APPENDIX B

HYDROLOGY CALCULATIONS

EXISTING CONDITION

```
****************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-99 Advanced Engineering Software (aes)
             Ver. 1.5A Release Date: 01/01/99  License ID 1435

                           Analysis prepared by:

                            THIENES ENGINEERING
                           16800 VALLEY VIEW AVENUE
                              LA MIRADA CA 90638
                     PH: (714) 521-4811 FAX: (714) 521-4173

 ************************** DESCRIPTION OF STUDY **************************
* TEI JN34066                                                              *
* EXISTING CONDITION (NODE 100-101)                                        *
* 100 YEAR STORM EVENT                                                     *
 ***************************************************************************

  FILE NAME: C:\XDRIVE\4066\X100.DAT
  TIME/DATE OF STUDY: 12:32 05/20/2022
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  2-YEAR, 1-HOUR PRECIPITATION(INCH) =  0.460
  100-YEAR, 1-HOUR PRECIPITATION(INCH) =  1.230
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.230
  SLOPE OF INTENSITY DURATION CURVE = 0.5000
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
```

```
  INITIAL SUBAREA FLOW-LENGTH =   760.00
  UPSTREAM ELEVATION =   1469.00
  DOWNSTREAM ELEVATION =   1466.50
  ELEVATION DIFFERENCE =      2.50
  TC = 0.533*[(  760.00**3)/(     2.50)]**.2 =   23.730
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.956
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5861
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =     10.80
  TOTAL AREA(ACRES) =      9.42   TOTAL RUNOFF(CFS) =     10.80
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =      9.42  TC(MIN.) =     23.73
  PEAK FLOW RATE(CFS)   =     10.80
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS

1
```

```
****************************************************************************
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                           Analysis prepared by:

                            THIENES ENGINEERING
                           16800 VALLEY VIEW AVENUE
                              LA MIRADA CA 90638
                     PH: (714) 521-4811 FAX: (714) 521-4173

 ************************** DESCRIPTION OF STUDY **************************
* TEI JN34066                                                              *
* EXISTING CONDITION (NODE 110-111)                                        *
* 100 YEAR STORM EVENT                                                     *
 ***************************************************************************

  FILE NAME: C:\XDRIVE\4066\X110.DAT
  TIME/DATE OF STUDY: 12:33 05/20/2022
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  2-YEAR, 1-HOUR PRECIPITATION(INCH) =  0.460
  100-YEAR, 1-HOUR PRECIPITATION(INCH) =  1.230
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.230
  SLOPE OF INTENSITY DURATION CURVE = 0.5000
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
```

```
  INITIAL SUBAREA FLOW-LENGTH =   722.00
  UPSTREAM ELEVATION =   1467.40
  DOWNSTREAM ELEVATION =   1465.60
  ELEVATION DIFFERENCE =      1.80
  TC = 0.533*[(  722.00**3)/(     1.80)]**.2 =   24.573
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.922
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5825
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      8.41
  TOTAL AREA(ACRES) =      7.51   TOTAL RUNOFF(CFS) =      8.41
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =      7.51  TC(MIN.) =     24.57
  PEAK FLOW RATE(CFS)   =      8.41
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

1

```
****************************************************************************
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             Ver. 1.5A Release Date: 01/01/99  License ID 1435

                           Analysis prepared by:

                            THIENES ENGINEERING
                           16800 VALLEY VIEW AVENUE
                              LA MIRADA CA 90638
                     PH: (714) 521-4811 FAX: (714) 521-4173

 ************************** DESCRIPTION OF STUDY **************************
* TEI JN34066                                                              *
* EXISTING CONDITION (NODE 200-201)                                        *
* 100 YEAR STORM EVENT                                                     *
 ***************************************************************************

  FILE NAME: C:\XDRIVE\4066\X200.DAT
  TIME/DATE OF STUDY: 12:18 05/20/2022
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  2-YEAR, 1-HOUR PRECIPITATION(INCH) =  0.460
  100-YEAR, 1-HOUR PRECIPITATION(INCH) =  1.230
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.230
  SLOPE OF INTENSITY DURATION CURVE = 0.5000
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
```

```
  INITIAL SUBAREA FLOW-LENGTH =   682.00
  UPSTREAM ELEVATION =   1467.70
  DOWNSTREAM ELEVATION =   1464.70
  ELEVATION DIFFERENCE =      3.00
  TC = 0.533*[(  682.00**3)/(     3.00)]**.2 =   21.441
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.058
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5964
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      5.71
  TOTAL AREA(ACRES) =      4.65   TOTAL RUNOFF(CFS) =      5.71
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =      4.65  TC(MIN.) =     21.44
  PEAK FLOW RATE(CFS)   =      5.71
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

1

PROPOSED CONDITION

```
****************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
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                     (RCFC&WCD)  1978 HYDROLOGY MANUAL
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                          Analysis prepared by:

                            THIENES ENGINEERING
                           16800 VALLEY VIEW AVENUE
                              LA MIRADA CA 90638
                   PH: (714) 521-4811 FAX: (714) 521-4173

 ************************* DESCRIPTION OF STUDY *************************
* TEI JN34066                                                           *
* PROPOSED CONDITION (NODE 100-207)                                     *
* 100 YEAR STORM EVENT                                                  *
 ************************************************************************

  FILE NAME: C:\XDRIVE\4066\P100.DAT
  TIME/DATE OF STUDY: 19:10 05/10/2022
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  2-YEAR, 1-HOUR PRECIPITATION(INCH) =  0.460
  100-YEAR, 1-HOUR PRECIPITATION(INCH) =  1.230
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.230
  SLOPE OF INTENSITY DURATION CURVE = 0.5000
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH =   336.00
  UPSTREAM ELEVATION =   1467.85
  DOWNSTREAM ELEVATION =   1464.74
  ELEVATION DIFFERENCE =      3.11
  TC = 0.303*[(  336.00**3)/(     3.11)]**.2 =    7.922
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.385
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8787
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      3.57
  TOTAL AREA(ACRES) =      1.20   TOTAL RUNOFF(CFS) =      3.57

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1461.15  DOWNSTREAM(FEET) =  1460.26
  FLOW LENGTH(FEET) =   441.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.06
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      3.57
  PIPE TRAVEL TIME(MIN.) =   2.40    Tc(MIN.) =  10.32
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =   777.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.966
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8560
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    2.45   SUBAREA RUNOFF(CFS) =    6.22
  TOTAL AREA(ACRES) =     3.65   TOTAL RUNOFF(CFS) =    9.79
  TC(MIN) =  10.32

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.966
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6651
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.10   SUBAREA RUNOFF(CFS) =    2.17
  TOTAL AREA(ACRES) =     4.75   TOTAL RUNOFF(CFS) =   11.96
  TC(MIN) =  10.32

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1460.26  DOWNSTREAM(FEET) =  1459.97
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  18.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.10
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     11.96
  PIPE TRAVEL TIME(MIN.) =   0.59    Tc(MIN.) =  10.91
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    103.00 =   922.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.884
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8760
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.15   SUBAREA RUNOFF(CFS) =    2.91
  TOTAL AREA(ACRES) =     5.90   TOTAL RUNOFF(CFS) =   14.86
  TC(MIN) =  10.91

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1459.97  DOWNSTREAM(FEET) =  1459.68
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  19.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.35
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     14.86
  PIPE TRAVEL TIME(MIN.) =   0.56    Tc(MIN.) =  11.47
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =  1067.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =  81
```

```
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.814
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8756
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.40   SUBAREA RUNOFF(CFS) =    3.45
  TOTAL AREA(ACRES) =     7.30   TOTAL RUNOFF(CFS) =   18.31
  TC(MIN) =  11.47

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1459.68  DOWNSTREAM(FEET) =  1459.39
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  23.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.49
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     18.31
  PIPE TRAVEL TIME(MIN.) =   0.54    Tc(MIN.) =  12.00
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    105.00 =  1212.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.750
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8752
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.15   SUBAREA RUNOFF(CFS) =    2.77
  TOTAL AREA(ACRES) =     8.45   TOTAL RUNOFF(CFS) =   21.08
  TC(MIN) =  12.00

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1459.39  DOWNSTREAM(FEET) =  1459.10
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  23.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.72
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     21.08
  PIPE TRAVEL TIME(MIN.) =   0.51    Tc(MIN.) =  12.52
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    106.00 =  1357.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.693
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8748
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.40   SUBAREA RUNOFF(CFS) =    3.30
  TOTAL AREA(ACRES) =     9.85   TOTAL RUNOFF(CFS) =   24.38
  TC(MIN) =  12.52

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1459.10  DOWNSTREAM(FEET) =  1458.81
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  26.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.79
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     24.38
  PIPE TRAVEL TIME(MIN.) =   0.50    Tc(MIN.) =  13.02
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =  1502.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.640
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8744
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.35   SUBAREA RUNOFF(CFS) =    5.43
  TOTAL AREA(ACRES) =    12.20   TOTAL RUNOFF(CFS) =   29.81
  TC(MIN) =  13.02

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    204.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1458.81  DOWNSTREAM(FEET) =  1458.33
  FLOW LENGTH(FEET) =   239.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  27.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.08
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
```

```
  PIPE-FLOW(CFS) =     29.81
  PIPE TRAVEL TIME(MIN.) =   0.78    Tc(MIN.) =  13.81
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    204.00 =  1741.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    204.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  13.81
  RAINFALL INTENSITY(INCH/HR) =   2.56
  TOTAL STREAM AREA(ACRES) =   12.20
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     29.81

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH =   269.00
  UPSTREAM ELEVATION =   1468.24
  DOWNSTREAM ELEVATION =   1466.39
  ELEVATION DIFFERENCE =      1.85
  TC = 0.303*[(  269.00**3)/(     1.85)]**.2 =    7.691
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.435
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8790
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      5.89
  TOTAL AREA(ACRES) =      1.95   TOTAL RUNOFF(CFS) =      5.89

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1462.28  DOWNSTREAM(FEET) =  1461.15
  FLOW LENGTH(FEET) =   377.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.92
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      5.89
  PIPE TRAVEL TIME(MIN.) =   1.60    Tc(MIN.) =   9.30
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =   646.00 FEET.

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

```
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.125
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8774
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.10   SUBAREA RUNOFF(CFS) =    3.02
  TOTAL AREA(ACRES) =     3.05   TOTAL RUNOFF(CFS) =    8.90
  TC(MIN) =   9.30

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1461.15  DOWNSTREAM(FEET) =  1460.26
  FLOW LENGTH(FEET) =   296.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  16.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.35
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      8.90
  PIPE TRAVEL TIME(MIN.) =   1.14    Tc(MIN.) =  10.43
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =   942.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.950
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8764
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.45   SUBAREA RUNOFF(CFS) =    3.75
  TOTAL AREA(ACRES) =     4.50   TOTAL RUNOFF(CFS) =   12.65
  TC(MIN) =  10.43

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    204.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1460.26  DOWNSTREAM(FEET) =  1458.33
  FLOW LENGTH(FEET) =   642.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  19.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.75
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     12.65
  PIPE TRAVEL TIME(MIN.) =   2.25    Tc(MIN.) =  12.68
```

```
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    204.00 =  1584.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    204.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  12.68
  RAINFALL INTENSITY(INCH/HR) =   2.68
  TOTAL STREAM AREA(ACRES) =    4.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     12.65

  ** CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY      AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)    (ACRE)
      1       29.81    13.81        2.564         12.20
      2       12.65    12.68        2.675          4.50

 *********************************WARNING*********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ***************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       40.04    12.68       2.675
      2       41.93    13.81       2.564

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     41.93   Tc(MIN.) =   13.81
  TOTAL AREA(ACRES) =     16.70
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    204.00 =  1741.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    205.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1458.33  DOWNSTREAM(FEET) =  1457.95
  FLOW LENGTH(FEET) =   185.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  30.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.64
```

```
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     41.93
  PIPE TRAVEL TIME(MIN.) =   0.55    Tc(MIN.) =  14.35
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    205.00 =  1926.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    205.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.515
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8735
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.85   SUBAREA RUNOFF(CFS) =    4.06
  TOTAL AREA(ACRES) =    18.55   TOTAL RUNOFF(CFS) =   46.00
  TC(MIN) =  14.35

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    205.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.515
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8735
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.95   SUBAREA RUNOFF(CFS) =    2.09
  TOTAL AREA(ACRES) =    19.50   TOTAL RUNOFF(CFS) =   48.08
  TC(MIN) =  14.35

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    206.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1457.95  DOWNSTREAM(FEET) =  1457.50
  FLOW LENGTH(FEET) =   224.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  31.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.81
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     48.08
  PIPE TRAVEL TIME(MIN.) =   0.64    Tc(MIN.) =  15.00
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    206.00 =  2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    206.00 TO NODE    206.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.460
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8731
```

```
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.30   SUBAREA RUNOFF(CFS) =    2.79
  TOTAL AREA(ACRES) =    20.80   TOTAL RUNOFF(CFS) =   50.88
  TC(MIN) =  15.00

****************************************************************************
  FLOW PROCESS FROM NODE    206.00 TO NODE    206.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.460
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8731
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.85   SUBAREA RUNOFF(CFS) =    1.83
  TOTAL AREA(ACRES) =    21.65   TOTAL RUNOFF(CFS) =   52.70
  TC(MIN) =  15.00

****************************************************************************
  FLOW PROCESS FROM NODE    206.00 TO NODE    207.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1457.50  DOWNSTREAM(FEET) =  1457.06
  FLOW LENGTH(FEET) =   222.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  34.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.84
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     52.70
  PIPE TRAVEL TIME(MIN.) =   0.63    Tc(MIN.) =  15.63
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    207.00 =  2372.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =     21.65  TC(MIN.) =     15.63
  PEAK FLOW RATE(CFS)   =     52.70
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX C

DETENTION CALCULATIONS

10-YEAR

EXISTING CONDITION

```
        U n i t   H y d r o g r a p h   A n a l y s i s

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----------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6400

-------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



-------------------------------------------------------------------
HARLEY KNOX INDUSTRIAL DEVELOPMENT
EXISTING CONDITION
10-YEAR

------------------------------------------------------------------
Drainage Area =      21.65(Ac.)  =      0.034 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      21.65(Ac.)  =      0.034 Sq. Mi.
Length along longest watercourse =     725.00(Ft.)
Length along longest watercourse measured to centroid =     435.00(Ft.)
Length along longest watercourse =      0.137 Mi.
Length along longest watercourse measured to centroid =      0.082 Mi.
Difference in elevation =       2.80(Ft.)
Slope along watercourse =     20.3917 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.074 Hr.
Lag time =     4.44 Min.
25% of lag time =     1.11 Min.
40% of lag time =     1.77 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            0.46                    9.96

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            1.23                   26.63

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.460(In)
Area Averaged 100-Year Rainfall =    1.230(In)

Point rain (area averaged) =    0.777(In)
Areal adjustment factor =   99.98 %
Adjusted average point rain =    0.777(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    21.650           76.00         0.000
 Total Area Entered =     21.65(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
76.0  76.0      0.291     0.000        0.291       1.000      0.291
                                                 Sum (F) =   0.291
```

```
Area averaged mean soil loss (F) (In/Hr) =  0.291
Minimum soil loss rate ((In/Hr)) =  0.146
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
---------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.5000
----------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                         VALLEY S-Curve
---------------------------------------------------------------------
                Unit Hydrograph Data
---------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                            Graph %            (CFS)
---------------------------------------------------------------------
    1   0.083        112.702         23.048              5.029
    2   0.167        225.403         48.848             10.658
    3   0.250        338.105         14.006              3.056
    4   0.333        450.806          6.406              1.398
    5   0.417        563.508          3.560              0.777
    6   0.500        676.209          2.174              0.474
    7   0.583        788.911          1.283              0.280
    8   0.667        901.612          0.674              0.147
                                Sum = 100.000   Sum=      21.819
---------------------------------------------------------------------


 The following loss rate calculations reflect use of the minimum calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective Rain value

  Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
       (Hr.)  Percent   (In/Hr)         Max   |   Low        (In/Hr)
   1   0.08     4.20      0.391          0.291    (  0.352)        0.100
   2   0.17     4.30      0.401          0.291    (  0.361)        0.110
   3   0.25     5.00      0.466          0.291    (  0.419)        0.175
   4   0.33     5.00      0.466          0.291    (  0.419)        0.175
   5   0.42     5.80      0.541          0.291    (  0.486)        0.249
   6   0.50     6.50      0.606          0.291    (  0.545)        0.315
   7   0.58     7.40      0.690          0.291    (  0.621)        0.398
   8   0.67     8.60      0.801          0.291    (  0.721)        0.510
   9   0.75    12.30      1.146          0.291    (  1.032)        0.855
  10   0.83    29.10      2.712          0.291    (  2.441)        2.421
  11   0.92     6.80      0.634          0.291    (  0.570)        0.343
  12   1.00     5.00      0.466          0.291    (  0.419)        0.175
                (Loss Rate Not Used)
     Sum =     100.0                                  Sum =     5.8
        Flood volume = Effective rainfall      0.49(In)
         times area      21.6(Ac.)/[(In)/(Ft.)] =       0.9(Ac.Ft)
        Total soil loss =      0.29(In)
        Total soil loss =     0.525(Ac.Ft)
        Total rainfall =      0.78(In)
        Flood volume =       38149.8 Cubic Feet
        Total soil loss =       22885.3 Cubic Feet
        ---------------------------------------------------------------------
         Peak flow rate of this hydrograph =     31.421(CFS)
        ---------------------------------------------------------------------
        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                            1 - H O U R    S T O R M
                       R u n o f f     H y d r o g r a p h
        ---------------------------------------------------------------------
                    Hydrograph in   5   Minute intervals ((CFS))

        ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0       10.0      20.0      30.0      40.0
  ---------------------------------------------------------------------
    0+ 5       0.0035      0.50  Q         |         |         |         |
    0+10       0.0146      1.62  VQ        |         |         |         |
    0+15       0.0308      2.35  |VQ       |         |         |         |
    0+20       0.0530      3.22  | VQ      |         |         |         |
    0+25       0.0798      3.88  |  Q      |         |         |         |
    0+30       0.1152      5.15  |    Q    |         |         |         |
    0+35       0.1606      6.58  |     QV  |         |         |         |
    0+40       0.2184      8.39  |       QV|         |         |         |
    0+45       0.2992     11.74  |         |Q V      |         |         |
    0+50       0.4635     23.85  |         |         |V Q      |         |
    0+55       0.6799     31.42  |         |         |         |Q        |
```

```
    1+ 0       0.7752     13.84  |         |  Q      |         |    V    |
    1+ 5       0.8259      7.36  |      Q  |         |         |      V  |
    1+10       0.8501      3.50  |  Q      |         |         |       V |
    1+15       0.8637      1.97  |Q        |         |         |        V|
    1+20       0.8713      1.10  |Q        |         |         |        V|
    1+25       0.8749      0.54  Q         |         |         |        V|
    1+30       0.8756      0.10  Q         |         |         |        V|
    1+35       0.8758      0.03  Q         |         |         |         V
-------------------------------------------------------------------
```

```
        U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  02/14/22 File: 4066EX10310.out


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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6400

-------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



-------------------------------------------------------------------
HARLEY KNOX INDUSTRIAL DEVELOPMENT
EXISTING CONDITION
10-YEAR

------------------------------------------------------------------
Drainage Area =      21.65(Ac.)  =      0.034 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      21.65(Ac.)  =      0.034 Sq. Mi.
Length along longest watercourse =     725.00(Ft.)
Length along longest watercourse measured to centroid =     435.00(Ft.)
Length along longest watercourse =      0.137 Mi.
Length along longest watercourse measured to centroid =      0.082 Mi.
Difference in elevation =       2.80(Ft.)
Slope along watercourse =     20.3917 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.074 Hr.
Lag time =     4.44 Min.
25% of lag time =     1.11 Min.
40% of lag time =     1.77 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            0.80                  17.32

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            1.90                  41.13

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.800(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.253(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.252(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    21.650           76.00         0.000
 Total Area Entered =     21.65(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
76.0  76.0      0.291     0.000        0.291       1.000      0.291
                                                 Sum (F) =   0.291
```

Area averaged mean soil loss (F) (In/Hr) = 0.291
Minimum soil loss rate ((In/Hr)) = 0.146
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	112.702	23.048	5.029
2	0.167	225.403	48.848	10.658
3	0.250	338.105	14.006	3.056
4	0.333	450.806	6.406	1.398
5	0.417	563.508	3.560	0.777
6	0.500	676.209	2.174	0.474
7	0.583	788.911	1.283	0.280
8	0.667	901.612	0.674	0.147
		Sum =	100.000	Sum= 21.819

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.195	(0.291)	0.176	0.020
2	0.17	1.30	0.195	(0.291)	0.176	0.020
3	0.25	1.10	0.165	(0.291)	0.149	0.017
4	0.33	1.50	0.225	(0.291)	0.203	0.023
5	0.42	1.50	0.225	(0.291)	0.203	0.023
6	0.50	1.80	0.271	(0.291)	0.243	0.027
7	0.58	1.50	0.225	(0.291)	0.203	0.023
8	0.67	1.80	0.271	(0.291)	0.243	0.027
9	0.75	1.80	0.271	(0.291)	0.243	0.027
10	0.83	1.50	0.225	(0.291)	0.203	0.023
11	0.92	1.60	0.240	(0.291)	0.216	0.024
12	1.00	1.80	0.271	(0.291)	0.243	0.027
13	1.08	2.20	0.331	0.291	(0.298)	0.039
14	1.17	2.20	0.331	0.291	(0.298)	0.039
15	1.25	2.20	0.331	0.291	(0.298)	0.039
16	1.33	2.00	0.301	(0.291)	0.271	0.030
17	1.42	2.60	0.391	0.291	(0.352)	0.100
18	1.50	2.70	0.406	0.291	(0.365)	0.115
19	1.58	2.40	0.361	0.291	(0.325)	0.069
20	1.67	2.70	0.406	0.291	(0.365)	0.115
21	1.75	3.30	0.496	0.291	(0.446)	0.205
22	1.83	3.10	0.466	0.291	(0.419)	0.175
23	1.92	2.90	0.436	0.291	(0.392)	0.145
24	2.00	3.00	0.451	0.291	(0.406)	0.160
25	2.08	3.10	0.466	0.291	(0.419)	0.175
26	2.17	4.20	0.631	0.291	(0.568)	0.340
27	2.25	5.00	0.751	0.291	(0.676)	0.460
28	2.33	3.50	0.526	0.291	(0.473)	0.235
29	2.42	6.80	1.022	0.291	(0.920)	0.731
30	2.50	7.30	1.097	0.291	(0.987)	0.806
31	2.58	8.20	1.232	0.291	(1.109)	0.941
32	2.67	5.90	0.887	0.291	(0.798)	0.596
33	2.75	2.00	0.301	(0.291)	0.271	0.030
34	2.83	1.80	0.271	(0.291)	0.243	0.027
35	2.92	1.80	0.271	(0.291)	0.243	0.027
36	3.00	0.60	0.090	(0.291)	0.081	0.009
		(Loss Rate Not Used)			
Sum =		100.0			Sum = 5.9

Flood volume = Effective rainfall 0.49(In)
times area 21.6(Ac.)/[(In)/(Ft.)] = 0.9(Ac.Ft)
Total soil loss = 0.76(In)
Total soil loss = 1.375(Ac.Ft)
Total rainfall = 1.25(In)
Flood volume = 38540.7 Cubic Feet
Total soil loss = 59887.2 Cubic Feet

```
 Peak flow rate of this hydrograph =     17.041(CFS)
      ------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

      ------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
  ---------------------------------------------------------------------
    0+ 5       0.0007      0.10  Q         |         |         |         |
    0+10       0.0028      0.31  Q         |         |         |         |
    0+15       0.0052      0.35  Q         |         |         |         |
    0+20       0.0078      0.38  Q         |         |         |         |
    0+25       0.0109      0.45  Q         |         |         |         |
    0+30       0.0143      0.49  Q         |         |         |         |
    0+35       0.0179      0.53  VQ        |         |         |         |
    0+40       0.0215      0.52  VQ        |         |         |         |
    0+45       0.0254      0.57  |Q        |         |         |         |
    0+50       0.0293      0.56  |Q        |         |         |         |
    0+55       0.0329      0.52  |Q        |         |         |         |
    1+ 0       0.0366      0.54  |Q        |         |         |         |
    1+ 5       0.0410      0.64  |Q        |         |         |         |
    1+10       0.0463      0.78  |QV       |         |         |         |
    1+15       0.0520      0.82  |QV       |         |         |         |
    1+20       0.0574      0.79  |QV       |         |         |         |
    1+25       0.0647      1.05  | Q       |         |         |         |
    1+30       0.0774      1.85  |  Q      |         |         |         |
    1+35       0.0910      1.98  |  QV     |         |         |         |
    1+40       0.1039      1.87  |  QV     |         |         |         |
    1+45       0.1227      2.73  |    Q    |         |         |         |
    1+50       0.1479      3.66  |     VQ  |         |         |         |
    1+55       0.1721      3.52  |      Q  |         |         |         |
    2+ 0       0.1951      3.34  |     Q V |         |         |         |
    2+ 5       0.2193      3.52  |      Q V|         |         |         |
    2+10       0.2506      4.54  |        Q|V        |         |         |
    2+15       0.2986      6.97  |         |  Q      |         |         |
    2+20       0.3512      7.65  |         |    Q    |         |         |
    2+25       0.4087      8.34  |         |     Q V |         |         |
    2+30       0.5025     13.62  |         |         | V    Q  |         |
    2+35       0.6160     16.48  |         |         |      V  | Q       |
    2+40       0.7334     17.04  |         |         |         |  VQ     |
    2+45       0.8117     11.36  |         |         | Q       |     V   |
    2+50       0.8440      4.70  |        Q|         |         |       V |
    2+55       0.8627      2.70  |    Q    |         |         |        V|
    3+ 0       0.8744      1.70  |  Q      |         |         |        V|
    3+ 5       0.8806      0.91  |Q        |         |         |        V|
    3+10       0.8834      0.41  Q         |         |         |        V|
    3+15       0.8844      0.14  Q         |         |         |        V|
    3+20       0.8846      0.03  Q         |         |         |        V|
    3+25       0.8847      0.02  Q         |         |         |        V|
    3+30       0.8848      0.01  Q         |         |         |        V|
    3+35       0.8848      0.00  Q         |         |         |         V
---------------------------------------------------------------------
```

```
        U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  02/14/22 File: 4066EX10610.out


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
----------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6400

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
HARLEY KNOX INDUSTRIAL DEVELOPMENT
EXISTING CONDITION
10-YEAR

--------------------------------------------------------------------
Drainage Area =      21.65(Ac.)  =      0.034 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      21.65(Ac.)  =      0.034 Sq. Mi.
Length along longest watercourse =     725.00(Ft.)
Length along longest watercourse measured to centroid =     435.00(Ft.)
Length along longest watercourse =      0.137 Mi.
Length along longest watercourse measured to centroid =      0.082 Mi.
Difference in elevation =       2.80(Ft.)
Slope along watercourse =     20.3917 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.074 Hr.
Lag time =     4.44 Min.
25% of lag time =     1.11 Min.
40% of lag time =     1.77 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            1.00                   21.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            2.50                   54.13

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    1.000(In)
Area Averaged 100-Year Rainfall =    2.500(In)

Point rain (area averaged) =    1.617(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.617(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    21.650           76.00         0.000
 Total Area Entered =     21.65(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
76.0  76.0      0.291     0.000        0.291       1.000      0.291
                                                 Sum (F) =   0.291
```

Area averaged mean soil loss (F) (In/Hr) = 0.291
Minimum soil loss rate ((In/Hr)) = 0.146
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	112.702	23.048	5.029
2	0.167	225.403	48.848	10.658
3	0.250	338.105	14.006	3.056
4	0.333	450.806	6.406	1.398
5	0.417	563.508	3.560	0.777
6	0.500	676.209	2.174	0.474
7	0.583	788.911	1.283	0.280
8	0.667	901.612	0.674	0.147
			Sum = 100.000	Sum= 21.819

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	0.50	0.097	(0.291)	0.087	0.010
2 0.17	0.60	0.116	(0.291)	0.105	0.012
3 0.25	0.60	0.116	(0.291)	0.105	0.012
4 0.33	0.60	0.116	(0.291)	0.105	0.012
5 0.42	0.60	0.116	(0.291)	0.105	0.012
6 0.50	0.70	0.136	(0.291)	0.122	0.014
7 0.58	0.70	0.136	(0.291)	0.122	0.014
8 0.67	0.70	0.136	(0.291)	0.122	0.014
9 0.75	0.70	0.136	(0.291)	0.122	0.014
10 0.83	0.70	0.136	(0.291)	0.122	0.014
11 0.92	0.70	0.136	(0.291)	0.122	0.014
12 1.00	0.80	0.155	(0.291)	0.140	0.016
13 1.08	0.80	0.155	(0.291)	0.140	0.016
14 1.17	0.80	0.155	(0.291)	0.140	0.016
15 1.25	0.80	0.155	(0.291)	0.140	0.016
16 1.33	0.80	0.155	(0.291)	0.140	0.016
17 1.42	0.80	0.155	(0.291)	0.140	0.016
18 1.50	0.80	0.155	(0.291)	0.140	0.016
19 1.58	0.80	0.155	(0.291)	0.140	0.016
20 1.67	0.80	0.155	(0.291)	0.140	0.016
21 1.75	0.80	0.155	(0.291)	0.140	0.016
22 1.83	0.80	0.155	(0.291)	0.140	0.016
23 1.92	0.80	0.155	(0.291)	0.140	0.016
24 2.00	0.90	0.175	(0.291)	0.157	0.017
25 2.08	0.80	0.155	(0.291)	0.140	0.016
26 2.17	0.90	0.175	(0.291)	0.157	0.017
27 2.25	0.90	0.175	(0.291)	0.157	0.017
28 2.33	0.90	0.175	(0.291)	0.157	0.017
29 2.42	0.90	0.175	(0.291)	0.157	0.017
30 2.50	0.90	0.175	(0.291)	0.157	0.017
31 2.58	0.90	0.175	(0.291)	0.157	0.017
32 2.67	0.90	0.175	(0.291)	0.157	0.017
33 2.75	1.00	0.194	(0.291)	0.175	0.019
34 2.83	1.00	0.194	(0.291)	0.175	0.019
35 2.92	1.00	0.194	(0.291)	0.175	0.019
36 3.00	1.00	0.194	(0.291)	0.175	0.019
37 3.08	1.00	0.194	(0.291)	0.175	0.019
38 3.17	1.10	0.213	(0.291)	0.192	0.021
39 3.25	1.10	0.213	(0.291)	0.192	0.021
40 3.33	1.10	0.213	(0.291)	0.192	0.021
41 3.42	1.20	0.233	(0.291)	0.210	0.023
42 3.50	1.30	0.252	(0.291)	0.227	0.025
43 3.58	1.40	0.272	(0.291)	0.244	0.027
44 3.67	1.40	0.272	(0.291)	0.244	0.027
45 3.75	1.50	0.291	(0.291)	0.262	0.029
46 3.83	1.50	0.291	(0.291)	0.262	0.029

```
47   3.92     1.60      0.310       (  0.291)       0.279        0.031
48   4.00     1.60      0.310       (  0.291)       0.279        0.031
49   4.08     1.70      0.330          0.291    (  0.297)        0.039
50   4.17     1.80      0.349          0.291    (  0.314)        0.058
51   4.25     1.90      0.369          0.291    (  0.332)        0.077
52   4.33     2.00      0.388          0.291    (  0.349)        0.097
53   4.42     2.10      0.407          0.291    (  0.367)        0.116
54   4.50     2.10      0.407          0.291    (  0.367)        0.116
55   4.58     2.20      0.427          0.291    (  0.384)        0.136
56   4.67     2.30      0.446          0.291    (  0.402)        0.155
57   4.75     2.40      0.466          0.291    (  0.419)        0.174
58   4.83     2.40      0.466          0.291    (  0.419)        0.174
59   4.92     2.50      0.485          0.291    (  0.437)        0.194
60   5.00     2.60      0.505          0.291    (  0.454)        0.213
61   5.08     3.10      0.602          0.291    (  0.541)        0.310
62   5.17     3.60      0.699          0.291    (  0.629)        0.407
63   5.25     3.90      0.757          0.291    (  0.681)        0.466
64   5.33     4.20      0.815          0.291    (  0.733)        0.524
65   5.42     4.70      0.912          0.291    (  0.821)        0.621
66   5.50     5.60      1.087          0.291    (  0.978)        0.795
67   5.58     1.90      0.369          0.291    (  0.332)        0.077
68   5.67     0.90      0.175       (  0.291)       0.157        0.017
69   5.75     0.60      0.116       (  0.291)       0.105        0.012
70   5.83     0.50      0.097       (  0.291)       0.087        0.010
71   5.92     0.30      0.058       (  0.291)       0.052        0.006
72   6.00     0.20      0.039       (  0.291)       0.035        0.004
               (Loss Rate Not Used)
   Sum =     100.0                                   Sum =     5.7
      Flood volume = Effective rainfall      0.47(In)
       times area      21.6(Ac.)/[(In)/(Ft.)] =       0.9(Ac.Ft)
      Total soil loss =      1.15(In)
      Total soil loss =     2.066(Ac.Ft)
      Total rainfall =      1.62(In)
      Flood volume =       37089.3 Cubic Feet
      Total soil loss =       89989.2 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     13.427(CFS)
      ---------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-----------------------------------------------------------------------
  0+ 5       0.0003      0.05  Q         |         |         |         |
  0+10       0.0015      0.16  Q         |         |         |         |
  0+15       0.0029      0.21  Q         |         |         |         |
  0+20       0.0045      0.23  Q         |         |         |         |
  0+25       0.0062      0.24  Q         |         |         |         |
  0+30       0.0080      0.26  Q         |         |         |         |
  0+35       0.0099      0.28  Q         |         |         |         |
  0+40       0.0119      0.29  Q         |         |         |         |
  0+45       0.0139      0.29  Q         |         |         |         |
  0+50       0.0160      0.29  Q         |         |         |         |
  0+55       0.0180      0.30  Q         |         |         |         |
  1+ 0       0.0201      0.31  Q         |         |         |         |
  1+ 5       0.0223      0.33  QV        |         |         |         |
  1+10       0.0246      0.33  QV        |         |         |         |
  1+15       0.0269      0.34  QV        |         |         |         |
  1+20       0.0293      0.34  QV        |         |         |         |
  1+25       0.0316      0.34  QV        |         |         |         |
  1+30       0.0339      0.34  QV        |         |         |         |
  1+35       0.0363      0.34  QV        |         |         |         |
  1+40       0.0386      0.34  QV        |         |         |         |
  1+45       0.0409      0.34  QV        |         |         |         |
  1+50       0.0433      0.34  Q V       |         |         |         |
  1+55       0.0456      0.34  Q V       |         |         |         |
  2+ 0       0.0480      0.35  Q V       |         |         |         |
  2+ 5       0.0505      0.36  Q V       |         |         |         |
  2+10       0.0529      0.35  Q V       |         |         |         |
  2+15       0.0555      0.37  Q V       |         |         |         |
  2+20       0.0581      0.38  Q V       |         |         |         |
  2+25       0.0607      0.38  Q V       |         |         |         |
  2+30       0.0633      0.38  Q V       |         |         |         |
```

```
   2+35       0.0659      0.38  Q  V      |         |         |         |
   2+40       0.0685      0.38  Q  V      |         |         |         |
   2+45       0.0712      0.39  Q  V      |         |         |         |
   2+50       0.0741      0.41  Q  V      |         |         |         |
   2+55       0.0770      0.42  Q  V      |         |         |         |
   3+ 0       0.0798      0.42  Q  V      |         |         |         |
   3+ 5       0.0828      0.42  Q  V      |         |         |         |
   3+10       0.0857      0.43  Q   V     |         |         |         |
   3+15       0.0889      0.45  Q   V     |         |         |         |
   3+20       0.0920      0.46  Q   V     |         |         |         |
   3+25       0.0953      0.47  Q   V     |         |         |         |
   3+30       0.0988      0.50  |Q  V     |         |         |         |
   3+35       0.1025      0.54  |Q  V     |         |         |         |
   3+40       0.1064      0.57  |Q  V     |         |         |         |
   3+45       0.1105      0.59  |Q   V    |         |         |         |
   3+50       0.1148      0.62  |Q   V    |         |         |         |
   3+55       0.1191      0.64  |Q   V    |         |         |         |
   4+ 0       0.1237      0.66  |Q   V    |         |         |         |
   4+ 5       0.1286      0.71  |Q    V   |         |         |         |
   4+10       0.1347      0.89  |Q    V   |         |         |         |
   4+15       0.1431      1.22  | Q   V   |         |         |         |
   4+20       0.1541      1.60  |  Q   V  |         |         |         |
   4+25       0.1678      1.99  |  Q   V  |         |         |         |
   4+30       0.1837      2.31  |   Q   V |         |         |         |
   4+35       0.2011      2.52  |    Q   V|         |         |         |
   4+40       0.2209      2.88  |    Q    V         |         |         |
   4+45       0.2434      3.28  |     Q   |V        |         |         |
   4+50       0.2682      3.59  |      Q  | V       |         |         |
   4+55       0.2943      3.79  |      Q  |  V      |         |         |
   5+ 0       0.3229      4.15  |       Q |    V    |         |         |
   5+ 5       0.3569      4.94  |        Q|     V   |         |         |
   5+10       0.4021      6.56  |         |  Q    V |         |         |
   5+15       0.4588      8.24  |         |     Q   |V        |         |
   5+20       0.5250      9.61  |         |        Q|   V     |         |
   5+25       0.6016     11.12  |         |         | Q     V |         |
   5+30       0.6941     13.43  |         |         |     Q   | V       |
   5+35       0.7780     12.18  |         |         |   Q     |     V   |
   5+40       0.8124      5.00  |         Q         |         |       V |
   5+45       0.8297      2.52  |    Q    |         |         |       V |
   5+50       0.8398      1.46  | Q       |         |         |        V|
   5+55       0.8459      0.88  |Q        |         |         |        V|
   6+ 0       0.8493      0.49  Q         |         |         |        V|
   6+ 5       0.8509      0.23  Q         |         |         |        V|
   6+10       0.8512      0.05  Q         |         |         |        V|
   6+15       0.8513      0.02  Q         |         |         |        V|
   6+20       0.8514      0.01  Q         |         |         |        V|
   6+25       0.8514      0.00  Q         |         |         |        V|
   6+30       0.8515      0.00  Q         |         |         |        V|
   6+35       0.8515      0.00  Q         |         |         |        V|
-----------------------------------------------------------------------
```

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        U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  02/14/22 File: 4066EX102410.out


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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6400

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
HARLEY KNOX INDUSTRIAL DEVELOPMENT
EXISTING CONDITION
10-YEAR

--------------------------------------------------------------------
Drainage Area =      21.65(Ac.)  =      0.034 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      21.65(Ac.)  =      0.034 Sq. Mi.
Length along longest watercourse =     725.00(Ft.)
Length along longest watercourse measured to centroid =     435.00(Ft.)
Length along longest watercourse =      0.137 Mi.
Length along longest watercourse measured to centroid =      0.082 Mi.
Difference in elevation =       2.80(Ft.)
Slope along watercourse =     20.3917 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.074 Hr.
Lag time =     4.44 Min.
25% of lag time =     1.11 Min.
40% of lag time =     1.77 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            1.60                   34.64

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            4.25                   92.01

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    1.600(In)
Area Averaged 100-Year Rainfall =    4.250(In)

Point rain (area averaged) =    2.690(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.690(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    21.650           76.00         0.000
 Total Area Entered =     21.65(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
76.0  76.0      0.291     0.000        0.291       1.000      0.291
                                                 Sum (F) =   0.291
```

Area averaged mean soil loss (F) (In/Hr) = 0.291
Minimum soil loss rate ((In/Hr)) = 0.146
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	112.702	23.048	5.029
2	0.167	225.403	48.848	10.658
3	0.250	338.105	14.006	3.056
4	0.333	450.806	6.406	1.398
5	0.417	563.508	3.560	0.777
6	0.500	676.209	2.174	0.474
7	0.583	788.911	1.283	0.280
8	0.667	901.612	0.674	0.147
			Sum = 100.000	Sum= 21.819

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.022	(0.516)	0.019	0.002
2	0.17	0.07	0.022	(0.514)	0.019	0.002
3	0.25	0.07	0.022	(0.512)	0.019	0.002
4	0.33	0.10	0.032	(0.510)	0.029	0.003
5	0.42	0.10	0.032	(0.508)	0.029	0.003
6	0.50	0.10	0.032	(0.506)	0.029	0.003
7	0.58	0.10	0.032	(0.504)	0.029	0.003
8	0.67	0.10	0.032	(0.502)	0.029	0.003
9	0.75	0.10	0.032	(0.500)	0.029	0.003
10	0.83	0.13	0.043	(0.498)	0.039	0.004
11	0.92	0.13	0.043	(0.496)	0.039	0.004
12	1.00	0.13	0.043	(0.494)	0.039	0.004
13	1.08	0.10	0.032	(0.493)	0.029	0.003
14	1.17	0.10	0.032	(0.491)	0.029	0.003
15	1.25	0.10	0.032	(0.489)	0.029	0.003
16	1.33	0.10	0.032	(0.487)	0.029	0.003
17	1.42	0.10	0.032	(0.485)	0.029	0.003
18	1.50	0.10	0.032	(0.483)	0.029	0.003
19	1.58	0.10	0.032	(0.481)	0.029	0.003
20	1.67	0.10	0.032	(0.479)	0.029	0.003
21	1.75	0.10	0.032	(0.477)	0.029	0.003
22	1.83	0.13	0.043	(0.475)	0.039	0.004
23	1.92	0.13	0.043	(0.473)	0.039	0.004
24	2.00	0.13	0.043	(0.471)	0.039	0.004
25	2.08	0.13	0.043	(0.469)	0.039	0.004
26	2.17	0.13	0.043	(0.467)	0.039	0.004
27	2.25	0.13	0.043	(0.466)	0.039	0.004
28	2.33	0.13	0.043	(0.464)	0.039	0.004
29	2.42	0.13	0.043	(0.462)	0.039	0.004
30	2.50	0.13	0.043	(0.460)	0.039	0.004
31	2.58	0.17	0.054	(0.458)	0.048	0.005
32	2.67	0.17	0.054	(0.456)	0.048	0.005
33	2.75	0.17	0.054	(0.454)	0.048	0.005
34	2.83	0.17	0.054	(0.452)	0.048	0.005
35	2.92	0.17	0.054	(0.451)	0.048	0.005
36	3.00	0.17	0.054	(0.449)	0.048	0.005
37	3.08	0.17	0.054	(0.447)	0.048	0.005
38	3.17	0.17	0.054	(0.445)	0.048	0.005
39	3.25	0.17	0.054	(0.443)	0.048	0.005
40	3.33	0.17	0.054	(0.441)	0.048	0.005
41	3.42	0.17	0.054	(0.439)	0.048	0.005
42	3.50	0.17	0.054	(0.438)	0.048	0.005
43	3.58	0.17	0.054	(0.436)	0.048	0.005
44	3.67	0.17	0.054	(0.434)	0.048	0.005
45	3.75	0.17	0.054	(0.432)	0.048	0.005
46	3.83	0.20	0.065	(0.430)	0.058	0.006

47	3.92	0.20	0.065	(0.428)	0.058	0.006
48	4.00	0.20	0.065	(0.427)	0.058	0.006
49	4.08	0.20	0.065	(0.425)	0.058	0.006
50	4.17	0.20	0.065	(0.423)	0.058	0.006
51	4.25	0.20	0.065	(0.421)	0.058	0.006
52	4.33	0.23	0.075	(0.419)	0.068	0.008
53	4.42	0.23	0.075	(0.418)	0.068	0.008
54	4.50	0.23	0.075	(0.416)	0.068	0.008
55	4.58	0.23	0.075	(0.414)	0.068	0.008
56	4.67	0.23	0.075	(0.412)	0.068	0.008
57	4.75	0.23	0.075	(0.411)	0.068	0.008
58	4.83	0.27	0.086	(0.409)	0.077	0.009
59	4.92	0.27	0.086	(0.407)	0.077	0.009
60	5.00	0.27	0.086	(0.405)	0.077	0.009
61	5.08	0.20	0.065	(0.403)	0.058	0.006
62	5.17	0.20	0.065	(0.402)	0.058	0.006
63	5.25	0.20	0.065	(0.400)	0.058	0.006
64	5.33	0.23	0.075	(0.398)	0.068	0.008
65	5.42	0.23	0.075	(0.396)	0.068	0.008
66	5.50	0.23	0.075	(0.395)	0.068	0.008
67	5.58	0.27	0.086	(0.393)	0.077	0.009
68	5.67	0.27	0.086	(0.391)	0.077	0.009
69	5.75	0.27	0.086	(0.390)	0.077	0.009
70	5.83	0.27	0.086	(0.388)	0.077	0.009
71	5.92	0.27	0.086	(0.386)	0.077	0.009
72	6.00	0.27	0.086	(0.384)	0.077	0.009
73	6.08	0.30	0.097	(0.383)	0.087	0.010
74	6.17	0.30	0.097	(0.381)	0.087	0.010
75	6.25	0.30	0.097	(0.379)	0.087	0.010
76	6.33	0.30	0.097	(0.378)	0.087	0.010
77	6.42	0.30	0.097	(0.376)	0.087	0.010
78	6.50	0.30	0.097	(0.374)	0.087	0.010
79	6.58	0.33	0.108	(0.373)	0.097	0.011
80	6.67	0.33	0.108	(0.371)	0.097	0.011
81	6.75	0.33	0.108	(0.369)	0.097	0.011
82	6.83	0.33	0.108	(0.368)	0.097	0.011
83	6.92	0.33	0.108	(0.366)	0.097	0.011
84	7.00	0.33	0.108	(0.364)	0.097	0.011
85	7.08	0.33	0.108	(0.363)	0.097	0.011
86	7.17	0.33	0.108	(0.361)	0.097	0.011
87	7.25	0.33	0.108	(0.359)	0.097	0.011
88	7.33	0.37	0.118	(0.358)	0.107	0.012
89	7.42	0.37	0.118	(0.356)	0.107	0.012
90	7.50	0.37	0.118	(0.354)	0.107	0.012
91	7.58	0.40	0.129	(0.353)	0.116	0.013
92	7.67	0.40	0.129	(0.351)	0.116	0.013
93	7.75	0.40	0.129	(0.349)	0.116	0.013
94	7.83	0.43	0.140	(0.348)	0.126	0.014
95	7.92	0.43	0.140	(0.346)	0.126	0.014
96	8.00	0.43	0.140	(0.345)	0.126	0.014
97	8.08	0.50	0.161	(0.343)	0.145	0.016
98	8.17	0.50	0.161	(0.341)	0.145	0.016
99	8.25	0.50	0.161	(0.340)	0.145	0.016
100	8.33	0.50	0.161	(0.338)	0.145	0.016
101	8.42	0.50	0.161	(0.337)	0.145	0.016
102	8.50	0.50	0.161	(0.335)	0.145	0.016
103	8.58	0.53	0.172	(0.334)	0.155	0.017
104	8.67	0.53	0.172	(0.332)	0.155	0.017
105	8.75	0.53	0.172	(0.330)	0.155	0.017
106	8.83	0.57	0.183	(0.329)	0.165	0.018
107	8.92	0.57	0.183	(0.327)	0.165	0.018
108	9.00	0.57	0.183	(0.326)	0.165	0.018
109	9.08	0.63	0.204	(0.324)	0.184	0.020
110	9.17	0.63	0.204	(0.323)	0.184	0.020
111	9.25	0.63	0.204	(0.321)	0.184	0.020
112	9.33	0.67	0.215	(0.320)	0.194	0.022
113	9.42	0.67	0.215	(0.318)	0.194	0.022
114	9.50	0.67	0.215	(0.317)	0.194	0.022
115	9.58	0.70	0.226	(0.315)	0.203	0.023
116	9.67	0.70	0.226	(0.314)	0.203	0.023
117	9.75	0.70	0.226	(0.312)	0.203	0.023
118	9.83	0.73	0.237	(0.310)	0.213	0.024
119	9.92	0.73	0.237	(0.309)	0.213	0.024
120	10.00	0.73	0.237	(0.308)	0.213	0.024
121	10.08	0.50	0.161	(0.306)	0.145	0.016
122	10.17	0.50	0.161	(0.305)	0.145	0.016
123	10.25	0.50	0.161	(0.303)	0.145	0.016

124	10.33	0.50	0.161	(	0.302)	0.145	0.016
125	10.42	0.50	0.161	(	0.300)	0.145	0.016
126	10.50	0.50	0.161	(	0.299)	0.145	0.016
127	10.58	0.67	0.215	(	0.297)	0.194	0.022
128	10.67	0.67	0.215	(	0.296)	0.194	0.022
129	10.75	0.67	0.215	(	0.294)	0.194	0.022
130	10.83	0.67	0.215	(	0.293)	0.194	0.022
131	10.92	0.67	0.215	(	0.291)	0.194	0.022
132	11.00	0.67	0.215	(	0.290)	0.194	0.022
133	11.08	0.63	0.204	(	0.289)	0.184	0.020
134	11.17	0.63	0.204	(	0.287)	0.184	0.020
135	11.25	0.63	0.204	(	0.286)	0.184	0.020
136	11.33	0.63	0.204	(	0.284)	0.184	0.020
137	11.42	0.63	0.204	(	0.283)	0.184	0.020
138	11.50	0.63	0.204	(	0.281)	0.184	0.020
139	11.58	0.57	0.183	(	0.280)	0.165	0.018
140	11.67	0.57	0.183	(	0.279)	0.165	0.018
141	11.75	0.57	0.183	(	0.277)	0.165	0.018
142	11.83	0.60	0.194	(	0.276)	0.174	0.019
143	11.92	0.60	0.194	(	0.275)	0.174	0.019
144	12.00	0.60	0.194	(	0.273)	0.174	0.019
145	12.08	0.83	0.269	(	0.272)	0.242	0.027
146	12.17	0.83	0.269	(	0.270)	0.242	0.027
147	12.25	0.83	0.269	(	0.269)	0.242	0.027
148	12.33	0.87	0.280	(	0.268)	0.252	0.028
149	12.42	0.87	0.280	(	0.266)	0.252	0.028
150	12.50	0.87	0.280	(	0.265)	0.252	0.028
151	12.58	0.93	0.301		0.264	(0.271)	0.038
152	12.67	0.93	0.301		0.262	(0.271)	0.039
153	12.75	0.93	0.301		0.261	(0.271)	0.040
154	12.83	0.97	0.312		0.260	(0.281)	0.052
155	12.92	0.97	0.312		0.258	(0.281)	0.054
156	13.00	0.97	0.312		0.257	(0.281)	0.055
157	13.08	1.13	0.366		0.256	(0.329)	0.110
158	13.17	1.13	0.366		0.255	(0.329)	0.111
159	13.25	1.13	0.366		0.253	(0.329)	0.113
160	13.33	1.13	0.366		0.252	(0.329)	0.114
161	13.42	1.13	0.366		0.251	(0.329)	0.115
162	13.50	1.13	0.366		0.249	(0.329)	0.116
163	13.58	0.77	0.247	(	0.248)	0.223	0.025
164	13.67	0.77	0.247	(	0.247)	0.223	0.025
165	13.75	0.77	0.247	(	0.246)	0.223	0.025
166	13.83	0.77	0.247	(	0.244)	0.223	0.025
167	13.92	0.77	0.247	(	0.243)	0.223	0.025
168	14.00	0.77	0.247	(	0.242)	0.223	0.025
169	14.08	0.90	0.291		0.241	(0.261)	0.050
170	14.17	0.90	0.291		0.239	(0.261)	0.051
171	14.25	0.90	0.291		0.238	(0.261)	0.052
172	14.33	0.87	0.280		0.237	(0.252)	0.043
173	14.42	0.87	0.280		0.236	(0.252)	0.044
174	14.50	0.87	0.280		0.235	(0.252)	0.045
175	14.58	0.87	0.280		0.233	(0.252)	0.046
176	14.67	0.87	0.280		0.232	(0.252)	0.048
177	14.75	0.87	0.280		0.231	(0.252)	0.049
178	14.83	0.83	0.269		0.230	(0.242)	0.039
179	14.92	0.83	0.269		0.229	(0.242)	0.040
180	15.00	0.83	0.269		0.227	(0.242)	0.042
181	15.08	0.80	0.258		0.226	(0.232)	0.032
182	15.17	0.80	0.258		0.225	(0.232)	0.033
183	15.25	0.80	0.258		0.224	(0.232)	0.034
184	15.33	0.77	0.247	(	0.223)	0.223	0.025
185	15.42	0.77	0.247		0.222	(0.223)	0.026
186	15.50	0.77	0.247		0.221	(0.223)	0.027
187	15.58	0.63	0.204	(	0.219)	0.184	0.020
188	15.67	0.63	0.204	(	0.218)	0.184	0.020
189	15.75	0.63	0.204	(	0.217)	0.184	0.020
190	15.83	0.63	0.204	(	0.216)	0.184	0.020
191	15.92	0.63	0.204	(	0.215)	0.184	0.020
192	16.00	0.63	0.204	(	0.214)	0.184	0.020
193	16.08	0.13	0.043	(	0.213)	0.039	0.004
194	16.17	0.13	0.043	(	0.212)	0.039	0.004
195	16.25	0.13	0.043	(	0.211)	0.039	0.004
196	16.33	0.13	0.043	(	0.210)	0.039	0.004
197	16.42	0.13	0.043	(	0.208)	0.039	0.004
198	16.50	0.13	0.043	(	0.207)	0.039	0.004
199	16.58	0.10	0.032	(	0.206)	0.029	0.003
200	16.67	0.10	0.032	(	0.205)	0.029	0.003

201	16.75	0.10	0.032	(0.204)	0.029	0.003
202	16.83	0.10	0.032	(0.203)	0.029	0.003
203	16.92	0.10	0.032	(0.202)	0.029	0.003
204	17.00	0.10	0.032	(0.201)	0.029	0.003
205	17.08	0.17	0.054	(0.200)	0.048	0.005
206	17.17	0.17	0.054	(0.199)	0.048	0.005
207	17.25	0.17	0.054	(0.198)	0.048	0.005
208	17.33	0.17	0.054	(0.197)	0.048	0.005
209	17.42	0.17	0.054	(0.196)	0.048	0.005
210	17.50	0.17	0.054	(0.195)	0.048	0.005
211	17.58	0.17	0.054	(0.194)	0.048	0.005
212	17.67	0.17	0.054	(0.193)	0.048	0.005
213	17.75	0.17	0.054	(0.192)	0.048	0.005
214	17.83	0.13	0.043	(0.191)	0.039	0.004
215	17.92	0.13	0.043	(0.190)	0.039	0.004
216	18.00	0.13	0.043	(0.189)	0.039	0.004
217	18.08	0.13	0.043	(0.188)	0.039	0.004
218	18.17	0.13	0.043	(0.188)	0.039	0.004
219	18.25	0.13	0.043	(0.187)	0.039	0.004
220	18.33	0.13	0.043	(0.186)	0.039	0.004
221	18.42	0.13	0.043	(0.185)	0.039	0.004
222	18.50	0.13	0.043	(0.184)	0.039	0.004
223	18.58	0.10	0.032	(0.183)	0.029	0.003
224	18.67	0.10	0.032	(0.182)	0.029	0.003
225	18.75	0.10	0.032	(0.181)	0.029	0.003
226	18.83	0.07	0.022	(0.180)	0.019	0.002
227	18.92	0.07	0.022	(0.180)	0.019	0.002
228	19.00	0.07	0.022	(0.179)	0.019	0.002
229	19.08	0.10	0.032	(0.178)	0.029	0.003
230	19.17	0.10	0.032	(0.177)	0.029	0.003
231	19.25	0.10	0.032	(0.176)	0.029	0.003
232	19.33	0.13	0.043	(0.175)	0.039	0.004
233	19.42	0.13	0.043	(0.175)	0.039	0.004
234	19.50	0.13	0.043	(0.174)	0.039	0.004
235	19.58	0.10	0.032	(0.173)	0.029	0.003
236	19.67	0.10	0.032	(0.172)	0.029	0.003
237	19.75	0.10	0.032	(0.171)	0.029	0.003
238	19.83	0.07	0.022	(0.171)	0.019	0.002
239	19.92	0.07	0.022	(0.170)	0.019	0.002
240	20.00	0.07	0.022	(0.169)	0.019	0.002
241	20.08	0.10	0.032	(0.168)	0.029	0.003
242	20.17	0.10	0.032	(0.168)	0.029	0.003
243	20.25	0.10	0.032	(0.167)	0.029	0.003
244	20.33	0.10	0.032	(0.166)	0.029	0.003
245	20.42	0.10	0.032	(0.165)	0.029	0.003
246	20.50	0.10	0.032	(0.165)	0.029	0.003
247	20.58	0.10	0.032	(0.164)	0.029	0.003
248	20.67	0.10	0.032	(0.163)	0.029	0.003
249	20.75	0.10	0.032	(0.163)	0.029	0.003
250	20.83	0.07	0.022	(0.162)	0.019	0.002
251	20.92	0.07	0.022	(0.161)	0.019	0.002
252	21.00	0.07	0.022	(0.161)	0.019	0.002
253	21.08	0.10	0.032	(0.160)	0.029	0.003
254	21.17	0.10	0.032	(0.159)	0.029	0.003
255	21.25	0.10	0.032	(0.159)	0.029	0.003
256	21.33	0.07	0.022	(0.158)	0.019	0.002
257	21.42	0.07	0.022	(0.158)	0.019	0.002
258	21.50	0.07	0.022	(0.157)	0.019	0.002
259	21.58	0.10	0.032	(0.156)	0.029	0.003
260	21.67	0.10	0.032	(0.156)	0.029	0.003
261	21.75	0.10	0.032	(0.155)	0.029	0.003
262	21.83	0.07	0.022	(0.155)	0.019	0.002
263	21.92	0.07	0.022	(0.154)	0.019	0.002
264	22.00	0.07	0.022	(0.154)	0.019	0.002
265	22.08	0.10	0.032	(0.153)	0.029	0.003
266	22.17	0.10	0.032	(0.153)	0.029	0.003
267	22.25	0.10	0.032	(0.152)	0.029	0.003
268	22.33	0.07	0.022	(0.152)	0.019	0.002
269	22.42	0.07	0.022	(0.151)	0.019	0.002
270	22.50	0.07	0.022	(0.151)	0.019	0.002
271	22.58	0.07	0.022	(0.150)	0.019	0.002
272	22.67	0.07	0.022	(0.150)	0.019	0.002
273	22.75	0.07	0.022	(0.150)	0.019	0.002
274	22.83	0.07	0.022	(0.149)	0.019	0.002
275	22.92	0.07	0.022	(0.149)	0.019	0.002
276	23.00	0.07	0.022	(0.148)	0.019	0.002
277	23.08	0.07	0.022	(0.148)	0.019	0.002

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278  23.17     0.07      0.022       (  0.148)       0.019        0.002
279  23.25     0.07      0.022       (  0.147)       0.019        0.002
280  23.33     0.07      0.022       (  0.147)       0.019        0.002
281  23.42     0.07      0.022       (  0.147)       0.019        0.002
282  23.50     0.07      0.022       (  0.147)       0.019        0.002
283  23.58     0.07      0.022       (  0.146)       0.019        0.002
284  23.67     0.07      0.022       (  0.146)       0.019        0.002
285  23.75     0.07      0.022       (  0.146)       0.019        0.002
286  23.83     0.07      0.022       (  0.146)       0.019        0.002
287  23.92     0.07      0.022       (  0.146)       0.019        0.002
288  24.00     0.07      0.022       (  0.146)       0.019        0.002
                (Loss Rate Not Used)
    Sum =     100.0                                   Sum =     4.0
       Flood volume = Effective rainfall      0.34(In)
        times area      21.6(Ac.)/[(In)/(Ft.)] =       0.6(Ac.Ft)
       Total soil loss =      2.36(In)
       Total soil loss =     4.249(Ac.Ft)
       Total rainfall =      2.69(In)
       Flood volume =       26329.4 Cubic Feet
       Total soil loss =      185085.6 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      2.482(CFS)
       ---------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------
   0+ 5       0.0001      0.01  Q         |         |         |         |
   0+10       0.0003      0.03  Q         |         |         |         |
   0+15       0.0006      0.04  Q         |         |         |         |
   0+20       0.0009      0.05  Q         |         |         |         |
   0+25       0.0013      0.06  Q         |         |         |         |
   0+30       0.0018      0.07  Q         |         |         |         |
   0+35       0.0023      0.07  Q         |         |         |         |
   0+40       0.0028      0.07  Q         |         |         |         |
   0+45       0.0032      0.07  Q         |         |         |         |
   0+50       0.0038      0.08  Q         |         |         |         |
   0+55       0.0044      0.09  Q         |         |         |         |
   1+ 0       0.0050      0.09  Q         |         |         |         |
   1+ 5       0.0056      0.09  Q         |         |         |         |
   1+10       0.0061      0.08  Q         |         |         |         |
   1+15       0.0066      0.07  Q         |         |         |         |
   1+20       0.0071      0.07  Q         |         |         |         |
   1+25       0.0076      0.07  Q         |         |         |         |
   1+30       0.0081      0.07  Q         |         |         |         |
   1+35       0.0086      0.07  Q         |         |         |         |
   1+40       0.0091      0.07  Q         |         |         |         |
   1+45       0.0095      0.07  Q         |         |         |         |
   1+50       0.0101      0.08  Q         |         |         |         |
   1+55       0.0107      0.09  Q         |         |         |         |
   2+ 0       0.0113      0.09  Q         |         |         |         |
   2+ 5       0.0119      0.09  Q         |         |         |         |
   2+10       0.0126      0.09  Q         |         |         |         |
   2+15       0.0132      0.09  Q         |         |         |         |
   2+20       0.0139      0.09  Q         |         |         |         |
   2+25       0.0145      0.09  Q         |         |         |         |
   2+30       0.0152      0.09  QV        |         |         |         |
   2+35       0.0158      0.10  QV        |         |         |         |
   2+40       0.0166      0.11  QV        |         |         |         |
   2+45       0.0174      0.11  QV        |         |         |         |
   2+50       0.0182      0.12  QV        |         |         |         |
   2+55       0.0190      0.12  QV        |         |         |         |
   3+ 0       0.0198      0.12  QV        |         |         |         |
   3+ 5       0.0206      0.12  QV        |         |         |         |
   3+10       0.0214      0.12  QV        |         |         |         |
   3+15       0.0222      0.12  QV        |         |         |         |
   3+20       0.0230      0.12  QV        |         |         |         |
   3+25       0.0238      0.12  QV        |         |         |         |
   3+30       0.0246      0.12  QV        |         |         |         |
   3+35       0.0255      0.12  QV        |         |         |         |
   3+40       0.0263      0.12  QV        |         |         |         |
   3+45       0.0271      0.12  QV        |         |         |         |
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 3+50       0.0279      0.12  QV        |         |         |         |
 3+55       0.0288      0.13  QV        |         |         |         |
 4+ 0       0.0298      0.14  QV        |         |         |         |
 4+ 5       0.0307      0.14  Q V       |         |         |         |
 4+10       0.0317      0.14  Q V       |         |         |         |
 4+15       0.0327      0.14  Q V       |         |         |         |
 4+20       0.0337      0.15  Q V       |         |         |         |
 4+25       0.0348      0.16  Q V       |         |         |         |
 4+30       0.0359      0.16  Q V       |         |         |         |
 4+35       0.0370      0.16  Q V       |         |         |         |
 4+40       0.0381      0.16  Q V       |         |         |         |
 4+45       0.0393      0.16  Q V       |         |         |         |
 4+50       0.0404      0.17  Q V       |         |         |         |
 4+55       0.0417      0.18  Q V       |         |         |         |
 5+ 0       0.0429      0.18  Q V       |         |         |         |
 5+ 5       0.0442      0.18  Q V       |         |         |         |
 5+10       0.0452      0.15  Q V       |         |         |         |
 5+15       0.0462      0.15  Q  V      |         |         |         |
 5+20       0.0473      0.15  Q  V      |         |         |         |
 5+25       0.0484      0.16  Q  V      |         |         |         |
 5+30       0.0495      0.16  Q  V      |         |         |         |
 5+35       0.0506      0.17  Q  V      |         |         |         |
 5+40       0.0519      0.18  Q  V      |         |         |         |
 5+45       0.0531      0.18  Q  V      |         |         |         |
 5+50       0.0544      0.19  Q  V      |         |         |         |
 5+55       0.0557      0.19  Q  V      |         |         |         |
 6+ 0       0.0570      0.19  Q  V      |         |         |         |
 6+ 5       0.0583      0.19  Q  V      |         |         |         |
 6+10       0.0597      0.20  Q  V      |         |         |         |
 6+15       0.0612      0.21  Q   V     |         |         |         |
 6+20       0.0626      0.21  Q   V     |         |         |         |
 6+25       0.0641      0.21  Q   V     |         |         |         |
 6+30       0.0655      0.21  Q   V     |         |         |         |
 6+35       0.0670      0.22  Q   V     |         |         |         |
 6+40       0.0686      0.23  Q   V     |         |         |         |
 6+45       0.0702      0.23  Q   V     |         |         |         |
 6+50       0.0718      0.23  Q   V     |         |         |         |
 6+55       0.0734      0.23  Q   V     |         |         |         |
 7+ 0       0.0750      0.23  Q   V     |         |         |         |
 7+ 5       0.0766      0.23  Q    V    |         |         |         |
 7+10       0.0782      0.23  Q    V    |         |         |         |
 7+15       0.0799      0.23  Q    V    |         |         |         |
 7+20       0.0815      0.24  Q    V    |         |         |         |
 7+25       0.0833      0.25  |Q   V    |         |         |         |
 7+30       0.0850      0.26  |Q   V    |         |         |         |
 7+35       0.0868      0.26  |Q   V    |         |         |         |
 7+40       0.0887      0.27  |Q   V    |         |         |         |
 7+45       0.0906      0.28  |Q   V    |         |         |         |
 7+50       0.0926      0.29  |Q    V   |         |         |         |
 7+55       0.0946      0.30  |Q    V   |         |         |         |
 8+ 0       0.0967      0.30  |Q    V   |         |         |         |
 8+ 5       0.0989      0.31  |Q    V   |         |         |         |
 8+10       0.1012      0.34  |Q    V   |         |         |         |
 8+15       0.1036      0.35  |Q    V   |         |         |         |
 8+20       0.1060      0.35  |Q     V  |         |         |         |
 8+25       0.1084      0.35  |Q     V  |         |         |         |
 8+30       0.1108      0.35  |Q     V  |         |         |         |
 8+35       0.1133      0.36  |Q     V  |         |         |         |
 8+40       0.1158      0.37  |Q     V  |         |         |         |
 8+45       0.1184      0.37  |Q     V  |         |         |         |
 8+50       0.1210      0.38  |Q      V |         |         |         |
 8+55       0.1237      0.39  |Q      V |         |         |         |
 9+ 0       0.1264      0.40  |Q      V |         |         |         |
 9+ 5       0.1292      0.41  |Q      V |         |         |         |
 9+10       0.1322      0.43  |Q      V |         |         |         |
 9+15       0.1352      0.44  |Q      V |         |         |         |
 9+20       0.1383      0.45  |Q       V|         |         |         |
 9+25       0.1415      0.46  |Q       V|         |         |         |
 9+30       0.1447      0.47  |Q       V|         |         |         |
 9+35       0.1480      0.47  |Q       V|         |         |         |
 9+40       0.1513      0.49  |Q        V         |         |         |
 9+45       0.1547      0.49  |Q        V         |         |         |
 9+50       0.1581      0.50  |Q        V         |         |         |
 9+55       0.1616      0.51  | Q       V         |         |         |
10+ 0       0.1651      0.51  | Q       V         |         |         |
10+ 5       0.1684      0.48  |Q        |V        |         |         |
10+10       0.1712      0.40  |Q        |V        |         |         |
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10+15       0.1737      0.38  |Q        |V        |         |         |
10+20       0.1763      0.36  |Q        |V        |         |         |
10+25       0.1787      0.36  |Q        |V        |         |         |
10+30       0.1812      0.36  |Q        |V        |         |         |
10+35       0.1838      0.38  |Q        | V       |         |         |
10+40       0.1868      0.44  |Q        | V       |         |         |
10+45       0.1899      0.45  |Q        | V       |         |         |
10+50       0.1931      0.46  |Q        | V       |         |         |
10+55       0.1963      0.46  |Q        | V       |         |         |
11+ 0       0.1995      0.47  |Q        |  V      |         |         |
11+ 5       0.2027      0.46  |Q        |  V      |         |         |
11+10       0.2058      0.45  |Q        |  V      |         |         |
11+15       0.2089      0.45  |Q        |  V      |         |         |
11+20       0.2120      0.45  |Q        |   V     |         |         |
11+25       0.2151      0.45  |Q        |   V     |         |         |
11+30       0.2182      0.45  |Q        |   V     |         |         |
11+35       0.2212      0.44  |Q        |   V     |         |         |
11+40       0.2240      0.41  |Q        |   V     |         |         |
11+45       0.2268      0.41  |Q        |    V    |         |         |
11+50       0.2296      0.41  |Q        |    V    |         |         |
11+55       0.2325      0.42  |Q        |    V    |         |         |
12+ 0       0.2354      0.42  |Q        |    V    |         |         |
12+ 5       0.2386      0.46  |Q        |    V    |         |         |
12+10       0.2423      0.54  | Q       |     V   |         |         |
12+15       0.2462      0.56  | Q       |     V   |         |         |
12+20       0.2502      0.58  | Q       |     V   |         |         |
12+25       0.2543      0.60  | Q       |     V   |         |         |
12+30       0.2584      0.60  | Q       |      V  |         |         |
12+35       0.2630      0.66  | Q       |      V  |         |         |
12+40       0.2682      0.77  |  Q      |      V  |         |         |
12+45       0.2739      0.82  |  Q      |       V |         |         |
12+50       0.2801      0.91  |  Q      |       V |         |         |
12+55       0.2874      1.06  |   Q     |        V|         |         |
13+ 0       0.2952      1.12  |   Q     |        V|         |         |
13+ 5       0.3051      1.44  |    Q    |         V         |         |
13+10       0.3192      2.05  |       Q |         |V        |         |
13+15       0.3347      2.25  |        Q|         | V       |         |
13+20       0.3509      2.36  |        Q|         |  V      |         |
13+25       0.3677      2.43  |        Q|         |   V     |         |
13+30       0.3848      2.48  |        Q|         |    V    |         |
13+35       0.3989      2.06  |       Q |         |     V   |         |
13+40       0.4065      1.09  |   Q     |         |     V   |         |
13+45       0.4121      0.82  |  Q      |         |      V  |         |
13+50       0.4169      0.69  | Q       |         |      V  |         |
13+55       0.4212      0.62  | Q       |         |      V  |         |
14+ 0       0.4251      0.58  | Q       |         |       V |         |
14+ 5       0.4298      0.68  | Q       |         |       V |         |
14+10       0.4363      0.94  |  Q      |         |       V |         |
14+15       0.4434      1.04  |   Q     |         |        V|         |
14+20       0.4506      1.04  |   Q     |         |        V|         |
14+25       0.4573      0.97  |  Q      |         |         V         |
14+30       0.4640      0.97  |  Q      |         |         V         |
14+35       0.4708      0.99  |  Q      |         |         |V        |
14+40       0.4778      1.01  |   Q     |         |         |V        |
14+45       0.4850      1.04  |   Q     |         |         | V       |
14+50       0.4919      1.00  |   Q     |         |         | V       |
14+55       0.4982      0.91  |  Q      |         |         | V       |
15+ 0       0.5044      0.91  |  Q      |         |         |  V      |
15+ 5       0.5104      0.86  |  Q      |         |         |  V      |
15+10       0.5156      0.77  |  Q      |         |         |   V     |
15+15       0.5208      0.75  |  Q      |         |         |   V     |
15+20       0.5257      0.71  | Q       |         |         |   V     |
15+25       0.5298      0.61  | Q       |         |         |    V    |
15+30       0.5339      0.59  | Q       |         |         |    V    |
15+35       0.5378      0.56  | Q       |         |         |    V    |
15+40       0.5412      0.49  |Q        |         |         |    V    |
15+45       0.5444      0.47  |Q        |         |         |     V   |
15+50       0.5475      0.46  |Q        |         |         |     V   |
15+55       0.5506      0.45  |Q        |         |         |     V   |
16+ 0       0.5537      0.45  |Q        |         |         |     V   |
16+ 5       0.5563      0.37  |Q        |         |         |     V   |
16+10       0.5576      0.19  Q         |         |         |     V   |
16+15       0.5586      0.14  Q         |         |         |     V   |
16+20       0.5594      0.12  Q         |         |         |      V  |
16+25       0.5602      0.11  Q         |         |         |      V  |
16+30       0.5608      0.10  Q         |         |         |      V  |
16+35       0.5615      0.09  Q         |         |         |      V  |
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16+40       0.5620      0.08  Q          |          |          |      V  |
16+45       0.5625      0.07  Q          |          |          |      V  |
16+50       0.5630      0.07  Q          |          |          |      V  |
16+55       0.5635      0.07  Q          |          |          |      V  |
17+ 0       0.5640      0.07  Q          |          |          |      V  |
17+ 5       0.5646      0.08  Q          |          |          |      V  |
17+10       0.5653      0.10  Q          |          |          |      V  |
17+15       0.5660      0.11  Q          |          |          |      V  |
17+20       0.5668      0.11  Q          |          |          |      V  |
17+25       0.5676      0.12  Q          |          |          |      V  |
17+30       0.5684      0.12  Q          |          |          |      V  |
17+35       0.5692      0.12  Q          |          |          |      V  |
17+40       0.5700      0.12  Q          |          |          |      V  |
17+45       0.5708      0.12  Q          |          |          |      V  |
17+50       0.5716      0.11  Q          |          |          |      V  |
17+55       0.5723      0.10  Q          |          |          |      V  |
18+ 0       0.5730      0.10  Q          |          |          |      V  |
18+ 5       0.5736      0.10  Q          |          |          |      V  |
18+10       0.5743      0.09  Q          |          |          |       V |
18+15       0.5749      0.09  Q          |          |          |       V |
18+20       0.5756      0.09  Q          |          |          |       V |
18+25       0.5762      0.09  Q          |          |          |       V |
18+30       0.5769      0.09  Q          |          |          |       V |
18+35       0.5775      0.09  Q          |          |          |       V |
18+40       0.5780      0.08  Q          |          |          |       V |
18+45       0.5785      0.07  Q          |          |          |       V |
18+50       0.5790      0.07  Q          |          |          |       V |
18+55       0.5794      0.05  Q          |          |          |       V |
19+ 0       0.5797      0.05  Q          |          |          |       V |
19+ 5       0.5801      0.05  Q          |          |          |       V |
19+10       0.5805      0.06  Q          |          |          |       V |
19+15       0.5810      0.07  Q          |          |          |       V |
19+20       0.5815      0.07  Q          |          |          |       V |
19+25       0.5821      0.09  Q          |          |          |       V |
19+30       0.5827      0.09  Q          |          |          |       V |
19+35       0.5833      0.09  Q          |          |          |       V |
19+40       0.5839      0.08  Q          |          |          |       V |
19+45       0.5844      0.07  Q          |          |          |       V |
19+50       0.5848      0.07  Q          |          |          |       V |
19+55       0.5852      0.05  Q          |          |          |       V |
20+ 0       0.5855      0.05  Q          |          |          |       V |
20+ 5       0.5859      0.05  Q          |          |          |       V |
20+10       0.5864      0.06  Q          |          |          |       V |
20+15       0.5868      0.07  Q          |          |          |       V |
20+20       0.5873      0.07  Q          |          |          |       V |
20+25       0.5878      0.07  Q          |          |          |       V |
20+30       0.5883      0.07  Q          |          |          |       V |
20+35       0.5887      0.07  Q          |          |          |       V |
20+40       0.5892      0.07  Q          |          |          |       V |
20+45       0.5897      0.07  Q          |          |          |        V|
20+50       0.5902      0.07  Q          |          |          |        V|
20+55       0.5905      0.05  Q          |          |          |        V|
21+ 0       0.5909      0.05  Q          |          |          |        V|
21+ 5       0.5913      0.05  Q          |          |          |        V|
21+10       0.5917      0.06  Q          |          |          |        V|
21+15       0.5922      0.07  Q          |          |          |        V|
21+20       0.5926      0.06  Q          |          |          |        V|
21+25       0.5930      0.05  Q          |          |          |        V|
21+30       0.5933      0.05  Q          |          |          |        V|
21+35       0.5937      0.05  Q          |          |          |        V|
21+40       0.5941      0.06  Q          |          |          |        V|
21+45       0.5946      0.07  Q          |          |          |        V|
21+50       0.5950      0.06  Q          |          |          |        V|
21+55       0.5954      0.05  Q          |          |          |        V|
22+ 0       0.5957      0.05  Q          |          |          |        V|
22+ 5       0.5961      0.05  Q          |          |          |        V|
22+10       0.5966      0.06  Q          |          |          |        V|
22+15       0.5970      0.07  Q          |          |          |        V|
22+20       0.5975      0.06  Q          |          |          |        V|
22+25       0.5978      0.05  Q          |          |          |        V|
22+30       0.5982      0.05  Q          |          |          |        V|
22+35       0.5985      0.05  Q          |          |          |        V|
22+40       0.5988      0.05  Q          |          |          |        V|
22+45       0.5992      0.05  Q          |          |          |        V|
22+50       0.5995      0.05  Q          |          |          |        V|
22+55       0.5998      0.05  Q          |          |          |        V|
23+ 0       0.6001      0.05  Q          |          |          |        V|
```

```
   23+ 5       0.6004      0.05  Q         |         |         |        V|
   23+10       0.6008      0.05  Q         |         |         |        V|
   23+15       0.6011      0.05  Q         |         |         |        V|
   23+20       0.6014      0.05  Q         |         |         |        V|
   23+25       0.6017      0.05  Q         |         |         |        V|
   23+30       0.6021      0.05  Q         |         |         |        V|
   23+35       0.6024      0.05  Q         |         |         |        V|
   23+40       0.6027      0.05  Q         |         |         |        V|
   23+45       0.6030      0.05  Q         |         |         |        V|
   23+50       0.6034      0.05  Q         |         |         |        V|
   23+55       0.6037      0.05  Q         |         |         |        V|
   24+ 0       0.6040      0.05  Q         |         |         |        V|
   24+ 5       0.6043      0.04  Q         |         |         |        V|
   24+10       0.6043      0.01  Q         |         |         |        V|
   24+15       0.6044      0.01  Q         |         |         |        V|
   24+20       0.6044      0.00  Q         |         |         |        V|
   24+25       0.6044      0.00  Q         |         |         |        V|
   24+30       0.6044      0.00  Q         |         |         |        V|
   24+35       0.6044      0.00  Q         |         |         |         V
-----------------------------------------------------------------------
```

PROPOSED CONDITION

```
        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6400

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
HARLEY KNOX INDUSTRIAL DEVELOPMENT
PROPOSED CONDITION
10-YEAR

-------------------------------------------------------------------
Drainage Area =      21.65(Ac.)  =      0.034 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      21.65(Ac.)  =      0.034 Sq. Mi.
Length along longest watercourse =     725.00(Ft.)
Length along longest watercourse measured to centroid =     435.00(Ft.)
Length along longest watercourse =      0.137 Mi.
Length along longest watercourse measured to centroid =      0.082 Mi.
Difference in elevation =       2.80(Ft.)
Slope along watercourse =     20.3917 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.037 Hr.
Lag time =     2.22 Min.
25% of lag time =     0.55 Min.
40% of lag time =     0.89 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            0.46                    9.96

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            1.23                   26.63

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.460(In)
Area Averaged 100-Year Rainfall =    1.230(In)

Point rain (area averaged) =    0.777(In)
Areal adjustment factor =   99.98 %
Adjusted average point rain =    0.777(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    21.650           56.00         0.900
 Total Area Entered =     21.65(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.900        0.097       1.000      0.097
                                                 Sum (F) =   0.097
```

```
Area averaged mean soil loss (F) (In/Hr) =  0.097
Minimum soil loss rate ((In/Hr)) =  0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.100
-----------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.5000
-------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                        VALLEY S-Curve
-----------------------------------------------------------------
                Unit Hydrograph Data
-----------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                           Graph %            (CFS)
-----------------------------------------------------------------
    1   0.083        225.403         47.472             10.358
    2   0.167        450.806         41.633              9.084
    3   0.250        676.209          7.850              1.713
    4   0.333        901.612          3.045              0.664
                                Sum = 100.000   Sum=      21.819
-----------------------------------------------------------------


 The following loss rate calculations reflect use of the minimum calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective Rain value

  Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
       (Hr.)  Percent   (In/Hr)         Max   |   Low        (In/Hr)
   1   0.08     4.20      0.391       (  0.097)       0.039        0.352
   2   0.17     4.30      0.401       (  0.097)       0.040        0.361
   3   0.25     5.00      0.466       (  0.097)       0.047        0.419
   4   0.33     5.00      0.466       (  0.097)       0.047        0.419
   5   0.42     5.80      0.541       (  0.097)       0.054        0.486
   6   0.50     6.50      0.606       (  0.097)       0.061        0.545
   7   0.58     7.40      0.690       (  0.097)       0.069        0.621
   8   0.67     8.60      0.801       (  0.097)       0.080        0.721
   9   0.75    12.30      1.146          0.097    (  0.115)        1.049
  10   0.83    29.10      2.712          0.097    (  0.271)        2.615
  11   0.92     6.80      0.634       (  0.097)       0.063        0.570
  12   1.00     5.00      0.466       (  0.097)       0.047        0.419
                (Loss Rate Not Used)
     Sum =     100.0                                   Sum =     8.6
        Flood volume = Effective rainfall      0.71(In)
         times area      21.6(Ac.)/[(In)/(Ft.)] =       1.3(Ac.Ft)
        Total soil loss =      0.06(In)
        Total soil loss =     0.111(Ac.Ft)
        Total rainfall =      0.78(In)
        Flood volume =       56187.2 Cubic Feet
        Total soil loss =        4847.9 Cubic Feet
        -------------------------------------------------------------------
         Peak flow rate of this hydrograph =     38.285(CFS)
        -------------------------------------------------------------------
        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                            1 - H O U R    S T O R M
                       R u n o f f     H y d r o g r a p h
        -------------------------------------------------------------------
                    Hydrograph in   5   Minute intervals ((CFS))

        -------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0       10.0      20.0      30.0      40.0
 ---------------------------------------------------------------------
   0+ 5       0.0251      3.65  V  Q      |         |         |         |
   0+10       0.0729      6.94  | V   Q   |         |         |         |
   0+15       0.1296      8.23  |   V   Q |         |         |         |
   0+20       0.1917      9.01  |    V   Q|         |         |         |
   0+25       0.2592      9.81  |       VQ|         |         |         |
   0+30       0.3355     11.07  |         VQ        |         |         |
   0+35       0.4215     12.50  |         | QV      |         |         |
   0+40       0.5205     14.37  |         |   Q V   |         |         |
   0+45       0.6504     18.86  |         |       Q V         |         |
   0+50       0.9141     38.28  |         |         |       V |       Q |
   0+55       1.1341     31.95  |         |         |         |Q   V    |
   1+ 0       1.2354     14.71  |         |   Q     |         |       V |
   1+ 5       1.2804      6.53  |     Q   |         |         |        V|
   1+10       1.2880      1.10  |Q        |         |         |        V|
   1+15       1.2899      0.28  Q         |         |         |         V
```

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        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6400

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
HARLEY KNOX INDUSTRIAL DEVELOPMENT
PROPOSED CONDITION
10-YEAR

--------------------------------------------------------------------
Drainage Area =      21.65(Ac.)  =      0.034 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      21.65(Ac.)  =      0.034 Sq. Mi.
Length along longest watercourse =     725.00(Ft.)
Length along longest watercourse measured to centroid =     435.00(Ft.)
Length along longest watercourse =      0.137 Mi.
Length along longest watercourse measured to centroid =      0.082 Mi.
Difference in elevation =       2.80(Ft.)
Slope along watercourse =     20.3917 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.037 Hr.
Lag time =     2.22 Min.
25% of lag time =     0.55 Min.
40% of lag time =     0.89 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            0.80                   17.32

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            1.90                   41.13

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.800(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.253(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.252(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    21.650           56.00         0.900
 Total Area Entered =     21.65(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.900        0.097       1.000      0.097
                                                 Sum (F) =   0.097
```

Area averaged mean soil loss (F) (In/Hr) = 0.097
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	225.403	47.472	10.358
2 0.167	450.806	41.633	9.084
3 0.250	676.209	7.850	1.713
4 0.333	901.612	3.045	0.664
		Sum = 100.000	Sum= 21.819

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	1.30	0.195	(0.097)	0.020	0.176
2 0.17	1.30	0.195	(0.097)	0.020	0.176
3 0.25	1.10	0.165	(0.097)	0.017	0.149
4 0.33	1.50	0.225	(0.097)	0.023	0.203
5 0.42	1.50	0.225	(0.097)	0.023	0.203
6 0.50	1.80	0.271	(0.097)	0.027	0.243
7 0.58	1.50	0.225	(0.097)	0.023	0.203
8 0.67	1.80	0.271	(0.097)	0.027	0.243
9 0.75	1.80	0.271	(0.097)	0.027	0.243
10 0.83	1.50	0.225	(0.097)	0.023	0.203
11 0.92	1.60	0.240	(0.097)	0.024	0.216
12 1.00	1.80	0.271	(0.097)	0.027	0.243
13 1.08	2.20	0.331	(0.097)	0.033	0.298
14 1.17	2.20	0.331	(0.097)	0.033	0.298
15 1.25	2.20	0.331	(0.097)	0.033	0.298
16 1.33	2.00	0.301	(0.097)	0.030	0.271
17 1.42	2.60	0.391	(0.097)	0.039	0.352
18 1.50	2.70	0.406	(0.097)	0.041	0.365
19 1.58	2.40	0.361	(0.097)	0.036	0.325
20 1.67	2.70	0.406	(0.097)	0.041	0.365
21 1.75	3.30	0.496	(0.097)	0.050	0.446
22 1.83	3.10	0.466	(0.097)	0.047	0.419
23 1.92	2.90	0.436	(0.097)	0.044	0.392
24 2.00	3.00	0.451	(0.097)	0.045	0.406
25 2.08	3.10	0.466	(0.097)	0.047	0.419
26 2.17	4.20	0.631	(0.097)	0.063	0.568
27 2.25	5.00	0.751	(0.097)	0.075	0.676
28 2.33	3.50	0.526	(0.097)	0.053	0.473
29 2.42	6.80	1.022	0.097	(0.102)	0.925
30 2.50	7.30	1.097	0.097	(0.110)	1.000
31 2.58	8.20	1.232	0.097	(0.123)	1.135
32 2.67	5.90	0.887	(0.097)	0.089	0.798
33 2.75	2.00	0.301	(0.097)	0.030	0.271
34 2.83	1.80	0.271	(0.097)	0.027	0.243
35 2.92	1.80	0.271	(0.097)	0.027	0.243
36 3.00	0.60	0.090	(0.097)	0.009	0.081
	(Loss Rate Not Used)				
Sum =	100.0			Sum =	13.6

Flood volume = Effective rainfall 1.13(In)
times area 21.6(Ac.)/[(In)/(Ft.)] = 2.0(Ac.Ft)
Total soil loss = 0.12(In)
Total soil loss = 0.219(Ac.Ft)
Total rainfall = 1.25(In)
Flood volume = 88873.2 Cubic Feet
Total soil loss = 9554.7 Cubic Feet

Peak flow rate of this hydrograph = 22.755(CFS)

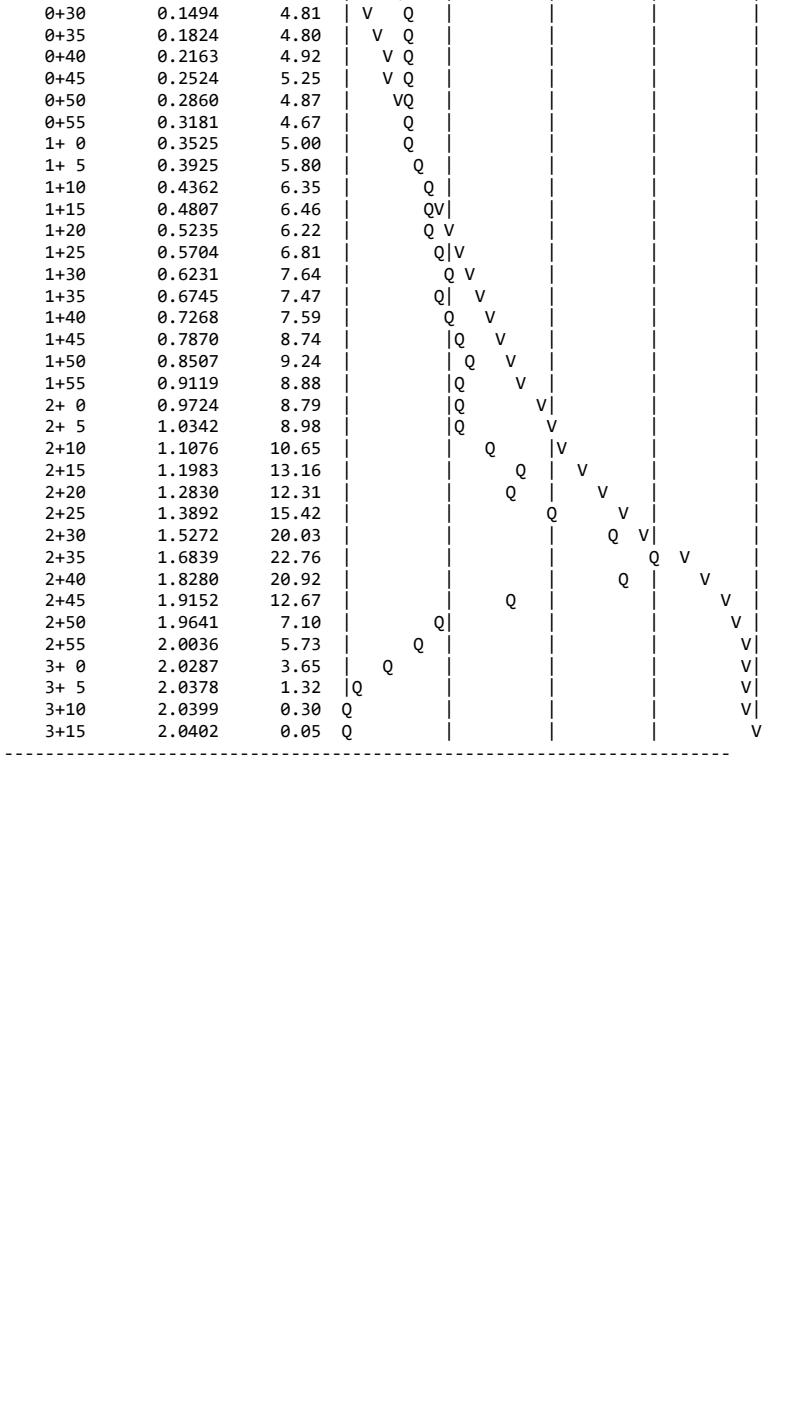
++

3 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)
0+ 5	0.0126	1.82
0+10	0.0361	3.42
0+15	0.0598	3.44
0+20	0.0865	3.87
0+25	0.1162	4.32
0+30	0.1494	4.81
0+35	0.1824	4.80
0+40	0.2163	4.92
0+45	0.2524	5.25
0+50	0.2860	4.87
0+55	0.3181	4.67
1+ 0	0.3525	5.00
1+ 5	0.3925	5.80
1+10	0.4362	6.35
1+15	0.4807	6.46
1+20	0.5235	6.22
1+25	0.5704	6.81
1+30	0.6231	7.64
1+35	0.6745	7.47
1+40	0.7268	7.59
1+45	0.7870	8.74
1+50	0.8507	9.24
1+55	0.9119	8.88
2+ 0	0.9724	8.79
2+ 5	1.0342	8.98
2+10	1.1076	10.65
2+15	1.1983	13.16
2+20	1.2830	12.31
2+25	1.3892	15.42
2+30	1.5272	20.03
2+35	1.6839	22.76
2+40	1.8280	20.92
2+45	1.9152	12.67
2+50	1.9641	7.10
2+55	2.0036	5.73
3+ 0	2.0287	3.65
3+ 5	2.0378	1.32
3+10	2.0399	0.30
3+15	2.0402	0.05



```
        U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  02/14/22 File: 4066PR10610.out


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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6400

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
HARLEY KNOX INDUSTRIAL DEVELOPMENT
PROPOSED CONDITION
10-YEAR

--------------------------------------------------------------------
Drainage Area =      21.65(Ac.)  =      0.034 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      21.65(Ac.)  =      0.034 Sq. Mi.
Length along longest watercourse =     725.00(Ft.)
Length along longest watercourse measured to centroid =     435.00(Ft.)
Length along longest watercourse =      0.137 Mi.
Length along longest watercourse measured to centroid =      0.082 Mi.
Difference in elevation =       2.80(Ft.)
Slope along watercourse =     20.3917 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.037 Hr.
Lag time =     2.22 Min.
25% of lag time =     0.55 Min.
40% of lag time =     0.89 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            1.00                   21.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            2.50                   54.13

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    1.000(In)
Area Averaged 100-Year Rainfall =    2.500(In)

Point rain (area averaged) =    1.617(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.617(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    21.650           56.00         0.900
 Total Area Entered =     21.65(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.900        0.097       1.000      0.097
                                                 Sum (F) =   0.097
```

Area averaged mean soil loss (F) (In/Hr) = 0.097
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	225.403	47.472	10.358
2	0.167	450.806	41.633	9.084
3	0.250	676.209	7.850	1.713
4	0.333	901.612	3.045	0.664
		Sum =	100.000	Sum= 21.819

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.097	(0.097)	0.010	0.087
2	0.17	0.60	0.116	(0.097)	0.012	0.105
3	0.25	0.60	0.116	(0.097)	0.012	0.105
4	0.33	0.60	0.116	(0.097)	0.012	0.105
5	0.42	0.60	0.116	(0.097)	0.012	0.105
6	0.50	0.70	0.136	(0.097)	0.014	0.122
7	0.58	0.70	0.136	(0.097)	0.014	0.122
8	0.67	0.70	0.136	(0.097)	0.014	0.122
9	0.75	0.70	0.136	(0.097)	0.014	0.122
10	0.83	0.70	0.136	(0.097)	0.014	0.122
11	0.92	0.70	0.136	(0.097)	0.014	0.122
12	1.00	0.80	0.155	(0.097)	0.016	0.140
13	1.08	0.80	0.155	(0.097)	0.016	0.140
14	1.17	0.80	0.155	(0.097)	0.016	0.140
15	1.25	0.80	0.155	(0.097)	0.016	0.140
16	1.33	0.80	0.155	(0.097)	0.016	0.140
17	1.42	0.80	0.155	(0.097)	0.016	0.140
18	1.50	0.80	0.155	(0.097)	0.016	0.140
19	1.58	0.80	0.155	(0.097)	0.016	0.140
20	1.67	0.80	0.155	(0.097)	0.016	0.140
21	1.75	0.80	0.155	(0.097)	0.016	0.140
22	1.83	0.80	0.155	(0.097)	0.016	0.140
23	1.92	0.80	0.155	(0.097)	0.016	0.140
24	2.00	0.90	0.175	(0.097)	0.017	0.157
25	2.08	0.80	0.155	(0.097)	0.016	0.140
26	2.17	0.90	0.175	(0.097)	0.017	0.157
27	2.25	0.90	0.175	(0.097)	0.017	0.157
28	2.33	0.90	0.175	(0.097)	0.017	0.157
29	2.42	0.90	0.175	(0.097)	0.017	0.157
30	2.50	0.90	0.175	(0.097)	0.017	0.157
31	2.58	0.90	0.175	(0.097)	0.017	0.157
32	2.67	0.90	0.175	(0.097)	0.017	0.157
33	2.75	1.00	0.194	(0.097)	0.019	0.175
34	2.83	1.00	0.194	(0.097)	0.019	0.175
35	2.92	1.00	0.194	(0.097)	0.019	0.175
36	3.00	1.00	0.194	(0.097)	0.019	0.175
37	3.08	1.00	0.194	(0.097)	0.019	0.175
38	3.17	1.10	0.213	(0.097)	0.021	0.192
39	3.25	1.10	0.213	(0.097)	0.021	0.192
40	3.33	1.10	0.213	(0.097)	0.021	0.192
41	3.42	1.20	0.233	(0.097)	0.023	0.210
42	3.50	1.30	0.252	(0.097)	0.025	0.227
43	3.58	1.40	0.272	(0.097)	0.027	0.244
44	3.67	1.40	0.272	(0.097)	0.027	0.244
45	3.75	1.50	0.291	(0.097)	0.029	0.262
46	3.83	1.50	0.291	(0.097)	0.029	0.262
47	3.92	1.60	0.310	(0.097)	0.031	0.279
48	4.00	1.60	0.310	(0.097)	0.031	0.279
49	4.08	1.70	0.330	(0.097)	0.033	0.297
50	4.17	1.80	0.349	(0.097)	0.035	0.314

```
51   4.25     1.90      0.369       (  0.097)       0.037        0.332
52   4.33     2.00      0.388       (  0.097)       0.039        0.349
53   4.42     2.10      0.407       (  0.097)       0.041        0.367
54   4.50     2.10      0.407       (  0.097)       0.041        0.367
55   4.58     2.20      0.427       (  0.097)       0.043        0.384
56   4.67     2.30      0.446       (  0.097)       0.045        0.402
57   4.75     2.40      0.466       (  0.097)       0.047        0.419
58   4.83     2.40      0.466       (  0.097)       0.047        0.419
59   4.92     2.50      0.485       (  0.097)       0.049        0.437
60   5.00     2.60      0.505       (  0.097)       0.050        0.454
61   5.08     3.10      0.602       (  0.097)       0.060        0.541
62   5.17     3.60      0.699       (  0.097)       0.070        0.629
63   5.25     3.90      0.757       (  0.097)       0.076        0.681
64   5.33     4.20      0.815       (  0.097)       0.081        0.733
65   5.42     4.70      0.912       (  0.097)       0.091        0.821
66   5.50     5.60      1.087          0.097    (  0.109)        0.990
67   5.58     1.90      0.369       (  0.097)       0.037        0.332
68   5.67     0.90      0.175       (  0.097)       0.017        0.157
69   5.75     0.60      0.116       (  0.097)       0.012        0.105
70   5.83     0.50      0.097       (  0.097)       0.010        0.087
71   5.92     0.30      0.058       (  0.097)       0.006        0.052
72   6.00     0.20      0.039       (  0.097)       0.004        0.035
               (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    17.5
      Flood volume = Effective rainfall      1.46(In)
       times area      21.6(Ac.)/[(In)/(Ft.)] =       2.6(Ac.Ft)
      Total soil loss =      0.16(In)
      Total soil loss =     0.290(Ac.Ft)
      Total rainfall =      1.62(In)
      Flood volume =      114446.8 Cubic Feet
      Total soil loss =       12631.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     19.425(CFS)
      ---------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0062      0.90  VQ        |         |         |         |
  0+10       0.0192      1.88  V  Q      |         |         |         |
  0+15       0.0342      2.19  V   Q     |         |         |         |
  0+20       0.0499      2.28  V   Q     |         |         |         |
  0+25       0.0657      2.29  V   Q     |         |         |         |
  0+30       0.0827      2.47  |V  Q     |         |         |         |
  0+35       0.1008      2.63  |V   Q    |         |         |         |
  0+40       0.1191      2.66  |V   Q    |         |         |         |
  0+45       0.1374      2.67  | V  Q    |         |         |         |
  0+50       0.1558      2.67  | V  Q    |         |         |         |
  0+55       0.1742      2.67  | V  Q    |         |         |         |
  1+ 0       0.1938      2.85  | V  Q    |         |         |         |
  1+ 5       0.2145      3.01  |  V  Q   |         |         |         |
  1+10       0.2355      3.04  |  V  Q   |         |         |         |
  1+15       0.2565      3.05  |  V  Q   |         |         |         |
  1+20       0.2775      3.05  |   V Q   |         |         |         |
  1+25       0.2985      3.05  |   V Q   |         |         |         |
  1+30       0.3195      3.05  |   V Q   |         |         |         |
  1+35       0.3405      3.05  |    VQ   |         |         |         |
  1+40       0.3615      3.05  |    VQ   |         |         |         |
  1+45       0.3825      3.05  |    VQ   |         |         |         |
  1+50       0.4035      3.05  |     Q   |         |         |         |
  1+55       0.4245      3.05  |     Q   |         |         |         |
  2+ 0       0.4468      3.23  |     Q   |         |         |         |
  2+ 5       0.4689      3.21  |     QV  |         |         |         |
  2+10       0.4913      3.26  |     QV  |         |         |         |
  2+15       0.5147      3.40  |     QV  |         |         |         |
  2+20       0.5383      3.42  |     Q V |         |         |         |
  2+25       0.5619      3.43  |     Q V |         |         |         |
  2+30       0.5856      3.43  |     Q V |         |         |         |
  2+35       0.6092      3.43  |     Q  V|         |         |         |
  2+40       0.6328      3.43  |     Q  V|         |         |         |
  2+45       0.6577      3.61  |      Q  V         |         |         |
  2+50       0.6837      3.77  |      Q  V         |         |         |
```

```
   2+55       0.7098      3.80  |      Q  V         |         |         |
   3+ 0       0.7361      3.81  |      Q  |V        |         |         |
   3+ 5       0.7623      3.81  |      Q  |V        |         |         |
   3+10       0.7899      3.99  |      Q  | V       |         |         |
   3+15       0.8184      4.15  |       Q | V       |         |         |
   3+20       0.8472      4.18  |       Q | V       |         |         |
   3+25       0.8774      4.37  |       Q |  V      |         |         |
   3+30       0.9098      4.71  |        Q|  V      |         |         |
   3+35       0.9449      5.08  |         Q   V     |         |         |
   3+40       0.9812      5.28  |         Q   V     |         |         |
   3+45       1.0192      5.51  |         |Q   V    |         |         |
   3+50       1.0583      5.68  |         |Q    V   |         |         |
   3+55       1.0988      5.89  |         |Q    V   |         |         |
   4+ 0       1.1405      6.06  |         | Q    V  |         |         |
   4+ 5       1.1837      6.27  |         | Q     V |         |         |
   4+10       1.2293      6.62  |         |  Q    V |         |         |
   4+15       1.2775      6.99  |         |  Q     V|         |         |
   4+20       1.3282      7.37  |         |   Q     V         |         |
   4+25       1.3816      7.75  |         |    Q    |V        |         |
   4+30       1.4364      7.95  |         |    Q    |V        |         |
   4+35       1.4927      8.18  |         |     Q   | V       |         |
   4+40       1.5514      8.53  |         |      Q  |  V      |         |
   4+45       1.6127      8.90  |         |      Q  |   V     |         |
   4+50       1.6753      9.10  |         |       Q |    V    |         |
   4+55       1.7395      9.32  |         |       Q |     V   |         |
   5+ 0       1.8061      9.67  |         |        Q|      V  |         |
   5+ 5       1.8802     10.76  |         |         |Q      V |         |
   5+10       1.9664     12.50  |         |         |    Q   V|         |
   5+15       2.0628     14.00  |         |         |       Q |V        |
   5+20       2.1677     15.23  |         |         |         Q  V      |
   5+25       2.2831     16.76  |         |         |          |  QV    |
   5+30       2.4169     19.42  |         |         |          |    V Q |
   5+35       2.5155     14.33  |         |         |       Q |       V |
   5+40       2.5629      6.89  |         |  Q      |         |        V|
   5+45       2.5887      3.74  |      Q  |         |         |        V|
   5+50       2.6049      2.35  |   Q     |         |         |        V|
   5+55       2.6160      1.62  |  Q      |         |         |        V|
   6+ 0       2.6233      1.06  | Q       |         |         |        V|
   6+ 5       2.6265      0.47  Q         |         |         |        V|
   6+10       2.6272      0.09  Q         |         |         |        V|
   6+15       2.6273      0.02  Q         |         |         |         V
-----------------------------------------------------------------------
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        U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  02/14/22 File: 4066PR102410.out


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----------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6400

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
HARLEY KNOX INDUSTRIAL DEVELOPMENT
PROPOSED CONDITION
10-YEAR

--------------------------------------------------------------------
Drainage Area =      21.65(Ac.)  =      0.034 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      21.65(Ac.)  =      0.034 Sq. Mi.
Length along longest watercourse =     725.00(Ft.)
Length along longest watercourse measured to centroid =     435.00(Ft.)
Length along longest watercourse =      0.137 Mi.
Length along longest watercourse measured to centroid =      0.082 Mi.
Difference in elevation =       2.80(Ft.)
Slope along watercourse =     20.3917 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.037 Hr.
Lag time =     2.22 Min.
25% of lag time =     0.55 Min.
40% of lag time =     0.89 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            1.60                   34.64

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       21.65            4.25                   92.01

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    1.600(In)
Area Averaged 100-Year Rainfall =    4.250(In)

Point rain (area averaged) =    2.690(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.690(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    21.650           56.00         0.900
 Total Area Entered =     21.65(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.900        0.097       1.000      0.097
                                                 Sum (F) =   0.097
```

Area averaged mean soil loss (F) (In/Hr) = 0.097
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	225.403	47.472	10.358
2	0.167	450.806	41.633	9.084
3	0.250	676.209	7.850	1.713
4	0.333	901.612	3.045	0.664
		Sum =	100.000	Sum= 21.819

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.022	(0.172)	0.002	0.019
2	0.17	0.07	0.022	(0.171)	0.002	0.019
3	0.25	0.07	0.022	(0.171)	0.002	0.019
4	0.33	0.10	0.032	(0.170)	0.003	0.029
5	0.42	0.10	0.032	(0.169)	0.003	0.029
6	0.50	0.10	0.032	(0.169)	0.003	0.029
7	0.58	0.10	0.032	(0.168)	0.003	0.029
8	0.67	0.10	0.032	(0.167)	0.003	0.029
9	0.75	0.10	0.032	(0.167)	0.003	0.029
10	0.83	0.13	0.043	(0.166)	0.004	0.039
11	0.92	0.13	0.043	(0.165)	0.004	0.039
12	1.00	0.13	0.043	(0.165)	0.004	0.039
13	1.08	0.10	0.032	(0.164)	0.003	0.029
14	1.17	0.10	0.032	(0.163)	0.003	0.029
15	1.25	0.10	0.032	(0.163)	0.003	0.029
16	1.33	0.10	0.032	(0.162)	0.003	0.029
17	1.42	0.10	0.032	(0.162)	0.003	0.029
18	1.50	0.10	0.032	(0.161)	0.003	0.029
19	1.58	0.10	0.032	(0.160)	0.003	0.029
20	1.67	0.10	0.032	(0.160)	0.003	0.029
21	1.75	0.10	0.032	(0.159)	0.003	0.029
22	1.83	0.13	0.043	(0.158)	0.004	0.039
23	1.92	0.13	0.043	(0.158)	0.004	0.039
24	2.00	0.13	0.043	(0.157)	0.004	0.039
25	2.08	0.13	0.043	(0.156)	0.004	0.039
26	2.17	0.13	0.043	(0.156)	0.004	0.039
27	2.25	0.13	0.043	(0.155)	0.004	0.039
28	2.33	0.13	0.043	(0.155)	0.004	0.039
29	2.42	0.13	0.043	(0.154)	0.004	0.039
30	2.50	0.13	0.043	(0.153)	0.004	0.039
31	2.58	0.17	0.054	(0.153)	0.005	0.048
32	2.67	0.17	0.054	(0.152)	0.005	0.048
33	2.75	0.17	0.054	(0.151)	0.005	0.048
34	2.83	0.17	0.054	(0.151)	0.005	0.048
35	2.92	0.17	0.054	(0.150)	0.005	0.048
36	3.00	0.17	0.054	(0.150)	0.005	0.048
37	3.08	0.17	0.054	(0.149)	0.005	0.048
38	3.17	0.17	0.054	(0.148)	0.005	0.048
39	3.25	0.17	0.054	(0.148)	0.005	0.048
40	3.33	0.17	0.054	(0.147)	0.005	0.048
41	3.42	0.17	0.054	(0.146)	0.005	0.048
42	3.50	0.17	0.054	(0.146)	0.005	0.048
43	3.58	0.17	0.054	(0.145)	0.005	0.048
44	3.67	0.17	0.054	(0.145)	0.005	0.048
45	3.75	0.17	0.054	(0.144)	0.005	0.048
46	3.83	0.20	0.065	(0.143)	0.006	0.058
47	3.92	0.20	0.065	(0.143)	0.006	0.058
48	4.00	0.20	0.065	(0.142)	0.006	0.058
49	4.08	0.20	0.065	(0.142)	0.006	0.058
50	4.17	0.20	0.065	(0.141)	0.006	0.058

51	4.25	0.20	0.065	(0.140)	0.006	0.058
52	4.33	0.23	0.075	(0.140)	0.008	0.068
53	4.42	0.23	0.075	(0.139)	0.008	0.068
54	4.50	0.23	0.075	(0.139)	0.008	0.068
55	4.58	0.23	0.075	(0.138)	0.008	0.068
56	4.67	0.23	0.075	(0.137)	0.008	0.068
57	4.75	0.23	0.075	(0.137)	0.008	0.068
58	4.83	0.27	0.086	(0.136)	0.009	0.077
59	4.92	0.27	0.086	(0.136)	0.009	0.077
60	5.00	0.27	0.086	(0.135)	0.009	0.077
61	5.08	0.20	0.065	(0.134)	0.006	0.058
62	5.17	0.20	0.065	(0.134)	0.006	0.058
63	5.25	0.20	0.065	(0.133)	0.006	0.058
64	5.33	0.23	0.075	(0.133)	0.008	0.068
65	5.42	0.23	0.075	(0.132)	0.008	0.068
66	5.50	0.23	0.075	(0.132)	0.008	0.068
67	5.58	0.27	0.086	(0.131)	0.009	0.077
68	5.67	0.27	0.086	(0.130)	0.009	0.077
69	5.75	0.27	0.086	(0.130)	0.009	0.077
70	5.83	0.27	0.086	(0.129)	0.009	0.077
71	5.92	0.27	0.086	(0.129)	0.009	0.077
72	6.00	0.27	0.086	(0.128)	0.009	0.077
73	6.08	0.30	0.097	(0.128)	0.010	0.087
74	6.17	0.30	0.097	(0.127)	0.010	0.087
75	6.25	0.30	0.097	(0.126)	0.010	0.087
76	6.33	0.30	0.097	(0.126)	0.010	0.087
77	6.42	0.30	0.097	(0.125)	0.010	0.087
78	6.50	0.30	0.097	(0.125)	0.010	0.087
79	6.58	0.33	0.108	(0.124)	0.011	0.097
80	6.67	0.33	0.108	(0.124)	0.011	0.097
81	6.75	0.33	0.108	(0.123)	0.011	0.097
82	6.83	0.33	0.108	(0.122)	0.011	0.097
83	6.92	0.33	0.108	(0.122)	0.011	0.097
84	7.00	0.33	0.108	(0.121)	0.011	0.097
85	7.08	0.33	0.108	(0.121)	0.011	0.097
86	7.17	0.33	0.108	(0.120)	0.011	0.097
87	7.25	0.33	0.108	(0.120)	0.011	0.097
88	7.33	0.37	0.118	(0.119)	0.012	0.107
89	7.42	0.37	0.118	(0.119)	0.012	0.107
90	7.50	0.37	0.118	(0.118)	0.012	0.107
91	7.58	0.40	0.129	(0.118)	0.013	0.116
92	7.67	0.40	0.129	(0.117)	0.013	0.116
93	7.75	0.40	0.129	(0.116)	0.013	0.116
94	7.83	0.43	0.140	(0.116)	0.014	0.126
95	7.92	0.43	0.140	(0.115)	0.014	0.126
96	8.00	0.43	0.140	(0.115)	0.014	0.126
97	8.08	0.50	0.161	(0.114)	0.016	0.145
98	8.17	0.50	0.161	(0.114)	0.016	0.145
99	8.25	0.50	0.161	(0.113)	0.016	0.145
100	8.33	0.50	0.161	(0.113)	0.016	0.145
101	8.42	0.50	0.161	(0.112)	0.016	0.145
102	8.50	0.50	0.161	(0.112)	0.016	0.145
103	8.58	0.53	0.172	(0.111)	0.017	0.155
104	8.67	0.53	0.172	(0.111)	0.017	0.155
105	8.75	0.53	0.172	(0.110)	0.017	0.155
106	8.83	0.57	0.183	(0.110)	0.018	0.165
107	8.92	0.57	0.183	(0.109)	0.018	0.165
108	9.00	0.57	0.183	(0.109)	0.018	0.165
109	9.08	0.63	0.204	(0.108)	0.020	0.184
110	9.17	0.63	0.204	(0.108)	0.020	0.184
111	9.25	0.63	0.204	(0.107)	0.020	0.184
112	9.33	0.67	0.215	(0.107)	0.022	0.194
113	9.42	0.67	0.215	(0.106)	0.022	0.194
114	9.50	0.67	0.215	(0.105)	0.022	0.194
115	9.58	0.70	0.226	(0.105)	0.023	0.203
116	9.67	0.70	0.226	(0.104)	0.023	0.203
117	9.75	0.70	0.226	(0.104)	0.023	0.203
118	9.83	0.73	0.237	(0.103)	0.024	0.213
119	9.92	0.73	0.237	(0.103)	0.024	0.213
120	10.00	0.73	0.237	(0.102)	0.024	0.213
121	10.08	0.50	0.161	(0.102)	0.016	0.145
122	10.17	0.50	0.161	(0.101)	0.016	0.145
123	10.25	0.50	0.161	(0.101)	0.016	0.145
124	10.33	0.50	0.161	(0.101)	0.016	0.145
125	10.42	0.50	0.161	(0.100)	0.016	0.145
126	10.50	0.50	0.161	(0.100)	0.016	0.145
127	10.58	0.67	0.215	(0.099)	0.022	0.194

128	10.67	0.67	0.215	(0.099)	0.022	0.194
129	10.75	0.67	0.215	(0.098)	0.022	0.194
130	10.83	0.67	0.215	(0.098)	0.022	0.194
131	10.92	0.67	0.215	(0.097)	0.022	0.194
132	11.00	0.67	0.215	(0.097)	0.022	0.194
133	11.08	0.63	0.204	(0.096)	0.020	0.184
134	11.17	0.63	0.204	(0.096)	0.020	0.184
135	11.25	0.63	0.204	(0.095)	0.020	0.184
136	11.33	0.63	0.204	(0.095)	0.020	0.184
137	11.42	0.63	0.204	(0.094)	0.020	0.184
138	11.50	0.63	0.204	(0.094)	0.020	0.184
139	11.58	0.57	0.183	(0.093)	0.018	0.165
140	11.67	0.57	0.183	(0.093)	0.018	0.165
141	11.75	0.57	0.183	(0.092)	0.018	0.165
142	11.83	0.60	0.194	(0.092)	0.019	0.174
143	11.92	0.60	0.194	(0.092)	0.019	0.174
144	12.00	0.60	0.194	(0.091)	0.019	0.174
145	12.08	0.83	0.269	(0.091)	0.027	0.242
146	12.17	0.83	0.269	(0.090)	0.027	0.242
147	12.25	0.83	0.269	(0.090)	0.027	0.242
148	12.33	0.87	0.280	(0.089)	0.028	0.252
149	12.42	0.87	0.280	(0.089)	0.028	0.252
150	12.50	0.87	0.280	(0.088)	0.028	0.252
151	12.58	0.93	0.301	(0.088)	0.030	0.271
152	12.67	0.93	0.301	(0.087)	0.030	0.271
153	12.75	0.93	0.301	(0.087)	0.030	0.271
154	12.83	0.97	0.312	(0.087)	0.031	0.281
155	12.92	0.97	0.312	(0.086)	0.031	0.281
156	13.00	0.97	0.312	(0.086)	0.031	0.281
157	13.08	1.13	0.366	(0.085)	0.037	0.329
158	13.17	1.13	0.366	(0.085)	0.037	0.329
159	13.25	1.13	0.366	(0.084)	0.037	0.329
160	13.33	1.13	0.366	(0.084)	0.037	0.329
161	13.42	1.13	0.366	(0.084)	0.037	0.329
162	13.50	1.13	0.366	(0.083)	0.037	0.329
163	13.58	0.77	0.247	(0.083)	0.025	0.223
164	13.67	0.77	0.247	(0.082)	0.025	0.223
165	13.75	0.77	0.247	(0.082)	0.025	0.223
166	13.83	0.77	0.247	(0.081)	0.025	0.223
167	13.92	0.77	0.247	(0.081)	0.025	0.223
168	14.00	0.77	0.247	(0.081)	0.025	0.223
169	14.08	0.90	0.291	(0.080)	0.029	0.261
170	14.17	0.90	0.291	(0.080)	0.029	0.261
171	14.25	0.90	0.291	(0.079)	0.029	0.261
172	14.33	0.87	0.280	(0.079)	0.028	0.252
173	14.42	0.87	0.280	(0.079)	0.028	0.252
174	14.50	0.87	0.280	(0.078)	0.028	0.252
175	14.58	0.87	0.280	(0.078)	0.028	0.252
176	14.67	0.87	0.280	(0.077)	0.028	0.252
177	14.75	0.87	0.280	(0.077)	0.028	0.252
178	14.83	0.83	0.269	(0.077)	0.027	0.242
179	14.92	0.83	0.269	(0.076)	0.027	0.242
180	15.00	0.83	0.269	(0.076)	0.027	0.242
181	15.08	0.80	0.258	(0.075)	0.026	0.232
182	15.17	0.80	0.258	(0.075)	0.026	0.232
183	15.25	0.80	0.258	(0.075)	0.026	0.232
184	15.33	0.77	0.247	(0.074)	0.025	0.223
185	15.42	0.77	0.247	(0.074)	0.025	0.223
186	15.50	0.77	0.247	(0.073)	0.025	0.223
187	15.58	0.63	0.204	(0.073)	0.020	0.184
188	15.67	0.63	0.204	(0.073)	0.020	0.184
189	15.75	0.63	0.204	(0.072)	0.020	0.184
190	15.83	0.63	0.204	(0.072)	0.020	0.184
191	15.92	0.63	0.204	(0.072)	0.020	0.184
192	16.00	0.63	0.204	(0.071)	0.020	0.184
193	16.08	0.13	0.043	(0.071)	0.004	0.039
194	16.17	0.13	0.043	(0.071)	0.004	0.039
195	16.25	0.13	0.043	(0.070)	0.004	0.039
196	16.33	0.13	0.043	(0.070)	0.004	0.039
197	16.42	0.13	0.043	(0.069)	0.004	0.039
198	16.50	0.13	0.043	(0.069)	0.004	0.039
199	16.58	0.10	0.032	(0.069)	0.003	0.029
200	16.67	0.10	0.032	(0.068)	0.003	0.029
201	16.75	0.10	0.032	(0.068)	0.003	0.029
202	16.83	0.10	0.032	(0.068)	0.003	0.029
203	16.92	0.10	0.032	(0.067)	0.003	0.029
204	17.00	0.10	0.032	(0.067)	0.003	0.029

205	17.08	0.17	0.054	(0.067)	0.005	0.048
206	17.17	0.17	0.054	(0.066)	0.005	0.048
207	17.25	0.17	0.054	(0.066)	0.005	0.048
208	17.33	0.17	0.054	(0.066)	0.005	0.048
209	17.42	0.17	0.054	(0.065)	0.005	0.048
210	17.50	0.17	0.054	(0.065)	0.005	0.048
211	17.58	0.17	0.054	(0.065)	0.005	0.048
212	17.67	0.17	0.054	(0.064)	0.005	0.048
213	17.75	0.17	0.054	(0.064)	0.005	0.048
214	17.83	0.13	0.043	(0.064)	0.004	0.039
215	17.92	0.13	0.043	(0.063)	0.004	0.039
216	18.00	0.13	0.043	(0.063)	0.004	0.039
217	18.08	0.13	0.043	(0.063)	0.004	0.039
218	18.17	0.13	0.043	(0.063)	0.004	0.039
219	18.25	0.13	0.043	(0.062)	0.004	0.039
220	18.33	0.13	0.043	(0.062)	0.004	0.039
221	18.42	0.13	0.043	(0.062)	0.004	0.039
222	18.50	0.13	0.043	(0.061)	0.004	0.039
223	18.58	0.10	0.032	(0.061)	0.003	0.029
224	18.67	0.10	0.032	(0.061)	0.003	0.029
225	18.75	0.10	0.032	(0.060)	0.003	0.029
226	18.83	0.07	0.022	(0.060)	0.002	0.019
227	18.92	0.07	0.022	(0.060)	0.002	0.019
228	19.00	0.07	0.022	(0.060)	0.002	0.019
229	19.08	0.10	0.032	(0.059)	0.003	0.029
230	19.17	0.10	0.032	(0.059)	0.003	0.029
231	19.25	0.10	0.032	(0.059)	0.003	0.029
232	19.33	0.13	0.043	(0.058)	0.004	0.039
233	19.42	0.13	0.043	(0.058)	0.004	0.039
234	19.50	0.13	0.043	(0.058)	0.004	0.039
235	19.58	0.10	0.032	(0.058)	0.003	0.029
236	19.67	0.10	0.032	(0.057)	0.003	0.029
237	19.75	0.10	0.032	(0.057)	0.003	0.029
238	19.83	0.07	0.022	(0.057)	0.002	0.019
239	19.92	0.07	0.022	(0.057)	0.002	0.019
240	20.00	0.07	0.022	(0.056)	0.002	0.019
241	20.08	0.10	0.032	(0.056)	0.003	0.029
242	20.17	0.10	0.032	(0.056)	0.003	0.029
243	20.25	0.10	0.032	(0.056)	0.003	0.029
244	20.33	0.10	0.032	(0.055)	0.003	0.029
245	20.42	0.10	0.032	(0.055)	0.003	0.029
246	20.50	0.10	0.032	(0.055)	0.003	0.029
247	20.58	0.10	0.032	(0.055)	0.003	0.029
248	20.67	0.10	0.032	(0.054)	0.003	0.029
249	20.75	0.10	0.032	(0.054)	0.003	0.029
250	20.83	0.07	0.022	(0.054)	0.002	0.019
251	20.92	0.07	0.022	(0.054)	0.002	0.019
252	21.00	0.07	0.022	(0.054)	0.002	0.019
253	21.08	0.10	0.032	(0.053)	0.003	0.029
254	21.17	0.10	0.032	(0.053)	0.003	0.029
255	21.25	0.10	0.032	(0.053)	0.003	0.029
256	21.33	0.07	0.022	(0.053)	0.002	0.019
257	21.42	0.07	0.022	(0.053)	0.002	0.019
258	21.50	0.07	0.022	(0.052)	0.002	0.019
259	21.58	0.10	0.032	(0.052)	0.003	0.029
260	21.67	0.10	0.032	(0.052)	0.003	0.029
261	21.75	0.10	0.032	(0.052)	0.003	0.029
262	21.83	0.07	0.022	(0.052)	0.002	0.019
263	21.92	0.07	0.022	(0.051)	0.002	0.019
264	22.00	0.07	0.022	(0.051)	0.002	0.019
265	22.08	0.10	0.032	(0.051)	0.003	0.029
266	22.17	0.10	0.032	(0.051)	0.003	0.029
267	22.25	0.10	0.032	(0.051)	0.003	0.029
268	22.33	0.07	0.022	(0.051)	0.002	0.019
269	22.42	0.07	0.022	(0.050)	0.002	0.019
270	22.50	0.07	0.022	(0.050)	0.002	0.019
271	22.58	0.07	0.022	(0.050)	0.002	0.019
272	22.67	0.07	0.022	(0.050)	0.002	0.019
273	22.75	0.07	0.022	(0.050)	0.002	0.019
274	22.83	0.07	0.022	(0.050)	0.002	0.019
275	22.92	0.07	0.022	(0.050)	0.002	0.019
276	23.00	0.07	0.022	(0.049)	0.002	0.019
277	23.08	0.07	0.022	(0.049)	0.002	0.019
278	23.17	0.07	0.022	(0.049)	0.002	0.019
279	23.25	0.07	0.022	(0.049)	0.002	0.019
280	23.33	0.07	0.022	(0.049)	0.002	0.019
281	23.42	0.07	0.022	(0.049)	0.002	0.019

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282  23.50     0.07      0.022       (  0.049)       0.002        0.019
283  23.58     0.07      0.022       (  0.049)       0.002        0.019
284  23.67     0.07      0.022       (  0.049)       0.002        0.019
285  23.75     0.07      0.022       (  0.049)       0.002        0.019
286  23.83     0.07      0.022       (  0.049)       0.002        0.019
287  23.92     0.07      0.022       (  0.049)       0.002        0.019
288  24.00     0.07      0.022       (  0.049)       0.002        0.019
                (Loss Rate Not Used)
    Sum =     100.0                                   Sum =    29.1
       Flood volume = Effective rainfall      2.42(In)
        times area      21.6(Ac.)/[(In)/(Ft.)] =       4.4(Ac.Ft)
       Total soil loss =      0.27(In)
       Total soil loss =     0.485(Ac.Ft)
       Total rainfall =      2.69(In)
       Flood volume =      190273.5 Cubic Feet
       Total soil loss =       21141.5 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      7.188(CFS)
       ---------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                       R u n o f f      H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------------
   0+ 5       0.0014      0.20  Q         |         |         |         |
   0+10       0.0040      0.38  VQ        |         |         |         |
   0+15       0.0068      0.41  VQ        |         |         |         |
   0+20       0.0104      0.52  V Q       |         |         |         |
   0+25       0.0146      0.61  V Q       |         |         |         |
   0+30       0.0189      0.63  V Q       |         |         |         |
   0+35       0.0233      0.63  V Q       |         |         |         |
   0+40       0.0277      0.63  V Q       |         |         |         |
   0+45       0.0320      0.63  V Q       |         |         |         |
   0+50       0.0371      0.73  V Q       |         |         |         |
   0+55       0.0428      0.82  V  Q      |         |         |         |
   1+ 0       0.0485      0.84  V  Q      |         |         |         |
   1+ 5       0.0537      0.75  V Q       |         |         |         |
   1+10       0.0582      0.66  V Q       |         |         |         |
   1+15       0.0626      0.64  V Q       |         |         |         |
   1+20       0.0670      0.63  V Q       |         |         |         |
   1+25       0.0714      0.63  V Q       |         |         |         |
   1+30       0.0757      0.63  V Q       |         |         |         |
   1+35       0.0801      0.63  V Q       |         |         |         |
   1+40       0.0845      0.63  V Q       |         |         |         |
   1+45       0.0888      0.63  V Q       |         |         |         |
   1+50       0.0939      0.73  V Q       |         |         |         |
   1+55       0.0996      0.82  V  Q      |         |         |         |
   2+ 0       0.1053      0.84  V  Q      |         |         |         |
   2+ 5       0.1112      0.85  |V Q      |         |         |         |
   2+10       0.1170      0.85  |V Q      |         |         |         |
   2+15       0.1228      0.85  |V Q      |         |         |         |
   2+20       0.1286      0.85  |V Q      |         |         |         |
   2+25       0.1345      0.85  |V Q      |         |         |         |
   2+30       0.1403      0.85  |V Q      |         |         |         |
   2+35       0.1468      0.95  |V Q      |         |         |         |
   2+40       0.1539      1.03  |V  Q     |         |         |         |
   2+45       0.1611      1.05  |V  Q     |         |         |         |
   2+50       0.1684      1.06  |V  Q     |         |         |         |
   2+55       0.1757      1.06  |V  Q     |         |         |         |
   3+ 0       0.1830      1.06  |V  Q     |         |         |         |
   3+ 5       0.1903      1.06  |V  Q     |         |         |         |
   3+10       0.1975      1.06  |V  Q     |         |         |         |
   3+15       0.2048      1.06  |V  Q     |         |         |         |
   3+20       0.2121      1.06  |V  Q     |         |         |         |
   3+25       0.2194      1.06  | V Q     |         |         |         |
   3+30       0.2267      1.06  | V Q     |         |         |         |
   3+35       0.2339      1.06  | V Q     |         |         |         |
   3+40       0.2412      1.06  | V Q     |         |         |         |
   3+45       0.2485      1.06  | V Q     |         |         |         |
   3+50       0.2565      1.16  | V Q     |         |         |         |
   3+55       0.2651      1.25  | V Q     |         |         |         |
   4+ 0       0.2738      1.26  | V  Q    |         |         |         |
   4+ 5       0.2825      1.27  | V  Q    |         |         |         |
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 4+10       0.2912      1.27  | V  Q    |         |         |         |
 4+15       0.3000      1.27  | V  Q    |         |         |         |
 4+20       0.3094      1.37  | V  Q    |         |         |         |
 4+25       0.3194      1.46  | V  Q    |         |         |         |
 4+30       0.3296      1.47  |  V Q    |         |         |         |
 4+35       0.3398      1.48  |  V Q    |         |         |         |
 4+40       0.3500      1.48  |  V Q    |         |         |         |
 4+45       0.3601      1.48  |  V Q    |         |         |         |
 4+50       0.3710      1.58  |  V  Q   |         |         |         |
 4+55       0.3825      1.67  |  V  Q   |         |         |         |
 5+ 0       0.3941      1.68  |  V  Q   |         |         |         |
 5+ 5       0.4044      1.49  |  V Q    |         |         |         |
 5+10       0.4134      1.31  |  V Q    |         |         |         |
 5+15       0.4223      1.28  |  V Q    |         |         |         |
 5+20       0.4317      1.37  |  V Q    |         |         |         |
 5+25       0.4417      1.46  |   VQ    |         |         |         |
 5+30       0.4519      1.47  |   VQ    |         |         |         |
 5+35       0.4628      1.58  |   V Q   |         |         |         |
 5+40       0.4742      1.67  |   V Q   |         |         |         |
 5+45       0.4859      1.68  |   V Q   |         |         |         |
 5+50       0.4975      1.69  |   V Q   |         |         |         |
 5+55       0.5091      1.69  |   V Q   |         |         |         |
 6+ 0       0.5208      1.69  |   V Q   |         |         |         |
 6+ 5       0.5331      1.79  |   V  Q  |         |         |         |
 6+10       0.5461      1.88  |    V Q  |         |         |         |
 6+15       0.5591      1.90  |    V Q  |         |         |         |
 6+20       0.5722      1.90  |    V Q  |         |         |         |
 6+25       0.5853      1.90  |    V Q  |         |         |         |
 6+30       0.5985      1.90  |    V Q  |         |         |         |
 6+35       0.6122      2.00  |    V  Q |         |         |         |
 6+40       0.6267      2.09  |    V  Q |         |         |         |
 6+45       0.6412      2.11  |    V  Q |         |         |         |
 6+50       0.6557      2.11  |     V Q |         |         |         |
 6+55       0.6703      2.11  |     V Q |         |         |         |
 7+ 0       0.6848      2.11  |     V Q |         |         |         |
 7+ 5       0.6994      2.11  |     V Q |         |         |         |
 7+10       0.7140      2.11  |     V Q |         |         |         |
 7+15       0.7285      2.11  |     V Q |         |         |         |
 7+20       0.7438      2.21  |     V Q |         |         |         |
 7+25       0.7596      2.30  |     V  Q|         |         |         |
 7+30       0.7756      2.32  |      V Q|         |         |         |
 7+35       0.7923      2.43  |      V Q|         |         |         |
 7+40       0.8096      2.51  |      V  Q         |         |         |
 7+45       0.8271      2.53  |      V  Q         |         |         |
 7+50       0.8452      2.64  |      V  Q         |         |         |
 7+55       0.8640      2.73  |      V  Q         |         |         |
 8+ 0       0.8829      2.74  |       V Q         |         |         |
 8+ 5       0.9032      2.95  |       V |Q        |         |         |
 8+10       0.9247      3.13  |       V | Q       |         |         |
 8+15       0.9465      3.16  |       V | Q       |         |         |
 8+20       0.9683      3.17  |       V | Q       |         |         |
 8+25       0.9901      3.17  |        V| Q       |         |         |
 8+30       1.0120      3.17  |        V| Q       |         |         |
 8+35       1.0345      3.27  |        V|  Q      |         |         |
 8+40       1.0577      3.36  |        V|  Q      |         |         |
 8+45       1.0809      3.38  |        V|  Q      |         |         |
 8+50       1.1049      3.48  |         V  Q      |         |         |
 8+55       1.1295      3.57  |         V   Q     |         |         |
 9+ 0       1.1542      3.59  |         V   Q     |         |         |
 9+ 5       1.1803      3.79  |         V    Q    |         |         |
 9+10       1.2077      3.97  |         |V   Q    |         |         |
 9+15       1.2353      4.00  |         |V    Q   |         |         |
 9+20       1.2636      4.12  |         |V    Q   |         |         |
 9+25       1.2926      4.21  |         |V    Q   |         |         |
 9+30       1.3216      4.22  |         | V   Q   |         |         |
 9+35       1.3515      4.33  |         | V    Q  |         |         |
 9+40       1.3819      4.42  |         | V    Q  |         |         |
 9+45       1.4124      4.43  |         | V    Q  |         |         |
 9+50       1.4437      4.54  |         |  V    Q |         |         |
 9+55       1.4755      4.63  |         |  V    Q |         |         |
10+ 0       1.5075      4.64  |         |  V    Q |         |         |
10+ 5       1.5347      3.95  |         |   VQ    |         |         |
10+10       1.5577      3.33  |         |  QV     |         |         |
10+15       1.5798      3.22  |         | Q V     |         |         |
10+20       1.6017      3.17  |         | Q V     |         |         |
10+25       1.6235      3.17  |         | Q V     |         |         |
10+30       1.6454      3.17  |         | Q  V    |         |         |
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10+35       1.6706      3.67  |          |   QV    |          |          |
10+40       1.6990      4.11  |          |    VQ   |          |          |
10+45       1.7279      4.20  |          |    VQ   |          |          |
10+50       1.7570      4.23  |          |     Q   |          |          |
10+55       1.7861      4.23  |          |     Q   |          |          |
11+ 0       1.8152      4.23  |          |     Q   |          |          |
11+ 5       1.8437      4.13  |          |     Q   |          |          |
11+10       1.8715      4.04  |          |     QV  |          |          |
11+15       1.8992      4.02  |          |     QV  |          |          |
11+20       1.9269      4.02  |          |     QV  |          |          |
11+25       1.9545      4.02  |          |     QV  |          |          |
11+30       1.9822      4.02  |          |     Q V |          |          |
11+35       2.0085      3.82  |          |    Q  V |          |          |
11+40       2.0335      3.64  |          |   Q   V |          |          |
11+45       2.0584      3.61  |          |   Q   V |          |          |
11+50       2.0838      3.69  |          |   Q    V|          |          |
11+55       2.1099      3.78  |          |    Q   V|          |          |
12+ 0       2.1360      3.80  |          |    Q   V|          |          |
12+ 5       2.1671      4.51  |          |       QV|          |          |
12+10       2.2024      5.12  |          |         Q          |          |
12+15       2.2385      5.24  |          |         Q          |          |
12+20       2.2756      5.39  |          |         VQ         |          |
12+25       2.3133      5.47  |          |         |Q         |          |
12+30       2.3511      5.49  |          |         |Q         |          |
12+35       2.3903      5.70  |          |         |VQ        |          |
12+40       2.4308      5.87  |          |          | VQ      |          |
12+45       2.4714      5.91  |          |          | VQ      |          |
12+50       2.5129      6.02  |          |          |  VQ     |          |
12+55       2.5550      6.11  |          |          |  VQ     |          |
13+ 0       2.5971      6.12  |          |          |  VQ     |          |
13+ 5       2.6428      6.63  |          |          |   V Q   |          |
13+10       2.6915      7.07  |          |          |   V   Q |          |
13+15       2.7408      7.16  |          |          |    V  Q |          |
13+20       2.7903      7.19  |          |          |    V  Q |          |
13+25       2.8398      7.19  |          |          |     V Q |          |
13+30       2.8893      7.19  |          |          |     V Q |          |
13+35       2.9312      6.08  |          |          |   Q V   |          |
13+40       2.9665      5.12  |          |         Q      V  |          |
13+45       3.0005      4.93  |          |        Q|      V  |          |
13+50       3.0339      4.86  |          |        Q|      V  |          |
13+55       3.0674      4.86  |          |        Q|       V |          |
14+ 0       3.1009      4.86  |          |        Q|       V |          |
14+ 5       3.1372      5.26  |          |         |Q      V |          |
14+10       3.1758      5.62  |          |          | Q      V|          |
14+15       3.2150      5.68  |          |          | Q      V|          |
14+20       3.2536      5.61  |          |          | Q      V|          |
14+25       3.2916      5.52  |          |          | Q       V          |
14+30       3.3295      5.50  |          |          | Q       V          |
14+35       3.3674      5.50  |          |         |Q        V          |
14+40       3.4052      5.50  |          |         |Q        |V         |
14+45       3.4431      5.50  |          |         |Q        |V         |
14+50       3.4803      5.40  |          |         |Q        |V         |
14+55       3.5168      5.31  |          |         |Q        | V        |
15+ 0       3.5533      5.29  |          |         |Q        | V        |
15+ 5       3.5890      5.19  |          |         Q         | V        |
15+10       3.6241      5.10  |          |         Q         |  V       |
15+15       3.6591      5.08  |          |         Q         |  V       |
15+20       3.6933      4.97  |          |        Q|         |  V       |
15+25       3.7270      4.89  |          |        Q|         |   V      |
15+30       3.7605      4.87  |          |        Q|         |   V      |
15+35       3.7912      4.46  |          |      Q  |         |   V      |
15+40       3.8195      4.11  |          |     Q   |         |   V      |
15+45       3.8474      4.04  |          |     Q   |         |    V     |
15+50       3.8750      4.02  |          |     Q   |         |    V     |
15+55       3.9027      4.02  |          |     Q   |         |    V     |
16+ 0       3.9304      4.02  |          |     Q   |         |    V     |
16+ 5       3.9477      2.51  |         Q         |         |     V    |
16+10       3.9559      1.19  |    Q     |         |         |     V    |
16+15       3.9623      0.94  |  Q       |         |         |     V    |
16+20       3.9682      0.85  |  Q       |         |         |     V    |
16+25       3.9740      0.85  |  Q       |         |         |     V    |
16+30       3.9798      0.85  |  Q       |         |         |     V    |
16+35       3.9849      0.75  | Q        |         |         |     V    |
16+40       3.9895      0.66  | Q        |         |         |     V    |
16+45       3.9939      0.64  | Q        |         |         |     V    |
16+50       3.9983      0.63  | Q        |         |         |     V    |
16+55       4.0026      0.63  | Q        |         |         |     V    |
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17+ 0       4.0070      0.63  | Q       |         |         |     V   |
17+ 5       4.0127      0.83  |  Q      |         |         |     V   |
17+10       4.0197      1.01  |   Q     |         |         |     V   |
17+15       4.0269      1.04  |   Q     |         |         |     V   |
17+20       4.0342      1.06  |   Q     |         |         |     V   |
17+25       4.0415      1.06  |   Q     |         |         |      V  |
17+30       4.0487      1.06  |   Q     |         |         |      V  |
17+35       4.0560      1.06  |   Q     |         |         |      V  |
17+40       4.0633      1.06  |   Q     |         |         |      V  |
17+45       4.0706      1.06  |   Q     |         |         |      V  |
17+50       4.0772      0.96  |  Q      |         |         |      V  |
17+55       4.0832      0.87  |  Q      |         |         |      V  |
18+ 0       4.0890      0.85  |  Q      |         |         |      V  |
18+ 5       4.0948      0.85  |  Q      |         |         |      V  |
18+10       4.1007      0.85  |  Q      |         |         |      V  |
18+15       4.1065      0.85  |  Q      |         |         |      V  |
18+20       4.1123      0.85  |  Q      |         |         |      V  |
18+25       4.1181      0.85  |  Q      |         |         |      V  |
18+30       4.1240      0.85  |  Q      |         |         |      V  |
18+35       4.1291      0.75  | Q       |         |         |      V  |
18+40       4.1336      0.66  | Q       |         |         |      V  |
18+45       4.1380      0.64  | Q       |         |         |      V  |
18+50       4.1417      0.53  | Q       |         |         |      V  |
18+55       4.1448      0.45  |Q        |         |         |      V  |
19+ 0       4.1477      0.43  |Q        |         |         |      V  |
19+ 5       4.1513      0.52  | Q       |         |         |       V |
19+10       4.1556      0.61  | Q       |         |         |       V |
19+15       4.1599      0.63  | Q       |         |         |       V |
19+20       4.1649      0.73  | Q       |         |         |       V |
19+25       4.1706      0.82  |  Q      |         |         |       V |
19+30       4.1764      0.84  |  Q      |         |         |       V |
19+35       4.1815      0.75  | Q       |         |         |       V |
19+40       4.1860      0.66  | Q       |         |         |       V |
19+45       4.1905      0.64  | Q       |         |         |       V |
19+50       4.1941      0.53  | Q       |         |         |       V |
19+55       4.1972      0.45  |Q        |         |         |       V |
20+ 0       4.2002      0.43  |Q        |         |         |       V |
20+ 5       4.2038      0.52  | Q       |         |         |       V |
20+10       4.2080      0.61  | Q       |         |         |       V |
20+15       4.2123      0.63  | Q       |         |         |       V |
20+20       4.2167      0.63  | Q       |         |         |       V |
20+25       4.2210      0.63  | Q       |         |         |       V |
20+30       4.2254      0.63  | Q       |         |         |       V |
20+35       4.2298      0.63  | Q       |         |         |       V |
20+40       4.2341      0.63  | Q       |         |         |       V |
20+45       4.2385      0.63  | Q       |         |         |       V |
20+50       4.2422      0.53  | Q       |         |         |       V |
20+55       4.2452      0.45  |Q        |         |         |       V |
21+ 0       4.2482      0.43  |Q        |         |         |       V |
21+ 5       4.2518      0.52  | Q       |         |         |       V |
21+10       4.2560      0.61  | Q       |         |         |       V |
21+15       4.2603      0.63  | Q       |         |         |        V|
21+20       4.2640      0.53  | Q       |         |         |        V|
21+25       4.2671      0.45  |Q        |         |         |        V|
21+30       4.2700      0.43  |Q        |         |         |        V|
21+35       4.2736      0.52  | Q       |         |         |        V|
21+40       4.2779      0.61  | Q       |         |         |        V|
21+45       4.2822      0.63  | Q       |         |         |        V|
21+50       4.2859      0.53  | Q       |         |         |        V|
21+55       4.2889      0.45  |Q        |         |         |        V|
22+ 0       4.2919      0.43  |Q        |         |         |        V|
22+ 5       4.2955      0.52  | Q       |         |         |        V|
22+10       4.2997      0.61  | Q       |         |         |        V|
22+15       4.3040      0.63  | Q       |         |         |        V|
22+20       4.3077      0.53  | Q       |         |         |        V|
22+25       4.3108      0.45  |Q        |         |         |        V|
22+30       4.3137      0.43  |Q        |         |         |        V|
22+35       4.3166      0.42  |Q        |         |         |        V|
22+40       4.3196      0.42  |Q        |         |         |        V|
22+45       4.3225      0.42  |Q        |         |         |        V|
22+50       4.3254      0.42  |Q        |         |         |        V|
22+55       4.3283      0.42  |Q        |         |         |        V|
23+ 0       4.3312      0.42  |Q        |         |         |        V|
23+ 5       4.3341      0.42  |Q        |         |         |        V|
23+10       4.3370      0.42  |Q        |         |         |        V|
23+15       4.3399      0.42  |Q        |         |         |        V|
23+20       4.3428      0.42  |Q        |         |         |        V|
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   23+25       4.3458      0.42  |Q        |         |         |        V|
   23+30       4.3487      0.42  |Q        |         |         |        V|
   23+35       4.3516      0.42  |Q        |         |         |        V|
   23+40       4.3545      0.42  |Q        |         |         |        V|
   23+45       4.3574      0.42  |Q        |         |         |        V|
   23+50       4.3603      0.42  |Q        |         |         |        V|
   23+55       4.3632      0.42  |Q        |         |         |        V|
   24+ 0       4.3661      0.42  |Q        |         |         |        V|
   24+ 5       4.3677      0.22  Q         |         |         |        V|
   24+10       4.3680      0.05  Q         |         |         |        V|
   24+15       4.3681      0.01  Q         |         |         |        V|
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```
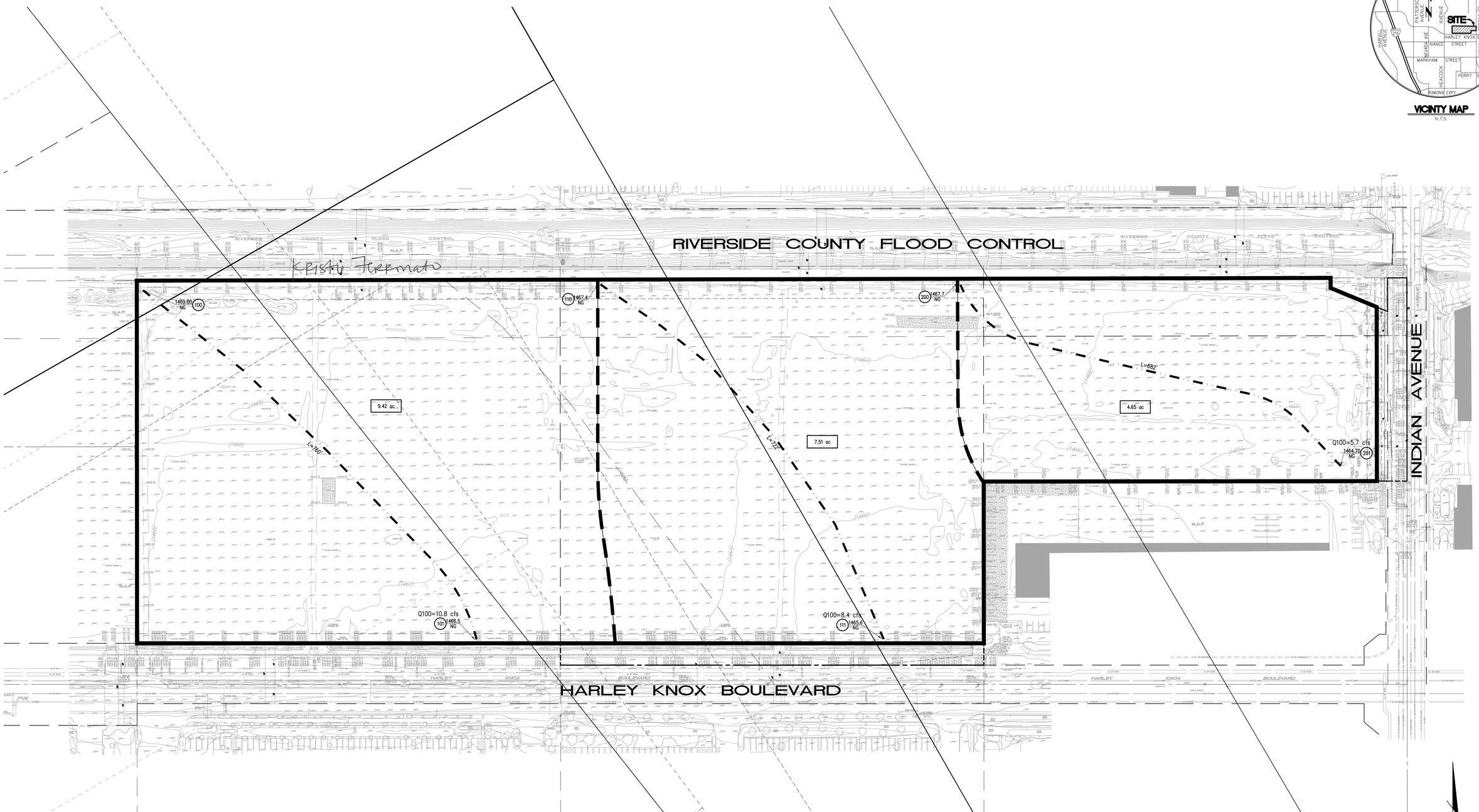
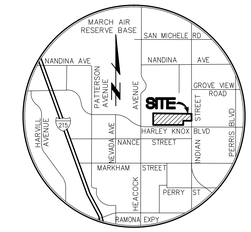

APPENDIX D

HYDROLOGY MAP





VICINITY MAP
N.T.S.

0 30 60 120 180
SCALE: 1"=60'

LEGEND

▬▬▬	PROJECT BOUNDARY
▬ ▬ ▬	SUBAREA BOUNDARY
▬▬▬	FLOW PATH
10.60 ac	SUBAREA AREA
(100)	NODE NUMBER

PREPARED FOR:
First Industrial Realty Trust, Inc.
898 N. Pacific Coast Highway Blvd., Suite 175
El Segundo, CA 90245
PHONE: (310) 414-5400
CONTACT: Matt Pioli
EMAIL: mpioli@firstindustrial.com

Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173
Last Update:5/20/22
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Designed by _____ Date _____
Checked by _____ Date _____
Designed by _____ Date _____
Checked by _____ Date _____

Approved by _____ Date _____
Public Works Director R.C.E. XXXXX

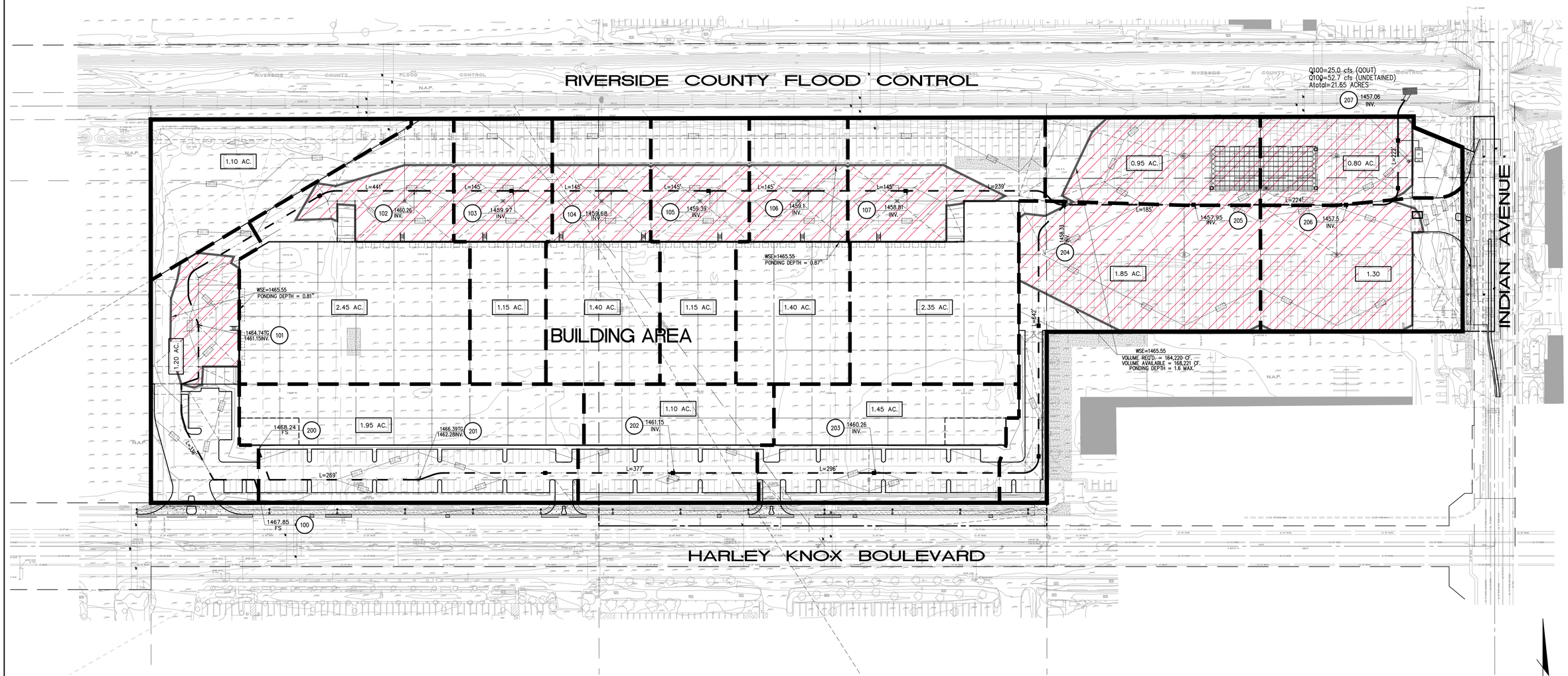
Sheet 1 of 1 Sheets

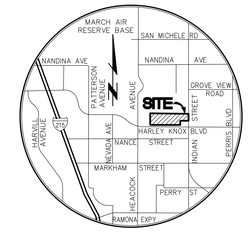
CITY OF PERRIS
PUBLIC WORKS DEPARTMENT

CONCEPTUAL HYDROLOGY MAP
(EXISTING CONDITION)

HARLEY KNOX INDUSTRIAL DEVELPMENT

4066/ 1 OF 1 SHEET





VICINITY MAP
N.T.S.

LEGEND

	PROJECT BOUNDARY
	SUBAREA BOUNDARY
	FLOW PATH
4.10 AC.	SUBAREA AREA
100	NODE NUMBER
	FLOW DIRECTION
	PONDING LIMITS

0 30 60 120 180
SCALE: 1"=60'

PREPARED FOR:

First Industrial Realty Trust, Inc.
898 N. Pacific Coast Highway Blvd., Suite 175
El Segundo, CA 90245
PHONE: (310) 414-5400
CONTACT: Matt Pioli
EMAIL: mpioli@firstindustrial.com

CITY OF PERRIS
PUBLIC WORKS DEPARTMENT

CONCEPTUAL HYDROLOGY MAP
(PROPOSED CONDITION)

HARLEY KNOX INDUSTRIAL DEVELPMENT

Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14,349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173

Last Update:1/25/22
O:\4000-4099\4066\4066CGP01-CGP.dwg

Designed by _____ Approved by _____ Date _____
Date _____
Checked by _____
Date _____
Designed by _____
Date _____
Checked by _____
Date _____

Public Works Director R.C.E. XXXXX

Sheet 1 of 1 Sheets

4066/1 OF 1 SHEET