	33.84	3.11	238.88	79.08
	306.200	350.00	0.00	0.00	818.80	225.00	823.91	0.00	823.97	23.16	2.26	152.64	46.76
	306.200	350.00	0.00	0.00	818.80	305.00	824.24	0.00	824.31	23.56	2.44	198.01	62.84
	306.200	350.00	0.00	0.00	818.80	355.00	824.42	0.00	824.50	23.88	2.55	223.37	72.64
	306.200	350.00	0.00	0.00	818.80	460.00	824.75	0.00	824.83	24.26	2.77	272.16	93.39

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	306.210	64.00	0.00	0.00	819.50	225.00	824.08	0.00	824.24	65.07	3.32	88.72	27.89
	306.210	64.00	0.00	0.00	819.50	305.00	824.41	0.00	824.57	60.42	3.49	129.18	39.24
	306.210	64.00	0.00	0.00	819.50	355.00	824.59	0.00	824.76	58.00	3.57	152.21	46.61
	306.210	64.00	0.00	0.00	819.50	460.00	824.92	0.00	825.08	54.76	3.72	196.20	62.16
	305.980	60.00	0.00	0.00	820.20	225.00	824.56	0.00	824.80	107.55	3.99	56.46	21.70
	305.980	60.00	0.00	0.00	820.20	305.00	824.87	0.00	825.20	118.54	4.59	66.44	28.01
	305.980	60.00	0.00	0.00	820.20	355.00	825.02	0.00	825.28	98.63	4.36	117.54	35.75
	305.980	60.00	0.00	0.00	820.20	460.00	825.32	0.00	825.58	93.18	4.55	155.32	47.65
	306.020	46.00	828.90	826.00	822.40	225.00	826.91	0.00	826.91	.70	.49	461.61	269.66
	306.020	46.00	828.90	826.00	822.40	305.00	829.08	0.00	829.08	.23	.38	853.26	639.82
	306.020	46.00	828.90	826.00	822.40	355.00	829.51	0.00	829.52	.23	.41	944.19	732.86
	306.020	46.00	828.90	826.00	822.40	460.00	829.89	0.00	829.89	.32	.49	1024.91	817.05
	306.100	6.00	0.00	0.00	823.00	225.00	826.88	0.00	827.03	35.50	3.09	72.78	37.77
	306.100	6.00	0.00	0.00	823.00	305.00	829.06	0.00	829.15	12.42	2.40	126.99	86.54
	306.100	6.00	0.00	0.00	823.00	355.00	829.49	0.00	829.60	13.27	2.58	137.84	97.44
	306.100	6.00	0.00	0.00	823.00	460.00	829.86	0.00	830.01	18.57	3.13	146.89	106.74
	306.150	2.00	0.00	0.00	823.00	225.00	826.88	0.00	827.03	4.68	3.09	72.87	104.05
	306.150	2.00	0.00	0.00	823.00	305.00	829.06	0.00	829.15	1.64	2.40	127.02	238.06
	306.150	2.00	0.00	0.00	823.00	355.00	829.50	0.00	829.60	1.75	2.57	137.87	268.04
	306.150	2.00	0.00	0.00	823.00	460.00	829.86	0.00	830.01	2.45	3.13	146.93	293.68
	306.300	5.00	0.00	0.00	824.00	225.00	826.89	0.00	827.05	180.85	3.23	69.60	16.73
	306.300	5.00	0.00	0.00	824.00	305.00	829.17	0.00	829.18	2.58	.80	397.58	189.91
	306.300	5.00	0.00	0.00	824.00	355.00	829.63	0.00	829.64	2.02	.79	480.14	249.82
	306.300	5.00	0.00	0.00	824.00	460.00	830.06	0.00	830.07	2.16	.88	562.26	313.11
*	306.400	1.00	0.00	0.00	826.40	225.00	827.19	827.19	827.45	562.20	4.06	55.41	9.49
	306.400	1.00	0.00	0.00	826.40	305.00	829.17	0.00	829.18	3.83	.91	354.41	155.83
	306.400	1.00	0.00	0.00	826.40	355.00	829.63	0.00	829.64	2.80	.87	436.96	212.02
	306.400	1.00	0.00	0.00	826.40	460.00	830.06	0.00	830.07	2.86	.96	519.08	272.02
	306.450	5.00	0.00	0.00	826.40	225.00	827.54	0.00	827.62	107.21	2.28	98.90	21.73
	306.450	5.00	0.00	0.00	826.40	305.00	829.17	0.00	829.19	3.82	.91	354.62	155.97
	306.450	5.00	0.00	0.00	826.40	355.00	829.63	0.00	829.64	2.80	.87	437.12	212.13
	306.450	5.00	0.00	0.00	826.40	460.00	830.06	0.00	830.07	2.86	.96	519.25	272.15
	306.470	1.00	0.00	0.00	823.60	225.00	827.65	0.00	827.65	1.15	.57	395.01	209.67
	306.470	1.00	0.00	0.00	823.60	305.00	829.19	0.00	829.19	.49	.49	643.72	433.83
	306.470	1.00	0.00	0.00	823.60	355.00	829.64	0.00	829.64	.48	.51	726.99	514.15
	306.470	1.00	0.00	0.00	823.60	460.00	830.07	0.00	830.07	.60	.60	810.02	596.30
	306.800	60.00	0.00	0.00	823.60	225.00	827.65	0.00	827.66	1.14	.57	396.02	210.52
	306.800	60.00	0.00	0.00	823.60	305.00	829.19	0.00	829.19	.49	.49	647.12	437.06
	306.800	60.00	0.00	0.00	823.60	355.00	829.64	0.00	829.65	.47	.51	729.80	516.90
	306.800	60.00	0.00	0.00	823.60	460.00	830.07	0.00	830.08	.59	.60	813.21	599.50
*	307.000	250.00	0.00	0.00	826.40	225.00	828.65	828.65	829.18	301.03	5.97	45.07	12.97
*	307.000	250.00	0.00	0.00	826.40	305.00	829.01	829.01	829.49	223.45	5.92	75.21	20.40
	307.000	250.00	0.00	0.00	826.40	355.00	829.54	0.00	829.76	87.73	4.41	137.91	37.90
	307.000	250.00	0.00	0.00	826.40	460.00	830.01	0.00	830.19	59.32	4.10	206.57	59.73

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	307.100	150.00	0.00	0.00	828.00	225.00	830.88	0.00	831.03	63.22	3.45	104.63	28.30
	307.100	150.00	0.00	0.00	828.00	305.00	831.10	0.00	831.28	71.17	3.92	132.01	36.15
	307.100	150.00	0.00	0.00	828.00	355.00	831.01	0.00	831.30	116.59	4.89	120.77	32.88
	307.100	150.00	0.00	0.00	828.00	460.00	831.18	0.00	831.53	134.97	5.53	143.57	39.59
	307.500	150.00	0.00	0.00	829.90	225.00	832.29	0.00	832.58	182.61	4.64	62.43	16.65
	307.500	150.00	0.00	0.00	829.90	305.00	832.60	0.00	832.91	174.21	4.91	80.23	23.11
	307.500	150.00	0.00	0.00	829.90	355.00	832.88	0.00	833.16	132.54	4.70	98.30	30.84
	307.500	150.00	0.00	0.00	829.90	460.00	833.19	0.00	833.51	127.86	5.10	120.37	40.68
	308.200	175.00	0.00	0.00	831.60	225.00	834.41	0.00	834.55	75.25	3.32	87.36	25.94
	308.200	175.00	0.00	0.00	831.60	305.00	834.70	0.00	834.88	77.31	3.74	106.94	34.69
	308.200	175.00	0.00	0.00	831.60	355.00	834.81	0.00	835.02	85.91	4.09	115.04	38.30
	308.200	175.00	0.00	0.00	831.60	460.00	835.11	0.00	835.36	87.97	4.52	139.04	49.04
	307.980	124.00	0.00	0.00	831.20	225.00	834.98	0.00	835.09	27.41	2.71	83.04	42.98
	307.980	124.00	0.00	0.00	831.20	305.00	835.33	0.00	835.49	33.78	3.26	93.61	52.48
	307.980	124.00	0.00	0.00	831.20	355.00	835.50	0.00	835.70	38.00	3.59	98.98	57.58
	307.980	124.00	0.00	0.00	831.20	460.00	835.80	0.00	835.88	20.13	2.77	253.29	102.53
	308.020	26.00	836.30	835.00	831.20	225.00	836.87	0.00	836.91	13.66	1.94	172.29	60.87
	308.020	26.00	836.30	835.00	831.20	305.00	837.10	0.00	837.16	18.59	2.37	193.17	70.74
	308.020	26.00	836.30	835.00	831.20	355.00	837.20	0.00	837.28	22.08	2.64	203.15	75.55
	308.020	26.00	836.30	835.00	831.20	460.00	837.39	0.00	837.50	29.56	3.17	221.67	84.60
	308.800	80.00	0.00	0.00	831.00	225.00	836.98	0.00	837.01	9.18	1.69	200.48	74.26
	308.800	80.00	0.00	0.00	831.00	305.00	837.24	0.00	837.29	12.25	2.06	226.81	87.15
	308.800	80.00	0.00	0.00	831.00	355.00	837.37	0.00	837.43	14.28	2.28	240.44	93.95
	308.800	80.00	0.00	0.00	831.00	460.00	837.62	0.00	837.70	18.34	2.69	266.95	107.42
	308.850	47.00	0.00	0.00	831.80	225.00	837.04	0.00	837.11	26.26	2.42	134.86	43.91
	308.850	47.00	0.00	0.00	831.80	305.00	837.32	0.00	837.41	31.36	2.83	158.47	54.47
	308.850	47.00	0.00	0.00	831.80	355.00	837.46	0.00	837.57	34.62	3.08	171.15	60.33
	308.850	47.00	0.00	0.00	831.80	460.00	837.73	0.00	837.87	40.51	3.52	196.36	72.28
*	308.870	1.00	0.00	0.00	840.90	225.00	842.05	842.05	842.63	104.30	6.11	36.81	22.03
*	308.870	1.00	0.00	0.00	840.90	305.00	842.31	842.31	843.02	102.20	6.79	44.94	30.17
*	308.870	1.00	0.00	0.00	840.90	355.00	842.67	842.67	843.22	71.41	6.04	79.39	42.01
*	308.870	1.00	0.00	0.00	840.90	460.00	842.94	842.94	843.49	62.35	6.22	126.76	58.26
	308.880	2.00	0.00	0.00	840.90	225.00	842.40	0.00	842.74	45.21	4.69	49.60	33.46
	308.880	2.00	0.00	0.00	840.90	305.00	843.02	0.00	843.23	23.33	3.89	139.64	63.15
	308.880	2.00	0.00	0.00	840.90	355.00	843.10	0.00	843.35	26.92	4.28	153.07	68.43
	308.880	2.00	0.00	0.00	840.90	460.00	843.31	0.00	843.60	29.40	4.74	192.40	84.84
	308.900	1.00	0.00	0.00	836.40	225.00	842.88	0.00	842.88	.12	.33	695.10	640.01
	308.900	1.00	0.00	0.00	836.40	305.00	843.31	0.00	843.32	.17	.41	773.64	741.73
	308.900	1.00	0.00	0.00	836.40	355.00	843.44	0.00	843.45	.21	.46	798.22	773.39
	308.900	1.00	0.00	0.00	836.40	460.00	843.71	0.00	843.72	.30	.57	850.92	841.06
	308.950	335.00	0.00	0.00	837.90	225.00	842.88	0.00	842.89	.38	.53	470.91	366.36
	308.950	335.00	0.00	0.00	837.90	305.00	843.32	0.00	843.33	.49	.65	531.05	434.07
	308.950	335.00	0.00	0.00	837.90	355.00	843.45	0.00	843.46	.61	.74	549.63	455.54
	308.950	335.00	0.00	0.00	837.90	460.00	843.72	0.00	843.74	.84	.90	589.56	502.04

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	309.000	330.00	0.00	0.00	839.10	225.00	842.90	0.00	842.91	1.15	.75	319.18	209.49
	309.000	330.00	0.00	0.00	839.10	305.00	843.34	0.00	843.35	1.33	.88	374.04	264.45
	309.000	330.00	0.00	0.00	839.10	355.00	843.48	0.00	843.49	1.58	.99	391.11	282.19
	309.000	330.00	0.00	0.00	839.10	460.00	843.76	0.00	843.78	2.06	1.18	427.14	320.56
*	309.100	260.00	0.00	0.00	841.80	225.00	842.92	842.92	843.27	340.32	4.77	47.20	12.20
	309.100	260.00	0.00	0.00	841.80	305.00	843.31	0.00	843.55	166.80	3.96	77.06	23.62
	309.100	260.00	0.00	0.00	841.80	355.00	843.47	0.00	843.70	141.83	3.87	91.64	29.81
	309.100	260.00	0.00	0.00	841.80	460.00	843.79	0.00	844.01	91.86	3.75	123.14	47.99
	309.900	265.00	0.00	0.00	844.50	225.00	846.95	0.00	847.15	80.24	3.71	70.77	25.12
	309.900	265.00	0.00	0.00	844.50	305.00	847.02	846.74	847.35	122.55	4.74	76.54	27.55
	309.900	265.00	0.00	0.00	844.50	355.00	847.09	846.92	847.48	139.14	5.21	82.40	30.10
*	309.900	265.00	0.00	0.00	844.50	460.00	847.15	847.15	847.75	202.74	6.45	87.38	32.31
	310.000	260.00	0.00	0.00	847.20	225.00	849.48	0.00	849.76	126.40	4.29	58.09	20.01
	310.000	260.00	0.00	0.00	847.20	305.00	849.84	0.00	850.11	92.38	4.32	86.10	31.73
	310.000	260.00	0.00	0.00	847.20	355.00	850.00	0.00	850.28	84.81	4.43	100.95	38.55
	310.000	260.00	0.00	0.00	847.20	460.00	850.36	0.00	850.64	68.12	4.51	135.66	55.73
	310.100	250.00	0.00	0.00	850.00	225.00	852.35	0.00	852.60	101.94	4.01	63.77	22.28
	310.100	250.00	0.00	0.00	850.00	305.00	852.50	0.00	852.84	128.52	4.82	75.02	26.90
	310.100	250.00	0.00	0.00	850.00	355.00	852.59	0.00	852.98	137.60	5.19	82.79	30.26
	310.100	250.00	0.00	0.00	850.00	460.00	852.73	852.64	853.25	166.04	6.04	94.84	35.70
	311.200	500.00	0.00	0.00	852.40	225.00	854.50	0.00	854.55	20.11	1.90	142.97	50.17
	311.200	500.00	0.00	0.00	852.40	305.00	854.80	0.00	854.85	18.83	2.02	194.03	70.29
	311.200	500.00	0.00	0.00	852.40	355.00	854.95	0.00	855.01	18.46	2.09	223.20	82.62
	311.200	500.00	0.00	0.00	852.40	460.00	855.25	0.00	855.31	17.44	2.20	284.43	110.15
	310.980	58.00	0.00	0.00	853.50	190.00	854.65	0.00	854.93	257.08	4.26	44.57	11.85
	310.980	58.00	0.00	0.00	853.50	245.00	854.92	0.00	855.16	159.22	3.90	62.83	19.42
	310.980	58.00	0.00	0.00	853.50	270.00	855.07	0.00	855.29	120.05	3.69	73.19	24.64
	310.980	58.00	0.00	0.00	853.50	330.00	855.35	0.00	855.55	84.29	3.53	93.41	35.94
	311.020	42.00	857.50	856.20	854.50	190.00	858.11	0.00	858.12	2.99	1.05	311.75	109.82
	311.020	42.00	857.50	856.20	854.50	245.00	858.31	0.00	858.33	3.69	1.21	346.17	127.61
	311.020	42.00	857.50	856.20	854.50	270.00	858.39	0.00	858.40	4.02	1.28	359.16	134.59
	311.020	42.00	857.50	856.20	854.50	330.00	858.52	0.00	858.54	4.99	1.45	382.78	147.67
	311.800	150.00	0.00	0.00	855.00	190.00	858.18	0.00	858.19	7.59	1.39	237.05	68.95
	311.800	150.00	0.00	0.00	855.00	245.00	858.39	0.00	858.41	8.67	1.54	271.58	83.23
	311.800	150.00	0.00	0.00	855.00	270.00	858.47	0.00	858.49	9.16	1.61	285.32	89.22
	311.800	150.00	0.00	0.00	855.00	330.00	858.62	0.00	858.65	10.66	1.79	311.42	101.06

LONG LAKE - FOREST LAKE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
299.900	440.00	805.51	0.00	0.00	-1.99	139.67	0.00
299.900	555.00	805.88	.36	0.00	-1.62	190.48	0.00
299.900	695.00	806.21	.33	0.00	-1.29	236.57	0.00
299.900	945.00	806.63	.42	0.00	-.87	276.24	0.00
300.000	440.00	806.97	0.00	1.46	0.00	147.39	325.00
300.000	555.00	807.31	.35	1.44	0.00	196.88	325.00
300.000	695.00	807.65	.33	1.44	0.00	240.92	325.00
300.000	945.00	808.07	.42	1.44	0.00	279.75	325.00
301.200	440.00	808.99	0.00	2.02	0.00	168.49	675.00
301.200	555.00	809.36	.36	2.04	0.00	218.37	675.00
301.200	695.00	809.70	.35	2.06	0.00	231.11	675.00
301.200	945.00	810.17	.47	2.10	0.00	248.85	675.00
300.980	440.00	809.22	0.00	.23	0.00	112.99	108.00
300.980	555.00	809.59	.37	.23	0.00	189.78	108.00
300.980	695.00	809.94	.35	.24	0.00	221.68	108.00
300.980	945.00	810.42	.48	.25	0.00	239.45	108.00
301.020	440.00	811.33	0.00	2.11	0.00	272.65	17.00
301.020	555.00	811.50	.16	1.91	0.00	277.35	17.00
301.020	695.00	811.66	.16	1.72	0.00	281.67	17.00
301.020	945.00	811.92	.26	1.51	0.00	289.09	17.00
301.800	440.00	811.36	0.00	.02	0.00	221.06	80.00
301.800	555.00	811.53	.17	.03	0.00	228.73	80.00
301.800	695.00	811.71	.18	.05	0.00	236.53	80.00
301.800	945.00	811.99	.29	.07	0.00	249.13	80.00
302.000	440.00	812.21	0.00	.86	0.00	328.37	510.00
302.000	555.00	812.48	.27	.95	0.00	343.62	510.00
302.000	695.00	812.77	.28	1.06	0.00	359.65	510.00
302.000	945.00	813.20	.43	1.21	0.00	384.06	510.00
303.200	440.00	813.84	0.00	1.62	0.00	256.06	650.00
303.200	555.00	814.06	.23	1.58	0.00	266.58	650.00
303.200	695.00	814.32	.26	1.55	0.00	278.17	650.00
303.200	945.00	814.71	.39	1.52	0.00	297.11	650.00
302.980	440.00	814.18	0.00	.35	0.00	160.21	89.00
302.980	555.00	814.40	.21	.33	0.00	161.63	89.00
302.980	695.00	814.64	.24	.32	0.00	163.21	89.00
302.980	945.00	815.00	.36	.29	0.00	165.57	89.00
303.020	440.00	816.03	0.00	1.85	0.00	172.53	56.00
303.020	555.00	816.20	.16	1.80	0.00	173.59	56.00
303.020	695.00	816.37	.18	1.74	0.00	174.78	56.00
303.020	945.00	816.64	.26	1.63	0.00	207.69	56.00
303.800	440.00	816.05	0.00	.01	0.00	233.91	110.00
303.800	555.00	816.21	.17	.02	0.00	273.68	110.00

303.800	695.00	816.40	.18	.03	0.00	317.30	110.00
303.800	945.00	816.67	.28	.04	0.00	329.68	110.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	304.000	440.00	816.07	0.00	.02	0.00	109.91	925.00
	304.000	555.00	816.24	.18	.03	0.00	119.91	925.00
	304.000	695.00	816.44	.20	.04	0.00	130.99	925.00
	304.000	945.00	816.74	.30	.07	0.00	148.05	925.00
	305.000	440.00	816.18	0.00	.12	0.00	211.23	725.00
	305.000	555.00	816.40	.22	.16	0.00	214.07	725.00
	305.000	695.00	816.65	.25	.21	0.00	217.28	725.00
	305.000	945.00	817.04	.39	.29	0.00	222.37	725.00
	305.180	440.00	816.15	0.00	-.03	0.00	20.00	81.00
	305.180	555.00	816.34	.19	-.06	0.00	20.00	81.00
	305.180	695.00	816.55	.21	-.09	0.00	20.00	81.00
	305.180	945.00	816.86	.31	-.17	0.00	20.00	81.00
	305.190	440.00	816.11	0.00	-.04	0.00	19.00	1.00
	305.190	555.00	816.28	.17	-.06	0.00	19.00	1.00
	305.190	695.00	816.46	.18	-.09	0.00	19.00	1.00
	305.190	945.00	816.69	.23	-.17	0.00	19.00	1.00
	305.210	440.00	816.18	0.00	.07	0.00	19.00	17.00
	305.210	555.00	816.42	.24	.13	0.00	19.00	17.00
	305.210	695.00	816.72	.30	.26	0.00	19.00	17.00
	305.210	945.00	817.54	.82	.85	0.00	19.00	17.00
	305.220	440.00	816.56	0.00	.38	0.00	20.00	1.00
	305.220	555.00	817.03	.47	.62	0.00	20.00	1.00
	305.220	695.00	817.72	.69	1.00	0.00	20.00	1.00
	305.220	945.00	819.28	1.56	1.74	0.00	20.00	1.00
	305.250	440.00	817.12	0.00	.56	0.00	215.65	125.00
	305.250	555.00	817.75	.63	.71	0.00	223.81	125.00
	305.250	695.00	818.57	.82	.84	0.00	234.53	125.00
	305.250	945.00	820.22	1.66	.94	0.00	275.32	125.00
	305.480	225.00	817.15	0.00	.03	0.00	97.00	132.00
	305.480	305.00	817.78	.62	.03	0.00	97.00	132.00
	305.480	355.00	818.60	.82	.03	0.00	230.99	132.00
	305.480	460.00	820.25	1.65	.02	0.00	271.14	132.00
	305.520	225.00	817.54	0.00	.39	0.00	97.00	18.00
	305.520	305.00	818.49	.95	.71	0.00	97.00	18.00
	305.520	355.00	819.56	1.07	.97	0.00	97.00	18.00
	305.520	460.00	820.66	1.09	.41	0.00	277.38	18.00
	305.030	225.00	817.54	0.00	.01	0.00	84.67	72.00
	305.030	305.00	818.49	.95	.01	0.00	90.54	72.00
	305.030	355.00	819.57	1.07	.00	0.00	106.43	72.00
	305.030	460.00	820.66	1.09	.00	0.00	131.13	72.00
*	305.050	225.00	819.08	0.00	1.54	0.00	90.69	2.00
*	305.050	305.00	819.23	.15	.74	0.00	94.40	2.00
	305.050	355.00	819.52	.29	-.04	0.00	101.48	2.00
	305.050	460.00	820.65	1.12	-.01	0.00	129.15	2.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	305.060	225.00	819.30	0.00	.21	0.00	95.73	1.00
	305.060	305.00	819.46	.17	.23	0.00	100.14	1.00
	305.060	355.00	819.57	.11	.05	0.00	102.70	1.00
	305.060	460.00	820.65	1.08	.00	0.00	129.04	1.00
	305.080	225.00	819.50	0.00	.21	0.00	107.32	1.00
	305.080	305.00	819.71	.20	.24	0.00	111.90	1.00
	305.080	355.00	819.83	.13	.26	0.00	114.78	1.00
	305.080	460.00	820.73	.89	.08	0.00	134.94	1.00
	305.100	225.00	819.52	0.00	.01	0.00	105.39	75.00
	305.100	305.00	819.73	.21	.02	0.00	110.14	75.00
	305.100	355.00	819.86	.13	.03	0.00	113.11	75.00
	305.100	460.00	820.75	.89	.02	0.00	133.13	75.00
	305.200	225.00	819.63	0.00	.11	0.00	93.27	400.00
	305.200	305.00	819.89	.26	.16	0.00	97.98	400.00
	305.200	355.00	820.05	.16	.19	0.00	101.54	400.00
	305.200	460.00	820.88	.84	.14	0.00	120.42	400.00
	305.300	225.00	819.68	0.00	.05	0.00	91.67	100.00
	305.300	305.00	819.95	.27	.06	0.00	93.34	100.00
	305.300	355.00	820.12	.16	.07	0.00	96.14	100.00
	305.300	460.00	820.93	.81	.05	0.00	114.61	100.00
*	306.050	225.00	821.28	0.00	1.60	0.00	21.28	200.00
*	306.050	305.00	821.74	.46	1.78	0.00	29.21	200.00
*	306.050	355.00	821.99	.25	1.87	0.00	58.61	200.00
*	306.050	460.00	822.46	.47	1.53	0.00	120.04	200.00
	306.100	225.00	822.89	0.00	1.61	0.00	125.14	100.00
	306.100	305.00	823.28	.38	1.54	0.00	133.75	100.00
	306.100	355.00	823.46	.18	1.47	0.00	137.99	100.00
	306.100	460.00	823.72	.26	1.26	0.00	144.65	100.00
	306.200	225.00	823.91	0.00	1.02	0.00	129.88	350.00
	306.200	305.00	824.24	.33	.97	0.00	137.46	350.00
	306.200	355.00	824.42	.18	.96	0.00	141.64	350.00
	306.200	460.00	824.75	.33	1.03	0.00	150.89	350.00
	306.210	225.00	824.08	0.00	.17	0.00	116.75	64.00
	306.210	305.00	824.41	.33	.17	0.00	125.79	64.00
	306.210	355.00	824.59	.18	.17	0.00	129.81	64.00
	306.210	460.00	824.92	.33	.17	0.00	137.16	64.00
	305.980	225.00	824.56	0.00	.48	0.00	31.11	60.00
	305.980	305.00	824.87	.32	.46	0.00	31.85	60.00
	305.980	355.00	825.02	.15	.43	0.00	123.70	60.00
	305.980	460.00	825.32	.30	.40	0.00	130.34	60.00
	306.020	225.00	826.91	0.00	2.35	0.00	144.65	46.00
	306.020	305.00	829.08	2.17	4.20	0.00	202.85	46.00
	306.020	355.00	829.51	.44	4.49	0.00	212.41	46.00
	306.020	460.00	829.89	.37	4.56	0.00	220.54	46.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	306.100	225.00	826.88	0.00	-.03	0.00	24.82	6.00
	306.100	305.00	829.06	2.18	-.02	0.00	24.93	6.00
	306.100	355.00	829.49	.44	-.02	0.00	24.95	6.00
	306.100	460.00	829.86	.36	-.03	0.00	24.97	6.00
	306.150	225.00	826.88	0.00	.00	0.00	24.82	2.00
	306.150	305.00	829.06	2.18	.00	0.00	24.93	2.00
	306.150	355.00	829.50	.44	.00	0.00	24.95	2.00
	306.150	460.00	829.86	.36	.00	0.00	24.97	2.00
	306.300	225.00	826.89	0.00	.00	0.00	82.13	5.00
	306.300	305.00	829.17	2.29	.11	0.00	176.52	5.00
	306.300	355.00	829.63	.45	.13	0.00	186.77	5.00
	306.300	460.00	830.06	.43	.20	0.00	196.43	5.00
*	306.400	225.00	827.19	0.00	.30	0.00	109.79	1.00
	306.400	305.00	829.17	1.98	-.00	0.00	176.53	1.00
	306.400	355.00	829.63	.45	-.00	0.00	186.77	1.00
	306.400	460.00	830.06	.43	-.00	0.00	196.44	1.00
	306.450	225.00	827.54	0.00	.35	0.00	135.52	5.00
	306.450	305.00	829.17	1.63	.00	0.00	176.55	5.00
	306.450	355.00	829.63	.45	.00	0.00	186.79	5.00
	306.450	460.00	830.06	.43	.00	0.00	196.46	5.00
	306.470	225.00	827.65	0.00	.11	0.00	145.41	1.00
	306.470	305.00	829.19	1.54	.01	0.00	178.88	1.00
	306.470	355.00	829.64	.45	.01	0.00	188.77	1.00
	306.470	460.00	830.07	.43	.01	0.00	198.14	1.00
	306.800	225.00	827.65	0.00	.01	0.00	145.56	60.00
	306.800	305.00	829.19	1.54	.00	0.00	179.30	60.00
	306.800	355.00	829.64	.45	.00	0.00	189.10	60.00
	306.800	460.00	830.07	.43	.00	0.00	198.49	60.00
*	307.000	225.00	828.65	0.00	1.00	0.00	63.58	250.00
*	307.000	305.00	829.01	.35	-.18	0.00	102.37	250.00
	307.000	355.00	829.54	.53	-.10	0.00	132.61	250.00
	307.000	460.00	830.01	.47	-.06	0.00	154.40	250.00
	307.100	225.00	830.88	0.00	2.22	0.00	117.53	150.00
	307.100	305.00	831.10	.22	2.09	0.00	130.06	150.00
	307.100	355.00	831.01	-.09	1.47	0.00	125.07	150.00
	307.100	460.00	831.18	.18	1.17	0.00	135.01	150.00
	307.500	225.00	832.29	0.00	1.41	0.00	56.98	150.00
	307.500	305.00	832.60	.31	1.51	0.00	60.31	150.00
	307.500	355.00	832.88	.28	1.87	0.00	67.52	150.00
	307.500	460.00	833.19	.31	2.00	0.00	77.69	150.00
	308.200	225.00	834.41	0.00	2.12	0.00	61.86	175.00
	308.200	305.00	834.70	.29	2.10	0.00	71.67	175.00
	308.200	355.00	834.81	.10	1.93	0.00	75.36	175.00
	308.200	460.00	835.11	.30	1.92	0.00	85.35	175.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	307.980	225.00	834.98	0.00	.57	0.00	31.00	124.00
	307.980	305.00	835.33	.35	.62	0.00	31.00	124.00
	307.980	355.00	835.50	.17	.69	0.00	31.00	124.00
	307.980	460.00	835.80	.30	.69	0.00	127.97	124.00
	308.020	225.00	836.87	0.00	1.89	0.00	89.41	26.00
	308.020	305.00	837.10	.23	1.77	0.00	94.39	26.00
	308.020	355.00	837.20	.10	1.70	0.00	96.69	26.00
	308.020	460.00	837.39	.19	1.59	0.00	100.80	26.00
	308.800	225.00	836.98	0.00	.10	0.00	96.08	80.00
	308.800	305.00	837.24	.27	.14	0.00	101.92	80.00
	308.800	355.00	837.37	.13	.17	0.00	104.81	80.00
	308.800	460.00	837.62	.25	.23	0.00	110.22	80.00
	308.850	225.00	837.04	0.00	.06	0.00	80.43	47.00
	308.850	305.00	837.32	.28	.08	0.00	85.95	47.00
	308.850	355.00	837.46	.14	.09	0.00	89.13	47.00
	308.850	460.00	837.73	.27	.11	0.00	95.13	47.00
*	308.870	225.00	842.05	0.00	5.02	0.00	32.01	1.00
*	308.870	305.00	842.31	.25	4.99	0.00	34.46	1.00
*	308.870	355.00	842.67	.36	5.20	0.00	157.79	1.00
*	308.870	460.00	842.94	.28	5.21	0.00	175.79	1.00
	308.880	225.00	842.40	0.00	.35	0.00	65.26	2.00
	308.880	305.00	843.02	.62	.71	0.00	177.85	2.00
	308.880	355.00	843.10	.08	.43	0.00	179.98	2.00
	308.880	460.00	843.31	.21	.37	0.00	186.07	2.00
	308.900	225.00	842.88	0.00	.48	0.00	172.52	1.00
	308.900	305.00	843.31	.44	.29	0.00	186.93	1.00
	308.900	355.00	843.44	.13	.35	0.00	191.22	1.00
	308.900	460.00	843.71	.27	.40	0.00	200.11	1.00
	308.950	225.00	842.88	0.00	.01	0.00	134.48	335.00
	308.950	305.00	843.32	.44	.01	0.00	139.93	335.00
	308.950	355.00	843.45	.13	.01	0.00	142.62	335.00
	308.950	460.00	843.72	.27	.01	0.00	151.00	335.00
	309.000	225.00	842.90	0.00	.02	0.00	120.14	330.00
	309.000	305.00	843.34	.44	.02	0.00	125.52	330.00
	309.000	355.00	843.48	.14	.03	0.00	127.14	330.00
	309.000	460.00	843.76	.28	.04	0.00	130.51	330.00
*	309.100	225.00	842.92	0.00	.02	0.00	68.14	260.00
	309.100	305.00	843.31	.39	-.03	0.00	86.13	260.00
	309.100	355.00	843.47	.16	-.01	0.00	93.66	260.00
	309.100	460.00	843.79	.32	.03	0.00	98.58	260.00
	309.900	225.00	846.95	0.00	4.02	0.00	80.79	265.00
	309.900	305.00	847.02	.07	3.71	0.00	82.54	265.00
	309.900	355.00	847.09	.07	3.62	0.00	84.28	265.00
*	309.900	460.00	847.15	.06	3.35	0.00	85.73	265.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
310.000	225.00	849.48	0.00	2.54	0.00	71.36	260.00
310.000	305.00	849.84	.36	2.82	0.00	85.36	260.00
310.000	355.00	850.00	.17	2.92	0.00	89.56	260.00
310.000	460.00	850.36	.36	3.21	0.00	98.69	260.00
310.100	225.00	852.35	0.00	2.87	0.00	76.73	250.00
310.100	305.00	852.50	.14	2.66	0.00	82.09	250.00
310.100	355.00	852.59	.09	2.59	0.00	84.39	250.00
310.100	460.00	852.73	.14	2.37	0.00	87.86	250.00
311.200	225.00	854.50	0.00	2.15	0.00	166.71	500.00
311.200	305.00	854.80	.29	2.30	0.00	184.27	500.00
311.200	355.00	854.95	.16	2.36	0.00	193.59	500.00
311.200	460.00	855.25	.30	2.52	0.00	216.93	500.00
310.980	190.00	854.65	0.00	.15	0.00	61.64	58.00
310.980	245.00	854.92	.28	.13	0.00	69.33	58.00
310.980	270.00	855.07	.15	.12	0.00	71.01	58.00
310.980	330.00	855.35	.28	.10	0.00	74.18	58.00
311.020	190.00	858.11	0.00	3.47	0.00	170.85	42.00
311.020	245.00	858.31	.20	3.39	0.00	172.65	42.00
311.020	270.00	858.39	.07	3.31	0.00	173.33	42.00
311.020	330.00	858.52	.13	3.17	0.00	174.55	42.00
311.800	190.00	858.18	0.00	.06	0.00	166.87	150.00
311.800	245.00	858.39	.21	.08	0.00	168.72	150.00
311.800	270.00	858.47	.08	.08	0.00	169.45	150.00
311.800	330.00	858.62	.15	.10	0.00	170.83	150.00

SUMMARY OF ERRORS

CAUTION SECNO= 305.050 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 305.050 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 305.050 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 305.050 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 305.050 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 305.050 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 306.050 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 306.050 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 306.050 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 306.050 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 306.050 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 306.050 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 306.050 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 306.050 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 306.050 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 306.050 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 306.050 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 306.050 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 306.400 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 306.400 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY

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CAUTION  SECNO=   306.400  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   307.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   307.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   307.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=   307.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   307.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   307.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   308.870  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   308.870  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   308.870  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=   308.870  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   308.870  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   308.870  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=   308.870  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   308.870  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   308.870  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=   308.870  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   308.870  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   308.870  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   309.100  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   309.100  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   309.100  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   309.900  PROFILE= 4  CRITICAL DEPTH ASSUMED
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: COMMERCE TOWNSHIP

3) WATERCOURSE: HURON RIVER

4) DOCUMENT TYPE: 100 YR ENCROACHED

00BREAK00

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**********
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR    01,02
  MODIFICATION -  50,51,52,53
**********

T1      FIS - COMMERCE TOWNSHIP, 5850-02-1      PM = RICHARD ZANOTTI
T2      100-YEAR FLOOD
T3      HURON RIVER

J1  ICHECK    INQ     NINV     IDIR     STRT     METRIC    HVINS     Q       WSEL      FQ
       -1.      4.       0.       0.   .002300      0.00      0.0      0.   923.500'   0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN        ALLDC    IEN      CHNIM     ITRACE
    3.000     0.000   -1.000    0.000    0.000    0.000     0.000    0.000    0.000     0.000
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*PROF 3

CCHV= .300 CEHV= .500
1490 NH CARD USED
*SECNO .000

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

START THE CALCULATION AT CARROLL LAKE OUTLET

700 FT D/S FROM GRAND TRAVERSE E. ROAD VS #4A SEC. A

0.00	1.95	922.15	0.00	923.50	922.22	.07	0.00	0.00	921.50
45.	7.	38.	0.	17.	17.	1.	0.	0.	922.00
0.00	.40	2.26	.16	.080	.035	.060	0.000	520.20	204.72
.002306	0.	0.	0.	0	0	8	0.00	86.38	291.10

*SECNO 700.000

700.00	2.05	924.55	0.00	0.00	924.77	.23	2.40	.00	927.20
45.	0.	45.	0.	0.	12.	0.	0.	1.	927.20
.05	0.00	3.81	0.00	.085	.035	.085	.035	922.50	463.00
.006274	600.	700.	650.	3	0	0	0.00	6.00	469.00

*SECNO 701.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 927.10 MAX ELLC= 925.40

D/S FACE OF GRAND TRAVERSE E. ROAD CULVERT, BS#3A SEC. B

701.00	2.05	924.55	0.00	0.00	924.70	.22	.00	.00	927.20
45.	0.	45.	0.	0.	12.	0.	0.	1.	927.20
.05	0.00	3.80	0.00	.065	.020	.065	.035	922.50	463.00
.002027	1.	1.	1.	0	0	0	0.00	6.00	469.00

*SECNO 721.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 927.10 MAX ELLC= 925.40

U/S FACE OF GRAND TRAVERSE E. ROAD CULVERT, BS#3A SEC. B

721.00	1.85	924.55	0.00	0.00	924.89	.34	.05	.06	927.20
45.	0.	45.	0.	0.	10.	0.	0.	1.	927.20
.05	0.00	4.70	0.00	.065	.020	.065	.035	922.70	463.00
.003553	20.	20.	20.	2	0	0	0.00	6.00	469.00

*SECNO 722.000

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

722.00	1.85	924.55	0.00	0.00	924.89	.34	.01	.00	927.20
45.	0.	45.	0.	0.	12.	0.	0.	1.	927.20

.05	0.00	4.69	0.00	.080	.037	.080	.035	922.70	463.00
.012133	1.	1.	1.	0	0	0	0.00	6.00	469.00

1490 NH CARD USED

*SECNO 1547.000

3280 CROSS SECTION 1547.00 EXTENDED .10 FEET

825 FT U/S FROM USF OF GRAND TRAVERSE E. ROAD CULVERT, VS#2A SEC. C

1547.00	4.30	925.00	0.00	0.00	925.00	.00	.00	.10	922.40
45.	30.	15.	0.	827.	172.	0.	10.	5.	925.80
4.35	.04	.09	0.00	.085	.040	.080	.034	220.70	0.00
.000001	850.	825.	750.	2	0	0	0.00	436.33	436.33

*SECNO 2697.000

3470 ENCROACHMENT STATIONS= 595.0 607.0 TYPE= 1 TARGET= 12.000

10' D/S FROM D/S FACE OF CARROLL LAKE ROAD CULVERT, VS#1 SEC. D

2697.00	3.50	925.00	0.00	923.42	925.01	.02	.00	.01100000.00	
40.	0.	40.	0.	0.	40.	0.	21.	10. 100000.00	
4.34	0.00	1.00	0.00	.020	.037	.020	.037	921.50	595.00
.000219	900.	1150.	900.	2	0	0	0.00	12.00	607.00

*SECNO 2707.000

2707.00	6.00	925.00	0.00	923.42	925.02	.01	.00	.00	926.60
40.	0.	40.	0.	0.	42.	0.	21.	10.	926.60
4.65	0.00	.95	0.00	.080	.037	.080	.037	919.00	596.40
.000101	10.	10.	10.	0	0	0	0.00	7.20	603.60

*SECNO 2708.000

3370 NORMAL BRIDGE, NRD= 7 MIN ELTRD= 925.50 MAX ELLC= 924.20

D/S FACE OF CARROLL LAKE ROAD CULVERT, BS#2 SEC. E

2708.00	6.00	925.00	0.00	923.42	925.02	.03	.00	.01	926.60
40.	0.	40.	0.	0.	31.	0.	21.	10.	926.60
4.65	0.00	1.28	0.00	.060	.032	.060	.037	919.00	596.40
.000580	1.	1.	1.	0	0	0	-11.06	7.20	603.60

*SECNO 2750.000

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	MTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	SDIST

3370 NORMAL BRIDGE, NRD= 7 MIN ELTRD= 925.50 MAX ELLC= 924.20

U/S FACE OF CARROLL LAKE ROAD CULVERT, BS#2 SEC. E

2750.00	6.02	925.02	0.00	923.42	925.05	.03	.02	.00	926.60
40.	0.	40.	0.	0.	31.	0.	22.	10.	926.60
4.65	0.00	1.28	0.00	.060	.032	.060	.037	919.00	596.40

.000581	42.	42.	42.	0	0	0	-11.13	7.20	603.60

*SECNO 2751.000

2751.00	6.04	925.04	0.00	923.42	925.05	.01	.00	.00	926.60
40.	0.	40.	0.	0.	42.	0.	22.	10.	926.60
4.65	0.00	.94	0.00	.080	.035	.020	.037	919.00	596.40
.000160	1.	1.	1.	1	0	0	0.00	7.20	603.30

*SECNO 3951.000

D/S FACE OF FOX LAKE OUTLET STRUCTURE, BSB3 SEC. F

3951.00	3.48	925.38	0.00	923.42	925.40	.02	.35	.00	930.00
40.	0.	40.	0.	0.	32.	0.	23.	10.	930.00
4.92	0.00	1.24	0.00	.085	.050	.085	.041	921.90	935.70
.000680	800.	1200.	1100.	2	0	0	0.00	13.59	949.30

SPECIAL BRIDGE

SD	XK	XKOR	COFQ	RDLEN	BWC	DWP	DAREA	SS	ELCHU	ELCHD
	0.00	1.00	2.85	0.00	.01	0.00	.01	0.00	926.30	921.90

*SECNO 3993.000
PRESSURE AND WEIR FLOW

ESPRS	EGLWC	HB	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
249372.59	929.79	0.00	40.	0.	0.	0.	926.30	931.00

U/S FACE OF FOX LAKE OUTLET STRUCTURE, BSB3 SEC. F

END OF ISLAND PROBLEM 1

3993.00	4.92	931.22	0.00	926.32	931.22	.00	5.82	0.00	930.00
40.	3.	26.	11.	43.	86.	138.	23.	10.	930.00
4.98	.06	.30	.08	.085	.050	.085	.061	926.30	859.16
.000022	42.	42.	42.	0	0	15	0.00	246.14	1105.30

CCHV= .300 CFHV= .500
*SECNO 250.000
WATER EL=X5 CARD= 909.920

3470 ENCROACHMENT STATIONS= 400.0 446.0 TYPE= 1 TARGET= 46.000

START CALCULATION AT HURON RIVER , WEST BRANCH

250' U/S FROM THE BEACH OF COMMERCE LAKE, WAB26 SEC. A

250.00	5.62	909.92	0.00	909.05	909.95	.03	0.00	.01	911.90
190.	0.	190.	0.	0.	147.	0.	23.	10.	100000.00
4.98	0.00	1.29	0.00	.060	.032	.055	.041	904.50	404.63
.000152	0.	0.	0.	0	0	0	0.00	41.32	446.00

*SECNO 840.000

SECNO	DEPTH	QUSEL	QRIVS	USELK	EG	HI	HI	QLOSS	BANKFLE

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 405.0 446.0 TYPE= 1 TARGET= 41.000

840' U/S FROM THE BEACH OF COMMERCE LAKE, VA#24 SEC. B

840.00	6.01	910.01	0.00	909.12	910.03	.02	.08	.00	909.20
190.	0.	190.	0.	0.	163.	0.	25.	11.	100000.00
5.12	0.00	1.17	0.00	.053	.035	.090	.040	904.00	405.00
.000135	600.	590.	530.	2	0	0	0.00	41.00	446.00

*SECNO 1090.000

3470 ENCROACHMENT STATIONS= 470.0 528.0 TYPE= 1 TARGET= 50.000

1090' U/S FROM THE BEACH OF COMMERCE LAKE, VS#23 SEC. C

1090.00	4.35	910.05	0.00	909.16	910.07	.03	.04	.00	909.20
190.	0.	190.	0.	0.	146.	0.	26.	11.	100000.00
5.17	0.00	1.30	0.00	.053	.032	.086	.040	905.70	470.00
.000200	320.	250.	180.	0	0	0	0.00	50.00	528.00

*SECNO 1490.000

3470 ENCROACHMENT STATIONS= 200.0 241.0 TYPE= 1 TARGET= 61.000

1490' U/S FROM THE BEACH OF COMMERCE LAKE, VS#21 SEC. D

END OF ISLAND PROBLEM 2

1490.00	3.53	910.13	0.00	909.32	910.30	.11	.18	.04	909.30
355.	0.	355.	0.	0.	132.	0.	27.	11.	100000.00
5.21	0.00	2.69	0.00	.052	.032	.072	.039	906.60	200.00
.000809	380.	400.	380.	2	0	0	0.00	41.00	241.00

*SECNO 400.000
WATER EL=X5 CARD= 909.920
3280 CROSS SECTION 400.00 EXTENDED .82 FEET

3470 ENCROACHMENT STATIONS= 35.0 82.0 TYPE= 1 TARGET= 47.000

START THE CALCULATION AT HURON RIVER, EAST BRANCH

400' U/S FROM THE BEACH OF COMMERCE LAKE, VS#25 SEC. A

400.00	6.12	909.92	0.00	909.05	909.93	.01	0.00	.03	906.30
165.	0.	165.	0.	0.	217.	0.	27.	11.	100000.00
5.21	0.00	.76	0.00	.055	.032	.068	.039	903.80	35.00
.000040	0.	0.	0.	0	0	0	0.00	47.00	82.00

*SECNO 1075.000

3470 ENCROACHMENT STATIONS= 26.0 78.0 TYPE= 1 TARGET= 52.000

1075' U/S FROM THE BEACH OF COMMERCE LAKE, VS#24 SEC. B

1075.00	6.85	909.95	0.00	909.07	909.95	.01	.02	.00	906.60
165.	0.	165.	0.	0.	246.	0.	31.	12.	100000.00
5.49	0.00	.67	0.00	.053	.032	.053	.038	903.10	26.00
.000030	625.	675.	725.	2	0	0	0.00	52.00	73.00

*SECNO 1700.000

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

3470 ENCROACHMENT STATIONS= 130.0 185.0 TYPE= 1 TARGET= 55.000

1700' U/S FROM THE BEACH OF COMMERCE LAKE, VS#23 SEC. C

1700.00	4.97	909.97	3.00	909.09	909.98	.01	.03	.00	813.30
165.	0.	165.	0.	0.	178.	0.	36.	13.	100000.00
5.60	0.00	.92	0.00	.055	.032	.053	.038	905.00	135.93
.000076	650.	625.	600.	0	0	0	0.00	69.06	185.00

*SECNO 2030.000

3265 DIVIDED FLOW

3280 CROSS SECTION 2030.00 EXTENDED .13 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 913.80 ELREA= 914.00

2030.00	4.67	909.97	0.00	909.11	910.12	.15	.07	.07	913.80
165.	0.	165.	0.	0.	54.	0.	34.	13.	914.00
5.71	0.00	3.06	0.00	.053	.032	.053	.038	905.30	210.07
.001283	400.	330.	200.	1	0	0	0.00	14.01	224.29

*SECNO 2031.000

3265 DIVIDED FLOW

3280 CROSS SECTION 2031.00 EXTENDED .17 FEET

3370 NORMAL BRIDGE.NRD= 14 MIN ELTRD= 909.80 MAX ELLC= 911.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 913.80 ELREA= 914.00

D/S FACE OF GREENMOOR DRIVE CULVERT, FS#22 SEC. D

2031.00	4.67	909.97	0.00	909.11	910.12	.15	.00	.00	913.80
165.	0.	165.	0.	0.	54.	0.	34.	13.	914.00
5.71	0.00	3.07	0.00	.035	.025	.035	.038	905.30	210.08
.000783	1.	1.	1.	0	0	0	0.00	14.01	224.29

*SECNO 2045.000

3265 DIVIDED FLOW

3280 CROSS SECTION 2045.00 EXTENDED .19 FEET

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 909.80 MAX ELLC= 911.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 913.80 ELREA= 914.00

U/S FACE OF GREENMOOR DRIVE CULVERT, BS#22 SEC. D

2045.00	4.68	909.98	0.00	909.12	910.13	.15	.01	.00	913.80	
165.	0.	165.	0.	0.	56.	0.	36.	13.	914.00	
5.71	0.00	3.06	0.00	.035	.025	.035	.038	905.30	210.07	
.000779	14.	14.	14.	0	0	0	0.00	14.02	224.29	

*SECNO 2046.000

3265 DIVIDED FLOW

3280 CROSS SECTION 2046.00 EXTENDED .18 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 913.80 ELREA= 914.00

2046.00	4.68	909.98	0.00	909.12	910.13	.15	.00	.00	913.80
165.	0.	165.	0.	0.	54.	0.	35.	13.	914.00
5.71	0.00	3.06	0.00	.052	.032	.052	.038	905.30	210.07
.001278	1.	1.	1.	0	0	0	0.00	14.02	224.29

*SECNO 2246.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
0	OLOB	OCH	OROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	UTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 200.0 241.0 TYPE= 1 TARGET= 41.000

70' D/S FROM D/S FACE OF POLVADERA DR CULVERT, VS#21 SEC. E

END OF ISLAND PROBLEM 2

2246.00	3.61	910.21	0.00	909.34	910.32	.11	.18	.01	909.30
355.	0.	355.	0.	0.	133.	0.	35.	13.	100000.00
5.73	0.00	2.67	0.00	.052	.032	.072	.037	906.60	200.00
.000783	150.	200.	250.	2	0	0	0.00	41.00	241.00

*SECNO 2316.000

2316.00	4.41	910.31	0.00	909.42	910.37	.06	.03	.01	908.60
355.	15.	339.	1.	33.	166.	3.	35.	13.	909.10
5.74	.47	2.05	.26	.052	.032	.072	.037	905.90	161.20
.000330	70.	70.	70.	2	0	0	0.00	84.63	245.83

*SECNO 2317.000

D/S FACE OF POLVADERA DRIVE CULVERT, #S#20 SEC. F

2317.00	4.41	910.31	0.00	909.43	910.37	.06	.00	.00	908.60
355.	24.	329.	2.	33.	166.	3.	35.	13.	909.10
5.74	.74	1.99	.57	.035	.035	.035	.037	905.90	161.19
.000372	1.	1.	1.	0	0	0	0.00	34.64	245.83

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	SNC	DM2	BAREA	SS	ELCMU	ELCHD
	0.00	1.69	2.85	0.00	3.93	0.00	19.63	3.00	906.70	905.90

#SECNO 2346.000
3280 CROSS SECTION 2366.00 EXTENDED .88 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	M3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
918.90	912.11	0.00	158.	200.	20.	20.	911.70	911.90

U/S FACE OF POLVADERA DRIVE CULVERT, DS#20 SEC. F

2346.00	6.07	912.77	0.00	909.69	913.03	.25	2.66	0.00	912.40
355.	71.	284.	0.	30.	64.	0.	35.	13.	912.70
5.74	1.86	4.42	.02	.035	.035	.035	.037	906.70	0.00
.002761	29.	29.	29.	2	0	5	0.00	64.05	64.05

#SECNO 2347.000

3470 ENCROACHMENT STATIONS= 100.0 242.0 TYPE= 1 TARGET= 62.000

2347.00	6.37	913.07	0.00	911.33	913.10	.02	.00	.07	909.40
355.	31.	324.	0.	65.	246.	3.	35.	13.	909.90
5.74	.48	1.32	.14	.065	.037	.090	.037	906.70	180.00
.000108	1.	1.	1.	2	0	0	0.00	62.00	262.00

#SECNO 2767.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	WL	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= 650.0 960.0 TYPE= 1 TARGET= -650.000

525' D/S FROM D/S FACE OF SLEETH-COMMERCE RD CULVERT, VS#19 SEC. G

2767.00	5.13	913.13	0.00	911.42	913.15	.03	.06	.00	911.90
310.	55.	244.	11.	118.	164.	35.	38.	14.	910.40
5.83	.47	1.69	.30	.065	.037	.090	.037	908.00	650.00
.000217	300.	420.	450.	2	0	0	0.00	135.96	785.98

#SECNO 3152.000

140' D/S FROM D/S FACE OF SLEETH-COMMERCE RD CULVERT, VS#18 SEC. H

3152.00	3.25	913.25	0.00	911.90	913.37	.12	.16	.05	910.60
310.	35.	275.	0.	33.	93.	0.	60.	15.	916.70
5.87	1.08	2.95	0.00	.060	.035	.070	.037	910.00	217.29
.001308	320.	385.	400.	2	0	0	0.00	59.22	276.51

*SECNO 3292.000

3292.00	4.71	913.41	0.00	912.45	913.76	.35	.28	.11	918.30
200.	0.	200.	0.	0.	42.	0.	60.	15.	918.30
5.88	0.00	4.75	0.00	.060	.035	.060	.037	908.70	1450.00
.004179	220.	140.	60.	2	0	0	0.00	10.00	1460.00

*SECNO 3293.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 915.80 MAX ELLC= 914.10

D/S FACE OF SLEETH-COMMERCE ROAD CULVERT, BS#17 SEC. I

3293.00	4.71	913.41	0.00	912.66	913.76	.35	.00	.00	918.30
200.	0.	200.	0.	0.	42.	0.	60.	15.	918.30
5.88	0.00	4.75	0.00	.025	.020	.025	.037	908.70	1450.00
.001362	1.	1.	1.	0	0	0	0.00	10.00	1460.00

*SECNO 3331.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 915.80 MAX ELLC= 914.10

U/S FACE OF SLEETH-COMMERCE ROAD CULVERT, BS#17 SEC. I

3331.00	4.78	913.48	0.00	912.53	913.82	.34	.05	.00	918.30
200.	0.	200.	0.	0.	43.	0.	60.	15.	918.30
5.89	0.00	4.68	0.00	.025	.020	.025	.037	908.70	1450.00
.001307	38.	38.	38.	2	0	0	0.00	10.00	1460.00

*SECNO 3332.000

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

3332.00	4.78	913.48	0.00	912.53	913.82	.34	.00	.00	918.30
200.	0.	200.	0.	0.	43.	0.	60.	15.	918.30
5.88	0.00	4.68	0.00	.080	.040	.080	.037	908.70	1450.00
.005224	1.	1.	1.	0	0	0	0.00	10.00	1460.00

*SECNO 3422.000

3470 ENCROACHMENT STATIONS= 600.0 1075.0 TYPE= 1 TARGET= -600.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 915.65 ELREA= 923.65

3422.00	3.68	914.03	0.00	913.10	914.12	.09	.22	.08	915.65
200.	0.	200.	0.	0.	85.	0.	60.	15.	923.65
5.89	0.00	2.35	0.00	.085	.045	.095	.037	910.35	737.60
.001440	100.	90.	25.	2	0	0	0.00	30.88	768.48

*SECNO 3512.000

3470 ENCROACHMENT STATIONS= 600.0 1075.0 TYPE= 1 TARGET= -600.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 917.30 ELREA= 925.30

3512.00	2.18	914.18	0.00	913.51	914.53	.35	.28	.13	917.30
200.	0.	200.	0.	0.	42.	0.	41.	15.	925.30
5.90	0.00	4.73	0.00	.085	.045	.095	.037	912.00	740.92
.011633	100.	90.	25.	2	0	0	0.00	26.43	767.35

*SECNO 3602.000

3470 ENCROACHMENT STATIONS= 600.0 1075.0 TYPE= 1 TARGET= -600.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 918.95 ELREA= 926.95

3602.00	1.87	915.52	0.00	915.49	916.06	.54	1.43	.10	918.95
200.	0.	200.	0.	0.	34.	0.	41.	15.	926.95
5.90	0.00	5.99	0.00	.085	.045	.095	.037	913.65	741.64
.022898	100.	90.	25.	4	0	0	0.00	25.46	767.10

*SECNO 3692.000

3470 ENCROACHMENT STATIONS= 600.0 1075.0 TYPE= 1 TARGET= -600.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 920.60 ELREA= 928.60

270' U/S FROM U/S FACE OF SLEETH-COMMERCE ROAD, VS#16 SEC. J

3692.00	2.05	917.35	0.00	916.91	917.76	.42	1.67	.04	920.60
200.	0.	200.	0.	0.	39.	0.	61.	15.	928.60
5.91	0.00	5.18	0.00	.085	.045	.095	.037	915.30	741.23
.015360	100.	90.	25.	3	0	0	0.00	26.01	767.24

*SECNO 4292.000

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	EV	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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 930.10 ELREA= 930.00

870' U/S FROM U/S FACE OF SLEETH-COMMERCE ROAD, VS#15 SEC. K

4292.00	1.83	926.83	0.00	926.66	927.33	.50	9.52	.04	930.10
200.	0.	200.	0.	0.	35.	0.	41.	16.	930.00
5.96	0.00	5.67	0.00	.092	.042	.060	.038	925.00	291.04
.016415	300.	600.	700.	4	0	0	0.00	24.54	315.58

*SECNO 4632.000

3470 ENCROACHMENT STATIONS= 575.6 596.9 TYPE= 1 TARGET= 21.300

4632.00	3.58	929.18	0.00	928.65	929.35	.18	1.93	.10	100000.00
200.	0.	200.	0.	0.	59.	0.	42.	16.	100000.00
5.96	0.00	3.33	0.00	.095	.040	.055	.038	925.60	575.60
.002043	340.	340.	340.	5	0	0	0.00	21.30	596.90

CCHK= 300 CEN= 500

*SECNO 4633.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 931.90 MAX ELLC= 932.60

D/S FACE OF FARR ROAD CULVERT, BS#14 SEC. L*

4633.00	3.60	929.20	0.00	923.69	929.56	.16	.00	.00	933.50
200.	0.	200.	0.	0.	62.	0.	42.	16.	933.80
5.96	0.00	3.24	0.00	.040	.032	.040	.038	925.60	575.60
.001855	1.	1.	1.	1	0	0	-4.82	21.30	596.90

*SECNO 4669.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 931.90 MAX ELLC= 932.60

U/S FACE OF FARR ROAD CULVERT, BS#14 SEC. L

4669.00	3.67	929.27	0.00	923.74	929.63	.16	.00	.00	933.50
200.	0.	200.	0.	0.	63.	0.	42.	16.	933.80
5.97	0.00	3.17	0.00	.040	.032	.040	.038	925.60	575.60
.001730	36.	36.	36.	1	0	0	-5.21	21.30	596.90

*SECNO 4670.000

3470 ENCROACHMENT STATIONS= 575.6 596.9 TYPE= 1 TARGET= 21.300

4670.00	3.69	929.29	0.00	928.74	929.63	.16	.00	.00100000.00	
200.	0.	200.	0.	0.	56.	0.	42.	16.	100000.00
5.97	0.00	3.05	0.00	.085	.042	.035	.038	925.60	575.60
.002201	1.	1.	1.	1	0	0	0.00	21.30	596.90

*SECNO 4870.000

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

3470 ENCROACHMENT STATIONS= 75.0 205.0 TYPE= 1 TARGET= 130.000

200' U/S FROM U/S FACE OF FARR ROAD CULVERT, VS#13 SEC. M

4870.00	8.98	929.48	0.00	928.89	929.48	.00	.01	.04	930.00
200.	0.	200.	0.	0.	591.	0.	83.	16.	100000.00
6.13	0.00	.34	0.00	.085	.042	.085	.038	920.50	76.51
.000012	210.	200.	190.	2	0	0	0.00	128.49	205.00

*SECNO 5170.000

3470 ENCROACHMENT STATIONS= 75.0 212.0 TYPE= 1 TARGET= 137.000

500' U/S FROM U/S FACE OF FARR ROAD CULVERT, VS#12 SEC. N

5170.00	7.09	929.49	0.00	928.90	929.69	.00	.01	.00	930.30
200.	0.	200.	0.	0.	410.	0.	47.	17.	100000.00
6.30	0.00	.49	0.00	.085	.045	.075	.030	922.40	77.03
.000051	310.	300.	290.	2	0	0	0.00	134.97	212.00

*SEC 0 5295.000

3470 ENCROACHMENT STATIONS= 150.0 170.0 TYPE= 1 TARGET= 28.000

495' D/S FROM D/S FACE OF COMMERCE ROAD, VS#11 SEC. D

5795.00	3.54	929.54	0.00	928.96	929.63	.10	.09	.05	929.00	
200.	0.	200.	0.	0.	81.	0.	50.	18.	100000.00	
6.37	0.00	2.48	0.00	.085	.045	.075	.038	926.00	150.00	
.001584	600.	625.	650.	2	0	0	0.00	28.00	178.00	

*SECNO 6270.000

3470 ENCROACHMENT STATIONS= 95.0 133.0 TYPE= 1 TARGET= 38.000

20' D/S FROM D/S FACE OF COMMERCE ROAD CULVERT, VS#10 SEC. P

6270.00	4.79	929.99	0.00	929.41	930.03	.06	.39	.02	928.20
200.	0.	200.	0.	0.	124.	0.	51.	19.	100000.00
6.45	0.00	1.62	0.00	.080	.042	.000	.039	925.20	95.00
.000496	475.	475.	475.	2	0	0	0.00	38.00	133.00

*SECNO 6290.000

3470 ENCROACHMENT STATIONS= 109.0 129.0 TYPE= 1 TARGET= 20.000

6290.00	3.41	929.91	0.00	929.34	930.10	.25	.02	.10	100000.00
200.	0.	200.	0.	0.	50.	0.	51.	19.	100000.00
6.45	0.00	3.99	0.00	.080	.042	.080	.039	926.50	109.00
.004648	20.	20.	20.	2	0	0	0.00	20.00	129.00

*SECNO 6291.000

SECNO	DEPTH	CNSEL	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

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD= 936.60 MAX ELLC= 932.20

D/S FACE OF COMMERCE ROAD CULVERT, BS#9 SEC. C

6291.00	3.41	929.91	0.00	929.38	930.17	.26	.00	.00	937.00
200.	0.	200.	0.	0.	49.	0.	51.	19.	937.00
6.45	0.00	4.07	0.00	.035	.032	.035	.039	926.50	1090.00
.003440	1.	1.	1.	0	0	0	-7.10	20.00	1110.00

*SECNO 6356.000

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD= 936.60 MAX ELLC= 932.20

U/S FACE OF COMMERCE ROAD CULVERT, BS#9 SEC. Q

6354.00	3.65	930.15	0.00	929.58	930.37	.22	.19	.01	937.00
200.	0.	200.	0.	0.	53.	0.	51.	19.	937.00
6.46	0.00	3.79	0.00	.035	.032	.035	.039	926.50	1090.00
.002790	63.	63.	63.	1	0	0	-8.37	20.00	1110.00

*SECNO 6355.000

3470 ENCROACHMENT STATIONS=			1090.0	1110.0	TYPE=	1	TARGET=		20.000	
6355.00	3.74	930.24	0.00	929.66	930.40	.15	.00	.02100000.00		
200.	0.	200.	0.	0.	63.	0.	51.	19.	100000.00	
6.46	0.00	3.15	0.00	.060	.033	.060	.039	926.50	1090.00	
.001407	1.	1.	1.	2	0	0	0.00	20.00	1110.00	

*SECNO 6395.000

D/S FACE OF DAM, 40' U/S FROM COMMERCE ROAD, DS#8 SEC. R

6395.00	2.90	930.40	0.00	929.76	930.47	.06	.04	.03	929.40
200.	10.	199.	1.	16.	91.	3.	51.	19.	929.40
6.46	.59	2.08	.43	.060	.035	.060	.039	927.50	64.00
.000771	40.	40.	40.	2	0	0	0.00	66.50	130.30

SPECIAL BRIDGE

SS	XK	XKOR	COFQ	RDLEN	SNC	SWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.00	3.08	0.00	.01	0.00	.01	0.00	926.60	927.50

*SECNO 6397.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD

212110.53	929.53	0.00	200.	0.	0.	0.	926.60	929.60	

U/S FACE OF DAM, 40' U/S FROM COMMERCE ROAD, DS#8 SEC. R

6397.00	4.56	931.16	0.00	930.89	931.17	.01	.70	0.00	929.80
200.	0.	200.	0.	0.	256.	256.	51.	19.	987.30
6.47	0.00	.78	.00	.060	.033	.060	.039	926.50	62.72
.000056	2.	2.	2.	0	0	12	0.00	73.94	136.65

1490 NH CARD USED
*SECNO 6647.000

SECNO	DEPTH	CHSEL	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
SLOPF	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

290' U/S FROM U/S FACE OF COMMERCE ROAD, VS#7 SEC. S

6647.00	11.27	931.17	0.00	930.90	931.17	.00	.00	.00	933.60
200.	0.	200.	0.	0.	724.	0.	55.	19.	933.60
6.72	0.00	.28	0.00	.060	.034	.060	.038	919.90	106.55
.000003	250.	250.	250.	2	0	0	0.00	110.56	217.11

1490 NH CARD USED
*SECNO 7097.000

740' U/S FROM U/S FACE OF COMMERCE ROAD, VS#6 SEC. T

7097.00	6.97	931.17	0.00	930.90	931.18	.01	.00	.01	931.70
200.	0.	200.	0.	0.	205.	2.	60.	20.	930.70
6.84	0.00	.98	.06	.060	.034	.035	.038	924.20	200.95
.000075	450.	450.	450.	1	0	0	0.00	56.21	257.16

*SECNO 7847.000

1490' U/S FROM U/S FACE OF COMMERCE ROAD, VS#5 SEC. U

7847.00	6.50	931.20	0.00	930.92	931.20	.00	.01	.00	934.10
200.	0.	200.	0.	0.	1158.	0.	72.	25.	932.40
8.05	0.00	.17	0.00	.060	.035	.060	.038	924.70	78.49
.000005	750.	750.	750.	0	0	0	0.00	504.01	582.50

*SECNO 8407.000

2050' U/S FROM U/S FACE OF COMMERCE ROAD, VS#4 SEC. V

END OF ISLAND PROBLEM 1

8607.00	5.08	931.18	0.00	930.90	931.24	.07	.01	.03	930.90
200.	0.	200.	0.	1.	96.	0.	80.	29.	931.00
8.13	.17	2.08	.11	.055	.037	.065	.038	926.10	195.08
.000574	560.	560.	560.	2	0	0	0.00	36.99	232.08

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: COMMERCE TOWNSHIP

3) WATERCOURSE: HURON RIVER

4) DOCUMENT TYPE: 100 YR NATURAL

00BREAK00

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************************

T1      FIS - COMMERCE TOWNSHIP, 5850-02-1      PM = RICHARD ZANOTTI
T2      100-YEAR FLOOD
T3      HURON RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q         WSEL     FQ
      -1.      4.       0.       0.    .002300     0.00      0.0       0.    923.500    0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN        ALLDC     IBW       CHNIM    ITRACE
    3.000     0.000   -1.000    0.000    0.000    0.000     0.000     0.000     0.000    0.000
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#PROF 3

CCHV=    .300 CEHV=    .500
1490 NH CARD USED
#SECNO .000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         OLOB      OCH       OROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

          START THE CALCULATION AT CARROLL LAKE OUTLET, using Slope area method

          700 FT D/S FROM GRAND TRAVERSE E. ROAD   VS #4A                SEC. A

      0.00      1.95    922.15      0.00    923.50    922.22      .07      0.00      0.00    921.60
       45.        7.        38.        0.        17.       17.        1.        0.        0.     922.00
      0.00       .40      2.26       .16       .080      .035      .080    0.000    920.20    204.72
    .002306        0.        0.        0.         0         0         8     0.00     86.38    291.10

#SECNO 700.000
    700.00      2.05    924.55      0.00      0.00    924.77      .23      2.48      .08    927.20
       45.        0.        45.        0.        0.       12.        0.        0.        1.     927.20
       .05      0.00      3.81      0.00      .085      .035      .085      .035    922.50    463.00
    .006274       600.      700.      650.         3         0         0     0.00      6.00    469.00

#SECNO 701.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  927.10 MAX ELLC=  925.40

          D/S FACE OF GRAND TRAVERSE E. ROAD CULVERT,  BS#3A              SEC. B

    701.00      2.05    924.55      0.00      0.00    924.78      .22      .00       .00    927.20
       45.        0.        45.        0.        0.       12.        0.        0.        1.     927.20
       .05      0.00      3.80      0.00      .065      .020      .065      .035    922.50    463.00
    .002027        1.        1.        1.         0         0         0     0.00      6.00    469.00

#SECNO 721.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  927.10 MAX ELLC=  925.40

          U/S FACE OF GRAND TRAVERSE E. ROAD CULVERT,  BS#3A              SEC. B

    721.00      1.85    924.55      0.00      0.00    924.89      .34      .05       .06    927.20
       45.        0.        45.        0.        0.       10.        0.        0.        1.     927.20
       .05      0.00      4.70      0.00      .065      .020      .065      .035    922.70    463.00
    .003558       20.       20.       20.         2         0         0     0.00      6.00    469.00

#SECNO 722.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         OLOB      OCH       OROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

    722.00      1.85    924.55      0.00      0.00    924.89      .34      .01       .00    927.20
       45.        .        45.        .         0.       10.        0.        0.        1.     927.20
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Low-flow only

- use normal bridge routine -

.05	0.00	4.60	0.00	.080	.037	.080	.037	921.70	463.00
.012133	1.	1.	1.	0	0	0	0.00	6.00	469.00

1490 NH CARD USED
*SECNO 1547.000
3280 CROSS SECTION 1547.00 EXTENDED .10 FEET

825 FT U/S FROM USF OF GRAND TRAVERSE E. ROAD CULVERT, VS#2A SEC. C

1547.00	4.30	925.00	0.00	0.00	925.00	.00	.00	.10	922.40
45.	30.	15.	0.	827.	172.	0.	10.	5.	925.80
4.35	.04	.09	0.00	.085	.040	.080	.036	920.70	0.00
.000001	850.	825.	750.	2	0	0	0.00	436.33	436.33

*SECNO 2697.000

3470 ENCROACHMENT STATIONS= 595.0 607.0 TYPE= 1 TARGET= 12.000

10' D/S FROM D/S FACE OF CARROLL LAKE ROAD CULVERT, VS#1 SEC. D

2697.00	3.50	925.00	0.00	923.42	925.01	.02	.00	.01100000.00	
40.	0.	40.	0.	0.	40.	0.	21.	10. 100000.00	
4.64	0.00	1.00	0.00	.080	.037	.080	.037	921.50	595.00
.000219	900.	1150.	900.	2	0	0	0.00	12.00	607.00

*SECNO 2707.000

2707.00	6.00	925.00	0.00	923.42	925.02	.01	.00	.00	926.60
40.	0.	40.	0.	0.	42.	0.	21.	10.	926.60
4.65	0.00	.95	0.00	.080	.037	.080	.037	919.00	596.40
.000181	10.	10.	10.	0	0	0	0.00	7.20	603.60

*SECNO 2708.000

3370 NORMAL BRIDGE, NRD= 7 MIN ELTRD= 925.50 MAX ELLC= 924.20

D/S FACE OF CARROLL LAKE ROAD CULVERT, BS#2 SEC. E

2708.00	6.00	925.00	0.00	923.42	925.02	.03	.00	.01	926.60
40.	0.	40.	0.	0.	31.	0.	21.	10.	926.60
4.65	0.00	1.28	0.00	.060	.032	.060	.037	919.00	596.40
.000580	1.	1.	1.	0	0	0	-11.06	7.20	603.60

*SECNO 2750.000

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

3370 NORMAL BRIDGE, NRD= 7 MIN ELTRD= 925.50 MAX ELLC= 924.20

U/S FACE OF CARROLL LAKE ROAD CULVERT, BS#2 SEC. E

2750.00	6.02	925.02	0.00	923.42	925.05	.03	.02	.00	926.60
40.	0.	40.	0.	0.	31.	0.	22.	10.	926.60
4.65	0.00	1.28	0.00	.060	.032	.060	037	919.00	596.40

(1) Pressure flow only;
use hand-calculation (see attached hydraulic analysis booklet)

(2) Since the elevation difference between hand-calculation and HEC-2 result is very small, HEC-2 result was used.

```
 .0005.1        42.       4..       4..        0         0         0     -11.15      7.20    6 3.60

*SECNO 2751.000
 2751.00       6.04    925.04      0.00    923.42    925.05      .01       .00       .00    926.60
    40.          0.       40.        0.        0.       42.        0.       22.       10.     926.60
    4.65       0.00       .94      0.00      .080      .035      .080      .037   919.00    596.40
 .000160         1.        1.        1.         1         0         0      0.00      7.20    603.60

*SECNO 3951.000

          D/S FACE OF FOX LAKE OUTLET STRUCTURE, BS#3                          SEC. F

 3951.00       3.48    925.38      0.00    923.42    925.40      .02       .35       .00    930.00
    40.          0.       40.        0.        0.       32.        0.       23.       10.     930.00
    4.92       0.00      1.24      0.00      .085      .050      .085      .041   921.90    935.70
 .000680       800.      1200.     1100.         2         0         0      0.00     13.59    949.30

SPECIAL BRIDGE

SB  XK          XKOR        COFQ       RDLEN        BWC         BWP       BAREA        SS       ELCHU      ELCHD
      0.00        1.00        2.85        0.00         .01        0.00         .01      0.00      926.30     921.90

*SECNO 3993.000
PRESSURE AND WEIR FLOW

  EGPRS        EGLWC         H3        QWEIR        QPR        BAREA   TRAPEZOID AREA        ELLC       ELTRD
269372.59      929.79       0.00          40.         0.           0.               0.      926.30      931.00

          U/S FACE OF FOX LAKE OUTLET STRUCTURE, BS#3                          SEC. F

          END OF ISLAND PROBLEM 1

 3993.00       4.92    931.22      0.00    926.32    931.22      .00       5.82      0.00    930.00
    40.          3.       26.       11.       43.       86.      138.       23.       10.     930.00
    4.98       .06       .30       .08      .085      .050      .085      .041   926.30    859.16
 .000022         42.       42.       42.         0         0        15      0.00    246.14   1105.30

CCHV=    .300 CEHV=    .500
*SECNO 250.000
 WATER EL=X5 CARD=   909.920

3470 ENCROACHMENT STATIONS=     365.0     940.0  TYPE=      1  TARGET=    -365.000

          START CALCULATION AT HURON RIVER, WEST BRANCH

          250' U/S FROM THE BEACH OF COMMERCE LAKE, VA#26                      SEC. A

 250.00        5.42    909.92      0.00    909.05    909.95      .03       0.00       .01    911.90
   190.          0.      189.        1.        0.      147.        5.       23.       10.     909.40
    4.98       0.00      1.29       .13      .060      .032      .055      .041   904.50    404.68
 .000149          0.        0.        0.         0         0         0      0.00     61.38    466.06

*SECNO 840.000
  SEC NO    DEPTH     C SEL     C I S     SELK      EG        HV        HL        OLOSS     B.N. ELEV
```

(1) One gate was built at U/S face of the culvert. But the people over there told us that this gate has been closed since Fox Lake outlet structure at Huron River near Wise Road was built. So in this study, this gate was assumed to be closed.

(2) Only weir flow ; free-fall weir flow (top widths u/s & d/s are different)

(3) End of Island Problem 1

(1) Start calculation at the Huron River, west branch. The starting elevation is 100-year flood elevation of Commerce Lake (use X5 card)

(2) Start of Island Problem 2

(3) Encroach. due to "building"

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 278.0 873.0 TYPE= 1 TARGET= 600.000

840' U/S FROM THE BEACH OF COMMERCE LAKE, VA#24 SEC. B

840.00	6.01	910.01	0.00	909.12	910.03	.02	.08	.00	909.20
190.	7.	182.	0.	46.	163.	3.	25.	12.	909.30
5.13	.16	1.12	.09	.053	.035	.090	.040	904.00	278.00
.000118	600.	590.	530.	2	0	0	0.00	177.84	455.84

*SECNO 1090.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 302.0 733.0 TYPE= 1 TARGET= -302.000

1090' U/S FROM THE BEACH OF COMMERCE LAKE, VS#23 SEC. C

1090.00	4.34	910.04	0.00	909.16	910.06	.02	.04	.00	909.20
190.	7.	183.	0.	32.	146.	2.	26.	13.	909.50
5.19	.21	1.25	.10	.053	.032	.086	.040	905.70	302.00
.000180	320.	250.	180.	0	0	0	0.00	145.22	535.72

*SECNO 1490.000

1490' U/S FROM THE BEACH OF COMMERCE LAKE, VS#21 SEC. D

END OF ISLAND PROBLEM 2

1490.00	3.56	910.16	0.00	909.32	910.27	.11	.16	.04	909.30
355.	4.	351.	0.	8.	131.	0.	28.	14.	909.80
5.23	.45	2.68	.18	.052	.032	.072	.039	906.60	180.42
.000777	380.	400.	380.	2	0	0	0.00	62.02	242.45

*SECNO 400.000
WATER EL=X5 CARD= 909.920
3280 CROSS SECTION 400.00 EXTENDED .82 FEET

(1) Start calculation at Huron River, East Branch. The starting elevation is 100-year flood elevation of Commerce lake. (use X5 card.)

START THE CALCULATION AT HURON RIVER, EAST BRANCH

(2) Start of Island Problem 2

400' U/S FROM THE BEACH OF COMMERCE LAKE, VS#25 SEC. A

400.00	6.12	909.92	0.00	909.05	909.92	.00	0.00	.03	906.30
165.	10.	123.	32.	57.	217.	328.	28.	14.	909.90
5.23	.18	.56	.10	.055	.032	.068	.039	903.80	3.33
.000020	0.	0.	0.	0	0	0	0.00	478.68	482.00

*SECNO 1075.000

3470 ENCROACHMENT STATIONS= .0 171.0 TYPE= 1 TARGET= 170.990

107[illegible]' U/S FROM THE BEACH OF COMMERCE LAKE, VS[illegible] SEC. B

```
 1075.00     6.83   909.93     0.00   909.07   909.96     .01     .01     .00   906.60
  165.        12.    151.       3.     55.      246.      36.     35.     19.    909.20
    5.55      .22     .61      .07     .053     .032     .053    .038  903.10     .01
 .000023     625.    675.     725.       2        0        0    0.00  170.99   171.00

*SECNO 1700.000
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL       OLOSS    BANK ELEV
   Q        QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA    LEFT/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     302.0  TYPE=     1  TARGET=     301.999

          1700' U/S FROM THE BEACH OF COMMERCE LAKE, VS#23                SEC. C

 1700.00     4.95   909.95     0.00   909.09   909.96     .01     .02     .00   913.30
  165.         0.    157.       3.      0.      177.      51.     39.     21.    908.90
    5.76      0.00    .89      .15     .055     .032     .053    .038  905.00   135.97
 .000068     650.    625.     600.       0        0        0    0.00  153.74   289.71

*SECNO 2030.000

3265 DIVIDED FLOW

3280 CROSS SECTION   2030.00 EXTENDED       .15 FEET

 2030.00     4.65   909.95     0.00   909.10   910.09     .15     .06     .07   913.80
  165.         0.    164.       1.      0.      53.       5.      40.     22.    914.00
    5.79      0.00    3.07     .18     .053     .032     .053    .038  905.30   210.08
 .001303     400.    330.     200.       2        0        0    0.00   76.49   467.84

*SECNO 2031.000

3265 DIVIDED FLOW

3280 CROSS SECTION   2031.00 EXTENDED       .15 FEET

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  909.80 MAX ELLC=  911.20

          D/S FACE OF GREENMOOR DRIVE CULVERT, BS#22                      SEC. D

 2031.00     4.65   909.95     0.00   909.10   910.09     .15     .00     .00   913.80
  165.         0.    166.       1.      0.      53.       5.      40.     22.    914.00
    5.79      0.00    3.07     .21     .035     .025     .035    .038  905.30   210.08
 .000793        1.      1.       1.       0        0        0    0.00   76.79   467.84

*SECNO 2045.000

3265 DIVIDED FLOW

3280 CROSS SECTION   2045.00 EXTENDED       .16 FEET

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  909.70 MAX ELLC=  911.70
```

(1) Skewness = 0.86 have been used to adjust stations.

(2) For 100-year flood, it yields "low flow and overland flow". So normal bridge routine were used. But major portion of the flow is low flow (about 99%)

U/S FACE OF GREENMOOR DRIVE CULVERT, BS#22 SEC. D

2045.00	4.66	909.96	0.00	909.12	910.10	.14	.01	.00	913.80
165.	0.	164.	1.	0.	54.	6.	40.	22.	914.00
5.79	0.00	3.05	.22	.035	.025	.035	.038	905.30	210.08
.000781	14.	14.	14.	0	0	0	0.00	83.50	467.84

*SECNO 2046.000

3265 DIVIDED FLOW

3280 CROSS SECTION 2046.00 EXTENDED .16 FEET

2046.00	4.66	909.96	0.00	909.12	910.11	.14	.00	.00	913.80
165.	0.	164.	1.	0.	54.	6.	40.	22.	914.00
5.79	0.00	3.06	.19	.052	.032	.052	.038	905.30	210.08
.001283	1.	1.	1.	0	0	0	0.00	85.35	467.84

*SECNO 2246.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	ES	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	IDC	ICONT	CORAR	TOPWID	ENDST

70' D/S FROM D/S FACE OF POLVADERA DR CULVERT, VS#21 SEC. E

END OF ISLAND PROBLEM 2

2246.00	3.58	910.18	0.00	909.34	910.29	.11	.18	.01	909.30
355.	4.	351.	0.	9.	132.	0.	41.	22.	909.80
5.81	.46	2.67	.18	.052	.032	.072	.037	906.60	180.09
.000764	150.	200.	250.	1	0	0	0.00	62.41	242.50

*SECNO 2316.000

2316.00	4.38	910.28	0.00	909.42	910.34	.06	.03	.01	908.60
355.	15.	339.	1.	32.	164.	3.	41.	23.	909.10
5.82	.47	2.06	.26	.052	.032	.072	.037	905.90	161.87
.000340	70.	70.	70.	2	0	0	0.00	83.84	245.71

*SECNO 2317.000

D/S FACE OF POLVADERA DRIVE CULVERT, BS#20 SEC. F

2317.00	4.38	910.28	0.00	909.42	910.34	.06	.00	.00	908.60
355.	24.	330.	2.	32.	164.	3.	41.	23.	909.10
5.82	.74	2.01	.57	.035	.035	.035	.037	905.90	161.85
.000383	1.	1.	1.	0	0	0	0.00	83.86	245.71

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	ROLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.69	2.85	0.00	3.93	0.00	19.63	0.00	906.70	905.90

*SECNO 2346.000

(1) ~~The existing conditions are "one"~~ CMP culvert, 5.0' diameter, 15' long. But this culvert will be replaced very soon. In this study, existing conditions were used.

(2) "n" values have been adjusted ± show better flow continuity.

3...0.C..O.S SECTION 2346.00 E.TENDED .8. FEET

(3) Road profile has been cutted once at high ground and buildings at u/s and d/s faces of the bridge.

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
918.87	912.10	0.00	157.	201.	20.	20.	911.70	911.90

U/S FACE OF POLVADERA DRIVE CULVERT, BS#20 SEC. F

2346.00	6.07	912.77	0.00	909.69	913.02	.26	2.68	0.00	912.40
355.	70.	285.	0.	38.	64.	0.	41.	23.	912.70
5.82	1.86	4.44	.02	.035	.035	.035	.037	906.70	0.00
.002781	29.	29.	29.	2	0	5	0.00	63.92	63.92

*SECNO 2347.000

3470 ENCROACHMENT STATIONS= 180.0 242.0 TYPE= 1 TARGET= 62.000

2347.00	6.37	913.07	0.00	911.33	913.09	.02	.00	.07	909.40
355.	31.	324.	0.	65.	246.	3.	41.	23.	909.90
5.82	.48	1.32	.14	.065	.037	.090	.037	906.70	180.00
.000108	1.	1.	1.	2	0	0	0.00	62.00	242.00

*SECNO 2767.000

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

525' D/S FROM D/S FACE OF SLEETH-COMMERCE RD CULVERT, VS#19 SEC. G

2767.00	5.13	913.13	0.00	911.42	913.14	.01	.04	.00	911.90
310.	124.	178.	8.	380.	164.	36.	45.	24.	910.40
5.96	.33	1.09	.22	.065	.037	.090	.037	908.00	452.96
.000115	300.	420.	450.	2	0	0	0.00	333.04	786.01

*SECNO 3152.000

140' D/S FROM D/S FACE OF SLEETH-COMMERCE RD CULVERT, VS#18 SEC. H

3152.00	3.17	913.17	0.00	911.90	913.30	.13	.10	.06	910.60
310.	34.	276.	0.	31.	91.	0.	68.	26.	916.70
6.00	1.11	3.04	0.00	.060	.035	.070	.037	910.00	218.00
.001438	320.	385.	400.	0	0	0	0.00	58.32	276.32

*SECNO 3292.000

3292.00	4.66	913.36	0.00	912.45	913.72	.36	.30	.11	918.30
200.	0.	200.	0.	0.	42.	0.	48.	26.	918.30
6.01	0.00	4.81	0.00	.060	.035	.060	.037	908.70	1450.00
.004321	220.	140.	40.	2	0	0	0.00	10.00	1460.00

*SECNO 3293.000

3370 NORMAL BRIDGE, NRD= 8 MIN ELTRD= 915.80 MAX ELLC= 914.10

D/S FACE OF SLEETH-COMMERCE ROAD CULVERT, BS#17 SEC. I

3293.00	4.66	913.36	0.00	912.46	913.72	.36	.00	.00	918.30
200.	0.	200.	0.	0.	42.	0.	48.	26.	918.30
6.01	0.00	4.81	0.00	.025	.020	.025	.037	908.70	1450.00
.001402	1.	1.	1.	0	0	0	0.00	10.00	1460.00

*SECNO 3331.000

3370 NORNAL BRIDGE,NRD= 8 MIN ELTRD= 915.80 MAX ELLC= 914.10

U/S FACE OF SLEETH-COMMERCE ROAD CULVERT, DS#17 SEC. I

3331.00	4.73	913.43	0.00	912.53	913.78	.35	.05	.00	918.30
200.	0.	200.	0.	0.	42.	0.	48.	26.	918.30
6.01	0.00	4.73	0.00	.025	.020	.025	.037	908.70	1450.00
.001348	38.	38.	38.	2	0	0	0.00	10.00	1460.00

*SECNO 3332.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	OCH	OROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3332.00	4.73	913.43	0.00	912.53	913.78	.35	.00	.00	918.30
200.	0.	200.	0.	0.	42.	0.	48.	26.	918.30
6.01	0.00	4.73	0.00	.080	.040	.080	.037	908.70	1450.00
.005388	1.	1.	1.	0	0	0	0.00	10.00	1460.00

*SECNO 3422.000

3470 ENCROACHMENT STATIONS= 600.0 1075.0 TYPE= 1 TARGET= -600.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 915.65 ELREA= 923.65

3422.00	3.65	914.00	0.00	913.10	914.09	.09	.23	.08	915.65
200.	0.	200.	0.	0.	84.	0.	48.	26.	923.65
6.02	0.00	2.38	0.00	.085	.065	.095	.037	910.35	737.67
.001492	100.	90.	25.	2	0	0	0.00	30.78	768.45

*SECNO 3512.000

3470 ENCROACHMENT STATIONS= 600.0 1075.0 TYPE= 1 TARGET= -600.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 917.30 ELREA= 925.30

3512.00	2.16	914.16	0.00	913.51	914.52	.36	.30	.14	917.30
200.	0.	200.	0.	0.	42.	0.	48.	26.	925.30
6.03	0.00	4.81	0.00	.085	.045	.095	.037	912.00	740.98
.012240	100.	90.	25.	2	0	0	0.00	26.35	767.33

*SECNO 3602.000

3470 ENCROACHMENT STATIONS= 600.0 1075.0 TYPE= 1 TARGET= -600.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 918.95 ELREA= 926.95

360[illegible].00	1.8[illegible]	915.53	0.00	91[illegible].49	91[illegible].0[illegible]	.53	1.[illegible]	.09	918.95

Low flow only

- use normal bridge routine -

(1) Between Sleeth - Commerce Road and Farr Road ; the Huron River has two waterways. The west branch is the main channel although the invert elevation of the east branch is much lower than that of the west branch.

(2) A dike was constructed along the main channel between Sleeth Road and Farr Road to prevent drainage into the east branch. This division will continue as long as no new flood is encountered

210.	0.	210.	0.	0.	34.	0.	48.	26.	26.95
6.03	0.00	5.85	0.00	.085	.045	.095	.037	913.65	741.62
.022380	100.	90.	25.	4	0	0	0.00	25.49	767.11

at Farr Road.

*SECNO 3692.000

3470 ENCROACHMENT STATIONS= 600.0 1075.0 TYPE= 1 TARGET= -600.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 920.60 ELREA= 928.60

270' U/S FROM U/S FACE OF SLEETH-COMMERCE ROAD, VS#16 SEC. J

3692.00	2.04	917.34	0.00	916.91	917.76	.42	1.67	.03	920.60
200.	0.	200.	0.	0.	38.	0.	68.	26.	928.60
6.04	0.00	5.20	0.00	.085	.045	.095	.038	915.30	741.25
.015609	100.	90.	25.	3	0	0	0.00	25.98	767.26

*SECNO 4292.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 930.10 ELREA= 930.00

870' U/S FROM U/S FACE OF SLEETH-COMMERCE ROAD, VS#15 SEC. K

4292.00	1.83	926.83	0.00	926.66	927.32	.49	9.53	.04	930.10
200.	0.	200.	0.	0.	35.	0.	49.	26.	930.00
6.07	0.00	5.64	0.00	.092	.042	.060	.038	925.00	291.03
.016150	300.	600.	700.	4	0	0	0.00	24.57	315.60

*SECNO 4632.000

3470 ENCROACHMENT STATIONS= 575.6 596.9 TYPE= 1 TARGET= 21.300

4632.00	3.57	929.17	0.00	928.65	929.35	.18	1.93	.09100000.00	
200.	0.	200.	0.	0.	59.	0.	49.	27.	100000.00
6.09	0.00	3.39	0.00	.095	.040	.055	.038	925.60	575.60
.002866	340.	340.	340.	5	0	0	0.00	21.30	596.90

CCHV= .300 CEHV= .500

*SECNO 4633.000

3370 NORMAL BRIDGE, NRD= 14 MIN ELTRD= 931.90 MAX ELLC= 932.40

D/S FACE OF FARR ROAD CULVERT, BS#14 SEC. L

4633.00	3.59	929.19	0.00	928.69	929.36	.16	.00	.00	933.50
200.	0.	200.	0.	0.	62.	0.	49.	27.	933.80
6.09	0.00	3.25	0.00	.040	.032	.040	.038	925.60	575.60
.001866	1.	1.	1.	1	0	0	-4.79	21.30	596.90

*SECNO 4669.000

3370 NORMAL BRIDGE, NRD= 14 MIN ELTRD= 931.90 MAX ELLC= 932.40

D) In this study, it was found that, even for 500-year flood, no weir flow will be expected at Farr Road.

(1) Low flow only
- use normal bridge routine.

(2) Twin 9'9" x 6'7" structural plate CMP.

U/S FACE OF FARR ROAD CULVERT, BS#14 SEC. L

4669.00	3.67	929.27	0.00	928.74	929.42	.16	.06	.00	933.50
200.	0.	200.	0.	0.	63.	0.	49.	27.	933.80
6.10	0.00	3.17	0.00	.040	.032	.040	.038	925.60	575.60
.001739	36.	36.	36.	1	0	0	-5.18	21.30	596.90

#SECNO 4670.000

3470 ENCROACHMENT STATIONS= 575.6 596.9 TYPE= 1 TARGET= 21.300

4670.00	3.68	929.28	0.00	928.74	929.43	.14	.00	.00100000.00	
200.	0.	200.	0.	0.	66.	0.	49.	27.	100000.00
6.10	0.00	3.05	0.00	.085	.042	.085	.038	925.60	575.60
.002215	1.	1.	1.	1	0	0	0.00	21.30	596.90

#SECNO 4870.000

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

200' U/S FROM U/S FACE OF FARR ROAD CULVERT, VS#13 SEC. M

4870.00	8.98	929.48	0.00	928.89	929.48	.00	.01	.04	930.00
200.	0.	193.	7.	0.	590.	108.	51.	27.	927.70
6.27	0.00	.33	.07	.085	.042	.085	.038	920.50	76.53
.000011	210.	200.	190.	2	0	0	0.00	233.54	310.07

#SECNO 5170.000

500' U/S FROM U/S FACE OF FARR ROAD CULVERT, VS#12 SEC. N

5170.00	7.08	929.48	0.00	928.90	929.49	.00	.01	.00	930.30
200.	0.	193.	7.	0.	409.	57.	55.	29.	927.80
6.45	0.00	.47	.12	.085	.045	.075	.038	922.40	77.05
.000048	310.	300.	290.	2	0	0	0.00	202.23	279.28

#SECNO 5795.000

495' D/S FROM D/S FACE OF COMMERCE ROAD, VS#11 SEC. O

5795.00	3.53	929.53	0.00	928.96	929.60	.07	.08	.04	929.00
200.	0.	184.	16.	2.	81.	30.	59.	31.	928.20
6.53	.25	2.28	.53	.085	.045	.075	.039	926.00	144.18
.001231	600.	625.	650.	2	0	0	0.00	79.41	223.59

#SECNO 6270.000

3265 DIVIDED FLOW

20' D/S FROM D/S FACE OF COMMERCE ROAD CULVERT, VS#10 SEC. P

6270.00	4.72	929.92	0.00	929.38	929.96	.04	.35	.01	928.20
200.	2.	197.	0.	6.	121.	1.	61.	31.	929.30
6.62	.36	1.63	.13	.080	.042	.080	.039	925.20	87.46
.000480	475.	475.	475.	2	0	0	0.00	55.11	157.41

```
*SECNO 6290.000

3470 ENCROACHMENT STATIONS=     109.0     129.0  TYPE=     1  TARGET=      20.000
  6290.00      3.33    929.83      0.00    929.31    930.09       .26       .02       .11100000.00
     200.        0.       200.        0.        0.       48.        0.       61.       31.  100000.00
     6.62      0.00      4.12      0.00      .080      .042      .080      .039    926.50    109.00
  .005156       20.       20.       20.         2         0         0      0.00     20.00    127.00

*SECNO 6291.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       RTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD=  936.60 MAX ELLC=  932.20

          D/S FACE OF COMMERCE ROAD CULVERT, BS#9                              SEC. 0

  6291.00      3.33    929.83      0.00    929.35    930.10       .27       .00       .00    937.00
     200.        0.       200.        0.        0.       48.        0.       61.       31.    937.00
     6.62      0.00      4.17      0.00      .035      .032      .035      .039    926.50   1090.00
  .003722         1.        1.        1.         0         0         0     -6.67     20.00   1110.00

*SECNO 6354.000

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD=  936.60 MAX ELLC=  932.20

          U/S FACE OF COMMERCE ROAD CULVERT, BS#9                              SEC. 0

  6354.00      3.59    930.09      0.00    929.56    930.32       .23       .21       .01    937.00
     200.        0.       200.        0.        0.       52.        0.       61.       31.    937.00
     6.62      0.00      3.87      0.00      .035      .032      .035      .039    926.50   1090.00
  .002961       63.       63.       63.         2         0         0     -8.00     20.00   1110.00

*SECNO 6355.000

3470 ENCROACHMENT STATIONS=    1090.0    1110.0  TYPE=     1  TARGET=      20.000
  6355.00      3.68    930.18      0.00    929.62    930.34       .16       .00       .02100000.00
     200.        0.       200.        0.        0.       62.        0.       61.       31.  100000.00
     6.62      0.00      3.21      0.00      .060      .033      .060      .039    926.50   1090.00
  .001572         1.        1.        1.         2         0         0      0.00     20.00   1110.00

*SECNO 6395.000

          D/S FACE OF DAM, 40' U/S FROM COMMERCE ROAD, DS#8                    SEC. R

  6395.00      2.85    930.35      0.00    929.74    930.42       .07       .04       .03    929.40
     200.        9.       190.        1.       15.       39.        2.       61.       31.    929.40
     6.63       .59      2.14       .43      .060      .033      .060      .039    927.50     64.08
  .000839       40.       40.       40.         2         0         0      0.00     65.94    130.03

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
          0.00      1.00      3.08      0.00       .01      0.00       .01      0.00    926.      927.50
```

(1) Low flow only
- use normal bridge routine -

(2) Bottom of the culvert is sand and gravel, "n" = 0.032

① Outlet structure of Fox Lake

② Special bridge routine was

used it. I will the claim.

*SECNO 6397.000
PRSSSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	3AREA	TRAPEZOID AREA	ELLC	ELTRD

212110.47	29.48	0.00	00.	0.	0.	0.	26.6	27.6	

U/S FACE OF DAM, 40' U/S FROM COMMERCE ROAD, DS#8 SEC. R

6397.00	4.56	931.16	0.00	930.89	931.17	.01	.75	0.00	929.80
200.	0.	200.	0.	0.	256.	258.	51.	31.	987.30
6.63	0.00	.78	.00	.060	.033	.060	.039	926.60	62.72
.000056	2.	2.	2.	0	0	12	0.00	73.83	136.55

1490 NH CARD USED
*SECNO 6647.000

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

290' U/S FROM U/S FACE OF COMMERCE ROAD, VS#7 SEC. S

6647.00	11.27	931.17	0.00	930.90	931.17	.00	.00	.00	933.40
200.	0.	200.	0.	0.	723.	0.	64.	32.	933.60
6.88	0.00	.28	0.00	.060	.034	.060	.038	919.90	106.56
.000003	250.	250.	250.	2	0	0	0.00	110.54	217.10

1490 NH CARD USED
*SECNO 7097.000

740' U/S FROM U/S FACE OF COMMERCE ROAD, VS#6 SEC. T

7097.00	6.97	931.17	0.00	930.90	931.18	.01	.00	.01	931.70
200.	0.	200.	0.	0.	205.	2.	69.	33.	930.70
7.01	0.00	.98	.06	.060	.034	.085	.038	924.20	200.95
.000075	450.	450.	450.	1	0	0	0.00	56.15	257.11

*SECNO 7847.000

1490' U/S FROM U/S FACE OF COMMERCE ROAD, VS#5 SEC. U

7847.00	6.50	931.20	0.00	930.92	931.20	.00	.01	.00	934.10
200.	0.	200.	0.	0.	1156.	0.	81.	38.	932.40
8.21	0.00	.17	0.00	.060	.035	.060	.038	924.70	78.50
.000006	750.	750.	750.	0	0	0	0.00	503.99	582.49

*SECNO 8407.000

2050' U/S FROM U/S FACE OF COMMERCE ROAD, VS#4 SEC. V

END OF ISLAND PROBLEM 1

8407.00	5.07	931.17	0.00	930.90	931.24	.07	.01	.03	930.90
200.	0.	200.	0.	1.	96.	0.	89.	41.	931.00
8.29	.17	2.08	.11	.055	.037	.065	.038	926.10	195.13
.000575	560.	560.	560.	2	0	0	0.00	36.89	232.02



1) COUNTY: OAKLAND

2) STUDY NAME: COMMERCE TOWNSHIP

3) WATERCOURSE: HURON RIVER

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS



Qs OK RCS 10/19/78 (see attached sheet)

HYDRAULIC ANALYSIS

Huron River

Introduction

The stream being analyzed is the Huron River in the Township of Commerce, Oakland County, Michigan. The study starts from the upstream end of Commerce Lake and runs to Fox Lake. The total reach length is about 1.6 miles. The 10-, 50-, 100-, and 500-year flood frequency flows were determined by a gaging analysis method using the gaging records at (or near) Commerce, Milford, New Hudson, and Hamburg. These flows have been approved by the Michigan Department of Natural Resources (MDNR), Water Management Division. The project manager is Richard Zanotti.

Method of Analysis

The flood profiles were calculated by the HEC-2 computer program developed by the U.S. Corps of Engineers (Reference 1). All bridges have been modeled by the requirements of the HEC-2 normal bridge routine and special bridge routine.

Variables and Coefficients

The roughness factors (Manning's "n") were determined by comparing the descriptions in Ven Te Chow's Open-Channel Hydraulics (Reference 2) with photographs and field descriptions taken in Commerce by survey crews in November, 1977. To reflect the changes in cross-section geometry, the contraction and expansion coefficients used in this study were .3 and .5, respectively; "n" values are indicative of summer conditions.

The inlet loss coefficients and outlet loss coefficients used in this study were taken from Hydraulic Charts for the Selection of Highway Culverts (Reference 3). The weir coefficients were taken from charts of the U.S. Geological Survey (Reference 4) and Bureau of Public Roads (Reference 5) supplied by the MDNR.

Starting Conditions

The starting water-surface elevations for the Huron River in the Township of Commerce were the lake elevations for the corresponding frequency floods at Commerce Lake. For Carroll Lake outlet ditch, the starting water-surface elevations at the section 700 ft. downstream of Grand Traverse East Road were determined by the slope-area method.

Discussions

1. Two island problems were included in this study. One is the diversion from Fox Lake and the other is the separation of the flow downstream of Polvadera Drive.

2. Between Commerce-Sleeth Road and Farr Road, the Huron River has two waterways. The west branch is the main channel although the invert elevation of the east branch is much lower than that of the west branch. A dike was constructed along the river between Sleeth Road and Farr Road to prevent drainage into the eastern branch. This diversion will continue as long as no weir flow is encountered at Farr Road. In this study it is found that even for the 500-year flood, no weir flow will be expected at Farr Road.

3. The outlet from Fox Lake to Carroll Lake is chained closed and is not operated.

References

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

2. Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill, 1959, pp. 101-123.

3. Herr, Lester A., Hydraulic Charts for the Selection of Highway Culverts, Hydraulic Engineering Circular No. 5, Bureau of Public Roads, U.S. Department of Commerce, December 1965.

4. U.S. Geological Survey, Measurements of Peak Discharge at Dams by Indirect Methods, Book 3, Chapter A5, 1976.

5. Bureau of Public Roads, Hydraulics of Bridge Waterways, 1970.

Original Cross-Section Location

Cross Section	J&A Section No.	SECNO	Location
CARROLL LAKE OUTLET			
A	4A	0	± 700' d/s from Grand Traverse East Road
B	3A	721	u/s face of Grand Traverse East Road Culvert
C	2A	1547	± 825' u/s from u/s face of Grand Traverse East Road
D	1	2697	10' d/s from d/s face of Carroll Lake Road
E	2	2750	u/s face of Carroll Lake Road
F	3	3993	u/s face of Fox Lake Outlet Dam, End of Island Problem 1
HURON RIVER, WEST BRANCH			
A	26	250	± 250' u/s from the Beach of Commerce Lake
B	24	840	± 840/ u/s from the Beach of Commerce Lake
C	23	1090	± 1090' u/s from the Beach of Commerce Lake
D	21	1490	± 1490' u/s from the Beach of Commerce Lake, End of Island Problem 2
HURON RIVER, EAST BRANCh			
A	25	400	± 400' u/s from the Beach of Commerce Lake
B	24	1075	± 1075' u/s from the Beach of Commerce Lake
C	23	1700	± 1700' u/s from the Beach of Commerce Lake
D	22	2045	u/s face of Greenmoor Drive Culvert
E	21	2246	70' d/s from d/s face of Polvadera Drive, End of Island Problem 2

Cross Section	J&A Section No.	SECNO	Location
HURON RIVER			
F	20	2346	u/s face of Polvadera Drive Culvert
G	19	2767	± 525' d/s from d/s face of Sleeth Road
H	18	3152	± 140' d/s from d/s face of Sleeth Road
I	17	3331	u/s face of Sleeth Road Culvert
J	16	3692	± 270/ u/s from u/s face of Sleeth Road
K	15	4292	± 870' u/s from u/s face of Sleeth Road
L	14	4669	u/s face of Farr Road Culvert
M	13	4870	± 200' u/s from u/s face of Farr Road
N	12	5170	± 500' u/s from u/s face of Farr Road
O	11	5795	± 495' d/s from d/s face of Commerce Road
P	10	6270	20' d/s from d/s face of Commerce Road
Q	9	6354	u/s face of Commerce Road Culvert
R	8	6397	u/s face of Dam, 40' u/s from Commerce Road
S	7	6647	± 290' u/s from u/s face of Commerce Road
T	6	7097	± 740' u/s from u/s face of Commerce Road
U	5	7847	± 1490' u/s from u/s face of Commerce Road
V	4	8407	± 2050' u/s from u/s face of Commerce Road, End of Island Problem 1

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HYDRAULIC STRUCTURAL DATA

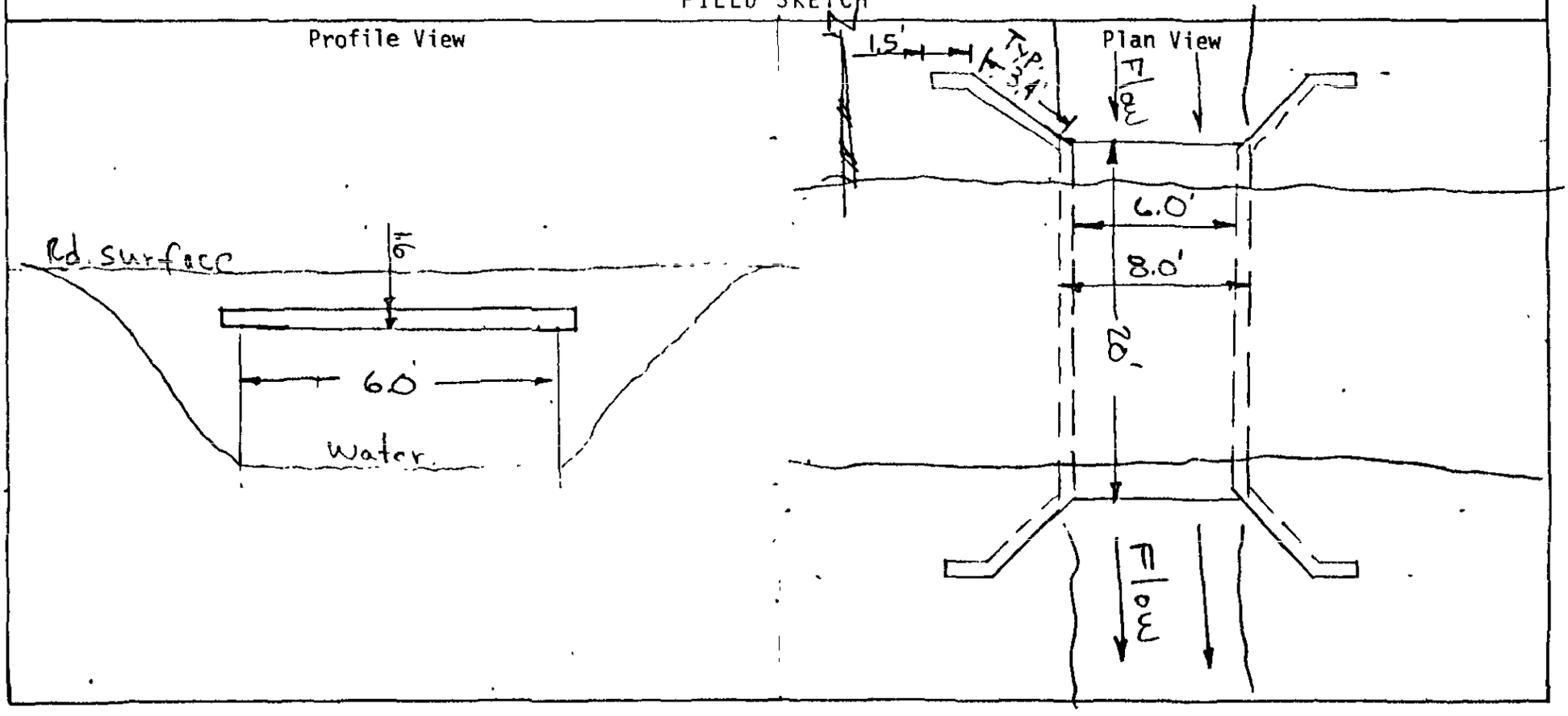
3A

Code No. 5850-02

Job Name: Commerce Twp FIS		By: Maple/MacKenzie
Date: 4-21-78	Feature: Road box culvert	Water Course:
Remarks: Grand Traverse East Rd.		

Width of Piers: —	Pier Shape:	No. of Piers: —	Area:
Water Elevation: 923.24	Length: 20.0	Width of Deck: 8.0'	Skew: —

FIELD SKETCH



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HYDRAULIC STRUCTURAL DATA

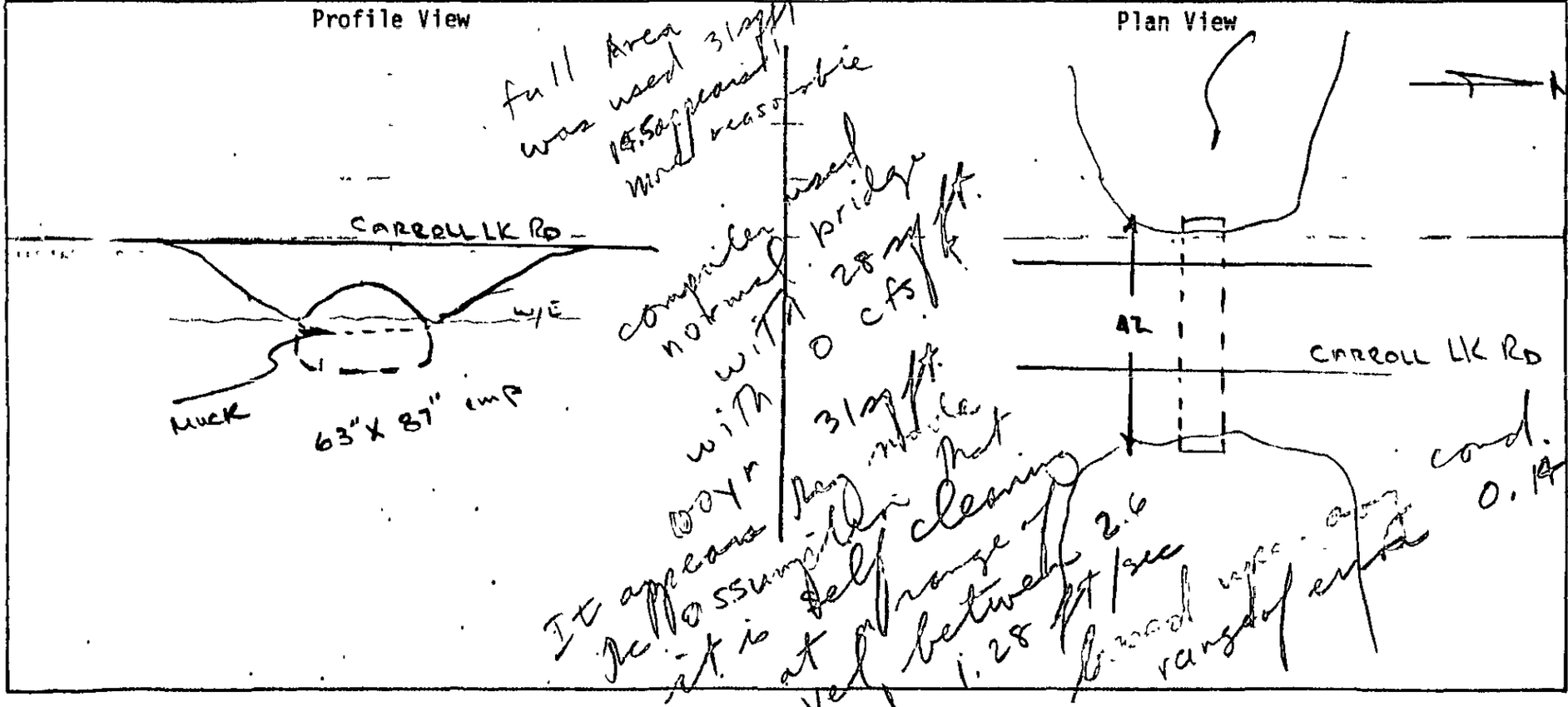
B.S. # 2

CODED 11/8/77 BEH

Code No. 5850-1

Job Name: COMMERCE TWP. F.I.S.			By: R. MOSES
Date: 11-4-77	Feature: 63" x 87" cmp ARCH PIPE		Water Course: HURON RIVER
Remarks: BOTH ENDS ARE FULL OF MUCK & SAND CULVERT IS ON CARROLL LK RD BETWEEN FOX LAKE & CARROLL LAKE			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 923.4	Length: 63" x 87" cmp.	Width of Deck: 42'	Skew: —

FIELD SKETCH



JOB NAME: Township of Commerce	JOB NO. 5850	02	1	13

WATERCOURSE: Channel Between Fox Lake & Carroll Lake CULVERT LOCATION: Carroll Lake Road

CULVERT DESCRIPTION: 63" x 87" CMP BY MSC DATE 7/3/78

5.25 x 7.25 Area = 31 sq ft.

n= 0.033 Q_{10}= - TW_{10}= -

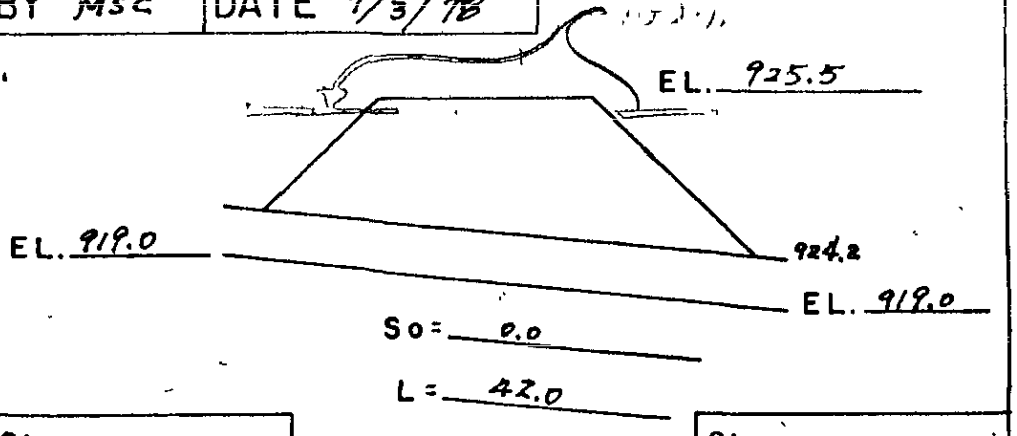
A= 31.0 ft² Q_{50}= 20 cfs TW_{50}= 924.42 (5.42)

R= 1.52 ft. Q_{100}= 40 cfs TW_{100}= 925.10 (6.10)

Ke= 0.9 Q_{500}= - TW_{500}= -

D= 5.25 ft.

LSo= 0.0



Sta. 2750 Sta 2708

Q	HEADWATER ANALYSIS									FINAL ENERGY HW	FINAL ENERGY HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho - LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) $\frac{V^2}{2g}$	ENERGY HW			
20	too low		0.02	-	-	5.42	5.44	-	924.43	5.44	924.44	0.01 *
40	0.37	1.94	0.07	-	-	6.10	6.17	-	925.14	6.17	925.17	0.03 *
									* Close enough; use HEC-2 Results.			

CALCULATIONS AND COMMENTS

$K_y = \frac{29.1\, n^2 L}{R^{4/3}} = 0.76$;

$xK\Phi R = 1 + 0.9 + 0.76 = 2.66$;

$H = xK\Phi R \frac{V^2}{2g}$

$= 2.66 \frac{Q^2}{2g\,(31)^2} = Q^2/23266$

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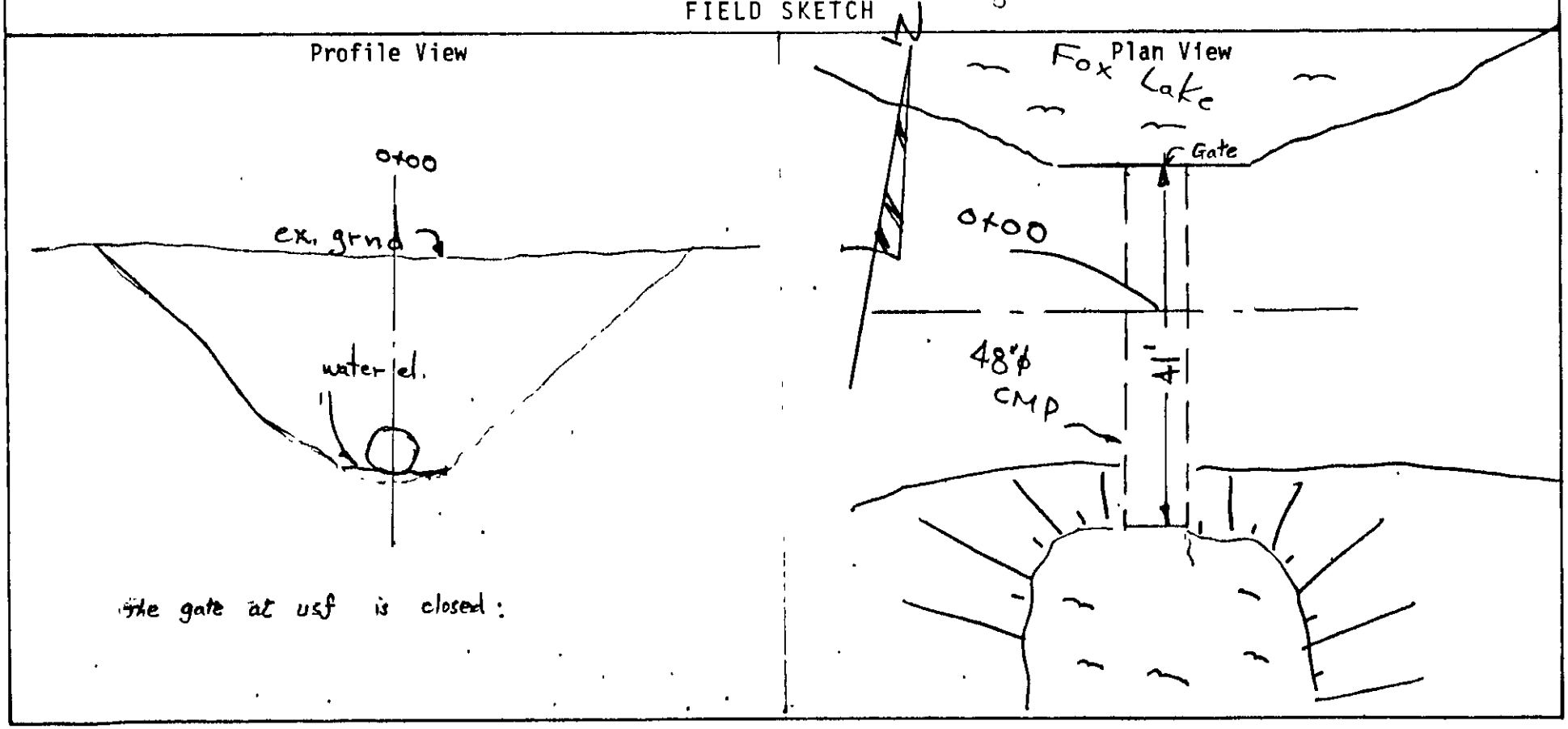
HYDRAULIC STRUCTURAL DATA

Section 3

Code No. 5850-02

Job Name: Commerce Twp FIS			By: Mapley MacKenzie
Date: 4-21-78	Feature: Fox Lake Dam		Water Course:
Remarks: Lake Outlet structure - CLOSED			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: U/S 930.48 D/S 923.66	Length:	Width of Deck:	Skew:

FIELD SKETCH



CODED 11/8/77 BEH

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HYDRAULIC STRUCTURAL DATA

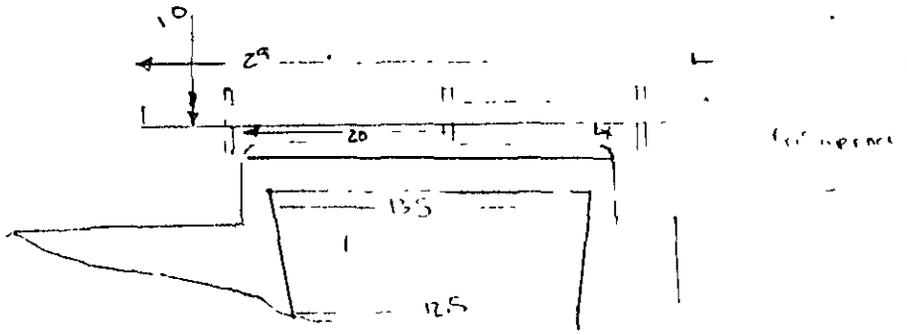
P.S. #22

Code No. 5850-01

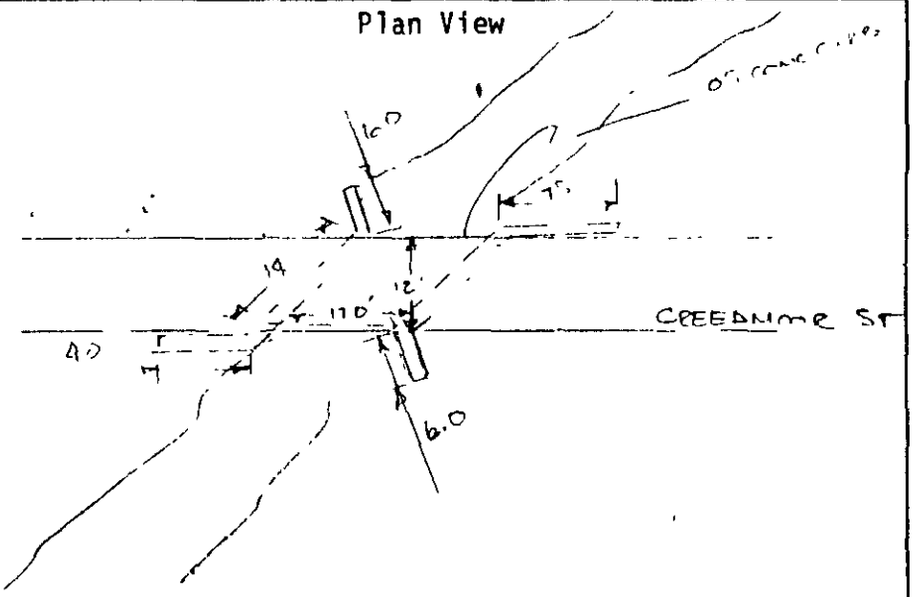
Job Name: Commerce Twp. F I S.			By: R. Meers
Date: 11-3-77	Feature: Conc Box Culvert		Water Course: Huron River
Remarks: Box Culvert is located 300' ± of Polyndera on Wildmoor Dr Sandy Silt Bottom			
No obstructions in channel, Mainly Homes, in F.P.A.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 906.6	Length: (AT 70°) 13.5	Width of Deck: 12	Skew:

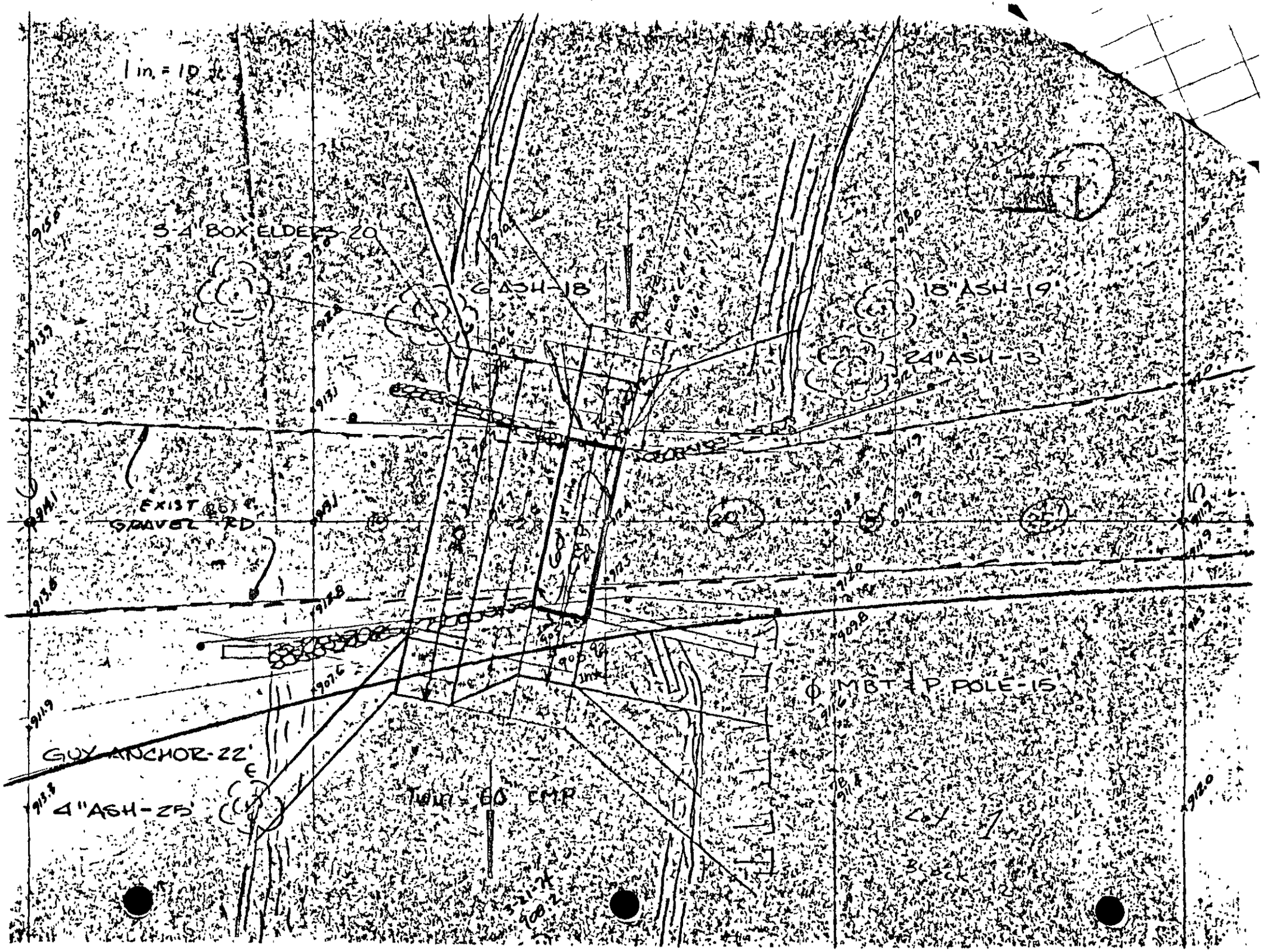
FIELD SKETCH

Profile View



Plan View




1 in. = 10 ft
3-4" BOX ELDER-20'
6" ASH-18'
18" ASH-19'
24" ASH-13'
EXIST (E) GRAVEL RD
GUY ANCHOR-22'
4" ASH-25'
TOWER 60 EMP
MBT POLE-15
LOT 1
BLOCK 12

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY MSC DATE 4/21/78 JOB DESCRIPTION FIS - Commerce Township SHEET 1 OF 1
SUBJECT Belvedere Drive Culvert over Huron River (BS #20) JOB NO. 5850-02-L

Culvert Feature : 60" CMP (existing condition)

Area : $A = 19.63$ ft.²

Hydraulic Radius : $R = 1.25$ ft.

Manning Coefficient : $n = 0.024$

Length : $L = 15$ ft.

Entrance Loss : $K_e = 0.5$ (with headwall & wing walls)

Max. Depth : $D = 5.0$ ft.

$BWC = \frac{A}{D} = 3.93$ ft.

$$K_f = \frac{29.1\, n^2 L}{R^{4/3}} = 0.19$$

$$\Sigma K_0 R = 1 + K_e + K_f = 1.69$$

Weir Coefficient : $C = 2.85$ (Gravel Road ; $H \simeq 1.5$ ft. for 100-year flood)

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

HYDRAULIC STRUCTURAL DATA

CODED 11/8/77 BEN

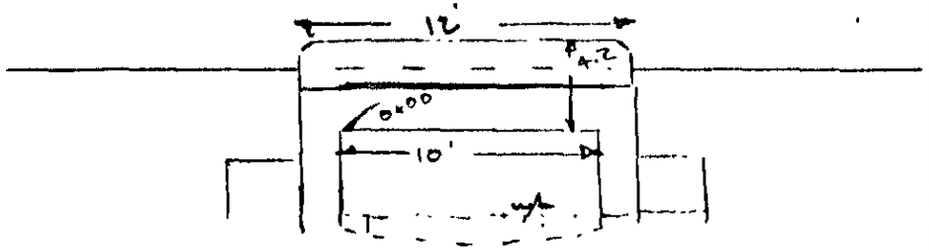
B.S. #17

Code No. 58502-01

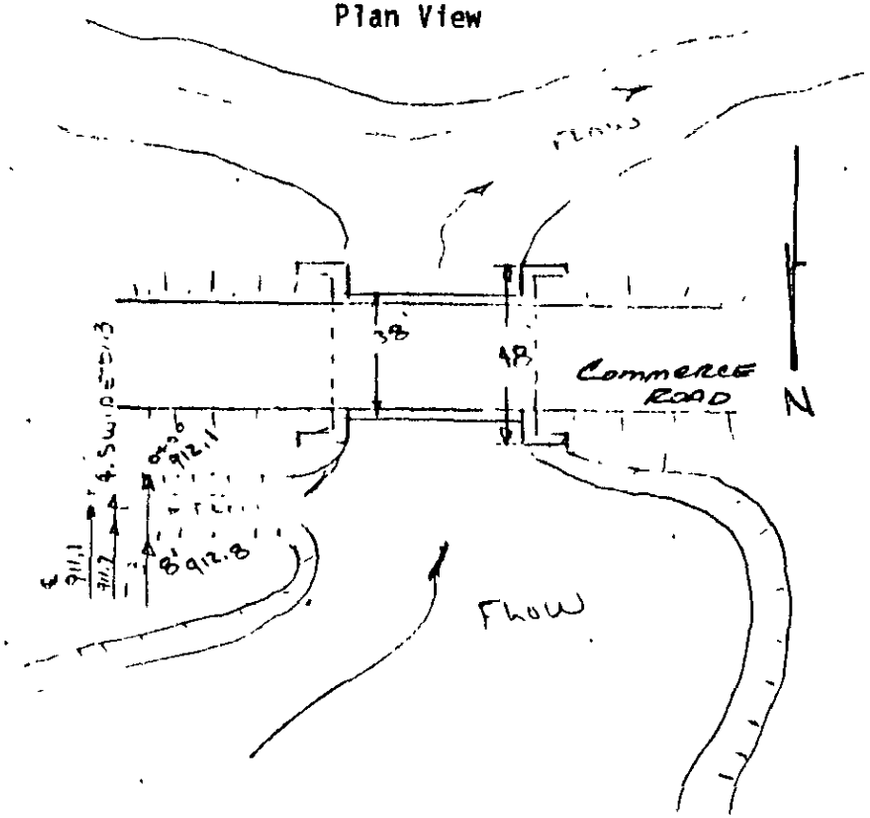
Job Name: COMMERCE Twp. F.I.S.			By: R. MOSES
Date: 11-4-77	Feature: CONC. BOX CULVERT		Water Course: HURON RIVER
Remarks: HEAVY BRUSH & WOODS UPSTREAM OF BRIDGE			
SANDY, GRAVEL BOTTOM			
CULVERT AT COMMERCE ROAD - SLEETH ROAD			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 910.7	Length: 10'	Width of Deck: 38'	Skew: —

FIELD SKETCH

Profile View



Plan View



CODED 11/8/77 DEH

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

HYDRAULIC STRUCTURAL DATA

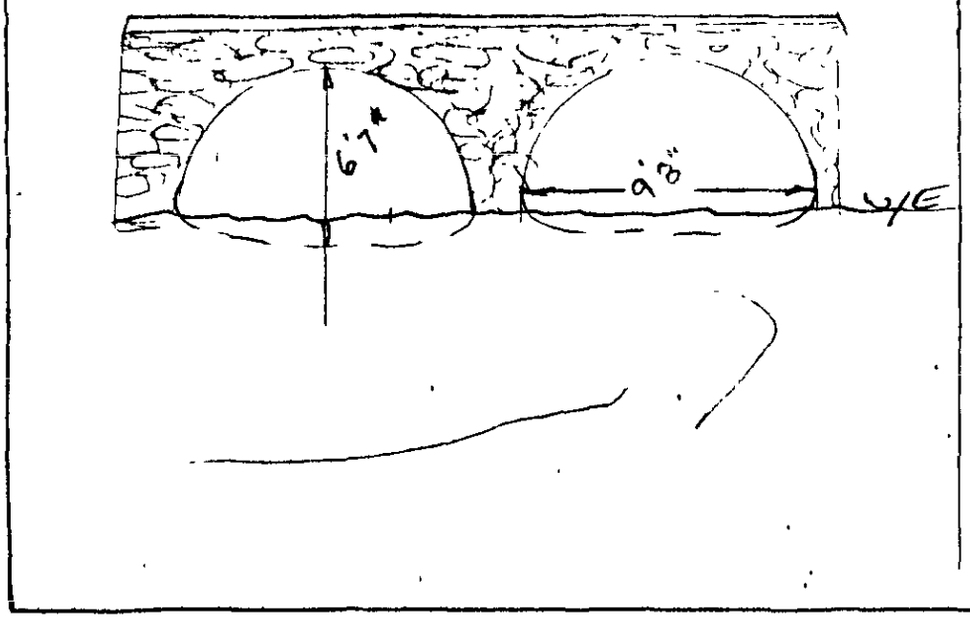
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Code No. 5850-01

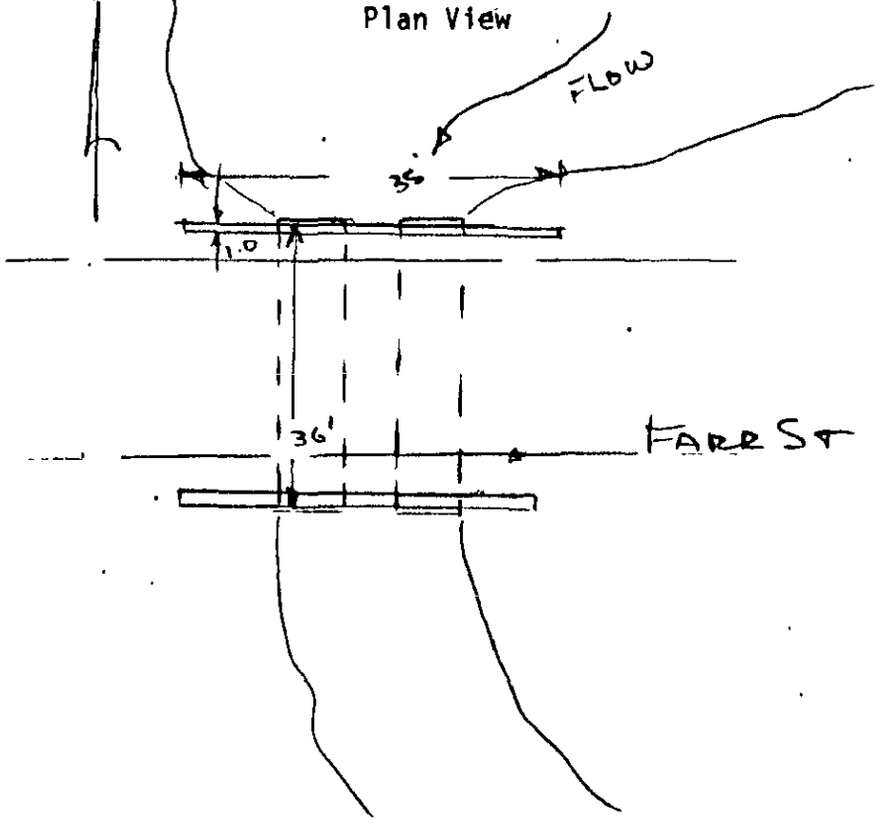
Job Name: COMMERCE TWP. F.I.S.			By: R. MOSES
Date: 10-31-77	Feature: TWIN CM.P.		Water Course: HURON RIVER
Remarks: DNSTREAM OF CULVERT (LEFT BANK) IS HEAVY WOODS & BRUSH. RIGHT BANK IS HOMES & LANDSCAPED LOTS. CULVERT IS ON FARR ST. EAST OF BROADWAY ST.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 927.6	Length: 36	Width of Deck: 6'7" x 9'8"	Skew: —

FIELD SKETCH

Profile View



Plan View



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

HYDRAULIC STRUCTURAL DATA

CODED 11/8/77 REN

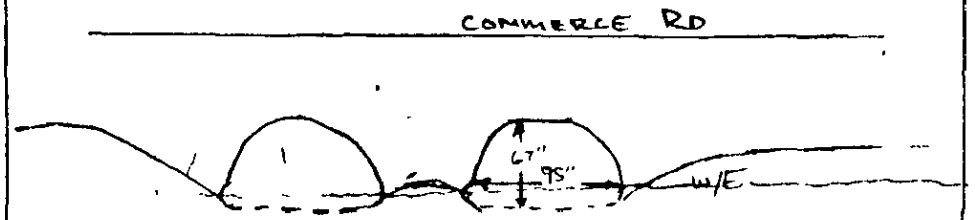
P.S. 9

Code No. 5850-01

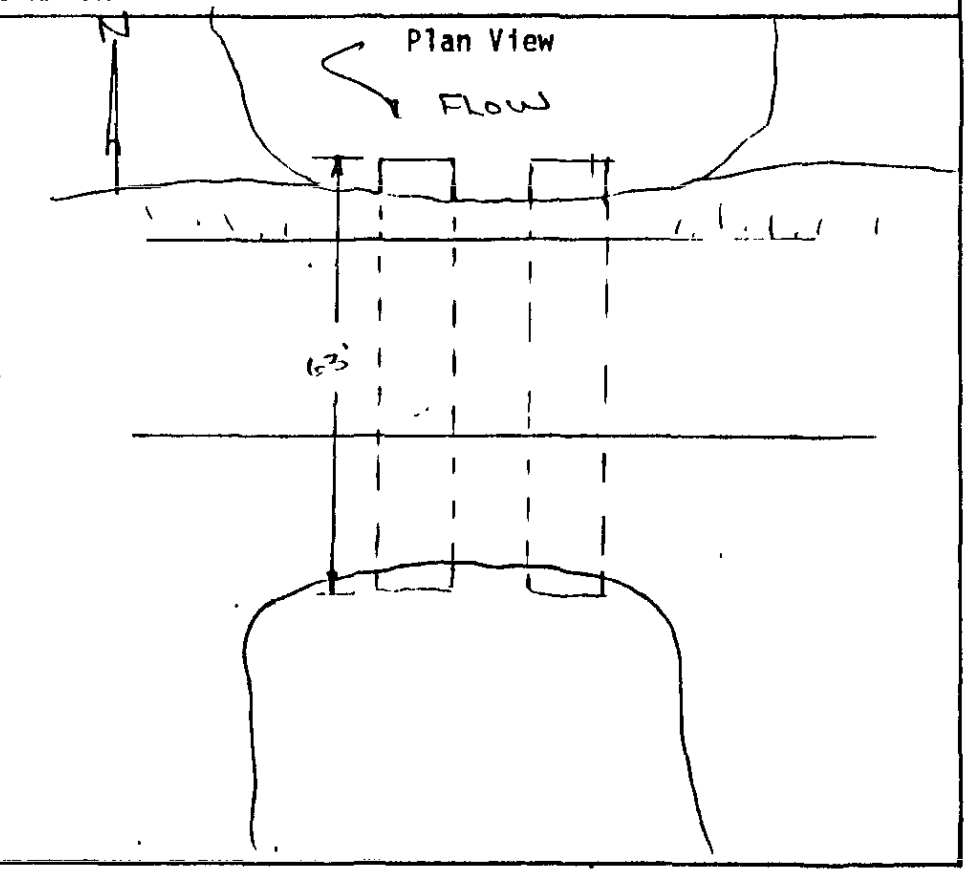
Job Name: COMMERCE TWP. F.I.S.			By: R. MOSES
Date: 10-31-77	Feature: TWIN 95" X 67" CMP ARCH CULVERTS		Water Course: HURON RIVER
Remarks: CULVERTS AT U/S & DOWNSTREAM HAS SAND & GRAVEL IN BOTTOM, ABOUT ^2			
ON COMMERCE RD EAST OF DIXIE HWY RD			
DOWNSTREAM OF FOX LAKE CONTROL DAM.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 928.1	Length: 63	Width of Deck: 67" X 95"	Skew:

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

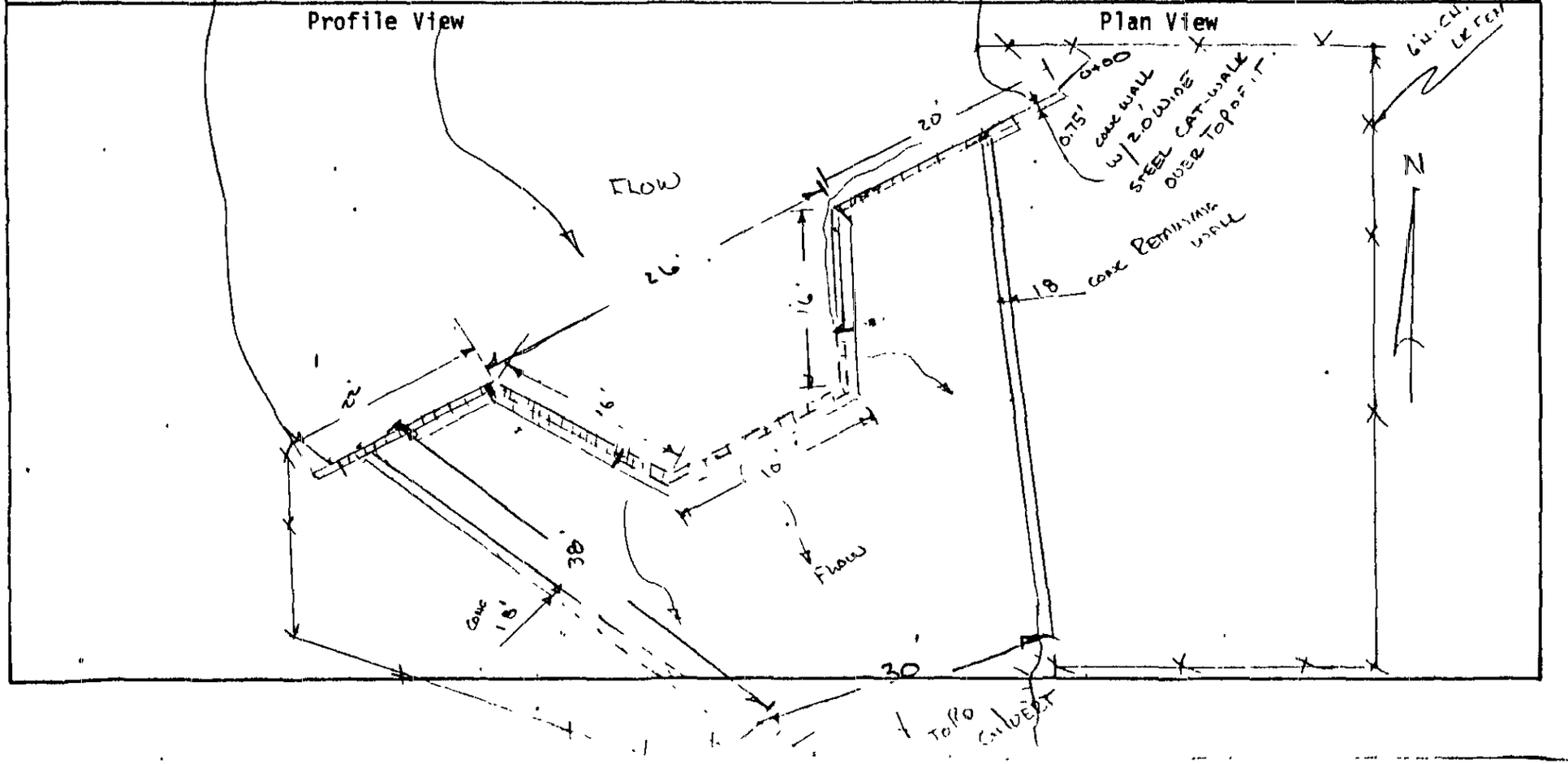
CODED 11/8/77 BEH

DAM #8

Code No. SR50-01

Job Name: COMMERCE TWP F.I.S.			By: R MOSES
Date:	Feature: DAM - FOX LAKE		Water Course: HURON RIVER
Remarks: NO OBSTRUCTION AT DAM. DRAIN COMM. KEEPS AREA CLEAN. ROAD CULVERT DOWNSTREAM OF DAM 50' ± SEE NEXT B.S. 9 0+00 IS AT TAIL LEFT AND GOES RIGHT ALONG DAM WALL FOLLOWING ∠ PTS. FOR ELEV.S.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation:	Length: 68	Width of Deck: 2.0'	Skew: —

FIELD SKETCH



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

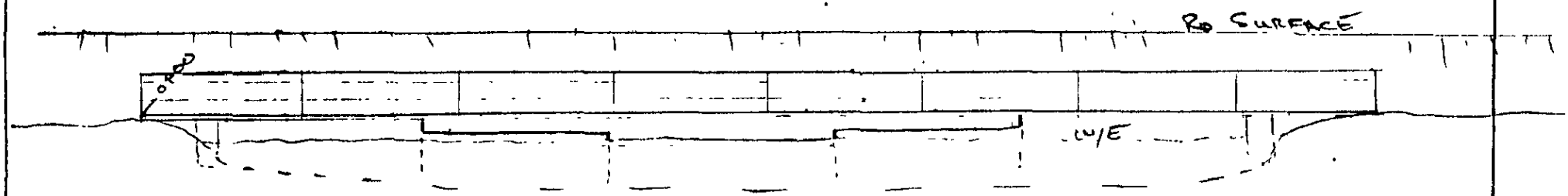
HYDRAULIC STRUCTURAL DATA

Code No. _____

Job Name:			By:
Date:	Feature: DAM - FOX LAKE		Water Course:
Remarks: LOOKING DOWNSTREAM AT VARIOUS CREST LEVELS			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

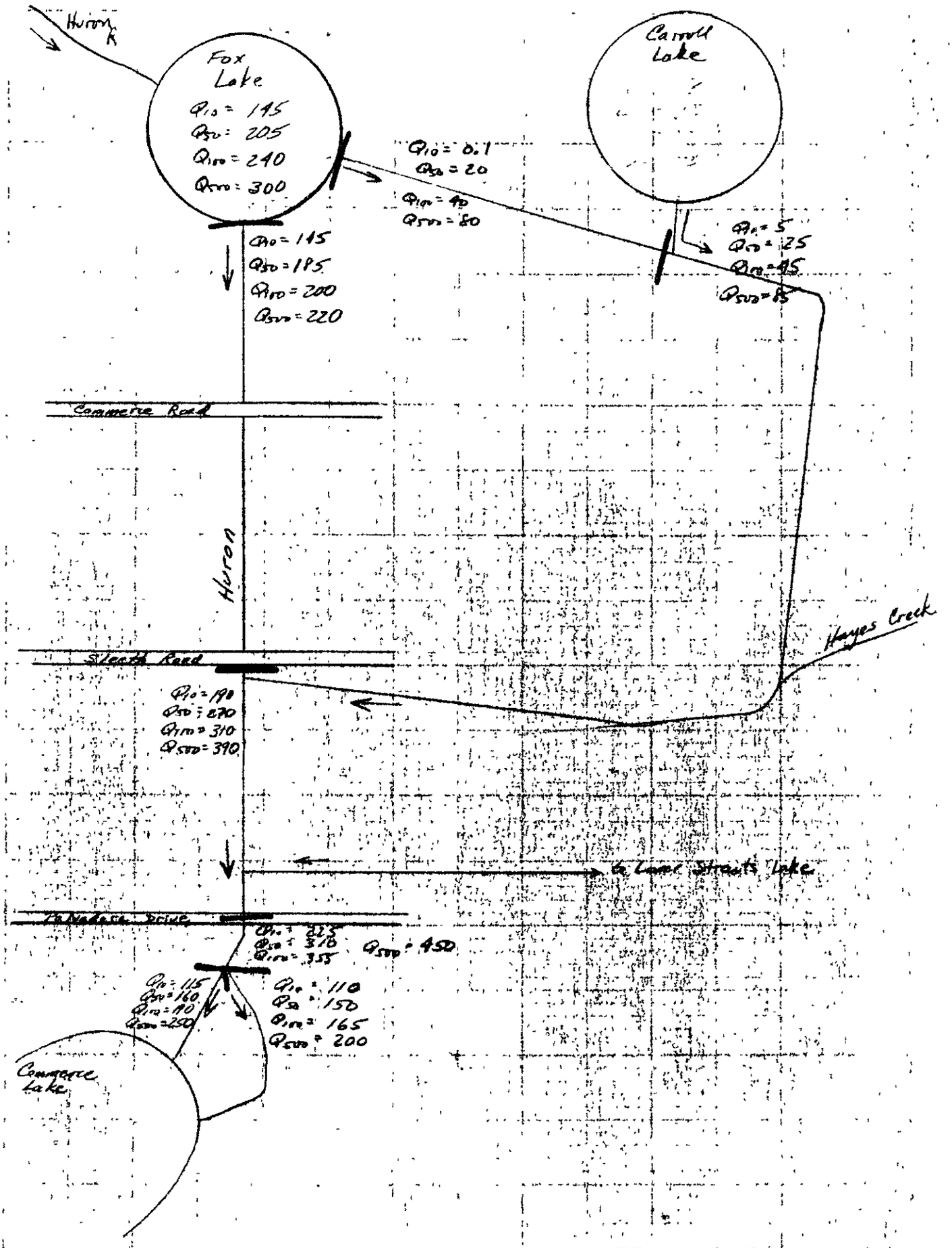
Profile View



Plan View

UPSTREAM FACE

KCS 10/18/78 FIS - Commerce Twp 1 1



00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: COMMERCE TOWNSHIP

3) WATERCOURSE: HURON RIVER

4) DOCUMENT TYPE: SUMMARY ENCROACHED

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

HURON RIVER

SUMMARY PRINTOUT

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	VH	OLOSS	EE	XLCH	TOPWID	AREA
	0.000	0.00	0.00	920.20	5.00	921.10	.90	.02	0.00	921.12	0.00	8.93	4.17
	0.000	0.00	0.00	920.20	25.00	921.87	1.67	.06	0.00	921.92	0.00	50.85	14.21
	0.000	0.00	0.00	920.20	45.00	922.15	1.95	.07	0.00	922.22	0.00	86.38	34.75
	0.000	0.00	0.00	920.20	85.00	922.48	2.28	.08	0.00	922.56	0.00	123.82	69.69
	700.000	0.00	0.00	922.50	5.00	923.11	.61	.04	.01	923.15	700.00	5.00	3.20
	700.000	0.00	0.00	922.50	25.00	924.04	1.54	.13	.04	924.17	700.00	6.00	8.73
	700.000	0.00	0.00	922.50	45.00	924.55	2.05	.23	.08	924.77	700.00	6.00	11.81
	700.000	0.00	0.00	922.50	85.00	925.20	2.70	.45	.19	925.65	700.00	6.00	15.76
	701.000	927.10	925.40	922.50	5.00	923.11	.61	.04	.00	923.15	1.00	6.00	3.22
	701.000	927.10	925.40	922.50	25.00	924.04	1.54	.13	.00	924.17	1.00	6.00	8.80
	701.000	927.10	925.40	922.50	45.00	924.55	2.05	.22	.00	924.78	1.00	6.00	11.96
	701.000	927.10	925.40	922.50	85.00	925.21	2.71	.45	.00	925.66	1.00	6.00	15.79
*	721.000	927.10	925.40	922.70	5.00	923.22	.52	.16	.05	923.37	20.00	6.00	1.65
	721.000	927.10	925.40	922.70	25.00	924.03	1.33	.23	.05	924.26	20.00	6.00	6.51
	721.000	927.10	925.40	922.70	45.00	924.55	1.85	.34	.06	924.89	20.00	6.00	9.58
	721.000	927.10	925.40	922.70	85.00	925.21	2.51	.61	.03	925.82	20.00	6.00	13.56
	722.000	0.00	0.00	922.70	5.00	923.31	.61	.09	.02	923.40	1.00	6.00	2.08
	722.000	0.00	0.00	922.70	25.00	924.04	1.34	.23	.00	924.27	1.00	6.00	6.52
	722.000	0.00	0.00	922.70	45.00	924.55	1.85	.34	.00	924.89	1.00	6.00	9.59
	722.000	0.00	0.00	922.70	85.00	925.21	2.51	.61	.00	925.82	1.00	6.00	13.56
	1547.000	0.00	0.00	920.70	5.00	923.42	2.72	.00	.03	923.42	825.00	410.70	343.98
	1547.000	0.00	0.00	920.70	25.00	924.34	3.64	.00	.07	924.34	825.00	415.30	721.76
	1547.000	0.00	0.00	920.70	45.00	925.00	4.30	.00	.10	925.00	825.00	436.33	998.71
	1547.000	0.00	0.00	920.70	85.00	926.01	5.31	.00	.13	926.01	825.00	443.67	1441.17
	2697.000	0.00	0.00	921.50	.10	923.42	1.92	.00	.00	923.42	1150.00	12.00	21.01
	2697.000	0.00	0.00	921.50	20.00	924.34	2.84	.01	.00	924.35	1150.00	12.00	32.04
	2697.000	0.00	0.00	921.50	40.00	925.00	3.50	.02	.01	925.01	1150.00	12.00	39.95
	2697.000	0.00	0.00	921.50	80.00	926.02	4.52	.00	.00	926.02	1150.00	110.00	335.62
	2707.000	0.00	0.00	919.00	.10	923.42	4.42	.00	.00	923.42	10.00	7.20	30.90
	2707.000	0.00	0.00	919.00	20.00	924.34	5.34	.00	.00	924.35	10.00	7.20	37.50
	2707.000	0.00	0.00	919.00	40.00	925.00	6.00	.01	.00	925.02	10.00	7.20	42.24
	2707.000	0.00	0.00	919.00	80.00	926.00	7.00	.04	.02	926.03	10.00	71.07	65.66

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
	2708.000	925.50	924.20	919.00	.10	923.42	4.42	.00	.00	923.42	1.00	7.20	28.30
	2708.000	925.50	924.20	919.00	20.00	924.36	5.36	.01	.00	924.35	1.00	7.20	31.20
	2708.000	925.50	924.20	919.00	40.00	925.00	6.00	.03	.01	925.02	1.00	7.20	31.20
	2708.000	925.50	924.20	919.00	80.00	925.98	6.98	.06	.02	926.06	1.00	67.35	45.55
	2750.000	925.50	924.20	919.00	.10	923.42	4.42	.00	.00	923.42	42.00	7.20	28.30
	2750.000	925.50	924.20	919.00	20.00	924.35	5.35	.01	.00	924.36	42.00	7.20	31.20
	2750.000	925.50	924.20	919.00	40.00	925.02	6.02	.03	.00	925.05	42.00	7.20	31.20
	2750.000	925.50	924.20	919.00	80.00	926.06	7.08	.07	.00	926.15	42.00	80.10	52.32
	2751.000	0.00	0.00	919.00	.10	923.42	4.42	.00	.00	923.42	1.00	7.20	30.90
	2751.000	0.00	0.00	919.00	20.00	924.35	5.35	.00	.00	924.36	1.00	7.20	37.56
	2751.000	0.00	0.00	919.00	40.00	925.04	6.04	.01	.00	925.05	1.00	7.20	42.45
	2751.000	0.00	0.00	919.00	80.00	926.12	7.12	.03	.01	926.16	1.00	85.99	74.95
	3951.000	0.00	0.00	921.90	.10	923.42	1.52	.00	.00	923.42	1200.00	8.76	10.49
	3951.000	0.00	0.00	921.90	20.00	924.50	2.60	.01	.00	924.51	1200.00	11.41	21.31
	3951.000	0.00	0.00	921.90	40.00	925.38	3.48	.02	.00	925.40	1200.00	13.59	32.36
	3951.000	0.00	0.00	921.90	80.00	926.74	4.84	.04	.00	926.77	1200.00	16.93	52.95
*	3993.000	931.00	926.30	926.30	.10	926.32	.02	.01	.00	926.33	42.00	5.12	.11
	3993.000	931.00	926.30	926.30	20.00	931.14	4.84	.00	0.00	931.14	42.00	237.35	248.59
	3993.000	931.00	926.30	926.30	40.00	931.22	4.92	.00	0.00	931.22	42.00	246.14	267.31
	3993.000	931.00	926.30	926.30	80.00	931.33	5.03	.00	0.00	931.33	42.00	258.71	295.26
*	250.000	0.00	0.00	904.50	115.00	909.05	4.55	.02	.00	909.07	1.00	38.33	112.16
*	250.000	0.00	0.00	904.50	160.00	909.65	5.15	.02	.01	909.67	1.00	40.68	135.93
*	250.000	0.00	0.00	904.50	190.00	909.92	5.42	.03	.01	909.95	1.00	41.32	147.05
*	250.000	0.00	0.00	904.50	250.00	910.48	5.98	.03	.02	910.51	1.00	42.64	170.56
	840.000	0.00	0.00	904.00	115.00	909.12	5.12	.01	.00	909.13	590.00	40.57	126.53
	840.000	0.00	0.00	904.00	160.00	909.73	5.73	.02	.00	909.75	590.00	41.00	151.65
	840.000	0.00	0.00	904.00	190.00	910.01	6.01	.02	.00	910.03	590.00	41.00	162.93
	840.000	0.00	0.00	904.00	250.00	910.58	6.58	.03	.00	910.61	590.00	41.00	186.39
	1090.000	0.00	0.00	905.70	115.00	909.16	3.46	.02	.00	909.18	250.00	46.78	101.77
	1090.000	0.00	0.00	905.70	160.00	909.77	4.07	.02	.00	909.79	250.00	50.00	132.18
	1090.000	0.00	0.00	905.70	190.00	910.05	4.35	.03	.00	910.07	250.00	50.00	146.37
	1090.000	0.00	0.00	905.70	250.00	910.62	4.92	.03	.00	910.66	250.00	50.00	175.21
	1490.000	0.00	0.00	906.60	225.00	909.32	2.72	.00	.03	909.40	400.00	40.64	96.38
	1490.000	0.00	0.00	906.60	310.00	909.90	3.30	.10	.04	910.01	400.00	41.00	120.37
	1490.000	0.00	0.00	906.60	355.00	910.18	3.58	.11	.04	910.30	400.00	41.00	131.77
	1490.000	0.00	0.00	906.60	450.00	910.74	4.14	.13	.05	910.88	400.00	41.00	154.82
*	400.000	0.00	0.00	903.80	110.00	909.05	5.25	.01	.02	909.06	1.00	45.20	177.12
*	400.000	0.00	0.00	903.80	150.00	909.65	5.85	.01	.03	909.66	1.00	46.47	204.61
*	400.000	0.00	0.00	903.80	165.00	909.92	6.12	.01	.03	909.93	1.00	47.00	217.24
*	400.000	0.00	0.00	903.80	200.00	910.48	6.68	.01	.04	910.49	1.00	47.00	243.56
	1075.000	0.00	0.00	903.10	110.00	909.07	5.97	.00	.00	909.08	675.00	51.66	200.76
	1075.000	0.00	0.00	903.10	150.00	909.68	6.58	.01	.00	909.68	675.00	52.00	232.16
	1075.000	0.00	0.00	903.10	165.00	909.95	6.85	.01	.00	909.95	675.00	52.00	246.23
	1075.000	0.00	0.00	903.10	200.00	910.51	7.41	.01	.00	910.52	675.00	52.00	275.41

SECNO	ELTRD	ELLC	ELMIN	Q	CNSEL	DEPTH	HV	QLOSS	EG	XLCH	TOPWID	AREA
1700.000	0.00	0.00	905.00	110.00	909.09	4.09	.01	.00	909.10	625.00	47.50	136.07
1700.000	0.00	0.00	905.00	150.00	909.70	4.70	.01	.00	909.71	625.00	48.58	165.28
1700.000	0.00	0.00	905.00	165.00	909.97	4.97	.01	.00	909.98	625.00	49.06	176.50
1700.000	0.00	0.00	905.00	200.00	910.53	5.53	.01	.00	910.55	625.00	50.07	206.35
2030.000	0.00	0.00	905.30	110.00	909.11	3.81	.11	.05	909.22	330.00	13.92	41.76
2030.000	0.00	0.00	905.30	150.00	909.71	4.41	.14	.06	909.84	330.00	13.98	50.16
2030.000	0.00	0.00	905.30	165.00	909.97	4.67	.15	.07	910.12	330.00	14.01	53.90
2030.000	0.00	0.00	905.30	200.00	910.52	5.22	.16	.07	910.68	330.00	14.07	61.50
2031.000	909.80	911.20	905.30	110.00	909.11	3.81	.11	.00	909.22	1.00	13.92	41.78
2031.000	909.80	911.20	905.30	150.00	909.71	4.41	.14	.00	909.85	1.00	13.98	50.06
2031.000	909.80	911.20	905.30	165.00	909.97	4.67	.15	.00	910.12	1.00	14.01	53.76
2031.000	909.80	911.20	905.30	200.00	910.52	5.22	.16	.00	910.68	1.00	14.07	61.51
2045.000	909.80	911.20	905.30	110.00	909.12	3.82	.11	.00	909.23	14.00	13.92	41.97
2045.000	909.80	911.20	905.30	150.00	909.72	4.42	.14	.00	909.86	14.00	13.99	50.29
2045.000	909.80	911.20	905.30	165.00	909.98	4.68	.15	.00	910.13	14.00	14.02	53.99
2045.000	909.80	911.20	905.30	200.00	910.53	5.23	.16	.00	910.70	14.00	14.08	61.72
2046.000	0.00	0.00	905.30	110.00	909.12	3.82	.11	.00	909.23	1.00	13.92	41.95
2046.000	0.00	0.00	905.30	150.00	909.72	4.42	.14	.00	909.86	1.00	13.99	50.27
2046.000	0.00	0.00	905.30	165.00	909.98	4.68	.15	.00	910.13	1.00	14.02	53.97
2046.000	0.00	0.00	905.30	200.00	910.53	5.23	.16	.00	910.70	1.00	14.08	61.70
2246.000	0.00	0.00	906.60	225.00	909.34	2.74	.08	.01	909.62	200.00	40.66	97.39
2246.000	0.00	0.00	906.60	310.00	909.95	3.35	.10	.01	910.05	200.00	61.00	122.31
2246.000	0.00	0.00	906.60	355.00	910.21	3.61	.11	.01	910.32	200.00	61.00	132.91
2246.000	0.00	0.00	906.60	450.00	910.76	4.16	.13	.01	910.89	200.00	61.00	154.99
2316.000	0.00	0.00	905.90	225.00	909.42	3.52	.05	.01	909.47	70.00	60.88	136.99
2316.000	0.00	0.00	905.90	310.00	910.04	4.16	.06	.01	910.10	70.00	77.28	179.38
2316.000	0.00	0.00	905.90	355.00	910.31	4.41	.06	.01	910.37	70.00	84.63	201.63
2316.000	0.00	0.00	905.90	450.00	910.87	4.97	.07	.02	910.94	70.00	99.64	253.38
2317.000	0.00	0.00	905.90	225.00	909.43	3.53	.04	.00	909.47	1.00	61.06	137.40
2317.000	0.00	0.00	905.90	310.00	910.05	4.15	.05	.00	910.10	1.00	77.53	180.09
2317.000	0.00	0.00	905.90	355.00	910.31	4.41	.06	.00	910.37	1.00	84.66	201.68
2317.000	0.00	0.00	905.90	450.00	910.88	4.98	.06	.00	910.94	1.00	99.80	253.98
* 2346.000	911.90	911.70	906.70	225.00	909.69	2.99	1.29	.62	910.98	29.00	12.00	24.71
2346.000	911.90	911.70	906.70	310.00	912.57	5.87	.26	0.00	912.83	29.00	62.00	69.54
2346.000	911.90	911.70	906.70	355.00	912.77	6.07	.25	0.00	913.03	29.00	64.05	102.26
2346.000	911.90	911.70	906.70	450.00	913.10	6.40	.27	0.00	913.37	29.00	72.36	124.81
2347.000	0.00	0.00	906.70	225.00	911.33	4.63	.02	.38	911.36	1.00	62.00	206.03
2347.000	0.00	0.00	906.70	310.00	912.88	6.13	.02	.07	912.90	1.00	62.00	301.66
2347.000	0.00	0.00	906.70	355.00	913.07	6.37	.02	.07	913.10	1.00	62.00	313.88
2347.000	0.00	0.00	906.70	450.00	913.60	6.70	.04	.07	913.64	1.00	62.00	334.45
2767.000	0.00	0.00	908.00	190.00	911.42	3.42	.06	.02	911.48	420.00	82.77	107.86
2767.000	0.00	0.00	908.00	270.00	912.93	4.93	.03	.00	912.95	420.00	134.02	289.13
2767.000	0.00	0.00	908.00	310.00	913.13	5.13	.03	.00	913.16	420.00	135.98	316.87
2767.000	0.00	0.00	908.00	390.00	913.48	5.48	.03	.00	913.51	420.00	139.33	365.26

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
3152.000	0.00	0.00	910.00	190.00	911.90	1.90	.20	.07	912.10	385.00	63.43	57.24
3152.000	0.00	0.00	910.00	270.00	913.04	3.04	.11	.04	913.15	385.00	56.78	113.95
3152.000	0.00	0.00	910.00	310.00	913.25	3.25	.12	.05	913.37	385.00	59.22	125.94
3152.000	0.00	0.00	910.00	350.00	913.60	3.60	.14	.05	913.75	385.00	63.41	147.74
3292.000	0.00	0.00	908.70	145.00	912.45	3.75	.31	.05	912.76	140.00	10.00	32.53
3292.000	0.00	0.00	908.70	185.00	913.21	4.51	.33	.11	913.54	140.00	10.00	40.06
3292.000	0.00	0.00	908.70	200.00	913.41	4.71	.35	.11	913.76	140.00	10.00	42.09
3292.000	0.00	0.00	908.70	220.00	913.77	5.07	.36	.11	914.13	140.00	10.00	45.69
3293.000	915.80	914.10	908.70	145.00	912.46	3.76	.31	.00	912.76	1.00	10.00	32.58
3293.000	915.80	914.10	908.70	185.00	913.21	4.51	.33	.00	913.54	1.00	10.00	40.04
3293.000	915.80	914.10	908.70	200.00	913.41	4.71	.35	.00	913.76	1.00	10.00	42.12
3293.000	915.80	914.10	908.70	220.00	913.77	5.07	.36	.00	914.13	1.00	10.00	45.72
3331.000	915.80	914.10	908.70	145.00	912.53	3.83	.29	.00	912.82	38.00	10.00	33.27
3331.000	915.80	914.10	908.70	185.00	913.27	4.57	.32	.00	913.59	38.00	10.00	40.72
3331.000	915.80	914.10	908.70	200.00	913.48	4.78	.34	.00	913.82	38.00	10.00	42.76
3331.000	915.80	914.10	908.70	220.00	913.83	5.13	.35	.00	914.18	38.00	10.00	46.33
3332.000	0.00	0.00	908.70	145.00	912.53	3.83	.29	.00	912.82	1.00	10.00	33.28
3332.000	0.00	0.00	908.70	185.00	913.27	4.57	.32	.00	913.59	1.00	10.00	40.73
3332.000	0.00	0.00	908.70	200.00	913.48	4.78	.34	.00	913.82	1.00	10.00	42.77
3332.000	0.00	0.00	908.70	220.00	913.84	5.14	.35	.00	914.19	1.00	10.00	46.35
3422.000	0.00	0.00	910.35	145.00	913.10	2.75	.10	.06	913.20	90.00	20.10	57.61
3422.000	0.00	0.00	910.35	185.00	913.81	3.46	.09	.07	913.90	90.00	30.22	78.45
3422.000	0.00	0.00	910.35	200.00	914.03	3.68	.09	.08	914.12	90.00	30.38	85.15
3422.000	0.00	0.00	910.35	220.00	914.38	4.03	.08	.08	914.46	90.00	31.92	96.20
3512.000	0.00	0.00	912.00	145.00	913.51	1.51	.52	.21	914.03	90.00	24.60	25.03
3512.000	0.00	0.00	912.00	185.00	913.98	1.98	.39	.15	914.37	90.00	25.83	37.06
3512.000	0.00	0.00	912.00	200.00	914.18	2.18	.35	.13	914.53	90.00	26.43	42.31
3512.000	0.00	0.00	912.00	220.00	914.51	2.51	.29	.10	914.80	90.00	27.36	50.97
3602.000	0.00	0.00	913.65	145.00	915.49	1.84	.29	.07	915.78	90.00	25.41	33.45
3602.000	0.00	0.00	913.65	185.00	915.50	1.85	.47	.04	915.97	90.00	25.42	33.56
3602.000	0.00	0.00	913.65	200.00	915.52	1.87	.54	.10	916.06	90.00	25.46	33.93
3602.000	0.00	0.00	913.65	220.00	915.53	1.88	.63	.17	916.17	90.00	25.53	34.46
3692.000	0.00	0.00	915.30	145.00	916.91	1.61	.43	.07	917.34	90.00	26.72	27.68
3692.000	0.00	0.00	915.30	185.00	917.23	1.93	.42	.02	917.65	90.00	25.65	35.53
3692.000	0.00	0.00	915.30	200.00	917.35	2.05	.42	.04	917.76	90.00	26.01	38.63
3692.000	0.00	0.00	915.30	220.00	917.49	2.19	.41	.07	917.91	90.00	26.46	42.58
4292.000	0.00	0.00	925.00	145.00	926.66	1.66	.33	.03	926.99	600.00	24.07	31.68
4292.000	0.00	0.00	925.00	185.00	926.79	1.79	.45	.01	927.24	600.00	24.44	34.50
4292.000	0.00	0.00	925.00	200.00	926.83	1.83	.50	.04	927.33	600.00	24.54	35.25
4292.000	0.00	0.00	925.00	220.00	926.86	1.86	.57	.08	927.43	600.00	24.68	36.32
4632.000	0.00	0.00	925.60	145.00	928.65	3.05	.14	.05	928.79	340.00	21.30	47.93
4632.000	0.00	0.00	925.60	185.00	929.04	3.44	.17	.08	929.20	340.00	21.30	56.07
4632.000	0.00	0.00	925.60	200.00	929.18	3.58	.18	.10	929.35	340.00	21.30	59.10
4632.000	0.00	0.00	925.60	220.00	929.35	3.75	.15	.11	929.54	340.00	21.30	62.79

SECNO	ELTRD	ELLC	ELMIN	Q	CNSEL	DEPTH	AV	GLOSS	ES	XLCH	TOPWID	AREA
4633.000	931.90	932.40	925.60	145.00	928.69	3.09	.12	.01	928.80	1.00	21.30	52.94
4633.000	931.90	932.40	925.60	185.00	929.06	3.46	.15	.01	929.21	1.00	21.30	59.40
4633.000	931.90	932.40	925.60	200.00	929.20	3.60	.16	.00	929.36	1.00	21.30	61.75
4633.000	931.90	932.40	925.60	220.00	929.37	3.77	.18	.00	929.55	1.00	21.30	64.57
4669.000	931.90	932.40	925.60	145.00	928.76	3.16	.11	.00	928.85	36.00	21.30	53.96
4669.000	931.90	932.40	925.60	185.00	929.13	3.53	.14	.00	929.28	36.00	21.30	60.85
4669.000	931.90	932.40	925.60	200.00	929.27	3.67	.16	.00	929.43	36.00	21.30	63.19
4669.000	931.90	932.40	925.60	220.00	929.44	3.84	.17	.00	929.62	36.00	21.30	66.12
4670.000	0.00	0.00	925.60	145.00	928.76	3.16	.11	.00	928.86	1.00	21.30	54.19
4670.000	0.00	0.00	925.60	185.00	929.14	3.54	.14	.00	929.28	1.00	21.30	62.52
4670.000	0.00	0.00	925.60	200.00	929.29	3.69	.14	.00	929.43	1.00	21.30	65.65
4670.000	0.00	0.00	925.60	220.00	929.47	3.87	.15	.01	929.62	1.00	21.30	69.64
4870.000	0.00	0.00	920.50	145.00	928.39	8.39	.00	.03	928.90	200.00	126.77	516.02
4870.000	0.00	0.00	920.50	185.00	929.33	8.83	.00	.04	929.33	200.00	123.04	571.12
4870.000	0.00	0.00	920.50	200.00	929.48	8.98	.00	.04	929.68	200.00	128.49	591.11
4870.000	0.00	0.00	920.50	220.00	929.68	9.18	.00	.05	929.68	200.00	129.06	616.05
5170.000	0.00	0.00	922.40	145.00	928.90	6.50	.00	.00	928.90	300.00	133.50	331.24
5170.000	0.00	0.00	922.40	185.00	929.33	6.93	.00	.00	929.34	300.00	134.58	389.29
5170.000	0.00	0.00	922.40	200.00	929.49	7.09	.00	.00	929.49	300.00	134.97	410.32
5170.000	0.00	0.00	922.40	220.00	929.68	7.28	.00	.00	929.69	300.00	135.46	436.53
5795.000	0.00	0.00	926.00	145.00	928.96	2.96	.08	.04	929.04	625.00	27.96	64.55
5795.000	0.00	0.00	926.00	185.00	929.38	3.38	.09	.04	929.47	625.00	28.00	76.41
5795.000	0.00	0.00	926.00	200.00	929.54	3.54	.10	.05	929.65	625.00	28.00	80.68
5795.000	0.00	0.00	926.00	220.00	929.73	3.73	.10	.05	929.83	625.00	28.00	86.01
6270.000	0.00	0.00	925.20	145.00	929.61	4.21	.03	.01	929.64	475.00	38.00	101.45
6270.000	0.00	0.00	925.20	185.00	929.84	4.64	.04	.02	929.88	475.00	38.00	117.83
6270.000	0.00	0.00	925.20	200.00	929.99	4.79	.04	.02	930.03	475.00	38.00	123.71
6270.000	0.00	0.00	925.20	220.00	930.19	4.99	.04	.02	930.23	475.00	38.00	131.13
6290.000	0.00	0.00	926.50	145.00	929.36	2.86	.22	.09	929.56	20.00	20.00	38.65
6290.000	0.00	0.00	926.50	185.00	929.76	3.26	.24	.10	930.00	20.00	20.00	47.12
6290.000	0.00	0.00	926.50	200.00	929.91	3.41	.25	.10	930.16	20.00	20.00	50.16
6290.000	0.00	0.00	926.50	220.00	930.10	3.60	.26	.11	930.36	20.00	20.00	53.99
6291.000	936.60	932.20	926.50	145.00	929.38	2.88	.15	.01	929.57	1.00	20.00	41.18
6291.000	936.60	932.20	926.50	185.00	929.76	3.26	.24	.00	930.01	1.00	20.00	46.93
6291.000	936.60	932.20	926.50	200.00	929.91	3.41	.26	.00	930.17	1.00	20.00	49.17
6291.000	936.60	932.20	926.50	220.00	930.10	3.60	.28	.01	930.38	1.00	20.00	52.00
6354.000	936.60	932.20	926.50	145.00	929.58	3.08	.17	.01	929.75	63.00	20.00	44.26
6354.000	936.60	932.20	926.50	185.00	930.00	3.50	.21	.01	930.21	63.00	20.00	50.39
6354.000	936.60	932.20	926.50	200.00	930.15	3.65	.22	.01	930.37	63.00	20.00	52.78
6354.000	936.60	932.20	926.50	220.00	930.34	3.84	.24	.01	930.59	63.00	20.00	55.62
6355.000	0.00	0.00	926.50	145.00	929.66	3.16	.12	.01	929.77	1.00	20.00	51.44
6355.000	0.00	0.00	926.50	185.00	930.08	3.58	.15	.02	930.23	1.00	20.00	60.23
6355.000	0.00	0.00	926.50	200.00	930.24	3.74	.15	.02	930.40	1.00	20.00	63.45
6355.000	0.00	0.00	926.50	220.00	930.45	3.95	.16	.02	930.61	1.00	20.00	67.57

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	AV	OLOSS	ES	XLCH	TOPWID	AREA
6395.000	0.00	0.00	927.50	145.00	929.76	2.26	.08	.01	929.84	40.00	59.96	66.79
6395.000	0.00	0.00	927.50	185.00	930.23	2.73	.07	.02	930.30	40.00	65.11	98.54
6395.000	0.00	0.00	927.50	200.00	930.40	2.90	.06	.03	930.47	40.00	66.30	109.79
6395.000	0.00	0.00	927.50	220.00	930.62	3.12	.06	.03	930.68	40.00	67.83	124.50
6397.000	929.60	926.60	926.60	145.00	930.89	4.29	.01	0.00	930.90	2.00	70.51	475.67
6397.000	929.60	926.60	926.60	185.00	931.10	4.50	.01	0.00	931.10	2.00	71.31	504.61
6397.000	929.60	926.60	926.60	200.00	931.16	4.56	.01	0.00	931.17	2.00	73.94	513.94
6397.000	929.60	926.60	926.60	220.00	931.25	4.65	.01	0.00	931.26	2.00	77.26	526.25
6647.000	0.00	0.00	919.90	145.00	930.90	11.00	.00	.00	930.90	250.00	108.63	693.79
6647.000	0.00	0.00	919.90	185.00	931.11	11.21	.00	.00	931.11	250.00	110.10	716.54
6647.000	0.00	0.00	919.90	200.00	931.17	11.27	.00	.00	931.17	250.00	110.56	723.78
6647.000	0.00	0.00	919.90	220.00	931.26	11.36	.00	.00	931.26	250.00	111.18	733.61
7097.000	0.00	0.00	924.20	145.00	930.90	6.70	.01	.00	930.91	450.00	50.42	192.17
7097.000	0.00	0.00	924.20	185.00	931.10	6.90	.01	.01	931.12	450.00	54.81	203.18
7097.000	0.00	0.00	924.20	200.00	931.17	6.97	.01	.01	931.18	450.00	56.21	206.86
7097.000	0.00	0.00	924.20	220.00	931.26	7.06	.02	.01	931.28	450.00	58.09	211.99
7847.000	0.00	0.00	924.70	145.00	930.92	6.22	.00	.00	930.92	750.00	502.59	1015.15
7847.000	0.00	0.00	924.70	185.00	931.13	6.43	.00	.00	931.13	750.00	503.67	1123.25
7847.000	0.00	0.00	924.70	200.00	931.20	6.50	.00	.00	931.20	750.00	504.01	1157.66
7847.000	0.00	0.00	924.70	220.00	931.29	6.59	.00	.00	931.29	750.00	504.47	1204.21
8407.000	0.00	0.00	926.10	145.00	930.90	4.80	.04	.02	930.95	560.00	27.86	88.66
8407.000	0.00	0.00	926.10	185.00	931.11	5.01	.06	.03	931.17	560.00	34.32	94.98
8407.000	0.00	0.00	926.10	200.00	931.18	5.08	.07	.03	931.24	560.00	36.99	97.30
8407.000	0.00	0.00	926.10	220.00	931.26	5.16	.08	.04	931.34	560.00	40.60	100.71

SUMMARY OF ERRORS

CAUTION SECNO= 721.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 721.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 721.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 3993.000 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 3993.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 3993.000 PROFILE= 1 SLOPE TOO STEEP

NOTE SECNO= 250.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 250.000 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 250.000 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 250.000 PROFILE= 4 WSEL BASED ON X5 CARD

NOTE SECNO= 400.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 400.000 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 400.000 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 400.000 PROFILE= 4 WSEL BASED ON X5 CARD

CAUTION SECNO= 2346.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2346.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2346.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 3512.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3512.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: COMMERCE TOWNSHIP

3) WATERCOURSE: HURON RIVER

4) DOCUMENT TYPE: SUMMARY - NATURAL

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

HURON RIVER

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	SG	XLCH	TOPWID	AREA
0.000	0.00	0.00	920.20	5.00	921.10	.90	.02	0.00	921.12	0.00	8.93	4.17
0.000	0.00	0.00	920.20	25.00	921.87	1.67	.06	0.00	921.92	0.00	50.85	14.21
0.000	0.00	0.00	920.20	45.00	922.15	1.95	.07	0.00	922.22	0.00	86.38	34.75
0.000	0.00	0.00	920.20	85.00	922.48	2.28	.08	0.00	922.56	0.00	123.82	69.69
700.000	0.00	0.00	922.50	5.00	923.11	.61	.04	.01	923.15	700.00	6.00	3.20
700.000	0.00	0.00	922.50	25.00	924.04	1.54	.13	.04	924.17	700.00	6.00	8.73
700.000	0.00	0.00	922.50	45.00	924.55	2.05	.23	.08	924.77	700.00	6.00	11.81
700.000	0.00	0.00	922.50	85.00	925.20	2.70	.45	.19	925.65	700.00	6.00	15.76
701.000	927.10	925.40	922.50	5.00	923.11	.61	.04	.00	923.15	1.00	6.00	3.22
701.000	927.10	925.40	922.50	25.00	924.04	1.54	.13	.00	924.17	1.00	6.00	8.80
701.000	927.10	925.40	922.50	45.00	924.55	2.05	.22	.00	924.78	1.00	6.00	11.86
701.000	927.10	925.40	922.50	85.00	925.21	2.71	.45	.00	925.66	1.00	6.00	15.79
721.000	927.10	925.40	922.70	5.00	923.22	.52	.14	.05	923.37	20.00	6.00	1.65
721.000	927.10	925.40	922.70	25.00	924.05	1.33	.23	.05	924.26	20.00	6.00	6.51
721.000	927.10	925.40	922.70	45.00	924.55	1.85	.34	.06	924.89	20.00	6.00	9.58
721.000	927.10	925.40	922.70	85.00	925.21	2.51	.61	.08	925.82	20.00	6.00	13.56
722.000	0.00	0.00	922.70	5.00	923.31	.61	.09	.02	923.40	1.00	6.00	2.08
722.000	0.00	0.00	922.70	25.00	924.04	1.34	.23	.00	924.27	1.00	6.00	6.52
722.000	0.00	0.00	922.70	45.00	924.55	1.85	.34	.00	924.89	1.00	6.00	9.59
722.000	0.00	0.00	922.70	85.00	925.21	2.51	.61	.00	925.82	1.00	6.00	13.56
1547.000	0.00	0.00	920.70	5.00	923.42	2.72	.00	.03	923.42	825.00	410.70	343.98
1547.000	0.00	0.00	920.70	25.00	924.34	3.64	.00	.07	924.34	825.00	415.30	721.76
1547.000	0.00	0.00	920.70	45.00	925.00	4.30	.00	.10	925.00	825.00	436.33	998.71
1547.000	0.00	0.00	920.70	85.00	926.01	5.31	.00	.18	926.01	825.00	463.67	1441.17
2697.000	0.00	0.00	921.50	.10	923.42	1.92	.00	.00	923.42	1150.00	12.00	21.01
2697.000	0.00	0.00	921.50	20.00	924.34	2.84	.01	.00	924.35	1150.00	12.00	32.04
2697.000	0.00	0.00	921.50	40.00	925.00	3.50	.02	.01	925.01	1150.00	12.00	39.95
2697.000	0.00	0.00	921.50	80.00	926.02	4.52	.00	.00	926.02	1150.00	110.00	335.62
2707.000	0.00	0.00	919.00	.10	923.42	4.42	.00	.00	923.42	10.00	7.20	30.90
2707.000	0.00	0.00	919.00	20.00	924.34	5.34	.00	.00	924.35	10.00	7.20	37.50
2707.000	0.00	0.00	919.00	40.00	925.00	6.00	.01	.00	925.02	10.00	7.20	42.24
2707.000	0.00	0.00	919.00	80.00	926.00	7.00	.04	.02	926.03	10.00	71.07	65.66

	SECNO	ELTRD	ELLC	ELMIN	D	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
	2708.000	925.50	924.20	919.00	.10	923.42	4.42	.00	.00	923.42	1.00	7.20	28.30
	2708.000	925.50	924.20	919.00	20.00	924.34	5.34	.01	.00	924.35	1.00	7.20	31.20
	2708.000	925.50	924.20	919.00	40.00	925.00	6.00	.03	.01	925.02	1.00	7.20	31.20
	2708.000	925.50	924.20	919.00	80.00	925.98	6.98	.08	.02	926.06	1.00	67.35	45.55
	2750.000	925.50	924.20	919.00	.10	923.42	4.42	.00	.00	923.42	42.00	7.20	28.30
	2750.000	925.50	924.20	919.00	20.00	924.35	5.35	.01	.00	924.36	42.00	7.20	31.20
	2750.000	925.50	924.20	919.00	40.00	925.02	6.02	.03	.00	925.05	42.00	7.20	31.20
	2750.000	925.50	924.20	919.00	80.00	926.08	7.08	.07	.00	926.15	42.00	80.18	52.32
	2751.000	0.00	0.00	919.00	.10	923.42	4.42	.00	.00	923.42	1.00	7.20	30.90
	2751.000	0.00	0.00	919.00	20.00	924.35	5.35	.00	.00	924.36	1.00	7.20	37.56
	2751.000	0.00	0.00	919.00	40.00	925.04	6.04	.01	.00	925.05	1.00	7.20	62.45
	2751.000	0.00	0.00	919.00	80.00	926.12	7.12	.03	.01	926.16	1.00	85.99	74.95
	3951.000	0.00	0.00	921.90	.10	923.42	1.52	.00	.00	923.42	1200.00	8.76	10.49
	3951.000	0.00	0.00	921.90	20.00	924.50	2.60	.01	.00	924.51	1200.00	11.41	21.31
	3951.000	0.00	0.00	921.90	40.00	925.38	3.48	.02	.00	925.40	1200.00	13.59	32.36
	3951.000	0.00	0.00	921.90	80.00	926.74	4.84	.04	.00	926.77	1200.00	16.93	52.95
*	3993.000	931.00	926.30	926.30	.10	926.32	.02	.01	-.00	926.33	42.00	5.12	.11
	3993.000	931.00	926.30	926.30	20.00	931.14	4.84	.00	0.00	931.14	42.00	237.35	248.59
	3993.000	931.00	926.30	926.30	40.00	931.22	4.92	.00	0.00	931.22	42.00	246.14	267.31
	3993.000	931.00	926.30	926.30	80.00	931.33	5.03	.00	0.00	931.33	42.00	258.71	295.26
*	250.000	0.00	0.00	904.50	115.00	909.05	4.55	.02	.00	909.07	1.00	38.33	112.16
*	250.000	0.00	0.00	904.50	160.00	909.65	5.15	.02	.01	909.67	1.00	50.32	137.19
*	250.000	0.00	0.00	904.50	190.00	909.92	5.42	.03	.01	909.95	1.00	61.38	152.27
*	250.000	0.00	0.00	904.50	250.00	910.48	5.98	.03	.01	910.51	1.00	84.30	193.06
	840.000	0.00	0.00	904.00	115.00	909.12	5.12	.01	.00	909.13	590.00	40.57	126.53
	840.000	0.00	0.00	904.00	160.00	909.73	5.73	.02	.00	909.75	590.00	173.97	163.10
	840.000	0.00	0.00	904.00	190.00	910.01	6.01	.02	.00	910.03	590.00	177.84	212.01
	840.000	0.00	0.00	904.00	250.00	910.57	6.57	.01	.01	910.58	590.00	263.66	426.57
	1090.000	0.00	0.00	905.70	115.00	909.16	3.46	.02	.00	909.18	250.00	46.78	101.77
	1090.000	0.00	0.00	905.70	160.00	909.76	4.06	.02	.00	909.78	250.00	104.64	146.80
	1090.000	0.00	0.00	905.70	190.00	910.04	4.34	.02	.00	910.06	250.00	145.22	180.51
	1090.000	0.00	0.00	905.70	250.00	910.59	4.89	.02	.00	910.61	250.00	241.70	301.82
	1490.000	0.00	0.00	906.60	225.00	909.32	2.72	.08	.03	909.40	400.00	41.02	96.38
	1490.000	0.00	0.00	906.60	310.00	909.89	3.29	.10	.04	910.00	400.00	54.89	124.01
	1490.000	0.00	0.00	906.60	355.00	910.16	3.56	.11	.04	910.27	400.00	62.02	139.61
	1490.000	0.00	0.00	906.60	450.00	910.68	4.08	.12	.05	910.80	400.00	75.81	175.16
*	400.000	0.00	0.00	903.80	110.00	909.05	5.25	.00	.02	909.05	1.00	226.42	276.14
*	400.000	0.00	0.00	903.80	150.00	909.65	5.85	.00	.03	909.65	1.00	392.45	484.13
*	400.000	0.00	0.00	903.80	165.00	909.92	6.12	.00	.03	909.92	1.00	478.68	602.57
*	400.000	0.00	0.00	903.80	200.00	910.48	6.68	.00	.04	910.48	1.00	482.00	871.86
	1075.000	0.00	0.00	903.10	110.00	909.07	5.97	.00	.00	909.07	675.00	77.66	233.44
	1075.000	0.00	0.00	903.10	150.00	909.67	6.57	.01	.00	909.67	675.00	139.80	294.51
	1075.000	0.00	0.00	903.10	185.00	909.93	6.83	.01	.00	909.94	675.00	170.99	336.73
	1075.000	0.00	0.00	903.10	200.00	910.49	7.39	.00	.00	910.50	675.00	199.99	475.67

	SECNO	ELTRD	ELLC	ELMIN	O	CWSEL	DEPTH	AV	OLOSS	EC	XLCH	TOPWID	AREA
	1700.000	0.00	0.00	905.00	110.00	909.09	4.09	.01	.00	909.10	625.00	64.29	137.21
	1700.000	0.00	0.00	905.00	150.00	909.69	4.69	.01	.00	909.70	625.00	121.08	192.74
	1700.000	0.00	0.00	905.00	165.00	909.95	4.95	.01	.00	909.96	625.00	153.74	228.62
	1700.000	0.00	0.00	905.00	200.00	910.51	5.51	.01	.00	910.52	625.00	167.01	320.57
	2030.000	0.00	0.00	905.30	110.00	909.10	3.80	.11	.05	909.21	330.00	13.92	41.65
	2030.000	0.00	0.00	905.30	150.00	909.69	4.39	.14	.06	909.83	330.00	13.98	49.92
	2030.000	0.00	0.00	905.30	165.00	909.95	4.65	.15	.07	910.09	330.00	76.49	57.97
	2030.000	0.00	0.00	905.30	200.00	910.51	5.21	.09	.04	910.60	330.00	155.76	129.04
	2031.000	909.80	911.20	905.30	110.00	909.10	3.80	.11	.00	909.21	1.00	13.92	41.68
	2031.000	909.80	911.20	905.30	150.00	909.69	4.39	.14	.00	909.83	1.00	13.98	49.82
	2031.000	909.80	911.20	905.30	165.00	909.95	4.65	.15	.00	910.09	1.00	76.79	58.02
	2031.000	909.80	911.20	905.30	200.00	910.52	5.22	.08	.00	910.60	1.00	154.90	127.81
	2045.000	909.80	911.20	905.30	110.00	909.12	3.82	.11	.00	909.22	14.00	13.92	41.87
	2045.000	909.80	911.20	905.30	150.00	909.70	4.40	.14	.00	909.84	14.00	13.98	50.03
	2045.000	909.80	911.20	905.30	165.00	909.96	4.66	.14	.00	910.10	14.00	83.50	59.27
	2045.000	909.80	911.20	905.30	200.00	910.53	5.23	.08	.00	910.61	14.00	156.88	130.67
	2046.000	0.00	0.00	905.30	110.00	909.12	3.82	.11	.00	909.22	1.00	13.92	41.85
	2046.000	0.00	0.00	905.30	150.00	909.70	4.40	.14	.00	909.84	1.00	13.98	50.01
	2046.000	0.00	0.00	905.30	165.00	909.96	4.66	.14	.00	910.11	1.00	83.35	59.25
	2046.000	0.00	0.00	905.30	200.00	910.53	5.23	.09	.00	910.61	1.00	157.09	130.98
	2246.000	0.00	0.00	906.60	225.00	909.34	2.74	.06	.01	909.42	200.00	41.46	97.15
	2246.000	0.00	0.00	906.60	310.00	909.93	3.33	.10	.01	910.03	200.00	55.93	126.17
	2246.000	0.00	0.00	906.60	355.00	910.18	3.58	.11	.01	910.29	200.00	62.41	140.51
	2246.000	0.00	0.00	906.60	450.00	910.67	4.07	.13	.02	910.79	200.00	75.35	173.87
	2316.000	0.00	0.00	905.90	225.00	909.42	3.52	.05	.01	909.47	70.00	60.72	136.63
	2316.000	0.00	0.00	905.90	310.00	910.02	4.12	.06	.01	910.08	70.00	76.79	177.96
	2316.000	0.00	0.00	905.90	355.00	910.28	4.38	.06	.01	910.34	70.00	83.84	199.16
	2316.000	0.00	0.00	905.90	450.00	910.77	4.87	.07	.02	910.84	70.00	96.91	243.33
	2317.000	0.00	0.00	905.90	225.00	909.42	3.52	.04	.00	909.47	1.00	60.91	157.04
	2317.000	0.00	0.00	905.90	310.00	910.03	4.13	.05	.00	910.08	1.00	77.01	178.60
	2317.000	0.00	0.00	905.90	355.00	910.28	4.38	.06	.00	910.34	1.00	83.86	199.20
	2317.000	0.00	0.00	905.90	450.00	910.78	4.88	.07	.00	910.84	1.00	97.07	243.91
*	2346.000	911.90	911.70	906.70	225.00	909.69	2.99	1.29	.62	910.98	29.00	12.00	24.71
	2346.000	911.90	911.70	906.70	310.00	912.57	5.87	.26	0.00	912.82	29.00	62.00	89.29
	2346.000	911.90	911.70	906.70	355.00	912.77	6.07	.26	0.00	913.02	29.00	63.92	101.92
	2346.000	911.90	911.70	906.70	450.00	913.09	6.39	.27	0.00	913.36	29.00	71.94	123.71
	2347.000	0.00	0.00	906.70	225.00	911.33	4.63	.02	.38	911.36	1.00	62.00	206.03
	2347.000	0.00	0.00	906.70	310.00	912.87	6.17	.02	.07	912.89	1.00	62.00	301.51
	2347.000	0.00	0.00	906.70	355.00	913.07	6.37	.02	.07	913.09	1.00	62.00	313.69
	2347.000	0.00	0.00	906.70	450.00	913.40	6.70	.04	.07	913.43	1.00	62.00	333.89
	2767.000	0.00	0.00	908.00	190.00	911.42	3.42	.06	.02	911.48	420.00	153.92	117.98
	2767.000	0.00	0.00	908.00	270.00	912.93	4.93	.01	.00	912.96	420.00	326.74	511.90
	2767.000	0.00	0.00	908.00	310.00	913.13	5.13	.01	.00	913.14	420.00	353.04	579.44
	2767.000	0.00	0.00	908.00	390.00	913.48	5.48	.01	.01	913.49	420.00	343.68	696.27

	SECNO	ELTRD	ELLC	ELMIN	C	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
	3152.000	0.00	0.00	910.00	190.00	911.90	1.90	.20	.07	912.10	385.00	43.36	56.98
	3152.000	0.00	0.00	910.00	270.00	912.98	2.98	.12	.05	913.10	385.00	55.95	109.98
	3152.000	0.00	0.00	910.00	310.00	913.17	3.17	.13	.06	913.30	385.00	58.32	121.49
	3152.000	0.00	0.00	910.00	390.00	913.51	3.51	.15	.07	913.66	385.00	62.39	142.31
	3292.000	0.00	0.00	908.70	145.00	912.45	3.75	.31	.05	912.76	140.00	10.00	32.52
	3292.000	0.00	0.00	908.70	185.00	913.16	4.46	.34	.11	913.50	140.00	10.00	39.64
	3292.000	0.00	0.00	908.70	200.00	913.36	4.66	.36	.11	913.72	140.00	10.00	41.58
	3292.000	0.00	0.00	908.70	220.00	913.70	5.00	.37	.11	914.07	140.00	10.00	44.99
	3293.000	915.80	914.10	908.70	145.00	912.46	3.76	.31	.00	912.76	1.00	10.00	32.57
	3293.000	915.80	914.10	908.70	185.00	913.17	4.47	.34	.00	913.50	1.00	10.00	39.66
	3293.000	915.80	914.10	908.70	200.00	913.36	4.66	.36	.00	913.72	1.00	10.00	41.61
	3293.000	915.80	914.10	908.70	220.00	913.70	5.00	.37	.00	914.07	1.00	10.00	45.01
	3331.000	915.80	914.10	908.70	145.00	912.53	3.83	.30	.00	912.82	38.00	10.00	33.26
	3331.000	915.80	914.10	908.70	185.00	913.23	4.53	.33	.00	913.56	38.00	10.00	40.32
	3331.000	915.80	914.10	908.70	200.00	913.43	4.73	.35	.00	913.78	38.00	10.00	42.28
	3331.000	915.80	914.10	908.70	220.00	913.77	5.07	.36	.00	914.13	38.00	10.00	45.66
	3332.000	0.00	0.00	908.70	145.00	912.53	3.83	.29	.00	912.82	1.00	10.00	33.28
	3332.000	0.00	0.00	908.70	185.00	913.23	4.53	.33	.00	913.56	1.00	10.00	40.33
	3332.000	0.00	0.00	908.70	200.00	913.43	4.73	.35	.00	913.78	1.00	10.00	42.29
	3332.000	0.00	0.00	908.70	220.00	913.77	5.07	.36	.00	914.13	1.00	10.00	45.68
	3422.000	0.00	0.00	910.35	145.00	913.10	2.75	.10	.06	913.20	90.00	28.10	57.60
	3422.000	0.00	0.00	910.35	185.00	913.78	3.43	.09	.07	913.87	90.00	30.14	77.62
	3422.000	0.00	0.00	910.35	200.00	914.00	3.65	.09	.08	914.09	90.00	30.78	84.13
	3422.000	0.00	0.00	910.35	220.00	914.34	3.99	.08	.08	914.42	90.00	31.78	94.67
*	3512.000	0.00	0.00	912.00	145.00	913.51	1.51	.52	.21	914.03	90.00	24.40	25.03
	3512.000	0.00	0.00	912.00	185.00	913.96	1.96	.40	.16	914.36	90.00	25.77	36.52
	3512.000	0.00	0.00	912.00	200.00	914.16	2.16	.36	.14	914.52	90.00	26.35	41.61
	3512.000	0.00	0.00	912.00	220.00	914.47	2.47	.30	.11	914.77	90.00	27.26	49.84
	3602.000	0.00	0.00	913.65	145.00	915.49	1.84	.29	.07	915.78	90.00	25.41	33.45
	3602.000	0.00	0.00	913.65	185.00	915.51	1.86	.47	.03	915.97	90.00	25.45	33.80
	3602.000	0.00	0.00	913.65	200.00	915.53	1.88	.53	.09	916.06	90.00	25.49	34.18
	3602.000	0.00	0.00	913.65	220.00	915.54	1.89	.62	.16	916.17	90.00	25.56	34.76
	3692.000	0.00	0.00	915.30	145.00	916.91	1.61	.43	.07	917.34	90.00	24.72	27.68
	3692.000	0.00	0.00	915.30	185.00	917.22	1.92	.43	.01	917.65	90.00	25.63	35.34
	3692.000	0.00	0.00	915.30	200.00	917.34	2.04	.42	.03	917.76	90.00	25.98	38.43
	3692.000	0.00	0.00	915.30	220.00	917.48	2.18	.42	.06	917.90	90.00	26.42	42.26
	4292.000	0.00	0.00	925.00	145.00	926.66	1.66	.33	.03	926.99	600.00	24.07	31.68
	4292.000	0.00	0.00	925.00	185.00	926.80	1.80	.44	.01	927.24	600.00	24.46	34.64
	4292.000	0.00	0.00	925.00	200.00	926.83	1.83	.49	.04	927.32	600.00	24.57	35.44
	4292.000	0.00	0.00	925.00	220.00	926.88	1.88	.56	.07	927.44	600.00	24.72	36.60
	4632.000	0.00	0.00	925.60	145.00	928.65	3.05	.16	.05	928.79	340.00	21.30	47.93
	4632.000	0.00	0.00	925.60	185.00	929.03	3.43	.17	.08	929.20	340.00	21.30	56.02
	4632.000	0.00	0.00	925.60	200.00	929.17	3.57	.18	.09	929.35	340.00	21.30	58.94
	4632.000	0.00	0.00	925.60	220.00	929.34	3.74	.19	.11	929.54	340.00	21.30	62.66

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	ES	XLCH	TOPWID	AREA
4633.000	931.90	932.40	925.60	145.00	928.69	3.09	.12	.01	928.80	1.00	21.30	52.94
4633.000	931.90	932.40	925.60	185.00	929.06	3.46	.15	.01	929.21	1.00	21.30	59.36
4633.000	931.90	932.40	925.60	200.00	929.19	3.59	.16	.00	929.36	1.00	21.30	61.62
4633.000	931.90	932.40	925.60	220.00	929.36	3.76	.18	.00	929.54	1.00	21.30	64.47
4669.000	931.90	932.40	925.60	145.00	928.74	3.14	.11	.00	928.85	36.00	21.30	53.96
4669.000	931.90	932.40	925.60	185.00	929.13	3.53	.14	.00	929.27	36.00	21.30	60.82
4669.000	931.90	932.40	925.60	200.00	929.27	3.67	.16	.00	929.42	36.00	21.30	63.08
4669.000	931.90	932.40	925.60	220.00	929.46	3.84	.17	.00	929.61	36.00	21.30	66.03
4670.000	0.00	0.00	925.60	145.00	928.74	3.14	.11	.00	928.86	1.00	21.30	54.19
4670.000	0.00	0.00	925.60	185.00	929.14	3.54	.14	.00	929.28	1.00	21.30	62.48
4670.000	0.00	0.00	925.60	200.00	929.28	3.68	.14	.00	929.43	1.00	21.30	65.51
4670.000	0.00	0.00	925.60	220.00	929.46	3.86	.16	.01	929.62	1.00	21.30	69.53
4870.000	0.00	0.00	920.50	145.00	928.89	8.39	.00	.03	928.90	200.00	208.55	569.83
4870.000	0.00	0.00	920.50	185.00	929.32	8.82	.00	.04	929.33	200.00	227.03	663.61
4870.000	0.00	0.00	920.50	200.00	929.48	8.98	.00	.04	929.48	200.00	233.54	698.55
4870.000	0.00	0.00	920.50	220.00	929.67	9.17	.00	.05	929.67	200.00	241.90	744.87
5170.000	0.00	0.00	922.40	145.00	928.90	6.50	.00	.00	928.90	300.00	177.46	355.35
5170.000	0.00	0.00	922.40	185.00	929.33	6.93	.00	.00	929.33	300.00	195.78	435.79
5170.000	0.00	0.00	922.40	200.00	929.48	7.08	.00	.00	929.49	300.00	202.23	466.00
5170.000	0.00	0.00	922.40	220.00	929.68	7.28	.00	.00	929.68	300.00	210.52	506.23
5795.000	0.00	0.00	926.00	145.00	928.96	2.96	.07	.03	929.03	625.00	53.91	74.31
5795.000	0.00	0.00	926.00	185.00	929.38	3.38	.07	.04	929.45	625.00	72.63	101.00
5795.000	0.00	0.00	926.00	200.00	929.53	3.53	.07	.04	929.60	625.00	79.41	112.38
5795.000	0.00	0.00	926.00	220.00	929.72	3.72	.07	.04	929.80	625.00	88.13	128.52
6270.000	0.00	0.00	925.20	145.00	929.38	4.18	.03	.01	929.41	475.00	43.47	103.47
6270.000	0.00	0.00	925.20	185.00	929.78	4.58	.04	.01	929.82	475.00	49.32	121.56
6270.000	0.00	0.00	925.20	200.00	929.92	4.72	.04	.01	929.96	475.00	55.11	128.82
6270.000	0.00	0.00	925.20	220.00	930.10	4.90	.04	.01	930.14	475.00	62.52	139.29
6290.000	0.00	0.00	926.50	145.00	929.31	2.81	.23	.10	929.53	20.00	20.00	38.02
6290.000	0.00	0.00	926.50	185.00	929.69	3.19	.25	.11	929.95	20.00	20.00	45.79
6290.000	0.00	0.00	926.50	200.00	929.83	3.33	.26	.11	930.09	20.00	20.00	48.49
6290.000	0.00	0.00	926.50	220.00	930.00	3.50	.28	.12	930.28	20.00	20.00	51.93
6291.000	936.60	932.20	926.50	145.00	929.35	2.85	.20	.01	929.55	1.00	20.00	40.79
6291.000	936.60	932.20	926.50	185.00	929.70	3.20	.25	.00	929.95	1.00	20.00	45.94
6291.000	936.60	932.20	926.50	200.00	929.83	3.33	.27	.00	930.10	1.00	20.00	47.94
6291.000	936.60	932.20	926.50	220.00	930.00	3.50	.29	.01	930.29	1.00	20.00	50.49
6354.000	936.60	932.20	926.50	145.00	929.56	3.06	.17	.01	929.73	63.00	20.00	43.96
6354.000	936.60	932.20	926.50	185.00	929.95	3.45	.22	.01	930.17	63.00	20.00	49.69
6354.000	936.60	932.20	926.50	200.00	930.09	3.59	.23	.01	930.32	63.00	20.00	51.74
6354.000	936.60	932.20	926.50	220.00	930.27	3.77	.25	.01	930.52	63.00	20.00	54.47
6355.000	0.00	0.00	926.50	145.00	929.62	3.12	.13	.01	929.75	1.00	20.00	51.04
6355.000	0.00	0.00	926.50	185.00	930.04	3.54	.15	.02	930.19	1.00	20.00	59.33
6355.000	0.00	0.00	926.50	200.00	930.18	3.68	.16	.02	930.34	1.00	20.00	62.30
6355.000	0.00	0.00	926.50	220.00	930.38	3.88	.17	.02	930.55	1.00	20.00	66.13

SECNO.	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	VV	QLOSS	EG	XLCH	TOPWID	AREA
6395.000	0.00	0.00	927.50	145.00	929.74	2.24	.08	.01	929.82	40.00	58.96	67.72
6395.000	0.00	0.00	927.50	185.00	930.19	2.69	.07	.02	930.26	40.00	64.83	95.90
6395.000	0.00	0.00	927.50	200.00	930.35	2.85	.07	.03	930.42	40.00	65.94	106.36
6395.000	0.00	0.00	927.50	220.00	930.56	3.06	.07	.03	930.62	40.00	67.38	120.11
6397.000	929.60	926.60	926.60	145.00	930.89	4.29	.01	0.00	930.90	2.00	70.51	475.67
6397.000	929.60	926.60	926.60	185.00	931.09	4.49	.01	0.00	931.10	2.00	71.25	504.40
6397.000	929.60	926.60	926.60	200.00	931.16	4.56	.01	0.00	931.17	2.00	73.83	513.56
6397.000	929.60	926.60	926.60	220.00	931.24	4.64	.01	0.00	931.25	2.00	77.07	525.51
6647.000	0.00	0.00	919.90	145.00	930.90	11.00	.00	.00	930.90	250.00	108.63	693.79
6647.000	0.00	0.00	919.90	185.00	931.11	11.21	.00	.00	931.11	250.00	110.09	716.38
6647.000	0.00	0.00	919.90	200.00	931.17	11.27	.00	.00	931.17	250.00	110.54	723.50
6647.000	0.00	0.00	919.90	220.00	931.26	11.36	.00	.00	931.26	250.00	111.15	733.07
7097.000	0.00	0.00	924.20	145.00	930.90	6.70	.01	.00	930.91	450.00	50.42	192.17
7097.000	0.00	0.00	924.20	185.00	931.10	6.90	.01	.01	931.12	450.00	54.78	203.10
7097.000	0.00	0.00	924.20	200.00	931.17	6.97	.01	.01	931.18	450.00	56.15	206.72
7097.000	0.00	0.00	924.20	220.00	931.25	7.05	.02	.01	931.27	450.00	57.99	211.71
7847.000	0.00	0.00	924.70	145.00	930.92	6.22	.00	.00	930.92	750.00	502.59	1015.15
7847.000	0.00	0.00	924.70	185.00	931.13	6.43	.00	.00	931.13	750.00	503.66	1122.52
7847.000	0.00	0.00	924.70	200.00	931.20	6.50	.00	.00	931.20	750.00	503.99	1156.40
7847.000	0.00	0.00	924.70	220.00	931.29	6.59	.00	.01	931.29	750.00	504.45	1201.81
8407.000	0.00	0.00	926.10	145.00	930.90	4.80	.04	.02	930.95	560.00	27.86	88.66
8407.000	0.00	0.00	926.10	185.00	931.11	5.01	.06	.03	931.17	560.00	34.26	94.93
8407.000	0.00	0.00	926.10	200.00	931.17	5.07	.07	.03	931.24	560.00	36.89	97.20
8407.000	0.00	0.00	926.10	220.00	931.26	5.16	.08	.04	931.34	560.00	40.41	100.51

SUMMARY OF ERRORS

CAUTION SECNO= 721.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 721.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 721.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 3993.000 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 3993.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 3993.000 PROFILE= 1 SLOPE TOO STEEP

NOTE SECNO= 250.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 250.000 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 250.000 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 250.000 PROFILE= 4 WSEL BASED ON X5 CARD

NOTE SECNO= 400.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 400.000 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 400.000 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 400.000 PROFILE= 4 WSEL BASED ON X5 CARD

CAUTION SECNO= 2346.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2346.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2346.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 3512.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3512.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY