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64th Street Preliminary Design Review Calculation Summary

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64th Street Preliminary Design Review
Calculation Summary

HEC-1 Model

Minor revisions were made to the original Kimley-Horn model. Most of the revisions were due to changed conditions or revision of hydrograph order for ease in determining design flows at specific locations. Changes are noted in the body of the model. The following is a more detailed discussion of the revisions.

64th Street, North of Osborn Road

Proposed improvements to 64th Street change the drainage patterns with regard to the area contributing to 64th Street, north of Osborn Road. The original model by Kimley-Horn routed the runoff from this area (subbasin 050062) to the proposed Osborn Outfall inlets at Pinto Lane. Storm drain shown on PB's plans will collect the flow and convey it to Paiute Park. The hydrograph location and routing cards were changed to reflect changed condition.

SRP Substation

The majority of subbasin 050310 is occupied by the SRP substation south and west of Paiute Park. Approximately two thirds of the substation drains east, toward Paiute Park. SRP intends to retain this water on-site. The flows do not and will not impact the 64th Street storm drains. Apartments are currently under construction in the south end of the subbasin. The City of Scottsdale has confirmed that the development will provide on-site retention for the 100-year, 2-hour storm. Therefore, the basin area card for this subbasin was revised to remove this portion of the substation and the apartments. The reminder of the subbasin is comprised of the pavement on 64th Street south of Paiute park, the west side of the substation and a paved area between the substation and the apartments. The pavement on 64th Street will be drained into the 66-inch pipe between Catalina Drive and the park. The pavement was originally included in subbasin 050130. The pavement area was removed from subbasin 050130 and modeled as a separate subbasin (S 64th). The substation and the paved area drain to an existing concrete lined detention basin near the entrance to the substation. A reservoir route was added to the model to see if the detention basin is capable of intercepting the 10-year storm from the reduced drainage area. The detention basin will be drained to the 66-inch pipe. Hydrographs were recombined as noted within the HEC-1 model to determine peak flows as needed to design the 66-inch pipe.

Paiute Park Stage/Storage/Discharge Curve

The stage/storage/discharge curve for the park detention basin was revised to accurately model the expected discharge from the basin. The calculation of the curve was an iterative process. Discharges from the park (calculated by HEC-1 model PBOsb.DAT) were entered into the StormCad model for the Osborn Road alignment of the Osborn Outfall. StormCad was then used to calculate a hydraulic grade line elevation in the first storm drain manhole downstream from the park. The HGL was calculated based on the peak flow in the pipe (as calculated by HEC-1). The calculated HGL elevation was used as a tailwater elevation for the basis of discharge calculations from the park. HY8 was used to calculate a stage/discharge curve for the outlet. The new curve was input into the HEC-1 model and new discharges from the park were calculated with HEC-1. The new discharges were input into the StormCad model and the process was repeated. During the first iterations it was assumed that increased flow from the park would increase the peak flow in the storm drain. Subsequent calculations showed that increased flows from the park did not increase the peak flow in the downstream system. The result is that the Paiute Park Outlet is expected to act as a culvert in inlet control. These calculations produced a lot of paper and they will have to be revised if the Scottsdale maintenance yard is removed and volume added to the detention basin. For this reason, detailed calculations were not included in this review package. The calculations will be well documented in the drainage reports.

Using the peak flows from PBOsb.DAT, revisions were made to the storm drain along the proposed Osborn Road Alignment (Alternative 1). The StormCad model of the revised storm was used to calculate an HGL

elevation in the first manhole downstream from the park. The revised model raised the HGL in the first manhole and causes the outlet to go into outlet control. The water surface elevation in the park does not rise fast enough to overcome the outlet control condition. Therefore the outlet is expected to back up for a period of time. Up to this point, the performance of the system was only considered during the peak flow in the outfall pipe. To determine the effect of the back up in the outlet, the system was considered in time steps. The tabular hydrograph for the park storage route (hydrograph 5Det) was printed as were the tabular hydrographs for the first four inlets downstream from the park. Using the HEC-1, StormCad, HY8 procedure described above, it was determined that the outlet would not be able discharge flows from the basin for approximately 12 minutes. The water surface in the basin is expected to rise about 0.3 as a result of the backup. These calculations are included in the review package as 4th Iteration Stage/Storage/Discharge Curve Calculations. Since the backwater effect from the downstream pipe is transitory, it cannot be modeled in HEC-1. The park outfall has little effect on the peak flow in the storm drain below the park, so it is proposed to use the assumption of a free outfall condition for the stage/storage/discharge curve used by HEC-1.

However, the backwater condition will affect the operation of the Marriott Brighton Gardens to Paiute Park storm drain. The water surface elevation in the park will be the tailwater condition of the storm drain. The tailwater for the storm drain was set at the basin stage calculated by HEC-1 plus 0.3 feet, or 1252.9 feet. The increased water surface elevation was used to calculate the HGL of the storm drain. The basin stage was taken from the Paiute Park routing hydrograph. If the Scottsdale maintenance yard is removed, the water surface elevation will lower due to the increased volume available for detention. Therefore, the storm drain design is conservative in regards to the tailwater.

Hydraulic Design

The principal hydraulic design software is StormCad by Haestad Methods, v1.5. Electronic copies of the 64th Street portion of the Osborn Outfall (64thst.stm) and the Alternative A alignment below Paiute Park (PBAltA.stm) are included with these calculations. The models are generally schematic with minor losses such as straight-through manholes combined and added at a downstream inlet. More significant losses such as those encountered at inlets are calculated individually and included at anticipated inlet locations.

The Alternative A model does not meet design criteria at this time. The east end of the system cannot convey the 10-year design storm. The model is still under development. The west end of the system is believed to be a reliable model. The west end of the system impacts the portion of pipe to be constructed in 64th Street. The 64th Street model is based on Kimley-Horn's 30% plans. The pipe shown on the 64th Street plans is expected to function within design criteria.

Head losses at manholes and inlets were calculated in accordance with the *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, January, 1996*, Section 4.3.3. Loss calculations are done on a separate spreadsheet and input into the StormCad model. These calculations are not final at this time. They will be refined as the design process converges to a recommended alternative and fixed alignment.

Transition structures will be required at crossings of sewer lines. Losses associated with these structures are expected to vary widely. Using pre-cast pieces, it will be possible to provide a transition with very little loss. However, large head losses would be expected if the transition structure were configured as a rectangular box with a pipe entering one side and a box culvert exiting the other side. During final design, the sensitivity of the system to head loss at transitions will be determined and recommendations will be made regarding the configuration of the structures.

HEC-1 Model

PBOsb.DAT

```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *               MAY   1991              *
 *            VERSION 4.0.1E             *
 *     Lahey F77L-EM/32 version 5.01     *
 *       Dodson & Associates, Inc.       *
 *  RUN DATE  03/31/99  TIME  12:51:51   *
 *****************************************
```

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

PBOs6.OUT

```
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


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

              * ****************************************************************************
              * This is ALTERNATIVE A hydrology for Change Order #2
              *
              * - This model is based on the Recommended Plan - Part A for the Osborn Road
              *     Outfall with the following changes:
              *        Osborn Road Outfall has been modified to include a junction structure
              *        at Miller Road.  The junction conveys excess runoff across Osborn Road
              *        into Osborn Park located between old Osborn Road and new Osborn Road.
              *        The outfall structure(s) for the park have been augmented to handle the
```

```
*        excess runoff.  The primary runoff continues east along Osborn Road and
*        outfalls to Indian Bend Wash.
*
ID    ****************************************************************************
ID    STP-PAPAGO REGIONAL FLOOD CONTROL PROJECT
ID    SCOTTSDALE - TEMPE - PHOENIX
ID    ****************************************************************************
ID
ID    Kimley-Horn and Associates, Inc.
ID    KVL Consultants, Inc.
ID
ID    10-Year, 6-Hour Storm Event
ID    10/97
ID
ID    FILE MODIFIED BY PARSONS BRINCKERHOFF TO BE USED IN DESIGN OF OSBORN OUTFALL
ID    MODIFICATIONS:
ID    1) SUBBASIN 050062 REROUTED DIRECTLY TO PAIUTE PARK- IMPROVEMENTS TO 64TH ST
ID       CONVEY FLOW TO DETENTION BASIN. AREA REDUCED TO 3.9 ACRES (0.0061 SM)
ID    2) PAIUTE PARK STAGE/DISCHARGE CURVE ADJUSTED
ID    3) SUBBASINS CONTRIBUTING TO 66" ADOT PIPE AND CONCENTRATION POINT 051510
ID       (BROWN ROAD) ROUTED OUT OF PROPOSED PIPE (SUBBASINS 050710, 050720,
ID       051510 AND 050810)
ID    4) REVISE AREA OF SUBBASIN 050130 FROM 0.041 SM TO 0.0063 SM.AND ROUTE TO
ID       EXISTING DETENTION BASIN. REMAINING AREA IS SRP PROPERTY WHICH DRAINS
ID       WEST.
ID       AREA REDUCTION DUE TO:
ID       REMOVE APARTMENTS AT THOMAS AND 64TH ST DUE TO ON-SITE RETENTION.
ID       REMOVE PORTION OF SRP SUBSTATION WHICH DRAINS EAST.
ID       COLLECT PAVEMENT FLOWS FROM 64TH ST (THOMAS TO PAIUTE PARK) IN LARGE PIPE
ID       COLLECT FLOWS FROM PAVED AREA BETWEEN SUBSTATION AND APARTMENTS IN LARGE
ID       PIPE
ID    Parsons Brinckerhoff
ID    Alan Humphrey
ID    3/15/99
*
*DIAGRAM
IT       2                    300
IO       5

KK  070808   BASIN
BA   0.017
PH       0       0    0.50    0.97    1.61    1.76    1.86    2.05
LS       0      88       0       0      98       0
UK     300  0.0100    0.20      99
UK     100  0.0100    0.10       1
RK    1600   0.214    0.03            TRAP       2     3.5
*
```

```
                    * The 10 year flows are diverted into a proposed storm drain along Oak Street.
                    * In storm events greater than the 10 yr, the remaining flow will follow its
                    * natural course across and sheet flow across Oak Street to the north.
                    *
1                                                HEC-1 INPUT                                                PAGE  2

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

  41          KK   808PP  Divert 10-year flows into storm drain
  42          DT  808OUT
  43          DI       0      12      13      15      50     100
  44          DQ       0    0.01       1       3      38      88

  45          KK  070610 FROM  070808
  46          RK     240  0.0066   0.013            CIRC    3.00

  47          KK  070610   BASIN
  48          BA   0.007
  49          LS       0      88       0       0      98       0
  50          UK     300  0.0100    0.20      99
  51          UK     100  0.0100    0.10       1
  52          RK     500   0.054    0.03            TRAP       2     3.5

  53          KK   610PP  Divert 10-year flows into storm drain
  54          DT  610OUT
  55          DI       0       5       6      10      50     100
  56          DQ       0     .01       1       5      45      95

  57          KK  070610 COMBINE
  58          HC       2

  59          KK  070508    FROM  070610
  60          RK     420  0.0066   0.013            CIRC    3.00

  61          KK  070508   BASIN
  62          BA   0.008
  63          LS       0      85       0       0      98       0
  64          UK     300  0.0100    0.20      99
  65          UK     100  0.0100    0.10       1
  66          RK     600   0.048    0.03            TRAP       9     1.0

  67          KK   508PP  Divert 10-year flows into storm drain
  68          DT  508OUT
  69          DI       0       4       5      15      50     100
  70          DQ       0     .01       1      11      46      96
```

```
 71          KK  070508 COMBINE
 72          HC       2

 73          KK  070010    FROM  070508
 74          RK     270  0.0066   0.013            CIRC    3.00

 75          KK  070010   BASIN
 76          BA   0.009
 77          LS       0      88       0       0      98       0
 78          UK     300  0.0100    0.20      99
 79          UK     100  0.0100    0.10       1
 80          RK    1200   0.042    0.03            TRAP       2     3.5
```



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


 81          KK   010PP  Divert 10-year flows into storm drain
 82          DT  010OUT
 83          DI       0       7      10      15      50     100
 84          DQ       0     .01       3       8      43      93

 85          KK  070010 COMBINE
 86          HC       2

 87          KK  070210    FROM  070010
 88          RK     120  0.0033   0.013            CIRC    3.00

 89          KK  070209   BASIN
 90          BA   0.018
 91          LS       0      87       0       0      98       0
 92          UK     300  0.0100    0.20      99
 93          UK     100  0.0100    0.10       1
 94          RK    1200   0.252    0.03            TRAP       2     3.5

 95          KK  070210    FROM  070209
 96          RK     750   0.252   0.013            TRAP      10       1

 97          KK  070210   BASIN
 98          BA   0.008
 99          LS       0      87       0       0      98       0
100          UK     300  0.0100    0.20      99
101          UK     100  0.0100    0.10       1
102          RK     600   0.043    0.03            TRAP       2     3.5

103          KK  070210 COMBINE
104          HC       2
```

```
105          KK   210PP  Divert 10-year flows into storm drain
106          DT  210OUT
107          DI       0      17      20      30      50     100
108          DQ       0     .01       3      13      33      83

109          KK  070210 COMBINE
110          HC       2

111          KK  050005   FROM 070210
112          RK     950   0.008   0.013            CIRC    3.00

113          KK  050005   BASIN
114          BA   0.038
115          LS       0      85       0       0      98       0
116          UK     300  0.0100    0.20      99
117          UK     100  0.0100    0.10       1
118          RK    1650    0.09    0.03            TRAP      30     1.0
```



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


119          KK   005PP  Divert 10-year flows into storm drain
120          DT  005OUT
121          DI       0      21      22     100     150     200
122          DQ       0     .01       1      79     129     179
             *
             * The start of the Osborn Road outfall hydrology
             *

123          KK  070010
124          KM    Retrieve overland flows at CP 070010
125          DR  010OUT

126          KK  070020    FROM  070010
127          RK     178  0.0131   0.013            CIRC     1.0

128          KK  070030    FROM  070020
129          RK     520  0.0146   0.025            TRAP     9.0       1

130          KK  070030   BASIN
131          BA   0.004
132          LS       0      85       0       0      98       0
133          UK     150  0.0100    0.30      65
134          UK      50  0.0100    0.10      35
135          RK     522  0.0146    0.03            TRAP       2     3.5
```

```
 136          KK  070030 COMBINE
 137          HC       2

 138          KK  070040    FROM  070030
 139          RK     177  0.0146   0.017            TRAP    54.8       1

 140          KK  070210
 141          KM    Retrieve overland flows at CP 070210
 142          DR  210OUT

 143          KK  070220    FROM  070210
 144          RK     164  0.0131   0.013            CIRC     1.0

 145          KK  070040    FROM  070220
 146          RK     723  0.0146   0.017            TRAP    54.8       1

 147          KK  070040   BASIN
 148          BA   0.006
 149          LS       0      86       0       0      98       0
 150          UK     181  0.0100    0.28      72
 151          UK      60  0.0100    0.10      28
 152          RK    1946  0.0146    0.02            TRAP      30     1.0

 153          KK  070040 COMBINE
 154          HC       3
```



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


 155          KK  070050    FROM  070040
 156          RK     878  0.0146   0.025            TRAP    20.0     1.0

 157          KK  070050   BASIN
 158          BA   0.018
 159          LS       0      86       0       0      98       0
 160          UK     150  0.0100    0.30      65
 161          UK      50  0.0100    0.10      35
 162          RK     290  0.0058    0.02            TRAP      11     1.0
 163          RK     981  0.0146    0.02            TRAP      11     1.0

 164          KK  070050 COMBINE
 165          HC       2

 166          KK  070060    FROM  070050
 167          RK     872  0.0058   0.025            TRAP     1.0     1.0
```

```
168          KK  070310   BASIN
169          BA   0.023
170          LS       0      86       0       0      98       0
171          UK     150  0.0100    0.30      65
172          UK      50  0.0100    0.10      35
173          RK     278  0.0058    0.02            TRAP      11     1.0
174          RK     986  0.0146    0.02            TRAP      11     1.0

175          KK  070060    FROM  070310
176          RK     745  0.0058   0.025            TRAP     1.0     1.0

177          KK  070060   BASIN
178          BA   0.020
179          LS       0      86       0       0      98       0
180          UK     150  0.0100    0.30      65
181          UK      50  0.0100    0.10      35
182          RK    1096  0.0058    0.03            TRAP       2     1.0

183          KK  070060 COMBINE
184          HC       3

185          KK  070070    FROM  070060
186          RK     726  0.0146   0.025            TRAP    30.0     1.0

187          KK  070070   BASIN
188          BA   0.032
189          LS       0      86       0       0      98       0
190          UK     150  0.0100    0.30      65
191          UK      50  0.0100    0.10      35
192          RK    1209  0.0146    0.03            TRAP       2     1.0

193          KK  070080   BASIN
194          BA   0.021
195          LS       0      83       0       0      98       0
196          UK      29  0.0100    0.39       9
197          UK     189  0.0100    0.10      91
198          RK    1257  0.0058    0.02            TRAP      30     1.0
```



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


199          KK  070080 COMBINE
200          HC       3

201          KK   07Det   Detention basin at Marriott's Brighton Gardens
```

```
RS       1    STOR
SV       0    0.78    1.64    2.65    3.84    5.21    6.77    6.77
SE      66      67      68      69      70      71      72      73
SQ       0      12      36      42      46      48      52     355
*
* Marriott's Brighton Gardens outfall - 07Qpip is the outflow in the storm drain
* 07Qspl is the flow overtopping the basin
*

KK  07Qpip
DT  07Qspl
DI       0      71     112     172     245     329     420     518     623
DQ       0     0.1      26      72     132     204     285     374     471

KK  070420   FROM 07Qpip
RK    1000   0.005   0.013           CIRC     3.0

KK  070410   BASIN
BA   0.011
LS       0      84       0       0      98       0
UK     144  0.0100    0.32      44
UK     121  0.0100    0.10      56
RK    1816  0.0146    0.02           TRAP      23     1.0

KK  070420    FROM  070410
RK     183  0.0058   0.017           TRAP    52.5       1

KK  070420   BASIN
BA   0.003
LS       0      79       0       0      98       0
UK     177  0.0100    0.31      25
UK     200  0.0100    0.10      75
RK    1046  0.0058    0.02           TRAP      49     1.0

KK  070420 COMBINE
HC       3

KK  210005  FROM 070420
RK     450   0.005   0.013           CIRC     3.5

KK  210005   BASIN
BA   0.008
LS       0      79       0       0      98       0
UK      94  0.0100    0.34      26
UK     116  0.0100    0.10      74
RK     523  0.0032    0.02           TRAP      38     1.0
RK    1250  0.0020    0.02           TRAP      45     1.0
```

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

 237          KK  210005 COMBINE
 238          HC       2

 239          KK  050030   FROM 210005
 240          RK    1600   0.005   0.013            CIRC       4

 241          KK  050005
 242          KM    Retrieve overland flows at CP 050005
 243          DR  005OUT

 244          KK  050010   FROM 050005
 245          RK    1300   0.015    0.02            TRAP      35       1

 246          KK  050010   BASIN
 247          BA   0.066
 248          LS       0      81       0       0      98       0
 249          UK     144  0.0100    0.30      52
 250          UK      57  0.0100    0.10      48
 251          RK    1189  0.0033    0.02            TRAP      30     1.0
 252          RK    1197  0.0038    0.02            TRAP      60     1.0

 253          KK  050010   COMBINE
 254          HC       2

 255          KK  050020    FROM  050010
 256          RK    1370  0.0038   0.017            TRAP    37.5       1

 257          KK  050210   BASIN
 258          BA   0.054
 259          LS       0      79       0       0      98       0
 260          UK     200  0.0100    0.30      28
 261          UK     200  0.0100    0.10      72
 262          RK     564  0.0038    0.02            TRAP      23     1.0
 263          RK    1199  0.0033    0.02            TRAP      23     1.0

 264          KK   210ST STORAGE
 265          RS       1    STOR
 266          SV    0.00    7.72    7.72
 267          SE    0.00    1.00    2.00
 268          SQ    0.00    0.01    0.01
 269          ST     1.0     500     3.0     1.5
```

```
 270          KK  050020    FROM  050210
 271          RK     278  0.0033   0.017            TRAP    60.0       1

 272          KK  050020   BASIN
 273          BA   0.009
 274          LS       0      79       0       0      98       0
 275          UK     166  0.0100    0.30      39
 276          UK      98  0.0100    0.10      61
 277          RK    1304  0.0038    0.02            TRAP      60     1.0
1                                          HEC-1 INPUT                                                    PAGE  8

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


 278          KK  050020 COMBINE
 279          HC       3

 280          KK  050030    FROM  050020
 281          RK     347  0.0038   0.017            TRAP    37.5       1

 282          KK  050030   BASIN
 283          BA   0.020
 284          LS       0      79       0       0      98       0
 285          UK     150  0.0100    0.30      15
 286          UK      50  0.0100    0.10      85
 287          RK     278  0.0038    0.02            TRAP       9     1.0
 288          RK    1468  0.0033    0.02            TRAP       9     1.0
              *
              * Scottsdale Executive Villas natural storage in parking lot
              *

 289          KK   030ST STORAGE
 290          RS       1    STOR
 291          SV       0    0.01    0.06    0.62    2.72    2.72
 292          SE      65      66      67      68      69      70
 293          SQ    0.00    0.01    0.01    0.01    0.01    0.01
 294          ST      68     150     3.0     1.5

 295          KK  050030 COMBINE
 296          HC       3

 297          KK  050305   FROM 050030
 298          RK     150   0.002   0.013            CIRC     5.5

 299          KK  050050   FROM 050305
 300          RK    1500   0.001   0.013            TRAP       9     1.0
```

```
301          KK  050040   BASIN
302          BA   0.102
303          LS       0      79       0       0      98       0
304          UK     150  0.0100    0.30      57
305          UK      50  0.0100    0.10      43
306          RK    2230  0.0038    0.02            TRAP      38     1.0
307          RK    2654  0.0038    0.02            TRAP      38     1.0

308          KK  40STOR  Storage on west side of cross-cut canal
309          RS       1
310          SV       0       0       0       0     2.6    13.5    13.5
311          SE      58      59      60      61      62      63      64
312          SQ       0      10      22      32      40      50      55

313          KK  050050    FROM  050040
314          RK     491  0.0334   0.013            CIRC     2.5
             * ******************************************************************
             * PB Modification:
             * Reduce Area of Subbasin 050310 to 4.0 Acres (0.0063 SM)
             * Remaining area is west side of SRP substation
             * Remove one routing card for internal flows- this reduces route
             * length.
             * Add storage route through existing detention basin
             * Flows from other areas of original subbasin retained on-site or
             * collected by large pipe in 64th St.
             * ******************************************************************
1                                    HEC-1 INPUT                                                    PAGE  9

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


315          KK  050310   BASIN
             * BA 0.041
316          BA   0.0063
317          LS       0      79       0       0      98       0
318          UK     200  0.0100    0.30      28
319          UK     200  0.0100    0.10      72
320          RK     816  0.0033    0.02            TRAP      30     1.0
             * RK   848  0.0038    0.02            TRAP      30     1.0

321          KK  SRPDet
322          KO       2
323          RS       1    STOR
324          SA   0.152   0.207   0.207
325          SE    53.4      56      57
326          SQ       0       2       4       5       8      10      20      40
327          SE    53.4    54.0    54.3    54.5    54.9    55.1   53.48      57
```

```
* ******************************************************************
* PB Modification:
* Add subbasin to represent flows from pavement of 64th St south
* of Paiute Park and paved area between SRP substation and new
* apartments. Area to be collected by large pipe in 64th St.

KK  S 64th   BASIN
BA   0.011
LS       0      79       0       0      83       0
UK     100   0.004     0.1      53
UK     100   0.008     0.1      47
RK    1430   0.004   0.015            TRAP      35       1

KK  050065   BASIN
BA   0.014
LS       0      79       0       0      98       0
UK     100    0.01     0.1      15
UK     100    0.01     0.1      85
RK     500   0.005   0.012            TRAP      60       1
*
* ******************************************************************
* PB Modification
* Relocate hydrograph and subsequent route for Basin 050060
* Combine separately to get peak flow in main pipe
* KK050060   BASIN
* BA 0.029
* LS     0      79       0       0      98       0
* UK   105    0.01     0.3      20
* UK   160    0.01     0.1      80
* RK  1300  0.0038    0.03            TRAP     100     1.0
*
* ******************************************************************
* PB Modification
* Relocate hydrograph and subsequent route for Basin 050062
* Modify pipe length to reflect storm drain route on 64th St
* Insert hydrographs at this location
* Revise basin area to 3.8 acres (0.0061 square miles)
* ******************************************************************
```



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

KK  050062   BASIN
BA   0.0061
* Original KH model had 2 BA cards. The 0.006 card was first, leaving
* the 0.014 card to be used in the model.
```

```
* BA 0.006
* BA 0.014
LS       0       79        0        0       98        0
UK     100     0.01      0.3       15
UK      50     0.01      0.1       85
RK     900    0.005    0.012             TRAP       60        1

KK  050050    FROM 050062
KO       2
RK    1000    0.002    0.013             CIRC      2.5        1
*
* Flows combined from 050040, 050305, revised 050310 and 050065
* into main pipe above Paiute Park. PB- Add 050062 and S 64th
*

KK  050050 COMBINE
KM   Peak flow in main pipe above Paiute Park
KO       2
HC       6
* Revise Hydrograph combine count from 5 to 6
* Move Subbasin 050060 (Paiute Park) to combine here.

KK  050060   BASIN
BA   0.029
LS       0       79        0        0       98        0
UK     105     0.01      0.3       20
UK     160     0.01      0.1       80
RK    1300   0.0038     0.03             TRAP      100      1.0

KK  050050 COMBINE
KM   Paiute Park inflow
HC       2
* ****************************************************************
* PB Modification:
* Revise Kimley-Horn stage/storage/discharge curve
* Revisions based on iterative calculations which included effect of
* Paiute Park discharges on downstream pipe system.
* ****************************************************************

KK   05Det
KO       2
* Original KH Curve
* RS      1    STOR
* SV      0    0.64    2.37    5.14    8.40    11.7    15.1    18.5    22.1
*    22.1S
* SE     49      50      51      52      53      54      55      56      57
*        58
```

```
                  * SQ   4.5      22      37      47      56      65      73      81      88
                  *      156
                  * Revised PB Curve

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

 364              RS       1    STOR
 365              SA    1.20    1.84    3.17    3.21    3.31    3.35    3.42    3.49
 366              SE      50      51      52      53      54      55      56      57
 367              SQ       0      20      40      60      80     100     120     140
 368              SE      50    50.8   51.18   51.78   52.39   52.94   53.48   54.04
                  *
                  * Paiute Park outfall - 05Qpip is the outflow in the storm drain
                  * 05Qspl is the flow overtopping the basin
                  *
                  *
                  * Overflows to CP 050060
                  *

 369              KK  05Qpip
 370              KO       2
 371              DT  05Qspl
 372              DI       0     160     382     780    1292    1897
 373              DQ       0    0.01     212     600    1102    1697
                  *
                  * Begin storm drain system in Osborn Road
                  *
                  * ******************************************************************
                  * PB Modification
                  * Relocate hydrograph and subsequent route for Basin 050062
                  * Remove hydrographs from this location
                  * ******************************************************************
                  * KK050062   BASIN
                  * BA 0.006
                  * BA 0.014
                  * LS      0      79       0       0      98       0
                  * UK    100    0.01     0.3      15
                  * UK     50    0.01     0.1      85
                  * RK    900   0.005   0.012            TRAP      60       1
                  * KK050610   FROM 050062
                  * RK   1500   0.003   0.013            TRAP      60       1

 374              KK  050610   BASIN
 375              BA   0.081
 376              LS       0      79       0       0      98       0
 377              UK     130  0.0100    0.32      56
```

```
378          UK      70  0.0100    0.10      44
379          RK    1450  0.0038    0.02            TRAP      45     1.0
380          RK    1240  0.0033    0.02            TRAP      60     1.0
             * ****************************************************************
             * PB Modification
             * Revise combine operation from 3 to 2 hydrographs due to hydrograph
             * relocation.
             * ****************************************************************

381          KK  050610    COMBINE
382          KM   OSBORN & PINTO
383          KO       2
384          HC       2
```



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

385          KK  050620    FROM  050610
386          RK    1050  0.0037   0.013            CIRC       6

387          KK  050620   BASIN
388          BA   0.099
389          LS       0      79       0       0      98       0
390          UK     147  0.0100    0.30      56
391          UK      53  0.0100    0.10      44
392          RK     940  0.0033    0.02            TRAP      41     1.0
393          RK    2545  0.0038    0.02            TRAP      60     1.0

394          KK  050620 COMBINE
395          KM   OSBORN & 68TH ST
396          KO       2
397          HC       2

398          KK  050630    FROM  050620
399          RK    1440  0.0028   0.013            CIRC       7

400          KK  050630   BASIN
401          BA   0.062
402          LS       0      79       0       0      98       0
403          UK     138  0.0100    0.31      33
404          UK      64  0.0100    0.10      67
405          RK    1205  0.0038    0.02            TRAP      41     1.0
406          RK    1348  0.0033    0.02            TRAP      60     1.0

407          KK  050630 COMBINE
408          KM   OSBORN & 70TH ST
```

```
409          KO       2
410          HC       2

411          KK  050640    FROM  050630
412          RK    1150  0.0024   0.013            CIRC       8
             * ****************************************************************
             * PB Modification:
             * ADOT 66" pipe- Flows to exit model via Scottsdale Road storm drain
             * Remove hydrograph and subsequent routes for Basins 050710 and 050720
             * Flows do not reenter model. Adjust by removing basins and revising HC card.
             * Remove hydrographs from this location
             * ****************************************************************
             * KK050710   BASIN
             * BA 0.005
             * LS     0      79       0       0      98       0
             * UK    21  0.0100    0.40      15
             * UK   200  0.0100    0.10      85
             * RK   610  0.0038    0.02            TRAP      55     1.0
             * KK050720    FROM  050710
             * RK   316  0.0045   0.013            CIRC     5.5
             * KK050720   BASIN
             * BA 0.028
             * LS     0      79       0       0      98       0
             * UK    57  0.0100    0.38      17
             * UK   188  0.0100    0.10      83
             * RK   580  0.0038    0.02            TRAP      45     1.0
             * RK  1594  0.0033    0.02            TRAP      55     1.0
             * KK050720   COMBINE
             * HC     2
             * KK050640    FROM  050720
             * RK   422  0.0045   0.013            CIRC     5.5
```



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

413          KK  050640   BASIN
414          BA   0.032
415          LS       0      79       0       0      98       0
416          UK      64  0.0100    0.37      15
417          UK     149  0.0100    0.10      85
418          RK    1605  0.0038    0.02            TRAP      41     1.0
419          RK    1168  0.0033    0.02            TRAP      60     1.0
             * ****************************************************************
             * PB Modification
             * Revise combine operation from 3 to 2 hydrographs due to hydrograph
             * deletion.
```

```
                * ****************************************************************
420             KK  050640 COMBINE
421             KM   OSBORN & SCOTTSDALE
422             KO       2
423             HC       2

424             KK  051510   FROM 050640
425             RK     700  0.0044   0.013            CIRC     9.5
                * ****************************************************************
                * PB Modification:
                * Brown Road - flows to exit model via Scottsdale Road Storm Drain
                * Remove hydrograph and subsequent routes for Basins 050810 and 050510
                * Flows do not reenter model. Adjust by removing basin, route and HC cards.
                * Remove hydrographs from this location
                * ****************************************************************
                * KK050810   BASIN
                * BA 0.013
                * LS     0      79       0       0      98       0
                * UK    88  0.0100    0.36      20
                * UK   200  0.0100    0.10      80
                * RK   164  0.0033    0.02            TRAP      28     1.0
                * RK  1031  0.0038    0.02            TRAP      55     1.0
                * KK051510    FROM  050810
                * RK   705  0.0025   0.013            CIRC     4.0
                * KK051510   BASIN
                * BA 0.010
                * LS     0      79       0       0      98       0
                * UK    59  0.0100    0.38      18
                * UK   200  0.0100    0.10      82
                * RK   139  0.0038    0.02            TRAP      41     1.0
                * RK   521  0.0033    0.02            TRAP      71     1.0
                * KK051510    COMBINE
                * HC     3

426             KK  051520    FROM  051510
427             RK     680  0.0028   0.013            CIRC     9.5
```



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


428             KK  051610   BASIN
429             BA   0.021
430             LS       0      79       0       0      98       0
431             UK     165  0.0100    0.32      25
432             UK     200  0.0100    0.10      75
```

```
433          RK     624  0.0038    0.02            TRAP      41     1.0
434          RK     792  0.0033    0.02            TRAP      60     1.0

435          KK  051520    FROM  051610
436          RK     601  0.0047   0.013            CIRC     5.0

437          KK  051710   BASIN
438          BA   0.004
439          LS       0      79       0       0      98       0
440          UK     146  0.0100    0.33      24
441          UK     200  0.0100    0.10      76
442          RK     515  0.0038    0.02            TRAP      30     1.0
443          RK     287  0.0033    0.02            TRAP      30     1.0

444          KK  051520    FROM  051710
445          RK     567  0.0032   0.013            CIRC     4.0

446          KK  051520   BASIN
447          BA   0.023
448          LS       0      79       0       0      98       0
449          UK     179  0.0100    0.31      26
450          UK     198  0.0100    0.10      74
451          RK     473  0.0038    0.02            TRAP      60     1.0
452          RK     704  0.0033    0.02            TRAP      71     1.0

453          KK  051520 COMBINE
454          HC       4

455          KK  051530    FROM  051520
456          RK     926   0.001   0.013            CIRC     9.5

457          KK  051530   BASIN
458          BA   0.041
459          LS       0      79       0       0      98       0
460          UK      26  0.0100    0.40      15
461          UK     193  0.0100    0.10      85
462          RK     889  0.0038    0.02            TRAP      38     1.0
463          RK     860  0.0033    0.02            TRAP      60     1.0

464          KK  051530 COMBINE
465          HC       2

466          KK  051540    FROM  051530
467          RK     360   0.001   0.013            CIRC     9.5
```



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

```
KK  051810   BASIN
BA   0.005
LS       0      79       0       0      98       0
UK      23  0.0100    0.40      16
UK     196  0.0100    0.10      84
RK     272  0.0033    0.02            TRAP      19     1.0
RK     272  0.0038    0.02            TRAP      30     1.0

KK  051540    FROM  051810
RK     218  0.0045   0.013            CIRC     4.5

KK  051540   BASIN
BA   0.004
LS       0      79       0       0      98       0
UK      44  0.0100    0.38      16
UK     172  0.0100    0.10      84
RK     233  0.0038    0.02            TRAP      12     1.0
RK     265  0.0033    0.02            TRAP      60     1.0

KK  051540 COMBINE
HC       3

KK  051550    FROM  051540
RK     273   0.001   0.013            TRAP     8.0     1.0

KK    05EX
DT   05PRK
DI       0   246.1    1000
DQ       0     246     246

KK  051560    FROM  051550
RK     800  0.0038   0.013            CIRC     7.0
*
* Osborn Rd outfall to Indian Bend Wash
*

KK  051570    FROM  051560
RK     228   0.003   0.013            CIRC     7.0
*
* Osborn Park Storage and Outflow to IBW
*

KK  051550
DR   05PRK
```

```
498          KK  051560   BASIN
499          BA   0.008
500          LS       0      79       0       0      98       0
501          UK     116  0.0100    0.33      47
502          UK      89  0.0100    0.10      53
503          RK    1126  0.0033    0.02            TRAP      60     1.0
```



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


504          KK     PRK
505          HC       2

506          KK  05PKST   STORAGE
507          RS       1    STOR
508          SV       0    0.08    0.31    0.69    1.20    1.92    3.01    3.01
509          SE    1224    1225    1226    1227    1228    1229    1230    1231
510          SQ       0    0.01      62     111     167     218     262     600
             *
             * New CP 051565 located at the outfall from Osborn Park to IBW
             *

511          KK  051565    FROM   05PRK
512          RK     130   0.003   0.013            TRAP       7
             *
             * Notice:
             * This document, together with the concepts and designs presented herein, as an
             * instrument of service, is intended for the specific purpose and client for
             * which it was prepared.  Reuse of and improper reliance on this document
             * without written authorization and adaptation by Kimley-Horn and Associates,
             * Inc. shall be without liability to Kimley-Horn and Associates, Inc.
             *
513          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    34      070808
                 .
                 .
    42           .-------> 808OUT
    41       808PP
                 V
```

```
            V
45      070610
            .
            .
47          .       070610
            .            .
            .            .
54          .            .-------->  610OUT
53          .        610PP
            .            .
            .            .
57      070610............
            V
            V
59      070508
            .
            .
61          .       070508
            .            .
            .            .
68          .            .-------->  508OUT
67          .        508PP
            .            .
            .            .
71      070508............
            V
            V
73      070010
            .
            .
75          .       070010
            .            .
            .            .
82          .            .-------->  010OUT
81          .        010PP
            .            .
            .            .
85      070010............
            V
            V
87      070210
            .
            .
89          .       070209
            .            V
            .            V
95          .       070210
```

```
                .           .
                .           .
 97             .           .      070210
                .           .           .
                .           .           .
103             .      070210............
                .           .
                .           .
106             .           .-------> 210OUT
105             .       210PP
                .           .
                .           .
109        070210............
                V
                V
111        050005
                .
                .
113             .      050005
                .           .
                .           .
120             .           .-------> 005OUT
119             .       005PP
                .           .
                .           .
125             .           .           .<-------  010OUT
123             .           .      070010
                .           .           V
                .           .           V
126             .           .      070020
                .           .           V
                .           .           V
128             .           .      070030
                .           .           .
                .           .           .
130             .           .           .      070030
                .           .           .           .
                .           .           .           .
136             .           .      070030............
                .           .           V
                .           .           V
138             .           .      070040
                .           .           .
                .           .           .
142             .           .           .           .<-------  210OUT
140             .           .           .      070210
                .           .           .           V
```

```
                 .         .         .         V
143              .         .         .    070220
                 .         .         .         V
                 .         .         .         V
145              .         .         .    070040
                 .         .         .         .
                 .         .         .         .
147              .         .         .         .    070040
                 .         .         .         .         .
                 .         .         .         .         .
153              .         .    070040.........................
                 .         .         V
                 .         .         V
155              .         .    070050
                 .         .         .
                 .         .         .
157              .         .         .    070050
                 .         .         .         .
                 .         .         .         .
164              .         .    070050............
                 .         .         V
                 .         .         V
166              .         .    070060
                 .         .         .
                 .         .         .
168              .         .         .    070310
                 .         .         .         V
                 .         .         .         V
175              .         .         .    070060
                 .         .         .         .
                 .         .         .         .
177              .         .         .         .    070060
                 .         .         .         .         .
                 .         .         .         .         .
183              .         .    070060.........................
                 .         .         V
                 .         .         V
185              .         .    070070
                 .         .         .
                 .         .         .
187              .         .         .    070070
                 .         .         .         .
                 .         .         .         .
193              .         .         .         .    070080
                 .         .         .         .         .
                 .         .         .         .         .
199              .         .    070080.........................
```

```
                .           .           V
                .           .           V
201             .           .       07Det
                .           .           .
                .           .           .
207             .           .           .-------> 07Qspl
206             .           .      07Qpip
                .           .           V
                .           .           V
210             .           .      070420
                .           .           .
                .           .           .
212             .           .           .      070410
                .           .           .           V
                .           .           .           V
218             .           .           .      070420
                .           .           .           .
                .           .           .           .
220             .           .           .           .      070420
                .           .           .           .           .
                .           .           .           .           .
226             .           .      070420.......................
                .           .           V
                .           .           V
228             .           .      210005
                .           .           .
                .           .           .
230             .           .           .      210005
                .           .           .           .
                .           .           .           .
237             .           .      210005............
                .           .           V
                .           .           V
239             .           .      050030
                .           .           .
                .           .           .
243             .           .           .           .<-------  005OUT
241             .           .           .      050005
                .           .           .           V
                .           .           .           V
244             .           .           .      050010
                .           .           .           .
                .           .           .           .
246             .           .           .           .      050010
                .           .           .           .           .
                .           .           .           .           .
253             .           .           .      050010............
```

```
                 .         .         .         V
                 .         .         .         V
255              .         .         .    050020
                 .         .         .         .
                 .         .         .         .
257              .         .         .         .    050210
                 .         .         .         .         V
                 .         .         .         .         V
264              .         .         .         .     210ST
                 .         .         .         .         V
                 .         .         .         .         V
270              .         .         .         .    050020
                 .         .         .         .         .
                 .         .         .         .         .
272              .         .         .         .         .    050020
                 .         .         .         .         .         .
                 .         .         .         .         .         .
278              .         .         .    050020.......................
                 .         .         .         V
                 .         .         .         V
280              .         .         .    050030
                 .         .         .         .
                 .         .         .         .
282              .         .         .         .    050030
                 .         .         .         .         V
                 .         .         .         .         V
289              .         .         .         .     030ST
                 .         .         .         .         .
                 .         .         .         .         .
295              .         .    050030.......................
                 .         .         V
                 .         .         V
297              .         .    050305
                 .         .         V
                 .         .         V
299              .         .    050050
                 .         .         .
                 .         .         .
301              .         .         .    050040
                 .         .         .         V
                 .         .         .         V
308              .         .         .    40STOR
                 .         .         .         V
                 .         .         .         V
313              .         .         .    050050
                 .         .         .         .
                 .         .         .         .
```

```
315                                  050310
                                          V
                                          V
321                                  SRPDet
                                          .
                                          .
328                                          S 64th
                                             .
                                             .
334                                             .      050065
                                                .          .
                                                .          .
340                                             .          .      050062
                                                .          .          V
                                                .          .          V
346                                             .          .      050050
                                                .          .          .
                                                .          .          .
349                                  050050.....................................................
                                          .
                                          .
353                                       .      050060
                                          .           .
                                          .           .
359                                  050050............
                                          V
                                          V
362                                   05Det
                                          .
                                          .
371                                       .-------> 05Qspl
369                                  05Qpip
                                          .
                                          .
374                                       .      050610
                                          .           .
                                          .           .
381                                  050610............
                                          V
                                          V
385                                  050620
                                          .
                                          .
387                                       .      050620
                                          .           .
                                          .           .
394                                  050620............
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                 .         .         V
                 .         .         V
398              .         .    050630
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400              .         .         .      050630
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407              .         .    050630............
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                 .         .         V
411              .         .    050640
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413              .         .         .      050640
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420              .         .    050640............
                 .         .         V
                 .         .         V
424              .         .    051510
                 .         .         V
                 .         .         V
426              .         .    051520
                 .         .         .
                 .         .         .
428              .         .         .      051610
                 .         .         .           V
                 .         .         .           V
435              .         .         .      051520
                 .         .         .           .
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437              .         .         .           .      051710
                 .         .         .           .           V
                 .         .         .           .           V
444              .         .         .           .      051520
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446              .         .         .           .           .      051520
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453              .         .    051520.......................................
                 .         .         V
                 .         .         V
455              .         .    051530
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457          .          .          .      051530
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464          .          .     051530............
             .          .          V
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466          .          .     051540
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468          .          .          .      051810
             .          .          .           V
             .          .          .           V
475          .          .          .      051540
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477          .          .          .           .      051540
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484          .          .     051540........................
             .          .          V
             .          .          V
486          .          .     051550
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489          .          .          .------->   05PRK
488          .          .       05EX
             .          .          V
             .          .          V
492          .          .     051560
             .          .          V
             .          .          V
494          .          .     051570
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497          .          .          .           .<-------   05PRK
496          .          .          .      051550
             .          .          .           .
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498          .          .          .           .      051560
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504          .          .          .         PRK............
             .          .          .           V
             .          .          .           V
506          .          .          .      05PKST
             .          .          .           V
             .          .          .           V
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  511          .          .          .      051565

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *               MAY   1991             *
 *            VERSION 4.0.1E            *
 *     Lahey F77L-EM/32 version 5.01    *
 *       Dodson & Associates, Inc.      *
 *  RUN DATE  03/31/99  TIME  12:51:51  *
 ****************************************

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

                    ***************************************************************************
                    STP-PAPAGO REGIONAL FLOOD CONTROL PROJECT
                    SCOTTSDALE - TEMPE - PHOENIX
                    ***************************************************************************

                    Kimley-Horn and Associates, Inc.
                    KVL Consultants, Inc.

                    10-Year, 6-Hour Storm Event
                    10/97

                    FILE MODIFIED BY PARSONS BRINCKERHOFF TO BE USED IN DESIGN OF OSBORN OUTFALL
                    MODIFICATIONS:
                    1) SUBBASIN 050062 REROUTED DIRECTLY TO PAIUTE PARK- IMPROVEMENTS TO 64TH ST
                       CONVEY FLOW TO DETENTION BASIN. AREA REDUCED TO 3.9 ACRES (0.0061 SM)
                    2) PAIUTE PARK STAGE/DISCHARGE CURVE ADJUSTED
                    3) SUBBASINS CONTRIBUTING TO 66" ADOT PIPE AND CONCENTRATION POINT 051510
                       (BROWN ROAD) ROUTED OUT OF PROPOSED PIPE (SUBBASINS 050710, 050720,
                       051510 AND 050810)
                    4) REVISE AREA OF SUBBASIN 050130 FROM 0.041 SM TO 0.0063 SM.AND ROUTE TO
                       EXISTING DETENTION BASIN. REMAINING AREA IS SRP PROPERTY WHICH DRAINS
                       WEST.
                       AREA REDUCTION DUE TO:
                       REMOVE APARTMENTS AT THOMAS AND 64TH ST DUE TO ON-SITE RETENTION.
                       REMOVE PORTION OF SRP SUBSTATION WHICH DRAINS EAST.
                       COLLECT PAVEMENT FLOWS FROM 64TH ST (THOMAS TO PAIUTE PARK) IN LARGE PIPE
                       COLLECT FLOWS FROM PAVED AREA BETWEEN SUBSTATION AND APARTMENTS IN LARGE
                       PIPE
                    Parsons Brinckerhoff
                    Alan Humphrey
```

3/15/99

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

    IT          HYDROGRAPH TIME DATA
                       NMIN           2  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      1    0  ENDING DATE
                     NDTIME        0958  ENDING TIME
                     ICENT           19  CENTURY MARK

                  COMPUTATION INTERVAL    0.03 HOURS
                       TOTAL TIME BASE    9.97 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


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


           **************
           *            *
 321 KK    *    SRPDet  *
           *            *
           **************

 322 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           2  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

 323 RS          STORAGE ROUTING
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                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       STOR  TYPE OF INITIAL CONDITION
                   RSVRIC       0.00  INITIAL CONDITION
                        X       0.00 WORKING R AND D COEFFICIENT

324 SA              AREA        0.2       0.2       0.2

325 SE         ELEVATION      53.40     56.00     57.00

326 SQ         DISCHARGE         0.        2.        4.        5.        8.       10.       20.       40.

327 SE         ELEVATION      53.40     54.00     54.30     54.50     54.90     55.10     53.48     57.00
                                                            ***
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COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.46	0.67
ELEVATION	53.40	56.00	57.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.09	0.14	0.18	0.25	0.29	0.46	0.67
OUTFLOW	0.00	2.00	4.00	5.00	8.00	10.00	34.32	40.00
ELEVATION	53.40	54.00	54.30	54.50	54.90	55.10	56.00	57.00

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HYDROGRAPH AT STATION SRPDet

****

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	0.0	53.4	1		0320	101	5.	0.2	54.4	1		0640	201	0.	0.0	53.5
1		0002	2	0.	0.0	53.4	1		0322	102	5.	0.2	54.4	1		0642	202	0.	0.0	53.5
1		0004	3	0.	0.0	53.4	1		0324	103	5.	0.2	54.4	1		0644	203	0.	0.0	53.5
1		0006	4	0.	0.0	53.4	1		0326	104	5.	0.2	54.4	1		0646	204	0.	0.0	53.5
1		0008	5	0.	0.0	53.4	1		0328	105	5.	0.2	54.4	1		0648	205	0.	0.0	53.5
1		0010	6	0.	0.0	53.4	1		0330	106	4.	0.2	54.4	1		0650	206	0.	0.0	53.5
1		0012	7	0.	0.0	53.4	1		0332	107	4.	0.2	54.4	1		0652	207	0.	0.0	53.5
1		0014	8	0.	0.0	53.4	1		0334	108	4.	0.2	54.3	1		0654	208	0.	0.0	53.5
1		0016	9	0.	0.0	53.4	1		0336	109	4.	0.1	54.3	1		0656	209	0.	0.0	53.5
1		0018	10	0.	0.0	53.4	1		0338	110	4.	0.1	54.3	1		0658	210	0.	0.0	53.5
1		0020	11	0.	0.0	53.4	1		0340	111	4.	0.1	54.3	1		0700	211	0.	0.0	53.4
1		0022	12	0.	0.0	53.4	1		0342	112	4.	0.1	54.2	1		0702	212	0.	0.0	53.4
1		0024	13	0.	0.0	53.4	1		0344	113	3.	0.1	54.2	1		0704	213	0.	0.0	53.4

1	0026	14	0.	0.0	53.4	*	1	0346	114	3.	0.1	54.2	*	1	0706	214	0.	0.0	53.4
1	0028	15	0.	0.0	53.4	*	1	0348	115	3.	0.1	54.2	*	1	0708	215	0.	0.0	53.4
1	0030	16	0.	0.0	53.4	*	1	0350	116	3.	0.1	54.1	*	1	0710	216	0.	0.0	53.4
1	0032	17	0.	0.0	53.4	*	1	0352	117	3.	0.1	54.1	*	1	0712	217	0.	0.0	53.4
1	0034	18	0.	0.0	53.4	*	1	0354	118	3.	0.1	54.1	*	1	0714	218	0.	0.0	53.4
1	0036	19	0.	0.0	53.4	*	1	0356	119	2.	0.1	54.1	*	1	0716	219	0.	0.0	53.4
1	0038	20	0.	0.0	53.4	*	1	0358	120	2.	0.1	54.0	*	1	0718	220	0.	0.0	53.4
1	0040	21	0.	0.0	53.4	*	1	0400	121	2.	0.1	54.0	*	1	0720	221	0.	0.0	53.4
1	0042	22	0.	0.0	53.4	*	1	0402	122	2.	0.1	54.0	*	1	0722	222	0.	0.0	53.4
1	0044	23	0.	0.0	53.4	*	1	0404	123	2.	0.1	54.0	*	1	0724	223	0.	0.0	53.4
1	0046	24	0.	0.0	53.4	*	1	0406	124	2.	0.1	54.0	*	1	0726	224	0.	0.0	53.4
1	0048	25	0.	0.0	53.4	*	1	0408	125	2.	0.1	54.0	*	1	0728	225	0.	0.0	53.4
1	0050	26	0.	0.0	53.4	*	1	0410	126	2.	0.1	53.9	*	1	0730	226	0.	0.0	53.4
1	0052	27	0.	0.0	53.4	*	1	0412	127	2.	0.1	53.9	*	1	0732	227	0.	0.0	53.4
1	0054	28	0.	0.0	53.4	*	1	0414	128	2.	0.1	53.9	*	1	0734	228	0.	0.0	53.4
1	0056	29	0.	0.0	53.4	*	1	0416	129	2.	0.1	53.9	*	1	0736	229	0.	0.0	53.4
1	0058	30	0.	0.0	53.4	*	1	0418	130	2.	0.1	53.9	*	1	0738	230	0.	0.0	53.4
1	0100	31	0.	0.0	53.4	*	1	0420	131	1.	0.1	53.8	*	1	0740	231	0.	0.0	53.4
1	0102	32	0.	0.0	53.4	*	1	0422	132	1.	0.1	53.8	*	1	0742	232	0.	0.0	53.4
1	0104	33	0.	0.0	53.4	*	1	0424	133	1.	0.1	53.8	*	1	0744	233	0.	0.0	53.4
1	0106	34	0.	0.0	53.4	*	1	0426	134	1.	0.1	53.8	*	1	0746	234	0.	0.0	53.4
1	0108	35	0.	0.0	53.4	*	1	0428	135	1.	0.1	53.8	*	1	0748	235	0.	0.0	53.4
1	0110	36	0.	0.0	53.4	*	1	0430	136	1.	0.1	53.8	*	1	0750	236	0.	0.0	53.4
1	0112	37	0.	0.0	53.4	*	1	0432	137	1.	0.1	53.8	*	1	0752	237	0.	0.0	53.4
1	0114	38	0.	0.0	53.4	*	1	0434	138	1.	0.1	53.8	*	1	0754	238	0.	0.0	53.4
1	0116	39	0.	0.0	53.4	*	1	0436	139	1.	0.1	53.7	*	1	0756	239	0.	0.0	53.4
1	0118	40	0.	0.0	53.4	*	1	0438	140	1.	0.1	53.7	*	1	0758	240	0.	0.0	53.4
1	0120	41	0.	0.0	53.4	*	1	0440	141	1.	0.0	53.7	*	1	0800	241	0.	0.0	53.4
1	0122	42	0.	0.0	53.4	*	1	0442	142	1.	0.0	53.7	*	1	0802	242	0.	0.0	53.4
1	0124	43	0.	0.0	53.4	*	1	0444	143	1.	0.0	53.7	*	1	0804	243	0.	0.0	53.4
1	0126	44	0.	0.0	53.4	*	1	0446	144	1.	0.0	53.7	*	1	0806	244	0.	0.0	53.4
1	0128	45	0.	0.0	53.4	*	1	0448	145	1.	0.0	53.7	*	1	0808	245	0.	0.0	53.4
1	0130	46	0.	0.0	53.4	*	1	0450	146	1.	0.0	53.7	*	1	0810	246	0.	0.0	53.4
1	0132	47	0.	0.0	53.4	*	1	0452	147	1.	0.0	53.7	*	1	0812	247	0.	0.0	53.4
1	0134	48	0.	0.0	53.4	*	1	0454	148	1.	0.0	53.7	*	1	0814	248	0.	0.0	53.4
1	0136	49	0.	0.0	53.4	*	1	0456	149	1.	0.0	53.6	*	1	0816	249	0.	0.0	53.4
1	0138	50	0.	0.0	53.4	*	1	0458	150	1.	0.0	53.6	*	1	0818	250	0.	0.0	53.4
1	0140	51	0.	0.0	53.4	*	1	0500	151	1.	0.0	53.6	*	1	0820	251	0.	0.0	53.4
1	0142	52	0.	0.0	53.4	*	1	0502	152	1.	0.0	53.6	*	1	0822	252	0.	0.0	53.4
1	0144	53	0.	0.0	53.4	*	1	0504	153	1.	0.0	53.6	*	1	0824	253	0.	0.0	53.4
1	0146	54	0.	0.0	53.4	*	1	0506	154	1.	0.0	53.6	*	1	0826	254	0.	0.0	53.4
1	0148	55	0.	0.0	53.4	*	1	0508	155	1.	0.0	53.6	*	1	0828	255	0.	0.0	53.4
1	0150	56	0.	0.0	53.4	*	1	0510	156	1.	0.0	53.6	*	1	0830	256	0.	0.0	53.4
1	0152	57	0.	0.0	53.4	*	1	0512	157	1.	0.0	53.6	*	1	0832	257	0.	0.0	53.4
1	0154	58	0.	0.0	53.4	*	1	0514	158	1.	0.0	53.6	*	1	0834	258	0.	0.0	53.4
1	0156	59	0.	0.0	53.4	*	1	0516	159	1.	0.0	53.6	*	1	0836	259	0.	0.0	53.4
1	0158	60	0.	0.0	53.4	*	1	0518	160	1.	0.0	53.6	*	1	0838	260	0.	0.0	53.4

1	0200	61	0.	0.0	53.4	*	1	0520	161	1.	0.0	53.6	*	1	0840	261	0.	0.0	53.4
1	0202	62	0.	0.0	53.4	*	1	0522	162	1.	0.0	53.6	*	1	0842	262	0.	0.0	53.4
1	0204	63	0.	0.0	53.4	*	1	0524	163	1.	0.0	53.6	*	1	0844	263	0.	0.0	53.4
1	0206	64	0.	0.0	53.4	*	1	0526	164	1.	0.0	53.6	*	1	0846	264	0.	0.0	53.4
1	0208	65	0.	0.0	53.4	*	1	0528	165	1.	0.0	53.6	*	1	0848	265	0.	0.0	53.4
1	0210	66	0.	0.0	53.4	*	1	0530	166	0.	0.0	53.5	*	1	0850	266	0.	0.0	53.4
1	0212	67	0.	0.0	53.4	*	1	0532	167	0.	0.0	53.5	*	1	0852	267	0.	0.0	53.4
1	0214	68	0.	0.0	53.4	*	1	0534	168	0.	0.0	53.5	*	1	0854	268	0.	0.0	53.4
1	0216	69	0.	0.0	53.4	*	1	0536	169	0.	0.0	53.5	*	1	0856	269	0.	0.0	53.4
1	0218	70	0.	0.0	53.4	*	1	0538	170	0.	0.0	53.5	*	1	0858	270	0.	0.0	53.4
1	0220	71	0.	0.0	53.4	*	1	0540	171	0.	0.0	53.5	*	1	0900	271	0.	0.0	53.4
1	0222	72	0.	0.0	53.4	*	1	0542	172	0.	0.0	53.5	*	1	0902	272	0.	0.0	53.4
1	0224	73	0.	0.0	53.4	*	1	0544	173	0.	0.0	53.5	*	1	0904	273	0.	0.0	53.4
1	0226	74	0.	0.0	53.4	*	1	0546	174	0.	0.0	53.5	*	1	0906	274	0.	0.0	53.4
1	0228	75	0.	0.0	53.4	*	1	0548	175	0.	0.0	53.5	*	1	0908	275	0.	0.0	53.4
1	0230	76	0.	0.0	53.4	*	1	0550	176	0.	0.0	53.5	*	1	0910	276	0.	0.0	53.4
1	0232	77	0.	0.0	53.4	*	1	0552	177	0.	0.0	53.5	*	1	0912	277	0.	0.0	53.4
1	0234	78	0.	0.0	53.4	*	1	0554	178	0.	0.0	53.5	*	1	0914	278	0.	0.0	53.4
1	0236	79	0.	0.0	53.4	*	1	0556	179	0.	0.0	53.5	*	1	0916	279	0.	0.0	53.4
1	0238	80	0.	0.0	53.4	*	1	0558	180	0.	0.0	53.5	*	1	0918	280	0.	0.0	53.4
1	0240	81	0.	0.0	53.4	*	1	0600	181	0.	0.0	53.5	*	1	0920	281	0.	0.0	53.4
1	0242	82	0.	0.0	53.4	*	1	0602	182	0.	0.0	53.5	*	1	0922	282	0.	0.0	53.4
1	0244	83	0.	0.0	53.4	*	1	0604	183	0.	0.0	53.5	*	1	0924	283	0.	0.0	53.4
1	0246	84	0.	0.0	53.4	*	1	0606	184	0.	0.0	53.5	*	1	0926	284	0.	0.0	53.4
1	0248	85	0.	0.0	53.4	*	1	0608	185	0.	0.0	53.5	*	1	0928	285	0.	0.0	53.4
1	0250	86	0.	0.0	53.4	*	1	0610	186	0.	0.0	53.5	*	1	0930	286	0.	0.0	53.4
1	0252	87	0.	0.0	53.5	*	1	0612	187	0.	0.0	53.5	*	1	0932	287	0.	0.0	53.4
1	0254	88	0.	0.0	53.5	*	1	0614	188	0.	0.0	53.5	*	1	0934	288	0.	0.0	53.4
1	0256	89	0.	0.0	53.5	*	1	0616	189	0.	0.0	53.5	*	1	0936	289	0.	0.0	53.4
1	0258	90	0.	0.0	53.5	*	1	0618	190	0.	0.0	53.5	*	1	0938	290	0.	0.0	53.4
1	0300	91	1.	0.0	53.6	*	1	0620	191	0.	0.0	53.5	*	1	0940	291	0.	0.0	53.4
1	0302	92	1.	0.0	53.6	*	1	0622	192	0.	0.0	53.5	*	1	0942	292	0.	0.0	53.4
1	0304	93	1.	0.0	53.7	*	1	0624	193	0.	0.0	53.5	*	1	0944	293	0.	0.0	53.4
1	0306	94	1.	0.1	53.8	*	1	0626	194	0.	0.0	53.5	*	1	0946	294	0.	0.0	53.4
1	0308	95	2.	0.1	54.0	*	1	0628	195	0.	0.0	53.5	*	1	0948	295	0.	0.0	53.4
1	0310	96	3.	0.1	54.1	*	1	0630	196	0.	0.0	53.5	*	1	0950	296	0.	0.0	53.4
1	0312	97	4.	0.1	54.2	*	1	0632	197	0.	0.0	53.5	*	1	0952	297	0.	0.0	53.4
1	0314	98	4.	0.1	54.3	*	1	0634	198	0.	0.0	53.5	*	1	0954	298	0.	0.0	53.4
1	0316	99	4.	0.2	54.4	*	1	0636	199	0.	0.0	53.5	*	1	0956	299	0.	0.0	53.4
1	0318	100	5.	0.2	54.4	*	1	0638	200	0.	0.0	53.5	*	1	0958	300	0.	0.0	53.4
						*							*						

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PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	9.97-HR
+ (CFS)	(HR)				
		(CFS)			

```
+       5.      3.37                    1.          1.          1.          1.
                         (INCHES)     1.446       1.456       1.456       1.456
                          (AC-FT)        0.          0.          0.          0.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                         6-HR       24-HR       72-HR      9.97-HR
+  (AC-FT)      (HR)
        0.      3.37                    0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                         6-HR       24-HR       72-HR      9.97-HR
+   (FEET)      (HR)
     54.43      3.37                   53.64       53.55       53.55       53.55

                         CUMULATIVE AREA =    0.01 SQ MI


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


            **************
            *            *
  346 KK    *    050050  *        FROM 050062
            *            *
            **************

  347 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  348 RK          KINEMATIC WAVE STREAM ROUTING
                            L       1000.  CHANNEL LENGTH
                            S      0.0020  SLOPE
                            N       0.013  CHANNEL ROUGHNESS COEFFICIENT
                           CA        0.00  CONTRIBUTING AREA
                        SHAPE        CIRC  CHANNEL SHAPE
                           WD        2.50  BOTTOM WIDTH OR DIAMETER
                            Z        1.00  SIDE SLOPE
                       NDXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                        ***
                                     COMPUTED KINEMATIC PARAMETERS
```

VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.22	1.25	1.07	333.33	15.56	187.40	1.64	5.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5227E+00 EXCESS=0.0000E+00 OUTFLOW=0.5236E+00 BASIN STORAGE=0.4824E-04 PERCENT ERROR= -0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.22	1.25	2.00		15.38	188.00	1.64

****

HYDROGRAPH AT STATION 050050

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DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0230	76	0.	1		0500	151	0.	1		0730	226	0.
1		0002	2	0.	1		0232	77	0.	1		0502	152	0.	1		0732	227	0.
1		0004	3	0.	1		0234	78	0.	1		0504	153	0.	1		0734	228	0.
1		0006	4	0.	1		0236	79	0.	1		0506	154	0.	1		0736	229	0.
1		0008	5	0.	1		0238	80	0.	1		0508	155	0.	1		0738	230	0.
1		0010	6	0.	1		0240	81	0.	1		0510	156	0.	1		0740	231	0.
1		0012	7	0.	1		0242	82	1.	1		0512	157	0.	1		0742	232	0.
1		0014	8	0.	1		0244	83	1.	1		0514	158	0.	1		0744	233	0.
1		0016	9	0.	1		0246	84	1.	1		0516	159	0.	1		0746	234	0.
1		0018	10	0.	1		0248	85	1.	1		0518	160	0.	1		0748	235	0.
1		0020	11	0.	1		0250	86	1.	1		0520	161	0.	1		0750	236	0.
1		0022	12	0.	1		0252	87	2.	1		0522	162	0.	1		0752	237	0.
1		0024	13	0.	1		0254	88	2.	1		0524	163	0.	1		0754	238	0.
1		0026	14	0.	1		0256	89	2.	1		0526	164	0.	1		0756	239	0.
1		0028	15	0.	1		0258	90	3.	1		0528	165	0.	1		0758	240	0.
1		0030	16	0.	1		0300	91	4.	1		0530	166	0.	1		0800	241	0.
1		0032	17	0.	1		0302	92	7.	1		0532	167	0.	1		0802	242	0.
1		0034	18	0.	1		0304	93	11.	1		0534	168	0.	1		0804	243	0.
1		0036	19	0.	1		0306	94	15.	1		0536	169	0.	1		0806	244	0.
1		0038	20	0.	1		0308	95	15.	1		0538	170	0.	1		0808	245	0.
1		0040	21	0.	1		0310	96	14.	1		0540	171	0.	1		0810	246	0.

1	0042	22	0.	*	1	0312	97	11.	*	1	0542	172	0.	*	1	0812	247	0.
1	0044	23	0.	*	1	0314	98	9.	*	1	0544	173	0.	*	1	0814	248	0.
1	0046	24	0.	*	1	0316	99	7.	*	1	0546	174	0.	*	1	0816	249	0.
1	0048	25	0.	*	1	0318	100	6.	*	1	0548	175	0.	*	1	0818	250	0.
1	0050	26	0.	*	1	0320	101	5.	*	1	0550	176	0.	*	1	0820	251	0.
1	0052	27	0.	*	1	0322	102	5.	*	1	0552	177	0.	*	1	0822	252	0.
1	0054	28	0.	*	1	0324	103	4.	*	1	0554	178	0.	*	1	0824	253	0.
1	0056	29	0.	*	1	0326	104	4.	*	1	0556	179	0.	*	1	0826	254	0.
1	0058	30	0.	*	1	0328	105	3.	*	1	0558	180	0.	*	1	0828	255	0.
1	0100	31	0.	*	1	0330	106	3.	*	1	0600	181	0.	*	1	0830	256	0.
1	0102	32	0.	*	1	0332	107	3.	*	1	0602	182	0.	*	1	0832	257	0.
1	0104	33	0.	*	1	0334	108	3.	*	1	0604	183	0.	*	1	0834	258	0.
1	0106	34	0.	*	1	0336	109	2.	*	1	0606	184	0.	*	1	0836	259	0.
1	0108	35	0.	*	1	0338	110	2.	*	1	0608	185	0.	*	1	0838	260	0.
1	0110	36	0.	*	1	0340	111	2.	*	1	0610	186	0.	*	1	0840	261	0.
1	0112	37	0.	*	1	0342	112	2.	*	1	0612	187	0.	*	1	0842	262	0.
1	0114	38	0.	*	1	0344	113	2.	*	1	0614	188	0.	*	1	0844	263	0.
1	0116	39	0.	*	1	0346	114	1.	*	1	0616	189	0.	*	1	0846	264	0.
1	0118	40	0.	*	1	0348	115	1.	*	1	0618	190	0.	*	1	0848	265	0.
1	0120	41	0.	*	1	0350	116	1.	*	1	0620	191	0.	*	1	0850	266	0.
1	0122	42	0.	*	1	0352	117	1.	*	1	0622	192	0.	*	1	0852	267	0.
1	0124	43	0.	*	1	0354	118	1.	*	1	0624	193	0.	*	1	0854	268	0.
1	0126	44	0.	*	1	0356	119	1.	*	1	0626	194	0.	*	1	0856	269	0.
1	0128	45	0.	*	1	0358	120	1.	*	1	0628	195	0.	*	1	0858	270	0.
1	0130	46	0.	*	1	0400	121	1.	*	1	0630	196	0.	*	1	0900	271	0.
1	0132	47	0.	*	1	0402	122	1.	*	1	0632	197	0.	*	1	0902	272	0.
1	0134	48	0.	*	1	0404	123	1.	*	1	0634	198	0.	*	1	0904	273	0.
1	0136	49	0.	*	1	0406	124	1.	*	1	0636	199	0.	*	1	0906	274	0.
1	0138	50	0.	*	1	0408	125	1.	*	1	0638	200	0.	*	1	0908	275	0.
1	0140	51	0.	*	1	0410	126	1.	*	1	0640	201	0.	*	1	0910	276	0.
1	0142	52	0.	*	1	0412	127	1.	*	1	0642	202	0.	*	1	0912	277	0.
1	0144	53	0.	*	1	0414	128	1.	*	1	0644	203	0.	*	1	0914	278	0.
1	0146	54	0.	*	1	0416	129	1.	*	1	0646	204	0.	*	1	0916	279	0.
1	0148	55	0.	*	1	0418	130	0.	*	1	0648	205	0.	*	1	0918	280	0.
1	0150	56	0.	*	1	0420	131	0.	*	1	0650	206	0.	*	1	0920	281	0.
1	0152	57	0.	*	1	0422	132	0.	*	1	0652	207	0.	*	1	0922	282	0.
1	0154	58	0.	*	1	0424	133	0.	*	1	0654	208	0.	*	1	0924	283	0.
1	0156	59	0.	*	1	0426	134	0.	*	1	0656	209	0.	*	1	0926	284	0.
1	0158	60	0.	*	1	0428	135	0.	*	1	0658	210	0.	*	1	0928	285	0.
1	0200	61	0.	*	1	0430	136	0.	*	1	0700	211	0.	*	1	0930	286	0.
1	0202	62	0.	*	1	0432	137	0.	*	1	0702	212	0.	*	1	0932	287	0.
1	0204	63	0.	*	1	0434	138	0.	*	1	0704	213	0.	*	1	0934	288	0.
1	0206	64	0.	*	1	0436	139	0.	*	1	0706	214	0.	*	1	0936	289	0.
1	0208	65	0.	*	1	0438	140	0.	*	1	0708	215	0.	*	1	0938	290	0.
1	0210	66	0.	*	1	0440	141	0.	*	1	0710	216	0.	*	1	0940	291	0.
1	0212	67	0.	*	1	0442	142	0.	*	1	0712	217	0.	*	1	0942	292	0.
1	0214	68	0.	*	1	0444	143	0.	*	1	0714	218	0.	*	1	0944	293	0.

```
  1     0216   69        0.   *    1     0446  144        0.   *    1     0716  219        0.   *    1     0946  294        0.
  1     0218   70        0.   *    1     0448  145        0.   *    1     0718  220        0.   *    1     0948  295        0.
  1     0220   71        0.   *    1     0450  146        0.   *    1     0720  221        0.   *    1     0950  296        0.
  1     0222   72        0.   *    1     0452  147        0.   *    1     0722  222        0.   *    1     0952  297        0.
  1     0224   73        0.   *    1     0454  148        0.   *    1     0724  223        0.   *    1     0954  298        0.
  1     0226   74        0.   *    1     0456  149        0.   *    1     0726  224        0.   *    1     0956  299        0.
  1     0228   75        0.   *    1     0458  150        0.   *    1     0728  225        0.   *    1     0958  300        0.
                          *                                  *                                  *
*****************************************************************************************************************************

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR       9.97-HR
+   (CFS)       (HR)
                          (CFS)
+      15.      3.13                     1.          1.          1.          1.
                        (INCHES)      1.631       1.636       1.636       1.636
                         (AC-FT)        1.          1.          1.          1.

                         CUMULATIVE AREA =    0.01 SQ MI


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


            **************
            *            *
 349 KK     *    050050  *      COMBINE
            *            *
            **************

 351 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           2  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

 352 HC          HYDROGRAPH COMBINATION
                       ICOMP           6  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                                   HYDROGRAPH AT STATION   050050
                                        SUM OF  6 HYDROGRAPHS
```

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	32.	1		0230	76	1.	1		0500	151	43.	1		0730	226	6.
1		0002	2	6.	1		0232	77	2.	1		0502	152	41.	1		0732	227	6.
1		0004	3	0.	1		0234	78	2.	1		0504	153	40.	1		0734	228	5.
1		0006	4	0.	1		0236	79	2.	1		0506	154	38.	1		0736	229	5.
1		0008	5	0.	1		0238	80	3.	1		0508	155	36.	1		0738	230	5.
1		0010	6	0.	1		0240	81	4.	1		0510	156	35.	1		0740	231	5.
1		0012	7	0.	1		0242	82	4.	1		0512	157	34.	1		0742	232	5.
1		0014	8	0.	1		0244	83	6.	1		0514	158	33.	1		0744	233	5.
1		0016	9	0.	1		0246	84	7.	1		0516	159	31.	1		0746	234	5.
1		0018	10	0.	1		0248	85	9.	1		0518	160	30.	1		0748	235	4.
1		0020	11	0.	1		0250	86	11.	1		0520	161	29.	1		0750	236	4.
1		0022	12	0.	1		0252	87	14.	1		0522	162	28.	1		0752	237	4.
1		0024	13	0.	1		0254	88	18.	1		0524	163	27.	1		0754	238	4.
1		0026	14	0.	1		0256	89	23.	1		0526	164	26.	1		0756	239	4.
1		0028	15	0.	1		0258	90	32.	1		0528	165	26.	1		0758	240	4.
1		0030	16	0.	1		0300	91	49.	1		0530	166	25.	1		0800	241	4.
1		0032	17	0.	1		0302	92	74.	1		0532	167	24.	1		0802	242	4.
1		0034	18	0.	1		0304	93	100.	1		0534	168	23.	1		0804	243	4.
1		0036	19	0.	1		0306	94	117.	1		0536	169	23.	1		0806	244	3.
1		0038	20	0.	1		0308	95	140.	1		0538	170	22.	1		0808	245	3.
1		0040	21	0.	1		0310	96	187.	1		0540	171	22.	1		0810	246	3.
1		0042	22	0.	1		0312	97	235.	1		0542	172	22.	1		0812	247	3.
1		0044	23	0.	1		0314	98	254.	1		0544	173	21.	1		0814	248	3.
1		0046	24	0.	1		0316	99	252.	1		0546	174	21.	1		0816	249	3.
1		0048	25	0.	1		0318	100	240.	1		0548	175	20.	1		0818	250	3.
1		0050	26	0.	1		0320	101	225.	1		0550	176	20.	1		0820	251	3.
1		0052	27	0.	1		0322	102	211.	1		0552	177	20.	1		0822	252	3.
1		0054	28	0.	1		0324	103	198.	1		0554	178	19.	1		0824	253	3.
1		0056	29	0.	1		0326	104	189.	1		0556	179	19.	1		0826	254	3.
1		0058	30	0.	1		0328	105	180.	1		0558	180	19.	1		0828	255	3.
1		0100	31	0.	1		0330	106	173.	1		0600	181	18.	1		0830	256	3.
1		0102	32	0.	1		0332	107	167.	1		0602	182	18.	1		0832	257	2.
1		0104	33	0.	1		0334	108	161.	1		0604	183	18.	1		0834	258	2.
1		0106	34	0.	1		0336	109	157.	1		0606	184	17.	1		0836	259	2.
1		0108	35	0.	1		0338	110	152.	1		0608	185	17.	1		0838	260	2.
1		0110	36	0.	1		0340	111	148.	1		0610	186	17.	1		0840	261	2.
1		0112	37	0.	1		0342	112	144.	1		0612	187	16.	1		0842	262	2.
1		0114	38	0.	1		0344	113	140.	1		0614	188	16.	1		0844	263	2.
1		0116	39	0.	1		0346	114	136.	1		0616	189	16.	1		0846	264	2.
1		0118	40	0.	1		0348	115	131.	1		0618	190	16.	1		0848	265	2.
1		0120	41	0.	1		0350	116	127.	1		0620	191	15.	1		0850	266	2.
1		0122	42	0.	1		0352	117	124.	1		0622	192	15.	1		0852	267	2.
1		0124	43	0.	1		0354	118	120.	1		0624	193	15.	1		0854	268	2.

1	0126	44	0.	*	1	0356	119	117.	*	1	0626	194	14.	*	1	0856	269	2.
1	0128	45	0.	*	1	0358	120	114.	*	1	0628	195	14.	*	1	0858	270	2.
1	0130	46	0.	*	1	0400	121	112.	*	1	0630	196	14.	*	1	0900	271	2.
1	0132	47	0.	*	1	0402	122	109.	*	1	0632	197	13.	*	1	0902	272	2.
1	0134	48	0.	*	1	0404	123	107.	*	1	0634	198	13.	*	1	0904	273	2.
1	0136	49	0.	*	1	0406	124	105.	*	1	0636	199	13.	*	1	0906	274	2.
1	0138	50	0.	*	1	0408	125	103.	*	1	0638	200	12.	*	1	0908	275	2.
1	0140	51	0.	*	1	0410	126	102.	*	1	0640	201	12.	*	1	0910	276	2.
1	0142	52	0.	*	1	0412	127	100.	*	1	0642	202	12.	*	1	0912	277	2.
1	0144	53	0.	*	1	0414	128	98.	*	1	0644	203	11.	*	1	0914	278	2.
1	0146	54	0.	*	1	0416	129	97.	*	1	0646	204	11.	*	1	0916	279	1.
1	0148	55	0.	*	1	0418	130	96.	*	1	0648	205	11.	*	1	0918	280	1.
1	0150	56	0.	*	1	0420	131	94.	*	1	0650	206	10.	*	1	0920	281	1.
1	0152	57	0.	*	1	0422	132	93.	*	1	0652	207	10.	*	1	0922	282	1.
1	0154	58	0.	*	1	0424	133	92.	*	1	0654	208	10.	*	1	0924	283	1.
1	0156	59	0.	*	1	0426	134	91.	*	1	0656	209	9.	*	1	0926	284	1.
1	0158	60	0.	*	1	0428	135	90.	*	1	0658	210	9.	*	1	0928	285	1.
1	0200	61	0.	*	1	0430	136	88.	*	1	0700	211	9.	*	1	0930	286	1.
1	0202	62	0.	*	1	0432	137	87.	*	1	0702	212	9.	*	1	0932	287	1.
1	0204	63	0.	*	1	0434	138	86.	*	1	0704	213	8.	*	1	0934	288	1.
1	0206	64	0.	*	1	0436	139	85.	*	1	0706	214	8.	*	1	0936	289	1.
1	0208	65	0.	*	1	0438	140	84.	*	1	0708	215	8.	*	1	0938	290	1.
1	0210	66	0.	*	1	0440	141	83.	*	1	0710	216	8.	*	1	0940	291	1.
1	0212	67	1.	*	1	0442	142	62.	*	1	0712	217	7.	*	1	0942	292	1.
1	0214	68	1.	*	1	0444	143	56.	*	1	0714	218	7.	*	1	0944	293	1.
1	0216	69	1.	*	1	0446	144	55.	*	1	0716	219	7.	*	1	0946	294	1.
1	0218	70	1.	*	1	0448	145	54.	*	1	0718	220	7.	*	1	0948	295	1.
1	0220	71	1.	*	1	0450	146	53.	*	1	0720	221	7.	*	1	0950	296	1.
1	0222	72	1.	*	1	0452	147	51.	*	1	0722	222	6.	*	1	0952	297	1.
1	0224	73	1.	*	1	0454	148	49.	*	1	0724	223	6.	*	1	0954	298	1.
1	0226	74	1.	*	1	0456	149	47.	*	1	0726	224	6.	*	1	0956	299	1.
1	0228	75	1.	*	1	0458	150	45.	*	1	0728	225	6.	*	1	0958	300	1.
				*					*					*				

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	9.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 254.	3.23		49.	30.	30.	30.
		(INCHES)	1.051	1.064	1.064	1.064
		(AC-FT)	24.	25.	25.	25.

CUMULATIVE AREA = 0.43 SQ MI

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              *            *
362 KK        *     05Det  *
              *            *
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363 KO            OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

364 RS            STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

365 SA                  AREA         1.2       1.8       3.2       3.2       3.3       3.3       3.4       3.5

366 SE            ELEVATION       50.00     51.00     52.00     53.00     54.00     55.00     56.00     57.00

367 SQ            DISCHARGE          0.       20.       40.       60.       80.      100.      120.      140.

368 SE            ELEVATION       50.00     50.80     51.18     51.78     52.39     52.94     53.48     54.04
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COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	1.51	3.98	7.17	10.43	13.76	17.15	20.60
ELEVATION	50.00	51.00	52.00	53.00	54.00	55.00	56.00	57.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	1.15	1.51	1.86	3.32	3.98	5.22	6.98	7.17	8.73
OUTFLOW	0.00	20.00	30.53	40.00	60.00	67.21	80.00	100.00	102.22	120.00
ELEVATION	50.00	50.80	51.00	51.18	51.78	52.00	52.39	52.94	53.00	53.48

STORAGE	10.43	10.57	13.76	17.15	20.60
OUTFLOW	138.57	140.00	174.29	210.00	245.71
ELEVATION	54.00	54.04	55.00	56.00	57.00

HYDROGRAPH AT STATION 05Det

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	0.0	50.0	1		0320	101	79.	5.2	52.4	1		0640	201	28.	1.4	50.9
1		0002	2	1.	0.1	50.0	1		0322	102	84.	5.6	52.5	1		0642	202	27.	1.4	50.9
1		0004	3	1.	0.1	50.0	1		0324	103	89.	6.0	52.6	1		0644	203	25.	1.3	50.9
1		0006	4	1.	0.1	50.0	1		0326	104	93.	6.4	52.7	1		0646	204	24.	1.3	50.9
1		0008	5	1.	0.1	50.0	1		0328	105	96.	6.7	52.8	1		0648	205	23.	1.3	50.9
1		0010	6	1.	0.0	50.0	1		0330	106	100.	6.9	52.9	1		0650	206	22.	1.2	50.8
1		0012	7	1.	0.0	50.0	1		0332	107	102.	7.2	53.0	1		0652	207	21.	1.2	50.8
1		0014	8	1.	0.0	50.0	1		0334	108	105.	7.4	53.1	1		0654	208	21.	1.2	50.8
1		0016	9	1.	0.0	50.0	1		0336	109	107.	7.6	53.1	1		0656	209	20.	1.1	50.8
1		0018	10	1.	0.0	50.0	1		0338	110	109.	7.8	53.2	1		0658	210	19.	1.1	50.8
1		0020	11	1.	0.0	50.0	1		0340	111	111.	7.9	53.2	1		0700	211	19.	1.1	50.8
1		0022	12	1.	0.0	50.0	1		0342	112	112.	8.0	53.3	1		0702	212	18.	1.1	50.7
1		0024	13	1.	0.0	50.0	1		0344	113	113.	8.1	53.3	1		0704	213	18.	1.0	50.7
1		0026	14	1.	0.0	50.0	1		0346	114	114.	8.2	53.3	1		0706	214	18.	1.0	50.7
1		0028	15	1.	0.0	50.0	1		0348	115	115.	8.3	53.4	1		0708	215	17.	1.0	50.7
1		0030	16	1.	0.0	50.0	1		0350	116	116.	8.4	53.4	1		0710	216	17.	1.0	50.7
1		0032	17	1.	0.0	50.0	1		0352	117	116.	8.4	53.4	1		0712	217	16.	0.9	50.7
1		0034	18	0.	0.0	50.0	1		0354	118	117.	8.4	53.4	1		0714	218	16.	0.9	50.6
1		0036	19	0.	0.0	50.0	1		0356	119	117.	8.5	53.4	1		0716	219	16.	0.9	50.6
1		0038	20	0.	0.0	50.0	1		0358	120	117.	8.5	53.4	1		0718	220	15.	0.9	50.6
1		0040	21	0.	0.0	50.0	1		0400	121	117.	8.5	53.4	1		0720	221	15.	0.9	50.6
1		0042	22	0.	0.0	50.0	1		0402	122	117.	8.5	53.4	1		0722	222	14.	0.8	50.6
1		0044	23	0.	0.0	50.0	1		0404	123	117.	8.5	53.4	1		0724	223	14.	0.8	50.6
1		0046	24	0.	0.0	50.0	1		0406	124	117.	8.5	53.4	1		0726	224	14.	0.8	50.5
1		0048	25	0.	0.0	50.0	1		0408	125	117.	8.4	53.4	1		0728	225	13.	0.8	50.5
1		0050	26	0.	0.0	50.0	1		0410	126	116.	8.4	53.4	1		0730	226	13.	0.7	50.5
1		0052	27	0.	0.0	50.0	1		0412	127	116.	8.4	53.4	1		0732	227	13.	0.7	50.5
1		0054	28	0.	0.0	50.0	1		0414	128	116.	8.3	53.4	1		0734	228	12.	0.7	50.5
1		0056	29	0.	0.0	50.0	1		0416	129	115.	8.3	53.3	1		0736	229	12.	0.7	50.5
1		0058	30	0.	0.0	50.0	1		0418	130	115.	8.3	53.3	1		0738	230	12.	0.7	50.5
1		0100	31	0.	0.0	50.0	1		0420	131	114.	8.2	53.3	1		0740	231	11.	0.7	50.5
1		0102	32	0.	0.0	50.0	1		0422	132	114.	8.2	53.3	1		0742	232	11.	0.6	50.4
1		0104	33	0.	0.0	50.0	1		0424	133	113.	8.1	53.3	1		0744	233	11.	0.6	50.4
1		0106	34	0.	0.0	50.0	1		0426	134	112.	8.1	53.3	1		0746	234	11.	0.6	50.4
1		0108	35	0.	0.0	50.0	1		0428	135	112.	8.0	53.3	1		0748	235	10.	0.6	50.4
1		0110	36	0.	0.0	50.0	1		0430	136	111.	8.0	53.2	1		0750	236	10.	0.6	50.4
1		0112	37	0.	0.0	50.0	1		0432	137	111.	7.9	53.2	1		0752	237	10.	0.6	50.4
1		0114	38	0.	0.0	50.0	1		0434	138	110.	7.8	53.2	1		0754	238	9.	0.5	50.4

1	0116	39	0.	0.0	50.0	*	1	0436	139	109.	7.8	53.2	*	1	0756	239	9.	0.5	50.4
1	0118	40	0.	0.0	50.0	*	1	0438	140	108.	7.7	53.2	*	1	0758	240	9.	0.5	50.4
1	0120	41	0.	0.0	50.0	*	1	0440	141	108.	7.7	53.2	*	1	0800	241	9.	0.5	50.4
1	0122	42	0.	0.0	50.0	*	1	0442	142	107.	7.6	53.1	*	1	0802	242	9.	0.5	50.3
1	0124	43	0.	0.0	50.0	*	1	0444	143	105.	7.4	53.1	*	1	0804	243	8.	0.5	50.3
1	0126	44	0.	0.0	50.0	*	1	0446	144	104.	7.3	53.0	*	1	0806	244	8.	0.5	50.3
1	0128	45	0.	0.0	50.0	*	1	0448	145	102.	7.2	53.0	*	1	0808	245	8.	0.5	50.3
1	0130	46	0.	0.0	50.0	*	1	0450	146	101.	7.1	53.0	*	1	0810	246	8.	0.4	50.3
1	0132	47	0.	0.0	50.0	*	1	0452	147	99.	6.9	52.9	*	1	0812	247	7.	0.4	50.3
1	0134	48	0.	0.0	50.0	*	1	0454	148	98.	6.8	52.9	*	1	0814	248	7.	0.4	50.3
1	0136	49	0.	0.0	50.0	*	1	0456	149	97.	6.7	52.8	*	1	0816	249	7.	0.4	50.3
1	0138	50	0.	0.0	50.0	*	1	0458	150	95.	6.5	52.8	*	1	0818	250	7.	0.4	50.3
1	0140	51	0.	0.0	50.0	*	1	0500	151	93.	6.4	52.8	*	1	0820	251	7.	0.4	50.3
1	0142	52	0.	0.0	50.0	*	1	0502	152	92.	6.3	52.7	*	1	0822	252	7.	0.4	50.3
1	0144	53	0.	0.0	50.0	*	1	0504	153	90.	6.1	52.7	*	1	0824	253	6.	0.4	50.3
1	0146	54	0.	0.0	50.0	*	1	0506	154	89.	6.0	52.6	*	1	0826	254	6.	0.4	50.2
1	0148	55	0.	0.0	50.0	*	1	0508	155	87.	5.9	52.6	*	1	0828	255	6.	0.4	50.2
1	0150	56	0.	0.0	50.0	*	1	0510	156	86.	5.7	52.5	*	1	0830	256	6.	0.3	50.2
1	0152	57	0.	0.0	50.0	*	1	0512	157	84.	5.6	52.5	*	1	0832	257	6.	0.3	50.2
1	0154	58	0.	0.0	50.0	*	1	0514	158	83.	5.5	52.5	*	1	0834	258	6.	0.3	50.2
1	0156	59	0.	0.0	50.0	*	1	0516	159	81.	5.3	52.4	*	1	0836	259	5.	0.3	50.2
1	0158	60	0.	0.0	50.0	*	1	0518	160	80.	5.2	52.4	*	1	0838	260	5.	0.3	50.2
1	0200	61	0.	0.0	50.0	*	1	0520	161	78.	5.1	52.3	*	1	0840	261	5.	0.3	50.2
1	0202	62	0.	0.0	50.0	*	1	0522	162	77.	4.9	52.3	*	1	0842	262	5.	0.3	50.2
1	0204	63	0.	0.0	50.0	*	1	0524	163	76.	4.8	52.3	*	1	0844	263	5.	0.3	50.2
1	0206	64	0.	0.0	50.0	*	1	0526	164	74.	4.7	52.2	*	1	0846	264	5.	0.3	50.2
1	0208	65	0.	0.0	50.0	*	1	0528	165	73.	4.5	52.2	*	1	0848	265	5.	0.3	50.2
1	0210	66	0.	0.0	50.0	*	1	0530	166	72.	4.4	52.1	*	1	0850	266	5.	0.3	50.2
1	0212	67	0.	0.0	50.0	*	1	0532	167	70.	4.3	52.1	*	1	0852	267	4.	0.3	50.2
1	0214	68	0.	0.0	50.0	*	1	0534	168	69.	4.2	52.1	*	1	0854	268	4.	0.2	50.2
1	0216	69	0.	0.0	50.0	*	1	0536	169	68.	4.0	52.0	*	1	0856	269	4.	0.2	50.2
1	0218	70	0.	0.0	50.0	*	1	0538	170	67.	3.9	52.0	*	1	0858	270	4.	0.2	50.2
1	0220	71	0.	0.0	50.0	*	1	0540	171	65.	3.8	51.9	*	1	0900	271	4.	0.2	50.2
1	0222	72	0.	0.0	50.0	*	1	0542	172	64.	3.7	51.9	*	1	0902	272	4.	0.2	50.2
1	0224	73	0.	0.0	50.0	*	1	0544	173	63.	3.6	51.9	*	1	0904	273	4.	0.2	50.2
1	0226	74	0.	0.0	50.0	*	1	0546	174	62.	3.5	51.8	*	1	0906	274	4.	0.2	50.1
1	0228	75	0.	0.0	50.0	*	1	0548	175	60.	3.4	51.8	*	1	0908	275	4.	0.2	50.1
1	0230	76	1.	0.0	50.0	*	1	0550	176	59.	3.3	51.8	*	1	0910	276	4.	0.2	50.1
1	0232	77	1.	0.0	50.0	*	1	0552	177	58.	3.2	51.7	*	1	0912	277	3.	0.2	50.1
1	0234	78	1.	0.0	50.0	*	1	0554	178	56.	3.1	51.7	*	1	0914	278	3.	0.2	50.1
1	0236	79	1.	0.0	50.0	*	1	0556	179	55.	3.0	51.6	*	1	0916	279	3.	0.2	50.1
1	0238	80	1.	0.0	50.0	*	1	0558	180	54.	2.9	51.6	*	1	0918	280	3.	0.2	50.1
1	0240	81	1.	0.1	50.0	*	1	0600	181	52.	2.8	51.6	*	1	0920	281	3.	0.2	50.1
1	0242	82	1.	0.1	50.0	*	1	0602	182	51.	2.7	51.5	*	1	0922	282	3.	0.2	50.1
1	0244	83	1.	0.1	50.1	*	1	0604	183	50.	2.6	51.5	*	1	0924	283	3.	0.2	50.1
1	0246	84	2.	0.1	50.1	*	1	0606	184	49.	2.5	51.4	*	1	0926	284	3.	0.2	50.1
1	0248	85	2.	0.1	50.1	*	1	0608	185	48.	2.4	51.4	*	1	0928	285	3.	0.2	50.1

1	0250	86	3.	0.1	50.1	*	1	0610	186	47.	2.3	51.4	*	1	0930	286	3.	0.2	50.1
1	0252	87	3.	0.2	50.1	*	1	0612	187	46.	2.3	51.3	*	1	0932	287	3.	0.2	50.1
1	0254	88	4.	0.2	50.2	*	1	0614	188	45.	2.2	51.3	*	1	0934	288	3.	0.2	50.1
1	0256	89	5.	0.3	50.2	*	1	0616	189	44.	2.1	51.3	*	1	0936	289	3.	0.1	50.1
1	0258	90	6.	0.4	50.3	*	1	0618	190	43.	2.0	51.3	*	1	0938	290	2.	0.1	50.1
1	0300	91	8.	0.5	50.3	*	1	0620	191	42.	2.0	51.2	*	1	0940	291	2.	0.1	50.1
1	0302	92	11.	0.7	50.5	*	1	0622	192	41.	1.9	51.2	*	1	0942	292	2.	0.1	50.1
1	0304	93	16.	0.9	50.6	*	1	0624	193	39.	1.8	51.2	*	1	0944	293	2.	0.1	50.1
1	0306	94	23.	1.3	50.9	*	1	0626	194	38.	1.8	51.1	*	1	0946	294	2.	0.1	50.1
1	0308	95	34.	1.7	51.1	*	1	0628	195	36.	1.7	51.1	*	1	0948	295	2.	0.1	50.1
1	0310	96	44.	2.1	51.3	*	1	0630	196	34.	1.7	51.1	*	1	0950	296	2.	0.1	50.1
1	0312	97	52.	2.7	51.5	*	1	0632	197	33.	1.6	51.0	*	1	0952	297	2.	0.1	50.1
1	0314	98	61.	3.4	51.8	*	1	0634	198	32.	1.6	51.0	*	1	0954	298	2.	0.1	50.1
1	0316	99	68.	4.0	52.0	*	1	0636	199	30.	1.5	51.0	*	1	0956	299	2.	0.1	50.1
1	0318	100	74.	4.6	52.2	*	1	0638	200	29.	1.5	51.0	*	1	0958	300	2.	0.1	50.1
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	9.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 117.	4.00		54.	33.	33.	33.
		(INCHES)	1.075	1.090	1.090	1.090
		(AC-FT)	27.	27.	27.	27.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	9.97-HR
+ (AC-FT)	(HR)				
8.	4.00	3.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	9.97-HR
+ (FEET)	(HR)				
53.41	4.00	51.62	51.00	51.00	51.00

CUMULATIVE AREA = 0.46 SQ MI

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369 KK       *   05Qpip   *
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1	0044	23	0.	*	1	0314	98	0.	*	1	0544	173	0.	*	1	0814	248	0.
1	0046	24	0.	*	1	0316	99	0.	*	1	0546	174	0.	*	1	0816	249	0.
1	0048	25	0.	*	1	0318	100	0.	*	1	0548	175	0.	*	1	0818	250	0.
1	0050	26	0.	*	1	0320	101	0.	*	1	0550	176	0.	*	1	0820	251	0.
1	0052	27	0.	*	1	0322	102	0.	*	1	0552	177	0.	*	1	0822	252	0.
1	0054	28	0.	*	1	0324	103	0.	*	1	0554	178	0.	*	1	0824	253	0.
1	0056	29	0.	*	1	0326	104	0.	*	1	0556	179	0.	*	1	0826	254	0.
1	0058	30	0.	*	1	0328	105	0.	*	1	0558	180	0.	*	1	0828	255	0.
1	0100	31	0.	*	1	0330	106	0.	*	1	0600	181	0.	*	1	0830	256	0.
1	0102	32	0.	*	1	0332	107	0.	*	1	0602	182	0.	*	1	0832	257	0.
1	0104	33	0.	*	1	0334	108	0.	*	1	0604	183	0.	*	1	0834	258	0.
1	0106	34	0.	*	1	0336	109	0.	*	1	0606	184	0.	*	1	0836	259	0.
1	0108	35	0.	*	1	0338	110	0.	*	1	0608	185	0.	*	1	0838	260	0.
1	0110	36	0.	*	1	0340	111	0.	*	1	0610	186	0.	*	1	0840	261	0.
1	0112	37	0.	*	1	0342	112	0.	*	1	0612	187	0.	*	1	0842	262	0.
1	0114	38	0.	*	1	0344	113	0.	*	1	0614	188	0.	*	1	0844	263	0.
1	0116	39	0.	*	1	0346	114	0.	*	1	0616	189	0.	*	1	0846	264	0.
1	0118	40	0.	*	1	0348	115	0.	*	1	0618	190	0.	*	1	0848	265	0.
1	0120	41	0.	*	1	0350	116	0.	*	1	0620	191	0.	*	1	0850	266	0.
1	0122	42	0.	*	1	0352	117	0.	*	1	0622	192	0.	*	1	0852	267	0.
1	0124	43	0.	*	1	0354	118	0.	*	1	0624	193	0.	*	1	0854	268	0.
1	0126	44	0.	*	1	0356	119	0.	*	1	0626	194	0.	*	1	0856	269	0.
1	0128	45	0.	*	1	0358	120	0.	*	1	0628	195	0.	*	1	0858	270	0.
1	0130	46	0.	*	1	0400	121	0.	*	1	0630	196	0.	*	1	0900	271	0.
1	0132	47	0.	*	1	0402	122	0.	*	1	0632	197	0.	*	1	0902	272	0.
1	0134	48	0.	*	1	0404	123	0.	*	1	0634	198	0.	*	1	0904	273	0.
1	0136	49	0.	*	1	0406	124	0.	*	1	0636	199	0.	*	1	0906	274	0.
1	0138	50	0.	*	1	0408	125	0.	*	1	0638	200	0.	*	1	0908	275	0.
1	0140	51	0.	*	1	0410	126	0.	*	1	0640	201	0.	*	1	0910	276	0.
1	0142	52	0.	*	1	0412	127	0.	*	1	0642	202	0.	*	1	0912	277	0.
1	0144	53	0.	*	1	0414	128	0.	*	1	0644	203	0.	*	1	0914	278	0.
1	0146	54	0.	*	1	0416	129	0.	*	1	0646	204	0.	*	1	0916	279	0.
1	0148	55	0.	*	1	0418	130	0.	*	1	0648	205	0.	*	1	0918	280	0.
1	0150	56	0.	*	1	0420	131	0.	*	1	0650	206	0.	*	1	0920	281	0.
1	0152	57	0.	*	1	0422	132	0.	*	1	0652	207	0.	*	1	0922	282	0.
1	0154	58	0.	*	1	0424	133	0.	*	1	0654	208	0.	*	1	0924	283	0.
1	0156	59	0.	*	1	0426	134	0.	*	1	0656	209	0.	*	1	0926	284	0.
1	0158	60	0.	*	1	0428	135	0.	*	1	0658	210	0.	*	1	0928	285	0.
1	0200	61	0.	*	1	0430	136	0.	*	1	0700	211	0.	*	1	0930	286	0.
1	0202	62	0.	*	1	0432	137	0.	*	1	0702	212	0.	*	1	0932	287	0.
1	0204	63	0.	*	1	0434	138	0.	*	1	0704	213	0.	*	1	0934	288	0.
1	0206	64	0.	*	1	0436	139	0.	*	1	0706	214	0.	*	1	0936	289	0.
1	0208	65	0.	*	1	0438	140	0.	*	1	0708	215	0.	*	1	0938	290	0.
1	0210	66	0.	*	1	0440	141	0.	*	1	0710	216	0.	*	1	0940	291	0.
1	0212	67	0.	*	1	0442	142	0.	*	1	0712	217	0.	*	1	0942	292	0.
1	0214	68	0.	*	1	0444	143	0.	*	1	0714	218	0.	*	1	0944	293	0.
1	0216	69	0.	*	1	0446	144	0.	*	1	0716	219	0.	*	1	0946	294	0.

1	0218	70	0.	*	1	0448	145	0.	*	1	0718	220	0.	*	1	0948	295	0.
1	0220	71	0.	*	1	0450	146	0.	*	1	0720	221	0.	*	1	0950	296	0.
1	0222	72	0.	*	1	0452	147	0.	*	1	0722	222	0.	*	1	0952	297	0.
1	0224	73	0.	*	1	0454	148	0.	*	1	0724	223	0.	*	1	0954	298	0.
1	0226	74	0.	*	1	0456	149	0.	*	1	0726	224	0.	*	1	0956	299	0.
1	0228	75	0.	*	1	0458	150	0.	*	1	0728	225	0.	*	1	0958	300	0.
				*					*					*				

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	9.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	3.67		0.	0.	0.	0.
		(INCHES)	0.000	0.000	0.000	0.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.46 SQ MI

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HYDROGRAPH AT STATION 05Qpip

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DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW
					*						*						*					
1		0000	1	0.	*	1		0230	76	1.	*	1		0500	151	93.	*	1		0730	226	13.
1		0002	2	1.	*	1		0232	77	1.	*	1		0502	152	92.	*	1		0732	227	13.
1		0004	3	1.	*	1		0234	78	1.	*	1		0504	153	90.	*	1		0734	228	12.
1		0006	4	1.	*	1		0236	79	1.	*	1		0506	154	89.	*	1		0736	229	12.
1		0008	5	1.	*	1		0238	80	1.	*	1		0508	155	87.	*	1		0738	230	12.
1		0010	6	1.	*	1		0240	81	1.	*	1		0510	156	86.	*	1		0740	231	11.
1		0012	7	1.	*	1		0242	82	1.	*	1		0512	157	84.	*	1		0742	232	11.
1		0014	8	1.	*	1		0244	83	1.	*	1		0514	158	83.	*	1		0744	233	11.
1		0016	9	1.	*	1		0246	84	2.	*	1		0516	159	81.	*	1		0746	234	11.
1		0018	10	1.	*	1		0248	85	2.	*	1		0518	160	80.	*	1		0748	235	10.
1		0020	11	1.	*	1		0250	86	3.	*	1		0520	161	78.	*	1		0750	236	10.
1		0022	12	1.	*	1		0252	87	3.	*	1		0522	162	77.	*	1		0752	237	10.
1		0024	13	1.	*	1		0254	88	4.	*	1		0524	163	76.	*	1		0754	238	9.
1		0026	14	1.	*	1		0256	89	5.	*	1		0526	164	74.	*	1		0756	239	9.
1		0028	15	1.	*	1		0258	90	6.	*	1		0528	165	73.	*	1		0758	240	9.
1		0030	16	1.	*	1		0300	91	8.	*	1		0530	166	72.	*	1		0800	241	9.
1		0032	17	1.	*	1		0302	92	11.	*	1		0532	167	70.	*	1		0802	242	9.
1		0034	18	0.	*	1		0304	93	16.	*	1		0534	168	69.	*	1		0804	243	8.
1		0036	19	0.	*	1		0306	94	23.	*	1		0536	169	68.	*	1		0806	244	8.

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  1     0212   67        0.   *    1     0442  142      107.   *    1     0712  217       16.   *    1     0942  292        2.
  1     0214   68        0.   *    1     0444  143      105.   *    1     0714  218       16.   *    1     0944  293        2.
  1     0216   69        0.   *    1     0446  144      104.   *    1     0716  219       16.   *    1     0946  294        2.
  1     0218   70        0.   *    1     0448  145      102.   *    1     0718  220       15.   *    1     0948  295        2.
  1     0220   71        0.   *    1     0450  146      101.   *    1     0720  221       15.   *    1     0950  296        2.
  1     0222   72        0.   *    1     0452  147       99.   *    1     0722  222       14.   *    1     0952  297        2.
  1     0224   73        0.   *    1     0454  148       98.   *    1     0724  223       14.   *    1     0954  298        2.
  1     0226   74        0.   *    1     0456  149       97.   *    1     0726  224       14.   *    1     0956  299        2.
  1     0228   75        0.   *    1     0458  150       95.   *    1     0728  225       13.   *    1     0958  300        2.
                                *                                *                                *
*****************************************************************************************************************************

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR      9.97-HR
+   (CFS)       (HR)
                            (CFS)
+     117.      4.00                    54.         33.         33.         33.
                          (INCHES)    1.074       1.090       1.090       1.090
                           (AC-FT)      27.         27.         27.         27.

                           CUMULATIVE AREA =    0.46 SQ MI


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


              **************
              *            *
 381 KK       *    050610  *          COMBINE
              *            *
              **************

 383 KO            OUTPUT CONTROL VARIABLES
                         IPRNT           2  PRINT CONTROL
                         IPLOT           0  PLOT CONTROL
                         QSCAL          0.  HYDROGRAPH PLOT SCALE

 384 HC            HYDROGRAPH COMBINATION
                         ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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                                    HYDROGRAPH AT STATION   050610
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SUM OF 2 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0230	76	1.	1		0500	151	98.	1		0730	226	14.
1		0002	2	1.	1		0232	77	1.	1		0502	152	96.	1		0732	227	13.
1		0004	3	1.	1		0234	78	2.	1		0504	153	94.	1		0734	228	13.
1		0006	4	1.	1		0236	79	2.	1		0506	154	93.	1		0736	229	13.
1		0008	5	1.	1		0238	80	2.	1		0508	155	91.	1		0738	230	12.
1		0010	6	1.	1		0240	81	3.	1		0510	156	90.	1		0740	231	12.
1		0012	7	1.	1		0242	82	3.	1		0512	157	88.	1		0742	232	12.
1		0014	8	1.	1		0244	83	4.	1		0514	158	86.	1		0744	233	11.
1		0016	9	1.	1		0246	84	5.	1		0516	159	85.	1		0746	234	11.
1		0018	10	1.	1		0248	85	6.	1		0518	160	83.	1		0748	235	11.
1		0020	11	1.	1		0250	86	7.	1		0520	161	82.	1		0750	236	10.
1		0022	12	1.	1		0252	87	10.	1		0522	162	80.	1		0752	237	10.
1		0024	13	1.	1		0254	88	12.	1		0524	163	79.	1		0754	238	10.
1		0026	14	1.	1		0256	89	16.	1		0526	164	78.	1		0756	239	10.
1		0028	15	1.	1		0258	90	22.	1		0528	165	76.	1		0758	240	9.
1		0030	16	1.	1		0300	91	30.	1		0530	166	75.	1		0800	241	9.
1		0032	17	1.	1		0302	92	46.	1		0532	167	74.	1		0802	242	9.
1		0034	18	0.	1		0304	93	71.	1		0534	168	72.	1		0804	243	9.
1		0036	19	0.	1		0306	94	103.	1		0536	169	71.	1		0806	244	8.
1		0038	20	0.	1		0308	95	133.	1		0538	170	70.	1		0808	245	8.
1		0040	21	0.	1		0310	96	143.	1		0540	171	68.	1		0810	246	8.
1		0042	22	0.	1		0312	97	141.	1		0542	172	67.	1		0812	247	8.
1		0044	23	0.	1		0314	98	138.	1		0544	173	66.	1		0814	248	8.
1		0046	24	0.	1		0316	99	134.	1		0546	174	65.	1		0816	249	7.
1		0048	25	0.	1		0318	100	131.	1		0548	175	63.	1		0818	250	7.
1		0050	26	0.	1		0320	101	131.	1		0550	176	62.	1		0820	251	7.
1		0052	27	0.	1		0322	102	131.	1		0552	177	60.	1		0822	252	7.
1		0054	28	0.	1		0324	103	132.	1		0554	178	59.	1		0824	253	7.
1		0056	29	0.	1		0326	104	133.	1		0556	179	58.	1		0826	254	7.
1		0058	30	0.	1		0328	105	134.	1		0558	180	56.	1		0828	255	6.
1		0100	31	0.	1		0330	106	135.	1		0600	181	55.	1		0830	256	6.
1		0102	32	0.	1		0332	107	136.	1		0602	182	54.	1		0832	257	6.
1		0104	33	0.	1		0334	108	138.	1		0604	183	53.	1		0834	258	6.
1		0106	34	0.	1		0336	109	138.	1		0606	184	51.	1		0836	259	6.
1		0108	35	0.	1		0338	110	138.	1		0608	185	50.	1		0838	260	6.
1		0110	36	0.	1		0340	111	138.	1		0610	186	49.	1		0840	261	5.
1		0112	37	0.	1		0342	112	137.	1		0612	187	48.	1		0842	262	5.
1		0114	38	0.	1		0344	113	137.	1		0614	188	47.	1		0844	263	5.
1		0116	39	0.	1		0346	114	136.	1		0616	189	46.	1		0846	264	5.
1		0118	40	0.	1		0348	115	135.	1		0618	190	45.	1		0848	265	5.
1		0120	41	0.	1		0350	116	134.	1		0620	191	44.	1		0850	266	5.

1	0122	42	0.	*	1	0352	117	133.	*	1	0622	192	43.	*	1	0852	267	5.
1	0124	43	0.	*	1	0354	118	132.	*	1	0624	193	41.	*	1	0854	268	5.
1	0126	44	0.	*	1	0356	119	132.	*	1	0626	194	40.	*	1	0856	269	4.
1	0128	45	0.	*	1	0358	120	131.	*	1	0628	195	38.	*	1	0858	270	4.
1	0130	46	0.	*	1	0400	121	130.	*	1	0630	196	36.	*	1	0900	271	4.
1	0132	47	0.	*	1	0402	122	129.	*	1	0632	197	35.	*	1	0902	272	4.
1	0134	48	0.	*	1	0404	123	128.	*	1	0634	198	33.	*	1	0904	273	4.
1	0136	49	0.	*	1	0406	124	127.	*	1	0636	199	32.	*	1	0906	274	4.
1	0138	50	0.	*	1	0408	125	127.	*	1	0638	200	31.	*	1	0908	275	4.
1	0140	51	0.	*	1	0410	126	126.	*	1	0640	201	29.	*	1	0910	276	4.
1	0142	52	0.	*	1	0412	127	125.	*	1	0642	202	28.	*	1	0912	277	4.
1	0144	53	0.	*	1	0414	128	124.	*	1	0644	203	27.	*	1	0914	278	4.
1	0146	54	0.	*	1	0416	129	123.	*	1	0646	204	26.	*	1	0916	279	3.
1	0148	55	0.	*	1	0418	130	123.	*	1	0648	205	25.	*	1	0918	280	3.
1	0150	56	0.	*	1	0420	131	122.	*	1	0650	206	24.	*	1	0920	281	3.
1	0152	57	0.	*	1	0422	132	121.	*	1	0652	207	23.	*	1	0922	282	3.
1	0154	58	0.	*	1	0424	133	120.	*	1	0654	208	22.	*	1	0924	283	3.
1	0156	59	0.	*	1	0426	134	119.	*	1	0656	209	21.	*	1	0926	284	3.
1	0158	60	0.	*	1	0428	135	118.	*	1	0658	210	20.	*	1	0928	285	3.
1	0200	61	0.	*	1	0430	136	118.	*	1	0700	211	20.	*	1	0930	286	3.
1	0202	62	0.	*	1	0432	137	117.	*	1	0702	212	19.	*	1	0932	287	3.
1	0204	63	0.	*	1	0434	138	116.	*	1	0704	213	19.	*	1	0934	288	3.
1	0206	64	0.	*	1	0436	139	115.	*	1	0706	214	19.	*	1	0936	289	3.
1	0208	65	0.	*	1	0438	140	114.	*	1	0708	215	18.	*	1	0938	290	3.
1	0210	66	0.	*	1	0440	141	113.	*	1	0710	216	18.	*	1	0940	291	3.
1	0212	67	0.	*	1	0442	142	112.	*	1	0712	217	17.	*	1	0942	292	3.
1	0214	68	0.	*	1	0444	143	110.	*	1	0714	218	17.	*	1	0944	293	2.
1	0216	69	0.	*	1	0446	144	109.	*	1	0716	219	16.	*	1	0946	294	2.
1	0218	70	1.	*	1	0448	145	107.	*	1	0718	220	16.	*	1	0948	295	2.
1	0220	71	1.	*	1	0450	146	106.	*	1	0720	221	15.	*	1	0950	296	2.
1	0222	72	1.	*	1	0452	147	104.	*	1	0722	222	15.	*	1	0952	297	2.
1	0224	73	1.	*	1	0454	148	103.	*	1	0724	223	15.	*	1	0954	298	2.
1	0226	74	1.	*	1	0456	149	101.	*	1	0726	224	14.	*	1	0956	299	2.
1	0228	75	1.	*	1	0458	150	99.	*	1	0728	225	14.	*	1	0958	300	2.
				*					*					*				

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	9.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 143.	3.17		63.	38.	38.	38.
		(INCHES)	1.076	1.092	1.092	1.092
		(AC-FT)	31.	32.	32.	32.

CUMULATIVE AREA = 0.54 SQ MI

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

            **************
            *            *
 394 KK     *    050620  *      COMBINE
            *            *
            **************

 396 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           2  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

 397 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 050620
SUM OF 2 HYDROGRAPHS

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DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0230	76	2.	1		0500	151	104.	1		0730	226	15.
1		0002	2	0.	1		0232	77	2.	1		0502	152	102.	1		0732	227	14.
1		0004	3	1.	1		0234	78	2.	1		0504	153	101.	1		0734	228	14.
1		0006	4	1.	1		0236	79	3.	1		0506	154	99.	1		0736	229	14.
1		0008	5	1.	1		0238	80	3.	1		0508	155	97.	1		0738	230	13.
1		0010	6	1.	1		0240	81	4.	1		0510	156	95.	1		0740	231	13.
1		0012	7	1.	1		0242	82	5.	1		0512	157	94.	1		0742	232	13.
1		0014	8	1.	1		0244	83	6.	1		0514	158	92.	1		0744	233	12.
1		0016	9	1.	1		0246	84	7.	1		0516	159	90.	1		0746	234	12.
1		0018	10	1.	1		0248	85	9.	1		0518	160	89.	1		0748	235	12.
1		0020	11	1.	1		0250	86	12.	1		0520	161	87.	1		0750	236	11.
1		0022	12	1.	1		0252	87	15.	1		0522	162	86.	1		0752	237	11.
1		0024	13	1.	1		0254	88	19.	1		0524	163	84.	1		0754	238	11.
1		0026	14	1.	1		0256	89	26.	1		0526	164	83.	1		0756	239	11.
1		0028	15	1.	1		0258	90	33.	1		0528	165	81.	1		0758	240	10.
1		0030	16	1.	1		0300	91	49.	1		0530	166	80.	1		0800	241	10.

1	0032	17	1.	*	1	0302	92	73.	*	1	0532	167	78.	*	1	0802	242	10.
1	0034	18	1.	*	1	0304	93	114.	*	1	0534	168	77.	*	1	0804	243	9.
1	0036	19	0.	*	1	0306	94	167.	*	1	0536	169	76.	*	1	0806	244	9.
1	0038	20	0.	*	1	0308	95	220.	*	1	0538	170	74.	*	1	0808	245	9.
1	0040	21	0.	*	1	0310	96	249.	*	1	0540	171	73.	*	1	0810	246	9.
1	0042	22	0.	*	1	0312	97	249.	*	1	0542	172	71.	*	1	0812	247	9.
1	0044	23	0.	*	1	0314	98	236.	*	1	0544	173	70.	*	1	0814	248	8.
1	0046	24	0.	*	1	0316	99	221.	*	1	0546	174	69.	*	1	0816	249	8.
1	0048	25	0.	*	1	0318	100	207.	*	1	0548	175	68.	*	1	0818	250	8.
1	0050	26	0.	*	1	0320	101	197.	*	1	0550	176	66.	*	1	0820	251	8.
1	0052	27	0.	*	1	0322	102	190.	*	1	0552	177	65.	*	1	0822	252	8.
1	0054	28	0.	*	1	0324	103	185.	*	1	0554	178	63.	*	1	0824	253	7.
1	0056	29	0.	*	1	0326	104	182.	*	1	0556	179	62.	*	1	0826	254	7.
1	0058	30	0.	*	1	0328	105	180.	*	1	0558	180	60.	*	1	0828	255	7.
1	0100	31	0.	*	1	0330	106	179.	*	1	0600	181	59.	*	1	0830	256	7.
1	0102	32	0.	*	1	0332	107	178.	*	1	0602	182	58.	*	1	0832	257	7.
1	0104	33	0.	*	1	0334	108	177.	*	1	0604	183	57.	*	1	0834	258	6.
1	0106	34	0.	*	1	0336	109	176.	*	1	0606	184	55.	*	1	0836	259	6.
1	0108	35	0.	*	1	0338	110	175.	*	1	0608	185	54.	*	1	0838	260	6.
1	0110	36	0.	*	1	0340	111	172.	*	1	0610	186	53.	*	1	0840	261	6.
1	0112	37	0.	*	1	0342	112	170.	*	1	0612	187	52.	*	1	0842	262	6.
1	0114	38	0.	*	1	0344	113	167.	*	1	0614	188	50.	*	1	0844	263	6.
1	0116	39	0.	*	1	0346	114	164.	*	1	0616	189	49.	*	1	0846	264	6.
1	0118	40	0.	*	1	0348	115	161.	*	1	0618	190	48.	*	1	0848	265	5.
1	0120	41	0.	*	1	0350	116	159.	*	1	0620	191	47.	*	1	0850	266	5.
1	0122	42	0.	*	1	0352	117	156.	*	1	0622	192	46.	*	1	0852	267	5.
1	0124	43	0.	*	1	0354	118	154.	*	1	0624	193	45.	*	1	0854	268	5.
1	0126	44	0.	*	1	0356	119	152.	*	1	0626	194	43.	*	1	0856	269	5.
1	0128	45	0.	*	1	0358	120	150.	*	1	0628	195	41.	*	1	0858	270	5.
1	0130	46	0.	*	1	0400	121	148.	*	1	0630	196	40.	*	1	0900	271	5.
1	0132	47	0.	*	1	0402	122	146.	*	1	0632	197	38.	*	1	0902	272	5.
1	0134	48	0.	*	1	0404	123	144.	*	1	0634	198	37.	*	1	0904	273	4.
1	0136	49	0.	*	1	0406	124	142.	*	1	0636	199	35.	*	1	0906	274	4.
1	0138	50	0.	*	1	0408	125	141.	*	1	0638	200	34.	*	1	0908	275	4.
1	0140	51	0.	*	1	0410	126	139.	*	1	0640	201	32.	*	1	0910	276	4.
1	0142	52	0.	*	1	0412	127	138.	*	1	0642	202	31.	*	1	0912	277	4.
1	0144	53	0.	*	1	0414	128	136.	*	1	0644	203	29.	*	1	0914	278	4.
1	0146	54	0.	*	1	0416	129	135.	*	1	0646	204	28.	*	1	0916	279	4.
1	0148	55	0.	*	1	0418	130	134.	*	1	0648	205	27.	*	1	0918	280	4.
1	0150	56	0.	*	1	0420	131	132.	*	1	0650	206	26.	*	1	0920	281	4.
1	0152	57	0.	*	1	0422	132	131.	*	1	0652	207	25.	*	1	0922	282	4.
1	0154	58	0.	*	1	0424	133	130.	*	1	0654	208	24.	*	1	0924	283	3.
1	0156	59	0.	*	1	0426	134	129.	*	1	0656	209	23.	*	1	0926	284	3.
1	0158	60	0.	*	1	0428	135	128.	*	1	0658	210	22.	*	1	0928	285	3.
1	0200	61	0.	*	1	0430	136	126.	*	1	0700	211	22.	*	1	0930	286	3.
1	0202	62	0.	*	1	0432	137	125.	*	1	0702	212	21.	*	1	0932	287	3.
1	0204	63	0.	*	1	0434	138	124.	*	1	0704	213	21.	*	1	0934	288	3.

HYDROGRAPH AT STATION 050630
SUM OF 2 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0230	76	2.	1		0500	151	109.	1		0730	226	16.
1		0002	2	0.	1		0232	77	3.	1		0502	152	107.	1		0732	227	15.
1		0004	3	0.	1		0234	78	3.	1		0504	153	105.	1		0734	228	15.
1		0006	4	0.	1		0236	79	4.	1		0506	154	103.	1		0736	229	14.
1		0008	5	0.	1		0238	80	4.	1		0508	155	101.	1		0738	230	14.
1		0010	6	1.	1		0240	81	5.	1		0510	156	100.	1		0740	231	14.
1		0012	7	1.	1		0242	82	6.	1		0512	157	98.	1		0742	232	13.
1		0014	8	1.	1		0244	83	8.	1		0514	158	96.	1		0744	233	13.
1		0016	9	1.	1		0246	84	10.	1		0516	159	94.	1		0746	234	13.
1		0018	10	1.	1		0248	85	13.	1		0518	160	93.	1		0748	235	12.
1		0020	11	1.	1		0250	86	16.	1		0520	161	91.	1		0750	236	12.
1		0022	12	1.	1		0252	87	21.	1		0522	162	89.	1		0752	237	12.
1		0024	13	1.	1		0254	88	26.	1		0524	163	88.	1		0754	238	11.
1		0026	14	1.	1		0256	89	35.	1		0526	164	86.	1		0756	239	11.
1		0028	15	1.	1		0258	90	48.	1		0528	165	85.	1		0758	240	11.
1		0030	16	1.	1		0300	91	66.	1		0530	166	83.	1		0800	241	11.
1		0032	17	1.	1		0302	92	100.	1		0532	167	82.	1		0802	242	10.
1		0034	18	1.	1		0304	93	158.	1		0534	168	81.	1		0804	243	10.
1		0036	19	1.	1		0306	94	235.	1		0536	169	79.	1		0806	244	10.
1		0038	20	1.	1		0308	95	304.	1		0538	170	78.	1		0808	245	10.
1		0040	21	1.	1		0310	96	342.	1		0540	171	76.	1		0810	246	9.
1		0042	22	0.	1		0312	97	344.	1		0542	172	75.	1		0812	247	9.
1		0044	23	0.	1		0314	98	323.	1		0544	173	74.	1		0814	248	9.
1		0046	24	0.	1		0316	99	297.	1		0546	174	72.	1		0816	249	9.
1		0048	25	0.	1		0318	100	273.	1		0548	175	71.	1		0818	250	8.
1		0050	26	0.	1		0320	101	253.	1		0550	176	70.	1		0820	251	8.
1		0052	27	0.	1		0322	102	238.	1		0552	177	68.	1		0822	252	8.
1		0054	28	0.	1		0324	103	227.	1		0554	178	67.	1		0824	253	8.
1		0056	29	0.	1		0326	104	220.	1		0556	179	65.	1		0826	254	8.
1		0058	30	0.	1		0328	105	214.	1		0558	180	64.	1		0828	255	7.
1		0100	31	0.	1		0330	106	210.	1		0600	181	62.	1		0830	256	7.
1		0102	32	0.	1		0332	107	207.	1		0602	182	61.	1		0832	257	7.
1		0104	33	0.	1		0334	108	204.	1		0604	183	60.	1		0834	258	7.
1		0106	34	0.	1		0336	109	202.	1		0606	184	58.	1		0836	259	7.
1		0108	35	0.	1		0338	110	199.	1		0608	185	57.	1		0838	260	6.
1		0110	36	0.	1		0340	111	195.	1		0610	186	56.	1		0840	261	6.
1		0112	37	0.	1		0342	112	191.	1		0612	187	55.	1		0842	262	6.
1		0114	38	0.	1		0344	113	187.	1		0614	188	53.	1		0844	263	6.

1	0116	39	0.	*	1	0346	114	182.	*	1	0616	189	52.	*	1	0846	264	6.
1	0118	40	0.	*	1	0348	115	178.	*	1	0618	190	51.	*	1	0848	265	6.
1	0120	41	0.	*	1	0350	116	174.	*	1	0620	191	50.	*	1	0850	266	6.
1	0122	42	0.	*	1	0352	117	170.	*	1	0622	192	49.	*	1	0852	267	5.
1	0124	43	0.	*	1	0354	118	167.	*	1	0624	193	48.	*	1	0854	268	5.
1	0126	44	0.	*	1	0356	119	164.	*	1	0626	194	46.	*	1	0856	269	5.
1	0128	45	0.	*	1	0358	120	161.	*	1	0628	195	45.	*	1	0858	270	5.
1	0130	46	0.	*	1	0400	121	158.	*	1	0630	196	43.	*	1	0900	271	5.
1	0132	47	0.	*	1	0402	122	156.	*	1	0632	197	41.	*	1	0902	272	5.
1	0134	48	0.	*	1	0404	123	153.	*	1	0634	198	39.	*	1	0904	273	5.
1	0136	49	0.	*	1	0406	124	151.	*	1	0636	199	38.	*	1	0906	274	5.
1	0138	50	0.	*	1	0408	125	149.	*	1	0638	200	36.	*	1	0908	275	4.
1	0140	51	0.	*	1	0410	126	147.	*	1	0640	201	35.	*	1	0910	276	4.
1	0142	52	0.	*	1	0412	127	145.	*	1	0642	202	33.	*	1	0912	277	4.
1	0144	53	0.	*	1	0414	128	144.	*	1	0644	203	32.	*	1	0914	278	4.
1	0146	54	0.	*	1	0416	129	142.	*	1	0646	204	30.	*	1	0916	279	4.
1	0148	55	0.	*	1	0418	130	140.	*	1	0648	205	29.	*	1	0918	280	4.
1	0150	56	0.	*	1	0420	131	139.	*	1	0650	206	28.	*	1	0920	281	4.
1	0152	57	0.	*	1	0422	132	137.	*	1	0652	207	27.	*	1	0922	282	4.
1	0154	58	0.	*	1	0424	133	136.	*	1	0654	208	26.	*	1	0924	283	4.
1	0156	59	0.	*	1	0426	134	135.	*	1	0656	209	25.	*	1	0926	284	4.
1	0158	60	0.	*	1	0428	135	133.	*	1	0658	210	24.	*	1	0928	285	4.
1	0200	61	0.	*	1	0430	136	132.	*	1	0700	211	23.	*	1	0930	286	3.
1	0202	62	0.	*	1	0432	137	131.	*	1	0702	212	22.	*	1	0932	287	3.
1	0204	63	0.	*	1	0434	138	129.	*	1	0704	213	22.	*	1	0934	288	3.
1	0206	64	0.	*	1	0436	139	128.	*	1	0706	214	21.	*	1	0936	289	3.
1	0208	65	0.	*	1	0438	140	127.	*	1	0708	215	21.	*	1	0938	290	3.
1	0210	66	1.	*	1	0440	141	126.	*	1	0710	216	20.	*	1	0940	291	3.
1	0212	67	1.	*	1	0442	142	125.	*	1	0712	217	20.	*	1	0942	292	3.
1	0214	68	1.	*	1	0444	143	123.	*	1	0714	218	19.	*	1	0944	293	3.
1	0216	69	1.	*	1	0446	144	121.	*	1	0716	219	19.	*	1	0946	294	3.
1	0218	70	1.	*	1	0448	145	119.	*	1	0718	220	18.	*	1	0948	295	3.
1	0220	71	1.	*	1	0450	146	118.	*	1	0720	221	18.	*	1	0950	296	3.
1	0222	72	1.	*	1	0452	147	116.	*	1	0722	222	17.	*	1	0952	297	3.
1	0224	73	2.	*	1	0454	148	114.	*	1	0724	223	17.	*	1	0954	298	3.
1	0226	74	2.	*	1	0456	149	112.	*	1	0726	224	16.	*	1	0956	299	3.
1	0228	75	2.	*	1	0458	150	110.	*	1	0728	225	16.	*	1	0958	300	2.
				*					*					*				

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	9.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 344.	3.20		84.	51.	51.	51.
		(INCHES)	1.104	1.119	1.119	1.119
		(AC-FT)	41.	42.	42.	42.

CUMULATIVE AREA = 0.70 SQ MI

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            *            *
420 KK      *    050640  *      COMBINE
            *            *
            **************

422 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           2  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

423 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION 050640
SUM OF 2 HYDROGRAPHS

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DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0230	76	2.	1		0500	151	112.	1		0730	226	16.
1		0002	2	0.	1		0232	77	2.	1		0502	152	110.	1		0732	227	16.
1		0004	3	0.	1		0234	78	3.	1		0504	153	108.	1		0734	228	15.
1		0006	4	0.	1		0236	79	3.	1		0506	154	106.	1		0736	229	15.
1		0008	5	0.	1		0238	80	4.	1		0508	155	104.	1		0738	230	15.
1		0010	6	0.	1		0240	81	5.	1		0510	156	103.	1		0740	231	14.
1		0012	7	0.	1		0242	82	6.	1		0512	157	101.	1		0742	232	14.
1		0014	8	1.	1		0244	83	7.	1		0514	158	99.	1		0744	233	14.
1		0016	9	1.	1		0246	84	9.	1		0516	159	97.	1		0746	234	13.
1		0018	10	1.	1		0248	85	11.	1		0518	160	95.	1		0748	235	13.
1		0020	11	1.	1		0250	86	15.	1		0520	161	94.	1		0750	236	13.
1		0022	12	1.	1		0252	87	19.	1		0522	162	92.	1		0752	237	12.
1		0024	13	1.	1		0254	88	25.	1		0524	163	91.	1		0754	238	12.

1	0026	14	1.	*	1	0256	89	32.	*	1	0526	164	89.	*	1	0756	239	12.
1	0028	15	1.	*	1	0258	90	44.	*	1	0528	165	87.	*	1	0758	240	11.
1	0030	16	1.	*	1	0300	91	62.	*	1	0530	166	86.	*	1	0800	241	11.
1	0032	17	1.	*	1	0302	92	92.	*	1	0532	167	84.	*	1	0802	242	11.
1	0034	18	1.	*	1	0304	93	146.	*	1	0534	168	83.	*	1	0804	243	10.
1	0036	19	1.	*	1	0306	94	228.	*	1	0536	169	82.	*	1	0806	244	10.
1	0038	20	1.	*	1	0308	95	319.	*	1	0538	170	80.	*	1	0808	245	10.
1	0040	21	1.	*	1	0310	96	385.	*	1	0540	171	79.	*	1	0810	246	10.
1	0042	22	1.	*	1	0312	97	407.	*	1	0542	172	77.	*	1	0812	247	9.
1	0044	23	1.	*	1	0314	98	395.	*	1	0544	173	76.	*	1	0814	248	9.
1	0046	24	0.	*	1	0316	99	365.	*	1	0546	174	75.	*	1	0816	249	9.
1	0048	25	0.	*	1	0318	100	333.	*	1	0548	175	73.	*	1	0818	250	9.
1	0050	26	0.	*	1	0320	101	305.	*	1	0550	176	72.	*	1	0820	251	9.
1	0052	27	0.	*	1	0322	102	283.	*	1	0552	177	70.	*	1	0822	252	8.
1	0054	28	0.	*	1	0324	103	266.	*	1	0554	178	69.	*	1	0824	253	8.
1	0056	29	0.	*	1	0326	104	253.	*	1	0556	179	68.	*	1	0826	254	8.
1	0058	30	0.	*	1	0328	105	243.	*	1	0558	180	66.	*	1	0828	255	8.
1	0100	31	0.	*	1	0330	106	235.	*	1	0600	181	65.	*	1	0830	256	8.
1	0102	32	0.	*	1	0332	107	230.	*	1	0602	182	63.	*	1	0832	257	7.
1	0104	33	0.	*	1	0334	108	225.	*	1	0604	183	62.	*	1	0834	258	7.
1	0106	34	0.	*	1	0336	109	221.	*	1	0606	184	61.	*	1	0836	259	7.
1	0108	35	0.	*	1	0338	110	217.	*	1	0608	185	59.	*	1	0838	260	7.
1	0110	36	0.	*	1	0340	111	212.	*	1	0610	186	58.	*	1	0840	261	7.
1	0112	37	0.	*	1	0342	112	207.	*	1	0612	187	57.	*	1	0842	262	6.
1	0114	38	0.	*	1	0344	113	202.	*	1	0614	188	55.	*	1	0844	263	6.
1	0116	39	0.	*	1	0346	114	196.	*	1	0616	189	54.	*	1	0846	264	6.
1	0118	40	0.	*	1	0348	115	191.	*	1	0618	190	53.	*	1	0848	265	6.
1	0120	41	0.	*	1	0350	116	186.	*	1	0620	191	52.	*	1	0850	266	6.
1	0122	42	0.	*	1	0352	117	181.	*	1	0622	192	51.	*	1	0852	267	6.
1	0124	43	0.	*	1	0354	118	177.	*	1	0624	193	49.	*	1	0854	268	6.
1	0126	44	0.	*	1	0356	119	173.	*	1	0626	194	48.	*	1	0856	269	5.
1	0128	45	0.	*	1	0358	120	169.	*	1	0628	195	47.	*	1	0858	270	5.
1	0130	46	0.	*	1	0400	121	166.	*	1	0630	196	45.	*	1	0900	271	5.
1	0132	47	0.	*	1	0402	122	163.	*	1	0632	197	43.	*	1	0902	272	5.
1	0134	48	0.	*	1	0404	123	160.	*	1	0634	198	41.	*	1	0904	273	5.
1	0136	49	0.	*	1	0406	124	158.	*	1	0636	199	40.	*	1	0906	274	5.
1	0138	50	0.	*	1	0408	125	155.	*	1	0638	200	38.	*	1	0908	275	5.
1	0140	51	0.	*	1	0410	126	153.	*	1	0640	201	37.	*	1	0910	276	5.
1	0142	52	0.	*	1	0412	127	151.	*	1	0642	202	35.	*	1	0912	277	4.
1	0144	53	0.	*	1	0414	128	149.	*	1	0644	203	34.	*	1	0914	278	4.
1	0146	54	0.	*	1	0416	129	147.	*	1	0646	204	32.	*	1	0916	279	4.
1	0148	55	0.	*	1	0418	130	145.	*	1	0648	205	31.	*	1	0918	280	4.
1	0150	56	0.	*	1	0420	131	143.	*	1	0650	206	30.	*	1	0920	281	4.
1	0152	57	0.	*	1	0422	132	142.	*	1	0652	207	28.	*	1	0922	282	4.
1	0154	58	0.	*	1	0424	133	140.	*	1	0654	208	27.	*	1	0924	283	4.
1	0156	59	0.	*	1	0426	134	139.	*	1	0656	209	26.	*	1	0926	284	4.
1	0158	60	0.	*	1	0428	135	137.	*	1	0658	210	25.	*	1	0928	285	4.

1	0200	61	0.	*	1	0430	136	136.	*	1	0700	211	24.	*	1	0930	286	4.
1	0202	62	0.	*	1	0432	137	134.	*	1	0702	212	24.	*	1	0932	287	4.
1	0204	63	0.	*	1	0434	138	133.	*	1	0704	213	23.	*	1	0934	288	3.
1	0206	64	0.	*	1	0436	139	132.	*	1	0706	214	22.	*	1	0936	289	3.
1	0208	65	0.	*	1	0438	140	130.	*	1	0708	215	22.	*	1	0938	290	3.
1	0210	66	0.	*	1	0440	141	129.	*	1	0710	216	21.	*	1	0940	291	3.
1	0212	67	0.	*	1	0442	142	128.	*	1	0712	217	21.	*	1	0942	292	3.
1	0214	68	1.	*	1	0444	143	126.	*	1	0714	218	20.	*	1	0944	293	3.
1	0216	69	1.	*	1	0446	144	125.	*	1	0716	219	20.	*	1	0946	294	3.
1	0218	70	1.	*	1	0448	145	123.	*	1	0718	220	19.	*	1	0948	295	3.
1	0220	71	1.	*	1	0450	146	121.	*	1	0720	221	19.	*	1	0950	296	3.
1	0222	72	1.	*	1	0452	147	119.	*	1	0722	222	18.	*	1	0952	297	3.
1	0224	73	1.	*	1	0454	148	117.	*	1	0724	223	18.	*	1	0954	298	3.
1	0226	74	2.	*	1	0456	149	115.	*	1	0726	224	17.	*	1	0956	299	3.
1	0228	75	2.	*	1	0458	150	114.	*	1	0728	225	17.	*	1	0958	300	3.
				*					*					*				

****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	9.97-HR
		(CFS)				
407.	3.20		89.	54.	54.	54.
		(INCHES)	1.126	1.141	1.141	1.141
		(AC-FT)	44.	45.	45.	45.

CUMULATIVE AREA = 0.74 SQ MI

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

1

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	070808	12.	3.43	2.	1.	1.	0.02		
DIVERSION TO	808OUT	0.	3.43	0.	0.	0.	0.02		

	HYDROGRAPH AT							
+		808PP	12.	3.43	2.	1.	1.	0.02
	ROUTED TO							
+		070610	12.	3.43	2.	1.	1.	0.02
	HYDROGRAPH AT							
+		070610	5.	3.43	1.	0.	0.	0.01
	DIVERSION TO							
+		610OUT	0.	3.40	0.	0.	0.	0.01
	HYDROGRAPH AT							
+		610PP	5.	3.40	1.	0.	0.	0.01
	2 COMBINED AT							
+		070610	17.	3.43	3.	2.	2.	0.02
	ROUTED TO							
+		070508	17.	3.43	3.	2.	2.	0.02
	HYDROGRAPH AT							
+		070508	4.	3.50	1.	0.	0.	0.01
	DIVERSION TO							
+		508OUT	0.	3.50	0.	0.	0.	0.01
	HYDROGRAPH AT							
+		508PP	4.	3.50	1.	0.	0.	0.01
	2 COMBINED AT							
+		070508	21.	3.47	3.	2.	2.	0.03
	ROUTED TO							
+		070010	21.	3.47	3.	2.	2.	0.03
	HYDROGRAPH AT							
+		070010	7.	3.43	1.	1.	1.	0.01
	DIVERSION TO							
+		010OUT	0.	3.43	0.	0.	0.	0.01
	HYDROGRAPH AT							
+		010PP	6.	3.43	1.	1.	1.	0.01
	2 COMBINED AT							

+		070010	27.	3.47	4.	3.	3.	0.04
	ROUTED TO						
+		070210	27.	3.47	4.	3.	3.	0.04
	HYDROGRAPH AT						
+		070209	12.	3.47	2.	1.	1.	0.02
	ROUTED TO						
+		070210	12.	3.47	2.	1.	1.	0.02
	HYDROGRAPH AT						
+		070210	5.	3.47	1.	0.	0.	0.01
	2 COMBINED AT						
+		070210	17.	3.47	3.	2.	2.	0.03
	DIVERSION TO						
+		210OUT	0.	3.43	0.	0.	0.	0.03
	HYDROGRAPH AT						
+		210PP	17.	3.43	3.	2.	2.	0.03
	2 COMBINED AT						
+		070210	44.	3.47	7.	4.	4.	0.07
	ROUTED TO						
+		050005	44.	3.47	7.	4.	4.	0.07
	HYDROGRAPH AT						
+		050005	21.	3.53	3.	2.	2.	0.04
	DIVERSION TO						
+		005OUT	0.	3.53	0.	0.	0.	0.04
	HYDROGRAPH AT						
+		005PP	21.	3.53	3.	2.	2.	0.04
	HYDROGRAPH AT						
+		070010	0.	3.37	0.	0.	0.	0.00
	ROUTED TO						
+		070020	0.	3.47	0.	0.	0.	0.00
	ROUTED TO						
+		070030	0.	3.67	0.	0.	0.	0.00

	ROUTED TO									
+		070070	82.	3.13	9.	6.	6.	0.07		
	HYDROGRAPH AT									
+		070070	43.	3.07	4.	3.	3.	0.03		
	HYDROGRAPH AT									
+		070080	52.	3.13	4.	2.	2.	0.02		
	3 COMBINED AT									
+		070080	168.	3.13	17.	10.	10.	0.12		
	ROUTED TO									
+		07Det	46.	3.67	17.	10.	10.	0.12		
+									69.95	3.67
	DIVERSION TO									
+		07Qspl	0.	3.67	0.	0.	0.	0.12		
	HYDROGRAPH AT									
+		07Qpip	46.	3.67	17.	10.	10.	0.12		
	ROUTED TO									
+		070420	46.	3.67	17.	10.	10.	0.12		
	HYDROGRAPH AT									
+		070410	17.	3.13	2.	1.	1.	0.01		
	ROUTED TO									
+		070420	17.	3.13	2.	1.	1.	0.01		
	HYDROGRAPH AT									
+		070420	5.	3.20	0.	0.	0.	0.00		
	3 COMBINED AT									
+		070420	59.	3.20	19.	12.	12.	0.14		
	ROUTED TO									
+		210005	59.	3.20	19.	12.	12.	0.14		
	HYDROGRAPH AT									
+		210005	13.	3.23	1.	1.	1.	0.01		
	2 COMBINED AT									
+		210005	72.	3.23	20.	12.	12.	0.15		

	ROUTED TO								
+		050305	188.	3.20	32.	20.	20.	0.30	
	ROUTED TO								
+		050050	186.	3.27	32.	20.	20.	0.30	
	HYDROGRAPH AT								
+		050040	105.	3.20	12.	7.	7.	0.10	
	ROUTED TO								
+		40STOR	37.	3.67	12.	7.	7.	0.10	
+									61.58 3.67
	ROUTED TO								
+		050050	37.	3.67	12.	7.	7.	0.10	
	HYDROGRAPH AT								
+		050310	11.	3.13	1.	1.	1.	0.01	
	ROUTED TO								
+		SRPDet	5.	3.37	1.	1.	1.	0.01	
+									54.43 3.37
	HYDROGRAPH AT								
+		S 64th	7.	3.30	1.	0.	0.	0.01	
	HYDROGRAPH AT								
+		050065	38.	3.07	2.	1.	1.	0.01	
	HYDROGRAPH AT								
+		050062	16.	3.10	1.	1.	1.	0.01	
	ROUTED TO								
+		050050	15.	3.13	1.	1.	1.	0.01	
	6 COMBINED AT								
+		050050	254.	3.23	49.	30.	30.	0.43	
	HYDROGRAPH AT								
+		050060	53.	3.17	5.	3.	3.	0.03	
	2 COMBINED AT								
+		050050	303.	3.23	54.	33.	33.	0.46	
	ROUTED TO								
+		05Det	117.	4.00	54.	33.	33.	0.46	
+									53.41 4.00

	DIVERSION TO						
+		05Qspl	0.	4.00	0.	0.	0.	0.46
	HYDROGRAPH AT						
+		05Qpip	117.	4.00	54.	33.	33.	0.46
	HYDROGRAPH AT						
+		050610	99.	3.17	10.	6.	6.	0.08
	2 COMBINED AT						
+		050610	143.	3.17	63.	38.	38.	0.54
	ROUTED TO						
+		050620	142.	3.20	63.	38.	38.	0.54
	HYDROGRAPH AT						
+		050620	110.	3.17	12.	7.	7.	0.10
	2 COMBINED AT						
+		050620	249.	3.20	75.	45.	45.	0.64
	ROUTED TO						
+		050630	249.	3.20	75.	45.	45.	0.64
	HYDROGRAPH AT						
+		050630	120.	3.13	9.	6.	6.	0.06
	2 COMBINED AT						
+		050630	344.	3.20	84.	51.	51.	0.70
	ROUTED TO						
+		050640	342.	3.20	84.	51.	51.	0.70
	HYDROGRAPH AT						
+		050640	65.	3.20	6.	3.	3.	0.03
	2 COMBINED AT						
+		050640	407.	3.20	89.	54.	54.	0.74
	ROUTED TO						
+		051510	402.	3.20	89.	54.	54.	0.74
	ROUTED TO						
+		051520	399.	3.23	89.	54.	54.	0.74
	HYDROGRAPH AT						

+		051610	39.	3.17	3.	2.	2.	0.02
	ROUTED TO							
+		051520	39.	3.17	3.	2.	2.	0.02
	HYDROGRAPH AT							
+		051710	8.	3.17	1.	0.	0.	0.00
	ROUTED TO							
+		051520	8.	3.17	1.	0.	0.	0.00
	HYDROGRAPH AT							
+		051520	43.	3.17	4.	2.	2.	0.02
	4 COMBINED AT							
+		051520	478.	3.20	97.	59.	59.	0.78
	ROUTED TO							
+		051530	476.	3.23	97.	59.	59.	0.78
	HYDROGRAPH AT							
+		051530	92.	3.17	7.	4.	4.	0.04
	2 COMBINED AT							
+		051530	548.	3.23	104.	63.	63.	0.83
	ROUTED TO							
+		051540	547.	3.23	104.	63.	63.	0.83
	HYDROGRAPH AT							
+		051810	12.	3.13	1.	1.	1.	0.00
	ROUTED TO							
+		051540	12.	3.13	1.	1.	1.	0.00
	HYDROGRAPH AT							
+		051540	9.	3.13	1.	0.	0.	0.00
	3 COMBINED AT							
+		051540	560.	3.23	106.	64.	64.	0.83
	ROUTED TO							
+		051550	558.	3.23	106.	64.	64.	0.83
	DIVERSION TO							
+		05PRK	246.	3.23	92.	56.	56.	0.83

	HYDROGRAPH AT								
+		05EX	312.	3.23	14.	8.	8.	0.83	
	ROUTED TO								
+		051560	306.	3.23	14.	8.	8.	0.83	
	ROUTED TO								
+		051570	303.	3.23	14.	8.	8.	0.83	
	HYDROGRAPH AT								
+		051550	246.	3.10	92.	56.	56.	0.00	
	HYDROGRAPH AT								
+		051560	10.	3.17	1.	1.	1.	0.01	
	2 COMBINED AT								
+		PRK	256.	3.17	93.	57.	57.	0.01	
	ROUTED TO								
+		05PKST	242.	3.73	93.	57.	57.	0.01	
+									1229.55 3.73
	ROUTED TO								
+		051565	242.	3.73	93.	57.	57.	0.01	

1

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

CONTINUITY SUMMARIES REMOVED

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 210ST
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	0.00	1.00	1.00
STORAGE	0.	8.	8.
OUTFLOW	0.	0.	0.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	0.55	0.00	4.	0.	0.00	9.97	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 030ST

(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

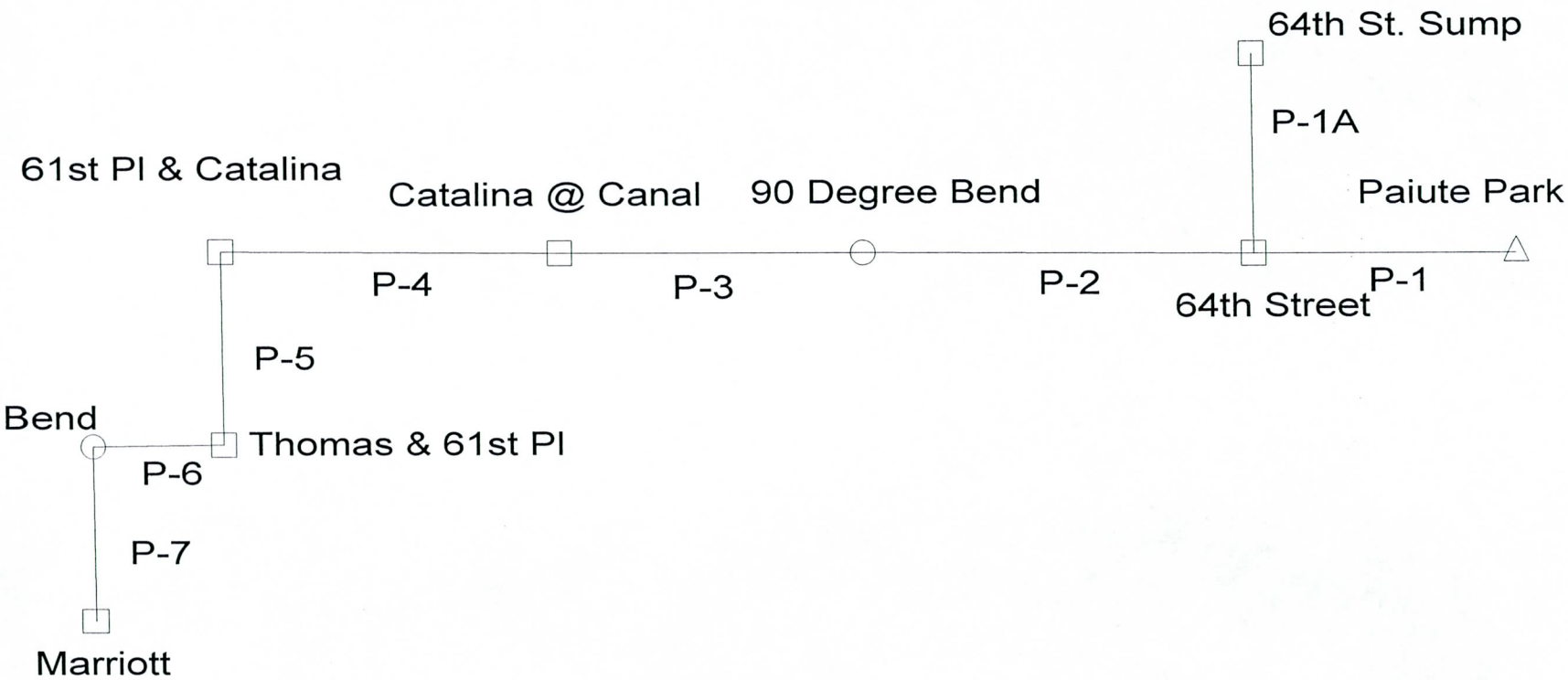
PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	65.00	68.00	68.00
STORAGE	0.	1.	1.
OUTFLOW	0.	0.	0.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	68.13	0.13	1.	20.	6.87	3.27	0.00

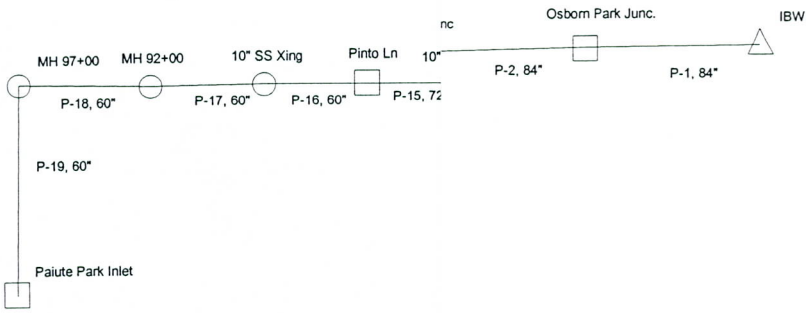
*** NORMAL END OF HEC-1 ***

StormCad Models


64th St. Sump
P-1A
61st Pl & Catalina
Catalina @ Canal
90 Degree Bend
Paiute Park
P-4
P-3
P-2
64th Street
P-1
P-5
Bend
Thomas & 61st Pl
P-6
P-7
Marriott

Osborn Outfall, 64th Street

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-7	Marriott	Bend	36 inch	46.00	6.51	0.00	1,272.00	1,269.15	1,265.74	1,272.00	1,268.91	1,265.33
P-6	Bend	Thomas & 61st Pl	36 inch	46.00	7.16	0.13	1,272.00	1,267.89	1,265.33	1,272.00	1,266.71	1,263.92
P-5	Thomas & 61st Pl	61st Pl & Catalina	42 inch	59.00	8.24	0.85	1,272.00	1,266.36	1,263.92	1,268.00	1,264.22	1,261.30
P-4	61st Pl & Catalina	Catalina @ Canal	54 inch	72.00	7.38	2.01	1,268.00	1,263.95	1,261.30	1,267.00	1,262.15	1,252.02
P-3	Catalina @ Canal	90 Degree Bend	66 inch	188.00	7.91	6.70	1,267.00	1,260.43	1,252.02	1,265.00	1,259.80	1,251.89
P-1A	64th St. Sump	64th Street	42 inch	54.00	5.61	0.00	1,256.00	1,255.19	1,250.26	1,256.00	1,254.79	1,249.30
P-2	90 Degree Bend	64th Street	66 inch	188.00	7.91	7.12	1,265.00	1,258.55	1,251.89	1,256.00	1,254.79	1,249.30
P-1	64th Street	Paiute Park	10 x 4 ft	254.00	6.35	9.65	1,256.00	1,253.42	1,249.30	1,258.00	1,252.90	1,249.00



Project Title: Osborn Road Base Model
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04/02/99 10:59:28 AM

Project Engineer: Parsons Brinckerhoff
StormCAD v1.5 [158]

Osborn Outfall, Alternative A

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-19, 60"	Paiute Park Inlet	MH 97+00	60 inch	79.00	4.02	0.00	1,255.00	1,254.72	1,248.65	1,255.00	1,254.69	1,247.66
P-18, 60"	MH 97+00	MH 92+00	60 inch	79.00	4.02	0.14	1,255.00	1,254.65	1,247.66	1,260.00	1,254.62	1,245.76
P-17, 60"	MH 92+00	10" SS Xing	60 inch	79.00	4.02	0.26	1,260.00	1,254.61	1,245.76	1,262.00	1,254.49	1,244.08
P-16, 60"	10" SS Xing	Pinto Ln	60 inch	79.00	4.02	0.77	1,262.00	1,254.49	1,244.08	1,260.00	1,254.16	1,242.76
P-15, 72"	Pinto Ln	10" SS Xing/MH	72 inch	143.00	5.06	2.25	1,260.00	1,253.46	1,242.76	1,256.00	1,252.78	1,240.78
P-14, 72"	10" SS Xing/MH	68th St.	72 inch	143.00	5.06	4.22	1,256.00	1,252.76	1,240.78	1,255.00	1,252.19	1,237.70
P-13, 84"	68th St.	MH 71+00	78 inch	249.00	7.50	5.87	1,255.00	1,251.49	1,237.70	1,257.00	1,250.36	1,231.33
P-12, 84"	MH 71+00	70th St	78 inch	249.00	7.50	6.98	1,257.00	1,250.32	1,231.33	1,253.00	1,249.19	1,229.91
P-11, 96"	70th St	71st St	84 inch	344.00	8.94	8.09	1,253.00	1,248.69	1,229.91	1,248.00	1,246.37	1,227.92
P-43	71st St	71st Pl	84 inch	344.00	8.94	9.58	1,248.00	1,246.36	1,228.00	1,247.00	1,245.22	1,227.00
P-44	71st Pl	Scottsdale Rd. Junc.	84 inch	344.00	8.94	10.31	1,247.00	1,244.92	1,228.00	1,247.00	1,244.00	1,225.62
P-8, 114"	Scottsdale Rd. Junc.	Brown Rd.	90 inch	407.00	9.21	10.90	1,247.00	1,243.70	1,225.62	1,245.00	1,242.60	1,223.91
P-7, 114"	Brown Rd.	MH 45+00	90 inch	407.00	9.21	11.62	1,245.00	1,242.45	1,223.91	1,244.00	1,241.88	1,223.35
P-6, 114	MH 45+00	Civic Center Junc.	90 inch	407.00	9.21	11.98	1,244.00	1,241.75	1,223.35	1,242.00	1,239.79	1,221.38
P-5, 114"	Civic Center Junc.	75th St	96 inch	478.00	9.51	13.24	1,242.00	1,239.51	1,221.38	1,238.00	1,237.31	1,220.49
P-4, 114"	75th St	Miller Rd.	108 inch	500.00	7.86	14.65	1,238.00	1,237.26	1,220.49	1,237.00	1,236.24	1,219.86
P-3, 8 x 5 Bo	Miller Rd.	Exst Junc	8 x 5 ft	500.00	12.50	15.99	1,237.00	1,235.99	1,219.86	1,236.00	1,234.95	1,219.23
P-2, 84"	Exst Junc	Osborn Park Junc.	84 inch	500.00	12.99	16.20	1,236.00	1,233.64	1,219.23	1,232.00	1,227.61	1,217.22
P-1, 84"	Osborn Park Junc.	IBW	84 inch	500.00	12.99	17.46	1,232.00	1,224.99	1,217.22	1,225.00	1,223.60	1,216.60

Inlet Loss Coefficients
FCDMC Drainage Manual, Vol II, Sec 4.3.3

Calculations based on Kimley-Horn's 30% plans

Alternative 1
Inlets

	Q_{in}	V_{in}	Dia_{in}	A_{in}	h_{in}	Q_{lat}	V_{lat}	cos()	Q_{out}	V_{out}	Dia_{out}	A_{out}	h_{out}	H_j
Pinto	71	3.6	60	19.6	0.20	101	6	0	174	6.2	72	28.3	0.59	**0.67**
68th St.	174	6.2	72	28.3	0.59	109	6	0	283	7.4	84	38.5	0.84	**0.69**
70th St.	283	7.4	84	38.5	0.84	93	6	0	376	7.5	96	50.3	0.87	**0.48**
71st Pl.	376	7.5	96	50.3	0.87	65	5	0	441	8.8	96	50.3	1.20	**0.33**
Scottsdale Junc	441	8.8	96	50.3	1.20	65	2.7	0	503	7.1	114	70.9	0.78	**0.26**
Brown	503	7.1	114	70.9	0.78	38	5	0	541	7.6	114	70.9	0.90	**0.12**
Civic Center*	541	7.6	114	70.9	0.90	76	5	0.87	617	8.7	114	70.9	1.18	**0.28**
Miller	407	5.7	114	70.9	0.51	90	5	0	560	14.0	8x5 Box	40.0	3.04	**0.55**

*Loss at Civic Center includes a sewer transition and two manhole losses- (0.05+0.05+0.05)*8^2/64.4=0.15

Alternative 3
Inlets

	Q_{in}	V_{in}	Dia_{in}	A_{in}	h_{in}	Q_{lat}	V_{lat}	cos()	Q_{out}	V_{out}	Dia_{out}	A_{out}	h_{out}	H_j
Pinto	71	3.6	60	19.6	0.20	101	6	0	174	6.2	72	28.3	0.59	**0.67**
68th St.	174	6.2	72	28.3	0.59	109	6	0	283	7.4	84	38.5	0.84	**0.69**
70th St.	283	7.4	84	38.5	0.84	93	6	0	376	7.5	96	50.3	0.87	**0.48**
71st Pl.	376	7.5	96	50.3	0.87	65	5	0	441	8.8	96	50.3	1.20	**0.33**
Scottsdale Junc	65	2.7	66	23.8	0.12	441	8.8	0	529	13.7	84	38.5	2.93	**4.26**
Monterey	529	13.7	84	38.5	2.93	0	0	0	529	10.5	96	50.3	1.72	**0.02**

64th Street
Inlets

	Q_{in}	V_{in}	Dia_{in}	A_{in}	h_{in}	Q_{lat}	V_{lat}	cos()	Q_{out}	V_{out}	Dia_{out}	A_{out}	h_{out}	H_j
64th Street Sag	239	10.1	66	23.8	1.57	75	8	0	314	7.9	10x4 Box	40.0	0.96	**0.67**
Exist Siphon	204	8.6	66	23.8	1.14	35	8	0	239	10.1	66	23.8	1.57	**0.43**
64th Street	188	7.9	66	23.8	0.97	16	8	0	204	8.6	66	23.8	1.14	**0.17**
Catalina @ Canal	72	5.7	48	12.6	0.51	120	8	0	188	7.9	66	23.8	0.97	**1.38**
61st Pl. @ Catalina	59	6.1	42	9.6	0.58	13	8	0	72	5.7	48	12.6	0.51	**0.22**
Thomas @ 61st Pl.	46	6.5	36	7.1	0.66	13	8	0	59	6.1	42	9.6	0.58	**0.31**
Marriott				0.0								0.0		

Sewer Transitions
Use Tables 4.2 and 4.4:

60"to 5x3.5 Box	Sudden Enlargement Coefficient:	0.10	(Velocity=8)
	Gradual Contraction Coefficient:	0.04	(Velocity=8)
	Box Friction:	0.00	Included in laying length of pipe
	Gradual Enlargement Coefficient:	0.01	(Angle =6 degrees)
	Sudden Contraction Coefficient:	0.04	(Velocity=8)
	Total Coefficient	**0.14**	

Junction Losses

Losses between junctions due to manholes not modeled.
Add losses to downstream end of pipe.

64th Street

Pipe No.	No. MH	K_{mh}	Pipe Velocity	H_{mh}	
P-1	0	0		0.00	
P-1A	0	0		0.00	
P-2	2	0.1	7.9	0.10	
P-3	0	0		0.00	
P-4	7	0.35	8.5	0.39	Add 3 manholes for sewer transition
P-5	1	0.05	8.2	0.05	
P-6	1	0.05	7.6	0.04	
P-7	0	0		0.00	

Stage/Storage Discharge Curve

4th Iteration

4th Iteration

Reduce pipe sizes downstream from Paiute Park
HGL rises in pipe- determine effect on park.

From revised HEC-1 model (PBOsb.DAT)
Outlet funftions as unrestricted culvert in HEC-1 model

1 Determine flows in pipe at times other than peak to determine length of time pipe backs up park outlet-
2 Revise flows in Storm Cad model to match those shown at the times below and reran Storm Cad
3 Use HY8 to check effect of tailwater shown by Storm Cad

	Paiute-		**Pinto-**		**68th St-**		**70th St-**		**Scottsdale-**	
	Time*	Flow	Time	Flow	Time	Flow	Time	Flow	Time	Flow
Peak -20	250	3	250	7	250	12	252	21	252	19
Peak -10	300	8	300	30	300	49	302	100	302	92
Peak -8	302	11	302	46	302	73	304	158	304	146
Peak -4	306	23	306	103	306	167	308	304	308	319
Peak	310	44	310	143	310	249	312	344	312	407
Peak+4	314	61	314	138	314	236	316	297	316	365
Peak +8	318	74	318	131	318	207	320	253	320	305
Peak +10	320	79	320	131	320	197	322	238	322	283
Peak +20	330	100	330	135	330	179	332	207	332	230
Peak +30	340	111	340	138	340	172	342	191	342	207
Peak +40	350	116	350	134	350	159	352	170	352	181
Peak +50	400	121	400	103	400	148	402	145	402	163

*Match times to peak at Pinto inlet

Results-
Paiute Park discharge operates as free discharge system up to Peak -4 minutes. Basin stage equals HGL at 1st manhole at this time. Backflow expected into Paiute Park from Pinto between Peak -4 minutes to about Peak +8 minutes. Times are approximate because Paiute Parke stage/storage/discharge curves are based on a free outflow condition, not on a backflow condition. Actual backflow duration expected to be less than 12 minutes because WSE in park will rise faster than predicted due to backflow.
System returns to free discharge conditions after Peak +8 minutes.

See HEC-1 Output for
Tabular Hydrographs

Osborn

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-7	Marriott	Bend	36 inch	46.00	6.51	0.00	1,272.00	1,269.15	1,265.74	1,272.00	1,268.91	1,265.33
P-6	Bend	Thomas & 61st Pl	36 inch	46.00	7.16	0.13	1,272.00	1,267.89	1,265.33	1,272.00	1,266.71	1,263.92
P-5	Thomas & 61st Pl	61st Pl & Catalina	42 inch	59.00	8.24	0.85	1,272.00	1,266.36	1,263.92	1,268.00	1,264.22	1,261.30
P-4	61st Pl & Catalina	Catalina @ Canal	54 inch	72.00	7.38	2.01	1,268.00	1,263.95	1,261.30	1,267.00	1,262.15	1,252.02
P-3	Catalina @ Canal	90 Degree Bend	66 inch	188.00	7.91	6.70	1,267.00	1,260.43	1,252.02	1,265.00	1,259.80	1,251.89
P-2	90 Degree Bend	64th Street	66 inch	188.00	7.91	7.12	1,265.00	1,258.55	1,251.89	1,256.00	1,254.79	1,249.30
P-1A	64th St. Sump	64th Street	42 inch	54.00	5.61	0.00	1,256.00	1,255.19	1,250.26	1,256.00	1,254.79	1,249.30
P-1	64th Street	Paiute Park	10 x 4 ft	254.00	6.35	9.65	1,256.00	1,253.42	1,249.30	1,258.00	1,252.90	1,249.00

Try 48"

0.2' high

Surcharged From backup

Osborn

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-7	Marriott	Bend	36 inch	46.00	6.51	0.00	1,272.00	1,269.15	1,265.74	1,272.00	1,268.91	1,265.33
P-6	Bend	Thomas & 61st Pl	36 inch	46.00	7.16	0.13	1,272.00	1,267.89	1,265.33	1,272.00	1,266.71	1,263.92
P-5	Thomas & 61st Pl	61st Pl & Catalina	42 inch	59.00	8.24	0.85	1,272.00	1,266.36	1,263.92	1,268.00	1,264.22	1,261.30
P-4	61st Pl & Catalina	Catalina @ Canal	54 inch	72.00	7.38	2.01	1,268.00	1,263.95	1,261.30	1,267.00	1,262.15	1,252.02
P-3	Catalina @ Canal	90 Degree Bend	66 inch	188.00	7.91	6.70	1,267.00	1,260.43	1,252.02	1,265.00	1,259.80	1,251.89
P-2	90 Degree Bend	64th Street	66 inch	188.00	7.91	7.12	1,265.00	1,258.55	1,251.89	1,256.00	1,254.79	1,249.30
P-1A	64th St. Sump	64th Street	48 inch	54.00	4.30	0.00	1,256.00	1,254.99	1,250.26	1,256.00	1,254.79	1,249.30
P-1	64th Street	Paiute Park	10 x 4 ft	254.00	6.35	9.65	1,256.00	1,253.42	1,249.30	1,258.00	1,252.90	1,249.00

04

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of

Made by KSH

Date 3/31/99

Checked by

Date

Subject Paiute Park
Backwater effect

Effect of 12 min backup -

	Out Flow @ 2min Intervals	Ave during 2min time step	Vol in 2min	
Start 306	23 cfs	28 cfs	3360	— stage 50.9
	34	39	4680	
	44	48	5760	
	52	57	6840	
	61	65	7800	
	68	71	8520	
End 318	74			— stage 52.2
			36,960 Total	

Surface area of basin @ elev 52 = 3.17 ac

rise in stage due to restricted outflow =

$= 36,960 / 43560 \times 3.17$

$= 0.3'$

Stage @ 318 = 52.2 ✓ same elev as 52

Stage increases to 52.5

Check Inflow pipe hydraulics -

Time peak = 323 ∴ after backup -
Stage @ 323 = 52.6 add 0.3' = 52.9

Recalculate 64th Storm cad @ 52.9 Tailw

Peak - 10 min

Osborn

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-19, 60"	Paiute Park Inlet	MH 97+00	60 inch	8.00	4.15	0.00	1,255.00	1,249.42	1,248.65	1,255.00	1,248.48	1,247.66
P-18, 60"	MH 97+00	MH 92+00	60 inch	8.00	4.15	0.14	1,255.00	1,248.43	1,247.66	1,260.00	1,246.55	1,245.76
P-17, 60"	MH 92+00	10" SS Xing	60 inch	8.00	4.15	0.26	1,260.00	1,246.53	1,245.76	1,262.00	1,245.17	1,244.08
P-16, 60"	10" SS Xing	Pinto Ln	60 inch	8.00	2.52	0.88	1,262.00	1,245.17	1,244.08	1,260.00	1,245.17	1,242.76
P-15, 72"	Pinto Ln	10" SS Xing/MH	72 inch	30.00	4.50	4.39	1,260.00	1,244.47	1,242.76	1,256.00	1,244.47	1,240.78
P-14, 72"	10" SS Xing/MH	68th St.	72 inch	30.00	1.64	7.64	1,256.00	1,244.47	1,240.78	1,255.00	1,244.47	1,237.70
P-13, 84"	68th St.	MH 71+00	78 inch	30.00	0.93	13.81	1,255.00	1,243.77	1,237.70	1,257.00	1,243.75	1,231.33
P-12, 84"	MH 71+00	70th St	78 inch	30.00	0.90	22.89	1,257.00	1,243.75	1,231.33	1,253.00	1,243.74	1,229.91
P-11, 96"	70th St	71st St	84 inch	30.00	0.78	32.11	1,253.00	1,243.24	1,229.91	1,248.00	1,243.22	1,227.92
P-43	71st St	71st Pl	84 inch	30.00	0.78	49.21	1,248.00	1,243.22	1,228.00	1,247.00	1,243.21	1,227.00
P-44	71st Pl	Scottsdale Rd. Junc.	84 inch	30.00	0.78	57.59	1,247.00	1,242.91	1,228.00	1,247.00	1,242.90	1,225.62
P-8, 114"	Scottsdale Rd. Junc.	Brown Rd.	90 inch	30.00	0.68	64.35	1,247.00	1,242.60	1,225.62	1,245.00	1,242.60	1,223.91
P-7, 114"	Brown Rd.	MH 45+00	90 inch	407.00	9.21	74.02	1,245.00	1,242.45	1,223.91	1,244.00	1,241.88	1,223.35
P-6, 114	MH 45+00	Civic Center Junc.	90 inch	407.00	9.21	74.38	1,244.00	1,241.75	1,223.35	1,242.00	1,239.79	1,221.38
P-5, 114"	Civic Center Junc.	75th St	96 inch	478.00	9.51	75.65	1,242.00	1,239.51	1,221.38	1,238.00	1,237.31	1,220.49
P-4, 114"	75th St	Miller Rd.	108 inch	500.00	7.86	77.05	1,238.00	1,237.26	1,220.49	1,237.00	1,236.24	1,219.86
P-3, 8 x 5 Bo	Miller Rd.	Exst Junc	8 x 5 ft	500.00	12.50	78.40	1,237.00	1,235.99	1,219.86	1,236.00	1,234.95	1,219.23
P-2, 84"	Exst Junc	Osborn Park Junc.	84 inch	500.00	12.99	78.60	1,236.00	1,233.64	1,219.23	1,232.00	1,227.61	1,217.22
P-1, 84"	Osborn Park Junc.	IBW	84 inch	500.00	12.99	79.86	1,232.00	1,224.99	1,217.22	1,225.00	1,223.60	1,216.60

No change in discharge from free outlet cond.

4th Iteration
Peak Flows -10 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:15:35 FILE NAME: PAIUTE

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.0 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1248.65	1247.66	256.00	1 RCP	5.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: PAIUTE DATE: 03-26-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1248.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1250.80	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1251.18	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1251.78	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1252.39	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1252.94	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1253.48	120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.04	140.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.81	160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1255.33	180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1256.09	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: PAIUTE DATE: 03-26-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1248.65	0.000	0.00	0.00	0.00
1250.80	0.000	20.00	0.00	0.00
1251.18	0.000	40.00	0.00	0.00
1251.78	0.000	60.00	0.00	0.00
1252.39	0.000	80.00	0.00	0.00
1252.94	0.000	100.00	0.00	0.00
1253.48	0.000	120.00	0.00	0.00
1254.04	0.000	140.00	0.00	0.00
1254.81	0.000	160.00	0.00	0.00
1255.33	0.000	180.00	0.00	0.00
1256.09	0.000	200.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

4th Iteration
Peak Flows -10 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:15:35 FILE NAME: PAIUTE

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1248.65	0.00	-0.15	0-NF	0.00	0.00	0.00	0.84	0.00	0.00
20.00	1250.80	1.54	2.15	1-S2n	1.12	1.21	1.12	0.84	6.05	0.00
40.00	1251.18	2.42	2.53	1-S2n	1.61	1.75	1.61	0.84	7.31	0.00
60.00	1251.78	3.13	2.93	1-S2n	2.01	2.17	2.01	0.84	8.13	0.00
80.00	1252.39	3.74	3.37	1-S2n	2.36	2.53	2.36	0.84	8.77	0.00
100.00	1252.94	4.29	3.85	1-S2n	2.69	2.84	2.64	0.84	9.53	0.00
120.00	1253.48	4.83	4.40	1-S2n	3.02	3.12	2.92	0.84	10.07	0.00
140.00	1254.04	5.39	5.01	5-S2n	3.37	3.38	3.28	0.84	10.26	0.00
160.00	1254.81	6.00	6.16	2-M2c	3.75	3.62	3.62	0.84	10.54	0.00
180.00	1255.33	6.68	6.65	2-M2c	4.24	3.83	3.83	0.84	11.18	0.00
200.00	1256.09	7.44	7.23	2-M2c	5.00	4.03	4.03	0.84	11.79	0.00

El. inlet face invert 1248.65 ft El. outlet invert 1247.66 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1248.65 ft
OUTLET STATION	256.00 ft
OUTLET ELEVATION	1247.66 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0039
CULVERT LENGTH ALONG SLOPE	256.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

4th Iteration
Peak Flows -10 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:15:35 FILE NAME: PAIUTE

****
********** TAILWATER **********
****
****

CONSTANT WATER SURFACE ELEVATION
1248.50

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	30.00 ft
CREST LENGTH	200.00 ft
OVERTOPPING CREST ELEVATION	1257.00 ft

****

Iteration
Peak -4 Min

Osborn

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-19, 60"	Paiute Park Inlet	MH 97+00	60 inch	23.00	2.75	0.00	1,255.00	1,250.86	1,248.65	1,255.00	1,250.92	1,247.66
P-18, 60"	MH 97+00	MH 92+00	60 inch	23.00	1.70	0.25	1,255.00	1,250.91	1,247.66	1,260.00	1,250.94	1,245.76
P-17, 60"	MH 92+00	10" SS Xing	60 inch	23.00	1.17	0.58	1,260.00	1,250.93	1,245.76	1,262.00	1,250.92	1,244.08
P-16, 60"	10" SS Xing	Pinto Ln	60 inch	23.00	1.17	2.36	1,262.00	1,250.92	1,244.08	1,260.00	1,250.90	1,242.76
P-15, 72"	Pinto Ln	10" SS Xing/MH	72 inch	103.00	3.64	7.41	1,260.00	1,250.20	1,242.76	1,256.00	1,249.84	1,240.78
P-14, 72"	10" SS Xing/MH	68th St.	72 inch	103.00	3.64	10.16	1,256.00	1,249.83	1,240.78	1,255.00	1,249.54	1,237.70
P-13, 84"	68th St.	MH 71+00	78 inch	167.00	5.03	12.45	1,255.00	1,248.84	1,237.70	1,257.00	1,248.33	1,231.33
P-12, 84"	MH 71+00	70th St	78 inch	167.00	5.03	14.10	1,257.00	1,248.31	1,231.33	1,253.00	1,247.80	1,229.91
P-11, 96"	70th St	71st St	84 inch	304.00	7.90	15.76	1,253.00	1,247.30	1,229.91	1,248.00	1,245.49	1,227.92
P-43	71st St	71st Pl	84 inch	304.00	7.90	17.45	1,248.00	1,245.48	1,228.00	1,247.00	1,244.59	1,227.00
P-44	71st Pl	Scottsdale Rd. Junc.	84 inch	304.00	7.90	18.27	1,247.00	1.24e3	1,228.00	1,247.00	1,243.58	1,225.62
P-8, 114"	Scottsdale Rd. Junc.	Brown Rd.	90 inch	319.00	7.22	18.94	1,247.00	1,243.28	1,225.62	1,245.00	1,242.60	1,223.91
P-7, 114"	Brown Rd.	MH 45+00	90 inch	407.00	9.21	19.85	1,245.00	1,242.45	1,223.91	1,244.00	1,241.88	1,223.35
P-6, 114	MH 45+00	Civic Center Junc.	90 inch	407.00	9.21	20.21	1,244.00	1,241.75	1,223.35	1,242.00	1,239.79	1,221.38
P-5, 114"	Civic Center Junc.	75th St	96 inch	478.00	9.51	21.48	1,242.00	1,239.51	1,221.38	1,238.00	1,237.31	1,220.49
P-4, 114"	75th St	Miller Rd.	108 inch	500.00	7.86	22.88	1,238.00	1,237.26	1,220.49	1,237.00	1,236.24	1,219.86
P-3, 8 x 5 Bo	Miller Rd.	Exst Junc	8 x 5 ft	500.00	12.50	24.23	1,237.00	1,235.99	1,219.86	1,236.00	1,234.95	1,219.23
P-2, 84"	Exst Junc	Osborn Park Junc.	84 inch	500.00	12.99	24.43	1,236.00	1,233.64	1,219.23	1,232.00	1,227.61	1,217.22
P-1, 84"	Osborn Park Junc.	IBW	84 inch	500.00	12.99	25.69	1,232.00	1,224.99	1,217.22	121,962.17	1,223.60	1,216.60

Depth = 3.3'
Same as Free discharge
Paiute Park Stage =1250.9
∴ Begin backflow from Pinto

4th Iteration
Peak Flows -4 Min

CURRENT DATE: 03-26-1999
CURRENT TIME: 15:37:37

FILE DATE: 03-26-1999
FILE NAME: PAIUTE

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.0 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS / SHAPE / MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1248.65	1247.66	256.00	1 RCP	5.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: PAIUTE DATE: 03-26-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1250.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1251.10	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1251.18	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1251.78	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1252.39	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1252.94	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1253.48	120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.04	140.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.81	160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1255.33	180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1256.09	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: PAIUTE DATE: 03-26-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1250.90	0.000	0.00	0.00	0.00
1251.10	0.000	20.00	0.00	0.00
1251.18	0.000	40.00	0.00	0.00
1251.78	0.000	60.00	0.00	0.00
1252.39	0.000	80.00	0.00	0.00
1252.94	0.000	100.00	0.00	0.00
1253.48	0.000	120.00	0.00	0.00
1254.04	0.000	140.00	0.00	0.00
1254.81	0.000	160.00	0.00	0.00
1255.33	0.000	180.00	0.00	0.00
1256.09	0.000	200.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

4th Iteration
Peak Flows -4 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:37:37 FILE NAME: PAIUTE

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1250.90	0.00	2.25	0-NF	0.00	0.00	0.00	3.24	0.00	0.00
20.00	1251.10	1.54	2.45	3-M1t	1.12	1.21	3.24	3.24	1.49	0.00
40.00	1251.18	2.42	2.53	1-S2n	1.61	1.75	1.61	3.24	7.31	0.00
60.00	1251.78	3.13	2.93	1-S2n	2.01	2.17	2.01	3.24	8.13	0.00
80.00	1252.39	3.74	3.37	1-S2n	2.36	2.53	2.36	3.24	8.77	0.00
100.00	1252.94	4.29	3.85	1-S2n	2.69	2.84	2.64	3.24	9.53	0.00
120.00	1253.48	4.83	4.40	1-S2n	3.02	3.12	2.92	3.24	10.07	0.00
140.00	1254.04	5.39	5.01	5-S2n	3.37	3.38	3.28	3.24	10.26	0.00
160.00	1254.81	6.00	6.16	2-M2c	3.75	3.62	3.62	3.24	10.54	0.00
180.00	1255.33	6.68	6.65	2-M2c	4.24	3.83	3.83	3.24	11.18	0.00
200.00	1256.09	7.44	7.23	2-M2c	5.00	4.03	4.03	3.24	11.79	0.00

El. inlet face invert 1248.65 ft El. outlet invert 1247.66 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1248.65 ft
OUTLET STATION	256.00 ft
OUTLET ELEVATION	1247.66 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0039
CULVERT LENGTH ALONG SLOPE	256.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

4th Iteration
Peak Flows -4 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:37:37 FILE NAME: PAIUTE

****
********** TAILWATER **********
****
****

CONSTANT WATER SURFACE ELEVATION
1250.90

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	30.00 ft
CREST LENGTH	200.00 ft
OVERTOPPING CREST ELEVATION	1257.00 ft

****

Peak Flows

Osborn

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-19, 60"	Paiute Park Inlet	MH 97+00	60 inch	44.00	2.24	0.00	1,255.00	1,254.34	1,248.65	1,255.00	1,254.33	1,247.66
P-18, 60"	MH 97+00	MH 92+00	60 inch	44.00	2.24	0.25	1,255.00	1,254.31	1,247.66	1,260.00	1,254.30	1,245.76
P-17, 60"	MH 92+00	10" SS Xing	60 inch	44.00	2.24	0.46	1,260.00	1,254.30	1,245.76	1,262.00	1,254.26	1,244.08
P-16, 60"	10" SS Xing	Pinto Ln	60 inch	44.00	2.24	1.39	1,262.00	1,254.26	1,244.08	1,260.00	1,254.16	1,242.76
P-15, 72"	Pinto Ln	10" SS Xing/MH	72 inch	143.00	5.06	4.03	1,260.00	1,253.46	1,242.76	1,256.00	1,252.78	1,240.78
P-14, 72"	10" SS Xing/MH	68th St.	72 inch	143.00	5.06	6.01	1,256.00	1,252.76	1,240.78	1,255.00	1,252.19	1,237.70
P-13, 84"	68th St.	MH 71+00	78 inch	249.00	7.50	7.66	1,255.00	1,251.49	1,237.70	1,257.00	1,250.36	1,231.33
P-12, 84"	MH 71+00	70th St	78 inch	249.00	7.50	8.77	1,257.00	1,250.32	1,231.33	1,253.00	1,249.19	1,229.91
P-11, 96"	70th St	71st St	84 inch	344.00	8.94	9.88	1,253.00	1,248.69	1,229.91	1,248.00	1,246.37	1,227.92
P-43	71st St	71st Pl	84 inch	344.00	8.94	11.37	1,248.00	1,246.36	1,228.00	1,247.00	1,245.22	1,227.00
P-44	71st Pl	Scottsdale Rd. Junc.	84 inch	344.00	8.94	12.10	1,247.00	1,244.92	1,228.00	1,247.00	1,244.00	1,225.62
P-8, 114"	Scottsdale Rd. Junc.	Brown Rd.	90 inch	407.00	9.21	12.69	1,247.00	1,243.70	1,225.62	1,245.00	1,242.60	1,223.91
P-7, 114"	Brown Rd.	MH 45+00	90 inch	407.00	9.21	13.40	1,245.00	1,242.45	1,223.91	1,244.00	1,241.88	1,223.35
P-6, 114	MH 45+00	Civic Center Junc.	90 inch	407.00	9.21	13.76	1,244.00	1,241.75	1,223.35	1,242.00	1,239.79	1,221.38
P-5, 114"	Civic Center Junc.	75th St	96 inch	478.00	9.51	15.03	1,242.00	1,239.51	1,221.38	1,238.00	1,237.31	1,220.49
P-4, 114"	75th St	Miller Rd.	108 inch	500.00	7.86	16.43	1,238.00	1,237.26	1,220.49	1,237.00	1,236.24	1,219.86
P-3, 8 x 5 Bo	Miller Rd.	Exst Junc	8 x 5 ft	500.00	12.50	17.78	1,237.00	1,235.99	1,219.86	1,236.00	1,234.95	1,219.23
P-2, 84"	Exst Junc	Osborn Park Junc.	84 inch	500.00	12.99	17.99	1,236.00	1,233.64	1,219.23	1,232.00	1,227.61	1,217.22
P-1, 84"	Osborn Park Junc.	IBW	84 inch	500.00	12.99	19.25	1,232.00	1,224.99	1,217.22	1,225.00	1,223.60	1,216.60

Discharge affected
Basin stage @ 1252.4
80 Inflow to Paiute
from Pinto

4th Iteration
Peak Flows

CURRENT DATE: 03-26-1999
CURRENT TIME: 15:18:53

FILE DATE: 03-26-1999
FILE NAME: PAIUTE

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.0 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1248.65	1247.66	256.00	1 RCP	5.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: PAIUTE DATE: 03-26-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1254.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.33	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.44	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.62	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.88	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1255.22	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1255.62	120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1256.10	140.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1256.66	160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1257.29	180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1257.99	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: PAIUTE DATE: 03-26-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1254.30	0.000	0.00	0.00	0.00
1254.33	0.000	20.00	0.00	0.00
1254.44	0.000	40.00	0.00	0.00
1254.62	0.000	60.00	0.00	0.00
1254.88	0.000	80.00	0.00	0.00
1255.22	0.000	100.00	0.00	0.00
1255.62	0.000	120.00	0.00	0.00
1256.10	0.000	140.00	0.00	0.00
1256.66	0.000	160.00	0.00	0.00
1257.29	0.000	180.00	0.00	0.00
1257.99	0.000	200.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

4th Iteration
Peak Flows

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:18:53 FILE NAME: PAIUTE

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1254.30	0.00	5.65	0-NF	0.00	0.00	0.00	6.64	0.00	0.00
20.00	1254.33	1.54	5.68	4-FFt	1.12	1.21	5.00	6.64	1.02	0.00
40.00	1254.44	2.42	5.79	4-FFt	1.61	1.75	5.00	6.64	2.04	0.00
60.00	1254.62	3.13	5.97	4-FFt	2.01	2.17	5.00	6.64	3.06	0.00
80.00	1254.88	3.74	6.23	4-FFt	2.36	2.53	5.00	6.64	4.07	0.00
100.00	1255.22	4.29	6.57	4-FFt	2.69	2.84	5.00	6.64	5.09	0.00
120.00	1255.62	4.83	6.97	4-FFt	3.02	3.12	5.00	6.64	6.11	0.00
140.00	1256.10	5.39	7.45	4-FFt	3.37	3.38	5.00	6.64	7.13	0.00
160.00	1256.66	6.00	8.01	4-FFt	3.75	3.62	5.00	6.64	8.15	0.00
180.00	1257.29	6.68	8.64	4-FFt	4.24	3.83	5.00	6.64	9.17	0.00
200.00	1257.99	7.44	9.34	4-FFt	5.00	4.03	5.00	6.64	10.19	0.00

El. inlet face invert 1248.65 ft El. outlet invert 1247.66 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1248.65 ft
OUTLET STATION	256.00 ft
OUTLET ELEVATION	1247.66 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0039
CULVERT LENGTH ALONG SLOPE	256.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

4th Iteration
Peak Flows

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:18:53 FILE NAME: PAIUTE

****
********** TAILWATER **********
****
****

CONSTANT WATER SURFACE ELEVATION
1254.30

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	30.00 ft
CREST LENGTH	200.00 ft
OVERTOPPING CREST ELEVATION	1257.00 ft

****

Peak + 4 Min

Osborn

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-19, 60"	Paiute Park Inlet	MH 97+00	60 inch	61.00	3.50	0.00	1,255.00	1,252.80	1,248.65	1,255.00	1,252.82	1,247.66
P-18, 60"	MH 97+00	MH 92+00	60 inch	61.00	3.11	0.17	1,255.00	1,252.80	1,247.66	1,260.00	1,252.78	1,245.76
P-17, 60"	MH 92+00	10" SS Xing	60 inch	61.00	3.11	0.32	1,260.00	1,252.77	1,245.76	1,262.00	1,252.70	1,244.08
P-16, 60"	10" SS Xing	Pinto Ln	60 inch	61.00	3.11	0.99	1,262.00	1,252.70	1,244.08	1,260.00	1,252.51	1,242.76
P-15, 72"	Pinto Ln	10" SS Xing/MH	72 inch	138.00	4.88	2.90	1,260.00	1,251.81	1,242.76	1,256.00	1,251.17	1,240.78
P-14, 72"	10" SS Xing/MH	68th St.	72 inch	138.00	4.88	4.95	1,256.00	1,251.15	1,240.78	1,255.00	1,250.62	1,237.70
P-13, 84"	68th St.	MH 71+00	78 inch	236.00	7.11	6.65	1,255.00	1,249.92	1,237.70	1,257.00	1,248.91	1,231.33
P-12, 84"	MH 71+00	70th St	78 inch	236.00	7.11	7.83	1,257.00	1,248.87	1,231.33	1,253.00	1,247.86	1,229.91
P-11, 96"	70th St	71st St	84 inch	297.00	7.72	9.00	1,253.00	1,247.36	1,229.91	1,248.00	1,245.63	1,227.92
P-43	71st St	71st Pl	84 inch	297.00	7.72	10.72	1,248.00	1,245.62	1,228.00	1,247.00	1,244.77	1,227.00
P-44	71st Pl	Scottsdale Rd. Junc.	84 inch	297.00	7.72	11.57	1,247.00	1,244.47	1,228.00	1,247.00	1,243.79	1,225.62
P-8, 114"	Scottsdale Rd. Junc.	Brown Rd.	90 inch	365.00	8.26	12.25	1,247.00	1,243.49	1,225.62	1,245.00	1,242.60	1,223.91
P-7, 114"	Brown Rd.	MH 45+00	90 inch	407.00	9.21	13.05	1,245.00	1,242.45	1,223.91	1,244.00	1,241.88	1,223.35
P-6, 114	MH 45+00	Civic Center Junc.	90 inch	407.00	9.21	13.41	1,244.00	1,241.75	1,223.35	1,242.00	1,239.79	1,221.38
P-5, 114"	Civic Center Junc.	75th St	96 inch	478.00	9.51	14.68	1,242.00	1,239.51	1,221.38	1,238.00	1,237.31	1,220.49
P-4, 114"	75th St	Miller Rd.	108 inch	500.00	7.86	16.08	1,238.00	1,237.26	1,220.49	1,237.00	1,236.24	1,219.86
P-3, 8 x 5 Bo	Miller Rd.	Exst Junc	8 x 5 ft	500.00	12.50	17.43	1,237.00	1,235.99	1,219.86	1,236.00	1,234.95	1,219.23
P-2, 84"	Exst Junc	Osborn Park Junc.	84 inch	500.00	12.99	17.63	1,236.00	1,233.64	1,219.23	1,232.00	1,227.61	1,217.22
P-1, 84"	Osborn Park Junc.	IBW	84 inch	500.00	12.99	18.89	1,232.00	1,224.99	1,217.22	1,225.00	1,223.60	1,216.60

Discharge Restricted
Depth = 5.1'
Paiute Park Stage =
1251.8
∴ Back Flow expected

4th Iteration
Peak Flows +4 Min

CURRENT DATE: 03-26-1999
CURRENT TIME: 15:42:25

FILE DATE: 03-26-1999
FILE NAME: PAIUTE

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.0 **********
****

C U L V NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1248.65	1247.66	256.00	1 RCP	5.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: PAIUTE DATE: 03-26-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1252.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1252.83	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1252.94	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1253.12	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1253.38	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1253.72	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.12	120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.60	140.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1255.06	160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1255.61	180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1256.09	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: PAIUTE DATE: 03-26-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1252.80	0.000	0.00	0.00	0.00
1252.83	0.000	20.00	0.00	0.00
1252.94	0.000	40.00	0.00	0.00
1253.12	0.000	60.00	0.00	0.00
1253.38	0.000	80.00	0.00	0.00
1253.72	0.000	100.00	0.00	0.00
1254.12	0.000	120.00	0.00	0.00
1254.60	0.000	140.00	0.00	0.00
1255.06	0.000	160.00	0.00	0.00
1255.61	0.000	180.00	0.00	0.00
1256.09	0.000	200.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

4th Iteration
Peak Flows +4 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:42:25 FILE NAME: PAIUTE

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1252.80	0.00	4.15	0-NF	0.00	0.00	0.00	5.14	0.00	0.00
20.00	1252.83	1.54	4.18	1-S1f	1.12	1.21	5.00	5.14	1.02	0.00
40.00	1252.94	2.42	4.29	1-S1f	1.61	1.75	5.00	5.14	2.04	0.00
60.00	1253.12	3.13	4.47	1-S1f	2.01	2.17	5.00	5.14	3.06	0.00
80.00	1253.38	3.74	4.73	1-S1f	2.36	2.53	5.00	5.14	4.07	0.00
100.00	1253.72	4.29	5.07	4-FFt	2.69	2.84	5.00	5.14	5.09	0.00
120.00	1254.12	4.83	5.47	4-FFt	3.02	3.12	5.00	5.14	6.11	0.00
140.00	1254.60	5.39	5.95	4-FFt	3.37	3.38	5.00	5.14	7.13	0.00
160.00	1255.06	6.00	6.41	3-M1f	3.75	3.62	5.00	5.14	8.15	0.00
180.00	1255.61	6.68	6.96	3-M1f	4.24	3.83	5.00	5.14	9.17	0.00
200.00	1256.09	7.44	7.42	3-M1f	5.00	4.03	5.00	5.14	10.19	0.00

El. inlet face invert 1248.65 ft El. outlet invert 1247.66 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1248.65 ft
OUTLET STATION	256.00 ft
OUTLET ELEVATION	1247.66 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0039
CULVERT LENGTH ALONG SLOPE	256.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

4th Iteration
Peak Flows +4 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:42:25 FILE NAME: PAIUTE

****
********** TAILWATER **********
****
****

CONSTANT WATER SURFACE ELEVATION
1252.80

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	30.00 ft
CREST LENGTH	200.00 ft
OVERTOPPING CREST ELEVATION	1257.00 ft

****

Peak +8 min

Osborn

Pipe	Upstream Node	Downstream Node	Section Size	Discharge (cfs)	Velocity (ft/s)	System Flow Time (min)	Upstream Ground Elevation (ft)	Upstream HGL (ft)	Upstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Downstream HGL (ft)	Downstream Invert Elevation (ft)
P-19, 60"	Paiute Park Inlet	MH 97+00	60 inch	74.00	7.81	0.00	1,255.00	1,251.08	1,248.65	1,255.00	1,251.02	1,247.66
P-18, 60"	MH 97+00	MH 92+00	60 inch	74.00	5.42	0.08	1,255.00	1,250.94	1,247.66	1,260.00	1,251.15	1,245.76
P-17, 60"	MH 92+00	10" SS Xing	60 inch	74.00	3.77	0.19	1,260.00	1,251.14	1,245.76	1,262.00	1,251.04	1,244.08
P-16, 60"	10" SS Xing	Pinto Ln	60 inch	74.00	3.77	0.74	1,262.00	1,251.04	1,244.08	1,260.00	1,250.75	1,242.76
P-15, 72"	Pinto Ln	10" SS Xing/MH	72 inch	131.00	4.63	2.31	1,260.00	1,250.05	1,242.76	1,256.00	1,249.47	1,240.78
P-14, 72"	10" SS Xing/MH	68th St.	72 inch	131.00	4.63	4.47	1,256.00	1,249.46	1,240.78	1,255.00	1,248.98	1,237.70
P-13, 84"	68th St.	MH 71+00	78 inch	207.00	6.24	6.27	1,255.00	1,248.28	1,237.70	1,257.00	1,247.50	1,231.33
P-12, 84"	MH 71+00	70th St	78 inch	207.00	6.24	7.60	1,257.00	1,247.47	1,231.33	1,253.00	1,246.69	1,229.91
P-11, 96"	70th St	71st St	84 inch	253.00	6.57	8.94	1,253.00	1,246.19	1,229.91	1,248.00	1,244.94	1,227.92
P-43	71st St	71st Pl	84 inch	253.00	6.57	10.97	1,248.00	1,244.93	1,228.00	1,247.00	1,244.31	1,227.00
P-44	71st Pl	Scottsdale Rd. Junc.	84 inch	253.00	6.57	11.96	1,247.00	1,244.01	1,228.00	1,247.00	1,243.52	1,225.62
P-8, 114"	Scottsdale Rd. Junc.	Brown Rd.	90 inch	305.00	6.90	12.76	1,247.00	1,243.22	1,225.62	1,245.00	1,242.60	1,223.91
P-7, 114"	Brown Rd.	MH 45+00	90 inch	407.00	9.21	13.71	1,245.00	1,242.45	1,223.91	1,244.00	1,241.88	1,223.35
P-6, 114	MH 45+00	Civic Center Junc.	90 inch	407.00	9.21	14.08	1,244.00	1,241.75	1,223.35	1,242.00	1,239.79	1,221.38
P-5, 114"	Civic Center Junc.	75th St	96 inch	478.00	9.51	15.34	1,242.00	1,239.51	1,221.38	1,238.00	1,237.31	1,220.49
P-4, 114"	75th St	Miller Rd.	108 inch	500.00	7.86	16.75	1,238.00	1,237.26	1,220.49	1,237.00	1,236.24	1,219.86
P-3, 8 x 5 Bo	Miller Rd.	Exst Junc	8 x 5 ft	500.00	12.50	18.09	1,237.00	1,235.99	1,219.86	1,236.00	1,234.95	1,219.23
P-2, 84"	Exst Junc	Osborn Park Junc.	84 inch	500.00	12.99	18.30	1,236.00	1,233.64	1,219.23	1,232.00	1,227.61	1,217.22
P-1, 84"	Osborn Park Junc.	IBW	84 inch	500.00	12.99	19.56	1,232.00	1,224.99	1,217.22	1,225.00	1,223.60	1,216.60

Depth = 3.3'
Back to Free
Discharge Cond.
Paiute Park Stage =
1252.2
∴ No backflow

4th Iteration
Peak Flows +8 Min

CURRENT DATE: 03-26-1999
CURRENT TIME: 15:51:08

FILE DATE: 03-26-1999
FILE NAME: PAIUTE

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.0 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1248.65	1247.66	256.00	1 RCP	5.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: PAIUTE DATE: 03-26-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1251.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1251.19	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1251.18	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1251.78	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1252.39	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1252.94	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1253.48	120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.04	140.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1254.81	160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1255.33	180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1256.09	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: PAIUTE DATE: 03-26-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1251.00	0.000	0.00	0.00	0.00
1251.19	0.000	20.00	0.00	0.00
1251.18	0.000	40.00	0.00	0.00
1251.78	0.000	60.00	0.00	0.00
1252.39	0.000	80.00	0.00	0.00
1252.94	0.000	100.00	0.00	0.00
1253.48	0.000	120.00	0.00	0.00
1254.04	0.000	140.00	0.00	0.00
1254.81	0.000	160.00	0.00	0.00
1255.33	0.000	180.00	0.00	0.00
1256.09	0.000	200.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

4th Iteration
Peak Flows +8 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:51:08 FILE NAME: PAIUTE

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1251.00	0.00	2.35	0-NF	0.00	0.00	0.00	3.34	0.00	0.00
20.00	1251.19	1.54	2.54	3-M1t	1.12	1.21	3.34	3.34	1.44	0.00
40.00	1251.18	2.42	2.53	1-S2n	1.61	1.75	1.61	3.34	7.31	0.00
60.00	1251.78	3.13	2.93	1-S2n	2.01	2.17	2.01	3.34	8.13	0.00
80.00	1252.39	3.74	3.37	1-S2n	2.36	2.53	2.36	3.34	8.77	0.00
100.00	1252.94	4.29	3.85	1-S2n	2.69	2.84	2.64	3.34	9.53	0.00
120.00	1253.48	4.83	4.40	1-S2n	3.02	3.12	2.92	3.34	10.07	0.00
140.00	1254.04	5.39	5.01	5-S2n	3.37	3.38	3.28	3.34	10.26	0.00
160.00	1254.81	6.00	6.16	2-M2c	3.75	3.62	3.62	3.34	10.54	0.00
180.00	1255.33	6.68	6.65	2-M2c	4.24	3.83	3.83	3.34	11.18	0.00
200.00	1256.09	7.44	7.23	2-M2c	5.00	4.03	4.03	3.34	11.79	0.00

El. inlet face invert 1248.65 ft El. outlet invert 1247.66 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1248.65 ft
OUTLET STATION	256.00 ft
OUTLET ELEVATION	1247.66 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0039
CULVERT LENGTH ALONG SLOPE	256.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

4th Iteration
Peak Flows +8 Min

CURRENT DATE: 03-26-1999 FILE DATE: 03-26-1999
CURRENT TIME: 15:51:08 FILE NAME: PAIUTE

****
********** TAILWATER **********
****
****

CONSTANT WATER SURFACE ELEVATION
1251.00

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	30.00 ft
CREST LENGTH	200.00 ft
OVERTOPPING CREST ELEVATION	1257.00 ft

****