HEC-1 MODEL OUTPUT

INTERIM CONDITION

- 5-YEAR STORM

HEC1 S/N: 1343000062 HMVersion: 6.33 Data File: X:\870000.ALL\871611\898DBPS\PCDBPSI5.DAT

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**************************************
*                                    *
*    FLOOD HYDROGRAPH PACKAGE (HEC-1)*
*              MAY  1991             *
*           VERSION 4.0.1E           *
*                                    *
*   RUN DATE 08/05/1998 TIME 17:41:58*
*                                    *
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**************************************
*                                    *
*   U.S. ARMY CORPS OF ENGINEERS     *
*   HYDROLOGIC ENGINEERING CENTER    *
*        609 SECOND STREET           *
*      DAVIS, CALIFORNIA 95616       *
*         (916) 756-1104             *
*                                    *
**************************************
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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
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::::::::::::::::::::::::::::::::::::::::::::
::::::::::::::::::::::::::::::::::::::::::::
:::                                      :::
:::  Full Microcomputer Implementation   :::
:::                 by                   :::
:::        Haestad Methods, Inc.         :::
:::                                      :::
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::::::::::::::::::::::::::::::::::::::::::::
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

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

        1       ID   PINE CREEK DRAINAGE BASIN - 24HR,(TYPE IIa5 YEAR STORM)
        2       ID   FILE PCDBPSI5.DAT
        3       ID   INTERIM CONDITION MODEL
        4       ID   MODEL MODIFIED FOR 8-98 REVISION LAST UPDATE:8/5/98
        5       ID   BASINS PN1 THROUGH PN8, PN10, AND PS1 THROUGH PS9 IN UNDEVELOPED OR
        6       ID   PARTIAL DEVELOPED CONDITION. ALL OTHER BASINS ASSUMED TO BE FULLY DEVELOPED.
        7       ID   DETENTION FACILITY "C" ASSUMED TO BE CONSTRUCTED TO DEVELOPED CONDITION
        8       ID   REQUIRED CAPACITY BUT WITHOUT AN OUTFALL SO IT FUNCTIONS AS A TEMPORARY
        9       ID   RETENTION POND. DETENTION FACILITIES "A", "B", "E" AND "H" ARE ASSUMED
       10       ID   TO BE CONTRUCTED TO THE DEVELOPED CONDITION REQUIREMENTS.
       11       ID   NOTE: THE DIVERSION ROUTINES WERE REMOVED FROM THE MODEL FOR THE 5 YR STORM
       12       ID   NOTE: THE OUTFLOW CURVE FOR THE SUMMER FIELD DETENTION POND WAS MODIFIED
       13       ID   SLIGHTLY TO ALLOW THE 5 YR MODEL TO RUN.
*** FREE ***
                *DIAGRAM
       14       IT       3       0       0     300
       15       IO       5

       16       KK SB-IPN1
       17       KM   ****************************************************************************
       18       KM   *** BEGIN CALCULATIONS FOR THE NORTH FORK OF PINE CREEK WATERSHED*******
       19       KM   ****************************************************************************
       20       KM   COMPUTE HYDROGRAPH FOR BASIN IPN1
       21       BA    .164
       22       IN      15
       23       PB     2.6
       24       PC    0000   .0005   .0015   .0030   .0045   .0060   .0080   .0100   .0120   .0143
       25       PC   .0165   .0188   .0210   .0233   .0255   .0278   .0320   .0390   .0460   .0530
       26       PC   .0600   .0750   .1000   .4000   .7000   .7250   .7500   .7650   .7800   .7900
       27       PC   .8000   .8100   .8200   .8250   .8300   .8350   .8400   .8450   .8500   .8550
       28       PC   .8600   .8638   .8675   .8713   .8750   .8788   .8825   .8863   .8900   .8938
       29       PC   .8975   .9013   .9050   .9083   .9115   .9148   .9180   .9210   .9240   .9270
       30       PC   .9300   .9325   .9350   .9375   .9400   .9425   .9450   .9475   .9500   .9525
       31       PC   .9550   .9575   .9600   .9625   .9650   .9675   .9700   .9725   .9750   .9775
       32       PC   .9800   .9813   .9825   .9838   .9850   .9863   .9875   .9888   .9900   .9913
       33       PC   .9925   .9938   .9950   .9963   .9975   .9988   1.000
       34       LS       0    63.7
       35       UD    .360

       36       KK RT-IPN1
       37       KM   ROUTE THE FLOW FROM BASIN IPN1 THROUGH BASIN IPN2 TO API1
       38       RD    2500    .033    .045            TRAP     100      15

       39       KK SB-IPN2
       40       KM   COMPUTE HYDROGRAPH FOR BASIN IPN2
       41       BA    .229
       42       LS       0    62.0
       43       UD    .377

       44       KK    API1
       45       KM   COMBINE ROUTED FLOW FROM BASIN IPN1 WITH FLOW FROM BASIN IPN2
       46       HC       2
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 47       KK RT-API1
 48       KM   ROUTE THE FLOW IN THE NORTH FORK OF PINE CREEK FROM API1 TO API2
 49       RD    2600    .034    .045           TRAP      12     2.5

 50       KK SB-IPN3
 51       KM   COMPUTE HYDROGRAPH FOR BASIN IPN3
 52       BA    .122
 53       LS       0    63.3
 54       UD    .268

 55       KK    API2
 56       KM   COMBINE THE ROUTED FLOW FROM API1 WITH THE FLOW FROM BASIN IPN3
 57       HC       2

 58       KK RT-API2
 59       KM   ROUTE THE FLOW IN THE NORTH FORK OF PINE CREEK FROM API2 TO API3
 60       RD    1300    .026    .045           TRAP      30       4

 61       KK SB-IPN4
 62       KM   COMPUTE HYDROGRAPH FOR BASIN IPN4
 63       BA    .142
 64       LS       0    62.1
 65       UD    .198

 66       KK    API3
 67       KM   COMBINE THE ROUTED FLOW FROM API2 WITH THE FLOW FROM BASIN IPN4
 68       HC       2

 69       KK RT-API3
 70       KM   ROUTE THE FLOW IN THE NORTH FORK OF PINE CREEK FROM API3 TO API4
 71       RD    1600     .02    .045           TRAP      20       3

 72       KK SB-IPN5
 73       KM   COMPUTE HYDROGRAPH FOR BASIN IPN5
 74       BA    .043
 75       LS       0      62
 76       UD    .169
 77       KM   ************************************************************
 78       KM   **LAND DOWNSTREAM OF THIS POINT ASSUMED TO BE FULLY DEVELOPED ****
 79       KM   ************************************************************

 80       KK  SB-PN9
 81       KM   COMPUTE HYDROGRAPH FOR BASIN PN9
 82       BA    .036
 83       LS       0    72.8
 84       UD    .170

 85       KK    AP-4
 86       KM   COMBINE ROUTED FLOW FROM API3 WITH FLOW FROM BASINS IPN5 AND PN9
 87       HC       3
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  88      KK  RT-AP4
  89      KM   ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL DOWN THE CHANNEL FROM AP4
  90      KM   TO DETENTION FACILITY "E" AT THE COLLECTOR STREET CROSSING
  91      RD    1400    .032    .045           TRAP      20       3

  92      KK SB-PN11
  93      KM   COMPUTE HYDROGRAPH FOR BASIN PN11
  94      BA   0.079
  95      LS       0    76.7
  96      UD    .189

  97      KK SB-PN12
  98      KM   COMPUTE HYDROGRAPH FOR BASIN PN12
  99      BA   0.039
 100      LS       0    68.2
 101      UD    .129

 102      KK SB-PN13
 103      KM   COMPUTE HYDROGRAPH FOR BASIN PN13
 104      BA   0.127
 105      LS       0      74
 106      UD    .195

 107      KK   APDFE
 108      KM   COMBINE ROUTED FLOW RT-AP4 WITH FLOW FROM BASINS PN11, PN12, AND PN13
 109      KM   AT REGIONAL DETENTION FACILITY "E"
 110      HC       4

 111      KK  RR-DFE
 112      KM   NOTE: THE INPUT POND VOLUME REFLECTS THE DESIGN POND VOLUME ON 7-23-98
 113      KM   ROUTE FLOW THRU A DETENTION FACILITY. ASSUME A 54" DIA OUTLET WITH
 114      KM   THE INVERT DEPRESSED 2' BELOW POND INVERT (INV EL=84. OUTLET Q ESTIMATED
 115      KM   WITH BUREAU OF PUBLIC ROADS NOMOGRAPH FOR INLET CONTROL OF CULVERTS
 116      KM   DISCHARGE ABOVE EL 100.3 INCLUDES FLOW OVER EMERGENCY SPILLWAY
 117      KM   SCALE 1
 118      KO       3       1
 119      RS       1    STOR       0
 120      SV       0       0    1.25    3.91    6.93   10.31   14.07   18.24   22.83   27.87
 121      SE     784     786     788     790     792     794     796     798     800     802
 122      SQ       0      25      80     136     173     210     240     263     280    1431

 123      KK  RT-DFE
 124      KM   ROUTE THE OUTFLOW FROM DETENTION FACILITY "G" IN A STORM DRAIN TO AP-5
 125      RD    1800    .025    .013           CIRC     4.5

 126      KK SB-PN14
 127      KM   COMPUTE HYDROGRAPH FOR BASIN PN14
 128      BA    .027
 129      LS       0    74.3
 130      UD    .157
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  131     KK RT-PN14
  132     KM   ROUTE FLOW FROM BASIN PN14 IN A STORM DRAIN TO AP5
  133     RD    1400    .055    .013           CIRC       2

  134     KK SB-PN15
  135     KM   COMPUTE HYDROGRAPH FOR BASIN PN15
  136     BA    .074
  137     LS       0    72.7
  138     UD    .186

  139     KK    AP-5
  140     KM   COMBINE ROUTED FLOW RT-PN14 TO FLOW FROM BASIN PN15
  141     HC       3

  142     KK  RT-AP5
  143     KM   ROUTE THE FLOW AT AP5 TO AP5A AT THE CONFLUENCE OF THE FLOWS FROM THE
  144     KM   NORTH AND SOUTH FORKS OF PINE CREEK
  145     RD     400    .025    .013           CIRC       5
  146     KM   ************************************************************************
  147     KM   *** BEGIN CALCULATIONS FOR THE SOUTH FORK OF PINE CREEK WATERSHED*******
  148     KM   ************************************************************************

  149     KK SB-IPS1
  150     KM   COMPUTE HYDROGRAPH FOR BASIN IPS1
  151     BA    .147
  152     LS       0    63.1
  153     UD    .395

  154     KK RT-IPS1
  155     KM   ROUTE THE FLOW FROM BASIN IPS1 THROUGH BASIN IPS2 TO API6
  156     RD    2200    .027    .045           TRAP      10      20

  157     KK SB-IPS2
  158     KM   COMPUTE HYDROGRAPH FOR BASIN IPS2
  159     BA    .104
  160     LS       0    62.2
  161     UD    .368

  162     KK SB-IPS3
  163     KM   COMPUTE HYDROGRAPH FOR BASIN IPS3
  164     BA    .109
  165     LS       0      62
  166     UD    .250

  167     KK RT-IPS3
  168     KM   ROUTE THE FLOW FROM BASIN IPS3 THROUGH BASIN IPS4 TO API4
  169     RD    3250    .033    .045           TRAP      10      15

  170     KK SB-IPS4
  171     KM   COMPUTE HYDROGRAPH FOR BASIN IPS4
  172     BA    .166
  173     LS       0      62
  174     UD    .305
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  175     KK    API4
  176     KM    COMBINE THE ROUTED FLOW FROM BASIN IPS3 TO THE FLOW FROM BASIN IPS4
  177     HC       2

  178     KK RT-API4
  179     KM    ROUTE THE FLOW FROM API4 THROUGH BASIN IPS5 TO API5
  180     RD    3100    .029    .045            TRAP      10      35

  181     KK SB-IPS5
  182     KM    COMPUTE HYDROGRAPH FOR BASIN IPS5
  183     BA    .134
  184     LS       0    62.5
  185     UD    .382

  186     KK    API5
  187     KM    COMBINE THE ROUTED FLOW FROM API4 TO THE FLOW FROM BASIN IPS5
  188     HC       2

  189     KK RT-API5
  190     KM    ROUTE THE FLOW FROM API5 THROUGH IPS2 API6
  191     RD    1700    .031    .045            TRAP      50      35

  192     KK    API6
  193     KM    COMBINE THE ROUTED FLOW FROM API5 WITH THE ROUTED FLOW FROM BASIN IPS1
  194     KM    AND THE FLOW FROM BASIN IPS2 AT API6
  195     HC       3

  196     KK SB-PS10
  197     KM    COMPUTE HYDROGRAPH FOR BASIN PS10 (FULLY DEVELOPED CONDITION)
  198     BA    .038
  199     LS       0    72.9
  200     UD    .160

  201     KK    APDFC
  202     KM    COMBINE FLOW AT FLOW FROM API6 WITH FLOW FROM BASIN PS10 IN REGIONAL
  203     KM    DETENTION FACILITY "C". THIS IS THE TOTAL INFLOW TO DETENTION FACILITY "C"
  204     HC       2

  205     KK  RR-DFC
  206     KM    ROUTE THE FLOW THROUGH DETENTION FACILITY "C".  ASSUME GRADING FOR THE
  207     KM    FULLY DEVELOPED CONDITION DETENTION POND IS COMPLETE BUT OUTFALL IS NOT
  208     KM    CONSTRUCTED SO POND FUNCTIONS AS A RETENTION POND.
  209     KO       3       1     100
  210     RS       1    STOR       0
  211     SV       0    2.73    9.72   18.56   28.03   38.15   48.95   60.45   72.75   85.85
  212     SV   99.66
  213     SE      62      64      66      68      70      72      74      76      78      80
  214     SE      82
  215     SQ       0       0       0       0       0       0       0       0       0       0
  216     SQ    0.10
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

217       KK SB-IPS6
218       KM   COMPUTE HYDROGRAPH FOR BASIN IPS6
219       BA    .132
220       LS       0      62
221       UD    .352

222       KK RT-IPS6
223       KM   ROUTE THE FLOW FROM BASIN IPS6 THROUGH BASIN IPS7 TO API7
224       RD    4250    .028    .045            TRAP      25      10

225       KK SB-IPS7
226       KM   COMPUTE HYDROGRAPH FOR BASIN IPS7
227       BA    .209
228       LS       0    62.6
229       UD    .289

230       KK    API7
231       KM   COMBINE THE ROUTED FLOW FROM BASIN IPS6 WITH THE FLOW FROM BASIN IPS7
232       HC       2

233       KK RT-API7
234       KM   ROUTE THE FLOW FROM API7 TO API8
235       RD    2300    .028    .045            TRAP      20       3

236       KK SB-IPS8
237       KM   COMPUTE HYDROGRAPH FOR BASIN IPS8
238       BA    .088
239       LS       0    62.7
240       UD    .265

241       KK SB-IPS9
242       KM   COMPUTE HYDROGRAPH FOR BASIN IPS9 (ASSUMED 23 ACRES OF SAGEWOOD DEVELOPED)
243       BA    .059
244       LS       0    73.9
245       UD    .165

246       KK    API8
247       KM   COMBINE THE ROUTED FLOW FROM API7 TO THE FLOW FROM BASINS IPS8 AND IPS9
248       HC       3

249       KK RT-API8
250       KM   ROUTE THE FLOW FROM DPI8 TO DPI9
251       RD    1200    .025    .045            TRAP      20       3

252       KKSB-IPS10
253       KM   COMPUTE HYDROGRAPH FOR BASIN IPS10 (YMCA SITE AND 16 ACRES OF EXISTING
254       KM   RESIDENTIAL DEVELOPMENT ASSUMED TO BE DEVELOPED)
255       BA    .122
256       LS       0    71.5
257       UD    .176
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 258      KK    API9
 259      KM   COMBINE THE ROUTED FLOW FROM API8 TO THE FLOW FROM BASIN IPS10
 260      KM   ALSO ADD THE OUTFLOW HYDROGRAPH FROM DETENTION FACILITY "C" (NO OUTFLOW)
 261      KM   TO PROVIDE CONTINUITY IN THE MODEL
 262      HC       3

 263      KK RT-API9
 264      KM   ROUTE THE FLOW IN THE SOUTH FORK OF PINE CREEK FROM API9 TO DETENTION
 265      KM   FACILITY "B"
 266      RD    3400    .027    .045           TRAP      20       3
 267      KM   ************************************************************************
 268      KM   ***** DOWNSTREAM BASINS ASSUMED TO BE FULLY DEVELOPED ******************
 269      KM   ************************************************************************

 270      KK SB-PS11
 271      KM   COMPUTE HYDROGRAPH FOR BASIN PS11
 272      BA    .056
 273      LS       0    80.3
 274      UD    .172

 275      KK SB-PS12
 276      KM   COMPUTE HYDROGRAPH FOR BASIN PS12
 277      BA    .153
 278      LS       0    69.0
 279      UD    .233

 280      KK   APDFB
 281      KM   COMBINE THE ROUTED FLOW FROM API9 TO THE FLOW FROM BASINS IPS11 AND IPS12
 282      KM   AT DETENTION FACILITY "B". THIS IS THE TOTAL INTERIM CONDITION INFLOW TO
 283      KM   DETENTION FACILITY "B"
 284      HC       3

 285      KK  RR-DFB
 286      KM   ROUTE FLOW THROUGH REGIONAL DETENTION POND "B"
 287      KM   THIS VOLUME REFLECTS THE DESIGN VOLUME PER PRELIMINARY PLANS ON 7-23-98
 288      KM   WITH 54" DIA OUTLET SET AT INVERT ELEV. 70.2. OUTLET Q ESTIMATED WITH
 289      KM   BUREAU OF PUBLIC ROADS NOMO GRAPH FOR INLET CONTROL OF CONCRETE PIPE
 290      KM   DISCHARGE ABOVE 87.6 INCLUDES FLOW OVER 80' LONG EMERGENCY SPILLWAY
 291      KM   SCALE 1
 292      KO       3       1
 293      RS       1    STOR       0
 294      SV       0    0.06    1.17    3.30    5.82    8.73   12.07   15.85   20.07   23.60
 295      SV   24.76   29.96
 296      SE    71.2    72.0      74      76      78      80      82      84      86    87.6
 297      SE      88      90
 298      SQ       0      22      73     130     169     202     236     260     285     301
 299      SQ     371    1222

 300      KK  RT-DFB
 301      KM   ROUTE FLOW 1000 LF NORTHWEST IN A STORM DRAIN FROM DETENTION FACILITY "B"
 302      KM   TO AP-11
 303      RD    1000    .021    .013           CIRC     4.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

304       KK S8-PS13
305       KM   COMPUTE HYDROGRAPH FOR BASIN PS13
306       BA    .065
307       LS       0    74.1
308       UD    .149

309       KK    AP11
310       KM   COMBINE ROUTED FLOW RT-DFB TO FLOW FROM BASIN PS13 AT AP11
311       HC       2

312       KK RT-AP11
313       KM   ROUTE FLOW 600 LF NORTHWEST IN A STORM DRAIN FROM AP11 TO AP5A (THE
314       KM   CONFLUENCE OF FLOWS FROM THE NORTH AND SOUTH FORKS OF PINE CREEK)
315       RD     600    .021    .013           CIRC       5

316       KK    AP5A
317       KM   COMBINE ROUTED FLOW AP5 (FLOW FROM THE NORTH FORK OF PINE CREEK) TO ROUTED
318       KM   FLOW RT-AP11 (FLOW FROM THE SOUTH FORK OF PINE CREEK)
319       HC       2

320       KK RT-AP5A
321       KM   ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL 1300 FEET DOWN THE CHANNEL FROM
322       KM   AP5A NEAR THE HISTORIC CONFLUENCE OF PINE CREEK TO AP12 AT THE CONFLUENCE
323       KM   OF THE MAIN CHANNEL AND THE LEXINGTON DRIVE STORM DRAIN OUTFALL. USE AN
324       KM   APPROXIMATE AVERAGE CHANNEL SECTION AND SLOPE FOR ROUTING.
325       RD    1300    .023    .045           TRAP      50       2

326       KK  SB-PM1
327       KM   COMPUTE HYDROGRAPH FOR BASIN PM1
328       BA    .054
329       LS       0    78.5
330       UD    .203

331       KK  RT-PM1
332       KM   ROUTE THE FLOW FROM BASIN PM1 1200 LF NORTH IN THE LEXINGTON DR. S.D. TO
333       KM   PINE CREEK MAIN CHANNEL.
334       RD    1200     .08    .013            CIR     3.5

335       KK  SB-PM2
336       KM   COMPUTE HYDROGRAPH FOR BASIN PM2, AN AREA OF THE GOLF COURSE
337       BA    .154
338       LS       0    66.0
339       UD    .310

340       KK  SB-PM3
341       KM   COMPUTE HYDROGRAPH FOR BASIN PM3
342       BA    .067
343       LS       0    73.5
344       UD    .248
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

345       KK    AP12
346       KM   COMBINE ROUTED FLOW RT-PM1 WITH THE ROUTED FLOW IN PINE CREEK MAIN CHANNEL
347       KM   AND THE FLOW FROM BASINS PM2 AND PM3
348       HC       4

349       KK RT-AP12
350       KM   ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL DOWN THE CHANNEL FROM AP12 NEAR THE
351       KM   OUTFALL OF LEXINGTON DRIVE STORM DRAIN TO THE CROSSING AT CHAPEL HILLS DRIVE
352       KM   USE AN APPROXIMATE AVERAGE CHANNEL SECTION AND SLOPE FOR ROUTING.
353       RD    1600    .018    .045            TRAP      30       2

354       KK  SB-PM4
355       KM   COMPUTE HYDROGRAPH FOR BASIN PM4
356       BA    .111
357       LS       0    71.9
358       UD    .170

359       KK    AP13
360       KM   COMBINE FLOW FROM BASIN PM4 TO THE ROUTED FLOW RT-AP12 IN PINE CREEK MAIN
361       KM   CHANNEL ON THE EAST SIDE OF THE CHAPEL HILLS DRIVE CROSSING
362       HC       2
363       KM   ********************************************************************************
364       KM   ********BEGIN SOUTH CHAPEL HILLS DRIVE STORM DRAIN WATERSHED*****************
365       KM   ********************************************************************************

366       KK  SB-CS1
367       KM   COMPUTE HYDROGRAPH FOR BASIN CS1
368       BA    .053
369       LS       0    73.6
370       UD    .181

371       KK  RT-CS1
372       KM   ROUTE FLOW 1300 LF WEST IN DYNAMIC DR.  ASSUME BULK OF FLOW IS ON THE SURFACE
373       RD    1300    .021    .013            TRAP      32     .01

374       KK  SB-CS2
375       KM   COMPUTE HYDROGRAPH FOR BASIN CS1
376       BA    .070
377       LS       0    98.0
378       UD    .101

379       KKRR-DFCS2
380       KM   ROUTE FLOW THRU AN ASSUMED DETENTION FACILITY TO REFLECT DETENTION OF 1.6cfs
381       KM   /ACRE FROM THE LI/O PROPERTY AS ASSUMED IN THE MDDP FOR BRIARGATE BUSINESS
382       KM   CAMPUS. BECAUSE THE DISCHARGE CONFIGURATION IS UNKNOWN AT THIS TIME ASSUME
383       KM   THAT THE PEAK DISCHARGE RATE MAY BE DISCHARGED AS SOON AS IT IS AVAILABLE AT
384       KM   THE POND TO REFLECT POTENTIAL FREE DISCHARGE FROM A PORTION OF THE SUBBASIN
385       KM   DISCHARGE REDUCTION ASSUMED AT 1.6 cfs x 37ac=60 cfs
386       RS       1    STOR       0
387       SV       0    .001       6      10
388       SE     100     102     104     106
389       SQ       0     194     194     194
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

390       KK    AP14
391       KM    COMBINE ROUTED FLOW RT-CS1 TO CONTROLED FLOW FROM BASIN CS2 AT THE
392       KM    INTERSECTION OF CHAPEL HILLS DR. AND DYNAMIC DR.
393       HC       2

394       KK RT-AP14
395       KM    ROUTE FLOW 1100 LF NORTH IN THE CHAPEL HILLS DR. S.D. TO BRIARGATE PKWY.
396       KM    NOTE: THE CALCULATED 100 YEAR FLOW IS IN EXCESS OF THE FULL PIPE CAPACITY
397       KM    OF THE STORM DRAIN BETWEEN DYNAMIC DRIVE AND BRIARGATE PARKWAY. SOME OF
398       KM    THE FLOW MAY BE ON THE SURFACE IN CHAPEL HILLS DRIVE.
399       RD    1100     .02    .013            CIR       4

400       KK  SB-CS3
401       KM    COMPUTE HYDROGRAPH FOR BASIN CH3
402       BA    .053
403       LS       0    84.8
404       UD    .177

405       KKRR-DFCS3
406       KM    ROUTE FLOW THRU AN ASSUMED DETENTION FACILITY TO REFLECT DETENTION REDUCING
407       KM    THE PEAK 100YR FLOW RATE FROM THE 9 ACRES OF THE BASIN THAT ARE DESIGNATED
408       KM    AS LI/O USE AS ASSUMED IN MDDP FOR BRIARGATE BUSINESS CAMPUS.
409       KM    BECAUSE THE DISCHARGE CONFIGURATION IS UNKNOWN AT THIS TIME ASSUME
410       KM    THAT THE PEAK DISCHARGE RATE MAY BE DISCHARGED AS SOON AS IT IS AVAILABLE
411       KM    AT THE POND TO REFLECT FREE DISCHARGE FROM A PORTION OF THE SUB BASIN.
412       KM    DISCHARGE REDUCTION ASSUMED AT 1.6 cfS x 9=14 cfs
413       RS       1    STOR       0
414       SV       0    .001       6      10
415       SE     100     102     104     106
416       SQ       0     123     123     123

417       KK    AP15
418       KM    COMBINE ROUTED FLOW RT-AP14 WITH CONTROLLED FLOW FROM BASIN CS3 AT THE
419       KM    INTERSECTION OF CHAPEL HILLS DR. AND BRIARGATE PARKWAY. NOTE A SMALL PORTION
420       KM    OF BASIN CS3 IS LOCATED DOWNSTEAM OF THIS POINT. FOR THIS MODELING PURPOSE
421       KM    THIS IS CONSIDERED INSIGNIFICANT.
422       HC       2

423       KK RT-AP15
424       KM    ROUTE FLOW 1400 LF NORTH IN THE CHAPEL HILLS DR. S.D.
425       KM    NOTE: THE CALCULATED 100 YEAR FLOW IS IN EXCESS OF THE FULL PIPE CAPACITY
426       KM    OF THE STORM DRAIN BETWEEN BRIARGATE PARKWAY AND PINE CREEK. SOME OF
427       KM    THE FLOW MAY BE ON THE SURFACE IN CHAPEL HILLS DRIVE. A SMALL PORTION OF
428       KM    THE SURFACE FLOW MAY BE DIVERTED DOWN BRIARGATE PARKWAY, BUT FOR THE PURPOSE
429       KM    OF THIS ANALYSIS ALL OF THE FLOW FROM THE CHAPEL HILLS DRIVE/BRIARGATE PKY.
430       KM    INTERSECTION IS ASSUMED TO REACH PINE CREEK AT CHAPEL HILLS DRIVE.
431       RD    1400    .045    .013            CIR     4.5

432       KK  SB-CS4
433       KM    COMPUTE HYDROGRAPH FOR BASIN CS4
434       BA    .053
435       LS       0    95.5
436       UD    .101
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

437       KK RR-DFVC
438       KM   ROUTE FLOW THRU THE PROPOSED VILLAGE CENTER DETENTION FACILITY
439       KM   POND GRADING PER THE PRELIMINARY GRADING SHOWN IN THE MDDP FOR VILLAGE
440       KM   CENTER. DISCHARGE ASSUMES USE OF THE EXISTING 18" DIAMETER STUB.
441       KM   WITH THE INVERT SET AT ELEVATION 73. BUREAU OF PUBLIC ROADS NOMOGRAPH
442       KM   USED TO ESTIMATE OUTFLOW RATES ASSUMING INLET CONTROL.
443       RS       1    STOR       0
444       SV     000    .032    1.67    3.23    5.00    7.00
445       SE      73      74      76      78      80      82
446       SQ       0       3      13      17      20      22

447       KK    AP16
448       KM   COMBINE ROUTED FLOW RT-AP15 WITH THE DISCHARGE FROM THE VILLAGE CENTER POND
449       HC       2

450       KK RT-AP16
451       KM   ROUTE THE FLOW IN THE CHAPEL HILLS DRIVE STORM DRAIN FROM AP16 TO AP19 IN
452       KM   PINE CREEK MAIN CHANNEL ON THE DOWNSTREAM SIDE OF THE CHAPEL HILLS DRIVE
453       KM   CROSSING
454       RD     300     .03    .013             CIR     4.5
455       KM   ********************************************************************************
456       KM   ****BEGIN CALCULATION OF THE NORTH CHAPEL HILLS DR. STORM DRAIN WATERSHED***
457       KM   ********************************************************************************

458       KK  SB-CN1
459       KM   COMPUTE RUNOFF FROM BASIN CN1 THE WATERSHED CONTRIBUTING TO THE PARK SITE AT
460       KM   CHAPEL HILLS DRIVE POND (REGIONAL DETENTION FACILITY "A").
461       BA    .145
462       LS       0    76.8
463       UD    .190

464       KK  RR-DFA
465       KM   ROUTE THE FLOW FROM CN1 THROUGH THE PROPOSED DETENTION POND AT THE PARK
466       KM   SITE AT CHAPEL HILLS DRIVE. STAGE STORAGE CURVE PER THE 12/22/97 GRADING PLAN
467       KM   DISCHARGE CURVE REFLECTS 12" DIAMETER OUTLET PIPE CONTROL FOR NORMAL DISCHARG
468       KM   AND A 100' LONG EMERGENGY SPILLWAY SET AT ELEVATION 6805.5
469       KO       3       1     100
470       RS       1    STOR       0
471       SV       0     .01     .22     .99    1.95    2.80    4.25    5.31    6.51   11.64
472       SV   15.36
473       SQ    2.35    2.54    3.00    3.73    4.35    4.75    5.36    5.50    8.39    9.01
474       SQ     279
475       SE  6796.6  6797.0  6798.0  6800.0  6802.0  6803.5 6803.51    6804  6804.1  6805.5
476       SE  6806.5

477       KK  RT-DFA
478       KM   ROUTE OUTFLOW FROM  REGIONAL DETENTION POND "A" DOWN THE CHAPEL HILLS STORM
479       KM   DRAIN FROM LEXINGTON DRIVE TO TREELAKE DRIVE
480       RD     930     .04    .013            CIRC     1.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

481       KK  SB-CN2
482       KM   COMPUTE RUNOFF FROM BASIN CN2
483       BA    .078
484       LS       0    75.5
485       UD    .214

486       KK    AP17
487       KM   COMBINE ROUTED FLOW RT-DFA AND FLOW FROM BASIN CN2 AT THE INTERSECTION OF
488       KM   CHAPEL HILLS DRIVE AND TREELAKE DRIVE
489       HC       2

490       KK RT-AP17
491       KM   ROUTE FLOW AT AP17 DOWN THE CHAPEL HILLS DRIVE STORM DRAIN TO MULLIGAN DR.
492       RD    1400     .05    .013           CIRC     3.5

493       KK  SB-CN3
494       KM   COMPUTE RUNOFF FROM BASIN CN3
495       BA    .043
496       LS       0    80.0
497       UD    .157

498       KK    AP18
499       KM   COMBINE ROUTED FLOW RT-AP17 TO FLOW FROM BASIN CN3 AT INTERSECTION OF CHAPEL
500       KM   HILLS DR. AND MULLIGAN DR.
501       HC       2

502       KK RT-AP18
503       KM   ROUTE FLOW AT AP18 DOWN THE CHAPEL HILLS DRIVE STORM DRAIN TO AP19 IN THE
504       KM   PINE CREEK MAIN CHANNEL ON THE DOWNSTREAM SIDE OF THE CHAPEL HILLS DRIVE
505       KM   CROSSING. NOTE A SMALL PORTION OF BASIN CHN3 IS LOCATED SOUTH OF AP18. THIS
506       KM   IS CONSIDERED INSIGNIFICANT FOR THE PURPOSE OF THIS ANALYSIS.
507       RD     600     .04    .013           CIRC     3.5

508       KK    AP19
509       KM   COMBINE ROUTED FLOW RT-AP18 FROM THE NORTH CHAPEL HILLS DR. STORM DRAIN
510       KM   WITH THE ROUTED FLOW RT-AP16 FROM THE SOUTH CHAPEL HILLS DRIVE STORM DRAIN
511       KM   AND THE FLOW IN PINE CREEK MAIN CHANNEL (AP13) AT THE WEST SIDE OF THE CHAPEL
512       KM   HILLS DRIVE CROSSING. FLOW THAT IS TAKEN INTO THE PINE CREEK CHANNEL FORM THE
513       KM   STREET AT THIS POINT HAS BEEN ACCOUNTED FOR IN BASINS CN3 AND CS3. THIS WAS
514       KM   DONE TO REDUCE THE COMPLEXITY OF THE MODEL.
515       HC       3

516       KK RT-AP19
517       KM   ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL FROM AP19 AT THE CHAPEL HILLS DRIVE
518       KM   CROSSING TO AP20 AT REGIONAL DETENTION FACILITY 1 AT BRIARGATE PARKWAY AND
519       KM   HIGHWAY 83. USE AVERAGE SLOPES AND APPROXIMATE CROSS SECTIONS FOR ROUTING.
520       RD     750    .035    .045           TRAP      30       2
521       RD    1000    .025    .045           TRAP     120       2
522       RD    1400    .026    .045           TRAP      60       2
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  523     KK  SB-PM5
  524     KM   COMPUTE HYDROGRAPH FOR BASIN PM5
  525     BA    .183
  526     LS       0    70.0
  527     UD    .185

  528     KK    AP20
  529     KM   COMBINE FLOW FROM BASIN PM6 WITH THE ROUTED FLOW IN PINE CREEK
  530     HC       2

  531     KK  SB-PM6
  532     KM   COMPUTE HYDROGRAPH FOR PM6 THE AREA BETWEEN CHAPEL HILLS DR. AND DETENTION
  533     KM   FACILITY 1 BOUNDED BY THE GOLF COURSE AND BRIARGATE PARKWAY. NOTE:THE MDDP
  534     KM   FOR BRIARGATE BUSINESS CAMPUS REQUIRES DETENTION IN THIS SUBBASIN. FOR THE
  535     KM   PURPOSE OF THIS ANALYSIS NO DETENTION IS ASSUMED TO ALLOW THE DEVELOPER THE
  536     KM   OPTION OF CONSTRUCTING LARGER CONVEYANCE FACILITIES TO DETENTION FACILITY
  537     KM   No. 1 AND ALLOWING FREE DISCHARGE FROM THE BASIN.
  538     BA    .088
  539     LS       0      98
  540     UD    .110

  541     KK    AP21
  542     KM   COMBINE FLOW FROM PM6 WITH THE FLOW IN PINE CREEK AT AP21 FOR THE TOTAL FLOW
  543     KM   IN PINE CREEK CHANNEL AS IT ENTERS DETENTION FACILITY No 1
  544     HC       2

  545     KK  SB-PM7
  546     KM   COMPUTE HYDROGRAPH FOR BASIN PM7 THE AREA NORTH OF DETENTION FACILITY 1
  547     KM   NOTE: THE MDDP FOR THE BRIARGATE BUSINESS CAMPUS REQUIRES DETENTION IN
  548     KM   THE NON RESIDENTIAL PORTIONS OF THIS AREA. FOR THE PURPOSE OF THIS ANALYSIS
  549     KM   FREE DISCHARGE FROM THE BASIN IS ASSUMED. THE RESIDENTIAL PORTION OF THE
  550     KM   BASIN LOCATED IN OUTSIDE THE CITY LIMITS IS ASSUMED TO BE FULLY DEVELOPED
  551     KM   AS 1 DU PER ACRE RESIDENTIAL.
  552     BA    .138
  553     LS       0    76.3
  554     UD    .353
  555     KM   ********************************************************************************
  556     KM   ****BEGIN CALCULATIONS FOR THE FOCUS ON THE FAMILY STORM DRAIN WATERSHED****
  557     KM   ********************************************************************************

  558     KK   SB-F1
  559     KM   COMPUTE HYDROGRAPH FOR BASIN F1
  560     BA    .119
  561     LS       0    78.3
  562     UD    .208

  563     KK  RT-F1P
  564     KM   ROUTE FLOW IN THE STORM DRAIN 1300 LF WEST FROM THE SAG PT. IN LEXINGTON
  565     KM   DRIVE TO SUMMER FIELD POND
  566     RD    1300    .036    .013           CIRC       3
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

567       KK   SB-F2
568       KM   COMPUTE HYDROGRAPH FOR BASIN F2
569       BA    .039
570       LS       0      74
571       UD    .171

572       KK AP-DFSF
573       KM   COMBINE ROUTED FLOW RT-F1P WITH FLOW FROM F2 AT THE SUMMER
574       KM   FIELD POND. THIS IS THE TOTAL FLOW TO THE POND
575       HC       2

576       KK RR-DFSF
577       KM   ROUTE THE FLOW AT AP-DFSF THROUGH THE SUMMER FIELD DETENTION BASIN.
578       KM   THE INFLOW/OUTFLOW S.D. FOR THIS FACILITY IS BURIED BELOW THE POND BOTTOM.
579       KM   THE POND FILLS WHEN THE CAPACITY OF THE DOWNSTREAM REACH OF S.D. IS
580       KM   EXCEEDED. THIS CONFIGURATION PRESENTS A COMPLEX HYDRAULIC PROBLEM. IT IS
581       KM   ASSUMED THAT UNTIL INFLOW >120cfs FLOW WILL PASS THROUGH THE STORM DRAIN.
582       KM   WHEN INFLOW > 120cfs BACKWATER WILL FORM AT THE OUTLET AND THE LID ON THE
583       KM   UPSTREAM MANHOLE WILL LIKELY BE LIFTED OFF AND SOME FLOW WILL ENTER THE POND
584       KM   FROM THAT POINT. WHEN INFLOW>120cfs IT IS ASSUMED THAT THE HEAD LOSS AT
585       KM   THE OUTLET WILL BE APPOXIMATELY 1*VELOCITY HEAD FOR THE PURPOSE OF
586       KM   CALCULATING THE DISCHARGE CURVE.
587       KM   NOTE: THE OUTFLOW CURVE WAS MODIFIED IN THIS MODEL TO ALLOW THE 5 YEAR
588       KM   STORM TO RUN. AT ELEV. 92 SQ OF 80 WAS SUBSTITUTED FOR 120. THIS CHANGE
589       KM   IS CONSIDERED INSIGNIFICANT AT THE 5 YEAR Q
590       KO       3       1     100
591       RS       1    STOR       0
592       SV       0    0.57    4.63    6.87   10.32
593       SE      92      94      96      98     100
594       SQ      80     126     131     137     144

595       KK RT-DFSF
596       KM   ROUTE OUTFLOW FROM THE DETENTION BASIN IN A 48" S.D. TO RESEARCH PKWY.
597       RD     800    .018    .013            CIRC       4

598       KK   SB-F3
599       KM   COMPUTE HYDROGRAPH FOR BASIN F3
600       BA    .114
601       LS       0    77.0
602       UD    .215

603       KK    AP22
604       KM   COMBINE ROUTED FLOW RT-DTSF TO FLOW FROM BASIN F3 AT THE INTERSECTION OF
605       KM   RESEARCH PARKWAY AND SUMMERSET DRIVE.
606       HC       2

607       KKRT-AP22P
608       KM   ROUTE THE S.D.FLOW FROM THE BRIARGATE PKWY/ SUMMERSET INTERSECTION TO THE
609       KM   INTERSECTION OF RESEARCH PKWY. AND CHAPEL HILLS DR.
610       RD    2100     .02    .013            CIRC       5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

611       KK   SB-F4
612       KM   COMPUTE HYDROGRAPH FOR BASIN F4
613       BA    .038
614       LS      0    83.0
615       UD    .197

616       KK RR-DFF4
617       KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
618       KM   RATE OF 1.6 CFS/ACRE FROM THE 11.5 AC THAT WILL BE DEVELOPED AS LI/O
619       KM   DISCHARGE REDUCTION PER ACRE IS DETERMINED PER THE RATE AND AREA INCLUDED
620       KM   IN THE MDDP FOR BRIARGATE BUSINESS CAMPUS
621       KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
622       KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE SITE WILL LIKELY
623       KM   FREE DISCHARGE TO THE ADJACENT STREET
624       KM   DISCHARGE REDUCTION = LI/O AREA (acres)11.5 x 1.6 cfs = 18.4 cfs
625       RS      1    STOR       0
626       SV      0    .001       6      10
627       SE    100     102     104     106
628       SQ      0    70.6    70.6    70.6

629       KK    AP23
630       KM   COMBINE ROUTED FLOW RT-AP22P TO FLOW FROM BASIN F4 AT THE INTERSECTION OF
631       KM   RESEARCH PARKWAY AND CHAPEL HILLS DR.
632       HC      2

633       KKRT-AP23P
634       KM   ROUTE THE FLOW IN THE STORM DRAIN FROM THE RESEARCH PKWY/CHAPEL HILLS DR.
635       KM   INTERSECTION TO THE INTERSECTION OF EXPLORER DRIVE AND THE FOCUS ON THE
636       KM   FAMILY S.D.
637       RD   2100    .044    .013           CIRC       4

638       KK   SB-F5
639       KM   COMPUTE HYDROGRAPH FOR BASIN F5
640       BA    .064
641       LS      0    95.5
642       UD    .121

643       KK RR-DFF5
644       KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
645       KM   RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
646       KM   AND HISTORIC PEAK 100 YR FLOW RATE PER THE ORIGINAL DBPS CRITERIA FOR LI/O
647       KM   LAND USE. HISTORIC 100 YR PEAK ESTIMATED AT 1.5 CFS/AC. FULLY DEVELOPED 100
648       KM    YR PEAK ESTIMATED AT 5.6 CFS/AC. ESTIMATED REQUIRED DETENTION =
649       KM   (5.6-1.5)*.35*35AC=50cfs   TOTAL Qin=225cfs
650       KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
651       KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
652       KM   DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
653       RS      1    STOR       0
654       SV      0    .001       6      10
655       SE    100     102     104     106
656       SQ      0     175     175     175
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  657     KK    AP24
  658     KM   COMBINE THE ROUTED FLOW IN THE S.D.(RTAP102) TO FLOW FROM FF1
  659     HC       2

  660     KKRT-AP24P
  661     KM   ROUTE THE FLOW IN THE FOCUS STORM DRAIN FROM AP24 AT THE INTERSECTION OF
  662     KM   EXPLORER DRIVE AND THE FOCUS S.D. TO AP25 AT THE INTERSECTION OF EXPLORER
  663     KM   DRIVE & BRIARGATE PKWY
  664     RD     800    .011    .013            CIRC     5.5

  665     KK   SB-F6
  666     KM   COMPUTE HYDROGRAPH FOR BASIN F6
  667     BA    .038
  668     LS       0    98.0
  669     UD    .106

  670     KK RR-DFF6
  671     KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
  672     KM   RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
  673     KM   AND HISTORIC PEAK 100 YR FLOW RATE. HISTORIC ESTIMATED AT 1.5 CFS/AC.
  674     KM   FULLY DEVELOPED ESTIMATED AT 6.0 CFS/AC. ESTIMATED REQUIRED DETENTION =
  675     KM   (6.0-1.5)*.35*21.5AC=34cfs   TOTAL Qin=138cfs
  676     KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
  677     KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
  678     KM   DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
  679     RS       1    STOR       0
  680     SV       0    .001       6      10
  681     SE     100     102     104     106
  682     SQ       0     104     104     104

  683     KK   SB-F7
  684     KM   COMPUTE HYDROGRAPH FOR BASIN F7
  685     BA    .052
  686     LS       0    93.0
  687     UD    .137

  688     KK RR-DFF7
  689     KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
  690     KM   RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
  691     KM   AND HISTORIC PEAK 100 YR FLOW RATE. HISTORIC ESTIMATED AT 1.5 CFS/AC.
  692     KM   FULLY DEVELOPED ESTIMATED AT 5.2 CFS/AC. ESTIMATED REQUIRED DETENTION =
  693     KM   (5.2-1.5)*.35*29AC=38cfs   TOTAL Qin=170cfs
  694     KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
  695     KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
  696     KM   DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
  697     RS       1    STOR       0
  698     SV       0    .001       6      10
  699     SE     100     102     104     106
  700     SQ       0     132     132     132
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

701       KK    AP25
702       KM    COMBINE ROUTED FLOW RT-AP25P TO CONTROLLED FLOW FROM BASINS F6 AND F7
703       KM    AT THE INTERSECTION OF EXPLORER DR AND BRIARGATE PKWY.
704       HC       3

705       KKRT-AP25P
706       KM    ROUTE THE FLOW IN THE S.D.FROM THE INTERSECTION OF EXPLORE DR. & BRIARGATE
707       KM    PARKWAY TO DETENTION FACILITY 1 AT BRIARGATE PKWY & HIGHWAY 83
708       RD    1250    .011    .013            CIRC     5.5

709       KK  SB-PM8
710       KM    COMPUTE HYDROGRAPH FOR BASIN PM8 THE PORTION OF BRIARGATE PARKWAY BETWEEN
711       KM    EXPLORER DR. AND HIGHWAY 83
712       BA    .014
713       LS       0      98
714       UD    .100

715       KK AP-DF#1
716       KM    ADD THE FLOW FROM THE FOCUS ON THE FAMILY STORM DRAIN, BASINS PM7 AND PM8,
717       KM    AND FLOW IN PINE CREEK FOR THE TOTAL INFLOW TO DETENTION FACILITY 1
718       HC       4

719       KK RR-DF#1
720       KM    ROUTE FLOW THRU DETENTION FACILITY NO.1. VOLUME MODIFIED TO REFLECT PROPOSED
721       KM    ENLARGEMENT. PROPOSED ENLARGEMENT IS TO ADD A MINIMUM OF 0.7 ACRES OF SURFACE
722       KM    AREA TO EACH OF THE CONTOURS AT OR ABOVE ELEVATION 58. OUTLET MODELED
723       KM    ASSUMING THE TOP 7.5' OF THE ENTRANCE TO THE 10'R X 12'S HIGH BOX CULVERT IS
724       KM    BLOCKED AND A NEW 12' WIDE OPENING IS CREATED W/ INVERT AT 67.2
725       KM    OUTFLOW CURVE CALCULATED WITH A SPREADSHEET TREATING THE LOWER OPENING AS
726       KM    A SUBMERGED ORIFICE WITH C=.60, h=POND DEPTH - NORMAL DEPTH IN THE OUTFALL
727       KM    AND THE UPPER OPENING TO ELEVATION 73.0 TREATED AS A SHARP CRESTED WEIR WITH
728       KM    A FULL LENGTH OF 12.77' (THE SKEW LENGTH) ADJUSTED 0.2h FOR END CONTRACTIONS
729       KM    AND C=3.22+0.40(h/P) WHERE P=14.2. ABOVE ELEVATION 73.0 THE TOP OUTLET
730       KM    STRUCTURE IS ASSUMED TO TERMINATE WITHOUT A TOP AND THUS ADDITIONAL FLOW CAN
731       KM    OVER TOP THE SIDES AND BACK OF THE ASSUMED 3 SIDED  STRUCTURE 12.77 x 10
732       KO       3       1
733       RS       1    STOR       0
734       SA       0    0.18    0.48    4.83    5.23    5.52    5.83    6.13    6.44    6.78
735       SA    7.14    7.34    7.53    7.73    7.95
736       SE    54.0    55.0    56.0    58.0    60.0    62.0    64.0    66.0    68.0    70.0
737       SE    72.0    73.0    74.0    75.0    76.0
738       SQ       0     105     194     275     344     401     451     496     560     747
739       SQ     998    1142    1247    1750    2100

740       KK RT-AP26
741       KM    ROUTE THE COMBINED FLOW FROM AP26 AT BRIARGATE PARKWAY DOWN PINE CREEK TO
742       KM    THE INTERSECTION OF PINE CREEK AND HIGHWAY 83. USE AVERAGE
743       KM    APPROXIMATE SECTION AND SLOPE FOR ROUTING
744       RD    1450    .019    .045            TRAP      40       2
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  745     KK  SB-PM9
  746     KM   COMPUTE HYDROGRAPH FOR BASIN PM9
  747     BA    .068
  748     LS       0      93
  749     UD    .120

  750     KK    AP27
  751     KM   COMBINE THE FLOW FROM BASIN PM9 AND THE ROUTED FLOW IN PINE CREEK (RT-AP26) A
  752     KM   AT THE UPSTREAM SIDE  OF HIGHWAY 83.
  753     HC       2

  754     KK SB-PM10
  755     KM   COMPUTE HYDROGRAPH FOR BASIN PM10
  756     BA    .048
  757     LS       0      98
  758     UD    .092

  759     KKRRDFPM10
  760     KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
  761     KM   RATE TO THE APPROXIMATE PEAK FLOW RATE DISCHARGE GOAL FROM THE BASIN
  762     KM   AS SHOWN IN THE FINAL DRAINAGE REPORT FOR BRIARGATE BUSINESS CAMPUS
  763     KM   FILING 13 AS APPROVED OCT 31, 1996
  764     KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
  765     KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN MAY DISCHARGE
  766     KM   DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN.
  767     KM   DISCHARGE FROM THE BASIN PER THE FINAL DRAINAGE REPORT=140 cfs
  768     RS       1    STOR       0
  769     SV       0     001      .6     1.5
  770     SE     100     102     104     106
  771     SQ       0     140     140     140

  772     KK RT-PM10
  773     KM   ROUTE THE FLOW IN THE S.D.FROM THE LOW POINT IN TELESTAR DR. TO THE EXISTING
  774     KM   OUTFALL TO PINE CREEK JUST UPSTREAM OF HIGHWAY 83.
  775     RD    1000    .025    .013            CIRC     4.0

  776     KK SB-PM11
  777     KM   COMPUTE HYDROGRAPH FOR BASIN PM11
  778     BA    .041
  779     LS       0      98
  780     UD    .096

  781     KK    AP28
  782     KM   COMBINE THE FLOW FROM BASIN PM11 WITH THE FLOW IN  PINE CREEK AT AP27,
  783     KM   AND THE ROUTED FLOW FROM BASIN PM10. FLOW IS COMBINED IN PINE CREEK AT
  784     KM   THE UPSTREAM SIDE OF THE BOX CULVERT UNDER HIGHWAY 83. THIS REPRESENTS THE
  785     KM   TOTAL FLOW TO PINE CREEK FROM THE BRIARGATE AREA
  786     KO       3       1
  787     HC       3
  788     ZZ
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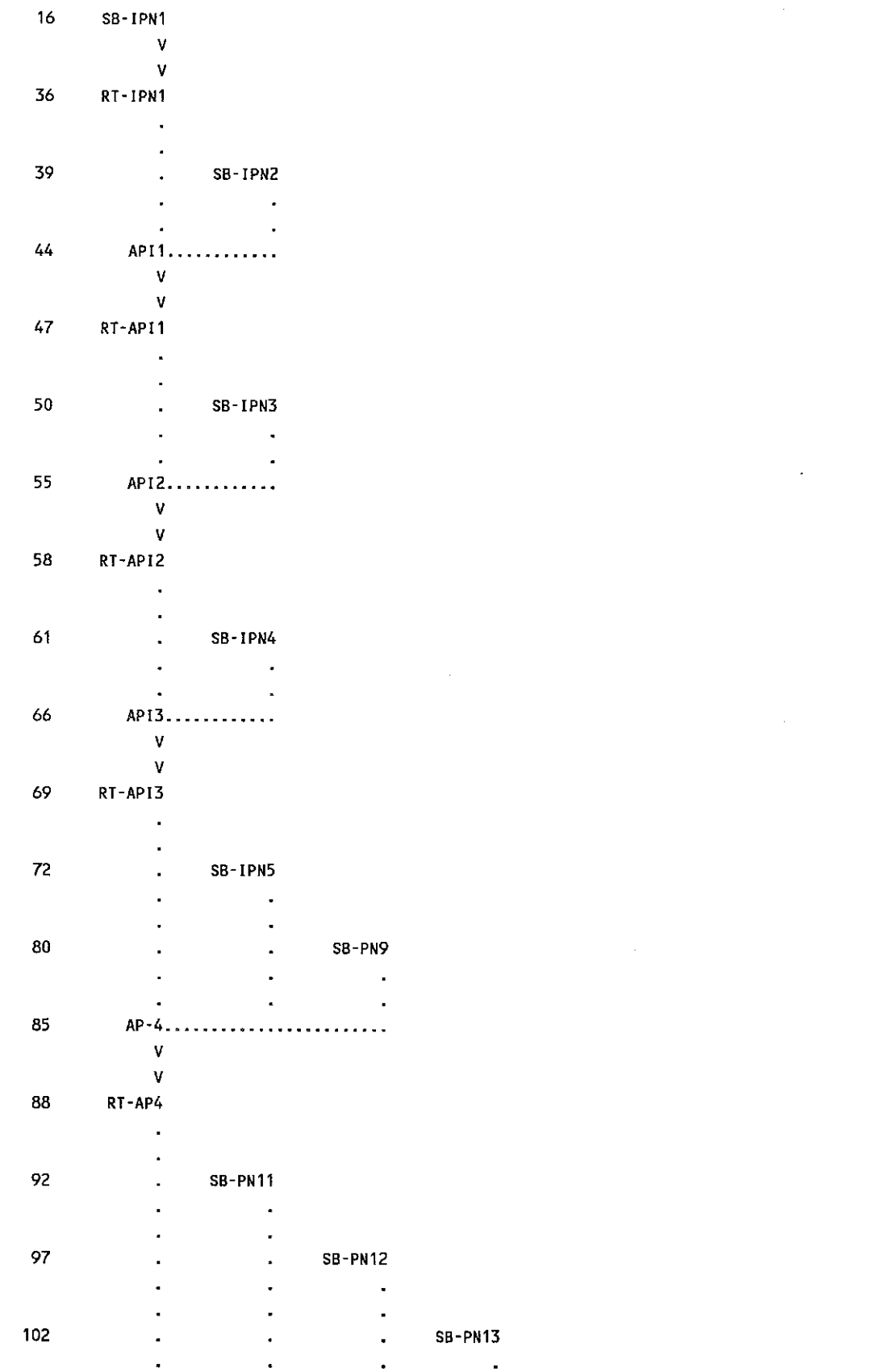
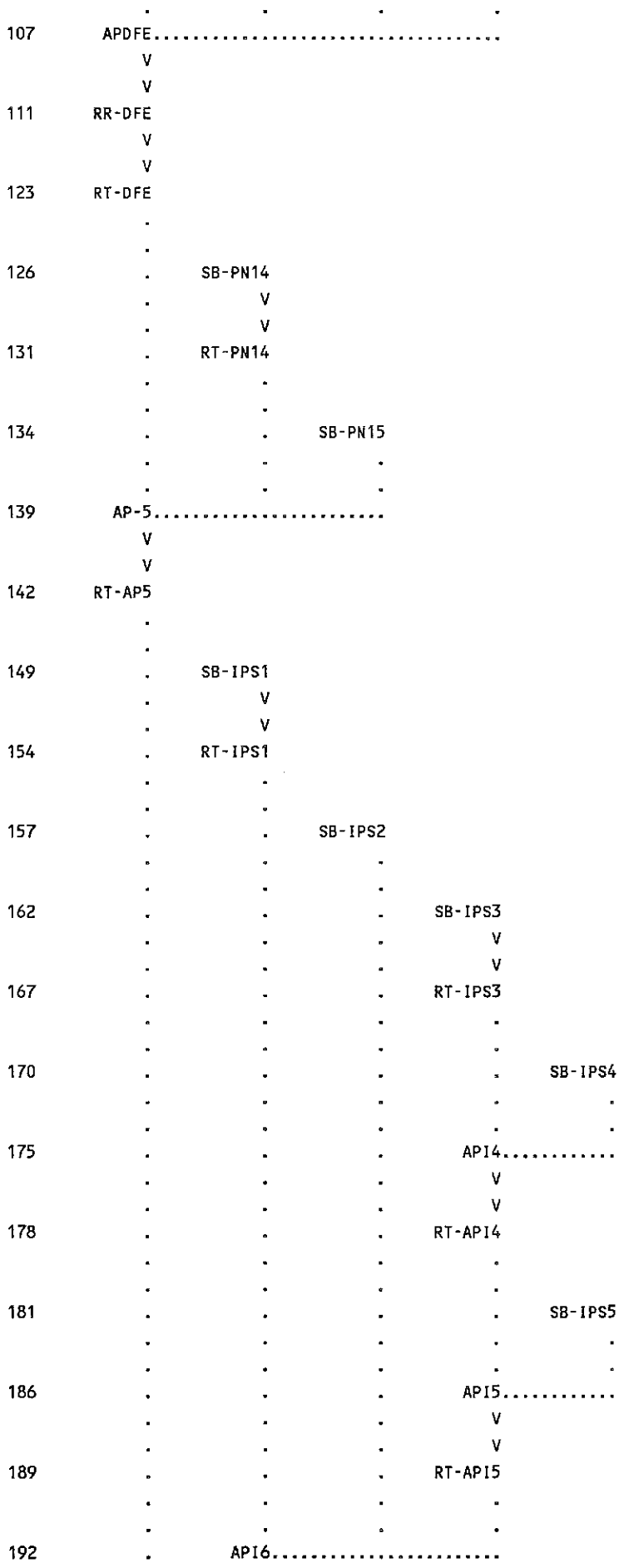
SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

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

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW

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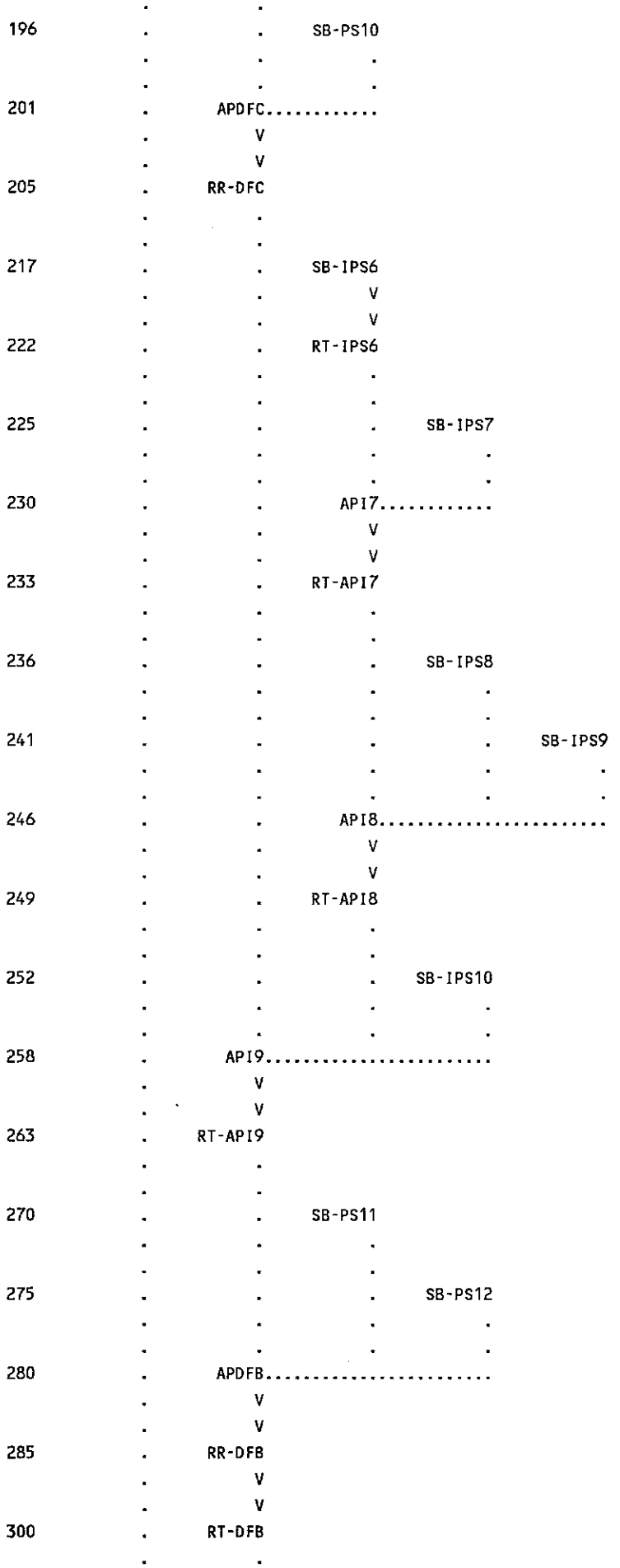
111 RR-DFE
123 RT-DFE
126 SB-PN14
131 RT-PN14
134 SB-PN15
139 AP-5
142 RT-AP5
149 SB-IPS1
154 RT-IPS1
157 SB-IPS2
162 SB-IPS3
167 RT-IPS3
170 SB-IPS4
175 API4
178 RT-API4
181 SB-IPS5
186 API5
189 RT-API5
192 API6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201
APDFC
205
RR-DFC
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SB-IPS6
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RT-IPS6
225
SB-IPS7
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API7
233
RT-API7
236
SB-IPS8
241
SB-IPS9
246
API8
249
RT-API8
252
SB-IPS10
258
API9
263
RT-API9
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SB-PS11
275
SB-PS12
280
APDFB
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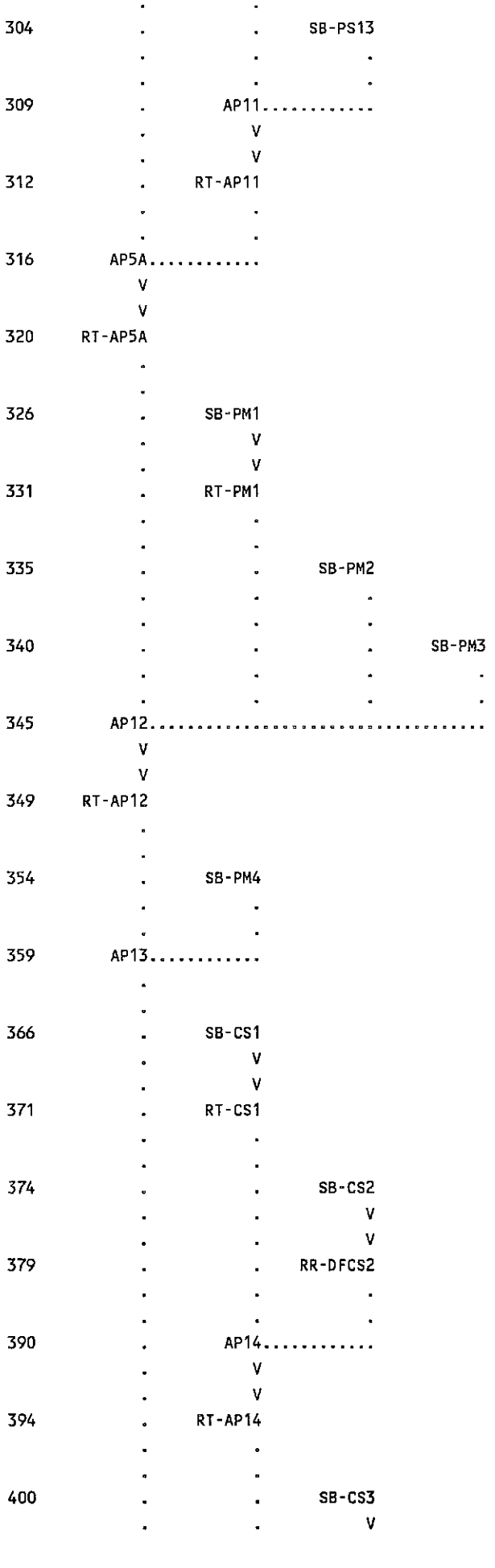
RR-DFB
300
RT-DFB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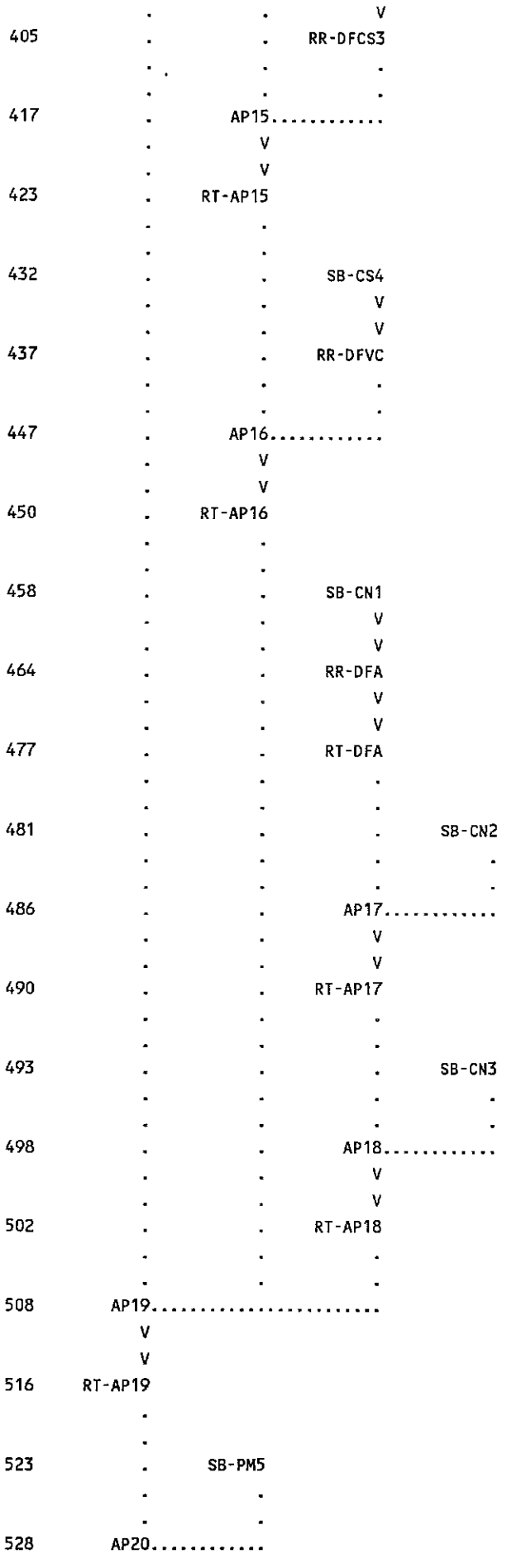
309 AP11
312 RT-AP11
316 AP5A
320 RT-AP5A
326 SB-PM1
331 RT-PM1
335 SB-PM2
340 SB-PM3
345 AP12
349 RT-AP12
354 SB-PM4
359 AP13
366 SB-CS1
371 RT-CS1
374 SB-CS2
379 RR-DFCS2
390 AP14
394 RT-AP14
400 SB-CS3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417
AP15
423
RT-AP15
432
SB-CS4
437
RR-DFVC
447
AP16
450
RT-AP16
458
SB-CN1
464
RR-DFA
477
RT-DFA
481
SB-CN2
486
AP17
490
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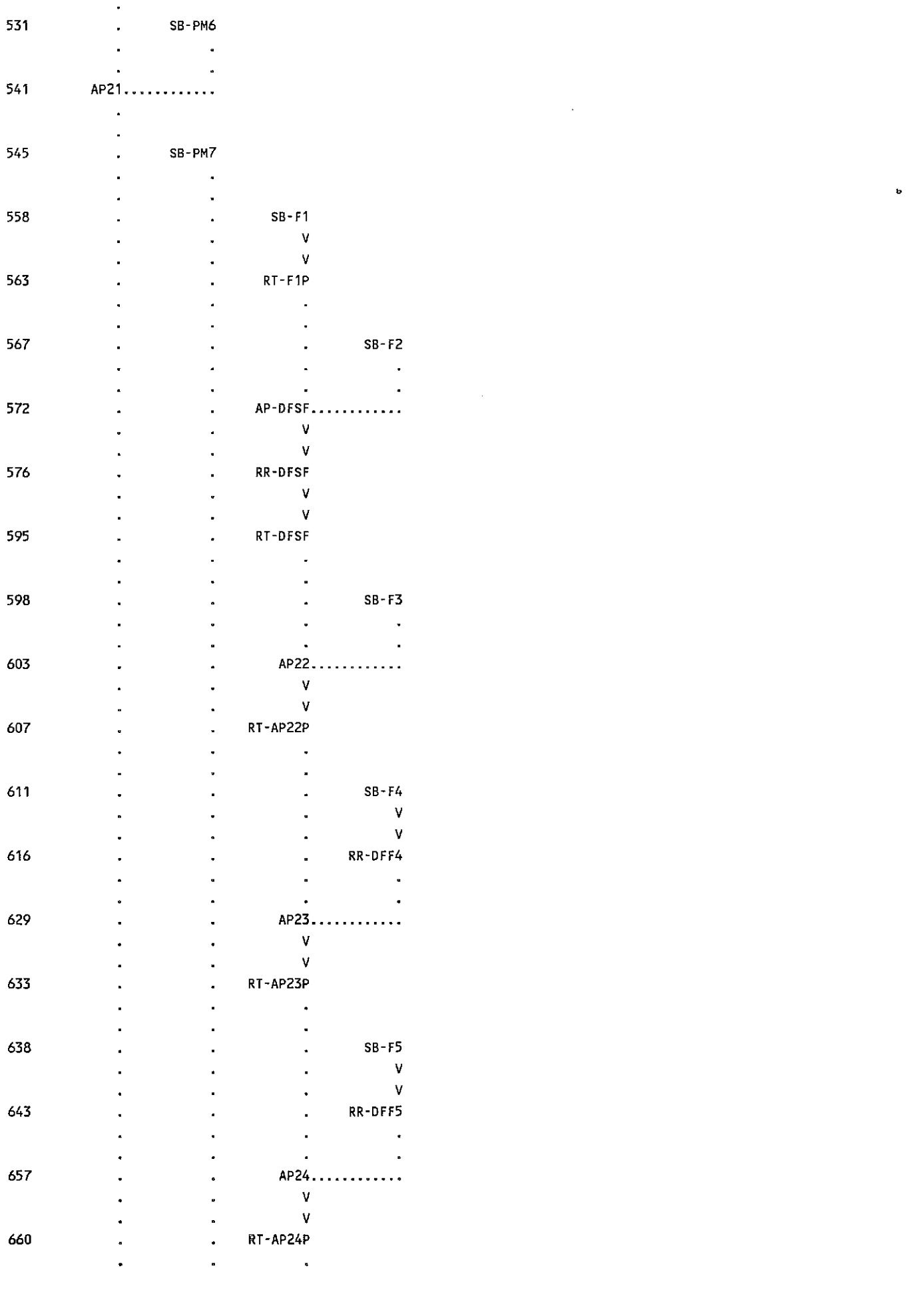
AP19
516
RT-AP19
523
SB-PM5
528
AP20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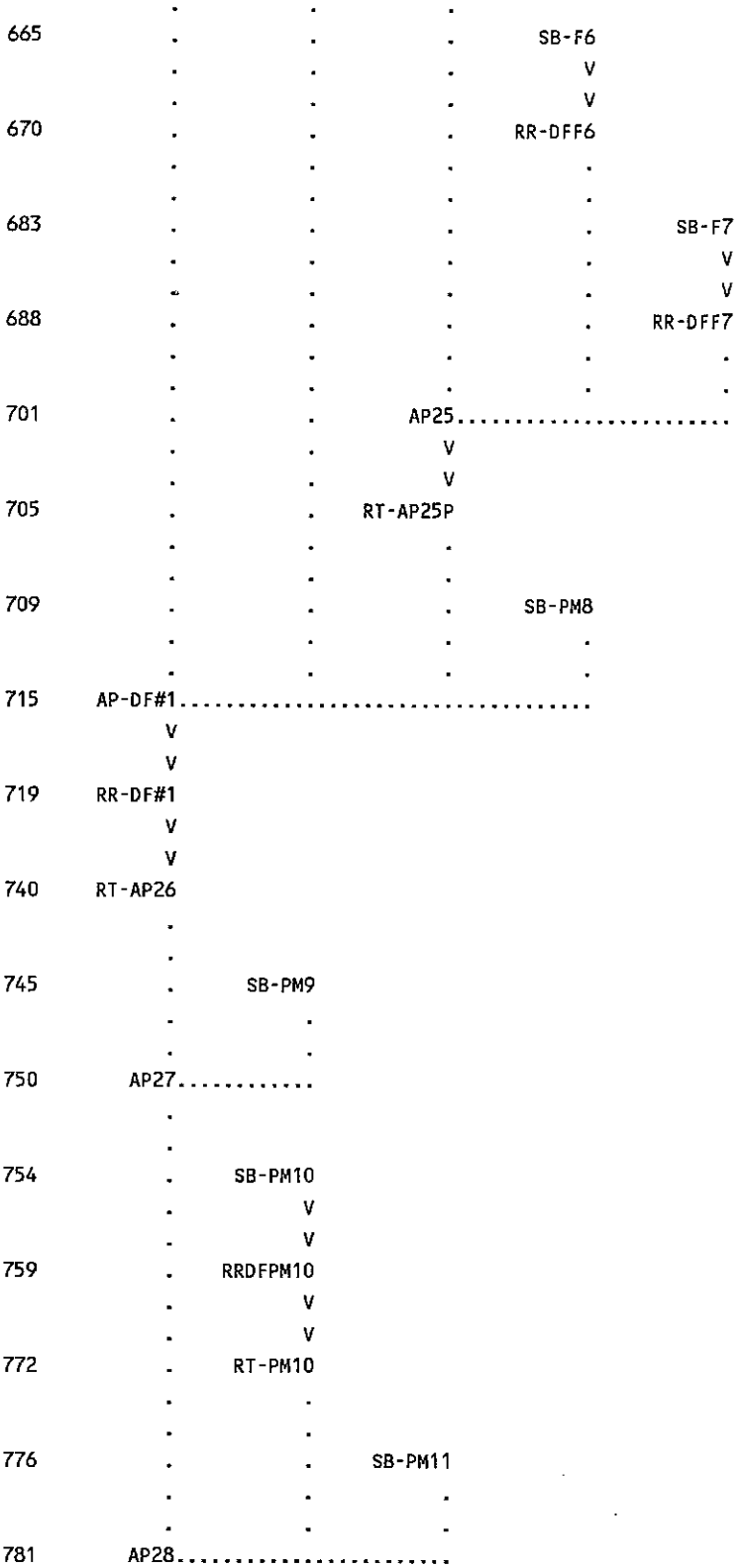
541 AP21
545 SB-PM7
558 SB-F1
563 RT-F1P
567 SB-F2
572 AP-DFSF
576 RR-DFSF
595 RT-DFSF
598 SB-F3
603 AP22
607 RT-AP22P
611 SB-F4
616 RR-DFF4
629 AP23
633 RT-AP23P
638 SB-F5
643 RR-DFF5
657 AP24
660 RT-AP24P



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

FLOOD HYDROGRAPH PACKAGE (HEC-1)
MAY 1991
VERSION 4.0.1E
RUN DATE 08/05/1998 TIME 17:41:58

U.S. ARMY CORPS OF ENGINEERS
HYDROLOGIC ENGINEERING CENTER
609 SECOND STREET
DAVIS, CALIFORNIA 95616
(916) 756-1104

PINE CREEK DRAINAGE BASIN - 24HR,(TYPE IIa5 YEAR STORM)
FILE PCDBPSI5.DAT
INTERIM CONDITION MODEL
MODEL MODIFIED FOR 8-98 REVISION LAST UPDATE:8/5/98
BASINS PN1 THROUGH PN8, PN10, AND PS1 THROUGH PS9 IN UNDEVELOPED OR
PARTIAL DEVELOPED CONDITION. ALL OTHER BASINS ASSUMED TO BE FULLY DEVELOPED.
DETENTION FACILITY "C" ASSUMED TO BE CONSTRUCTED TO DEVELOPED CONDITION
REQUIRED CAPACITY BUT WITHOUT AN OUTFALL SO IT FUNCTIONS AS A TEMPORARY
RETENTION POND. DETENTION FACILITIES "A", "B", "E" AND "H" ARE ASSUMED
TO BE CONTRUCTED TO THE DEVELOPED CONDITION REQUIREMENTS.
NOTE: THE DIVERSION ROUTINES WERE REMOVED FROM THE MODEL FOR THE 5 YR STORM
NOTE: THE OUTFLOW CURVE FOR THE SUMMER FIELD DETENTION POND WAS MODIFIED
SLIGHTLY TO ALLOW THE 5 YR MODEL TO RUN.

15 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	3	MINUTES IN COMPUTATION INTERVAL
IDATE	1 0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1 0	ENDING DATE
NDTIME	1457	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 14.95 HOURS

ENGLISH UNITS

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

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          **************
          *            *
111 KK    *   RR-DFE   *
          *            *
          **************

118 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          1  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

119 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

120 SV            STORAGE        0.0       0.0       1.3       3.9       6.9      10.3      14.1      18.2      22.8      27.9

121 SE          ELEVATION     784.00    786.00    788.00    790.00    792.00    794.00    796.00    798.00    800.00    802.00

122 SQ          DISCHARGE         0.       25.       80.      136.      173.      210.      240.      263.      280.     1431.

                                                          ***

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

                       HYDROGRAPH AT STATION   RR-DFE

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                6-HR        24-HR        72-HR     14.95-HR
     97.       6.35       (CFS)     34.          16.          16.          16.
                          (INCHES)  0.320        0.371        0.371        0.371
                          (AC-FT)   17.          19.          19.          19.

PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                6-HR        24-HR        72-HR     14.95-HR
      2.       6.35                 0.          0.           0.           0.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                6-HR        24-HR        72-HR     14.95-HR
   788.60      6.35              785.88      784.87       784.87       784.87

                       CUMULATIVE AREA =    0.98 SQ MI

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

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205 KK     *    RR-DFC  *
           *            *
           **************

209 KO           OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          1  PLOT CONTROL
                      QSCAL        100.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

210 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

211 SV             STORAGE       0.0       2.7       9.7      18.6      28.0      38.2      49.0      60.5      72.8      85.8
                                99.7

213 SE             ELEVATION    62.00     64.00     66.00     68.00     70.00     72.00     74.00     76.00     78.00     80.00
                                82.00

215 SQ             DISCHARGE     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                                 0.

                                                      ***

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

                        HYDROGRAPH AT STATION   RR-DFC

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                  6-HR        24-HR       72-HR     14.95-HR
     0.        0.05        (CFS)       0.          0.          0.          0.
                           (INCHES)  0.000       0.000       0.000       0.000
                           (AC-FT)     0.          0.          0.          0.

PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                  6-HR        24-HR       72-HR     14.95-HR
     10.       14.95                  8.          4.          4.          4.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
  (FEET)       (HR)                  6-HR        24-HR       72-HR     14.95-HR
    66.07      14.95                65.65       63.90       63.90       63.90

                        CUMULATIVE AREA =    0.70 SQ MI

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

           **************
           *            *
 85 KK     *    RR-DFB  *
           *            *
           **************
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292 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          1  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

293 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

294 SV            STORAGE        0.0       0.1       1.2       3.3       5.8       8.7      12.1      15.9      20.1      23.6
                                24.8      30.0

296 SE          ELEVATION      71.20     72.00     74.00     76.00     78.00     80.00     82.00     84.00     86.00     87.60
                               88.00     90.00

298 SQ          DISCHARGE         0.       22.       73.      130.      169.      202.      236.      260.      285.      301.
                                371.     1222.

                                                                  ***

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

                       HYDROGRAPH AT STATION   RR-DFB

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR        24-HR        72-HR     14.95-HR
    102.       6.45          (CFS)     31.          14.          14.          14.
                             (INCHES)  0.192        0.221        0.221        0.221
                              (AC-FT)    16.          18.          18.          18.

PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                  6-HR        24-HR        72-HR     14.95-HR
       2.      6.45                    0.          0.           0.           0.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                  6-HR        24-HR        72-HR     14.95-HR
    75.03      6.45                 72.37       71.74        71.74        71.74

                       CUMULATIVE AREA =    1.52 SQ MI


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


          **************
          *            *
464 KK    *    RR-DFA  *
          *            *
          **************

469 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          1  PLOT CONTROL
                     QSCAL        100.  HYDROGRAPH PLOT SCALE
```

HYDROGRAPH ROUTING DATA

470 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

471 SV	STORAGE	0.0	0.0	0.2	1.0	2.0	2.8	4.3	5.3	6.5	11.6
		15.4									
473 SQ	DISCHARGE	2.	3.	3.	4.	4.	5.	5.	6.	8.	9.
		279.									
475 SE	ELEVATION	6796.60	6797.00	6798.00	6800.00	6802.00	6803.50	6803.51	6804.00	6804.10	6805.50
		6806.50									

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HYDROGRAPH AT STATION RR-DFA

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	14.95-HR
5.	8.10	(CFS)	5.	4.	4.	4.
		(INCHES)	0.321	0.619	0.619	0.619
		(AC-FT)	2.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	14.95-HR
4.	8.15	3.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	14.95-HR
6803.51	7.65	6803.48	6800.68	6800.68	6800.68

CUMULATIVE AREA = 0.14 SQ MI

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* *
576 KK * RR-DFSF *
* *
****

90 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	1	PLOT CONTROL
QSCAL	100.	HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

91 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

592 SV          STORAGE        0.0      0.6      4.6      6.9     10.3

593 SE        ELEVATION      92.00    94.00    96.00    98.00   100.00

594 SQ        DISCHARGE       80.     126.     131.     137.     144.

                                                        ***

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

                    HYDROGRAPH AT STATION  RR-DFSF

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                6-HR       24-HR       72-HR     14.95-HR
    92.       6.20       (CFS)     80.         80.         80.         80.
                         (INCHES)  4.724      11.746      11.746      11.746
                         (AC-FT)   40.         99.         99.         99.

PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
  (AC-FT)     (HR)                6-HR       24-HR       72-HR     14.95-HR
     0.       6.20                 0.          0.          0.          0.

PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
  (FEET)      (HR)                6-HR       24-HR       72-HR     14.95-HR
   92.50      6.20               92.01       92.00       92.00       92.00

                    CUMULATIVE AREA =    0.16 SQ MI


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


          **************
          *            *
719 KK    *   RR-DF#1  *
          *            *
          **************

732 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          1  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

733 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

734 SA               AREA        0.0      0.2      0.5      4.8      5.2      5.5      5.8      6.1      6.4      6.8
                                 7.1      7.3      7.5      7.7      7.9
```

736 SE	ELEVATION	54.00	55.00	56.00	58.00	60.00	62.00	64.00	66.00	68.00	70.00
		72.00	73.00	74.00	75.00	76.00					
738 SQ	DISCHARGE	0.	105.	194.	275.	344.	401.	451.	496.	560.	747.
		998.	1142.	1247.	1750.	2100.					

***

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.06	0.38	4.93	14.99	25.74	37.09	49.05	61.62	74.83
ELEVATION	54.00	55.00	56.00	58.00	60.00	62.00	64.00	66.00	68.00	70.00
STORAGE	88.75	95.99	103.43	111.06	118.90					
ELEVATION	72.00	73.00	74.00	75.00	76.00					

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 105.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

HYDROGRAPH AT STATION RR-DF#1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
452.	6.75	(CFS)	310.	187.	187.	187.
		(INCHES)	0.651	0.976	0.976	0.976
		(AC-FT)	154.	231.	231.	231.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	14.95-HR
37.	6.75	16.	6.	6.	6.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	14.95-HR
64.06	6.75	59.56	56.84	56.84	56.84

CUMULATIVE AREA = 4.43 SQ MI

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*            *
'81 KK  *      AP28  *
*            *
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'86 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	1	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

787 HC HYDROGRAPH COMBINATION

ICOMP	3	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AP28

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	14.95-HR
632.	6.05	(CFS)	343.	201.	201.	201.
		(INCHES)	0.695	1.012	1.012	1.012
		(AC-FT)	170.	248.	248.	248.

CUMULATIVE AREA = 4.59 SQ MI

5 YEAR STORM, INTERIM CONDITION

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	SB-IPN1	22.	6.30	4.	2.	2.	0.16		
ROUTED TO	RT-IPN1	25.	6.55	4.	2.	2.	0.16		
HYDROGRAPH AT	SB-IPN2	23.	6.35	5.	2.	2.	0.23		
2 COMBINED AT	API1	43.	6.55	9.	4.	4.	0.39		
ROUTED TO	RT-API1	43.	6.65	9.	4.	4.	0.39		
HYDROGRAPH AT	SB-IPN3	19.	6.20	3.	1.	1.	0.12		
2 COMBINED AT	API2	50.	6.65	12.	6.	6.	0.51		
ROUTED TO	RT-API2	49.	6.75	12.	6.	6.	0.51		
HYDROGRAPH AT	SB-IPN4	23.	6.15	3.	2.	2.	0.14		
2 COMBINED AT	API3	54.	6.75	16.	7.	7.	0.66		
ROUTED TO	RT-API3	53.	6.85	16.	7.	7.	0.66		
HYDROGRAPH AT	SB-IPN5	8.	6.10	1.	0.	0.	0.04		
HYDROGRAPH AT	SB-PN9	20.	6.10	2.	1.	1.	0.04		
3 COMBINED AT	AP-4	56.	6.85	18.	9.	9.	0.74		
ROUTED TO	RT-AP4	55.	6.90	18.	9.	9.	0.74		
HYDROGRAPH AT	SB-PN11	55.	6.10	6.	3.	3.	0.08		
HYDROGRAPH AT	SB-PN12	17.	6.05	2.	1.	1.	0.04		
HYDROGRAPH AT	SB-PN13	73.	6.10	8.	4.	4.	0.13		
4 COMBINED AT	APDFE	165.	6.10	34.	16.	16.	0.98		
ROUTED TO	RR-DFE	97.	6.35	34.	16.	16.	0.98	788.60	6.35
ROUTED TO	RT-DFE	97.	6.35	34.	16.	16.	0.98		
HYDROGRAPH AT	SB-PN14	17.	6.05	2.	1.	1.	0.03		
ROUTED TO	RT-PN14	17.	6.10	2.	1.	1.	0.03		
HYDROGRAPH AT	SB-PN15	39.	6.10	4.	2.	2.	0.07		
3 COMBINED AT	AP-5	135.	6.15	40.	18.	18.	1.08		
ROUTED TO	RT-AP5	135.	6.15	40.	18.	18.	1.08		

HYDROGRAPH AT	SB-IPS1	17.	6.35	4.	2.	2.	0.15		
ROUTED TO	RT-IPS1	17.	6.55	4.	2.	2.	0.15		
HYDROGRAPH AT	SB-IPS2	11.	6.35	2.	1.	1.	0.10		
HYDROGRAPH AT	SB-IPS3	15.	6.20	2.	1.	1.	0.11		
ROUTED TO	RT-IPS3	16.	6.40	2.	1.	1.	0.11		
HYDROGRAPH AT	SB-IPS4	20.	6.25	4.	2.	2.	0.17		
2 COMBINED AT	API4	32.	6.40	6.	3.	3.	0.27		
ROUTED TO	RT-API4	30.	6.70	6.	3.	3.	0.27		
HYDROGRAPH AT	SB-IPS5	15.	6.35	3.	1.	1.	0.13		
2 COMBINED AT	API5	39.	6.70	9.	4.	4.	0.41		
ROUTED TO	RT-API5	37.	6.90	9.	4.	4.	0.41		
3 COMBINED AT	API6	55.	6.70	15.	7.	7.	0.66		
HYDROGRAPH AT	SB-PS10	22.	6.10	2.	1.	1.	0.04		
2 COMBINED AT	APDFC	58.	6.70	17.	8.	8.	0.70		
ROUTED TO	RR-DFC	0.	0.05	0.	0.	0.	0.70	66.07	14.95
HYDROGRAPH AT	SB-IPS6	14.	6.30	3.	1.	1.	0.13		
ROUTED TO	RT-IPS6	16.	6.65	3.	1.	1.	0.13		
HYDROGRAPH AT	SB-IPS7	28.	6.25	5.	2.	2.	0.21		
2 COMBINED AT	API7	28.	6.25	8.	4.	4.	0.34		
ROUTED TO	RT-API7	28.	6.40	8.	4.	4.	0.34		
HYDROGRAPH AT	SB-IPS8	13.	6.20	2.	1.	1.	0.09		
HYDROGRAPH AT	SB-IPS9	36.	6.10	4.	2.	2.	0.06		
3 COMBINED AT	API8	49.	6.25	13.	6.	6.	0.49		
ROUTED TO	RT-API8	49.	6.35	13.	6.	6.	0.49		
HYDROGRAPH AT	SB-IPS10	60.	6.10	6.	3.	3.	0.12		
3 COMBINED AT	API9	99.	6.10	20.	9.	9.	1.31		
ROUTED TO	RT-API9	98.	6.25	20.	9.	9.	1.31		
HYDROGRAPH AT	SB-PS11	51.	6.05	5.	2.	2.	0.06		
HYDROGRAPH AT	SB-PS12	52.	6.15	7.	3.	3.	0.15		
3 COMBINED AT	APDFB	169.	6.20	31.	15.	15.	1.52		

ROUTED TO	RR-DFB	102.	6.45	31.	14.	14.	1.52	75.03	6.45
ROUTED TO	RT-DFB	102.	6.45	31.	14.	14.	1.52		
HYDROGRAPH AT	SB-PS13	42.	6.05	4.	2.	2.	0.06		
2 COMBINED AT	AP11	110.	6.40	35.	16.	16.	1.58		
ROUTED TO	RT-AP11	110.	6.45	35.	16.	16.	1.58		
2 COMBINED AT	AP5A	231.	6.20	75.	35.	35.	2.66		
ROUTED TO	RT-AP5A	230.	6.25	75.	35.	35.	2.66		
HYDROGRAPH AT	SB-PM1	41.	6.10	5.	2.	2.	0.05		
ROUTED TO	RT-PM1	41.	6.10	5.	2.	2.	0.05		
HYDROGRAPH AT	SB-PM2	31.	6.25	5.	2.	2.	0.15		
HYDROGRAPH AT	SB-PM3	32.	6.15	4.	2.	2.	0.07		
4 COMBINED AT	AP12	323.	6.20	89.	41.	41.	2.94		
ROUTED TO	RT-AP12	321.	6.25	89.	41.	41.	2.94		
HYDROGRAPH AT	SB-PM4	57.	6.10	6.	3.	3.	0.11		
2 COMBINED AT	AP13	351.	6.25	95.	44.	44.	3.05		
HYDROGRAPH AT	SB-CS1	30.	6.10	3.	1.	1.	0.05		
ROUTED TO	RT-CS1	30.	6.15	3.	1.	1.	0.05		
HYDROGRAPH AT	SB-CS2	149.	6.00	16.	7.	7.	0.07		
ROUTED TO	RR-DFCS2	149.	6.00	16.	7.	7.	0.07	101.53	6.00
2 COMBINED AT	AP14	167.	6.00	20.	9.	9.	0.12		
ROUTED TO	RT-AP14	165.	6.00	20.	9.	9.	0.12		
HYDROGRAPH AT	SB-CS3	61.	6.05	6.	3.	3.	0.05		
ROUTED TO	RR-DFCS3	61.	6.05	6.	3.	3.	0.05	100.99	6.05
2 COMBINED AT	AP15	223.	6.05	26.	11.	11.	0.18		
ROUTED TO	RT-AP15	223.	6.05	26.	11.	11.	0.18		
HYDROGRAPH AT	SB-CS4	107.	6.00	11.	5.	5.	0.05		
ROUTED TO	RR-DFVC	17.	6.25	11.	5.	5.	0.05	78.27	6.25
2 COMBINED AT	AP16	239.	6.05	37.	16.	16.	0.23		
ROUTED TO	RT-AP16	239.	6.05	37.	16.	16.	0.23		
HYDROGRAPH AT	SB-CN1	102.	6.10	11.	5.	5.	0.14		

ROUTED TO	RR-DFA	5.	8.10	5.	4.	4.	0.14	6803.51	7.65
ROUTED TO	RT-DFA	5.	8.15	5.	4.	4.	0.14		
HYDROGRAPH AT	SB-CN2	47.	6.10	5.	2.	2.	0.08		
2 COMBINED AT	AP17	51.	6.10	10.	6.	6.	0.22		
ROUTED TO	RT-AP17	51.	6.15	10.	6.	6.	0.22		
HYDROGRAPH AT	SB-CN3	40.	6.05	4.	2.	2.	0.04		
2 COMBINED AT	AP18	88.	6.10	14.	8.	8.	0.27		
ROUTED TO	RT-AP18	87.	6.10	14.	8.	8.	0.27		
3 COMBINED AT	AP19	581.	6.15	144.	68.	68.	3.55		
ROUTED TO	RT-AP19	576.	6.15	144.	68.	68.	3.55		
HYDROGRAPH AT	SB-PM5	78.	6.10	9.	4.	4.	0.18		
2 COMBINED AT	AP20	649.	6.15	153.	72.	72.	3.73		
HYDROGRAPH AT	SB-PM6	186.	6.00	21.	9.	9.	0.09		
2 COMBINED AT	AP21	747.	6.10	172.	81.	81.	3.82		
HYDROGRAPH AT	SB-PM7	66.	6.25	10.	5.	5.	0.14		
HYDROGRAPH AT	SB-F1	89.	6.10	10.	4.	4.	0.12		
ROUTED TO	RT-F1P	87.	6.10	10.	4.	4.	0.12		
HYDROGRAPH AT	SB-F2	24.	6.10	2.	1.	1.	0.04		
2 COMBINED AT	AP-DFSF	110.	6.10	12.	6.	6.	0.16		
ROUTED TO	RR-DFSF	92.	6.20	80.	80.	80.	0.16	92.50	6.20
ROUTED TO	RT-DFSF	91.	6.20	80.	80.	80.	0.16		
HYDROGRAPH AT	SB-F3	76.	6.10	9.	4.	4.	0.11		
2 COMBINED AT	AP22	161.	6.15	89.	84.	84.	0.27		
ROUTED TO	RT-AP22P	159.	6.20	89.	84.	84.	0.27		
HYDROGRAPH AT	SB-F4	38.	6.10	4.	2.	2.	0.04		
ROUTED TO	RR-DFF4	38.	6.10	4.	2.	2.	0.04	101.09	6.10
2 COMBINED AT	AP23	194.	6.15	93.	86.	86.	0.31		
ROUTED TO	RT-AP23P	193.	6.15	93.	86.	86.	0.31		
HYDROGRAPH AT	SB-F5	127.	6.00	13.	6.	6.	0.06		
ROUTED TO	RR-DFF5	127.	6.00	13.	6.	6.	0.06	101.45	6.00

2 COMBINED AT	AP24	298.	6.05	107.	92.	92.	0.37		
ROUTED TO	RT-AP24P	295.	6.05	107.	92.	92.	0.37		
HYDROGRAPH AT	SB-F6	81.	6.00	9.	4.	4.	0.04		
ROUTED TO	RR-DFF6	81.	6.00	9.	4.	4.	0.04	101.55	6.00
HYDROGRAPH AT	SB-F7	93.	6.00	10.	4.	4.	0.05		
ROUTED TO	RR-DFF7	93.	6.00	10.	4.	4.	0.05	101.40	6.00
3 COMBINED AT	AP25	461.	6.05	125.	100.	100.	0.46		
ROUTED TO	RT-AP25P	459.	6.05	125.	100.	100.	0.46		
HYDROGRAPH AT	SB-PM8	30.	6.00	3.	1.	1.	0.01		
4 COMBINED AT	AP-DF#1	1251.	6.10	310.	187.	187.	4.43		
ROUTED TO	RR-DF#1	452.	6.75	310.	187.	187.	4.43	64.06	6.75
ROUTED TO	RT-AP26	452.	6.80	310.	186.	186.	4.43		
HYDROGRAPH AT	SB-PM9	124.	6.00	13.	5.	5.	0.07		
2 COMBINED AT	AP27	460.	6.75	323.	191.	191.	4.50		
HYDROGRAPH AT	SB-PM10	102.	6.00	11.	5.	5.	0.05		
ROUTED TO	RRDFPM10	99.	6.00	11.	5.	5.	0.05	101.41	6.00
ROUTED TO	RT-PM10	98.	6.00	11.	5.	5.	0.05		
HYDROGRAPH AT	SB-PM11	87.	6.00	10.	4.	4.	0.04		
3 COMBINED AT	AP28	632.	6.05	343.	201.	201.	4.59		

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

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
RT-IPN1	MANE	1.65	25.94	389.40	0.28	3.00	24.83	393.00	0.28
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2554E+01 EXCESS=0.0000E+00 OUTFLOW=0.2491E+01 BASIN STORAGE=0.1056E+00 PERCENT ERROR= -1.7									
RT-API1	MANE	2.40	43.36	398.40	0.26	3.00	42.84	399.00	0.26
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5489E+01 EXCESS=0.0000E+00 OUTFLOW=0.5417E+01 BASIN STORAGE=0.9483E-01 PERCENT ERROR= -0.4									
RT-API2	MANE	2.70	48.86	405.00	0.26	3.00	48.86	405.00	0.26
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7261E+01 EXCESS=0.0000E+00 OUTFLOW=0.7200E+01 BASIN STORAGE=0.8563E-01 PERCENT ERROR= -0.3									
RT-API3	MANE	2.85	53.01	410.40	0.26	3.00	52.50	411.00	0.26
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9098E+01 EXCESS=0.0000E+00 OUTFLOW=0.9004E+01 BASIN STORAGE=0.1178E+00 PERCENT ERROR= -0.3									
RT-AP4	MANE	3.00	54.85	414.00	0.27	3.00	54.85	414.00	0.27
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1076E+02 EXCESS=0.0000E+00 OUTFLOW=0.1069E+02 BASIN STORAGE=0.9697E-01 PERCENT ERROR= -0.2									
RT-DFE	MANE	1.39	96.77	381.64	0.37	3.00	96.74	381.00	0.37
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1945E+02 EXCESS=0.0000E+00 OUTFLOW=0.1949E+02 BASIN STORAGE=-.4016E-01 PERCENT ERROR= 0.0									
RT-PN14	MANE	1.30	17.18	364.89	0.67	3.00	17.04	366.00	0.67
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9711E+00 EXCESS=0.0000E+00 OUTFLOW=0.9699E+00 BASIN STORAGE=0.1459E-02 PERCENT ERROR= 0.0									
RT-AP5	MANE	0.29	135.15	369.52	0.40	3.00	134.70	369.00	0.40
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2283E+02 EXCESS=0.0000E+00 OUTFLOW=0.2284E+02 BASIN STORAGE=-.8051E-02 PERCENT ERROR= 0.0									
RT-IPS1	MANE	1.80	16.97	394.20	0.27	3.00	16.92	393.00	0.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2156E+01 EXCESS=0.0000E+00 OUTFLOW=0.2116E+01 BASIN STORAGE=0.4875E-01 PERCENT ERROR= -0.4

RT-IPS3	MANE	1.35	17.01	387.45	0.24	3.00	16.04	384.00	0.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1442E+01 EXCESS=0.0000E+00 OUTFLOW=0.1408E+01 BASIN STORAGE=0.4835E-01 PERCENT ERROR= -1.0

RT-API4	MANE	1.80	31.86	403.20	0.24	3.00	30.45	402.00	0.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3598E+01 EXCESS=0.0000E+00 OUTFLOW=0.3506E+01 BASIN STORAGE=0.1153E+00 PERCENT ERROR= -0.6

RT-API5	MANE	2.85	37.79	413.25	0.24	3.00	37.09	414.00	0.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5353E+01 EXCESS=0.0000E+00 OUTFLOW=0.5271E+01 BASIN STORAGE=0.9945E-01 PERCENT ERROR= -0.3

RT-IPS6	MANE	1.65	19.49	397.65	0.24	3.00	15.85	399.00	0.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1735E+01 EXCESS=0.0000E+00 OUTFLOW=0.1675E+01 BASIN STORAGE=0.9153E-01 PERCENT ERROR= -1.8

RT-API7	MANE	1.65	28.81	382.80	0.25	3.00	27.94	384.00	0.25

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4599E+01 EXCESS=0.0000E+00 OUTFLOW=0.4526E+01 BASIN STORAGE=0.9518E-01 PERCENT ERROR= -0.5

RT-API8	MANE	1.65	49.49	381.15	0.30	3.00	49.36	381.00	0.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7838E+01 EXCESS=0.0000E+00 OUTFLOW=0.7783E+01 BASIN STORAGE=0.6939E-01 PERCENT ERROR= -0.2

RT-API9	MANE	1.65	100.46	376.20	0.16	3.00	98.03	375.00	0.16

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1141E+02 EXCESS=0.0000E+00 OUTFLOW=0.1126E+02 BASIN STORAGE=0.2369E+00 PERCENT ERROR= -0.7

RT-DFB	MANE	0.86	102.42	387.42	0.22	3.00	102.35	387.00	0.22

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1790E+02 EXCESS=0.0000E+00 OUTFLOW=0.1788E+02 BASIN STORAGE=0.1706E-01 PERCENT ERROR= 0.0

RT-AP11	MANE	0.50	109.91	384.87	0.24	3.00	109.75	387.00	0.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2019E+02 EXCESS=0.0000E+00 OUTFLOW=0.2018E+02 BASIN STORAGE=0.1092E-01 PERCENT ERROR= 0.0

RT-AP5A	MANE	1.35	230.31	375.30	0.30	3.00	230.31	375.00	0.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4305E+02 EXCESS=0.0000E+00 OUTFLOW=0.4312E+02 BASIN STORAGE=-.5823E-01 PERCENT ERROR= 0.0

RT-PM1	MANE	0.73	41.14	366.73	0.87	3.00	40.89	366.00	0.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2514E+01 EXCESS=0.0000E+00 OUTFLOW=0.2513E+01 BASIN STORAGE=0.4881E-02 PERCENT ERROR= -0.1

RT-AP12	MANE	1.05	321.30	375.90	0.32	3.00	320.89	375.00	0.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5087E+02 EXCESS=0.0000E+00 OUTFLOW=0.5091E+02 BASIN STORAGE=-.3097E-01 PERCENT ERROR= 0.0

RT-CS1	MANE	1.50	30.16	367.50	0.64	3.00	29.97	369.00	0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1819E+01 EXCESS=0.0000E+00 OUTFLOW=0.1814E+01 BASIN STORAGE=0.1499E-01 PERCENT ERROR= -0.5

RT-AP14	MANE	0.61	166.33	360.81	1.62	3.00	165.44	360.00	1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1064E+02 EXCESS=0.0000E+00 OUTFLOW=0.1064E+02 BASIN STORAGE=0.1312E-01 PERCENT ERROR= -0.1

RT-AP15	MANE	0.57	222.89	362.24	1.51	3.00	222.66	363.00	1.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1415E+02 EXCESS=0.0000E+00 OUTFLOW=0.1414E+02 BASIN STORAGE=0.1698E-01 PERCENT ERROR= -0.1

RT-AP16	MANE	0.13	238.73	363.01	1.64	3.00	238.72	363.00	1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2009E+02 EXCESS=0.0000E+00 OUTFLOW=0.2009E+02 BASIN STORAGE=0.4950E-02 PERCENT ERROR= 0.0

RT-DFA	MANE	1.21	5.12	491.17	0.62	3.00	5.12	492.00	0.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4794E+01 EXCESS=0.0000E+00 OUTFLOW=0.4790E+01 BASIN STORAGE=0.3757E-02 PERCENT ERROR= 0.0

RT-AP17	MANE	1.00	51.07	367.43	0.66	3.00	50.50	369.00	0.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7808E+01 EXCESS=0.0000E+00 OUTFLOW=0.7801E+01 BASIN STORAGE=0.6603E-02 PERCENT ERROR= 0.0

RT-AP18	MANE	0.42	87.62	366.30	0.70	3.00	87.34	366.00	0.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9992E+01 EXCESS=0.0000E+00 OUTFLOW=0.9989E+01 BASIN STORAGE=0.3667E-02 PERCENT ERROR= 0.0

RT-AP19	MANE	1.80	579.57	370.80	0.45	3.00	576.03	369.00	0.45

HEC-1 MODEL OUTPUT

INTERIM CONDITION

- 100-YEAR STORM

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*                MAY   1991             *
*             VERSION 4.0.1E            *
*                                       *
*  RUN DATE  08/05/1998  TIME  17:41:34 *
*                                       *
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*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 756-1104           *
*                                   *
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:::                                      :::
:::  Full Microcomputer Implementation   :::
:::                 by                   :::
:::         Haestad Methods, Inc.        :::
:::                                      :::
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

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

        1           ID   PINE CREEK DRAINAGE BASIN - 24HR,(TYPE IIa100 YEAR STORM)
        2           ID   FILE PCD8PSI.DAT
        3           ID   INTERIM CONDITION MODEL
        4           ID   MODEL MODIFIED FOR 8-98 REVISION  LAST UPDATE:8/5/98
        5           ID   BASINS PN1 THROUGH PN8, PN10, AND PS1 THROUGH PS9 IN UNDEVELOPED OR
        6           ID   PARTIAL DEVELOPED CONDITION. ALL OTHER BASINS ASSUMED TO BE FULLY DEVELOPED.
        7           ID   DETENTION FACILITY "C" ASSUMED TO BE CONSTRUCTED TO DEVELOPED CONDITION
        8           ID   REQUIRED CAPACITY BUT WITHOUT AN OUTFALL SO IT FUNCTIONS AS A TEMPORARY
        9           ID   RETENTION POND. DETENTION FACILITIES "A", "B",AND "E"  ARE ASSUMED TO
       10           ID   BE CONTRUCTED TO THE DEVELOPED CONDITION REQUIREMENTS.
*** FREE ***
                    *DIAGRAM
       11           IT       3       0       0     300
       12           IO       5

       13           KK SB-IPN1
       14           KM   ************************************************************************
       15           KM   *** BEGIN CALCULATIONS FOR THE NORTH FORK OF PINE CREEK WATERSHED*******
       16           KM   ************************************************************************
       17           KM   COMPUTE HYDROGRAPH FOR BASIN IPN1
       18           BA    .164
       19           IN      15
       20           PB     4.4
       21           PC    0000   .0005   .0015   .0030   .0045   .0060   .0080   .0100   .0120   .0143
       22           PC   .0165   .0188   .0210   .0233   .0255   .0278   .0320   .0390   .0460   .0530
       23           PC   .0600   .0750   .1000   .4000   .7000   .7250   .7500   .7650   .7800   .7900
       24           PC   .8000   .8100   .8200   .8250   .8300   .8350   .8400   .8450   .8500   .8550
       25           PC   .8600   .8638   .8675   .8713   .8750   .8788   .8825   .8863   .8900   .8938
       26           PC   .8975   .9013   .9050   .9083   .9115   .9148   .9180   .9210   .9240   .9270
       27           PC   .9300   .9325   .9350   .9375   .9400   .9425   .9450   .9475   .9500   .9525
       28           PC   .9550   .9575   .9600   .9625   .9650   .9675   .9700   .9725   .9750   .9775
       29           PC   .9800   .9813   .9825   .9838   .9850   .9863   .9875   .9888   .9900   .9913
       30           PC   .9925   .9938   .9950   .9963   .9975   .9988   1.000
       31           LS       0    63.7
       32           UD    .360

       33           KK RT-IPN1
       34           KM   ROUTE THE FLOW FROM BASIN IPN1 THROUGH BASIN IPN2 TO API1
       35           RD    2500    .033    .045            TRAP     100      15

       36           KK SB-IPN2
       37           KM   COMPUTE HYDROGRAPH FOR BASIN IPN2
       38           BA    .229
       39           LS       0    62.0
       40           UD    .377

       41           KK    API1
       42           KM   COMBINE ROUTED FLOW FROM BASIN IPN1 WITH FLOW FROM BASIN IPN2
       43           HC       2
```

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

  44      KK RT-API1
  45      KM   ROUTE THE FLOW IN THE NORTH FORK OF PINE CREEK FROM API1 TO API2
  46      RD    2600    .034    .045           TRAP      12     2.5

  47      KK SB-IPN3
  48      KM   COMPUTE HYDROGRAPH FOR BASIN IPN3
  49      BA    .122
  50      LS       0    63.3
  51      UD    .268

  52      KK    API2
  53      KM   COMBINE THE ROUTED FLOW FROM API1 WITH THE FLOW FROM BASIN IPN3
  54      HC       2

  55      KK RT-API2
  56      KM   ROUTE THE FLOW IN THE NORTH FORK OF PINE CREEK FROM API2 TO API3
  57      RD    1300    .026    .045           TRAP      30       4

  58      KK SB-IPN4
  59      KM   COMPUTE HYDROGRAPH FOR BASIN IPN4
  60      BA    .142
  61      LS       0    62.1
  62      UD    .198

  63      KK    API3
  64      KM   COMBINE THE ROUTED FLOW FROM API2 WITH THE FLOW FROM BASIN IPN4
  65      HC       2

  66      KK RT-API3
  67      KM   ROUTE THE FLOW IN THE NORTH FORK OF PINE CREEK FROM API3 TO API4
  68      RD    1600     .02    .045           TRAP      20       3

  69      KK SB-IPN5
  70      KM   COMPUTE HYDROGRAPH FOR BASIN IPN5
  71      BA    .043
  72      LS       0      62
  73      UD    .169
  74      KM   ****************************************************************
  75      KM   **LAND DOWNSTREAM OF THIS POINT ASSUMED TO BE FULLY DEVELOPED ****
  76      KM   ****************************************************************

  77      KK  SB-PN9
  78      KM   COMPUTE HYDROGRAPH FOR BASIN PN9
  79      BA    .036
  80      LS       0    72.8
  81      UD    .170

  82      KK    AP-4
  83      KM   COMBINE ROUTED FLOW FROM API3 WITH FLOW FROM BASINS IPN5 AND PN9
  84      HC       3
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  85      KK  RT-AP4
  86      KM   ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL DOWN THE CHANNEL FROM AP4
  87      KM   TO DETENTION FACILITY "E" AT THE COLLECTOR STREET CROSSING
  88      RD    1400    .032    .045           TRAP      20       3

  89      KK SB-PN11
  90      KM   COMPUTE HYDROGRAPH FOR BASIN PN11
  91      BA   0.079
  92      LS       0    76.7
  93      UD    .189

  94      KK SB-PN12
  95      KM   COMPUTE HYDROGRAPH FOR BASIN PN12
  96      BA   0.039
  97      LS       0    68.2
  98      UD    .129

  99      KK SB-PN13
 100      KM   COMPUTE HYDROGRAPH FOR BASIN PN13
 101      BA   0.127
 102      LS       0      74
 103      UD    .195

 104      KK   APDFE
 105      KM   COMBINE ROUTED FLOW RT-AP4 WITH FLOW FROM BASINS PN11, PN12, AND PN13
 106      KM   AT REGIONAL DETENTION FACILITY "E"
 107      HC       4

 108      KK  RR-DFE
 109      KM   NOTE: THE INPUT POND VOLUME REFLECTS THE DESIGN POND VOLUME ON 7-23-98
 110      KM   ROUTE FLOW THRU A DETENTION FACILITY. ASSUME A 54" DIA OUTLET WITH
 111      KM   THE INVERT DEPRESSED 2' BELOW POND INVERT (INV EL=84. OUTLET Q ESTIMATED
 112      KM   WITH BUREAU OF PUBLIC ROADS NOMOGRAPH FOR INLET CONTROL OF CULVERTS
 113      KM   DISCHARGE ABOVE EL 100.3 INCLUDES FLOW OVER EMERGENCY SPILLWAY
 114      KM   SCALE 1
 115      KO       3       1
 116      RS       1    STOR       0
 117      SV       0       0    1.25    3.91    6.93   10.31   14.07   18.24   22.83   27.87
 118      SE     784     786     788     790     792     794     796     798     800     802
 119      SQ       0      25      80     136     173     210     240     263     280    1431

 120      KK  RT-DFE
 121      KM   ROUTE THE OUTFLOW FROM DETENTION FACILITY "E" IN A STORM DRAIN TO AP-5
 122      RD    1800    .025    .013           CIRC     4.5

 123      KK SB-PN14
 124      KM   COMPUTE HYDROGRAPH FOR BASIN PN14
 125      BA    .027
 126      LS       0    74.3
 127      UD    .157
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  128     KK RT-PN14
  129     KM   ROUTE FLOW FROM BASIN PN14 IN A STORM DRAIN TO AP5
  130     RD    1400    .055    .013           CIRC       2

  131     KK SB-PN15
  132     KM   COMPUTE HYDROGRAPH FOR BASIN PN15
  133     BA    .074
  134     LS       0    72.7
  135     UD    .186

  136     KK    AP-5
  137     KM   COMBINE ROUTED FLOW RT-PN14 TO FLOW FROM BASIN PN15
  138     HC       3

  139     KK  RT-AP5
  140     KM   ROUTE THE FLOW AT AP5 TO AP5A AT THE CONFLUENCE OF THE FLOWS FROM THE
  141     KM   NORTH AND SOUTH FORKS OF PINE CREEK
  142     RD     400    .025    .013           CIRC       5
  143     KM   ************************************************************************
  144     KM   *** BEGIN CALCULATIONS FOR THE SOUTH FORK OF PINE CREEK WATERSHED*******
  145     KM   ************************************************************************

  146     KK SB-IPS1
  147     KM   COMPUTE HYDROGRAPH FOR BASIN IPS1
  148     BA    .147
  149     LS       0    63.1
  150     UD    .395

  151     KK RT-IPS1
  152     KM   ROUTE THE FLOW FROM BASIN IPS1 THROUGH BASIN IPS2 TO API6
  153     RD    2200    .027    .045           TRAP      10      20

  154     KK SB-IPS2
  155     KM   COMPUTE HYDROGRAPH FOR BASIN IPS2
  156     BA    .104
  157     LS       0    62.2
  158     UD    .368

  159     KK SB-IPS3
  160     KM   COMPUTE HYDROGRAPH FOR BASIN IPS3
  161     BA    .109
  162     LS       0      62
  163     UD    .250

  164     KK RT-IPS3
  165     KM   ROUTE THE FLOW FROM BASIN IPS3 THROUGH BASIN IPS4 TO API4
  166     RD    3250    .033    .045           TRAP      10      15

  167     KK SB-IPS4
  168     KM   COMPUTE HYDROGRAPH FOR BASIN IPS4
  169     BA    .166
  170     LS       0      62
  171     UD    .305
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  172     KK    API4
  173     KM    COMBINE THE ROUTED FLOW FROM BASIN IPS3 TO THE FLOW FROM BASIN IPS4
  174     HC       2

  175     KK RT-API4
  176     KM    ROUTE THE FLOW FROM API4 THROUGH BASIN IPS5 TO API5
  177     RD    3100    .029    .045            TRAP      10      35

  178     KK SB-IPS5
  179     KM    COMPUTE HYDROGRAPH FOR BASIN IPS5
  180     BA    .134
  181     LS       0    62.5
  182     UD    .382

  183     KK    API5
  184     KM    COMBINE THE ROUTED FLOW FROM API4 TO THE FLOW FROM BASIN IPS5
  185     HC       2

  186     KK RT-API5
  187     KM    ROUTE THE FLOW FROM API5 THROUGH IPS2 API6
  188     RD    1700    .031    .045            TRAP      50      35

  189     KK    API6
  190     KM    COMBINE THE ROUTED FLOW FROM API5 WITH THE ROUTED FLOW FROM BASIN IPS1
  191     KM    AND THE FLOW FROM BASIN IPS2 AT API6
  192     HC       3

  193     KK SB-PS10
  194     KM    COMPUTE HYDROGRAPH FOR BASIN PS10 (FULLY DEVELOPED CONDITION)
  195     BA    .038
  196     LS       0    72.9
  197     UD    .160

  198     KK   APDFC
  199     KM   COMBINE FLOW AT FLOW FROM API6 WITH FLOW FROM BASIN PS10 IN REGIONAL
  200     KM   DETENTION FACILITY "C". THIS IS THE TOTAL INFLOW TO DETENTION FACILITY "C"
  201     HC       2

  202     KK  RR-DFC
  203     KM   ROUTE THE FLOW THROUGH DETENTION FACILITY "C".  ASSUME GRADING FOR THE
  204     KM   FULLY DEVELOPED CONDITION DETENTION POND IS COMPLETE BUT OUTFALL IS NOT
  205     KM   CONSTRUCTED SO POND FUNCTIONS AS A RETENTION POND.
  206     KO       3       1     100
  207     RS       1    STOR       0
  208     SV       0    2.73    9.72   18.56   28.03   38.15   48.95   60.45   72.75   85.85
  209     SV   99.66
  210     SE      62      64      66      68      70      72      74      76      78      80
  211     SE      82
  212     SQ       0       0       0       0       0       0       0       0       0       0
  213     SQ    0.10
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

214       KK SB-IPS6
215       KM   COMPUTE HYDROGRAPH FOR BASIN IPS6
216       BA    .132
217       LS      0      62
218       UD    .352

219       KK RT-IPS6
220       KM   ROUTE THE FLOW FROM BASIN IPS6 THROUGH BASIN IPS7 TO API7
221       RD    4250    .028    .045            TRAP      25       10

222       KK SB-IPS7
223       KM   COMPUTE HYDROGRAPH FOR BASIN IPS7
224       BA    .209
225       LS      0    62.6
226       UD    .289

227       KK    API7
228       KM - COMBINE THE ROUTED FLOW FROM BASIN IPS6 WITH THE FLOW FROM BASIN IPS7
229       HC      2

230       KK RT-API7
231       KM   ROUTE THE FLOW FROM API7 TO API8
232       RD    2300    .028    .045            TRAP      20       3

233       KK SB-IPS8
234       KM   COMPUTE HYDROGRAPH FOR BASIN IPS8
235       BA    .088
236       LS      0    62.7
237       UD    .265

238       KK SB-IPS9
239       KM   COMPUTE HYDROGRAPH FOR BASIN IPS9 (ASSUMED 23 ACRES OF SAGEWOOD DEVELOPED)
240       BA    .059
241       LS      0    73.9
242       UD    .165

243       KK    API8
244       KM   COMBINE THE ROUTED FLOW FROM API7 TO THE FLOW FROM BASINS IPS8 AND IPS9
245       HC      3

246       KK RT-DPI8
247       KM   ROUTE THE FLOW FROM DPI8 TO DPI9
248       RD    1200    .025    .045            TRAP      20       3

249       KKSB-IPS10
250       KM   COMPUTE HYDROGRAPH FOR BASIN IPS10 (YMCA SITE AND 16 ACRES OF EXISTING
251       KM   RESIDENTIAL DEVELOPMENT ASSUMED TO BE DEVELOPED)
252       BA    .122
253       LS      0    71.5
254       UD    .176
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

255       KK   API9
256       KM   COMBINE THE ROUTED FLOW FROM API8 TO THE FLOW FROM BASIN IPS10
257       KM   ALSO ADD THE OUTFLOW HYDROGRAPH FROM DETENTION FACILITY "C" (NO OUTFLOW)
258       KM   TO PROVIDE CONTINUITY IN THE MODEL
259       HC      3

260       KK RT-API9
261       KM   ROUTE THE FLOW IN THE SOUTH FORK OF PINE CREEK FROM API9 TO DETENTION
262       KM   FACILITY "B"
263       RD   3400    .027    .045           TRAP      20       3
264       KM   ************************************************************************
265       KM   ***** DOWNSTREAM BASINS ASSUMED TO BE FULLY DEVELOPED ******************
266       KM   ************************************************************************

267       KK SB-PS11
268       KM   COMPUTE HYDROGRAPH FOR BASIN PS11
269       BA    .056
270       LS      0    80.3
271       UD    .172

272       KK SB-PS12
273       KM   COMPUTE HYDROGRAPH FOR BASIN PS12
274       BA    .153
275       LS      0    69.0
276       UD    .233

277       KK   APDF8
278       KM   COMBINE THE ROUTED FLOW FROM API9 TO THE FLOW FROM BASINS IPS11 AND IPS12
279       KM   AT DETENTION FACILITY "B". THIS IS THE TOTAL INTERIM CONDITION INFLOW TO
280       KM   DETENTION FACILITY "B"
281       HC      3

282       KK  RR-DFB
283       KM   ROUTE FLOW THROUGH REGIONAL DETENTION POND "B"
284       KM   THIS VOLUME REFLECTS THE DESIGN VOLUME PER PRELIMINARY PLANS ON 7-23-98
285       KM   WITH 54" DIA OUTLET SET AT INVERT ELEV. 70.2. OUTLET Q ESTIMATED WITH
286       KM   BUREAU OF PUBLIC ROADS NOMO GRAPH FOR INLET CONTROL OF CONCRETE PIPE
287       KM   DISCHARGE ABOVE 87.6 INCLUDES FLOW OVER 80' LONG EMERGENCY SPILLWAY
288       KM   SCALE 1
289       KO      3      1
290       RS      1   STOR      0
291       SV      0   0.06   1.17   3.30   5.82   8.73  12.07  15.85  20.07  23.60
292       SV  24.76  29.96
293       SE   71.2   72.0     74     76     78     80     82     84     86   87.6
294       SE     88     90
295       SQ      0     22     73    130    169    202    236    260    285    301
296       SQ    371   1222

297       KK  RT-DFB
298       KM   ROUTE FLOW 1000 LF NORTHWEST IN A STORM DRAIN FROM DETENTION FACILITY "B"
299       KM   TO AP-11
300       RD   1000    .021    .013          CIRC     4.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  301     KK SB-PS13
  302     KM   COMPUTE HYDROGRAPH FOR BASIN PS13
  303     BA    .065
  304     LS       0    74.1
  305     UD    .149

  306     KK    AP11
  307     KM   COMBINE ROUTED FLOW RT-DFB TO FLOW FROM BASIN PS13 AT AP11
  308     HC       2

  309     KK RT-AP11
  310     KM   ROUTE FLOW 600 LF NORTHWEST IN A STORM DRAIN FROM AP11 TO AP5A (THE
  311     KM   CONFLUENCE OF FLOWS FROM THE NORTH AND SOUTH FORKS OF PINE CREEK)
  312     RD     600    .021    .013            CIRC       5

  313     KK    AP5A
  314     KM   COMBINE ROUTED FLOW AP5 (FLOW FROM THE NORTH FORK OF PINE CREEK) TO ROUTED
  315     KM   FLOW RT-AP11 (FLOW FROM THE SOUTH FORK OF PINE CREEK)
  316     HC       2

  317     KK RT-AP5A
  318     KM   ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL 1300 FEET DOWN THE CHANNEL FROM
  319     KM   AP5A NEAR THE HISTORIC CONFLUENCE OF PINE CREEK TO AP12 AT THE CONFLUENCE
  320     KM   OF THE MAIN CHANNEL AND THE LEXINGTON DRIVE STORM DRAIN OUTFALL. USE AN
  321     KM   APPROXIMATE AVERAGE CHANNEL SECTION AND SLOPE FOR ROUTING.
  322     RD    1300    .023    .045            TRAP      50       2

  323     KK  SB-PM1
  324     KM   COMPUTE HYDROGRAPH FOR BASIN PM1
  325     BA    .054
  326     LS       0    78.5
  327     UD    .203

  328     KK  RT-PM1
  329     KM   ROUTE THE FLOW FROM BASIN PM1 1200 LF NORTH IN THE LEXINGTON DR. S.D. TO
  330     KM   PINE CREEK MAIN CHANNEL.
  331     RD    1200     .08    .013             CIR     3.5

  332     KK  SB-PM2
  333     KM   COMPUTE HYDROGRAPH FOR BASIN PM2, AN AREA OF THE GOLF COURSE
  334     BA    .154
  335     LS       0    66.0
  336     UD    .310

  337     KK  SB-PM3
  338     KM   COMPUTE HYDROGRAPH FOR BASIN PM3
  339     BA    .067
  340     LS       0    73.5
  341     UD    .248
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

342       KK    AP12
343       KM    COMBINE ROUTED FLOW RT-PM1 WITH THE ROUTED FLOW IN PINE CREEK MAIN CHANNEL
344       KM    AND THE FLOW FROM BASINS PM2 AND PM3
345       HC       4

346       KK RT-AP12
347       KM    ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL DOWN THE CHANNEL FROM AP12 NEAR THE
348       KM    OUTFALL OF LEXINGTON DRIVE STORM DRAIN TO THE CROSSING AT CHAPEL HILLS DRIVE
349       KM    USE AN APPROXIMATE AVERAGE CHANNEL SECTION AND SLOPE FOR ROUTING.
350       RD    1600    .018    .045           TRAP      30       2

351       KK  SB-PM4
352       KM    COMPUTE HYDROGRAPH FOR BASIN PM4
353       BA    .111
354       LS       0    71.9
355       UD    .170

356       KK    AP13
357       KM    COMBINE FLOW FROM BASIN PM4 TO THE ROUTED FLOW RT-AP12 IN PINE CREEK MAIN
358       KM    CHANNEL ON THE EAST SIDE OF THE CHAPEL HILLS DRIVE CROSSING
359       HC       2
360       KM    ********************************************************************************
361       KM    ********BEGIN SOUTH CHAPEL HILLS DRIVE STORM DRAIN WATERSHED*****************
362       KM    ********************************************************************************

363       KK  SB-CS1
364       KM    COMPUTE HYDROGRAPH FOR BASIN CS1
365       BA    .053
366       LS       0    73.6
367       UD    .181

368       KK  RT-CS1
369       KM    ROUTE FLOW 1300 LF WEST IN DYNAMIC DR.  ASSUME BULK OF FLOW IS ON THE SURFACE
370       RD    1300    .021    .013           TRAP      32     .01

371       KK  SB-CS2
372       KM    COMPUTE HYDROGRAPH FOR BASIN CS1
373       BA    .070
374       LS       0    98.0
375       UD    .101

376       KKRR-DFCS2
377       KM    ROUTE FLOW THRU AN ASSUMED DETENTION FACILITY TO REFLECT DETENTION OF 1.6cfs
378       KM    /ACRE FROM THE LI/O PROPERTY AS ASSUMED IN THE MDDP FOR BRIARGATE BUSINESS
379       KM    CAMPUS. BECAUSE THE DISCHARGE CONFIGURATION IS UNKNOWN AT THIS TIME ASSUME
380       KM    THAT THE PEAK DISCHARGE RATE MAY BE DISCHARGED AS SOON AS IT IS AVAILABLE AT
381       KM    THE POND TO REFLECT POTENTIAL FREE DISCHARGE FROM A PORTION OF THE SUBBASIN
382       KM    DISCHARGE REDUCTION ASSUMED AT 1.6 cfS x 37ac=60 cfs
383       RS       1    STOR       0
384       SV       0    .001       6      10
385       SE     100     102     104     106
386       SQ       0     194     194     194
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

387       KK   AP14
388       KM   COMBINE ROUTED FLOW RT-CS1 TO CONTROLED FLOW FROM BASIN CS2 AT THE
389       KM   INTERSECTION OF CHAPEL HILLS DR. AND DYNAMIC DR.
390       HC      2

391       KK RT-AP14
392       KM   ROUTE FLOW 1100 LF NORTH IN THE CHAPEL HILLS DR. S.D. TO BRIARGATE PKWY.
393       KM   NOTE: THE CALCULATED 100 YEAR FLOW IS IN EXCESS OF THE FULL PIPE CAPACITY
394       KM   OF THE STORM DRAIN BETWEEN DYNAMIC DRIVE AND BRIARGATE PARKWAY. SOME OF
395       KM   THE FLOW MAY BE ON THE SURFACE IN CHAPEL HILLS DRIVE.
396       RD    1100     .02    .013            CIR      4

397       KK  SB-CS3
398       KM   COMPUTE HYDROGRAPH FOR BASIN CH3
399       BA    .053
400       LS       0    84.8
401       UD    .177

402       KKRR-DFCS3
403       KM   ROUTE FLOW THRU AN ASSUMED DETENTION FACILITY TO REFLECT DETENTION REDUCING
404       KM   THE PEAK 100YR FLOW RATE FROM THE 9 ACRES OF THE BASIN THAT ARE DESIGNATED
405       KM   AS LI/O USE AS ASSUMED IN MDDP FOR BRIARGATE BUSINESS CAMPUS.
406       KM   BECAUSE THE DISCHARGE CONFIGURATION IS UNKNOWN AT THIS TIME ASSUME
407       KM   THAT THE PEAK DISCHARGE RATE MAY BE DISCHARGED AS SOON AS IT IS AVAILABLE
408       KM   AT THE POND TO REFLECT FREE DISCHARGE FROM A PORTION OF THE SUB BASIN.
409       KM   DISCHARGE REDUCTION ASSUMED AT 1.6 cfS x 9=14 cfs
410       RS       1    STOR       0
411       SV       0    .001       6      10
412       SE     100     102     104     106
413       SQ       0     123     123     123

414       KK   AP15
415       KM   COMBINE ROUTED FLOW RT-AP14 WITH CONTROLLED FLOW FROM BASIN CS3 AT THE
416       KM   INTERSECTION OF CHAPEL HILLS DR. AND BRIARGATE PARKWAY. NOTE A SMALL PORTION
417       KM   OF BASIN CS3 IS LOCATED DOWNSTEAM OF THIS POINT. FOR THIS MODELING PURPOSE
418       KM   THIS IS CONSIDERED INSIGNIFICANT.
419       HC      2

420       KK RT-AP15
421       KM   ROUTE FLOW 1400 LF NORTH IN THE CHAPEL HILLS DR. S.D.
422       KM   NOTE: THE CALCULATED 100 YEAR FLOW IS IN EXCESS OF THE FULL PIPE CAPACITY
423       KM   OF THE STORM DRAIN BETWEEN BRIARGATE PARKWAY AND PINE CREEK. SOME OF
424       KM   THE FLOW MAY BE ON THE SURFACE IN CHAPEL HILLS DRIVE. A SMALL PORTION OF
425       KM   THE SURFACE FLOW MAY BE DIVERTED DOWN BRIARGATE PARKWAY, BUT FOR THE PURPOSE
426       KM   OF THIS ANALYSIS ALL OF THE FLOW FROM THE CHAPEL HILLS DRIVE/BRIARGATE PKY.
427       KM   INTERSECTION IS ASSUMED TO REACH PINE CREEK AT CHAPEL HILLS DRIVE.
428       RD    1400     .045    .013            CIR     4.5

429       KK  SB-CS4
430       KM   COMPUTE HYDROGRAPH FOR BASIN CS4
431       BA    .053
432       LS       0    95.5
433       UD    .101
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 434      KK RR-DFVC
 435      KM   ROUTE FLOW THRU THE PROPOSED VILLAGE CENTER DETENTION FACILITY
 436      KM   POND GRADING PER THE PRELIMINARY GRADING SHOWN IN THE MDDP FOR VILLAGE
 437      KM   CENTER. DISCHARGE ASSUMES USE OF THE EXISTING 18" DIAMETER STUB.
 438      KM   WITH THE INVERT SET AT ELEVATION 73. BUREAU OF PUBLIC ROADS NOMOGRAPH
 439      KM   USED TO ESTIMATE OUTFLOW RATES ASSUMING INLET CONTROL.
 440      RS      1    STOR       0
 441      SV    000    .032    1.67    3.23    5.00    7.00
 442      SE     73      74      76      78      80      82
 443      SQ      0       3      13      17      20      22

 444      KK    AP16
 445      KM   COMBINE ROUTED FLOW RT-AP15 WITH THE DISCHARGE FROM THE VILLAGE CENTER POND
 446      HC      2

 447      KK RT-AP16
 448      KM   ROUTE THE FLOW IN THE CHAPEL HILLS DRIVE STORM DRAIN FROM AP16 TO AP19 IN
 449      KM   PINE CREEK MAIN CHANNEL ON THE DOWNSTREAM SIDE OF THE CHAPEL HILLS DRIVE
 450      KM   CROSSING
 451      RD    300     .03    .013            CIR     4.5
 452      KM   ********************************************************************************
 453      KM   ****BEGIN CALCULATION OF THE NORTH CHAPEL HILLS DR. STORM DRAIN WATERSHED***
 454      KM   ********************************************************************************

 455      KK  SB-CN1
 456      KM   COMPUTE RUNOFF FROM BASIN CN1 THE WATERSHED CONTRIBUTING TO THE PARK SITE AT
 457      KM   CHAPEL HILLS DRIVE POND (REGIONAL DETENTION FACILITY "A").
 458      BA    .145
 459      LS      0    76.8
 460      UD    .190

 461      KK  RR-DFA
 462      KM   ROUTE THE FLOW FROM CN1 THROUGH THE PROPOSED DETENTION POND AT THE PARK
 463      KM   SITE AT CHAPEL HILLS DRIVE. STAGE STORAGE CURVE PER THE 12/22/97 GRADING PLAN
 464      KM   DISCHARGE CURVE REFLECTS 12" DIAMETER OUTLET PIPE CONTROL FOR NORMAL DISCHARG
 465      KM   AND A 100' LONG EMERGENGY SPILLWAY SET AT ELEVATION 6805.5
 466      KO      3       1     100
 467      RS      1    STOR       0
 468      SV      0     .01     .22     .99    1.95    2.80    4.25    5.31    6.51   11.64
 469      SV  15.36
 470      SQ   2.35    2.54    3.00    3.73    4.35    4.75    5.36    5.50    8.39    9.01
 471      SQ    279
 472      SE 6796.6  6797.0  6798.0  6800.0  6802.0  6803.5 6803.51    6804  6804.1  6805.5
 473      SE 6806.5

 474      KK  RT-DFA
 475      KM   ROUTE OUTFLOW FROM  REGIONAL DETENTION POND "A" DOWN THE CHAPEL HILLS STORM
 476      KM   DRAIN FROM LEXINGTON DRIVE TO TREELAKE DRIVE
 477      RD    930     .04    .013            CIRC    1.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

478       KK  SB-CN2
479       KM   COMPUTE RUNOFF FROM BASIN CN2
480       BA    .078
481       LS       0    75.5
482       UD    .214

483       KK    AP17
484       KM   COMBINE ROUTED FLOW RT-DFA AND FLOW FROM BASIN CN2 AT THE INTERSECTION OF
485       KM   CHAPEL HILLS DRIVE AND TREELAKE DRIVE
486       HC       2

487       KK RT-AP17
488       KM   ROUTE FLOW AT AP17 DOWN THE CHAPEL HILLS DRIVE STORM DRAIN TO MULLIGAN DR.
489       RD    1400     .05    .013            CIRC     3.5

490       KK  SB-CN3
491       KM   COMPUTE RUNOFF FROM BASIN CN3
492       BA    .043
493       LS       0    80.0
494       UD    .157

495       KK    AP18
496       KM   COMBINE ROUTED FLOW RT-AP17 TO FLOW FROM BASIN CN3 AT INTERSECTION OF CHAPEL
497       KM   HILLS DR. AND MULLIGAN DR.
498       HC       2

499       KK RT-AP18
500       KM   ROUTE FLOW AT AP18 DOWN THE CHAPEL HILLS DRIVE STORM DRAIN TO AP19 IN THE
501       KM   PINE CREEK MAIN CHANNEL ON THE DOWNSTREAM SIDE OF THE CHAPEL HILLS DRIVE
502       KM   CROSSING. NOTE A SMALL PORTION OF BASIN CHN3 IS LOCATED SOUTH OF AP18. THIS
503       KM   IS CONSIDERED INSIGNIFICANT FOR THE PURPOSE OF THIS ANALYSIS.
504       RD     600     .04    .013            CIRC     3.5

505       KK    AP19
506       KM   COMBINE ROUTED FLOW RT-AP18 FROM THE NORTH CHAPEL HILLS DR. STORM DRAIN
507       KM   WITH THE ROUTED FLOW RT-AP16 FROM THE SOUTH CHAPEL HILLS DRIVE STORM DRAIN
508       KM   AND THE FLOW IN PINE CREEK MAIN CHANNEL (AP13) AT THE WEST SIDE OF THE CHAPEL
509       KM   HILLS DRIVE CROSSING. FLOW THAT IS TAKEN INTO THE PINE CREEK CHANNEL FORM THE
510       KM   STREET AT THIS POINT HAS BEEN ACCOUNTED FOR IN BASINS CN3 AND CS3. THIS WAS
511       KM   DONE TO REDUCE THE COMPLEXITY OF THE MODEL.
512       HC       3

513       KK RT-AP19
514       KM   ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL FROM AP19 AT THE CHAPEL HILLS DRIVE
515       KM   CROSSING TO AP20 AT REGIONAL DETENTION FACILITY 1 AT BRIARGATE PARKWAY AND
516       KM   HIGHWAY 83. USE AVERAGE SLOPES AND APPROXIMATE CROSS SECTIONS FOR ROUTING.
517       RD     750    .035    .045            TRAP      30       2
518       RD    1000    .025    .045            TRAP     120       2
519       RD    1400    .026    .045            TRAP      60       2
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  520     KK  SB-PM5
  521     KM   COMPUTE HYDROGRAPH FOR BASIN PM5
  522     BA    .183
  523     LS       0    70.0
  524     UD    .185

  525     KK    AP20
  526     KM   COMBINE FLOW FROM BASIN PM6 WITH THE ROUTED FLOW IN PINE CREEK
  527     HC       2

  528     KK  S8-PM6
  529     KM   COMPUTE HYDROGRAPH FOR PM6 THE AREA BETWEEN CHAPEL HILLS DR. AND DETENTION
  530     KM   FACILITY 1 BOUNDED BY THE GOLF COURSE AND BRIARGATE PARKWAY. NOTE:THE MDDP
  531     KM   FOR BRIARGATE BUSINESS CAMPUS REQUIRES DETENTION IN THIS SUBBASIN. FOR THE
  532     KM   PURPOSE OF THIS ANALYSIS NO DETENTION IS ASSUMED TO ALLOW THE DEVELOPER THE
  533     KM   OPTION OF CONSTRUCTING LARGER CONVEYANCE FACILITIES TO DETENTION FACILITY
  534     KM   No. 1 AND ALLOWING FREE DISCHARGE FROM THE BASIN.
  535     BA    .088
  536     LS       0      98
  537     UD    .110

  538     KK    AP21
  539     KM   COMBINE FLOW FROM PM6 WITH THE FLOW IN PINE CREEK AT AP21 FOR THE TOTAL FLOW
  540     KM   IN PINE CREEK CHANNEL AS IT ENTERS DETENTION FACILITY No 1
  541     HC       2

  542     KK  SB-PM7
  543     KM   COMPUTE HYDROGRAPH FOR BASIN PM7 THE AREA NORTH OF DETENTION FACILITY 1
  544     KM   NOTE: THE MDDP FOR THE BRIARGATE BUSINESS CAMPUS REQUIRES DETENTION IN
  545     KM   THE NON RESIDENTIAL PORTIONS OF THIS AREA. FOR THE PURPOSE OF THIS ANALYSIS
  546     KM   FREE DISCHARGE FROM THE BASIN IS ASSUMED. THE RESIDENTIAL PORTION OF THE
  547     KM   BASIN LOCATED IN OUTSIDE THE CITY LIMITS IS ASSUMED TO BE FULLY DEVELOPED
  548     KM   AS 1 DU PER ACRE RESIDENTIAL.
  549     BA    .138
  550     LS       0    76.3
  551     UD    .353
  552     KM   ********************************************************************************
  553     KM   ****BEGIN CALCULATIONS FOR THE FOCUS ON THE FAMILY STORM DRAIN WATERSHED****
  554     KM   ********************************************************************************

  555     KK   SB-F1
  556     KM   COMPUTE HYDROGRAPH FOR BASIN F1
  557     BA    .119
  558     LS       0    78.3
  559     UD    .208

  560     KK     F1P
  561     KM   DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY ASSUMING
  562     KM   FULL PIPE FLOW IN 36" DIA @3.44% FROM THE SAG POINT IN LEXINGTON DRIVE.
  563     KM   FULL FLOW CAPACITY= 123cfs
  564     DT     F1S
  565     DI     123     150     200     250
  566     DQ       0      27      77     127
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  567     KK  RT-F1P
  568     KM   ROUTE FLOW IN THE STORM DRAIN 1300 LF WEST FROM THE SAG PT. IN LEXINGTON
  569     KM   DRIVE TO SUMMER FIELD POND
  570     RD    1300    .036    .013            CIRC       3

  571     KK   SB-F2
  572     KM   COMPUTE HYDROGRAPH FOR BASIN F2
  573     BA    .039
  574     LS       0      74
  575     UD    .171

  576     KK  SB-F1S
  577     KM   RETRIEVE FLOW THAT WILL NOT FIT IN THE STORM DRAIN AT LEXINGTON DRIVE
  578     DR     F1S

  579     KK  RT-F1S
  580     KM   ROUTE THE EXCESS FLOW THAT IS ON THE SURFACE OF LEXINGTON DRIVE AT THE SAG
  581     KM   POINT OVERLAND IN A GRASS LINED SWALE TO THE SUMMERFIELD DETENTION BASIN
  582     RD    1300    .037    .040            TRAP      15       6

  583     KK AP-DFSF
  584     KM   COMBINE ROUTED FLOWS RT-F1S AND RT-F1P WITH FLOW FROM F2 AT THE SUMMER
  585     KM   FIELD POND. THIS IS THE TOTAL FLOW TO THE POND
  586     HC       3

  587     KK RR-DFSF
  588     KM   ROUTE THE FLOW AT AP-DFSF THROUGH THE SUMMER FIELD DETENTION BASIN.
  589     KM   THE INFLOW/OUTFLOW S.D. FOR THIS FACILITY IS BURIED BELOW THE POND BOTTOM.
  590     KM   THE POND FILLS WHEN THE CAPACITY OF THE DOWNSTREAM REACH OF S.D. IS
  591     KM   EXCEEDED. THIS CONFIGURATION PRESENTS A COMPLEX HYDRAULIC PROBLEM. IT IS
  592     KM   ASSUMED THAT UNTIL INFLOW >120cfs FLOW WILL PASS THROUGH THE STORM DRAIN.
  593     KM   WHEN INFLOW > 120cfs BACKWATER WILL FORM AT THE OUTLET AND THE LID ON THE
  594     KM   UPSTREAM MANHOLE WILL LIKELY BE LIFTED OFF AND SOME FLOW WILL ENTER THE POND
  595     KM   FROM THAT POINT. WHEN INFLOW>120cfs IT IS ASSUMED THAT THE HEAD LOSS AT
  596     KM   THE OUTLET WILL BE APPOXIMATELY 1*VELOCITY HEAD FOR THE PURPOSE OF
  597     KM   CALCULATING THE DISCHARGE CURVE.
  598     KO       3       1     100
  599     RS       1    STOR       0
  600     SV       0    0.57    4.63    6.87   10.32
  601     SE      92      94      96      98     100
  602     SQ     120     126     131     137     144

  603     KK RT-DFSF
  604     KM   ROUTE OUTFLOW FROM THE DETENTION BASIN IN A 48" S.D. TO RESEARCH PKWY.
  605     RD     800    .018    .013            CIRC       4

  606     KK   SB-F3
  607     KM   COMPUTE HYDROGRAPH FOR BASIN F3
  608     BA    .114
  609     LS       0    77.0
  610     UD    .215
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

611       KK   AP22
612       KM   COMBINE ROUTED FLOW RT-DTSF TO FLOW FROM BASIN F3 AT THE INTERSECTION OF
613       KM   RESEARCH PARKWAY AND SUMMERSET DRIVE.
614       HC      2

615       KK   AP22P
616       KM   DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
617       KM   INTERSECTION OF RESEARCH PARKWAY AND SUMMERSET DRIVE. CONTROLLING
618       KM   DOWNSTREAM STORM DRAIN IS A 60" DIA RCP @ S=1%, FULL FLOW CAPACITY= 260cfs
619       KM   THE DIVERTED FLOW IS ASSUMED TO RUN DOWN SUMMERSET DR. SOUTH OF RESEARCH
620       KM   PARKWAY AND EVENTUALLY TO COTTONWOOD CREEK.
621       DT   AP22S
622       DI     260     261     280     300     320     340     360     380
623       DQ       0       1      20      40      60      80     100     120

624       KKRT-AP22P
625       KM   ROUTE THE S.D.FLOW FROM THE BRIARGATE PKWY/ SUMMERSET INTERSECTION TO THE
626       KM   INTERSECTION OF RESEARCH PKWY. AND CHAPEL HILLS DR.
627       RD    2100     .02    .013           CIRC       5

628       KK   SB-F4
629       KM   COMPUTE HYDROGRAPH FOR BASIN F4
630       BA    .038
631       LS       0    83.0
632       UD    .197

633       KK RR-DFF4
634       KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
635       KM   RATE OF 1.6 CFS/ACRE FROM THE 11.5 AC THAT WILL BE DEVELOPED AS LI/O
636       KM   DISCHARGE REDUCTION PER ACRE IS DETERMINED PER THE RATE AND AREA INCLUDED
637       KM   IN THE MDDP FOR BRIARGATE BUSINESS CAMPUS
638       KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
639       KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE SITE WILL LIKELY
640       KM   FREE DISCHARGE TO THE ADJACENT STREET
641       KM   DISCHARGE REDUCTION = LI/O AREA (acres)11.5 x 1.6 cfs = 18.4 cfs
642       RS       1    STOR       0
643       SV       0    .001       6      10
644       SE     100     102     104     106
645       SQ       0    70.6    70.6    70.6

646       KK   AP23
647       KM   COMBINE ROUTED FLOW RT-AP22P TO FLOW FROM BASIN F4 AT THE INTERSECTION OF
648       KM   RESEARCH PARKWAY AND CHAPEL HILLS DR.
649       HC      2

650       KK   AP23P
651       KM   DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
652       KM   FIRST MANHOLE (MH8) DOWNSTREAM OF THE INTERSECTION OF RESEARCH PARKWAY AND
653       KM   CHAPEL HILLS DRIVE. THE MANHOLE IS LOCATED JUST UPSTREAM OF A PIPE SIZE
654       KM   REDUCTION FROM 54" TO 48" DIA.. IT IS ASSUMED THAT THE MH LID WILL BE PUSHED
655       KM   OFF BY THE HIGH HGL ABOVE THE TRANSITION AT THE ESTIMATED 100 YEAR PEAK
656       KM   FLOW RATE. DOWNSTREAM PIPE CAPACITY IS ESTIMATED AT 298 cfs BASED ON
657       KM   FULL PIPE CONVEYANCE CAPACITY OF 48" DIA RCP, SLOPE = 4.3%
658       DT   AP23S
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 659      DI     298     300     325     350     375     400     425     450     470
 660      DQ       0       2      27      52      77     102     127     152     172

 661      KKRT-AP23P
 662      KM   ROUTE THE FLOW IN THE STORM DRAIN FROM THE RESEARCH PKWY/CHAPEL HILLS DR.
 663      KM   INTERSECTION TO THE INTERSECTION OF EXPLORER DRIVE AND THE FOCUS ON THE
 664      KM   FAMILY S.D.
 665      RD    2100    .044    .013            CIRC       4

 666      KK   AP23S
 667      KM   RETRIEVE THE DIVERTED FLOW AT MH8 JUST DOWNSTREAM OF THE INTERSECTION OF
 668      KM   RESEARCH PARKWAY AND CHAPEL HILLS DRIVE. THIS IS SURFACE FLOW.
 669      DR   AP23S

 670      KKRT-AP23S
 671      KM   ROUTE THE SURFACE FLOW AT MH8 ACCROSS THE FOCUS SITE TO EXPLORER DRIVE
 672      KM   ASSUME FLOW WILL BE SHALLOW AND WIDE THROUGH THE PARKING LOTS
 673      RD    1550    .042    .015            TRAP       75      .01

 674      KK   SB-F5
 675      KM   COMPUTE HYDROGRAPH FOR BASIN F5
 676      BA    .064
 677      LS       0    95.5
 678      UD    .121

 679      KK RR-DFF5
 680      KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 681      KM   RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
 682      KM   AND HISTORIC PEAK 100 YR FLOW RATE PER THE ORIGINAL DBPS CRITERIA FOR LI/O
 683      KM   LAND USE. HISTORIC 100 YR PEAK ESTIMATED AT 1.5 CFS/AC. FULLY DEVELOPED 100
 684      KM    YR PEAK ESTIMATED AT 5.6 CFS/AC. ESTIMATED REQUIRED DETENTION =
 685      KM   (5.6-1.5)*.35*35AC=50cfs   TOTAL Qin=225cfs
 686      KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 687      KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
 688      KM   DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
 689      RS       1    STOR       0
 690      SV       0    .001       6      10
 691      SE     100     102     104     106
 692      SQ       0     175     175     175

 693      KK    AP24
 694      KM   COMBINE THE ROUTED FLOW IN THE S.D.(RTAP102) TO FLOW FROM FF1 AND THE SURFACE
 695      KM   FLOW THAT WAS DIVERTED THROUGH THE FOCUS SITE FROM MH8(RP102A) AT THE
 696      KM   INTERSECTION OF EXPLORER DRIVE AND THE FOCUS ON THE FAMILY STORM DRAIN.
 697      HC       3

 698      KK   AP24P
 699      KM   DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
 700      KM   INTERSECTION OF EXPLORER DRIVE AND TELSTAR DRIVE. DOWNSTREAM
 701      KM   STORM DRAIN IS A 66" DIA RCP @ S=1.1%, FULL FLOW CAPACITY= 350cfs
 702      KM   ASSUME THIS DIVERTED FLOW WILL GO WEST DOWN TELSTAR DRIVE
 703      DT   AP24S
 704      DI     350     351     370     390     410     430     450     470     490
 705      DQ       0       1      20      40      60      80     100     120     140
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

706       KKRT-AP24P
707       KM   ROUTE THE FLOW IN THE FOCUS STORM DRAIN FROM AP24 AT THE INTERSECTION OF
708       KM   EXPLORER DRIVE AND THE FOCUS S.D. TO AP25 AT THE INTERSECTION OF EXPLORER
709       KM   DRIVE & BRIARGATE PKWY
710       RD     800    .011    .013            CIRC     5.5

711       KK   SB-F6
712       KM   COMPUTE HYDROGRAPH FOR BASIN F6
713       BA    .038
714       LS       0    98.0
715       UD    .106

716       KK RR-DFF6
717       KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
718       KM   RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
719       KM   AND HISTORIC PEAK 100 YR FLOW RATE. HISTORIC ESTIMATED AT 1.5 CFS/AC.
720       KM   FULLY DEVELOPED ESTIMATED AT 6.0 CFS/AC. ESTIMATED REQUIRED DETENTION =
721       KM   (6.0-1.5)*.35*21.5AC=34cfs   TOTAL Qin=138cfs
722       KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
723       KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
724       KM   DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
725       RS       1    STOR       0
726       SV       0    .001       6      10
727       SE     100     102     104     106
728       SQ       0     104     104     104

729       KK   SB-F7
730       KM   COMPUTE HYDROGRAPH FOR BASIN F7
731       BA    .052
732       LS       0    93.0
733       UD    .137

734       KK RR-DFF7
735       KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
736       KM   RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
737       KM   AND HISTORIC PEAK 100 YR FLOW RATE. HISTORIC ESTIMATED AT 1.5 CFS/AC.
738       KM   FULLY DEVELOPED ESTIMATED AT 5.2 CFS/AC. ESTIMATED REQUIRED DETENTION =
739       KM   (5.2-1.5)*.35*29AC=38cfs   TOTAL Qin=170cfs
740       KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
741       KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
742       KM   DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
743       RS       1    STOR       0
744       SV       0    .001       6      10
745       SE     100     102     104     106
746       SQ       0     132     132     132

747       KK    AP25
748       KM   COMBINE ROUTED FLOW RT-AP25P TO CONTROLLED FLOW FROM BASINS F6 AND F7
749       KM   AT THE INTERSECTION OF EXPLORER DR AND BRIARGATE PKWY.
750       HC       3
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  751     KK   AP25P
  752     KM   DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
  753     KM   INTERSECTION OF EXPLORER DR. AND BRIARGATE PARKWAY. CONTROL APPEARS TO
  754     KM   BE DOWNSTREAM 54" DIA S.D. @ 5.5% SLOPE, FULL PIPE CAPACITY=461cfs
  755     KM   DIVERTED FLOW IS ASSUMED TO FLOW DOWM BRIARGATE PARKWAY TO THE SUMP
  756     KM   ADJACENT TO FACILITY #1
  757     DT   AP25S
  758     DI     461     464     475     500     525     550     575     600     625
  759     DQ       0       1      14      39      64      89     114     139     164

  760     KKRT-AP25P
  761     KM   ROUTE THE FLOW IN THE S.D.FROM THE INTERSECTION OF EXPLORE DR. & BRIARGATE
  762     KM   PARKWAY TO DETENTION FACILITY 1 AT BRIARGATE PKWY & HIGHWAY 83
  763     RD    1250    .011    .013            CIRC     5.5

  764     KK  SB-PM8
  765     KM   COMPUTE HYDROGRAPH FOR BASIN PM8 THE PORTION OF BRIARGATE PARKWAY BETWEEN
  766     KM   EXPLORER DR. AND HIGHWAY 83
  767     BA    .014
  768     LS       0      98
  769     UD    .100

  770     KK AP-DF#1
  771     KM   ADD THE FLOW FROM THE FOCUS ON THE FAMILY STORM DRAIN, BASINS PM7 AND PM8,
  772     KM   AND FLOW IN PINE CREEK FOR THE TOTAL INFLOW TO DETENTION FACILITY 1
  773     HC       4

  774     KK RR-DF#1
  775     KM   ROUTE FLOW THRU DETENTION FACILITY NO.1. VOLUME MODIFIED TO REFLECT PROPOSED
  776     KM   ENLARGEMENT. PROPOSED ENLARGEMENT IS TO ADD A MINIMUM OF 0.65 ACRES OF SURFAC
  777     KM   AREA TO EACH OF THE CONTOURS AT OR ABOVE ELEVATION 58. OUTLET MODELED
  778     KM   ASSUMING THE TOP 7.5' OF THE ENTRANCE TO THE 10'R X 12'S HIGH BOX CULVERT IS
  779     KM   BLOCKED AND A NEW 12' WIDE OPENING IS CREATED W/ INVERT AT 67.2
  780     KM   OUTFLOW CURVE CALCULATED WITH A SPREADSHEET TREATING THE LOWER OPENING AS
  781     KM   A SUBMERGED ORIFICE WITH C=.60, h=POND DEPTH - NORMAL DEPTH IN THE OUTFALL
  782     KM   AND THE UPPER OPENING TO ELEVATION 73.0 TREATED AS A SHARP CRESTED WEIR WITH
  783     KM   A FULL LENGTH OF 12.77' (THE SKEW LENGTH) ADJUSTED 0.2h FOR END CONTRACTIONS
  784     KM   AND C=3.22+0.40(h/P) WHERE P=14.2. ABOVE ELEVATION 73.0 THE TOP OUTLET
  785     KM   STRUCTURE IS ASSUMED TO TERMINATE WITHOUT A TOP AND THUS ADDITIONAL FLOW CAN
  786     KM   OVER TOP THE SIDES AND BACK OF THE ASSUMED 3 SIDED  STRUCTURE 12.77 x 10
  787     KO       3       1
  788     RS       1    STOR       0
  789     SA       0    0.18    0.48    4.83    5.23    5.52    5.83    6.13    6.44    6.78
  790     SA    7.14    7.34    7.53    7.73    7.95
  791     SE    54.0    55.0    56.0    58.0    60.0    62.0    64.0    66.0    68.0    70.0
  792     SE    72.0    73.0    74.0    75.0    76.0
  793     SQ       0     105     194     275     344     401     451     496     560     747
  794     SQ     998    1142    1247    1750    2100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 795      KK   AP25S
 796      KM   RETRIEVE THE DIVERTED FLOW AT THE INTERSECTION OF BRIARGATE PARKWAY AND
 797      KM   EXPLORER DRIVE. THIS IS FLOW IN THE STREET.
 798      DR   AP25S

 799      KKRT-AP25S
 800      KM   ROUTE THE SURFACE FLOW IN BRIARGATE PARKWAY DOWN BRIARGATE PARKWAY TO PINE
 801      KM   CREEK. ASSUME THIS FLOW ENTERS THE CHANNEL AT THE OUTLET FROM DETENTION
 802      KM   FACILITY #1.
 803      RD    1400    .043    .015           TRAP      75     .01

 804      KK    AP26
 805      KM   COMBINE ROUTED FLOW RT-AP25S TO THE OUTFLOW FROM DF#1 AT THE INTERSECTION OF
 806      KM   BRIARGATE PKWY. AND PINE CREEK
 807      HC       2

 808      KK RT-AP26
 809      KM   ROUTE THE COMBINED FLOW FROM AP26 AT BRIARGATE PARKWAY DOWN PINE CREEK TO
 810      KM   THE INTERSECTION OF PINE CREEK AND HIGHWAY 83. USE AVERAGE
 811      KM   APPROXIMATE SECTION AND SLOPE FOR ROUTING
 812      RD    1450    .019    .045           TRAP      40       2

 813      KK  SB-PM9
 814      KM   COMPUTE HYDROGRAPH FOR BASIN PM9
 815      BA    .068
 816      LS       0      93
 817      UD    .120

 818      KK    AP27
 819      KM   COMBINE THE FLOW FROM BASIN PM9 AND THE ROUTED FLOW IN PINE CREEK (RT-AP26) A
 820      KM   AT THE UPSTREAM SIDE  OF HIGHWAY 83.
 821      HC       2

 822      KK SB-PM10
 823      KM   COMPUTE HYDROGRAPH FOR BASIN PM10
 824      BA    .048
 825      LS       0      98
 826      UD    .092

 827      KKRRDFPM10
 828      KM   ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 829      KM   RATE TO THE APPROXIMATE PEAK FLOW RATE DISCHARGE GOAL FROM THE BASIN
 830      KM   AS SHOWN IN THE FINAL DRAINAGE REPORT FOR BRIARGATE BUSINESS CAMPUS
 831      KM   FILING 13 AS APPROVED OCT 31, 1996
 832      KM   THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 833      KM   THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN MAY DISCHARGE
 834      KM   DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN.
 835      KM   DISCHARGE FROM THE BASIN PER THE FINAL DRAINAGE REPORT=140 cfs
 836      RS       1    STOR       0
 837      SV       0     001      .6     1.5
 838      SE     100     102     104     106
 839      SQ       0     140     140     140
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

840       KK RT-PM10
841       KM   ROUTE THE FLOW IN THE S.D.FROM THE LOW POINT IN TELESTAR DR. TO THE EXISTING
842       KM   OUTFALL TO PINE CREEK JUST UPSTREAM OF HIGHWAY 83.
843       RD    1000    .025    .013           CIRC     4.0

844       KK S8-PM11
845       KM   COMPUTE HYDROGRAPH FOR BASIN PM11
846       BA    .041
847       LS       0      98
848       UD    .096

849       KK   AP24S
850       KM   RETRIEVE THE FLOW THAT WAS IN EXCESS OF THE STORM DRAIN CAPACITY AT THE
851       KM   INTERSECTION OF EXPLORER DRIVE AND TELSTAR DRIVE.(AP24S)
852       DR   AP24S

853       KKRT-AP24S
854       KM   ROUTE THE RETRIEVED FLOW FROM AP24 DOWN TELSTAR DRIVE TO THE SUMP THEN
855       KM   ACROSS BBC FILING 19 TO AP28 IN PINE CREEK.
856       RD    2200     .05    .015           TRAP      40      01

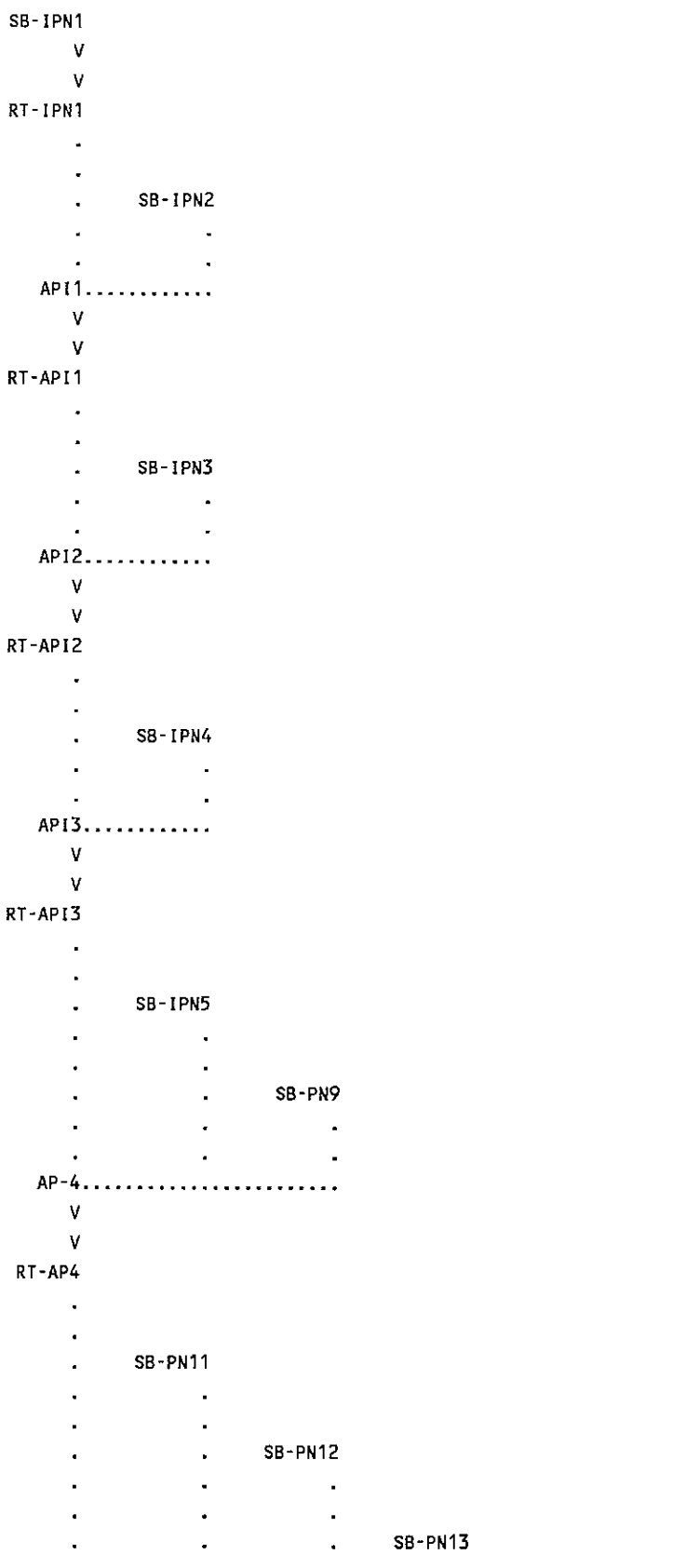
857       KK    AP28
858       KM   COMBINE THE FLOW FROM BASIN PM11 WITH THE ROUTED SURFACE FLOW FROM THE
859       KM   INTERSECTION OF TELSTAR DR. AND EXPLORER DRIVE (RT-AP24S), THE FLOW IN
860       KM   PINE CREEK AT AP27, AND THE ROUTED FLOW FROM BASIN PM10.
861       KM   FLOW IS COMBINED IN PINE CREEK AT THE UPSTREAM SIDE OF THE BOX CULVERT
862       KM   UNDER HIGHWAY 83. THIS REPRESENTS THE TOTAL FLOW TO PINE CREEK FROM THE
863       KM   BRIARGATE AREA
864       KO       3       1
865       HC       4
866       ZZ
```

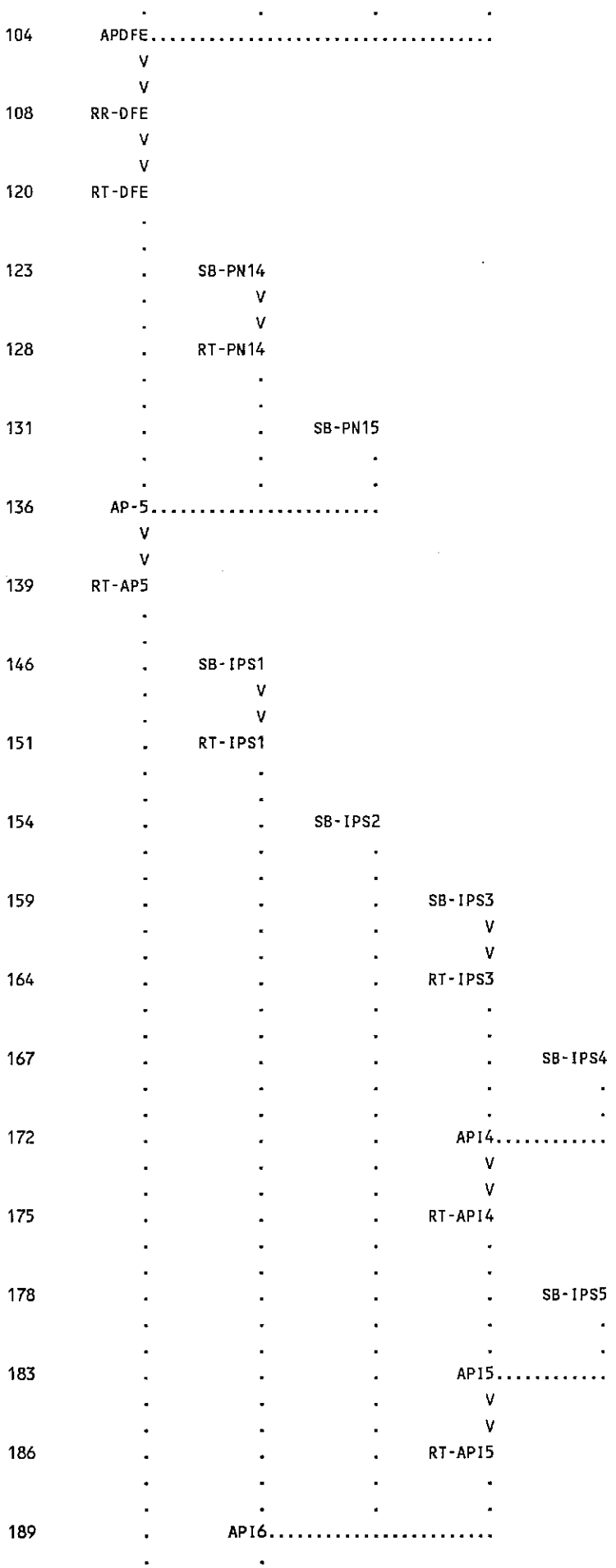
SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

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

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW

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APDFE
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RR-DFE
120
RT-DFE
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SB-PN14
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RT-PN14
131
SB-PN15
136
AP-5
139
RT-AP5
146
SB-IPS1
151
RT-IPS1
154
SB-IPS2
159
SB-IPS3
164
RT-IPS3
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SB-IPS4
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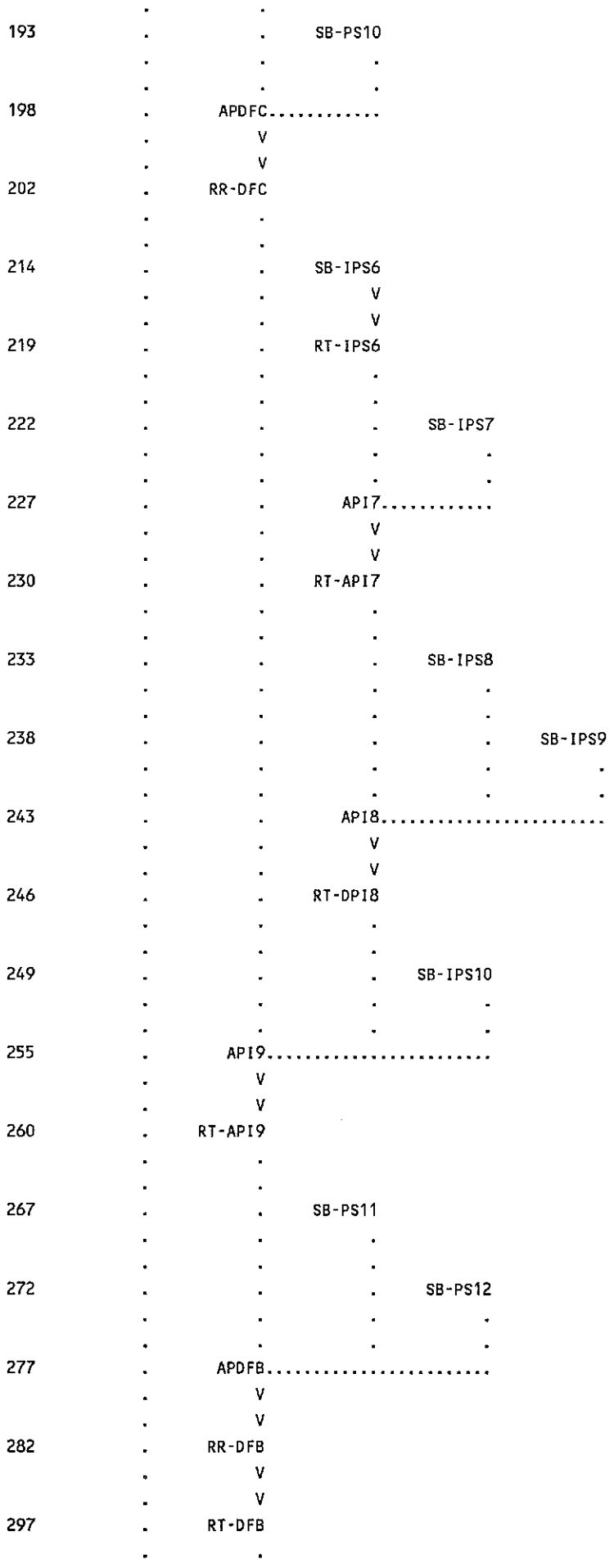
API4
175
RT-API4
178
SB-IPS5
183
API5
186
RT-API5
189
API6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APDFC
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RR-DFC
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SB-IPS6
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RT-IPS6
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SB-IPS7
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API7
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RT-API7
233
SB-IPS8
238
SB-IPS9
243
API8
246
RT-DPI8
249
SB-IPS10
255
API9
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RT-API9
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SB-PS11
272
SB-PS12
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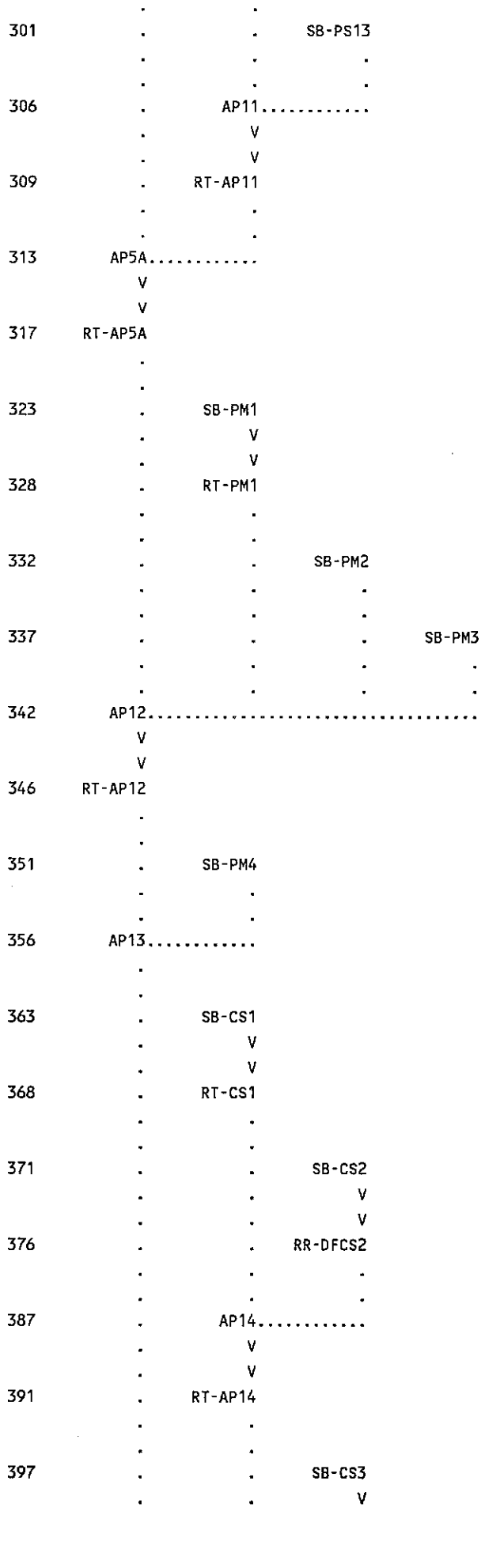
APDFB
282
RR-DFB
297
RT-DFB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AP11
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RT-AP11
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AP5A
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RT-AP5A
323
SB-PM1
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RT-PM1
332
SB-PM2
337
SB-PM3
342
AP12
346
RT-AP12
351
SB-PM4
356
AP13
363
SB-CS1
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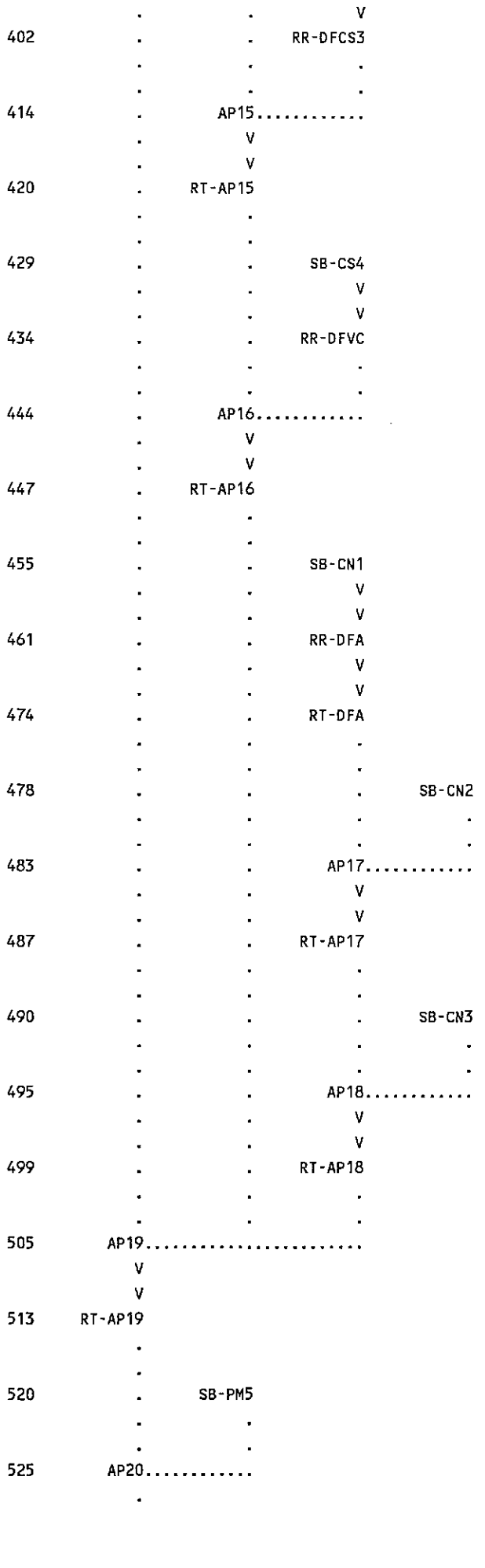
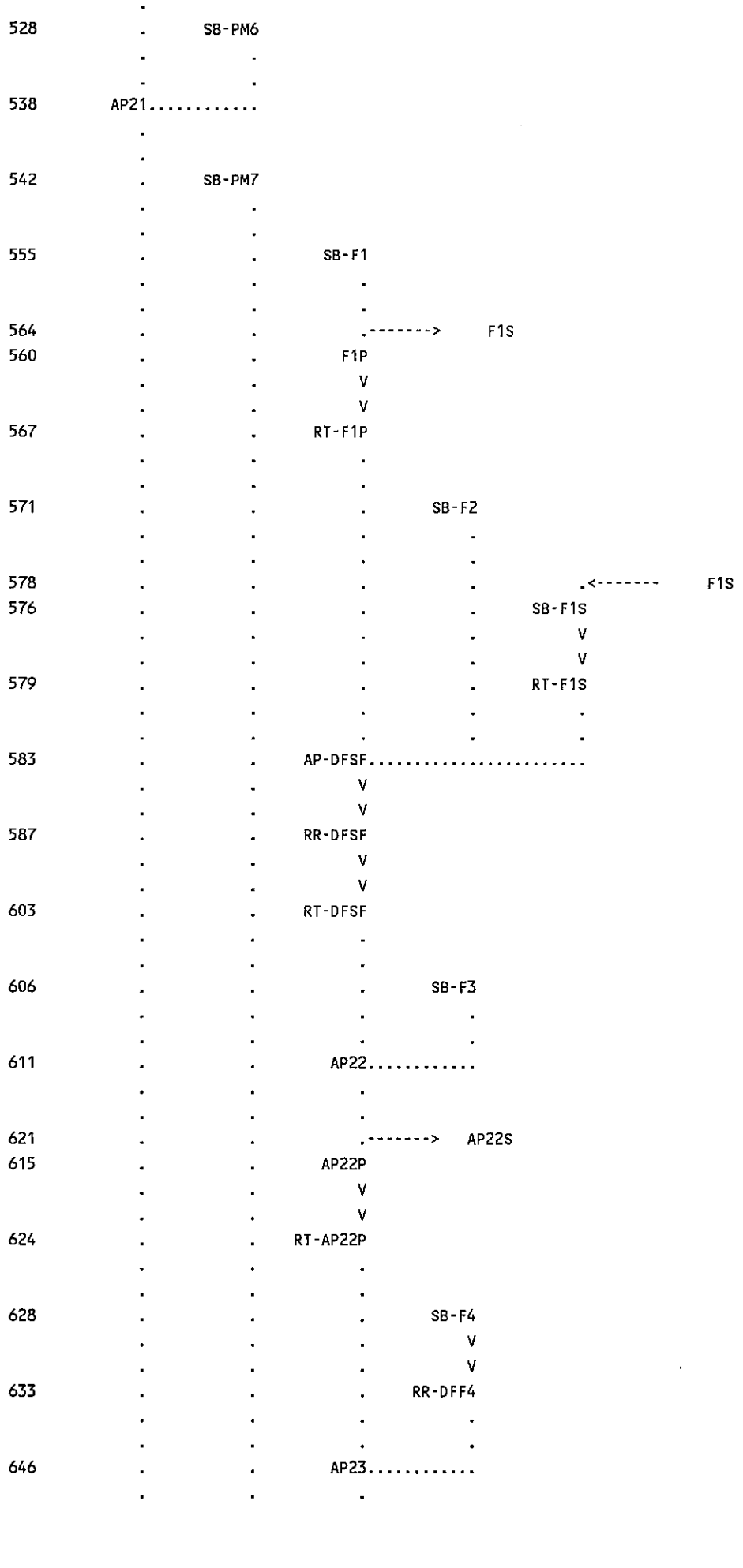
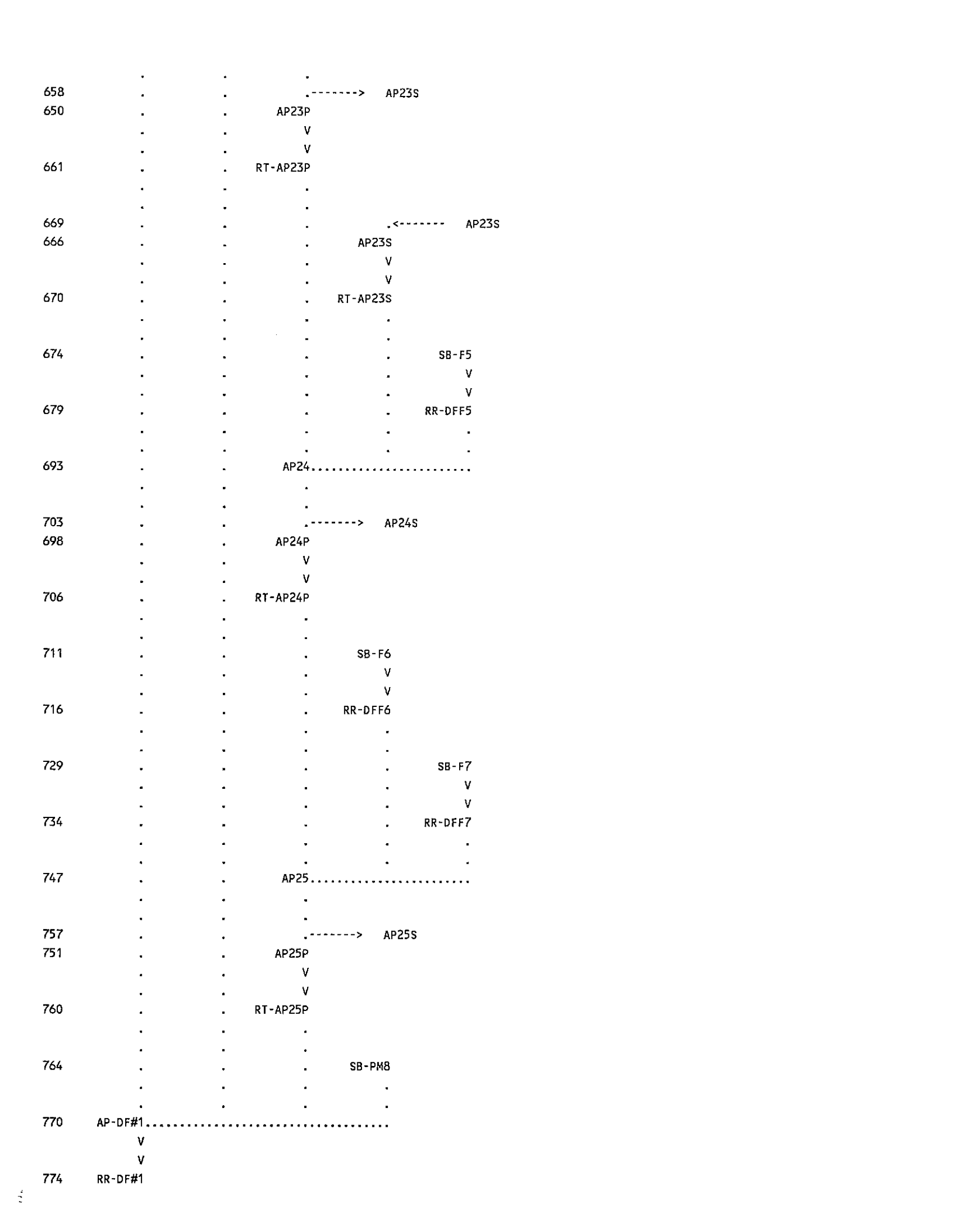
RT-CS1
371
SB-CS2
376
RR-DFCS2
387
AP14
391
RT-AP14
397
SB-CS3


402 RR-DFCS3
414 AP15
420 RT-AP15
429 SB-CS4
434 RR-DFVC
444 AP16
447 RT-AP16
455 SB-CN1
461 RR-DFA
474 RT-DFA
478 SB-CN2
483 AP17
487 RT-AP17
490 SB-CN3
495 AP18
499 RT-AP18
505 AP19
513 RT-AP19
520 SB-PM5
525 AP20


528 SB-PM6
538 AP21.....
542 SB-PM7
555 SB-F1
564 .-------> F1S
560 F1P
567 RT-F1P
571 SB-F2
578 .<------- F1S
576 SB-F1S
579 RT-F1S
583 AP-DFSF.....
587 RR-DFSF
603 RT-DFSF
606 SB-F3
611 AP22.....
621 .-------> AP22S
615 AP22P
624 RT-AP22P
628 SB-F4
633 RR-DFF4
646 AP23.....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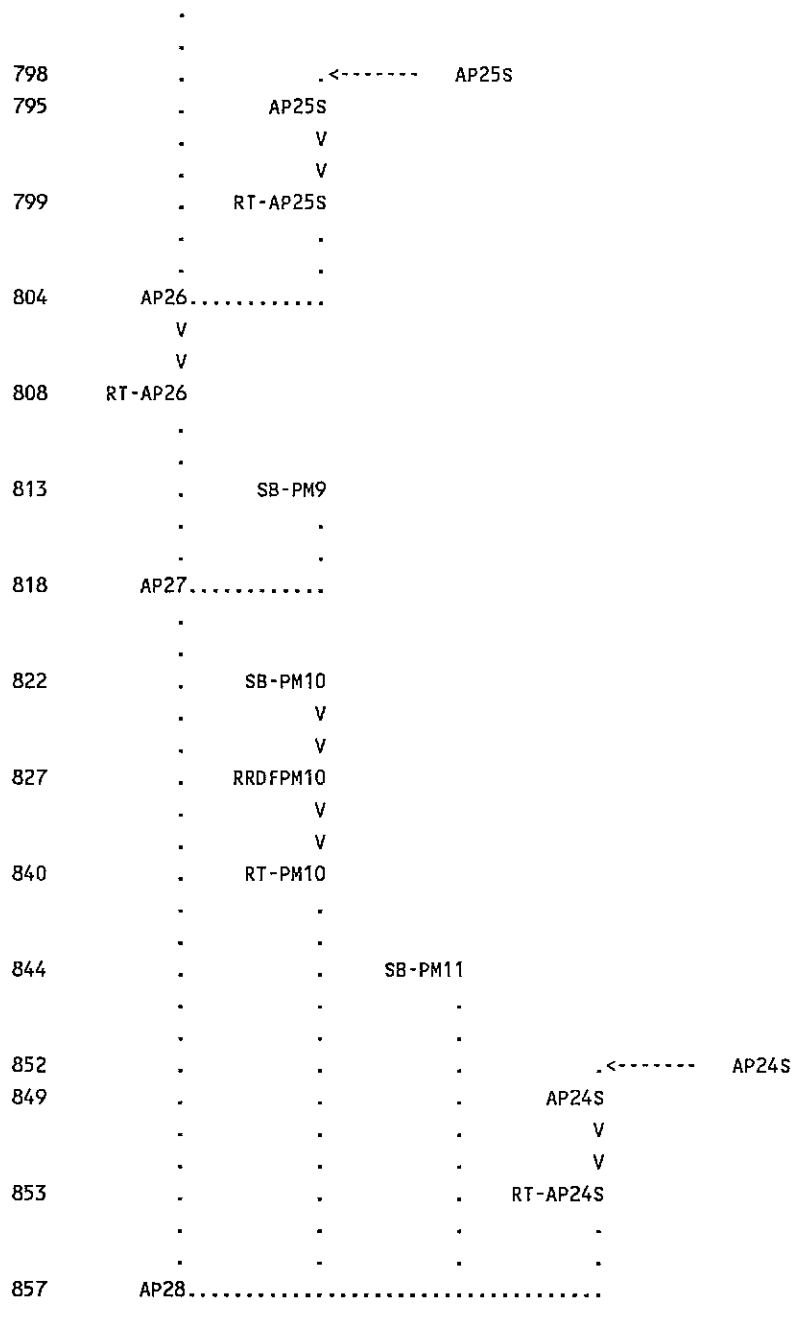
760
764
770
774
AP23S
AP23P
RT-AP23P
AP23S
AP23S
RT-AP23S
SB-F5
RR-DFF5
AP24
AP24S
AP24P
RT-AP24P
SB-F6
RR-DFF6
SB-F7
RR-DFF7
AP25
AP25S
AP25P
RT-AP25P
SB-PM8
AP-DF#1
RR-DF#1



***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*           VERSION 4.0.1E              *
*                                       *
*   RUN DATE  08/05/1998  TIME  17:41:34 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET             *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

PINE CREEK DRAINAGE BASIN - 24HR,(TYPE IIa100 YEAR STORM)
FILE PCDBPSI.DAT
INTERIM CONDITION MODEL
MODEL MODIFIED FOR 8-98 REVISION LAST UPDATE:8/5/98
BASINS PN1 THROUGH PN8, PN10, AND PS1 THROUGH PS9 IN UNDEVELOPED OR
PARTIAL DEVELOPED CONDITION. ALL OTHER BASINS ASSUMED TO BE FULLY DEVELOPED.
DETENTION FACILITY "C" ASSUMED TO BE CONSTRUCTED TO DEVELOPED CONDITION
REQUIRED CAPACITY BUT WITHOUT AN OUTFALL SO IT FUNCTIONS AS A TEMPORARY
RETENTION POND. DETENTION FACILITIES "A", "B",AND "E" ARE ASSUMED TO
BE CONTRUCTED TO THE DEVELOPED CONDITION REQUIREMENTS.

12 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN		3	MINUTES IN COMPUTATION INTERVAL
IDATE	1	0	STARTING DATE
ITIME		0000	STARTING TIME
NQ		300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1	0	ENDING DATE
NDTIME		1457	ENDING TIME
ICENT		19	CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 14.95 HOURS

ENGLISH UNITS

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

** ***

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```
          *           *
108 KK    *    RR-DFE *
          *           *
          ***************

115 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          1  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

116 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

117 SV            STORAGE        0.0       0.0       1.3       3.9       6.9      10.3      14.1      18.2      22.8      27.9

118 SE          ELEVATION      784.00    786.00    788.00    790.00    792.00    794.00    796.00    798.00    800.00    802.00

119 SQ          DISCHARGE          0.       25.       80.      136.      173.      210.      240.      263.      280.     1431.

                                                          ***

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

                       HYDROGRAPH AT STATION   RR-DFE

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     14.95-HR
    267.      6.80        (CFS)      124.         56.         56.         56.
                         (INCHES)  1.179       1.317       1.317       1.317
                         (AC-FT)    62.         69.         69.         69.

EAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
 (AC-FT)      (HR)                  6-HR       24-HR       72-HR     14.95-HR
     19.      6.80                   6.          2.          2.          2.

EAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
  (FEET)      (HR)                  6-HR       24-HR       72-HR     14.95-HR
  798.51      6.80                790.46     787.05      787.05      787.05

                       CUMULATIVE AREA =    0.98 SQ MI

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

          ***************
          *           *
202 KK    *    RR-DFC *
          *           *
          ***************
```

```
206 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            1  PLOT CONTROL
                      QSCAL         100.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

207 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

208 SV            STORAGE        0.0       2.7       9.7      18.6      28.0      38.2      49.0      60.5      72.8      85.8
                                99.7

210 SE          ELEVATION      62.00     64.00     66.00     68.00     70.00     72.00     74.00     76.00     78.00     80.00
                               82.00

212 SQ          DISCHARGE         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                                  0.

                                                                 ***

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

                         HYDROGRAPH AT STATION    RR-DFC

PEAK FLOW      TIME                           MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                      6-HR        24-HR        72-HR     14.95-HR
     0.        0.05          (CFS)         0.           0.           0.           0.
                           (INCHES)     0.000        0.000        0.000        0.000
                            (AC-FT)        0.           0.           0.           0.

PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                      6-HR        24-HR        72-HR     14.95-HR
     42.      14.95                       37.          19.          19.          19.

PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
  (FEET)       (HR)                      6-HR        24-HR        72-HR     14.95-HR
   72.63      14.95                     71.80        67.26        67.26        67.26

                        CUMULATIVE AREA =     0.70 SQ MI

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

            **************
            *            *
282 KK      *   RR-DFB   *
            *            *
            **************

289 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            1  PLOT CONTROL
```

```
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

290 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

291 SV            STORAGE        0.0        0.1        1.2        3.3        5.8        8.7       12.1       15.9       20.1       23.6
                                24.8       30.0

293 SE            ELEVATION     71.20      72.00      74.00      76.00      78.00      80.00      82.00      84.00      86.00      87.60
                                88.00      90.00

295 SQ            DISCHARGE        0.        22.        73.       130.       169.       202.       236.       260.       285.       301.
                                371.      1222.

                                                                    ***

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

                       HYDROGRAPH AT STATION   RR-DFB

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                6-HR        24-HR        72-HR     14.95-HR
    266.       6.70       (CFS)     111.          49.          49.          49.
                          (INCHES) 0.678        0.754        0.754        0.754
                          (AC-FT)    55.          61.          61.          61.

PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                6-HR        24-HR        72-HR     14.95-HR
     17.       6.70                  5.           2.           2.           2.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                6-HR        24-HR        72-HR     14.95-HR
    84.45      6.70               76.03       73.32        73.32        73.32

                       CUMULATIVE AREA =    1.52 SQ MI


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


               **************
               *            *
461 KK         *    RR-DFA  *
               *            *
               **************

466 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          1  PLOT CONTROL
                     QSCAL        100.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA
```

```
467 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

468 SV            STORAGE        0.0       0.0       0.2       1.0       2.0       2.8       4.3       5.3       6.5      11.6
                                15.4

470 SQ          DISCHARGE         2.        3.        3.        4.        4.        5.        5.        6.        8.        9.
                                279.

472 SE          ELEVATION    6796.60   6797.00   6798.00   6800.00   6802.00   6803.50   6803.51   6804.00   6804.10   6805.50
                             6806.50

                                                        ***

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

                        HYDROGRAPH AT STATION   RR-DFA

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR        24-HR        72-HR     14.95-HR
      9.       8.20        (CFS)       9.           6.           6.           6.
                           (INCHES)  0.573        1.001        1.001        1.001
                           (AC-FT)     4.           8.           8.           8.

PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                 6-HR        24-HR        72-HR     14.95-HR
     11.       8.30                   11.           6.           6.           6.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                 6-HR        24-HR        72-HR     14.95-HR
  6805.44      8.30               6805.31     6801.83     6801.83     6801.83

                        CUMULATIVE AREA =    0.14 SQ MI


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


          **************
          *            *
587 KK    *   RR-DFSF  *
          *            *
          **************

598 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          1  PLOT CONTROL
                     QSCAL        100.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

599 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

600 SV           STORAGE        0.0       0.6       4.6       6.9      10.3

601 SE         ELEVATION       92.00     94.00     96.00     98.00    100.00

602 SQ         DISCHARGE       120.      126.      131.      137.      144.

                                                                ***

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

                     HYDROGRAPH AT STATION  RR-DFSF

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                6-HR       24-HR       72-HR     14.95-HR
    130.       6.35       (CFS)     121.        121.        121.        121.
                        (INCHES)   7.136      17.669      17.669      17.669
                         (AC-FT)      60.        149.        149.        149.

PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                6-HR       24-HR       72-HR     14.95-HR
      4.       6.35                  0.          0.          0.          0.

 PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                6-HR       24-HR       72-HR     14.95-HR
    95.57      6.35               92.44       92.18       92.18       92.18

                     CUMULATIVE AREA =    0.16 SQ MI

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

          **************
          *            *
774 KK    *   RR-DF#1  *
          *            *
          **************

787 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          1  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

           HYDROGRAPH ROUTING DATA

788 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

789 SA             AREA        0.0       0.2       0.5       4.8       5.2       5.5       5.8       6.1       6.4       6.8
                               7.1       7.3       7.5       7.7       7.9

791 SE         ELEVATION      54.00     55.00     56.00     58.00     60.00     62.00     64.00     66.00     68.00     70.00
                              72.00     73.00     74.00     75.00     76.00
```

793 SQ DISCHARGE

0.	105.	194.	275.	344.	401.	451.	496.	560.	747.
998.	1142.	1247.	1750.	2100.					

***

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.06	0.38	4.93	14.99	25.74	37.09	49.05	61.62	74.83
ELEVATION	54.00	55.00	56.00	58.00	60.00	62.00	64.00	66.00	68.00	70.00
STORAGE	88.75	95.99	103.43	111.06	118.90					
ELEVATION	72.00	73.00	74.00	75.00	76.00					

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 105.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

HYDROGRAPH AT STATION RR-DF#1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
1130.	6.65	(CFS)	669.	387.	387.	387.
		(INCHES)	1.404	2.021	2.021	2.021
		(AC-FT)	332.	478.	478.	478.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	14.95-HR
95.	6.65	61.	27.	27.	27.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	14.95-HR
72.91	6.65	67.69	61.09	61.09	61.09

CUMULATIVE AREA = 4.43 SQ MI

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          **************
          *            *
857 KK    *     AP28   *
          *            *
          **************
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864 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	1	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

865 HC HYDROGRAPH COMBINATION

ICOMP	4	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AP28

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	14.95-HR
1195.	6.05	(CFS)	743.	421.	421.	421.
		(INCHES)	1.506	2.123	2.123	2.123
		(AC-FT)	368.	520.	520.	520.

CUMULATIVE AREA = 4.59 SQ MI

100 YEAR STORM, INTERIM CONDITION
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	SB-IPN1	116.	6.25	18.	8.	8.	0.16		
ROUTED TO	RT-IPN1	115.	6.40	18.	8.	8.	0.16		
HYDROGRAPH AT	SB-IPN2	140.	6.30	23.	11.	11.	0.23		
2 COMBINED AT	API1	244.	6.35	42.	19.	19.	0.39		
ROUTED TO	RT-API1	243.	6.45	42.	19.	19.	0.39		
HYDROGRAPH AT	SB-IPN3	102.	6.15	13.	6.	6.	0.12		
2 COMBINED AT	API2	296.	6.35	55.	25.	25.	0.51		
ROUTED TO	RT-API2	296.	6.40	55.	25.	25.	0.51		
HYDROGRAPH AT	SB-IPN4	131.	6.10	15.	7.	7.	0.14		
2 COMBINED AT	API3	338.	6.40	69.	31.	31.	0.66		
ROUTED TO	RT-API3	335.	6.45	69.	31.	31.	0.66		
HYDROGRAPH AT	SB-IPN5	42.	6.10	4.	2.	2.	0.04		
HYDROGRAPH AT	SB-PN9	61.	6.05	6.	3.	3.	0.04		
3 COMBINED AT	AP-4	355.	6.45	80.	36.	36.	0.74		
ROUTED TO	RT-AP4	351.	6.50	80.	36.	36.	0.74		
HYDROGRAPH AT	SB-PN11	150.	6.10	16.	7.	7.	0.08		
HYDROGRAPH AT	SB-PN12	60.	6.05	6.	2.	2.	0.04		
HYDROGRAPH AT	SB-PN13	215.	6.10	23.	10.	10.	0.13		
4 COMBINED AT	APDFE	643.	6.15	125.	56.	56.	0.98		
ROUTED TO	RR-DFE	267.	6.80	124.	56.	56.	0.98	798.51	6.80
ROUTED TO	RT-DFE	267.	6.85	124.	56.	56.	0.98		
HYDROGRAPH AT	SB-PN14	50.	6.05	5.	2.	2.	0.03		
ROUTED TO	RT-PN14	49.	6.05	5.	2.	2.	0.03		
HYDROGRAPH AT	SB-PN15	120.	6.10	13.	6.	6.	0.07		
3 COMBINED AT	AP-5	340.	6.15	142.	64.	64.	1.08		
ROUTED TO	RT-AP5	340.	6.15	142.	64.	64.	1.08		

HYDROGRAPH AT	SB-IPS1	94.	6.30	16.	7.	7.	0.15		
ROUTED TO	RT-IPS1	93.	6.40	16.	7.	7.	0.15		
HYDROGRAPH AT	SB-IPS2	66.	6.25	11.	5.	5.	0.10		
HYDROGRAPH AT	SB-IPS3	88.	6.15	11.	5.	5.	0.11		
ROUTED TO	RT-IPS3	86.	6.30	11.	5.	5.	0.11		
HYDROGRAPH AT	SB-IPS4	118.	6.20	17.	8.	8.	0.17		
2 COMBINED AT	API4	192.	6.30	28.	13.	13.	0.27		
ROUTED TO	RT-API4	190.	6.40	28.	12.	12.	0.27		
HYDROGRAPH AT	SB-IPS5	84.	6.30	14.	6.	6.	0.13		
2 COMBINED AT	API5	265.	6.40	42.	19.	19.	0.41		
ROUTED TO	RT-API5	265.	6.50	42.	19.	19.	0.41		
3 COMBINED AT	API6	399.	6.50	68.	31.	31.	0.66		
HYDROGRAPH AT	SB-PS10	66.	6.05	7.	3.	3.	0.04		
2 COMBINED AT	APDFC	409.	6.50	74.	34.	34.	0.70		
ROUTED TO	RR-DFC	0.	0.05	0.	0.	0.	0.70	72.63	14.95
HYDROGRAPH AT	SB-IPS6	85.	6.25	14.	6.	6.	0.13		
ROUTED TO	RT-IPS6	87.	6.50	14.	6.	6.	0.13		
HYDROGRAPH AT	SB-IPS7	160.	6.20	22.	10.	10.	0.21		
2 COMBINED AT	API7	186.	6.35	35.	16.	16.	0.34		
ROUTED TO	RT-API7	184.	6.45	35.	16.	16.	0.34		
HYDROGRAPH AT	SB-IPS8	71.	6.15	9.	4.	4.	0.09		
HYDROGRAPH AT	SB-IPS9	106.	6.05	11.	5.	5.	0.06		
3 COMBINED AT	API8	281.	6.20	55.	25.	25.	0.49		
ROUTED TO	RT-DPI8	278.	6.20	55.	25.	25.	0.49		
HYDROGRAPH AT	SB-IPS10	191.	6.05	20.	9.	9.	0.12		
3 COMBINED AT	API9	427.	6.15	75.	34.	34.	1.31		
ROUTED TO	RT-API9	422.	6.25	75.	34.	34.	1.31		
HYDROGRAPH AT	SB-PS11	126.	6.05	13.	6.	6.	0.06		
HYDROGRAPH AT	SB-PS12	189.	6.10	23.	10.	10.	0.15		
3 COMBINED AT	APDFB	663.	6.20	111.	49.	49.	1.52		

ROUTED TO	RR-DFB	266.	6.70	111.	49.	49.	1.52	84.45	6.70
ROUTED TO	RT-DFB	266.	6.75	111.	49.	49.	1.52		
HYDROGRAPH AT	SB-PS13	122.	6.05	12.	5.	5.	0.06		
2 COMBINED AT	AP11	278.	6.60	123.	55.	55.	1.58		
ROUTED TO	RT-AP11	278.	6.60	123.	55.	55.	1.58		
2 COMBINED AT	AP5A	615.	6.15	265.	118.	118.	2.66		
ROUTED TO	RT-AP5A	612.	6.15	265.	118.	118.	2.66		
HYDROGRAPH AT	SB-PM1	107.	6.10	12.	5.	5.	0.05		
ROUTED TO	RT-PM1	107.	6.10	12.	5.	5.	0.05		
HYDROGRAPH AT	SB-PM2	139.	6.20	20.	9.	9.	0.15		
HYDROGRAPH AT	SB-PM3	99.	6.15	12.	5.	5.	0.07		
4 COMBINED AT	AP12	945.	6.15	308.	138.	138.	2.94		
ROUTED TO	RT-AP12	938.	6.20	308.	137.	137.	2.94		
HYDROGRAPH AT	SB-PM4	180.	6.05	19.	8.	8.	0.11		
2 COMBINED AT	AP13	1069.	6.15	326.	146.	146.	3.05		
HYDROGRAPH AT	SB-CS1	90.	6.05	10.	4.	4.	0.05		
ROUTED TO	RT-CS1	90.	6.10	10.	4.	4.	0.05		
HYDROGRAPH AT	SB-CS2	254.	6.00	29.	13.	13.	0.07		
ROUTED TO	RR-DFCS2	194.	5.70	29.	13.	13.	0.07	102.48	6.10
2 COMBINED AT	AP14	284.	6.10	38.	17.	17.	0.12		
ROUTED TO	RT-AP14	284.	6.10	38.	17.	17.	0.12		
HYDROGRAPH AT	SB-CS3	137.	6.05	15.	6.	6.	0.05		
ROUTED TO	RR-DFCS3	123.	6.00	15.	6.	6.	0.05	102.04	6.10
2 COMBINED AT	AP15	407.	6.10	53.	23.	23.	0.18		
ROUTED TO	RT-AP15	406.	6.10	53.	23.	23.	0.18		
HYDROGRAPH AT	SB-CS4	188.	6.00	20.	9.	9.	0.05		
ROUTED TO	RR-DFVC	22.	6.35	18.	9.	9.	0.05	81.86	6.35
2 COMBINED AT	AP16	427.	6.10	70.	32.	32.	0.23		
ROUTED TO	RT-AP16	427.	6.10	70.	32.	32.	0.23		
HYDROGRAPH AT	SB-CN1	275.	6.10	30.	13.	13.	0.14		

ROUTED TO	RR-DFA	9.	8.20	9.	6.	6.	0.14	6805.44	8.30
ROUTED TO	RT-DFA	9.	8.30	9.	6.	6.	0.14		
HYDROGRAPH AT	SB-CN2	136.	6.10	15.	7.	7.	0.08		
2 COMBINED AT	AP17	142.	6.10	24.	13.	13.	0.22		
ROUTED TO	RT-AP17	140.	6.10	24.	13.	13.	0.22		
HYDROGRAPH AT	SB-CN3	98.	6.05	10.	4.	4.	0.04		
2 COMBINED AT	AP18	232.	6.10	34.	17.	17.	0.27		
ROUTED TO	RT-AP18	232.	6.10	34.	17.	17.	0.27		
3 COMBINED AT	AP19	1707.	6.15	429.	195.	195.	3.55		
ROUTED TO	RT-AP19	1687.	6.15	428.	195.	195.	3.55		
HYDROGRAPH AT	SB-PM5	265.	6.10	28.	13.	13.	0.18		
2 COMBINED AT	AP20	1925.	6.15	457.	208.	208.	3.73		
HYDROGRAPH AT	SB-PM6	319.	6.00	36.	16.	16.	0.09		
2 COMBINED AT	AP21	2084.	6.10	491.	223.	223.	3.82		
HYDROGRAPH AT	SB-PM7	191.	6.20	28.	12.	12.	0.14		
HYDROGRAPH AT	SB-F1	233.	6.10	26.	11.	11.	0.12		
DIVERSION TO	F1S	110.	5.90	5.	2.	2.	0.12		
HYDROGRAPH AT	F1P	123.	5.90	21.	10.	10.	0.12		
ROUTED TO	RT-F1P	123.	6.00	21.	10.	10.	0.12		
HYDROGRAPH AT	SB-F2	69.	6.05	7.	3.	3.	0.04		
HYDROGRAPH AT	SB-F1S	110.	6.10	5.	2.	2.	0.00		
ROUTED TO	RT-F1S	109.	6.15	5.	2.	2.	0.00		
3 COMBINED AT	AP-DFSF	296.	6.10	33.	15.	15.	0.16		
ROUTED TO	RR-DFSF	130.	6.35	121.	121.	121.	0.16	95.57	6.35
ROUTED TO	RT-DFSF	130.	6.35	121.	121.	121.	0.16		
HYDROGRAPH AT	SB-F3	210.	6.10	24.	10.	10.	0.11		
2 COMBINED AT	AP22	337.	6.10	145.	131.	131.	0.27		
DIVERSION TO	AP22S	77.	5.95	3.	1.	1.	0.27		
HYDROGRAPH AT	AP22P	260.	5.95	142.	130.	130.	0.27		
ROUTED TO	RT-AP22P	260.	6.00	142.	130.	130.	0.27		

HYDROGRAPH AT	SB-F4	89.	6.05	10.	4.	4.	0.04		
ROUTED TO	RR-DFF4	71.	5.95	10.	4.	4.	0.04	102.08	6.20
2 COMBINED AT	AP23	331.	6.00	152.	134.	134.	0.31		
DIVERSION TO	AP23S	33.	5.95	2.	1.	1.	0.31		
HYDROGRAPH AT	AP23P	298.	5.95	150.	133.	133.	0.31		
ROUTED TO	RT-AP23P	298.	6.00	150.	133.	133.	0.31		
HYDROGRAPH AT	AP23S	33.	6.00	2.	1.	1.	0.00		
ROUTED TO	RT-AP23S	36.	6.05	2.	1.	1.	0.00		
HYDROGRAPH AT	SB-F5	225.	6.00	25.	11.	11.	0.06		
ROUTED TO	RR-DFF5	175.	5.75	25.	11.	11.	0.06	102.32	6.10
3 COMBINED AT	AP24	509.	6.05	177.	145.	145.	0.37		
DIVERSION TO	AP24S	159.	5.80	10.	4.	4.	0.37		
HYDROGRAPH AT	AP24P	350.	5.80	167.	141.	141.	0.37		
ROUTED TO	RT-AP24P	350.	5.85	167.	141.	141.	0.37		
HYDROGRAPH AT	SB-F6	138.	6.00	16.	7.	7.	0.04		
ROUTED TO	RR-DFF6	104.	5.70	16.	7.	7.	0.04	102.27	6.10
HYDROGRAPH AT	SB-F7	173.	6.00	19.	8.	8.	0.05		
ROUTED TO	RR-DFF7	132.	5.80	19.	8.	8.	0.05	102.24	6.10
3 COMBINED AT	AP25	586.	5.85	201.	156.	156.	0.46		
DIVERSION TO	AP25S	125.	5.70	11.	5.	5.	0.46		
HYDROGRAPH AT	AP25P	461.	5.70	189.	151.	151.	0.46		
ROUTED TO	RT-AP25P	461.	5.75	189.	151.	151.	0.46		
HYDROGRAPH AT	SB-PM8	51.	6.00	6.	3.	3.	0.01		
4 COMBINED AT	AP-DF#1	2744.	6.10	713.	389.	389.	4.43		
ROUTED TO	RR-DF#1	1130.	6.65	669.	387.	387.	4.43	72.91	6.65
HYDROGRAPH AT	AP25S	125.	5.85	11.	5.	5.	0.00		
ROUTED TO	RT-AP25S	126.	5.85	11.	5.	5.	0.00		
2 COMBINED AT	AP26	1130.	6.65	680.	391.	391.	4.43		
ROUTED TO	RT-AP26	1129.	6.70	679.	390.	390.	4.43		
HYDROGRAPH AT	SB-PM9	230.	6.00	24.	11.	11.	0.07		

2 COMBINED AT	AP27	1143.	6.70	700.	400.	400.	4.50		
HYDROGRAPH AT	SB-PM10	175.	6.00	20.	9.	9.	0.05		
ROUTED TO	RRDFPM10	140.	5.80	20.	9.	9.	0.05	106.31	6.05
ROUTED TO	RT-PM10	140.	5.85	20.	9.	9.	0.05		
HYDROGRAPH AT	SB-PM11	149.	6.00	17.	7.	7.	0.04		
HYDROGRAPH AT	AP24S	159.	6.05	10.	4.	4.	0.00		
ROUTED TO	RT-AP24S	158.	6.10	10.	4.	4.	0.00		
4 COMBINED AT	AP28	1195.	6.05	743.	421.	421.	4.59		

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

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
RT-IPN1	MANE	1.95	115.61	386.10	1.16	3.00	114.96	384.00	1.16
ONTINUITY SUMMARY (AC-FT) - INFLOW=0.1024E+02 EXCESS=0.0000E+00 OUTFLOW=0.1013E+02 BASIN STORAGE=0.2085E+00 PERCENT ERROR= -0.9									
RT-API1	MANE	2.40	245.68	386.40	1.10	3.00	243.08	387.00	1.10
ONTINUITY SUMMARY (AC-FT) - INFLOW=0.2316E+02 EXCESS=0.0000E+00 OUTFLOW=0.2304E+02 BASIN STORAGE=0.1933E+00 PERCENT ERROR= -0.3									
RT-API2	MANE	2.40	296.60	386.40	1.11	3.00	296.13	384.00	1.11
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3051E+02 EXCESS=0.0000E+00 OUTFLOW=0.3039E+02 BASIN STORAGE=0.1711E+00 PERCENT ERROR= -0.2									
RT-API3	MANE	2.85	336.37	387.60	1.10	3.00	334.59	387.00	1.10
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3857E+02 EXCESS=0.0000E+00 OUTFLOW=0.3840E+02 BASIN STORAGE=0.2374E+00 PERCENT ERROR= -0.2									
RT-AP4	MANE	2.72	351.91	388.34	1.13	3.00	351.21	390.00	1.13
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4435E+02 EXCESS=0.0000E+00 OUTFLOW=0.4422E+02 BASIN STORAGE=0.1933E+00 PERCENT ERROR= -0.1									
RT-DFE	MANE	1.17	267.34	409.24	1.32	3.00	267.29	411.00	1.32
ONTINUITY SUMMARY (AC-FT) - INFLOW=0.6896E+02 EXCESS=0.0000E+00 OUTFLOW=0.6897E+02 BASIN STORAGE=-.4479E-02 PERCENT ERROR= 0.0									
RT-PN14	MANE	1.05	49.82	363.76	1.91	3.00	49.19	363.00	1.91
ONTINUITY SUMMARY (AC-FT) - INFLOW=0.2750E+01 EXCESS=0.0000E+00 OUTFLOW=0.2748E+01 BASIN STORAGE=0.2765E-02 PERCENT ERROR= 0.0									
RT-AP5	MANE	0.25	340.20	369.03	1.36	3.00	340.18	369.00	1.36
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7874E+02 EXCESS=0.0000E+00 OUTFLOW=0.7874E+02 BASIN STORAGE=0.4208E-03 PERCENT ERROR= 0.0									
RT-IPS1	MANE	2.10	93.23	384.30	1.12	3.00	92.92	384.00	1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8881E+01 EXCESS=0.0000E+00 OUTFLOW=0.8805E+01 BASIN STORAGE=0.1050E+00 PERCENT ERROR= -0.3

RT-IPS3	MANE	1.65	86.86	379.50	1.06	3.00	86.34	378.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6234E+01 EXCESS=0.0000E+00 OUTFLOW=0.6162E+01 BASIN STORAGE=0.1062E+00 PERCENT ERROR= -0.6

RT-API4	MANE	2.25	193.74	384.75	1.05	3.00	189.79	384.00	1.05

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.1564E+02 EXCESS=0.0000E+00 OUTFLOW=0.1546E+02 BASIN STORAGE=0.2533E+00 PERCENT ERROR= -0.5

RT-API5	MANE	2.55	265.64	390.15	1.06	3.00	264.69	390.00	1.06

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.2326E+02 EXCESS=0.0000E+00 OUTFLOW=0.2310E+02 BASIN STORAGE=0.2139E+00 PERCENT ERROR= -0.2

RT-IPS6	MANE	1.95	87.01	390.00	1.05	3.00	87.01	390.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7523E+01 EXCESS=0.0000E+00 OUTFLOW=0.7404E+01 BASIN STORAGE=0.1937E+00 PERCENT ERROR= -1.0

RT-API7	MANE	2.25	184.05	387.00	1.08	3.00	184.05	387.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1975E+02 EXCESS=0.0000E+00 OUTFLOW=0.1963E+02 BASIN STORAGE=0.1935E+00 PERCENT ERROR= -0.4

RT-DPI8	MANE	2.10	281.01	373.80	1.18	3.00	277.94	372.00	1.18

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ONTINUITY SUMMARY (AC-FT) - INFLOW=0.3079E+02 EXCESS=0.0000E+00 OUTFLOW=0.3069E+02 BASIN STORAGE=0.1373E+00 PERCENT ERROR= -0.1

RT-API9	MANE	2.10	424.11	373.80	0.59	3.00	421.58	375.00	0.59

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.4175E+02 EXCESS=0.0000E+00 OUTFLOW=0.4149E+02 BASIN STORAGE=0.4535E+00 PERCENT ERROR= -0.5

RT-DFB	MANE	0.71	265.64	403.28	0.75	3.00	265.56	405.00	0.75

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.6097E+02 EXCESS=0.0000E+00 OUTFLOW=0.6094E+02 BASIN STORAGE=0.3543E-01 PERCENT ERROR= 0.0

RT-API1	MANE	0.42	277.73	396.35	0.80	3.00	277.72	396.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6751E+02 EXCESS=0.0000E+00 OUTFLOW=0.6748E+02 BASIN STORAGE=0.2250E-01 PERCENT ERROR= 0.0

RT-AP5A	MANE	1.50	615.55	370.50	1.03	3.00	611.91	369.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1463E+03 EXCESS=0.0000E+00 OUTFLOW=0.1462E+03 BASIN STORAGE=0.1841E+00 PERCENT ERROR= 0.0

RT-PM1	MANE	0.50	107.12	366.09	2.24	3.00	107.08	366.00	2.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6448E+01 EXCESS=0.0000E+00 OUTFLOW=0.6446E+01 BASIN STORAGE=0.7579E-02 PERCENT ERROR= -0.1

RT-AP12	MANE	1.35	938.54	371.25	1.08	3.00	937.69	372.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1700E+03 EXCESS=0.0000E+00 OUTFLOW=0.1698E+03 BASIN STORAGE=0.2695E+00 PERCENT ERROR= 0.0

RT-CS1	MANE	1.65	90.51	366.30	1.85	3.00	90.31	366.00	1.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5244E+01 EXCESS=0.0000E+00 OUTFLOW=0.5233E+01 BASIN STORAGE=0.2491E-01 PERCENT ERROR= -0.3

RT-AP14	MANE	0.50	284.03	366.35	3.18	3.00	283.67	366.00	3.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2089E+02 EXCESS=0.0000E+00 OUTFLOW=0.2089E+02 BASIN STORAGE=0.2081E-01 PERCENT ERROR= -0.1

RT-AP15	MANE	0.45	406.34	366.25	3.08	3.00	405.99	366.00	3.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2891E+02 EXCESS=0.0000E+00 OUTFLOW=0.2890E+02 BASIN STORAGE=0.2341E-01 PERCENT ERROR= -0.1

RT-AP16	MANE	0.11	427.19	366.16	3.25	3.00	427.05	366.00	3.25

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3973E+02 EXCESS=0.0000E+00 OUTFLOW=0.3973E+02 BASIN STORAGE=0.7924E-02 PERCENT ERROR= 0.0

RT-DFA	MANE	1.11	8.98	499.60	1.00	3.00	8.98	498.00	1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7739E+01 EXCESS=0.0000E+00 OUTFLOW=0.7729E+01 BASIN STORAGE=0.9996E-02 PERCENT ERROR= 0.0

RT-AP17	MANE	0.82	141.10	367.03	1.35	3.00	140.17	366.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1605E+02 EXCESS=0.0000E+00 OUTFLOW=0.1603E+02 BASIN STORAGE=0.1607E-01 PERCENT ERROR= 0.0

RT-AP18	MANE	0.35	231.68	365.86	1.51	3.00	231.64	366.00	1.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2146E+02 EXCESS=0.0000E+00 OUTFLOW=0.2145E+02 BASIN STORAGE=0.8548E-02 PERCENT ERROR= 0.0

RT-AP19	MANE	1.99	1701.81	370.56	1.27	3.00	1686.60	369.00	1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2413E+03 EXCESS=0.0000E+00 OUTFLOW=0.2410E+03 BASIN STORAGE=0.4147E+00 PERCENT ERROR= 0.0

RT-F1P	MANE	0.92	123.10	355.43	1.86	3.00	123.01	360.00	1.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1179E+02 EXCESS=0.0000E+00 OUTFLOW=0.1178E+02 BASIN STORAGE=0.1000E-01 PERCENT ERROR= 0.0

RT-F1S	MANE	0.75	108.57	369.00	-1.00	3.00	108.57	369.00	-1.00
RT-DFSF	MANE	0.62	129.92	382.04	17.66	3.00	129.91	381.00	17.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1489E+03 EXCESS=0.0000E+00 OUTFLOW=0.1489E+03 BASIN STORAGE=0.0000E+00 PERCENT ERROR= 0.0

RT-AP22P	MANE	1.35	260.35	359.10	11.05	3.00	260.20	360.00	11.06

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.1605E+03 EXCESS=0.0000E+00 OUTFLOW=0.1605E+03 BASIN STORAGE=0.7076E-02 PERCENT ERROR= 0.0

RT-AP23P	MANE	1.03	298.61	358.10	9.96	3.00	298.01	360.00	9.96

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.1648E+03 EXCESS=0.0000E+00 OUTFLOW=0.1648E+03 BASIN STORAGE=0.7177E-02 PERCENT ERROR= 0.0

RT-AP23S	MANE	0.30	43.63	361.50	-1.00	3.00	36.44	363.00	-1.00
RT-AP24P	MANE	0.64	350.05	349.53	8.72	3.00	350.00	351.00	8.72

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.1740E+03 EXCESS=0.0000E+00 OUTFLOW=0.1740E+03 BASIN STORAGE=0.7306E-02 PERCENT ERROR= 0.0

RT-AP25P	MANE	0.96	461.40	344.51	7.55	3.00	461.12	345.00	7.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1870E+03 EXCESS=0.0000E+00 OUTFLOW=0.1870E+03 BASIN STORAGE=0.1510E-01 PERCENT ERROR= 0.0

RT-AP25S	MANE	0.60	126.10	351.00	-1.00	3.00	126.10	351.00	-1.00
RT-AP26	MANE	2.41	1129.42	403.10	2.04	3.00	1129.23	402.00	2.04

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4831E+03 EXCESS=0.0000E+00 OUTFLOW=0.4817E+03 BASIN STORAGE=0.1736E+01 PERCENT ERROR= -0.1

RT-PM10	MANE	0.76	140.52	349.41	4.15	3.00	140.10	351.00	4.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1063E+02 EXCESS=0.0000E+00 OUTFLOW=0.1063E+02 BASIN STORAGE=0.4832E-02 PERCENT ERROR= 0.0

RT-AP24S	MANE	0.90	158.95	365.40	-1.00	3.00	158.39	366.00	-1.00

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

MAPS (FOLDED IN POCKETS)

- FULLY DEVELOPED CONDITION BASIN MAP AND MASTER PLAN
- INTERIM CONDITION BASIN MAP AND MASTER PLAN
- F.E.M.A. 100-YEAR FLOOD ZONE LIMITS
- SUBDIVISION AND LAND USE IDENTIFICATION MAP
- EXISTING DRAINAGE FACILITY MAP