DETENTION CALCULATIONS

FLAT CREEK ADDITION

TO

WICHITA, SEDGWICK COUNTY, KANSAS

Prepared By

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING & PLANNING
316/262-7271 FAX 316/262-0149 WICHITA, KANSAS 67211

March 12, 2001

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY   1991                *
*          VERSION 4.0.1E               *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  03/15/01  TIME  08:34:07   *
*****************************************
```

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

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

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

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

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   1          ID  OVERALL DRAINAGE BASIN
              *
   2          IT       5 03JAN01    0000     300                    2000
   3          IO       3       0
   4          JR    PREC  1.0000  1.3143  1.5143  1.7714  2.0000  2.2286
              *DIAGRAM
              *
   5          KK  BASIN1
   6          BA   .0952
   7          PB     3.5
   8          IN      60
   9          PC       0   0.011   0.022   0.035   0.048   0.063   0.080   0.098   0.120   0.147
  10          PC   0.181   0.235   0.663   0.772   0.820   0.854   0.880   0.902   0.921   0.937
  11          PC   0.952   0.965   0.978   0.989   1.000
  12          UD    0.30
  13          LS       0      75
              *
  14          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

    5      BASIN1

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


```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY   1991                *
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
```

```
*          VERSION 4.0.1E           *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  03/15/01  TIME  08:34:07   *
****************************************

*          609 SECOND STREET          *
*       DAVIS, CALIFORNIA 95616       *
*          (916) 551-1748             *
*                                     *
***************************************
```

OVERALL DRAINAGE BASIN

3 IO OUTPUT CONTROL VARIABLES

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

IT HYDROGRAPH TIME DATA

NMIN	5	MINUTES IN COMPUTATION INTERVAL
IDATE	3JAN 1	STARTING DATE
ITIME	0000	STARTING TIME
NQ	300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	4JAN 1	ENDING DATE
NDTIME	0055	ENDING TIME
ICENT	20	CENTURY MARK

COMPUTATION INTERVAL 0.08 HOURS
TOTAL TIME BASE 24.92 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

JP MULTI-PLAN OPTION

NPLAN	1	NUMBER OF PLANS

JR MULTI-RATIO OPTION
RATIOS OF PRECIPITATION

1.00	1.31	1.51	1.77	2.00	2.23

*** ***

```
**************
*            *
*    BASIN1  *
*            *
**************
```

8 IN TIME DATA FOR INPUT TIME SERIES

JXMIN	60	TIME INTERVAL IN MINUTES
JXDATE	3JAN 1	STARTING DATE
JXTIME	0	STARTING TIME

SUBBASIN RUNOFF DATA

6 BA SUBBASIN CHARACTERISTICS

TAREA	0.10	SUBBASIN AREA

PRECIPITATION DATA

7 PB

STORM	3.50	BASIN TOTAL PRECIPITATION

9 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.04	0.04	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

13 LS SCS LOSS RATE

STRTL	0.67	INITIAL ABSTRACTION
CRVNBR	75.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

12 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.30	LAG

***

UNIT HYDROGRAPH
20 END-OF-PERIOD ORDINATES

19.	61.	115.	135.	124.	97.	61.	41.	28.	19.
13.	9.	6.	4.	3.	2.	1.	1.	0.	0.

TOTAL RAINFALL = 3.50, TOTAL LOSS = 2.20, TOTAL EXCESS = 1.30

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 40.	12.08	11.	3.	3.	3.
		(INCHES) 1.048	1.302	1.302	1.302
		(AC-FT) 5.	7.	7.	7.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION BASIN1
FOR PLAN 1, RATIO = 1.00

TOTAL RAINFALL = 3.50, TOTAL LOSS = 2.20, TOTAL EXCESS = 1.30

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 40.	12.08	11.	3.	3.	3.
		(INCHES) 1.048	1.302	1.302	1.302

	(AC-FT)	5.	7.	7.	7.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION BASIN1
FOR PLAN 1, RATIO = 1.31

TOTAL RAINFALL = 4.60, TOTAL LOSS = 2.47, TOTAL EXCESS = 2.13

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 66.	12.08	18.	5.	5.	5.
		(INCHES) 1.723	2.129	2.129	2.129
		(AC-FT) 9.	11.	11.	11.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION BASIN1
FOR PLAN 1, RATIO = 1.51

TOTAL RAINFALL = 5.30, TOTAL LOSS = 2.61, TOTAL EXCESS = 2.69

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 84.	12.08	22.	7.	7.	7.
		(INCHES) 2.179	2.694	2.694	2.694
		(AC-FT) 11.	14.	14.	14.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION BASIN1
FOR PLAN 1, RATIO = 1.77

TOTAL RAINFALL = 6.20, TOTAL LOSS = 2.75, TOTAL EXCESS = 3.45

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 107.	12.08	28.	9.	9.	9.
		(INCHES) 2.783	3.453	3.453	3.453
		(AC-FT) 14.	18.	18.	18.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION BASIN1
FOR PLAN 1, RATIO = 2.00

TOTAL RAINFALL = 7.00, TOTAL LOSS = 2.85, TOTAL EXCESS = 4.15

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 128.	12.08	34.	11.	10.	10.

	(INCHES)	3.332	4.149	4.149	4.149
	(AC-FT)	17.	21.	21.	21.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION BASIN1
FOR PLAN 1, RATIO = 2.23

TOTAL RAINFALL = 7.80, TOTAL LOSS = 2.94, TOTAL EXCESS = 4.86

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)				
			(CFS)			
+	149.	12.08	40.	12.	12.	12.
			(INCHES) 3.892	4.861	4.861	4.861
			(AC-FT) 20.	25.	25.	25.

CUMULATIVE AREA = 0.10 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

					RATIOS APPLIED TO PRECIPITATION					
OPERATION	STATION	AREA	PLAN		RATIO 1	RATIO 2	RATIO 3	RATIO 4	RATIO 5	RATIO 6
					1.00	1.31	1.51	1.77	2.00	2.23
HYDROGRAPH AT										
+	BASIN1	0.10	1	FLOW	40.	66.	84.	107.	128.	149.
				TIME	12.08	12.08	12.08	12.08	12.08	12.08

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

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY   1991                *
*          VERSION 4.0.1E               *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  03/15/01  TIME  08:34:48   *
*****************************************
```

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

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

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

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

1 HEC-1 INPUT PAGE 1

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

  1           ID  OVERALL DRAINAGE BASIN
              * proposed conditions
  2           IT       5 03JAN01    0000     300                    2000
  3           IO       3       0
  4           JR    PREC  1.0000  1.3143  1.5143  1.7714  2.0000  2.2286
              *DIAGRAM
              *

  5           KK     ALL
  6           BA   0.098
  7           PB     3.5
  8           IN      60
  9           PC       0   0.011   0.022   0.035   0.048   0.063   0.080   0.098   0.120   0.147
 10           PC   0.181   0.235   0.663   0.772   0.820   0.854   0.880   0.902   0.921   0.937
 11           PC   0.952   0.965   0.978   0.989   1.000
 12           UD     .20
 13           LS       0      85
              *

 14           KK   POND1
 15           RS       1    ELEV   141.0
 16           SA     7.7    10.7      11
 17           SE   141.0   144.0   146.0
 18           SL   142.0    3.14    0.67     0.5
 19           SS   143.2      30     2.8     1.5
              *
 20           ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

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

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

```
    5        ALL
               V
               V
   14       POND1

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY   1991                *
*          VERSION 4.0.1E               *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  03/15/01  TIME  08:34:48   *
*****************************************

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

                      OVERALL DRAINAGE BASIN

   3 IO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN          5  MINUTES IN COMPUTATION INTERVAL
                       IDATE     3JAN 1  STARTING DATE
                       ITIME       0000  STARTING TIME
                          NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE     4JAN 1  ENDING DATE
                      NDTIME       0055  ENDING TIME
                       ICENT         20  CENTURY MARK

                 COMPUTATION INTERVAL    0.08 HOURS
                      TOTAL TIME BASE   24.92 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

     JP          MULTI-PLAN OPTION
                       NPLAN          1  NUMBER OF PLANS

     JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                    1.00      1.31      1.51      1.77      2.00      2.23

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

            **************
            *            *
   5 KK     *       ALL  *
            *            *
            **************

   8 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN         60  TIME INTERVAL IN MINUTES
                      JXDATE     3JAN 1  STARTING DATE
                      JXTIME          0  STARTING TIME
```

```
              SUBBASIN RUNOFF DATA

     6 BA       SUBBASIN CHARACTERISTICS
                      TAREA        0.10  SUBBASIN AREA

                PRECIPITATION DATA

     7 PB             STORM        3.50  BASIN TOTAL PRECIPITATION

     9 PI         INCREMENTAL PRECIPITATION PATTERN
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.04     0.04     0.04     0.04     0.04     0.04     0.04     0.04
                    0.04     0.04     0.04     0.04     0.01     0.01     0.01     0.01     0.01     0.01
                    0.01     0.01     0.01     0.01     0.01     0.01     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00

    13 LS       SCS LOSS RATE
                      STRTL        0.35  INITIAL ABSTRACTION
                     CRVNBR       85.00  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

    12 UD       SCS DIMENSIONLESS UNITGRAPH
                       TLAG        0.20  LAG

                                                        ***

                                                     UNIT HYDROGRAPH
                                                14 END-OF-PERIOD ORDINATES
              48.      157.      195.      156.       87.       50.       28.       16.        9.        5.
               3.        2.        1.        0.

      TOTAL RAINFALL =    3.50, TOTAL LOSS =    1.48, TOTAL EXCESS =    2.02

    PEAK FLOW      TIME                           MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      24.92-HR
 +    (CFS)        (HR)
                                (CFS)
 +       68.      12.00                   17.          5.          5.          5.
                             (INCHES)   1.623       2.016       2.016       2.016
                              (AC-FT)      8.         11.         11.         11.

                              CUMULATIVE AREA =     0.10 SQ MI

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

HYDROGRAPH AT STATION ALL
FOR PLAN 1, RATIO = 1.00

TOTAL RAINFALL = 3.50, TOTAL LOSS = 1.48, TOTAL EXCESS = 2.02

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 68.	12.00	17.	5.	5.	5.
		(INCHES) 1.623	2.016	2.016	2.016
		(AC-FT) 8.	11.	11.	11.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION ALL
FOR PLAN 1, RATIO = 1.31

TOTAL RAINFALL = 4.60, TOTAL LOSS = 1.60, TOTAL EXCESS = 3.00

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 99.	12.00	25.	8.	8.	8.
		(INCHES) 2.396	3.000	3.000	3.000
		(AC-FT) 13.	16.	16.	16.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION ALL
FOR PLAN 1, RATIO = 1.51

TOTAL RAINFALL = 5.30, TOTAL LOSS = 1.65, TOTAL EXCESS = 3.65

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 119.	12.00	31.	10.	9.	9.
		(INCHES) 2.899	3.646	3.646	3.646
		(AC-FT) 15.	19.	19.	19.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION ALL
FOR PLAN 1, RATIO = 1.77

TOTAL RAINFALL = 6.20, TOTAL LOSS = 1.71, TOTAL EXCESS = 4.49

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 144.	12.00	37.	12.	11.	11.
		(INCHES) 3.553	4.491	4.491	4.491
		(AC-FT) 19.	23.	23.	23.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION ALL
FOR PLAN 1, RATIO = 2.00

TOTAL RAINFALL = 7.00, TOTAL LOSS = 1.75, TOTAL EXCESS = 5.25

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS)			
167.	12.00	44.	14.	13.	13.
		(INCHES) 4.136	5.253	5.253	5.253
		(AC-FT) 22.	27.	27.	27.

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION ALL
FOR PLAN 1, RATIO = 2.23

TOTAL RAINFALL = 7.80, TOTAL LOSS = 1.78, TOTAL EXCESS = 6.02

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS)			
190.	12.00	50.	16.	15.	15.
		(INCHES) 4.720	6.020	6.020	6.020
		(AC-FT) 25.	31.	31.	31.

CUMULATIVE AREA = 0.10 SQ MI

*** ***

```
**************
*            *
14 KK   *     POND1  *
*            *
**************
```

HYDROGRAPH ROUTING DATA

```
15 RS   STORAGE ROUTING
            NSTPS          1  NUMBER OF SUBREACHES
             ITYP       ELEV  TYPE OF INITIAL CONDITION
            RSVRIC     141.00  INITIAL CONDITION
                X        0.00 WORKING R AND D COEFFICIENT

16 SA       AREA         7.7      10.7      11.0

17 SE   ELEVATION      141.00    144.00    146.00

18 SL   LOW-LEVEL OUTLET
            ELEVL      142.00  ELEVATION AT CENTER OF OUTLET
            CAREA        3.14  CROSS-SECTIONAL AREA
             COQL        0.67  COEFFICIENT
             EXPL        0.50  EXPONENT OF HEAD

19 SS   SPILLWAY
             CREL      143.20  SPILLWAY CREST ELEVATION
            SPWID       30.00  SPILLWAY WIDTH
             COQW        2.80  WEIR COEFFICIENT
             EXPW        1.50  EXPONENT OF HEAD
```

***

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	27.48	49.18
ELEVATION	141.00	144.00	146.00

COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW	0.00	0.00	15.83	16.16	16.51	16.87	17.24	17.64	18.05	18.48
ELEVATION	141.00	142.00	142.88	142.92	142.96	143.00	143.04	143.09	143.14	143.20
OUTFLOW	19.78	24.32	34.22	51.55	78.36	116.72	168.72	236.42	321.92	427.31
ELEVATION	143.25	143.35	143.50	143.70	143.95	144.26	144.62	145.02	145.49	146.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	8.17	16.16	16.52	16.90	17.30	17.74	18.21	18.71	19.26
OUTFLOW	0.00	0.00	15.83	16.16	16.51	16.87	17.24	17.64	18.05	18.48
ELEVATION	141.00	142.00	142.88	142.92	142.96	143.00	143.04	143.09	143.14	143.20
STORAGE	19.75	20.72	22.23	24.30	26.97	27.48	30.24	34.09	38.52	43.55
OUTFLOW	19.78	24.32	34.22	51.55	78.36	83.97	116.73	168.72	236.42	321.92
ELEVATION	143.25	143.35	143.50	143.70	143.95	144.00	144.26	144.62	145.02	145.49
STORAGE	49.18									
OUTFLOW	427.31									
ELEVATION	146.00									

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

HYDROGRAPH AT STATION POND1
FOR PLAN 1, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 2.	22.33		2.	1.	1.	1.
		(INCHES)	0.198	0.266	0.266	0.266
		(AC-FT)	1.	1.	1.	1.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					
9.	22.25		9.	5.	4.	4.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)					
142.12	22.42		142.12	141.57	141.55	141.55

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION POND1
FOR PLAN 1, RATIO = 1.31

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 6.	16.17		6.	3.	3.	3.
		(INCHES)	0.578	1.057	1.057	1.057
		(AC-FT)	3.	6.	6.	6.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					

```
      11.     16.17                    11.          6.          6.          6.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR     24.92-HR
+   (FEET)      (HR)
     142.35     16.17                 142.34       141.71      141.69      141.69

                          CUMULATIVE AREA =    0.10 SQ MI

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

                          HYDROGRAPH AT STATION    POND1
                            FOR PLAN 1, RATIO = 1.51

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     24.92-HR
+   (CFS)       (HR)
                           (CFS)
+       10.     15.17                     9.          4.          4.          4.
                          (INCHES)     0.878       1.588       1.588       1.588
                          (AC-FT)          5.          8.          8.          8.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR       72-HR     24.92-HR
+ (AC-FT)       (HR)
         13.    15.08                    13.          7.          6.          6.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR     24.92-HR
+   (FEET)      (HR)
     142.55     15.17                 142.51       141.80      141.77      141.77

                          CUMULATIVE AREA =    0.10 SQ MI

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

                          HYDROGRAPH AT STATION    POND1
                            FOR PLAN 1, RATIO = 1.77

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     24.92-HR
+   (CFS)       (HR)
                           (CFS)
+       15.     14.25                    14.          6.          6.          6.
                          (INCHES)     1.287       2.284       2.284       2.284
                          (AC-FT)          7.         12.         12.         12.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR       72-HR     24.92-HR
+ (AC-FT)       (HR)
         16.    14.25                    15.          8.          7.          7.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR     24.92-HR
+   (FEET)      (HR)
     142.82     14.25                 142.75       141.91      141.88      141.88

                          CUMULATIVE AREA =    0.10 SQ MI

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

                          HYDROGRAPH AT STATION    POND1
                            FOR PLAN 1, RATIO = 2.00

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     24.92-HR
+   (CFS)       (HR)
                           (CFS)
```

+	18.	14.17		17.	8.	7.	7.
			(INCHES)	1.595	2.891	2.891	2.891
			(AC-FT)	8.	15.	15.	15.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					
18.	14.17		17.	9.	8.	8.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)					
143.08	14.25		143.00	142.03	141.99	141.99

CUMULATIVE AREA = 0.10 SQ MI

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

HYDROGRAPH AT STATION POND1
FOR PLAN 1, RATIO = 2.23

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 23.	13.67		20.	9.	9.	9.
		(INCHES)	1.891	3.485	3.485	3.485
		(AC-FT)	10.	18.	18.	18.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					
20.	13.67		19.	10.	10.	10.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)					
143.32	13.67		143.22	142.14	142.10	142.10

CUMULATIVE AREA = 0.10 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

					RATIOS APPLIED TO PRECIPITATION					
OPERATION	STATION	AREA	PLAN		RATIO 1	RATIO 2	RATIO 3	RATIO 4	RATIO 5	RATIO 6
					1.00	1.31	1.51	1.77	2.00	2.23
HYDROGRAPH AT										
+	ALL	0.10	1	FLOW	68.	99.	119.	144.	167.	190.
				TIME	12.00	12.00	12.00	12.00	12.00	12.00
ROUTED TO										
+	POND1	0.10	1	FLOW	2.	6.	10.	15.	18.	23.
				TIME	22.33	16.17	15.17	14.25	14.17	13.67
			** PEAK STAGES IN FEET **							
			1	STAGE	142.12	142.35	142.55	142.82	143.08	143.32
				TIME	22.42	16.17	15.17	14.25	14.25	13.67

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