HEC-RAS Version 3.0.1 Mar 2001
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X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X     X
X     X  X        X            X   X    X    X    X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
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PROJECT DATA
Project Title: spoak
Project File : spoak.prj
Run Date and Time: 11/20/2002 4:31:24 PM

Project in English units

Project Description:
Spanish Oak Creek in Cedar Park Master Plan

PLAN DATA

Plan Title: Plan 25
Plan File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.p25

Geometry Title: **spoak020606v3**
Geometry File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.g05

Flow Title : Spoakimp
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.f03

Plan Summary Information:
Number of: Cross Sections = 34 Mulitple Openings = 0
Culverts = 3 Inline Weirs = 0
Bridges = 1

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Spoakimp
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.f03

Flow Data (cfs)

River	Reach	RS	10ext	25ext	50ext	100ext	100ult
spanish oak	1	21180.56	152	210	254	299	302
spanish oak	1	19223.33	619	816	1004	1186	1249
spanish oak	1	17811.02	616	812	1000	1182	1245
spanish oak	1	17777.65	641	843	1033	1222	1288
spanish oak	1	17679.15	650	853	1044	1235	1302
spanish oak	1	17647.21	898	1149	1355	1613	1707
spanish oak	1	16705.88	957	1218	1426	1699	1800
spanish oak	1	16656.69	965	1228	1438	1712	1814
spanish oak	1	16604.60	974	1239	1450	1726	1828
spanish oak	1	15581.51	1162	1474	1720	2022	2143
spanish oak	1	14928.91	1300	1647	1918	2237	2371
spanish oak	1	13790.23	1582	1998	2319	2668	2829
spanish oak	1	12934.71	1834	2311	2675	3046	3231
spanish oak	1	12864.76	1856	2338	2706	3079	3266
spanish oak	1	12760.76	2040	2567	2971	2380	3610
spanish oak	1	12690.31	2044	2572	2977	3387	3618
spanish oak	1	11658.58	2104	2648	3065	3488	3733
spanish oak	1	10622.78	2166	2727	3156	3593	3853
spanish oak	1	9888.356	3563	4707	5534	6333	6526
spanish oak	1	9173.449	3649	4818	5664	6481	6705
spanish oak	1	8355.736	3750	4948	5816	6655	6915
spanish oak	1	7652.974	3838	5062	5950	6809	7102

spanish oak	1	7634.719	3841	5065	5953	6813	7107
spanish oak	1	7589.719	3847	5073	5962	6823	7119
spanish oak	1	7571.459	3849	5076	5966	6827	7124
spanish oak	1	5255.314	4158	5473	6431	7359	7776
spanish oak	1	3772.000	4368	5744	6747	7721	8224
spanish oak	1	2679.807	4530	5952	6990	7999	8571
spanish oak	1	138.908	6799	9004	10640	12282	13103

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
spanish oak	1	10ext		Rating Curve #1

Rating Curve #1

Flow (cfs)	Elev (ft)
7486	853.32
9652	855.72
11354	857.3
13103	858.73

Observed Water Surface Marks

River	Reach	RS	10ext	25ext	50ext	100ext	100ult
spanish oak	1	18869.33	975.5	976	976.5	977	977.4

GEOMETRY DATA

Geometry Title: spoak020606v3
Geometry File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.g05

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 21180.56

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1010.01	78.71	1009.2	326.78	1005.49	399.35	1004	401.52	1004
516.41	1001.86	624.54	1000.66	660.52	1000	682.47	1000	747.03	998.9
756.28	998.89	802.17	998	834.76	998	841.68	998.18	891.32	999.22
893.34	999.22	896.66	999.3	898.49	999.31	930.76	999.86	1028.88	1000
1083.26	1002	1087.64	1002	1286.54	1007.42	1301.48	1008	1305.31	1008
1358.84	1009.33	1395.03	1010	1403.95	1010	1448.93	1012	1450.47	1012
1491.85	1013.17								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	682.47	.07	930.76	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
682.47	930.76	739.2	739.04	738.88	.1	.3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 20441.55

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	995.47	25.8	995.35	108.86	994.09	113.69	994	167.27	993.67
176.75	993.64	177.77	993.62	186.38	993.59	187.52	993.57	201.02	993.14
211.46	993.04	232.9	992.56	236.92	992.53	239.49	992.46	269.48	992.14
276.35	992.04	306.82	992	411.63	990	442.54	990	546.83	989.16
606.65	988.96	662.3	989.5	664.63	989.55	668.27	989.54	674.04	989.63
687.64	989.64	753.51	990	756.39	990.07	766.53	990.31	768.24	990.32
772.74	990.43	773.9	990.44	777.99	990.54	779.4	990.54	854.8	992
857.4	992	920.83	993.95	1005.83	996	1085.4	998	1087.02	998
1173.45	1000.96								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	546.83	.07	687.64	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
546.83	687.64	1003.59	1003.59	1003.8	.1	.3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 19223.33

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	995.42	48.6	994	52.25	994	64.21	993.6	136.6	992
138.1	992	214.82	990	220.86	990	283.62	988	285.5	988

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  538.17     984  771.61     980  849.51     978  850.31     978     929     977
 1009.04     978 1009.65  978.01 1034.48  978.28 1035.83  978.32 1040.05   978.3
 1093.96   979.3 1118.16     980 1120.22     980 1212.55  981.72 1213.56  981.75
  1406.1     986 1407.16     986 1416.45  986.25 1460.54     988 1488.21  988.75
 1521.24     990 1526.88     990 1552.05   990.8 1577.57  991.31

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  850.31     .07 1009.65      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       850.31 1009.65          1413.75 1413.75 1413.75             .1       .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 17811.02

INPUT
Description:
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.57   78.14     982   84.15     982  172.54     980  182.07     980
  246.55     978   248.5     978  322.66     976  327.64     976  421.15     974
   511.4     974  585.98     972   610.4     972  637.24  971.23  648.64  971.14
  657.27  971.4   661.57  971.45  679.12     972  710.71     972  731.92  971.18
  766.93  970.45   768.2  970.44  784.18  970.03 1394.72     970    1504     968
 1614.94     970 1655.63     970 1685.53  970.22 1736.97  970.29 1836.45  971.23
 1861.61  971.21 2038.78     972  2064.4  970.31    2067  970.33 2074.44  970.06
 2100.03     972 2117.98  973.06 2130.16  973.57 2131.59  973.65 2150.44  974.21
 2177.47  974.61 2180.89  974.56 2206.15  974.76 2209.09  974.84 2211.18  974.84
 2213.94  974.91 2220.77  974.91 2223.44  974.98 2293.65  975.89 2293.95   975.9

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1394.72     .07 1614.94      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      1394.72 1614.94            32.51    32.5   32.49             .3       .5

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 17777.65

INPUT
Description:
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.48   78.39  981.91   84.42  981.91  173.09  979.91  182.65  979.91
  247.34  977.91   249.3  977.91   323.7  975.91   328.7  975.91  340.88  975.54
  422.51  973.91  513.06  973.91  587.88  971.91  612.38  971.91   639.3  971.14
  650.74  971.05  659.39  971.31  663.72  971.36  681.32  971.91  713.02  971.91
  734.29  971.09  769.42  970.36  770.69  970.35  788.23  969.91 1392.33  969.91
 1474.61  969.91 1475.61  966.41 1535.92  966.41 1536.92  969.91 1615.57  969.91
 1660.99  969.91 1685.69  970.12 1742.59   970.2  1837.4  971.14 1887.19  971.26
 1978.41  971.91 2045.38  971.91 2071.08  970.22 2073.69  970.24 2081.16  969.97
 2106.84  971.91 2124.85  972.97 2137.06  973.48 2138.49  973.56  2157.4  974.12
 2184.53  974.52 2187.95  974.47 2189.73  974.49 2193.25  974.47 2213.29  974.67
 2216.24  974.75 2218.34  974.75 2221.11  974.82 2227.96  974.82 2230.63  974.89
 2249.51  975.08 2252.28  975.16 2301.08   975.8 2301.38  975.81

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1392.33     .07 1615.57      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      1392.33 1615.57           93.46   93.37   93.28             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                 RIVER: spanish oak
REACH: 1                RS: 17728.40

INPUT
Description: 183
Distance from Upstream XS =      10
Deck/Roadway Width        =    78.5
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     350      975      900   506.9   974.6      900   586.9   974.2      900
   756.9      974      900  1196.9      972      900  1266.9      972      900
  2206.9      972      900  2396.9      974      900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.48   78.39  981.91   84.42  981.91  173.09  979.91  182.65  979.91
  247.34  977.91   249.3  977.91   323.7  975.91   328.7  975.91  340.88  975.54
  422.51  973.91  513.06  973.91  587.88  971.91  612.38  971.91   639.3  971.14
  650.74  971.05  659.39  971.31  663.72  971.36  681.32  971.91  713.02  971.91
  734.29  971.09  769.42  970.36  770.69  970.35  788.23  969.91 1392.33  969.91
 1474.61  969.91 1475.61  966.41 1535.92  966.41 1536.92  969.91 1615.57  969.91
 1660.99  969.91 1685.69  970.12 1742.59   970.2  1837.4  971.14 1887.19  971.26
 1978.41  971.91 2045.38  971.91 2071.08  970.22 2073.69  970.24 2081.16  969.97
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 2106.84  971.91 2124.85  972.97 2137.06  973.48 2138.49  973.56  2157.4  974.12
 2184.53  974.52 2187.95  974.47 2189.73  974.49 2193.25  974.47 2213.29  974.67
 2216.24  974.75 2218.34  974.75 2221.11  974.82 2227.96  974.82 2230.63  974.89
 2249.51  975.08 2252.28  975.16 2301.08   975.8 2301.38  975.81

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1392.33     .07 1615.57      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
      1392.33 1615.57            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       9
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     350      975      900      793      972      900      873      972      900
    1043      972      900     1483      972      900     1553      972      900
    2000      972      900     2500      974      900     2683      974      900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      77
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   982.33     8.75    982.1   121.03    980.4   131.49   980.09   133.61   980.09
  261.12   978.09   266.04   978.09   339.53   976.64   354.17   976.09   361.44   976.09
  400.23   974.07      458   972.09   563.12   972.09   672.23   970.46   674.15   970.46
  687.57   970.09    839.1   969.34   840.95   969.31   859.47   969.31   879.52   969.03
     897   969.09   907.38   968.95   932.05   968.09  1151.67   968.09  1184.35   967.67
  1287.7   967.58  1375.93      967  1378.61   966.95  1389.25   966.99  1411.71   967.06
  1436.6   966.77  1468.46   966.65  1479.98   966.32  1481.15   966.32  1485.78   966.18
 1490.98   966.13  1510.86   966.33  1530.32   966.09  1544.26   966.09  1569.53   966.53
 1570.61   966.52  1574.18   966.61   1575.4    966.6   1578.8   966.68   1581.5   966.65
 1600.89   966.91  1603.71      967  1608.12   966.99   1610.7   967.07  1610.94   967.07
 1693.91   967.51  1695.35   967.54  1777.58   967.64  1817.03   968.09  1850.31   968.81
 1878.68   968.81  1898.31   968.62  1908.95   968.69  1944.15    968.1  2044.26   968.09
 2052.78   968.53  2054.13   968.54  2058.14   968.75  2059.97   968.76  2063.22   968.92
 2065.46   968.93  2098.37   969.43  2101.64   969.44  2103.24   969.41  2121.76   969.66
 2125.04   969.76  2150.06   969.95  2206.57   969.61  2207.66   971.09  2211.87   973.09
  2312.4   977.09  2463.21   980.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1389.25     .07 1610.94      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
      1389.25 1610.94            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
183                 Box       4       4
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10    78.5       .013                  .4                1
Number of Barrels =  8
Upstream   Elevation =  966.5
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
 1481.65 1486.49 1491.32 1496.15 1500.98 1505.82 1510.65 1515.48
Downstream Elevation =  966.5
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
 1469.65 1474.49 1479.32 1484.15 1488.98 1493.82 1498.65 1503.48

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 17679.15

INPUT
Description:
Station Elevation Data    num=      77
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   982.33     8.75    982.1   121.03    980.4   131.49   980.09   133.61   980.09
  261.12   978.09   266.04   978.09   339.53   976.64   354.17   976.09   361.44   976.09
  400.23   974.07      458   972.09   563.12   972.09   672.23   970.46   674.15   970.46
  687.57   970.09    839.1   969.34   840.95   969.31   859.47   969.31   879.52   969.03
     897   969.09   907.38   968.95   932.05   968.09  1151.67   968.09  1184.35   967.67
  1287.7   967.58  1375.93      967  1378.61   966.95  1389.25   966.99  1411.71   967.06
  1436.6   966.77  1468.46   966.65  1479.98   966.32  1481.15   966.32  1485.78   966.18
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 1490.98  966.13 1510.86  966.33 1530.32  966.09 1544.26  966.09 1569.53  966.53
 1570.61  966.52 1574.18  966.61  1575.4   966.6  1578.8  966.68  1581.5  966.65
 1600.89  966.91 1603.71     967 1608.12  966.99  1610.7  967.07 1610.94  967.07
 1693.91  967.51 1695.35  967.54 1777.58  967.64 1817.03  968.09 1850.31  968.81
 1878.68  968.31 1898.31  968.62 1908.95  968.69 1944.15   968.1 2044.26  968.09
 2052.78  968.53 2054.13  968.54 2058.14  968.75 2059.97  968.76 2063.22  968.92
 2065.46  968.93 2098.37  969.43 2101.64  969.44 2103.24  969.41 2121.76  969.66
 2125.04  969.76 2150.06  969.95 2206.57  969.61 2207.66  971.09 2211.87  973.09
  2312.4  977.09 2463.21  980.09

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1389.25     .07 1610.94      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      1389.25 1610.94           36.47    36.5   36.53             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 17647.21

INPUT
Description:
Station Elevation Data     num=      75
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0  982.24      8.7  982.01   120.38  980.31   130.78      980   132.89      980
  259.72      978   264.61      978    337.7  976.55   352.27      976    359.5      976
  398.08  973.98   455.54      972    560.1     972   668.61  970.37   670.52  970.37
  683.89      970    834.6  969.25   836.43  969.22   856.82   969.2    874.8  968.94
  892.19      969   902.52  968.86   927.05     968  1145.49     968     1178  967.58
 1280.79  967.49     1282  967.47  1368.55  966.91  1371.22  966.86  1403.48  966.97
 1428.89  966.68  1460.58  966.56  1472.04  966.23   1473.2  966.23  1477.81  966.09
 1507.77  966.22  1522.11     966  1535.98     966  1561.11  966.44  1562.18  966.43
 1565.74  966.52  1566.95  966.51  1570.32  966.59     1573  966.56   1592.3  966.82
  1595.1  966.91  1599.48   966.9  1601.64  966.97  1684.82  967.42  1686.25  967.45
 1768.04  967.55  1804.65  967.96  1840.38  968.72  1898.71   968.6  1933.72  968.01
 2033.29     968  2041.77  968.44  2043.11  968.45  2047.09  968.66  2048.92  968.67
 2052.14  968.83  2054.37  968.84  2087.11  969.34  2090.37  969.35  2091.96  969.32
 2122.74  969.82  2164.08  969.77  2194.73  969.52   2195.8  969.54  2219.81   969.6
 2220.95  969.63  2286.18  970.09  2321.69  970.58   2325.1   970.7  2331.36  970.79

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1403.48     .07 1601.64      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      1403.48 1601.64           816.17  816.34  816.34             .3       .5

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 16859.73

INPUT
Description:
Station Elevation Data     num=      40
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   967.5   111.68   966.1   176.57  965.65   323.79  965.22   522.19      964
  552.99  963.62   688.44  962.84   820.62  961.16  1105.44  958.98  1190.55      958
 1200.55      958  1205.6  957.82  1240.61   956.6  1249.86   956.6  1281.91      958
 1295.89   958.3  1353.84  959.47  1879.68  961.97  1950.58     962  1988.14   963.14
 1994.24  963.43  1998.46  963.55   2007.8     964  2126.93     964  2130.51   964.08
 2271.45   964.7  2316.74  965.06  2345.85  965.02  2350.47  964.96  2352.73   964.98
  2431.5     964  2473.73  964.24  2487.91  964.61  2505.46  964.77  2512.16   964.67
 2513.52  964.63  2550.81  965.24  2572.64     966  2631.08  967.15  2655.51    967.4

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  1205.6     .07 1295.89      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1205.6 1295.89                93    92.4      93             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 16761.44

INPUT
Description:
Station Elevation Data     num=      47
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0  966.42   141.58      966   164.62  965.17   267.96  964.26   531.34      964
  572.58  962.64   628.65  962.26   763.03     962   782.01  961.12   847.94      960
  952.72      960   996.69  958.71  1047.5  958.16  1181.7      958  1184.81  957.74
 1194.61  957.69  1198.23  956.56  1238.14     958  1279.9      958  1286.12  958.32
 1289.21  958.42  1299.12  958.37  1397.36     960  1571.16  960.03  1746.09  960.93
 1855.36  961.19  2037.76     962  2060.89  962.62  2094.44  962.62  2304.92  963.52
 2306.08  963.51  2329.28  963.59  2348.66  963.47   2349.9  963.48  2356.77  963.42
 2358.13  963.43  2361.45   963.4  2362.86  963.41  2366.12  963.38  2367.56  963.39
  2428.7  963.17  2484.74     964  2542.58     964  2644.18  965.86  2646.37  965.85
 2652.64     966  2655.51     966
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Manning's n Values          num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
       0      .1  952.72     .07 1397.36      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        952.72 1397.36            52.38   52.34    52.3             .3       .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION           RIVER: spanish oak
REACH: 1                   RS: 16705.88

INPUT
Description:
Station Elevation Data     num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  965.83   83.24  965.41  141.58  965.41  164.62  964.58  213.31  963.98
  267.96  963.67  363.34  963.58  392.42  963.41  531.34  963.41  572.58  962.05
  619.31  961.68  663.47  961.63  694.12  961.41  763.03  961.41  782.01  960.53
   785.4   960.5  813.48  959.88  847.94  959.41  920.52  959.41  952.72  959.41
  996.69  958.12 1042.11  957.59 1087.52  957.41 1181.88  957.41 1184.81  957.15
 1194.61   957.1 1198.22  956.97 1238.15  957.41 1279.65  957.41 1286.75  957.78
 1289.82  957.89 1293.26  957.84 1301.79  957.84 1393.02  959.41 1411.07  959.41
 1578.81  959.41 1849.69  960.28 1883.04  960.25  1980.6  961.14 1993.32  961.41
    2150  962.41    2350  964.41    2500  965.41

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
       0      .1 1181.88     .07 1238.15      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1181.88 1238.15            50.05   50.01   49.97             .3       .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

BRIDGE                  RIVER: spanish oak
REACH: 1                   RS: 16685.31

INPUT
Description: Railroad Crossing
Distance from Upstream XS =       10
Deck/Roadway Width        =       30
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0      970      955    1175      960      955    1175      960      960
    1190      960      960    1205      960      960    1205      960      955
    2500      965      955

Upstream Bridge Cross Section Data
Station Elevation Data     num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  965.83   83.24  965.41  141.58  965.41  164.62  964.58  213.31  963.98
  267.96  963.67  363.34  963.58  392.42  963.41  531.34  963.41  572.58  962.05
  619.31  961.68  663.47  961.63  694.12  961.41  763.03  961.41  782.01  960.53
   785.4   960.5  813.48  959.88  847.94  959.41  920.52  959.41  952.72  959.41
  996.69  958.12 1042.11  957.59 1087.52  957.41 1181.88  957.41 1184.81  957.15
 1194.61   957.1 1198.22  956.97 1238.15  957.41 1279.65  957.41 1286.75  957.78
 1289.82  957.89 1293.26  957.84 1301.79  957.84 1393.02  959.41 1411.07  959.41
 1578.81  959.41 1849.69  960.28 1883.04  960.25  1980.6  961.14 1993.32  961.41
    2150  962.41    2350  964.41    2500  965.41

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
       0      .1 1181.88     .07 1238.15      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1181.88 1238.15             .3       .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0      970      955    1175      960      955    1175      960      960
    1190      960      960    1205      960      960    1205      960      955
    2500      965      955

Downstream Bridge Cross Section Data
Station Elevation Data     num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  965.39   39.94  966.04    92.5  965.35  141.46  965.25  144.63  965.25
  148.45  965.17  164.29  965.12  174.42  964.59  209.59  964.59  396.07  963.72
   421.4  963.27  433.22  963.36   453.9  962.59  523.49  962.59  622.84   961.4
  624.77  961.41  649.85  961.12  656.12  961.13  657.34  961.15  689.92  960.59
  748.01  960.14  842.89  958.84  844.55  958.85  848.49  958.71  855.37  958.59
   901.1  958.59 1048.69  957.57 1051.51  957.52 1073.78  957.66 1079.75   957.5
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  1081.7  957.53 1089.41  957.31 1091.04  957.32 1111.53  956.59 1131.61  956.59
 1169.72  956.91 1184.67  956.59 1258.09  956.59 1275.93  957.05  1277.1  957.05
 1280.99  957.12 1282.35  957.12 1286.07  957.19  1350.3  957.73 1352.46  957.71
 1427.84  957.95 1429.65  957.98 1532.19  958.59  1545.6  958.89 1550.55   959.1
 1551.92  959.12 1560.52  959.49 1574.56  959.79 1577.09  959.73 1582.49  959.84
  1584.8  959.93 1606.82  959.17 1666.95  959.05 1668.07  959.06 1670.71  959.01
 1792.63  959.41 1855.76  959.34 1983.25  959.63 1985.53  959.66 1993.32  959.65
 1995.59  959.68  2003.9  959.68    2005  959.71    2030  959.86    2200  959.76
    2220  960.79    2260  961.79    2320  962.29    2340  962.79    2360  962.99
    2400  963.79    2420  963.99    2430  964.79    2440  965.09    2480  965.39
    2500  965.79    2520  966.39    2530  967.09    2550  967.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1169.72     .07 1275.93      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1169.72 1275.93            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =     960
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  1

Pier Data
Pier Station     Upstream=    1189    Downstream=    1189
Upstream     num=       2
    Width   Elev    Width   Elev
        2    955        2    960
Downstream     num=       2
    Width   Elev    Width   Elev
        2    955        2    960

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 16656.69

INPUT
Description:
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  965.99   39.94  966.04    92.5  965.85  141.46  965.25  144.63  965.25
  148.45  965.17  164.29  965.12  174.42  964.59  209.59  964.59  396.07  963.72
   421.4  963.27  433.22  963.36   453.9  962.59  523.49  962.59  622.84   961.4
  624.77  961.41  649.85  961.12  656.12  961.13  657.34  961.15  689.92  960.59
  748.01  960.14  842.89  958.84  844.55  958.85  848.49  958.71  855.37  958.59
   901.1  958.59 1048.69  957.57 1051.51  957.52 1073.78  957.66 1079.75   957.5
 1081.7  957.53 1089.41  957.31 1091.04  957.32 1111.53  956.59 1131.61  956.59
 1169.72  956.91 1184.67  956.59 1258.09  956.59 1275.93  957.05  1277.1  957.05
 1280.99  957.12 1282.35  957.12 1286.07  957.19  1350.3  957.73 1352.46  957.71
 1427.84  957.95 1429.65  957.98 1532.19  958.59  1545.6  958.89 1550.55   959.1
 1551.92  959.12 1560.52  959.49 1574.56  959.79 1577.09  959.73 1582.49  959.84
  1584.8  959.93 1606.82  959.17 1666.95  959.05 1668.07  959.06 1670.71  959.01
 1792.63  959.41 1855.76  959.34 1983.25  959.63 1985.53  959.66 1993.32  959.65
 1995.59  959.68  2003.9  959.68    2005  959.71    2030  959.86    2200  959.76
    2220  960.79    2260  961.79    2320  962.29    2340  962.79    2360  962.99
    2400  963.79    2420  963.99    2430  964.79    2440  965.09    2480  965.39
    2500  965.79    2520  966.39    2530  967.09    2550  967.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1169.72     .07 1275.93      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1169.72 1275.93            52.64    52.6   52.54             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
```

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888       F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 16604.60

INPUT
Description:
Station Elevation Data    num=      59
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   965.4   39.94   965.45    92.5   965.26  141.46   964.66  144.63   964.66
  148.44  964.58  164.29   964.53  174.42      964  363.89   963.36  396.07   963.13
   421.4  962.68  433.22   962.77   453.9      962  523.49      962  622.84   960.81
  624.77  960.82  649.85   960.53  656.12   960.54  657.34   960.56  693.94   959.97
  763.64  959.38  841.55   958.26  844.65   958.26  848.49   958.12  854.46   958.02
  907.65     958 1048.69   956.98 1051.51   956.93 1073.78   957.07 1079.75   956.91
  1081.7  956.94 1089.42   956.72 1091.04   956.73 1111.53      956 1169.72   956.32
 1184.66     956 1258.09      956 1275.93   956.46  1277.1   956.46 1280.99   956.53
 1282.35  956.53 1286.07    956.6 1350.32   957.13 1427.52   957.35 1536.63      958
  1540.3  958.07 1550.32   958.43 1551.46   958.44 1560.26   958.82 1574.69   959.13
 1577.06  959.07 1582.91   959.19 1585.42   959.29 1606.51   958.56 1668.51   958.43
 1671.21  958.38 2055.18    959.2    2089   959.12 2146.79      960

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  907.65     .07 1550.32      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        907.65 1550.32           1025.86  1026.3 1026.75             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888       F
888       F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 15581.51

INPUT
Description:
Station Elevation Data    num=     129
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  951.79   40.87   951.32   42.71   951.28   44.81   951.25   48.34   951.23
   50.66  951.19   54.08   951.16   59.85   951.09   65.56   951.01   68.81   950.97
   71.85  950.92   81.94   950.78   85.98   950.74   88.27   950.69  100.57   950.5
  104.43  950.49  105.66   950.48  139.87    950.3  145.52   950.24     147   950.22
  147.67  950.22  153.05   950.17  153.56   950.17   154.5   950.16  155.74   950.15
  156.13  950.14  167.96      950  179.92      950  182.87   949.96     183   949.96
  188.85  949.88  194.75   949.78  195.58   949.77  199.37   949.69  200.21   949.68
  206.73  949.63  208.24   949.61  214.41    949.5  216.44   949.47  218.66   949.45
  237.81  949.11  241.54   949.05  244.87   949.02  248.32   948.97  251.94   948.93
  273.84  948.72  277.37   948.68  316.53      948  332.03      948  367.48   947.34
   371.7   947.3  375.75   947.25  407.17   946.77  447.49      946  466.39      946
  513.89  945.48  527.95   945.17  530.76   945.18   533.8   945.17   535.8   945.12
  539.02  945.07  553.27    944.9  556.24   944.89  560.57   944.85  563.32   944.86
  580.47  944.81  582.65   944.78  585.87   944.77  587.86   944.74  589.62   944.71
  591.09  944.67  593.97   944.69  603.29   944.55  606.81   944.52  607.79    944.5
  610.52  944.54   612.5   944.52  649.92   944.58  652.18   944.59  658.26   944.67
  735.86  945.65  763.82      946  813.84      946  818.71   946.01  823.71   946.01
  828.64     946  843.57      946  875.46      946  976.33   945.31  979.46   945.31
  982.86  945.29  992.65   945.29 1010.49   945.23 1012.47   945.22  1015.7   945.21
 1018.84  945.19 1020.97   945.19    1024   945.17 1026.11   945.17 1029.01   945.15
 1069.47  945.05 1074.49   945.05 1081.51   945.07 1103.44   945.07 1106.09   945.06
 1108.43  945.06 1110.77   945.07 1113.42   945.06 1137.52   945.04 1140.19   945.03
  1142.7  945.03 1155.57   945.01 1158.07      945  1160.6      945 1168.08   944.99
  1185.7  944.98 1188.27   944.97 1190.88   944.97 1193.52   944.96 1216.72   944.97
 1233.15  945.04 1235.43   945.04 1237.93   945.05 1240.18   945.05 1300.81      946
 1303.56     946    1311   947.29 1312.81    947.6 1315.08      948

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  407.17     .07    1311      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        407.17    1311           656.32  652.54   648.9             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 14928.91

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  946.98   87.47    946.9  211.75   946.02  466.97   945.14  469.08   945.11
  570.53   944.1  570.93   944.09  578.56      944   593.6      944  721.76      942
  739.59     942  882.12      940  910.27      940 1002.52   939.05 1005.13   939.05
 1059.46  938.14 1068.04      938 1184.88      938 1259.02   938.71 1357.94   938.88
 1448.75  938.89 1483.71   938.93 1517.93   938.97 1688.14      940 1879.08   940.16
 1893.01  940.31 1901.27    940.3 1902.05   940.32 1906.66   940.34 1922.58   940.82
 1927.35  940.89  1953.9      942 1968.32   945.85 1968.86      946 1969.09   946.01
 2017.31  947.27  2045.9   948.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  910.27     .07 1688.14      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
```

```
       910.27 1688.14          1141.92  1138.8 1135.44             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 13790.23

INPUT
Description:
Station Elevation Data     num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     930     .16     930  100.91     928  138.64     928  185.65     928
  227.12  927.06  303.37  927.58   319.3  927.45  320.77  927.42  352.61  927.23
  427.13     926  479.15     926  522.64     926  526.71     926  589.72  926.88
   595.6  926.95  614.13  927.02  638.82  927.23  655.71  927.64  656.63  927.65
  669.74     928  671.64     928  695.62  928.35  741.29     930  837.26     930
  843.83  930.12 1007.14  931.75 1031.61  931.99 1051.58     932

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  185.65     .07  671.64      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       185.65  671.64           864.36  855.54  846.72             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 12934.71

INPUT
Description:
Station Elevation Data     num=      70
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  925.13   28.76   925.1    50.1  925.28   51.81  925.27   54.85  925.33
  105.39   925.2  156.87  924.58  207.84   924.3  232.12     924  237.24     924
  255.08   923.7     261  923.42  265.61  923.29  291.22   922.1  292.44  922.03
  330.04  921.59  505.22  918.07  515.95  918.03  517.22     918  536.44     918
  597.05   916.8  606.41   916.8  610.11  916.93  612.29  916.95  660.96     918
  689.67     918  727.42  918.52  731.04  918.51  732.56  918.58  768.01  919.05
  770.41  919.02  829.96  919.91  834.45     920  848.81     920  881.55  920.01
  920.58  920.44 1067.59  921.11 1071.03  920.96 1095.92  920.98 1169.36     922
 1256.03  921.78 1268.82     922 1531.71     922 1544.02  921.35 1606.54  921.06
 1662.01   921.5 1674.36     922 1713.82     922 1731.24  921.22 1774.84  920.28
  1782.1  920.11 1851.53   918.7 1852.73  918.68 1871.01  918.38 1898.81     918
 2014.34     918 2019.36  918.23 2047.89     920 2087.01     922    2119  923.01
 2149.29  923.97 2150.36     924 2158.16     924 2200.83     926 2240.69     926
 2267.22  926.79 2329.02  926.92 2396.75  927.69 2400.89  927.83 2478.19     928

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  265.61     .07    2119      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       265.61    2119            71.2   71.28   71.34             .3       .5

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 12864.76

INPUT
Description:
Station Elevation Data     num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  925.84  250.49  924.03  415.53  922.84   719.8  921.62  731.62  921.84
   918.1  921.84  974.35  921.84  985.72  921.19 1043.45   920.9 1094.68  921.34
 1106.08  921.84  1142.5  921.84 1158.59  921.06 1256.76  918.73 1262.41  918.64
 1313.33  917.84 1328.95  917.84 1332.18  917.84 1343.74  916.84 1395.26  916.84
 1404.73  917.72 1405.98  917.84     1420  917.84 1424.64  918.07    1451  919.84
 1487.12  921.84  1545.6  923.84  1552.8  923.84 1592.21  925.84 1629.02  925.84
 1653.52  926.63 1710.59  926.76 1772.34  927.52 1776.95  927.67 1802.52  927.75
 1807.17  927.84 1848.33  927.84

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1328.95     .07 1404.73      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      1328.95 1404.73           111.51  111.32  111.12             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: spanish oak
REACH: 1                  RS: 12812.76

INPUT
Description: 1431
Distance from Upstream XS =      10
Deck/Roadway Width        =      84
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   637.1      920      900   817.1      922      900  1487.1      923      900
  1587.1      924      900  1767.1      926      900  1997.1      928      900
  2267.1      930      900

Upstream Bridge Cross Section Data
```

```
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  925.84  250.49  924.03  415.53  922.84   719.8  921.62  731.62  921.84
   918.1  921.84  974.35  921.84  985.72  921.19 1043.45   920.9 1094.68  921.34
 1106.08  921.84  1142.5  921.84 1158.59  921.06 1256.76  918.73 1262.41  918.64
 1313.33  917.84 1328.95  917.84 1332.18  917.84 1343.74  916.84 1395.26  916.84
 1404.73  917.72 1405.98  917.84    1420  917.84 1424.64  918.07    1451  919.84
 1487.12  921.84  1545.6  923.84  1552.8  923.84 1592.21  925.84 1629.02  925.84
 1653.52  926.63 1710.59  926.76 1772.34  927.52 1776.95  927.67 1802.52  927.75
 1807.17  927.84 1848.33  927.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1328.95     .07 1404.73      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1328.95 1404.73             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  175.19      920      900  455.19      922      900 1025.19      923      900
 1125.19      924      900 1305.19      925      900 1825.97  926.85      900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  930.16   30.03  929.16   35.03  930.06   40.04  928.86  120.11  926.16
  130.12  925.96  180.17  924.16  240.23  923.16  300.29  921.16     447  919.19
  572.88  919.16  575.19  919.19  590.56  919.02  592.56  919.04  672.16  918.56
  714.27  918.46  751.03  918.61  803.04  918.18  836.72  917.99  837.84  917.97
  890.39  917.81  969.77  917.13  970.52  917.13  972.15  917.14  977.43  917.06
  979.69  917.06  992.99  916.88  996.44   916.5 1057.38   916.5  1105.7  917.24
 1109.43  917.27 1171.58  917.71 1245.31  918.16  1247.1  918.26 1253.96  918.43
  1282.9  919.67 1285.82  919.83 1298.61  920.16 1330.14  920.16 1368.71  921.21
 1387.89  921.44 1391.42  921.57 1397.49  921.58 1401.19  921.69 1402.45  921.69
 1403.65  921.72 1425.05  921.95 1496.14  922.17 1563.89  923.38 1567.33   923.4
 1599.12  924.16 1608.11  924.16 1623.97  924.68 1627.83  924.72 1641.87  925.12
 1644.87  925.14 1668.51   925.6 1768.01  926.16 1827.73  927.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  970.52     .07 1109.43      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
        970.52 1109.43             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
1431                Box         4       8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10      84       .011                  .4                1
Number of Barrels =  7
Upstream   Elevation =  917
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
 1345.11 1354.44 1363.77 1373.11 1382.44 1391.77  1401.1
Downstream Elevation =  916.5
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
 1001.19 1010.52 1019.86 1029.19 1038.52 1047.86 1057.19

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 12760.76

INPUT
Description:
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  930.16   30.03  929.16   35.03  930.06   40.04  928.86  120.11  926.16
  130.12  925.96  180.17  924.16  240.23  923.16  300.29  921.16     447  919.19
  572.88  919.16  575.19  919.19  590.56  919.02  592.56  919.04  672.16  918.56
  714.27  918.46  751.03  918.61  803.04  918.18  836.72  917.99  837.84  917.97
  890.39  917.81  969.77  917.13  970.52  917.13  972.15  917.14  977.43  917.06
  979.69  917.06  992.99  916.88  996.44   916.5 1057.38   916.5  1105.7  917.24
```

```
 1109.43  917.27 1171.58  917.71 1245.31  918.16  1247.1  918.26 1253.96  918.43
  1282.9  919.67 1285.82  919.83 1298.61  920.16 1330.14  920.16 1368.71  921.21
 1387.89  921.44 1391.42  921.57 1397.49  921.58 1401.19  921.69 1402.45  921.69
 1403.65  921.72 1425.05  921.95 1496.14  922.17 1563.89  923.38 1567.33   923.4
 1599.12  924.16 1608.11  924.16 1623.97  924.68 1627.83  924.72 1641.87  925.12
 1644.87  925.14 1668.51   925.6 1768.01  926.16 1827.73  927.01

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  970.52     .07 1109.43      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        970.52 1109.43            61.08   61.32   61.54             .3      .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION           RIVER: spanish oak
REACH: 1                   RS: 12690.81

INPUT
Description:
Station Elevation Data     num=      81
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0      920      9.5      920    29.96    920.8    87.68   921.57    286.9   921.75
  316.98   921.49   318.41   921.45   372.93   920.71   376.39   920.74   461.89   919.46
  495.71   918.79   533.67   918.34   615.23   917.02   617.86   917.01   668.47   916.03
  682.35      916   716.55   915.43   726.22    915.1   741.22   914.93   744.12   914.78
  746.15   914.77   749.85   914.59   752.93   914.57   766.37      914   822.89      914
  832.51   914.25   833.73   914.25   837.79   914.38   843.02    914.4   854.06   914.65
  856.02   914.66   860.01   914.76   862.03   914.76   865.11   914.85   867.26   914.85
  948.48      916   973.87      916   998.21   916.39 1017.08   916.47 1156.26      918
 1179.36      918 1209.55   918.31 1281.44   918.66 1517.38   919.08 1576.08      919
 1578.38   919.03 1717.36    918.3   1754.1   918.45 1833.91   917.88 1919.38   917.51
 1972.65   916.97 1975.02   916.98 2028.99   916.45 2056.65   916.51 2060.16   916.59
 2247.91      918   2249.7    918.1 2256.55   918.27 2258.16   918.36 2285.47   919.51
 2288.38   919.67 2301.17      920 2332.66      920  2371.2   921.05 2390.35   921.28
 2393.88   921.41 2399.95   921.42 2403.64   921.53  2404.9   921.53  2406.1   921.56
  2498.5   922.01 2569.64   923.24 2601.39      924 2610.36      924 2626.21   924.52
 2630.06   924.56  2644.1   924.96  2647.1   924.98  2670.7   925.44  2770.1      926
 2829.78   926.85

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  461.89     .07 2285.47      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        461.89 2285.47           1023.89 1032.24 1040.39             .3      .5

CROSS SECTION           RIVER: spanish oak
REACH: 1                   RS: 11658.58

INPUT
Description:
Station Elevation Data     num=      26
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0    913.9    71.45   913.25   117.97   913.02   199.32   912.17   263.44      912
   382.4   911.19    441.1   911.34   464.29   911.43   486.94   911.14    519.9      910
  522.96      910   532.71      910   574.63      908   597.43      908   617.02   907.68
   682.2      908   689.86   908.32   724.05      910   725.71      910   741.47   910.48
  780.59      912   799.28      912   828.71   912.92   883.94      914   906.39   914.74
  923.96   915.21

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  522.96     .07   725.71      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        522.96  725.71           1034.65 1035.76 1037.08             .1      .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                   RS: 10622.78

INPUT
Description:
Station Elevation Data     num=      43
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   908.14   115.18      906   211.32      904   218.96      904   298.8   902.88
  342.65      902   365.6       902   427.26   901.23      489   900.05   602.96      900
  676.18   900.47   699.25      900   700.29      900   707.83   899.6   709.49   899.58
  747.16   898.69   752.26   898.65   755.55   898.56    788.5   898.69   806.98   898.55
  823.18      898   827.07      898    835.2   896.61   839.81   896.17   842.64   896.69
  844.61   898.37   853.19      900      863   900.75   876.42   901.77   881.53      902
 1038.66      902  1041.2   901.38 1041.48      902 1050.04      902 1195.19   904.66
 1236.95   905.56 1267.92      906 1328.22   907.39 1345.04      908 1357.22      908
 1400.19   909.93 1402.64      910 1405.53      910

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   788.5     .07     863      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         788.5     863           731.51   734.4  737.28             .1      .3
```

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 9888.356

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	912	58.51	912	272.69	909.74	307.85	909.23	390.16	908.62
430.66	908	443.8	908	545.64	906	549.57	906	637.24	904
648.3	904	736.24	902.55	778.68	902	805.66	902	949.53	900
1011.4	898	1138.13	898	1160.54	897.57	1207.88	897.32	1252.14	896
1263.13	895.16	1266.17	895.03	1269.03	894.85	1271.28	894.76	1275	894.55
1276.45	894.49	1284.8	894	1300.55	894	1312.48	895.37	1318.93	896
1322.47	896	1337.07	896.35	1398.04	898.36	1424.68	899.52	1442.06	900
1473.24	902	1527.06	905.9	1528.71	906	1572	908	1602.59	910
1649.27	912	1770.29	916	1839.64	918	1980.6	924	2020.77	925.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	1138.13	.07	1424.68	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1138.13	1424.68	712.5	714.9	717.3	.1 .3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 9173.449

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	904	28.85	904	104.42	902	108.32	902	148.62	900
177.6	898	273.29	896	355.07	895.83	361.94	896	603.16	896
619.11	895.33	628.11	895.42	631.4	895.19	634.5	895.19	636.95	895.01
639.75	894.92	648.83	894.24	649.93	894.17	652.11	894	655.53	893.23
667.67	890	687.31	890	696.41	892	707.69	893.11	710.94	893.51
713.66	893.85	715.72	894	736.54	894	796.21	895.31	837.83	894.95
892.94	895.02	945.18	896	953.08	896	966.87	897.63	970.66	898
980.78	900	997.1	904	1001.78	904.75	1008.78	905.64	1010.31	905.86
1011.78	906	1022.4	906.38	1026.71	906.47	1028.11	906.53	1032.01	906.62
1033.82	906.7	1037.29	906.77	1039.57	906.88	1042.55	906.95	1045.37	907.08
1047.81	907.14	1051.21	907.3	1053.07	907.35	1068.92	908.07	1109.11	910.43

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	649.93	.07	710.94	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
649.93	710.94	815.32	817.7	820.08	.1 .3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 8355.736

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	897.01	143.16	894	187.28	892	218.48	891.16	278.15	890
279.97	890	323.68	888.06	325.01	888	348.18	884.34	352.46	884.28
353.48	884.39	356.99	884.62	367.65	885.88	368.71	886	370.84	886
375.02	886	430.46	886	435.63	886	446.75	886.15	489.03	886
517.01	886.86	567.81	887.95	570.62	888	595.03	888	596.92	887.93
628.86	886.11	633.35	886	639.14	886	647.6	886.4	681.18	888
694.9	889.98	710.86	893.97	718.03	895.82	718.68	896	727.16	898
738.29	899.97	800.12	906	827.2	908	832.41	908.3	861.85	910
924.78	911.36								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	323.68	.07	370.84	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
323.68	370.84	701.1	702.75	704.55	.1 .3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 7652.974

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	892	52.94	892	115.7	890.78	118.89	890.78	167.97	890
196.69	890	257.78	889.13	398.67	889.78	400.01	889.8	424.23	889.75
544.77	888	629.78	886	644.43	886	767.89	884	772.74	884
789.16	883.62	926.41	882	977.68	882	980.81	881.88	1028.1	880
1032.96	880	1051.26	878.05	1053.55	878	1058.03	877.62	1063.15	877.32
1066.72	877.21	1072.36	877.27	1075.26	877.47	1078.87	877.95	1084.24	880
1087.31	882	1088.73	883.1	1089.79	884	1092.38	886	1094.95	887.75
1097.28	889.41	1098.15	890	1101.45	891.32	1103.01	891.94	1104.85	892.3
1122.02	893.98	1148.17	894	1164.72	894.32	1177.86	894.33	1179.6	894.36
1192.78	894.37	1355.78	896.44	1356.98	896.48	1361.02	896.52	1373.98	896.92
1390.66	897.16	1414.07	897.04	1430.51	897.17	1470.2	896.98	1472.62	897
1475.08	896.97	1480.01	897.04	1482.44	897.03	1513.2	897.42	1556.67	897.24
1566.19	897.08	1566.78	897.06						

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Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  980.81     .07 1087.31      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        980.81 1087.31             22.38   22.52   22.67             .3      .5

CROSS SECTION           RIVER: spanish oak
REACH: 1                   RS: 7634.719

INPUT
Description:
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     892   51.42     892  112.35  890.78  115.46  890.78  163.13     890
  191.02     890  250.35  889.13  262.93  889.19  387.17  889.78  388.49   889.8
  410.67  889.76  411.06  889.76  529.08     888  608.38  886.08  611.63     886
  625.86     886  745.76     884  750.47     884  766.42  883.62  779.08   883.5
  810.42  883.11  899.72     882  923.44     882  935.18     882  949.52     882
  998.49     880 1002.82     880 1003.21     880 1020.98  878.05 1023.21     878
 1024.07   876.8 1027.55     872 1048.13     872 1051.46  878.02 1052.43  879.77
    1053     880 1055.99     882 1057.36   883.1  1058.4     884 1060.63  885.77
 1060.91     886  1063.4  887.75 1065.67  889.41 1066.52     890 1071.39     892
 1073.03    892.3  1089.7  893.98  1115.1     894 1125.58  894.21 1130.47  894.31
 1143.93  894.33 1145.62  894.36 1178.37  894.51 1316.73  896.44 1317.89  896.48
 1321.81  896.52  1334.4  896.92 1350.61  897.16 1373.34  897.04 1389.31  897.17
 1425.52  896.97  1430.2     897 1432.59  896.97 1437.38  897.04 1439.74  897.03
  1469.6  897.42 1511.83  897.24 1521.08  897.08 1521.65  897.06

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1024.07     .07 1051.46      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1024.07 1051.46             45.54   45.97    46.4             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                 RIVER: spanish oak
REACH: 1                   RS: 7612.22

INPUT
Description: Skyview
Distance from Upstream XS =       10
Deck/Roadway Width        =       25
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  908.72     882      800 1036.72     882      800 1066.72     884      800
 1091.72     886      800 1104.72     888      800 1121.72     890      800
 1138.72     892      800

Upstream Bridge Cross Section Data
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     892   51.42     892  112.35  890.78  115.46  890.78  163.13     890
  191.02     890  250.35  889.13  262.93  889.19  387.17  889.78  388.49   889.8
  410.67  889.76  411.06  889.76  529.08     888  608.38  886.08  611.63     886
  625.86     886  745.76     884  750.47     884  766.42  883.62  779.08   883.5
  810.42  883.11  899.72     882  923.44     882  935.18     882  949.52     882
  998.49     880 1002.82     880 1003.21     880 1020.98  878.05 1023.21     878
 1024.07   876.8 1027.55     872 1048.13     872 1051.46  878.02 1052.43  879.77
    1053     880 1055.99     882 1057.36   883.1  1058.4     884 1060.63  885.77
 1060.91     886  1063.4  887.75 1065.67  889.41 1066.52     890 1071.39     892
 1073.03    892.3  1089.7  893.98  1115.1     894 1125.58  894.21 1130.47  894.31
 1143.93  894.33 1145.62  894.36 1178.37  894.51 1316.73  896.44 1317.89  896.48
 1321.81  896.52  1334.4  896.92 1350.61  897.16 1373.34  897.04 1389.31  897.17
 1425.52  896.97  1430.2     897 1432.59  896.97 1437.38  897.04 1439.74  897.03
  1469.6  897.42 1511.83  897.24 1521.08  897.08 1521.65  897.06

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1024.07     .07 1051.46      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1024.07 1051.46             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  690.88     884      800  864.57     882      800  992.57     882      800
 1022.57     884      800 1047.57     886      800 1070.57     888      800
 1075.12  889.02      800

Downstream Bridge Cross Section Data
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  890.51   34.88     890  167.76  888.68  202.55     888  298.47     888
```

```
  315.92  888.25  522.04     888  558.88  886.47  631.16     884  681.81     884
   768.2  882.93  774.84  882.77  777.08  882.75   785.6  882.53   787.3  882.52
  807.97     882  899.03   880.7  903.57  880.58  905.49  880.56  919.71  880.24
  947.31     880  949.77  879.94  961.05  879.36  963.15  879.16  966.37  878.99
  969.79  878.67  971.64  878.59  977.92     878  982.89  877.32  988.99  876.78
  990.67  876.69  995.54  876.23  996.63  876.18  998.38     876  1001.7  875.84
 1007.34     872 1032.54     872 1035.95  877.13  1043.3  880.71 1045.93     882
 1047.27  882.58 1050.42     884  1054.1  885.15 1057.08     886 1069.12     888
 1087.28     890 1096.82  890.53 1104.54   890.8 1125.87  890.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  947.31     .07  1043.3      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
        947.31  1043.3            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  2

Culvert Name      Shape      Rise    Span
Culvert #2       Circular       4
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10       25       .011                  .4                1
Number of Barrels =  3
Upstream   Elevation =  872
Centerline Stations
    Sta.     Sta.     Sta.
  1028.7  1033.7  1038.7
Downstream Elevation =  872
Centerline Stations
    Sta.     Sta.     Sta.
    1009     1014     1019

Culvert Name      Shape      Rise    Span
Skyview          Circular       7
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10       25       .011                  .4                1
Upstream   Elevation =  872
           Centerline Station =  1046.2
Downstream Elevation =  872
           Centerline Station =  1026.5

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 7589.719

INPUT
Description:
Station Elevation Data    num=      49
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  890.51   34.88      890  167.76  888.68  202.55     888  298.47     888
  315.92  888.25  522.04     888  558.88  886.47  631.16     884  681.81     884
   768.2  882.93  774.84  882.77  777.08  882.75   785.6  882.53   787.3  882.52
  807.97     882  899.03   880.7  903.57  880.58  905.49  880.56  919.71  880.24
  947.31     880  949.77  879.94  961.05  879.36  963.15  879.16  966.37  878.99
  969.79  878.67  971.64  878.59  977.92     878  982.89  877.32  988.99  876.78
  990.67  876.69  995.54  876.23  996.63  876.18  998.38     876  1001.7  875.84
 1007.34     872 1032.54     872 1035.95  877.13  1043.3  880.71 1045.93     882
 1047.27  882.58 1050.42     884  1054.1  885.15 1057.08     886 1069.12     888
 1087.28     890 1096.82  890.53 1104.54   890.8 1125.87  890.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  947.31     .07  1043.3      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        947.31  1043.3            12.82   13.02   13.21             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 7571.459

INPUT
Description:
Station Elevation Data    num=      56
```

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	890.51	33.81	890	168.75	888.57	196.33	888	289.3	888
306.22	888.25	506.01	888	611.77	884	660.88	884	744.61	882.93
751.04	882.77	753.22	882.75	761.47	882.53	763.12	882.52	783.16	882
862.56	880.86	892.19	880.23	918.22	880	920.6	879.94	924.28	879.77
926.15	879.69	931.54	879.36	933.58	879.16	936.7	878.99	940.02	878.67
941.8	878.59	947.89	878	952.7	877.32	958.63	876.78	960.23	876.69
964.97	876.23	966.02	876.18	967.72	876	976.41	875.5	978.56	875.19
984.07	874.84	987.33	874.15	991.57	874.4	995.22	874.85	998.08	875.29
1000.83	876	1004.14	877.13	1012.57	881.36	1013.81	882	1015.12	882.58
1018.16	884	1021.72	885.15	1024.62	886	1036.28	888	1053.89	890
1058.15	890.27	1067.2	890.69	1070.62	890.8	1091.3	890.91	1093.94	890.86
1096.12	890.89								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	924.28	.07	1013.81	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
924.28	1013.81	2314.75	2316.16 2315.22	.3	.5

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 5255.314

INPUT
Description:
Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	893.3	185.04	888.56	188.2	888.53	205.02	888	230.12	888
412.34	882.62	721.71	872	818.93	870	835.81	870	936.92	868
938.68	868	1039.54	866	1041.05	865.83	1041.21	865.81	1055.57	864.29
1058.86	864	1078.39	861.64	1089.57	860	1101.11	858.83	1105.12	858.52
1106.5	858.39	1111.83	858.03	1121.4	858.06	1151.58	860	1153.11	860.2
1162.11	861.2	1167.35	861.55	1168.47	861.56	1169.64	861.52	1173.43	861.6
1174.5	861.52	1178.32	861.56	1179.5	861.42	1188.11	861.49	1189.45	861.44
1198.19	861.6	1203.37	861.86	1212.72	862.67	1214.39	862.67	1216.88	862.9
1224.96	863.92	1226.67	864	1230.25	864	1301.94	866	1311.9	868
1318.02	870	1323.18	872	1335.61	877.41	1341.31	880	1346.56	882
1352.43	884	1354.72	884.54	1362.51	886	1363.59	886	1368.7	886.38
1377.87	886.42	1386.83	886.14						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	1041.21	.07	1226.67	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1041.21	1226.67	1472.81	1483.35 1495.75	.1	.3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 3772.000

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	900.9	32.51	900	98.96	897.01	122.4	896.52	126.4	896.49
127.6	896.46	176.16	896	219.32	894	257.44	891.2	305.35	888.69
311.16	888.31	313.02	888.23	316.36	888	401.11	884.38	425.49	883.51
427.45	883.41	432.25	883.29	435.17	883.13	439.04	883	450.04	882.36
451.55	882.29	456.25	882	588.94	876.99	624.99	876	658.33	874.34
664.09	874.19	670.68	874.06	672.4	874	686.89	873.96	704.14	873.07
709.77	872.7	774.42	870	777.97	869.75	855.31	865.28	887.93	864
893.64	864	920.76	862	931.41	862	984.39	860	1078.47	858
1079.6	858	1209.58	856	1347.81	856	1351.54	855.59	1359.32	854.75
1361.49	854.48	1366.16	854	1378.65	852.1	1384.43	850.98	1394.85	849.17
1415.01	846.27	1415.71	846.16	1416.9	846	1420.44	845.59	1421.7	845.47
1433.05	844	1464.45	844	1470.62	846	1479.04	849.45	1480.45	850
1485.98	852	1493.3	853.68	1495.04	854	1495.85	854	1517.17	854.64
1543.89	854.6	1545.98	854.39	1547.73	854.54	1549.12	854.71	1551.88	854.71
1554	854.96	1560.37	856	1566.39	858	1571.04	860	1582.62	865.84
1590.65	870	1594.63	872	1595.48	872.39	1598.89	874	1603.58	876
1609.17	878	1623.2	882	1632.58	884	1643.21	886	1669.85	890
1685.95	892	1712.04	894.65	1748.26	898	1797.4	901.66	1807.15	902.18
1831.72	903.77	1834.74	904	1855.03	906	1885.18	908	1894.4	908
1931.13	909.54	1974.93	911.99	2013.14	913.39	2040.43	914	2059.88	914

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	1351.54	.07	1495.85	.1

Bank Sta: Left	Right	Lengths: Left Channel	Rignt	Coeff Contr.	Expan.
1351.54	1495.85	1086.98	1092.27 1097.33	.1	.3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 2679.807

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	892.95	38.12	890	76.64	886	180.69	880.2	210.55	879.47
365.97	870	383.66	870	428.57	868	701.68	859.62	730.56	858
744.09	858	903.09	853.51	969.65	850	1005.61	846	1027.86	840
1070.39	840	1095.12	844	1141.64	848.94	1153.23	850	1479.94	850
1524.26	854	1561.62	860.79	1623.57	874.63	1626.48	874.41	1630.31	875.9

```
 1673.66  882.33

Manning's n Values          num=       3
     Sta   n Val     Sta    n Val     Sta   n Val
       0      .1  903.09      .07 1141.64      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        903.09 1141.64             443.4   440.7  437.91             .1       .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 2239.118

INPUT
Description:
Station Elevation Data     num=      90
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   893.38   26.42      892   52.58   889.75   81.98   886.3  103.64      884
  128.99      882  203.66      878  254.2       876   311.7      872  396.92   868.12
   438.6      866  492.68      864  527.9       862  573.64      858     615      856
  617.36      856  659.01      854  671.28      852  681.81      850  693.55      848
  711.54      846  752.72      844  822.13   842.55  844.98      842  858.35      840
  869.06      838  922.88      838  927.05   839.39  928.76      840  933.89      842
  936.77   843.05  939.21      844  944.59   845.07  949.93      846  954.01      846
  955.86   845.87  958.09      846  1037.2      846 1063.35   845.44 1066.71   845.46
 1068.02   845.42 1078.31   845.46 1079.65   845.44 1113.16   845.31 1116.28   845.35
 1117.84   845.33 1120.99   845.38 1123.97   845.33 1127.05   845.38  1130.1   845.32
  1135.1   845.38 1151.69    845.2 1182.04      844 1335.95      844 1405.39    840.9
 1422.93   840.68  1424.4   840.75 1433.92   841.01 1446.44   841.79 1448.86      842
 1458.12      844 1464.57      846 1467.98   847.45 1469.34      848 1477.52      852
    1481      854 1487.53      858 1490.56      860  1491.6   860.66 1493.72      862
 1502.78      868 1505.28      870 1510.99      874 1517.14      878 1519.68   879.51
 1524.62   882.23  1528.3      884 1535.65   887.12 1537.92      888 1544.28   890.13
 1551.78      892 1561.01      892 1569.38   893.11 1572.55   893.45 1575.31   893.35
 1578.82   893.43 1580.25   893.38 1583.73   893.39 1587.18   893.23 1590.19   893.19

Manning's n Values          num=       3
     Sta   n Val     Sta    n Val     Sta   n Val
       0      .1  822.13      .07  949.93      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        822.13  949.93            1031.73 1024.59 1017.66             .1       .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 1214.459

INPUT
Description:
Station Elevation Data     num=      89
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   895.32    2.86   895.36      4.4   895.35     7.82   895.4    18.67   895.38
   23.56   895.24   26.67   895.22   106.58   893.24   108.72   893.23   151.88   892.54
  199.66   892.12  297.31    892.2      371   891.93   513.29      890   827.13      890
  873.43   890.64  915.84   890.83  1004.93      890  1052.92      888  1091.2      886
 1135.68      884 1208.25      882  1211.59      882  1261.66      880 1328.91   878.19
 1340.52      878 1342.89   877.99  1488.19      874  1492.65      874 1554.01      872
 1567.43      872 1713.43   869.95  1861.12      866  1909.82      862 1996.81      858
 2077.51      856 2078.54      856  2263.62      854  2313.73      854 2320.01   854.38
  2339.8   854.48 2401.18      852  2409.39      852  2606.01      848 2610.21      848
 2660.54      846 2678.36   844.16  2701.92   842.07  2725.93   840.76 2735.96      840
 2755.68      838  2992.9   838.02  3006.67   838.36  3022.28   839.16 3025.58   839.28
 3041.98   840.72 3056.86   841.84  3058.24   841.64  3064.99   841.49 3067.12   841.43
  3076.9   840.32 3079.09      840   3103.1      840  3150.79      842 3176.76      844
 3199.51   846.18 3204.93   846.77  3210.68   847.48  3214.26      848 3216.93   848.45
 3225.35      850  3236.5   852.77  3240.98   853.95  3248.12      856 3254.64      858
 3266.33      862 3285.15   868.96  3299.43      874  3305.55      876 3312.13      878
 3319.26      880 3327.76      882  3338.33      884  3352.59      886 3372.94      888
 3403.95      890 3423.04      890  3490.92      892   3510.3      892

Manning's n Values          num=       3
     Sta   n Val     Sta    n Val     Sta   n Val
       0      .1 2678.36      .07  3236.5      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       2678.36  3236.5            1083.53 1075.48 1067.43             .1       .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 138.908

INPUT
Description:
Station Elevation Data     num=     135
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
  1469.5   863.36 1512.87   863.53 1515.94    863.5 1585.39    863.6 1654.52   863.38
 1776.42      862 1786.79      860 1800.57      858 1855.71   857.29    1868   857.16
 2011.21      858 2056.28      858 2135.53      856 2189.96      854 2273.52   852.25
 2344.22      850 2414.37   848.54 2493.61      846 2505.22      846 2544.78   844.71
 2551.63   844.59 2556.18   844.27 2558.24   844.35 2563.15   844.05 2564.92      844
 2602.84      844 2630.11   842.48 2633.84   842.47  2638.3   842.22 2639.44   842.21
 2643.52      842 2763.62   841.72 3066.57      842 3068.21      842 3073.35   841.66
 3085.97   841.61 3087.15   841.58 3203.57   840.85 3220.39   840.18 3223.75      840
 3246.98      840 3253.84   839.71 3280.85   839.63 3289.67   839.47    3291   839.42
 3305.67   839.35 3307.37   839.31 3313.87   839.32 3315.65   839.28 3321.99   839.29
 3323.79   839.26 3339.99   839.25  3350.1   838.83  3352.2   838.83 3355.35   838.59
 3358.37   838.57 3362.19   838.46 3364.48   838.44  3383.9   838.02 3433.93   838.18
 3503.78   838.02 3527.86   838.33 3536.83      838 3568.21      838 3572.64   838.06
```

3609.95	838	3612.46	838.09	3617.41	838.17	3623.14	838	3913.23	838
3929.15	838.48	3930.38	838.49	3935.5	838.66	3937.47	838.76	3940.31	839
3943.22	839.15	3950.14	840	3958.28	842	3964.17	843.77	3967.54	844.86
3971.01	846	3975.1	847.44	3983.45	850	3984.47	850.33	3989.77	851.79
3993.94	852.83	3998.07	853.71	4009.25	855.85	4009.76	855.94	4022.12	858.14
4062.91	864.19	4069.55	864.88	4087.22	866.37	4091	866.75	4112.21	869.46
4117.64	870	4125.68	870.59	4130.49	870.83	4132.62	870.86	4135.38	870.97
4137.82	870.98	4140.34	871.04	4150.32	871.07	4155.37	870.95	4165.39	870.39
4170.18	869.94	4185.6	868	4191.1	867.39	4192.71	867.36	4195.95	867.04
4198.22	867.08	4200.69	866.84	4206.54	866.96	4209.88	867.34	4211.68	867.45
4227.27	869.72	4233.62	870.44	4239.16	870.9	4244.7	871.2	4276.2	872.4
4281.17	872.52	4314.32	872.76	4331.17	872.69	4355.32	871.99	4393.52	870.47
4403.49	870.39	4415.11	870.65	4423.24	871.05	4463.22	873.52	4500.24	876
4589.75	880	4656.16	880	4694.18	880.47	4709.73	880	4739.67	880

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1469.5	.1	3066.57	.07	3958.28	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
3066.57	3958.28	141.68	138.91	136.13	.1	.3

Profile Output Table - Espey 1

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Crit W.S. (ft)	Vel Total (ft/s)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)
1	21180.56	152.00	998.64	998.64	3.75	0.22	2.41	0.06
1	21180.56	210.00	998.76	998.76	4.01	0.25	2.60	0.07
1	21180.56	254.00	998.83	998.83	4.24	0.28	2.59	0.08
1	21180.56	299.00	998.92	998.92	4.22	0.28	2.61	0.08
1	21180.56	302.00	998.92	998.92	4.23	0.28	2.48	0.08
1	20441.55	152.00	990.33		0.54	0.01	11.65	0.04
1	20441.55	210.00	990.50		0.61	0.01	11.59	0.04
1	20441.55	254.00	990.63		0.64	0.01	11.53	0.05
1	20441.55	299.00	990.74		0.67	0.01	11.48	0.05
1	20441.55	302.00	990.77		0.66	0.01	11.45	0.05
1	19223.33	619.00	978.30	978.28	4.68	0.36	7.95	0.10
1	19223.33	816.00	978.45	978.45	4.98	0.43	2.34	0.13
1	19223.33	1004.00	978.58	978.58	5.19	0.48	1.06	0.14
1	19223.33	1186.00	978.70	978.70	5.36	0.52	1.26	0.15
1	19223.33	1249.00	978.74	978.74	5.41	0.53	1.29	0.16
1	17811.02	616.00	970.58		0.80	0.02	0.08	0.03
1	17811.02	812.00	971.34		0.51	0.01	0.03	0.04
1	17811.02	1000.00	972.09		0.38	0.00	0.02	0.05
1	17811.02	1182.00	972.18		0.43	0.00	0.01	0.00
1	17811.02	1245.00	972.23		0.44	0.00	0.01	0.00
1	17777.65	641.00	970.37	967.99	2.82	0.12		
1	17777.65	843.00	971.13	968.31	3.07	0.15		
1	17777.65	1033.00	971.87	968.58	3.22	0.16		
1	17777.65	1222.00	972.17	968.84	0.43	0.00		
1	17777.65	1288.00	972.22	968.93	0.44	0.00		
1	17728.40	Culvert						
1	17679.15	650.00	968.55	967.87	4.96	0.38	1.26	0.02
1	17679.15	853.00	968.78	968.18	5.91	0.54	1.42	0.07
1	17679.15	1044.00	968.81	968.45	7.15	0.79	1.40	0.23
1	17679.15	1235.00	968.94	968.70	8.02	1.00	1.53	0.31
1	17679.15	1302.00	968.87	968.79	8.68	1.17	1.48	0.42
1	17647.21	898.00	967.31	967.31	4.28	0.35	1.92	0.17
1	17647.21	1149.00	967.43	967.43	4.49	0.41	2.31	0.19
1	17647.21	1355.00	967.64	967.64	3.76	0.34	2.47	0.16
1	17647.21	1613.00	967.72	967.72	3.88	0.37	2.76	0.17
1	17647.21	1707.00	967.82	967.82	3.61	0.32	2.74	0.15
1	16859.73	898.00	961.06	958.76	0.71	0.02	0.04	0.00
1	16859.73	1149.00	961.25	959.00	0.79	0.02	0.05	0.00
1	16859.73	1355.00	961.39	959.19	0.86	0.02	0.06	0.00
1	16859.73	1613.00	961.55	959.40	0.93	0.03	0.07	0.00
1	16859.73	1707.00	961.61	959.48	0.95	0.03	0.07	0.00
1	16761.44	898.00	961.03	959.36	0.57	0.01	0.01	0.00
1	16761.44	1149.00	961.22	959.69	0.65	0.01	0.02	0.00
1	16761.44	1355.00	961.35	960.00	0.70	0.01	0.02	0.00
1	16761.44	1613.00	961.51	960.00	0.77	0.01	0.03	0.00
1	16761.44	1707.00	961.56	960.00	0.79	0.01	0.03	0.00
1	16705.88	957.00	961.01	960.00	0.41	0.00		
1	16705.88	1218.00	961.20	960.00	0.48	0.01		
1	16705.88	1426.00	961.33	960.01	0.53	0.01		
1	16705.88	1699.00	961.48	960.01	0.59	0.01		
1	16705.88	1800.00	961.53	960.01	0.61	0.01		
1	16685.31	Bridge						
1	16656.69	965.00	960.00	960.00	0.48	0.01	0.05	0.03
1	16656.69	1228.00	960.00	960.00	0.61	0.01	0.07	0.03
1	16656.69	1438.00	960.00	960.00	0.71	0.02	0.09	0.04
1	16656.69	1712.00	960.00	960.00	0.85	0.02	0.12	0.05

1	16656.69	1814.00	960.00	960.00	0.90	0.02	0.13	0.05
1	16604.60	974.00	958.57	957.15	2.54	0.10	12.81	0.04
1	16604.60	1239.00	958.91	957.34	2.85	0.13	13.04	0.04
1	16604.60	1450.00	959.15	957.48	3.07	0.15	13.21	0.03
1	16604.60	1726.00	959.41	957.65	3.36	0.18	13.39	0.02
1	16604.60	1828.00	959.51	957.71	3.46	0.19	13.47	0.02
1	15581.51	1162.00	945.60	945.56	3.85	0.23	5.67	0.06
1	15581.51	1474.00	945.71	945.66	3.99	0.25	5.61	0.06
1	15581.51	1720.00	945.80	945.73	4.06	0.26	5.57	0.06
1	15581.51	2022.00	945.91	945.81	4.06	0.26	5.56	0.06
1	15581.51	2143.00	945.94	945.84	4.10	0.26	5.54	0.06
1	14928.91	1300.00	940.07	939.14	1.39	0.03	12.21	0.04
1	14928.91	1647.00	940.24	939.24	1.49	0.04	12.20	0.04
1	14928.91	1918.00	940.36	939.31	1.56	0.04	12.18	0.04
1	14928.91	2237.00	940.49	939.39	1.64	0.05	12.18	0.05
1	14928.91	2371.00	940.54	939.43	1.67	0.05	12.18	0.05
1	13790.23	1582.00	927.46	927.46	5.04	0.39	0.27	0.12
1	13790.23	1998.00	927.61	927.61	5.28	0.43	0.39	0.13
1	13790.23	2319.00	927.70	927.70	5.52	0.47	0.74	0.14
1	13790.23	2668.00	927.79	927.79	5.74	0.51	0.63	0.15
1	13790.23	2829.00	927.83	927.83	5.86	0.53	0.66	0.16
1	12934.71	1834.00	922.85		0.39	0.00	0.02	0.01
1	12934.71	2311.00	922.91		0.48	0.00	0.02	0.02
1	12934.71	2675.00	922.62		0.62	0.01	0.06	0.26
1	12934.71	3046.00	922.94		0.62	0.01	0.04	0.04
1	12934.71	3231.00	923.00		0.64	0.01	0.04	0.04
1	12864.76	1856.00	922.77	919.58	1.07	0.05		
1	12864.76	2338.00	922.79	920.00	1.32	0.07		
1	12864.76	2706.00	921.44	920.29	7.33	0.86		
1	12864.76	3079.00	922.73	920.58	1.81	0.14		
1	12864.76	3266.00	922.78	920.72	1.87	0.15		
1	12812.76	Culvert						
1	12760.76	2040.00	919.17	919.17	9.16	1.30	0.40	0.64
1	12760.76	2567.00	919.60	919.60	9.88	1.52	0.39	0.74
1	12760.76	2971.00	919.91	919.91	10.39	1.68	0.39	0.82
1	12760.76	3380.00	920.22	920.22	10.82	1.82	0.39	0.89
1	12760.76	3610.00	920.39	920.39	11.05	1.90	0.38	0.93
1	12690.81	2044.00	918.02		1.33	0.03	7.12	0.23
1	12690.81	2572.00	918.28		1.41	0.03	6.99	0.25
1	12690.81	2977.00	918.50		1.42	0.03	6.93	0.27
1	12690.81	3387.00	918.68		1.45	0.03	6.84	0.29
1	12690.81	3618.00	918.79		1.45	0.03	6.79	0.31
1	11658.58	2104.00	909.89	909.89	7.21	0.81	6.83	0.23
1	11658.58	2648.00	910.19	910.19	7.47	0.87	5.86	0.25
1	11658.58	3065.00	910.38	910.38	7.73	0.95	5.44	0.27
1	11658.58	3488.00	910.56	910.56	7.94	1.02	5.17	0.29
1	11658.58	3733.00	910.67	910.67	8.04	1.05	5.33	0.30
1	10622.78	2166.00	902.58		1.47	0.06	1.92	0.00
1	10622.78	2727.00	903.11		1.43	0.05	1.87	0.01
1	10622.78	3156.00	903.46		1.43	0.05	1.86	0.01
1	10622.78	3593.00	903.78		1.45	0.05	1.86	0.01
1	10622.78	3853.00	903.89		1.49	0.05	1.90	0.01
1	9888.356	3563.00	900.61		2.28	0.10	3.45	0.03
1	9888.356	4707.00	901.16		2.51	0.13	3.59	0.03
1	9888.356	5534.00	901.49		2.66	0.15	3.67	0.03
1	9888.356	6333.00	901.79		2.79	0.16	3.72	0.02
1	9888.356	6526.00	901.86		2.81	0.17	3.72	0.02
1	9173.449	3649.00	896.81	896.50	3.20	0.41	7.05	0.07
1	9173.449	4818.00	897.25	896.82	3.29	0.41	6.80	0.06
1	9173.449	5664.00	897.55		3.35	0.40	6.66	0.05
1	9173.449	6481.00	897.82		3.41	0.39	6.55	0.05
1	9173.449	6705.00	897.91		3.41	0.38	6.55	0.04
1	8355.736	3750.00	889.93	888.32	2.99	0.17	4.84	0.02
1	8355.736	4948.00	890.59	888.64	3.22	0.20	4.84	0.02
1	8355.736	5816.00	891.01		3.36	0.22	4.81	0.02
1	8355.736	6655.00	891.37	889.05	3.49	0.24	4.76	0.02
1	8355.736	6915.00	891.46	889.11	3.55	0.24	4.66	0.02
1	7652.974	3838.00	884.91		3.59	0.33	0.15	0.10
1	7652.974	5062.00	885.54		3.83	0.39	0.18	0.16
1	7652.974	5950.00	885.99		3.93	0.41	0.20	0.22
1	7652.974	6809.00	886.40		3.99	0.43	0.19	0.17
1	7652.974	7102.00	886.61		3.93	0.42	0.17	0.13
1	7634.719	3841.00	884.33	881.28	3.97	0.67		
1	7634.719	5065.00	884.65	883.96	4.70	0.93		
1	7634.719	5953.00	884.81	884.37	5.24	1.16		
1	7634.719	6813.00	885.49	884.79	4.68	0.99		
1	7634.719	7107.00	885.87	884.90	4.58	0.85		
1	7612.22	Culvert						

1	7589.719	3847.00	883.73	879.99	3.25	0.27	0.05	0.03
1	7589.719	5073.00	884.63	881.38	3.28	0.31	0.05	0.03
1	7589.719	5962.00	885.32	882.27	3.22	0.30	0.05	0.02
1	7589.719	6823.00	886.04	882.51	3.09	0.27	0.04	0.02
1	7589.719	7119.00	886.33	882.51	3.02	0.26	0.04	0.02
1	7571.459	3849.00	883.53	881.06	3.84	0.38	18.36	0.04
1	7571.459	5076.00	884.44	882.01	3.78	0.42	18.50	0.07
1	7571.459	5966.00	885.17	882.47	3.60	0.37	18.85	0.15
1	7571.459	6827.00	885.91	882.74	3.43	0.33	19.23	0.28
1	7571.459	7124.00	886.22	882.84	3.33	0.31	19.32	0.37
1	5255.314	4158.00	864.98	863.35	5.67	0.52	10.69	0.04
1	5255.314	5473.00	865.65	863.97	6.16	0.64	9.82	0.07
1	5255.314	6431.00	865.67	864.38	7.21	0.88	8.74	0.16
1	5255.314	7359.00	865.46	864.74	8.74	1.27	7.59	0.30
1	5255.314	7776.00	865.29	864.93	9.69	1.55	7.00	0.39
1	3772.000	4368.00	854.38		5.08	0.40	2.55	0.09
1	3772.000	5744.00	855.99		4.90	0.41	1.16	0.11
1	3772.000	6747.00	857.30		4.00	0.35	0.81	0.09
1	3772.000	7721.00	858.57		3.36	0.29	0.62	0.07
1	3772.000	8224.00	859.19		3.13	0.26	0.55	0.07
1	2679.807	4530.00	852.03		2.14	0.11	0.11	0.03
1	2679.807	5952.00	855.08		1.48	0.05	0.06	0.01
1	2679.807	6990.00	856.71		1.35	0.04	0.05	0.01
1	2679.807	7999.00	858.13		1.27	0.04	0.05	0.01
1	2679.807	8571.00	858.80		1.25	0.03	0.04	0.01
1	2239.118	4530.00	851.99		0.69	0.01	0.06	0.00
1	2239.118	5952.00	855.04		0.66	0.01	0.04	0.00
1	2239.118	6990.00	856.68		0.67	0.01	0.04	0.00
1	2239.118	7999.00	858.10		0.68	0.01	0.04	0.00
1	2239.118	8571.00	858.77		0.69	0.01	0.04	0.00
1	1214.459	4530.00	851.93		0.63	0.01	0.02	0.00
1	1214.459	5952.00	855.01		0.59	0.01	0.02	0.00
1	1214.459	6990.00	856.65		0.59	0.01	0.02	0.00
1	1214.459	7999.00	858.07		0.59	0.01	0.02	0.00
1	1214.459	8571.00	858.74		0.59	0.01	0.02	0.00
1	138.908	6799.00	851.92	839.71	0.38	0.00		
1	138.908	9004.00	855.00	840.03	0.39	0.00		
1	138.908	10640.00	856.64	840.22	0.40	0.00		
1	138.908	12282.00	858.06	840.42	0.42	0.00		
1	138.908	13103.00	858.73	840.51	0.43	0.00		

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U.S. Army Corp of Engineers
Hydrologic Engineering Center
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(916) 756-1104

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X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
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PROJECT DATA
Project Title: spoak
Project File : spoak.prj
Run Date and Time: 11/20/2002 4:33:38 PM

Project in English units

Project Description:
Spanish Oak Creek in Cedar Park Master Plan

PLAN DATA

Plan Title: Plan 26
Plan File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.p26

Geometry Title: spoakimprovementsA
Geometry File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.g06

Flow Title : Spoakimp
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.f03

Plan Summary Information:
Number of: Cross Sections = 36 Mulitple Openings = 0
Culverts = 5 Inline Weirs = 0
Bridges = 1

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Spoakimp
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.f03

Flow Data (cfs)

River	Reach	RS	10ext	25ext	50ext	100ext	100ult
spanish oak	1	21180.56	152	210	254	299	302
spanish oak	1	19223.33	619	816	1004	1186	1249
spanish oak	1	17811.02	616	812	1000	1182	1245
spanish oak	1	17777.65	641	843	1033	1222	1288
spanish oak	1	17679.15	650	853	1044	1235	1302
spanish oak	1	17647.21	898	1149	1355	1613	1707
spanish oak	1	16705.88	957	1218	1426	1699	1800
spanish oak	1	16656.69	965	1228	1438	1712	1814
spanish oak	1	16604.60	974	1239	1450	1726	1828
spanish oak	1	15581.51	1162	1474	1720	2022	2143
spanish oak	1	14928.91	1300	1647	1918	2237	2371
spanish oak	1	13790.23	1582	1998	2319	2668	2829
spanish oak	1	12934.71	1834	2311	2675	3046	3231
spanish oak	1	12864.76	1856	2338	2706	3079	3266
spanish oak	1	12760.76	2040	2567	2971	3380	3610
spanish oak	1	12690.81	2044	2572	2977	3387	3618
spanish oak	1	11658.58	2104	2648	3065	3488	3733
spanish oak	1	10622.78	2166	2727	3156	3593	3853
spanish oak	1	9888.356	3563	4707	5534	6333	6526
spanish oak	1	9173.449	3649	4818	5664	6481	6705
spanish oak	1	8355.736	3750	4948	5816	6655	6915
spanish oak	1	7652.974	3838	5062	5950	6809	7102

spanish oak	1	7634.719	3841	5065	5953	6813	7107
spanish oak	1	7589.719	3847	5073	5962	6823	7119
spanish oak	1	7571.459	3849	5076	5966	6827	7124
spanish oak	1	5255.314	4158	5473	6431	7359	7776
spanish oak	1	3772.000	4368	5744	6747	7721	8224
spanish oak	1	2679.807	4530	5952	6990	7999	8571
spanish oak	1	138.908	6799	9004	10640	12282	13103

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
spanish oak	1	10ext		Rating Curve #1

Rating Curve #1

Flow (cfs)	Elev (ft)
7486	853.32
9652	855.72
11354	857.3
13103	858.73

Observed Water Surface Marks

River	Reach	RS	10ext	25ext	50ext	100ext	100ult
spanish oak	1	18869.33	975.5	976	976.5	977	977.4

GEOMETRY DATA

Geometry Title: spoakimprovementsA
Geometry File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\spoak.g06

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 21180.56

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
401.52	1004	682.47	1000	799.76	996.39	831.76	988.39	837.76	988.39
869.76	996.39	1028.88	1000	1087.64	1002				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
401.52	.04	799.76	.04	869.76	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
799.76 869.76 739.2 739.04 738.88 .3 .5

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 20441.55

INPUT
Description:
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
113.69	994	211.46	993.04	306.82	992	576.65	990	603.65	981
609.65	981	636.65	990	857.4	992	920.83	993.95		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
113.69	.04	576.65	.04	636.65	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
576.65 636.65 454 454 454 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
888			T
888			T

CULVERT RIVER: spanish oak
REACH: 1 RS: 20439.55

INPUT
Description: 450 lf culvert
Distance from Upstream XS = 2
Deck/Roadway Width = 450
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 5

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	900	580	990	600	989	900
635	990	900	1300	900	900	

Upstream Bridge Cross Section Data
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

```
  113.69     994  211.46  993.04  306.82     992  576.65     990  603.65     981
  609.65     981  636.65     990   857.4     992  920.83  993.95

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  113.69     .04  576.65     .04  636.65     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
        576.65  636.65             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        T
888        T

Downstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0     900     900     590   982.5     900     625   982.5     900
   658.5   982.5     900    1200     900     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      10
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
      75      992   212.5      990     450      988     595   982.5      622   975.5
     628   975.5      655   982.5      900      988     950      990     1050      992

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      75     .04     595     .04     655     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
          595     655             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Culvert #1            Box       7      10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  2     450        .01                  .4                1
Upstream   Elevation =  981
           Centerline Station =  610
Downstream Elevation =  975.5
           Centerline Station =  625

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 19987.55

INPUT
Description:
Station Elevation Data    num=      10
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
      75      992   212.5      990     450      988     595   982.5      622   975.5
     628   975.5      655   982.5      900      988     950      990     1050      992

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      75     .04     595     .04     655     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          595     655            285.2  285.04  284.88             .3       .5

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 19223.33

INPUT
Description:
Station Elevation Data    num=       8
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
  220.86      990  538.17      984      899      976      926      969      932      969
     959      976 1009.04      978  1406.1      986

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  220.86     .04     899     .04     959     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          899     959              354      354      354             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        T
888        T

CULVERT                RIVER: spanish oak
REACH: 1                  RS: 19221.33
```

```
INPUT
Description: 350 lf culvert
Distance from Upstream XS =       2
Deck/Roadway Width        =     350
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0     900     900     900   976.1     900     960   976.1     900
    1400     900     900

Upstream Bridge Cross Section Data
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  220.86     990  538.17     984     899     976     926     969     932     969
     959     976 1009.04     978  1406.1     986

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  220.86    .04     899    .04     959    .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
           899     959            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        T
888        T

Downstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0     900     900     800     900     900     850     900     900
    1400     900     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  995.42    48.6     994   52.25     994   64.21  993.6   136.6     992
   138.1     992  214.82     990  220.86     990  283.62     988   285.5     988
  538.17     984  814.31     980  832.31     974  850.31     968  856.31     968
  868.31     974  892.31     980  932.31     980 1120.22     980 1212.55  981.72
 1213.56  981.75  1406.1     986 1407.16     986 1416.45  986.25 1460.54     988
 1488.21  988.75 1521.24     990 1526.88     990 1552.05   990.8 1577.57  991.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .04  832.31    .04  868.31    .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
       832.31  868.31            .3       .5

Upstream Embankment side slope             =       0 horiz. to 1.0 vertical
Downstream Embankment side slope           =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Culvert #1            Box       7      10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  2     350        .01                  .4                1
Upstream   Elevation =  969
           Centerline Station =  929
Downstream Elevation =  968
           Centerline Station =  929

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 18869.33

INPUT
Description:
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  995.42    48.6     994   52.25     994   64.21  993.6   136.6     992
   138.1     992  214.82     990  220.86     990  283.62     988   285.5     988
  538.17     984  814.31     980  832.31     974  850.31     968  856.31     968
  868.31     974  892.31     980  932.31     980 1120.22     980 1212.55  981.72
 1213.56  981.75  1406.1     986 1407.16     986 1416.45  986.25 1460.54     988
 1488.21  988.75 1521.24     990 1526.88     990 1552.05   990.8 1577.57  991.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .04  832.31    .04  868.31    .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       832.31  868.31          1059.75 1059.75 1059.75              .3       .5
```

```
CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 17811.02

INPUT
Description:
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.57   78.14     982   84.15     982  172.54     980  182.07     980
  246.55     978   248.5     978  322.66     976  327.64     976  421.15     974
   511.4     974  585.98     972   610.4     972  637.24  971.23  648.64  971.14
  657.27  971.4  661.57  971.45  679.12     972  710.71     972  731.92  971.18
  766.93  970.45   768.2  970.44  784.18  970.03 1394.72     970    1504     968
 1614.94     970 1655.63     970 1685.53  970.22 1736.97  970.29 1836.45  971.23
 1861.61  971.21 2038.78     972  2064.4  970.31    2067  970.33 2074.44  970.06
 2100.03     972 2117.98  973.06 2130.16  973.57 2131.59  973.65 2150.44  974.21
 2177.47  974.61 2180.89  974.56 2206.15  974.76 2209.09  974.84 2211.18  974.84
 2213.94  974.91 2220.77  974.91 2223.44  974.98 2293.65  975.89 2293.95   975.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1394.72     .07 1614.94      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1394.72 1614.94             32.51    32.5   32.49             .1      .3

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 17777.65

INPUT
Description:
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.48   78.39  981.91   84.42  981.91  173.09  979.91  182.65  979.91
  247.34  977.91   249.3  977.91   323.7  975.91   328.7  975.91  340.88  975.54
  422.51  973.91  513.06  973.91  587.88  971.91  612.38  971.91   639.3  971.14
  650.74  971.05  659.39  971.31  663.72  971.36  681.32  971.91  713.02  971.91
  734.29  971.09  769.42  970.36  770.69  970.35  788.23  969.91 1392.33  969.91
 1474.61  969.91 1475.61  966.41 1535.92  966.41 1536.92  969.91 1615.57  969.91
 1660.99  969.91 1685.69  970.12 1742.59   970.2  1837.4  971.14 1887.19  971.26
 1978.41  971.91 2045.38  971.91 2071.08  970.22 2073.69  970.24 2081.16  969.97
 2106.84  971.91 2124.85  972.97 2137.06  973.48 2138.49  973.56  2157.4  974.12
 2184.53  974.52 2187.95  974.47 2189.73  974.49 2193.25  974.47 2213.29  974.67
 2216.24  974.75 2218.34  974.75 2221.11  974.82 2227.96  974.82 2230.63  974.89
 2249.51  975.08 2252.28  975.16 2301.08   975.8 2301.38  975.81

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1392.33     .07 1615.57      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1392.33 1615.57             93.46   93.37   93.28             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: spanish oak
REACH: 1                  RS: 17728.40

INPUT
Description: 183
Distance from Upstream XS =      10
Deck/Roadway Width        =    78.5
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     350      975      900   506.9   974.6      900   586.9   974.2      900
   756.9      974      900  1196.9      972      900  1266.9      972      900
  2206.9      972      900  2396.9      974      900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.48   78.39  981.91   84.42  981.91  173.09  979.91  182.65  979.91
  247.34  977.91   249.3  977.91   323.7  975.91   328.7  975.91  340.88  975.54
  422.51  973.91  513.06  973.91  587.88  971.91  612.38  971.91   639.3  971.14
  650.74  971.05  659.39  971.31  663.72  971.36  681.32  971.91  713.02  971.91
  734.29  971.09  769.42  970.36  770.69  970.35  788.23  969.91 1392.33  969.91
 1474.61  969.91 1475.61  966.41 1535.92  966.41 1536.92  969.91 1615.57  969.91
 1660.99  969.91 1685.69  970.12 1742.59   970.2  1837.4  971.14 1887.19  971.26
 1978.41  971.91 2045.38  971.91 2071.08  970.22 2073.69  970.24 2081.16  969.97
 2106.84  971.91 2124.85  972.97 2137.06  973.48 2138.49  973.56  2157.4  974.12
 2184.53  974.52 2187.95  974.47 2189.73  974.49 2193.25  974.47 2213.29  974.67
 2216.24  974.75 2218.34  974.75 2221.11  974.82 2227.96  974.82 2230.63  974.89
 2249.51  975.08 2252.28  975.16 2301.08   975.8 2301.38  975.81

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1392.33     .07 1615.57      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1392.33 1615.57             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
```

```
888       F
888       F

Downstream  Deck/Roadway Coordinates
    num=       9
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
     350      975      900      793      972      900      873      972      900
    1043      972      900     1483      972      900     1553      972      900
    2000      972      900     2500      974      900     2683      974      900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      77
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   982.33     8.75    982.1   121.03    980.4   131.49   980.09   133.61   980.09
  261.12   978.09   266.04   978.09   339.53   976.64   354.17   976.09   361.44   976.09
  400.23   974.07      458   972.09   563.12   972.09   672.23   970.46   674.15   970.46
  687.57   970.09    839.1   969.34   840.95   969.31   859.47   969.31   879.52   969.03
     897   969.09   907.38   968.95   932.05   968.09 1151.67   968.09 1184.35   967.67
  1287.7   967.58 1375.93      967 1378.61   966.95 1389.25   966.99 1411.71   967.06
  1436.6   966.77 1468.46   966.65 1479.98   966.32 1481.15   966.32 1485.78   966.18
 1490.98   966.13 1510.86   966.33 1530.32   966.09 1544.26   966.09 1569.53   966.53
 1570.61   966.52 1574.18   966.61   1575.4    966.6   1578.8   966.68   1581.5   966.65
 1600.89   966.91 1603.71      967 1608.12   966.99   1610.7   967.07 1610.94   967.07
 1693.91   967.51 1695.35   967.54 1777.58   967.64 1817.03   968.09 1850.31   968.81
 1878.68   968.81 1898.31   968.62 1908.95   968.69 1944.15    968.1 2044.26   968.09
 2052.78   968.53 2054.13   968.54 2058.14   968.75 2059.97   968.76 2063.22   968.92
 2065.46   968.93 2098.37   969.43 2101.64   969.44 2103.24   969.41 2121.76   969.66
 2125.04   969.76 2150.06   969.95 2206.57   969.61 2207.66   971.09 2211.87   973.09
  2312.4   977.09 2463.21   980.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1389.25     .07 1610.94      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1389.25 1610.94             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888       F
888       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
183                 Box         4       4
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10    78.5       .013                   .4                1
Number of Barrels =  8
Upstream   Elevation =  966.5
Centerline Stations
    Sta.     Sta.     Sta.     Sta.     Sta.     Sta.     Sta.     Sta.
 1481.65 1486.49 1491.32 1496.15 1500.98 1505.82 1510.65 1515.48
Downstream Elevation =  966.5
Centerline Stations
    Sta.     Sta.     Sta.     Sta.     Sta.     Sta.     Sta.     Sta.
 1469.65 1474.49 1479.32 1484.15 1488.98 1493.82 1498.65 1503.48

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 17679.15

INPUT
Description:
Station Elevation Data    num=      77
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   982.33     8.75    982.1   121.03    980.4   131.49   980.09   133.61   980.09
  261.12   978.09   266.04   978.09   339.53   976.64   354.17   976.09   361.44   976.09
  400.23   974.07      458   972.09   563.12   972.09   672.23   970.46   674.15   970.46
  687.57   970.09    839.1   969.34   840.95   969.31   859.47   969.31   879.52   969.03
     897   969.09   907.38   968.95   932.05   968.09 1151.67   968.09 1184.35   967.67
  1287.7   967.58 1375.93      967 1378.61   966.95 1389.25   966.99 1411.71   967.06
  1436.6   966.77 1468.46   966.65 1479.98   966.32 1481.15   966.32 1485.78   966.18
 1490.98   966.13 1510.86   966.33 1530.32   966.09 1544.26   966.09 1569.53   966.53
 1570.61   966.52 1574.18   966.61   1575.4    966.6   1578.8   966.68   1581.5   966.65
 1600.89   966.91 1603.71      967 1608.12   966.99   1610.7   967.07 1610.94   967.07
 1693.91   967.51 1695.35   967.54 1777.58   967.64 1817.03   968.09 1850.31   968.81
 1878.68   968.81 1898.31   968.62 1908.95   968.69 1944.15    968.1 2044.26   968.09
 2052.78   968.53 2054.13   968.54 2058.14   968.75 2059.97   968.76 2063.22   968.92
 2065.46   968.93 2098.37   969.43 2101.64   969.44 2103.24   969.41 2121.76   969.66
 2125.04   969.76 2150.06   969.95 2206.57   969.61 2207.66   971.09 2211.87   973.09
  2312.4   977.09 2463.21   980.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1389.25     .07 1610.94      .1
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1389.25 1610.94            36.47    36.5   36.53             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 17647.21

INPUT
Description:
Station Elevation Data    num=      75
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   982.24      8.7   982.01   120.38   980.31   130.78      980   132.89      980
  259.72      978   264.61      978    337.7   976.55   352.27      976    359.5      976
  398.08   973.98   455.54      972    560.1      972   668.61   970.37   670.52   970.37
  683.89      970    834.6   969.25   836.43   969.22   856.82    969.2    874.8   968.94
  892.19      969   902.52   968.86   927.05      968  1145.49      968     1178   967.58
 1280.79   967.49     1282   967.47  1368.55   966.91  1371.22   966.86  1403.48   966.97
 1428.89   966.68  1460.58   966.56  1472.04   966.23   1473.2   966.23  1477.81   966.09
 1507.77   966.22  1522.11      966  1535.98      966  1561.11   966.44  1562.18   966.43
 1565.74   966.52  1566.95   966.51  1570.32   966.59     1573   966.56   1592.3   966.82
  1595.1   966.91  1599.48    966.9  1601.64   966.97  1684.82   967.42  1686.25   967.45
 1768.04   967.55  1804.65   967.96  1840.38   968.72  1898.71    968.6  1933.72   968.01
 2033.29      968  2041.77   968.44  2043.11   968.45  2047.09   968.66  2048.92   968.67
 2052.14   968.83  2054.37   968.84  2087.11   969.34  2090.37   969.35  2091.96   969.32
 2122.74   969.82  2164.08   969.77  2194.73   969.52   2195.8   969.54  2219.81    969.6
 2220.95   969.63  2286.18   970.09  2321.69   970.58   2325.1    970.7  2331.36   970.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  1403.48     .07  1601.64      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1403.48 1601.64          816.17  816.34  816.34             .3      .5

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 16859.73

INPUT
Description:
Station Elevation Data    num=      40
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0    967.5   111.68    966.1   176.57   965.65   323.79   965.22   522.19      964
  552.99   963.62   688.44   962.84   820.62   961.16  1105.44   958.98  1190.55      958
 1200.55      958   1205.6   957.82  1240.61    956.6  1249.86    956.6  1281.91      958
 1295.89    958.3  1353.84   959.47  1879.68   961.97  1950.58      962  1988.14   963.14
 1994.24   963.43  1998.46   963.55   2007.8      964  2126.93      964  2130.51   964.08
 2271.45    964.7  2316.74   965.06  2345.85   965.02  2350.47   964.96  2352.73   964.98
  2431.5      964  2473.73   964.24  2487.91   964.61  2505.46   964.77  2512.16   964.67
 2513.52   964.63  2550.81   965.24  2572.64      966  2631.08   967.15  2655.51    967.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   1205.6     .07  1295.89      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1205.6 1295.89                   93    92.4      93             .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 16761.44

INPUT
Description:
Station Elevation Data    num=      47
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   966.42   141.58      966   164.62   965.17   267.96   964.26   531.34      964
  572.58   962.64   628.65   962.26   763.03      962   782.01   961.12   847.94      960
  952.72      960   996.69   958.71   1047.5   958.16   1181.7      958  1184.81   957.74
 1194.61   957.69  1198.23   956.56  1238.14      958   1279.9      958  1286.12   958.32
 1289.21   958.42  1299.12   958.37  1397.36      960  1571.16   960.03  1746.09   960.93
 1855.36   961.19  2037.76      962  2060.89   962.62  2094.44   962.62  2304.92   963.52
 2306.08   963.51  2329.28   963.59  2348.66   963.47   2349.9   963.48  2356.77   963.42
 2358.13   963.43  2361.45    963.4  2362.86   963.41  2366.12   963.38  2367.56   963.39
  2428.7   963.17  2484.74      964  2542.58      964  2644.18   965.86  2646.37   965.85
 2652.64      966  2655.51      966

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   952.72     .07  1397.36      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        952.72 1397.36            52.38   52.34    52.3             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
```

REACH: 1 RS: 16705.88

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	965.83	83.24	965.41	141.58	965.41	164.62	964.58	213.31	963.98
267.96	963.67	363.34	963.58	392.42	963.41	531.34	963.41	572.58	962.05
619.31	961.68	663.47	961.63	694.12	961.41	763.03	961.41	782.01	960.53
785.4	960.5	813.48	959.88	847.94	959.41	920.52	959.41	952.72	959.41
996.69	958.12	1042.11	957.59	1087.52	957.41	1181.88	957.41	1184.81	957.15
1194.61	957.1	1198.22	956.97	1238.15	957.41	1279.65	957.41	1286.75	957.78
1289.82	957.89	1293.26	957.84	1301.79	957.84	1393.02	959.41	1411.07	959.41
1578.81	959.41	1849.69	960.28	1883.04	960.25	1980.6	961.14	1993.32	961.41
2150	962.41	2350	964.41	2500	965.41				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	1181.88	.07	1238.15	.1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1181.88 1238.15 50.05 50.01 49.97 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
888	F		
888	F		

BRIDGE RIVER: spanish oak
REACH: 1 RS: 16685.31

INPUT
Description: Railroad Crossing
Distance from Upstream XS = 10
Deck/Roadway Width = 30
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 7

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	970	955	1175	960	955	1175	960	960
1190	960	960	1205	960	960	1205	960	955
2500	965	955						

Upstream Bridge Cross Section Data
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	965.83	83.24	965.41	141.58	965.41	164.62	964.58	213.31	963.98
267.96	963.67	363.34	963.58	392.42	963.41	531.34	963.41	572.58	962.05
619.31	961.68	663.47	961.63	694.12	961.41	763.03	961.41	782.01	960.53
785.4	960.5	813.48	959.88	847.94	959.41	920.52	959.41	952.72	959.41
996.69	958.12	1042.11	957.59	1087.52	957.41	1181.88	957.41	1184.81	957.15
1194.61	957.1	1198.22	956.97	1238.15	957.41	1279.65	957.41	1286.75	957.78
1289.82	957.89	1293.26	957.84	1301.79	957.84	1393.02	959.41	1411.07	959.41
1578.81	959.41	1849.69	960.28	1883.04	960.25	1980.6	961.14	1993.32	961.41
2150	962.41	2350	964.41	2500	965.41				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	1181.88	.07	1238.15	.1

Bank Sta: Left Right Coeff Contr. Expan.
1181.88 1238.15 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
888	F		
888	F		

Downstream Deck/Roadway Coordinates
num= 7

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	970	955	1175	960	955	1175	960	960
1190	960	960	1205	960	960	1205	960	955
2500	965	955						

Downstream Bridge Cross Section Data
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	965.99	39.94	966.04	92.5	965.85	141.46	965.25	144.63	965.25
148.45	965.17	164.29	965.12	174.42	964.59	209.59	964.59	396.07	963.72
421.4	963.27	433.22	963.36	453.9	962.59	523.49	962.59	622.84	961.4
624.77	961.41	649.85	961.12	656.12	961.13	657.34	961.15	689.92	960.59
748.01	960.14	842.89	958.84	844.55	958.85	848.49	958.71	955.37	958.59
901.1	958.59	1048.69	957.57	1051.51	957.52	1073.78	957.66	1079.75	957.5
1081.7	957.53	1089.41	957.31	1091.04	957.32	1111.53	956.59	1131.61	956.59
1169.72	956.91	1184.67	956.59	1258.09	956.59	1275.93	957.05	1277.1	957.05
1280.99	957.12	1282.35	957.12	1286.07	957.19	1350.3	957.73	1352.46	957.71
1427.84	957.95	1429.65	957.98	1532.19	958.59	1545.6	958.89	1550.55	959.1
1551.92	959.12	1560.52	959.49	1574.56	959.79	1577.09	959.73	1582.49	959.84
1584.8	959.93	1606.82	959.17	1666.95	959.05	1668.07	959.06	1670.71	959.01
1792.63	959.41	1855.76	959.34	1983.25	959.63	1985.53	959.66	1993.32	959.65
1995.59	959.68	2003.9	959.68	2005	959.71	2030	959.86	2200	959.76
2220	960.79	2260	961.79	2320	962.29	2340	962.79	2360	962.99
2400	963.79	2420	963.99	2430	964.79	2440	965.09	2480	965.39
2500	965.79	2520	966.39	2530	967.09	2550	967.39		

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1169.72     .07 1275.93      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1169.72 1275.93            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =     960
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  1

Pier Data
Pier Station     Upstream=    1189    Downstream=    1189
Upstream     num=       2
    Width   Elev    Width   Elev
       2     955        2     960
Downstream     num=       2
    Width   Elev    Width   Elev
       2     955        2     960

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 16656.69

INPUT
Description:
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  965.99   39.94  966.04    92.5  965.85  141.46  965.25  144.63  965.25
  148.45  965.17  164.29  965.12  174.42  964.59  209.59  964.59  396.07  963.72
   421.4  963.27  433.22  963.36   453.9  962.59  523.49  962.59  622.84   961.4
  624.77  961.41  649.85  961.12  656.12  961.13  657.34  961.15  689.92  960.59
  748.01  960.14  842.89  958.84  844.55  958.85  848.49  958.71  855.37  958.59
   901.1  958.59 1048.69  957.57 1051.51  957.52 1073.78  957.66 1079.75   957.5
  1081.7  957.53 1089.41  957.31 1091.04  957.32 1111.53  956.59 1131.61  956.59
 1169.72  956.91 1184.67  956.59 1258.09  956.59 1275.93  957.05  1277.1  957.05
 1280.99  957.12 1282.35  957.12 1286.07  957.19  1350.3  957.73 1352.46  957.71
 1427.84  957.95 1429.65  957.98 1532.19  958.59  1545.6  958.89 1550.55   959.1
 1551.92  959.12 1560.52  959.49 1574.56  959.79 1577.09  959.73 1582.49  959.84
  1584.8  959.93 1606.82  959.17 1666.95  959.05 1668.07  959.06 1670.71  959.01
 1792.63  959.41 1855.76  959.34 1983.25  959.63 1985.53  959.66 1993.32  959.65
 1995.59  959.68  2003.9  959.68    2005  959.71    2030  959.86    2200  959.76
    2220  960.79    2260  961.79    2320  962.29    2340  962.79    2360  962.99
    2400  963.79    2420  963.99    2430  964.79    2440  965.09    2480  965.39
    2500  965.79    2520  966.39    2530  967.09    2550  967.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1169.72     .07 1275.93      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1169.72 1275.93            52.64    52.6   52.54             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 16604.60

INPUT
Description:
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   965.4   39.94  965.45    92.5  965.26  141.46  964.66  144.63  964.66
  148.44  964.58  164.29  964.53  174.42     964  363.89  963.36  396.07  963.13
   421.4  962.68  433.22  962.77   453.9     962  523.49     962  622.84  960.81
  624.77  960.82  649.85  960.53  656.12  960.54  657.34  960.56  693.34  959.97
```

```
  763.64  959.38  841.55  958.26  844.65  958.26  848.49  958.12  854.46  958.02
  907.65     958 1048.69  956.98 1051.51  956.93 1073.78  957.07 1079.75  956.91
  1081.7  956.94 1089.42  956.72 1091.04  956.73 1111.53     956 1169.72  956.32
 1184.66     956 1258.09     956 1275.93  956.46  1277.1  956.46 1280.99  956.53
 1282.35  956.53 1286.07   956.6 1350.32  957.13 1427.52  957.35 1536.63     958
  1540.3  958.07 1550.32  958.43 1551.46  958.44 1560.26  958.82 1574.69  959.13
 1577.06  959.07 1582.91  959.19 1585.42  959.29 1606.51  958.56 1668.51  958.43
 1671.21  958.38 2055.18   959.2    2089  959.12 2146.79     960

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  907.65     .07 1550.32      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       907.65 1550.32          1025.86  1026.3 1026.75             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 15581.51

INPUT
Description:
Station Elevation Data     num=     129
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   951.79   40.87   951.32   42.71   951.28   44.81   951.25   48.34   951.23
   50.66   951.19   54.08   951.16   59.85   951.09   65.56   951.01   68.81   950.97
   71.85   950.92   81.94   950.78   85.98   950.74   88.27   950.69  100.57   950.5
  104.43   950.49  105.66   950.48  139.87    950.3  145.52   950.24     147   950.22
  147.67   950.22  153.05   950.17  153.56   950.17   154.5   950.16  155.74   950.15
  156.13   950.14  167.96      950  179.92      950  182.87   949.96     183   949.96
  188.85   949.88  194.75   949.78  195.58   949.77  199.37   949.69  200.21   949.68
  206.73   949.63  208.24   949.61  214.41    949.5  216.44   949.47  218.66   949.45
  237.81   949.11  241.54   949.05  244.87   949.02  248.32   948.97  251.94   948.93
  273.84   948.72  277.37   948.68  316.53      948  332.03      948  367.48   947.34
   371.7    947.3  375.75   947.25  407.17   946.77  447.49      946  466.39      946
  513.89   945.48  527.95   945.17  530.76   945.18   533.8   945.17   535.8   945.12
  539.02   945.07  553.27    944.9  556.24   944.89  560.57   944.85  563.32   944.86
  580.47   944.81  582.65   944.78  585.87   944.77  587.86   944.74  589.62   944.71
  591.09   944.67  593.97   944.69  603.29   944.55  606.81   944.52  607.79    944.5
  610.52   944.54   612.5   944.52  649.92   944.58  652.18   944.59  658.26   944.67
  735.86   945.65  763.82      946  813.84      946  818.71   946.01  823.71   946.01
  828.64      946  843.57      946  875.46      946  976.33   945.31  979.46   945.31
  982.86   945.29  992.65   945.29 1010.49  945.23 1012.47   945.22  1015.7   945.21
 1018.84   945.19 1020.97   945.19     1024  945.17 1026.11   945.17 1029.01   945.15
 1069.47   945.05 1074.49   945.05 1081.51  945.07 1103.44   945.07 1106.09   945.06
 1108.43   945.06 1110.77   945.07 1113.42  945.06 1137.52   945.04 1140.19   945.03
  1142.7   945.03 1155.57   945.01 1158.07      945  1160.6      945 1168.08   944.99
  1185.7   944.98 1188.27   944.97 1190.88  944.97 1193.52   944.96 1216.72   944.97
 1233.15   945.04 1235.43   945.04 1237.93  945.05 1240.18   945.05 1300.81      946
 1303.56      946    1311  947.29 1312.81   947.6 1315.08      948

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  407.17     .07    1311      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       407.17    1311          656.32  652.54   648.9             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 14928.91

INPUT
Description:
Station Elevation Data     num=      37
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   946.98   87.47    946.9  211.75  946.02  466.97  945.14  469.08  945.11
  570.53    944.1  570.93   944.09  578.56     944    593.6     944  721.76     942
  739.59      942  882.12      940  910.27      940 1002.52  939.05 1005.13  939.05
 1059.46  938.14 1068.04      938 1184.88      938 1259.02  938.71 1357.94  938.88
 1448.75  938.89 1483.71   938.93 1517.93  938.97 1688.14      940 1879.08  940.16
 1893.01  940.31 1901.27    940.3 1902.05  940.32 1906.66  940.34 1922.58  940.82
 1927.35  940.89  1953.9      942 1968.32  945.85 1968.86      946 1969.09  946.01
 2017.31  947.27  2045.9   948.65

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  910.27     .07 1688.14      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       910.27 1688.14          1141.92  1138.8 1135.44             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 13790.23

INPUT
Description:
Station Elevation Data     num=      29
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0      930     .16      930  100.91      928  138.64      928  185.65      928
  227.12   927.06  303.37   927.58   319.3  927.45  320.77  927.42  352.61  927.23
  427.13      926  479.15      926  522.64      926  526.71      926  589.72  926.88
   595.6   926.85  614.13   927.02  638.82  927.23  655.71  927.64  656.63  927.65
```

```
  669.74     928  671.64     928  695.62  928.35  741.29     930  837.26     930
  843.83  930.12 1007.14  931.75 1031.61  931.99 1051.58     932

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  185.65     .07  671.64      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        185.65  671.64             864.36  855.54  846.72            .1       .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 12934.71

INPUT
Description:
Station Elevation Data    num=      70
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  925.13   28.76   925.1    50.1  925.28   51.81  925.27   54.85  925.33
  105.39   925.2  156.87  924.58  207.84   924.3  232.12     924  237.24     924
  255.08   923.7     261  923.42  265.61  923.29  291.22   922.1  292.44  922.03
  330.04  921.59  505.22  918.07  515.95  918.03  517.22     918  536.44     918
  597.05   916.8  606.41   916.8  610.11  916.93  612.29  916.95  660.96     918
  689.67     918  727.42  918.52  731.04  918.51  732.56  918.58  768.01  919.05
  770.41  919.02  829.96  919.91  834.45     920  848.81     920  881.55  920.01
  920.58  920.44 1067.59  921.11 1071.03  920.96 1095.92  920.98 1169.36     922
 1256.03  921.78 1268.82     922 1531.71     922 1544.02  921.35 1606.54  921.06
 1662.01   921.5 1674.36     922 1713.82     922 1731.24  921.22 1774.84  920.28
  1782.1  920.11 1851.53   918.7 1852.73  918.68 1871.01  918.38 1898.81     918
 2014.34     918 2019.36  918.23 2047.89     920 2087.01     922    2119  923.01
 2149.29  923.97 2150.36     924 2158.16     924 2200.83     926 2240.69     926
 2267.22  926.79 2329.02  926.92 2396.75  927.69 2400.89  927.83 2478.19     928

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  265.61     .07    2119      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        265.61    2119             71.2   71.28   71.34            .3       .5

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 12864.76

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  925.84  250.49  924.03  415.53  922.84   719.8  921.62  731.62  921.84
   918.1  921.84  974.35  921.84  985.72  921.19 1043.45   920.9 1094.68  921.34
 1106.08  921.84  1142.5  921.84 1158.59  921.06 1256.76  918.73 1262.41  918.64
 1313.33  917.84 1328.95  917.84 1332.18  917.84 1343.74  916.84 1395.26  916.84
 1404.73  917.72 1405.98  917.84     1420 917.84 1424.64  918.07    1451  919.84
 1487.12  921.84  1545.6  923.84  1552.8  923.84 1592.21  925.84 1629.02  925.84
 1653.52  926.63 1710.59  926.76 1772.34  927.52 1776.95  927.67 1802.52  927.75
 1807.17  927.84 1848.33  927.84

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1 1328.95     .07 1404.73      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1328.95 1404.73            111.51  111.32  111.12            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                 RIVER: spanish oak
REACH: 1                RS: 12812.76

INPUT
Description: 1431
Distance from Upstream XS =       10
Deck/Roadway Width        =       84
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   637.1      920      900   917.1      922      900  1487.1      923      900
  1587.1      924      900  1767.1      926      900  1997.1      928      900
  2267.1      930      900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  925.84  250.49  924.03  415.53  922.84   719.8  921.62  731.62  921.84
   918.1  921.84  974.35  921.84  985.72  921.19 1043.45   920.9 1094.68  921.34
 1106.08  921.84  1142.5  921.84 1158.59  921.06 1256.76  918.73 1262.41  918.64
 1313.33  917.84 1328.95  917.84 1332.18  917.84 1343.74  916.84 1395.26  916.84
 1404.73  917.72 1405.98  917.84     1420 917.84 1424.64  918.07    1451  919.84
 1487.12  921.84  1545.6  923.84  1552.8  923.84 1592.21  925.84 1629.02  925.84
 1653.52  926.63 1710.59  926.76 1772.34  927.52 1776.95  927.67 1802.52  927.75
 1807.17  927.84 1848.33  927.84

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

```
      0      .1 1328.95     .07 1404.73      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
      1328.95 1404.73             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=        6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  175.19     920     900  455.19     922     900 1025.19     923     900
 1125.19     924     900 1305.19     925     900 1825.97  926.85     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  930.16   30.03  929.16   35.03  930.06   40.04  928.86  120.11  926.16
  130.12  925.96  180.17  924.16  240.23  923.16  300.29  921.16     447  919.19
  572.88  919.16  575.19  919.19  590.56  919.02  592.56  919.04  672.16  918.56
  714.27  918.46  751.03  918.61  803.04  918.18  836.72  917.99  837.84  917.97
  890.39  917.81  969.77  917.13  970.52  917.13  972.15  917.14  977.43  917.06
  979.69  917.06  992.99  916.88  996.44   916.5 1057.38   916.5  1105.7  917.24
 1109.43  917.27 1171.58  917.71 1245.31  918.16  1247.1  918.26 1253.96  918.43
  1282.9  919.67 1285.82  919.83 1298.61  920.16 1330.14  920.16 1368.71  921.21
 1387.89  921.44 1391.42  921.57 1397.49  921.58 1401.19  921.69 1402.45  921.69
 1403.65  921.72 1425.05  921.95 1496.14  922.17 1563.89  923.38 1567.33   923.4
 1599.12  924.16 1608.11  924.16 1623.97  924.68 1627.83  924.72 1641.87  925.12
 1644.87  925.14 1668.51   925.6 1768.01  926.16 1827.73  927.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  970.52     .07 1109.43      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       970.52 1109.43             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
1431               Box         4       8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                10      84       .011                   .4                1
Number of Barrels =  7
Upstream   Elevation =  917
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
 1345.11 1354.44 1363.77 1373.11 1382.44 1391.77  1401.1
Downstream Elevation =  916.5
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
 1001.19 1010.52 1019.86 1029.19 1038.52 1047.86 1057.19

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 12760.76

INPUT
Description:
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  930.16   30.03  929.16   35.03  930.06   40.04  928.86  120.11  926.16
  130.12  925.96  180.17  924.16  240.23  923.16  300.29  921.16     447  919.19
  572.88  919.16  575.19  919.19  590.56  919.02  592.56  919.04  672.16  918.56
  714.27  918.46  751.03  918.61  803.04  918.18  836.72  917.99  837.84  917.97
  890.39  917.81  969.77  917.13  970.52  917.13  972.15  917.14  977.43  917.06
  979.69  917.06  992.99  916.88  996.44   916.5 1057.38   916.5  1105.7  917.24
 1109.43  917.27 1171.58  917.71 1245.31  918.16  1247.1  918.26 1253.96  918.43
  1282.9  919.67 1285.82  919.83 1298.61  920.16 1330.14  920.16 1368.71  921.21
 1387.89  921.44 1391.42  921.57 1397.49  921.58 1401.19  921.69 1402.45  921.69
 1403.65  921.72 1425.05  921.95 1496.14  922.17 1563.89  923.38 1567.33   923.4
 1599.12  924.16 1608.11  924.16 1623.97  924.68 1627.83  924.72 1641.87  925.12
 1644.87  925.14 1668.51   925.6 1768.01  926.16 1827.73  927.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  970.52     .07 1109.43      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       970.52 1109.43             61.08   61.32   61.54             .3       .5
```

```
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 12690.81

INPUT
Description:
Station Elevation Data    num=      81
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0      920     9.5      920   29.96    920.8   87.68   921.57   286.9   921.75
  316.98   921.49  318.41   921.45  372.93   920.71  376.39   920.74  461.89   919.46
  495.71   918.79  533.67   918.34  615.23   917.02  617.86   917.01  668.47   916.03
  682.35      916  716.55   915.43  726.22    915.1  741.22   914.93  744.12   914.78
  746.15   914.77  749.85   914.59  752.93   914.57  766.37      914  822.89      914
  832.51   914.25  833.73   914.25  837.79   914.38  843.02    914.4  854.06   914.65
  856.02   914.66  860.01   914.76  862.03   914.76  865.11   914.85  867.26   914.85
  948.48      916  973.87      916  998.21   916.39 1017.08   916.47 1156.26      918
 1179.36      918 1209.55   918.31 1281.44   918.66 1517.38   919.08 1576.08      919
 1578.38   919.03 1717.36    918.3  1754.1   918.45 1833.91   917.88 1919.38   917.51
 1972.65   916.97 1975.02   916.98 2028.99   916.45 2056.65   916.51 2060.16   916.59
 2247.91      918  2249.7    918.1 2256.55   918.27 2258.16   918.36 2285.47   919.51
 2288.38   919.67 2301.17      920 2332.66      920  2371.2   921.05 2390.35   921.28
 2393.88   921.41 2399.95   921.42 2403.64   921.53  2404.9   921.53  2406.1   921.56
  2498.5   922.01 2569.64   923.24 2601.39      924 2610.36      924 2626.21   924.52
 2630.06   924.56  2644.1   924.96  2647.1   924.98  2670.7   925.44  2770.1      926
 2829.78   926.85

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  461.89     .07 2285.47      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        461.89 2285.47          1023.89 1032.24 1040.39             .3       .5

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 11658.58

INPUT
Description:
Station Elevation Data    num=      26
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0    913.9    71.45   913.25   117.97   913.02   199.32   912.17   263.44      912
   382.4   911.19    441.1   911.34   464.29   911.43   486.94   911.14    519.9      910
  522.96      910   532.71      910   574.63      908   597.43      908   617.02   907.68
   682.2      908   689.86   908.32   724.05      910   725.71      910   741.47   910.48
  780.59      912   799.28      912   828.71   912.92   883.94      914   906.39   914.74
  923.96   915.21

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .04  522.96     .04  725.71      .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        522.96  725.71          1034.65 1035.76 1037.08             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 10622.78

INPUT
Description:
Station Elevation Data    num=      43
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   908.14   115.18      906  211.32      904  218.96      904   298.8   902.88
  342.65      902    365.6      902  427.26   901.23      489   900.05  602.96      900
  676.18   900.47   699.25      900  700.29      900  707.83    899.6  709.49   899.58
  747.16   898.69   752.26   898.65  755.55   898.56    788.5   898.69  806.98   898.55
  823.18      898   827.07      898   835.2   896.61   839.81   896.17  842.64   896.69
  844.61   898.37   853.19      900     863   900.75   876.42   901.77  881.53      902
 1038.66      902   1041.2   901.88 1041.48      902 1050.04      902 1195.19   904.66
 1236.35   905.56 1267.92      906 1328.22   907.39 1345.04      908 1357.22      908
 1400.19   909.93 1402.64      910 1405.53      910

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .04    788.5     .04     863      .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         788.5     863            731.51   734.4  737.28             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 9888.356

INPUT
Description:
Station Elevation Data    num=      45
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0      912    58.51      912  272.69   909.74   307.85   909.23  390.16   908.62
  430.66      908    443.8      908  545.64      906   549.57      906  637.24      904
   648.3      904   736.24   902.55  778.68      902   805.66      902  949.53      900
  1011.4      898 1138.13      898 1160.54   897.57 1207.38   897.32 1252.14      896
 1263.13   895.16 1266.17   895.03 1269.03   894.85 1271.28   894.76    1275   894.55
 1276.45   894.49  1284.8      894 1300.55      894 1312.48   895.37 1318.93      896
```

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 1322.47      896 1337.07  896.35 1398.04  898.36 1424.68  899.52 1442.06      900
 1473.24      902 1527.06   905.9 1528.71     906    1572     908 1602.59      910
 1649.27      912 1770.29     916 1839.64     918  1980.6     924 2020.77  925.13

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04 1138.13     .04 1424.68     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1138.13 1424.68             712.5   714.9   717.3             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1               RS: 9173.449

INPUT
Description:
Station Elevation Data     num=      55
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0      904   28.85      904  104.42      902  108.32      902  148.62      900
   177.6      898  273.29      896  355.07   895.83  361.94      896  603.16      896
  619.11   895.33  628.11   895.42   631.4   895.19   634.5   895.19  636.95   895.01
  639.75   894.92  648.83   894.24  649.93   894.17  652.11      894  655.53   893.23
  667.67      890  687.31      890  696.41      892  707.69   893.11  710.94   893.51
  713.66   893.85  715.72      894  736.54      894  796.21   895.31  837.83   894.95
  892.94   895.02  945.18      896  953.08      896  966.87   897.63  970.66      898
  980.78      900   997.1      904 1001.78   904.75 1008.78   905.64 1010.31   905.86
 1011.78      906  1022.4   906.38 1026.71   906.47 1028.11   906.53 1032.01   906.62
 1033.82    906.7 1037.29   906.77 1039.57   906.88 1042.55   906.95 1045.37   907.08
 1047.81   907.14 1051.21    907.3 1053.07   907.35 1068.92   908.07 1109.11   910.43

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  649.93     .04  710.94     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        649.93  710.94             815.32   817.7  820.08             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1               RS: 8355.736

INPUT
Description:
Station Elevation Data     num=      41
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   897.01  143.16      894  187.28      892  218.48   891.16  278.15      890
  279.97      890  323.68   888.06  325.01      888  348.18   884.34  352.46   884.28
  353.48   884.39  356.99   884.62  367.65   885.88  368.71      886  370.84      886
  375.02      886  430.46      886  435.63      886  446.75   886.15  489.03      886
  517.01   886.86  567.81   887.95  570.62      888  595.03      888  596.92   887.93
  628.86   886.11  633.35      886  639.14      886   647.6   886.4  681.18      888
   694.9   889.98  710.86   893.97  718.03   895.82  718.68      896  727.16      898
  738.29   899.97  800.12      906   827.2      908  832.41   908.3  861.85      910
  924.78   911.36

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  323.68     .04  370.84     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        323.68  370.84             701.1  702.75  704.55             .1       .3

CROSS SECTION          RIVER: spanish oak
REACH: 1               RS: 7652.974

INPUT
Description:
Station Elevation Data     num=      62
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0      892   52.94      892   115.7   890.78   118.89   890.78   167.97      890
  196.69      890  257.78   889.13  398.67   889.78   400.01    889.8  424.23   889.75
  544.77      888  629.78      886  644.43      886   767.89      884  772.74      884
  789.16   883.62  926.41      882  977.68      882   980.81   881.88  1028.1      880
 1032.96      880 1051.26   878.05 1053.55      878 1058.03   877.62 1063.15   877.32
 1066.72   877.21 1072.36   877.27 1075.26   877.47 1078.87   877.95 1084.24      880
 1087.31      882 1088.73    883.1 1089.79      884 1092.38      886 1094.95   887.75
 1097.28   889.41 1098.15      890 1101.45   891.32 1103.01   891.94 1104.85    892.3
 1122.02   893.98 1148.17      894 1164.72   894.32 1177.86   894.33  1179.6   894.36
 1192.78   894.37 1355.78   896.44 1356.98   896.48 1361.02   896.52 1373.98   896.92
 1390.66   897.16 1414.07   897.04 1430.51   897.17  1470.2   896.98 1472.62      897
 1475.08   896.97 1480.01   897.04 1482.44   897.03  1513.2   897.42 1556.67   897.24
 1566.19   897.08 1566.78   897.06

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  980.81     .07 1087.31      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        980.81 1087.31              22.38   22.52   22.67             .3       .5

CROSS SECTION          RIVER: spanish oak
REACH: 1               RS: 7634.719

INPUT
Description:
Station Elevation Data     num=      69
```

cluck	1	15925.92	1031	1342	1573	1810	1915
cluck	1	15911.71	1033	1344	1575	1812	1917
cluck	1	14753.77	1148	1495	1753	2017	2129
cluck	1	13364.95	1303	1699	1993	2294	2413
cluck	1	12213.24	1448	1889	2217	2552	2678
cluck	1	12136.57	1458	1902	2233	2570	2697
cluck	1	12081.26	1466	1912	2244	2583	2710
cluck	1	12001.26	1477	1926	2261	2603	2730
cluck	1	11878.23	1493	1948	2287	2632	2760
cluck	1	11798.23	1504	1962	2304	2652	2781
cluck	1	11736.66	1513	1973	2317	2667	2796
cluck	1	11656.66	1524	1988	2334	2687	2816
cluck	1	11091.76	1605	2094	2459	2831	2964
cluck	1	11083.21	1606	2095	2461	2834	2966
cluck	1	11040.21	1612	2104	2471	2845	2978
cluck	1	11031.65	1613	2105	2473	2847	2980
cluck	1	10672.54	1667	2176	2556	2943	3078
cluck	1	10378.57	1713	2236	2627	3025	3161
cluck	1	10367.84	1714	2238	2629	3028	3164
cluck	1	10302.84	1725	2251	2645	3046	3183
cluck	1	10292.10	1726	2254	2648	3049	3186
cluck	1	8975.730	1947	2544	2990	3444	3588
cluck	1	6924.104	2349	3072	3614	4165	4319
cluck	1	6911.914	2351	3076	3618	4170	4324
cluck	1	6796.914	2376	3109	3657	4214	4369
cluck	1	6784.729	2379	3112	3661	4219	4374
cluck	1	6366.212	3368	4433	5232	6053	6283
cluck	1	5296.272	3458	4559	5387	6237	6440
cluck	1	5078.904	3476	4585	5419	6275	6473
cluck	1	3250.959	3636	4810	5697	6605	6752
cluck	1	2365.973	3716	4922	5837	6771	6891
cluck	1	1692.796	3778	5010	5945	6900	6999
cluck	1	1212.638	3823	5073	6024	6993	7077

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
cluckt1	1	10ext		Normal S = .01
cluck	1	10ext		Normal S = .01

GEOMETRY DATA

Geometry Title: cluck
Geometry File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\cluck.g01

JUNCTION INFORMATION

CROSS SECTION RIVER: cluckt1
REACH: 1 RS: 7381.876

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	956.74	36.53	956.03	37.74	956.02	45.96	955.43	59.88	954
76.67	953.32	86.8	953.27	87.97	953.31	99.81	954	107.98	954.29
112.13	954.41	187.27	954.97	233.93	954.53	268.09	954	311.73	954
312.91	953.97	441.41	951.8	452.09	951.62	505.95	951.66	520.56	951.94
530.51	952.05	602.05	950.32	627.63	950	644.62	950	720.35	947.95
742.3	947.68	776.28	946.77	927.58	946	1028.98	946	1032.57	945.83
1048.39	944.72	1057.14	944	1077.09	942	1078.72	941.9	1122.73	941.63
1126.82	942	1138	944	1145.26	944.34	1146.34	944.35	1151.14	944.54
1198.62	946	1258.63	948	1268.59	948	1331.48	948.98	1415.68	950
1437.39	950.07	1493.87	950.86	1517.57	950.86	1622.74	952.98	1703.61	953.82
1742.49	953.94	1746.38	954	1783.39	956	1797.1	956	1813.49	956.61
1825.49	956.84	1827.49	956.67	1856.26	956.94	1877.8	956.8	1880.58	956.82
1883.14	956.74	1924.16	956.67	2000	957.27				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1057.14	.05	1138	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1057.14	1138	713.78	701.64	689.5	.3	.5

CROSS SECTION RIVER: cluckt1
REACH: 1 RS: 6680.231

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	943.97	101.59	942	118.47	942	121.77	942.21	124.31	942.09
128.47	942.01	128.7	942	134.99	941.2	141.5	940.44	142.61	940.36
146.13	940	147.66	939.8	151.68	939.5	153.15	939.35	158.39	939.16
159.59	933.5	186.78	933.5	190.5	940	192.14	940.12	199.98	940.91
207.69	941.79	209.44	942	223.99	942.4	225.06	942.41	232.73	942.62
234.32	942.62	237.77	942.7	259.4	942.76	262.6	942.71	266.13	942.71
273.1	942.84	275.19	942.91	277.83	942.89	284.83	943.03	301.68	943.04
304.48	943.12	307.77	943.15	319.98	943.42	354.92	943.83	360.8	943.95

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
        947.31  1043.3            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope                =       0 horiz. to 1.0 vertical
Downstream Embankment side slope              =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins           =
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  2

Culvert Name     Shape      Rise    Span
Culvert #2      Circular       4
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10      25       .011                  .4                1
Number of Barrels =  3
Upstream   Elevation =  872
Centerline Stations
    Sta.    Sta.    Sta.
  1028.7  1033.7  1038.7
Downstream Elevation =  872
Centerline Stations
    Sta.    Sta.    Sta.
    1009    1014    1019

Culvert Name     Shape      Rise    Span
Skyview         Circular       7
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10      25       .011                  .4                1
Upstream   Elevation =  872
           Centerline Station =  1046.2
Downstream Elevation =  872
           Centerline Station =  1026.5

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 7589.719

INPUT
Description:
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  890.51   34.88     890  167.76  888.68  202.55     888  298.47     888
  315.92  888.25  522.04     888  558.88  886.47  631.16     884  681.81     884
   768.2  882.93  774.84  882.77  777.08  882.75   785.6  882.53   787.3  882.52
  807.97     882  899.03   880.7  903.57  880.58  905.49  880.56  919.71  880.24
  947.31     880  949.77  879.94  961.05  879.36  963.15  879.16  966.37  878.99
  969.79  878.67  971.64  878.59  977.92     878  982.89  877.32  988.99  876.78
  990.67  876.69  995.54  876.23  996.63  876.18  998.38     876 1001.7  875.84
 1007.34     872 1032.54     872 1035.95  877.13 1043.3  880.71 1045.93     882
 1047.27  882.58 1050.42     884  1054.1  885.15 1057.08     886 1069.12     888
 1087.28     890 1096.82  890.53 1104.54   890.8 1125.87  890.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  947.31     .07  1043.3      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        947.31  1043.3            12.82   13.02   13.21             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: spanish oak
REACH: 1                  RS: 7571.459

INPUT
Description:
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  890.51   33.81     890  168.75  888.57  196.33     888  289.3     888
  306.22  888.25  506.01     888  611.77     884  660.38     884  744.61  882.93
  751.04  882.77  753.22  882.75  761.47  882.53  763.12  882.52  783.16     882
  862.56  880.86  892.19  880.23  918.22     880   920.6  879.94  924.28  879.77
  926.15  879.69  931.54  879.36  933.58  879.16   936.7  878.99  940.02  878.67
   941.3  878.59  947.89     878   952.7  877.32  958.63  876.78  960.23  876.69
  964.97  876.23  966.02  876.18  967.72     876  976.41   875.5  978.56  875.19
  984.07  874.84  987.33  874.15  991.57   874.4  995.22  874.85  998.08  875.29
 1000.83     876 1004.14  877.13 1012.57  881.36 1013.81     882 1015.12  882.58
 1018.16     884 1021.72  885.15 1024.62     886 1036.28     888 1053.89     890
 1058.15  890.27  1067.2  890.69 1070.62   890.8  1091.3  890.91 1093.94  890.86
 1096.12  890.89
```

```
Manning's n Values          num=       3
     Sta   n Val     Sta    n Val     Sta   n Val
       0      .1  924.28      .07 1013.81      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        924.28 1013.81           2314.75 2316.16 2315.22             .3      .5

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 5255.314

INPUT
Description:
Station Elevation Data     num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   893.3  185.04  888.56   188.2  888.53  205.02     888  230.12     888
  412.34  882.62  721.71     872  818.93     870  835.81     870  936.92     868
  938.68     868 1039.54     866 1041.05  865.83 1041.21  865.81 1055.57  864.29
 1058.86     864 1078.39  861.64 1089.57     860 1101.11  858.83 1105.12  858.52
  1106.5  858.39 1111.83  858.03  1121.4  858.06 1151.58     860 1153.11   860.2
 1162.11   861.2 1167.35  861.55 1168.47  861.56 1169.64  861.52 1173.43   861.6
  1174.5  861.52 1178.32  861.56  1179.5  861.42 1188.11  861.49 1189.45  861.44
 1198.19   861.6 1203.37  861.86 1212.72  862.67 1214.39  862.67 1216.88   862.9
 1224.96  863.92 1226.67     864 1230.25     864 1301.94     866  1311.9     868
 1318.02     870 1323.18     872 1335.61  877.41 1341.31     880 1346.56     882
 1352.43     884 1354.72  884.54 1362.51     886 1363.59     886  1368.7  886.38
 1377.87  886.42 1386.83  886.14

Manning's n Values          num=       3
     Sta   n Val     Sta    n Val     Sta   n Val
       0      .1 1041.21      .07 1226.67      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1041.21 1226.67           1472.81 1483.35 1495.75              .1      .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 3772.000

INPUT
Description:
Station Elevation Data     num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   900.9   32.51     900   98.96  897.01   122.4  896.52   126.4  896.49
   127.6  896.46  176.16     896  219.32     894  257.44   891.2  305.35  888.69
  311.16  888.31  313.02  888.23  316.36     888  401.11  884.38  425.49  883.51
  427.45  883.41  432.25  883.29  435.17  883.13  439.04     883  450.04  882.36
  451.55  882.29  456.25     882  588.94  876.99  624.99     876  658.33  874.34
  664.09  874.19  670.68  874.06   672.4     874  686.89  873.96  704.14  873.07
  709.77   872.7  774.42     870  777.97  869.75  855.31  865.28  887.93     864
  893.64     864  920.76     862  931.41     862  984.39     860 1078.47     858
  1079.6     858 1209.58     856 1347.81     856 1351.54  855.59 1359.32  854.75
 1361.49  854.48 1366.16     854 1378.65   852.1 1384.43  850.98 1394.85  849.17
 1415.01  846.27 1415.71  846.16  1416.9     846 1420.44  845.59  1421.7  845.47
 1433.05     844 1464.45     844 1470.62     846 1479.04  849.45 1480.45     850
 1485.98     852  1493.3  853.68 1495.04     854 1495.85     854 1517.17  854.64
 1543.89   854.6 1545.98  854.39 1547.73  854.54 1549.12  854.71 1551.88  854.71
    1554  854.96 1560.37     856 1566.39     858 1571.04     860 1582.62  865.84
 1590.65     870 1594.63     872 1595.48  872.39 1598.89     874 1603.58     876
 1609.17     878  1623.2     882 1632.58     884 1643.21     886 1669.85     890
 1685.95     892 1712.04  894.65 1748.26     898  1797.4  901.66 1807.15  902.18
 1831.72  903.77 1834.74     904 1855.03     906 1885.18     908  1894.4     908
 1931.13  909.54 1974.93  911.99 2013.14  913.39 2040.43     914 2059.88     914

Manning's n Values          num=       3
     Sta   n Val     Sta    n Val     Sta   n Val
       0      .1 1351.54      .07 1495.85      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1351.54 1495.85           1086.98 1092.27 1097.33              .1      .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 2679.807

INPUT
Description:
Station Elevation Data     num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  892.95   38.12     890   76.64     886  180.69   880.2  210.55  879.47
  365.97     870  383.66     870  428.57     868  701.68  859.62  730.56     858
  744.09     858  903.09  853.51  969.65     850 1005.61     846 1027.86     840
 1070.39     840 1095.12     844 1141.64  848.94 1153.23     850 1479.94     850
 1524.26     854 1561.62  860.79 1623.57  874.63 1626.48  874.41 1630.31   875.9
 1673.66  882.33

Manning's n Values          num=       3
     Sta   n Val     Sta    n Val     Sta   n Val
       0      .1  903.09      .07 1141.64      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        903.09 1141.64            443.4   440.7  437.91              .1      .3

CROSS SECTION           RIVER: spanish oak
REACH: 1                RS: 2239.118

INPUT
```

Description:
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	893.38	26.42	892	52.58	889.75	81.98	886.3	103.64	884
128.99	882	203.66	878	254.2	876	311.7	872	396.92	868.12
438.6	866	492.68	864	527.9	862	573.64	858	615	856
617.36	856	659.01	854	671.28	852	681.81	850	693.55	848
711.54	846	752.72	844	822.13	842.55	844.98	842	858.35	840
869.06	838	922.88	838	927.05	839.39	928.76	840	933.89	842
936.77	843.05	939.21	844	944.59	845.07	949.93	846	954.01	846
955.86	845.87	958.09	846	1037.2	846	1063.35	845.44	1066.71	845.46
1068.02	845.42	1078.31	845.46	1079.65	845.44	1113.16	845.31	1116.28	845.35
1117.84	845.33	1120.99	845.38	1123.97	845.33	1127.05	845.38	1130.1	845.32
1135.1	845.38	1151.69	845.2	1182.04	844	1335.95	844	1405.39	840.9
1422.93	840.68	1424.4	840.75	1433.92	841.01	1446.44	841.79	1448.86	842
1458.12	844	1464.57	846	1467.98	847.45	1469.34	848	1477.52	852
1481	854	1487.53	858	1490.56	860	1491.6	860.66	1493.72	862
1502.78	868	1505.28	870	1510.99	874	1517.14	878	1519.68	879.51
1524.62	882.23	1528.3	884	1535.65	887.12	1537.92	888	1544.28	890.13
1551.78	892	1561.01	892	1569.38	893.11	1572.55	893.45	1575.31	893.35
1578.82	893.43	1580.25	893.38	1583.73	893.39	1587.18	893.23	1590.19	893.19

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	822.13	.07	949.93	.1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
822.13	949.93	1031.73	1024.59	1017.66	.1	.3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 1214.459

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	895.32	2.86	895.36	4.4	895.35	7.82	895.4	18.67	895.38
23.56	895.24	26.67	895.22	106.58	893.24	108.72	893.23	151.88	892.54
199.66	892.12	297.31	892.2	371	891.93	513.29	890	827.13	890
873.43	890.64	915.84	890.83	1004.93	890	1052.92	888	1091.2	886
1135.68	884	1208.25	882	1211.59	882	1261.66	880	1328.91	878.19
1340.52	878	1342.89	877.99	1488.19	874	1492.65	874	1554.01	872
1567.43	872	1713.43	869.95	1861.12	866	1909.82	862	1996.81	858
2077.51	856	2078.54	856	2263.62	854	2313.73	854	2320.01	854.38
2339.8	854.48	2401.18	852	2409.39	852	2606.01	848	2610.21	848
2660.54	846	2678.36	844.16	2701.92	842.07	2725.93	840.76	2735.96	840
2755.68	838	2992.9	838.02	3006.67	838.36	3022.28	839.16	3025.58	839.28
3041.98	840.72	3056.86	841.84	3058.24	841.84	3064.99	841.49	3067.12	841.43
3076.9	840.32	3079.09	840	3103.1	840	3150.79	842	3176.76	844
3199.51	846.18	3204.93	846.77	3210.68	847.48	3214.26	848	3216.93	848.45
3225.35	850	3236.5	852.77	3240.98	853.95	3248.12	856	3254.64	858
3266.33	862	3285.15	868.96	3299.43	874	3305.55	876	3312.13	878
3319.26	880	3327.76	882	3338.33	884	3352.59	886	3372.94	888
3403.95	890	3423.04	890	3490.92	892	3510.3	892		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	2678.36	.07	3236.5	.1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
2678.36	3236.5	1083.53	1075.48	1067.43	.1	.3

CROSS SECTION RIVER: spanish oak
REACH: 1 RS: 138.908

INPUT
Description:
Station Elevation Data num= 135

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1469.5	863.36	1512.87	863.53	1515.94	863.5	1585.39	863.6	1654.52	863.38
1776.42	862	1786.79	860	1800.57	858	1855.71	857.29	1868	857.16
2011.21	858	2056.28	858	2135.53	856	2189.86	854	2273.52	852.25
2344.22	850	2414.37	848.54	2493.61	846	2505.22	846	2544.78	844.71
2551.63	844.59	2556.18	844.37	2558.24	844.35	2563.15	844.05	2564.92	844
2602.84	844	2630.11	842.48	2633.84	842.47	2638.3	842.22	2639.44	842.21
2643.52	842	2763.62	841.72	3066.57	842	3068.21	842	3073.35	841.66
3085.97	841.61	3087.15	841.58	3203.57	840.85	3220.39	840.13	3223.75	840
3246.98	840	3253.84	839.71	3280.85	839.63	3289.67	839.47	3291	839.42
3305.67	839.35	3307.37	839.31	3313.87	839.32	3315.65	839.28	3321.99	839.29
3323.79	839.26	3339.99	839.25	3350.1	838.83	3352.2	838.83	3355.35	838.59
3358.37	838.57	3362.19	838.46	3364.48	838.44	3383.9	838.02	3433.93	838.18
3503.78	838.02	3527.86	838.33	3536.83	838	3568.21	838	3572.64	838.06
3609.95	838	3612.46	838.09	3617.41	838.17	3623.14	838	3913.23	838
3929.15	838.48	3930.38	838.49	3935.5	838.66	3937.47	838.76	3940.31	839
3943.22	839.15	3950.14	840	3958.28	842	3964.17	843.77	3967.54	844.86
3971.01	846	3975.1	847.44	3983.45	850	3984.47	850.33	3989.77	851.79
3993.94	852.83	3998.07	853.71	4009.25	855.85	4009.76	855.94	4022.12	858.14
4062.91	864.19	4069.55	864.88	4087.22	866.37	4091	866.75	4112.21	869.46
4117.64	870	4125.68	870.59	4130.49	870.83	4132.62	870.86	4135.38	870.97
4137.82	870.98	4140.34	871.04	4150.32	871.07	4155.37	870.95	4165.39	870.39
4170.18	869.94	4185.6	868	4191.1	867.39	4192.71	867.36	4195.95	867.04
4198.22	867.08	4200.69	866.84	4206.54	866.96	4209.88	867.34	4211.68	867.45
4227.27	869.72	4233.62	870.44	4239.16	870.9	4244.7	871.2	4276.2	872.4
4281.17	872.52	4314.32	872.76	4331.17	872.69	4355.32	871.99	4393.52	870.47
4403.49	870.39	4415.11	870.65	4423.24	871.05	4463.22	873.52	4500.24	876

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 4589.75     880 4656.16     880 4694.18  880.47 4709.73     880 4739.67     880

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  1469.5      .1 3066.57     .07 3958.28      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       3066.57 3958.28           141.68  138.91  136.13             .1       .3

Profile Output Table - Espey 1
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Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Crit W.S. (ft)	Vel Total (ft/s)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)
1	21180.56	152.00	990.22	990.22	6.23	0.60	5.08	0.21
1	21180.56	210.00	990.54	990.54	6.67	0.69	4.08	0.25
1	21180.56	254.00	990.76	990.76	6.94	0.75	3.40	0.28
1	21180.56	299.00	990.95	990.95	7.18	0.80	2.97	0.30
1	21180.56	302.00	990.96	990.96	7.20	0.80	2.94	0.30
1	20441.55	152.00	984.09	982.94	3.48	0.19		
1	20441.55	210.00	984.87	983.29	3.50	0.19		
1	20441.55	254.00	985.42	983.53	3.52	0.19		
1	20441.55	299.00	985.94	983.76	3.57	0.20		
1	20441.55	302.00	985.98	983.78	3.58	0.20		
1	20439.55	Culvert						
1	19987.55	152.00	977.35	977.35	6.26	0.61	0.37	0.18
1	19987.55	210.00	978.43		4.15	0.27	0.79	0.02
1	19987.55	254.00	979.05		3.63	0.20	0.34	0.04
1	19987.55	299.00	979.71		3.19	0.16	0.20	0.04
1	19987.55	302.00	979.94		2.94	0.13	0.16	0.03
1	19223.33	619.00	976.69	972.65	4.06	0.26		
1	19223.33	816.00	977.65	973.23	3.45	0.23		
1	19223.33	1004.00	978.75	973.77	2.23	0.12		
1	19223.33	1186.00	979.56	974.24	1.74	0.08		
1	19223.33	1249.00	979.82	974.40	1.63	0.07		
1	19221.33	Culvert						
1	18869.33	619.00	973.56	972.16	5.60	0.49	3.23	0.23
1	18869.33	816.00	972.75	972.75	9.61	1.43	1.60	0.71
1	18869.33	1004.00	973.22	973.22	10.08	1.58	0.76	0.79
1	18869.33	1186.00	973.67	973.67	10.35	1.66	0.85	0.83
1	18869.33	1249.00	973.81	973.81	10.46	1.70	0.87	0.85
1	17811.02	616.00	970.57		0.82	0.02	0.08	0.01
1	17811.02	812.00	971.31		0.52	0.01	0.03	0.01
1	17811.02	1000.00	972.05		0.39	0.00	0.02	0.02
1	17811.02	1182.00	972.18		0.43	0.00	0.01	0.00
1	17811.02	1245.00	972.23		0.44	0.00	0.01	0.00
1	17777.65	641.00	970.37	967.99	2.82	0.12		
1	17777.65	843.00	971.13	968.31	3.07	0.15		
1	17777.65	1033.00	971.87	968.58	3.22	0.16		
1	17777.65	1222.00	972.17	968.84	0.43	0.00		
1	17777.65	1288.00	972.22	968.93	0.44	0.00		
1	17728.40	Culvert						
1	17679.15	650.00	968.55	967.87	4.96	0.38	1.26	0.02
1	17679.15	853.00	968.78	968.18	5.91	0.54	1.42	0.07
1	17679.15	1044.00	968.81	968.45	7.15	0.79	1.40	0.23
1	17679.15	1235.00	968.94	968.70	8.02	1.00	1.53	0.31
1	17679.15	1302.00	968.87	968.79	8.68	1.17	1.48	0.42
1	17647.21	898.00	967.31	967.31	4.28	0.35	1.92	0.17
1	17647.21	1149.00	967.43	967.43	4.49	0.41	2.31	0.19
1	17647.21	1355.00	967.64	967.64	3.76	0.34	2.47	0.16
1	17647.21	1613.00	967.72	967.72	3.88	0.37	2.76	0.17
1	17647.21	1707.00	967.82	967.82	3.61	0.32	2.74	0.15
1	16859.73	898.00	961.06	958.76	0.71	0.02	0.04	0.00
1	16859.73	1149.00	961.25	959.00	0.79	0.02	0.05	0.00
1	16859.73	1355.00	961.39	959.19	0.86	0.02	0.06	0.00
1	16859.73	1613.00	961.55	959.40	0.93	0.03	0.07	0.00
1	16859.73	1707.00	961.61	959.48	0.95	0.03	0.07	0.00
1	16761.44	898.00	961.03	959.36	0.57	0.01	0.01	0.00
1	16761.44	1149.00	961.22	959.69	0.65	0.01	0.02	0.00
1	16761.44	1355.00	961.35	960.00	0.70	0.01	0.02	0.00
1	16761.44	1613.00	961.51	960.00	0.77	0.01	0.03	0.00
1	16761.44	1707.00	961.56	960.00	0.79	0.01	0.03	0.00
1	16705.88	957.00	961.01	960.00	0.41	0.00		
1	16705.88	1218.00	961.20	960.00	0.48	0.01		
1	16705.88	1426.00	961.33	960.01	0.53	0.01		
1	16705.88	1699.00	961.48	960.01	0.59	0.01		
1	16705.88	1800.00	961.53	960.01	0.61	0.01		
1	16685.31	Bridge						
1	16656.69	965.00	960.00	960.00	0.48	0.01	0.05	0.03

1	16656.69	1228.00	960.00	960.00	0.61	0.01	0.07	0.03
1	16656.69	1438.00	960.00	960.00	0.71	0.02	0.09	0.04
1	16656.69	1712.00	960.00	960.00	0.85	0.02	0.12	0.05
1	16656.69	1814.00	960.00	960.00	0.90	0.02	0.13	0.05
1	16604.60	974.00	958.57	957.15	2.54	0.10	12.81	0.04
1	16604.60	1239.00	958.91	957.34	2.85	0.13	13.04	0.04
1	16604.60	1450.00	959.15	957.48	3.07	0.15	13.21	0.03
1	16604.60	1726.00	959.41	957.65	3.36	0.18	13.39	0.02
1	16604.60	1828.00	959.51	957.71	3.46	0.19	13.47	0.02
1	15581.51	1162.00	945.60	945.56	3.85	0.23	5.67	0.06
1	15581.51	1474.00	945.71	945.66	3.99	0.25	5.61	0.06
1	15581.51	1720.00	945.80	945.73	4.06	0.26	5.57	0.06
1	15581.51	2022.00	945.91	945.81	4.06	0.26	5.56	0.06
1	15581.51	2143.00	945.94	945.84	4.10	0.26	5.54	0.06
1	14928.91	1300.00	940.07	939.14	1.39	0.03	12.21	0.04
1	14928.91	1647.00	940.24	939.24	1.49	0.04	12.20	0.04
1	14928.91	1918.00	940.36	939.31	1.56	0.04	12.18	0.04
1	14928.91	2237.00	940.49	939.39	1.64	0.05	12.18	0.05
1	14928.91	2371.00	940.54	939.43	1.67	0.05	12.18	0.05
1	13790.23	1582.00	927.46	927.46	5.04	0.39	0.27	0.12
1	13790.23	1998.00	927.61	927.61	5.28	0.43	0.39	0.13
1	13790.23	2319.00	927.70	927.70	5.52	0.47	0.74	0.14
1	13790.23	2668.00	927.79	927.79	5.74	0.51	0.63	0.15
1	13790.23	2829.00	927.83	927.83	5.86	0.53	0.66	0.16
1	12934.71	1834.00	922.85		0.39	0.00	0.02	0.01
1	12934.71	2311.00	922.91		0.48	0.00	0.02	0.02
1	12934.71	2675.00	922.62		0.62	0.01	0.06	0.26
1	12934.71	3046.00	922.94		0.62	0.01	0.04	0.04
1	12934.71	3231.00	923.00		0.64	0.01	0.04	0.04
1	12864.76	1856.00	922.77	919.58	1.07	0.05		
1	12864.76	2338.00	922.79	920.00	1.32	0.07		
1	12864.76	2706.00	921.44	920.29	7.33	0.86		
1	12864.76	3079.00	922.73	920.58	1.81	0.14		
1	12864.76	3266.00	922.78	920.72	1.87	0.15		
1	12812.76	Culvert						
1	12760.76	2040.00	919.17	919.17	9.16	1.30	0.51	0.63
1	12760.76	2567.00	919.60	919.60	9.88	1.52	0.50	0.74
1	12760.76	2971.00	919.91	919.91	10.39	1.68	0.50	0.82
1	12760.76	3380.00	920.22	920.22	10.82	1.82	0.50	0.89
1	12760.76	3610.00	920.39	920.39	11.05	1.90	0.50	0.93
1	12690.81	2044.00	917.83		1.52	0.04	6.95	0.23
1	12690.81	2572.00	918.10		1.58	0.04	6.83	0.25
1	12690.81	2977.00	918.27		1.64	0.04	6.72	0.27
1	12690.81	3387.00	918.47		1.65	0.04	6.64	0.29
1	12690.81	3618.00	918.55		1.68	0.04	6.59	0.30
1	11658.58	2104.00	909.89	909.89	7.21	0.81	5.22	0.20
1	11658.58	2648.00	910.20	910.20	7.44	0.87	4.65	0.22
1	11658.58	3065.00	910.39	910.39	7.68	0.94	4.37	0.24
1	11658.58	3488.00	910.58	910.58	7.89	1.00	4.06	0.26
1	11658.58	3733.00	910.68	910.68	7.98	1.03	4.13	0.27
1	10622.78	2166.00	901.50		2.70	0.13	1.93	0.01
1	10622.78	2727.00	901.89		2.75	0.14	1.83	0.01
1	10622.78	3156.00	902.16		2.70	0.14	1.81	0.02
1	10622.78	3593.00	902.40		2.68	0.14	1.76	0.02
1	10622.78	3853.00	902.47		2.76	0.14	1.78	0.02
1	9888.356	3563.00	899.48		3.56	0.21	2.69	0.04
1	9888.356	4707.00	899.91		3.90	0.26	2.84	0.04
1	9888.356	5534.00	900.18		4.13	0.29	2.93	0.04
1	9888.356	6333.00	900.43		4.31	0.32	3.02	0.04
1	9888.356	6526.00	900.49		4.35	0.33	3.04	0.04
1	9173.449	3649.00	896.36	896.36	4.45	0.60	4.08	0.08
1	9173.449	4818.00	896.62	896.62	4.80	0.67	4.08	0.09
1	9173.449	5664.00	896.80	896.80	5.02	0.70	4.06	0.09
1	9173.449	6481.00	896.94	896.94	5.27	0.75	4.07	0.09
1	9173.449	6705.00	896.97	896.97	5.33	0.76	4.07	0.09
1	8355.736	3750.00	888.87	888.15	4.51	0.33	3.96	0.00
1	8355.736	4948.00	889.38	888.45	4.81	0.38	3.82	0.00
1	8355.736	5816.00	889.71		5.01	0.41	3.71	0.00
1	8355.736	6655.00	890.01	888.83	5.18	0.44	3.60	0.00
1	8355.736	6915.00	890.09	888.90	5.23	0.45	3.50	0.01
1	7652.974	3838.00	884.91		3.59	0.33	0.15	0.10
1	7652.974	5062.00	885.54		3.83	0.39	0.18	0.16
1	7652.974	5950.00	885.99		3.93	0.41	0.20	0.22
1	7652.974	6809.00	886.40		3.99	0.43	0.19	0.17
1	7652.974	7102.00	886.61		3.93	0.42	0.17	0.13
1	7634.719	3841.00	884.33	881.28	3.97	0.67		
1	7634.719	5065.00	884.65	883.96	4.70	0.93		
1	7634.719	5953.00	884.81	884.37	5.24	1.16		
1	7634.719	6813.00	885.49	884.79	4.88	0.99		

1	7634.719	7107.00	885.87	884.90	4.58	0.85		
1	7612.22	Culvert						
1	7589.719	3847.00	883.73	879.99	3.25	0.27	0.05	0.03
1	7589.719	5073.00	884.63	881.38	3.28	0.31	0.05	0.03
1	7589.719	5962.00	885.32	882.27	3.22	0.30	0.05	0.02
1	7589.719	6823.00	886.04	882.51	3.09	0.27	0.04	0.02
1	7589.719	7119.00	886.33	882.51	3.02	0.26	0.04	0.02
1	7571.459	3849.00	883.53	881.06	3.84	0.38	18.36	0.04
1	7571.459	5076.00	884.44	882.01	3.78	0.42	18.50	0.07
1	7571.459	5966.00	885.17	882.47	3.60	0.37	18.85	0.15
1	7571.459	6827.00	885.91	882.74	3.43	0.33	19.23	0.28
1	7571.459	7124.00	886.22	882.84	3.33	0.31	19.32	0.37
1	5255.314	4158.00	864.98	863.35	5.67	0.52	10.69	0.04
1	5255.314	5473.00	865.65	863.97	6.16	0.64	9.82	0.07
1	5255.314	6431.00	865.67	864.38	7.21	0.88	8.74	0.16
1	5255.314	7359.00	865.46	864.74	8.74	1.27	7.59	0.30
1	5255.314	7776.00	865.29	864.93	9.69	1.55	7.00	0.39
1	3772.000	4368.00	854.38		5.08	0.40	2.55	0.09
1	3772.000	5744.00	855.99		4.90	0.41	1.16	0.11
1	3772.000	6747.00	857.30		4.00	0.35	0.81	0.09
1	3772.000	7721.00	858.57		3.36	0.29	0.62	0.07
1	3772.000	8224.00	859.19		3.13	0.26	0.55	0.07
1	2679.807	4530.00	852.03		2.14	0.11	0.11	0.03
1	2679.807	5952.00	855.08		1.48	0.05	0.06	0.01
1	2679.807	6990.00	856.71		1.35	0.04	0.05	0.01
1	2679.807	7999.00	858.13		1.27	0.04	0.05	0.01
1	2679.807	8571.00	858.80		1.25	0.03	0.04	0.01
1	2239.118	4530.00	851.99		0.69	0.01	0.06	0.00
1	2239.118	5952.00	855.04		0.66	0.01	0.04	0.00
1	2239.118	6990.00	856.68		0.67	0.01	0.04	0.00
1	2239.118	7999.00	858.10		0.68	0.01	0.04	0.00
1	2239.118	8571.00	858.77		0.69	0.01	0.04	0.00
1	1214.459	4530.00	851.93		0.63	0.01	0.02	0.00
1	1214.459	5952.00	855.01		0.59	0.01	0.02	0.00
1	1214.459	6990.00	856.65		0.59	0.01	0.02	0.00
1	1214.459	7999.00	858.07		0.59	0.01	0.02	0.00
1	1214.459	8571.00	858.74		0.59	0.01	0.02	0.00
1	138.908	6799.00	851.92	839.71	0.38	0.00		
1	138.908	9004.00	855.00	840.03	0.39	0.00		
1	138.908	10640.00	856.64	840.23	0.40	0.00		
1	138.908	12282.00	858.06	840.42	0.42	0.00		
1	138.908	13103.00	858.73	840.51	0.43	0.00		

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Hydrologic Engineering Center
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X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X         X    X      X   X     X  X    X
X     X  X         X           X   X    X    X   X
XXXXXXX  XXXX      X       XXX  XXXX     XXXXXX    XXXX
X     X  X         X           X  X     X    X        X
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X     X  XXXXXX     XXXX       X    X   X    X   XXXXX
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PROJECT DATA
Project Title: cluck
Project File : cluck.prj
Run Date and Time: 11/20/2002 4:02:08 PM

Project in English units

PLAN DATA

Plan Title: Plan 18
Plan File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\cluck.p18

Geometry Title: **cluck**
Geometry File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\cluck.g01

Flow Title : Flow 01
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\cluck.f01

Plan Summary Information:
Number of: Cross Sections = 114 Mulitple Openings = 0
Culverts = 17 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Flow 01
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\cluck.f01

Flow Data (cfs)

River	Reach	RS	10ext	25ext	50ext	100ext	100ult
cluckt1	1	7381.876	624	798	927	1056	973
cluckt1	1	6680.231	785	1004	1166	1329	1225
cluckt1	1	6570.908	814	1041	1209	1378	1269
cluckt1	1	4552.959	1248	1596	1853	2113	1946
cluckt1	1	4462.804	738	969	1149	1330	1250
cluckt1	1	2750.261	743	976	1157	1340	1258
cluckt1	1	637.664	850	1117	1324	1535	1426
cluck	1	19397.89	616	801	939	1080	1143
cluck	1	18470.38	707	920	1079	1241	1313
cluck	1	18278.76	728	947	1110	1277	1351
cluck	1	18007.91	758	986	1156	1330	1407
cluck	1	17927.05	767	998	1170	1346	1424
cluck	1	17702	793	1032	1210	1392	1473
cluck	1	17686.3	795	1035	1213	1395	1477
cluck	1	17512	816	1062	1245	1432	1516
cluck	1	17496.3	818	1065	1248	1435	1519
cluck	1	17253	848	1104	1294	1489	1575
cluck	1	17237	851	1107	1297	1492	1579
cluck	1	16990	883	1148	1346	1548	1639
cluck	1	16988	883	1149	1347	1549	1639
cluck	1	16820.92	905	1178	1381	1588	1681
cluck	1	16741.70	916	1192	1397	1607	1701
cluck	1	16091.92	1009	1313	1540	1771	1874
cluck	1	16082.92	1011	1315	1542	1773	1877
cluck	1	15997.13	1024	1332	1562	1796	1901
cluck	1	15982.92	1026	1335	1565	1800	1905

cluck	1	15925.92	1031	1342	1573	1810	1915
cluck	1	15911.71	1033	1344	1575	1812	1917
cluck	1	14753.77	1148	1495	1753	2017	2129
cluck	1	13364.95	1303	1699	1993	2294	2413
cluck	1	12213.24	1448	1889	2217	2552	2678
cluck	1	12136.57	1458	1902	2233	2570	2697
cluck	1	12081.26	1466	1912	2244	2583	2710
cluck	1	12001.26	1477	1926	2261	2603	2730
cluck	1	11878.23	1493	1948	2287	2632	2760
cluck	1	11798.23	1504	1962	2304	2652	2781
cluck	1	11736.66	1513	1973	2317	2667	2796
cluck	1	11656.66	1524	1988	2334	2687	2816
cluck	1	11091.76	1605	2094	2459	2831	2964
cluck	1	11083.21	1606	2095	2461	2834	2966
cluck	1	11040.21	1612	2104	2471	2845	2978
cluck	1	11031.65	1613	2105	2473	2847	2980
cluck	1	10672.54	1667	2176	2556	2943	3078
cluck	1	10378.57	1713	2236	2627	3025	3161
cluck	1	10367.84	1714	2238	2629	3028	3164
cluck	1	10302.84	1725	2251	2645	3046	3183
cluck	1	10292.10	1726	2254	2648	3049	3186
cluck	1	8975.730	1947	2544	2990	3444	3588
cluck	1	6924.104	2349	3072	3614	4165	4319
cluck	1	6911.914	2351	3076	3618	4170	4324
cluck	1	6796.914	2376	3109	3657	4214	4369
cluck	1	6784.729	2379	3112	3661	4219	4374
cluck	1	6366.212	3368	4433	5232	6053	6283
cluck	1	5296.272	3458	4559	5387	6237	6440
cluck	1	5078.904	3476	4585	5419	6275	6473
cluck	1	3250.959	3636	4810	5697	6605	6752
cluck	1	2365.973	3716	4922	5837	6771	6891
cluck	1	1692.796	3778	5010	5945	6900	6999
cluck	1	1212.638	3823	5073	6024	6993	7077

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
cluckt1	1	10ext		Normal S = .01
cluck	1	10ext		Normal S = .01

GEOMETRY DATA

Geometry Title: cluck
Geometry File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\cluck.g01

JUNCTION INFORMATION

CROSS SECTION RIVER: cluckt1
REACH: 1 RS: 7381.876

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	956.74	36.53	956.03	37.74	956.02	45.96	955.43	59.88	954
76.67	953.32	86.8	953.27	87.97	953.31	99.81	954	107.98	954.29
112.13	954.41	187.27	954.97	233.93	954.53	268.09	954	311.73	954
312.91	953.97	441.41	951.8	452.09	951.62	505.95	951.66	520.56	951.94
530.51	952.05	602.05	950.32	627.63	950	644.62	950	720.35	947.95
742.3	947.68	776.28	946.77	927.58	946	1028.98	946	1032.57	945.83
1048.39	944.72	1057.14	944	1077.09	942	1078.72	941.9	1122.73	941.63
1126.82	942	1138	944	1145.26	944.34	1146.34	944.35	1151.14	944.54
1198.62	946	1258.63	948	1268.59	948	1331.48	948.98	1415.68	950
1437.39	950.07	1493.87	950.86	1517.57	950.86	1622.74	952.98	1703.61	953.82
1742.49	953.94	1746.38	954	1783.39	956	1797.1	956	1813.49	956.61
1825.49	956.84	1827.49	956.67	1856.26	956.94	1877.8	956.8	1880.58	956.82
1883.14	956.74	1924.16	956.67	2000	957.27				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1057.14	.05	1138	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1057.14	1138	713.78	701.64	689.5	.3	.5

CROSS SECTION RIVER: cluckt1
REACH: 1 RS: 6680.231

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	943.97	101.59	942	118.47	942	121.77	942.21	124.31	942.09
128.47	942.01	128.7	942	134.99	941.2	141.5	940.44	142.61	940.36
146.13	940	147.66	939.8	151.68	939.5	153.15	939.35	158.39	939.16
159.59	933.5	186.78	933.5	190.5	940	192.14	940.12	199.98	940.91
207.69	941.79	209.44	942	223.99	942.4	225.06	942.41	232.73	942.62
234.32	942.62	237.77	942.7	259.4	942.76	262.6	942.71	266.13	942.71
273.1	942.84	275.19	942.91	277.83	942.89	284.83	943.03	301.68	943.04
304.48	943.12	307.77	943.15	319.98	943.42	354.92	943.83	360.8	943.95

```
   364.3     944  377.26     944  379.92  944.06  392.71   944.1  641.27     946

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  146.13     .05   190.5     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        146.13   190.5             109.42  109.32  109.23             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluckt1
REACH: 1                  RS: 6625.57

INPUT
Description: Buttercup
Distance from Upstream XS =   12.66
Deck/Roadway Width        =      84
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 -348.73     946     900    1.27     944     900  161.27     943     900
  241.27     944     900  641.27     946     900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  943.97  101.59     942  118.47     942  121.77  942.21  124.31  942.09
  128.47  942.01   128.7     942  134.99   941.2   141.5  940.44  142.61  940.36
  146.13     940  147.66   939.8  151.68   939.5  153.15  939.35  158.39  939.16
  159.59   933.5  186.78   933.5   190.5     940  192.14  940.12  199.98  940.91
  207.69  941.79  209.44     942  223.99   942.4  225.06  942.41  232.73  942.62
  234.32  942.62  237.77   942.7   259.4  942.76   262.6  942.71  266.13  942.71
   273.1  942.84  275.19  942.91  277.83  942.89  284.83  943.03  301.68  943.04
  304.48  943.12  307.77  943.15  319.98  943.42  354.92  943.83   360.8  943.95
   364.3     944  377.26     944  379.92  944.06  392.71   944.1  641.27     946

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  146.13     .05   190.5     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        146.13   190.5             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 -390.14     946     900  -40.14     944     900  119.86     943     900
  199.86     944     900  599.86     946     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 -390.14     946   38.67  942.47   74.56     942   87.65     940   88.44  939.83
   89.05  939.68   96.22  938.01  102.27  936.84  106.98   933.5  133.97   933.5
  137.63     936  140.57  936.57   143.4  937.24  147.84  938.03     149  938.29
  155.29  939.78  156.47     940  160.68  940.66  163.06  940.84  166.09  941.27
  169.89  941.39  171.45  941.57  175.52  941.59  176.55  941.69  181.04  941.72
  186.62  941.82   192.2  941.89  203.11  942.02  241.06  942.57  244.03  942.58
  247.36  942.67  274.08  943.11  319.24     944  599.86     946

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 -390.14     .06   87.65     .05  156.47     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         87.65  156.47             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888        F

Upstream Embankment side slope             =       0 horiz. to 1.0 vertical
Downstream Embankment side slope           =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Buttercup           Box         7       9
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
```

```
            12.66      84       .011                  .4               1
Number of Barrels =  3
Upstream   Elevation =  933.5
Centerline Stations
    Sta.    Sta.    Sta.
  164.22  173.72  183.22
Downstream Elevation =  933.5
Centerline Stations
    Sta.    Sta.    Sta.
  110.36  119.86  129.36

CROSS SECTION          RIVER: cluckt1
REACH: 1                  RS: 6570.908

INPUT
Description:
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 -390.14     946   38.67  942.47   74.56     942   87.65     940   88.44  939.83
   89.05  939.68   96.22  938.01  102.27  936.84  106.98  933.5  133.97   933.5
  137.63     936  140.57  936.57   143.4  937.24  147.84  938.03     149  938.29
  155.39  939.78  156.47     940  160.68  940.66  163.06  940.84  166.09  941.27
  169.89  941.39  171.45  941.57  175.52  941.59  176.55  941.69  181.04  941.72
  186.62  941.82   192.2  941.89  203.11  942.02  241.06  942.57  244.03  942.58
  247.36  942.67  274.08  943.11  319.24     944  599.86     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 -390.14     .06   87.65     .05  156.47     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         87.65  156.47          2007.32 2017.95 2028.58             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888        F

CROSS SECTION          RIVER: cluckt1
REACH: 1                  RS: 4552.959

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  927.49   31.86  927.29   44.12  926.93   63.59     926  174.51     926
  175.93  925.95  181.01  925.78  183.03  925.74  225.76     924   237.4  922.43
  240.93     922  248.75     920  253.03  918.43  254.34     918  258.23  916.94
  261.07     913  283.48     913  285.15  915.28  297.06  915.84  298.25  915.93
  300.68     916  304.01  916.36  312.13  917.05  314.95  917.21  316.58  917.41
  320.24  917.49  321.38  917.57  325.29  917.56  335.74  917.85     341  918.05
  346.11   918.3  359.01  918.95  371.57  919.26  381.66  919.38  386.73  919.49
  391.85  919.76  394.63     920  400.47  920.25  416.09  920.84  421.99  920.96
  424.35  921.11  426.58  921.14  430.12  921.31  431.86  921.33   435.8  921.69
  441.52  921.88  442.58   921.9  446.35     922  589.03     922  626.97  923.99
  705.83     924  717.68  924.65  724.17  924.62  726.03  924.87  737.29  924.88
  739.45  924.84  741.71  924.95  749.32  925.09  757.72  925.44  762.74  925.82
   764.8     926  779.48     926  835.17  927.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  258.23     .05  312.13     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        258.23  312.13           90.92   90.15   89.39             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluckt1
REACH: 1                  RS: 4507.88

INPUT
Description: Cluck Creek Road
Distance from Upstream XS =    9.075
Deck/Roadway Width        =       72
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 -122.29     926      900  -13.29      924      900  177.71      922      900
  271.71     922      900  548.71      924      900  660.71  925.75      900
  835.17  927.59

Upstream Bridge Cross Section Data
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  927.49   31.86  927.29   44.12  926.93   63.59     926  174.51     926
  175.93  925.95  181.01  925.78  183.03  925.74  225.76     924   237.4  922.43
  240.93     922  248.75     920  253.03  918.43  254.34     918  258.23  916.94
  261.07     913  283.48     913  285.15  915.28  297.06  915.84  298.25  915.93
  300.68     916  304.01  916.36  312.13  917.05  314.95  917.21  316.58  917.41
  320.24  917.49  321.38  917.57  325.29  917.56  335.74  917.85     341  918.05
  346.11   918.3  359.01  918.95  371.57  919.26  381.66  919.38  386.73  919.49
  391.85  919.76  394.63     920  400.47  920.25  416.09  920.84  421.99  920.96
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  424.35  921.11  426.58  921.14  430.12  921.31  431.86  921.33   435.8  921.69
  441.52  921.88  442.58   921.9  446.35     922  589.03     922  626.97  923.99
  705.83     924  717.68  924.65  724.17  924.62  726.03  924.87  737.29  924.88
  739.45  924.84  741.71  924.95  749.32  925.09  757.72  925.44  762.74  925.82
   764.8     926  779.48     926  835.17  927.59

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  258.23     .05  312.13     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        258.23  312.13           .3       .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 -248.68     926     900 -139.68     924     900   51.32     922     900
  145.32     922     900  422.32     924     900     600     926     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  922.74   24.53  922.32   25.59  922.29   33.82  922.15   39.85  922.08
   81.04  921.96   95.94  921.89  101.35  921.87  106.82  921.68  108.11  921.48
  112.31  921.01  116.32  920.24  117.71     920   124.6     918  126.34  917.42
  130.09  916.25  131.07     916  135.25     913  154.99     913  155.79  914.32
  159.91  914.51   161.5  914.68  164.54  915.07   168.9  915.82  172.92  916.65
  175.15  917.17  178.55     918  181.48  918.55  185.61  919.46  187.17  919.78
  188.42     920  198.66  920.75  206.04  921.34  209.97  921.55  215.69  921.98
  230.59     922   234.5  921.87  239.84  921.72  244.88  921.57     246  921.56
  249.94  921.45  251.34  921.45  261.42  921.25  277.43  921.35  282.13  921.44
  286.16  921.43  289.27  921.32  292.59  921.31  294.46  921.21  297.59  921.17
  302.92  920.91  312.76  920.64  315.98  920.66  322.93  920.57  329.36  920.51
   343.6  920.02  357.93  919.73  366.96  919.66  371.78  919.64   376.4  919.61
  379.65  919.53  394.44  919.47  424.29     920  427.92  920.23  428.94  920.21
  430.14  920.23  436.57  920.47  438.21  920.51  504.27  923.05  507.83   923.5
     515     924     550     925     600     926

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   124.6     .05  178.55     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         124.6  178.55           .3       .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
CluckCrkRd            Box       6       7
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
              9.075      72       .011                  .4                1
Number of Barrels =  3
Upstream   Elevation =  913
Centerline Stations
    Sta.    Sta.    Sta.
     266   273.5     281
Downstream Elevation =  913
Centerline Stations
    Sta.    Sta.    Sta.
  137.82  145.32  152.82

CROSS SECTION          RIVER: cluckt1
REACH: 1                  RS: 4462.804

INPUT
Description:
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  922.74   24.53  922.32   25.59  922.29   33.82  922.15   39.85  922.08
   81.04  921.96   95.94  921.89  101.35  921.87  106.82  921.68  108.11  921.48
  112.31  921.01  116.32  920.24  117.71     920   124.6     918  126.34  917.42
  130.09  916.25  131.07     916  135.25     913  154.99     913  155.79  914.32
  159.91  914.51   161.5  914.68  164.54  915.07   168.9  915.82  172.92  916.65
  175.15  917.17  178.55     918  181.48  918.55  185.61  919.46  187.17  919.78
  188.42     920  198.66  920.75  206.04  921.34  209.97  921.55  215.69  921.98
  230.59     922   234.5  921.87  239.84  921.72  244.88  921.57     246  921.56
```

```
  249.94  921.45  251.34  921.45  261.42  921.25  277.43  921.35  282.13  921.44
  286.16  921.43  289.27  921.32  292.59  921.31  294.46  921.21  297.59  921.17
  302.92  920.91  312.76  920.64  315.98  920.66  322.93  920.57  329.36  920.51
   343.6  920.02  357.93  919.73  366.96  919.66  371.78  919.64   376.4  919.61
  379.65  919.53  394.44  919.47  424.29     920  427.92  920.23  428.94  920.21
  430.14  920.23  436.57  920.47  438.21  920.51  504.27  923.05  507.83  923.5
     515     924     550     925     600     926

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   124.6     .05  178.55     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         124.6  178.55          1702.67 1712.54 1722.42             .3      .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: clucktl
REACH: 1                  RS: 2750.261

INPUT
Description:
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   918.7    40.8  918.35   96.43     918  108.95  917.68     119  917.56
  146.68  917.29  195.33     916  209.67     916  245.67   915.3  290.14  914.42
  320.28  914.24  325.28  914.15  336.38     914  365.87  913.84  451.41  912.14
  458.51     912  656.52  910.01  729.67  909.96  767.54  909.32  804.12  909.29
  820.69  909.38  869.34  909.12  915.12     908  949.84     906  968.77     904
 1062.77     904 1079.12     906 1090.89     908 1151.25  909.88 1155.37     910
 1172.45     912 1194.69  912.89 1197.67  912.94  1202.8  913.17 1205.49  913.16
 1232.35  913.41 1245.16  913.27  1276.6     912 1292.39     912 1326.22   911.1
 1328.57   911.1 1358.81     912 1378.22     914 1395.72  915.95 1454.02  917.22
 1479.14  917.46 1489.52  917.39  1512.8  917.86 1516.02     918 1527.43  918.26

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  949.84     .05 1079.12     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        949.84 1079.12          2111.67  2112.6 2113.52             .1      .3

CROSS SECTION          RIVER: clucktl
REACH: 1                  RS: 637.664

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  902.41    30.64     902  101.46     902  117.38  901.76  142.03  901.59
  174.65  901.63  231.25  900.99  285.47     900  435.44     900  440.03  899.78
  468.52     898  575.16  897.29  576.58  897.25  600.71  897.97  601.89     898
  611.99     898   622.4  898.25  625.68  898.27  647.35     898  674.64     898
  688.61     896  696.91     894  703.22     892  709.28     890  715.85     888
   719.8  887.29  728.75  884.76  728.95  885.29  729.18  884.64  729.68  884.79
   733.1     886  734.55  885.45  740.81  886.15  745.28     888  758.86     892
  766.81     894  774.59  894.73   776.4  894.76  782.84  895.28  803.94  895.67
  848.06  895.17  860.66  895.08   973.4  895.81  982.08     896  994.75     898
  999.56  897.78 1010.27  897.75  1013.1     898 1023.25  896.53  1024.6  896.36
 1027.92     896 1042.33     896 1063.33     898 1065.52  898.05 1163.36  899.92
 1167.31     900 1170.29   900.4 1189.06     904 1202.71     906 1224.33     908
 1252.71  910.07 1280.65  911.97 1314.04  913.85

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  715.85     .05  745.28     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        715.85  745.28           644.13  637.66   631.2             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 19397.89

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  529.87    1020  650.36  1019.8  731.79 1019.64  803.12 1018.73  834.94 1018.79
  841.46 1018.48  849.02 1018.21  859.12 1017.86  864.62 1017.71  876.93 1017.34
  906.38 1017.09  917.46 1017.16  919.52  1017.2  970.21 1017.64  985.67    1018
 1088.86 1018.79 1126.38    1020

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  529.87     .06  864.62     .05  985.67     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        864.62  985.67           921.73  927.51  933.32             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 18470.38

INPUT
```

```
Description:
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    1008   27.68    1008   29.64 1007.95   37.28 1007.61   38.83 1007.58
   71.89    1006   98.71    1006   99.99 1005.93  151.06    1004  179.12    1004
  184.96  1003.7  186.09 1003.66  193.62 1003.16  199.22 1002.96  201.71 1002.78
  214.77 1002.33  223.16 1002.02  237.04 1001.17  239.91 1001.03  242.24 1001.01
  244.73     999     253   997.6  272.79   997.6  283.89    1002   398.4    1002
     500    1003     530    1004     540    1005

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  223.16    .035  283.89     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        223.16  283.89           172.67  191.61   223.1             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluck
REACH: 1                  RS: 18374.57

INPUT
Description: Lake Line Blvd
Distance from Upstream XS =   4.805
Deck/Roadway Width        =     182
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     -98    1007     900   51.01    1006     900  221.01    1004     900
  261.01  1003.5     900  636.01    1004     900  886.01    1004     900
  921.01    1002     900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    1008   27.68    1008   29.64 1007.95   37.28 1007.61   38.83 1007.58
   71.89    1006   98.71    1006   99.99 1005.93  151.06    1004  179.12    1004
  184.96  1003.7  186.09 1003.66  193.62 1003.16  199.22 1002.96  201.71 1002.78
  214.77 1002.33  223.16 1002.02  237.04 1001.17  239.91 1001.03  242.24 1001.01
  244.73     999     253   997.6  272.79   997.6  283.89    1002   398.4    1002
     500    1003     530    1004     540    1005

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  223.16    .035  283.89     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
        223.16  283.89           .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  -131.5  1006.8     900    98.5    1006     900   268.5    1004     900
   308.5  1003.5     900   683.5    1004     900   933.5    1004     900
   965.5    1002     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -131.5  1006.8     8.5  1004.8    88.5  1002.8   198.5  1000.8   258.5   998.8
   308.5   996.8   348.5   996.8   378.5   998.8   408.5  1000.8   768.5  1002.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -131.5     .01   198.5    .035   408.5     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
        198.5   408.5            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888        F

Upstream Embankment side slope             =       0 horiz. to 1.0 vertical
Downstream Embankment side slope           =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Lakeline             Box       4       8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
```

```
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
              4.805     182       .011                  .4                1
Number of Barrels =  3
Upstream   Elevation =  997.6
Centerline Stations
    Sta.    Sta.    Sta.
  252.01  261.01  270.01
Downstream Elevation =  996.85
Centerline Stations
    Sta.    Sta.    Sta.
   319.5   328.5   337.5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 18278.76

INPUT
Description:
Station Elevation Data    num=      10
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
  -131.5  1006.8      8.5  1004.8     88.5  1002.8    198.5  1000.8    258.5   998.8
   308.5   996.8    348.5   996.8    378.5   998.8    408.5  1000.8    768.5  1002.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -131.5     .01   198.5    .035   408.5     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         198.5   408.5            287.82  270.85   241.3             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 18007.91

INPUT
Description:
Station Elevation Data    num=      26
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0 1003.49     53.1     1002    61.52     1002  115.24 1000.16  124.03 1000.01
  143.62     1000   188.54   998.13   196.16      998  202.77     998  207.27  997.83
  224.02   996.67   227.12   996.42   234.04    992.5   270.4    992.5  276.85     996
  278.86      996   281.41   996.23   282.51   996.27  309.87  997.69  330.54  997.68
  331.34      998   346.77    998.5   355.57   999.16  362.23  999.85  369.06 1000.44
  379.07 1001.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  224.02     .05  281.41     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        224.02  281.41             80.9   80.86   82.16             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluck
REACH: 1                  RS: 17967.48

INPUT
Description: Post Oak Dr
Distance from Upstream XS =    5.93
Deck/Roadway Width        =      69
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   -6.06     1002      900   63.94     1000      900  173.94      998      900
  243.94    997.5      900  573.94      996      900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      26
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0 1003.49     53.1     1002    61.52     1002  115.24 1000.16  124.03 1000.01
  143.62     1000   188.54   998.13   196.16      998  202.77     998  207.27  997.83
  224.02   996.67   227.12   996.42   234.04    992.5   270.4    992.5  276.85     996
  278.86      996   281.41   996.23   282.51   996.27  309.87  997.69  330.54  997.68
  331.34      998   346.77    998.5   355.57   999.16  362.23  999.85  369.06 1000.44
  379.07 1001.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  224.02     .05  281.41     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        224.02  281.41             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
```

```
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      7.5    1002     900    77.5    1000     900   187.5     998     900
   257.5   997.5     900   587.5     996     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      7.5    1002    57.5    1000   157.5     998   217.5     996   237.5     994
   247.5   992.5   257.5   992.5   270.5   992.5   287.5     994   357.5     996
   487.5     997   587.5     998  613.65  998.75  644.25  999.67  664.96 1000.47
  685.67 1001.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      7.5     .06   217.5     .05   357.5     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         217.5   357.5            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope             =       0 horiz. to 1.0 vertical
Downstream Embankment side slope           =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Post Oak            Box       4      12
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
               5.93      69       .011                  .4                1
Number of Barrels =  3
Upstream   Elevation =  992.5
Centerline Stations
    Sta.   .Sta.    Sta.
  237.94  250.94  263.94
Downstream Elevation =  992.5
Centerline Stations
    Sta.    Sta.    Sta.
   244.5   257.5   270.5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17927.05

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      7.5    1002    57.5    1000   157.5     998   217.5     996   237.5     994
   247.5   992.5   257.5   992.5   270.5   992.5   287.5     994   357.5     996
   487.5     997   587.5     998  613.65  998.75  644.25  999.67  664.96 1000.47
  685.67 1001.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      7.5     .06   217.5     .05   357.5     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5   357.5                  25      25      25            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17902.0*

INPUT
Description:
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      7.5    1002    57.5 1000.11   157.5  998.22   217.5  996.28     232  994.73
   237.5  994.01   247.5  992.24  256.87  992.24  269.06  992.24  285.09  994.11
   289.33  994.26  351.11  996.28  398.39  996.76  484.72  997.42  505.28  997.62
   587.5  998.44  612.97  999.24  639.48 1000.18  673.72 1001.15  697.61    1002

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      7.5     .06   217.5     .05  351.11     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  351.11                  25      25      25            .3       .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17877.0*
```

```
INPUT
Description:
Station Elevation Data    num=      19
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     7.5     1002     57.5  1000.22    157.5   998.44    217.5   996.56      232   994.92
   237.5   994.02    247.5   991.99   256.24   991.99   267.61   991.99   282.68   994.21
  286.66   994.59   344.72   996.56   393.28   997.16   481.94   997.85   503.06   998.04
   587.5   998.89   616.38   999.77    655.4  1000.93   689.65  1001.93

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
     7.5     .06    217.5     .05   344.72     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  344.72                 25      25      25             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17852.0*

INPUT
Description:
Station Elevation Data    num=      19
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     7.5     1002     57.5  1000.33    157.5   998.67    217.5   996.83      232   995.1
   237.5   994.02    247.5   991.73   255.62   991.73   266.17   991.73   280.27   994.32
     284   994.32   338.33   996.83   388.17   997.57   479.17   998.27   500.83   998.47
   587.5   999.33   612.97  1000.12   642.66  1001.28   684.87  1002.17

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
     7.5     .06    217.5     .05   338.33     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  338.33                 25      25      25             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17827.0*

INPUT
Description:
Station Elevation Data    num=      19
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     7.5     1002     57.5  1000.44    157.5   998.89    217.5   997.11      232   995.28
   237.5   994.03    247.5   991.48   254.99   991.48   264.72   991.48   277.86   994.42
  281.33   995.05   331.94   997.11   383.06   997.97   476.39   998.69   498.61   998.89
   587.5   999.78   615.02  1000.52   650.63  1001.63   692.83  1002.33

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
     7.5     .06    217.5     .05   331.94     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  331.94                 25      25      25             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17802.0*

INPUT
Description:
Station Elevation Data    num=      16
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     7.5     1002     57.5  1000.56    157.5   999.11    217.5   997.39      232   995.47
   237.5   994.04    247.5   991.22   254.36   991.22   263.28   991.22   275.45   994.53
  278.66   995.28   325.56   997.39   377.94   998.38   473.61   999.12   496.39   999.31
   587.5  1000.22

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
     7.5     .06    217.5     .05   325.56     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  325.56                 25      25      25             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17777.0*

INPUT
Description:
Station Elevation Data    num=      16
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     7.5     1002     57.5  1000.67    157.5   999.33    217.5   997.67      232   995.65
   237.5   994.05    247.5   990.97   253.73   990.97   261.83   990.97   273.04   994.63
     276   995.51   319.17   997.67   372.83   998.78   470.33   999.54   494.17   999.73
   587.5  1000.67

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
     7.5     .06    217.5     .05   319.17     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  319.17                 25      25      25             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17752.0*
```

```
INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5 1000.78   157.5  999.56   217.5  997.94     232  995.83
   237.5  994.06   247.5  990.71   253.1  990.71  260.39  990.71  270.63  994.74
  273.33  995.74  312.78  997.94  367.72  999.19  468.06  999.96  491.94 1000.16
   587.5 1001.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05  312.78     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.5  312.78                 25      25      25             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17727.0*

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5 1000.89   157.5  999.78   217.5  998.22     232  996.02
   237.5  994.06   247.5  990.46  252.48  990.46  258.94  990.46  268.22  994.84
  270.67  995.97  306.39  998.22  362.61  999.59  465.28 1000.38  489.72 1000.58
   587.5 1001.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05  306.39     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.5  306.39                 25      25      25             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17702

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5    1001   157.5    1000   217.5   998.5     232   996.2
   247.5   990.2   257.5   990.2     268   996.2     300   998.5   357.5    1000
   487.5    1001   587.5    1002

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05     300     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.5     300                 15.7    15.7    15.7             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluck
REACH: 1                  RS: 17700

INPUT
Description:
Distance from Upstream XS =       2
Deck/Roadway Width        =    11.7
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     232   996.2     990     268   996.2     990

Upstream Bridge Cross Section Data
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5    1001   157.5    1000   217.5   998.5     232   996.2
   247.5   990.2   257.5   990.2     268   996.2     300   998.5   357.5    1000
   487.5    1001   587.5    1002

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05     300     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        217.5     300             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     232   996.2     990     268   996.2     990

Downstream Bridge Cross Section Data
```

```
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5    1001   157.5    1000   217.5   998.5     232   996.2
   247.5   990.2   257.5   990.2     268   996.2     300   998.5   357.5    1000
   487.5    1001   587.5    1002

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05     300     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        217.5     300            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888       F
888       F

Upstream Embankment side slope              =       1 horiz. to 1.0 vertical
Downstream Embankment side slope            =       1 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =   996.2
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Culvert #1      Circular       2
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 2     3.7       .013                  .5                1
Upstream   Elevation =  990.8
           Centerline Station =  250
Downstream Elevation =  990.2
           Centerline Station =  250

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17686.3

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5    1001   157.5    1000   217.5   998.5     232   996.2
   247.5   990.2   257.5   990.2     268   996.2     300   998.5   357.5    1000
   487.5    1001   587.5    1002

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05     300     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.5     300            24.86   24.86   24.86              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888       F
888       F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17661.3*

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5 1000.86   157.5  999.71   217.5  998.14     232  995.96
   237.5  994.06   247.5  989.87  252.66  989.87  259.36  989.87  261.04  991.46
  271.43  995.95  308.21  998.14  364.07  999.48  466.07 1000.26  490.36 1000.46
   587.5 1001.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05  308.21     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.5  308.21            24.86   24.86   24.86              .3       .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17636.4*

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5 1000.71   157.5  999.43   217.5  997.79     232  995.73
   237.5  994.05   247.5  989.54  253.46  989.54  261.21  989.54  263.12  991.88
  274.86   995.7  316.43  997.79  370.64  998.96  469.64  999.72  493.21  999.91
   587.5 1000.86

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05  316.43     .06
```

```
Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  316.43              24.86   24.86   24.86             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17611.6*

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5 1000.57   157.5  999.14   217.5  997.43     232  995.49
   237.5  994.04   247.5  989.21  254.27  989.21  263.07  989.21  265.19  992.31
  278.28  995.45  324.64  997.43  377.21  998.44  473.21  999.18  496.07  999.37
   587.5 1000.29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05  324.64     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  324.64              24.86   24.86   24.86             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17586.6*

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5 1000.43   157.5  998.86   217.5  997.07     232  995.26
   237.5  994.03   247.5  988.89  255.08  988.89  264.93  988.89  267.27  992.73
  281.71  995.19  332.86  997.07  383.79  997.92  476.79  998.63  498.93  998.83
   587.5  999.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05  332.86     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  332.86              24.86   24.86   24.86             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17561.7*

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5 1000.29   157.5  998.57   217.5  996.71     232  995.02
   237.5  994.02   247.5  988.56  255.89  988.56  266.79  988.56  269.35  993.15
  285.14  994.94  341.07  996.71  390.36   997.4  480.36  998.09  501.79  998.29
   587.5  999.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05  341.07     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  341.07              24.86   24.86   24.86             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17536.8*

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5 1000.14   157.5  998.29   217.5  996.36     232  994.79
   237.5  994.01   247.5  988.23  256.69  988.23  268.64  988.23  271.42  993.58
  288.57  994.69  349.29  996.36  396.93  996.87  483.93  997.54  504.64  997.74
   587.5  998.57

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05  349.29     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5  349.29              24.86   24.86   24.86             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17512

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5    1000   157.5     998   217.5     996   237.5     994
   247.5   987.9   257.5   987.9   270.5   987.9   273.5     994   357.5     996
   487.5     997   587.5     998

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05   357.5     .06
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.5   357.5              15.7    15.7    15.7             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluck
REACH: 1                  RS: 17510

INPUT
Description:
Distance from Upstream XS =       2
Deck/Roadway Width        =    11.7
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0   993.9     980     600   993.9     980

Upstream Bridge Cross Section Data
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5    1000   157.5     998   217.5     996   237.5     994
   247.5   987.9   257.5   987.9   270.5   987.9   273.5     994   357.5     996
   487.5     997   587.5     998

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05   357.5     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        217.5   357.5             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0   993.9     980     600   993.9     980

Downstream Bridge Cross Section Data
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5    1000   157.5     998   217.5     996   237.5     994
   247.5   987.9   257.5   987.9   270.5   987.9   273.5     994   357.5     996
   487.5     997   587.5     998

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05   357.5     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        217.5   357.5             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope             =       1 horiz. to 1.0 vertical
Downstream Embankment side slope           =       1 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =   993.9
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular       2
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  2    11.7       .013                  .5                1
Upstream   Elevation =  988.4
           Centerline Station =  250
Downstream Elevation =  987.9
           Centerline Station =  250

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17496.3

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.5    1002    57.5    1000   157.5     998   217.5     996   237.5     994
   247.5   987.9   257.5   987.9   270.5   987.9   273.5     994   357.5     996
   487.5     997   587.5     998

Manning's n Values        num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
     7.5     .06   217.5     .05   357.5     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         217.5   357.5             9.72    9.72    9.72             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17486.5*

INPUT
Description:
Station Elevation Data    num=      23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     7.2  1001.57    59.43   999.62   106.01   998.74   155.42   997.83   163.89   997.67
  171.72   997.43   188.02   996.92   226.56   995.74   245.99   993.72    255.7   987.81
  258.36   987.81   262.83   987.81   265.64   987.81   266.97   987.81   267.79   987.81
  272.39   987.81   275.34   987.81    276.2   987.81   278.54   987.81   281.43   993.67
  362.16   995.74   492.49   996.74   592.74   997.73

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     7.2     .06   226.56     .05   362.16     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        226.56  362.16             9.72    9.72    9.72             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17476.8*

INPUT
Description:
Station Elevation Data    num=      23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     6.9  1001.15    61.36   999.25   109.93   998.37   161.44   997.49   170.27   997.34
  178.44   997.11   195.44   996.62   235.62   995.49   254.48   993.43   263.91   987.72
  266.55   987.72   270.98   987.72   273.77   987.72    275.1   987.72   275.91   987.72
  280.48   987.72    283.4   987.72   284.26   987.72   286.59   987.72   289.36   993.34
  366.82   995.49   497.47   996.49   597.97   997.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     6.9    .059   235.62     .05   366.82    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        235.62  366.82             9.72    9.72    9.72             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17467.1*

INPUT
Description:
Station Elevation Data    num=      23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     6.6  1000.72    63.29   998.87   113.84      998   167.46   997.16   176.66   997.01
  185.16   996.78   202.86   996.31   244.68   995.23   262.97   993.15   272.11   987.62
  274.73   987.62   279.14   987.62   281.91   987.62   283.23   987.62   284.03   987.62
  288.57   987.62   291.47   987.62   292.32   987.62   294.63   987.62   297.28   993.01
  371.48   995.23   502.46   996.23   603.21    997.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     6.6    .059   244.68    .049   371.48    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        244.68  371.48             9.72    9.72    9.72             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17457.3*

INPUT
Description:
Station Elevation Data    num=      23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     6.3  1000.29    65.21   998.49   117.76   997.63   173.49   996.82   183.04   996.68
  191.88   996.46   210.27   996.01   253.74   994.98   271.46   992.87   280.32   987.53
  282.92   987.53   287.29   987.53   290.04   987.53   291.35   987.53   292.15   987.53
  296.66   987.53   299.54   987.53   300.39   987.53   302.68   987.53   305.21   992.68
  376.14   994.98   507.44   995.97   608.45   996.93

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     6.3    .058   253.74    .049   376.14    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        253.74  376.14             9.72    9.72    9.72             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17447.6*

INPUT
Description:
```

Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6	999.87	67.14	998.11	121.68	997.27	179.51	996.49	189.43	996.35
198.6	996.14	217.69	995.7	262.8	994.72	279.95	992.59	288.52	987.44
291.1	987.44	295.45	987.44	298.18	987.44	299.48	987.44	300.27	987.44
304.74	987.44	307.61	987.44	308.45	987.44	310.72	987.44	313.14	992.35
380.8	994.72	512.43	995.72	613.69	996.67				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6	.058	262.8	.049	380.8	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
262.8	380.8	9.72	9.72	.3	.5

CROSS SECTION RIVER: cluck
REACH: 1 RS: 17437.9*

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5.7	999.44	69.07	997.74	125.59	996.9	185.54	996.16	195.81	996.02
205.32	995.82	225.1	995.4	271.86	994.46	288.44	992.3	296.73	987.35
299.29	987.35	303.6	987.35	306.31	987.35	307.6	987.35	308.39	987.35
312.83	987.35	315.67	987.35	316.51	987.35	318.77	987.35	321.07	992.02
385.46	994.46	517.42	995.46	618.92	996.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5.7	.058	271.86	.049	385.46	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
271.86	385.46	9.72	9.72	.3	.5

CROSS SECTION RIVER: cluck
REACH: 1 RS: 17428.1*

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5.4	999.01	71	997.36	129.51	996.53	191.56	995.82	202.2	995.69
212.04	995.5	232.52	995.09	280.92	994.21	296.93	992.02	304.93	987.26
307.47	987.26	311.76	987.26	314.45	987.26	315.73	987.26	316.51	987.26
320.92	987.26	323.74	987.26	324.57	987.26	326.81	987.26	329	991.69
390.12	994.21	522.4	995.2	624.16	996.13				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5.4	.057	280.92	.049	390.12	.057

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
280.92	390.12	9.72	9.72	.3	.5

CROSS SECTION RIVER: cluck
REACH: 1 RS: 17418.4*

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5.1	998.59	72.93	996.98	133.42	996.16	197.59	995.49	208.59	995.36
218.76	995.17	239.93	994.79	289.98	993.95	305.42	991.74	313.14	987.16
315.66	987.16	319.91	987.16	322.58	987.16	323.85	987.16	324.63	987.16
329.01	987.16	331.81	987.16	332.63	987.16	334.86	987.16	336.92	991.36
394.78	993.95	527.39	994.94	629.4	995.87				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5.1	.057	289.98	.048	394.78	.057

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
289.98	394.78	9.72	9.72	.3	.5

CROSS SECTION RIVER: cluck
REACH: 1 RS: 17408.7*

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4.8	998.16	74.86	996.61	137.34	995.79	203.61	995.15	214.97	995.03
225.48	994.85	247.35	994.48	299.04	993.7	313.91	991.46	321.34	987.07
323.85	987.07	328.07	987.07	330.72	987.07	331.98	987.07	332.75	987.07
337.1	987.07	339.87	987.07	340.69	987.07	342.9	987.07	344.85	991.03
399.44	993.7	532.38	994.69	634.63	995.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4.8	.056	299.04	.048	399.44	.056

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
299.04	399.44	9.72	9.72	.3	.5

```
CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17398.9*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     4.5  997.73    76.79  996.23   141.26  995.42   209.64  994.82   221.36   994.7
   232.2  994.53   254.76  994.18    308.1  993.44    322.4  991.17   329.54  986.98
  332.03  986.98   336.22  986.98   338.35  986.98   340.11  986.98   340.87  986.98
  345.18  986.98   347.94  986.98   348.75  986.98   350.95  986.98   352.78   990.7
   404.1  993.44   537.36  994.43   639.87  995.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     4.5    .056   308.1    .048   404.1    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         308.1   404.1             9.72    9.72    9.72             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17389.2*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     4.2  997.31    78.71  995.85   145.17  995.06   215.66  994.48   227.74  994.37
  238.92  994.21   262.18  993.87   317.16  993.18   330.89  990.89   337.75  986.89
  340.22  986.89   344.38  986.89   346.99  986.89   348.23  986.89   348.99  986.89
  353.27  986.89   356.01  986.89   356.81  986.89   358.99  986.89   360.71  990.36
  408.76  993.18   542.35  994.17   645.11  995.07

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     4.2    .056   317.16    .048   408.76    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        317.16  408.76             9.72    9.72    9.72             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17379.5*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     3.9  996.88    80.64  995.48   149.09  994.69   221.68  994.15   234.13  994.04
  245.64  993.89    269.6  993.57   326.22  992.93   339.38  990.61   345.95   986.8
   348.4   986.8   352.53   986.8   355.12   986.8   356.36   986.8   357.11   986.8
  361.36   986.8   364.08   986.8   364.87   986.8   367.04   986.8   368.64  990.03
  413.42  992.93   547.33  993.92   650.35  994.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     3.9    .055   326.22    .048   413.42    .055

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        326.22  413.42             9.72    9.72    9.72             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17369.7*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     3.6  996.45    82.57   995.1   153.01  994.32   227.71  993.81   240.51  993.71
  252.36  993.56   277.01  993.26   335.28  992.67   347.86  990.33   354.16   986.7
  356.59   986.7   360.68   986.7   363.26   986.7   364.48   986.7   365.23   986.7
  369.45   986.7   372.14   986.7   372.94   986.7   375.08   986.7   376.57   989.7
  418.08  992.67   552.32  993.66   655.58  994.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     3.6    .055   335.28    .047   418.08    .055

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        335.28  418.08             9.72    9.72    9.72             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17360.3*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     3.2  996.02     84.5  994.72   156.92  993.95   233.73  993.48   246.9   993.38
  259.08  993.24   284.43  992.96   344.34  992.42   356.35  990.04   362.36  986.61
  364.78  986.61   368.84  986.61   371.39  986.61   372.61  986.61   373.35  986.61
  377.53  986.61   380.21  986.61      381  986.61   383.13  986.61   384.49  989.37
  422.74  992.42   557.31   993.4   660.82  994.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

```
     3.3    .054  344.34    .047  422.74    .054

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        344.34  422.74             9.72    9.72    9.72            .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17350.3*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       3   995.6   86.43  994.34  160.84  993.58  239.76  993.14  253.29  993.05
   265.8  992.92  291.84  992.65   353.4  992.16  364.84  989.76  370.57  986.52
  372.96  986.52  376.99  986.52  379.53  986.52  380.73  986.52  381.47  986.52
  385.62  986.52  388.28  986.52  389.06  986.52  391.17  986.52  392.42  989.04
   427.4  992.16  562.29  993.15  666.06     994

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       3    .054   353.4    .047   427.4    .054

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        353.4   427.4             9.72    9.72    9.72            .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17340.5*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     2.7  995.17   88.36  993.97  164.75  993.21  245.78  992.81  259.67  992.72
  272.52   992.6  299.26  992.35  362.46   991.9  373.33  989.48  378.77  986.43
  381.15  986.43  385.15  986.43  387.66  986.43  388.86  986.43  389.59  986.43
  393.71  986.43  396.35  986.43  397.12  986.43  399.22  986.43  400.35  988.71
  432.06   991.9  567.28  992.89   671.3  993.73

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     2.7    .054  362.46    .047  432.06    .054

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        362.46  432.06             9.72    9.72    9.72            .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17330.8*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     2.4  994.74   90.29  993.59  168.67  992.85  251.81  992.48  266.06  992.39
  279.24  992.28  306.67  992.04  371.52  991.65  381.82  989.19  386.97  986.34
  389.33  986.34   393.3  986.34   395.8  986.34  396.98  986.34  397.71  986.34
   401.8  986.34  404.41  986.34  405.18  986.34  407.26  986.34  408.28  988.38
  436.72  991.65  572.27  992.63  676.53  993.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     2.4    .053  371.52    .047  436.72    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        371.52  436.72             9.72    9.72    9.72            .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17321.1*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     2.1  994.32   92.21  993.21  172.59  992.48  257.83  992.14  272.44  992.06
  285.96  991.95  314.09  991.74  380.58  991.39  390.31  988.91  395.18  986.24
  397.52  986.24  401.46  986.24  403.93  986.24  405.11  986.24  405.83  986.24
  409.89  986.24  412.48  986.24  413.24  986.24  415.31  986.24  416.21  988.05
  441.38  991.39  577.25  992.38  681.77   993.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     2.1    .053  380.58    .046  441.38    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        380.58  441.38             9.72    9.72    9.72            .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1               RS: 17311.3*

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     1.8  993.89   94.14  992.84   176.5  992.11  263.85  991.81  278.83  991.73
  292.68  991.63  321.51  991.43  389.64  991.14   398.8  988.63  403.38  986.15
   405.7  986.15  409.61  986.15  412.07  986.15  413.24  986.15  413.95  986.15
```

```
  417.97  986.15  420.55  986.15   421.3  986.15  423.35  986.15  424.13  987.72
  446.04  991.14  582.24  992.12  687.01  992.93

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
     1.8    .052  389.64    .046  446.04    .052

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        389.64  446.04              9.72    9.72    9.72              .3       .5

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17301.6*

INPUT
Description:
Station Elevation Data     num=       23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     1.5   993.46    96.07   992.46   180.42   991.74   269.88   991.47   285.21    991.4
   299.4   991.31   328.92   991.13    398.7   990.88   407.29   988.35   411.59   986.06
  413.89   986.06   417.77   986.06    420.2   986.06   421.36   986.06   422.07   986.06
  426.06   986.06   428.61   986.06   429.36   986.06    431.4   986.06   432.06   987.39
   450.7   990.88   587.22   991.86   692.24   992.66

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
     1.5    .052    398.7    .046    450.7    .052

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        398.7   450.7              9.72    9.72    9.72              .3       .5

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17291.9*

INPUT
Description:
Station Elevation Data     num=       23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     1.2   993.04       98   992.08   184.34   991.37    275.9   991.14    291.6   991.07
  306.12   990.99   336.34   990.82   407.76   990.62   415.78   988.06   419.79   985.97
  422.08   985.97   425.92   985.97   428.34   985.97   429.49   985.97   430.19   985.97
  434.15   985.97   436.68   985.97   437.43   985.97   439.44   985.97   439.99   987.06
  455.36   990.62   592.21   991.61   697.48    992.4

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
     1.2    .052  407.76    .046  455.36    .052

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        407.76  455.36              9.72    9.72    9.72              .3       .5

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17282.1*

INPUT
Description:
Station Elevation Data     num=       23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      .9   992.61    99.93   991.71   188.25   991.01   281.93    990.8   297.99   990.74
  312.84   990.67   343.75   990.52   416.82   990.37   424.27   987.78      428   985.88
  430.26   985.88   434.08   985.88   436.47   985.88   437.61   985.88   438.31   985.88
  442.24   985.88   444.75   985.88   445.49   985.88   447.49   985.88   447.92   986.73
  460.02   990.37    597.2   991.35   702.72   992.13

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      .9    .051  416.82    .046  460.02    .051

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        416.82  460.02              9.72    9.72    9.72              .3       .5

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17272.4*

INPUT
Description:
Station Elevation Data     num=       23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      .6   992.18   101.86   991.33   192.17   990.64   287.95   990.47   304.37   990.41
  319.56   990.34   351.17   990.21   425.88   990.11   432.76    987.5    436.2   985.78
  438.45   985.78   442.23   985.78   444.61   985.78   445.74   985.78   446.43   985.78
  450.32   985.78   452.82   985.78   453.55   985.78   455.53   985.78   455.85    986.4
  464.68   990.11   602.18   991.09   707.96   991.86

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      .6    .051  425.88    .045  464.68    .051

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        425.88  464.68              9.72    9.72    9.72              .3       .5

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17262.7*

INPUT
Description:
```

```
Station Elevation Data    num=      23
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      .3   991.76   103.79   990.95   196.08   990.27   293.98   990.13   310.76   990.08
  326.28   990.02   358.58   989.91   434.94   989.86   441.25   987.22   444.41   985.69
  446.63   985.69   450.39   985.69   452.74   985.69   453.86   985.69   454.55   985.69
  458.41   985.69   460.88   985.69   461.61   985.69   463.58   985.69   463.77   986.07
  469.34   989.86   607.17   990.83   713.19    991.6

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
      .3     .05   434.94    .045   469.34     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        434.94  469.34              9.72    9.72    9.72             .3       .5

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17253

INPUT
Description:
Station Elevation Data    num=      17
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   991.33      200    989.9      300    989.8      333    989.7      366    989.6
     444    989.6   452.61    985.6   454.82    985.6   458.54    985.6   461.99    985.6
  462.67    985.6    466.5    985.6   468.95    985.6   469.67    985.6   471.62    985.6
     474    989.6   718.43   991.33

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05      444    .045      474     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           444     474                   16      16      16             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                 RIVER: cluck
REACH: 1                   RS: 17252

INPUT
Description:
Distance from Upstream XS =       7
Deck/Roadway Width        =       2
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
     444    989.6     980      474    989.6     980

Upstream Bridge Cross Section Data
Station Elevation Data    num=      17
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   991.33      200    989.9      300    989.8      333    989.7      366    989.6
     444    989.6   452.61    985.6   454.82    985.6   458.54    985.6   461.99    985.6
  462.67    985.6    466.5    985.6   468.95    985.6   469.67    985.6   471.62    985.6
     474    989.6   718.43   991.33

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05      444    .045      474     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
           444     474             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
     444    989.6     980      474    989.6     980

Downstream Bridge Cross Section Data
Station Elevation Data    num=      17
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   991.33      200    989.9      300    989.8      333    989.7      366    989.6
     444    989.6   452.61    985.6   454.82    985.6   458.54    985.6   461.99    985.6
  462.67    985.6    466.5    985.6   468.95    985.6   469.67    985.6   471.62    985.6
     474    989.6   718.43   991.33

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05      444    .045      474     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
           444     474             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope             =       1 horiz. to 1.0 vertical
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Downstream Embankment side slope            =       1 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =   989.6
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Culvert #1       Circular       2
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 3 - Pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                2       12       .024                  .9                1
Upstream    Elevation =  986.1
            Centerline Station =  460
Downstream Elevation =  985.6
            Centerline Station =  460

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17237

INPUT
Description:
Station Elevation Data    num=      17
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   991.33      200    989.9      300    989.8      333    989.7      366    989.6
     444    989.6   452.61    985.6   454.82    985.6   458.54    985.6   461.99    985.6
  462.67    985.6    466.5    985.6   468.95    985.6   469.67    985.6   471.62    985.6
     474    989.6   718.43   991.33

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05      444    .045      474     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            444     474            27.44   27.44   27.44             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17209.5*

INPUT
Description:
Station Elevation Data    num=      46
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   991.52    67.06   991.03   110.76   990.68   132.58   990.54   138.45    990.5
  195.52   990.01   247.18   989.86   252.81   989.86   293.29   989.74   325.55   989.58
   356.1   989.43   357.81   989.42   434.06   989.42   436.48   988.92   437.33   988.76
  438.37   988.55   439.68   988.29   451.35   985.93    451.4   985.78   451.42   985.75
  451.44   985.66   451.46   985.58   451.48   985.56    451.5   985.53   452.07   985.34
  454.27   985.34   457.99   985.34   461.43   985.34   462.11   985.34   465.94   985.34
  468.38   985.34    469.1   985.34   471.05   985.34   471.39   985.53   471.76   985.65
  472.36   986.22    473.1   986.48   474.99    987.1   481.89   989.42   539.98    989.8
  636.94   990.65   639.02   990.67   640.73   990.68   701.91   991.22   706.33   991.25
  718.43   991.33

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05   434.06    .045   481.89     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        434.06  481.89            27.44   27.44   27.44             .3       .5

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 17182.1*

INPUT
Description:
Station Elevation Data    num=      46
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   991.71    65.52   991.23   108.23   990.85   129.54   990.72   135.28   990.67
  191.05   990.12   241.53   989.88   247.03   989.88   286.57   989.67    318.1   989.45
  347.95   989.25   349.62   989.24   424.13   989.24    427.8   988.78    429.1   988.64
  430.68   988.46   432.67   988.22   450.43    986.1   450.52    985.8   450.55   985.76
  450.58   985.57    450.6   985.42   450.63   985.39   450.66   985.34   451.53   985.09
  453.73   985.09   457.44   985.09   460.88   985.09   461.56   985.09   465.38   985.09
  467.82   985.09   468.54   985.09   470.48   985.09   471.08   985.34   471.74   985.45
  472.32   986.35   474.13   986.61   477.49   987.15   489.78   989.24   545.93   989.57
  639.65   990.57   641.67   990.58   643.32   990.61   702.46   991.23   706.74   991.26
  718.43   991.33

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05   424.13    .045   489.78     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        424.13  489.78            27.44   27.44   27.44             .3       .5

CROSS SECTION           RIVER: cluck
```

```
REACH: 1                    RS: 17154.6*

INPUT
Description:
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   991.9   63.99  991.42  105.69  991.01  126.51  990.91  132.11  990.85
  186.57  990.24  235.87   989.9  241.24  989.89  279.86  989.61  310.64  989.33
   339.8  989.07  341.43  989.07  414.19  989.07  419.12  988.64  420.86  988.52
  422.99  988.37  425.66  988.16  449.51  986.27  449.63  985.83  449.67  985.77
  449.71  985.49  449.75  985.26  449.79  985.21  449.83  985.15  450.98  984.83
  453.18  984.83  456.89  984.83  460.32  984.83     461  984.83  464.81  984.83
  467.25  984.83  467.97  984.83  469.91  984.83  470.78  985.15  471.72  985.24
  473.27  986.49  475.16  986.74  479.99   987.2  497.67  989.07  551.88  989.35
  642.37  990.49  644.32   990.5  645.91  990.53  703.01  991.24  707.14  991.27
  718.43  991.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  414.19    .045  497.67     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        414.19  497.67             27.44   27.44   27.44             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                    RS: 17127.2*

INPUT
Description:
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  992.09   62.45  991.62  103.16  991.18  123.47  991.09  128.95  991.03
   182.1  990.35  230.21  989.92  235.45  989.91  273.15  989.54  303.19  989.21
  331.64  988.89  333.24  988.89  404.26  988.89  410.45   988.5  412.63  988.41
   415.3  988.27  418.65  988.09  448.59  986.44  448.74  985.86  448.79  985.78
  448.84  985.41  448.89   985.1  448.94  985.04  448.99  984.96  450.44  984.58
  452.64  984.58  456.34  984.58  459.77  984.58  460.44  984.58  464.25  984.58
  466.69  984.58  467.41  984.58  469.34  984.58  470.47  984.96  471.71  985.03
  473.73  986.62  476.19  986.86  482.49  987.25  505.56  988.89  557.83  989.12
  645.09  990.41  646.97  990.42   648.5  990.45  703.57  991.25  707.54  991.29
  718.43  991.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  404.26    .045  505.56     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        404.26  505.56             27.44   27.44   27.44             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                    RS: 17099.7*

INPUT
Description:
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  992.28   60.92  991.81  100.62  991.34  120.44  991.27  125.78  991.21
  177.62  990.46  224.55  989.93  229.67  989.93  266.43  989.48  295.74  989.08
  323.49  988.71  325.05  988.71  394.32  988.71  401.77  988.36   404.4  988.29
  407.62  988.18  411.64  988.02  447.67  986.62  447.85  985.89  447.91  985.79
  447.97  985.33  448.03  984.94  448.09  984.87  448.15  984.77   449.9  984.32
  452.09  984.32  455.79  984.32  459.21  984.32  459.89  984.32  463.69  984.32
  466.12  984.32  466.84  984.32  468.78  984.32  470.17  984.77  471.69  984.83
  474.18  986.76  477.23  986.99  484.99   987.3  513.44  988.71  563.78   988.9
  647.81  990.33  649.62  990.33  651.09  990.38  704.12  991.27  707.95   991.3
  718.43  991.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  394.32    .045  513.44     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        394.32  513.44             27.44   27.44   27.44             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                    RS: 17072.3*

INPUT
Description:
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  992.47   59.38  992.01   98.09  991.51   117.4  991.45  122.61  991.39
  173.15  990.57  218.89  989.95  223.88  989.95  259.72  989.41  288.29  988.96
  315.34  988.54  316.86  988.53  384.39  988.53  393.09  988.21  396.17  988.17
  399.93  988.09  404.63  987.96  446.76  986.79  446.96  985.92  447.03  985.79
   447.1  985.25  447.17  984.78  447.24   984.7  447.31  984.58  449.36  984.07
  451.55  984.07  455.24  984.07  458.66  984.07  459.33  984.07  463.13  984.07
  465.56  984.07  466.27  984.07  468.21  984.07  469.86  984.57  471.67  984.62
  474.64  986.89  478.26  987.12  487.49  987.35  521.33  988.53  569.74  988.67
  650.53  990.24  652.27  990.25  653.69   990.3  704.67  991.28  708.35  991.31
  718.43  991.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  384.39    .045  521.33     .05
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        384.39  521.33             27.44   27.44   27.44            .3       .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17044.8*

INPUT
Description:
Station Elevation Data    num=      46
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   992.66   57.85    992.2   95.55   991.67   114.37   991.64   119.44   991.56
  168.67   990.69  213.24   989.97  218.09   989.96   253.01   989.35   280.84   988.84
  307.19   988.36  308.67   988.36  374.45   988.36   384.41   988.07   387.93   988.05
  392.24      988  397.63   987.89  445.84   986.96   446.08   985.94   446.16   985.8
  446.24   985.16  446.32   984.62   446.4   984.52   446.48   984.38   448.81   983.81
     451   983.81  454.69   983.81   458.1   983.81   458.78   983.81   462.57   983.81
  464.99   983.81  465.71   983.81  467.64   983.81   469.56   984.38   471.65   984.41
  475.09   987.03  479.29   987.25     490   987.4   529.22   988.36   575.69   988.45
  653.24   990.16  654.91   990.17  656.28   990.22   705.22   991.29   708.75   991.32
  718.43   991.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  374.45    .045  529.22     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        374.45  529.22             27.44   27.44   27.44            .3       .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 17017.4*

INPUT
Description:
Station Elevation Data    num=      46
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   992.85   56.31    992.4   93.02   991.84   111.33   991.82   116.27   991.74
   164.2    990.8  207.58   989.98  212.31   989.98   246.29   989.28   273.39   988.71
  299.04   988.18  300.48   988.18  364.52   988.18   375.74   987.93    279.7   987.94
  384.55    987.9  390.62   987.83  444.92   987.13   445.19   985.97   445.28   985.81
  445.37   985.08  445.46   984.46  445.55   984.35   445.64   984.19   448.27   983.56
  450.46   983.56  454.14   983.56  457.55   983.56   458.22   983.56   462.01   983.56
  464.43   983.56  465.14   983.56  467.07   983.56   469.25   984.19   471.64   984.21
  475.55   987.16  480.32   987.37   492.5   987.45   537.11   988.18   581.64   988.22
  655.96   990.08  657.56   990.08  658.87   990.15   705.77    991.3   709.16   991.33
  718.43   991.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  364.52    .045  537.11     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        364.52  537.11             27.44   27.44   27.44            .3       .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 16990

INPUT
Description:
Station Elevation Data    num=      35
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   993.04   54.78   992.59   90.48      992   108.3      992   113.1   991.92
  201.92      990  206.52      990  290.89      988  354.58      988  367.06   987.79
  371.47   987.82  376.86   987.81  383.61   987.76      444   987.3   444.3      986
   444.4   985.82   444.5      985   444.6   984.3   444.7   984.18   444.8      984
  447.73    983.3   466.5    983.3  468.95      984  471.62      984      476    987.3
  481.35    987.5     495    987.5     545      988  587.59      988  658.68      990
  660.21      990  661.46   990.07  706.32   991.31  709.56   991.34  718.43   991.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  354.58    .045     545     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        354.58     545                    2       2       2            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluck
REACH: 1                  RS: 16989

INPUT
Description:
Distance from Upstream XS =       .5
Deck/Roadway Width        =        1
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     444    987.3     980     476    987.3     980

Upstream Bridge Cross Section Data
Station Elevation Data    num=      35
```

```
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   993.04    54.78   992.59    90.48      992    108.3      992    113.1   991.92
  201.92      990   206.52      990   290.89      988   354.58      988   367.06   987.79
  371.47   987.82   376.86   987.81   383.61   987.76      444   987.3    444.3      986
   444.4   985.82    444.5      985    444.6    984.3    444.7   984.18    444.8      984
  447.73    983.3    466.5    983.3   468.95      984   471.62      984      476    987.3
  481.35    987.5      495    987.5      545      988   587.59      988   658.68      990
  660.21      990   661.46   990.07   706.32   991.31   709.56   991.34   718.43   991.33

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05   354.58    .045      545     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        354.58     545             .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=        2
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
     444   987.3      980      476   987.3      980

Downstream Bridge Cross Section Data
Station Elevation Data     num=       35
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   993.04    54.78   992.59    90.48      992    108.3      992    113.1   991.92
  201.92      990   206.52      990   290.89      988   354.58      988   367.06   987.79
  371.47   987.82   376.86   987.81   383.61   987.76      444   987.3    444.3      986
   444.4   985.82    444.5      985    444.6    984.3    444.7   984.18    444.8      984
  447.73    983.3    466.5    983.3   468.95      984   471.62      984      476    987.3
     495    987.5      515    987.5      555      988   587.59      988   658.68      990
  660.21      990   661.46   990.07   706.32   991.31   709.56   991.34   718.43   991.33

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05   354.58    .045      555     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        354.58     555             .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope                =       1 horiz. to 1.0 vertical
Downstream Embankment side slope              =       1 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins           =   987.3
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  1

Culvert Name      Shape       Rise     Span
Culvert #1       Circular        2
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 3 - Pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length     n Value   Entrance Loss Coef   Exit Loss Coef
                 .5       1        .024                  .9                1
Upstream    Elevation =  983.9
            Centerline Station =  460
Downstream Elevation =  983.3
            Centerline Station =  460

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 16988

INPUT
Description:
Station Elevation Data     num=       35
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   993.04    54.78   992.59    90.48      992    108.3      992    113.1   991.92
  201.92      990   206.52      990   290.89      988   354.58      988   367.06   987.79
  371.47   987.82   376.86   987.81   383.61   987.76      444   987.3    444.3      986
   444.4   985.82    444.5      985    444.6    984.3    444.7   984.18    444.8      984
  447.73    983.3    466.5    983.3   468.95      984   471.62      984      476    987.3
     495    987.5      515    987.5      555      988   587.59      988   658.68      990
  660.21      990   661.46   990.07   706.32   991.31   709.56   991.34   718.43   991.33

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05   354.58    .045      555     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        354.58     555                 24       24       24             .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
888        F
888        F
```

CROSS SECTION RIVER: cluck
REACH: 1 RS: 16964.1*

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	993.04	51.23	992.62	55.42	992.58	84.61	992.1	91.54	992
101.28	992	105.76	991.99	109.57	991.98	114.42	991.89	188.82	990.28
193.12	990.2	204.28	989.96	208.94	989.94	272.02	988.45	294.29	988
331.58	988	343.25	987.97	347.37	987.97	352.41	987.97	358.73	987.97
370.65	987.74	374.87	987.75	380.02	987.72	386.46	987.65	419.84	987.28
425.65	987.24	427.05	987.21	437.69	986.92	440.04	986.86	444.17	986.6
444.45	985.47	444.55	985.31	444.64	984.6	444.74	984	444.83	983.89
444.93	983.73	447.73	982.97	466.5	982.97	468.65	983.91	469.01	984
471	984	471.74	984.03	474.07	985.57	476.22	987	479.54	987.13
486.64	987.24	492.82	987.33	495.67	987.36	516.15	987.43	557.09	988
576.56	988	589.26	988.05	653.64	989.86	655.3	989.9	656.66	989.94
659.44	990.02	660.96	990.03	662.19	990.09	705.3	991.28	706.47	991.31
708.81	991.33	709.67	991.34	718.43	991.33				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	358.73	.045	557.09	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
358.73	557.09	24	24	.3	.5

CROSS SECTION RIVER: cluck
REACH: 1 RS: 16940.2*

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	993.04	51.82	992.61	56.06	992.57	85.59	992.08	92.6	992
102.45	992	106.99	991.98	110.83	991.95	115.75	991.86	191.01	990.24
195.36	990.17	206.64	989.92	211.35	989.89	275.17	988.37	297.69	988
335.41	988	347.22	987.94	351.39	987.95	356.49	987.95	362.87	987.93
374.24	987.68	378.26	987.67	383.17	987.62	389.32	987.53	421.14	987.07
426.67	987.03	428.01	986.97	438.16	986.48	440.4	986.38	444.33	985.9
444.61	984.94	444.7	984.8	444.79	984.2	444.88	983.69	444.97	983.59
445.06	983.45	447.73	982.64	466.5	982.64	468.7	983.93	469.07	984
471.1	984	471.86	984.05	474.25	985.43	476.45	986.7	479.84	986.93
487.11	987.07	493.43	987.18	496.35	987.23	517.29	987.36	559.18	988
578.39	988	590.94	988.09	654.48	989.88	656.12	989.92	657.46	989.96
660.21	990.04	661.7	990.05	662.92	990.11	705.47	991.29	706.63	991.31
708.94	991.33	709.79	991.34	718.43	991.33				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	362.87	.045	559.18	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
362.87	559.18	24	24	.3	.5

CROSS SECTION RIVER: cluck
REACH: 1 RS: 16916.3*

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	993.04	52.41	992.61	56.7	992.56	86.57	992.06	93.65	992
103.62	992	108.21	991.97	112.1	991.93	117.07	991.83	193.19	990.19
197.59	990.14	209	989.88	213.77	989.83	278.31	988.3	301.1	988
339.25	988	351.19	987.91	355.41	987.92	360.56	987.92	367.02	987.9
377.83	987.63	381.66	987.6	386.33	987.53	392.17	987.42	422.44	986.85
427.7	986.83	428.98	986.74	438.63	986.04	440.76	985.9	444.5	985.2
444.76	984.41	444.84	984.29	444.93	983.8	445.02	983.39	445.1	983.3
445.19	983.18	447.73	982.31	466.5	982.31	468.75	983.94	469.12	984
471.2	984	471.98	984.08	474.42	985.29	476.67	986.4	480.15	986.73
487.57	986.91	494.04	987.04	497.02	987.09	518.44	987.3	561.27	988
580.23	988	592.61	988.14	655.32	989.91	656.94	989.93	658.26	989.98
660.97	990.06	662.45	990.08	663.65	990.13	705.64	991.29	706.78	991.31
709.06	991.24	709.9	991.34	718.43	991.33				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	367.02	.045	561.27	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
367.02	561.27	24	24	.3	.5

CROSS SECTION RIVER: cluck
REACH: 1 RS: 16892.5*

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	993.04	53	992.6	57.34	992.55	87.55	992.05	94.71	992
104.79	992	109.43	991.95	113.37	991.9	118.39	991.81	195.37	990.14
199.82	990.1	211.37	989.84	216.18	989.77	281.46	988.22	304.5	988
343.08	988	355.16	987.88	359.42	987.9	364.64	987.89	371.17	987.86

```
  381.43  987.58  385.05  987.52  389.48  987.43  395.03   987.3  423.74  986.64
  428.73  986.62  429.94  986.51   439.1  985.61  441.12  985.43  444.66  984.49
  444.91  983.87  444.99  983.78  445.08   983.4  445.16  983.08  445.24  983.01
  445.32  982.91  447.73  981.99   466.5  981.99   468.8  983.96  469.18     984
  471.31     984   472.1   984.1   474.6  985.15   476.9   986.1  480.45  986.53
  488.04  986.74  494.65   986.9  497.69  986.95  519.58  987.23  563.37     988
  582.07     988  594.29  988.19  656.16  989.93  657.75  989.95  659.06  990.01
  661.74  990.08  663.19   990.1  664.38  990.15  705.81   991.3  706.94  991.32
  709.19  991.34  710.01  991.34  718.43  991.33

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  371.17    .045  563.37     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        371.17  563.37               24      24      24             .3      .5

CROSS SECTION           RIVER: cluck
REACH: 1                RS: 16868.6*

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  993.04    53.6    992.6   57.98   992.54   88.52   992.03   95.77      992
  105.96     992  110.65   991.94  114.63   991.88  119.71   991.78  197.55   990.09
  202.05  990.07  213.73    989.8   218.6   989.71   284.6   988.15   307.9      988
  346.91     988  359.12   987.85  363.44   987.87  368.71   987.86  375.32   987.83
  385.02  987.52  388.45   987.45  392.64   987.34  397.88   987.19  425.04   986.43
  429.76  986.41   430.9   986.28  439.56   985.17  441.47   984.95  444.83   983.79
  445.06  983.34  445.14   983.26  445.22      983   445.3   982.78  445.37   982.72
  445.45  982.64  447.73   981.66   466.5  981.66  468.85   983.97  469.24      984
  471.41     984  472.22   984.13  474.77  985.01  477.12   985.8  480.75   986.33
   488.5  986.57  495.25   986.76  498.37  986.81  520.73  987.16  565.46      988
  583.91     988  595.96   988.24     657  989.95  658.57  989.97  659.86   990.03
   662.5   990.1  663.94   990.13  665.11  990.17  705.98   991.3  707.09  991.32
  709.31  991.34  710.13   991.34  718.43  991.33

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  375.32    .045  565.46     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        375.32  565.46               24      24      24             .3      .5

CROSS SECTION           RIVER: cluck
REACH: 1                RS: 16844.7*

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  993.04   54.19   992.59   58.62   992.53    89.5   992.02   96.83      992
  107.13     992  111.88   991.93   115.9   991.86  121.04   991.75  199.74   990.05
  204.29  990.03  216.09   989.76  221.01   989.66  287.75   988.07   311.3      988
  350.75     988  363.09   987.82  367.45   987.85  372.79   987.84  379.46   987.79
  388.61  987.47  391.84   987.37  395.79   987.24  400.74   987.08  426.34   986.21
  430.79  986.21  431.87   986.05  440.03   984.74  441.83   984.48     445   983.09
  445.22  982.81  445.29   982.75  445.36   982.6   445.44   982.47  445.51   982.42
  445.58  982.36  447.73   981.33   466.5  981.33   468.9   983.99   469.3      984
  471.52     984  472.35   984.15  474.95  984.87  477.35   985.5  481.05   986.13
  488.97  986.41  495.86   986.61  499.04  986.68  521.88  987.09  567.55      988
  585.75     988  597.64   988.28  657.84  989.98  659.39  989.98  660.66   990.05
  663.27  990.12  664.68   990.15  665.83  990.19  706.15  991.31  707.25  991.32
  709.44  991.34  710.24   991.34  718.43  991.33

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  379.46    .045  567.55     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        379.46  567.55               24      24      24             .3      .5

CROSS SECTION           RIVER: cluck
REACH: 1                RS: 16820.92

INPUT
Description:
Station Elevation Data    num=      34
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  993.04   54.78   992.59   90.48      992   108.3      992   113.1   991.92
  201.92     990  206.52      990  290.89      988  354.58      988  367.06   987.79
  371.47  987.82  376.86   987.81  383.61   987.76  427.64      986  431.82      986
  432.83  985.82   440.5   984.3   442.19      984  447.73      981   466.5      981
  468.95     984  471.62      984  475.12   984.73  481.35   985.93  489.43   986.24
  496.47  986.47  569.64      988  587.59      988  658.68      990  660.21      990
  661.46  990.07  706.32   991.31  709.56   991.34  718.43   991.33

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  383.61    .045  569.64     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        383.61  569.64              80.14   79.22   78.3             .3      .5
Ineffective Flow     num=       2
```

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   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                 RIVER: cluck
REACH: 1                   RS: 16781.31

INPUT
Description: Prize Oak Dr
Distance from Upstream XS =   13.61
Deck/Roadway Width        =      52
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=        4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  182.19     990     900  282.19     988     900  442.19     988     900
  622.19     988     900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  993.04   54.78  992.59   90.48     992   108.3     992   113.1  991.92
  201.92     990  206.52     990  290.89     988  354.58     988  367.06  987.79
  371.47  987.82  376.86  987.81  383.61  987.76  427.64     986  431.82     986
  432.83  985.82   440.5   984.3  442.19     984  447.73     981   466.5     981
  468.95     984  471.62     984  475.12  984.73  481.35  985.93  489.43  986.24
  496.47  986.47  569.64     988  587.59     988  658.68     990  660.21     990
  661.46  990.07  706.32  991.31  709.56  991.34  718.43  991.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  383.61    .045  569.64     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        383.61  569.64            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=        4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  -26.38  988.99     900   73.62     988     900  233.62     988     900
     430     988     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -26.38  988.99   14.52  986.99   42.51  986.99  103.96  985.17  111.36     985
  131.07  984.99  167.59  984.68  193.28  983.76  194.64   983.8   197.2  983.52
  198.38  983.53  199.89  983.51  204.61  983.07  217.68  980.99   221.1   980.6
  224.77   980.3  243.24   980.3  247.46  982.54  249.54  982.99  254.68  983.72
  258.69   984.5  261.42  984.99  329.75  985.96  402.25  986.99  409.93   987.3
  415.63  987.63   439.9  988.53   441.1  988.59  445.55  988.65  447.14  988.72
  450.44  988.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -26.38     .05  167.59    .045  261.42     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        167.59  261.42            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Prize Oak Dr         Box       6       9
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
              13.61      52       .011                   .4                1
Number of Barrels =  2
Upstream   Elevation =  981
Centerline Stations
    Sta.    Sta.
   451.9   461.9
Downstream Elevation =  980.45
Centerline Stations
    Sta.    Sta.
  228.62  238.62
```

```
CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 16741.70

INPUT
Description:
Station Elevation Data    num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -26.38  988.99   14.52  986.99   42.51  986.99  103.96  985.17  111.36     985
  131.07  984.99  167.59  984.68  193.28  983.76  194.64   983.8   197.2  983.52
  198.38  983.53  199.89  983.51  204.61  983.07  217.68  980.99   221.1   980.6
  224.77   980.3  243.24   980.3  247.46  982.54  249.54  982.99  254.68  983.72
  258.69   984.5  261.42  984.99  329.75  985.96  402.25  986.99  409.93   987.3
  415.63  987.63   439.9  988.53   441.1  988.59  445.55  988.65  447.14  988.72
  450.44  988.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -26.38     .05  167.59    .045  261.42     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        167.59  261.42           249.71  248.19  246.37              .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 16525.1*

INPUT
Description:
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -25.38  988.22  -10.12  987.38    12.6  986.46   37.72  986.33   38.59  986.32
   90.91  984.91   95.64  984.76   96.82  984.73  102.51  984.62  110.34   984.6
  113.25  984.53  118.65  984.49  119.94  984.43  120.81  984.42  154.72  984.15
  158.02  982.36   173.8  981.44  174.81  981.44  176.71   981.2  177.59  981.19
   177.6  981.19  178.71  981.14  182.21  980.72  191.92     979  194.46  978.65
  197.18  978.36  209.49  978.36  213.24  980.16  215.08  980.62  217.55  981.09
  219.64  981.45   223.2  982.19   225.6  982.67  225.62  984.34  241.01   984.5
  245.57  984.61  259.55  984.81  290.56  985.13  295.75   985.2  302.06   985.3
  364.48  986.27  370.15  986.38  378.04  986.65  383.89  986.92  405.22  987.62
   408.8  987.76  410.03  987.82  414.59  987.93  416.23     988  419.61  988.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -25.38     .05  154.72    .045  225.62     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        154.72  225.62           249.71  248.19  246.37              .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 16308.5*

INPUT
Description:
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -24.38  987.46   -10.3  986.58   10.67  985.94   33.86  985.66   34.66  985.65
   82.95  984.51   87.32  984.35   88.41  984.31   93.67  984.24  100.89   984.2
  103.57  984.06  108.56     984  109.75  983.86  110.56  983.86  141.86  983.63
  144.01   980.2  154.32  979.12  154.98  979.08  156.22  978.89  156.79  978.84
  157.52  978.76  159.81  978.37  166.15  977.01  167.81   976.7  169.59  976.41
  175.75  976.41  179.01  977.79  180.62  978.25  182.77   978.8   184.6  979.17
   187.7  979.89   189.8  980.36  189.81  983.69   205.6   983.8  210.28  983.96
  224.61  984.15  256.43  984.36  261.74  984.45  268.22  984.55  332.24  985.64
  338.06  985.76  346.14     986  352.14  986.21  374.03  986.84  377.69  986.99
  378.95  987.05  383.64  987.21  385.31  987.29  388.79  987.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -24.38     .05  141.86    .045  189.81     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        141.86  189.81           249.71  248.19  246.37              .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 16091.92

INPUT
Description:
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -23.38  986.69  -10.47  985.78     30     985      75   984.1      80   983.9
   91.44   983.8    93.9   983.6 98.471   983.5   99.56   983.3  128.99   983.1
     130  978.04     136   976.5    142  974.47    148   976.5     154  978.04
  154.01  983.04 170.189   983.1 174.99   983.3  189.68   983.5  222.29   983.6
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 234.379   983.8     300     985  342.83  986.06  357.96  986.73

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
  -23.38     .05  128.99    .045  154.01     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        128.99  154.01                 9       9       9              .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

CULVERT                 RIVER: cluck
REACH: 1                   RS: 16087.42

INPUT
Description:
Distance from Upstream XS =       2
Deck/Roadway Width        =       5
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     129  983.04     975     154  983.04     975

Upstream Bridge Cross Section Data
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -23.38  986.69  -10.47  985.78      30     985      75   984.1      80   983.9
   91.44   983.8    93.9   983.6  98.471   983.5   99.56   983.3  128.99   983.1
     130  978.04     136   976.5     142  974.47     148   976.5     154  978.04
  154.01  983.04 170.189   983.1  174.99   983.3  189.68   983.5  222.29   983.6
 234.379   983.8     300     985  342.83  986.06  357.96  986.73

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
  -23.38     .05  128.99    .045  154.01     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        128.99  154.01            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     129  983.04     975     154  983.04     975

Downstream Bridge Cross Section Data
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     985      30     985      75   984.1      80   983.9   91.44   983.8
    93.9   983.6  98.471   983.5   99.56   983.3  128.99   983.1     130     978
     136   976.3     142  974.47     148   976.3     154     978  154.01  983.04
 170.189   983.1  174.99   983.3  189.68   983.5  222.29   983.6 234.379   983.8
     300     985     335     985

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05  128.99    .045  154.01     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        128.99  154.01            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888       F
888       F

Upstream Embankment side slope              =       1 horiz. to 1.0 vertical
Downstream Embankment side slope            =       1 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =  983.04
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Culvert #1       Circular       2
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 3 - Pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  2       5       .024                  .9                1
Upstream   Elevation =  979
           Centerline Station =  145
Downstream Elevation =  978.5
           Centerline Station =  145

CROSS SECTION           RIVER: cluck
REACH: 1                   RS: 16082.92
```

```
INPUT
Description:
Station Elevation Data    num=      22
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0      985       30      985       75    984.1       80    983.9    91.44    983.8
    93.9    983.6   98.471    983.5    99.56    983.3   128.99    983.1      130      978
     136    976.3      142   974.47      148    976.3      154      978   154.01   983.04
 170.189    983.1   174.99    983.3   189.68    983.5   222.29    983.6  234.379    983.8
     300      985      335      985

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05   128.99    .045   154.01     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        128.99  154.01             35.11   33.34    31.7             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 16049.5*

INPUT
Description:
Station Elevation Data    num=      31
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   983.33    29.03   983.33    47.2   983.08    72.57   982.48     77.4   982.29
   88.47   982.11    90.85   981.96   95.27   981.84    96.33    981.7    98.02   981.68
  105.55   981.61    124.8   981.45  125.62   977.93   130.47   976.08   135.32   974.15
   149.3   974.15   154.35   975.81  159.39   977.39    159.4   980.75   174.31   980.88
  178.73   981.04   192.27   981.25  222.32    981.5   233.46    981.7    260.2   982.22
  293.93   982.67   297.58   982.67  298.35   982.73   321.27   982.97   324.75   983.03
  326.18   983.07

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05    124.8    .045    159.4     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         124.8   159.4             35.11   33.34    31.7             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 16016.2*

INPUT
Description:
Station Elevation Data    num=      31
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   981.67    28.05   981.67    45.61   981.54    70.13   980.85    74.81   980.69
    85.5   980.43     87.8   980.31    92.08   980.19     93.1    980.1    94.73   980.06
  102.01   979.99   120.62   979.79   121.24   977.85   124.94   975.86   128.65   973.82
   156.6   973.82   160.69   975.32   164.78   976.77   164.79   978.45   178.43   978.65
  182.47   978.78   194.86   979.01   222.35   979.41   232.54   979.61      257   980.11
  287.85   980.33    291.2   980.33    291.9   980.47   312.87   980.93   316.05   981.07
  317.35   981.13

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05   120.62    .045   164.79     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        120.62  164.79             35.11   33.34    31.7             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 15982.92

INPUT
Description:
Station Elevation Data    num=      14
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0      980    44.03      980    91.44   978.45    98.47   978.37   116.43   978.14
  121.97    973.5    162.9    973.5   170.18   976.16    253.8      978   284.81      978
  285.45    978.2   304.46    978.9   307.35    979.1   308.53    979.2

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05   116.43    .045   170.18     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        116.43  170.18                 57      57       57             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F
```

```
CULVERT                 RIVER: cluck
REACH: 1                   RS: 15954.42

INPUT
Description: Cedar Park Dr
Distance from Upstream XS =       10
Deck/Roadway Width        =       37
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=        5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 -446.64     980     900   73.36     978     900  143.36     978     900
  373.36     978     900  623.36     980     900

Upstream Bridge Cross Section Data
Station Elevation Data     num=       14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     980   44.03     980   91.44  978.45   98.47  978.37  116.43  978.14
  121.97   973.5   163.9   973.5  170.18  976.16   253.8     978  284.81     978
  285.45   978.2  304.46   978.9  307.35   979.1  308.53   979.2

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  116.43    .045  170.18     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        116.43  170.18            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=        5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  119.87     980     900  639.87     978     900  709.87     978     900
  939.87     978     900 1189.87     980     900

Downstream Bridge Cross Section Data
Station Elevation Data     num=       43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.18   50.42  982.98  139.58  982.13  166.75  981.97  188.26  981.84
  196.04  981.76   239.5  981.37  319.64     980  331.46     980  418.97  978.64
  461.43  978.47  468.92  978.31  489.57  978.29     543     978  578.67  977.47
  601.06   977.3  605.43  977.19  622.82  977.19  624.59  977.12  627.36  977.13
  635.13   976.9  637.53  976.88  640.77  976.76  642.88  976.74  646.52   976.6
  648.19  976.58  652.33  976.41  654.47  976.39  658.72  976.19  663.04     976
  665.03     976  665.43   973.5  710.56   973.5  713.03     976   862.2     978
  884.06     978  965.41     980  994.76  981.37 1017.36  982.22 1023.54  982.47
 1025.16  982.51 1029.75   982.7 1037.85  982.95

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  665.03    .045  713.03     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        665.03  713.03            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
CedarPark Dr          Box       3       8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10      37       .011                 .04                1
Number of Barrels =  6
Upstream   Elevation =  973.5
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
  125.36  134.36  143.36  152.36  161.36
Downstream Elevation =  973.5
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
  670.16  679.16  688.15  697.16  706.15

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 15925.92

INPUT
Description:
```

```
Station Elevation Data    num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.18   50.42  982.98  139.58  982.13  166.75  981.97  188.26  981.84
  196.04  981.76   239.5  981.37  319.64     980  331.46     980  418.97  978.64
  461.43  978.47  468.92  978.31  489.57  978.29     543     978  578.67  977.47
  601.06   977.3  605.43  977.19  622.82  977.19  624.59  977.12  627.36  977.13
  635.13   976.9  637.53  976.88  640.77  976.76  642.88  976.74  646.52   976.6
  648.19  976.58  652.33  976.41  654.47  976.39  658.72  976.19  663.04     976
  665.03     976  665.43   973.5  710.56   973.5  713.03     976   862.2     978
  884.06     978  965.41     980  994.76  981.37 1017.36  982.22 1023.54  982.47
 1025.16  982.51 1029.75   982.7 1037.85  982.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  665.03    .045  713.03     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       665.03  713.03           19.54   14.21   9.285             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 15911.71

INPUT
Description:
Station Elevation Data    num=      44
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  983.18   50.42  982.98  139.58  982.13  166.75  981.97  188.26  981.84
  196.04  981.76   239.5  981.37  319.64     980  331.46     980  418.97  978.64
  461.43  978.47  468.92  978.31  489.57  978.29     543     978  578.67  977.47
  601.06   977.3  605.43  977.19  622.82  977.19  624.59  977.12  627.36  977.13
  635.13   976.9  637.53  976.88  640.77  976.76  642.88  976.74  646.52   976.6
  648.19  976.58  652.33  976.41  654.47  976.39  658.72  976.19  663.04     976
  665.03     976  665.43   973.5  710.56   973.5  713.03     976   862.2     978
  880.74     978  884.06     978  965.41     980  994.76  981.37 1017.36  982.22
 1023.54  982.47 1025.16  982.51 1029.75   982.7 1037.85  982.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  665.03    .045  713.03     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       665.03  713.03         1148.5 1157.94 1167.38              .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 14753.77

INPUT
Description:
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  980.42  102.17   979.4  192.86     978  208.35     978  293.52     976
  370.04  974.13  402.87  974.08  407.85     974  416.26  973.88  527.26   972.1
  609.86  971.77  717.45  971.37  829.67  970.59  955.21  969.79 1032.74  968.04
 1034.45     968 1059.49     968 1063.32  967.94 1068.28  967.95 1074.09  967.77
 1100.44     966 1114.75     966 1138.97     968 1198.54  969.94 1201.89     970
 1205.14  970.18 1210.74  970.38 1224.38  970.97 1249.05     972 1255.28  972.36
 1256.41  972.41 1260.69  972.66  1262.7  972.72 1266.05  972.93 1268.86  973.01
 1271.39  973.17 1284.96  973.61 1302.15  974.43 1315.83  975.39 1322.89     976
  1325.6  976.18 1343.06  977.07 1348.11  977.27  1374.2  977.84 1380.37     978
 1393.18     978 1396.97  978.05 1486.22     980 1565.97   982.1 1638.73     984
 1640.96     984 1694.64  985.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06 1059.49    .05 1138.97     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      1059.49 1138.97         1381.6 1388.82 1396.04              .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 13364.95

INPUT
Description:
Station Elevation Data    num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  964.21    5.06  964.15   12.02     964   42.08  963.86  140.07     962
  155.88     962  256.06     960     259  959.96  387.61   958.6  479.61  958.11
  503.86  958.01  700.06     958  723.08  957.76  847.26     956  866.12     954
  893.68     954   910.2     956  916.83  956.45   951.8  957.96  978.08  959.06
   993.6  959.44  995.12   959.5  999.28  959.53 1000.41  959.59 1004.56   959.6
 1009.83  959.65 1012.96  959.74 1017.52  959.76 1055.51  960.18 1060.91  960.29
 1062.77  960.36 1068.32  960.68 1073.37  960.87 1087.75     962 1089.48     962
 1150.95     964 1185.96     966 1203.71     966 1225.56  966.68 1253.01     967
 1287.94  967.77 1293.55     968 1308.74     968 1338.08  968.43 1354.78  968.47
 1417.81  968.58 1429.06   968.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  847.26    .05   910.2     .06
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        847.26   910.2           1148.27 1151.71 1155.16             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 12213.24

INPUT
Description:
Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  952.84   51.83     952   67.64     952   88.29  951.03   98.83  950.71
  102.13  950.55  118.82     950  137.23     950  278.78  948.01  478.37     948
  481.22     948  484.79  947.89  489.71  947.52  492.78  947.42  496.65  947.09
  499.15  947.07  501.86  946.85  505.26  946.79  523.27     946  527.81     946
  537.36  945.76  543.62  945.74  547.55  945.65  548.37  945.66  555.07  945.53
  592.42     944  607.29     942  623.44  940.86  633.58   940.3  640.39     940
  650.19     940  661.12  941.29  666.45     942  699.07     944  699.96  944.01
   818.5  945.96   937.1  946.19  1083.3     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  592.42     .05  699.07     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        592.42  699.07           75.37   76.67   77.97             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 12136.57

INPUT
Description:
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     946       5     945      10     943      20     942      38   938.6
     130   938.6     150     940     200     943     300     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08      10     .07     200     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          10     200             57.49   55.31   55.97             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluck
REACH: 1                  RS: 12108.92

INPUT
Description: Big Sur
Distance from Upstream XS =   1.655
Deck/Roadway Width        =      52
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0   945.3     900  161.93   945.3     900  216.93   945.2     900
     300   945.5     900

Upstream Bridge Cross Section Data
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     946       5     945      10     943      20     942      38   938.6
     130   938.6     150     940     200     943     300     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08      10     .07     200     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
          10     200             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0   945.3     900  104.59   945.3     900  159.59   945.2     900
     300   945.5     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  945.69      20     942      40     940      60     938      80     938
     100     938     120     938     140     938     160     938     180     940
     200     942     220     943     240     944     260     945     280   945.5
     300     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08      20     .07     200     .08
```

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
          20     200              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Big Sur            Box       5      10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
             1.655      52       .011                  .4                1
Number of Barrels =  8
Upstream   Elevation =  938.6
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
   43.93   54.93   65.93   76.93   87.93   98.93  109.93  120.93
Downstream Elevation =  938
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
   66.59   77.59   88.59   99.59  110.59  121.59  132.59  143.59

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 12081.26

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  945.69      20     942      40     940      60     938      80     938
     100     938     120     938     140     938     160     938     180     940
     200     942     220     943     240     944     260     945     280   945.5
     300     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08      20     .07     200     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          20     200                80      80      80              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 12001.26

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  945.69      20     942      40     940      60  936.96      80  936.96
     100  936.96     120  936.96     140  936.96     160  936.96     180     940
     200     942     220     943     240     944     260     945     280   945.5
     300     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08      20     .07     200     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          20     200             121.34  123.04  121.89              .1       .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 11878.23

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     -50     945     -40     942     -20     940     -10     938       0   935.8
      20   935.8      40   935.8      60   935.8      80   935.8     100     938
     120     940     140     942     160     944     180     945     200     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     -50     .08     -20     .07     120     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -20    120                80      80      80              .1       .3
```

```
CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 11798.23

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     -50     945     -40     942     -20     940     -10     938       0     935
      20     935      40     935      60     935      80     935     100     938
     120     940     140     942     160     944     180     945     200     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     -50     .08     -20     .07     120     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -20     120             61.69   61.56   61.44             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-8-88       F
888       F

CULVERT                RIVER: cluck
REACH: 1                  RS: 11767.45

INPUT
Description: Winecup
Winecup
Distance from Upstream XS =    3.78
Deck/Roadway Width        =      54
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  -51.11   944.1     900   -1.11     944     900   34.89   943.9     900
   47.89   943.8     900   97.89   943.5     900  147.89   943.7     900
     160   943.6

Upstream Bridge Cross Section Data
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     -50     945     -40     942     -20     940     -10     938       0     935
      20     935      40     935      60     935      80     935     100     938
     120     940     140     942     160     944     180     945     200     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     -50     .08     -20     .07     120     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
          -20     120             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-8-88       F
888       F

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     -50   944.1     900   68.27     944     900  104.27   943.9     900
  117.27   943.8     900  167.27   943.5     900  217.27   943.7     900

Downstream Bridge Cross Section Data
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     -50     945     -40     942     -20     940     -10     938       0     935
      20     935      40     935      60     935      80     935     100     935
     120     938     140     940     160     942     180     944     200     946

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     -50     .08     -20     .07     140     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
          -20     140             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

Upstream Embankment side slope             =       0 horiz. to 1.0 vertical
Downstream Embankment side slope           =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway Height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Winecup             Box         6      10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
```

```
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
              3.78      54       .011                  .4                 1
Number of Barrels =  8
Upstream   Elevation =  935.2
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
   -3.11    7.89   18.89   29.89   40.89   51.89   62.89   73.89
Downstream Elevation =  935
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
   16.27   27.27   38.27   49.27   60.27   71.27   82.27   93.27

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 11736.66

INPUT
Description:
Station Elevation Data    num=      15
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     -50      945      -40      942      -20      940      -10      938        0      935
      20      935       40      935       60      935       80      935      100      935
     120      938      140      940      160      942      180      944      200      946

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
     -50     .08      -20     .07      140     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -20     140               80      80      80             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 11656.66

INPUT
Description:
Station Elevation Data    num=      15
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     -50      945      -40      942      -20      940      -10      938        0    934.2
      20    934.2       40    934.2       60    934.2       80    934.2      100    934.2
     120      938      140      940      160      942      180      944      200      946

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
     -50     .08      -20     .07      140     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -20     140            566.21  564.9  563.9             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 11091.76

INPUT
Description:
Station Elevation Data    num=      21
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0      938       20      936       40      935       60    934.7       80    934.5
     100      934      120    933.5      140      933      160    932.5      180      932
     200      931      220      931      240      931      260      931      280      932
     300      934      320      936      340      937      360    937.5      380    937.8
     400      938

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06      100     .05      300     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          100     300              8.51  8.555    8.6             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 11083.21

INPUT
Description:
Station Elevation Data    num=      21
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   937.86       20   935.86       40   934.86       60   934.56       80   934.36
     100   933.86      120   933.36      140   932.86      160   932.36      180   931.86
     200   930.86      220   930.86      240   930.86      260   930.86      280   931.86
     300   933.86      320   935.86      340   936.86      360   937.36      380   937.66
     400   937.86

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06      120     .05      300     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          120     300               43      43      43             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F
```

```
CULVERT                 RIVER: cluck
REACH: 1                   RS: 11061.71

INPUT
Description: Cardinal
Distance from Upstream XS =       10
Deck/Roadway Width        =       23
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=        5
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
       0      936      900    63.69      936      900   208.69      937      900
  224.69    937.5      900      400      938      900

Upstream Bridge Cross Section Data
Station Elevation Data     num=       21
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   937.86       20   935.86       40   934.86       60   934.56       80   934.36
     100   933.86      120   933.36      140   932.86      160   932.36      180   931.86
     200   930.86      220   930.86      240   930.86      260   930.86      280   931.86
     300   933.86      320   935.86      340   936.86      360   937.36      380   937.66
     400   937.86

Manning's n Values         num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
       0      .06      120      .05      300      .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
          120     300             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=        4
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
  156.87      936      900  301.87      937      900  317.87    937.5      900
     600      938      900

Downstream Bridge Cross Section Data
Station Elevation Data     num=       20
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
  107.94   937.94   195.21   938.12    200.9   938.09   212.25   937.97   213.49   937.92
  219.32   937.79   239.44   937.15   261.93   936.14   274.51   934.54   277.24   934.14
  284.26   934.14   301.87   933.32   304.81   933.34      320   932.14      340   930.14
     400   930.14      440   932.14      460   934.14      500   936.14      520   938.14

Manning's n Values         num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
  107.94      .06      320      .05      440      .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
          320     440             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope             =       0 horiz. to 1.0 vertical
Downstream Embankment side slope           =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Cardinal            Box         4       8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10      23       .011                  .4                1
Number of Barrels =  5
Upstream   Elevation =  930.86
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
     212     221     230     239     248
Downstream Elevation =  930.14
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
  353.87  362.87  371.87  380.87  389.87

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 11040.21

INPUT
Description:
Station Elevation Data     num=       20
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
  107.94   937.94   195.21   938.12    200.9   938.09   212.25   937.97   213.49   937.92
```

```
  219.32  937.79  239.44  937.15  251.93  936.14  274.51  934.54  277.24  934.14
  284.26  934.14  301.87  933.32  314.81  933.34     320  932.14     340  930.14
     400  930.14     440  932.14     460  934.14     500  936.14     520  938.14

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  107.94     .06     320     .05     340     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            320     440              8.51   8.555     8.6             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 11031.65

INPUT
Description:
Station Elevation Data    num=      29
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   937.3     7.57  937.25     9.49   37.21    15.49  937.23    40.15  937.18
   90.46  937.63    91.55  937.66   102.76   37.76   103.92  937.75   107.94   937.8
  195.21  937.98   200.9   937.95   212.25   937.83   213.49  937.78   219.32  937.65
  239.44  937.01   261.93     936   274.51     934.4  277.24     934   284.26     934
  301.87  933.18   304.81   933.2      320      932      340     930      400     930
     440     932      460     934      500      936      520     938

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  277.24     .05     460     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        277.24     460            363.11  359.11  355.11             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 10672.54

INPUT
Description:
Station Elevation Data    num=      30
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0      940     7.44     940  103.92      938   10.68  937.08   115.53  936.29
  116.37  936.17   117.31     936  125.44      934   131.26  932.38   132.61     932
  140.57  930.32      142     930   204.9      930   207.3  930.05   214.33  930.18
  237.54  930.56   267.22  931.03  269.61   931.02   278.44  931.57   352.28  931.55
  354.45  931.56      360   931.7     385   932.8      400     933      405   933.4
     410   933.6      420   934.5     425   934.7      427   934.9      430     935

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  131.26     .05  267.22     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        131.26  267.22            306.72  293.97  281.22             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 10378.57

INPUT
Description:
Station Elevation Data    num=      39
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   934.85  104.44  934.98   165.34   935.58  334.77      936  521.48   935.11
  553.19  934.44   576.4  934.03   580.45      934  593.39   933.61  595.37   933.52
  603.51   933.3  606.91  933.13   613.87   932.92  631.68      932   640.3   930.78
  643.13  930.39  645.31     930   651.06   928.82  654.72      928  667.92   926.02
  679.86  925.36  688.63   925.4   695.6    925.7   699.15      926  700.53   926.15
   702.4  926.36  714.94     928   725.92   928.86  735.76   929.37  745.47      930
  793.21     930  867.76     932   869.81      932  943.63      934  946.12      934
 1026.58     936 1028.01     936 1050.73   936.68 1050.75   936.68

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  645.31     .07  745.47     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        645.31  745.47            10.68  10.735  10.785             .3      .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 10367.84

INPUT
Description:
Station Elevation Data    num=      33
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   934.75  104.44  934.38   165.34   935.48  334.77   935.9   521.48   935.01
  553.19  934.24   576.4  933.93   580.45    933.9  593.39  933.51  595.37   933.42
  603.51   933.2  606.91  933.03   613.87   932.82  631.68   931.9   640.3   930.68
  643.13  930.29  645.31   929.9   651.06   928.72  654.72  925.26   702.4   925.26
  714.94   927.9  725.92  928.76   735.76   929.27  745.47   929.9  793.21    929.9
  867.76   931.9  869.81   931.9   943.63    933.9  946.12   933.9 1026.58    935.9
 1028.01   935.9 1050.73  936.58 1050.75   936.58
```

```
Manning's n Values          num=        3
     Sta   n Val     Sta    n Val     Sta   n Val
       0     .08  645.31      .07  745.47     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        645.31  745.47               65      65      65             .3       .5
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                  RIVER: cluck
REACH: 1                    RS: 10335.34

INPUT
Description: West Park
Distance from Upstream XS =       10
Deck/Roadway Width        =       45
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=        5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  558.89      934      900  616.89      932      900  679.89    931.5      900
  859.89      932      900  896.02   932.58      900

Upstream Bridge Cross Section Data
Station Elevation Data     num=       33
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   934.75   104.44   934.88   165.34   935.48   334.77    935.9   521.48   935.01
  553.19   934.34    576.4   933.93   580.45    933.9   593.39   933.51   595.37   933.42
  603.51    933.2   606.91   933.03   613.87   932.82   631.68    931.9    640.3   930.68
  643.13   930.29   645.31    929.9   651.06   928.72   654.72   925.26    702.4   925.26
  714.94    927.9   725.92   928.76   735.76   929.27   745.47    929.9   793.21    929.9
  867.76    931.9   869.81    931.9   943.63    933.9   946.12    933.9  1026.58    935.9
 1028.01    935.9  1050.73   936.58  1050.75   936.58

Manning's n Values          num=        3
     Sta   n Val     Sta    n Val     Sta   n Val
       0     .08  645.31      .07  745.47     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
        645.31  745.47             .3       .5
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=        5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  487.27    932.1      900  492.71      932      900  555.71    931.5      900
  735.71      932      900   820.7    934.1      900

Downstream Bridge Cross Section Data
Station Elevation Data     num=       55
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   934.14    50.31   934.41   102.62    934.7   131.03   935.01   273.52   934.65
  361.63   934.43   394.34    934.1   398.74    934.1   425.89   933.68   484.38   932.21
  487.27    932.1   506.11    930.1   516.35    928.1   518.35   927.68   526.06    926.1
  534.19   924.62   590.27   924.62   593.53    926.1   595.99   926.28   620.84    928.1
  651.37    928.1    698.4    930.1   709.26    930.1   724.21   930.83   728.19   930.92
  731.01    931.1   734.14   931.19   738.11   931.43   752.94   932.05   754.85    932.1
   776.9    932.1   785.07   932.45   790.86   932.56      793    932.7   798.98    932.9
   820.7    934.1   857.62    934.1   867.04   934.61   870.66   934.58   871.86   934.68
  875.39   934.68   877.08   934.78   879.97   933.84    882.1      934   885.85   935.03
  887.41   934.37   890.16   934.53   891.14   935.24   894.32   935.31   898.02   935.47
  907.73   935.57   909.05   935.62   912.68   935.58   920.78   935.56   941.13   935.96

Manning's n Values          num=        3
     Sta   n Val     Sta    n Val     Sta   n Val
       0     .08  518.35      .07  620.84     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
        518.35  620.84             .3       .5
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise     Span
W Park              Box         4        8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
```

```
                10      45       .011                    .4                1
Number of Barrels =  5
Upstream   Elevation =  925.26
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
  661.89  670.89  679.89  688.89  697.89
Downstream Elevation =  924.62
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
  537.71  546.71  555.71  564.71  573.71

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 10302.84

INPUT
Description:
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  934.14   50.31  934.41  102.62   934.7  131.03  935.01  273.52  934.65
  361.63  934.43  394.34   934.1  398.74   934.1  425.89  933.68  484.38  932.21
  487.27   932.1  506.11   930.1  516.35   928.1  518.35  927.68  526.06   926.1
  534.19  924.62  590.27  924.62  593.53   926.1  595.99  926.28  620.84   928.1
  651.37   928.1   698.4   930.1  709.26   930.1  724.21  930.83  728.19  930.92
  731.01   931.1  734.14  931.19  738.11  931.43  752.94  932.05  754.85   932.1
   776.9   932.1  785.07  932.45  790.86  932.56     793   932.7  798.98   932.9
   820.7   934.1  857.62   934.1  867.04  934.61  870.66  934.58  871.86  934.68
  875.39  934.68  877.08  934.78  879.97  933.84   882.1     934  885.85  935.03
  887.41  934.37  890.16  934.53  891.14  935.24  894.32  935.31  898.02  935.47
  907.73  935.57  909.05  935.62  912.68  935.58  920.78  935.56  941.13  935.96

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  518.35     .07  620.84     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        518.35  620.84            10.68  10.735  10.785             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 10292.10

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  934.04   50.31  934.31  102.62   934.6  131.03  934.91  273.52  934.55
  361.63  934.33  394.34     934  398.74     934  425.89  933.58  484.38  932.11
  487.27     932  506.11     930  516.35     928  518.35  927.58  526.06     926
   538.5  924.97  541.19  924.81   546.4  924.59  550.55  924.52   554.3  924.59
  555.71  924.57  559.03  924.71  562.36  924.67  565.32  924.83  567.27  924.81
  590.27  925.78  595.99  926.18  620.84     928  651.37     928   698.4     930
  709.26     930  724.21  930.73  728.19  930.82  731.01     931  734.14  931.09
  738.11  931.33  752.94  931.95  754.85     932   776.9     932  785.07  932.35
  790.86  932.46     793   932.6  798.98   932.8   820.7     934  857.62     934
  867.04  934.51  870.66  934.48  871.86  934.58  875.39  934.58  877.08  934.68
  879.97  933.74   882.1   933.9  885.85  934.93  887.41  934.27  890.16  934.43
  891.14  935.14  894.32  935.21  898.02  935.37  907.73  935.47  909.05  935.52
  912.68  935.48  920.78  935.46  941.13  935.86

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  518.35     .07  620.84     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        518.35  620.84           1308.83 1316.37 1323.91             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 8975.730

INPUT
Description:
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  929.48   30.63  929.08   32.32     929   43.98  929.35    45.2  929.32
   61.47  929.79   63.33  929.81   92.94  930.88   94.08   930.9    98.2  930.89
  128.86     930  135.92     930  157.96     928  212.24  926.24  231.03     926
   250.3     926  343.73  925.26   345.8  925.31  347.21  925.26  350.14  925.29
  355.98  925.13  358.91  925.12  382.31  924.55  384.63  924.45  387.75  924.49
  391.76  924.48  399.49   924.3  403.43  924.33  411.66  924.38  469.16  924.25
  490.14     924  506.55     924  563.59  923.24  606.21   922.3     645  922.05
   647.1     922  656.96  921.91  664.36  921.77  681.01  921.28  713.71     920
  742.38     918  785.11     914  787.34     914  877.55  912.23  893.48  912.47
  895.76  912.53  899.26  912.53  953.43     914   956.7     914  982.74     916
  994.51     918  1008.7     920 1012.02     920    1044     920 1060.69   920.4
 1096.13     922 1161.93     922 1216.56  923.81 1223.34  923.93    1226     924
 1240.37  924.03 1286.57     924 1289.28  924.13 1337.54     926 1341.67     926
 1405.55  926.86

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  713.71     .05 1012.02     .06
```

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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       713.71 1012.02          2048.71 2051.63 2054.54             .1       .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 6924.104

INPUT
Description:
Station Elevation Data    num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  152.11     904  269.88     904  287.99  902.49  301.68  901.09   313.4  900.25
  318.02     900  319.56   899.8  320.47  899.66  330.34  898.23  331.76     898
  341.28     896  342.36     889  400.45     889  405.07  895.83  410.58  896.03
  415.51  896.02  420.51  895.93  425.47  895.89  430.41     896  430.47     896
  435.36  895.96  442.86     896  445.24  896.05  450.53  896.29  453.82  896.46
  476.96     898  478.04  898.05   483.5  898.31  508.54     900  586.99     900
  670.55     905

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  152.11     .15  341.28      .1  430.47     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       341.28  430.47           10.67   12.19  13.705             .3       .5

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 6911.914

INPUT
Description:
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  152.11     904  269.88     904  287.99  902.49  301.68  901.09   313.4  900.25
  318.02     900  319.56   899.8  320.47  899.66  330.34  898.23  331.76     898
  341.28     896  342.36     889  400.45     889  405.07  895.83  410.58  896.03
  415.51  896.02  420.51  895.93  425.47  895.89  430.41     896  435.36  895.96
  442.86     896  445.24  896.05  450.53  896.29  453.82  896.46  476.96     898
  478.04  898.05   483.5  898.31  508.54     900  586.99     900  670.55     905

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  152.11     .15  341.28      .1  405.07     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       341.28  405.07              115     115     115             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluck
REACH: 1                  RS: 6854.42

INPUT
Description: Buttercup
Distance from Upstream XS =      10
Deck/Roadway Width        =      95
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  221.51     900     800  271.51   900.7     800  321.51   901.6     800
  371.51   902.5     800  421.51   903.4     800  670.55     905     800

Upstream Bridge Cross Section Data
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  152.11     904  269.88     904  287.99  902.49  301.68  901.09   313.4  900.25
  318.02     900  319.56   899.8  320.47  899.66  330.34  898.23  331.76     898
  341.28     896  342.36     889  400.45     889  405.07  895.83  410.58  896.03
  415.51  896.02  420.51  895.93  425.47  895.89  430.41     896  435.36  895.96
  442.86     896  445.24  896.05  450.53  896.29  453.82  896.46  476.96     898
  478.04  898.05   483.5  898.31  508.54     900  586.99     900  670.55     905

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  152.11     .15  341.28      .1  405.07     .15

Bank Sta: Left   Right    Coeff Contr.   Expan.
       341.28  405.07             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  331.11     900     800  381.11   900.7     800  431.11   901.6     800
  481.11   902.5     800  531.11   903.4     800  714.23     905     800

Downstream Bridge Cross Section Data
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  300.19     904  367.31     904  420.33     900  422.42  899.6  426.99  898.84
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  431.44     898  432.52  897.63  437.65     896  442.51     894  445.96  892.88
  447.88   892.3  449.01     892  450.71     889  508.75     889  510.27     896
  513.87  896.81  518.82  897.82  519.91     898  523.61  898.26  528.39  898.52
  529.64  898.51  535.67  898.87  537.23  898.78  539.55  898.91  541.42  898.84
  549.86  898.83  561.37  899.16  573.92  899.36  577.36  899.36  581.42  899.48
  584.82  899.45  588.25  899.52   591.6  899.47  592.76  899.49  595.71  899.43
  596.87  899.45  599.66   899.4  601.97  899.44  613.37  899.29  614.95  899.31
  627.22  899.29  714.23     905

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  300.19      .1  437.65     .15  513.87      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
        437.65  513.87            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Buttercup            Box       8      14
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10      95       .011                  .4                1
Number of Barrels =  4
Upstream   Elevation =  889
Centerline Stations
    Sta.    Sta.    Sta.    Sta.
  349.01  364.01  379.01  394.01
Downstream Elevation =  889
Centerline Stations
    Sta.    Sta.    Sta.    Sta.
  458.61  473.61  488.61  503.61

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 6796.914

INPUT
Description:
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  300.19     904  367.31     904  420.33     900  422.42   899.6  426.99  898.84
  431.44     898  432.52  897.63  437.65     896  442.51     894  445.96  892.88
  447.88   892.3  449.01     892  450.71     889  508.75     889  510.27     896
  513.87  896.81  518.82  897.82  519.91     898  523.61  898.26  528.39  898.52
  529.64  898.51  535.67  898.87  537.23  898.78  539.55  898.91  541.42  898.84
  549.86  898.83  561.37  899.16  573.92  899.36  577.36  899.36  581.42  899.48
  584.82  899.45  588.25  899.52   591.6  899.47  592.76  899.49  595.71  899.43
  596.87  899.45  599.66   899.4  601.97  899.44  613.37  899.29  614.95  899.31
  627.22  899.29  714.23     905

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  300.19      .1  437.65     .15  513.87      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        427.65  513.87            10.67   12.19  13.705             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 6784.729

INPUT
Description:
Station Elevation Data    num=      44
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  300.19     904  367.31     904  409.64  900.79  420.33     900  422.42   899.6
  426.99  898.84  431.44     898  432.52  897.63  437.65     896  442.51     894
  445.96  892.88  447.88   892.3  449.01     892  450.71     889  508.75     889
  510.27     896  513.87  896.81  518.82  897.82  519.91     898  523.61  898.26
  524.28  898.27  528.39  898.52  529.64  898.51  535.67  898.87  537.23  898.78
  539.55  898.91  541.42  898.84  549.86  898.83  561.37  899.16  573.92  899.36
  577.36  899.36  581.42  899.48  584.82  899.45  588.25  899.52   591.6  899.47
  592.76  899.49  595.71  899.43  596.87  899.45  599.66   899.4  601.97  899.44
  613.37  899.29  614.95  899.31  627.22  899.29  714.23     905

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  300.19      .1  437.65     .15  510.27      .1
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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        437.65  510.27           428.47  418.52  408.56             .1       .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 6366.212

INPUT
Description:
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  897.72   65.12     896   97.8   894.2  100.76     894  114.99     892
  126.37     890   136.2     888  149.76     888  158.34  890.17  166.28     892
  202.57     894   220.1     896  246.39  896.98  261.61  897.27  306.38  897.42
  331.39  897.86  339.25  897.99  479.87     898

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  100.76     .05  202.57     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        100.76  202.57          1041.75 1069.94 1098.13             .1       .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 5296.272

INPUT
Description:
Station Elevation Data    num=     167
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     900   12.87     900   15.49  899.88   17.28  899.77   23.89  899.26
   27.25   899.1   31.03   898.8   35.52  898.67   43.59  898.26   53.31  898.15
   63.95  897.96   75.65  897.69   77.71  897.61  101.75  897.03  104.92  896.99
  108.27  896.82  110.76  896.79  114.86  896.56  116.55  896.54  121.63  896.23
  122.93  896.21  125.64     896  138.76   895.4  164.01  894.84  166.14  894.82
  169.37  894.71  171.19   894.7  174.74  894.58  176.23  894.57  180.12  894.44
  182.34  894.44  186.27  894.32   192.1  894.32   197.1  894.35   199.1  894.47
  200.84  894.62  204.76  894.81  207.85   895.1  210.45  895.29  220.96  896.36
  222.04  896.41  225.87  896.74  227.65  896.73  232.61  897.12  234.93  897.05
  236.67  897.18  239.01  897.11  240.73  897.21  245.23  897.36  246.66  897.38
  249.75  897.32  255.78  897.37  259.03  897.29  326.53     896     425     896
  561.19  887.25  608.71     887  665.32  886.39  669.93  886.21  671.05   886.2
  675.96     886  685.59  885.19  687.97  885.12  690.77  884.93   693.9  884.85
  696.13  884.72  699.81  884.66  703.02  884.53  713.54  884.37  715.38  884.37
  723.95  884.21  729.18  884.12  734.38  884.05  739.53     884  744.47   883.8
  783.07  882.24  788.53  882.03  793.96  881.69  795.01  881.61  802.58  881.17
  804.83  880.99  807.18  880.86  810.26  880.58  811.62   880.5  820.33  879.55
  831.83  878.01  874.53     878  878.47  878.87   882.7     880  883.12  880.14
  887.03  881.59  888.01     882  893.21     884  896.61   885.2  899.04     886
  902.04  886.58  904.66  886.93   907.6  887.41  912.49  887.74  913.32  887.84
  918.79  887.97  923.62  888.13  929.04  888.27  930.58  888.29  956.78  889.11
  977.34  889.49  978.74  889.54  996.82     890 1010.51  890.69  1012.6  890.73
 1018.78  890.99 1021.42  891.01 1028.31  891.19 1057.01  891.43 1058.34  891.46
 1061.92  891.44 1063.26  891.47 1066.59  891.43 1067.86  891.46 1097.62  891.84
 1127.27  892.76 1153.11  893.13  1167.1  893.57 1168.41  893.59 1174.39   893.8
 1180.33     894 1212.05   894.2 1216.64   894.2 1217.76  894.27 1221.85  894.25
 1226.83  894.31 1227.84   894.4 1232.47  894.53 1238.26   895.1 1241.49  895.31
 1247.56     896 1253.71  897.25 1259.73  898.35 1267.19  899.59 1270.04     900
 1273.04  900.36 1274.23  900.45 1278.18  900.84 1283.53  901.19 1294.27  901.64
 1299.59  901.79 1304.92  901.96 1309.94  902.15 1319.65  902.59 1332.19  903.27
 1347.38     904 1348.49  904.04 1358.64  904.43 1368.85  904.73 1399.11  904.95
 1419.87  904.79 1430.51  904.58 1431.95  904.53 1451.81  904.13 1456.95     904
 1462.06   903.8 1466.91  903.61 1467.94  903.59 1471.78  903.43 1473.29  903.39
 1476.66  903.25 1489.37  902.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  744.47     .05  893.21     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        744.47  893.21          227.51  217.37  207.22             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                RIVER: cluck
REACH: 1                  RS: 5187

INPUT
Description: US Hwy 183
Distance from Upstream XS =      50
Deck/Roadway Width        =      60
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      10
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     425     896     870     485     892     870     580     890     870
     675     888     870     790     887     870     880     888     870
    1000     890     870    1170     892     870    1550     894     870
    1800     896     870

Upstream Bridge Cross Section Data
Station Elevation Data    num=     167
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
     0     900   12.87     900   15.49  899.88   17.28  899.77   23.89  899.26
 27.25   899.1   31.03   898.8   35.52  898.67   43.59  898.26   53.31  898.15
 63.95  897.96   75.65  897.69   77.71  897.61  101.75  897.03  104.92  896.99
108.27  896.82  110.76  896.79  114.86  896.56  116.55  896.54  121.63  896.23
122.93  896.21  125.84     896  138.76   895.4  164.01  894.84  166.14  894.82
169.37  894.71  171.19   894.7  174.74  894.58  176.23  894.57  180.12  894.44
182.34  894.44  186.27  894.32   192.1  894.32   197.1  894.35   199.1  894.47
200.84  894.62  204.76  894.81  207.85   895.1  210.45  895.29  220.96  896.36
222.04  896.41  225.87  896.74  227.65  896.73  232.61  897.12  234.93  897.05
236.67  897.18  239.01  897.11  240.73  897.21  245.23  897.36  246.66  897.38
249.75  897.32  255.78  897.37  259.03  897.29  326.53     896     425     896
561.19  887.25  608.71     887  665.32  886.39  669.93  886.21  671.05  886.2
675.96     886  685.59  885.19  687.97  885.12  690.77  884.93   693.9  884.85
696.13  884.72  699.81  884.66  703.02  884.53  713.54  884.37  715.38  884.37
723.95  884.21  729.18  884.12  734.38  884.05  739.53     884  744.47  883.8
783.07  882.24  788.53  882.03  793.96  881.69  795.01  881.61  802.58  881.17
804.83  880.99  807.18  880.86  810.26  880.58  811.62   880.5  820.33  879.55
831.83  878.01  874.53     878  878.47  878.87   882.7     880  883.12  880.14
887.03  881.59  888.01     882  893.21     884  896.61  885.2  899.04     886
902.04  886.58  904.66  886.93   907.6  887.41  912.49  887.74  913.32  887.84
918.79  887.97  923.62  888.13  929.04  888.27  930.58  888.29  956.78  889.11
977.34  889.49  978.74  889.54  996.82     890 1010.51  890.69 1012.6  890.73
1018.78 890.99 1021.42 891.01 1028.31 891.19 1057.01 891.43 1058.34 891.46
1061.92 891.44 1063.26 891.47 1066.59 891.43 1067.86 891.46 1097.62 891.84
1127.27 892.76 1153.11 893.13  1167.1 893.57 1168.41 893.59 1174.39  893.8
1180.33     894 1212.05  894.2 1216.64  894.2 1217.76 894.27 1221.85 894.25
1226.83 894.31 1227.84  894.4 1232.47 894.53 1238.26  895.1 1241.49 895.31
1247.56     896 1253.71 897.25 1259.73 898.35 1267.19 899.59 1270.04     900
1273.04 900.36 1274.23 900.45 1278.18 900.84 1283.53 901.19 1294.27 901.64
1299.59 901.79 1304.92 901.96 1309.94 902.15 1319.65 902.59 1332.19 903.27
1347.38     904 1348.49 904.04 1358.64 904.43 1368.85 904.73 1399.11 904.95
1419.87 904.79 1430.51 904.58 1431.95 904.53 1451.81 904.13 1456.95     904
1462.06  903.8 1466.91 903.61 1467.94 903.59 1471.78 903.43 1473.29 903.39
1476.66 903.25 1489.37 902.79

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  744.47     .05  893.21     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        744.47  893.21            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       10
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      660     896     870     720     892     870     815     890     870
      910     888     870    1025     887     870    1115     888     870
     1235     890     870    1405     892     870    1785     894     870
     2035     896     870

Downstream Bridge Cross Section Data
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  901.41  132.49  900.71  199.74  900.62  355.58     900  413.49  898.7
  415.74  898.68   425.3  898.37  426.58  898.35  432.71  898.15  437.92     898
  448.58     898  525.68  896.85  528.02  896.79  566.52  896.45  594.87     896
  624.89     896  662.01     896  723.91  890.04  739.11   889.7   740.4  889.65
  852.15  886.87   885.3     886  897.63  885.52  921.84  884.73  938.31  884.55
  969.19     884  974.56  883.65  994.41     882 1035.39     878 1060.33     876
 1071.96  874.88 1079.74  874.01 1090.41     874 1094.88  874.64 1098.02   875.2
  1100.2  875.54 1102.63     876 1113.73  878.74 1120.31  880.22 1124.56  881.08
 1128.55  881.79 1152.27  885.78 1153.05  885.91 1171.93     888 1183.12  888.28
 1215.14  888.61 1265.18  888.92 1325.82  889.77 1326.91   889.8  1334.7  889.92
    1338  889.97 1433.85     890 1435.87  890.05 1457.63  890.26 1472.04  890.22
 1498.14  890.27 1503.14  890.27 1523.01  890.38 1527.94  890.41 1528.95   890.4
 1593.72  890.34 1600.69  890.39 1604.49  890.48 1607.88  890.47 1613.76  890.66

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  974.56     .05 1128.55     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        974.56 1128.55            .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =     887
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise     Span
US 183               Box       9       41
FHWA Chart # 10- 90 degree headwall; Chamfered or Beveled inlet
FHWA Scale # 1 - Inlet edges chamfered 3/4 inch
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length     n Value   Entrance Loss Coef   Exit Loss Coef
                 50      60        .013                  .5               1
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Upstream   Elevation =  878
           Centerline Station =  850
Downstream Elevation =  878
           Centerline Station =  1085

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 5078.904

INPUT
Description:
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  901.41  132.49  900.71  199.74  900.62  355.58     900  413.49  898.7
  415.74  898.68   425.3  898.37  426.58  898.35  432.71  898.15  437.92     898
  448.58     898  525.68  896.85  528.02  896.79  566.52  896.45  594.87     896
  624.89     896  662.01     896  723.91  890.04  739.11   889.7   740.4  889.65
  852.15  886.87   885.3     886  897.63  885.52  921.84  884.73  938.31  884.55
  969.19     884  974.56  883.65  994.41     882 1035.39     878 1060.33     876
 1071.96  874.88 1079.74  874.01 1090.41     874 1094.88  874.64 1098.02   875.2
  1100.2  875.54 1102.63     876 1113.73  878.74 1120.31  880.22 1124.56  881.08
 1128.55  881.79 1152.27  885.78 1153.05  885.91 1171.93     888 1183.12  888.28
 1215.14  888.61 1265.18  888.92 1325.82  889.77 1326.91   889.8  1334.7  889.92
    1338  889.97 1433.85     890 1435.87  890.05 1457.63  890.26 1472.04  890.22
 1498.14  890.27 1503.14  890.27 1523.01  890.38 1527.94  890.41 1528.95   890.4
 1593.72  890.34 1600.69  890.39 1604.49  890.48 1607.88  890.47 1613.76  890.66

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  974.56     .05 1128.55     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        974.56 1128.55           1836.47 1827.94 1819.42             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 3250.959

INPUT
Description:
Station Elevation Data    num=      83
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  887.02   147.2     884  305.59     882  310.89     882  391.96     880
  394.25     880  476.09     878  550.52     876  551.76     876  565.02  874.96
   571.1   874.6  573.57  874.41  581.27     874  593.39  873.11  606.28  872.41
  610.92  872.23  616.69  872.03  622.07  871.85  627.38  871.66  631.47  871.62
  632.49  871.58  636.41  871.68  640.92  871.96  642.18     872  650.47  872.08
  655.33   872.1  675.46  872.02  676.53     872  680.16  871.87  681.22  871.89
  686.21  871.67  716.25  870.19  719.15     870  728.42     868  735.22     866
   735.9  865.78  740.83     864  747.29     862   771.8     862  782.99     864
  798.78     866  820.61     868  848.21     870  853.58  870.42     873     872
  900.64  873.99  967.27  875.97  968.31     876 1079.36     878 1135.87     880
 1170.6  881.84 1173.69     882 1287.71     888 1289.98  888.15 1326.88     890
1331.78  890.37 1388.25     894 1411.91  896.15  1418.5  896.72 1438.21   898.1
1460.15  899.61 1464.26     900 1476.98     902 1484.54     904 1491.08     906
1497.08     908  1503.7     910 1511.45     912 1524.25     914 1531.63     914
1543.11     912 1550.53     910 1559.49     908 1561.88  907.25  1563.7  906.86
1569.03  906.93 1570.93  906.76 1572.22  906.68 1573.32  906.64 1574.47  906.66
1576.02  906.74 1578.43  906.94    1598   908.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  719.15     .05  848.21     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        719.15  848.21           883.26  884.99  886.71             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 2365.973

INPUT
Description:
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  867.05   45.26  866.11   56.19  866.06   62.06  866.11   67.79  866.21
  124.92  867.65   129.2  867.67  134.37   867.7  144.11  867.75  214.33  868.14
  260.57     868  265.49  867.77  266.34  867.67  276.27  866.49  279.83     866
  286.18     864   294.9  860.78  296.92     860  302.37     858  310.56     856
  328.05     856  349.72  858.37  366.77     860   410.2     862  472.46     864
  495.18  865.49  509.82  866.33  514.09  866.49  515.15  866.48  533.31  866.94
  535.79  866.97  546.65  866.89  549.15  866.93  575.11     868  577.74     868

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  286.18     .05  472.46     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        286.18  472.46           689.02  673.18  657.33             .1      .3

CROSS SECTION          RIVER: cluck
REACH: 1                  RS: 1692.796

INPUT
Description:
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  875.68    8.36     874   18.46     872   31.03     870   46.91     868
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60.55	866	70.14	864	77.93	862	90.88	858	98.77	856
110.34	854.44	114.02	854	136.18	852	137.95	852	154.41	854
165.37	856	178.48	858	193.21	860	199.46	861.36	202.43	862
210.12	864	218.58	866	234.83	868	298.24	870	357.22	870

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	110.34	.05	165.37	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
110.34	165.37	480.82	480.16	479.5	.1 .3

CROSS SECTION RIVER: cluck
REACH: 1 RS: 1212.638

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	903.97	1.81	903.91	22.46	903.16	48.07	902.02	58.05	901.73
65.2	901.57	72.77	901.29	85.33	900.68	87.26	900.62	97.91	900.17
138.02	898	142.21	897.83	182.34	896.03	196.23	895.43	209.43	895.07
211.8	894.97	214.16	895	216.75	894.9	218.97	894.91	229.99	894.46
236.6	894.07	237.64	894	256.38	892	351.03	886.03	387.43	884.14
433.64	882.07	471.4	880.36	477.7	880	478.78	880	576.5	878.04
578.38	878	582.81	878	622.01	877.44	623.61	877.39	687	876
691.11	876	699.49	875.85	719.57	875.59	720.64	875.59	724.75	875.53
725.96	875.53	800.31	874	862.58	872	903.75	870	924.24	868
934.51	866	935.23	865.77	941.11	864	941.43	863.88	945.99	862
953.23	858.97	955.67	858	959.83	856.64	961.7	856	969.69	854
980.13	852	991.53	850	1009.97	850	1025.64	852	1047.73	854
1059.33	856	1068.17	858	1079.25	860	1101.44	861.89	1131.08	864
1182.88	866	1350.54	868	1403.28	868	1541.47	866	1659.49	866
1731.44	866.21								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	961.7	.05	1059.33	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
961.7	1059.33	1202.07	1212.64	1223.2	.1 .3

Profile Output Table - Espey 1

River	Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Crit W.S. (ft)	Vel Total (ft/s)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)
cluckt1	1	7381.876	624.00	944.11	943.38	4.12	0.26	5.77	0.10
cluckt1	1	7381.876	798.00	944.51	943.64	4.26	0.29	5.29	0.11
cluckt1	1	7381.876	927.00	944.86	943.82	4.11	0.28	5.01	0.13
cluckt1	1	7381.876	1056.00	945.20	943.98	3.95	0.28	4.74	0.14
cluckt1	1	7381.876	973.00	945.00	943.88	4.02	0.28	4.91	0.14
cluckt1	1	6680.231	785.00	937.93	936.41	6.13	0.58		
cluckt1	1	6680.231	1004.00	938.73	936.92	6.57	0.67		
cluckt1	1	6680.231	1166.00	939.29	937.27	6.83	0.72		
cluckt1	1	6680.231	1329.00	939.87	937.60	6.85	0.73		
cluckt1	1	6680.231	1225.00	939.50	937.39	6.86	0.73		
cluckt1	1	6625.57	Culvert						
cluckt1	1	6570.908	814.00	936.42	936.42	8.91	1.23	7.50	0.46
cluckt1	1	6570.908	1041.00	936.90	936.90	9.48	1.40	2.24	0.66
cluckt1	1	6570.908	1209.00	937.28	937.28	9.62	1.44	2.20	0.68
cluckt1	1	6570.908	1378.00	937.61	937.61	9.79	1.49	2.25	0.71
cluckt1	1	6570.908	1269.00	937.40	937.40	9.68	1.46	2.20	0.69
cluckt1	1	4552.959	1248.00	921.23	917.18	4.46	0.32		
cluckt1	1	4552.959	1596.00	922.73	917.81	1.54	0.07		
cluckt1	1	4552.959	1853.00	923.14	918.26	1.56	0.07		
cluckt1	1	4552.959	2113.00	923.46	918.69	1.61	0.07		
cluckt1	1	4552.959	1946.00	923.27	918.43	1.57	0.07		
cluckt1	1	4507.88	Culvert						
cluckt1	1	4462.804	738.00	917.25	916.09	5.87	0.54	11.36	0.19
cluckt1	1	4462.804	969.00	917.75	916.61	6.66	0.69	11.58	0.25
cluckt1	1	4462.804	1149.00	918.06	916.96	7.28	0.82	11.69	0.30
cluckt1	1	4462.804	1330.00	918.34	917.31	7.88	0.96	11.78	0.37
cluckt1	1	4462.804	1250.00	918.23	917.16	7.60	0.90	11.76	0.34
cluckt1	1	2750.261	743.00	906.07	905.20	3.19	0.16	15.29	0.06
cluckt1	1	2750.261	976.00	906.42	905.42	3.49	0.19	14.89	0.07
cluckt1	1	2750.261	1157.00	906.67	905.58	3.67	0.21	14.62	0.08
cluckt1	1	2750.261	1340.00	906.91	905.74	3.82	0.23	14.38	0.09
cluckt1	1	2750.261	1258.00	906.80	905.67	3.76	0.23	14.51	0.08
cluckt1	1	637.664	850.00	890.14	889.24	6.53	0.74		
cluckt1	1	637.664	1117.00	890.76	889.83	7.03	0.89		
cluckt1	1	637.664	1324.00	891.20	890.27	7.35	0.99		
cluckt1	1	637.664	1535.00	891.60	890.66	7.63	1.09		
cluckt1	1	637.664	1426.00	891.39	890.46	7.49	1.04		
cluck	1	19397.89	1024.00	1018.72	1018.72	4.89	0.46	1.12	0.21
cluck	1	19397.89	1332.00	1018.96	1018.96	4.78	0.48	1.29	0.21

cluck	1	19397.89	1562.00	1019.09	1019.09	4.90	0.51	1.40	0.22
cluck	1	19397.89	1796.00	1019.19	1019.19	5.09	0.55	1.55	0.23
cluck	1	19397.89	1901.00	1019.24	1019.24	5.16	0.57	1.53	0.24
cluck	1	18470.38	1024.00	1003.95	1000.99	1.45	0.05		
cluck	1	18470.38	1332.00	1004.24	1001.55	1.63	0.07		
cluck	1	18470.38	1562.00	1004.43	1001.94	1.76	0.07		
cluck	1	18470.38	1796.00	1004.57	1002.33	1.90	0.08		
cluck	1	18470.38	1901.00	1004.69	1002.50	1.92	0.08		
cluck	1	18374.57	Culvert						
cluck	1	18278.76	1024.00	999.74	999.74	9.68	1.45	0.41	0.69
cluck	1	18278.76	1332.00	1000.29	1000.29	10.62	1.75	0.48	0.83
cluck	1	18278.76	1562.00	1000.67	1000.67	11.21	1.95	0.54	0.92
cluck	1	18278.76	1796.00	1001.06	1001.06	11.71	2.13	0.58	1.00
cluck	1	18278.76	1901.00	1001.22	1001.22	11.95	2.22	0.61	1.04
cluck	1	18007.91	1024.00	999.63	995.27	1.71	0.07		
cluck	1	18007.91	1332.00	1000.07	995.76	1.91	0.09		
cluck	1	18007.91	1562.00	1000.32	996.09	2.06	0.11		
cluck	1	18007.91	1796.00	1000.54	996.43	2.20	0.12		
cluck	1	18007.91	1901.00	1000.62	996.57	2.27	0.13		
cluck	1	17967.48	Culvert						
cluck	1	17927.05	1024.00	999.65	995.29	0.62	0.01	0.00	0.00
cluck	1	17927.05	1332.00	1000.10	995.74	0.70	0.01	0.00	0.00
cluck	1	17927.05	1562.00	1000.36	996.06	0.75	0.01	0.00	0.00
cluck	1	17927.05	1796.00	1000.59	996.37	0.81	0.01	0.00	0.00
cluck	1	17927.05	1901.00	1000.69	996.50	0.83	0.02	0.00	0.00
cluck	1	17902.0*	1024.00	999.64		0.70	0.01	0.00	0.00
cluck	1	17902.0*	1332.00	1000.08		0.78	0.01	0.00	0.00
cluck	1	17902.0*	1562.00	1000.35		0.83	0.02	0.00	0.00
cluck	1	17902.0*	1796.00	1000.58		0.89	0.02	0.00	0.00
cluck	1	17902.0*	1901.00	1000.67		0.92	0.02	0.00	0.00
cluck	1	17877.0*	1024.00	999.62		0.79	0.02	0.00	0.00
cluck	1	17877.0*	1332.00	1000.06		0.87	0.02	0.01	0.00
cluck	1	17877.0*	1562.00	1000.33		0.93	0.02	0.01	0.00
cluck	1	17877.0*	1796.00	1000.56		0.99	0.02	0.01	0.00
cluck	1	17877.0*	1901.00	1000.65		1.02	0.02	0.01	0.00
cluck	1	17852.0*	1024.00	999.60		0.92	0.02	0.01	0.00
cluck	1	17852.0*	1332.00	1000.04		1.00	0.03	0.01	0.00
cluck	1	17852.0*	1562.00	1000.31		1.05	0.03	0.01	0.00
cluck	1	17852.0*	1796.00	1000.54		1.11	0.03	0.01	0.00
cluck	1	17852.0*	1901.00	1000.63		1.14	0.03	0.01	0.00
cluck	1	17827.0*	1024.00	999.58		1.09	0.03	0.01	0.00
cluck	1	17827.0*	1332.00	1000.02		1.16	0.03	0.01	0.00
cluck	1	17827.0*	1562.00	1000.28		1.21	0.04	0.01	0.00
cluck	1	17827.0*	1796.00	1000.51		1.27	0.04	0.01	0.01
cluck	1	17827.0*	1901.00	1000.60		1.30	0.04	0.01	0.01
cluck	1	17802.0*	1024.00	999.55		1.31	0.04	0.01	0.00
cluck	1	17802.0*	1332.00	999.98		1.38	0.05	0.01	0.01
cluck	1	17802.0*	1562.00	1000.24		1.43	0.05	0.02	0.01
cluck	1	17802.0*	1796.00	1000.47		1.49	0.06	0.02	0.01
cluck	1	17802.0*	1901.00	1000.56		1.51	0.06	0.02	0.01
cluck	1	17777.0*	1024.00	999.52		1.60	0.06	0.02	0.01
cluck	1	17777.0*	1332.00	999.94		1.68	0.07	0.02	0.01
cluck	1	17777.0*	1562.00	1000.19		1.73	0.08	0.02	0.01
cluck	1	17777.0*	1796.00	1000.41		1.79	0.09	0.02	0.01
cluck	1	17777.0*	1901.00	1000.50		1.81	0.09	0.02	0.01
cluck	1	17752.0*	1024.00	999.47		1.94	0.08	0.02	0.01
cluck	1	17752.0*	1332.00	999.87		2.08	0.10	0.03	0.01
cluck	1	17752.0*	1562.00	1000.12		2.15	0.11	0.03	0.01
cluck	1	17752.0*	1796.00	1000.33		2.21	0.13	0.03	0.02
cluck	1	17752.0*	1901.00	1000.42		2.23	0.13	0.04	0.02
cluck	1	17727.0*	1024.00	999.41		2.32	0.10	0.03	0.01
cluck	1	17727.0*	1332.00	999.79		2.57	0.13	0.04	0.01
cluck	1	17727.0*	1562.00	1000.02		2.69	0.16	0.05	0.02
cluck	1	17727.0*	1796.00	1000.23		2.80	0.18	0.05	0.02
cluck	1	17727.0*	1901.00	1000.31		2.84	0.19	0.05	0.03
cluck	1	17702	1024.00	999.33	996.21	2.77	0.13		
cluck	1	17702	1332.00	999.68	996.21	3.12	0.18		
cluck	1	17702	1562.00	999.90	996.34	3.35	0.22		
cluck	1	17702	1796.00	1000.07	997.00	3.58	0.26		
cluck	1	17702	1901.00	1000.14	997.20	3.69	0.28		
cluck	1	17700	Culvert						
cluck	1	17686.3	1024.00	997.00	996.21	6.90	0.54	0.19	0.06
cluck	1	17686.3	1332.00	997.48	996.21	6.63	0.68	0.25	0.07
cluck	1	17686.3	1562.00	997.77	996.34	7.13	0.79	0.29	0.07
cluck	1	17686.3	1796.00	998.05	997.00	7.50	0.87	0.32	0.07
cluck	1	17686.3	1901.00	998.16	997.20	7.69	0.92	0.33	0.08
cluck	1	17661.3*	1024.00	996.87		5.24	0.43	0.16	0.05

cluck	1	17661.3*	1332.00	997.30		5.95	0.55	0.21	0.05
cluck	1	17661.3*	1562.00	997.55		6.45	0.65	0.24	0.06
cluck	1	17661.3*	1796.00	997.81		6.83	0.72	0.27	0.06
cluck	1	17661.3*	1901.00	997.90		7.02	0.77	0.29	0.06
cluck	1	17636.4*	1024.00	996.77		4.64	0.33	0.13	0.04
cluck	1	17636.4*	1332.00	997.15		5.33	0.44	0.17	0.05
cluck	1	17636.4*	1562.00	997.36		5.83	0.53	0.20	0.05
cluck	1	17636.4*	1796.00	997.60		6.20	0.60	0.23	0.06
cluck	1	17636.4*	1901.00	997.68		6.40	0.64	0.24	0.06
cluck	1	17611.6*	1024.00	996.68		4.10	0.26	0.10	0.03
cluck	1	17611.6*	1332.00	997.03		4.74	0.35	0.14	0.04
cluck	1	17611.6*	1562.00	997.22		5.22	0.42	0.17	0.04
cluck	1	17611.6*	1796.00	997.42		5.60	0.49	0.19	0.05
cluck	1	17611.6*	1901.00	997.49		5.80	0.52	0.19	0.05
cluck	1	17586.6*	1024.00	996.61		3.61	0.20	0.08	0.02
cluck	1	17586.6*	1332.00	996.93		4.21	0.27	0.11	0.03
cluck	1	17586.6*	1562.00	997.09		4.66	0.34	0.13	0.04
cluck	1	17586.6*	1796.00	997.28		4.99	0.39	0.14	0.04
cluck	1	17586.6*	1901.00	997.35		5.16	0.42	0.15	0.04
cluck	1	17561.7*	1024.00	996.56		3.16	0.15	0.07	0.02
cluck	1	17561.7*	1332.00	996.86		3.68	0.21	0.08	0.02
cluck	1	17561.7*	1562.00	997.00		4.09	0.26	0.10	0.03
cluck	1	17561.7*	1796.00	997.19		4.35	0.31	0.10	0.04
cluck	1	17561.7*	1901.00	997.25		4.49	0.33	0.11	0.04
cluck	1	17536.8*	1024.00	996.52		2.74	0.12	0.05	0.01
cluck	1	17536.8*	1332.00	996.81		3.16	0.16	0.06	0.02
cluck	1	17536.8*	1562.00	996.94		3.49	0.20	0.07	0.03
cluck	1	17536.8*	1796.00	997.13		3.67	0.23	0.07	0.03
cluck	1	17536.8*	1901.00	997.19		3.78	0.25	0.08	0.03
cluck	1	17512	1024.00	996.50	993.91	2.30	0.09		
cluck	1	17512	1332.00	996.77	993.91	2.60	0.12		
cluck	1	17512	1562.00	996.90	993.91	2.86	0.15		
cluck	1	17512	1796.00	997.09	993.91	2.98	0.17		
cluck	1	17512	1901.00	997.14	993.91	3.06	0.18		
cluck	1	17510	Culvert						
cluck	1	17496.3	1024.00	993.91	993.91	5.80	0.52	0.07	0.06
cluck	1	17496.3	1332.00	994.00	993.91	7.40	0.85	0.10	0.00
cluck	1	17496.3	1562.00	994.50	993.91	7.64	0.91	0.15	0.00
cluck	1	17496.3	1796.00	994.92	993.91	7.65	0.91	0.18	0.01
cluck	1	17496.3	1901.00	995.07	993.91	7.67	0.91	0.19	0.00
cluck	1	17486.5*	1024.00	993.12		6.77	0.71	0.08	0.00
cluck	1	17486.5*	1332.00	993.89		7.43	0.86	0.12	0.00
cluck	1	17486.5*	1562.00	994.34		7.62	0.90	0.17	0.00
cluck	1	17486.5*	1796.00	994.75		7.59	0.90	0.18	0.01
cluck	1	17486.5*	1901.00	994.89		7.63	0.90	0.19	0.00
cluck	1	17476.8*	1024.00	993.01		6.83	0.72	0.08	0.00
cluck	1	17476.8*	1332.00	993.76		7.42	0.86	0.14	0.00
cluck	1	17476.8*	1562.00	994.18		7.58	0.89	0.17	0.01
cluck	1	17476.8*	1796.00	994.58		7.54	0.88	0.18	0.01
cluck	1	17476.8*	1901.00	994.71		7.60	0.90	0.19	0.01
cluck	1	17467.1*	1024.00	992.91		6.87	0.73	0.09	0.00
cluck	1	17467.1*	1332.00	993.62		7.38	0.85	0.15	0.00
cluck	1	17467.1*	1562.00	994.02		7.52	0.88	0.17	0.01
cluck	1	17467.1*	1796.00	994.41		7.47	0.87	0.18	0.01
cluck	1	17467.1*	1901.00	994.54		7.54	0.88	0.18	0.01
cluck	1	17457.3*	1024.00	992.79		6.93	0.75	0.10	0.00
cluck	1	17457.3*	1332.00	993.47		7.35	0.84	0.16	0.01
cluck	1	17457.3*	1562.00	993.86		7.46	0.86	0.17	0.01
cluck	1	17457.3*	1796.00	994.24		7.42	0.86	0.17	0.01
cluck	1	17457.3*	1901.00	994.37		7.47	0.87	0.18	0.01
cluck	1	17447.6*	1024.00	992.68		6.94	0.75	0.12	0.00
cluck	1	17447.6*	1332.00	993.32		7.29	0.83	0.16	0.01
cluck	1	17447.6*	1562.00	993.71		7.40	0.85	0.17	0.01
cluck	1	17447.6*	1796.00	994.08		7.37	0.84	0.17	0.00
cluck	1	17447.6*	1901.00	994.21		7.41	0.85	0.17	0.01
cluck	1	17437.9*	1024.00	992.56		6.92	0.74	0.13	0.01
cluck	1	17437.9*	1332.00	993.17		7.23	0.81	0.16	0.01
cluck	1	17437.9*	1562.00	993.55		7.33	0.83	0.17	0.01
cluck	1	17437.9*	1796.00	993.91		7.33	0.83	0.17	0.00
cluck	1	17437.9*	1901.00	994.05		7.35	0.84	0.17	0.00
cluck	1	17428.1*	1024.00	992.43		6.85	0.73	0.14	0.01
cluck	1	17428.1*	1332.00	993.02		7.16	0.80	0.16	0.01
cluck	1	17428.1*	1562.00	993.39		7.28	0.82	0.16	0.01
cluck	1	17428.1*	1796.00	993.74		7.31	0.83	0.16	0.00
cluck	1	17428.1*	1901.00	993.88		7.32	0.83	0.16	0.00
cluck	1	17418.4*	1024.00	992.31		6.76	0.71	0.14	0.01
cluck	1	17418.4*	1332.00	992.88		7.06	0.77	0.15	0.01
cluck	1	17418.4*	1562.00	993.24		7.21	0.81	0.16	0.01
cluck	1	17418.4*	1796.00	993.57		7.30	0.83	0.16	0.00

cluck	1	17418.4*	1901.00	993.72		7.29	0.83	0.15	0.00
cluck	1	17408.7*	1024.00	992.20		6.64	0.68	0.14	0.01
cluck	1	17408.7*	1332.00	992.74		6.98	0.76	0.15	0.01
cluck	1	17408.7*	1562.00	993.10		7.14	0.79	0.15	0.01
cluck	1	17408.7*	1796.00	993.40		7.31	0.83	0.15	0.00
cluck	1	17408.7*	1901.00	993.56		7.30	0.83	0.15	0.00
cluck	1	17398.9*	1024.00	992.08		6.52	0.66	0.13	0.01
cluck	1	17398.9*	1332.00	992.61		6.88	0.74	0.14	0.01
cluck	1	17398.9*	1562.00	992.96		7.05	0.77	0.14	0.01
cluck	1	17398.9*	1796.00	993.23		7.33	0.83	0.15	0.00
cluck	1	17398.9*	1901.00	993.40		7.31	0.83	0.15	0.00
cluck	1	17389.2*	1024.00	991.97		6.39	0.63	0.13	0.01
cluck	1	17389.2*	1332.00	992.49		6.77	0.71	0.13	0.01
cluck	1	17389.2*	1562.00	992.83		6.98	0.76	0.14	0.00
cluck	1	17389.2*	1796.00	993.06		7.36	0.84	0.15	0.01
cluck	1	17389.2*	1901.00	993.22		7.35	0.84	0.14	0.01
cluck	1	17379.5*	1024.00	991.86		6.28	0.61	0.12	0.01
cluck	1	17379.5*	1332.00	992.37		6.69	0.69	0.13	0.01
cluck	1	17379.5*	1562.00	992.70		6.95	0.75	0.13	0.00
cluck	1	17379.5*	1796.00	992.90		7.43	0.86	0.15	0.01
cluck	1	17379.5*	1901.00	993.03		7.46	0.87	0.14	0.01
cluck	1	17369.7*	1024.00	991.76		6.14	0.58	0.11	0.01
cluck	1	17369.7*	1332.00	992.25		6.62	0.68	0.12	0.00
cluck	1	17369.7*	1562.00	992.57		6.93	0.74	0.12	0.00
cluck	1	17369.7*	1796.00	992.73		7.50	0.88	0.14	0.01
cluck	1	17369.7*	1901.00	992.84		7.55	0.91	0.14	0.01
cluck	1	17360.0*	1024.00	991.68		6.01	0.56	0.10	0.01
cluck	1	17360.0*	1332.00	992.13		6.59	0.67	0.11	0.00
cluck	1	17360.0*	1562.00	992.41		6.99	0.76	0.12	0.01
cluck	1	17360.0*	1796.00	992.56		7.57	0.91	0.14	0.01
cluck	1	17360.0*	1901.00	992.65	992.12	7.64	0.95	0.14	0.01
cluck	1	17350.3*	1024.00	991.59		5.90	0.54	0.09	0.01
cluck	1	17350.3*	1332.00	992.01		6.59	0.67	0.11	0.00
cluck	1	17350.3*	1562.00	992.24		7.11	0.79	0.12	0.01
cluck	1	17350.3*	1796.00	992.39	991.84	7.57	0.94	0.13	0.00
cluck	1	17350.3*	1901.00	992.46	991.97	7.69	1.00	0.14	0.00
cluck	1	17340.5*	1024.00	991.51		5.81	0.52	0.09	0.00
cluck	1	17340.5*	1332.00	991.87		6.66	0.69	0.11	0.01
cluck	1	17340.5*	1562.00	992.06		7.22	0.83	0.12	0.02
cluck	1	17340.5*	1796.00	992.25	991.69	7.36	0.95	0.13	0.00
cluck	1	17340.5*	1901.00	992.34	991.82	7.34	0.99	0.13	0.01
cluck	1	17330.8*	1024.00	991.44		5.76	0.52	0.08	0.00
cluck	1	17330.8*	1332.00	991.71		6.80	0.72	0.11	0.01
cluck	1	17330.8*	1562.00	991.88	991.23	7.31	0.88	0.12	0.00
cluck	1	17330.8*	1796.00	992.13	991.54	6.97	0.94	0.11	0.03
cluck	1	17330.8*	1901.00	992.22	991.66	6.84	0.96	0.11	0.05
cluck	1	17321.1*	1024.00	991.37		5.72	0.51	0.07	0.00
cluck	1	17321.1*	1332.00	991.53		6.95	0.77	0.11	0.02
cluck	1	17321.1*	1562.00	991.75	991.09	6.98	0.89	0.11	0.02
cluck	1	17321.1*	1796.00	992.05	991.95	6.21	0.87	0.09	0.07
cluck	1	17321.1*	1901.00	992.16	992.15	5.96	0.87	0.09	0.11
cluck	1	17311.3*	1024.00	991.30		5.58	0.51	0.07	0.01
cluck	1	17311.3*	1332.00	991.35	990.61	7.06	0.83	0.11	0.00
cluck	1	17311.3*	1562.00	991.66	990.98	6.33	0.85	0.10	0.06
cluck	1	17311.3*	1796.00	992.03	992.03	5.04	0.72	0.08	0.06
cluck	1	17311.3*	1901.00	992.18	992.18	4.60	0.66	0.07	0.03
cluck	1	17301.6*	1024.00	991.25		5.02	0.49	0.06	0.03
cluck	1	17301.6*	1332.00	991.23	990.51	6.62	0.84	0.10	0.03
cluck	1	17301.6*	1562.00	991.62	991.62	5.22	0.74	0.08	0.09
cluck	1	17301.6*	1796.00	991.93	991.93	4.25	0.60	0.07	0.02
cluck	1	17301.6*	1901.00	992.00	992.00	4.20	0.60	0.07	0.01
cluck	1	17291.9*	1024.00	991.22		4.08	0.43	0.04	0.07
cluck	1	17291.9*	1332.00	991.16	990.41	5.68	0.78	0.08	0.13
cluck	1	17291.9*	1562.00	991.58	991.58	4.05	0.56	0.07	0.02
cluck	1	17291.9*	1796.00	991.73	991.73	3.97	0.56	0.07	0.02
cluck	1	17291.9*	1901.00	991.78	991.78	3.98	0.57	0.07	0.02
cluck	1	17282.1*	1024.00	991.26		2.85	0.29	0.03	0.06
cluck	1	17282.1*	1332.00	991.22	991.22	3.98	0.52	0.06	0.02
cluck	1	17282.1*	1562.00	991.38	991.38	3.78	0.52	0.06	0.03
cluck	1	17282.1*	1796.00	991.51	991.51	3.76	0.53	0.06	0.02
cluck	1	17282.1*	1901.00	991.57	991.57	3.75	0.53	0.07	0.00
cluck	1	17272.4*	1024.00	991.29	989.68	2.02	0.16	0.04	0.25
cluck	1	17272.4*	1332.00	991.02	991.02	3.54	0.48	0.06	0.02
cluck	1	17272.4*	1562.00	991.18	991.18	3.45	0.47	0.06	0.00
cluck	1	17272.4*	1796.00	991.31	991.31	3.48	0.48	0.06	0.05
cluck	1	17272.4*	1901.00	991.32	991.32	3.63	0.52	0.06	0.06
cluck	1	17262.7*	1024.00	990.17	989.63	6.43	0.99	0.07	0.32
cluck	1	17262.7*	1332.00	990.79	990.79	3.35	0.45	0.05	0.07
cluck	1	17262.7*	1562.00	990.92	990.92	3.39	0.46	0.06	0.07

cluck	1	17262.7*	1796.00	991.13		3.13	0.38	0.04	0.10
cluck	1	17262.7*	1901.00	991.15		3.22	0.40	0.04	0.11
cluck	1	17253	1024.00	990.42	990.35	2.85	0.34		
cluck	1	17253	1332.00	990.67	990.56	2.75	0.30		
cluck	1	17253	1562.00	990.79	990.65	2.86	0.32		
cluck	1	17253	1796.00	991.19	990.79	2.26	0.17		
cluck	1	17253	1901.00	991.22	990.80	2.33	0.18		
cluck	1	17252	Culvert						
cluck	1	17237	1024.00	990.37	990.37	3.06	0.39	0.22	0.12
cluck	1	17237	1332.00	990.56	990.56	3.12	0.40	0.18	0.03
cluck	1	17237	1562.00	990.69	990.69	3.18	0.41	0.19	0.03
cluck	1	17237	1796.00	991.15	990.79	2.32	0.19	0.15	0.16
cluck	1	17237	1901.00	991.18	990.84	2.40	0.20	0.15	0.15
cluck	1	17209.5*	1024.00	989.63	989.04	6.23	0.77	0.27	0.14
cluck	1	17209.5*	1332.00	990.21	990.21	3.83	0.49	0.22	0.03
cluck	1	17209.5*	1562.00	990.34	990.34	3.85	0.51	0.23	0.03
cluck	1	17209.5*	1796.00	990.31		4.60	0.72	0.27	0.06
cluck	1	17209.5*	1901.00	990.38		4.49	0.69	0.26	0.06
cluck	1	17182.1*	1024.00	989.50		5.01	0.49	0.21	0.07
cluck	1	17182.1*	1332.00	989.75		4.93	0.58	0.23	0.08
cluck	1	17182.1*	1562.00	989.92		4.81	0.61	0.23	0.08
cluck	1	17182.1*	1796.00	990.11		4.55	0.60	0.23	0.06
cluck	1	17182.1*	1901.00	990.19		4.46	0.58	0.22	0.06
cluck	1	17154.6*	1024.00	989.37		4.27	0.36	0.17	0.04
cluck	1	17154.6*	1332.00	989.61		4.35	0.42	0.19	0.05
cluck	1	17154.6*	1562.00	989.78		4.36	0.45	0.19	0.05
cluck	1	17154.6*	1796.00	989.95		4.31	0.47	0.19	0.05
cluck	1	17154.6*	1901.00	990.02		4.27	0.47	0.19	0.05
cluck	1	17127.2*	1024.00	989.25		3.71	0.27	0.14	0.03
cluck	1	17127.2*	1332.00	989.48		3.88	0.32	0.16	0.03
cluck	1	17127.2*	1562.00	989.65		3.94	0.35	0.16	0.04
cluck	1	17127.2*	1796.00	989.82		3.95	0.36	0.16	0.04
cluck	1	17127.2*	1901.00	989.90		3.94	0.36	0.16	0.04
cluck	1	17099.7*	1024.00	989.14		3.28	0.21	0.12	0.02
cluck	1	17099.7*	1332.00	989.36		3.51	0.26	0.14	0.02
cluck	1	17099.7*	1562.00	989.53		3.60	0.28	0.14	0.03
cluck	1	17099.7*	1796.00	989.70		3.63	0.29	0.14	0.03
cluck	1	17099.7*	1901.00	989.78		3.63	0.29	0.13	0.03
cluck	1	17072.3*	1024.00	989.04		2.95	0.17	0.11	0.02
cluck	1	17072.3*	1332.00	989.26		3.21	0.21	0.12	0.02
cluck	1	17072.3*	1562.00	989.42		3.31	0.22	0.12	0.02
cluck	1	17072.3*	1796.00	989.60		3.35	0.23	0.12	0.02
cluck	1	17072.3*	1901.00	989.68		3.35	0.23	0.12	0.02
cluck	1	17044.8*	1024.00	988.95		2.69	0.14	0.10	0.01
cluck	1	17044.8*	1332.00	989.16		2.96	0.17	0.11	0.01
cluck	1	17044.8*	1562.00	989.32		3.08	0.19	0.11	0.02
cluck	1	17044.8*	1796.00	989.51		3.12	0.19	0.10	0.02
cluck	1	17044.8*	1901.00	989.59		3.12	0.20	0.10	0.02
cluck	1	17017.4*	1024.00	988.87		2.46	0.11	0.09	0.01
cluck	1	17017.4*	1332.00	989.07		2.74	0.14	0.10	0.01
cluck	1	17017.4*	1562.00	989.23		2.86	0.16	0.10	0.01
cluck	1	17017.4*	1796.00	989.42		2.90	0.16	0.09	0.01
cluck	1	17017.4*	1901.00	989.51		2.91	0.16	0.09	0.01
cluck	1	16990	1024.00	988.79	987.97	2.28	0.10		
cluck	1	16990	1332.00	988.98	988.20	2.56	0.12		
cluck	1	16990	1562.00	989.16	988.32	2.67	0.13		
cluck	1	16990	1796.00	989.35	988.43	2.72	0.14		
cluck	1	16990	1901.00	989.44	988.48	2.73	0.14		
cluck	1	16989	Culvert						
cluck	1	16988	1024.00	988.63	987.91	2.55	0.12	0.09	0.00
cluck	1	16988	1332.00	988.89	988.16	2.69	0.13	0.09	0.00
cluck	1	16988	1562.00	989.09	988.31	2.74	0.14	0.08	0.00
cluck	1	16988	1796.00	989.30	988.39	2.76	0.14	0.08	0.00
cluck	1	16988	1901.00	989.37	988.44	2.80	0.14	0.07	0.00
cluck	1	16964.1*	1024.00	988.54		2.55	0.12	0.08	0.00
cluck	1	16964.1*	1332.00	988.81		2.70	0.13	0.08	0.00
cluck	1	16964.1*	1562.00	989.02		2.74	0.14	0.08	0.00
cluck	1	16964.1*	1796.00	989.23		2.76	0.14	0.07	0.00
cluck	1	16964.1*	1901.00	989.31		2.78	0.14	0.07	0.00
cluck	1	16940.2*	1024.00	988.47		2.52	0.11	0.08	0.00
cluck	1	16940.2*	1332.00	988.73		2.69	0.13	0.08	0.00
cluck	1	16940.2*	1562.00	988.95		2.71	0.14	0.07	0.00
cluck	1	16940.2*	1796.00	989.16		2.74	0.14	0.06	0.00
cluck	1	16940.2*	1901.00	989.24		2.76	0.14	0.06	0.00
cluck	1	16916.3*	1024.00	988.40		2.49	0.11	0.07	0.00
cluck	1	16916.3*	1332.00	988.65		2.68	0.13	0.07	0.00
cluck	1	16916.3*	1562.00	988.88		2.70	0.14	0.06	0.00
cluck	1	16916.3*	1796.00	989.11		2.71	0.14	0.06	0.00

cluck	1	16916.3*	1901.00	989.19	2.74	0.14	0.06	0.00
cluck	1	16892.5*	1024.00	988.34	2.44	0.10	0.06	0.00
cluck	1	16892.5*	1332.00	988.59	2.65	0.13	0.06	0.00
cluck	1	16892.5*	1562.00	988.83	2.66	0.13	0.06	0.00
cluck	1	16892.5*	1796.00	989.05	2.68	0.14	0.06	0.00
cluck	1	16892.5*	1901.00	989.13	2.71	0.14	0.05	0.00
cluck	1	16868.6*	1024.00	988.29	2.37	0.10	0.05	0.00
cluck	1	16868.6*	1332.00	988.53	2.61	0.12	0.06	0.00
cluck	1	16868.6*	1562.00	988.78	2.62	0.13	0.05	0.00
cluck	1	16868.6*	1796.00	989.01	2.64	0.13	0.05	0.00
cluck	1	16868.6*	1901.00	989.09	2.68	0.14	0.05	0.00
cluck	1	16844.7*	1024.00	988.25	2.31	0.09	0.04	0.00
cluck	1	16844.7*	1332.00	988.48	2.57	0.12	0.05	0.00
cluck	1	16844.7*	1562.00	988.73	2.58	0.12	0.05	0.00
cluck	1	16844.7*	1796.00	988.96	2.61	0.13	0.05	0.00
cluck	1	16844.7*	1901.00	989.04	2.65	0.13	0.05	0.00
cluck	1	16820.92	1024.00	988.20	985.19	2.25	0.09	
cluck	1	16820.92	1332.00	988.43	985.79	2.52	0.11	
cluck	1	16820.92	1562.00	988.69	986.11	2.54	0.12	
cluck	1	16820.92	1796.00	988.92	986.43	2.58	0.13	
cluck	1	16820.92	1901.00	989.00	986.57	2.62	0.13	
cluck	1	16781.31	Culvert					
cluck	1	16741.70	1024.00	985.96	983.67	4.67	0.34	0.59	0.02
cluck	1	16741.70	1332.00	986.58	984.19	5.36	0.45	0.75	0.05
cluck	1	16741.70	1562.00	987.01	984.53	5.81	0.52	0.86	0.08
cluck	1	16741.70	1796.00	987.45	984.83	6.21	0.60	0.95	0.12
cluck	1	16741.70	1901.00	987.65	984.99	6.37	0.63	0.99	0.14
cluck	1	16525.1*	1024.00	985.29	982.30	5.08	0.40	0.28	0.15
cluck	1	16525.1*	1332.00	985.61	982.91	6.27	0.61	0.38	0.23
cluck	1	16525.1*	1562.00	985.81	983.32	7.14	0.79	0.45	0.31
cluck	1	16525.1*	1796.00	985.99	983.71	7.99	0.99	0.52	0.40
cluck	1	16525.1*	1901.00	986.07	983.89	8.36	1.08	0.54	0.44
cluck	1	16308.5*	1024.00	985.16	981.58	2.08	0.11	0.22	0.02
cluck	1	16308.5*	1332.00	985.47	982.43	2.32	0.15	0.30	0.03
cluck	1	16308.5*	1562.00	985.67	982.99	2.47	0.17	0.35	0.03
cluck	1	16308.5*	1796.00	985.87	983.56	2.58	0.19	0.41	0.04
cluck	1	16308.5*	1901.00	985.97	983.80	2.62	0.20	0.42	0.04
cluck	1	16091.92	1024.00	984.85	983.05	2.33	0.17		
cluck	1	16091.92	1332.00	985.04	983.05	2.71	0.24		
cluck	1	16091.92	1562.00	985.16	983.05	2.97	0.29		
cluck	1	16091.92	1796.00	985.28	983.05	3.21	0.33		
cluck	1	16091.92	1901.00	985.36	984.09	3.27	0.35		
cluck	1	16087.42	Culvert					
cluck	1	16082.92	1024.00	983.05	983.05	6.20	0.60	0.28	0.29
cluck	1	16082.92	1332.00	983.05	983.05	8.06	1.01	0.39	0.26
cluck	1	16082.92	1562.00	983.05	983.05	9.45	1.39	0.48	0.21
cluck	1	16082.92	1796.00	983.05	983.05	10.87	1.83	0.55	0.13
cluck	1	16082.92	1901.00	983.05	983.05	11.50	2.05	0.58	0.09
cluck	1	16049.5*	1024.00	978.23	978.23	10.05	1.57	0.39	0.46
cluck	1	16049.5*	1332.00	978.83	978.83	10.97	1.87	0.46	0.47
cluck	1	16049.5*	1562.00	979.25	979.25	11.59	2.09	0.51	0.46
cluck	1	16049.5*	1796.00	979.67	979.67	12.11	2.28	0.56	0.40
cluck	1	16049.5*	1901.00	979.84	979.84	12.34	2.37	0.59	0.37
cluck	1	16016.2*	1024.00	978.10	976.96	6.44	0.64	0.12	0.22
cluck	1	16016.2*	1332.00	978.40	977.49	7.74	0.93	0.14	0.34
cluck	1	16016.2*	1562.00	978.58	977.85	8.64	1.17	0.15	0.45
cluck	1	16016.2*	1796.00	978.68	978.18	9.65	1.47	0.16	0.59
cluck	1	16016.2*	1901.00	978.69	978.32	10.18	1.64	0.17	0.67
cluck	1	15982.92	1026.00	978.19	976.04	2.11	0.21		
cluck	1	15982.92	1335.00	978.60	976.62	3.27	0.25		
cluck	1	15982.92	1565.00	978.88	976.95	3.33	0.26		
cluck	1	15982.92	1800.00	979.11	977.23	3.44	0.28		
cluck	1	15982.92	1905.00	979.19	977.37	3.52	0.29		
cluck	1	15954.42	Culvert					
cluck	1	15925.92	1031.00	977.28	975.99	4.45	0.37	0.06	0.01
cluck	1	15925.92	1342.00	977.70	976.73	5.13	0.48	0.07	0.06
cluck	1	15925.92	1573.00	978.03	977.03	3.34	0.33	0.06	0.01
cluck	1	15925.92	1810.00	978.28	977.29	3.22	0.32	0.06	0.02
cluck	1	15925.92	1915.00	978.36	977.40	3.21	0.32	0.06	0.02
cluck	1	15911.71	1033.00	977.33		3.71	0.24	8.10	0.01
cluck	1	15911.71	1344.00	977.70		3.63	0.36	8.12	0.01
cluck	1	15911.71	1575.00	977.93		3.61	0.37	8.11	0.01
cluck	1	15911.71	1812.00	978.14	977.56	3.57	0.39	8.09	0.01
cluck	1	15911.71	1917.00	978.21		3.57	0.39	8.07	0.01
cluck	1	14753.77	1148.00	969.14	968.83	4.58	0.43	11.39	0.03
cluck	1	14753.77	1495.00	969.45	969.13	4.75	0.48	11.28	0.04
cluck	1	14753.77	1753.00	969.66	969.34	4.87	0.51	11.34	0.04