```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY  1991                 *
*          VERSION 4.0.1E               *
*     Lahey F77L-EM/32 Version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  06/06/02  TIME  13:34:53   *
*****************************************
```

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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET             *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X        XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX           XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1SW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 91. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
          *DIAGRAM
    1     ID          COCP STUDY      ................CEDAR PARK, TEXAS
    2     ID         Proposed Conditions Analysis....FEB 2002
    3     ID           SPANISH OAK CREEK.............. FILENAME: ULTSPANISH.IH1
    4     ID           PROJECT NO2000-43.............ESPEY CONSULTANTS, INC.
          *
    5     IT        3 01FEB02    0000     700
    6     IO        5
          *

    7     KK     SP1
    8     KO                                    21
    9     KM   100YR
   10     IN        5 01FEB02    0000
   11     PI        0   0.061   0.064   0.068   0.073   0.077   0.083   0.089   0.098   0.108
   12     PI    0.199   0.135   0.154   0.181   0.219   0.275   0.369   0.549   0.990   0.713
   13     PI    0.443   0.316   0.244   0.198   0.167   0.144   0.124   0.113   0.102   0.094
   14     PI    0.087   0.080   0.074   0.066   0.062   0.059
          *   50YR
          *      05 01FEB02    0000
          *       0   0.052   0.056   0.058   0.062   0.067   0.072   0.077   0.085   0.094
          *   0.104   0.177   0.135   0.159   0.192   0.244   0.229   0.494   0.910   0.648
          *   0.398   0.281   0.216   0.175   0.146   0.126   0.111   0.099   0.089   0.081
          *   0.075   0.069   0.065   0.061   0.057   0.054   0.051
          *   25YR
          *       5 01FEB02    0000
          *   0.000   0.044   0.047   0.050   0.053   0.057   0.061   0.067   0.073   0.080
          *   0.089   0.101   0.117   0.138   0.168   0.214   0.291   0.540   0.820   0.520
          *   0.352   0.247   0.189   0.151   0.127   0.109   0.096   0.085   0.076   0.069
          *   0.064   0.060   0.055   0.051   0.048   0.046   0.043
          *   10YR
          *       5 01FEB02    0000
          *   0.000   0.034   0.036   0.038   0.041   0.044   0.047   0.051   0.057   0.063
          *   0.070   0.079   0.092   0.109   0.134   0.172   0.238   0.368   0.720   0.494
          *   0.290   0.200   0.151   0.121   0.100   0.086   0.075   0.066   0.059   0.054
          *   0.050   0.046   0.042   0.040   0.037   0.035   0.033
   15     BA    .1489
   16     LS       0      80      48
   17     UD    .1616
          *

   18     KK   POND
   19     KM  ROUTE SP1 THRU CARRIAGE HILL POND
   20     RS       1    STOR      -1
   21     SV    0.00    0.16    0.73    1.75    3.01    4.42    4.68    7.13   10.23   13.59
   22     SV   17.00   20.00
   23     SE     997     998     999    1000    1001 1001.84    1002    1003    1004    1005
   24     SE    1006  1006.8
   25     SQ       0       5      10      15      16      30      40      50      70      90
   26     SQ     110     120     180     240     300
   27     SE     997  999.43 1000.86 1002.05 1002.27 1002.75 1003.02 1003.28 1003.73 1004.15
   28     SE  1004.5 1004.74 1005.76 1006.65 1007.48
          *
```

HEC-1 INPUT PAGE 2

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  29      KK  CENTRD
  30      KM  ROUTE OUTFLOW FROM POND THRU SP2
  31      RD    2200   .0115     .05           TRAP       1      50
          *

  32      KK     SP2
  33      BA  .24141
  34      LS       0      80      49
  35      UD   .4812
          *

  36      KK     SP3
  37      BA   .1519
  38      LS       0      80      70
  39      UD   .2305
          *

  40      KK  CENTRD
  41      KM  COMBINE SP3 WITH EXISTING HYDROGRAPH
  42      HC       3
          *

  43      KK   US183
  44      KM  ROUTE COMBINED HYDROGRAPH THRU WALMART POND
  45      RS       1    STOR      -1
  46      SV       0      10      16      22      25      28      30
  47      SQ       0     330     550     770     880    1100    1210
          *

  48      KK      RR
  49      KM  ROUTE POND OUTFLOW THRU SP4 TO RAILROAD TRACKS
  50      RD     800   .0150     .05           TRAP     180     100
          *

  51      KK     SP4
  52      BA  .24698
  53      LS       0      80      69
  54      UD   .2568
          *

  55      KK      RR
  56      KM  COMBINE TWO HYDROGRAPHS AT RAILROAD TRACKS
  57      HC       2
          *

  58      KK    1431
  59      KM  ROUTE HYDROGRAPH THRU SP5 TO FM 1431
  60      RD    3700   .0143     .05           TRAP      30     100
          *
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HEC-1 INPUT PAGE 3

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  61      KK     SP5
  62      BA   .43926
  63      LS       0      80      62
  64      UD   .3844
          *

  65      KK     SP6
  66      BA   .0463
  67      LS       0      80      76
  68      UD   .4134
          *

  69      KK  FM1421
  70      KM  COMBINE 2 HYDROGRAPHS AT 1421
  71      HC       3
          *

  72      KK     SP7
  73      BA   .1028
  74      LS       0      80      80
  75      UD   .4454
          *

  76      KK  FM1431
  77      KM  COMBINE 2 HYDROGRAPHS DOWNSTREAM OF FM1431
  78      HC       2
          *

  79      KK   SOCRK
  80      KM  ROUTE COMBINED HYDROGAPH THRU SP11
  81      RD    2100   .0071     .05            TRAP      10      55
          *

  82      KK   SP11A
  83      BA   .0856
  84      LS       0      80      36
  85      UD   .3727
          *

  86      KK   SOCRK
  87      KM  ROUTE HYDROGRAPH SP11A THRU SP11 TO SPANISH OAK CREEK
  88      RD    1500   .0164     .05            TRAP      10      15
          *

  89      KK   SOCRK
  90      KM  COMBINE HYDROGRAPHS AT SPANISH OAK CREEK CONF
  91      HC       2
          *
```

HEC-1 INPUT PAGE 4

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  92      KK     SP8
  93      BA  .45394
  94      LS       0      80      61
  95      UD   .4641
          *

  96      KK    PPPND
  97      KM  ROUTE SP8 THRU PARK PLACE POND
  98      RS       1    STOR      -1
  99      SV       0   .0093   .0741   .2502   .5760   1.568   3.164   5.784   7.400   9.197
 100      SV   11.18   13.40
 101      SQ       0    23.7    67.1   122.8   189.2   264.0   346.4   430.0   522.2   653.6
 102      SQ  1579.5  2755.4
 103      SE     937     938     939     940     941     942     943     944   944.5     945
 104      SE   945.5     946
          *

 105      KK  Q POND
 106      KM  ROUTE POND OUTFLOW THRU SP9
 107      RD    2000     .01     .05            TRAP       1      10
          *

 108      KK     SP9
 109      BA   .0919
 110      LS        0      80      36
 111      UD   .4680
          *

 112      KK  Q POND
 113      KM  COMBINE 2 HYDROGRAPHS
 114      HC       2
          *

 115      KK    SP10
 116      BA   .1208
 117      LS       0      80      55
 118      UD   .3538
          *

 119      KK    QPND
 120      KM  ROUTE SP10 THRU QUEST POND
 121      RS       1    FLOW      -1
 122      SA       0   0.298   1.281   2.705   3.817   4.272   4.557   4.769   4.943   5.091
 123      SA   5.241
 124      SQ       0     3.7     4.6     6.0     7.1     8.0     8.9    39.6    95.2   196.9
 125      SQ   336.5
 126      SE     917     918     919     920     921     922     923     924     925     926
 127      SE     927
          *
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HEC-1 INPUT PAGE 5

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  128     KK  Q POND
  129     KM   COMBINE 2 HYDROGRAPHS AT QUEST POND OUTLET
  130     HC       2
          *

  131     KK   SOCRK
  132     KM  ROUTE COMBINED HYDROGRAPH THRU SP11 TO SPANISH OAK CREEK
  133     RD    2900   .0071     .05            TRAP      10       55
          *
          *

  134     KK    SP11
  135     BA  .45111
  136     LS       0       30       36
  137     UD   .3613
          *

  138     KK   SOCRK
  139     KM  COMBINE 3HYDROOGRAPHS TO SPANISH OAK CREEK
  140     HC       3
          *

  141     KK  NRCS 4
  142     KM  ROUTE COMBINED HYDROGRAPH THRU SP12 TO  NRCS 4
  143     RD    3200   .0112     .05            TRAP      10        8
          *

  144     KK    SP12
  145     BA  .99025
  146     LS       0       80       44
  147     UD   .7917
          *

  148     KK  NRCS 4
  149     KM  COMBINE FLOWS INTO NRCS 4
  150     HC       2
          *

  151     KK    SP13
  152     BA  .80239
  153     LS       0       80       28
  154     UD   .8268
          *

  155     KK    SP14
  156     BA  1.2334
  157     LS       0       80       48
  158     UD   .4622
          *
```

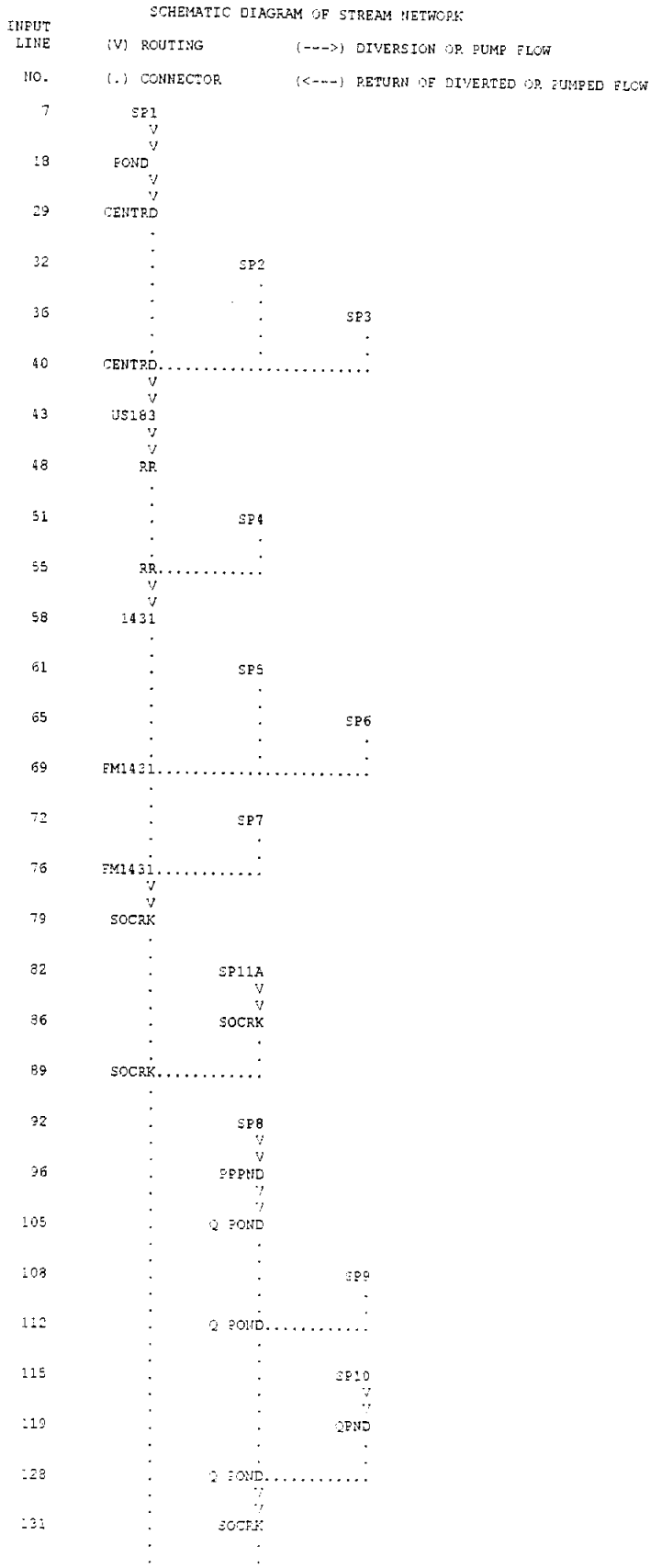
HEC-1 INPUT PAGE 6

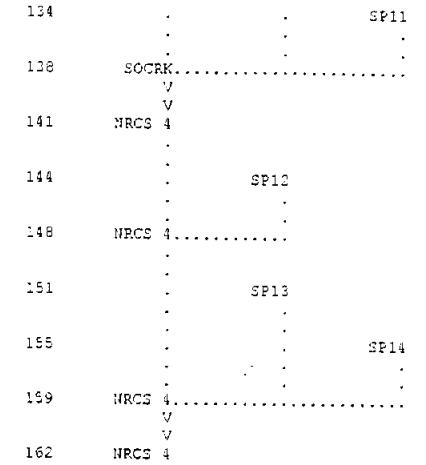
```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  159     KK  NRCS 4
  160     KM  COMBINE 3 HYDROGRAPHS AT NRCS 4
  161     HC       3

  162     KK  NRCS 4
  163     KM  ROUTE ALL HYDROGRAPHS THRU NRCS 4
  164     RS       1    STOR      -1
  165     SV     200     302     446     627     855    1122    1470    1887    1985    2088
  166     SV    2196    2309    2428    2550    2668    2824    2989    3164    3349    3544
  167     SE   838.3   841.2   844.2   847.1   850.1     853   855.9   858.9   859.6   860.3
  168     SE     861   861.7   862.4  863.10  863.90   864.9   865.9   866.9   867.9   868.9
  169     SQ       0       1       2       5       8      14      24      43     235     715
  170     SQ    1407    2279    3307    4244    4861    9636   25197   41807   61463   82790

  171     ZZ
```


SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT LINE
(V) ROUTING
(---->) DIVERSION OR PUMP FLOW
NO.
(.) CONNECTOR
(<----) RETURN OF DIVERTED OR PUMPED FLOW
7 SP1
18 POND
29 CENTRD
32 SP2
36 SP3
40 CENTRD
43 US183
48 RR
51 SP4
55 RR
58 1431
61 SP5
65 SP6
69 FM1431
72 SP7
76 FM1431
79 SOCRK
82 SP11A
86 SOCRK
89 SOCRK
92 SP8
96 PPPND
105 Q POND
108 SP9
112 Q POND
115 SP10
119 QPND
128 Q POND
131 SOCRK



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY  1991                 *
*          VERSION 4.0.1E               *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  06/06/02  TIME  18:04:53   *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*            (916) 551-1748             *
*                                       *
*****************************************
```

```
                              COCP STUDY     ................CEDAR PARK, TEXAS
                             Proposed Conditions Analysis....FEB 2002
                               SPANISH OAK CREEK.............. FILENAME: ULTSPANISH.IH1
                               PROJECT NO2000-43.............ESPEY CONSULTANTS, INC.

   6 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN           3  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1FEB 2  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         700  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2FEB 2  ENDING DATE
                      NDTIME        1057  ENDING TIME
                       ICENT          19  CENTURY MARK

                     COMPUTATION INTERVAL     0.05 HOURS
                         TOTAL TIME BASE    34.95 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
   7 KK     *     SP1    *
            *            *
            **************

   8 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         700  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       0.050  TIME INTERVAL IN HOURS

WARNING --- ROUTED OUTFLOW (    301.) IS GREATER THAN MAXIMUM OUTFLOW (    300.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    302.) IS GREATER THAN MAXIMUM OUTFLOW (    300.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1215.) IS GREATER THAN MAXIMUM OUTFLOW (   1210.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1238.) IS GREATER THAN MAXIMUM OUTFLOW (   1210.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1245.) IS GREATER THAN MAXIMUM OUTFLOW (   1210.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1237.) IS GREATER THAN MAXIMUM OUTFLOW (   1210.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1217.) IS GREATER THAN MAXIMUM OUTFLOW (   1210.) IN STORAGE-OUTFLOW TABLE
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	SP1	693.78	1.75	91.	23.	16.	0.149		
ROUTED TO	POND	301.39	2.10	84.	23.	16.	0.149	1007.51	2.10
ROUTED TO	CENTRD	301.79	2.25	84.	23.	16.	0.149		
HYDROGRAPH AT	SP2	724.02	2.10	148.	37.	25.	0.241		
HYDROGRAPH AT	SP3	661.63	1.80	101.	25.	17.	0.152		
3 COMBINED AT	CENTRD	1424.46	2.00	331.	85.	58.	0.542		
ROUTED TO	US183	1244.56	2.25	331.	85.	58.	0.542		
ROUTED TO	RR	1244.11	2.30	331.	85.	58.	0.542		
HYDROGRAPH AT	SP4	1034.69	1.85	164.	41.	28.	0.247		
2 COMBINED AT	RR	1799.84	2.10	494.	126.	87.	0.789		
ROUTED TO	1431	1788.62	2.35	494.	126.	87.	0.789		
HYDROGRAPH AT	SP5	1526.12	2.00	285.	71.	49.	0.459		
HYDROGRAPH AT	SP6	161.17	2.00	32.	8.	5.	0.046		
3 COMBINED AT	FM1431	3266.07	2.10	808.	205.	141.	1.275		
HYDROGRAPH AT	SP7	349.12	2.05	71.	18.	12.	0.103		
2 COMBINED AT	FM1431	3610.43	2.10	879.	222.	153.	1.378		
ROUTED TO	SOCRK	3598.60	2.20	879.	222.	153.	1.378		
HYDROGRAPH AT	SP11A	279.54	2.00	50.	12.	9.	0.086		
ROUTED TO	SOCRK	279.31	2.05	50.	12.	9.	0.086		
2 COMBINED AT	SOCRK	3853.46	2.20	929.	235.	162.	1.463		
HYDROGRAPH AT	SP8	1432.90	2.05	292.	73.	50.	0.454		
ROUTED TO	PPPND	1428.39	2.10	292.	73.	50.	0.454	945.40	2.10
ROUTED TO	Q POND	1422.89	2.20	292.	73.	50.	0.454		
HYDROGRAPH AT	SP9	268.36	2.10	53.	13.	9.	0.092		
2 COMBINED AT	Q POND	1686.61	2.15	346.	86.	59.	0.546		
HYDROGRAPH AT	SP10	427.00	1.95	76.	19.	13.	0.121		
ROUTED TO	QPND	134.78	2.70	46.	17.	13.	0.121	925.39	2.70
2 COMBINED AT	Q POND	1751.70	2.20	391.	104.	72.	0.667		
ROUTED TO	SOCRK	1738.19	2.35	391.	104.	72.	0.667		
HYDROGRAPH AT	SP11	1494.77	1.95	262.	66.	45.	0.451		
3 COMBINED AT	SOCRK	6526.33	2.20	1580.	404.	279.	2.581		
ROUTED TO	NRCS 4	6501.07	2.40	1580.	404.	279.	2.581		
HYDROGRAPH AT	SP12	2216.34	2.45	596.	149.	102.	0.990		
2 COMBINED AT	NRCS 4	8715.42	2.40	2172.	553.	381.	3.571		
HYDROGRAPH AT	SP13	1658.56	1.80	451.	113.	77.	0.802		
HYDROGRAPH AT	SP14	3756.40	2.05	754.	189.	129.	1.233		
3 COMBINED AT	NRCS 4	15103.24	2.35	3376.	854.	588.	5.607		
ROUTED TO	NRCS 4	41.91	6.30	42.	41.	37.	5.607	858.72	6.30

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
CENTRD	MANE	3.00	301.79	135.00	5.68	3.00	301.79	135.00	5.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4514E+02 EXCESS=0.0000E+00 OUTFLOW=0.4514E+02 BASIN STORAGE=0.2698E-02 PERCENT ERROR= 0.0

RR	MANE	3.00	1244.11	138.00	5.84	3.00	1244.11	138.00	5.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1688E+03 EXCESS=0.0000E+00 OUTFLOW=0.1688E+03 BASIN STORAGE=0.1542E-02 PERCENT ERROR= 0.0

1431	MANE	3.00	1788.62	141.00	5.94	3.00	1788.62	141.00	5.94

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2500E+03 EXCESS=0.0000E+00 OUTFLOW=0.2500E+03 BASIN STORAGE=0.5165E-02 PERCENT ERROR= 0.0

SOCRK	MANE	3.00	3598.60	132.00	6.02	3.00	3598.60	132.00	6.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4421E+03 EXCESS=0.0000E+00 OUTFLOW=0.4420E+03 BASIN STORAGE=0.3251E-02 PERCENT ERROR= 0.0

SOCRK	MANE	3.00	279.81	123.00	5.41	3.00	279.81	123.00	5.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2469E+02 EXCESS=0.0000E+00 OUTFLOW=0.2469E+02 BASIN STORAGE=0.1510E-02 PERCENT ERROR= 0.0

Q POND	MANE	3.00	1422.89	132.00	5.98	3.00	1422.89	132.00	5.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1448E+03 EXCESS=0.0000E+00 OUTFLOW=0.1448E+03 BASIN STORAGE=0.2142E-02 PERCENT ERROR= 0.0

SOCRK	MANE	3.00	1738.19	141.00	5.88	3.00	1738.19	141.00	5.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2090E+03 EXCESS=0.0000E+00 OUTFLOW=0.2090E+03 BASIN STORAGE=0.1615E-01 PERCENT ERROR= 0.0

NRCS 4	MANE	3.00	6501.07	144.00	5.85	3.00	6501.07	144.00	5.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8058E+03 EXCESS=0.0000E+00 OUTFLOW=0.8058E+03 BASIN STORAGE=0.7491E-01 PERCENT ERROR= 0.0

*** NORMAL END OF HEC-1 ***

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY  1991                 *
*          VERSION 4.0.1E               *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  06/06/02  TIME  18:32:02   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X        XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX           XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
                                    HEC-1 INPUT                                                    PAGE  1

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

              *DIAGRAM
    1         ID          COCP STUDY      ..............CEDAR PARK, TEXAS
    2         ID         EXISTING Conditions Analysis....FEB 2002
    3         ID         SOUTH BRUSHY    ..............FILE NAME: EXISCLUCK.IH1
    4         ID         PROJECT NO. 2000-43............ESPEY CONSULTANT S, INC.
              *
    5         IT        3 01FEB02    0000     700
    6         IO        5
              *
              * CLUCK CREEK *******

    7         KK       C1
    8         KO                                      31
    9         KM   100YR
   10         IN         5 01FEB02    0000
   11         PI         0   0.061   0.064   0.068   0.073   0.077   0.083   0.089   0.098   0.108
   12         PI   0.199   0.135   0.154   0.181   0.219   0.275   0.369   0.549   0.990   0.712
   13         PI   0.443   0.316   0.244   0.198   0.167   0.144   0.124   0.113   0.102   0.094
   14         PI   0.087   0.080   0.074   0.066   0.062   0.059
              *    50YR
              *      05 01FEB02    0000
              *       0   0.052   0.056   0.058   0.062   0.067   0.072   0.077   0.085   0.094
              *  0.104   0.177   0.135   0.159   0.192   0.244   0.329   0.494   0.910   0.648
              *  0.398   0.281   0.216   0.175   0.146   0.126   0.111   0.099   0.089   0.081
              *  0.075   0.069   0.065   0.061   0.057   0.054   0.051
              *    25YR
              *       5 01FEB02    0000
              *  0.000   0.044   0.047   0.050   0.053   0.057   0.061   0.067   0.073   0.080
              *  0.089   0.101   0.117   0.138   0.168   0.214   0.291   0.540   0.820   0.520
              *  0.352   0.247   0.189   0.151   0.127   0.109   0.096   0.085   0.076   0.069
              *  0.064   0.060   0.055   0.051   0.048   0.046   0.042
              *    10YR
              *       5 01FEB02    0000
              *  0.000   0.034   0.036   0.038   0.041   0.044   0.047   0.051   0.057   0.063
              *  0.070   0.079   0.092   0.109   0.134   0.172   0.228   0.368   0.720   0.494
              *  0.290   0.200   0.151   0.121   0.100   0.086   0.075   0.066   0.059   0.054
              *  0.050   0.046   0.042   0.040   0.037   0.035   0.033
   15         BA  .86242
   16         LS        0       79       31
   17         UD   .8082
              *

   18         KK  T1 CON
   19         KM  ROUTE C1 TO US 183
   20         RD   10700     .01     .05            TRAP       15       29
              *

   21         KK       C2
   22         BA  1.3492
   23         LS        0       80       37
   24         UD   .9978
              *
```

HEC-1 INPUT PAGE 2

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
  25      KK  T1 CON
  26      KO                                    21
  27      KM  COMBINE C1 AND C2
  28      HC       2
          *

  29      KK      C3
  30      BA  .69885
  31      LS       0      80      27
  32      UD   .4315
          *

  33      KK    POND
  34      KM  ROUTE C3 THRU DET POND
  35      RS       1    ELEV   912.5
  36      SA       0    0.27    2.15    5.86    8.97    9.10    9.23    9.36    9.49    9.72
  37      SQ       0      17      87     187     310     452     611     785     973    1174
  38      SE   913.5     914     915     916     917     918     919     920     921     922
          *

  39      KK  CC CON
  40      KM  ROUTE FLOW FROM POND THRU C4
  41      RD    4800   .0046     .05            TRAP      10       5
          *

  42      KK      C4
  43      BA  .35170
  44      LS       0      80      30
  45      UD   .6755
          *

  46      KK  CC CON
  47      KO                                    21
  48      KM  COMBINE 2 HYDROGRAPHS AT US 183
  49      HC       2
          *

  50      KK   US183
  51      KM  COMBINE 2 HYDROGRAPHS AT US 183
  52      HC       2
          *

  53      KK  S BRSH
  54      KM  ROUTE COMBINED HYDROGRAPH THRU C5 TO SOUTH BRUSHY
  55      RD    5200     .01     .05            TRAP       1       9
          *

  56      KK      C5
  57      BA  .85948
  58      LS       0      76      43
  59      UD   .4815
          *
```

HEC-1 INPUT PAGE 3

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  60      KK  S BRSH
  61      KO                                      21
  62      KM  COMBINE ALL FLOWS AT CONFLUENCE WITH SOUTH BRUSHY
  63      HC       2
          *
          * BUTTERCUP CREEK ******

  64      KK     BC1
  65      BA  1.5479
  66      LS        0       80       17
  67      UD   .6772
          *

  68      KK     BC2
  69      BA  .57053
  70      LS        0       80       15
  71      UD   .6266
          *

  72      KK    CCRD
  73      KM  COMBINE BC1 AND BC2 UPSTEAM OF CYPRESS CREEK ROAD
  74      HC       2
          *

  75      KK  NRCS 6
  76      KM  ROUTE BC1&BC2 THRU BC3TO NRCS 6
  77      RD    8100    .0064      .05             TRAP        1       37
          *

  78      KK     BC3
  79      BA  2.2612
  80      LS        0       80       31
  81      UD  1.1142
          *

  82      KK  NRCS 6
  83      KM  COMBINE 2 HYDROGRAPHS AT NRCS 6
  84      HC       2
          *

  85      KK     BC4
  86      BA  1.5822
  87      LS        0       80       40
  88      UD   .8528
          *

  89      KK  NRCS 6
  90      KM  COBINE BC4 AND ALL UPSTEAM FLOWS AT NRCS 6
  91      KO                                      21
  92      HC       2
          *
```

HEC-1 INPUT PAGE 4

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  93      KK  NRCS 6
  94      KM  ROUTE THRU NRCS 6
  95      KO                                      21
  96      RS       1    ELEV   888.3
  97      SV      34      84     190     200     225     356     604     960    1436    1903
  98      SV    2032    2760
  99      SE     880     884     888   888.3     889     892     896     900     904   907.2
 100      SE   908.2     912
 101      SQ       0       4      55      63      70     218     766    1697    4523    8423
 102      SE   888.3     889     892     900   907.2     908     909     910     912     914
          *

 103      KK  CC CON
 104      KM  ROUTE SCS 6 POUND OUTFLOW THRU BC5 TO CONFLUENCE WITH CLUCK CREEK
 105      RD    4500   .0107     .05            TRAP       1      12
          *

 106      KK     BC5
 107      BA   .6885
 108      LS       0      81      16
 109      UD   .9887
          *

 110      KK  CC CON
 111      KM  COMBINE ALL FLOWS AT CONFLUENCE WITH CLUCK CREEK
 112      HC       2
          *

 113      KK   SBRSH
 114      KM  COMBINE CLUCK CREEK FLOWS AND BUTTERCUP CREEK FLOWS
 115      HC       2
          *

 116      KK   BC Rd
 117      KM  ROUTE THRU B1 to upstream of Brushy Creek Road
 118      RD   11500   .0086     .05            TRAP      10       5
          *

 119      KK     SB1
 120      KO                                      21
 121      BA    1.93
 122      LS       0      78      16
 123      UD  0.6527
          *

 124      KK   BC RD
 125      KM  COMBINE AT D/S END OF B1
 126      HC       2
          *
```

HEC-1 INPUT PAGE 5

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  127     KK  NRCS 7
  128     KM  ROUTE TO BEFORE NRCS 7
  129     KO                                      21
  130     RD   11500    .0013     .05            TRAP      25       5
          *

  131     KK     SB2
  132     KO                                      21
  133     BA    3.58
  134     LS       0       79        6
  135     UD  1.6166
          *

  136     KK  NRCS 7
  137     KM  COMBINE BEFORE  NRCS 7
  138     KO                                      21
  139     HC       2
          *

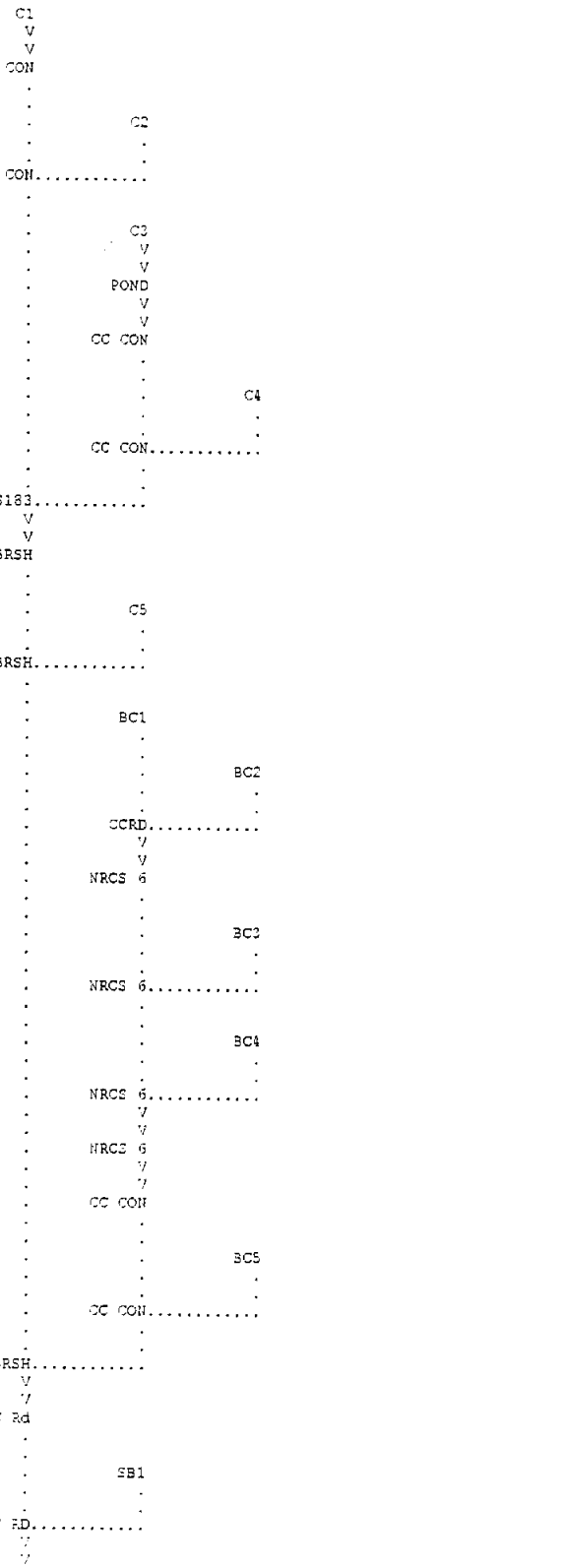
  140     KK  NRCS 7
  141     KM  ROUTE THRU NRCS 7
  142     KO                                      21
  143     RS       1    STOR      -1
  144     SV     321     520      778     1129     1568     2102     2723     3479     3695     3952
  145     SV    4190    4470     4726     4997     5317     5553
  146     SE  804.60     808   811.30   814.7   818.1   821.5   824.8   828.8   829.1   831.1
  147     SE     831     832   832.90   833.80   834.80   835.50
  148     SQ       0       1        3        7       13       26       49       95      316     1075
  149     SQ    2192    3909     5807     7999    10557    12512
          *
  150     ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

NO. (.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW



```
  127       NRCS 7
                 .
                 .
  131            .          SB2
                 .            .
                 .            .
  136       NRCS 7............
                 V
                 V
  140       NRCS 7
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*           VERSION 4.0.1E              *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  06/06/02  TIME  18:32:02   *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```

```
                              COCP STUDY     ..............CEDAR PARK, TEXAS
                             EXISTING Conditions Analysis....FEB 2002
                             SOUTH BRUSHY    ..............FILE NAME: EXISCLUCK.IH1
                             PROJECT NO. 2000-43.....ESPEY CONSULTANT S, INC.

  6 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          3  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1FEB 2  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         700  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2FEB 2  ENDING DATE
                      NDTIME        1057  ENDING TIME
                      ICENT           19  CENTURY MARK

                    COMPUTATION INTERVAL    0.05 HOURS
                        TOTAL TIME BASE   34.95 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  7 KK      *        C1  *
            *            *
            **************

  8 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.050  TIME INTERVAL IN HOURS



*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 25 KK      *    T1 CON  *
            *            *
            **************

 26 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.050  TIME INTERVAL IN HOURS

WARNING --- ROUTED OUTFLOW (   1209.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1251.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1280.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE
```

```
WARNING --- ROUTED OUTFLOW (   1295.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1300.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1296.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1284.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1266.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1243.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1216.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1185.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 46 KK    *    CC CON  *
          *            *
          **************

 47 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 60 KK    *    S BRSH  *
          *            *
          **************

 61 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 89 KK    *    NRCS 6  *
          *            *
          **************

 91 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 93 KK    *    NRCS 6  *
          *            *
          **************

 95 KO          OUTPUT CONTROL VARIABLES
```

```
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
119 KK    *       SB1  *
          *            *
          **************

120 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
127 KK    *    NRCS 7  *
          *            *
          **************

129 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
131 KK    *       SB2  *
          *            *
          **************

132 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
136 KK    *    NRCS 7  *
          *            *
          **************

138 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT       0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
140 KK      *    NRCS 7  *
            *            *
            **************

142 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.050  TIME INTERVAL IN HOURS
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	C1	1800.75	2.45	484.	121.	83.	0.862		
ROUTED TO	T1 CON	1792.39	2.95	484.	121.	83.	0.862		
HYDROGRAPH AT	C2	2556.80	2.65	787.	197.	135.	1.349		
2 COMBINED AT	T1 CON	4219.11	2.85	1270.	318.	218.	2.212		
HYDROGRAPH AT	C3	2075.31	2.05	391.	98.	67.	0.699		
ROUTED TO	POND	1300.31	2.45	391.	98.	67.	0.699	922.63	2.45
ROUTED TO	CC CON	1291.71	2.65	391.	98.	67.	0.699		
HYDROGRAPH AT	C4	826.39	2.30	199.	50.	34.	0.352		
2 COMBINED AT	CC CON	2011.95	2.55	590.	148.	101.	1.051		
2 COMBINED AT	US183	6052.61	2.75	1860.	466.	320.	3.262		
ROUTED TO	S BRSH	6044.97	2.90	1859.	466.	320.	3.262		
HYDROGRAPH AT	C5	2414.08	2.10	492.	123.	84.	0.859		
2 COMBINED AT	S BRSH	6992.91	2.80	2348.	589.	404.	4.122		
HYDROGRAPH AT	BC1	3477.45	2.25	828.	207.	142.	1.548		
HYDROGRAPH AT	BC2	1332.26	2.25	302.	76.	52.	0.571		
2 COMBINED AT	CCRD	4807.06	2.20	1130.	283.	194.	2.118		
ROUTED TO	NRCS 6	4752.18	2.70	1129.	282.	194.	2.118		
HYDROGRAPH AT	BC3	3907.19	2.80	1284.	322.	221.	2.261		
2 COMBINED AT	NRCS 6	8621.47	2.70	2413.	604.	415.	4.380		
HYDROGRAPH AT	BC4	3343.12	2.50	936.	234.	161.	1.582		
2 COMBINED AT	NRCS 6	11802.42	2.65	3348.	838.	576.	5.962		
ROUTED TO	NRCS 6	69.54	6.25	69.	69.	65.	5.962	906.73	6.40
ROUTED TO	CC CON	69.54	6.65	69.	69.	64.	5.962		
HYDROGRAPH AT	BC5	1061.40	2.65	319.	80.	55.	0.589		
2 COMBINED AT	CC CON	1117.84	2.65	372.	145.	119.	6.550		
2 COMBINED AT	SBRSH	8094.75	2.80	2714.	732.	523.	10.672		
ROUTED TO	BC Rd	8070.40	3.05	2713.	731.	522.	10.672		
HYDROGRAPH AT	SB1	4258.03	2.30	989.	247.	170.	1.930		
2 COMBINED AT	BC RD	10434.68	2.90	3694.	978.	692.	12.602		
ROUTED TO	NRCS 7	10064.10	3.25	3675.	975.	688.	12.602		
HYDROGRAPH AT	SB2	4245.54	3.40	1753.	444.	305.	3.580		
2 COMBINED AT	NRCS 7	14268.01	3.30	5417.	1418.	993.	16.182		
ROUTED TO	NRCS 7	67.17	24.30	67.	67.	58.	16.182	826.38	34.35

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL PEAK	INTERPOLATED TO COMPUTATION INTERVAL TIME TO PEAK	INTERPOLATED TO COMPUTATION INTERVAL VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
T1 CON	MANE	3.00	1792.39	177.00	5.22	3.00	1792.39	177.00	5.22

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2400E+03 EXCESS=0.0000E+00 OUTFLOW=0.2400E+03 BASIN STORAGE=0.1454E-01 PERCENT ERROR= 0.0

CC CON	MANE	3.00	1291.71	159.00	5.20	3.00	1291.71	159.00	5.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1939E+03 EXCESS=0.0000E+00 OUTFLOW=0.1938E+03 BASIN STORAGE=0.6476E-02 PERCENT ERROR= 0.0

S BRSH	MANE	3.00	6044.97	174.00	5.31	3.00	6044.97	174.00	5.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9235E+03 EXCESS=0.0000E+00 OUTFLOW=0.9235E+03 BASIN STORAGE=0.4813E-02 PERCENT ERROR= 0.0

NRCS 6	MANE	3.00	4752.18	162.00	4.96	3.00	4752.18	162.00	4.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5604E+03 EXCESS=0.0000E+00 OUTFLOW=0.5599E+03 BASIN STORAGE=0.1326E-01 PERCENT ERROR= 0.1

CC CON	MANE	3.00	69.54	408.00	0.58	3.00	69.54	408.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1880E+03 EXCESS=0.0000E+00 OUTFLOW=0.1852E+03 BASIN STORAGE=0.2790E+01 PERCENT ERROR= 0.0

BC Rd	MANE	3.00	8070.40	183.00	2.65	3.00	8070.40	183.00	2.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1511E+04 EXCESS=0.0000E+00 OUTFLOW=0.1507E+04 BASIN STORAGE=0.6806E+01 PERCENT ERROR= -0.2

NRCS 7	MANE	3.00	10064.10	195.00	2.96	3.00	10064.10	195.00	2.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1998E+04 EXCESS=0.0000E+00 OUTFLOW=0.1988E+04 BASIN STORAGE=0.1494E+02 PERCENT ERROR= -0.2

*** NORMAL END OF HEC-1 ***

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*           VERSION 4.0.1E              *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  06/06/02  TIME  16:18:38   *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X         XXXXX  X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
          *DIAGRAM
    1     ID         COCP STUDY      ..............CEDAR PARK, TEXAS
    2     ID        Proposed Conditions Analysis....FEB 2002
    3     ID        SOUTH BRUSHY    ..............FILE NAME: CLUCK.IH1
    4     ID        PROJECT NO. 2000-43.............ESPEY CONSULTANT S, INC.
          *
    5     IT       3 01FEB02    0000     700
    6     IO       5
          *
          * CLUCK CREEK *******

    7     KK      C1
    8     KO                                    21
    9     KM   100YR
   10     IN       5 01FEB02    0000
   11     PI       0   0.061   0.064   0.068   0.073   0.077   0.083   0.089   0.098   0.108
   12     PI   0.199   0.135   0.154   0.181   0.219   0.275   0.369   0.549   0.990   0.713
   13     PI   0.443   0.316   0.244   0.198   0.167   0.144   0.124   0.113   0.102   0.094
   14     PI   0.087   0.080   0.074   0.066   0.062   0.059
          * 50 YEAR
          *      05 01FEB02    0000
          *       0   0.052   0.056   0.058   0.062   0.067   0.072   0.077   0.085   0.094
          *  0.104   0.177   0.135   0.159   0.192   0.244   0.329   0.494   0.910   0.648
          *  0.398   0.281   0.216   0.175   0.146   0.126   0.111   0.099   0.089   0.081
          *  0.075   0.069   0.065   0.061   0.057   0.054   0.051
          * 25 YEAR
          *       5 01FEB02    0000
          *  0.000   0.044   0.047   0.050   0.053   0.057   0.061   0.067   0.073   0.080
          *  0.089   0.101   0.117   0.138   0.168   0.214   0.291   0.540   0.820   0.520
          *  0.352   0.247   0.189   0.151   0.127   0.109   0.096   0.085   0.076   0.069
          *  0.064   0.060   0.055   0.051   0.048   0.046   0.043
          * 10 YEAR
          *       5 01FEB02    0000
          *  0.000   0.034   0.036   0.038   0.041   0.044   0.047   0.051   0.057   0.063
          *  0.070   0.079   0.092   0.109   0.134   0.172   0.238   0.368   0.720   0.494
          *  0.290   0.200   0.151   0.121   0.100   0.086   0.075   0.066   0.059   0.054
          *  0.050   0.046   0.042   0.040   0.037   0.035   0.033
   15     BA  .86242
   16     LS       0      79      47
   17     UD   .8082
          *

   18     KK  T1 CON
   19     KM  ROUTE C1 TO US 183
   20     RD   10700     .01     .05           TRAP      15      29
          *

   21     KK      C2
   22     BA  1.3492
   23     LS       0      80      42
   24     UD   .9978
          *
```

HEC-1 INPUT PAGE 2

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  25      KK  T1 CON
  26      KM  COMBINE C1 AND C2
  27      HC       2
          *

  28      KK      C3
  29      BA  .69885
  30      LS       0      80      33
  31      UD   .4315
          *

  32      KK    POND
  33      KM  ROUTE C3 THRU DET POND
  34      RS       1    ELEV   913.5
  35      SA       0    0.27    2.15    5.86    8.97    9.10    9.23    9.36    9.49    9.72
  36      SQ       0      17      67     187     310     452     611     785     973    1174
  37      SE   913.5     914     915     916     917     918     919     920     921     922
          *

  38      KK  CC CON
  39      KM  ROUTE FLOW FROM POND THRU C4
  40      RD    4800   .0046     .05            TRAP      10       5
          *

  41      KK      C4
  42      BA  .35170
  43      LS       0      80      53
  44      UD   .6755
          *

  45      KK  CC CON
  46      KM  COMBINE 2 HYDROGRAPHS AT US 183
  47      HC       2
          *

  48      KK   US183
  49      KM  COMINE 2 HYDROGRAPHS AT US 183
  50      HC       2
          *

  51      KK   SBRSH
  52      KM  ROUTE COMBINED HYDROGRAPH THRU C5 TO SOUTH BRUSHY
  53      RD    5200     .01     .05            TRAP       1       9
          *

  54      KK      C5
  55      BA  .85948
  56      LS       0      76      59
  57      UD   .3836
          *
```

HEC-1 INPUT PAGE 3

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  58      KK   SBRSH
  59      KM  COMBINE ALL FLOWS AT CONFLUENCE WITH SOUTH BRUSHY
  60      HC       2
          *
          * BUTTERCUP CREEK ******

  61      KK     BC1
  62      BA  1.5479
  63      LS       0      80      37
  64      UD   .6772
          *

  65      KK     BC2
  66      BA  .57053
  67      LS       0      80      21
  68      UD   .6266
          *

  69      KK    CCRD
  70      KM  COMBINE BC1 AND BC2 UPSTEAM OF CYPRESS CREEK ROAD
  71      HC       2
          *

  72      KK   NRCS6
  73      KM  ROUTE BC1&BC2 THRU BC3 TO NRCS DAM 6
  74      RD    8100   .0064     .05            TRAP       1      37
          *

  75      KK     BC3
  76      BA  2.2612
  77      LS       0      80      56
  78      UD  1.1142
          *

  79      KK   NRCS6
  80      KM  COMBINE 2 HYDROGRAPHS AT NRCS 6
  81      HC       2
          *

  82      KK     BC4
  83      BA  1.5822
  84      LS       0      80      54
  85      UD   .8528
          *

  86      KK   NRCS6
  87      KM  COBINEBC4 AND ALL UPSTREAM FLOWS AT NRCS 6
  88      HC       2
          *
```

HEC-1 INPUT PAGE 4

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  89      KK  NRCS 6
  90      KM  ROUTE THRU NRCS 6
  91      RS       1     ELEV   888.3
  92      SV      34       84      190      200      225      356      604      960     1436     1903
  93      SV    2032     2760
  94      SE     880      884      888    888.3      889      892      896      900      904    907.2
  95      SE   908.2      912
  96      SQ       0        4       55       63       70      218      766     1697     4528     8423
  97      SE   888.3      889      892      900    907.2      908      909      910      912      914
          *

  98      KK  CC CON
  99      KM  ROUTE SCS 6 POOUND OUTFLOW THRU BC5 TO CONFLUENCE WITH CLUCK CREEK
 100      RD    4500   .0107     .05            TRAP        1       12
          *
          .
 101      KK     BC5
 102      BA   .5885
 103      LS       0       81       42
 104      UD   .7637
          *

 105      KK  CC CON
 106      KM  COMBINE ALL FLOWS AT CONFLUENCE WITH CLUCK CREEK
 107      HC       2
          *

 108      KK  S BRSH
 109      KM  COMBINE CLUCK CREEK FLOWS AND BUTTERCUP CREEK FLOWS
 110      HC       2
          *

 111      KK   BC Rd
 112      KM  ROUTE THRU B1 to upstream of Brushy Creek Road
 113      RD   11500   .0086     .05            TRAP       10        5
          *

 114      KK     SB1
 115      KO                                      21
 116      BA    1.93
 117      LS       0       78       44
 118      UD  0.5818
          *

 119      KK   BC RD
 120      KM  COMBINE AT D/S END OF B1
 121      KO                                      21
 122      HC       2
          *
```

HEC-1 INPUT PAGE 5

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

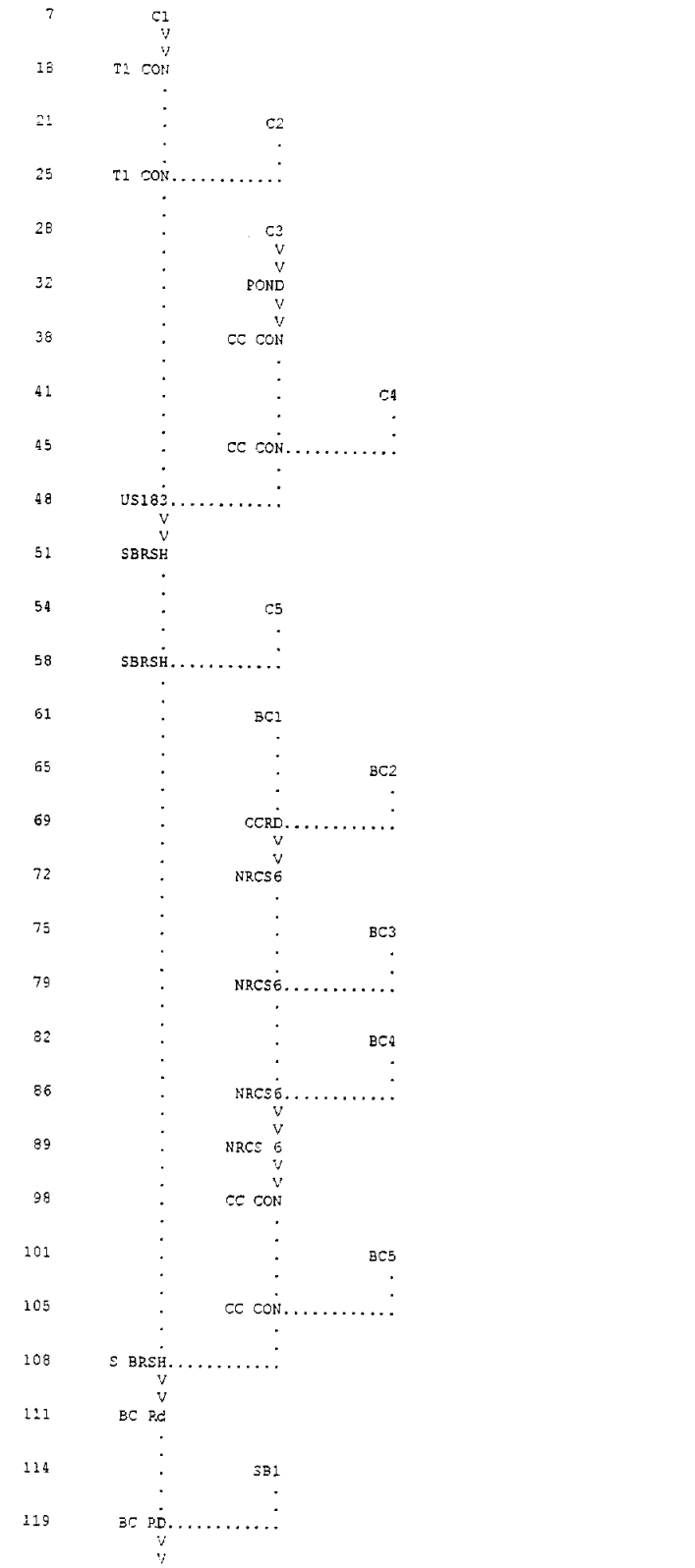
  123     KK  NRCS 7
  124     KM  ROUTE TO BEFORE NRCS 7
  125     RD   11500   .0013     .05          TRAP      25       5
          *

  126     KK     SB2
  127     KO                                    21
  128     BA    3.58
  129     LS       0      79      46
  130     UD  1.3916
          *

  131     KK  NRCS 7
  132     KM  COMBINE BEFORE  NRCS 7
  133     KO                                    21
  134     HC       2
          *

  135     KK  NRCS 7
  136     KM  ROUTE THRU NRCS 7
  137     KO                                    21
  138     RS       1    STOR      -1
  139     SV     321     520      778     1129     1568     2102     2723     3479     3695     3952
  140     SV    4190    4470     4726     4997     5317     5553
  141     SE  804.60     808   811.30    814.7    818.1    821.5    824.8    828.8    829.1    831.1
  142     SE     831     832   832.90   833.80   834.80   835.50
  143     SQ       0       1        3        7       13       26       49       95      316     1075
  144     SQ    2192    3909     5807     7999    10557    12512
          *
  145     ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK



```
  122       NRCS 7
                 .
                 .
  126            .          SB2
                 .            .
                 .            .
  131       NRCS 7.............
                 V
                 V
  135       NRCS 7

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY  1991                 *
*          VERSION 4.0.1E               *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  06/06/02  TIME  18:18:38   *
*****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*         609 SECOND STREET         *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

```
                              COCP STUDY     ................CEDAR PARK, TEXAS
                             Proposed Conditions Analysis....FEB 2002
                             SOUTH BRUSHY   ................FILE NAME: CLUCK.IH1
                             PROJECT NO. 2000-43.............ESPEY CONSULTANT S, INC.

  6 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN           3  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1FEB 2  STARTING DATE
                      ITIME        0000  STARTING TIME
                        NQ         700  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2FEB 2  ENDING DATE
                     NDTIME        1057  ENDING TIME
                     ICENT           19  CENTURY MARK

                   COMPUTATION INTERVAL    0.05 HOURS
                       TOTAL TIME BASE   34.95 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  7 KK      *        C1  *
            *            *
            **************

  8 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.050  TIME INTERVAL IN HOURS

WARNING --- ROUTED OUTFLOW (   1187.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1243.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1284.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1311.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1326.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1330.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1324.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1311.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1292.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1267.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1239.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1207.) IS GREATER THAN MAXIMUM OUTFLOW (   1174.) IN STORAGE-OUTFLOW TABLE


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
          **************
          *            *
114 KK    *      SB1   *
          *            *
          **************

115 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
119 KK    *    BC RD   *
          *            *
          **************

121 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
126 KK    *      SB2   *
          *            *
          **************

127 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
131 KK    *    NRCS 7  *
          *            *
          **************

133 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
135 KK    *    NRCS 7  *
          *            *
          **************
```

```
137 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        700  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	C1	1905.25	2.45	520.	130.	89.	0.862		
ROUTED TO	T1 CON	1896.04	2.95	520.	130.	89.	0.862		
HYDROGRAPH AT	C2	2600.64	2.65	804.	201.	138.	1.349		
2 COMBINED AT	T1 CON	4374.47	2.80	1322.	331.	227.	2.212		
HYDROGRAPH AT	C3	2112.66	2.05	401.	100.	69.	0.699		
ROUTED TO	POND	1329.84	2.45	401.	100.	69.	0.699	922.78	2.45
ROUTED TO	CC CON	1321.22	2.65	401.	100.	69.	0.699		
HYDROGRAPH AT	C4	888.82	2.30	219.	55.	38.	0.352		
2 COMBINED AT	CC CON	2092.14	2.50	621.	155.	107.	1.051		
2 COMBINED AT	US183	6282.52	2.75	1942.	486.	334.	3.262		
ROUTED TO	SBRSH	6270.02	2.90	1942.	486.	334.	3.262		
HYDROGRAPH AT	C5	2862.71	2.00	532.	133.	91.	0.859		
2 COMBINED AT	SBRSH	7076.71	2.80	2469.	619.	425.	4.122		
HYDROGRAPH AT	BC1	3714.97	2.30	904.	226.	155.	1.548		
HYDROGRAPH AT	BC2	1359.39	2.25	311.	78.	53.	0.571		
2 COMBINED AT	CCRD	5071.79	2.30	1215.	304.	209.	2.118		
ROUTED TO	NRCS6	5010.02	2.65	1214.	304.	208.	2.118		
HYDROGRAPH AT	BC3	4252.41	2.75	1423.	357.	245.	2.261		
2 COMBINED AT	NRCS6	9238.67	2.70	2637.	660.	453.	4.380		
HYDROGRAPH AT	BC4	3497.03	2.50	990.	248.	170.	1.582		
2 COMBINED AT	NRCS6	12580.70	2.65	3626.	908.	624.	5.962		
ROUTED TO	NRCS 6	156.66	5.95	130.	86.	77.	5.962	907.67	5.95
ROUTED TO	CC CON	156.64	6.25	130.	86.	76.	5.962		
HYDROGRAPH AT	BC5	1353.69	2.40	355.	89.	61.	0.589		
2 COMBINED AT	CC CON	1406.41	2.40	432.	170.	137.	6.550		
2 COMBINED AT	S BRSH	8229.45	2.75	2891.	788.	562.	10.672		
ROUTED TO	BC Rd	8205.25	3.00	2890.	788.	561.	10.672		
HYDROGRAPH AT	SB1	5039.26	2.20	1136.	284.	195.	1.930		
2 COMBINED AT	BC RD	10791.97	2.45	4007.	1070.	756.	12.602		
ROUTED TO	NRCS 7	10511.27	3.10	3985.	1068.	752.	12.602		
HYDROGRAPH AT	SB2	5549.65	3.10	2127.	537.	369.	2.580		
2 COMBINED AT	NRCS 7	16060.92	3.10	6085.	1603.	1121.	16.182		
ROUTED TO	NRCS 7	88.23	13.60	88.	88.	77.	16.182	828.21	13.60

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
T1 CON	MANE	3.00	1896.04	177.00	5.60	3.00	1896.04	177.00	5.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2577E+03 EXCESS=0.0000E+00 OUTFLOW=0.2577E+03 BASIN STORAGE=0.1462E-01 PERCENT ERROR= 0.0

CC CON	MANE	3.00	1321.22	159.00	5.34	3.00	1321.22	159.00	5.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1990E+03 EXCESS=0.0000E+00 OUTFLOW=0.1990E+03 BASIN STORAGE=0.7177E-02 PERCENT ERROR= 0.0

SBRSH	MANE	3.00	6270.02	174.00	5.54	3.00	6270.02	174.00	5.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9646E+03 EXCESS=0.0000E+00 OUTFLOW=0.9645E+03 BASIN STORAGE=0.4840E-02 PERCENT ERROR= 0.0

NRCS6	MANE	3.00	5010.02	159.00	5.33	3.00	5010.02	159.00	5.33

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6025E+03 EXCESS=0.0000E+00 OUTFLOW=0.6021E+03 BASIN STORAGE=0.1618E-01 PERCENT ERROR= 0.1

CC CON	MANE	3.00	156.64	375.00	0.69	3.00	156.64	375.00	0.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2226E+03 EXCESS=0.0000E+00 OUTFLOW=0.2199E+02 BASIN STORAGE=0.2811E+01 PERCENT ERROR= 0.0

BC Rd	MANE	3.00	8205.25	180.00	2.85	3.00	8205.25	180.00	2.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1624E+04 EXCESS=0.0000E+00 OUTFLOW=0.1621E+04 BASIN STORAGE=0.6855E+01 PERCENT ERROR= -0.2

NRCS 7	MANE	3.00	10511.27	186.00	3.23	3.00	10511.27	186.00	3.23

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2184E+04 EXCESS=0.0000E+00 OUTFLOW=0.2174E+04 BASIN STORAGE=0.1504E+02 PERCENT ERROR= -0.2

*** NORMAL END OF HEC-1 ***

APPENDIX C – HEC-RAS MODEL OUTPUT

HEC-RAS Version 3.0.1 Mar 2001
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
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
```

PROJECT DATA
Project Title: bhouse
Project File : bhouse.prj
Run Date and Time: 6/7/2002 9:49:34 AM

Project in English units

PLAN DATA

Plan Title: bhouse100(TP40)
Plan File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\bhouse.p03

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

Flow Title : BlochHouse100(TP40)
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\bhouse.f05

Plan Summary Information:
Number of: Cross Sections = 23 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: BlochHouse100(TP40)
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\bhouse.f05

Flow Data (cfs)

River	Reach	RS	10ext	25ext	50ext	100ext	100ult
BlockHouse	BH	23582.39	764	986	1151	1318	1378
BlockHouse	BH	21461.57	1098	1421	1660	1903	1991
BlockHouse	BH	19533.66	1527	1980	2316	2656	2783
BlockHouse	BH	19378.48	1568	2033	2379	2729	2859
BlockHouse	BH	16914.30	2391	3107	3640	4180	4384
BlockHouse	BH	15765.28	2911	3787	1438	5100	5352
BlockHouse	BH	15607.88	7741	10095	74614	13631	14636
BlockHouse	BH	14743.57	7944	10369	59383	14013	15023
BlockHouse	BH	14600.49	7978	10415	57180	14077	15088
BlockHouse	BH	14487.45	8005	10451	55498	14128	15140
BlockHouse	BH	14351.21	8037	10495	53536	14190	15202
BlockHouse	BH	12497.12	8496	11115	32804	15056	16077
BlockHouse	BH	9383.234	4500	5800	6800	7900	8281
BlockHouse	BH	6724.426	7704	10046	77784	12563	14567
BlockHouse	BH	3643.267	9326	12238	14411	16632	17660

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
BlockHouse	BH	10ext		Rating Curve #1
BlockHouse	BH	25ext		Normal S = .01
BlockHouse	BH	50ext		Normal S = .01
BlockHouse	BH	100ext		Normal S = .01
BlockHouse	BH	100ult		Normal S = .01

Rating Curve #1

Flow (cfs)	Elev (ft)
0	876.7
1	880.2
3	883.6
5	887.1
10	890.6
17	894.1
31	897.5
56	901
344	901.8
1065	902.6
2125	903.4
3448	904.2
5064	905
7172	905.9
8121	906.7
14308	907.5
36568	908.4
62327	909.2
94222	910.1
130730	911

GEOMETRY DATA

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

CROSS SECTION RIVER: BlockHouse
REACH: BH RS: 23582.89

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1031.71	72.9	1030.99	124.04	1030	168.49	1030	230.7	1027.56
284.28	1026	298.48	1026	329.21	1024	352.49	1024	377.51	1022.6
388.13	1022.54	391.2	1022.58	392.31	1022.52	422.14	1022	460.27	1022
474.9	1021.32	512.93	1020	565.17	1020.13	586.09	1020	641.89	1020
654.67	1018	662.64	1016	672.18	1014	688.65	1012.63	772.69	1012.71
1081.78	1012.5	1110.1	1013.29	1154.52	1014	1164.3	1016	1170.75	1016.96
1177.01	1017.71	1178.98	1018	1179.1	1018	1255.32	1020	1257.05	1020
1356.92	1022	1360.18	1022	1397.06	1022.53	1519.02	1023.65	1558.76	1022.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	688.65	.05	1110.1	.06

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

688.65	1110.1	2117.23	2121.32	2125.41	.1	.3

CROSS SECTION RIVER: BlockHouse
REACH: BH RS: 21461.57

INPUT
Description:
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1013.17	5.7	1012.04	11.35	1013	14.19	1012.91	20.49	1012.38
22.9	1012.81	29.87	1012.77	41.24	1012.51	87.28	1012	111.66	1012
114.42	1011.89	123.29	1011.55	124.98	1011.52	133.41	1011.19	178.16	1010
191.45	1010	242.3	1008.1	245.91	1008	299.88	1008	340.55	1006.49
345.56	1006.46	357.3	1006.77	359.6	1006.91	364.72	1006.9	367.4	1007.06
374.25	1007.08	376.81	1007.28	382.02	1007.47	383.35	1007.46	388.32	1007.6
394.12	1007.65	400.1	1007.84	402.25	1007.58	406.43	1007.35	437.82	1006.39
446.29	1006	467.15	1004	596.3	1003.94	601.08	1003.82	609.01	1003.71
662.06	1002	666.49	1002	768.82	1000	796.17	1000	908.11	998.06
911.6	998	939.2	998	1019.16	996	1079.03	994	1083.93	993.66
1088.52	993.68	1092.61	994	1134.09	996	1188.25	996.02	1207.83	998.58
1262.61	1000	1263.75	1000	1291.55	1004	1462.44	1006	1532.89	1008
1548.34	1008.54								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1019.16	.05	1134.09	.06

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

1019.16	1134.09	1932.02	1927.91	1923.79	.1	.3

CROSS SECTION RIVER: BlockHouse
REACH: BH RS: 19533.66

INPUT
Description:
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	990.5	50	989.85	161.62	989.09	173.43	989.19	179.08	989.45

```
  181.91  989.41  183.37  989.42  186.89  989.39  202.05  989.56  237.09   989.6
  278.51  989.24   279.9  989.26  281.74  989.29  310.42  989.03  311.45  989.01
  329.06  988.91  331.39  988.96  338.98  988.96  351.22  988.82  354.13  988.84
   356.2  988.81  361.21  988.83  363.95  988.92  368.89  989.02  374.63  989.03
  376.43  989.39  380.09  989.46  381.44  989.52  382.61  989.54   386.3  989.43
  387.73  989.41  389.41  989.34  399.07  988.66  410.62  987.72  416.35  987.26
  438.46  987.38  501.85     986  802.22     986  811.47     986  843.01     985
  847.99  985.01  850.45  984.95  852.79  984.95  858.34   984.8   860.3   984.8
  863.43  984.71  865.17  984.71  868.52   984.8     870   984.8  877.87  984.83
  882.79  984.24  886.02     984  984.37     984  986.97   984.2  990.64  984.41
  992.27  984.29 1031.03     986 1047.38     986 1071.24     986 1120.62  987.31
 1136.33     988 1154.76     988  1207.3  989.61 1243.88  991.12 1269.52     992
 1283.22  992.29 1284.63  992.34 1306.27  992.72 1330.27  993.27 1344.52  992.87
 1345.55  993.89 1347.45     994 1375.39  994.89 1378.51  994.93 1381.28  995.06
 1383.87   995.1 1387.29  995.26  1389.4   995.3 1393.55  995.49 1394.99  995.53
 1399.92  995.75 1405.86     996  1428.6  996.45 1430.37  996.51 1443.95  996.71
 1446.15   996.8  1449.7  996.85 1452.61  996.96 1455.72  997.01 1480.59  997.87
 1481.84   997.9 1484.14     998 1486.07     998

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  802.22     .05 1047.38     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       802.22 1047.38           37.675   37.59  37.505             .3       .5

CROSS SECTION           RIVER: BlockHouse
REACH: BH                  RS: 19496.07

INPUT
Description:
Station Elevation Data    num=      91
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  990.02      20  989.17  161.62  988.61  173.43  988.91  178.33  988.97
  181.91  988.93  183.37  988.94  186.89  988.91  202.05  989.08  237.09  989.12
  278.51  988.76   279.9  988.78  281.74  988.81  329.06  988.43  331.39  988.48
  338.98  988.48  351.22  988.35  354.13  988.36   356.2  988.33  361.21  988.35
  363.95  988.44  368.89  988.55  374.63   988.3  376.43  988.91  380.09  988.98
  381.44  989.04  382.61  989.06   386.3  988.95  387.73  988.93  389.41  988.86
  399.07  988.18  410.62  987.24  416.25  986.38  438.46   986.9  501.85  985.52
  802.22  985.52  811.47  985.52  843.01  984.52  847.99  984.53  850.45  984.47
  852.79  984.47  858.34  984.32   860.3  984.32  863.43  984.22  865.17  984.23
  868.52  984.12     870  984.12  877.87  983.85  882.79  983.66  886.02  983.52
  984.37  983.52  986.97  983.72  990.64  983.93  992.27  983.91 1031.03  985.52
 1047.38  985.52 1071.24  985.52 1120.62  986.33 1136.33  987.52 1154.76  987.82
  1207.3  989.13 1243.88  990.84 1269.52  991.52 1283.22  991.31 1284.63  991.36
 1306.27  992.24 1330.27  992.79 1344.52  993.39 1345.55  993.41 1347.45  993.52
 1375.39  994.41 1378.51  994.45 1381.28  994.58 1383.87  994.62 1387.29  994.78
  1389.4  994.32 1393.55  995.01 1394.99  995.05 1399.92  995.27 1405.86  995.52
  1428.6  995.97 1430.37  996.03 1443.95  996.23 1446.15  996.32  1449.7  996.37
 1452.61  996.48 1455.72  996.53 1480.59  997.29 1481.84  997.42 1484.14  997.52
 1486.07  997.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  802.22     .05 1047.38     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       802.22 1047.38                    80       80       80             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                 RIVER: BlockHouse
REACH: BH                  RS: 19455.5

INPUT
Description: Baghdad
Distance from Upstream XS =       10
Deck/Roadway Width        =       60
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      990          382.61  989.54          935.2   988.3
    1174      988

Upstream Bridge Cross Section Data
Station Elevation Data    num=      91
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  990.02      20  989.17  161.62  988.61  173.43  988.91  178.33  988.97
  181.91  988.93  183.37  988.94  186.89  988.91  202.05  989.08  237.09  989.12
  278.51  988.76   279.9  988.78  281.74  988.81  329.06  988.43  331.39  988.48
  338.98  988.48  351.22  988.35  354.13  988.36   356.2  988.33  361.21  988.35
  363.95  988.44  368.89  988.55  374.63   988.3  376.43  988.91  380.09  988.98
  381.44  989.04  382.61  989.06   386.3  988.95  387.73  988.93  389.41  988.86
  399.07  988.18  410.62  987.24  416.25  986.38  438.46   986.9  501.85  985.52
  802.22  985.52  811.47  985.52  843.01  984.52  847.99  984.53  850.45  984.47
  852.79  984.47  858.34  984.32   860.3  984.32  863.43  984.22  865.17  984.23
  868.52  984.12     870  984.12  877.87  983.85  882.79  983.66  886.02  983.52
  984.37  983.52  986.97  983.72  990.64  983.93  992.27  983.91 1031.03  985.52
 1047.38  985.52 1071.24  985.52 1120.62  986.33 1136.33  987.52 1154.76  987.82
  1207.3  989.13 1243.88  990.84 1269.52  991.52 1283.22  991.31 1284.63  991.36
 1306.27  992.24 1330.27  992.79 1344.52  993.39 1345.55  993.41 1347.45  993.52
```

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 1375.39  994.41 1378.51  994.45 1381.28  994.58 1383.87  994.62 1387.29  994.78
  1389.4  994.82 1393.85  995.01 1394.99  995.05 1399.92  995.27 1405.86  995.52
  1428.6  995.97 1430.37  996.03 1443.95  996.22 1446.15  996.32  1449.7  996.37
 1452.61  996.48 1455.72  996.53 1480.59  997.39 1481.84  997.42 1484.14  997.52
 1486.07  997.52

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   802.22     .05  1047.38     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        802.22 1047.38            .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      990          382.61  989.54           705.02   988.3
 1136.33      988

Downstream Bridge Cross Section Data
Station Elevation Data    num=      83
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   991.48       20   989.48      140   986.48      160   985.48      170   984.48
     180   983.98   232.96   983.33   235.96   983.24   239.83   983.24   243.4   983.15
  250.18   983.14   253.75   983.06    256.7   982.06   260.45   982.97  262.93   982.97
  266.72   982.89   267.75   982.89   271.92    982.8   274.33   982.81  278.41   982.74
  283.36   982.67   288.34   982.59   293.36   982.52   309.78   982.55  313.92   982.73
  316.71   982.74   321.05   982.94   325.03   982.95   337.56    983.4   339.9    983.4
  342.54   983.48   350.94    983.5   353.24   983.57   355.72   983.56   401.8   984.18
  512.53   984.24   600.22   984.48   628.27   984.83   632.28   984.78   639.05  984.48
  654.06   984.48   679.04   982.48      721   982.48   750.36   984.48   751.64  984.59
  755.48   984.87   759.32   985.06   761.62   985.03   764.74   985.18    768.2  985.18
  771.44    985.2   773.67   985.21   781.81   985.57   784.66   985.57   788.98  985.68
  792.04   985.69   793.96   985.73   797.11   985.73   798.93   985.77   802.17  985.77
  803.89   985.81   814.33   985.32    816.1   985.86   819.99   985.87   821.62   985.9
  835.64   985.97   837.04      986   841.27   986.01   849.96   986.08   940.07  986.48
   945.4   986.69   950.72   986.89   953.25   986.93   957.63   987.11   972.62  987.45
  1006.1   988.41  1022.38   988.96  1053.23   990.48  1054.74   990.53  1116.32  992.44
 1127.14   992.68  1132.28   992.78  1191.65   993.68

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   654.06     .05   750.36     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        654.06  750.36            .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
Baghdad             Box         4      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
                 10      60       .011                  .4                1
Number of Barrels =  6
Upstream   Elevation =  983.52
Centerline Stations
    Sta.     Sta.     Sta.     Sta.     Sta.     Sta.
  906.03    917.7   929.37   941.04    952.7   964.37
Downstream Elevation =  982.5
Centerline Stations
    Sta.     Sta.     Sta.     Sta.     Sta.     Sta.
  675.85   687.52   699.19   710.86   722.52   734.19

CROSS SECTION          RIVER: BlockHouse
REACH: EH                 RS: 19416.07

INPUT
Description:
Station Elevation Data    num=      83
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   991.48       20   989.48      140   986.48      160   985.48      170   984.48
     180   983.98   232.96   983.33   235.96   983.24   239.83   983.24   243.4   983.15
  250.18   983.14   253.75   983.06    256.7   982.06   260.45   982.97  262.93   982.97
  266.72   982.89   267.75   982.89   271.92    982.8   274.33   982.81  278.41   982.74
  283.36   982.67   288.34   982.59   293.36   982.52   309.78   982.55  313.92   982.73
  316.71   982.74   321.05   982.94   325.03   982.95   337.56    983.4   339.9    983.4
```

```
  342.54  983.48  350.94   983.5  353.24  983.57  355.72  983.56   401.8  984.18
  512.53  984.24  600.22  984.48  628.27  984.83  632.28  984.78  639.05  984.48
  654.06  984.48  679.04  982.48     731  982.48  750.36  984.48  751.64  984.59
  755.48  984.37  759.32  985.06  761.62  985.02  764.74  985.13   768.2  985.18
  771.44   985.3  773.67  985.31  781.81  985.57  784.66  985.57  788.98  985.68
  792.04  985.69  793.96  985.73  797.11  985.73  798.93  985.77  802.17  985.77
  803.89  985.81  814.33  985.82   816.1  985.86  819.99  985.87  821.62   985.9
  835.64  985.97  837.04     986  841.37  986.01  849.96  986.08  940.07  986.48
   945.4  986.69  950.72  986.89  953.25  986.93  957.63  987.11  972.62  987.45
  1006.1  988.41 1022.38  988.96 1053.23  990.48 1054.74  990.53 1116.32  992.44
 1127.14  992.68 1132.28  992.78 1191.65  993.68

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   654.06     .05   750.36     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        654.06  750.36           37.675   37.59  37.505              .3      .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION           RIVER: BlockHouse
REACH: BH                  RS: 19378.48

INPUT
Description:
Station Elevation Data    num=      83
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0     991       20     989      140     986      160     985      170     984
     180   983.5   232.96  982.85   235.96  982.76   239.83  982.76   243.4  982.67
  250.18  982.66   253.75  982.58    256.7  982.58   260.45  982.49  262.93  982.49
  266.73  982.41   267.75  982.41   271.92  982.32   274.33  982.33  278.41  982.26
  283.26  982.19   288.34  982.11   293.36  982.04   309.78  982.07  313.92  982.25
  316.71  982.26   321.05  982.46   325.03  982.47   337.56  982.92   339.9  982.92
  342.54     983   350.94  983.02   353.24  983.09   355.72  983.08   401.8   983.7
  512.53  983.76   600.22     984   628.27  984.35   632.28   984.3  639.05     984
  654.06     984   679.04     982      731     982   750.36     984   751.64  984.11
  755.48  984.39   759.32  984.58   761.62  984.55   764.74   984.7   768.2   984.7
  771.44  984.82   773.67  984.83   781.81  985.09   784.66  985.09  788.98   985.2
  792.04  985.21   793.96  985.25   797.11  985.25   798.93  985.29  802.17  985.29
  803.89  985.33   814.33  985.34    816.1  985.38   819.99  985.39  821.62  985.42
  835.64  985.49   837.04  985.52   841.37  985.53   849.96   985.6   940.07     986
   945.4  986.21   950.72  986.41   953.25  986.45   957.63  986.63  972.62  986.97
  1006.1  987.93 1022.38  988.48 1053.23     990 1054.74  990.05 1116.32  991.96
 1127.14   992.2 1132.28   992.3 1191.65   993.2

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   654.06     .05   750.36     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        654.06  750.36         2462.82 2464.18 2465.54              .1      .3

CROSS SECTION           RIVER: BlockHouse
REACH: BH                  RS: 16914.30

INPUT
Description:
Station Elevation Data    num=      29
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0  985.06    62.25  984.64    63.8  984.65   67.09  984.59  236.49     982
  241.05  981.85   320.02  979.33  322.64  979.28   324.2  978.93  338.12  978.87
  341.02  978.77   350.25  978.64  352.53  978.57  390.19  977.96  472.53  976.15
  479.98     976   493.21     976  632.49     974  654.24     974  722.53   972.6
  881.83     972 1129.32  973.29 1219.21     974 1400.33     974 1574.22     976
 1830.86     978 1988.55     980 1990.45     980 2233.92  983.62

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   722.53     .05 1129.32     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        722.53 1129.32         1148.45 1148.92  1149.4              .1      .3

CROSS SECTION           RIVER: BlockHouse
REACH: BH                  RS: 15765.38

INPUT
Description:
Station Elevation Data    num=      51
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0   971.8       24   971.5    30.03     971  154.09     971  209.27  970.36
  275.98  970.29   277.45  970.26   285.35   970.1  292.89  970.09   295.5   970.1
  297.79  970.02   300.43  970.02  321.34  969.17  322.96  969.16  326.41     969
  629.31     969   632.14  969.04     731  968.05  773.17  967.42  774.13  967.42
  778.59  967.12   780.76     967  800.44     967  812.53  965.79  816.08  965.77
  819.53  965.88   820.85  965.84  828.71     965   875.1     965 1033.88     965
 1041.21  964.85 1041.86  964.64 1050.53  965.04 1051.86  965.11 1053.2  965.27
 1059.88  966.52 1061.62     967 1064.75  967.25 1067.07  967.24 1071.02  967.46
 1089.33  967.81 1112.06  968.15 1116.89  966.19 1151.24     969 1161.16     969
 1300.35     969 1329.88  969.62 1367.24     971 1809.44     971   1815   971.5
    1825   971.5
```

```
Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  900.44     .05 1061.62     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        900.44 1061.62              38.77  38.745  38.725              .3       .5

CROSS SECTION             RIVER: BlockHouse
REACH: BH                 RS: 15726.64

INPUT
Description:
Station Elevation Data      num=       51
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0   971.8       24   971.5    30.03     971   154.09     971   209.27  970.36
  275.98  970.29   277.45  970.26   285.55   970.3   292.89  970.09   295.5   970.1
  297.79  970.02   300.43  970.02   321.54  969.17   322.96  969.16  326.41     969
  629.31     969   632.34  969.04      731  968.95   773.17  967.42  774.18  967.42
  778.59  967.12   780.76     967   900.44     967   912.03  965.79  916.08  965.77
  919.53  965.58   920.95  965.54   928.71     965    975.1     965 1033.98     965
 1041.21  964.85 1041.86  964.64 1050.53  965.04 1051.66  965.11  1053.2  965.27
 1059.58  966.52 1061.62     967 1064.75  967.25 1067.07  967.24 1071.32  967.46
 1089.83  967.61 1113.66  968.15 1118.59  968.19 1151.34     969 1161.06     969
 1300.35     969 1329.68  969.62 1367.24     971 1809.44     971    1815   971.5
    1825   971.8

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  900.44     .05 1061.62     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        900.44 1061.62                  80      80      80              .3       .5
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                   RIVER: BlockHouse
REACH: BH                 RS: 15686.63

INPUT
Description: US 183
Distance from Upstream XS =       10
Deck/Roadway Width        =       60
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=        2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0      973      965    2000      973      965

Upstream Bridge Cross Section Data
Station Elevation Data      num=       51
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0   971.8       24   971.5    30.03     971   154.09     971   209.27  970.36
  275.98  970.29   277.45  970.26   285.55   970.3   292.89  970.09   295.5   970.1
  297.79  970.02   300.43  970.02   321.54  969.17   322.96  969.16  326.41     969
  629.31     969   632.34  969.04      731  968.95   773.17  967.42  774.18  967.42
  778.59  967.12   780.76     967   900.44     967   912.03  965.79  916.08  965.77
  919.53  965.58   920.95  965.54   928.71     965    975.1     965 1033.98     965
 1041.21  964.85 1041.86  964.64 1050.53  965.04 1051.66  965.11  1053.2  965.27
 1059.58  966.52 1061.62     967 1064.75  967.25 1067.07  967.24 1071.32  967.46
 1089.83  967.61 1113.66  968.15 1118.59  968.19 1151.34     969 1161.06     969
 1300.35     969 1329.68  969.62 1367.24     971 1809.44     971    1815   971.5
    1825   971.8

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  900.44     .05 1061.62     .06

Bank Sta: Left   Right     Coeff Contr.   Expan.
        900.44 1061.62              .3       .5
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=        3
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0      973      965    1500      973      965    1832      973

Downstream Bridge Cross Section Data
Station Elevation Data      num=      117
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0     969    48.42     969   193.73  968.38   225.11  967.83   226.04  967.83
  231.07  967.27   236.72  967.35   240.34  967.24   242.13  967.24   251.05     967
  306.24     967   338.62   966.8   617.06  966.89   738.31  966.79   878.03     967
  881.39  967.16    887.4  967.19   904.89  967.72   925.38  967.84   931.84  967.14
  934.08  967.01   934.04     967   940.09  966.25   954.47     968  1023.77     965
 1035.92     967 1061.88     967 1071.12  967.2 1072.17  967.24 1116.82  967.29
 1118.12  967.29  1120.3  967.32 1124.86  967.2 1125.17  967.29 1139.03  967.11
 1142.16  967.19 1148.96  967.14 1158.03  967.1 1158.34  967.14 1163.51  967.27
 1177.01  967.79 1184.83  967.86 1185.12  967.7 1196.16  967.7 1199.08  967.74
 1201.78  967.88 1205.14  967.77 1206.65  967.78 1210.43  968.16 1220.47  968.15
 1224.84  969.15 1239.79  969.34 1244.89  969.33  1246.4  969.62 1249.94  969.71
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 1251.97   969.8 1262.85  969.92 1272.87  969.86 1274.93  969.82 1287.79   969.9
 1297.55  970.05 1304.99  970.04 1307.46  969.94 1313.27  969.84 1315.49  969.72
 1319.05  969.66 1320.74  969.56 1324.67  969.51 1325.91  969.43 1330.07   969.4
 1335.32  969.32 1337.37  969.24 1346.95   969.2 1359.47   969.2 1396.09  969.29
 1401.92  969.25 1405.89  969.32 1409.85  969.29  1414.5  969.29 1419.33  969.31
 1424.38  969.38 1425.48  969.44 1429.52  969.48 1430.93  969.55 1438.21  969.65
 1439.91  969.72 1443.12  969.76 1445.14  969.83 1455.51  969.98 1473.07  970.06
 1498.05  970.48 1508.06  970.54 1519.35  970.41 1529.79  970.17 1532.58  970.07
 1534.95  970.04 1537.42  969.95 1555.58  969.61 1557.04  969.56 1564.67  969.46
 1565.84  969.41 1570.02  969.37 1579.68  969.27 1588.49  969.28 1593.59     969
 1628.91     969  1678.5  967.84 1690.46  967.92 1692.81  967.88 1711.76  967.89
 1721.85  967.83 1738.51   967.9  1741.4  967.97 1748.97  967.98 1751.29  968.03
 1785.43  968.21 1831.82  968.74

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  934.34     .05 1035.92     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        934.34 1035.92            .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
US 183                Box         8      10
FHWA Chart # 3 - 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       60        .011                   .4                1
Number of Barrels =  7
Upstream   Elevation =  964.5
Centerline Stations
    Sta.     Sta.     Sta.     Sta.     Sta.     Sta.     Sta.
  956.62  967.62  978.62  989.62 1000.62 1011.62 1022.62
Downstream Elevation =  964.3
Centerline Stations
    Sta.     Sta.     Sta.     Sta.     Sta.     Sta.     Sta.
  956.62  967.62  978.62  989.62 1000.62 1011.62 1022.62

CROSS SECTION          RIVER: BlockHouse
REACH: BH                 RS: 15646.84

INPUT
Description:
Station Elevation Data     num=     117
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0      969    48.42     969   193.73  968.28   225.31  967.53   226.64  967.53
  231.07  967.37   236.72  967.35   240.94  967.24   242.13  967.24   251.05     967
  306.34     967   338.92   966.8   617.06  966.59   788.61  966.73   878.03     967
  881.89  967.16   887.4   967.39   904.69  967.72   923.88  967.54   931.84  967.14
  934.09  967.01   934.34     967   943.09  966.25   954.97     965  1025.77     965
 1035.92     967  1061.58     967  1071.32   967.2  1072.37  967.24  1116.82  967.29
 1118.32  967.28   1120.5  967.32  1124.56  967.29  1129.57  967.29  1138.33  967.22
 1143.15  967.18  1148.06  967.14  1153.03  967.11  1158.04  967.14  1163.54  967.27
 1177.01  967.78  1184.83  967.86  1195.12   967.7  1196.86   967.7  1198.68  967.74
 1201.78  967.68  1205.34  967.77  1206.65  967.78  1213.93  968.06  1229.47  968.95
 1234.64  969.15  1239.79  969.24  1244.89  969.53   1246.1  969.62  1249.94  969.71
 1251.97   969.8  1262.85  969.92  1272.87  969.86  1274.93  969.82  1287.79   969.9
 1297.55  970.05  1304.99  970.04  1307.46  969.94  1313.27  969.84  1315.49  969.72
 1319.05  969.66  1320.74  969.56  1324.67  969.51  1325.91  969.43  1330.07   969.4
 1335.32  969.32  1337.37  969.24  1346.95   969.2  1359.47   969.2  1396.09  969.29
 1401.92  969.25  1405.89  969.32  1409.85  969.29   1414.5  969.29  1419.33  969.31
 1424.38  969.38  1425.48  969.44  1429.52  969.48  1430.93  969.55  1438.21  969.65
 1439.91  969.72  1443.12  969.76  1445.14  969.83  1455.51  969.98  1473.07  970.06
 1498.05  970.48  1508.06  970.54  1519.35  970.41  1529.79  970.17  1532.58  970.07
 1534.95  970.04  1537.42  969.95  1555.58  969.61  1557.04  969.56  1564.67  969.46
 1565.84  969.41  1570.02  969.37  1579.68  969.27  1588.49  969.28  1593.59     969
 1628.91     969   1678.5  967.84  1690.46  967.92  1692.81  967.88  1711.76  967.89
 1721.85  967.83  1738.51   967.9   1741.4  967.97  1748.97  967.98  1751.29  968.03
 1785.43  968.21  1831.82  968.74

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  934.34     .05 1035.92     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        934.34 1035.92            38.77  38.745  38.725             .3       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F
```

```
CROSS SECTION              RIVER: BlockHouse
REACH: BH                     RS: 15607.88

INPUT
Description:
Station Elevation Data     num=      119
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
        0      969    48.42      969   193.73   968.28   225.31   967.83   226.64   967.53
   231.07   967.37   236.72   967.35   240.94   967.24   242.13   967.24   251.05      967
   306.34      967   338.92    966.8   617.06   966.59   788.61   966.79   878.03      967
   881.89   967.16    887.4   967.39   904.69   967.72   922.88   967.54   931.84   967.14
   934.34      967   943.09   966.25   954.97      965  1002.37      965  1021.75   966.85
  1023.44      967  1035.92      967  1061.58      967  1071.32    967.2  1072.37   967.24
  1116.32   967.29  1118.32   967.28   1120.5   967.32  1124.56   967.29  1129.37   967.29
  1138.33   967.22  1143.15   967.18  1148.06   967.14  1153.03   967.11  1158.04   967.14
  1163.54   967.27  1177.01   967.79  1184.83   967.86  1195.12    967.7  1196.86    967.7
  1198.68   967.74  1201.78   967.68  1205.34   967.77  1206.65   967.78  1213.93   968.06
   1214.5   968.09  1220.47   968.95  1234.64   969.15  1239.79   969.34  1244.89   969.53
  1246.4   969.62  1249.94   969.71  1251.97    969.8  1262.85   969.92  1272.87   969.86
  1274.93   969.82  1287.79    969.9  1297.55   970.05  1304.99   970.04  1307.46   969.94
  1312.27   969.84  1315.49   969.72  1319.05   969.66  1320.74   969.56  1324.67   969.51
  1325.91   969.43  1330.07    969.4  1335.32   969.32  1337.37   969.24  1346.95    969.2
  1359.47    969.2  1396.09   969.29  1401.92   969.25  1405.89   969.32  1409.85   969.29
   1414.5   969.29  1419.33   969.31  1424.38   969.38  1425.48   969.44  1429.52   969.48
  1430.93   969.55  1438.21   969.85  1439.91   969.72  1443.12   969.76  1445.14   969.83
  1455.51   969.98  1473.07   970.06  1498.05   970.48  1508.06   970.54  1510.15   970.41
  1529.79   970.17  1532.58   970.07  1534.95   970.04  1537.42   969.95  1555.58   969.61
  1557.04   969.56  1564.67   969.46  1565.84   969.41  1570.02   969.37  1579.68   969.27
  1588.49   969.28  1593.59      969  1628.91      969   1678.5   967.84  1690.46   967.32
  1692.81   967.38  1711.76   967.89  1721.85   967.83  1738.51    967.9   1741.4   967.37
  1748.97   967.98  1751.39   968.03  1785.43   968.21  1831.32   968.74

Manning's n Values         num=       3
      Sta   n Val      Sta   n Val      Sta   n Val
        0     .06   934.34     .05  1023.44     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        934.34 1023.44              864.02  864.31   864.6              .1      .3

CROSS SECTION              RIVER: BlockHouse
REACH: BH                     RS: 14743.57

INPUT
Description:
Station Elevation Data     num=       46
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
        0    968.5     6.82      967    10.46   965.56    58.37    964.7     69.6   964.68
    73.03   964.58    80.46   964.58    84.05   964.49     95.4    964.4   104.22      964
   262.24      964   379.45   963.82   689.07      964   713.26   962.79   783.91   962.36
   829.81   962.31      842   962.52   849.35   962.52   862.18   962.38   882.32   963.17
   887.72   963.21   911.29      964    935.5      964  1182.39      964  1202.04   962.62
  1203.93   962.79  1205.73   962.56  1209.07      961  1235.94      961  1249.54   962.35
  1310.31      964  1311.27      964  1738.31      964  1742.78   964.22  1746.76   964.23
   1752.3   964.38  1754.75    964.4  1759.33   964.53  1760.66   964.53  1873.44      966
  1970.34      966  2022.32    966.8  2028.82      967  2034.32    967.5  2036.14      968
     2045    968.5

Manning's n Values         num=       3
      Sta   n Val      Sta   n Val      Sta   n Val
        0     .06  1182.39     .05  1311.27     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        1182.39 1311.27              56.015  56.045  56.075              .2      .5

CROSS SECTION              RIVER: BlockHouse
REACH: BH                     RS: 14687.53

INPUT
Description:
Station Elevation Data     num=       46
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
        0   967.14     6.82   965.64    10.46   964.2    58.37   963.34     69.6   963.32
    73.03   963.22    80.46   963.22    84.05   963.13     95.4   963.04   104.22   962.64
   262.24   962.64   379.45   962.46   689.07   962.64   713.26   961.43   783.91      961
   829.81   960.95      842   961.16   849.35   961.16   862.18   961.52   882.32   961.81
   887.72   961.85   911.29   962.64    935.5   962.64  1182.39   962.64  1202.04   961.26
  1203.93   961.43  1205.73    961.2  1209.07   959.64  1235.94   959.64  1249.54   960.09
  1310.31   962.64  1311.27   962.64  1738.31   962.64  1742.78   962.36  1746.76   962.37
   1752.3   963.02  1754.75   963.04  1759.33   963.17  1760.66   963.17  1873.44   964.64
  1970.34   964.64  2022.32   965.44  2028.82   965.64  2034.32   966.14  2036.14   966.64
     2045   967.14

Manning's n Values         num=       3
      Sta   n Val      Sta   n Val      Sta   n Val
        0     .06  1182.39     .05  1311.27     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        1182.39 1311.27                 31      31      31              .5      .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
868        F
888        F

BRIDGE                     RIVER: BlockHouse
REACH: BH                     RS: 14672.03
```

```
INPUT
Description: Railroad Crossing
Distance from Upstream XS =       10
Deck/Roadway Width        =       11
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
       0      967      958     1206      967      958     1206      967      965
    1236      967      965     1236      967      958     2500      967      958

Upstream Bridge Cross Section Data
Station Elevation Data     num=       46
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   967.14     6.82   965.64    10.46    964.2    58.57   963.64     69.5   963.32
   73.03   963.22    80.46   963.22    94.05   963.13     95.4   963.04   104.22   962.64
  262.24   962.64   379.45   962.46   689.07   962.64   713.26   961.43   783.91      961
  829.81   960.95      842   961.16   849.35   961.16   862.18   961.52   882.32   961.81
  887.72   961.85   911.29   962.64   935.5    962.64  1182.39   962.64  1202.04   961.26
 1203.93   961.43  1205.73   961.2   1209.07   959.64  1235.94   959.64  1249.54   960.99
 1310.31   962.64  1311.27   962.64  1738.31   962.64  1742.78   962.36  1746.76   962.87
  1752.2   963.02  1754.75   963.04  1759.33   963.17  1760.66   963.17  1873.44   964.64
 1970.84   964.64  2022.32   965.44  2028.82   965.64  2034.32   966.14  2036.14   966.64
    2045   967.14

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  1182.39     .05  1311.27     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1182.39 1311.27            .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
       0      967      955     1127      967      955     1127      967      965
    1157      967      965     1157      967      955     2500      967      955

Downstream Bridge Cross Section Data
Station Elevation Data     num=      117
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   968.36    18.92   967.86    25.03   967.36    48.15   966.86    49.52   966.36
   53.36   965.76    57.48   965.56    61.44   964.76    65.35   964.56    66.36   964.36
   67.17   963.68    78.63   963.65    97.19   963.61   111.39   963.39   118.44   963.32
  211.42   962.44   218.33   962.46   223.27   962.39   298.79   962.13   350.96    962.3
  353.54   962.26   355.86   962.27   376.75    962.1   406.33   962.32   423.57    962.1
  443.88   961.76   452.82   961.69   458.57   961.69   463.24   961.74   466.63   961.71
  470.74   961.78   474.06   961.79   479.13    961.9   480.09   961.89   563.23   963.35
  578.82   964.15   587.74    964.3   589.71    964.3   612.43   963.36   782.54   963.36
  794.72   962.56   816.37   961.68   822.98   961.56   827.19   961.41   832.36   961.27
  836.78   961.33   841.92   961.45   847.47   961.62    853.9   961.91   855.27   961.91
  877.68   961.36   957.52   961.36   979.11   961.35   984.01    961.4      986   961.36
  996.29   961.36   998.87   961.41   998.79   961.41  1003.62   961.56  1021.84   961.71
 1026.89   961.64  1031.94   961.58  1052.45   961.57  1082.01   961.68  1086.67   961.63
  1091.7   961.57  1095.64   961.36  1102.83   961.36  1106.18   961.01  1108.67   960.84
 1117.03   959.93  1118.89   959.74  1122.88   959.36  1124.22   959.26  1129.25   958.98
 1133.27   958.89  1137.04   958.89  1141.13      959   1146.5   959.18  1150.05   959.36
 1151.38    959.5  1157.24   960.02  1159.71   960.34   1162.4   960.63  1167.69   961.36
  1169.6   961.47  1203.96   963.87  1206.39   962.36  1213.98   964.72     1221   965.36
 1343.72   965.36   1348.5   964.88  1353.66   964.26  1356.55   964.28  1375.44   962.53
 1382.19   962.48  1385.15   962.49  1450.86   965.36  1702.09   965.36  1744.59   964.97
 1767.45   964.69  1783.93   964.72  1811.19   965.36  1817.65   965.36  1819.33   965.36
 1822.63   965.76  1824.34   965.96  1840.08   966.16  1843.33   966.36   1855.4   966.56
 1856.39   966.76  1859.51   966.96  1861.19   967.16  1863.94   967.36  1865.82   967.66
    1868   968.26  1870.71   968.36

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   998.79     .05  1213.98     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        998.79 1213.98            .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           =     967
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=     1221     Downstream=     1112
Upstream     num=       2
```

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    Width   Elev    Width   Elev
       2  957.53       2     965
Downstream     num=       2
    Width   Elev    Width   Elev
       2  957.53       2     965

Number of Bridge Coefficient Sets =  1

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

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: BlockHouse
REACH: BH                  RS: 14656.53

INPUT
Description:
Station Elevation Data     num=      117
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   968.36    18.92   967.86    25.03   967.36    48.15   966.36    49.52   966.36
   53.36   965.76    57.48   965.56    61.44   964.76    65.35   964.56    66.36   964.36
   67.17   963.68    78.63   963.65    97.19   963.61   111.39   963.39   118.44   963.32
  211.42   962.44   218.93   962.46   223.37   962.39   238.79   962.13   350.96    962.3
  353.54   962.26   355.66   962.27   376.75    962.1   406.83   962.32   423.27    962.1
  443.38   961.76   452.82   961.69   458.57   961.69   463.24   961.74   466.63   961.71
  470.74   961.78   474.06   961.79   479.13    961.9   480.39   961.89   563.23   963.35
  578.82   964.15   587.74    964.3   589.71    964.2   612.43   963.36   782.54   963.36
  794.72   962.56   816.87   961.68   822.98   961.56   827.19   961.41   832.26   961.27
  836.78   961.33   841.93   961.45   847.47   961.62    853.9   961.91   855.27   961.91
  877.68   961.26   957.52   961.26   979.11   961.55   984.01    961.4      986   961.36
  996.29   961.36   998.67   961.41   998.79   961.41  1003.62   961.36  1021.84   961.71
 1026.89   961.64  1031.94   961.58  1052.45   961.57  1082.01   961.68  1086.67   961.63
  1091.7   961.57  1095.64   961.36  1102.83   961.36  1106.18   961.01  1108.67   960.34
 1117.03   959.93  1118.59   959.74  1122.98   959.36  1124.22   959.26  1129.25   958.98
 1133.27   958.89  1137.04   958.89  1141.13      959   1146.5   959.18  1150.05   959.26
 1151.38    959.5  1157.24   960.02  1159.71   960.34   1162.4   960.63  1167.69   961.36
  1169.6   961.47  1203.96   963.87  1206.39   962.36  1213.98   964.72     1221   965.36
 1343.72   965.36   1348.5   964.88  1353.66   964.36  1356.35   964.28  1375.44   962.53
 1382.19   962.48  1385.15   962.49  1450.86   965.36  1702.09   965.36  1744.59   964.97
 1767.45   964.69  1783.93   964.72  1811.19   965.36  1817.65   965.36  1819.33   965.56
 1822.63   965.76  1824.34   965.96  1840.08   966.16  1843.53   966.36   1855.4   966.56
 1856.89   966.76  1859.51   966.96  1861.19   967.16  1863.94   967.36  1865.82   967.66
    1868   968.26  1870.71   968.36

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   998.79     .05  1213.98     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        998.79  1213.98            56.015  56.045  56.075              .3      .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION           RIVER: BlockHouse
REACH: BH                  RS: 14600.49

INPUT
Description:
Station Elevation Data     num=      117
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0      967    18.92    966.5    25.03      966   48.15    965.5    49.52     965
   53.36    964.4    57.48    964.2    61.44    963.4   65.35    963.2    66.36     963
   67.17    962.2    78.63    962.2    97.19    962.2   111.39   962.03   118.44   961.96
  211.42   961.98   218.93    961.1   223.37   961.03   238.79   960.77   350.96   960.94
  353.54    960.9   355.66   960.91   376.75   960.74   406.83   960.96   423.27   960.74
  443.38    960.4   452.82   960.33   458.57   960.33   463.24   960.58   466.63   960.55
  470.74   960.42   474.06   960.43   479.13   960.54   480.39   960.53   563.23   961.49
  578.82   962.79   587.74   962.94   589.71   962.84   612.43      962   782.54      962
  794.72    961.2   816.87   960.32   822.98    960.2   827.19   960.05   832.26   959.91
  836.78   959.97   841.93   960.09   847.47   960.26    853.9   960.55   855.27   960.55
  877.68      960   957.52      960   979.11   960.19   984.01   960.04      986      960
  996.29      960   998.67   960.05   998.79   960.05  1003.62    960.2  1021.84   960.55
 1026.89   960.28  1031.94   960.22  1052.45   960.21  1082.01   960.33  1086.67   960.27
  1091.7   960.21  1095.64      960  1102.83      960  1106.18   959.85  1108.67   959.48
 1117.03   958.57  1118.59   958.38  1122.98      958  1124.22    957.9  1129.25   957.62
 1133.27   957.53  1137.04   957.53  1141.13   957.54   1146.5   957.52  1150.05      959
 1151.38   958.14  1157.24   958.66  1159.71   958.98   1162.4   959.27  1167.69      960
  1169.6   960.11  1203.96   962.31  1206.39      961  1213.98   963.16     1221      964
 1343.72      964   1348.5   963.52  1353.66      963  1356.35   962.92  1375.44   961.17
 1382.19   961.12  1385.15   961.13  1450.86      964  1702.09      964  1744.59   963.61
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 1767.45  963.33 1783.93  963.36 1811.19     964 1817.65     964 1819.33   964.2
 1822.63   964.4 1824.34   964.6 1840.08   964.8 1843.93     965  1855.4   965.2
 1856.89   965.4 1859.51   965.6 1861.19   965.8 1862.94     966 1865.82   966.3
    1868   966.9 1870.71     967

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  998.79     .05 1212.98     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        998.79 1212.98              107.24  113.04  118.84              .1      .3

CROSS SECTION             RIVER: BlockHouse
REACH: BH                 RS: 14487.45

INPUT
Description:
Station Elevation Data      num=       18
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0     962   223.59     962   262.01   960.84   282.14   960.77   317.97     960
  340.83     960   351.98     958   356.99   957.11   363.51   951.5   499.58   951.5
  505.55  957.57   507.25     958   513.76   959.24   518.18     960   624.31  961.08
  809.14     962   883.09     962   905.68   962.74

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  351.98     .05  507.25     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        351.98  507.25              28.64   29.12  29.595              .3      .5

CROSS SECTION             RIVER: BlockHouse
REACH: BH                 RS: 14458.33

INPUT
Description:
Station Elevation Data      num=       18
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0  961.16   223.59  961.16   262.01     960   282.14  959.93   317.97  959.16
  340.83  959.16   351.98  957.16   356.99  956.27   363.51  950.66   499.58  950.66
  505.55  956.73   507.25  957.16   513.76   958.4   518.18  959.16   624.31  960.24
  809.14  961.16   883.09  961.16   905.68   961.9

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  351.98     .05  507.25     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        351.98  507.25              78      78      79              .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                   RIVER: BlockHouse
REACH: BH                 RS: 14419.33

INPUT
Description: Just downstream of Railroad Crossing
Distance from Upstream XS =      10
Deck/Roadway Width        =      58
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0     960     950     800     960     950

Upstream Bridge Cross Section Data
Station Elevation Data      num=       18
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0  961.16   223.59  961.16   262.01     960   282.14  959.93   317.97  959.16
  340.83  959.16   351.98  957.16   356.99  956.27   363.51  950.66   499.58  950.66
  505.55  956.73   507.25  957.16   513.76   958.4   518.18  959.16   624.31  960.24
  809.14  961.16   883.09  961.16   905.68   961.9

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  351.98     .05  507.25     .06

Bank Sta: Left   Right     Coeff Contr.   Expan.
        351.98  507.25              .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     960     950     800     960     950

Downstream Bridge Cross Section Data
Station Elevation Data      num=       64
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0  956.24   18.42  956.89   96.83  958.19  121.9  960.19  172.98  958.84
```

```
  182.82  959.02  183.94  959.02  189.19  959.11  244.13   959.5  283.76  959.33
  308.86  958.94  310.71  958.94  325.97  956.94  324.25  954.94  343.62  952.94
   349.8  951.95  369.28  950.24  483.78  950.24  484.46  951.04  493.51  952.37
  496.88  952.94  505.76  954.94  508.56  955.49  515.02  956.94  519.46  957.21
  525.39  957.49  529.14  957.68  531.13  957.69  539.08  958.04  541.56  958.01
  542.54  958.09  565.87  957.99   578.2  957.68  582.13  957.64  586.97   957.7
  589.53  957.57  592.27  957.68  594.86  957.53  596.21  957.58  599.13  957.38
  600.22   957.4  603.89  957.26  608.94  957.17  613.91  957.11  624.06   957.1
  639.21  957.14  648.73  957.28  653.46   957.4  654.58  957.38  658.28  957.47
  659.56  957.45  663.24  957.49  664.89  957.48  671.04  957.52  680.53  957.74
  690.48   958.1  693.09  958.24  697.53  958.37  699.17  958.47  704.07  958.56
  714.35  958.71  725.15  958.94  748.53  958.94  752.56  959.05

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  334.25     .05  505.76     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        334.25  505.76             .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
D/S of RxR            Box       9      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
                 10      58       .011                   .4                1
Number of Barrels =  10
Upstream   Elevation =  950.66
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
  368.03  381.03  394.03  407.03  420.03  433.03  446.03  459.03  472.03  485.03
Downstream Elevation =  950.24
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
  368.03  381.03  394.03  407.03  420.03  433.03  446.03  459.03  472.03  485.03

CROSS SECTION          RIVER: BlockHouse
REACH: SH                 RS: 14380.23

INPUT
Description:
Station Elevation Data    num=      64
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0  958.94    15.42  958.89    96.35  958.28  121.09  958.29  172.96  958.84
  182.82  959.02  183.94  959.02  189.19  959.11  244.13   959.5  283.76  959.33
  308.86  958.94  310.71  958.94  325.97  956.94  324.25  954.94  343.62  952.94
   349.8  951.95  369.28  950.24  483.78  950.24  484.46  951.04  493.51  952.37
  496.88  952.94  505.76  954.94  508.56  955.49  515.02  956.94  519.46  957.21
  525.39  957.49  529.14  957.68  531.13  957.69  539.08  958.04  541.56  958.01
  542.54  958.09  565.87  957.99   578.2  957.68  582.13  957.64  586.97   957.7
  589.53  957.57  592.27  957.68  594.86  957.53  596.21  957.58  599.13  957.38
  600.22   957.4  603.89  957.26  608.94  957.17  613.91  957.11  624.06   957.1
  639.21  957.14  648.73  957.28  653.46   957.4  654.58  957.38  658.28  957.47
  659.56  957.45  663.24  957.49  664.89  957.48  671.04  957.52  680.53  957.74
  690.48   958.1  693.09  958.24  697.53  958.37  699.17  958.47  704.07  958.56
  714.35  958.71  725.15  958.94  748.53  958.94  752.56  959.05

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  334.25     .05  505.76     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        334.25  505.76             28.64   29.12  29.595             .3      .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: BlockHouse
REACH: SH                 RS: 14351.21

INPUT
Description:
Station Elevation Data    num=      64
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0  958.6    15.42  958.55    96.35  957.94  121.09  957.95  172.96  958.5
  182.82  959.66  183.94  959.66  189.19  959.77  244.13   959.5  283.76  959.33
  308.86  958.6  310.71  958.6  325.97  956.6  324.25  954.6  343.62  952.6
   349.8  951.61  369.28  949.9  483.78  949.9  484.46  950.7  493.51  952.1
  496.88  952.6  505.76  954.6  508.56  955.15  515.02  956.6  519.46  956.87
```

525.39	957.15	529.14	957.14	531.13	957.15	539.08	957.7	541.56	957.67
542.54	957.75	565.87	957.65	578.2	957.54	582.13	957.3	586.97	957.36
589.53	957.23	592.27	957.24	594.86	957.19	596.21	957.24	599.13	957.04
600.22	957.06	602.89	956.92	608.24	956.83	613.91	956.77	634.06	956.76
639.21	956.8	648.73	956.94	653.46	957.06	654.58	957.04	658.28	957.13
659.56	957.11	663.24	957.15	664.59	957.14	671.04	957.18	680.53	957.4
690.48	957.76	693.09	957.9	697.53	958.03	699.17	958.13	704.07	958.22
714.85	958.37	725.15	958.6	748.53	958.6	752.56	958.71		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	334.25	.05	505.76	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
334.25	505.76	1855.44	1854.09 1852.74	.1	.3

CROSS SECTION RIVER: BlockHouse
REACH: BH RS: 12497.12

INPUT
Description:
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	956.32	210.81	956	262.47	955.14	266.15	955.19	307.64	954.71
311.2	954.71	370.99	954	474.29	953.91	528.65	953.21	537.31	953.25
693.38	952	745.37	952	862.12	950	1044.69	950.14	1108.11	950
1111.18	950	1144.19	948	1217.93	946	1245.38	944	1283.19	942
1294.74	940	1301.22	938	1306.97	936	1311.79	934.18	1312.3	934
1318.61	932	1328.56	930	1341.14	930	1390.22	936	1404.29	937.99
1412.72	939.03	1422.45	940	1471.24	942	1487.58	944	1500.08	945.06
1526.37	948	1559.71	948.9	1561.89	948.88	1569.08	949.13	1615.97	949.71
1626.16	949.92	1630.43	950	1861.01	950.03	1862.36	950	1893	949.83
1950.99	949.2	1982.89	950	2086.94	950	2103.36	950.24	2112.03	949.98
2163.49	949.96	2182.26	950.47	2285.25	950.77	2374.69	952	2454.32	952
2503.38	952.68								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1283.19	.05	1471.24	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1283.19	1471.24	3115.73	3113.9 3112.06	.1	.3

CROSS SECTION RIVER: BlockHouse
REACH: BH RS: 9383.234

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	930	19.05	930	20.79	929.5	24.45	929	25.74	928.5
35.76	927.5	35.85	927	42.67	926.5	42.38	926	43.07	925.5
45.81	925	46.34	924.5	83.22	924	85.73	923.43	103.44	924
113.63	924	136.59	924.6	140.02	924.73	141.87	924.74	200.43	926
226.78	930	259.87	931.77	263.68	932	290.78	934	328.68	936
387.3	938	467.64	938	497.94	939.69				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	42.38	.05	200.43	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
42.38	200.43	9481.05	9477.74 9474.43	.1	.3

CROSS SECTION RIVER: BlockHouse
REACH: BH RS: 6724.426

INPUT
Description:
Station Elevation Data num= 87

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	925.53	132.29	924	183.63	924	344.68	921.79	443.35	920
447.74	920	538.13	918	718.31	914	719.39	914	722.27	913.84
784.64	912.11	788.59	912	791.51	912	792.68	911.96	799.32	911.79
845.97	910	878.49	908	891.51	906	900.32	904	909.08	902
918.62	900	933.12	898	968.37	896	1013.9	896	1015.81	896.07
1083.43	896.53	1094.07	896	1142.41	896	1153.2	897.17	1157.84	897.63
1163.92	897.3	1167.95	897.8	1244.84	894	1281.67	894	1289.1	893.63
1294.45	893.49	1311.57	892.79	1324.63	892	1325.7	891.96	1326.33	891.73
1334.38	890.83	1342.89	890.15	1343.78	890.05	1344.35	890	1367.84	890
1394.75	892	1398.58	894	1404.3	894.74	1414.38	896	1434.22	898
1462.04	900	1527.34	902	1610.75	904	1612.21	904	1658.97	905.16
1665.17	905.92	1666.79	906	1693.27	908	1698.7	908	1755.38	910
1890.17	914	1904.38	914	2007.01	916	2044.24	916	2106.8	918
2186.24	918	2194.35	918.62	2218.35	920	2251.14	920	2283.14	921.51
2289.55	921.59	2301.1	922	2370.19	922	2410.21	923.38	2419.96	923.24
2429.05	923.24	2431.08	927.87	2433.64	926.05	2438.08	924	2464.51	922
2473.7	922	2486.08	922.94	2497	924	2563.84	924	2572.89	924.14
2655.81	926	2657.31	926						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1281.67	.05	1298.58	.06

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

```
      1281.67 1398.58          10306.39 10303.210300.21              .1       .3

CROSS SECTION            RIVER: BlockHouse
REACH: BH                  RS: 3643.267

INPUT
Description:
Station Elevation Data     num=      89
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0  907.03    77.23     906    87.18     906   223.58     904    308.2     904
  316.09  904.15   322.51   904.1   359.57  902.26   362.39  903.22   377.03  902.65
   380.1  902.66   406.54  902.29   472.35  902.59   520.35  902.16   633.1     902
  699.57   901.6   700.66  901.58   763.75   900.9   826.09     900   856.12     900
  889.48  899.43   975.56     898  1170.37     896  1189.61     896  1194.01   895.9
 1303.75     894  1322.47     894  1374.38     892  1375.45     892  1456.39     890
 1493.98  889.35  1496.52  889.26   1504.2  889.18  1506.94  889.07  1510.28  889.03
 1536.06  888.09  1538.52     888  1543.45   887.9  1666.44     886  1772.79  884.75
 1861.96     884  1950.14     882     2001  880.14  2003.03  880.06  2004.66     880
 2014.11     880  2081.09     878   2088.2  877.68  2089.64  877.64  2100.77  877.19
 2103.97  877.13  2107.86  876.98  2153.92     876  2488.27     876  2489.37  876.34
 2494.46     878  2495.34  878.72  2498.41     880  2501.97     882  2504.46  883.78
 2504.76     884   2507.8     886  2508.97   886.8   2510.8     888  2512.68     890
 2517.09     892  2517.45  892.16  2521.49     894  2525.71     896  2530.53     898
 2531.88  898.59  2535.43     900  2539.38  901.46  2540.91     902   2547.6     904
 2556.29     906  2572.24     907  2575.51  907.05  2590.46     908  2609.56     908
 2715.06  909.91  2810.89  911.46   2846.1     912  2949.37     913  2914.43     914
 2937.42     914  3065.15     916  3077.72     916  3102.17  916.64

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06 2081.09     .05 2494.46     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
       2081.09 2494.46          10312.2810315.3610318.43              .1       .3

Profile Output Table - Espey 1

  Reach          River Sta         Q Total   W.S. Elev   S.G. Elev  Crit W.S.  Vel Total  Vel Head  Frctn Loss  C & S Loss
                                     (cfs)        (ft)        (ft)       (ft)     (ft/s)      (ft)        (ft)        (ft)

  BH             3643.267          9326.00      906.86      906.86     878.68       0.25      0.00
  BH             3643.267         12238.00      907.23      907.23     879.18       0.32      0.00
  BH             3643.267         14411.00      907.50      907.51     879.54       0.37      0.00
  BH             3643.267         16632.00      907.59      907.69     879.87       0.42      0.00
  BH             3643.267         17660.00      907.62      907.63     880.05       0.45      0.00

  BH             6724.426          7704.00      906.89      906.91                  1.07      0.02        0.05        0.01
  BH             6724.426         10046.00      907.30      907.33                  1.33      0.04        0.08        0.01
  BH             6724.426         77784.00      907.18      909.45                 10.23      2.06        1.32        0.62
  BH             6724.426         13563.00      907.69      907.74                  1.73      0.06        0.14        0.02
  BH             6724.426         14567.00      907.74      907.80                  1.85      0.07        0.16        0.02

  BH             9383.234          4500.00      927.57      928.99     927.57       9.40      1.42        1.67        0.42
  BH             9383.234          5800.00      928.11      929.76     928.11      10.09      1.66        2.46        0.49
  BH             9383.234          6800.00      939.49      939.55     928.51       1.68      0.06       29.91        0.20
  BH             9383.234          7900.00      928.92      930.36     928.92      10.83      1.94        3.91        0.57
  BH             9383.234          8281.00      929.04      931.05     929.04      10.98      2.00        4.35        0.58

  BH             12497.12          8496.00      943.91      944.48     939.44       5.91      0.87       15.40        0.08
  BH             12497.12         11115.00      945.00      945.71     940.90       6.50      0.71       15.86        0.09
  BH             12497.12         32804.00      946.54      950.73     946.54      16.29      4.18        7.33        1.24
  BH             12497.12         15056.00      946.41      947.32     942.34       7.16      0.91       16.35        0.10
  BH             12497.12         16077.00      946.71      947.68     942.61       7.31      0.96       16.53        0.10

  BH             14351.21          8037.00      954.67      956.73     954.67      11.52      2.06       11.62        0.45
  BH             14351.21         10495.00      955.54      957.91     955.50      12.31      2.37       11.70        0.50
  BH             14351.21         53536.00      964.20      965.39     962.89       9.03      1.79       15.02        0.24
  BH             14351.21         14190.00      956.79      959.52     956.58      13.08      2.73       11.66        0.55
  BH             14351.21         15202.00      957.13      959.92     956.98      13.02      2.79       11.70        0.55

  BH             14380.33          8005.00      955.64      957.36     955.02      10.84      1.72        0.53        0.10
  BH             14380.33         10451.00      956.05      958.57     955.90      12.72      2.51        0.58        0.07
  BH             14380.33         55498.00      964.24      966.34     963.28       9.73      2.10        0.19        0.16
  BH             14380.33         14128.00      957.09      960.34     957.09      14.45      3.24        0.54        0.26
  BH             14380.33         15140.00      957.39      960.30     957.29      14.81      2.90        0.29        0.31

  BH             14419.33           Culvert

  BH             14458.33          8005.00      958.70      959.45     955.34       6.05      0.75
  BH             14458.33         10451.00      959.74      960.73     956.24       7.99      0.99
  BH             14458.33         55498.00      966.04      967.70     965.04      10.07      1.66
  BH             14458.33         14128.00      960.13      961.66     957.50       9.23      1.53
  BH             14458.33         15140.00      959.77      961.84     957.63      11.53      2.07

  BH             14487.45          8005.00      958.75      959.65                  7.61      0.90        0.13        0.08
  BH             14487.45         10451.00      959.81      960.95                  8.50      1.14        0.14        0.08
  BH             14487.45         55498.00      965.90      968.34     965.90      10.03      2.44        0.26        0.31
  BH             14487.45         14128.00      960.16      962.67                 10.39      2.51        0.22        0.19
  BH             14487.45         15140.00      959.92      962.25                 12.10      2.33        0.28        0.23

  BH             14600.49          7973.00      961.39      962.77     961.89       6.75      0.88        1.24        0.20
  BH             14600.49         10418.00      962.48      963.15     962.48       8.72      0.67        1.12        0.05
  BH             14600.49         87180.00      968.87      969.22                  4.51      0.35        0.45        0.03
  BH             14600.49         14077.00      962.91      963.31     962.73       6.32      0.40        1.42        0.10
  BH             14600.49         15088.00      963.23      963.61     962.84       5.48      0.38        1.19        0.08
```

BH	14656.53	7944.00	967.11	967.13	967.11	1.16	0.02	0.06	0.26
BH	14656.53	10369.00	967.11	967.15	967.11	1.51	0.04	0.09	0.19
BH	14656.53	59383.00	968.95	969.54	967.11	5.78	0.59	0.18	0.12
BH	14656.53	14013.00	967.11	967.19	967.11	2.04	0.08	0.14	0.19
BH	14656.53	15023.00	967.11	967.20	967.11	2.19	0.09	0.15	0.14
BH	14672.03	Bridge							
BH	14687.53	7944.00	968.19	968.20	967.11	0.71	0.01		
BH	14687.53	10369.00	968.43	968.45	967.11	0.89	0.01		
BH	14687.53	59383.00	971.74	971.90	967.11	3.22	0.17		
BH	14687.53	14013.00	968.77	968.79	967.11	1.13	0.02		
BH	14687.53	15023.00	968.86	968.88	967.11	1.20	0.02		
BH	14743.57	7944.00	968.19	968.21		0.94	0.01	0.01	0.00
BH	14743.57	10369.00	968.44	968.46		1.16	0.02	0.01	0.00
BH	14743.57	59383.00	971.77	972.00		3.78	0.23	0.06	0.03
BH	14743.57	14012.00	968.78	968.82		1.46	0.03	0.01	0.01
BH	14743.57	15023.00	968.87	968.91		1.53	0.04	0.02	0.01
BH	15607.88	7741.00	968.47	968.89		4.47	0.42	0.56	0.12
BH	15607.88	10095.00	968.93	969.01		4.33	0.38	0.74	0.11
BH	15607.88	74614.00	973.91	974.65		6.67	0.74	2.50	0.15
BH	15607.88	13631.00	969.82	969.87		4.22	0.35	0.96	0.09
BH	15607.88	14636.00	969.67	970.01		4.21	0.34	1.01	0.09
BH	15646.64	2911.00	968.71	969.89	968.28	8.69	1.18	0.62	0.38
BH	15646.64	3787.00	968.87	970.69	968.37	10.80	1.82	0.56	0.72
BH	15646.64	4438.00	974.92	974.92	969.27	0.34	0.00	0.05	0.22
BH	15646.64	5100.00	969.68	971.88	969.68	11.88	2.20	0.44	0.93
BH	15646.64	5352.00	969.81	972.10	969.81	12.10	2.29	0.41	0.97
BH	15686.63	Culvert							
BH	15726.64	2911.00	970.35	970.84	968.03	5.61	0.49		
BH	15726.64	3787.00	971.60	972.14	968.60	5.91	0.54		
BH	15726.64	4438.00	974.92	974.93	969.01	0.43	0.00		
BH	15726.64	5100.00	973.22	973.23	969.40	0.71	0.01		
BH	15726.64	5352.00	973.28	973.29	969.54	0.74	0.01		
BH	15765.38	2911.00	970.98	971.00		0.94	0.02	0.03	0.14
BH	15765.38	3787.00	972.31	972.32		0.69	0.01	0.01	0.16
BH	15765.38	4438.00	974.92	974.93		0.43	0.00	0.00	0.00
BH	15765.38	5100.00	973.22	973.23		0.71	0.01	0.00	0.00
BH	15765.38	5352.00	973.28	973.30		0.74	0.01	0.00	0.00
BH	16914.30	2391.00	972.53	974.01	972.53	5.39	0.48	0.90	0.14
BH	16914.30	3107.00	973.73	974.27	973.73	5.61	0.54	0.44	0.16
BH	16914.30	3640.00	974.92	975.04		2.43	0.12	0.09	0.03
BH	16914.30	4180.00	973.91	974.61	973.91	6.32	0.70	0.37	0.21
BH	16914.30	4384.00	973.93	974.68	973.93	6.50	0.75	0.39	0.22
BH	19378.48	1568.00	985.16	985.20	983.69	1.38	0.03	11.15	0.04
BH	19378.48	2033.00	985.47	985.51	984.05	1.52	0.04	11.19	0.05
BH	19378.48	2379.00	984.71	984.86	984.14	2.77	0.15	9.80	0.01
BH	19378.48	2729.00	985.92	985.97	984.23	1.64	0.05	11.29	0.07
BH	19378.48	2859.00	986.00	986.05	984.23	1.65	0.05	11.30	0.07
BH	19416.07	1527.00	984.96	986.10	984.96	8.57	1.14	0.12	0.55
BH	19416.07	1980.00	985.28	986.74	985.28	9.37	1.36	0.12	0.66
BH	19416.07	2316.00	985.70	987.12	985.70	9.81	1.49	0.42	0.67
BH	19416.07	2656.00	985.97	987.62	985.97	10.32	1.65	0.12	0.80
BH	19416.07	2783.00	986.08	987.78	986.08	10.47	1.70	0.12	0.83
BH	19455.5	Culvert							
BH	19496.07	1527.00	987.83	988.14	985.79	4.53	0.32		
BH	19496.07	1980.00	988.61	988.62	986.22	0.30	0.01		
BH	19496.07	2316.00	988.84	988.85	986.52	0.86	0.01		
BH	19496.07	2656.00	989.04	989.06	986.80	0.92	0.02		
BH	19496.07	2783.00	989.11	989.12	986.91	0.94	0.02		
BH	19533.66	1527.00	988.24	988.26		0.84	0.01	0.02	0.09
BH	19533.66	1980.00	988.61	988.63		0.95	0.02	0.01	0.00
BH	19533.66	2316.00	988.84	988.86		1.02	0.02	0.01	0.00
BH	19533.66	2656.00	989.05	989.07		1.09	0.02	0.01	0.00
BH	19533.66	2783.00	989.11	989.14		1.11	0.02	0.01	0.00
BH	21461.57	1098.00	996.23	996.97	996.28	6.63	0.70	1.29	0.21
BH	21461.57	1421.00	996.58	997.35	996.58	6.78	0.76	1.39	0.22
BH	21461.57	1660.00	996.76	997.59	996.76	6.96	0.83	1.48	0.24
BH	21461.57	1903.00	996.96	997.82	996.96	6.97	0.86	1.57	0.25
BH	21461.57	1991.00	997.02	997.90	997.02	7.01	0.87	1.61	0.26
BH	23582.39	764.00	1013.84	1013.88	1013.16	1.61	0.04	16.84	0.07
BH	23582.39	986.00	1014.00	1014.05	1013.26	1.80	0.05	16.63	0.07
BH	23582.39	1181.00	1014.11	1014.17	1013.32	1.90	0.06	16.49	0.08
BH	23582.39	1313.00	1014.21	1014.28	1013.39	2.02	0.07	16.37	0.08
BH	23582.39	1373.00	1014.25	1014.33	1013.41	2.06	0.07	16.33	0.08

HEC-RAS Version 3.0.1 Mar 2001
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(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
```

PROJECT DATA
Project Title: sbrushy
Project File : sbrushy.prj
Run Date and Time: 6/7/2002 9:04:26 AM

Project in English units

PLAN DATA

Plan Title: Plan 07
Plan File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\sbrushy.p07

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

Flow Title : sbrushy100(TP40)
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\sbrushy.f02

Plan Summary Information:
Number of: Cross Sections = 34 Mulitple Openings = 0
Culverts = 3 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: sbrushy100(TP40)
Flow File : p:\active\2000-43 Cdr Prk MDP\Hec-ras\Revised Models\sbrushy.f02

Flow Data (cfs)

River	Reach	RS	10ext	25ext	50ext	100ext	100ult
South Brushy	1	30706.30	1162	1530	1807	2086	2229
South Brushy	1	30129.73	1311	1727	2039	2355	2516
South Brushy	1	30120.13	1314	1730	2043	2360	2521
South Brushy	1	29999.13	1248	1775	2096	2420	2586
South Brushy	1	29989.52	1350	1779	2100	2425	2591
South Brushy	1	29209.46	1591	2095	2474	2857	3053
South Brushy	1	28274.37	1936	2550	3011	3477	3715
South Brushy	1	27434.58	2652	3496	4131	4774	5039
South Brushy	1	27416.51	2670	3520	4159	4807	5072
South Brushy	1	27307.11	2701	3560	4206	4861	5131
South Brushy	1	27289.05	2706	3567	4214	4870	5140
South Brushy	1	25732.47	3185	4192	4947	5712	6055
South Brushy	1	24577.16	3595	4725	5571	6430	6837
South Brushy	1	22868.45	4300	5641	6643	7659	8183
South Brushy	1	21713.66	4853	6359	7482	9621	9239
South Brushy	1	19656.69	6664	8721	10248	11802	12581
South Brushy	1	19483.85	64	86	98	89	157
South Brushy	1	18919.61	69	95	99	103	214
South Brushy	1	18708.94	100	108	114	119	241
South Brushy	1	16654.27	329	403	454	503	750
South Brushy	1	15518.47	634	832	973	1117	1406
South Brushy	1	14909.98	4435	5880	6972	8094	8229
South Brushy	1	13968.80	4575	6085	7229	8406	8568
South Brushy	1	12742.29	4763	6362	7579	8829	9030
South Brushy	1	11773.22	4917	6591	7867	9180	9413
South Brushy	1	10867.92	5066	6811	8145	9519	9785

South Brushy	1	9764.780	5253	7090	8499	9950	10258
South Brushy	1	8580.270	5462	7402	8895	10434	10792
South Brushy	1	7254.068	5751	7793	9364	10981	11516
South Brushy	1	5953.021	6050	8197	9849	11546	12274
South Brushy	1	4442.186	6417	8692	10443	12238	13216
South Brushy	1	1408.046	7222	9779	11747	13756	15333
South Brushy	1	484.376	7486	10137	12175	14255	16042
South Brushy	1	460.616	7493	10146	12186	14268	16061

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
South Brushy	1	10ext		Rating Curve #1

Rating Curve #1

Flow (cfs)	Elev (ft)
8965	821.85
11749	824.38
13884	826.22
16061	828.21

GEOMETRY DATA

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

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 30706.30

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	954.74	43.6	954	48.84	954	153.04	952	165.14	952
184.17	951.05	188.01	950.99	211.12	950.33	216.14	950.34	237.63	950
266.4	950	364.36	948	366.34	948	369.16	947.89	404.66	946
461.71	944	470.62	942	477.57	940	480.04	939.26	484.57	938
485.48	937.89	497.61	936.67	504.22	936.67	505.93	936.55	514.11	936.48
515.45	936.41	520.05	936.37	535.77	936.1	540.85	936.06	542.99	936.17
558.48	938	567.39	940	603.16	940				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	477.57	.05	567.39	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
477.57	567.39	571.51	576.57	581.62	.1 .3

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 30129.73

INPUT
Description:
Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-222.18	946	0	940.67	3.89	940.47	5.52	940.44	11.87	940.09
13.76	940	37.09	940	54.99	939.5	59.25	939.47	77.84	938.63
79.92	938.6	85.54	938.25	87.72	938.21	90.74	938	115.63	938
130.7	937.24	134.41	937.18	137.33	936.94	142.76	936.81	146.93	936.37
148.88	936.31	152.11	936	155.67	936	162.46	935.6	167.37	935.44
169.96	935.23	173.82	935.1	177.77	934.84	181.3	934.51	184.3	934
212.51	934	217.73	933.89	219.68	934	221.89	934.32	226.75	934.66
231.72	934.8	234.37	930	310.25	930	311.82	934	315.38	934.63
326.24	935.03	330.62	935.16	345.19	936	359.55	936	362.42	936.06
372.42	936.09	378.29	936	390.03	936	392.2	936.05	396.34	936.3
399.99	936.44	407.44	937.05	415.84	937.6	420.61	938	426.07	938.71
434.23	940	452.33	940	458.97	938.76	464.7	938	465.38	937.87
469.77	937.51	471.07	937.45	476.22	937.33	479.56	937.34	481.25	937.31
484.52	937.31	494.26	937.08	496.59	937.06	499.14	936.98	516.31	936.89
544.61	937.44	545.91	937.5	549.9	937.76	552.37	938	555.02	938.19
559.66	938.68	561.93	939.07	563.77	939.46	566.6	940	567.39	940
652.16	942								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-222.18	.06	231.72	.05	315.38	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
231.72	315.38	9.735	9.8	9.47	.3 .5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
-888	F		

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 30120.13

```
INPUT
Description:
Station Elevation Data    num=      81
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
 -222.18      946        0   940.67     3.89   940.47     5.52   940.44    11.87   940.09
    13.76      940    37.09      940    54.99    939.5    59.25   939.47    77.84   938.63
    79.92    938.6    85.54   938.25    87.72   938.21    90.74      938   115.63      938
    130.7   937.24   134.41   937.18   137.33   936.94   142.76   936.81   146.93   936.37
   148.88   936.31   152.11      936   155.67      936   162.46    935.6   167.87   935.44
   169.96   935.23   173.82    935.1   177.77   934.64    181.3   934.51    184.3      934
   212.51      934   217.73   933.89   219.68      934   221.89   934.32   226.75   934.66
   231.72    934.8   234.87      930   310.25      930   311.82      934   315.38   934.63
   326.24   935.03   330.62   935.16   345.19      936   359.55      936   362.42   936.06
   372.42   936.09   378.29      936   390.03      936    392.2   936.05   396.84    936.3
   399.99   936.44   407.44   937.05   415.84    937.6   420.61      938   426.07   938.71
   434.23      940   452.33      940   458.97   938.76    464.7      938   465.58   937.87
   469.77   937.51   471.07   937.45   476.22   937.33   479.56   937.24   481.25   937.31
   484.52   937.31   494.26   937.08   496.59   937.06   499.14   936.98   516.81   936.89
   544.61   937.44   545.91    937.5    549.9   937.76   552.37      938   555.02   938.19
   559.66   938.68   561.93   939.07   563.77   939.46   566.6       940   567.89      940
   652.16      942

Manning's n Values        num=      3
      Sta   n Val      Sta   n Val      Sta   n Val
 -222.18     .06   231.72     .05   311.82     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        231.72  311.82               121     121     121             .3      .5
Ineffective Flow     num=      2
   Sta L   Sta R    Elev  Permanent
-888       F
888        F

CULVERT                  RIVER: South Brushy
REACH: 1                    RS: 30059.63

INPUT
Description: Lakeline
Distance from Upstream XS =      10
Deck/Roadway Width        =     101
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
 -222.18      946      900 -107.18      944      900    82.82      942      900
  272.82      941      900   407.82      940      900   532.82      940      900
  662.82      942      900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      81
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
 -222.18      946        0   940.67     3.89   940.47     5.52   940.44    11.87   940.09
    13.76      940    37.09      940    54.99    939.5    59.25   939.47    77.84   938.63
    79.92    938.6    85.54   938.25    87.72   938.21    90.74      938   115.63      938
    130.7   937.24   134.41   937.18   137.33   936.94   142.76   936.81   146.93   936.37
   148.88   936.31   152.11      936   155.67      936   162.46    935.6   167.87   935.44
   169.96   935.23   173.82    935.1   177.77   934.64    181.3   934.51    184.3      934
   212.51      934   217.73   933.89   219.68      934   221.89   934.32   226.75   934.66
   231.72    934.8   234.87      930   310.25      930   311.82      934   315.38   934.63
   326.24   935.03   330.62   935.16   345.19      936   359.55      936   362.42   936.06
   372.42   936.09   378.29      936   390.03      936    392.2   936.05   396.84    936.3
   399.99   936.44   407.44   937.05   415.84    937.6   420.61      938   426.07   938.71
   434.23      940   452.33      940   458.97   938.76    464.7      938   465.58   937.87
   469.77   937.51   471.07   937.45   476.22   937.33   479.56   937.24   481.25   937.31
   484.52   937.31   494.26   937.08   496.59   937.06   499.14   936.98   516.81   936.89
   544.61   937.44   545.91    937.5    549.9   937.76   552.37      938   555.02   938.19
   559.66   938.68   561.93   939.07   563.77   939.46   566.6       940   567.89      940
   652.16      942

Manning's n Values        num=      3
      Sta   n Val      Sta   n Val      Sta   n Val
 -222.18     .06   231.72     .05   311.82     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        231.72  311.82             .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
 -211.91      946      900  -96.31      944      900    93.91      942      900
  283.91      941      900   418.31      940      900   543.91      940      900
  673.91      942      900

Downstream Bridge Cross Section Data
Station Elevation Data    num=     111
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
 -211.91      946        0      942    14.63      942    31.27   941.44    32.76   941.35
    36.19   941.35    38.18   941.22    44.78   941.17    47.46      941    55.24    940.9
    58.1    940.79    65.35   940.65    70.68   940.57    72.11   940.57    75.89   940.49
    77.12   940.49    81.06   940.42    92.15    940.3    97.17   940.24   111.98    940.1
  122.28   939.98   127.39   939.88   132.48   939.74   137.56   939.6    138.74   939.33
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  142.61  939.47  144.14  939.38  151.08   939.4  152.59  939.35  155.99  939.38
  157.57  939.34  160.91  939.34  187.88  939.04  192.95  938.94  201.55  938.63
  203.14  938.53  207.44  938.32  213.34     938  218.33  937.63  219.59  937.44
  223.05  937.08  226.38  936.44  227.36  936.28  232.43  935.24  237.47     934
  242.25     931  245.16     930  319.76     930     322  932.91  324.55  933.32
   328.8  933.69   332.1     934  334.24  934.24  338.56  934.73  340.62  934.92
  342.85  935.23  346.31  935.54   351.7  936.17  356.48  936.74   358.8  936.93
  361.39  937.21  365.06  937.43  366.49  937.54  367.54  937.59  371.57  937.67
  376.58   937.7  381.57   937.7  386.57  937.69   396.6  937.72  401.65  937.76
  406.67  937.78  411.63  937.76  416.55  937.72  426.37  937.61  436.22  937.52
  437.41  937.53  441.13  937.47  442.45  937.48  446.03  937.41   447.5  937.41
  459.89   937.1  462.63  936.96   465.4  936.91  467.67   936.8  469.59  936.76
  474.59  936.76   476.6  936.79  482.12  936.99  484.57  937.12  487.63  937.22
  489.52  937.32  492.88  937.34  495.89  937.46  509.57  937.47  510.85   937.5
  518.47  937.53  519.59  937.57  527.85  937.63  538.44  937.82   561.1  938.24
  562.63   938.3   567.5   938.4  568.78  938.46   579.1  938.77   588.1  939.05
  590.83  939.18  594.38  939.24  608.39     940  621.35     940  648.93  941.18
  673.91     942

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 -211.91     .06  237.47     .05   332.1     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        237.47   332.1             .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       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
                 10     101       .011                  .4                1
Number of Barrels =  7
Upstream   Elevation =  930
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
  239.82  250.82  261.82  272.82  283.72  294.82  305.82
Downstream Elevation =  930
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
  250.91  261.91  272.91  283.91  294.91  305.91  316.91

CROSS SECTION          RIVER: South Brushy
REACH: 1                  RS: 29999.13

INPUT
Description:
Station Elevation Data    num=     111
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
 -211.91      946        0      942    14.63      942    31.27   941.44    32.76   941.35
   36.19   941.35    38.18   941.22    44.78   941.17    47.46      941    55.24    940.9
    58.1   940.79    65.35   940.65    70.68   940.57    72.11   940.57    75.89   940.49
   77.12   940.49    81.06   940.42    92.15    940.3    97.17   940.24   111.98    940.1
  122.28   939.98  127.39   939.88  132.48   939.74  137.56   939.6  138.74   939.53
  142.61   939.47  144.14   939.38  151.08   939.4  152.59  939.35  155.99  939.38
  157.57   939.34  160.91   939.34  187.88  939.04  192.95  938.94  201.55  938.63
  203.14   938.53  207.44   938.32  213.34     938  218.33  937.63  219.59  937.44
  223.05   937.08  226.38   936.44  227.36  936.28  232.43  935.24  237.47     934
  242.25      931  245.16      930  319.76     930     322  932.91  324.55  933.32
   328.8   933.69   332.1      934  334.24  934.24  338.56  934.73  340.62  934.92
  342.85   935.23  346.31   935.54   351.7  936.17  356.48  936.74   358.8  936.93
  361.39   937.21  365.06   937.43  366.49  937.54  367.54  937.59  371.57  937.67
  376.58    937.7  381.57    937.7  386.57  937.69   396.6  937.72  401.65  937.76
  406.67   937.78  411.63   937.76  416.55  937.72  426.37  937.61  436.22  937.52
  437.41   937.53  441.13   937.47  442.45  937.48  446.03  937.41   447.5  937.41
  459.89    937.1  462.63   936.96   465.4  936.91  467.67   936.8  469.59  936.76
  474.59   936.76   476.6   936.79  482.12  936.99  484.57  937.12  487.63  937.22
  489.52   937.32  492.88   937.34  495.89  937.46  509.57  937.47  510.85   937.5
  518.47   937.53  519.59   937.57  527.85  937.63  538.44  937.82   561.1  938.24
  562.63    938.3   567.5    938.4  568.78  938.46   579.1  938.77   588.1  939.05
  590.83   939.18  594.38   939.24  608.39     940  621.35     940  648.93  941.18
  673.91      942

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 -211.91     .06  237.47     .05   332.1     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        237.47   332.1             9.735   9.735   9.735              .3       .5
Ineffective Flow     num=       2
```

```
   Sta L   Sta R    Elev  Permanent
-888        F
888         F

CROSS SECTION          RIVER: South Brushy
REACH: 1                  RS: 29989.52

INPUT
Description:
Station Elevation Data    num=     111
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
 -211.91      946        0      942    14.63      942    31.27   941.44    32.76   941.35
   36.19   941.35    38.18   941.22    44.78   941.17    47.46      941    55.24    940.9
    58.1   940.79    65.35   940.65    70.68   940.57    72.11   940.57    75.89   940.49
   77.12   940.49    81.06   940.42    92.15    940.3    97.17   940.24   111.98    940.1
  122.28   939.98   127.39   939.88   132.48   939.74   137.56    939.6   138.74   939.53
  142.61   939.47   144.14   939.38   151.08    939.4   152.59   939.35   155.99   939.38
  157.57   939.34   160.91   939.34   187.88   929.04   192.95   938.94   201.55   938.63
  203.14   938.53   207.44   938.32   213.34      938   218.33   937.63   219.59   937.44
  223.05   937.08   226.38   936.44   227.36   936.28   232.43   935.24   237.47      934
  242.25      931   245.16      930   319.76      930      322   932.91   324.55   933.32
  328.8   933.69    332.1      934   334.24   934.24   338.56   934.73   340.62   934.92
  342.85   935.23   346.31   935.54    351.7   936.17   356.48   936.74    358.8   936.92
  361.29   937.21   365.06   937.43   366.49   937.54   367.54   937.59   371.57   937.67
  376.58    937.7   381.57    937.7   386.57   937.69    396.6   937.72   401.65   937.76
  406.67   937.78   411.63   937.76   416.55   937.72   426.37   937.61   436.22   937.52
  437.41   937.53   441.13   937.47   442.45   937.48   446.03   937.41    447.5   937.41
  459.89    937.1   462.63   936.96    465.4   936.91   467.67    936.8   469.59   936.76
  474.59   936.76    476.6   936.79   482.12   936.99   484.57   937.12   487.63   937.22
  489.52   937.32   492.88   937.34   495.89   937.46   509.57   937.47   510.85    937.5
  518.47   937.53   519.59   937.57   527.85   937.63   538.44   937.82    561.1   938.24
  562.63    938.3    567.5    938.4   568.78   938.46    579.1   938.77    588.1   939.05
  590.83   939.18   594.38   939.24   608.39      940   621.35      940   648.93   941.18
  673.91      942

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
 -211.91     .06   237.47     .05    332.1     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        237.47   332.1              785.41  780.07  774.72             .1       .3

CROSS SECTION          RIVER: South Brushy
REACH: 1                  RS: 29209.46

INPUT
Description:
Station Elevation Data    num=      52
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   939.98    13.42   939.72    23.43   939.61    27.48   939.53    31.83   939.47
   35.39    939.4    38.02   939.34    76.57   938.28    92.55      938    95.26   937.79
  117.61      936   190.21      934   191.59      934   242.58   932.43   254.63    932.1
  255.29   932.09   257.06   932.05   258.41      932   271.95    931.6   276.93   931.44
  297.19   930.84   307.62    930.5   311.14    930.4   313.46   930.33   323.39      930
  325.22   929.94   350.43   929.15   354.16   929.08   358.55   928.93   361.64   928.83
   371.7   928.49   372.91   928.46   399.22   928.44    400.5   928.46    407.3   928.51
  409.35   928.53   417.12   928.62   421.19   928.68   427.34   928.75   434.53   928.85
   437.5   928.89   441.17   928.95   446.53   929.01   449.85   929.06   497.09      930
  517.92      930   535.16   930.36   555.17   931.94   556.31      932   586.29      934
  601.42      934   707.12    935.6

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   258.41     .05   556.31     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        258.41   556.31             932.17  935.09  938.01             .1       .3

CROSS SECTION          RIVER: South Brushy
REACH: 1                  RS: 28274.27

INPUT
Description:
Station Elevation Data    num=      45
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   934.17    10.83   934.01       41      934   134.41   933.38   225.51      932
  256.38      932   331.23   930.96   459.03      930   529.36      930   562.99    929.3
  597.07      928   615.29      928   659.68   926.03   667.55    925.5   722.68      924
  804.08      924   814.91   924.28   885.77   925.38   971.33      926   972.84   926.02
  998.63   926.13  1004.28   926.21  1014.74   926.36  1040.48    926.7  1052.37   926.78
 1056.08   926.77  1304.2    928.14  1309.82   928.21  1337.79    928.4  1342.61   928.43
 1382.56   929.65  1384.31   929.68  1388.69      930  1389.99      930  1405.1    931.64
 1406.54   931.76  1407.77   931.84  1409.56      932  1412.04   933.03  1413.67   933.18
  1420.6   932.77  1422.25   933.33  1812.51   933.33  1839.66      934  1889.36      936

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   529.36     .05  1388.69     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        529.36  1388.69             939.83  939.78  939.74             .1       .3

CROSS SECTION          RIVER: South Brushy
REACH: 1                  RS: 27434.38
```

```
INPUT
Description:
Station Elevation Data    num=      109
      Sta   Elev      Sta   Elev      Sta   Elev      Sta   Elev      Sta   Elev
        0  933.27    85.97    932    143.7    932   145.95  932.26   148.52  932.33
   151.15   932.5   156.68   932.5   157.5  932.22   158.67  932.14   167.39  931.93
   173.34  931.72   178.93  931.55   216.65  929.92   278.39  928.17   287.18  928.02
   288.57     928   323.81  927.72   325.02  927.69   361.29   927.4   363.17  927.36
   398.68  927.08   400.98  927.03   426.04     926   447.51     926   473.13  925.58
   474.45  925.54    483.6  925.46   485.34  925.41   493.43  925.33   495.41  925.26
   506.93  925.27   513.25  924.94   515.44  924.96   518.33  924.76   520.19  924.77
   524.04  924.48   525.29  924.47   530.56  924.05    531.6     924   551.08     924
   561.19  923.88   570.73  923.91   575.81  923.89   576.88  923.83   581.94  923.78
   591.98   923.6   593.17  923.53   600.94  923.49   604.72  923.54   607.31  923.43
   609.31   923.3   612.73  923.18   615.37  922.86   620.79     922   630.75  920.68
   638.29     920    648.3   918.5   717.19   918.5   729.45     922   730.66  922.18
   736.11   922.7   739.16   922.9    741.6     923   743.76  923.2    750.3   923.3
    752.1  923.45   755.64  923.44   756.96  923.55   760.45   923.5   761.54  923.59
   765.06  923.54   781.53  923.58   782.68  923.64    799.2  923.83   806.66  923.95
   809.39     924   812.64  924.12   827.19  924.72   837.11  924.96   857.15  925.07
   896.92  924.83   916.55  924.51   920.29   924.5   921.52  924.48   925.26  924.52
   927.77  924.49   931.35  924.61   934.42  924.61   940.39  924.86   943.06  924.87
   948.36  924.98   953.38  924.96   955.99  924.88   959.01  924.72   967.79     924
  1040.02     924  1044.68  924.11  1053.38  924.47  1066.1   924.46  1069.81  924.64
  1071.46  924.65  1074.69  924.82   1079.1  924.86  1084.61  925.08  1113.62  925.27
  1135.69     926     1140     927     1200     928     1400     930

Manning's n Values        num=      3
      Sta   n Val      Sta   n Val      Sta   n Val
        0     .06   615.37     .05   736.11     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        615.37  736.11           18.085   18.07   18.05            .3      .5

CROSS SECTION           RIVER: South Brushy
REACH: 1                RS: 27416.51

INPUT
Description:
Station Elevation Data    num=      110
      Sta   Elev      Sta   Elev      Sta   Elev      Sta   Elev      Sta   Elev
        0  933.27    85.97    932    143.7    932   145.95  932.26   148.52  932.33
   151.15   932.5   156.68   932.5   157.5  932.22   158.67  932.14   167.39  931.93
   173.34  931.72   178.93  931.55   216.65  929.92   278.39  928.17   287.18  928.02
   288.57     928   323.81  927.72   325.02  927.69   361.29   927.4   363.17  927.36
   398.68  927.08   400.98  927.03   426.04     926   447.51     926   473.13  925.58
   474.45  925.54    483.6  925.46   485.34  925.41   493.43  925.33   495.41  925.26
   506.93  925.27   513.25  924.94   515.44  924.96   518.33  924.76   520.19  924.77
   524.04  924.48   525.29  924.47   530.56  924.05    531.6     924   551.08     924
   561.19  923.88   570.73  923.91   575.81  923.89   576.88  923.83   581.94  923.78
   591.98   923.6   593.17  923.53   600.94  923.49   604.72  923.54   607.31  923.43
   609.31   923.3   612.73  923.18   615.37  922.86   620.79     922   630.75  920.68
   638.29     920    648.3   918.5   715.11   918.5   717.19   918.5   729.45     922
   730.66  922.18   736.11   922.7   739.16   922.9    741.6     923   743.76  923.2
    750.3   923.3    752.1  923.45   755.64  923.44   756.96  923.55   760.45   923.5
   761.54  923.59   765.06  923.54   781.53  923.58   782.68  923.64    799.2  923.83
   806.66  923.95   809.39     924   812.64  924.12   827.19  924.72   837.11  924.96
   857.15  925.07   896.92  924.83   916.55  924.51   920.29   924.5   921.52  924.48
   925.26  924.52   927.77  924.49   931.35  924.61   934.42  924.61   940.39  924.86
   943.06  924.87   948.36  924.98   953.38  924.96   955.99  924.88   959.01  924.72
   967.79     924  1040.02     924  1044.68  924.11  1053.38  924.47  1066.1   924.46
  1069.81  924.64  1071.46  924.65  1074.69  924.82   1079.1  924.86  1084.61  925.08
  1113.62  925.27  1135.69     926     1140     927     1200     928     1400     930

Manning's n Values        num=      3
      Sta   n Val      Sta   n Val      Sta   n Val
        0     .06   615.37     .05   736.11     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        615.37  736.11           109.4   109.4   109.4            .3      .5
Ineffective Flow      num=      2
   Sta L   Sta R     Elev  Permanent
888        F
888        F

CULVERT                 RIVER: South Brushy
REACH: 1                RS: 27361.32

INPUT
Description: Cypress Creek Rd
Distance from Upstream XS =      10
Deck/Roadway Width        =    39.4
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
   44.96      932      900  187.96      930      900  414.96      928      900
  682.96      927      900 1382.96      928      900

Upstream Bridge Cross Section Data
Station Elevation Data    num=      110
      Sta   Elev      Sta   Elev      Sta   Elev      Sta   Elev      Sta   Elev
        0  933.27    85.97    932    143.7    932   145.95  932.26   148.52  932.33
   151.15   932.5   156.68   932.5   157.5  932.22   158.67  932.14   167.39  931.93
   173.34  931.72   178.93  931.55   216.65  929.92   278.39  928.17   287.18  928.02
```

288.57	928	323.81	927.72	325.02	927.69	361.29	927.4	363.17	927.36
398.68	927.08	400.98	927.03	426.04	926	447.81	926	473.13	925.58
474.45	925.54	483.6	925.46	485.34	925.41	493.43	925.33	495.41	925.26
506.93	925.27	513.25	924.94	515.44	924.96	518.33	924.76	520.19	924.77
524.04	924.48	525.29	924.47	530.56	924.05	531.6	924	551.08	924
561.19	923.88	570.73	923.91	575.81	923.89	576.88	923.83	581.94	923.78
591.98	923.6	593.17	923.53	600.94	923.49	604.72	923.54	607.31	923.43
609.31	923.3	612.73	923.18	615.37	922.86	620.79	922	630.75	920.68
638.29	920	648.3	918.5	715.11	918.5	717.19	918.5	729.45	922
730.66	922.18	736.11	922.7	739.16	922.9	741.6	923	743.76	923.2
750.3	923.3	752.1	923.45	755.64	923.44	756.96	923.55	760.45	923.5
761.54	923.59	765.06	923.54	781.53	923.58	782.68	923.64	799.2	923.83
806.66	923.95	809.89	924	812.64	924.12	827.19	924.72	837.11	924.96
857.15	925.07	896.92	924.83	916.55	924.51	920.29	924.5	921.52	924.48
925.26	924.52	927.77	924.49	931.35	924.61	934.42	924.61	940.89	924.86
943.06	924.87	948.36	924.98	953.28	924.96	955.99	924.88	959.01	924.73
967.79	924	1040.02	924	1044.68	924.11	1053.88	924.47	1066.1	924.46
1069.81	924.64	1071.46	924.65	1074.69	924.82	1079.1	924.86	1084.61	925.08
1113.62	925.27	1135.69	926	1140	927	1200	928	1400	930

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	615.37	.05	736.11	.06

Bank Sta: Left Right Coeff Contr. Expan.
615.37 736.11 .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
-35.73	932	900	107.27	930	900	334.27	928	900
602.27	927	900	1400	928	900			

Downstream Bridge Cross Section Data
Station Elevation Data num= 106

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	931.99	16.08	931.83	115.74	930	134.61	930	224.96	928
264.75	928	300.5	927.21	303.91	927.19	336.16	926	380.36	926
428.73	925.07	441	925.01	442.64	924.89	445.81	924.89	448.84	924.73
456.11	924.73	459.52	924.51	460.89	924.5	465.33	924.21	468.54	924
496.14	924	517.05	922.72	523.17	922.16	525.22	922	527.2	921.67
532.62	920.88	566.6	918.5	637.7	918.5	643.22	920	648.82	920.69
651.28	920.85	654.3	921.17	658.03	921.29	659.84	921.46	671	921.85
677.43	922.13	682.26	922.4	683.31	922.41	687.03	922.64	688.63	922.64
691.84	922.81	693.86	922.81	699.35	922.99	701.31	922.99	704.3	923.04
706.89	923.04	709.26	923.09	719.92	923.14	722	923.2	728.22	923.22
730	923.3	733.15	923.29	737.46	923.44	740.94	923.43	742.32	923.46
749.21	923.43	750.53	923.46	774.71	923.41	776.34	923.36	783.47	923.33
796.46	922.79	800.7	922.77	804.2	922.55	808.23	922.55	810.39	922.43
812.55	922.44	816.66	922.34	823.32	922.34	832.06	922.42	841.14	922.03
873.41	922	874.93	922.06	879.5	922.29	880.95	922.29	884.83	922.54
886.14	922.53	889.34	922.74	891.14	922.73	893.94	922.89	898.48	922.9
903.74	923.1	906.59	923.11	910.87	923.22	913.97	923.23	915.86	923.27
929.26	923.35	930.85	923.38	947.73	923.41	955.34	923.33	957.59	923.29
969.01	923.21	971.04	923.16	979.73	923.19	981.73	923.17	1024.08	923.28
1025.81	923.32	1039.76	923.37	1041.43	923.43	1053.39	923.52	1055.19	923.57
1067.85	923.6	1068.94	923.64	1083.28	923.7	1104.37	924	1300	928
1500	930								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	517.05	.05	693.86	.06

Bank Sta: Left Right Coeff Contr. Expan.
517.05 693.86 .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
CypressCreek	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	89.6	.011	.4	1

Number of Barrels = 8
Upstream Elevation = 918.5
Centerline Stations

Sta.	Sta.	Sta.	Sta.	Sta.	Sta.	Sta.	Sta.

```
  651.46  660.46  669.46  678.46  687.46  696.46  705.46  714.46
Downstream Elevation =  918.5
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
  570.77  579.77  588.77  597.77  606.77  615.77  624.77  633.77

CROSS SECTION           RIVER: South Brushy
REACH: 1                  RS: 27307.11

INPUT
Description:
Station Elevation Data    num=     106
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  931.99   16.08   931.83  115.74     930  124.61     930  224.96     928
  264.75     928   300.5   927.21  303.91  927.19  336.16     926  380.36     926
  428.73  925.07     441   925.01  443.64  924.89  445.81  924.89  448.84  924.73
  456.11  924.73  459.52   924.51  460.89   924.5  465.33  924.21  468.54     924
  496.14     924  517.05   922.72  523.17  922.16  525.22     922   527.2  921.67
  532.62  920.88   566.6    918.5   637.7   918.5  643.22     920  648.82  920.69
  651.28  920.85   654.3   921.17  658.03  921.29  659.84  921.46     671  921.85
  677.43  922.13  682.26    922.4  683.31  922.41  687.03  922.64  688.63  922.64
  691.84  922.81  693.86   922.81  699.35  922.99  701.81  922.99   704.3  923.04
  706.89  923.04  709.26   923.09  719.92  923.14     722   923.2  728.22  923.22
     730   923.3  733.15   923.29  737.46  923.44  740.94  923.43  742.32  923.46
  749.21  923.43  750.53   923.46  774.71  923.41  776.34  923.36  783.47  923.33
  796.46  922.79   800.7   922.77   804.2  922.55  808.23  922.55  810.39  922.43
  812.55  922.44  816.66   922.34  823.32  922.34  832.06  922.42  841.14  922.03
  873.41     922  874.93   922.06   879.5  922.29  880.95  922.29  884.83  922.54
  886.14  922.53  889.34   922.74  891.14  922.73  893.94  922.89  898.48   922.9
  903.74   923.1  906.59   923.11  910.87  923.22  912.97  923.23  915.86  923.27
  929.26  923.35  930.85   923.38  947.73  923.41  955.84  923.33  957.59  923.29
  969.01  923.21  971.04   923.16  979.73  923.19  981.73  923.17 1024.08  923.28
 1025.81  923.32 1039.76   923.37 1041.43  923.43 1053.89  923.52 1055.19  923.57
 1067.85   923.6 1068.94   923.64 1083.28   923.7 1104.37     924    1300     928
    1500     930

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  517.05     .05  693.86     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        517.05  693.86             18.085   18.07   18.05            .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION           RIVER: South Brushy
REACH: 1                  RS: 27289.05

INPUT
Description:
Station Elevation Data    num=     106
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  931.99   16.08   931.83  115.74     930  124.61     930  224.96     928
  264.75     928   300.5   927.21  303.91  927.19  336.16     926  380.36     926
  428.73  925.07     441   925.01  443.64  924.89  445.81  924.89  448.84  924.73
  456.11  924.73  459.52   924.51  460.89   924.5  465.33  924.21  468.54     924
  496.14     924  517.05   922.72  523.17  922.16  525.22     922   527.2  921.67
  532.62  920.88   566.6    918.5   637.7   918.5  643.22     920  648.82  920.69
  651.28  920.85   654.3   921.17  658.03  921.29  659.84  921.46     671  921.85
  677.43  922.13  682.26    922.4  683.31  922.41  687.03  922.64  688.63  922.64
  691.84  922.81  693.86   922.81  699.35  922.99  701.81  922.99   704.3  923.04
  706.89  923.04  709.26   923.09  719.92  923.14     722   923.2  728.22  923.22
     730   923.3  733.15   923.29  737.46  923.44  740.94  923.43  742.32  923.46
  749.21  923.43  750.53   923.46  774.71  923.41  776.34  923.36  783.47  923.33
  796.46  922.79   800.7   922.77   804.2  922.55  808.23  922.55  810.39  922.43
  812.55  922.44  816.66   922.34  823.32  922.34  832.06  922.42  841.14  922.03
  873.41     922  874.93   922.06   879.5  922.29  880.95  922.29  884.83  922.54
  886.14  922.53  889.34   922.74  891.14  922.73  893.94  922.89  898.48   922.9
  903.74   923.1  906.59   923.11  910.87  923.22  912.97  923.23  915.86  923.27
  929.26  923.35  930.85   923.38  947.73  923.41  955.84  923.33  957.59  923.29
  969.01  923.21  971.04   923.16  979.73  923.19  981.73  923.17 1024.08  923.28
 1025.81  923.32 1039.76   923.37 1041.43  923.43 1053.89  923.52 1055.19  923.57
 1067.85   923.6 1068.94   923.64 1083.28   923.7 1104.37     924    1300     928
    1500     930

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  517.05     .05  693.86     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        517.05  693.86             1553 1556.57 1560.15            .1      .3

CROSS SECTION           RIVER: South Brushy
REACH: 1                  RS: 25732.47

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
    -250     920       0   914.84  100.04  914.46  112.28  914.27  113.32  914.35
  150.68  914.27  155.87   914.3   211.92     914  254.96     914   260.1  913.92
  267.82  913.89  272.05     912   486.65     912  504.48     912   507.1  911.96
  532.78  911.97   556.7     910   614.48     910  632.34     912  648.38  912.32
```

```
  653.93  913.63  660.95  913.95  662.18     914  732.28     914  787.96  912.74
   817.9  912.31  843.83     912  847.45  911.91  851.81  911.83  856.91     912
  926.01     912  943.94     914  968.48     916  969.87     916  1150.1     920
 1158.04     920 1174.12  920.41

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    -250     .06  504.48     .05  632.34     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
        504.48  632.34           1163.22 1155.31  1147.4              .1      .3
Ineffective Flow      num=       1
   Sta L   Sta R    Elev  Permanent
888        F

CROSS SECTION           RIVER: South Brushy
REACH: 1                   RS: 24577.16

INPUT
Description:
Station Elevation Data    num=      51
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0     912   15.11      912   17.48      911   37.54      911      39      910
   51.11     910   55.58      909   61.58      909   62.02      908   71.85      908
   80.15     907   82.22      907   82.74      906  152.49      906  153.08      905
  164.71     905  167.05      904  171.52      904  175.86      904  177.44      904
  183.39     904  184.91      903   221.6   902.52  316.05   903.62  341.77   903.98
  343.36     904  479.15      904     498      902  510.82      900  526.56      900
  545.24     902  549.47      902  643.58      904  648.02      904  669.8    904.8
  795.07  908.47  866.04   909.84   877.3      910  880.54      910  886.74   910.18
  898.71  910.59  910.93   911.11  931.24      912   940.3      912  994.52   913.25
 1043.22  913.89 1049.83   914.03 1056.08   914.17 1057.91   914.19 1068.55   914.41
 1068.72  914.41

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  479.15     .05  643.58     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
        479.15  643.58           1698.75 1708.71 1718.67              .1      .3

CROSS SECTION           RIVER: South Brushy
REACH: 1                   RS: 22868.45

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  923.01   55.83      922   57.03      922  157.34      920  287.22   916.74
  573.83     910  700.45   908.06  827.88      906  862.98      904  899.32      900
  909.98     898  916.83      896  923.36      894  932.69   892.11  933.28      892
  942.45     892 1003.64      894 1022.04      896 1034.38   897.56 1038.53      898
 1106.11     898 1199.38      900 1247.79      900 1323.38   900.44 1414.05   901.65
 1447.14     902 1503.48   902.22 1642.03      904 1644.87      904    1704      906
 1727.02     908 1747.09      910 1760.16   911.19    1765      912    1781      914
    1795     916    1827      920

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  899.32     .05 1199.38     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
        899.32 1199.38           1153.76 1154.59 1155.42              .1      .3

CROSS SECTION           RIVER: South Brushy
REACH: 1                   RS: 21713.86

INPUT
Description:
Station Elevation Data    num=      78
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0  922.89   37.68      922   41.77      922  142.59      920  147.65      920
  204.37  917.85  273.92      916  278.27   915.83  279.43   915.82  345.99      914
  350.32  913.82  356.31   913.58  411.82      912  418.97   911.65  420.09   911.62
  457.71     910  462.05   909.93  481.91   909.57  507.06   909.08  568.91      908
  670.25     906  718.27      906  819.78   904.26     823   904.24  834.52      904
  866.11     904  979.15      902  983.18      902 1090.79      900 1098.54      900
 1241.16     898 1259.75      898 1281.85   897.63 1350.32      896 1368.25      896
 1370.54   895.9 1378.57   895.59    1420   894.49 1445.69      894 1531.33      894
 1600.15  892.41 1604.29   892.33  1616.9   892.26 1617.93   892.24 1620.79   892.32
 1671.86   892.7 1725.41      892 1769.38      892 1790.84    890.1 1792.09      890
 1830.43     888 1896.12      888 1912.67      890 1966.18      892 1982.95   894.69
 1986.65  895.22  1992.5   895.64 1994.87      896 2010.26      896 2019.17   896.42
 2041.77  897.81 2044.22      898 2060.22      900  2074.2      902 2108.95      906
 2157.55  909.82 2159.65      910 2195.46      914 2226.38   916.56 2245.77      913
 2315.85     922  2369.2   923.94 2370.93      924 2392.51   928.23 2407.42   925.9
 2409.47     926 2467.06      928 2492.63   928.67

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06 1769.88     .05 1982.95     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1769.88 1982.95           2052.85 2057.17 2061.49              .1      .3
```

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 19656.69

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	910	9.22	910	94.77	911	140.94	911	142.32	912
149.69	912	151.88	913	190.98	913	191	914	192.1	913
192.3	912	192.7	908	192.76	907.9	214.29	906.84	216.94	906.74
221.44	906.47	224.04	906.4	228.82	906.06	256.81	904.48	263.85	903.96
294.54	901.74	384.31	895.96	411.99	894	434.22	892	464.57	892
509.54	891.14	511.7	891.07	514.33	891.07	516.38	890.98	519.44	890.97
525.81	890.74	533.05	890.74	534.62	890.77	537.15	890.61	538.45	890.64
541.45	890.44	546.12	890.18	558.96	889.32	562.03	889.07	571.05	888.42
573.47	888.29	576.98	888	593.89	888	610.76	887.12	620.19	886.97
623.96	886.61	627.22	886.54	631.9	886.05	637.19	886.07	639.04	886
692.31	886	694.73	886.08	699.34	886.14	704.48	886.05	709.58	886.21
714.11	886	718.82	886.19	723.87	886.04	726.94	886	741.95	886
743.27	886.05	744.3	886	980.92	886	990.37	886	999.23	886
1000.86	886.07	1005.63	886.1	1008.93	886	1011.57	886	1015.19	886.16
1017.73	886	1023.28	886	1025.08	886.15	1029.92	886.03	1039.49	886.01
1166.73	886	1167.77	886.06	1177.37	886.02	1330.56	886	1331.95	886.1
1335.94	886.17	1337.59	886.16	1341.13	886.56	1343.75	886.54	1358.84	886.9
1391.52	888	1396.86	888	1398.43	888.18	1402.99	888.51	1428.04	890
1436.53	890	1461.08	891.79	1500.03	894.75	1513.82	895.94	1584.32	902
1638.45	905.98	1669.68	908	1694.86	910	1727.78	913.74	1742.81	914
1797.18	914	1806.13	914.16						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	562.03	.05	1402.99	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
562.03	1402.99	172.93	173.15	173.37	.3	.5

Internal Rating Curve

Flow (cfs)	Elev (ft)
7439	902.23
9448	904.63
11028	906.21
12581	907.67

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 19483.55

INPUT
Description:
Station Elevation Data num= 179

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	914	50.03	914	51.92	913	64.94	913	67.45	912
82.88	912	84.08	911	94.77	911	99.21	910	104.06	910
104.85	909	114.97	909	118.3	908	129.68	908	132.5	907
135.12	907	137.65	906	139.79	905	144.72	905	148.22	904.7
154.99	904.61	167.49	904.12	176.34	903.62	183.48	903.42	184.91	903.42
188.32	903.36	191.46	903.37	213.84	902.64	217.68	902.58	222.69	902.28
256.87	900.71	258.99	900.67	263.34	900.29	264.38	900.38	269.58	900
282.57	898	289.29	896	290.67	895.51	294.46	894.32	295.2	894.1
301.43	892.3	302.68	892	306.89	891.11	310.92	890.48	312.2	890.3
315.5	890	317.34	889.87	322.26	889.72	327.29	889.76	332.07	889.9
337.28	889.91	342.2	889.75	347.04	889.5	348.46	889.4	351.9	889.28
353.91	889.17	359.12	889.06	364.12	889.06	368.9	889.17	376.94	889.45
381.92	889.45	386.83	889.29	396.58	888.82	401.5	888.68	406.52	888.7
409.44	888.85	411.58	888.88	414.06	889.03	421.74	889.34	423.38	889.34
426.76	889.4	428.36	889.35	431.73	889.36	433.46	889.3	436.7	889.3
438.58	889.23	446.63	889.16	448.69	889.18	451.62	889.14	453.7	889.18
456.62	889.12	458.78	889.14	464	889.02	471.29	888.64	475.26	888.32
485.86	887.46	490.88	887.26	493.96	887.23	495.89	887.17	520.94	886.9
525.96	886.82	527.37	886.76	530.98	886.72	546.05	886.33	556.07	885.97
571.94	885.48	580.57	885.42	585.63	885.49	586.84	885.53	595.78	885.67
600.8	885.69	610.75	885.64	612.11	885.65	620.25	885.55	650.48	885.31
661.73	885.58	670.65	885.53	671.87	885.5	676.97	885.44	681.63	885.52
685.78	885.71	690.24	886	700.8	886.62	705.74	886.31	710.72	886.78
715.72	886.53	725.54	885.78	739.92	885.14	742.28	885	744.7	884.92
747.65	884.75	749.47	884.69	753.02	884.51	759.11	884.32	763.09	884.27
774.3	884.42	777.97	884.53	778.68	885.1	779.33	884.57	787.28	884.93
795.05	885.52	796.07	885.62	801.42	880	806.27	880	811.16	880
879.11	874	1000	870	1124.5	874	1143.8	887.03	1151.44	887.08
1156.33	887.02	1158.72	887.07	1166.29	887.01	1168.65	887.08	1171.2	887.05
1173.62	887.09	1176.51	887.07	1178.45	887.16	1184.29	887.17	1186.27	887.29
1189.74	887.32	1191.33	887.42	1195.15	887.48	1196.17	887.56	1205.44	887.74
1214.88	888	1217.19	888.18	1224.92	889	1232.11	889.85	1233.65	890
1238.19	890.84	1240.51	890.85	1247.99	892	1249.89	892.14	1258.25	894
1268.62	894	1270.76	896	1275.41	898	1278.43	900	1281.32	901
1303.01	902	1304.05	903	1332.68	905	1332.89	907	1332.71	909
1333	911	1338.02	914	1341.39	915	1344.65	915		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	879.11	.05	1124.5	.06

```
Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        879.11  1124.6              567.46  563.94  560.41              .3      .5

CROSS SECTION              RIVER: South Brushy
REACH: 1                      RS: 18919.61

INPUT
Description:
Station Elevation Data     num=      152
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   902.86    58.89   903.52    60.09   903.52    74.19   903.68   109.84   904.07
  133.86   904.83   152.53   905.71   158.66   905.96   163.88   906.12   168.61   906.14
  178.59   906.16   198.39   906.38   228.22   906.58   243.24   906.47   257.72   906.03
  262.99   905.89   287.61   905.38   289.24   905.32   292.69   905.28   294.47   905.21
  297.52   905.17   320.78   904.44   331.29   903.91   337.06   903.64   338.27   903.57
  342.78   903.37   344.94   903.23   348.46   903.07   365.37      902   371.47   901.61
  393.42      900   405.26   899.43   415.75   899.14   438.65   898.92   453.45   898.54
  462.68   898.18   467.96   897.97   483.09   897.41   488.15   897.24   490.21    897.2
  501.25   896.75   505.34   896.46   506.61    896.4    511.2      896   521.59   895.51
  530.43   895.21   533.68    895.3   535.44   895.26   538.59   895.27   540.43   895.23
   543.5   895.24   545.42    895.2   563.38    895.1    580.6   894.94    585.6   894.96
  622.21   895.67   637.19   895.68   675.81   895.16   692.11   894.68   702.28   894.23
  708.32   893.97   739.23   892.61   745.48   892.29   751.56      892   756.45   891.73
  758.06   891.68   762.61   891.43   766.58   891.29   789.32   890.07   795.14   889.76
  800.61   889.51   802.08   889.47   806.12   889.29   808.24   889.24    811.6   889.09
  814.34   889.02   817.07   888.89   820.43    888.8   822.57    888.7   837.85   888.16
  841.56      888   844.75   887.79   850.57   887.46   897.07    884.8   918.68   883.24
   921.9   883.08   925.42   882.83   937.47   882.31   938.74   882.23   944.49      882
  946.27   881.89   968.92   880.64   971.36   880.45   979.26      880   997.55   878.78
 1004.74   878.41  1007.54   878.23  1013.65      878  1014.39   877.95  1020.1   877.65
 1022.52   877.58  1030.88   877.12  1046.8   876.62  1059.28      876  1065.19   875.52
 1066.85   875.47  1074.16   874.97  1077.12   874.92   1081.6   874.71  1088.53   874.67
 1090.23   874.59  1103.83   874.38  1105.05   874.34  1110.34   874.22   1116.3      874
 1123.27      874  1124.45   873.93   1128.8   873.69  1131.31   873.48  1153.66      868
 1167.11      868  1254.91      874  1259.89   874.29  1261.46   874.31  1265.91   874.67
 1267.65   874.68  1270.19   874.95  1276.39   874.89  1278.61   875.08  1283.24   875.39
  1286.3   875.37  1314.65   875.68  1329.05      876  1330.38      876  1331.47   876.09
 1335.26   876.43  1338.35   876.63  1343.89   876.82  1346.73   876.84  1348.68   876.77
 1376.46   877.05  1380.26   877.27  1382.73   877.33  1389.59   877.65  1393.48   877.63
 1397.13   877.93  1398.47      878     1435      879     1440      880     1520      890
    1600      891     1800      893

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06  1124.45     .05  1254.91     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
       1124.45 1254.91              210.54  210.67  210.15              .3      .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CULVERT                    RIVER: South Brushy
REACH: 1                      RS: 18814.23

INPUT
Description: US 183
Distance from Upstream XS =   37.49
Deck/Roadway Width        =   135.7
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  778.66      884      800  843.66      882      800  923.66      880      800
 1014.66      878      800 1153.66      876      800 1190.66      875      800
 1227.66      876      800 1393.66      878      800 1468.66      880      800
 1529.66      882      800 1587.66      884      800

Upstream Bridge Cross Section Data
Station Elevation Data     num=      152
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   902.86    58.89   903.52    60.09   903.52    74.19   903.68   109.84   904.07
  133.86   904.83   152.53   905.71   158.66   905.96   163.88   906.12   168.61   906.14
  178.59   906.16   198.39   906.38   228.22   906.58   243.24   906.47   257.72   906.03
  262.99   905.89   287.61   905.38   289.24   905.32   292.69   905.28   294.47   905.21
  297.52   905.17   320.78   904.44   331.29   903.91   337.06   903.64   338.27   903.57
  342.78   903.37   344.94   903.23   348.46   903.07   365.37      902   371.47   901.61
  393.42      900   405.26   899.43   415.75   899.14   438.65   898.92   453.45   898.54
  462.68   898.18   467.96   897.97   483.09   897.41   488.15   897.24   490.21    897.2
  501.25   896.75   505.34   896.46   506.61    896.4    511.2      896   521.59   895.51
  530.43   895.21   533.68    895.3   535.44   895.26   538.59   895.27   540.43   895.23
   543.5   895.24   545.42    895.2   563.38    895.1    580.6   894.94    585.6   894.96
  622.21   895.67   637.19   895.68   675.81   895.16   692.11   894.68   702.28   894.23
  708.32   893.97   739.23   892.61   745.48   892.29   751.56      892   756.45   891.73
  758.06   891.68   762.61   891.43   766.58   891.29   789.32   890.07   795.14   889.76
  800.61   889.51   802.08   889.47   806.12   889.29   808.24   889.24    811.6   889.09
  814.34   889.02   817.07   888.89   820.43    888.8   822.57    888.7   837.85   888.16
  841.56      888   844.75   887.79   850.57   887.46   897.07    884.8   918.68   883.24
   921.9   883.08   925.42   882.83   937.47   882.31   938.74   882.23   944.49      882
  946.27   881.89   968.92   880.64   971.36   880.45   979.26      880   997.55   878.78
 1004.74   878.41  1007.54   878.23  1013.65      878  1014.39   877.95  1020.1   877.65
 1022.52   877.58  1030.88   877.12  1046.8   876.62  1059.28      876  1065.19   875.52
 1066.85   875.47  1074.16   874.97  1077.12   874.92   1081.6   874.71  1088.53   874.67
 1090.23   874.59  1103.83   874.38  1105.05   874.34  1110.64   874.22   1116.3      874
```

```
 1123.27     874 1124.45  873.93  1128.8  873.69 1131.31  873.48 1153.66     868
 1167.11     868 1254.91     874 1259.89  874.29 1261.46  874.31 1265.91  874.67
 1267.65  874.68 1270.19  874.95 1276.29  874.89 1278.51  875.08 1283.24  875.39
  1286.3  875.37 1314.65  875.68 1329.05     876 1330.38     876 1331.47  876.09
 1335.26  876.43 1338.35  876.63 1343.89  876.82 1346.73  876.84 1348.68  876.77
 1376.46  877.05 1380.26  877.27 1382.73  877.33 1389.59  877.65 1393.48  877.63
 1397.13  877.93 1398.47     878    1435     879    1440     880    1520     890
    1600     891    1800     893

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06 1124.45     .05 1254.91     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1124.45 1254.91            .3        .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

Downstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  608.41     884      800  673.41     882      800  753.41     880      800
  844.41     878      800  983.41     876      800 1020.41     875      800
 1057.41     876      800 1223.41     878      800 1298.41     880      800
 1359.41     882      800 1417.41     884      800

Downstream Bridge Cross Section Data
Station Elevation Data     num=      100
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   890.05      1.3      890     4.39   889.76    11.26   888.98    18.31      888
   26.43      886    30.53   884.87    34.04      884    34.43   883.88    38.19   882.87
   42.15   882.05   622.49   879.02   638.53      878   641.73   877.85   650.72   877.53
   651.9   877.52   655.51   877.41   657.01    877.4   660.36   877.31   672.33   877.05
  687.65   876.62   692.74   876.53   697.82    876.5   707.92   876.44   709.02   876.45
  727.52   875.77   732.23   875.67   740.84   875.54   763.83   875.35   765.25   875.83
  769.71   875.92   799.78   876.25   804.75   876.35   809.71   876.45   810.82   876.45
  824.89   876.63   834.21    876.4   842.27      876   904.09      874   931.27      872
  936.33   871.48   950.56      870    962.8      868   963.73   867.83   964.73   867.72
  970.69   866.89      973   866.65   978.29   866.39   984.31   866.36   989.14    866.6
  990.78   866.67   993.34   866.91   996.37   867.03   999.92    867.3  1007.01   868.04
 1013.26   868.57  1034.79      870  1038.35   870.17  1043.76   870.39  1107.98      872
 1113.74      872  1131.14  872.56  1132.71   872.57   1136.5   872.67  1194.01   873.14
 1229.02      874  1266.53      874  1335.33      876  1339.01      876  1343.91   876.16
 1348.61   876.25  1403.62      878  1409.27      878  1454.54      880  1458.96      880
 1496.29      882   1521.1      884  1587.04      884  1607.37    885.6  1608.59   885.64
 1612.33      886  1618.63      886  1658.01   887.37  1660.24   887.41  1665.85   887.74
  1667.5   887.78  1670.61      888  1802.36   893.81  1803.59   893.84  1807.19      894
 1818.82      894  1846.65  895.15  1864.96    895.7  1867.43   895.73   1872.3   895.92
 1874.37      896  1903.21      896  1931.27   896.53  1942.02   896.51  1943.28   896.53

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   936.33     .05  1043.76     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        936.33  1043.76            .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
US 183          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
             37.49   135.7        .02                  .9                1
Number of Barrels =  2
Upstream   Elevation =  868
Centerline Stations
    Sta.    Sta.
  1150.5  1155.5
Downstream Elevation =  866
Centerline Stations
    Sta.    Sta.
     987     992

CROSS SECTION          RIVER: South Brushy
REACH: 1                  RS: 18708.94

INPUT
Description:
```

```
Station Elevation Data    num=     100
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0  890.05      1.3     890     4.39  889.76    11.26  888.98    18.31     888
   26.43     886    30.53  884.87    34.04     884    34.43  883.88    38.19  882.87
   42.15  882.05   622.49  879.02   638.53     878   641.73  877.85   650.72  877.53
   651.9  877.52   655.51  877.41   657.01   877.4   660.36  877.31   672.33  877.05
  687.65  876.62   692.74  876.53   697.82   876.5   707.92  876.44   709.02  876.45
  727.52  875.77   732.22  875.67   740.84  875.54   763.83  875.85   765.25  875.83
  769.71  875.92   799.78  876.25   804.75  876.35   809.71  876.45   810.82  876.45
  824.89  876.63   834.21   876.4   842.27     876   904.09     874   931.37     872
  936.33  871.48   950.56     870     962.8     868   963.73  867.83   964.73  867.72
  970.69  866.89      973  866.65   978.29  866.39   984.21  866.26   989.14   866.6
  990.78  866.67   993.84  866.91   996.37  867.03   999.92   867.3  1007.01  868.04
 1013.26  868.57  1034.79     870  1038.35  870.17  1043.76  870.29  1107.98     872
 1113.74     872  1131.14  872.56  1132.71  872.57   1136.5  872.67  1194.01  873.14
 1229.02     874  1266.53     874  1335.33     876  1339.01     876  1343.91  876.16
 1348.61  876.25  1403.62     878  1409.27     878  1454.54     880  1458.96     880
 1496.39     882   1521.1     884  1587.04     884  1607.37   885.6  1608.59  885.64
 1612.33     886  1618.63     886  1658.01  887.37  1660.24  887.41  1665.85  887.74
  1667.5  887.78  1670.61     888  1802.36  893.81  1803.59  893.84  1807.19     894
 1818.82     894  1846.65  895.15  1864.96   895.7  1867.43  895.73   1872.3  895.92
 1874.37     896  1903.21     896  1931.27  896.53  1942.02  896.51  1943.28  896.53

Manning's n Values        num=      3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .06   936.33     .05  1043.76     .06

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        936.33  1043.76           2059.02 2054.67 2050.98              .3      .5
Ineffective Flow     num=      2
   Sta L   Sta R    Elev  Permanent
888        F
888        F

CROSS SECTION          RIVER: South Brushy
REACH: 1                  RS: 16654.27

INPUT
Description:
Station Elevation Data    num=      80
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       9  882.96    57.25     882    62.68     882  163.98     880  238.49     878
  244.86  877.81   251.86   877.6   332.58     876  382.64     876  468.52     874
  475.65     874   477.27  873.84   478.87  873.84  484.53  873.53  488.39  873.46
  498.58  873.06   510.49  872.81   513.28  872.71  522.32  872.63  524.33  872.56
  559.61     872   601.46     872   635.54     870  643.84  869.92  648.84   868.6
  652.02  868.29   656.64     868    657.7   867.9  664.95  867.24   678.3   866.1
  680.42     866   688.01  865.32   689.93  865.12  695.61  864.87  696.34  864.25
  700.87  863.62   710.25  862.03   715.22   861.4  719.93  860.71  724.26  860.22
  725.83     860   886.85     860    902.3     862  916.76  863.52  922.07     864
   963.4     866  1064.42     866  1071.34  866.67  1073.47  866.83  1076.31  867.11
 1079.42  867.18  1082.65  867.47  1085.66  867.38  1086.98  867.46  1089.18  867.54
 1091.37  867.56  1098.56  867.36  1112.43  867.21  1121.39  867.33  1126.25  867.44
 1160.22  867.83  1166.14  867.92  1171.59     868  1182.21  868.07  1187.67  868.14
 1294.84  868.42  1328.62     868  1330.74  867.88  1336.98  867.32  1347.35   866.6
 1350.22  866.62  1353.52  866.43  1381.58  867.39  1391.31     868  1433.85  869.56
 1435.11  869.57  1445.83  869.91  1447.88     870  1535.98     874  1579.16  875.44

Manning's n Values        num=      3
     Sta   n Val      Sta   n Val      Sta   n Val
       0      .1   678.8     .08   963.4      .1

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
         678.8   963.4           1343.39 1247.76 1352.14              .1      .3
Ineffective Flow     num=      1
   Sta L   Sta R    Elev  Permanent
888        T

CROSS SECTION          RIVER: South Brushy
REACH: 1                  RS: 15518.47

INPUT
Description:
Station Elevation Data    num=      57
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
  285.54  873.58   287.77  873.66   292.28     874  300.02  873.43   304.27  873.26
  312.08     872   315.06  871.22      319     870  323.09  868.41   324.64  867.78
  329.21     866   333.19  864.62   334.86     864  339.41  863.36   348.92     862
   351.2  862.35   359.82     864   360.95  864.52  364.69     866   367.64  867.79
  367.97     868    368.2  868.19   370.17     870  371.78  871.35   373.71  873.03
   374.9     874   375.91  874.87   377.73  876.54  379.38     878   381.06   379.4
  381.83     880   383.84  881.92   383.99  882.04  385.36   883.2    387.2     884
  389.16  885.22   391.38     886   393.41  886.61  397.17  887.68   397.87   887.9
  402.21  888.64    404.1  888.91   406.65  889.28  410.37  889.79   412.22     890
  416.84  890.61   419.37  891.11   433.17     894  445.09     896   458.64     898
  468.36  903.11   493.19     904   521.14     906  522.68     906   566.13  908.17
  617.92     910   620.49  910.03

Manning's n Values        num=      3
     Sta   n Val      Sta   n Val      Sta   n Val
  285.54      .1      319     .08  370.17      .1

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
           319  370.17           618.94  608.48  598.03              .1      .3
```

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 14909.98

INPUT
Description:
Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
165.88	860	200.77	860	230.9	857.01	239.42	856	268.49	852
278.21	850	284.65	848	286.93	846.91	289.12	846	294.28	844
298.96	842	299.2	841.88	300.36	841.55	303.9	840.4	305.19	840
344.36	840	370.91	842	385.75	844	393.75	846	394.87	846.36
399.77	848	404.04	849.7	404.84	850	414.83	853.71	415.69	854
422.77	856	432.64	858	445.88	860	456.61	862	462.08	863.41
464.22	864	471.08	866	475.31	867.56	476.55	868	480.89	869.7
481.68	870	486.53	872	490.79	874	495.79	876	502.43	878.8
505.39	880	513.03	882.74	521.65	885.57	523.06	886	537.31	890
546.11	892	567.45	896.2	590.22	900	605.94	901.95	634.97	904
636.21	904	697.64	906	698.99	906	758.9	908	846.02	910
859.07	910	864.5	910.14						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
165.88	.1	278.21	.08	404.84	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
278.21	404.84	941.4	941.39 941.38	.1	.3

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 13968.60

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	861.62	118.68	860.85	199.54	860	246.31	860	362.07	858
382.16	856	397.67	854	404.77	852	405.24	851.8	409.62	850.1
409.91	849.98	413.86	848	417.42	845.97	421.02	844	424.43	842.32
425.11	842	430.33	840	439.89	838	463.45	836.07	464.63	836
491.54	836	501.28	838	509.68	840	515.84	840	575.23	842
585.26	844	592.66	846	598.76	848	601.54	849.13	607.45	851.38
609.19	852	615.2	854	616.92	854.53	622.02	856	630.41	858
645.34	860	674.54	862	746.21	866	792.96	870	814.04	872
829.1	873.99	841.66	876	853.48	877.62	856.54	878	869.99	878.96
873.25	879.15	877.93	879.56	879.31	879.64	882.93	880	901.68	882.52
908.31	883.31								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	430.33	.08	509.68	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
430.33	509.68	1221.91	1226.21 1230.7	.1	.3

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 12742.29

INPUT
Description:
Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	860.63	163.19	859.19	178.59	858.84	217.17	858.03	218.82	858
242.07	857.78	371.97	856	389.92	855.97	542.1	854	590.27	854
606.73	853.73	677.43	852	706.18	850.18	708.6	850	726	848
776.53	844	808.4	840	845.62	836	870.01	834	891.59	832
949.05	832	969.17	834	990.58	836	999.38	838	1000.6	838.34
1007.09	840	1014.49	842	1015.67	842.3	1021.84	844	1022.89	844.28
1033.3	847.88	1033.63	848	1038.74	849.96	1044.1	852	1049.75	854
1055.62	856	1062.42	858	1070.1	860	1078.43	862	1079.02	862.15
1084.23	863.4	1106.13	868	1124.68	872	1127.63	874.77	1143	876
1149.27	877.58	1165.07	881.32	1165.71	882	1173.14	884	1190.17	888
1202.13	890.48	1208.81	891.76	1210.15	892	1230.38	896	1240.71	898
1254.24	900	1267.19	900.82						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	845.62	.08	990.58	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
845.62	990.58	967.59	970.07 972.55	.1	.3

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 11772.22

INPUT
Description:
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	851.94	63.84	850	117.39	848	144.04	846	218.16	844
235.86	844	237.91	843.96	251.09	843.61	259.82	843.3	279.8	842.45
286.9	842	294.46	842	295.85	841.97	305.15	841.67	310.46	841.27
317.41	840.93	326.82	840.04	328.36	840	364.9	837.5	401.19	835.15
414.42	834.13	416.02	834	434.59	832.04	474.33	830	499.35	829
544.9	828	552.62	830	558.01	832	561.02	833.5	562.06	834
562.72	834.33	568.35	837.35	569.65	838	573.14	840	573.99	840.25
578.01	842	582.42	843.65	583.45	844	591.83	846	612.38	848

661.33	850	677.31	852	689.45	854	697.97	856	704.26	858
709.76	860	714.38	862	719.31	864	729.83	868	740.46	872.09
745.34	874	751.22	876.01	757.85	878	764.02	880	764.48	880.16
770.14	882	776.62	884	777.03	884.11	792.49	888	807.89	892
816.77	894	826.29	895.61	828.85	896	853.05	898.91	863.54	900
864.85	900.11	888.87	902	889.92	902.07	911.04	903.52	912.43	903.6
917.75	904	932.15	905.03	943.45	906	968.01	907.53	969.46	907.6
975.31	907.99	1029.49	909.18	1034.15	909.34	1034.37	909.35		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	434.59	.08	558.01	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
434.59	558.01	904.38	904.3 904.22	.1	.3

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 10867.92

INPUT
Description:
Station Elevation Data num= 77

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	860.18	211.94	856	216.19	856	296.57	854	402.36	852
408.21	852	542.06	850	608.05	848	663.72	846	684.58	846
720.54	844.54	738.88	844	745.59	844	804.42	842	844.47	842
873.05	840.99	889.14	840.9	945.2	840	949.66	840	959.56	838
967.54	836	988.6	830	996.03	828	1004.57	826	1018.46	824
1059.67	824	1072.2	826	1089.11	828	1116.99	828.7	1158.85	829.38
1165.24	829.68	1172.5	830	1182.94	831.59	1185.25	832	1194	834
1200.93	836	1206.06	837.87	1206.39	838	1206.69	838.13	1211.13	840
1215.41	842	1218.82	843.79	1222.97	845.93	1223.23	846.07	1226.74	848
1230.27	850	1233.76	851.88	1244.66	858	1246.85	859.19	1251.57	861.67
1256.22	864	1262.16	866.86	1267.35	869.15	1269.18	870	1279.74	873.92
1285.51	876	1291.55	878.01	1297.73	879.89	1298.12	880	1306.04	882.04
1314.41	884	1324.35	886	1338.13	888	1356.06	890	1378.59	891.45
1388.19	891.86	1389.55	891.94	1391.61	892	1393.82	892	1396.68	892.16
1412.95	892.57	1466.8	893.17	1502.21	894	1507.91	894.16	1580.47	895.94
1586	896.08	1593.89	896.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	988.6	.08	1172.5	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
988.6	1172.5	1108.59	1103.15 1097.7	.1	.3

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 9764.780

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	838.43	35.69	838	120.2	838	121.28	837.94	147.81	836
156.3	834	162.25	832	168.07	830	174.37	828	181.9	826
196.01	824	281.44	822	282.6	822	306.99	819.25	317.46	818.29
321.5	818	331.97	818	332.78	818.14	344.42	820	349.8	822
354.55	824	355.36	824.46	360.64	827.29	368.15	831.71	368.64	832
372.11	833.85	372.4	834	376.53	835.68	377.29	836	383.38	837.76
384.26	838	400.74	838.55	433.16	839.1	437.38	839.03	439.94	839.08
442.15	839.06	452.53	839.16	455.49	839.26	457.34	839.25	464.31	839.51
465.59	839.52	519.94	841.82	557.46	843.43	559.08	843.46	563.64	843.65
566.29	843.69	566.89	843.71						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	282.6	.08	349.8	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
282.6	349.8	1190.44	1184.51 1178.58	.1	.3

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 8580.270

INPUT
Description:
Station Elevation Data num= 76

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	839.64	3.78	839.85	6.16	839.64	6.44	840	8.6	840.16
29.1	841	31.92	840.97	37.05	841.13	39.25	841.15	42.3	841.26
44.16	841.28	63.48	842.03	76.11	842.42	85.19	842.68	86.63	842.63
90.52	842.79	91.59	842.73	150.97	842	211.67	842	309.81	840
344.89	838	355.68	837.26	374.62	836.36	379.2	836.25	385.66	836.12
390.29	836.04	405.67	835.87	415.31	835.89	425.78	835.74	430.32	835.61
432.02	835.56	435.99	835.44	453.5	834.4	460.24	833.93	479.12	832.32
496.18	830.38	499.04	830	512.02	828	516.81	827.07	522.63	826
529.27	824	530.4	823.63	541.31	819.93	547.41	818	559.34	816
580.98	816	613.91	817.88	615.83	818	645.51	818	668.22	818.84
671.53	819.04	674.68	819.09	688.17	820	700.31	822	708.2	824
715.38	826	723.03	827.68	724.52	828	742.62	830	782.82	832
891.17	834	1004.49	834.53	1020.17	834.52	1203.49	836.13	1315.26	837.26
1364.05	837.99	1393.37	839.93	1422.97	841.99	1447.96	844	1475.38	846
1506.89	847.97	1530.71	850	1550.46	852	1567.49	854	1605.74	858
1641.24	862.12								

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Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0      .1   541.31     .08   688.17      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        541.31  688.17           1329.27  1326.2 1323.14             .1      .3

CROSS SECTION           RIVER: South Brushy
REACH: 1                RS: 7254.068

INPUT
Description:
Station Elevation Data     num=       34
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0   837.5      .01     835      .02     834     5.17     833     7.19   832.5
   28.04     832    31.49  831.16    78.93  830.59   107.73     830    124.1     830
  155.09  828.71   172.96  828.21   174.19  828.16   180.02     828   186.87  827.88
  201.02  826.57   203.97  826.31   248.82  822.69   278.86     820   288.59  817.08
   296.4  814.52   305.15   812.6   311.96  810.63   318.52     810   348.09     810
  463.78     816   476.89     818   487.64     820    502.9     824   512.56     826
  552.35  826.97      580     828      720     835      730  837.5

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0      .1   278.86     .08   487.64      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        278.86  487.64           1299.07 1301.05 1303.02             .1      .3

CROSS SECTION           RIVER: South Brushy
REACH: 1                RS: 5953.021

INPUT
Description:
Station Elevation Data     num=       55
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0   837.5    14.92     836    15.98     835    17.04     835    77.51     834
    87.4     834    90.66     833   102.96     833   107.06     832   130.03     832
  137.31     831   145.39     831   154.41     830   199.56     828   200.11     825
  200.69     824    201.3     823   201.77     822   227.32     820    242.9     818
  254.68  816.94   265.03     816   305.34     814   326.86     812   343.35     810
  478.79     804   512.44     804   520.64  805.39   523.48     806   528.26     808
  532.83     810   538.84  813.36   539.95     814   540.91  814.51   543.79     816
  545.95  817.03      548     818   552.41     820   552.97  820.19   558.13     822
  561.15  822.74   566.48  823.94   602.39     826   612.15     826   650.28     827
  675.73     828   691.37     830   695.96     832   720.38     833   724.23     833
  725.38     834   730.84     834   733.41     835   758.26     836      765  837.5

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0      .1   254.68     .08   545.95      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        254.68  545.95           1507.3 1510.83 1514.37             .1      .3

CROSS SECTION           RIVER: South Brushy
REACH: 1                RS: 4442.186

INPUT
Description:
Station Elevation Data     num=       31
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0   837.5       30     835   101.65     828   136.57     825   140.47     820
  168.74  814.21   204.79     814   206.98  813.81   224.97     812   248.79     808
  262.11     806   281.33     804   408.59     804   417.47     806   422.57     808
  422.92  808.17   426.86     810   427.29  810.22    430.7  811.9   435.26     814
  440.03     816   445.07     818    447.7  818.94   450.47     820   456.42     822
  463.52     824    474.3     826   489.02     828   526.55  832.47      540     835
     550   837.5

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
       0      .1   204.79     .08   435.26      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        204.79  435.26           3029.12 3034.14 3039.16             .1      .3

CROSS SECTION           RIVER: South Brushy
REACH: 1                RS: 1408.046

INPUT
Description:
Station Elevation Data     num=       39
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0   837.5        5     835   16.17     833   84.83     832   93.72     830
  118.09     828   125.01     826  126.95     824  127.67     822  130.85     821
  131.11     820   163.12     819  183.71     818     198     817  222.85  816.37
  281.18     814   291.53     812  295.36  811.39  584.85     810  595.38     810
  613.41     808   625.49     806  641.38     804 1357.98     804 1369.93     806
 1370.9  806.34 1375.87     808 1380.51     810 1389.21     814 1397.99  817.88
 1402.99     820 1407.88     822 1413.07     824 1419.98     826 1428.24     829
 1440.45     830 1444.87     830 1491.27     835    1510  837.5

Manning's n Values          num=        3
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Sta	n Val	Sta	n Val	Sta	n Val
0	.1	595.88	.08	1380.51	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
595.88	1380.51	923.18	923.67	924.16	.1	.3

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 484.376

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	837.5	.2	836	.3	835.5	.5	835	.79	834
89.81	834	90.34	833	108.97	832	127.8	832	137.32	831
162.34	831	184.18	830	186.52	829	190.58	829	191.7	828
194.61	828	204.64	827	216.83	827	217.64	826	223.06	826
254.27	825	255.2	824	258.87	823	295.49	823	300.13	822
303.02	821	310.27	820	315.24	819	315.77	818	317	817
328.32	816	336.57	815	350.52	814	354.65	813	355.58	812.35
360.92	812.06	362.13	812	412.19	812	429.37	810.37	436.42	810.79
439.7	810.57	441.27	810.55	445.51	810.27	449.83	810	518.63	810
552.67	809.61	559.63	809.65	590.38	809.76	628.65	809.52	646.84	809.64
650.36	809.71	677.5	809.75	686.48	809.55	687.58	809.47	694.58	809.5
695.97	809.4	699.75	809.24	701.96	809.21	705.42	809.08	708.44	808.85
713.57	808.43	715.99	808.31	719.12	808	733.9	808	738.01	808.4
749.81	808.89	752.7	808.32	754.71	808.83	761.51	808.54	762.91	808.52
767.22	808.24	770.45	808	793.03	807.09	796.09	807.04	802.97	806.48
805.48	806.44	809.31	806	816.63	805.52	820.78	805.38	824.4	805.33
826.21	805.23	829.36	805.18	831.72	805.04	844.4	804.81	846.42	804.81
849.44	804.7	851.2	804.71	856.22	804.8	866.15	804.34	868.97	804.71
870.75	804.72	875.46	804.62	878.73	804.62	883.63	804.55	887.73	804.26
888.94	804.22	893.23	804.41	897.63	804.15	907.45	804.23	912.1	804.02
916.94	804.29	921.5	804.04	926.05	804.21	931.11	804.05	933.13	804
939.8	804	948.2	804	950.24	804.14	954.36	804.12	964.07	804.34
968.8	804.4	969.81	804.4	973.76	804.32	978.57	804.26	983.65	804.27
988.08	804.06	997.4	804.17	1002.22	804.16	1007.48	804.16	1009.43	804
1015.87	804	1021.01	804.16	1025.59	804.33	1031.45	804.36	1035.34	804.48
1039.48	804.32	1044.78	804.2	1049.21	804	1407.76	804	1418	804.69
1422.24	804.86	1425.71	805.2	1429.13	805.28	1433.66	806	1454.89	806
1500	807	1520	808	1560	810	1680	822	1800	828
1880	830	1900	831	1980	833	2010	836	2020	837.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	708.44	.08	1520	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
708.44	1520	23.59	23.76	23.93	.3	.5

CROSS SECTION RIVER: South Brushy
REACH: 1 RS: 460.616

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	837.11	.2	835.61	.3	835.11	.5	834.61	.79	833.61
89.81	833.61	90.34	832.61	108.97	831.61	127.8	831.61	137.32	830.61
162.34	830.61	184.18	829.61	186.52	828.61	190.58	828.61	191.7	827.61
194.61	827.61	204.64	826.61	216.83	826.61	217.64	825.61	223.06	825.61
254.27	824.61	255.2	823.61	258.87	822.61	295.49	822.61	300.13	821.61
303.02	820.61	310.27	819.61	315.24	818.61	315.77	817.61	317	816.61
328.32	815.61	336.57	814.61	350.52	813.61	354.65	812.61	355.58	811.96
360.92	811.67	362.13	811.61	412.19	811.61	429.37	810.48	436.42	810.4
439.7	810.18	441.27	810.16	445.51	809.88	449.83	809.61	518.63	809.61
552.67	809.22	559.63	809.26	590.38	809.37	628.65	809.13	646.84	809.25
650.36	809.32	677.5	809.36	686.48	809.16	687.58	809.08	694.58	809.11
695.97	809.01	699.75	808.95	701.96	808.82	705.42	808.69	708.44	808.46
713.57	808.04	715.99	807.92	719.12	807.61	733.9	807.61	738.01	808.01
749.81	808.5	752.7	808.43	754.71	808.44	761.51	808.15	762.91	808.13
767.22	807.85	770.45	807.61	793.03	806.7	796.09	806.65	802.97	806.09
805.48	806.05	809.31	805.61	816.63	805.13	820.78	804.99	824.4	804.94
826.21	804.84	829.36	804.79	831.72	804.65	844.4	804.42	846.42	804.42
849.44	804.31	851.2	804.32	856.22	804.41	866.15	804.45	868.97	804.32
870.75	804.33	875.46	804.23	878.73	804.23	883.63	804.16	887.73	803.87
888.94	803.83	893.23	804.02	897.63	803.76	907.45	803.84	912.1	803.63
916.94	803.9	921.5	803.65	926.05	803.82	931.11	803.66	933.13	803.61
939.8	803.61	948.2	802.61	950.24	803.75	954.36	803.73	964.07	803.95
968.8	804.01	969.81	804.01	973.76	803.93	978.57	803.87	983.65	803.88
988.08	803.67	997.4	803.78	1002.22	803.77	1007.48	803.77	1009.43	803.61
1015.87	803.61	1021.01	803.77	1025.59	803.94	1031.45	803.97	1035.34	804.09
1039.48	803.93	1044.78	803.81	1049.21	803.61	1407.76	803.61	1418	804.3
1422.24	804.47	1425.71	804.81	1429.13	804.89	1433.66	805.61	1454.89	805.61
1500	806.61	1520	807.61	1560	809.61	1680	821.61	1800	827.61
1880	829.61	1900	830.61	1980	832.61	2010	835.61	2020	837.11

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	708.44	.08	1520	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
708.44	1520	465.04	460.62	456.2	.3	.5

Profile Output Table - Espey 1

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	E.G. Elev (ft)	Crit W.S. (ft)	Vel Total (ft/s)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)
1	460.616	7493.00	818.36	818.86	805.45	0.47	0.00		
1	460.616	10146.00	822.92	822.93	805.85	0.47	0.00		
1	460.616	12186.00	824.76	824.76	806.11	0.51	0.00		
1	460.616	14268.00	826.57	826.58	806.37	0.53	0.01		
1	460.616	16061.00	828.21	828.22	806.57	0.54	0.01		
1	484.376	7486.00	818.86	818.86		0.49	0.00	0.00	0.00
1	484.376	10137.00	822.92	822.93		0.49	0.00	0.00	0.00
1	484.376	12175.00	824.76	824.76		0.52	0.00	0.00	0.00
1	484.376	14255.00	826.57	826.58		0.54	0.01	0.00	0.00
1	484.376	16042.00	828.21	828.22		0.56	0.01	0.00	0.00
1	1408.046	7222.00	818.87	818.88		0.51	0.00	0.02	0.00
1	1408.046	9779.00	822.94	822.94		0.51	0.00	0.02	0.00
1	1408.046	11747.00	824.77	824.77		0.54	0.01	0.02	0.00
1	1408.046	13756.00	826.58	826.59		0.57	0.01	0.02	0.00
1	1408.046	15333.00	828.22	828.23		0.59	0.01	0.02	0.00
1	4442.186	6417.00	819.02	819.09		1.99	0.07	0.19	0.02
1	4442.186	8692.00	823.03	823.10		1.94	0.06	0.14	0.02
1	4442.186	10443.00	824.86	824.94		2.05	0.07	0.14	0.02
1	4442.186	12238.00	826.67	826.75		2.14	0.08	0.14	0.02
1	4442.186	13216.00	828.30	828.38		2.09	0.08	0.13	0.02
1	5953.021	6050.00	819.71	819.77		1.92	0.06	0.68	0.00
1	5953.021	8197.00	823.50	823.55		1.83	0.06	0.45	0.00
1	5953.021	9849.00	825.32	825.38		1.91	0.06	0.44	0.00
1	5953.021	11546.00	827.12	827.19		1.95	0.07	0.43	0.00
1	5953.021	12274.00	828.70	828.76		1.84	0.06	0.37	0.00
1	7254.068	5751.00	820.80	821.02		3.71	0.21	1.20	0.05
1	7254.068	7793.00	824.14	824.32		3.28	0.18	0.73	0.04
1	7254.068	9364.00	825.90	826.09		3.25	0.18	0.67	0.04
1	7254.068	10981.00	827.65	827.84		3.15	0.18	0.61	0.04
1	7254.068	11516.00	829.13	829.28		2.80	0.16	0.50	0.03
1	8580.270	5462.00	825.26	825.59		4.45	0.33	4.54	0.04
1	8580.270	7402.00	826.93	827.33		4.76	0.39	2.94	0.06
1	8580.270	8895.00	828.28	828.69		4.85	0.41	2.54	0.07
1	8580.270	10434.00	829.68	830.11		4.84	0.43	2.20	0.07
1	8580.270	10792.00	830.67	831.05		4.49	0.38	1.70	0.07
1	9764.780	5253.00	829.69	829.96		3.71	0.27	4.36	0.01
1	9764.780	7090.00	831.23	831.56		4.12	0.33	4.23	0.01
1	9764.780	8499.00	832.33	832.70		4.36	0.37	4.00	0.00
1	9764.780	9950.00	833.45	833.85		4.55	0.40	3.73	0.00
1	9764.780	10258.00	833.90	834.29		4.50	0.39	3.23	0.00
1	10867.92	5066.00	833.58	833.84		3.98	0.26	3.88	0.00
1	10867.92	6811.00	835.02	835.33		4.28	0.30	3.77	0.00
1	10867.92	8145.00	836.03	836.37		4.46	0.33	3.67	0.00
1	10867.92	9519.00	837.03	837.39		4.62	0.36	3.54	0.00
1	10867.92	9785.00	837.29	837.65		4.61	0.36	3.37	0.00
1	11772.22	4917.00	837.24	837.57		4.27	0.33	3.71	0.02
1	11772.22	6591.00	838.52	838.93		4.63	0.40	3.57	0.03
1	11772.22	7867.00	839.42	839.87		4.83	0.45	3.46	0.03
1	11772.22	9180.00	840.28	840.77		4.99	0.49	3.35	0.04
1	11772.22	9413.00	840.46	840.96		4.99	0.49	3.27	0.04
1	12742.29	4763.00	840.89	841.13		3.75	0.25	3.55	0.01
1	12742.29	6362.00	842.22	842.52		4.08	0.30	3.58	0.01
1	12742.29	7579.00	843.13	843.46		4.29	0.34	3.58	0.01
1	12742.29	8829.00	843.98	844.35		4.48	0.37	3.57	0.01
1	12742.29	9030.00	844.13	844.50		4.50	0.37	3.54	0.01
1	13968.60	4575.00	845.57	845.95		4.38	0.37	4.78	0.04
1	13968.60	6085.00	846.89	847.33		4.77	0.44	4.76	0.04
1	13968.60	7229.00	847.78	848.27		5.03	0.49	4.76	0.05
1	13968.60	8406.00	848.62	849.16		5.27	0.54	4.76	0.05
1	13968.60	8568.00	848.75	849.29		5.29	0.54	4.73	0.05
1	14909.98	4435.00	850.06	850.41		4.72	0.35	4.46	0.00
1	14909.98	5880.00	851.39	851.83		5.27	0.44	4.49	0.00
1	14909.98	6972.00	852.20	852.70		5.62	0.50	4.51	0.00
1	14909.98	8094.00	853.14	853.71		5.91	0.56	4.53	0.01
1	14909.98	8229.00	853.25	853.82		5.94	0.57	4.52	0.01
1	15518.47	634.00	865.68	866.81	865.68	8.51	1.12	3.41	0.22
1	15518.47	832.00	866.18	867.45	866.18	9.04	1.27	3.44	0.25
1	15518.47	973.00	866.48	867.87	866.48	9.43	1.38	3.47	0.26
1	15518.47	1117.00	866.76	868.26	866.76	9.82	1.50	3.49	0.28
1	15518.47	1406.00	867.32	868.98	867.32	10.35	1.66	3.62	0.33
1	16654.27	329.00	867.87	867.88	865.39	0.30	0.00	0.36	0.11
1	16654.27	403.00	868.41	868.41	865.44	0.28	0.00	0.33	0.12
1	16654.27	454.00	868.74	868.74	865.48	0.27	0.00	0.34	0.14
1	16654.27	503.00	869.07	869.07	865.51	0.26	0.00	0.36	0.15
1	16654.27	730.00	869.74	869.74	865.66	0.30	0.00	0.50	0.17
1	18708.34	100.00	868.15	868.20	867.37	1.30	0.06	0.30	0.03

1	18708.94	108.00	868.62	868.65	867.41	1.41	0.03	0.22	0.01
1	18708.94	114.00	868.91	868.93	867.43	1.22	0.02	0.18	0.01
1	18708.94	119.00	869.21	869.23	867.46	1.05	0.02	0.15	0.01
1	18708.94	241.00	869.91	869.95	867.91	1.46	0.03	0.18	0.02
1	18814.23	Culvert							
1	18919.61	89.00	871.48	871.48	868.89	0.56	0.00		
1	18919.61	95.00	871.62	871.62	868.92	0.56	0.00		
1	18919.61	99.00	871.70	871.71	868.95	0.56	0.00		
1	18919.61	103.00	871.79	871.80	868.97	0.56	0.00		
1	18919.61	214.00	874.16	874.17	869.43	0.49	0.00		
1	19483.55	64.00	871.62	871.63		0.80	0.01	0.14	0.00
1	19483.55	66.00	871.74	871.75		0.71	0.01	0.13	0.00
1	19483.55	68.00	871.82	871.83		0.67	0.01	0.12	0.00
1	19483.55	69.00	871.90	871.91		0.62	0.01	0.11	0.00
1	19483.55	157.00	874.19	874.19		0.29	0.00	0.02	0.00
1	19656.69	6664.00	901.30	901.31		0.42	0.00		
1	19656.69	8721.00	903.76	903.77		0.46	0.00		
1	19656.69	10248.00	905.43	905.43		0.48	0.00		
1	19656.69	11802.00	906.94	906.94		0.50	0.00		
1	19656.69	12581.00	907.67	907.67		0.51	0.00		
1	21713.86	4853.00	901.33	901.34		0.70	0.01	0.03	0.00
1	21713.86	6359.00	903.78	903.79		0.65	0.01	0.02	0.00
1	21713.86	7482.00	905.45	905.46		0.63	0.01	0.02	0.00
1	21713.86	8621.00	906.96	906.97		0.61	0.01	0.02	0.00
1	21713.86	9239.00	907.70	907.71		0.61	0.01	0.02	0.00
1	22868.45	4300.00	901.38	901.51		2.66	0.13	0.14	0.04
1	22868.45	5641.00	903.82	903.89		1.77	0.07	0.09	0.02
1	22868.45	6643.00	905.48	905.53		1.46	0.05	0.07	0.01
1	22868.45	7659.00	906.99	907.02		1.30	0.04	0.05	0.01
1	22868.45	8183.00	907.73	907.76		1.24	0.03	0.05	0.01
1	24577.16	3595.00	905.11	905.38	904.47	3.70	0.27	3.84	0.04
1	24577.16	4725.00	905.28	905.67	904.75	4.44	0.39	1.68	0.10
1	24577.16	5571.00	906.25	906.49		3.45	0.24	0.91	0.06
1	24577.16	6430.00	907.47	907.61		2.66	0.13	0.55	0.03
1	24577.16	6837.00	908.12	908.23		2.38	0.11	0.44	0.02
1	25732.47	3185.00	913.70	914.11	913.12	4.40	0.41	8.69	0.04
1	25732.47	4192.00	914.10	914.40	913.49	3.42	0.30	8.72	0.01
1	25732.47	4947.00	913.86	914.70	913.71	6.31	0.84	8.02	0.18
1	25732.47	5712.00	914.00	914.63	914.00	4.97	0.63	3.95	0.15
1	25732.47	6055.00	914.01	914.71	914.01	5.24	0.70	3.02	0.18
1	27289.05	2706.00	923.28	923.56		3.86	0.28	9.44	0.01
1	27289.05	3567.00	923.52	923.93		4.36	0.41	9.49	0.03
1	27289.05	4214.00	924.34	924.59	922.66	3.19	0.25	9.83	0.06
1	27289.05	4870.00	924.47	924.76	923.00	3.46	0.29	10.09	0.03
1	27289.05	5140.00	924.62	924.90	923.08	3.41	0.28	10.14	0.04
1	27307.11	2701.00	923.38	923.64	921.67	3.61	0.26	0.07	0.01
1	27307.11	3560.00	923.72	924.05	922.29	3.82	0.33	0.09	0.02
1	27307.11	4206.00	924.42	924.65	922.81	3.06	0.23	0.05	0.01
1	27307.11	4861.00	924.57	924.83	923.01	3.31	0.26	0.06	0.01
1	27307.11	5131.00	924.71	924.97	923.09	3.27	0.26	0.06	0.01
1	27361.82	Culvert							
1	27416.51	2670.00	925.84	926.11	921.77	4.17	0.27		
1	27416.51	3520.00	927.62	927.66	922.38	1.23	0.04		
1	27416.51	4159.00	928.02	928.07	922.80	1.29	0.05		
1	27416.51	4807.00	928.24	928.29	923.22	1.40	0.05		
1	27416.51	5072.00	928.32	928.38	923.38	1.45	0.06		
1	27434.58	2652.00	926.11	926.18		1.53	0.07	0.02	0.06
1	27434.58	3496.00	927.62	927.66		1.22	0.04	0.01	0.00
1	27434.58	4131.00	928.03	928.07		1.28	0.04	0.01	0.00
1	27434.58	4774.00	928.25	928.30		1.39	0.05	0.01	0.00
1	27434.58	5039.00	928.33	928.39		1.44	0.06	0.01	0.00
1	28274.37	1936.00	926.96	927.08		2.87	0.13	0.89	0.02
1	28274.37	2550.00	928.04	928.11		1.98	0.06	0.44	0.01
1	28274.37	3011.00	928.46	928.51		1.90	0.06	0.44	0.00
1	28274.37	3477.00	928.72	928.78		1.94	0.06	0.48	0.00
1	28274.37	3715.00	928.83	928.89		1.98	0.06	0.50	0.00
1	29209.46	1591.00	931.54	931.68	930.44	3.03	0.14	4.59	0.00
1	29209.46	2095.00	931.25	931.39	930.69	4.68	0.34	3.40	0.08
1	29209.46	2474.00	931.21	931.71	930.87	5.64	0.49	3.06	0.13
1	29209.46	2857.00	931.28	931.39	931.04	6.24	0.61	2.94	0.16
1	29209.46	3053.00	931.37	932.00	931.12	6.38	0.63	2.94	0.17
1	29989.52	1250.00	934.29	934.31		3.81	0.22	3.82	0.03
1	29989.52	1779.00	935.20	935.26		3.96	0.25	3.86	0.01
1	29989.52	2100.00	935.72	936.00	932.83	4.13	0.28	4.27	0.02
1	29989.52	2425.00	936.15	936.46	933.12	4.33	0.31	4.53	0.03
1	29989.52	2591.00	936.32	936.65	933.27	4.45	0.33	4.62	0.03
1	29999.13	1248.00	934.29	934.35	932.15	4.12	0.27	0.03	0.02
1	29999.13	1775.00	935.20	935.31	932.58	4.48	0.31	0.02	0.03

1	29999.13	2096.00	935.71	936.07	932.88	4.81	0.36	0.02	0.04
1	29999.13	2420.00	936.13	936.55	933.17	5.17	0.42	0.03	0.05
1	29999.13	2586.00	936.29	936.74	933.31	5.39	0.45	0.03	0.06
1	30059.63	Culvert							
1	30120.13	1314.00	934.50	934.73	932.11	3.83	0.22		
1	30120.13	1730.00	935.45	935.72	932.52	4.16	0.27		
1	30120.13	2043.00	936.00	936.31	932.82	4.46	0.31		
1	30120.13	2360.00	936.47	936.83	933.10	4.77	0.35		
1	30120.13	2521.00	936.66	937.04	933.24	4.95	0.38		
1	30129.73	1311.00	934.54	934.76	932.09	3.70	0.21	0.02	0.00
1	30129.73	1727.00	935.50	935.75	932.52	3.89	0.24	0.02	0.01
1	30129.73	2039.00	936.07	936.34	932.81	4.01	0.27	0.02	0.01
1	30129.73	2355.00	936.58	936.87	933.09	3.97	0.29	0.02	0.02
1	30129.73	2516.00	936.79	937.09	933.23	4.00	0.30	0.02	0.02
1	30706.30	1162.00	938.67	939.62	938.67	7.84	0.95	3.19	0.22
1	30706.30	1530.00	939.07	940.18	939.07	8.47	1.11	2.85	0.26
1	30706.30	1807.00	939.34	940.56	939.34	8.87	1.22	2.79	0.29
1	30706.30	2086.00	939.60	940.92	939.60	9.23	1.32	2.70	0.31
1	30706.30	2229.00	939.72	941.10	939.72	9.44	1.39	2.70	0.33