Hydrology / Hydraulic Study
for
Kiley Family Trust

Tract 37154
Located in the County of Riverside, Ca

Prepared For:
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Revised
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Mitchell J. Adkison, R.C.E. NO. 75731 DATE
EXP. 6/30/20

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PROJECT DESCRIPTION

The project is located at the southwest corner of Litchi Street and Towhee Lane, In Section 13, Township 5 South Range 6 West, in the Temescal Canyon Area of Riverside County. The total size of the tract is 34.1+/- Gross acres and will only develop on 7.3+/- acres, leaving the remainder in its natural condition. The development will consist of 15 single family residences.

The tract is comprised of varied terrain ranging from smooth, low-gradient areas in the northeastern portion of the site, to steep, brushy slopes to the southwest that continue south into the greater Santa Ana Mountains. Existing site improvements include the two residences and their related overhead electric utility services. Mountainous terrain borders the property to the south and west. To the north is Temescal Valley Water District reservoir property, portions of future Tract No. 36317, and acreage that will be retained as open space south of future subdivided residential lots within Tentative Tract Map No. 37027. Vacant hillsides abut the east side of the project.

PURPOSE

Rational Hydrology Study:

The purpose of the rational hydrology report is to ensure storm water infrastructure is adequately sized for an anticipated 10- and 100-year storm events. This includes streets, catch basins, storm drains and drainage ditches. The tract has been designed to contain on-site flows for a 10-year storm event within the curb to curb street section and the 100-year storm volume within the right of way to right of way street section. Detailed hydrologic calculations are provided in Appendix A & B, hydraulic calculations for inlet structures and street capacities are provided in Appendix E.

Results from hydrology and hydraulic reports approved by Riverside County Flood Control for Tracts 31908 and 31908-1, prepared by Webb and Associates, were incorporated for offsite flow analysis from the adjacent canyon watersheds to the south and southwest. Storm water infrastructure was sized for the anticipated 100-year storm event with a bulking factor of 1.5 to handle potential debris. Emergency overflow routes were also taken into consideration should failure of the headwall or reinforced concrete piping occur and no offsite runoff is anticipated to intrude within lot pads. Detailed hydrologic calculations are provided in

Appendix C, hydraulic calculations for inlet structures and overflow routes are provided in Appendix E.

Unit Hydrology Study:

The purpose of the unit hydrology study is to demonstrate that the proposed development peak flow rates for the 2-year, 5-year and 10-year storm events have been mitigated to within 10% of the existing undeveloped peak flow rates in order to qualify for hydrologic condition of concern exemption.

EXISTING AND PROPOSED HYDROLOGY

The entire site currently drains predominantly from southeast to northwest. The tract is a receptor of collected runoff from the canyon watershed to the south. An existing flood control channel in located along the northern border of the tract which captures runoff from the southwest and discharges to an outlet structure east of Towhee Lane where it joins an existing natural channel that continues to run adjacent to the site, along the easterly boundary, and continues offsite to the northeast.

The proposed development will collect the majority of the off-site runoff from the canyon watershed through multiple interceptor drain and two headwalls. The runoff will be routed through a series of reinforced concrete pipes under Towhee Lane to the existing flood control outlet structure located at the north eastern corner tract, mimicking the pre-development flow path by discharging into the existing natural channel and flowing to the northeast. Due to the potentially erosive velocity of the existing channel as it continues to flow along the easterly limits of the site, and the relative proximity of proposed grading along this easterly boundary, rock slope protection is proposed along the westerly banks of the existing channel.

The on-site flows will be directed into proposed catch basins located at the northeastern corner of Towhee Lane and Litchi Street. These volumes will be routed through the proposed infiltration basin through a series of reinforced concrete pipes. Any storm event volumes which exceed the anticipated 2-year, 5-year and 10-year storm events will overflow through a 21’ spillway and discharge into the existing channel, continuing pre-development drainage patterns.

METHOD OF ANALYSIS.

The hydrology for the site was based on the Riverside County Flood Control & Conservation District (RCFC&WCD) Hydrology Manual, dated April 1978, from which pertinent information such as soil and rain fall data was obtained.

Hydrology calculations were generated using "RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM", Riverside County Flood Control & Water Conservation District 1978 Hydrology Manual, produced by Bondamin Engineering. Refer to Appendix A, B and C for results.

The site was also analyzed by the "SYNTHETIC UNIT HYDROLOGY METHOD COMPUTER PROGRAM", Riverside County Flood Control & Water Conservation District 1978 Hydrology Manual, produced by Bondamin Engineering, to determine 2-year, 5-year and 10-year storm event flowrates. The proposed hydrographs were routed through the on-site basin using "FLOOD HYDROGRAPH ROUTING PROGRAM" Riverside County Flood Control & Water Conservation District 1978 Hydrology Manual, produced by Bondamin Engineering, to determine adequate sizing of the basin itself and all outlets structures. Refer to Appendix D for results.

Proposed improvements were analyzed by the integration of data from WSPGW, Flowmaster by Haestad Methods. Flowmaster by Haestad Methods was used to calculate the capacity of the interceptor drains, drop inlets and catch basin inlets. To properly assess the improvements, the system was analyzed using Civildesign Corp's Water Surface and Pressure Gradient Hydraulic Analysis System Program (WSPGW). The hydraulic grade line was used to ensure proper sizing and operation of storm drain facilities. Calculations are included in Appendix E.

Reference is made Sycamore Creek Offsite Drainage Tract 31908 & 31908-1 prepared by Albert A. Webb Associates.

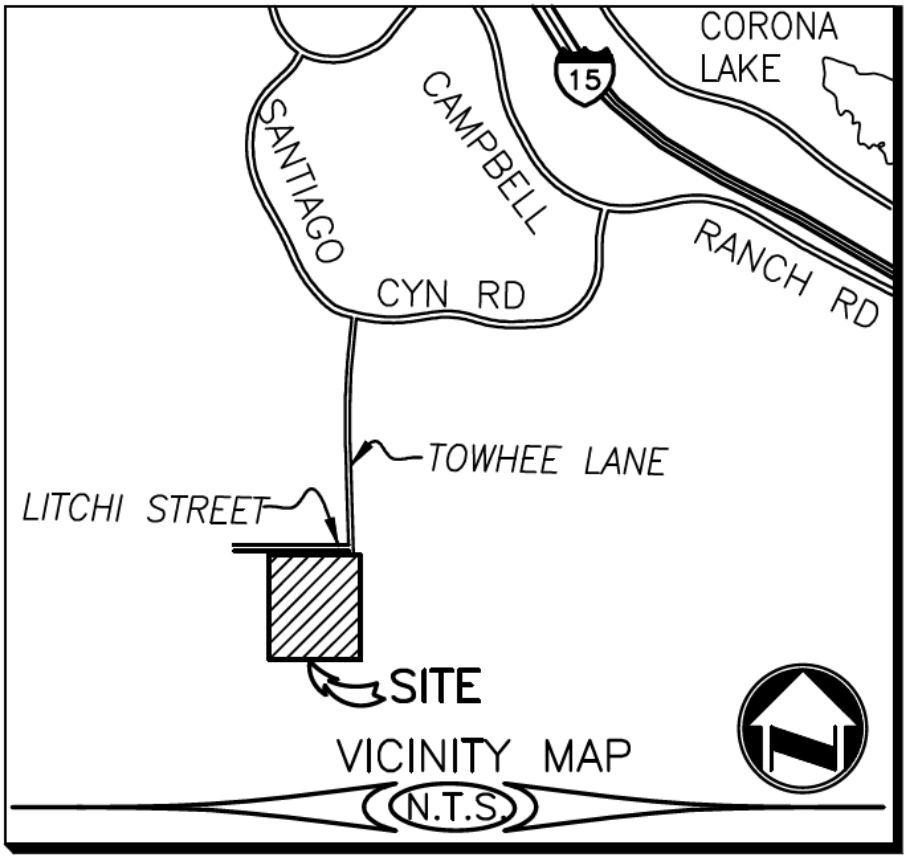
To determine the 100-year flood limits and velocities of the existing channel, which abuts the easterly tract boundary, an analysis was performed using "HEC-RAS, RIVER ANALYSIS SYSTEM" provided by the U.S. Army Corps of Engineers. The subcritical flow regime was used to determine the flood limits and the supercritical flow regime was used to determine the velocities. After reviewing the results from the HEC-RAS analysis it was determined that rock slope protection was necessary to mitigate any potential erosive effects of

the existing channel to the proposed earthwork. Rock slope protection was designed using Chapter 5 of the "CALIFORNIA BANK AND SHORE ROCK SLOPE PROTECTION" document provided by CALTRANS. Cut-off wall embedment depths were determined using Los Angeles County's Hydraulic Design Manual. Refer to Appendix F for HEC-RAS analysis results and RSP design calculations.

CONCLUSIONS

The hydrologic and hydraulics calculations provided herein substantiate the design of the proposed project to indicate adequate sizing of proposed headwalls, inlets, storm drains and slope protection. The site has been shown to mitigate the 2-year, 5-year and 10-year storm events to within 10 percent of pre-development values.

VICINITY MAP



SEC. 13, T.5S, R.6W

APPENDIX A - 10 & 100 YEAR EXISTING RATIONAL

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                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2004 Version 7.0
        Rational Hydrology Study        Date: 01/07/20  File:EX10.out
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 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

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Program License Serial Number 5006

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Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Elsinore-Wildomar ] area used.
10 year storm 10 minute intensity =  2.320(In/Hr)
10 year storm 60 minute intensity =  0.980(In/Hr)
100 year storm 10 minute intensity =  3.540(In/Hr)
100 year storm 60 minute intensity =  1.500(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.980(In/Hr)
Slope of intensity duration curve = 0.4800




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Process from Point/Station        1.000(Ft.) to Point/Station        2.000(Ft.)
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =     1.000(Ft.)
Top (of initial area) elevation =  1437.000(Ft.)
Bottom (of initial area) elevation =  1388.100(Ft.)
Difference in elevation =    48.900(Ft.)
Slope =   48.90000  s(percent)=    4890.00
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      3.230(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.748
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  67.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =     15.028(CFS)
Total initial stream area =        6.220(Ac.)
Pervious area fraction = 1.000
End of computations, total study area =            6.22 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  67.0
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                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2004 Version 7.0
        Rational Hydrology Study        Date: 01/07/20  File:EX100.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

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Program License Serial Number 5006

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Elsinore-Wildomar ] area used.
10 year storm 10 minute intensity =  2.320(In/Hr)
10 year storm 60 minute intensity =  0.980(In/Hr)
100 year storm 10 minute intensity =  3.540(In/Hr)
100 year storm 60 minute intensity =  1.500(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.500(In/Hr)
Slope of intensity duration curve = 0.4800




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Process from Point/Station        1.000(Ft.) to Point/Station        2.000(Ft.)
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =     1.000(Ft.)
Top (of initial area) elevation =  1437.000(Ft.)
Bottom (of initial area) elevation =  1388.100(Ft.)
Difference in elevation =    48.900(Ft.)
Slope =   48.90000  s(percent)=    4890.00
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      4.944(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.794
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  67.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =     24.433(CFS)
Total initial stream area =        6.220(Ac.)
Pervious area fraction = 1.000
End of computations, total study area =            6.22 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  67.0
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TRACT 37154
EXISTING HYDROLOGY MAP

LEGEND

AREA | ACRES
LENGTH | SOIL

NODE
ELEV

WATERSHED BOUNDARY

FLOW PATH

0 40 120
20 80 160
SCALE: 1" = 40'

PRELIMINARY EXISTING HYDROLOGY MAP
PREPARATION DATE : JANUARY 2019
REVISION DATE : JANUARY 2020

PLAN PREPARED BY:

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APPENDIX B – 10 & 100 Year Proposed Rational

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                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2004 Version 7.0
        Rational Hydrology Study        Date: 01/07/20  File:PRO10.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

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


Program License Serial Number 5006

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Elsinore-Wildomar ] area used.
10 year storm 10 minute intensity =  2.320(In/Hr)
10 year storm 60 minute intensity =  0.980(In/Hr)
100 year storm 10 minute intensity =  3.540(In/Hr)
100 year storm 60 minute intensity =  1.500(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.980(In/Hr)
Slope of intensity duration curve = 0.4800




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Process from Point/Station      120.000 to Point/Station      121.000
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
Initial area flow distance =   935.000(Ft.)
Top (of initial area) elevation =  1431.000(Ft.)
Bottom (of initial area) elevation =  1396.000(Ft.)
Difference in elevation =    35.000(Ft.)
Slope =    0.03743  s(percent)=       3.74
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.607 min.
Rainfall intensity =      2.156(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.644
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  32.00
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      3.043(CFS)
Total initial stream area =        2.190(Ac.)
Pervious area fraction = 0.500


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Process from Point/Station      121.000 to Point/Station      122.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
____________________________________________________________________________
Upstream point/station elevation =  1396.000(Ft.)
Downstream point/station elevation =  1384.800(Ft.)
Pipe length  =    44.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.043(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     3.043(CFS)
Normal flow depth in pipe =    3.76(In.)
Flow top width inside pipe =    8.88(In.)
Critical depth could not be calculated.
Pipe flow velocity =     17.41(Ft/s)
Travel time through pipe =    0.04 min.
Time of concentration (TC) =    11.65 min.
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Process from Point/Station      122.000 to Point/Station      122.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.190(Ac.)
Runoff from this stream =      3.043(CFS)
Time of concentration =   11.65 min.
Rainfall intensity =     2.152(In/Hr)


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Process from Point/Station      123.000 to Point/Station      124.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
Initial area flow distance =   730.000(Ft.)
Top (of initial area) elevation =  1421.000(Ft.)
Bottom (of initial area) elevation =  1395.500(Ft.)
Difference in elevation =    25.500(Ft.)
Slope =    0.03493  s(percent)=       3.49
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.660 min.
Rainfall intensity =      2.246(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.649
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  32.00
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      3.440(CFS)
Total initial stream area =        2.360(Ac.)
Pervious area fraction = 0.500


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Process from Point/Station      124.000 to Point/Station      122.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =  1395.500(Ft.)
Downstream point/station elevation =  1384.800(Ft.)
Pipe length  =    74.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.440(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     3.440(CFS)
Normal flow depth in pipe =    4.75(In.)
Flow top width inside pipe =    8.99(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.56(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =    10.74 min.


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Process from Point/Station      122.000 to Point/Station      122.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.360(Ac.)
Runoff from this stream =      3.440(CFS)
Time of concentration =   10.74 min.
Rainfall intensity =     2.238(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                  (In/Hr)


1        3.043     11.65                 2.152
2        3.440     10.74                 2.238
Largest stream flow has longer or shorter time of concentration
Qp =      3.440 + sum of
          Qa          Tb/Ta
           3.043 *    0.922 =      2.807
Qp =      6.247

Total of 2 streams to confluence:
Flow rates before confluence point:
       3.043       3.440
Area of streams before confluence:
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        2.190        2.360
Results of confluence:
Total flow rate =      6.247(CFS)
Time of concentration =    10.745 min.
Effective stream area after confluence =      4.550(Ac.)


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Process from Point/Station      122.000 to Point/Station      125.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1384.800(Ft.)
Downstream point/station elevation =  1380.300(Ft.)
Pipe length  =   103.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.247(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     6.247(CFS)
Normal flow depth in pipe =    8.41(In.)
Flow top width inside pipe =   10.99(In.)
Critical depth could not be calculated.
Pipe flow velocity =     10.62(Ft/s)
Travel time through pipe =    0.16 min.
Time of concentration (TC) =    10.91 min.


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Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      4.550(Ac.)
Runoff from this stream =      6.247(CFS)
Time of concentration =   10.91 min.
Rainfall intensity =     2.222(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      126.000 to Point/Station      127.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   914.000(Ft.)
Top (of initial area) elevation =  1436.000(Ft.)
Bottom (of initial area) elevation =  1388.100(Ft.)
Difference in elevation =    47.900(Ft.)
Slope =    0.05241  s(percent)=       5.24
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.754 min.
Rainfall intensity =      2.237(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.649
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  32.00
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      2.422(CFS)
Total initial stream area =        1.670(Ac.)
Pervious area fraction = 0.500


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Process from Point/Station      127.000 to Point/Station      125.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1388.100(Ft.)
Downstream point/station elevation =  1380.300(Ft.)
Pipe length  =    19.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.422(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     2.422(CFS)
Normal flow depth in pipe =    3.61(In.)
Flow top width inside pipe =    5.88(In.)
Critical depth could not be calculated.
Pipe flow velocity =     19.65(Ft/s)
Travel time through pipe =    0.02 min.
Time of concentration (TC) =    10.77 min.


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Process from Point/Station      125.000 to Point/Station      125.000
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**** CONFLUENCE OF MINOR STREAMS ****
--------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.670(Ac.)
Runoff from this stream =      2.422(CFS)
Time of concentration =   10.77 min.
Rainfall intensity =     2.235(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        6.247     10.91                  2.222
2        2.422     10.77                  2.235
Largest stream flow has longer time of concentration
Qp =      6.247 + sum of
          Qb         Ia/Ib
           2.422 *    0.994 =      2.408
Qp =      8.654

Total of 2 streams to confluence:
Flow rates before confluence point:
       6.247       2.422
Area of streams before confluence:
        4.550        1.670
Results of confluence:
Total flow rate =      8.654(CFS)
Time of concentration =    10.906 min.
Effective stream area after confluence =      6.220(Ac.)


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Process from Point/Station      125.000 to Point/Station      128.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
--------------------------------------------------------------------------------
Upstream point/station elevation =  1380.300(Ft.)
Downstream point/station elevation =  1379.000(Ft.)
Pipe length  =    32.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     8.654(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     8.654(CFS)
Normal flow depth in pipe =    8.94(In.)
Flow top width inside pipe =   14.72(In.)
Critical Depth =   13.72(In.)
Pipe flow velocity =     11.35(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =    10.95 min.
End of computations, total study area =            6.22 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  32.0
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                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2004 Version 7.0
        Rational Hydrology Study        Date: 01/25/19  File:offsite10.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

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


Program License Serial Number 5006

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Elsinore-Wildomar ] area used.
10 year storm 10 minute intensity =  2.320(In/Hr)
10 year storm 60 minute intensity =  0.980(In/Hr)
100 year storm 10 minute intensity =  3.540(In/Hr)
100 year storm 60 minute intensity =  1.500(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.980(In/Hr)
Slope of intensity duration curve = 0.4800




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
Rainfall intensity =      2.061(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.816
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.900
Decimal fraction soil group D = 0.100
RI index for soil(AMC 2)  =  86.30
Pervious area fraction =  1.000; Impervious fraction =  0.000
User specified values are as follows:
TC =  12.75 min.  Rain intensity =       2.06(In/Hr)
Total area =       107.85(Ac.)  Total runoff =    178.32(CFS)


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Process from Point/Station      103.000 to Point/Station      104.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of natural channel elevation =   1610.000(Ft.)
End of natural channel elevation =   1415.000(Ft.)
Length of natural channel  =  1897.000(Ft.)
Estimated mean flow rate at midpoint of channel =    216.183(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =  19.18(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.1028
Corrected/adjusted channel slope =  0.1020
Travel time =    1.65 min.     TC =   14.40  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.830
Decimal fraction soil group A = 0.000
```

```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 2)  =  89.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.944(In/Hr) for a    10.0 year storm
Subarea runoff =     73.880(CFS) for     45.800(Ac.)
Total runoff =    252.200(CFS)       Total area =     153.650(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1415.000(Ft.)
Downstream point/station elevation =  1411.800(Ft.)
Pipe length  =   134.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   252.200(CFS)
Nearest computed pipe diameter  =     51.00(In.)
Calculated individual pipe flow  =   252.200(CFS)
Normal flow depth in pipe =   40.31(In.)
Flow top width inside pipe =   41.51(In.)
Critical depth could not be calculated.
Pipe flow velocity =     20.95(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =    14.50 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =    153.650(Ac.)
Runoff from this stream =    252.200(CFS)
Time of concentration =   14.50 min.
Rainfall intensity =     1.937(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   262.000(Ft.)
Top (of initial area) elevation =  1603.000(Ft.)
Bottom (of initial area) elevation =  1441.000(Ft.)
Difference in elevation =   162.000(Ft.)
Slope =    0.61832  s(percent)=      61.83
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.412 min.
Rainfall intensity =      3.110(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.855
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 2)  =  89.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      1.887(CFS)
Total initial stream area =        0.710(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1441.000(Ft.)
Downstream point/station elevation =  1411.800(Ft.)
Pipe length  =    93.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.887(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     1.887(CFS)
Normal flow depth in pipe =    3.35(In.)
Flow top width inside pipe =    5.96(In.)
Critical depth could not be calculated.
Pipe flow velocity =     16.74(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =     5.50 min.
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.710(Ac.)
Runoff from this stream =      1.887(CFS)
Time of concentration =    5.50 min.
Rainfall intensity =     3.085(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1      252.200     14.50                 1.937
2        1.887      5.50                 3.085
Largest stream flow has longer time of concentration
Qp =    252.200 + sum of
          Qb         Ia/Ib
           1.887 *    0.628 =      1.185
Qp =    253.385

Total of 2 streams to confluence:
Flow rates before confluence point:
     252.200       1.887
Area of streams before confluence:
      153.650        0.710
Results of confluence:
Total flow rate =    253.385(CFS)
Time of concentration =    14.505 min.
Effective stream area after confluence =    154.360(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
____________________________________________________________________________
Upstream point/station elevation =  1411.800(Ft.)
Downstream point/station elevation =  1411.500(Ft.)
Pipe length  =     8.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   253.385(CFS)
Nearest computed pipe diameter  =     48.00(In.)
Calculated individual pipe flow  =   253.385(CFS)
Normal flow depth in pipe =   35.95(In.)
Flow top width inside pipe =   41.62(In.)
Critical depth could not be calculated.
Pipe flow velocity =     25.09(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =    14.51 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      108.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =    154.360(Ac.)
Runoff from this stream =    253.385(CFS)
Time of concentration =   14.51 min.
Rainfall intensity =     1.937(In/Hr)


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Process from Point/Station      109.000 to Point/Station      110.000
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
Initial area flow distance =   677.000(Ft.)
Top (of initial area) elevation =  1608.000(Ft.)
Bottom (of initial area) elevation =  1427.000(Ft.)
Difference in elevation =   181.000(Ft.)
Slope =    0.26736  s(percent)=      26.74
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.356 min.
Rainfall intensity =      2.391(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.842
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
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```
Decimal fraction soil group D = 1.000
RI index for soil(AMC 2)  =  89.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      3.080(CFS)
Total initial stream area =        1.530(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1427.000(Ft.)
Downstream point/station elevation =  1411.500(Ft.)
Pipe length  =    83.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.080(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     3.080(CFS)
Normal flow depth in pipe =    4.13(In.)
Flow top width inside pipe =    8.97(In.)
Critical depth could not be calculated.
Pipe flow velocity =     15.58(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =     9.44 min.


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Process from Point/Station      108.000 to Point/Station      108.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.530(Ac.)
Runoff from this stream =      3.080(CFS)
Time of concentration =    9.44 min.
Rainfall intensity =     2.380(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1      253.385     14.51                 1.937
2        3.080      9.44                 2.380
Largest stream flow has longer time of concentration
Qp =    253.385 + sum of
          Qb         Ia/Ib
           3.080 *    0.814 =      2.507
Qp =    255.892

Total of 2 streams to confluence:
Flow rates before confluence point:
     253.385       3.080
Area of streams before confluence:
      154.360        1.530
Results of confluence:
Total flow rate =    255.892(CFS)
Time of concentration =    14.510 min.
Effective stream area after confluence =    155.890(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      111.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1411.500(Ft.)
Downstream point/station elevation =  1408.200(Ft.)
Pipe length  =    77.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   255.892(CFS)
Nearest computed pipe diameter  =     45.00(In.)
Calculated individual pipe flow  =   255.892(CFS)
Normal flow depth in pipe =   37.88(In.)
Flow top width inside pipe =   32.85(In.)
Critical depth could not be calculated.
Pipe flow velocity =     25.81(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =    14.56 min.


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Process from Point/Station      111.000 to Point/Station      111.000
**** CONFLUENCE OF MAIN STREAMS ****
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The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =    155.890(Ac.)
Runoff from this stream =    255.892(CFS)
Time of concentration =   14.56 min.
Rainfall intensity =     1.934(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      113.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  1833.500(Ft.)
Bottom (of initial area) elevation =  1560.000(Ft.)
Difference in elevation =   273.500(Ft.)
Slope =    0.27350  s(percent)=      27.35
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.886 min.
Rainfall intensity =      2.223(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.838
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 2)  =  89.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =     11.700(CFS)
Total initial stream area =        6.280(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station      113.000 to Point/Station      113.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      6.280(Ac.)
Runoff from this stream =     11.700(CFS)
Time of concentration =   10.89 min.
Rainfall intensity =     2.223(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      113.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   614.000(Ft.)
Top (of initial area) elevation =  1705.000(Ft.)
Bottom (of initial area) elevation =  1560.000(Ft.)
Difference in elevation =   145.000(Ft.)
Slope =    0.23616  s(percent)=      23.62
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.224 min.
Rainfall intensity =      2.408(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.842
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 2)  =  89.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      8.173(CFS)
Total initial stream area =        4.030(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      113.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      4.030(Ac.)
Runoff from this stream =      8.173(CFS)
Time of concentration =    9.22 min.
Rainfall intensity =     2.408(In/Hr)
Summary of stream data:
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```
Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       11.700     10.89                 2.223
2        8.173      9.22                 2.408
Largest stream flow has longer time of concentration
Qp =     11.700 + sum of
          Qb         Ia/Ib
           8.173 *    0.924 =      7.548
Qp =     19.248

Total of 2 streams to confluence:
Flow rates before confluence point:
      11.700       8.173
Area of streams before confluence:
        6.280        4.030
Results of confluence:
Total flow rate =     19.248(CFS)
Time of concentration =    10.886 min.
Effective stream area after confluence =     10.310(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      115.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of natural channel elevation =   1560.000(Ft.)
End of natural channel elevation =   1429.000(Ft.)
Length of natural channel  =   775.000(Ft.)
Estimated mean flow rate at midpoint of channel =     27.705(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =  12.45(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.1690
Corrected/adjusted channel slope =  0.1445
Travel time =    1.04 min.     TC =   11.92  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.835
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 2)  =  89.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.128(In/Hr) for a    10.0 year storm
Subarea runoff =     16.108(CFS) for      9.060(Ac.)
Total runoff =     35.356(CFS)       Total area =      19.370(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      115.000 to Point/Station      116.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1429.000(Ft.)
Downstream point/station elevation =  1412.200(Ft.)
Pipe length  =    30.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    35.356(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    35.356(CFS)
Normal flow depth in pipe =    9.53(In.)
Flow top width inside pipe =   14.44(In.)
Critical depth could not be calculated.
Pipe flow velocity =     43.01(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =    11.94 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      116.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
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Along Main Stream number: 2 in normal stream number 1
Stream flow area =     19.370(Ac.)
Runoff from this stream =     35.356(CFS)
Time of concentration =   11.94 min.
Rainfall intensity =     2.127(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      118.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   414.000(Ft.)
Top (of initial area) elevation =  1570.000(Ft.)
Bottom (of initial area) elevation =  1435.000(Ft.)
Difference in elevation =   135.000(Ft.)
Slope =    0.32609  s(percent)=      32.61
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.386 min.
Rainfall intensity =      2.679(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.848
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 2)  =  89.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      1.294(CFS)
Total initial stream area =        0.570(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      116.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1435.000(Ft.)
Downstream point/station elevation =  1412.200(Ft.)
Pipe length  =   116.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.294(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     1.294(CFS)
Normal flow depth in pipe =    3.07(In.)
Flow top width inside pipe =    6.00(In.)
Critical depth could not be calculated.
Pipe flow velocity =     12.79(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =     7.54 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      116.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.570(Ac.)
Runoff from this stream =      1.294(CFS)
Time of concentration =    7.54 min.
Rainfall intensity =     2.653(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       35.356     11.94                2.127
2        1.294      7.54                2.653
Largest stream flow has longer time of concentration
Qp =     35.356 + sum of
          Qb         Ia/Ib
           1.294 *    0.802 =      1.038
Qp =     36.394

Total of 2 streams to confluence:
Flow rates before confluence point:
      35.356       1.294
Area of streams before confluence:
       19.370        0.570
Results of confluence:
Total flow rate =     36.394(CFS)
Time of concentration =    11.935 min.
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Effective stream area after confluence =     19.940(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      111.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1412.200(Ft.)
Downstream point/station elevation =  1408.200(Ft.)
Pipe length  =    93.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    36.394(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    36.394(CFS)
Normal flow depth in pipe =   15.89(In.)
Flow top width inside pipe =   22.70(In.)
Critical depth could not be calculated.
Pipe flow velocity =     16.50(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =    12.03 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      111.000
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =     19.940(Ac.)
Runoff from this stream =     36.394(CFS)
Time of concentration =   12.03 min.
Rainfall intensity =     2.119(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1      255.892     14.56               1.934
2       36.394     12.03               2.119
Largest stream flow has longer time of concentration
Qp =    255.892 + sum of
          Qb          Ia/Ib
          36.394 *    0.912 =     33.207
Qp =    289.099

Total of 2 main streams to confluence:
Flow rates before confluence point:
     255.892      36.394
Area of streams before confluence:
      155.890       19.940


Results of confluence:
Total flow rate =    289.099(CFS)
Time of concentration =    14.560 min.
Effective stream area after confluence  =    175.830(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1408.200(Ft.)
Downstream point/station elevation =  1384.000(Ft.)
Pipe length  =   506.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   289.099(CFS)
Nearest computed pipe diameter  =     48.00(In.)
Calculated individual pipe flow  =   289.099(CFS)
Normal flow depth in pipe =   36.28(In.)
Flow top width inside pipe =   41.24(In.)
Critical depth could not be calculated.
Pipe flow velocity =     28.36(Ft/s)
Travel time through pipe =    0.30 min.
Time of concentration (TC) =    14.86 min.
End of computations, total study area =          175.83 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  87.3
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                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2004 Version 7.0
        Rational Hydrology Study        Date: 01/07/20  File:PRO.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

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


Program License Serial Number 5006

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Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Elsinore-Wildomar ] area used.
10 year storm 10 minute intensity =  2.320(In/Hr)
10 year storm 60 minute intensity =  0.980(In/Hr)
100 year storm 10 minute intensity =  3.540(In/Hr)
100 year storm 60 minute intensity =  1.500(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.500(In/Hr)
Slope of intensity duration curve = 0.4800




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.000 to Point/Station      121.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   935.000(Ft.)
Top (of initial area) elevation =  1431.000(Ft.)
Bottom (of initial area) elevation =  1396.000(Ft.)
Difference in elevation =    35.000(Ft.)
Slope =    0.03743  s(percent)=       3.74
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.607 min.
Rainfall intensity =      3.300(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.692
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  32.00
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      5.002(CFS)
Total initial stream area =        2.190(Ac.)
Pervious area fraction = 0.500


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      122.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1396.000(Ft.)
Downstream point/station elevation =  1384.800(Ft.)
Pipe length  =    44.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.002(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     5.002(CFS)
Normal flow depth in pipe =    5.02(In.)
Flow top width inside pipe =    8.94(In.)
Critical depth could not be calculated.
Pipe flow velocity =     19.74(Ft/s)
Travel time through pipe =    0.04 min.
Time of concentration (TC) =    11.64 min.
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      122.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.190(Ac.)
Runoff from this stream =      5.002(CFS)
Time of concentration =   11.64 min.
Rainfall intensity =     3.295(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      123.000 to Point/Station      124.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
Initial area flow distance =   730.000(Ft.)
Top (of initial area) elevation =  1421.000(Ft.)
Bottom (of initial area) elevation =  1395.500(Ft.)
Difference in elevation =    25.500(Ft.)
Slope =    0.03493  s(percent)=       3.49
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.660 min.
Rainfall intensity =      3.438(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.697
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  32.00
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      5.652(CFS)
Total initial stream area =        2.360(Ac.)
Pervious area fraction = 0.500


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      124.000 to Point/Station      122.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =  1395.500(Ft.)
Downstream point/station elevation =  1384.800(Ft.)
Pipe length  =    74.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.652(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     5.652(CFS)
Normal flow depth in pipe =    6.67(In.)
Flow top width inside pipe =    7.89(In.)
Critical depth could not be calculated.
Pipe flow velocity =     16.11(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =    10.74 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      122.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.360(Ac.)
Runoff from this stream =      5.652(CFS)
Time of concentration =   10.74 min.
Rainfall intensity =     3.426(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                  (In/Hr)


1        5.002     11.64                 3.295
2        5.652     10.74                 3.426
Largest stream flow has longer or shorter time of concentration
Qp =      5.652 + sum of
          Qa          Tb/Ta
           5.002 *    0.922 =      4.612
Qp =     10.264

Total of 2 streams to confluence:
Flow rates before confluence point:
       5.002       5.652
Area of streams before confluence:
```

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        2.190        2.360
Results of confluence:
Total flow rate =     10.264(CFS)
Time of concentration =    10.736 min.
Effective stream area after confluence =      4.550(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      125.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  1384.800(Ft.)
Downstream point/station elevation =  1380.300(Ft.)
Pipe length  =   103.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    10.264(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    10.264(CFS)
Normal flow depth in pipe =    9.79(In.)
Flow top width inside pipe =   14.29(In.)
Critical depth could not be calculated.
Pipe flow velocity =     12.11(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =    10.88 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      4.550(Ac.)
Runoff from this stream =     10.264(CFS)
Time of concentration =   10.88 min.
Rainfall intensity =     3.405(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      126.000 to Point/Station      127.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   914.000(Ft.)
Top (of initial area) elevation =  1436.000(Ft.)
Bottom (of initial area) elevation =  1388.100(Ft.)
Difference in elevation =    47.900(Ft.)
Slope =    0.05241  s(percent)=       5.24
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.754 min.
Rainfall intensity =      3.423(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.696
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  32.00
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      3.980(CFS)
Total initial stream area =        1.670(Ac.)
Pervious area fraction = 0.500


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      127.000 to Point/Station      125.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  1388.100(Ft.)
Downstream point/station elevation =  1380.300(Ft.)
Pipe length  =    19.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.980(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     3.980(CFS)
Normal flow depth in pipe =    3.82(In.)
Flow top width inside pipe =    8.90(In.)
Critical depth could not be calculated.
Pipe flow velocity =     22.28(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =    10.77 min.


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Process from Point/Station      125.000 to Point/Station      125.000
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**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.670(Ac.)
Runoff from this stream =      3.980(CFS)
Time of concentration =   10.77 min.
Rainfall intensity =     3.421(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       10.264     10.88                  3.405
2        3.980     10.77                  3.421
Largest stream flow has longer time of concentration
Qp =     10.264 + sum of
          Qb         Ia/Ib
           3.980 *    0.995 =      3.961
Qp =     14.225

Total of 2 streams to confluence:
Flow rates before confluence point:
      10.264       3.980
Area of streams before confluence:
        4.550        1.670
Results of confluence:
Total flow rate =     14.225(CFS)
Time of concentration =    10.878 min.
Effective stream area after confluence =      6.220(Ac.)


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Process from Point/Station      125.000 to Point/Station      128.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
____________________________________________________________________
Upstream point/station elevation =  1380.300(Ft.)
Downstream point/station elevation =  1379.000(Ft.)
Pipe length  =    32.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.225(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    14.225(CFS)
Normal flow depth in pipe =   10.80(In.)
Flow top width inside pipe =   17.63(In.)
Critical Depth =   16.64(In.)
Pipe flow velocity =     12.85(Ft/s)
Travel time through pipe =    0.04 min.
Time of concentration (TC) =    10.92 min.
End of computations, total study area =            6.22 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  32.0
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                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2004 Version 7.0
        Rational Hydrology Study        Date: 01/25/19  File:offsite.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

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


Program License Serial Number 5006

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Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [ Elsinore-Wildomar ] area used.
10 year storm 10 minute intensity =  2.320(In/Hr)
10 year storm 60 minute intensity =  0.980(In/Hr)
100 year storm 10 minute intensity =  3.540(In/Hr)
100 year storm 60 minute intensity =  1.500(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.500(In/Hr)
Slope of intensity duration curve = 0.4800




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Process from Point/Station      103.000 to Point/Station      103.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
Rainfall intensity =      3.155(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.900
Decimal fraction soil group D = 0.100
RI index for soil(AMC 3)  =  94.52
Pervious area fraction =  1.000; Impervious fraction =  0.000
User specified values are as follows:
TC =  12.75 min.  Rain intensity =       3.15(In/Hr)
Total area =       107.85(Ac.)  Total runoff =    297.20(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of natural channel elevation =   1610.000(Ft.)
End of natural channel elevation =   1415.000(Ft.)
Length of natural channel  =  1897.000(Ft.)
Estimated mean flow rate at midpoint of channel =    360.305(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =  22.52(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
        Normal channel slope =  0.1028
Corrected/adjusted channel slope =  0.1020
Travel time =    1.40 min.     TC =   14.15  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.882
Decimal fraction soil group A = 0.000
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Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3)  =  95.60
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      3.000(In/Hr) for a   100.0 year storm
Subarea runoff =    121.200(CFS) for     45.800(Ac.)
Total runoff =    418.400(CFS)       Total area =     153.650(Ac.)


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Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1415.000(Ft.)
Downstream point/station elevation =  1411.800(Ft.)
Pipe length  =   134.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   418.400(CFS)
Nearest computed pipe diameter  =     60.00(In.)
Calculated individual pipe flow  =   418.400(CFS)
Normal flow depth in pipe =   51.56(In.)
Flow top width inside pipe =   41.72(In.)
Critical depth could not be calculated.
Pipe flow velocity =     23.28(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =    14.25 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =    153.650(Ac.)
Runoff from this stream =    418.400(CFS)
Time of concentration =   14.25 min.
Rainfall intensity =     2.991(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   262.000(Ft.)
Top (of initial area) elevation =  1603.000(Ft.)
Bottom (of initial area) elevation =  1441.000(Ft.)
Difference in elevation =   162.000(Ft.)
Slope =    0.61832  s(percent)=      61.83
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.412 min.
Rainfall intensity =      4.760(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3)  =  95.60
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      3.003(CFS)
Total initial stream area =        0.710(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1441.000(Ft.)
Downstream point/station elevation =  1411.800(Ft.)
Pipe length  =    93.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.003(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     3.003(CFS)
Normal flow depth in pipe =    4.69(In.)
Flow top width inside pipe =    4.96(In.)
Critical depth could not be calculated.
Pipe flow velocity =     18.23(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =     5.50 min.
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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.710(Ac.)
Runoff from this stream =      3.003(CFS)
Time of concentration =    5.50 min.
Rainfall intensity =     4.724(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1      418.400     14.25                 2.991
2        3.003      5.50                 4.724
Largest stream flow has longer time of concentration
Qp =    418.400 + sum of
          Qb         Ia/Ib
           3.003 *    0.633 =      1.901
Qp =    420.300

Total of 2 streams to confluence:
Flow rates before confluence point:
     418.400       3.003
Area of streams before confluence:
      153.650        0.710
Results of confluence:
Total flow rate =    420.300(CFS)
Time of concentration =    14.250 min.
Effective stream area after confluence =    154.360(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
____________________________________________________________________________
Upstream point/station elevation =  1411.800(Ft.)
Downstream point/station elevation =  1411.500(Ft.)
Pipe length  =     8.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   420.300(CFS)
Nearest computed pipe diameter  =     57.00(In.)
Calculated individual pipe flow  =   420.300(CFS)
Normal flow depth in pipe =   44.63(In.)
Flow top width inside pipe =   47.00(In.)
Critical depth could not be calculated.
Pipe flow velocity =     28.26(Ft/s)
Travel time through pipe =    0.00 min.
Time of concentration (TC) =    14.25 min.


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Process from Point/Station      108.000 to Point/Station      108.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =    154.360(Ac.)
Runoff from this stream =    420.300(CFS)
Time of concentration =   14.25 min.
Rainfall intensity =     2.990(In/Hr)


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Process from Point/Station      109.000 to Point/Station      110.000
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
Initial area flow distance =   677.000(Ft.)
Top (of initial area) elevation =  1608.000(Ft.)
Bottom (of initial area) elevation =  1427.000(Ft.)
Difference in elevation =   181.000(Ft.)
Slope =    0.26736  s(percent)=      26.74
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.356 min.
Rainfall intensity =      3.660(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.885
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
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```
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3)  =  95.60
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      4.957(CFS)
Total initial stream area =        1.530(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station      110.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1427.000(Ft.)
Downstream point/station elevation =  1411.500(Ft.)
Pipe length  =    83.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     4.957(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     4.957(CFS)
Normal flow depth in pipe =    5.51(In.)
Flow top width inside pipe =    8.77(In.)
Critical depth could not be calculated.
Pipe flow velocity =     17.47(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     9.44 min.


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Process from Point/Station      108.000 to Point/Station      108.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.530(Ac.)
Runoff from this stream =      4.957(CFS)
Time of concentration =    9.44 min.
Rainfall intensity =     3.645(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1      420.300     14.25                 2.990
2        4.957      9.44                 3.645
Largest stream flow has longer time of concentration
Qp =    420.300 + sum of
          Qb          Ia/Ib
           4.957 *    0.820 =      4.066
Qp =    424.367

Total of 2 streams to confluence:
Flow rates before confluence point:
     420.300       4.957
Area of streams before confluence:
      154.360        1.530
Results of confluence:
Total flow rate =    424.367(CFS)
Time of concentration =    14.254 min.
Effective stream area after confluence =    155.890(Ac.)


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Process from Point/Station      108.000 to Point/Station      111.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1411.500(Ft.)
Downstream point/station elevation =  1408.200(Ft.)
Pipe length  =    77.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   424.367(CFS)
Nearest computed pipe diameter  =     54.00(In.)
Calculated individual pipe flow  =   424.367(CFS)
Normal flow depth in pipe =   46.69(In.)
Flow top width inside pipe =   36.95(In.)
Critical depth could not be calculated.
Pipe flow velocity =     29.05(Ft/s)
Travel time through pipe =    0.04 min.
Time of concentration (TC) =    14.30 min.


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Process from Point/Station      111.000 to Point/Station      111.000
**** CONFLUENCE OF MAIN STREAMS ****
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The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =    155.890(Ac.)
Runoff from this stream =    424.367(CFS)
Time of concentration =   14.30 min.
Rainfall intensity =     2.986(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      113.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  1833.500(Ft.)
Bottom (of initial area) elevation =  1560.000(Ft.)
Difference in elevation =   273.500(Ft.)
Slope =    0.27350  s(percent)=      27.35
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.886 min.
Rainfall intensity =      3.403(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.884
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3)  =  95.60
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =     18.895(CFS)
Total initial stream area =        6.280(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station      113.000 to Point/Station      113.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      6.280(Ac.)
Runoff from this stream =     18.895(CFS)
Time of concentration =   10.89 min.
Rainfall intensity =     3.403(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      113.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   614.000(Ft.)
Top (of initial area) elevation =  1705.000(Ft.)
Bottom (of initial area) elevation =  1560.000(Ft.)
Difference in elevation =   145.000(Ft.)
Slope =    0.23616  s(percent)=      23.62
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.224 min.
Rainfall intensity =      3.685(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.885
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3)  =  95.60
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =     13.147(CFS)
Total initial stream area =        4.030(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station      113.000 to Point/Station      113.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      4.030(Ac.)
Runoff from this stream =     13.147(CFS)
Time of concentration =    9.22 min.
Rainfall intensity =     3.685(In/Hr)
Summary of stream data:
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```
Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       18.895     10.89                 3.403
2       13.147      9.22                 3.685
Largest stream flow has longer time of concentration
Qp =     18.895 + sum of
          Qb         Ia/Ib
          13.147 *    0.924 =     12.142
Qp =     31.036

Total of 2 streams to confluence:
Flow rates before confluence point:
      18.895      13.147
Area of streams before confluence:
        6.280        4.030
Results of confluence:
Total flow rate =     31.036(CFS)
Time of concentration =    10.886 min.
Effective stream area after confluence =     10.310(Ac.)


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Process from Point/Station      113.000 to Point/Station      115.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of natural channel elevation =   1560.000(Ft.)
End of natural channel elevation =   1429.000(Ft.)
Length of natural channel  =   775.000(Ft.)
Estimated mean flow rate at midpoint of channel =     44.673(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =  14.25(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.1690
Corrected/adjusted channel slope =  0.1445
Travel time =    0.91 min.     TC =   11.79  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.883
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3)  =  95.60
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      3.275(In/Hr) for a   100.0 year storm
Subarea runoff =     26.214(CFS) for      9.060(Ac.)
Total runoff =     57.250(CFS)       Total area =      19.370(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      115.000 to Point/Station      116.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1429.000(Ft.)
Downstream point/station elevation =  1412.200(Ft.)
Pipe length  =    30.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    57.250(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    57.250(CFS)
Normal flow depth in pipe =   11.39(In.)
Flow top width inside pipe =   17.35(In.)
Critical depth could not be calculated.
Pipe flow velocity =     48.52(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =    11.80 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      116.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
```

```
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     19.370(Ac.)
Runoff from this stream =     57.250(CFS)
Time of concentration =   11.80 min.
Rainfall intensity =     3.274(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      118.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   414.000(Ft.)
Top (of initial area) elevation =  1570.000(Ft.)
Bottom (of initial area) elevation =  1435.000(Ft.)
Difference in elevation =   135.000(Ft.)
Slope =    0.32609  s(percent)=      32.61
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.386 min.
Rainfall intensity =      4.100(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.887
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3)  =  95.60
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      2.072(CFS)
Total initial stream area =        0.570(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      116.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  1435.000(Ft.)
Downstream point/station elevation =  1412.200(Ft.)
Pipe length  =   116.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.072(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     2.072(CFS)
Normal flow depth in pipe =    4.18(In.)
Flow top width inside pipe =    5.51(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.17(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =     7.52 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      116.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.570(Ac.)
Runoff from this stream =      2.072(CFS)
Time of concentration =    7.52 min.
Rainfall intensity =     4.064(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       57.250     11.80                3.274
2        2.072      7.52                4.064
Largest stream flow has longer time of concentration
Qp =     57.250 + sum of
          Qb         Ia/Ib
           2.072 *    0.806 =      1.669
Qp =     58.919

Total of 2 streams to confluence:
Flow rates before confluence point:
      57.250       2.072
Area of streams before confluence:
       19.370        0.570
Results of confluence:
Total flow rate =     58.919(CFS)
Time of concentration =    11.803 min.
```

```
Effective stream area after confluence =     19.940(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      111.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1412.200(Ft.)
Downstream point/station elevation =  1408.200(Ft.)
Pipe length  =    93.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    58.919(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    58.919(CFS)
Normal flow depth in pipe =   20.34(In.)
Flow top width inside pipe =   23.27(In.)
Critical depth could not be calculated.
Pipe flow velocity =     18.32(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =    11.89 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      111.000
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =     19.940(Ac.)
Runoff from this stream =     58.919(CFS)
Time of concentration =   11.89 min.
Rainfall intensity =     3.263(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1      424.367     14.30               2.986
2       58.919     11.89               3.263
Largest stream flow has longer time of concentration
Qp =    424.367 + sum of
          Qb         Ia/Ib
          58.919 *    0.915 =     53.923
Qp =    478.289

Total of 2 main streams to confluence:
Flow rates before confluence point:
     424.367      58.919
Area of streams before confluence:
      155.890       19.940


Results of confluence:
Total flow rate =    478.289(CFS)
Time of concentration =    14.299 min.
Effective stream area after confluence  =    175.830(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1408.200(Ft.)
Downstream point/station elevation =  1384.000(Ft.)
Pipe length  =   506.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =   478.289(CFS)
Nearest computed pipe diameter  =     57.00(In.)
Calculated individual pipe flow  =   478.289(CFS)
Normal flow depth in pipe =   44.91(In.)
Flow top width inside pipe =   46.61(In.)
Critical depth could not be calculated.
Pipe flow velocity =     31.93(Ft/s)
Travel time through pipe =    0.26 min.
Time of concentration (TC) =    14.56 min.
End of computations, total study area =          175.83 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  87.3
```

TRACT 37154
PRELIMINARY RATIONAL HYDROLOGY MAP

SCALE: 1" = 100'

LEGEND

AREA | ACRES
LENGTH | SOIL

NODE | Q10= _____ cfs
ELEV | Q100= _____ cfs
TC= _____ min
ACRES=

WATERSHED BOUNDARY
FLOW PATH

TR 37155
TR 36317
TR 37027
TR 37154
TRACT BOUNDARY

128 1379 — Q10= 8.65 cfs, Q100= 14.26 cfs, TC=10.92 min, ACRES=6.22
127 1388.1 — CB#3: Q10= 2.42 cfs, Q100= 3.98 cfs, TC=10.75 min, ACRES= 1.67
125 1380.3
114 1384 — Q10= 284.10 cfs, Q100= 418.29 cfs, TC=14.56 min, ACRES=175.83
122 1384.8
CB#2: Q10= 3.44 cfs, Q100= 5.65 cfs, TC=10.86 min, ACRES=2.36
124 1345.5
121 1396 — CB#1: Q10= 3.04 cfs, Q100= 5.00 cfs, TC= 11.61 min, ACRES= 2.19
120 1431.0
PRO 2.19 A L=498
PRO 2.36 A L=730'
111 1408.3
108 1411.5
128 1421.0
OFFSITE 1.59 D L=677'
110 1427 — Q10= 3.08 cfs, Q100= 4.96 cfs, TC= 9.35 min, ACRES=1.53
129 1608
117 1570
OFFSITE 0.51 D L=414'
PRO 1.67 A L=414'
118 1495 — Q10= 1.24 cfs, Q100= 2.07 cfs, TC= 7.38 min, ACRES=0.51
OFFSITE 9.06 D L=775'
116 1412.2
115 1429 — Q10= 35.35 cfs, Q100= 57.25 cfs, TC= 11.79 min, ACRES=19.31
126 1436
107 1441 — Q10= 1.89 cfs, Q100= 3.00 cfs, TC= 5.41 min, ACRES=0.71
106 1603
OFFSITE 0.71 D L=262'
125 1411.8
104 1418 — Q10= 252.20 cfs, Q100= 418.40 cfs, TC= 14.15 min, ACRES=153.65
113 1560
OFFSITE 4.03 D L=614'
OFFSITE 6.28 D L=1000'
114 1705
112 1833.5
OFFSITE 45.80 D L=1247'
108 1610 — Q10= 178.32 cfs, Q100= 297.20 cfs, TC= 12.75 min, ACRES=107.85

PER HYDROLOGY AND HYDRAULIC REPORT
SYCAMORE CREEK OFFSITE DRAINAGE
TRACTS 31908 AND 31908-1
PREPARED BY: WEBB AND ASSOCIATES

PRELIMINARY RATIONAL HYDROLOGY MAP
PREPARATION DATE : JANUARY 2019
REVISION DATE : JANUARY 2020

PLAN PREPARED BY:
adkan ENGINEERS
Civil Engineering · Surveying · Planning
6879 Airport Drive, Riverside, CA 92504
Tel:(951) 688-0241 Fax:(951) 688-0599

APPENDIX C – EXISTING UNIT HYDROGRAPH

```
        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  04/30/19 File: ex212.out

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

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


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22            0.55                 3.42

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            1.45                 9.02

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    0.550(In)
Area Averaged 100-Year Rainfall =    1.450(In)

Point rain (area averaged) =    0.550(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.550(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  83.4      0.205     0.000        0.205       1.000      0.205
                                                 Sum (F) =   0.205
Area averaged mean soil loss (F) (In/Hr) =  0.205
Minimum soil loss rate ((In/Hr)) =  0.103
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
-----------------------------------------------------------------
               Unit Hydrograph Data
-----------------------------------------------------------------
```

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
		Sum = 100.000	Sum=	6.269

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	4.40	0.290	0.205	(0.261)	0.085
2	0.17	4.50	0.297	0.205	(0.267)	0.092
3	0.25	5.40	0.356	0.205	(0.321)	0.151
4	0.33	5.40	0.356	0.205	(0.321)	0.151
5	0.42	5.70	0.376	0.205	(0.339)	0.171
6	0.50	6.40	0.422	0.205	(0.380)	0.217
7	0.58	7.90	0.521	0.205	(0.469)	0.316
8	0.67	9.10	0.601	0.205	(0.541)	0.395
9	0.75	12.80	0.845	0.205	(0.760)	0.640
10	0.83	25.60	1.690	0.205	(1.521)	1.484
11	0.92	7.90	0.521	0.205	(0.469)	0.316
12	1.00	4.90	0.323	0.205	(0.291)	0.118
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	4.1

Flood volume = Effective rainfall 0.34(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 0.21(In)
Total soil loss = 0.106(Ac.Ft)
Total rainfall = 0.55(In)
Flood volume = 7783.5 Cubic Feet
Total soil loss = 4634.0 Cubic Feet

Peak flow rate of this hydrograph = 6.375(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	2.5	5.0	7.5	10.0
0+ 5	0.0009	0.13	Q				
0+10	0.0039	0.44	VQ				
0+15	0.0082	0.63	VQ				
0+20	0.0142	0.86	Q				
0+25	0.0207	0.95	QV				
0+30	0.0284	1.11	Q V				
0+35	0.0383	1.45	Q V				
0+40	0.0518	1.96	Q V				
0+45	0.0705	2.71	Q V				
0+50	0.1046	4.95	Q V				
0+55	0.1485	6.37	Q V				
1+ 0	0.1679	2.83	Q V				
1+ 5	0.1758	1.13	Q V				
1+10	0.1779	0.31	Q V				
1+15	0.1785	0.10	Q V				
1+20	0.1787	0.02	Q V				
1+25	0.1787	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

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                Study date  04/30/19 File: ex232.out

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

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


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22            1.00                 6.22

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            2.50                15.55

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.000(In)
Area Averaged 100-Year Rainfall =    2.500(In)

Point rain (area averaged) =    1.000(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.000(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  83.4      0.205     0.000        0.205       1.000      0.205
                                                 Sum (F) =   0.205
Area averaged mean soil loss (F) (In/Hr) =  0.205
Minimum soil loss rate ((In/Hr)) =  0.103
(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
                      FOOTHILL S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
```

1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
			Sum = 100.000	Sum= 6.269

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	0.156	(0.205)	0.140	0.016
2	0.17	1.30	0.156	(0.205)	0.140	0.016
3	0.25	1.10	0.132	(0.205)	0.119	0.013
4	0.33	1.50	0.180	(0.205)	0.162	0.018
5	0.42	1.50	0.180	(0.205)	0.162	0.018
6	0.50	1.80	0.216	(0.205)	0.194	0.022
7	0.58	1.50	0.180	(0.205)	0.162	0.018
8	0.67	1.80	0.216	(0.205)	0.194	0.022
9	0.75	1.80	0.216	(0.205)	0.194	0.022
10	0.83	1.50	0.180	(0.205)	0.162	0.018
11	0.92	1.60	0.192	(0.205)	0.173	0.019
12	1.00	1.80	0.216	(0.205)	0.194	0.022
13	1.08	2.20	0.264	0.205	(0.238)	0.059
14	1.17	2.20	0.264	0.205	(0.238)	0.059
15	1.25	2.20	0.264	0.205	(0.238)	0.059
16	1.33	2.00	0.240	0.205	(0.216)	0.035
17	1.42	2.60	0.312	0.205	(0.281)	0.107
18	1.50	2.70	0.324	0.205	(0.292)	0.119
19	1.58	2.40	0.288	0.205	(0.259)	0.083
20	1.67	2.70	0.324	0.205	(0.292)	0.119
21	1.75	3.30	0.396	0.205	(0.356)	0.191
22	1.83	3.10	0.372	0.205	(0.335)	0.167
23	1.92	2.90	0.348	0.205	(0.313)	0.143
24	2.00	3.00	0.360	0.205	(0.324)	0.155
25	2.08	3.10	0.372	0.205	(0.335)	0.167
26	2.17	4.20	0.504	0.205	(0.454)	0.299
27	2.25	5.00	0.600	0.205	(0.540)	0.395
28	2.33	3.50	0.420	0.205	(0.378)	0.215
29	2.42	6.80	0.816	0.205	(0.734)	0.611
30	2.50	7.30	0.876	0.205	(0.788)	0.671
31	2.58	8.20	0.984	0.205	(0.886)	0.779
32	2.67	5.90	0.708	0.205	(0.637)	0.503
33	2.75	2.00	0.240	0.205	(0.216)	0.035
34	2.83	1.80	0.216	(0.205)	0.194	0.022
35	2.92	1.80	0.216	(0.205)	0.194	0.022
36	3.00	0.60	0.072	(0.205)	0.065	0.007
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	5.2

Flood volume = Effective rainfall 0.44(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 0.56(In)
Total soil loss = 0.292(Ac.Ft)
Total rainfall = 1.00(In)
Flood volume = 9855.7 Cubic Feet
Total soil loss = 12722.2 Cubic Feet

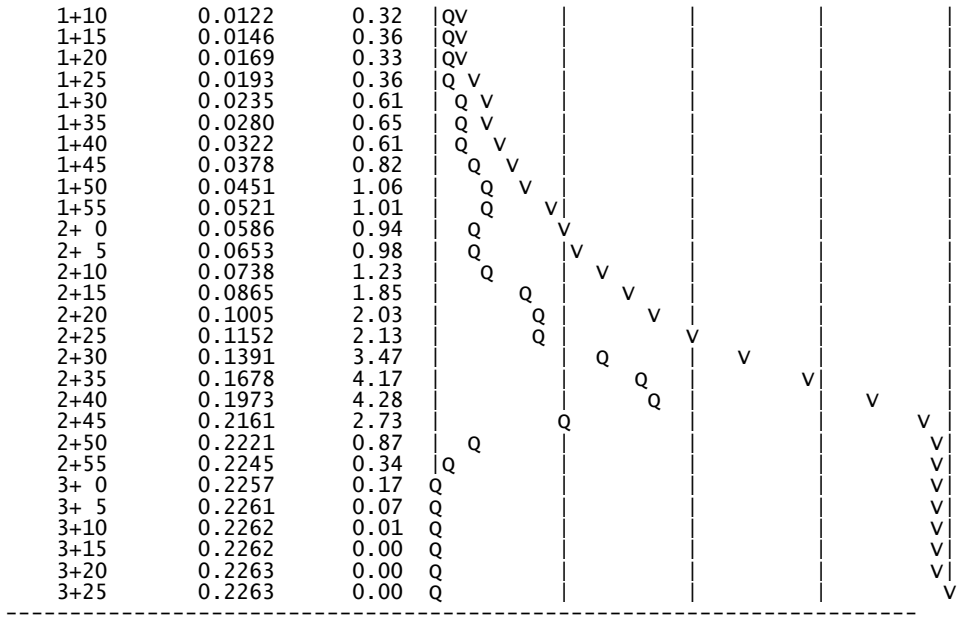
Peak flow rate of this hydrograph = 4.275(CFS)

++

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	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q	|	|	|	|
0+10	0.0007	0.08	Q	|	|	|	|
0+15	0.0013	0.09	Q	|	|	|	|
0+20	0.0019	0.09	Q	|	|	|	|
0+25	0.0027	0.11	Q	|	|	|	|
0+30	0.0035	0.12	Q	|	|	|	|
0+35	0.0043	0.13	Q	|	|	|	|
0+40	0.0052	0.12	Q	|	|	|	|
0+45	0.0061	0.13	QV	|	|	|	|
0+50	0.0070	0.13	QV	|	|	|	|
0+55	0.0078	0.12	QV	|	|	|	|
1+ 0	0.0087	0.12	QV	|	|	|	|
1+ 5	0.0100	0.19	QV	|	|	|	|


1+10 0.0122 0.32
1+15 0.0146 0.36
1+20 0.0169 0.33
1+25 0.0193 0.36
1+30 0.0235 0.61
1+35 0.0280 0.65
1+40 0.0322 0.61
1+45 0.0378 0.82
1+50 0.0451 1.06
1+55 0.0521 1.01
2+ 0 0.0586 0.94
2+ 5 0.0653 0.98
2+10 0.0738 1.23
2+15 0.0865 1.85
2+20 0.1005 2.03
2+25 0.1152 2.13
2+30 0.1391 3.47
2+35 0.1678 4.17
2+40 0.1973 4.28
2+45 0.2161 2.73
2+50 0.2221 0.87
2+55 0.2245 0.34
3+ 0 0.2257 0.17
3+ 5 0.2261 0.07
3+10 0.2262 0.01
3+15 0.2262 0.00
3+20 0.2263 0.00
3+25 0.2263 0.00

```
                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  04/30/19 File: ex262.out

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

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


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22           1.40                 8.71
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22           3.50                21.77
STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.400(In)
Area Averaged 100-Year Rainfall =    3.500(In)
Point rain (area averaged) =    1.400(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.400(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  83.4      0.205     0.000        0.205       1.000      0.205
                                                 Sum (F) =    0.205
Area averaged mean soil loss (F) (In/Hr) =  0.205
Minimum soil loss rate ((In/Hr)) =  0.103
(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
                       FOOTHILL S-Curve
------------------------------------------------------------------------
                Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        128.561         24.198              1.517
    2   0.167        257.122         55.715              3.493
    3   0.250        385.683         14.449              0.906
    4   0.333        514.243          4.090              0.256
    5   0.417        642.804          1.058              0.066
    6   0.500        771.365          0.490              0.031
                              Sum = 100.000    Sum=       6.269
------------------------------------------------------------------------
 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	0.50	0.084	(	0.205)		0.076		0.008
2	0.17	0.60	0.101	(	0.205)		0.091		0.010
3	0.25	0.60	0.101	(	0.205)		0.091		0.010
4	0.33	0.60	0.101	(	0.205)		0.091		0.010
5	0.42	0.60	0.101	(	0.205)		0.091		0.010
6	0.50	0.70	0.118	(	0.205)		0.106		0.012
7	0.58	0.70	0.118	(	0.205)		0.106		0.012
8	0.67	0.70	0.118	(	0.205)		0.106		0.012
9	0.75	0.70	0.118	(	0.205)		0.106		0.012
10	0.83	0.70	0.118	(	0.205)		0.106		0.012
11	0.92	0.70	0.118	(	0.205)		0.106		0.012
12	1.00	0.80	0.134	(	0.205)		0.121		0.013
13	1.08	0.80	0.134	(	0.205)		0.121		0.013
14	1.17	0.80	0.134	(	0.205)		0.121		0.013
15	1.25	0.80	0.134	(	0.205)		0.121		0.013
16	1.33	0.80	0.134	(	0.205)		0.121		0.013
17	1.42	0.80	0.134	(	0.205)		0.121		0.013
18	1.50	0.80	0.134	(	0.205)		0.121		0.013
19	1.58	0.80	0.134	(	0.205)		0.121		0.013
20	1.67	0.80	0.134	(	0.205)		0.121		0.013
21	1.75	0.80	0.134	(	0.205)		0.121		0.013
22	1.83	0.80	0.134	(	0.205)		0.121		0.013
23	1.92	0.80	0.134	(	0.205)		0.121		0.013
24	2.00	0.90	0.151	(	0.205)		0.136		0.015
25	2.08	0.80	0.134	(	0.205)		0.121		0.013
26	2.17	0.90	0.151	(	0.205)		0.136		0.015
27	2.25	0.90	0.151	(	0.205)		0.136		0.015
28	2.33	0.90	0.151	(	0.205)		0.136		0.015
29	2.42	0.90	0.151	(	0.205)		0.136		0.015
30	2.50	0.90	0.151	(	0.205)		0.136		0.015
31	2.58	0.90	0.151	(	0.205)		0.136		0.015
32	2.67	0.90	0.151	(	0.205)		0.136		0.015
33	2.75	1.00	0.168	(	0.205)		0.151		0.017
34	2.83	1.00	0.168	(	0.205)		0.151		0.017
35	2.92	1.00	0.168	(	0.205)		0.151		0.017
36	3.00	1.00	0.168	(	0.205)		0.151		0.017
37	3.08	1.00	0.168	(	0.205)		0.151		0.017
38	3.17	1.10	0.185	(	0.205)		0.166		0.018
39	3.25	1.10	0.185	(	0.205)		0.166		0.018
40	3.33	1.10	0.185	(	0.205)		0.166		0.018
41	3.42	1.20	0.202	(	0.205)		0.181		0.020
42	3.50	1.30	0.218	(	0.205)		0.197		0.022
43	3.58	1.40	0.235		0.205	(	0.212)		0.030
44	3.67	1.40	0.235		0.205	(	0.212)		0.030
45	3.75	1.50	0.252		0.205	(	0.227)		0.047
46	3.83	1.50	0.252		0.205	(	0.227)		0.047
47	3.92	1.60	0.269		0.205	(	0.242)		0.064
48	4.00	1.60	0.269		0.205	(	0.242)		0.064
49	4.08	1.70	0.286		0.205	(	0.257)		0.080
50	4.17	1.80	0.302		0.205	(	0.272)		0.097
51	4.25	1.90	0.319		0.205	(	0.287)		0.114
52	4.33	2.00	0.336		0.205	(	0.302)		0.131
53	4.42	2.10	0.353		0.205	(	0.318)		0.148
54	4.50	2.10	0.353		0.205	(	0.318)		0.148
55	4.58	2.20	0.370		0.205	(	0.333)		0.164
56	4.67	2.30	0.386		0.205	(	0.348)		0.181
57	4.75	2.40	0.403		0.205	(	0.363)		0.198
58	4.83	2.40	0.403		0.205	(	0.363)		0.198
59	4.92	2.50	0.420		0.205	(	0.378)		0.215
60	5.00	2.60	0.437		0.205	(	0.393)		0.232
61	5.08	3.10	0.521		0.205	(	0.469)		0.316
62	5.17	3.60	0.605		0.205	(	0.544)		0.400
63	5.25	3.90	0.655		0.205	(	0.590)		0.450
64	5.33	4.20	0.706		0.205	(	0.635)		0.500
65	5.42	4.70	0.790		0.205	(	0.711)		0.584
66	5.50	5.60	0.941		0.205	(	0.847)		0.736
67	5.58	1.90	0.319		0.205	(	0.287)		0.114
68	5.67	0.90	0.151	(	0.205)		0.136		0.015
69	5.75	0.60	0.101	(	0.205)		0.091		0.010
70	5.83	0.50	0.084	(	0.205)		0.076		0.008
71	5.92	0.30	0.050	(	0.205)		0.045		0.005
72	6.00	0.20	0.034	(	0.205)		0.030		0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.9

Flood volume = Effective rainfall 0.49(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
Total soil loss = 0.91(In)
Total soil loss = 0.470(Ac.Ft)
Total rainfall = 1.40(In)
Flood volume = 11144.7 Cubic Feet
Total soil loss = 20464.6 Cubic Feet

Peak flow rate of this hydrograph = 3.763(CFS)

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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 2.5 5.0 7.5 10.0
0+ 5	0.0001	0.01	Q | | | |
0+10	0.0004	0.04	Q | | | |
0+15	0.0008	0.06	Q | | | |
0+20	0.0012	0.06	Q | | | |
0+25	0.0017	0.06	Q | | | |
0+30	0.0021	0.07	Q | | | |
0+35	0.0026	0.07	Q | | | |
0+40	0.0031	0.07	Q | | | |
0+45	0.0036	0.07	Q | | | |
0+50	0.0041	0.07	Q | | | |
0+55	0.0046	0.07	Q | | | |
1+ 0	0.0052	0.08	Q | | | |
1+ 5	0.0057	0.08	Q | | | |
1+10	0.0063	0.08	Q | | | |
1+15	0.0069	0.08	QV | | | |
1+20	0.0075	0.08	QV | | | |
1+25	0.0080	0.08	QV | | | |
1+30	0.0086	0.08	QV | | | |
1+35	0.0092	0.08	QV | | | |
1+40	0.0098	0.08	QV | | | |
1+45	0.0104	0.08	QV | | | |
1+50	0.0109	0.08	QV | | | |
1+55	0.0115	0.08	QV | | | |
2+ 0	0.0121	0.09	QV | | | |
2+ 5	0.0127	0.09	QV | | | |
2+10	0.0133	0.09	Q V | | | |
2+15	0.0140	0.09	Q V | | | |
2+20	0.0146	0.09	Q V | | | |
2+25	0.0153	0.09	Q V | | | |
2+30	0.0159	0.09	Q V | | | |
2+35	0.0166	0.09	Q V | | | |
2+40	0.0172	0.09	Q V | | | |
2+45	0.0179	0.10	Q V | | | |
2+50	0.0186	0.10	Q V | | | |
2+55	0.0194	0.10	Q V | | | |
3+ 0	0.0201	0.11	Q V | | | |
3+ 5	0.0208	0.11	Q V | | | |
3+10	0.0215	0.11	Q V | | | |
3+15	0.0223	0.11	Q V | | | |
3+20	0.0231	0.12	Q V | | | |
3+25	0.0239	0.12	Q V | | | |
3+30	0.0248	0.13	Q V | | | |
3+35	0.0258	0.15	Q V | | | |
3+40	0.0270	0.18	Q V | | | |
3+45	0.0285	0.21	Q V | | | |
3+50	0.0304	0.27	|Q V | | | |
3+55	0.0325	0.31	|Q V | | | |
4+ 0	0.0351	0.38	|Q V | | | |
4+ 5	0.0380	0.42	|Q V | | | |
4+10	0.0415	0.51	| Q V | | | |
4+15	0.0456	0.61	| Q V | | | |
4+20	0.0505	0.71	| Q V | | | |
4+25	0.0562	0.82	| Q V | | | |
4+30	0.0623	0.90	| Q V| | | |
4+35	0.0688	0.94	| Q V | | |
4+40	0.0759	1.03	| Q |V | | |
4+45	0.0838	1.13	| Q | V | | |
4+50	0.0921	1.21	| Q | V | | |
4+55	0.1008	1.26	| Q | V | | |
5+ 0	0.1101	1.35	| Q | V | |
5+ 5	0.1208	1.55	| Q | V | |
5+10	0.1345	1.99	| Q | |V | |
5+15	0.1513	2.44	| Q| | V | |
5+20	0.1706	2.80	| |Q | V | |
5+25	0.1924	3.17	| | Q | | V |
5+30	0.2184	3.76	| | Q | | V |
5+35	0.2421	3.44	| | Q | | V |
5+40	0.2509	1.28	| Q | | | V|
5+45	0.2538	0.41	|Q | | | V|
5+50	0.2549	0.16	Q | | | V|
5+55	0.2554	0.08	Q | | | V|
6+ 0	0.2557	0.04	Q | | | V|
6+ 5	0.2558	0.02	Q | | | V|
6+10	0.2558	0.01	Q | | | V|
6+15	0.2558	0.00	Q | | | V|
6+20	0.2558	0.00	Q | | | V|
6+25	0.2558	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 04/30/19 File: ex2242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978
Program License Serial Number 5006

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

Drainage Area = 6.22(Ac.) = 0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 6.22(Ac.) = 0.010 Sq. Mi.
Length along longest watercourse = 885.00(Ft.)
Length along longest watercourse measured to centroid = 442.50(Ft.)
Length along longest watercourse = 0.168 Mi.
Length along longest watercourse measured to centroid = 0.084 Mi.
Difference in elevation = 47.90(Ft.)
Slope along watercourse = 285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.065 Hr.
Lag time = 3.89 Min.
25% of lag time = 0.97 Min.
40% of lag time = 1.56 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]
6.22	2.50	15.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
6.22	7.00	43.54

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.500(In)
Area Averaged 100-Year Rainfall = 7.000(In)
Point rain (area averaged) = 2.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.500(In)
Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
6.220	93.00	0.000

Total Area Entered = 6.22(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
93.0	83.4	0.205	0.000	0.205	1.000	0.205
					Sum (F) =	0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205
Minimum soil loss rate ((In/Hr)) = 0.103
(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
FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
		Sum =	100.000 Sum=	6.269

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	0.020	(0.364)	0.018	0.002
2	0.17	0.07	0.020	(0.362)	0.018	0.002
3	0.25	0.07	0.020	(0.361)	0.018	0.002
4	0.33	0.10	0.030	(0.360)	0.027	0.003
5	0.42	0.10	0.030	(0.358)	0.027	0.003
6	0.50	0.10	0.030	(0.357)	0.027	0.003
7	0.58	0.10	0.030	(0.355)	0.027	0.003

8	0.67	0.10	0.030	(0.354)	0.027	0.003
9	0.75	0.10	0.030	(0.353)	0.027	0.003
10	0.83	0.13	0.040	(0.351)	0.036	0.004
11	0.92	0.13	0.040	(0.350)	0.036	0.004
12	1.00	0.13	0.040	(0.349)	0.036	0.004
13	1.08	0.10	0.030	(0.347)	0.027	0.003
14	1.17	0.10	0.030	(0.346)	0.027	0.003
15	1.25	0.10	0.030	(0.344)	0.027	0.003
16	1.33	0.10	0.030	(0.343)	0.027	0.003
17	1.42	0.10	0.030	(0.342)	0.027	0.003
18	1.50	0.10	0.030	(0.340)	0.027	0.003
19	1.58	0.10	0.030	(0.339)	0.027	0.003
20	1.67	0.10	0.030	(0.338)	0.027	0.003
21	1.75	0.10	0.030	(0.336)	0.027	0.003
22	1.83	0.13	0.040	(0.335)	0.036	0.004
23	1.92	0.13	0.040	(0.334)	0.036	0.004
24	2.00	0.13	0.040	(0.332)	0.036	0.004
25	2.08	0.13	0.040	(0.331)	0.036	0.004
26	2.17	0.13	0.040	(0.329)	0.036	0.004
27	2.25	0.13	0.040	(0.328)	0.036	0.004
28	2.33	0.13	0.040	(0.327)	0.036	0.004
29	2.42	0.13	0.040	(0.325)	0.036	0.004
30	2.50	0.13	0.040	(0.324)	0.036	0.004
31	2.58	0.17	0.050	(0.323)	0.045	0.005
32	2.67	0.17	0.050	(0.321)	0.045	0.005
33	2.75	0.17	0.050	(0.320)	0.045	0.005
34	2.83	0.17	0.050	(0.319)	0.045	0.005
35	2.92	0.17	0.050	(0.318)	0.045	0.005
36	3.00	0.17	0.050	(0.316)	0.045	0.005
37	3.08	0.17	0.050	(0.315)	0.045	0.005
38	3.17	0.17	0.050	(0.314)	0.045	0.005
39	3.25	0.17	0.050	(0.312)	0.045	0.005
40	3.33	0.17	0.050	(0.311)	0.045	0.005
41	3.42	0.17	0.050	(0.310)	0.045	0.005
42	3.50	0.17	0.050	(0.308)	0.045	0.005
43	3.58	0.17	0.050	(0.307)	0.045	0.005
44	3.67	0.17	0.050	(0.306)	0.045	0.005
45	3.75	0.17	0.050	(0.305)	0.045	0.005
46	3.83	0.20	0.060	(0.303)	0.054	0.006
47	3.92	0.20	0.060	(0.302)	0.054	0.006
48	4.00	0.20	0.060	(0.301)	0.054	0.006
49	4.08	0.20	0.060	(0.299)	0.054	0.006
50	4.17	0.20	0.060	(0.298)	0.054	0.006
51	4.25	0.20	0.060	(0.297)	0.054	0.006
52	4.33	0.23	0.070	(0.296)	0.063	0.007
53	4.42	0.23	0.070	(0.294)	0.063	0.007
54	4.50	0.23	0.070	(0.293)	0.063	0.007
55	4.58	0.23	0.070	(0.292)	0.063	0.007
56	4.67	0.23	0.070	(0.291)	0.063	0.007
57	4.75	0.23	0.070	(0.289)	0.063	0.007
58	4.83	0.27	0.080	(0.288)	0.072	0.008
59	4.92	0.27	0.080	(0.287)	0.072	0.008
60	5.00	0.27	0.080	(0.286)	0.072	0.008
61	5.08	0.20	0.060	(0.284)	0.054	0.006
62	5.17	0.20	0.060	(0.283)	0.054	0.006
63	5.25	0.20	0.060	(0.282)	0.054	0.006
64	5.33	0.23	0.070	(0.281)	0.063	0.007
65	5.42	0.23	0.070	(0.279)	0.063	0.007
66	5.50	0.23	0.070	(0.278)	0.063	0.007
67	5.58	0.27	0.080	(0.277)	0.072	0.008
68	5.67	0.27	0.080	(0.276)	0.072	0.008
69	5.75	0.27	0.080	(0.275)	0.072	0.008
70	5.83	0.27	0.080	(0.273)	0.072	0.008
71	5.92	0.27	0.080	(0.272)	0.072	0.008
72	6.00	0.27	0.080	(0.271)	0.072	0.008
73	6.08	0.30	0.090	(0.270)	0.081	0.009
74	6.17	0.30	0.090	(0.269)	0.081	0.009
75	6.25	0.30	0.090	(0.267)	0.081	0.009
76	6.33	0.30	0.090	(0.266)	0.081	0.009
77	6.42	0.30	0.090	(0.265)	0.081	0.009
78	6.50	0.30	0.090	(0.264)	0.081	0.009
79	6.58	0.33	0.100	(0.263)	0.090	0.010
80	6.67	0.33	0.100	(0.261)	0.090	0.010
81	6.75	0.33	0.100	(0.260)	0.090	0.010
82	6.83	0.33	0.100	(0.259)	0.090	0.010
83	6.92	0.33	0.100	(0.258)	0.090	0.010
84	7.00	0.33	0.100	(0.257)	0.090	0.010
85	7.08	0.33	0.100	(0.256)	0.090	0.010
86	7.17	0.33	0.100	(0.254)	0.090	0.010
87	7.25	0.33	0.100	(0.253)	0.090	0.010
88	7.33	0.37	0.110	(0.252)	0.099	0.011
89	7.42	0.37	0.110	(0.251)	0.099	0.011
90	7.50	0.37	0.110	(0.250)	0.099	0.011
91	7.58	0.40	0.120	(0.249)	0.108	0.012
92	7.67	0.40	0.120	(0.247)	0.108	0.012
93	7.75	0.40	0.120	(0.246)	0.108	0.012

94	7.83	0.43	0.130	(0.245)	0.117	0.013
95	7.92	0.43	0.130	(0.244)	0.117	0.013
96	8.00	0.43	0.130	(0.243)	0.117	0.013
97	8.08	0.50	0.150	(0.242)	0.135	0.015
98	8.17	0.50	0.150	(0.241)	0.135	0.015
99	8.25	0.50	0.150	(0.240)	0.135	0.015
100	8.33	0.50	0.150	(0.238)	0.135	0.015
101	8.42	0.50	0.150	(0.237)	0.135	0.015
102	8.50	0.50	0.150	(0.236)	0.135	0.015
103	8.58	0.53	0.160	(0.235)	0.144	0.016
104	8.67	0.53	0.160	(0.234)	0.144	0.016
105	8.75	0.53	0.160	(0.233)	0.144	0.016
106	8.83	0.57	0.170	(0.232)	0.153	0.017
107	8.92	0.57	0.170	(0.231)	0.153	0.017
108	9.00	0.57	0.170	(0.230)	0.153	0.017
109	9.08	0.63	0.190	(0.228)	0.171	0.019
110	9.17	0.63	0.190	(0.227)	0.171	0.019
111	9.25	0.63	0.190	(0.226)	0.171	0.019
112	9.33	0.67	0.200	(0.225)	0.180	0.020
113	9.42	0.67	0.200	(0.224)	0.180	0.020
114	9.50	0.67	0.200	(0.223)	0.180	0.020
115	9.58	0.70	0.210	(0.222)	0.189	0.021
116	9.67	0.70	0.210	(0.221)	0.189	0.021
117	9.75	0.70	0.210	(0.220)	0.189	0.021
118	9.83	0.73	0.220	(0.219)	0.198	0.022
119	9.92	0.73	0.220	(0.218)	0.198	0.022
120	10.00	0.73	0.220	(0.217)	0.198	0.022
121	10.08	0.50	0.150	(0.216)	0.135	0.015
122	10.17	0.50	0.150	(0.215)	0.135	0.015
123	10.25	0.50	0.150	(0.214)	0.135	0.015
124	10.33	0.50	0.150	(0.213)	0.135	0.015
125	10.42	0.50	0.150	(0.212)	0.135	0.015
126	10.50	0.50	0.150	(0.210)	0.135	0.015
127	10.58	0.67	0.200	(0.209)	0.180	0.020
128	10.67	0.67	0.200	(0.208)	0.180	0.020
129	10.75	0.67	0.200	(0.207)	0.180	0.020
130	10.83	0.67	0.200	(0.206)	0.180	0.020
131	10.92	0.67	0.200	(0.205)	0.180	0.020
132	11.00	0.67	0.200	(0.204)	0.180	0.020
133	11.08	0.63	0.190	(0.203)	0.171	0.019
134	11.17	0.63	0.190	(0.202)	0.171	0.019
135	11.25	0.63	0.190	(0.201)	0.171	0.019
136	11.33	0.63	0.190	(0.200)	0.171	0.019
137	11.42	0.63	0.190	(0.199)	0.171	0.019
138	11.50	0.63	0.190	(0.198)	0.171	0.019
139	11.58	0.57	0.170	(0.197)	0.153	0.017
140	11.67	0.57	0.170	(0.196)	0.153	0.017
141	11.75	0.57	0.170	(0.195)	0.153	0.017
142	11.83	0.60	0.180	(0.194)	0.162	0.018
143	11.92	0.60	0.180	(0.194)	0.162	0.018
144	12.00	0.60	0.180	(0.193)	0.162	0.018
145	12.08	0.83	0.250	0.192	(0.225)	0.058
146	12.17	0.83	0.250	0.191	(0.225)	0.059
147	12.25	0.83	0.250	0.190	(0.225)	0.060
148	12.33	0.87	0.260	0.189	(0.234)	0.071
149	12.42	0.87	0.260	0.188	(0.234)	0.072
150	12.50	0.87	0.260	0.187	(0.234)	0.073
151	12.58	0.93	0.280	0.186	(0.252)	0.094
152	12.67	0.93	0.280	0.185	(0.252)	0.095
153	12.75	0.93	0.280	0.184	(0.252)	0.096
154	12.83	0.97	0.290	0.183	(0.261)	0.107
155	12.92	0.97	0.290	0.182	(0.261)	0.108
156	13.00	0.97	0.290	0.181	(0.261)	0.109
157	13.08	1.13	0.340	0.180	(0.306)	0.160
158	13.17	1.13	0.340	0.179	(0.306)	0.161
159	13.25	1.13	0.340	0.178	(0.306)	0.161
160	13.33	1.13	0.340	0.178	(0.306)	0.162
161	13.42	1.13	0.340	0.177	(0.306)	0.163
162	13.50	1.13	0.340	0.176	(0.306)	0.164
163	13.58	0.77	0.230	0.175	(0.207)	0.055
164	13.67	0.77	0.230	0.174	(0.207)	0.056
165	13.75	0.77	0.230	0.173	(0.207)	0.057
166	13.83	0.77	0.230	0.172	(0.207)	0.058
167	13.92	0.77	0.230	0.171	(0.207)	0.059
168	14.00	0.77	0.230	0.170	(0.207)	0.060
169	14.08	0.90	0.270	0.170	(0.243)	0.100
170	14.17	0.90	0.270	0.169	(0.243)	0.101
171	14.25	0.90	0.270	0.168	(0.243)	0.102
172	14.33	0.87	0.260	0.167	(0.234)	0.093
173	14.42	0.87	0.260	0.166	(0.234)	0.094
174	14.50	0.87	0.260	0.165	(0.234)	0.095
175	14.58	0.87	0.260	0.164	(0.234)	0.096
176	14.67	0.87	0.260	0.164	(0.234)	0.096
177	14.75	0.87	0.260	0.163	(0.234)	0.097
178	14.83	0.83	0.250	0.162	(0.225)	0.088
179	14.92	0.83	0.250	0.161	(0.225)	0.089

180	15.00	0.83	0.250	0.160	(0.225)	0.090
181	15.08	0.80	0.240	0.159	(0.216)	0.081
182	15.17	0.80	0.240	0.159	(0.216)	0.081
183	15.25	0.80	0.240	0.158	(0.216)	0.082
184	15.33	0.77	0.230	0.157	(0.207)	0.073
185	15.42	0.77	0.230	0.156	(0.207)	0.074
186	15.50	0.77	0.230	0.155	(0.207)	0.075
187	15.58	0.63	0.190	0.155	(0.171)	0.035
188	15.67	0.63	0.190	0.154	(0.171)	0.036
189	15.75	0.63	0.190	0.153	(0.171)	0.037
190	15.83	0.63	0.190	0.152	(0.171)	0.038
191	15.92	0.63	0.190	0.151	(0.171)	0.039
192	16.00	0.63	0.190	0.151	(0.171)	0.039
193	16.08	0.13	0.040	(0.150)	0.036	0.004
194	16.17	0.13	0.040	(0.149)	0.036	0.004
195	16.25	0.13	0.040	(0.148)	0.036	0.004
196	16.33	0.13	0.040	(0.148)	0.036	0.004
197	16.42	0.13	0.040	(0.147)	0.036	0.004
198	16.50	0.13	0.040	(0.146)	0.036	0.004
199	16.58	0.10	0.030	(0.145)	0.027	0.003
200	16.67	0.10	0.030	(0.145)	0.027	0.003
201	16.75	0.10	0.030	(0.144)	0.027	0.003
202	16.83	0.10	0.030	(0.143)	0.027	0.003
203	16.92	0.10	0.030	(0.142)	0.027	0.003
204	17.00	0.10	0.030	(0.142)	0.027	0.003
205	17.08	0.17	0.050	(0.141)	0.045	0.005
206	17.17	0.17	0.050	(0.140)	0.045	0.005
207	17.25	0.17	0.050	(0.140)	0.045	0.005
208	17.33	0.17	0.050	(0.139)	0.045	0.005
209	17.42	0.17	0.050	(0.138)	0.045	0.005
210	17.50	0.17	0.050	(0.138)	0.045	0.005
211	17.58	0.17	0.050	(0.137)	0.045	0.005
212	17.67	0.17	0.050	(0.136)	0.045	0.005
213	17.75	0.17	0.050	(0.135)	0.045	0.005
214	17.83	0.13	0.040	(0.135)	0.036	0.004
215	17.92	0.13	0.040	(0.134)	0.036	0.004
216	18.00	0.13	0.040	(0.133)	0.036	0.004
217	18.08	0.13	0.040	(0.133)	0.036	0.004
218	18.17	0.13	0.040	(0.132)	0.036	0.004
219	18.25	0.13	0.040	(0.132)	0.036	0.004
220	18.33	0.13	0.040	(0.131)	0.036	0.004
221	18.42	0.13	0.040	(0.130)	0.036	0.004
222	18.50	0.13	0.040	(0.130)	0.036	0.004
223	18.58	0.10	0.030	(0.129)	0.027	0.003
224	18.67	0.10	0.030	(0.128)	0.027	0.003
225	18.75	0.10	0.030	(0.128)	0.027	0.003
226	18.83	0.07	0.020	(0.127)	0.018	0.002
227	18.92	0.07	0.020	(0.127)	0.018	0.002
228	19.00	0.07	0.020	(0.126)	0.018	0.002
229	19.08	0.10	0.030	(0.125)	0.027	0.003
230	19.17	0.10	0.030	(0.125)	0.027	0.003
231	19.25	0.10	0.030	(0.124)	0.027	0.003
232	19.33	0.13	0.040	(0.124)	0.036	0.004
233	19.42	0.13	0.040	(0.123)	0.036	0.004
234	19.50	0.13	0.040	(0.122)	0.036	0.004
235	19.58	0.10	0.030	(0.122)	0.027	0.003
236	19.67	0.10	0.030	(0.121)	0.027	0.003
237	19.75	0.10	0.030	(0.121)	0.027	0.003
238	19.83	0.07	0.020	(0.120)	0.018	0.002
239	19.92	0.07	0.020	(0.120)	0.018	0.002
240	20.00	0.07	0.020	(0.119)	0.018	0.002
241	20.08	0.10	0.030	(0.119)	0.027	0.003
242	20.17	0.10	0.030	(0.118)	0.027	0.003
243	20.25	0.10	0.030	(0.118)	0.027	0.003
244	20.33	0.10	0.030	(0.117)	0.027	0.003
245	20.42	0.10	0.030	(0.117)	0.027	0.003
246	20.50	0.10	0.030	(0.116)	0.027	0.003
247	20.58	0.10	0.030	(0.116)	0.027	0.003
248	20.67	0.10	0.030	(0.115)	0.027	0.003
249	20.75	0.10	0.030	(0.115)	0.027	0.003
250	20.83	0.07	0.020	(0.114)	0.018	0.002
251	20.92	0.07	0.020	(0.114)	0.018	0.002
252	21.00	0.07	0.020	(0.113)	0.018	0.002
253	21.08	0.10	0.030	(0.113)	0.027	0.003
254	21.17	0.10	0.030	(0.112)	0.027	0.003
255	21.25	0.10	0.030	(0.112)	0.027	0.003
256	21.33	0.07	0.020	(0.112)	0.018	0.002
257	21.42	0.07	0.020	(0.111)	0.018	0.002
258	21.50	0.07	0.020	(0.111)	0.018	0.002
259	21.58	0.10	0.030	(0.110)	0.027	0.003
260	21.67	0.10	0.030	(0.110)	0.027	0.003
261	21.75	0.10	0.030	(0.109)	0.027	0.003
262	21.83	0.07	0.020	(0.109)	0.018	0.002
263	21.92	0.07	0.020	(0.109)	0.018	0.002
264	22.00	0.07	0.020	(0.108)	0.018	0.002
265	22.08	0.10	0.030	(0.108)	0.027	0.003

266	22.17	0.10	0.030	(0.108)	0.027	0.003
267	22.25	0.10	0.030	(0.107)	0.027	0.003
268	22.33	0.07	0.020	(0.107)	0.018	0.002
269	22.42	0.07	0.020	(0.107)	0.018	0.002
270	22.50	0.07	0.020	(0.106)	0.018	0.002
271	22.58	0.07	0.020	(0.106)	0.018	0.002
272	22.67	0.07	0.020	(0.106)	0.018	0.002
273	22.75	0.07	0.020	(0.105)	0.018	0.002
274	22.83	0.07	0.020	(0.105)	0.018	0.002
275	22.92	0.07	0.020	(0.105)	0.018	0.002
276	23.00	0.07	0.020	(0.105)	0.018	0.002
277	23.08	0.07	0.020	(0.104)	0.018	0.002
278	23.17	0.07	0.020	(0.104)	0.018	0.002
279	23.25	0.07	0.020	(0.104)	0.018	0.002
280	23.33	0.07	0.020	(0.104)	0.018	0.002
281	23.42	0.07	0.020	(0.104)	0.018	0.002
282	23.50	0.07	0.020	(0.103)	0.018	0.002
283	23.58	0.07	0.020	(0.103)	0.018	0.002
284	23.67	0.07	0.020	(0.103)	0.018	0.002
285	23.75	0.07	0.020	(0.103)	0.018	0.002
286	23.83	0.07	0.020	(0.103)	0.018	0.002
287	23.92	0.07	0.020	(0.103)	0.018	0.002
288	24.00	0.07	0.020	(0.103)	0.018	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.9

Flood volume = Effective rainfall 0.49(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
Total soil loss = 2.01(In)
Total soil loss = 1.040(Ac.Ft)
Total rainfall = 2.50(In)
Flood volume = 11131.5 Cubic Feet
Total soil loss = 45314.3 Cubic Feet

Peak flow rate of this hydrograph = 1.024(CFS)

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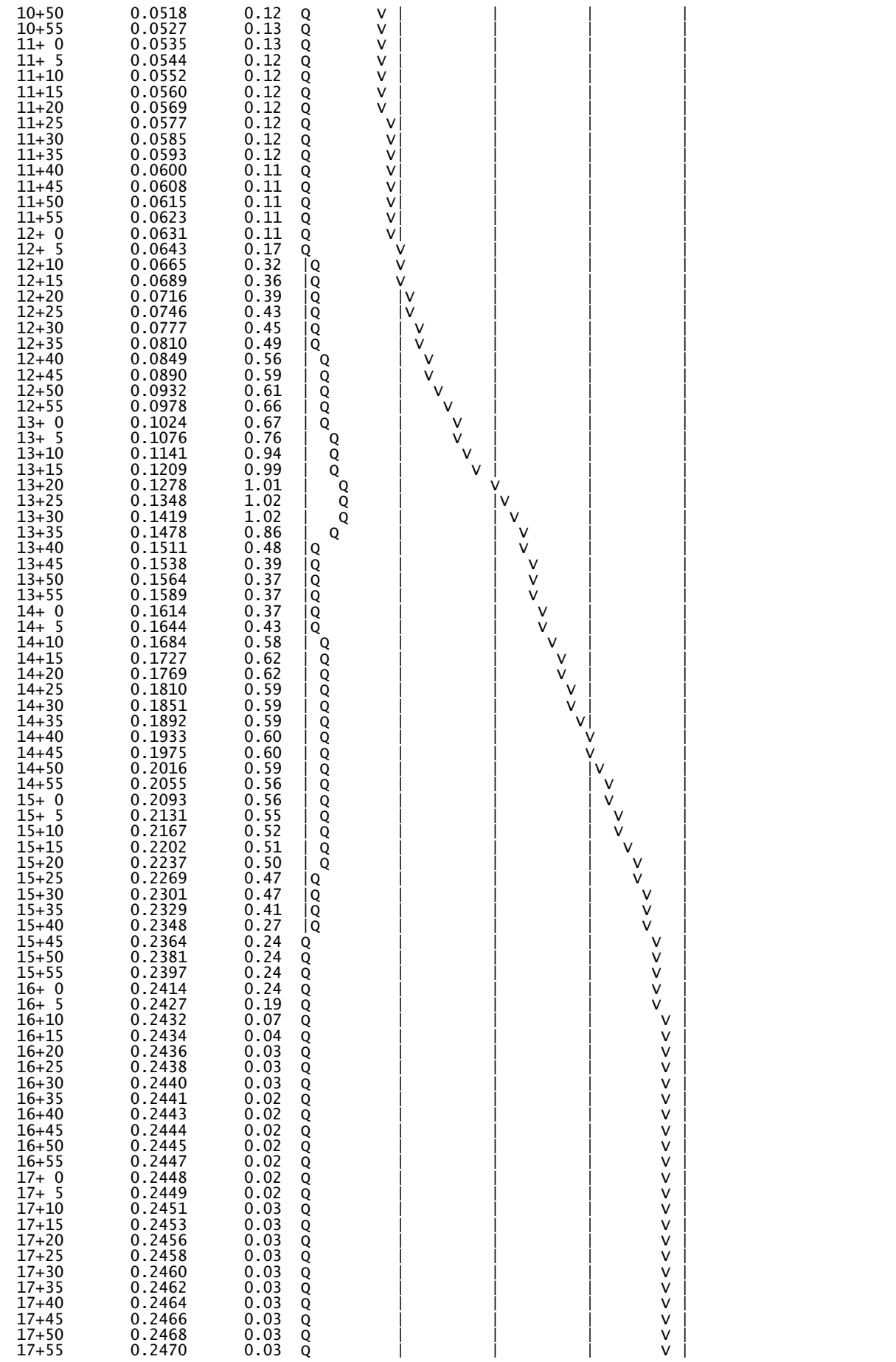
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.01	Q				
0+25	0.0004	0.02	Q				
0+30	0.0005	0.02	Q				
0+35	0.0006	0.02	Q				
0+40	0.0008	0.02	Q				
0+45	0.0009	0.02	Q				
0+50	0.0010	0.02	Q				
0+55	0.0012	0.02	Q				
1+ 0	0.0014	0.02	Q				
1+ 5	0.0015	0.02	Q				
1+10	0.0017	0.02	Q				
1+15	0.0018	0.02	Q				
1+20	0.0019	0.02	Q				
1+25	0.0021	0.02	Q				
1+30	0.0022	0.02	Q				
1+35	0.0023	0.02	Q				
1+40	0.0025	0.02	Q				
1+45	0.0026	0.02	Q				
1+50	0.0027	0.02	Q				
1+55	0.0029	0.02	Q				
2+ 0	0.0031	0.02	Q				
2+ 5	0.0032	0.02	Q				
2+10	0.0034	0.03	Q				
2+15	0.0036	0.03	Q				
2+20	0.0038	0.03	Q				
2+25	0.0039	0.03	Q				
2+30	0.0041	0.03	Q				
2+35	0.0043	0.03	Q				
2+40	0.0045	0.03	Q				
2+45	0.0047	0.03	Q				
2+50	0.0049	0.03	Q				
2+55	0.0051	0.03	Q				
3+ 0	0.0053	0.03	Q				
3+ 5	0.0056	0.03	Q				
3+10	0.0058	0.03	Q				
3+15	0.0060	0.03	Q				
3+20	0.0062	0.03	Q				
3+25	0.0064	0.03	QV				
3+30	0.0066	0.03	QV				
3+35	0.0069	0.03	QV				

3+40	0.0071	0.03	QV	|	|	|	|
3+45	0.0073	0.03	QV	|	|	|	|
3+50	0.0075	0.03	QV	|	|	|	|
3+55	0.0078	0.04	QV	|	|	|	|
4+ 0	0.0080	0.04	QV	|	|	|	|
4+ 5	0.0083	0.04	QV	|	|	|	|
4+10	0.0085	0.04	QV	|	|	|	|
4+15	0.0088	0.04	QV	|	|	|	|
4+20	0.0091	0.04	QV	|	|	|	|
4+25	0.0094	0.04	QV	|	|	|	|
4+30	0.0097	0.04	QV	|	|	|	|
4+35	0.0100	0.04	QV	|	|	|	|
4+40	0.0103	0.04	QV	|	|	|	|
4+45	0.0106	0.04	QV	|	|	|	|
4+50	0.0109	0.05	QV	|	|	|	|
4+55	0.0112	0.05	QV	|	|	|	|
5+ 0	0.0116	0.05	QV	|	|	|	|
5+ 5	0.0119	0.05	QV	|	|	|	|
5+10	0.0122	0.04	QV	|	|	|	|
5+15	0.0124	0.04	QV	|	|	|	|
5+20	0.0127	0.04	QV	|	|	|	|
5+25	0.0130	0.04	Q V	|	|	|	|
5+30	0.0133	0.04	Q V	|	|	|	|
5+35	0.0136	0.05	Q V	|	|	|	|
5+40	0.0139	0.05	Q V	|	|	|	|
5+45	0.0143	0.05	Q V	|	|	|	|
5+50	0.0146	0.05	Q V	|	|	|	|
5+55	0.0150	0.05	Q V	|	|	|	|
6+ 0	0.0153	0.05	Q V	|	|	|	|
6+ 5	0.0157	0.05	Q V	|	|	|	|
6+10	0.0161	0.06	Q V	|	|	|	|
6+15	0.0164	0.06	Q V	|	|	|	|
6+20	0.0168	0.06	Q V	|	|	|	|
6+25	0.0172	0.06	Q V	|	|	|	|
6+30	0.0176	0.06	Q V	|	|	|	|
6+35	0.0180	0.06	Q V	|	|	|	|
6+40	0.0184	0.06	Q V	|	|	|	|
6+45	0.0189	0.06	Q V	|	|	|	|
6+50	0.0193	0.06	Q V	|	|	|	|
6+55	0.0197	0.06	Q V	|	|	|	|
7+ 0	0.0202	0.06	Q V	|	|	|	|
7+ 5	0.0206	0.06	Q V	|	|	|	|
7+10	0.0210	0.06	Q V	|	|	|	|
7+15	0.0215	0.06	Q V	|	|	|	|
7+20	0.0219	0.06	Q V	|	|	|	|
7+25	0.0224	0.07	Q V	|	|	|	|
7+30	0.0228	0.07	Q V	|	|	|	|
7+35	0.0233	0.07	Q V	|	|	|	|
7+40	0.0238	0.07	Q V	|	|	|	|
7+45	0.0243	0.07	Q V	|	|	|	|
7+50	0.0249	0.08	Q V	|	|	|	|
7+55	0.0254	0.08	Q V	|	|	|	|
8+ 0	0.0260	0.08	Q V	|	|	|	|
8+ 5	0.0266	0.08	Q V	|	|	|	|
8+10	0.0272	0.09	Q V	|	|	|	|
8+15	0.0278	0.09	Q V	|	|	|	|
8+20	0.0285	0.09	Q V	|	|	|	|
8+25	0.0291	0.09	Q V	|	|	|	|
8+30	0.0298	0.09	Q V	|	|	|	|
8+35	0.0304	0.10	Q V	|	|	|	|
8+40	0.0311	0.10	Q V	|	|	|	|
8+45	0.0318	0.10	Q V	|	|	|	|
8+50	0.0325	0.10	Q V	|	|	|	|
8+55	0.0332	0.11	Q V	|	|	|	|
9+ 0	0.0340	0.11	Q V	|	|	|	|
9+ 5	0.0347	0.11	Q V	|	|	|	|
9+10	0.0355	0.12	Q V	|	|	|	|
9+15	0.0363	0.12	Q V	|	|	|	|
9+20	0.0372	0.12	Q V	|	|	|	|
9+25	0.0380	0.12	Q V	|	|	|	|
9+30	0.0389	0.13	Q V	|	|	|	|
9+35	0.0398	0.13	Q V	|	|	|	|
9+40	0.0407	0.13	Q V	|	|	|	|
9+45	0.0416	0.13	Q V	|	|	|	|
9+50	0.0425	0.13	Q V	|	|	|	|
9+55	0.0434	0.14	Q V	|	|	|	|
10+ 0	0.0444	0.14	Q V	|	|	|	|
10+ 5	0.0452	0.13	Q V	|	|	|	|
10+10	0.0460	0.10	Q V	|	|	|	|
10+15	0.0466	0.10	Q V	|	|	|	|
10+20	0.0473	0.09	Q V	|	|	|	|
10+25	0.0479	0.09	Q V	|	|	|	|
10+30	0.0486	0.09	Q V	|	|	|	|
10+35	0.0493	0.10	Q V	|	|	|	|
10+40	0.0501	0.12	Q V	|	|	|	|
10+45	0.0509	0.12	Q V	|	|	|	|



10+50	0.0518	0.12	Q V | | | |
10+55	0.0527	0.13	Q V | | | |
11+ 0	0.0535	0.13	Q V | | | |
11+ 5	0.0544	0.12	Q V | | | |
11+10	0.0552	0.12	Q V | | | |
11+15	0.0560	0.12	Q V | | | |
11+20	0.0569	0.12	Q V | | | |
11+25	0.0577	0.12	Q V| | | |
11+30	0.0585	0.12	Q V| | | |
11+35	0.0593	0.12	Q V| | | |
11+40	0.0600	0.11	Q V| | | |
11+45	0.0608	0.11	Q V| | | |
11+50	0.0615	0.11	Q V| | | |
11+55	0.0623	0.11	Q V| | | |
12+ 0	0.0631	0.11	Q V| | | |
12+ 5	0.0643	0.17	Q V | | | |
12+10	0.0665	0.32	|Q V | | |
12+15	0.0689	0.36	|Q V | | |
12+20	0.0716	0.39	|Q |V | | |
12+25	0.0746	0.43	|Q |V | | |
12+30	0.0777	0.45	|Q | V | | |
12+35	0.0810	0.49	|Q | V | | |
12+40	0.0849	0.56	| Q | V | | |
12+45	0.0890	0.59	| Q | V | | |
12+50	0.0932	0.61	| Q | V | | |
12+55	0.0978	0.66	| Q | V | | |
13+ 0	0.1024	0.67	| Q | V | | |
13+ 5	0.1076	0.76	| Q | V | | |
13+10	0.1141	0.94	| Q | V | | |
13+15	0.1209	0.99	| Q | V | | |
13+20	0.1278	1.01	| Q | V | |
13+25	0.1348	1.02	| Q | |V | |
13+30	0.1419	1.02	| Q | | V | |
13+35	0.1478	0.86	| Q | | V | |
13+40	0.1511	0.48	|Q | | V | |
13+45	0.1538	0.39	|Q | | V | |
13+50	0.1564	0.37	|Q | | V | |
13+55	0.1589	0.37	|Q | | V | |
14+ 0	0.1614	0.37	|Q | | V | |
14+ 5	0.1644	0.43	|Q | | V | |
14+10	0.1684	0.58	| Q | | V | |
14+15	0.1727	0.62	| Q | | V | |
14+20	0.1769	0.62	| Q | | V | |
14+25	0.1810	0.59	| Q | | V | |
14+30	0.1851	0.59	| Q | | V | |
14+35	0.1892	0.59	| Q | | V| |
14+40	0.1933	0.60	| Q | | V |
14+45	0.1975	0.60	| Q | | V |
14+50	0.2016	0.59	| Q | | |V |
14+55	0.2055	0.56	| Q | | | V |
15+ 0	0.2093	0.56	| Q | | | V |
15+ 5	0.2131	0.55	| Q | | | V |
15+10	0.2167	0.52	| Q | | | V |
15+15	0.2202	0.51	| Q | | | V |
15+20	0.2237	0.50	| Q | | | V |
15+25	0.2269	0.47	|Q | | | V |
15+30	0.2301	0.47	|Q | | | V |
15+35	0.2329	0.41	|Q | | | V |
15+40	0.2348	0.27	|Q | | | V |
15+45	0.2364	0.24	Q | | | V |
15+50	0.2381	0.24	Q | | | V |
15+55	0.2397	0.24	Q | | | V |
16+ 0	0.2414	0.24	Q | | | V |
16+ 5	0.2427	0.19	Q | | | V |
16+10	0.2432	0.07	Q | | | V |
16+15	0.2434	0.04	Q | | | V |
16+20	0.2436	0.03	Q | | | V |
16+25	0.2438	0.03	Q | | | V |
16+30	0.2440	0.03	Q | | | V |
16+35	0.2441	0.02	Q | | | V |
16+40	0.2443	0.02	Q | | | V |
16+45	0.2444	0.02	Q | | | V |
16+50	0.2445	0.02	Q | | | V |
16+55	0.2447	0.02	Q | | | V |
17+ 0	0.2448	0.02	Q | | | V |
17+ 5	0.2449	0.02	Q | | | V |
17+10	0.2451	0.03	Q | | | V |
17+15	0.2453	0.03	Q | | | V |
17+20	0.2456	0.03	Q | | | V |
17+25	0.2458	0.03	Q | | | V |
17+30	0.2460	0.03	Q | | | V |
17+35	0.2462	0.03	Q | | | V |
17+40	0.2464	0.03	Q | | | V |
17+45	0.2466	0.03	Q | | | V |
17+50	0.2468	0.03	Q | | | V |
17+55	0.2470	0.03	Q | | | V |

18+ 0	0.2472	0.03	Q	|	|	|	V |
18+ 5	0.2474	0.03	Q	|	|	|	V |
18+10	0.2475	0.03	Q	|	|	|	V |
18+15	0.2477	0.03	Q	|	|	|	V |
18+20	0.2479	0.03	Q	|	|	|	V |
18+25	0.2481	0.03	Q	|	|	|	V |
18+30	0.2482	0.03	Q	|	|	|	V |
18+35	0.2484	0.02	Q	|	|	|	V |
18+40	0.2485	0.02	Q	|	|	|	V |
18+45	0.2487	0.02	Q	|	|	|	V |
18+50	0.2488	0.02	Q	|	|	|	V |
18+55	0.2489	0.01	Q	|	|	|	V |
19+ 0	0.2490	0.01	Q	|	|	|	V |
19+ 5	0.2491	0.01	Q	|	|	|	V |
19+10	0.2492	0.02	Q	|	|	|	V|
19+15	0.2493	0.02	Q	|	|	|	V|
19+20	0.2495	0.02	Q	|	|	|	V|
19+25	0.2496	0.02	Q	|	|	|	V|
19+30	0.2498	0.02	Q	|	|	|	V|
19+35	0.2500	0.02	Q	|	|	|	V|
19+40	0.2501	0.02	Q	|	|	|	V|
19+45	0.2502	0.02	Q	|	|	|	V|
19+50	0.2503	0.02	Q	|	|	|	V|
19+55	0.2504	0.01	Q	|	|	|	V|
20+ 0	0.2505	0.01	Q	|	|	|	V|
20+ 5	0.2506	0.01	Q	|	|	|	V|
20+10	0.2507	0.02	Q	|	|	|	V|
20+15	0.2509	0.02	Q	|	|	|	V|
20+20	0.2510	0.02	Q	|	|	|	V|
20+25	0.2511	0.02	Q	|	|	|	V|
20+30	0.2513	0.02	Q	|	|	|	V|
20+35	0.2514	0.02	Q	|	|	|	V|
20+40	0.2515	0.02	Q	|	|	|	V|
20+45	0.2517	0.02	Q	|	|	|	V|
20+50	0.2518	0.02	Q	|	|	|	V|
20+55	0.2519	0.01	Q	|	|	|	V|
21+ 0	0.2520	0.01	Q	|	|	|	V|
21+ 5	0.2521	0.01	Q	|	|	|	V|
21+10	0.2522	0.02	Q	|	|	|	V|
21+15	0.2523	0.02	Q	|	|	|	V|
21+20	0.2524	0.02	Q	|	|	|	V|
21+25	0.2525	0.01	Q	|	|	|	V|
21+30	0.2526	0.01	Q	|	|	|	V|
21+35	0.2527	0.01	Q	|	|	|	V|
21+40	0.2528	0.02	Q	|	|	|	V|
21+45	0.2529	0.02	Q	|	|	|	V|
21+50	0.2531	0.02	Q	|	|	|	V|
21+55	0.2532	0.01	Q	|	|	|	V|
22+ 0	0.2533	0.01	Q	|	|	|	V|
22+ 5	0.2533	0.01	Q	|	|	|	V|
22+10	0.2535	0.02	Q	|	|	|	V|
22+15	0.2536	0.02	Q	|	|	|	V|
22+20	0.2537	0.02	Q	|	|	|	V|
22+25	0.2538	0.01	Q	|	|	|	V|
22+30	0.2539	0.01	Q	|	|	|	V|
22+35	0.2540	0.01	Q	|	|	|	V|
22+40	0.2541	0.01	Q	|	|	|	V|
22+45	0.2542	0.01	Q	|	|	|	V|
22+50	0.2542	0.01	Q	|	|	|	V|
22+55	0.2543	0.01	Q	|	|	|	V|
23+ 0	0.2544	0.01	Q	|	|	|	V|
23+ 5	0.2545	0.01	Q	|	|	|	V|
23+10	0.2546	0.01	Q	|	|	|	V|
23+15	0.2547	0.01	Q	|	|	|	V|
23+20	0.2548	0.01	Q	|	|	|	V|
23+25	0.2548	0.01	Q	|	|	|	V|
23+30	0.2549	0.01	Q	|	|	|	V|
23+35	0.2550	0.01	Q	|	|	|	V|
23+40	0.2551	0.01	Q	|	|	|	V|
23+45	0.2552	0.01	Q	|	|	|	V|
23+50	0.2553	0.01	Q	|	|	|	V|
23+55	0.2554	0.01	Q	|	|	|	V|
24+ 0	0.2555	0.01	Q	|	|	|	V|
24+ 5	0.2555	0.01	Q	|	|	|	V|
24+10	0.2555	0.00	Q	|	|	|	V|
24+15	0.2555	0.00	Q	|	|	|	V|
24+20	0.2555	0.00	Q	|	|	|	V|
24+25	0.2555	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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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22            0.55                 3.42

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            1.45                 9.02

STORM EVENT (YEAR) =    5.00
Area Averaged 2-Year Rainfall =    0.550(In)
Area Averaged 100-Year Rainfall =    1.450(In)

Point rain (area averaged) =    0.761(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.761(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  83.4      0.205     0.000        0.205       1.000      0.205
                                                 Sum (F) =   0.205
Area averaged mean soil loss (F) (In/Hr) =  0.205
Minimum soil loss rate ((In/Hr)) =  0.103
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
-----------------------------------------------------------------
               Unit Hydrograph Data
-----------------------------------------------------------------
```

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
		Sum = 100.000	Sum=	6.269

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	4.40	0.402	0.205	(0.362)	0.196
2	0.17	4.50	0.411	0.205	(0.370)	0.206
3	0.25	5.40	0.493	0.205	(0.444)	0.288
4	0.33	5.40	0.493	0.205	(0.444)	0.288
5	0.42	5.70	0.520	0.205	(0.468)	0.315
6	0.50	6.40	0.584	0.205	(0.526)	0.379
7	0.58	7.90	0.721	0.205	(0.649)	0.516
8	0.67	9.10	0.831	0.205	(0.748)	0.626
9	0.75	12.80	1.169	0.205	(1.052)	0.963
10	0.83	25.60	2.337	0.205	(2.103)	2.132
11	0.92	7.90	0.721	0.205	(0.649)	0.516
12	1.00	4.90	0.447	0.205	(0.403)	0.242
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	6.7

Flood volume = Effective rainfall 0.56(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
Total soil loss = 0.21(In)
Total soil loss = 0.106(Ac.Ft)
Total rainfall = 0.76(In)
Flood volume = 12542.8 Cubic Feet
Total soil loss = 4634.0 Cubic Feet

Peak flow rate of this hydrograph = 9.312(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	2.5	5.0	7.5	10.0
0+ 5	0.0021	0.30	VQ				
0+10	0.0089	1.00	V Q				
0+15	0.0181	1.33	V Q				
0+20	0.0297	1.68	V Q				
0+25	0.0421	1.81	V Q				
0+30	0.0561	2.03	VQ				
0+35	0.0733	2.49	QV				
0+40	0.0954	3.20	Q V				
0+45	0.1246	4.24	Q V				
0+50	0.1751	7.34	Q V				
0+55	0.2392	9.31	Q V				
1+ 0	0.2696	4.41	Q V				
1+ 5	0.2830	1.94	Q V				
1+10	0.2866	0.52	Q V				
1+15	0.2877	0.16	Q V				
1+20	0.2879	0.03	Q V				
1+25	0.2879	0.01	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 5006

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 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



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Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22            1.00                 6.22

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            2.50                15.55

STORM EVENT (YEAR) =    5.00
Area Averaged 2-Year Rainfall =    1.000(In)
Area Averaged 100-Year Rainfall =    2.500(In)

Point rain (area averaged) =    1.351(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.351(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  83.4      0.205     0.000        0.205       1.000      0.205
                                                 Sum (F) =   0.205
Area averaged mean soil loss (F) (In/Hr) =  0.205
Minimum soil loss rate ((In/Hr)) =  0.103
(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
                      FOOTHILL S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
```

1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
			Sum = 100.000	Sum= 6.269

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	0.211	(0.205)	0.190	0.021
2	0.17	1.30	0.211	(0.205)	0.190	0.021
3	0.25	1.10	0.178	(0.205)	0.161	0.018
4	0.33	1.50	0.243	0.205	(0.219)	0.038
5	0.42	1.50	0.243	0.205	(0.219)	0.038
6	0.50	1.80	0.292	0.205	(0.263)	0.087
7	0.58	1.50	0.243	0.205	(0.219)	0.038
8	0.67	1.80	0.292	0.205	(0.263)	0.087
9	0.75	1.80	0.292	0.205	(0.263)	0.087
10	0.83	1.50	0.243	0.205	(0.219)	0.038
11	0.92	1.60	0.259	0.205	(0.234)	0.054
12	1.00	1.80	0.292	0.205	(0.263)	0.087
13	1.08	2.20	0.357	0.205	(0.321)	0.152
14	1.17	2.20	0.357	0.205	(0.321)	0.152
15	1.25	2.20	0.357	0.205	(0.321)	0.152
16	1.33	2.00	0.324	0.205	(0.292)	0.119
17	1.42	2.60	0.422	0.205	(0.379)	0.216
18	1.50	2.70	0.438	0.205	(0.394)	0.233
19	1.58	2.40	0.389	0.205	(0.350)	0.184
20	1.67	2.70	0.438	0.205	(0.394)	0.233
21	1.75	3.30	0.535	0.205	(0.482)	0.330
22	1.83	3.10	0.503	0.205	(0.452)	0.297
23	1.92	2.90	0.470	0.205	(0.423)	0.265
24	2.00	3.00	0.486	0.205	(0.438)	0.281
25	2.08	3.10	0.503	0.205	(0.452)	0.297
26	2.17	4.20	0.681	0.205	(0.613)	0.476
27	2.25	5.00	0.811	0.205	(0.730)	0.606
28	2.33	3.50	0.568	0.205	(0.511)	0.362
29	2.42	6.80	1.103	0.205	(0.992)	0.897
30	2.50	7.30	1.184	0.205	(1.065)	0.978
31	2.58	8.20	1.330	0.205	(1.197)	1.124
32	2.67	5.90	0.957	0.205	(0.861)	0.751
33	2.75	2.00	0.324	0.205	(0.292)	0.119
34	2.83	1.80	0.292	0.205	(0.263)	0.087
35	2.92	1.80	0.292	0.205	(0.263)	0.087
36	3.00	0.60	0.097	(0.205)	0.088	0.010
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	9.0

Flood volume = Effective rainfall 0.75(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 0.60(In)
Total soil loss = 0.311(Ac.Ft)
Total rainfall = 1.35(In)
Flood volume = 16972.3 Cubic Feet
Total soil loss = 13538.2 Cubic Feet

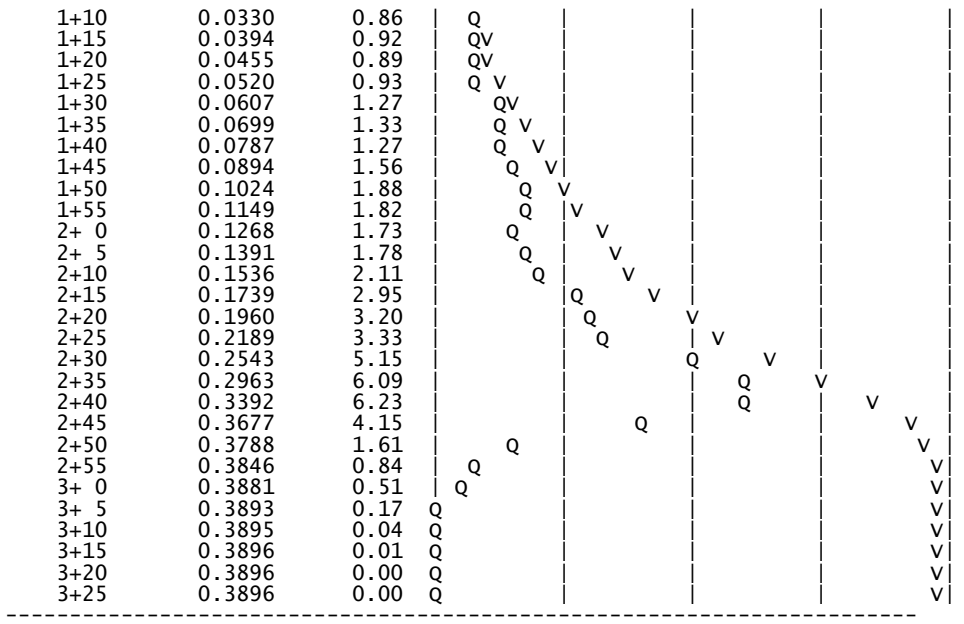
Peak flow rate of this hydrograph = 6.229(CFS)

++

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	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.03	Q				
0+10	0.0009	0.11	Q				
0+15	0.0018	0.12	Q				
0+20	0.0028	0.14	Q				
0+25	0.0042	0.21	Q				
0+30	0.0063	0.31	VQ				
0+35	0.0091	0.41	VQ				
0+40	0.0116	0.36	|Q				
0+45	0.0150	0.49	|Q				
0+50	0.0181	0.46	|Q				
0+55	0.0203	0.32	|QV				
1+ 0	0.0230	0.38	|QV				
1+ 5	0.0271	0.60	| Q				



1+10	0.0330	0.86	
1+15	0.0394	0.92	
1+20	0.0455	0.89	
1+25	0.0520	0.93	
1+30	0.0607	1.27	
1+35	0.0699	1.33	
1+40	0.0787	1.27	
1+45	0.0894	1.56	
1+50	0.1024	1.88	
1+55	0.1149	1.82	
2+ 0	0.1268	1.73	
2+ 5	0.1391	1.78	
2+10	0.1536	2.11	
2+15	0.1739	2.95	
2+20	0.1960	3.20	
2+25	0.2189	3.33	
2+30	0.2543	5.15	
2+35	0.2963	6.09	
2+40	0.3392	6.23	
2+45	0.3677	4.15	
2+50	0.3788	1.61	
2+55	0.3846	0.84	
3+ 0	0.3881	0.51	
3+ 5	0.3893	0.17	
3+10	0.3895	0.04	
3+15	0.3896	0.01	
3+20	0.3896	0.00	
3+25	0.3896	0.00	

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 04/30/19 File: ex565.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978
Program License Serial Number 5006

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

Drainage Area = 6.22(Ac.) = 0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 6.22(Ac.) = 0.010 Sq. Mi.
Length along longest watercourse = 885.00(Ft.)
Length along longest watercourse measured to centroid = 442.50(Ft.)
Length along longest watercourse = 0.168 Mi.
Length along longest watercourse measured to centroid = 0.084 Mi.
Difference in elevation = 47.90(Ft.)
Slope along watercourse = 285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.065 Hr.
Lag time = 3.89 Min.
25% of lag time = 0.97 Min.
40% of lag time = 1.56 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]
6.22	1.40	8.71

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
6.22	3.50	21.77

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.400(In)
Area Averaged 100-Year Rainfall = 3.500(In)
Point rain (area averaged) = 1.892(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.892(In)
Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
6.220	93.00	0.000

Total Area Entered = 6.22(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
93.0	83.4	0.205	0.000	0.205	1.000	0.205
					Sum (F) =	0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205
Minimum soil loss rate ((In/Hr)) = 0.103
(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
FOOTHILL S-Curve

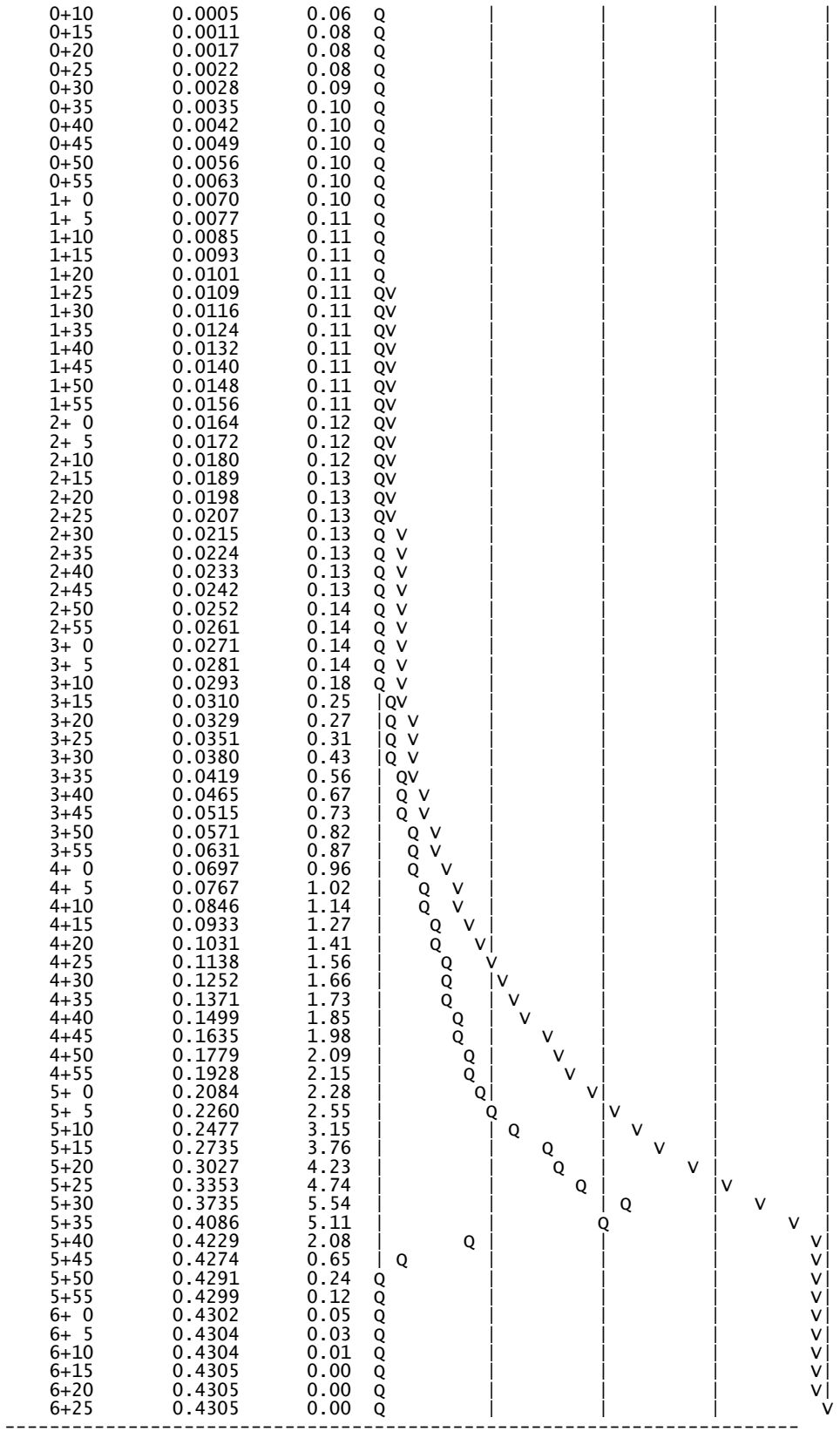
Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
		Sum =	100.000 Sum=	6.269

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	0.114	(0.205)	0.102	0.011
2	0.17	0.60	0.136	(0.205)	0.123	0.014
3	0.25	0.60	0.136	(0.205)	0.123	0.014
4	0.33	0.60	0.136	(0.205)	0.123	0.014
5	0.42	0.60	0.136	(0.205)	0.123	0.014
6	0.50	0.70	0.159	(0.205)	0.143	0.016
7	0.58	0.70	0.159	(0.205)	0.143	0.016

```
 8   0.67     0.70      0.159       (  0.205)       0.143        0.016
 9   0.75     0.70      0.159       (  0.205)       0.143        0.016
10   0.83     0.70      0.159       (  0.205)       0.143        0.016
11   0.92     0.70      0.159       (  0.205)       0.143        0.016
12   1.00     0.80      0.182       (  0.205)       0.163        0.018
13   1.08     0.80      0.182       (  0.205)       0.163        0.018
14   1.17     0.80      0.182       (  0.205)       0.163        0.018
15   1.25     0.80      0.182       (  0.205)       0.163        0.018
16   1.33     0.80      0.182       (  0.205)       0.163        0.018
17   1.42     0.80      0.182       (  0.205)       0.163        0.018
18   1.50     0.80      0.182       (  0.205)       0.163        0.018
19   1.58     0.80      0.182       (  0.205)       0.163        0.018
20   1.67     0.80      0.182       (  0.205)       0.163        0.018
21   1.75     0.80      0.182       (  0.205)       0.163        0.018
22   1.83     0.80      0.182       (  0.205)       0.163        0.018
23   1.92     0.80      0.182       (  0.205)       0.163        0.018
24   2.00     0.90      0.204       (  0.205)       0.184        0.020
25   2.08     0.80      0.182       (  0.205)       0.163        0.018
26   2.17     0.90      0.204       (  0.205)       0.184        0.020
27   2.25     0.90      0.204       (  0.205)       0.184        0.020
28   2.33     0.90      0.204       (  0.205)       0.184        0.020
29   2.42     0.90      0.204       (  0.205)       0.184        0.020
30   2.50     0.90      0.204       (  0.205)       0.184        0.020
31   2.58     0.90      0.204       (  0.205)       0.184        0.020
32   2.67     0.90      0.204       (  0.205)       0.184        0.020
33   2.75     1.00      0.227       (  0.205)       0.204        0.023
34   2.83     1.00      0.227       (  0.205)       0.204        0.023
35   2.92     1.00      0.227       (  0.205)       0.204        0.023
36   3.00     1.00      0.227       (  0.205)       0.204        0.023
37   3.08     1.00      0.227       (  0.205)       0.204        0.023
38   3.17     1.10      0.250          0.205    (  0.225)       0.044
39   3.25     1.10      0.250          0.205    (  0.225)       0.044
40   3.33     1.10      0.250          0.205    (  0.225)       0.044
41   3.42     1.20      0.272          0.205    (  0.245)       0.067
42   3.50     1.30      0.295          0.205    (  0.266)       0.090
43   3.58     1.40      0.318          0.205    (  0.286)       0.113
44   3.67     1.40      0.318          0.205    (  0.286)       0.113
45   3.75     1.50      0.341          0.205    (  0.306)       0.135
46   3.83     1.50      0.341          0.205    (  0.306)       0.135
47   3.92     1.60      0.363          0.205    (  0.327)       0.158
48   4.00     1.60      0.363          0.205    (  0.327)       0.158
49   4.08     1.70      0.386          0.205    (  0.347)       0.181
50   4.17     1.80      0.409          0.205    (  0.368)       0.203
51   4.25     1.90      0.431          0.205    (  0.388)       0.226
52   4.33     2.00      0.454          0.205    (  0.409)       0.249
53   4.42     2.10      0.477          0.205    (  0.429)       0.272
54   4.50     2.10      0.477          0.205    (  0.429)       0.272
55   4.58     2.20      0.499          0.205    (  0.449)       0.294
56   4.67     2.30      0.522          0.205    (  0.470)       0.317
57   4.75     2.40      0.545          0.205    (  0.490)       0.340
58   4.83     2.40      0.545          0.205    (  0.490)       0.340
59   4.92     2.50      0.568          0.205    (  0.511)       0.362
60   5.00     2.60      0.590          0.205    (  0.531)       0.385
61   5.08     3.10      0.704          0.205    (  0.633)       0.499
62   5.17     3.60      0.817          0.205    (  0.736)       0.612
63   5.25     3.90      0.885          0.205    (  0.797)       0.680
64   5.33     4.20      0.953          0.205    (  0.858)       0.748
65   5.42     4.70      1.067          0.205    (  0.960)       0.862
66   5.50     5.60      1.271          0.205    (  1.144)       1.066
67   5.58     1.90      0.431          0.205    (  0.388)       0.226
68   5.67     0.90      0.204       (  0.205)       0.184        0.020
69   5.75     0.60      0.136       (  0.205)       0.123        0.014
70   5.83     0.50      0.114       (  0.205)       0.102        0.011
71   5.92     0.30      0.068       (  0.205)       0.061        0.007
72   6.00     0.20      0.045       (  0.205)       0.041        0.005
              (Loss Rate Not Used)
   Sum =     100.0                                  Sum =    10.0
     Flood volume = Effective rainfall      0.83(In)
      times area       6.2(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
     Total soil loss =      1.06(In)
     Total soil loss =     0.550(Ac.Ft)
     Total rainfall =      1.89(In)
     Flood volume =       18751.0 Cubic Feet
     Total soil loss =       23963.9 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      5.538(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        2.5       5.0       7.5      10.0
---------------------------------------------------------------------------
  0+ 5       0.0001      0.02  Q         |         |         |         |
```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0+15 0.0011 0.08
0+20 0.0017 0.08
0+25 0.0022 0.08
0+30 0.0028 0.09
0+35 0.0035 0.10
0+40 0.0042 0.10
0+45 0.0049 0.10
0+50 0.0056 0.10
0+55 0.0063 0.10
1+ 0 0.0070 0.10
1+ 5 0.0077 0.11
1+10 0.0085 0.11
1+15 0.0093 0.11
1+20 0.0101 0.11
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1+35 0.0124 0.11
1+40 0.0132 0.11
1+45 0.0140 0.11
1+50 0.0148 0.11
1+55 0.0156 0.11
2+ 0 0.0164 0.12
2+ 5 0.0172 0.12
2+10 0.0180 0.12
2+15 0.0189 0.13
2+20 0.0198 0.13
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2+40 0.0233 0.13
2+45 0.0242 0.13
2+50 0.0252 0.14
2+55 0.0261 0.14
3+ 0 0.0271 0.14
3+ 5 0.0281 0.14
3+10 0.0293 0.18
3+15 0.0310 0.25
3+20 0.0329 0.27
3+25 0.0351 0.31
3+30 0.0380 0.43
3+35 0.0419 0.56
3+40 0.0465 0.67
3+45 0.0515 0.73
3+50 0.0571 0.82
3+55 0.0631 0.87
4+ 0 0.0697 0.96
4+ 5 0.0767 1.02
4+10 0.0846 1.14
4+15 0.0933 1.27
4+20 0.1031 1.41
4+25 0.1138 1.56
4+30 0.1252 1.66
4+35 0.1371 1.73
4+40 0.1499 1.85
4+45 0.1635 1.98
4+50 0.1779 2.09
4+55 0.1928 2.15
5+ 0 0.2084 2.28
5+ 5 0.2260 2.55
5+10 0.2477 3.15
5+15 0.2735 3.76
5+20 0.3027 4.23
5+25 0.3353 4.74
5+30 0.3735 5.54
5+35 0.4086 5.11
5+40 0.4229 2.08
5+45 0.4274 0.65
5+50 0.4291 0.24
5+55 0.4299 0.12
6+ 0 0.4302 0.05
6+ 5 0.4304 0.03
6+10 0.4304 0.01
6+15 0.4305 0.00
6+20 0.4305 0.00
6+25 0.4305 0.00

```
                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  04/30/19 File: ex5245.out
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
--------------------------------------------------------------------------------
Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978
Program License Serial Number 5006
--------------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used
 English Units used in output format
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22           2.50                 15.55
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22           7.00                 43.54
STORM EVENT (YEAR) =    5.00
Area Averaged 2-Year Rainfall =    2.500(In)
Area Averaged 100-Year Rainfall =    7.000(In)
Point rain (area averaged) =    3.554(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    3.554(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  83.4      0.205     0.000        0.205       1.000      0.205
                                                 Sum (F) =   0.205
Area averaged mean soil loss (F) (In/Hr) =  0.205
Minimum soil loss rate ((In/Hr)) =  0.103
(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
                        FOOTHILL S-Curve
--------------------------------------------------------------------------------
                Unit Hydrograph Data
--------------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------------------
     1   0.083        128.561         24.198              1.517
     2   0.167        257.122         55.715              3.493
     3   0.250        385.683         14.449              0.906
     4   0.333        514.243          4.090              0.256
     5   0.417        642.804          1.058              0.066
     6   0.500        771.365          0.490              0.031
                              Sum = 100.000   Sum=        6.269
--------------------------------------------------------------------------------
 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     0.07      0.028       (  0.364)       0.026        0.003
   2   0.17     0.07      0.028       (  0.362)       0.026        0.003
   3   0.25     0.07      0.028       (  0.361)       0.026        0.003
   4   0.33     0.10      0.043       (  0.360)       0.038        0.004
   5   0.42     0.10      0.043       (  0.358)       0.038        0.004
   6   0.50     0.10      0.043       (  0.357)       0.038        0.004
   7   0.58     0.10      0.043       (  0.355)       0.038        0.004
   8   0.67     0.10      0.043       (  0.354)       0.038        0.004
   9   0.75     0.10      0.043       (  0.353)       0.038        0.004
```

10	0.83	0.13	0.057	(0.351)	0.051	0.006
11	0.92	0.13	0.057	(0.350)	0.051	0.006
12	1.00	0.13	0.057	(0.349)	0.051	0.006
13	1.08	0.10	0.043	(0.347)	0.038	0.004
14	1.17	0.10	0.043	(0.346)	0.038	0.004
15	1.25	0.10	0.043	(0.344)	0.038	0.004
16	1.33	0.10	0.043	(0.343)	0.038	0.004
17	1.42	0.10	0.043	(0.342)	0.038	0.004
18	1.50	0.10	0.043	(0.340)	0.038	0.004
19	1.58	0.10	0.043	(0.339)	0.038	0.004
20	1.67	0.10	0.043	(0.338)	0.038	0.004
21	1.75	0.10	0.043	(0.336)	0.038	0.004
22	1.83	0.13	0.057	(0.335)	0.051	0.006
23	1.92	0.13	0.057	(0.334)	0.051	0.006
24	2.00	0.13	0.057	(0.332)	0.051	0.006
25	2.08	0.13	0.057	(0.331)	0.051	0.006
26	2.17	0.13	0.057	(0.329)	0.051	0.006
27	2.25	0.13	0.057	(0.328)	0.051	0.006
28	2.33	0.13	0.057	(0.327)	0.051	0.006
29	2.42	0.13	0.057	(0.325)	0.051	0.006
30	2.50	0.13	0.057	(0.324)	0.051	0.006
31	2.58	0.17	0.071	(0.323)	0.064	0.007
32	2.67	0.17	0.071	(0.321)	0.064	0.007
33	2.75	0.17	0.071	(0.320)	0.064	0.007
34	2.83	0.17	0.071	(0.319)	0.064	0.007
35	2.92	0.17	0.071	(0.318)	0.064	0.007
36	3.00	0.17	0.071	(0.316)	0.064	0.007
37	3.08	0.17	0.071	(0.315)	0.064	0.007
38	3.17	0.17	0.071	(0.314)	0.064	0.007
39	3.25	0.17	0.071	(0.312)	0.064	0.007
40	3.33	0.17	0.071	(0.311)	0.064	0.007
41	3.42	0.17	0.071	(0.310)	0.064	0.007
42	3.50	0.17	0.071	(0.308)	0.064	0.007
43	3.58	0.17	0.071	(0.307)	0.064	0.007
44	3.67	0.17	0.071	(0.306)	0.064	0.007
45	3.75	0.17	0.071	(0.305)	0.064	0.007
46	3.83	0.20	0.085	(0.303)	0.077	0.009
47	3.92	0.20	0.085	(0.302)	0.077	0.009
48	4.00	0.20	0.085	(0.301)	0.077	0.009
49	4.08	0.20	0.085	(0.299)	0.077	0.009
50	4.17	0.20	0.085	(0.298)	0.077	0.009
51	4.25	0.20	0.085	(0.297)	0.077	0.009
52	4.33	0.23	0.100	(0.296)	0.090	0.010
53	4.42	0.23	0.100	(0.294)	0.090	0.010
54	4.50	0.23	0.100	(0.293)	0.090	0.010
55	4.58	0.23	0.100	(0.292)	0.090	0.010
56	4.67	0.23	0.100	(0.291)	0.090	0.010
57	4.75	0.23	0.100	(0.289)	0.090	0.010
58	4.83	0.27	0.114	(0.288)	0.102	0.011
59	4.92	0.27	0.114	(0.287)	0.102	0.011
60	5.00	0.27	0.114	(0.286)	0.102	0.011
61	5.08	0.20	0.085	(0.284)	0.077	0.009
62	5.17	0.20	0.085	(0.283)	0.077	0.009
63	5.25	0.20	0.085	(0.282)	0.077	0.009
64	5.33	0.23	0.100	(0.281)	0.090	0.010
65	5.42	0.23	0.100	(0.279)	0.090	0.010
66	5.50	0.23	0.100	(0.278)	0.090	0.010
67	5.58	0.27	0.114	(0.277)	0.102	0.011
68	5.67	0.27	0.114	(0.276)	0.102	0.011
69	5.75	0.27	0.114	(0.275)	0.102	0.011
70	5.83	0.27	0.114	(0.273)	0.102	0.011
71	5.92	0.27	0.114	(0.272)	0.102	0.011
72	6.00	0.27	0.114	(0.271)	0.102	0.011
73	6.08	0.30	0.128	(0.270)	0.115	0.013
74	6.17	0.30	0.128	(0.269)	0.115	0.013
75	6.25	0.30	0.128	(0.267)	0.115	0.013
76	6.33	0.30	0.128	(0.266)	0.115	0.013
77	6.42	0.30	0.128	(0.265)	0.115	0.013
78	6.50	0.30	0.128	(0.264)	0.115	0.013
79	6.58	0.33	0.142	(0.263)	0.128	0.014
80	6.67	0.33	0.142	(0.261)	0.128	0.014
81	6.75	0.33	0.142	(0.260)	0.128	0.014
82	6.83	0.33	0.142	(0.259)	0.128	0.014
83	6.92	0.33	0.142	(0.258)	0.128	0.014
84	7.00	0.33	0.142	(0.257)	0.128	0.014
85	7.08	0.33	0.142	(0.256)	0.128	0.014
86	7.17	0.33	0.142	(0.254)	0.128	0.014
87	7.25	0.33	0.142	(0.253)	0.128	0.014
88	7.33	0.37	0.156	(0.252)	0.141	0.016
89	7.42	0.37	0.156	(0.251)	0.141	0.016
90	7.50	0.37	0.156	(0.250)	0.141	0.016
91	7.58	0.40	0.171	(0.249)	0.154	0.017
92	7.67	0.40	0.171	(0.247)	0.154	0.017
93	7.75	0.40	0.171	(0.246)	0.154	0.017
94	7.83	0.43	0.185	(0.245)	0.166	0.018
95	7.92	0.43	0.185	(0.244)	0.166	0.018

96	8.00	0.43	0.185	(0.243)	0.166	0.018
97	8.08	0.50	0.213	(0.242)	0.192	0.021
98	8.17	0.50	0.213	(0.241)	0.192	0.021
99	8.25	0.50	0.213	(0.240)	0.192	0.021
100	8.33	0.50	0.213	(0.238)	0.192	0.021
101	8.42	0.50	0.213	(0.237)	0.192	0.021
102	8.50	0.50	0.213	(0.236)	0.192	0.021
103	8.58	0.53	0.227	(0.235)	0.205	0.023
104	8.67	0.53	0.227	(0.234)	0.205	0.023
105	8.75	0.53	0.227	(0.233)	0.205	0.023
106	8.83	0.57	0.242	(0.232)	0.218	0.024
107	8.92	0.57	0.242	(0.231)	0.218	0.024
108	9.00	0.57	0.242	(0.230)	0.218	0.024
109	9.08	0.63	0.270	0.228	(0.243)	0.042
110	9.17	0.63	0.270	0.227	(0.243)	0.043
111	9.25	0.63	0.270	0.226	(0.243)	0.044
112	9.33	0.67	0.284	0.225	(0.256)	0.059
113	9.42	0.67	0.284	0.224	(0.256)	0.060
114	9.50	0.67	0.284	0.223	(0.256)	0.061
115	9.58	0.70	0.299	0.222	(0.269)	0.077
116	9.67	0.70	0.299	0.221	(0.269)	0.078
117	9.75	0.70	0.299	0.220	(0.269)	0.079
118	9.83	0.73	0.313	0.219	(0.281)	0.094
119	9.92	0.73	0.313	0.218	(0.281)	0.095
120	10.00	0.73	0.313	0.217	(0.281)	0.096
121	10.08	0.50	0.213	(0.216)	0.192	0.021
122	10.17	0.50	0.213	(0.215)	0.192	0.021
123	10.25	0.50	0.213	(0.214)	0.192	0.021
124	10.33	0.50	0.213	(0.213)	0.192	0.021
125	10.42	0.50	0.213	(0.212)	0.192	0.021
126	10.50	0.50	0.213	(0.210)	0.192	0.021
127	10.58	0.67	0.284	0.209	(0.256)	0.075
128	10.67	0.67	0.284	0.208	(0.256)	0.076
129	10.75	0.67	0.284	0.207	(0.256)	0.077
130	10.83	0.67	0.284	0.206	(0.256)	0.078
131	10.92	0.67	0.284	0.205	(0.256)	0.079
132	11.00	0.67	0.284	0.204	(0.256)	0.080
133	11.08	0.63	0.270	0.203	(0.243)	0.067
134	11.17	0.63	0.270	0.202	(0.243)	0.068
135	11.25	0.63	0.270	0.201	(0.243)	0.069
136	11.33	0.63	0.270	0.200	(0.243)	0.070
137	11.42	0.63	0.270	0.199	(0.243)	0.071
138	11.50	0.63	0.270	0.198	(0.243)	0.072
139	11.58	0.57	0.242	0.197	(0.218)	0.044
140	11.67	0.57	0.242	0.196	(0.218)	0.045
141	11.75	0.57	0.242	0.195	(0.218)	0.046
142	11.83	0.60	0.256	0.194	(0.230)	0.061
143	11.92	0.60	0.256	0.194	(0.230)	0.062
144	12.00	0.60	0.256	0.193	(0.230)	0.063
145	12.08	0.83	0.355	0.192	(0.320)	0.164
146	12.17	0.83	0.355	0.191	(0.320)	0.165
147	12.25	0.83	0.355	0.190	(0.320)	0.166
148	12.33	0.87	0.370	0.189	(0.333)	0.181
149	12.42	0.87	0.370	0.188	(0.333)	0.182
150	12.50	0.87	0.370	0.187	(0.333)	0.183
151	12.58	0.93	0.398	0.186	(0.358)	0.212
152	12.67	0.93	0.398	0.185	(0.358)	0.213
153	12.75	0.93	0.398	0.184	(0.358)	0.214
154	12.83	0.97	0.412	0.183	(0.371)	0.229
155	12.92	0.97	0.412	0.182	(0.371)	0.230
156	13.00	0.97	0.412	0.181	(0.371)	0.231
157	13.08	1.13	0.483	0.180	(0.435)	0.303
158	13.17	1.13	0.483	0.179	(0.435)	0.304
159	13.25	1.13	0.483	0.178	(0.435)	0.305
160	13.33	1.13	0.483	0.178	(0.435)	0.306
161	13.42	1.13	0.483	0.177	(0.435)	0.307
162	13.50	1.13	0.483	0.176	(0.435)	0.308
163	13.58	0.77	0.327	0.175	(0.294)	0.152
164	13.67	0.77	0.327	0.174	(0.294)	0.153
165	13.75	0.77	0.327	0.173	(0.294)	0.154
166	13.83	0.77	0.327	0.172	(0.294)	0.155
167	13.92	0.77	0.327	0.171	(0.294)	0.156
168	14.00	0.77	0.327	0.170	(0.294)	0.156
169	14.08	0.90	0.384	0.170	(0.345)	0.214
170	14.17	0.90	0.384	0.169	(0.345)	0.215
171	14.25	0.90	0.384	0.168	(0.345)	0.216
172	14.33	0.87	0.370	0.167	(0.333)	0.203
173	14.42	0.87	0.370	0.166	(0.333)	0.203
174	14.50	0.87	0.370	0.165	(0.333)	0.204
175	14.58	0.87	0.370	0.164	(0.333)	0.205
176	14.67	0.87	0.370	0.164	(0.333)	0.206
177	14.75	0.87	0.370	0.163	(0.333)	0.207
178	14.83	0.83	0.355	0.162	(0.320)	0.193
179	14.92	0.83	0.355	0.161	(0.320)	0.194
180	15.00	0.83	0.355	0.160	(0.320)	0.195
181	15.08	0.80	0.341	0.159	(0.307)	0.182

182	15.17	0.80	0.341	0.159	(0.307)	0.183
183	15.25	0.80	0.341	0.158	(0.307)	0.183
184	15.33	0.77	0.327	0.157	(0.294)	0.170
185	15.42	0.77	0.327	0.156	(0.294)	0.171
186	15.50	0.77	0.327	0.155	(0.294)	0.172
187	15.58	0.63	0.270	0.155	(0.243)	0.115
188	15.67	0.63	0.270	0.154	(0.243)	0.116
189	15.75	0.63	0.270	0.153	(0.243)	0.117
190	15.83	0.63	0.270	0.152	(0.243)	0.118
191	15.92	0.63	0.270	0.151	(0.243)	0.119
192	16.00	0.63	0.270	0.151	(0.243)	0.119
193	16.08	0.13	0.057	(0.150)	0.051	0.006
194	16.17	0.13	0.057	(0.149)	0.051	0.006
195	16.25	0.13	0.057	(0.148)	0.051	0.006
196	16.33	0.13	0.057	(0.148)	0.051	0.006
197	16.42	0.13	0.057	(0.147)	0.051	0.006
198	16.50	0.13	0.057	(0.146)	0.051	0.006
199	16.58	0.10	0.043	(0.145)	0.038	0.004
200	16.67	0.10	0.043	(0.145)	0.038	0.004
201	16.75	0.10	0.043	(0.144)	0.038	0.004
202	16.83	0.10	0.043	(0.143)	0.038	0.004
203	16.92	0.10	0.043	(0.142)	0.038	0.004
204	17.00	0.10	0.043	(0.142)	0.038	0.004
205	17.08	0.17	0.071	(0.141)	0.064	0.007
206	17.17	0.17	0.071	(0.140)	0.064	0.007
207	17.25	0.17	0.071	(0.140)	0.064	0.007
208	17.33	0.17	0.071	(0.139)	0.064	0.007
209	17.42	0.17	0.071	(0.138)	0.064	0.007
210	17.50	0.17	0.071	(0.138)	0.064	0.007
211	17.58	0.17	0.071	(0.137)	0.064	0.007
212	17.67	0.17	0.071	(0.136)	0.064	0.007
213	17.75	0.17	0.071	(0.135)	0.064	0.007
214	17.83	0.13	0.057	(0.135)	0.051	0.006
215	17.92	0.13	0.057	(0.134)	0.051	0.006
216	18.00	0.13	0.057	(0.133)	0.051	0.006
217	18.08	0.13	0.057	(0.133)	0.051	0.006
218	18.17	0.13	0.057	(0.132)	0.051	0.006
219	18.25	0.13	0.057	(0.132)	0.051	0.006
220	18.33	0.13	0.057	(0.131)	0.051	0.006
221	18.42	0.13	0.057	(0.130)	0.051	0.006
222	18.50	0.13	0.057	(0.130)	0.051	0.006
223	18.58	0.10	0.043	(0.129)	0.038	0.004
224	18.67	0.10	0.043	(0.128)	0.038	0.004
225	18.75	0.10	0.043	(0.128)	0.038	0.004
226	18.83	0.07	0.028	(0.127)	0.026	0.003
227	18.92	0.07	0.028	(0.127)	0.026	0.003
228	19.00	0.07	0.028	(0.126)	0.026	0.003
229	19.08	0.10	0.043	(0.125)	0.038	0.004
230	19.17	0.10	0.043	(0.125)	0.038	0.004
231	19.25	0.10	0.043	(0.124)	0.038	0.004
232	19.33	0.13	0.057	(0.124)	0.051	0.006
233	19.42	0.13	0.057	(0.123)	0.051	0.006
234	19.50	0.13	0.057	(0.122)	0.051	0.006
235	19.58	0.10	0.043	(0.122)	0.038	0.004
236	19.67	0.10	0.043	(0.121)	0.038	0.004
237	19.75	0.10	0.043	(0.121)	0.038	0.004
238	19.83	0.07	0.028	(0.120)	0.026	0.003
239	19.92	0.07	0.028	(0.120)	0.026	0.003
240	20.00	0.07	0.028	(0.119)	0.026	0.003
241	20.08	0.10	0.043	(0.119)	0.038	0.004
242	20.17	0.10	0.043	(0.118)	0.038	0.004
243	20.25	0.10	0.043	(0.118)	0.038	0.004
244	20.33	0.10	0.043	(0.117)	0.038	0.004
245	20.42	0.10	0.043	(0.117)	0.038	0.004
246	20.50	0.10	0.043	(0.116)	0.038	0.004
247	20.58	0.10	0.043	(0.116)	0.038	0.004
248	20.67	0.10	0.043	(0.115)	0.038	0.004
249	20.75	0.10	0.043	(0.115)	0.038	0.004
250	20.83	0.07	0.028	(0.114)	0.026	0.003
251	20.92	0.07	0.028	(0.114)	0.026	0.003
252	21.00	0.07	0.028	(0.113)	0.026	0.003
253	21.08	0.10	0.043	(0.113)	0.038	0.004
254	21.17	0.10	0.043	(0.112)	0.038	0.004
255	21.25	0.10	0.043	(0.112)	0.038	0.004
256	21.33	0.07	0.028	(0.112)	0.026	0.003
257	21.42	0.07	0.028	(0.111)	0.026	0.003
258	21.50	0.07	0.028	(0.111)	0.026	0.003
259	21.58	0.10	0.043	(0.110)	0.038	0.004
260	21.67	0.10	0.043	(0.110)	0.038	0.004
261	21.75	0.10	0.043	(0.109)	0.038	0.004
262	21.83	0.07	0.028	(0.109)	0.026	0.003
263	21.92	0.07	0.028	(0.109)	0.026	0.003
264	22.00	0.07	0.028	(0.108)	0.026	0.003
265	22.08	0.10	0.043	(0.108)	0.038	0.004
266	22.17	0.10	0.043	(0.108)	0.038	0.004
267	22.25	0.10	0.043	(0.107)	0.038	0.004

268	22.33	0.07	0.028	(0.107)	0.026	0.003
269	22.42	0.07	0.028	(0.107)	0.026	0.003
270	22.50	0.07	0.028	(0.106)	0.026	0.003
271	22.58	0.07	0.028	(0.106)	0.026	0.003
272	22.67	0.07	0.028	(0.106)	0.026	0.003
273	22.75	0.07	0.028	(0.105)	0.026	0.003
274	22.83	0.07	0.028	(0.105)	0.026	0.003
275	22.92	0.07	0.028	(0.105)	0.026	0.003
276	23.00	0.07	0.028	(0.105)	0.026	0.003
277	23.08	0.07	0.028	(0.104)	0.026	0.003
278	23.17	0.07	0.028	(0.104)	0.026	0.003
279	23.25	0.07	0.028	(0.104)	0.026	0.003
280	23.33	0.07	0.028	(0.104)	0.026	0.003
281	23.42	0.07	0.028	(0.104)	0.026	0.003
282	23.50	0.07	0.028	(0.103)	0.026	0.003
283	23.58	0.07	0.028	(0.103)	0.026	0.003
284	23.67	0.07	0.028	(0.103)	0.026	0.003
285	23.75	0.07	0.028	(0.103)	0.026	0.003
286	23.83	0.07	0.028	(0.103)	0.026	0.003
287	23.92	0.07	0.028	(0.103)	0.026	0.003
288	24.00	0.07	0.028	(0.103)	0.026	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.1

Flood volume = Effective rainfall 1.09(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
Total soil loss = 2.47(In)
Total soil loss = 1.278(Ac.Ft)
Total rainfall = 3.55(In)
Flood volume = 24566.3 Cubic Feet
Total soil loss = 55677.3 Cubic Feet

Peak flow rate of this hydrograph = 1.923(CFS)

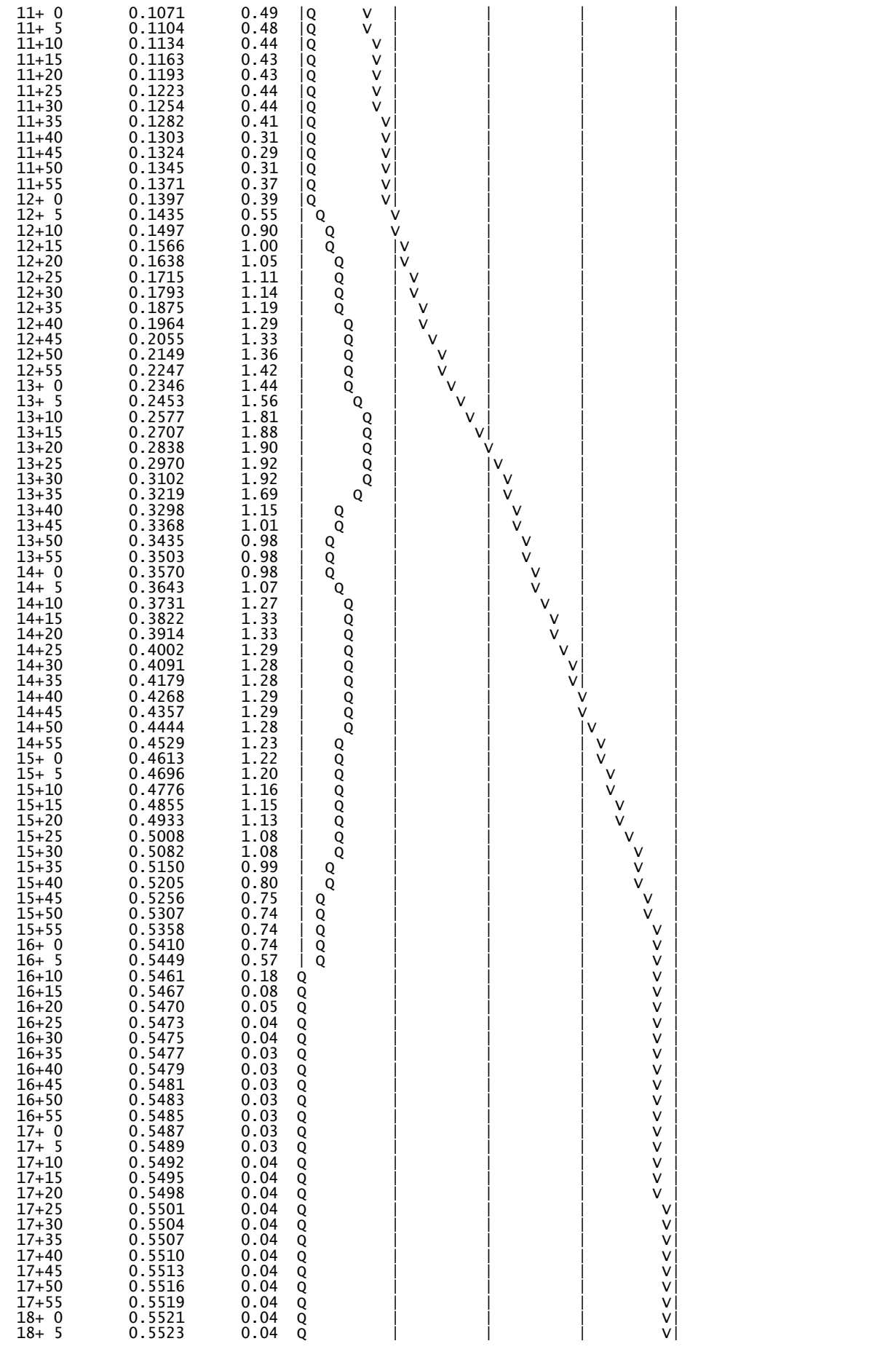
++

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	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.02	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.02	Q				
0+30	0.0007	0.03	Q				
0+35	0.0009	0.03	Q				
0+40	0.0011	0.03	Q				
0+45	0.0013	0.03	Q				
0+50	0.0015	0.03	Q				
0+55	0.0017	0.03	Q				
1+ 0	0.0020	0.04	Q				
1+ 5	0.0022	0.03	Q				
1+10	0.0024	0.03	Q				
1+15	0.0026	0.03	Q				
1+20	0.0028	0.03	Q				
1+25	0.0029	0.03	Q				
1+30	0.0031	0.03	Q				
1+35	0.0033	0.03	Q				
1+40	0.0035	0.03	Q				
1+45	0.0037	0.03	Q				
1+50	0.0039	0.03	Q				
1+55	0.0041	0.03	Q				
2+ 0	0.0044	0.04	Q				
2+ 5	0.0046	0.04	Q				
2+10	0.0048	0.04	Q				
2+15	0.0051	0.04	Q				
2+20	0.0053	0.04	Q				
2+25	0.0056	0.04	Q				
2+30	0.0058	0.04	Q				
2+35	0.0061	0.04	Q				
2+40	0.0064	0.04	Q				
2+45	0.0067	0.04	Q				
2+50	0.0070	0.04	Q				
2+55	0.0073	0.04	Q				
3+ 0	0.0076	0.04	Q				
3+ 5	0.0079	0.04	Q				
3+10	0.0082	0.04	Q				
3+15	0.0085	0.04	Q				
3+20	0.0088	0.04	Q				
3+25	0.0091	0.04	Q				
3+30	0.0094	0.04	Q				
3+35	0.0098	0.04	Q				
3+40	0.0101	0.04	Q				
3+45	0.0104	0.04	Q				

3+50	0.0107	0.05	Q	|	|	|	|
3+55	0.0110	0.05	Q	|	|	|	|
4+ 0	0.0114	0.05	Q	|	|	|	|
4+ 5	0.0118	0.05	Q	|	|	|	|
4+10	0.0121	0.05	Q	|	|	|	|
4+15	0.0125	0.05	Q	|	|	|	|
4+20	0.0129	0.06	Q	|	|	|	|
4+25	0.0133	0.06	Q	|	|	|	|
4+30	0.0137	0.06	Q	|	|	|	|
4+35	0.0142	0.06	QV	|	|	|	|
4+40	0.0146	0.06	QV	|	|	|	|
4+45	0.0150	0.06	QV	|	|	|	|
4+50	0.0155	0.06	QV	|	|	|	|
4+55	0.0160	0.07	QV	|	|	|	|
5+ 0	0.0164	0.07	QV	|	|	|	|
5+ 5	0.0169	0.07	QV	|	|	|	|
5+10	0.0173	0.06	QV	|	|	|	|
5+15	0.0177	0.05	QV	|	|	|	|
5+20	0.0181	0.06	QV	|	|	|	|
5+25	0.0185	0.06	QV	|	|	|	|
5+30	0.0189	0.06	QV	|	|	|	|
5+35	0.0193	0.06	QV	|	|	|	|
5+40	0.0198	0.07	QV	|	|	|	|
5+45	0.0203	0.07	QV	|	|	|	|
5+50	0.0208	0.07	QV	|	|	|	|
5+55	0.0213	0.07	QV	|	|	|	|
6+ 0	0.0218	0.07	QV	|	|	|	|
6+ 5	0.0223	0.07	QV	|	|	|	|
6+10	0.0228	0.08	QV	|	|	|	|
6+15	0.0234	0.08	QV	|	|	|	|
6+20	0.0239	0.08	QV	|	|	|	|
6+25	0.0245	0.08	QV	|	|	|	|
6+30	0.0250	0.08	QV	|	|	|	|
6+35	0.0256	0.08	QV	|	|	|	|
6+40	0.0262	0.09	QV	|	|	|	|
6+45	0.0268	0.09	QV	|	|	|	|
6+50	0.0274	0.09	QV	|	|	|	|
6+55	0.0280	0.09	QV	|	|	|	|
7+ 0	0.0287	0.09	Q V	|	|	|	|
7+ 5	0.0293	0.09	Q V	|	|	|	|
7+10	0.0299	0.09	Q V	|	|	|	|
7+15	0.0305	0.09	Q V	|	|	|	|
7+20	0.0311	0.09	Q V	|	|	|	|
7+25	0.0318	0.10	Q V	|	|	|	|
7+30	0.0325	0.10	Q V	|	|	|	|
7+35	0.0331	0.10	Q V	|	|	|	|
7+40	0.0339	0.11	Q V	|	|	|	|
7+45	0.0346	0.11	Q V	|	|	|	|
7+50	0.0354	0.11	Q V	|	|	|	|
7+55	0.0361	0.11	Q V	|	|	|	|
8+ 0	0.0369	0.12	Q V	|	|	|	|
8+ 5	0.0378	0.12	Q V	|	|	|	|
8+10	0.0387	0.13	Q V	|	|	|	|
8+15	0.0396	0.13	Q V	|	|	|	|
8+20	0.0405	0.13	Q V	|	|	|	|
8+25	0.0414	0.13	Q V	|	|	|	|
8+30	0.0423	0.13	Q V	|	|	|	|
8+35	0.0433	0.14	Q V	|	|	|	|
8+40	0.0442	0.14	Q V	|	|	|	|
8+45	0.0452	0.14	Q V	|	|	|	|
8+50	0.0462	0.14	Q V	|	|	|	|
8+55	0.0472	0.15	Q V	|	|	|	|
9+ 0	0.0483	0.15	Q V	|	|	|	|
9+ 5	0.0495	0.18	Q V	|	|	|	|
9+10	0.0512	0.24	Q V	|	|	|	|
9+15	0.0530	0.26	|Q V	|	|	|	|
9+20	0.0550	0.29	|Q V	|	|	|	|
9+25	0.0574	0.35	|Q V	|	|	|	|
9+30	0.0600	0.37	|Q V	|	|	|	|
9+35	0.0628	0.40	|Q V	|	|	|	|
9+40	0.0659	0.46	|Q V	|	|	|	|
9+45	0.0693	0.48	|Q V	|	|	|	|
9+50	0.0728	0.51	| Q V	|	|	|	|
9+55	0.0767	0.57	| Q V	|	|	|	|
10+ 0	0.0808	0.59	| Q V	|	|	|	|
10+ 5	0.0841	0.49	|Q V	|	|	|	|
10+10	0.0857	0.23	Q V	|	|	|	|
10+15	0.0868	0.16	Q V	|	|	|	|
10+20	0.0878	0.14	Q V	|	|	|	|
10+25	0.0887	0.14	Q V	|	|	|	|
10+30	0.0896	0.13	Q V	|	|	|	|
10+35	0.0911	0.21	Q V	|	|	|	|
10+40	0.0939	0.40	|Q V	|	|	|	|
10+45	0.0970	0.46	|Q V	|	|	|	|
10+50	0.1003	0.48	|Q V	|	|	|	|
10+55	0.1037	0.49	|Q V	|	|	|	|



11+ 0	0.1071	0.49	
11+ 5	0.1104	0.48	
11+10	0.1134	0.44	
11+15	0.1163	0.43	
11+20	0.1193	0.43	
11+25	0.1223	0.44	
11+30	0.1254	0.44	
11+35	0.1282	0.41	
11+40	0.1303	0.31	
11+45	0.1324	0.29	
11+50	0.1345	0.31	
11+55	0.1371	0.37	
12+ 0	0.1397	0.39	
12+ 5	0.1435	0.55	
12+10	0.1497	0.90	
12+15	0.1566	1.00	
12+20	0.1638	1.05	
12+25	0.1715	1.11	
12+30	0.1793	1.14	
12+35	0.1875	1.19	
12+40	0.1964	1.29	
12+45	0.2055	1.33	
12+50	0.2149	1.36	
12+55	0.2247	1.42	
13+ 0	0.2346	1.44	
13+ 5	0.2453	1.56	
13+10	0.2577	1.81	
13+15	0.2707	1.88	
13+20	0.2838	1.90	
13+25	0.2970	1.92	
13+30	0.3102	1.92	
13+35	0.3219	1.69	
13+40	0.3298	1.15	
13+45	0.3368	1.01	
13+50	0.3435	0.98	
13+55	0.3503	0.98	
14+ 0	0.3570	0.98	
14+ 5	0.3643	1.07	
14+10	0.3731	1.27	
14+15	0.3822	1.33	
14+20	0.3914	1.33	
14+25	0.4002	1.29	
14+30	0.4091	1.28	
14+35	0.4179	1.28	
14+40	0.4268	1.29	
14+45	0.4357	1.29	
14+50	0.4444	1.28	
14+55	0.4529	1.23	
15+ 0	0.4613	1.22	
15+ 5	0.4696	1.20	
15+10	0.4776	1.16	
15+15	0.4855	1.15	
15+20	0.4933	1.13	
15+25	0.5008	1.08	
15+30	0.5082	1.08	
15+35	0.5150	0.99	
15+40	0.5205	0.80	
15+45	0.5256	0.75	
15+50	0.5307	0.74	
15+55	0.5358	0.74	
16+ 0	0.5410	0.74	
16+ 5	0.5449	0.57	
16+10	0.5461	0.18	
16+15	0.5467	0.08	
16+20	0.5470	0.05	
16+25	0.5473	0.04	
16+30	0.5475	0.04	
16+35	0.5477	0.03	
16+40	0.5479	0.03	
16+45	0.5481	0.03	
16+50	0.5483	0.03	
16+55	0.5485	0.03	
17+ 0	0.5487	0.03	
17+ 5	0.5489	0.03	
17+10	0.5492	0.04	
17+15	0.5495	0.04	
17+20	0.5498	0.04	
17+25	0.5501	0.04	
17+30	0.5504	0.04	
17+35	0.5507	0.04	
17+40	0.5510	0.04	
17+45	0.5513	0.04	
17+50	0.5516	0.04	
17+55	0.5519	0.04	
18+ 0	0.5521	0.04	
18+ 5	0.5523	0.04	

18+10	0.5526	0.04	Q	|	|	|	V|
18+15	0.5528	0.04	Q	|	|	|	V|
18+20	0.5531	0.04	Q	|	|	|	V|
18+25	0.5533	0.04	Q	|	|	|	V|
18+30	0.5536	0.04	Q	|	|	|	V|
18+35	0.5538	0.03	Q	|	|	|	V|
18+40	0.5540	0.03	Q	|	|	|	V|
18+45	0.5542	0.03	Q	|	|	|	V|
18+50	0.5544	0.02	Q	|	|	|	V|
18+55	0.5545	0.02	Q	|	|	|	V|
19+ 0	0.5546	0.02	Q	|	|	|	V|
19+ 5	0.5548	0.02	Q	|	|	|	V|
19+10	0.5549	0.03	Q	|	|	|	V|
19+15	0.5551	0.03	Q	|	|	|	V|
19+20	0.5553	0.03	Q	|	|	|	V|
19+25	0.5555	0.03	Q	|	|	|	V|
19+30	0.5558	0.04	Q	|	|	|	V|
19+35	0.5560	0.03	Q	|	|	|	V|
19+40	0.5562	0.03	Q	|	|	|	V|
19+45	0.5564	0.03	Q	|	|	|	V|
19+50	0.5566	0.02	Q	|	|	|	V|
19+55	0.5567	0.02	Q	|	|	|	V|
20+ 0	0.5568	0.02	Q	|	|	|	V|
20+ 5	0.5570	0.02	Q	|	|	|	V|
20+10	0.5571	0.03	Q	|	|	|	V|
20+15	0.5573	0.03	Q	|	|	|	V|
20+20	0.5575	0.03	Q	|	|	|	V|
20+25	0.5577	0.03	Q	|	|	|	V|
20+30	0.5579	0.03	Q	|	|	|	V|
20+35	0.5581	0.03	Q	|	|	|	V|
20+40	0.5582	0.03	Q	|	|	|	V|
20+45	0.5584	0.03	Q	|	|	|	V|
20+50	0.5586	0.02	Q	|	|	|	V|
20+55	0.5587	0.02	Q	|	|	|	V|
21+ 0	0.5589	0.02	Q	|	|	|	V|
21+ 5	0.5590	0.02	Q	|	|	|	V|
21+10	0.5592	0.03	Q	|	|	|	V|
21+15	0.5594	0.03	Q	|	|	|	V|
21+20	0.5595	0.02	Q	|	|	|	V|
21+25	0.5597	0.02	Q	|	|	|	V|
21+30	0.5598	0.02	Q	|	|	|	V|
21+35	0.5599	0.02	Q	|	|	|	V|
21+40	0.5601	0.03	Q	|	|	|	V|
21+45	0.5603	0.03	Q	|	|	|	V|
21+50	0.5604	0.02	Q	|	|	|	V|
21+55	0.5606	0.02	Q	|	|	|	V|
22+ 0	0.5607	0.02	Q	|	|	|	V|
22+ 5	0.5608	0.02	Q	|	|	|	V|
22+10	0.5610	0.03	Q	|	|	|	V|
22+15	0.5612	0.03	Q	|	|	|	V|
22+20	0.5614	0.02	Q	|	|	|	V|
22+25	0.5615	0.02	Q	|	|	|	V|
22+30	0.5616	0.02	Q	|	|	|	V|
22+35	0.5617	0.02	Q	|	|	|	V|
22+40	0.5619	0.02	Q	|	|	|	V|
22+45	0.5620	0.02	Q	|	|	|	V|
22+50	0.5621	0.02	Q	|	|	|	V|
22+55	0.5622	0.02	Q	|	|	|	V|
23+ 0	0.5624	0.02	Q	|	|	|	V|
23+ 5	0.5625	0.02	Q	|	|	|	V|
23+10	0.5626	0.02	Q	|	|	|	V|
23+15	0.5627	0.02	Q	|	|	|	V|
23+20	0.5629	0.02	Q	|	|	|	V|
23+25	0.5630	0.02	Q	|	|	|	V|
23+30	0.5631	0.02	Q	|	|	|	V|
23+35	0.5632	0.02	Q	|	|	|	V|
23+40	0.5633	0.02	Q	|	|	|	V|
23+45	0.5635	0.02	Q	|	|	|	V|
23+50	0.5636	0.02	Q	|	|	|	V|
23+55	0.5637	0.02	Q	|	|	|	V|
24+ 0	0.5638	0.02	Q	|	|	|	V|
24+ 5	0.5639	0.01	Q	|	|	|	V|
24+10	0.5640	0.00	Q	|	|	|	V|
24+15	0.5640	0.00	Q	|	|	|	V|
24+20	0.5640	0.00	Q	|	|	|	V|
24+25	0.5640	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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  04/30/19 File: ex10110.out

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

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


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22            0.55                 3.42

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            1.45                 9.02

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.550(In)
Area Averaged 100-Year Rainfall =    1.450(In)

Point rain (area averaged) =    0.920(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.920(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  93.0      0.091     0.000        0.091       1.000      0.091
                                                 Sum (F) =   0.091
Area averaged mean soil loss (F) (In/Hr) =  0.091
Minimum soil loss rate ((In/Hr)) =  0.045
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
-----------------------------------------------------------------
               Unit Hydrograph Data
-----------------------------------------------------------------
```

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
		Sum = 100.000	Sum=	6.269

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	4.40	0.486	0.091	(0.437)	0.395
2	0.17	4.50	0.497	0.091	(0.447)	0.406
3	0.25	5.40	0.596	0.091	(0.537)	0.505
4	0.33	5.40	0.596	0.091	(0.537)	0.505
5	0.42	5.70	0.629	0.091	(0.566)	0.538
6	0.50	6.40	0.707	0.091	(0.636)	0.616
7	0.58	7.90	0.872	0.091	(0.785)	0.781
8	0.67	9.10	1.005	0.091	(0.904)	0.914
9	0.75	12.80	1.413	0.091	(1.272)	1.322
10	0.83	25.60	2.827	0.091	(2.544)	2.736
11	0.92	7.90	0.872	0.091	(0.785)	0.781
12	1.00	4.90	0.541	0.091	(0.487)	0.450
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	10.0

Flood volume = Effective rainfall 0.83(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 0.09(In)
Total soil loss = 0.047(Ac.Ft)
Total rainfall = 0.92(In)
Flood volume = 18722.5 Cubic Feet
Total soil loss = 2054.7 Cubic Feet

Peak flow rate of this hydrograph = 12.250(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	5.0	10.0	15.0	20.0
0+ 5	0.0041	0.60	VQ				
0+10	0.0179	2.00	V Q				
0+15	0.0354	2.54	V Q				
0+20	0.0561	3.00	VQ				
0+25	0.0779	3.17	QV				
0+30	0.1016	3.44	Q V				
0+35	0.1292	4.00	Q V				
0+40	0.1627	4.86	Q V				
0+45	0.2048	6.12	Q V				
0+50	0.2727	9.86	Q V				
0+55	0.3570	12.25	Q V				
1+ 0	0.4006	6.32	Q V				
1+ 5	0.4219	3.10	Q				V
1+10	0.4276	0.83	Q				V
1+15	0.4293	0.25	Q				V
1+20	0.4297	0.05	Q				V
1+25	0.4298	0.01	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  04/30/19 File: ex10310.out

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

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


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22            1.00                 6.22

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            2.50                15.55

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 =  100.00 %
Adjusted average point rain =    1.617(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  93.0      0.091     0.000        0.091       1.000      0.091
                                                 Sum (F) =   0.091
Area averaged mean soil loss (F) (In/Hr) =  0.091
Minimum soil loss rate ((In/Hr)) =  0.045
(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
                      FOOTHILL S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
```

1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
			Sum = 100.000 Sum=	6.269

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	0.252	0.091	(0.227)	0.161
2	0.17	1.30	0.252	0.091	(0.227)	0.161
3	0.25	1.10	0.213	0.091	(0.192)	0.122
4	0.33	1.50	0.291	0.091	(0.262)	0.200
5	0.42	1.50	0.291	0.091	(0.262)	0.200
6	0.50	1.80	0.349	0.091	(0.314)	0.258
7	0.58	1.50	0.291	0.091	(0.262)	0.200
8	0.67	1.80	0.349	0.091	(0.314)	0.258
9	0.75	1.80	0.349	0.091	(0.314)	0.258
10	0.83	1.50	0.291	0.091	(0.262)	0.200
11	0.92	1.60	0.310	0.091	(0.279)	0.219
12	1.00	1.80	0.349	0.091	(0.314)	0.258
13	1.08	2.20	0.427	0.091	(0.384)	0.336
14	1.17	2.20	0.427	0.091	(0.384)	0.336
15	1.25	2.20	0.427	0.091	(0.384)	0.336
16	1.33	2.00	0.388	0.091	(0.349)	0.297
17	1.42	2.60	0.505	0.091	(0.454)	0.414
18	1.50	2.70	0.524	0.091	(0.472)	0.433
19	1.58	2.40	0.466	0.091	(0.419)	0.375
20	1.67	2.70	0.524	0.091	(0.472)	0.433
21	1.75	3.30	0.640	0.091	(0.576)	0.549
22	1.83	3.10	0.602	0.091	(0.541)	0.511
23	1.92	2.90	0.563	0.091	(0.506)	0.472
24	2.00	3.00	0.582	0.091	(0.524)	0.491
25	2.08	3.10	0.602	0.091	(0.541)	0.511
26	2.17	4.20	0.815	0.091	(0.734)	0.724
27	2.25	5.00	0.970	0.091	(0.873)	0.879
28	2.33	3.50	0.679	0.091	(0.611)	0.588
29	2.42	6.80	1.320	0.091	(1.188)	1.229
30	2.50	7.30	1.417	0.091	(1.275)	1.326
31	2.58	8.20	1.591	0.091	(1.432)	1.500
32	2.67	5.90	1.145	0.091	(1.030)	1.054
33	2.75	2.00	0.388	0.091	(0.349)	0.297
34	2.83	1.80	0.349	0.091	(0.314)	0.258
35	2.92	1.80	0.349	0.091	(0.314)	0.258
36	3.00	0.60	0.116	0.091	(0.105)	0.025
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	16.1

Flood volume = Effective rainfall 1.34(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.7(Ac.Ft)
Total soil loss = 0.27(In)
Total soil loss = 0.142(Ac.Ft)
Total rainfall = 1.62(In)
Flood volume = 30347.2 Cubic Feet
Total soil loss = 6164.0 Cubic Feet

Peak flow rate of this hydrograph = 8.424(CFS)

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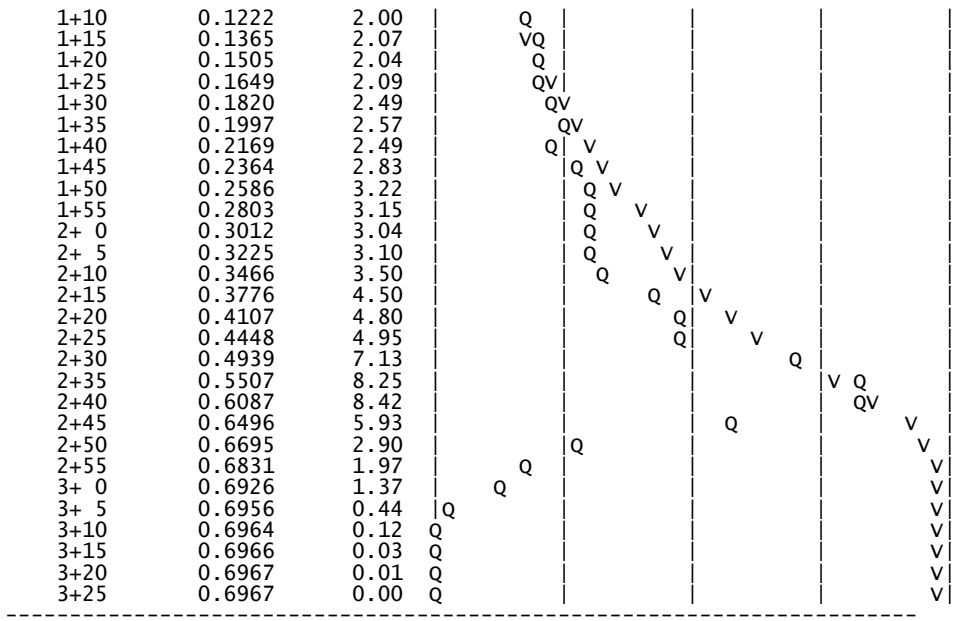
3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0017	0.24	Q				
0+10	0.0073	0.81	V Q				
0+15	0.0134	0.90	V Q				
0+20	0.0197	0.92	V Q				
0+25	0.0278	1.17	V Q				
0+30	0.0369	1.32	V Q				
0+35	0.0469	1.45	V Q				
0+40	0.0565	1.39	V Q				
0+45	0.0672	1.56	V Q				
0+50	0.0776	1.51	V Q				
0+55	0.0870	1.35	VQ				
1+ 0	0.0968	1.43	Q				
1+ 5	0.1084	1.69	Q				



1+10	0.1222	2.00	
1+15	0.1365	2.07	
1+20	0.1505	2.04	
1+25	0.1649	2.09	
1+30	0.1820	2.49	
1+35	0.1997	2.57	
1+40	0.2169	2.49	
1+45	0.2364	2.83	
1+50	0.2586	3.22	
1+55	0.2803	3.15	
2+ 0	0.3012	3.04	
2+ 5	0.3225	3.10	
2+10	0.3466	3.50	
2+15	0.3776	4.50	
2+20	0.4107	4.80	
2+25	0.4448	4.95	
2+30	0.4939	7.13	
2+35	0.5507	8.25	
2+40	0.6087	8.42	
2+45	0.6496	5.93	
2+50	0.6695	2.90	
2+55	0.6831	1.97	
3+ 0	0.6926	1.37	
3+ 5	0.6956	0.44	
3+10	0.6964	0.12	
3+15	0.6966	0.03	
3+20	0.6967	0.01	
3+25	0.6967	0.00	

```
                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  04/30/19 File: ex10610.out

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

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978
Program License Serial Number 5006
----------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used
 English Units used in output format
----------------------------------------------------------------------------
----------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time =    0.065 Hr.
Lag time =     3.89 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.56 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]
        6.22            1.40                 8.71
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            3.50                21.77
STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    1.400(In)
Area Averaged 100-Year Rainfall =    3.500(In)
Point rain (area averaged) =    2.264(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.264(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           93.00          0.000
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
93.0  93.0      0.091     0.000        0.091       1.000      0.091
                                                 Sum (F) =   0.091
Area averaged mean soil loss (F) (In/Hr) =  0.091
Minimum soil loss rate ((In/Hr)) =  0.045
(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
                      FOOTHILL S-Curve
----------------------------------------------------------------------------
               Unit Hydrograph Data
----------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
----------------------------------------------------------------------------
       1   0.083        128.561         24.198              1.517
       2   0.167        257.122         55.715              3.493
       3   0.250        385.683         14.449              0.906
       4   0.333        514.243          4.090              0.256
       5   0.417        642.804          1.058              0.066
       6   0.500        771.365          0.490              0.031
                                 Sum = 100.000    Sum=       6.269
----------------------------------------------------------------------------
 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     0.50      0.136          0.091    (  0.122)        0.045
   2   0.17     0.60      0.163          0.091    (  0.147)        0.072
   3   0.25     0.60      0.163          0.091    (  0.147)        0.072
   4   0.33     0.60      0.163          0.091    (  0.147)        0.072
   5   0.42     0.60      0.163          0.091    (  0.147)        0.072
   6   0.50     0.70      0.190          0.091    (  0.171)        0.099
```

7	0.58	0.70	0.190	0.091	(0.171)	0.099	
8	0.67	0.70	0.190	0.091	(0.171)	0.099	
9	0.75	0.70	0.190	0.091	(0.171)	0.099	
10	0.83	0.70	0.190	0.091	(0.171)	0.099	
11	0.92	0.70	0.190	0.091	(0.171)	0.099	
12	1.00	0.80	0.217	0.091	(0.196)	0.126	
13	1.08	0.80	0.217	0.091	(0.196)	0.126	
14	1.17	0.80	0.217	0.091	(0.196)	0.126	
15	1.25	0.80	0.217	0.091	(0.196)	0.126	
16	1.33	0.80	0.217	0.091	(0.196)	0.126	
17	1.42	0.80	0.217	0.091	(0.196)	0.126	
18	1.50	0.80	0.217	0.091	(0.196)	0.126	
19	1.58	0.80	0.217	0.091	(0.196)	0.126	
20	1.67	0.80	0.217	0.091	(0.196)	0.126	
21	1.75	0.80	0.217	0.091	(0.196)	0.126	
22	1.83	0.80	0.217	0.091	(0.196)	0.126	
23	1.92	0.80	0.217	0.091	(0.196)	0.126	
24	2.00	0.90	0.245	0.091	(0.220)	0.154	
25	2.08	0.80	0.217	0.091	(0.196)	0.126	
26	2.17	0.90	0.245	0.091	(0.220)	0.154	
27	2.25	0.90	0.245	0.091	(0.220)	0.154	
28	2.33	0.90	0.245	0.091	(0.220)	0.154	
29	2.42	0.90	0.245	0.091	(0.220)	0.154	
30	2.50	0.90	0.245	0.091	(0.220)	0.154	
31	2.58	0.90	0.245	0.091	(0.220)	0.154	
32	2.67	0.90	0.245	0.091	(0.220)	0.154	
33	2.75	1.00	0.272	0.091	(0.245)	0.181	
34	2.83	1.00	0.272	0.091	(0.245)	0.181	
35	2.92	1.00	0.272	0.091	(0.245)	0.181	
36	3.00	1.00	0.272	0.091	(0.245)	0.181	
37	3.08	1.00	0.272	0.091	(0.245)	0.181	
38	3.17	1.10	0.299	0.091	(0.269)	0.208	
39	3.25	1.10	0.299	0.091	(0.269)	0.208	
40	3.33	1.10	0.299	0.091	(0.269)	0.208	
41	3.42	1.20	0.326	0.091	(0.293)	0.235	
42	3.50	1.30	0.353	0.091	(0.318)	0.262	
43	3.58	1.40	0.380	0.091	(0.342)	0.289	
44	3.67	1.40	0.380	0.091	(0.342)	0.289	
45	3.75	1.50	0.408	0.091	(0.367)	0.317	
46	3.83	1.50	0.408	0.091	(0.367)	0.317	
47	3.92	1.60	0.435	0.091	(0.391)	0.344	
48	4.00	1.60	0.435	0.091	(0.391)	0.344	
49	4.08	1.70	0.462	0.091	(0.416)	0.371	
50	4.17	1.80	0.489	0.091	(0.440)	0.398	
51	4.25	1.90	0.516	0.091	(0.465)	0.425	
52	4.33	2.00	0.543	0.091	(0.489)	0.452	
53	4.42	2.10	0.571	0.091	(0.513)	0.480	
54	4.50	2.10	0.571	0.091	(0.513)	0.480	
55	4.58	2.20	0.598	0.091	(0.538)	0.507	
56	4.67	2.30	0.625	0.091	(0.562)	0.534	
57	4.75	2.40	0.652	0.091	(0.587)	0.561	
58	4.83	2.40	0.652	0.091	(0.587)	0.561	
59	4.92	2.50	0.679	0.091	(0.611)	0.588	
60	5.00	2.60	0.706	0.091	(0.636)	0.615	
61	5.08	3.10	0.842	0.091	(0.758)	0.751	
62	5.17	3.60	0.978	0.091	(0.880)	0.887	
63	5.25	3.90	1.060	0.091	(0.954)	0.969	
64	5.33	4.20	1.141	0.091	(1.027)	1.050	
65	5.42	4.70	1.277	0.091	(1.149)	1.186	
66	5.50	5.60	1.521	0.091	(1.369)	1.430	
67	5.58	1.90	0.516	0.091	(0.465)	0.425	
68	5.67	0.90	0.245	0.091	(0.220)	0.154	
69	5.75	0.60	0.163	0.091	(0.147)	0.072	
70	5.83	0.50	0.136	0.091	(0.122)	0.045	
71	5.92	0.30	0.082	(0.091)	0.073	0.008	
72	6.00	0.20	0.054	(0.091)	0.049	0.005	

(Loss Rate Not Used)

Sum = 100.0 Sum = 20.7

Flood volume = Effective rainfall 1.72(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.9(Ac.Ft)
Total soil loss = 0.54(In)
Total soil loss = 0.280(Ac.Ft)
Total rainfall = 2.26(In)
Flood volume = 38900.4 Cubic Feet
Total soil loss = 12215.5 Cubic Feet

Peak flow rate of this hydrograph = 7.596(CFS)

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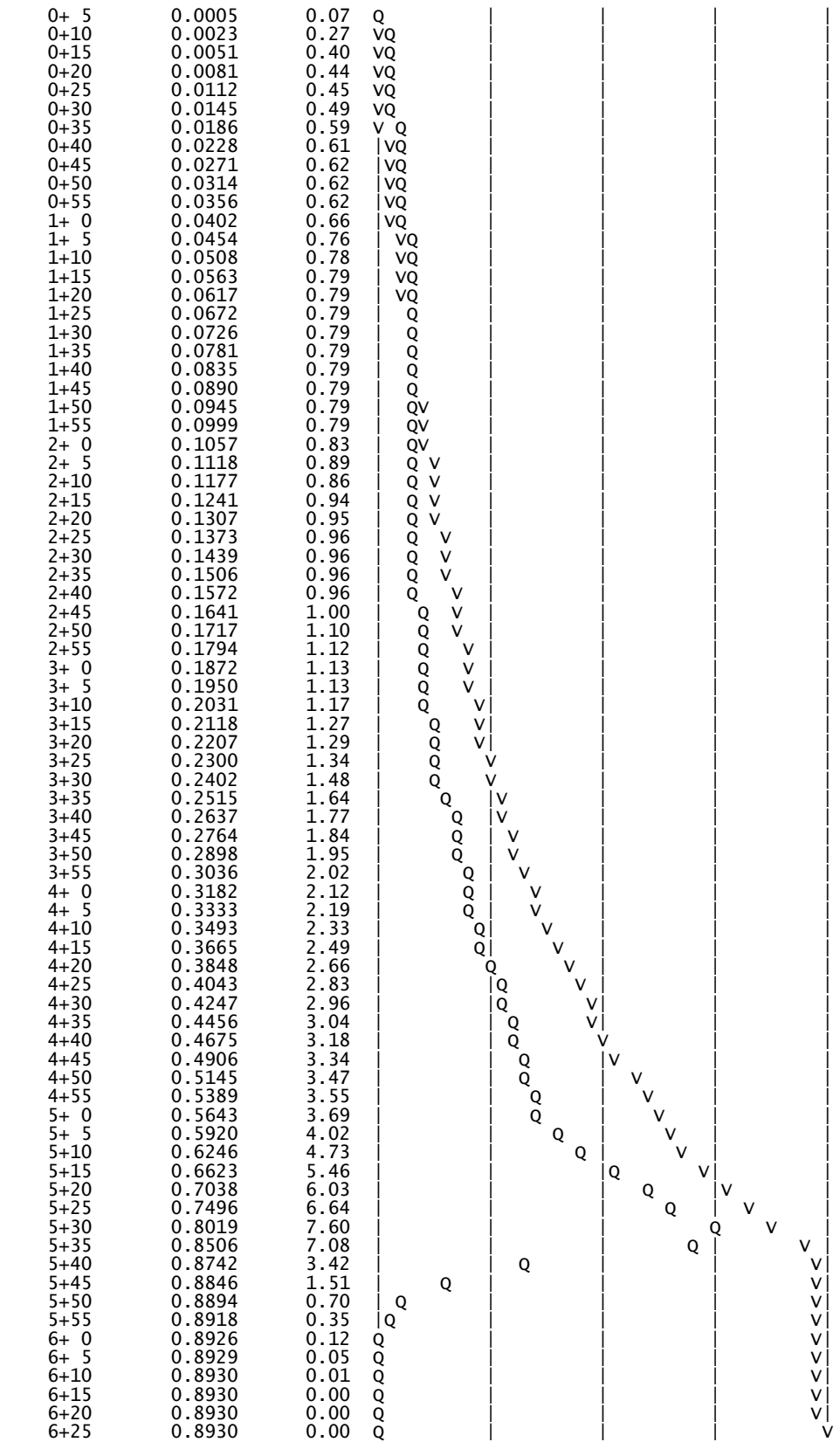
6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0



0+ 5	0.0005	0.07	
0+10	0.0023	0.27	
0+15	0.0051	0.40	
0+20	0.0081	0.44	
0+25	0.0112	0.45	
0+30	0.0145	0.49	
0+35	0.0186	0.59	
0+40	0.0228	0.61	
0+45	0.0271	0.62	
0+50	0.0314	0.62	
0+55	0.0356	0.62	
1+ 0	0.0402	0.66	
1+ 5	0.0454	0.76	
1+10	0.0508	0.78	
1+15	0.0563	0.79	
1+20	0.0617	0.79	
1+25	0.0672	0.79	
1+30	0.0726	0.79	
1+35	0.0781	0.79	
1+40	0.0835	0.79	
1+45	0.0890	0.79	
1+50	0.0945	0.79	
1+55	0.0999	0.79	
2+ 0	0.1057	0.83	
2+ 5	0.1118	0.89	
2+10	0.1177	0.86	
2+15	0.1241	0.94	
2+20	0.1307	0.95	
2+25	0.1373	0.96	
2+30	0.1439	0.96	
2+35	0.1506	0.96	
2+40	0.1572	0.96	
2+45	0.1641	1.00	
2+50	0.1717	1.10	
2+55	0.1794	1.12	
3+ 0	0.1872	1.13	
3+ 5	0.1950	1.13	
3+10	0.2031	1.17	
3+15	0.2118	1.27	
3+20	0.2207	1.29	
3+25	0.2300	1.34	
3+30	0.2402	1.48	
3+35	0.2515	1.64	
3+40	0.2637	1.77	
3+45	0.2764	1.84	
3+50	0.2898	1.95	
3+55	0.3036	2.02	
4+ 0	0.3182	2.12	
4+ 5	0.3333	2.19	
4+10	0.3493	2.33	
4+15	0.3665	2.49	
4+20	0.3848	2.66	
4+25	0.4043	2.83	
4+30	0.4247	2.96	
4+35	0.4456	3.04	
4+40	0.4675	3.18	
4+45	0.4906	3.34	
4+50	0.5145	3.47	
4+55	0.5389	3.55	
5+ 0	0.5643	3.69	
5+ 5	0.5920	4.02	
5+10	0.6246	4.73	
5+15	0.6623	5.46	
5+20	0.7038	6.03	
5+25	0.7496	6.64	
5+30	0.8019	7.60	
5+35	0.8506	7.08	
5+40	0.8742	3.42	
5+45	0.8846	1.51	
5+50	0.8894	0.70	
5+55	0.8918	0.35	
6+ 0	0.8926	0.12	
6+ 5	0.8929	0.05	
6+10	0.8930	0.01	
6+15	0.8930	0.00	
6+20	0.8930	0.00	
6+25	0.8930	0.00	

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 04/30/19 File: ex102410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978
Program License Serial Number 5006

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

Drainage Area = 6.22(Ac.) = 0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 6.22(Ac.) = 0.010 Sq. Mi.
Length along longest watercourse = 885.00(Ft.)
Length along longest watercourse measured to centroid = 442.50(Ft.)
Length along longest watercourse = 0.168 Mi.
Length along longest watercourse measured to centroid = 0.084 Mi.
Difference in elevation = 47.90(Ft.)
Slope along watercourse = 285.7763 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.065 Hr.
Lag time = 3.89 Min.
25% of lag time = 0.97 Min.
40% of lag time = 1.56 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]
6.22	2.50	15.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
6.22	7.00	43.54

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.500(In)
Area Averaged 100-Year Rainfall = 7.000(In)
Point rain (area averaged) = 4.351(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.351(In)
Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
6.220	93.00	0.000

Total Area Entered = 6.22(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
93.0	93.0	0.091	0.000	0.091	1.000	0.091
					Sum (F) =	0.091

Area averaged mean soil loss (F) (In/Hr) = 0.091
Minimum soil loss rate ((In/Hr)) = 0.045
(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
FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	128.561	24.198	1.517
2	0.167	257.122	55.715	3.493
3	0.250	385.683	14.449	0.906
4	0.333	514.243	4.090	0.256
5	0.417	642.804	1.058	0.066
6	0.500	771.365	0.490	0.031
		Sum = 100.000	Sum=	6.269

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	0.035	(0.161)	0.031	0.003
2	0.17	0.07	0.035	(0.161)	0.031	0.003
3	0.25	0.07	0.035	(0.160)	0.031	0.003
4	0.33	0.10	0.052	(0.159)	0.047	0.005
5	0.42	0.10	0.052	(0.159)	0.047	0.005
6	0.50	0.10	0.052	(0.158)	0.047	0.005

7	0.58	0.10	0.052	(0.158)	0.047	0.005
8	0.67	0.10	0.052	(0.157)	0.047	0.005
9	0.75	0.10	0.052	(0.156)	0.047	0.005
10	0.83	0.13	0.070	(0.156)	0.063	0.007
11	0.92	0.13	0.070	(0.155)	0.063	0.007
12	1.00	0.13	0.070	(0.155)	0.063	0.007
13	1.08	0.10	0.052	(0.154)	0.047	0.005
14	1.17	0.10	0.052	(0.153)	0.047	0.005
15	1.25	0.10	0.052	(0.153)	0.047	0.005
16	1.33	0.10	0.052	(0.152)	0.047	0.005
17	1.42	0.10	0.052	(0.151)	0.047	0.005
18	1.50	0.10	0.052	(0.151)	0.047	0.005
19	1.58	0.10	0.052	(0.150)	0.047	0.005
20	1.67	0.10	0.052	(0.150)	0.047	0.005
21	1.75	0.10	0.052	(0.149)	0.047	0.005
22	1.83	0.13	0.070	(0.148)	0.063	0.007
23	1.92	0.13	0.070	(0.148)	0.063	0.007
24	2.00	0.13	0.070	(0.147)	0.063	0.007
25	2.08	0.13	0.070	(0.147)	0.063	0.007
26	2.17	0.13	0.070	(0.146)	0.063	0.007
27	2.25	0.13	0.070	(0.145)	0.063	0.007
28	2.33	0.13	0.070	(0.145)	0.063	0.007
29	2.42	0.13	0.070	(0.144)	0.063	0.007
30	2.50	0.13	0.070	(0.144)	0.063	0.007
31	2.58	0.17	0.087	(0.143)	0.078	0.009
32	2.67	0.17	0.087	(0.143)	0.078	0.009
33	2.75	0.17	0.087	(0.142)	0.078	0.009
34	2.83	0.17	0.087	(0.141)	0.078	0.009
35	2.92	0.17	0.087	(0.141)	0.078	0.009
36	3.00	0.17	0.087	(0.140)	0.078	0.009
37	3.08	0.17	0.087	(0.140)	0.078	0.009
38	3.17	0.17	0.087	(0.139)	0.078	0.009
39	3.25	0.17	0.087	(0.138)	0.078	0.009
40	3.33	0.17	0.087	(0.138)	0.078	0.009
41	3.42	0.17	0.087	(0.137)	0.078	0.009
42	3.50	0.17	0.087	(0.137)	0.078	0.009
43	3.58	0.17	0.087	(0.136)	0.078	0.009
44	3.67	0.17	0.087	(0.136)	0.078	0.009
45	3.75	0.17	0.087	(0.135)	0.078	0.009
46	3.83	0.20	0.104	(0.134)	0.094	0.010
47	3.92	0.20	0.104	(0.134)	0.094	0.010
48	4.00	0.20	0.104	(0.133)	0.094	0.010
49	4.08	0.20	0.104	(0.133)	0.094	0.010
50	4.17	0.20	0.104	(0.132)	0.094	0.010
51	4.25	0.20	0.104	(0.132)	0.094	0.010
52	4.33	0.23	0.122	(0.131)	0.110	0.012
53	4.42	0.23	0.122	(0.131)	0.110	0.012
54	4.50	0.23	0.122	(0.130)	0.110	0.012
55	4.58	0.23	0.122	(0.129)	0.110	0.012
56	4.67	0.23	0.122	(0.129)	0.110	0.012
57	4.75	0.23	0.122	(0.128)	0.110	0.012
58	4.83	0.27	0.139	(0.128)	0.125	0.014
59	4.92	0.27	0.139	(0.127)	0.125	0.014
60	5.00	0.27	0.139	(0.127)	0.125	0.014
61	5.08	0.20	0.104	(0.126)	0.094	0.010
62	5.17	0.20	0.104	(0.126)	0.094	0.010
63	5.25	0.20	0.104	(0.125)	0.094	0.010
64	5.33	0.23	0.122	(0.124)	0.110	0.012
65	5.42	0.23	0.122	(0.124)	0.110	0.012
66	5.50	0.23	0.122	(0.123)	0.110	0.012
67	5.58	0.27	0.139	0.123	(0.125)	0.016
68	5.67	0.27	0.139	0.122	(0.125)	0.017
69	5.75	0.27	0.139	0.122	(0.125)	0.018
70	5.83	0.27	0.139	0.121	(0.125)	0.018
71	5.92	0.27	0.139	0.121	(0.125)	0.019
72	6.00	0.27	0.139	0.120	(0.125)	0.019
73	6.08	0.30	0.157	0.120	(0.141)	0.037
74	6.17	0.30	0.157	0.119	(0.141)	0.038
75	6.25	0.30	0.157	0.119	(0.141)	0.038
76	6.33	0.30	0.157	0.118	(0.141)	0.039
77	6.42	0.30	0.157	0.117	(0.141)	0.039
78	6.50	0.30	0.157	0.117	(0.141)	0.040
79	6.58	0.33	0.174	0.116	(0.157)	0.058
80	6.67	0.33	0.174	0.116	(0.157)	0.058
81	6.75	0.33	0.174	0.115	(0.157)	0.059
82	6.83	0.33	0.174	0.115	(0.157)	0.059
83	6.92	0.33	0.174	0.114	(0.157)	0.060
84	7.00	0.33	0.174	0.114	(0.157)	0.060
85	7.08	0.33	0.174	0.113	(0.157)	0.061
86	7.17	0.33	0.174	0.113	(0.157)	0.061
87	7.25	0.33	0.174	0.112	(0.157)	0.062
88	7.33	0.37	0.191	0.112	(0.172)	0.080
89	7.42	0.37	0.191	0.111	(0.172)	0.080
90	7.50	0.37	0.191	0.111	(0.172)	0.081
91	7.58	0.40	0.209	0.110	(0.188)	0.099
92	7.67	0.40	0.209	0.110	(0.188)	0.099

93	7.75	0.40	0.209	0.109	(0.188)	0.100
94	7.83	0.43	0.226	0.109	(0.204)	0.118
95	7.92	0.43	0.226	0.108	(0.204)	0.118
96	8.00	0.43	0.226	0.108	(0.204)	0.119
97	8.08	0.50	0.261	0.107	(0.235)	0.154
98	8.17	0.50	0.261	0.107	(0.235)	0.154
99	8.25	0.50	0.261	0.106	(0.235)	0.155
100	8.33	0.50	0.261	0.106	(0.235)	0.155
101	8.42	0.50	0.261	0.105	(0.235)	0.156
102	8.50	0.50	0.261	0.105	(0.235)	0.156
103	8.58	0.53	0.278	0.104	(0.251)	0.174
104	8.67	0.53	0.278	0.104	(0.251)	0.175
105	8.75	0.53	0.278	0.103	(0.251)	0.175
106	8.83	0.57	0.296	0.103	(0.266)	0.193
107	8.92	0.57	0.296	0.102	(0.266)	0.194
108	9.00	0.57	0.296	0.102	(0.266)	0.194
109	9.08	0.63	0.331	0.101	(0.298)	0.229
110	9.17	0.63	0.331	0.101	(0.298)	0.230
111	9.25	0.63	0.331	0.100	(0.298)	0.230
112	9.33	0.67	0.348	0.100	(0.313)	0.248
113	9.42	0.67	0.348	0.099	(0.313)	0.249
114	9.50	0.67	0.348	0.099	(0.313)	0.249
115	9.58	0.70	0.366	0.098	(0.329)	0.267
116	9.67	0.70	0.366	0.098	(0.329)	0.268
117	9.75	0.70	0.366	0.097	(0.329)	0.268
118	9.83	0.73	0.383	0.097	(0.345)	0.286
119	9.92	0.73	0.383	0.097	(0.345)	0.286
120	10.00	0.73	0.383	0.096	(0.345)	0.287
121	10.08	0.50	0.261	0.096	(0.235)	0.165
122	10.17	0.50	0.261	0.095	(0.235)	0.166
123	10.25	0.50	0.261	0.095	(0.235)	0.166
124	10.33	0.50	0.261	0.094	(0.235)	0.167
125	10.42	0.50	0.261	0.094	(0.235)	0.167
126	10.50	0.50	0.261	0.093	(0.235)	0.168
127	10.58	0.67	0.348	0.093	(0.313)	0.255
128	10.67	0.67	0.348	0.092	(0.313)	0.256
129	10.75	0.67	0.348	0.092	(0.313)	0.256
130	10.83	0.67	0.348	0.092	(0.313)	0.257
131	10.92	0.67	0.348	0.091	(0.313)	0.257
132	11.00	0.67	0.348	0.091	(0.313)	0.257
133	11.08	0.63	0.331	0.090	(0.298)	0.241
134	11.17	0.63	0.331	0.090	(0.298)	0.241
135	11.25	0.63	0.331	0.089	(0.298)	0.241
136	11.33	0.63	0.331	0.089	(0.298)	0.242
137	11.42	0.63	0.331	0.088	(0.298)	0.242
138	11.50	0.63	0.331	0.088	(0.298)	0.243
139	11.58	0.57	0.296	0.088	(0.266)	0.208
140	11.67	0.57	0.296	0.087	(0.266)	0.209
141	11.75	0.57	0.296	0.087	(0.266)	0.209
142	11.83	0.60	0.313	0.086	(0.282)	0.227
143	11.92	0.60	0.313	0.086	(0.282)	0.227
144	12.00	0.60	0.313	0.085	(0.282)	0.228
145	12.08	0.83	0.435	0.085	(0.392)	0.350
146	12.17	0.83	0.435	0.085	(0.392)	0.351
147	12.25	0.83	0.435	0.084	(0.392)	0.351
148	12.33	0.87	0.453	0.084	(0.407)	0.369
149	12.42	0.87	0.453	0.083	(0.407)	0.369
150	12.50	0.87	0.453	0.083	(0.407)	0.370
151	12.58	0.93	0.487	0.082	(0.439)	0.405
152	12.67	0.93	0.487	0.082	(0.439)	0.405
153	12.75	0.93	0.487	0.082	(0.439)	0.406
154	12.83	0.97	0.505	0.081	(0.454)	0.424
155	12.92	0.97	0.505	0.081	(0.454)	0.424
156	13.00	0.97	0.505	0.080	(0.454)	0.424
157	13.08	1.13	0.592	0.080	(0.533)	0.512
158	13.17	1.13	0.592	0.080	(0.533)	0.512
159	13.25	1.13	0.592	0.079	(0.533)	0.513
160	13.33	1.13	0.592	0.079	(0.533)	0.513
161	13.42	1.13	0.592	0.078	(0.533)	0.513
162	13.50	1.13	0.592	0.078	(0.533)	0.514
163	13.58	0.77	0.400	0.078	(0.360)	0.323
164	13.67	0.77	0.400	0.077	(0.360)	0.323
165	13.75	0.77	0.400	0.077	(0.360)	0.324
166	13.83	0.77	0.400	0.076	(0.360)	0.324
167	13.92	0.77	0.400	0.076	(0.360)	0.324
168	14.00	0.77	0.400	0.076	(0.360)	0.325
169	14.08	0.90	0.470	0.075	(0.423)	0.395
170	14.17	0.90	0.470	0.075	(0.423)	0.395
171	14.25	0.90	0.470	0.074	(0.423)	0.396
172	14.33	0.87	0.453	0.074	(0.407)	0.378
173	14.42	0.87	0.453	0.074	(0.407)	0.379
174	14.50	0.87	0.453	0.073	(0.407)	0.379
175	14.58	0.87	0.453	0.073	(0.407)	0.380
176	14.67	0.87	0.453	0.073	(0.407)	0.380
177	14.75	0.87	0.453	0.072	(0.407)	0.380
178	14.83	0.83	0.435	0.072	(0.392)	0.363

179	14.92	0.83	0.435		0.071	(	0.392)	0.364
180	15.00	0.83	0.435		0.071	(	0.392)	0.364
181	15.08	0.80	0.418		0.071	(	0.376)	0.347
182	15.17	0.80	0.418		0.070	(	0.376)	0.347
183	15.25	0.80	0.418		0.070	(	0.376)	0.348
184	15.33	0.77	0.400		0.070	(	0.360)	0.331
185	15.42	0.77	0.400		0.069	(	0.360)	0.331
186	15.50	0.77	0.400		0.069	(	0.360)	0.331
187	15.58	0.63	0.331		0.069	(	0.298)	0.262
188	15.67	0.63	0.331		0.068	(	0.298)	0.262
189	15.75	0.63	0.331		0.068	(	0.298)	0.263
190	15.83	0.63	0.331		0.068	(	0.298)	0.263
191	15.92	0.63	0.331		0.067	(	0.298)	0.264
192	16.00	0.63	0.331		0.067	(	0.298)	0.264
193	16.08	0.13	0.070	(	0.066)		0.063	0.007
194	16.17	0.13	0.070	(	0.066)		0.063	0.007
195	16.25	0.13	0.070	(	0.066)		0.063	0.007
196	16.33	0.13	0.070	(	0.065)		0.063	0.007
197	16.42	0.13	0.070	(	0.065)		0.063	0.007
198	16.50	0.13	0.070	(	0.065)		0.063	0.007
199	16.58	0.10	0.052	(	0.064)		0.047	0.005
200	16.67	0.10	0.052	(	0.064)		0.047	0.005
201	16.75	0.10	0.052	(	0.064)		0.047	0.005
202	16.83	0.10	0.052	(	0.063)		0.047	0.005
203	16.92	0.10	0.052	(	0.063)		0.047	0.005
204	17.00	0.10	0.052	(	0.063)		0.047	0.005
205	17.08	0.17	0.087		0.063	(	0.078)	0.024
206	17.17	0.17	0.087		0.062	(	0.078)	0.025
207	17.25	0.17	0.087		0.062	(	0.078)	0.025
208	17.33	0.17	0.087		0.062	(	0.078)	0.025
209	17.42	0.17	0.087		0.061	(	0.078)	0.026
210	17.50	0.17	0.087		0.061	(	0.078)	0.026
211	17.58	0.17	0.087		0.061	(	0.078)	0.026
212	17.67	0.17	0.087		0.060	(	0.078)	0.027
213	17.75	0.17	0.087		0.060	(	0.078)	0.027
214	17.83	0.13	0.070		0.060	(	0.063)	0.010
215	17.92	0.13	0.070		0.059	(	0.063)	0.010
216	18.00	0.13	0.070		0.059	(	0.063)	0.010
217	18.08	0.13	0.070		0.059	(	0.063)	0.011
218	18.17	0.13	0.070		0.059	(	0.063)	0.011
219	18.25	0.13	0.070		0.058	(	0.063)	0.011
220	18.33	0.13	0.070		0.058	(	0.063)	0.012
221	18.42	0.13	0.070		0.058	(	0.063)	0.012
222	18.50	0.13	0.070		0.057	(	0.063)	0.012
223	18.58	0.10	0.052	(	0.057)		0.047	0.005
224	18.67	0.10	0.052	(	0.057)		0.047	0.005
225	18.75	0.10	0.052	(	0.057)		0.047	0.005
226	18.83	0.07	0.035	(	0.056)		0.031	0.003
227	18.92	0.07	0.035	(	0.056)		0.031	0.003
228	19.00	0.07	0.035	(	0.056)		0.031	0.003
229	19.08	0.10	0.052	(	0.056)		0.047	0.005
230	19.17	0.10	0.052	(	0.055)		0.047	0.005
231	19.25	0.10	0.052	(	0.055)		0.047	0.005
232	19.33	0.13	0.070		0.055	(	0.063)	0.015
233	19.42	0.13	0.070		0.055	(	0.063)	0.015
234	19.50	0.13	0.070		0.054	(	0.063)	0.015
235	19.58	0.10	0.052	(	0.054)		0.047	0.005
236	19.67	0.10	0.052	(	0.054)		0.047	0.005
237	19.75	0.10	0.052	(	0.054)		0.047	0.005
238	19.83	0.07	0.035	(	0.053)		0.031	0.003
239	19.92	0.07	0.035	(	0.053)		0.031	0.003
240	20.00	0.07	0.035	(	0.053)		0.031	0.003
241	20.08	0.10	0.052	(	0.053)		0.047	0.005
242	20.17	0.10	0.052	(	0.052)		0.047	0.005
243	20.25	0.10	0.052	(	0.052)		0.047	0.005
244	20.33	0.10	0.052	(	0.052)		0.047	0.005
245	20.42	0.10	0.052	(	0.052)		0.047	0.005
246	20.50	0.10	0.052	(	0.051)		0.047	0.005
247	20.58	0.10	0.052	(	0.051)		0.047	0.005
248	20.67	0.10	0.052	(	0.051)		0.047	0.005
249	20.75	0.10	0.052	(	0.051)		0.047	0.005
250	20.83	0.07	0.035	(	0.051)		0.031	0.003
251	20.92	0.07	0.035	(	0.050)		0.031	0.003
252	21.00	0.07	0.035	(	0.050)		0.031	0.003
253	21.08	0.10	0.052	(	0.050)		0.047	0.005
254	21.17	0.10	0.052	(	0.050)		0.047	0.005
255	21.25	0.10	0.052	(	0.050)		0.047	0.005
256	21.33	0.07	0.035	(	0.049)		0.031	0.003
257	21.42	0.07	0.035	(	0.049)		0.031	0.003
258	21.50	0.07	0.035	(	0.049)		0.031	0.003
259	21.58	0.10	0.052	(	0.049)		0.047	0.005
260	21.67	0.10	0.052	(	0.049)		0.047	0.005
261	21.75	0.10	0.052	(	0.049)		0.047	0.005
262	21.83	0.07	0.035	(	0.048)		0.031	0.003
263	21.92	0.07	0.035	(	0.048)		0.031	0.003
264	22.00	0.07	0.035	(	0.048)		0.031	0.003

265	22.08	0.10	0.052	(0.048)	0.047	0.005
266	22.17	0.10	0.052	(0.048)	0.047	0.005
267	22.25	0.10	0.052	(0.048)	0.047	0.005
268	22.33	0.07	0.035	(0.047)	0.031	0.003
269	22.42	0.07	0.035	(0.047)	0.031	0.003
270	22.50	0.07	0.035	(0.047)	0.031	0.003
271	22.58	0.07	0.035	(0.047)	0.031	0.003
272	22.67	0.07	0.035	(0.047)	0.031	0.003
273	22.75	0.07	0.035	(0.047)	0.031	0.003
274	22.83	0.07	0.035	(0.047)	0.031	0.003
275	22.92	0.07	0.035	(0.047)	0.031	0.003
276	23.00	0.07	0.035	(0.046)	0.031	0.003
277	23.08	0.07	0.035	(0.046)	0.031	0.003
278	23.17	0.07	0.035	(0.046)	0.031	0.003
279	23.25	0.07	0.035	(0.046)	0.031	0.003
280	23.33	0.07	0.035	(0.046)	0.031	0.003
281	23.42	0.07	0.035	(0.046)	0.031	0.003
282	23.50	0.07	0.035	(0.046)	0.031	0.003
283	23.58	0.07	0.035	(0.046)	0.031	0.003
284	23.67	0.07	0.035	(0.046)	0.031	0.003
285	23.75	0.07	0.035	(0.046)	0.031	0.003
286	23.83	0.07	0.035	(0.046)	0.031	0.003
287	23.92	0.07	0.035	(0.046)	0.031	0.003
288	24.00	0.07	0.035	(0.046)	0.031	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 31.3

Flood volume = Effective rainfall 2.61(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 1.4(Ac.Ft)
Total soil loss = 1.74(In)
Total soil loss = 0.904(Ac.Ft)
Total rainfall = 4.35(In)
Flood volume = 58879.7 Cubic Feet
Total soil loss = 39366.2 Cubic Feet

Peak flow rate of this hydrograph = 3.220(CFS)

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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	0.0000	0.01	Q	|	|	|	|
0+10	0.0002	0.02	Q	|	|	|	|
0+15	0.0003	0.02	Q	|	|	|	|
0+20	0.0005	0.02	Q	|	|	|	|
0+25	0.0007	0.03	Q	|	|	|	|
0+30	0.0009	0.03	Q	|	|	|	|
0+35	0.0011	0.03	Q	|	|	|	|
0+40	0.0013	0.03	Q	|	|	|	|
0+45	0.0016	0.03	Q	|	|	|	|
0+50	0.0018	0.04	Q	|	|	|	|
0+55	0.0021	0.04	Q	|	|	|	|
1+ 0	0.0024	0.04	Q	|	|	|	|
1+ 5	0.0027	0.04	Q	|	|	|	|
1+10	0.0029	0.03	Q	|	|	|	|
1+15	0.0031	0.03	Q	|	|	|	|
1+20	0.0034	0.03	Q	|	|	|	|
1+25	0.0036	0.03	Q	|	|	|	|
1+30	0.0038	0.03	Q	|	|	|	|
1+35	0.0041	0.03	Q	|	|	|	|
1+40	0.0043	0.03	Q	|	|	|	|
1+45	0.0045	0.03	Q	|	|	|	|
1+50	0.0047	0.04	Q	|	|	|	|
1+55	0.0050	0.04	Q	|	|	|	|
2+ 0	0.0053	0.04	Q	|	|	|	|
2+ 5	0.0056	0.04	Q	|	|	|	|
2+10	0.0059	0.04	Q	|	|	|	|
2+15	0.0062	0.04	Q	|	|	|	|
2+20	0.0065	0.04	Q	|	|	|	|
2+25	0.0068	0.04	Q	|	|	|	|
2+30	0.0071	0.04	Q	|	|	|	|
2+35	0.0075	0.05	Q	|	|	|	|
2+40	0.0078	0.05	Q	|	|	|	|
2+45	0.0082	0.05	Q	|	|	|	|
2+50	0.0086	0.05	Q	|	|	|	|
2+55	0.0089	0.05	Q	|	|	|	|
3+ 0	0.0093	0.05	Q	|	|	|	|
3+ 5	0.0097	0.05	Q	|	|	|	|
3+10	0.0101	0.05	Q	|	|	|	|
3+15	0.0104	0.05	Q	|	|	|	|
3+20	0.0108	0.05	Q	|	|	|	|
3+25	0.0112	0.05	Q	|	|	|	|
3+30	0.0116	0.05	Q	|	|	|	|

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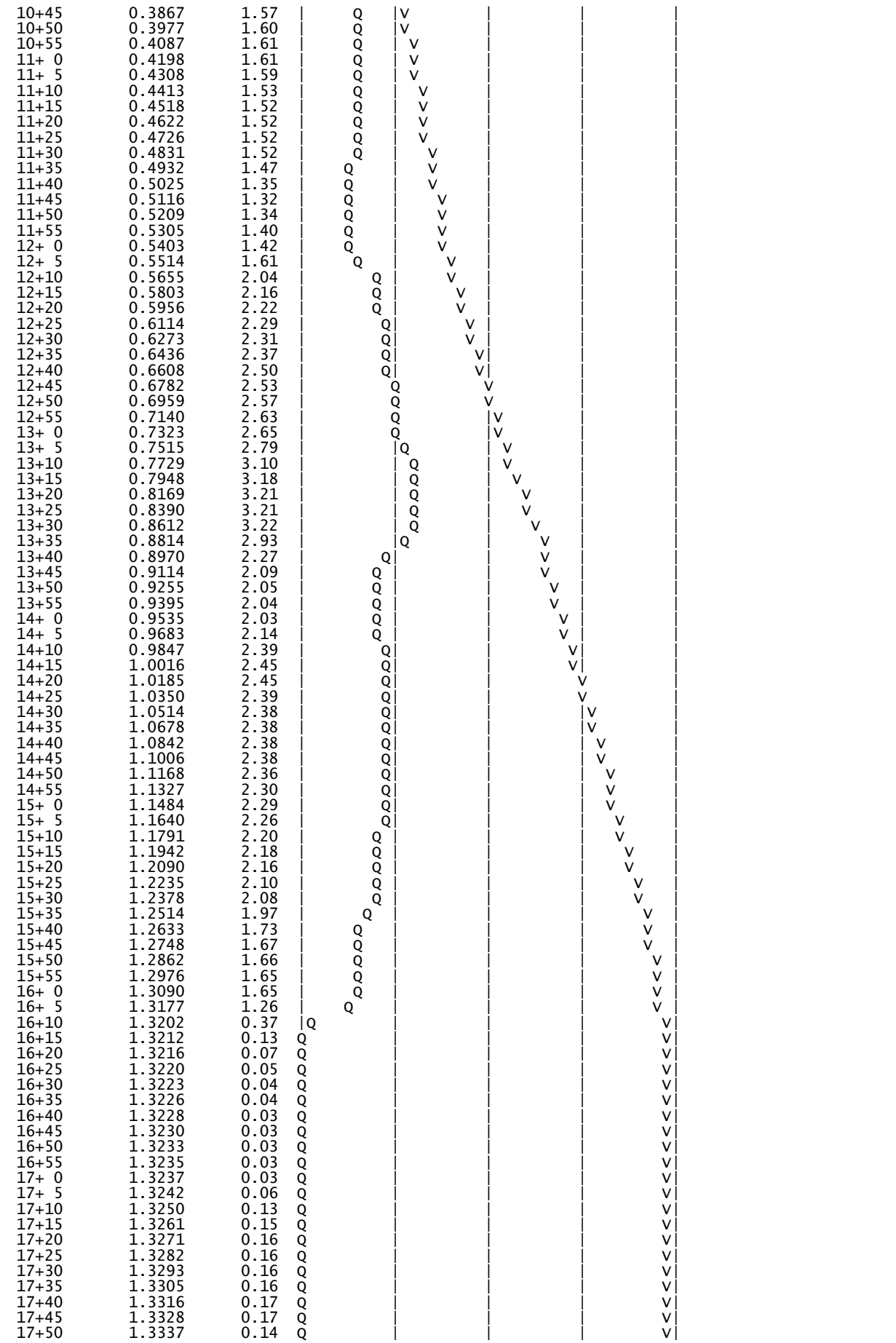
 3+35       0.0119      0.05  Q          |          |          |          |
 3+40       0.0123      0.05  Q          |          |          |          |
 3+45       0.0127      0.05  Q          |          |          |          |
 3+50       0.0131      0.06  Q          |          |          |          |
 3+55       0.0135      0.06  Q          |          |          |          |
 4+ 0       0.0140      0.06  Q          |          |          |          |
 4+ 5       0.0144      0.07  Q          |          |          |          |
 4+10       0.0149      0.07  Q          |          |          |          |
 4+15       0.0153      0.07  Q          |          |          |          |
 4+20       0.0158      0.07  Q          |          |          |          |
 4+25       0.0163      0.07  Q          |          |          |          |
 4+30       0.0168      0.08  Q          |          |          |          |
 4+35       0.0173      0.08  Q          |          |          |          |
 4+40       0.0179      0.08  Q          |          |          |          |
 4+45       0.0184      0.08  Q          |          |          |          |
 4+50       0.0189      0.08  Q          |          |          |          |
 4+55       0.0195      0.09  Q          |          |          |          |
 5+ 0       0.0201      0.09  Q          |          |          |          |
 5+ 5       0.0207      0.08  Q          |          |          |          |
 5+10       0.0212      0.07  Q          |          |          |          |
 5+15       0.0216      0.07  Q          |          |          |          |
 5+20       0.0221      0.07  Q          |          |          |          |
 5+25       0.0226      0.07  Q          |          |          |          |
 5+30       0.0231      0.08  Q          |          |          |          |
 5+35       0.0237      0.08  Q          |          |          |          |
 5+40       0.0244      0.10  Q          |          |          |          |
 5+45       0.0251      0.11  Q          |          |          |          |
 5+50       0.0259      0.11  Q          |          |          |          |
 5+55       0.0266      0.11  Q          |          |          |          |
 6+ 0       0.0274      0.12  Q          |          |          |          |
 6+ 5       0.0285      0.15  Q          |          |          |          |
 6+10       0.0299      0.21  Q          |          |          |          |
 6+15       0.0315      0.23  Q          |          |          |          |
 6+20       0.0331      0.24  Q          |          |          |          |
 6+25       0.0348      0.24  QV         |          |          |          |
 6+30       0.0365      0.25  QV         |          |          |          |
 6+35       0.0384      0.28  |Q         |          |          |          |
 6+40       0.0407      0.34  |Q         |          |          |          |
 6+45       0.0432      0.36  |Q         |          |          |          |
 6+50       0.0457      0.37  |Q         |          |          |          |
 6+55       0.0482      0.37  |Q         |          |          |          |
 7+ 0       0.0508      0.37  |Q         |          |          |          |
 7+ 5       0.0534      0.38  |Q         |          |          |          |
 7+10       0.0561      0.38  |Q         |          |          |          |
 7+15       0.0587      0.38  |Q         |          |          |          |
 7+20       0.0615      0.41  |Q         |          |          |          |
 7+25       0.0648      0.48  |Q         |          |          |          |
 7+30       0.0683      0.50  |QV        |          |          |          |
 7+35       0.0719      0.53  | Q        |          |          |          |
 7+40       0.0760      0.60  | Q        |          |          |          |
 7+45       0.0803      0.62  | Q        |          |          |          |
 7+50       0.0847      0.65  | Q        |          |          |          |
 7+55       0.0897      0.71  | Q        |          |          |          |
 8+ 0       0.0947      0.73  | Q        |          |          |          |
 8+ 5       0.1002      0.79  | VQ       |          |          |          |
 8+10       0.1065      0.92  |  Q       |          |          |          |
 8+15       0.1131      0.96  |  Q       |          |          |          |
 8+20       0.1198      0.97  |  Q       |          |          |          |
 8+25       0.1265      0.97  |  Q       |          |          |          |
 8+30       0.1332      0.98  |  Q       |          |          |          |
 8+35       0.1402      1.01  |   Q      |          |          |          |
 8+40       0.1475      1.07  |   Q      |          |          |          |
 8+45       0.1550      1.09  |   Q      |          |          |          |
 8+50       0.1628      1.12  |   Q      |          |          |          |
 8+55       0.1710      1.19  |   QV     |          |          |          |
 9+ 0       0.1793      1.21  |   QV     |          |          |          |
 9+ 5       0.1880      1.27  |    Q     |          |          |          |
 9+10       0.1976      1.39  |    Q     |          |          |          |
 9+15       0.2075      1.43  |    QV    |          |          |          |
 9+20       0.2176      1.47  |    QV    |          |          |          |
 9+25       0.2281      1.53  |     Q    |          |          |          |
 9+30       0.2388      1.55  |     QV   |          |          |          |
 9+35       0.2498      1.59  |     QV   |          |          |          |
 9+40       0.2611      1.65  |     QV   |          |          |          |
 9+45       0.2727      1.67  |     Q V  |          |          |          |
 9+50       0.2844      1.71  |     Q V  |          |          |          |
 9+55       0.2966      1.77  |      QV  |          |          |          |
10+ 0       0.3089      1.79  |       Q V|          |          |          |
10+ 5       0.3200      1.61  |      Q  V|          |          |          |
10+10       0.3282      1.19  |   Q     V|          |          |          |
10+15       0.3357      1.08  |   Q     V|          |          |          |
10+20       0.3430      1.06  |   Q      V          |          |          |
10+25       0.3502      1.05  |   Q      V          |          |          |
10+30       0.3574      1.05  |   Q      V          |          |          |
10+35       0.3656      1.18  |   Q      V          |          |          |
10+40       0.3758      1.49  |    Q     |V         |          |          |
```



10+45	0.3867	1.57	
10+50	0.3977	1.60	
10+55	0.4087	1.61	
11+ 0	0.4198	1.61	
11+ 5	0.4308	1.59	
11+10	0.4413	1.53	
11+15	0.4518	1.52	
11+20	0.4622	1.52	
11+25	0.4726	1.52	
11+30	0.4831	1.52	
11+35	0.4932	1.47	
11+40	0.5025	1.35	
11+45	0.5116	1.32	
11+50	0.5209	1.34	
11+55	0.5305	1.40	
12+ 0	0.5403	1.42	
12+ 5	0.5514	1.61	
12+10	0.5655	2.04	
12+15	0.5803	2.16	
12+20	0.5956	2.22	
12+25	0.6114	2.29	
12+30	0.6273	2.31	
12+35	0.6436	2.37	
12+40	0.6608	2.50	
12+45	0.6782	2.53	
12+50	0.6959	2.57	
12+55	0.7140	2.63	
13+ 0	0.7323	2.65	
13+ 5	0.7515	2.79	
13+10	0.7729	3.10	
13+15	0.7948	3.18	
13+20	0.8169	3.21	
13+25	0.8390	3.21	
13+30	0.8612	3.22	
13+35	0.8814	2.93	
13+40	0.8970	2.27	
13+45	0.9114	2.09	
13+50	0.9255	2.05	
13+55	0.9395	2.04	
14+ 0	0.9535	2.03	
14+ 5	0.9683	2.14	
14+10	0.9847	2.39	
14+15	1.0016	2.45	
14+20	1.0185	2.45	
14+25	1.0350	2.39	
14+30	1.0514	2.38	
14+35	1.0678	2.38	
14+40	1.0842	2.38	
14+45	1.1006	2.38	
14+50	1.1168	2.36	
14+55	1.1327	2.30	
15+ 0	1.1484	2.29	
15+ 5	1.1640	2.26	
15+10	1.1791	2.20	
15+15	1.1942	2.18	
15+20	1.2090	2.16	
15+25	1.2235	2.10	
15+30	1.2378	2.08	
15+35	1.2514	1.97	
15+40	1.2633	1.73	
15+45	1.2748	1.67	
15+50	1.2862	1.66	
15+55	1.2976	1.65	
16+ 0	1.3090	1.65	
16+ 5	1.3177	1.26	
16+10	1.3202	0.37	
16+15	1.3212	0.13	
16+20	1.3216	0.07	
16+25	1.3220	0.05	
16+30	1.3223	0.04	
16+35	1.3226	0.04	
16+40	1.3228	0.03	
16+45	1.3230	0.03	
16+50	1.3233	0.03	
16+55	1.3235	0.03	
17+ 0	1.3237	0.03	
17+ 5	1.3242	0.06	
17+10	1.3250	0.13	
17+15	1.3261	0.15	
17+20	1.3271	0.16	
17+25	1.3282	0.16	
17+30	1.3293	0.16	
17+35	1.3305	0.16	
17+40	1.3316	0.17	
17+45	1.3328	0.17	
17+50	1.3337	0.14	

17+55	1.3343	0.08	Q				V
18+ 0	1.3348	0.07	Q				V
18+ 5	1.3353	0.07	Q				V
18+10	1.3357	0.07	Q				V
18+15	1.3362	0.07	Q				V
18+20	1.3367	0.07	Q				V
18+25	1.3372	0.07	Q				V
18+30	1.3377	0.07	Q				V
18+35	1.3381	0.07	Q				V
18+40	1.3384	0.04	Q				V
18+45	1.3387	0.04	Q				V
18+50	1.3389	0.03	Q				V
18+55	1.3391	0.02	Q				V
19+ 0	1.3392	0.02	Q				V
19+ 5	1.3394	0.02	Q				V
19+10	1.3396	0.03	Q				V
19+15	1.3398	0.03	Q				V
19+20	1.3401	0.05	Q				V
19+25	1.3407	0.08	Q				V
19+30	1.3413	0.09	Q				V
19+35	1.3419	0.08	Q				V
19+40	1.3422	0.05	Q				V
19+45	1.3424	0.04	Q				V
19+50	1.3426	0.03	Q				V
19+55	1.3428	0.02	Q				V
20+ 0	1.3430	0.02	Q				V
20+ 5	1.3431	0.02	Q				V
20+10	1.3433	0.03	Q				V
20+15	1.3436	0.03	Q				V
20+20	1.3438	0.03	Q				V
20+25	1.3440	0.03	Q				V
20+30	1.3442	0.03	Q				V
20+35	1.3445	0.03	Q				V
20+40	1.3447	0.03	Q				V
20+45	1.3449	0.03	Q				V
20+50	1.3451	0.03	Q				V
20+55	1.3453	0.02	Q				V
21+ 0	1.3454	0.02	Q				V
21+ 5	1.3456	0.02	Q				V
21+10	1.3458	0.03	Q				V
21+15	1.3460	0.03	Q				V
21+20	1.3463	0.03	Q				V
21+25	1.3464	0.02	Q				V
21+30	1.3466	0.02	Q				V
21+35	1.3467	0.02	Q				V
21+40	1.3470	0.03	Q				V
21+45	1.3472	0.03	Q				V
21+50	1.3474	0.03	Q				V
21+55	1.3475	0.02	Q				V
22+ 0	1.3477	0.02	Q				V
22+ 5	1.3479	0.02	Q				V
22+10	1.3481	0.03	Q				V
22+15	1.3483	0.03	Q				V
22+20	1.3485	0.03	Q				V
22+25	1.3487	0.02	Q				V
22+30	1.3488	0.02	Q				V
22+35	1.3490	0.02	Q				V
22+40	1.3491	0.02	Q				V
22+45	1.3493	0.02	Q				V
22+50	1.3494	0.02	Q				V
22+55	1.3496	0.02	Q				V
23+ 0	1.3497	0.02	Q				V
23+ 5	1.3499	0.02	Q				V
23+10	1.3500	0.02	Q				V
23+15	1.3502	0.02	Q				V
23+20	1.3503	0.02	Q				V
23+25	1.3505	0.02	Q				V
23+30	1.3506	0.02	Q				V
23+35	1.3508	0.02	Q				V
23+40	1.3509	0.02	Q				V
23+45	1.3511	0.02	Q				V
23+50	1.3512	0.02	Q				V
23+55	1.3514	0.02	Q				V
24+ 0	1.3515	0.02	Q				V
24+ 5	1.3517	0.02	Q				V
24+10	1.3517	0.00	Q				V
24+15	1.3517	0.00	Q				V
24+20	1.3517	0.00	Q				V
24+25	1.3517	0.00	Q				V

APPENDIX D – PROPOSED UNIT HYDROGRAPHS

```
        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  04/30/19 File: pro212.out

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

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


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22            0.55                 3.42

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            1.45                 9.02

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    0.550(In)
Area Averaged 100-Year Rainfall =    1.450(In)

Point rain (area averaged) =    0.550(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.550(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  57.0      0.501     0.500        0.275       1.000      0.275
                                                 Sum (F) =   0.275
Area averaged mean soil loss (F) (In/Hr) =  0.275
Minimum soil loss rate ((In/Hr)) =  0.138
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------
```

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	342.829	62.333	3.907
2	0.167	685.658	36.487	2.287
3	0.250	1028.487	1.180	0.074
		Sum = 100.000	Sum=	6.269

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	4.40	0.290	(0.275)	0.145	0.145
2	0.17	4.50	0.297	(0.275)	0.148	0.148
3	0.25	5.40	0.356	(0.275)	0.178	0.178
4	0.33	5.40	0.356	(0.275)	0.178	0.178
5	0.42	5.70	0.376	(0.275)	0.188	0.188
6	0.50	6.40	0.422	(0.275)	0.211	0.211
7	0.58	7.90	0.521	(0.275)	0.261	0.261
8	0.67	9.10	0.601	0.275	(0.300)	0.325
9	0.75	12.80	0.845	0.275	(0.422)	0.569
10	0.83	25.60	1.690	0.275	(0.845)	1.414
11	0.92	7.90	0.521	(0.275)	0.261	0.261
12	1.00	4.90	0.323	(0.275)	0.162	0.162
		(Loss Rate Not Used)			
Sum =		100.0			Sum = 4.0

Flood volume = Effective rainfall 0.34(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 0.21(In)
Total soil loss = 0.111(Ac.Ft)
Total rainfall = 0.55(In)
Flood volume = 7603.8 Cubic Feet
Total soil loss = 4813.7 Cubic Feet

Peak flow rate of this hydrograph = 6.856(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 2.5 5.0 7.5 10.0
0+ 5	0.0039	0.57	V Q
0+10	0.0102	0.91	| VQ
0+15	0.0174	1.05	| VQ
0+20	0.0251	1.12	| QV
0+25	0.0331	1.16	| Q V |
0+30	0.0418	1.27	| Q V|
0+35	0.0522	1.52	| Q |V |
0+40	0.0652	1.88	| Q | V |
0+45	0.0858	2.99	| |Q V| |
0+50	0.1330	6.86	| | | Q V |
0+55	0.1626	4.30	| | Q | | V |
1+ 0	0.1718	1.33	| Q | | | V|
1+ 5	0.1745	0.39	|Q | | | V|
1+10	0.1746	0.01	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  04/30/19 File: pro232.out

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

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


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22            1.00                  6.22

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            2.50                 15.55

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.000(In)
Area Averaged 100-Year Rainfall =    2.500(In)

Point rain (area averaged) =    1.000(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.000(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  57.0      0.501     0.500        0.275       1.000      0.275
                                                 Sum (F) =   0.275
Area averaged mean soil loss (F) (In/Hr) =  0.275
Minimum soil loss rate ((In/Hr)) =  0.138
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       FOOTHILL S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
```

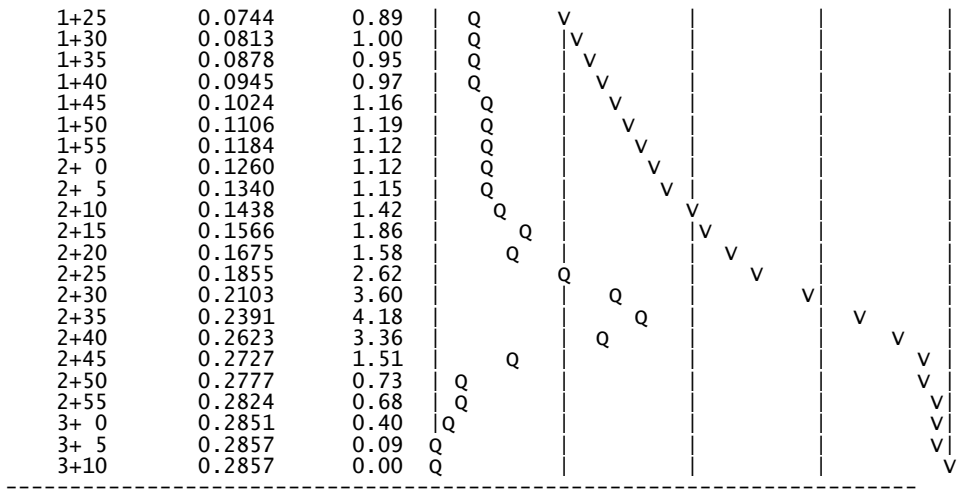
```
      ----------------------------------------------------------------------
          1   0.083        342.829         62.333              3.907
          2   0.167        685.658         36.487              2.287
          3   0.250       1028.487          1.180              0.074
                                   Sum = 100.000   Sum=       6.269
----------------------------------------------------------------------
```

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	0.156	(0.275)	0.078	0.078
2	0.17	1.30	0.156	(0.275)	0.078	0.078
3	0.25	1.10	0.132	(0.275)	0.066	0.066
4	0.33	1.50	0.180	(0.275)	0.090	0.090
5	0.42	1.50	0.180	(0.275)	0.090	0.090
6	0.50	1.80	0.216	(0.275)	0.108	0.108
7	0.58	1.50	0.180	(0.275)	0.090	0.090
8	0.67	1.80	0.216	(0.275)	0.108	0.108
9	0.75	1.80	0.216	(0.275)	0.108	0.108
10	0.83	1.50	0.180	(0.275)	0.090	0.090
11	0.92	1.60	0.192	(0.275)	0.096	0.096
12	1.00	1.80	0.216	(0.275)	0.108	0.108
13	1.08	2.20	0.264	(0.275)	0.132	0.132
14	1.17	2.20	0.264	(0.275)	0.132	0.132
15	1.25	2.20	0.264	(0.275)	0.132	0.132
16	1.33	2.00	0.240	(0.275)	0.120	0.120
17	1.42	2.60	0.312	(0.275)	0.156	0.156
18	1.50	2.70	0.324	(0.275)	0.162	0.162
19	1.58	2.40	0.288	(0.275)	0.144	0.144
20	1.67	2.70	0.324	(0.275)	0.162	0.162
21	1.75	3.30	0.396	(0.275)	0.198	0.198
22	1.83	3.10	0.372	(0.275)	0.186	0.186
23	1.92	2.90	0.348	(0.275)	0.174	0.174
24	2.00	3.00	0.360	(0.275)	0.180	0.180
25	2.08	3.10	0.372	(0.275)	0.186	0.186
26	2.17	4.20	0.504	(0.275)	0.252	0.252
27	2.25	5.00	0.600	0.275	(0.300)	0.325
28	2.33	3.50	0.420	(0.275)	0.210	0.210
29	2.42	6.80	0.816	0.275	(0.408)	0.541
30	2.50	7.30	0.876	0.275	(0.438)	0.601
31	2.58	8.20	0.984	0.275	(0.492)	0.709
32	2.67	5.90	0.708	0.275	(0.354)	0.433
33	2.75	2.00	0.240	(0.275)	0.120	0.120
34	2.83	1.80	0.216	(0.275)	0.108	0.108
35	2.92	1.80	0.216	(0.275)	0.108	0.108
36	3.00	0.60	0.072	(0.275)	0.036	0.036
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	6.6

```
   Flood volume = Effective rainfall      0.55(In)
    times area       6.2(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
   Total soil loss =      0.45(In)
   Total soil loss =     0.233(Ac.Ft)
   Total rainfall =      1.00(In)
   Flood volume =       12446.7 Cubic Feet
   Total soil loss =       10131.3 Cubic Feet
   ---------------------------------------------------------------------
    Peak flow rate of this hydrograph =      4.185(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        2.5       5.0       7.5      10.0
-------------------------------------------------------------------------
  0+ 5       0.0021      0.30  VQ        |         |         |         |
  0+10       0.0054      0.48  VQ        |         |         |         |
  0+15       0.0085      0.44  |Q        |         |         |         |
  0+20       0.0120      0.51  |VQ       |         |         |         |
  0+25       0.0159      0.56  | Q       |         |         |         |
  0+30       0.0202      0.63  | Q       |         |         |         |
  0+35       0.0244      0.61  | QV      |         |         |         |
  0+40       0.0288      0.64  | Q V     |         |         |         |
  0+45       0.0334      0.68  | Q V     |         |         |         |
  0+50       0.0376      0.61  | Q  V    |         |         |         |
  0+55       0.0417      0.59  | Q  V    |         |         |         |
  1+ 0       0.0461      0.65  | Q   V   |         |         |         |
  1+ 5       0.0514      0.77  |  Q   V  |         |         |         |
  1+10       0.0571      0.83  |  Q   V  |         |         |         |
  1+15       0.0628      0.83  |  Q    V |         |         |         |
  1+20       0.0682      0.78  |  Q     V|         |         |         |
```


1+25 0.0744 0.89
1+30 0.0813 1.00
1+35 0.0878 0.95
1+40 0.0945 0.97
1+45 0.1024 1.16
1+50 0.1106 1.19
1+55 0.1184 1.12
2+ 0 0.1260 1.12
2+ 5 0.1340 1.15
2+10 0.1438 1.42
2+15 0.1566 1.86
2+20 0.1675 1.58
2+25 0.1855 2.62
2+30 0.2103 3.60
2+35 0.2391 4.18
2+40 0.2623 3.36
2+45 0.2727 1.51
2+50 0.2777 0.73
2+55 0.2824 0.68
3+ 0 0.2851 0.40
3+ 5 0.2857 0.09
3+10 0.2857 0.00

```
                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 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22              1.40                 8.71
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22              3.50                21.77
STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.400(In)
Area Averaged 100-Year Rainfall =    3.500(In)
Point rain (area averaged) =    1.400(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.400(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  57.0      0.501     0.500        0.275       1.000      0.275
                                                 Sum (F) =   0.275
Area averaged mean soil loss (F) (In/Hr) =  0.275
Minimum soil loss rate ((In/Hr)) =  0.138
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------
               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        342.829         62.333              3.907
    2   0.167        685.658         36.487              2.287
    3   0.250       1028.487          1.180              0.074
                               Sum = 100.000   Sum=       6.269
------------------------------------------------------------------------
 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     0.50      0.084       (  0.275)       0.042        0.042
```

2	0.17	0.60	0.101	(0.275)	0.050	0.050
3	0.25	0.60	0.101	(0.275)	0.050	0.050
4	0.33	0.60	0.101	(0.275)	0.050	0.050
5	0.42	0.60	0.101	(0.275)	0.050	0.050
6	0.50	0.70	0.118	(0.275)	0.059	0.059
7	0.58	0.70	0.118	(0.275)	0.059	0.059
8	0.67	0.70	0.118	(0.275)	0.059	0.059
9	0.75	0.70	0.118	(0.275)	0.059	0.059
10	0.83	0.70	0.118	(0.275)	0.059	0.059
11	0.92	0.70	0.118	(0.275)	0.059	0.059
12	1.00	0.80	0.134	(0.275)	0.067	0.067
13	1.08	0.80	0.134	(0.275)	0.067	0.067
14	1.17	0.80	0.134	(0.275)	0.067	0.067
15	1.25	0.80	0.134	(0.275)	0.067	0.067
16	1.33	0.80	0.134	(0.275)	0.067	0.067
17	1.42	0.80	0.134	(0.275)	0.067	0.067
18	1.50	0.80	0.134	(0.275)	0.067	0.067
19	1.58	0.80	0.134	(0.275)	0.067	0.067
20	1.67	0.80	0.134	(0.275)	0.067	0.067
21	1.75	0.80	0.134	(0.275)	0.067	0.067
22	1.83	0.80	0.134	(0.275)	0.067	0.067
23	1.92	0.80	0.134	(0.275)	0.067	0.067
24	2.00	0.90	0.151	(0.275)	0.076	0.076
25	2.08	0.80	0.134	(0.275)	0.067	0.067
26	2.17	0.90	0.151	(0.275)	0.076	0.076
27	2.25	0.90	0.151	(0.275)	0.076	0.076
28	2.33	0.90	0.151	(0.275)	0.076	0.076
29	2.42	0.90	0.151	(0.275)	0.076	0.076
30	2.50	0.90	0.151	(0.275)	0.076	0.076
31	2.58	0.90	0.151	(0.275)	0.076	0.076
32	2.67	0.90	0.151	(0.275)	0.076	0.076
33	2.75	1.00	0.168	(0.275)	0.084	0.084
34	2.83	1.00	0.168	(0.275)	0.084	0.084
35	2.92	1.00	0.168	(0.275)	0.084	0.084
36	3.00	1.00	0.168	(0.275)	0.084	0.084
37	3.08	1.00	0.168	(0.275)	0.084	0.084
38	3.17	1.10	0.185	(0.275)	0.092	0.092
39	3.25	1.10	0.185	(0.275)	0.092	0.092
40	3.33	1.10	0.185	(0.275)	0.092	0.092
41	3.42	1.20	0.202	(0.275)	0.101	0.101
42	3.50	1.30	0.218	(0.275)	0.109	0.109
43	3.58	1.40	0.235	(0.275)	0.118	0.118
44	3.67	1.40	0.235	(0.275)	0.118	0.118
45	3.75	1.50	0.252	(0.275)	0.126	0.126
46	3.83	1.50	0.252	(0.275)	0.126	0.126
47	3.92	1.60	0.269	(0.275)	0.134	0.134
48	4.00	1.60	0.269	(0.275)	0.134	0.134
49	4.08	1.70	0.286	(0.275)	0.143	0.143
50	4.17	1.80	0.302	(0.275)	0.151	0.151
51	4.25	1.90	0.319	(0.275)	0.160	0.160
52	4.33	2.00	0.336	(0.275)	0.168	0.168
53	4.42	2.10	0.353	(0.275)	0.176	0.176
54	4.50	2.10	0.353	(0.275)	0.176	0.176
55	4.58	2.20	0.370	(0.275)	0.185	0.185
56	4.67	2.30	0.386	(0.275)	0.193	0.193
57	4.75	2.40	0.403	(0.275)	0.202	0.202
58	4.83	2.40	0.403	(0.275)	0.202	0.202
59	4.92	2.50	0.420	(0.275)	0.210	0.210
60	5.00	2.60	0.437	(0.275)	0.218	0.218
61	5.08	3.10	0.521	(0.275)	0.260	0.260
62	5.17	3.60	0.605	0.275	(0.302)	0.329
63	5.25	3.90	0.655	0.275	(0.328)	0.380
64	5.33	4.20	0.706	0.275	(0.353)	0.430
65	5.42	4.70	0.790	0.275	(0.395)	0.514
66	5.50	5.60	0.941	0.275	(0.470)	0.665
67	5.58	1.90	0.319	(0.275)	0.160	0.160
68	5.67	0.90	0.151	(0.275)	0.076	0.076
69	5.75	0.60	0.101	(0.275)	0.050	0.050
70	5.83	0.50	0.084	(0.275)	0.042	0.042
71	5.92	0.30	0.050	(0.275)	0.025	0.025
72	6.00	0.20	0.034	(0.275)	0.017	0.017

(Loss Rate Not Used)

Sum = 100.0 Sum = 8.9

Flood volume = Effective rainfall 0.74(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 0.66(In)
Total soil loss = 0.342(Ac.Ft)
Total rainfall = 1.40(In)
Flood volume = 16691.5 Cubic Feet
Total soil loss = 14917.9 Cubic Feet

Peak flow rate of this hydrograph = 3.810(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	2.5	5.0	7.5	10.0
0+ 5	0.0011	0.16	Q				
0+10	0.0031	0.29	VQ				
0+15	0.0053	0.32	VQ				
0+20	0.0075	0.32	VQ				
0+25	0.0097	0.32	|Q				
0+30	0.0121	0.35	|Q				
0+35	0.0146	0.37	|Q				
0+40	0.0172	0.37	|Q				
0+45	0.0197	0.37	|QV				
0+50	0.0222	0.37	|QV				
0+55	0.0248	0.37	|QV				
1+ 0	0.0275	0.40	|QV				
1+ 5	0.0304	0.42	|Q V				
1+10	0.0333	0.42	|Q V				
1+15	0.0362	0.42	|Q V				
1+20	0.0391	0.42	|Q V				
1+25	0.0420	0.42	|Q V				
1+30	0.0450	0.42	|Q V				
1+35	0.0479	0.42	|Q V				
1+40	0.0508	0.42	|Q V				
1+45	0.0537	0.42	|Q V				
1+50	0.0566	0.42	|Q V				
1+55	0.0595	0.42	|Q V				
2+ 0	0.0626	0.45	|Q V				
2+ 5	0.0656	0.44	|Q V				
2+10	0.0688	0.45	|Q V				
2+15	0.0720	0.47	|Q V				
2+20	0.0753	0.47	|Q V				
2+25	0.0786	0.47	|Q V				
2+30	0.0818	0.47	|Q V				
2+35	0.0851	0.47	|Q V				
2+40	0.0883	0.47	|Q V				
2+45	0.0918	0.51	| Q V				
2+50	0.0955	0.53	| Q V				
2+55	0.0991	0.53	| Q V				
3+ 0	0.1027	0.53	| Q V				
3+ 5	0.1063	0.53	| Q V				
3+10	0.1102	0.56	| Q V				
3+15	0.1142	0.58	| Q V				
3+20	0.1182	0.58	| Q V				
3+25	0.1224	0.61	| Q V				
3+30	0.1270	0.66	| Q V				
3+35	0.1319	0.72	| Q V				
3+40	0.1370	0.74	| Q V				
3+45	0.1423	0.77	| Q V				
3+50	0.1477	0.79	| Q V				
3+55	0.1534	0.82	| Q V				
4+ 0	0.1592	0.84	| Q V				
4+ 5	0.1652	0.88	| Q V				
4+10	0.1716	0.93	| Q V				
4+15	0.1784	0.98	| Q V				
4+20	0.1855	1.03	| Q V				
4+25	0.1930	1.09	| Q V				
4+30	0.2006	1.11	| Q V				
4+35	0.2084	1.14	| Q V				
4+40	0.2166	1.19	| Q V				
4+45	0.2252	1.24	| Q V				
4+50	0.2339	1.26	| Q V				
4+55	0.2428	1.30	| Q V				
5+ 0	0.2521	1.35	| Q V				
5+ 5	0.2627	1.53	| Q V				
5+10	0.2758	1.90	| Q V				
5+15	0.2913	2.26	| Q V				
5+20	0.3091	2.58	| Q V				
5+25	0.3299	3.02	| Q V				
5+30	0.3561	3.81	| Q V				
5+35	0.3712	2.18	| Q V				
5+40	0.3761	0.71	| Q V				
5+45	0.3787	0.38	|Q V				
5+50	0.3807	0.29	|Q V				
5+55	0.3820	0.20	Q V				
6+ 0	0.3829	0.13	Q V				
6+ 5	0.3832	0.04	Q V				
6+10	0.3832	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  04/30/19 File: pro2242.out

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


Program License Serial Number 5006

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

 English Units used in output format



--------------------------------------------------------------------------
--------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22           2.50                 15.55
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22           7.00                 43.54
STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    2.500(In)
Area Averaged 100-Year Rainfall =    7.000(In)
Point rain (area averaged) =    2.500(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.500(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
      6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  57.0      0.501     0.500        0.275       1.000      0.275
                                                 Sum (F) =    0.275
Area averaged mean soil loss (F) (In/Hr) =  0.275
Minimum soil loss rate ((In/Hr)) =  0.138
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
--------------------------------------------------------------------------
                U n i t  H y d r o g r a p h
                       FOOTHILL S-Curve
--------------------------------------------------------------------------
                Unit Hydrograph Data
--------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------------
    1   0.083        342.829         62.333              3.907
    2   0.167        685.658         36.487              2.287
    3   0.250       1028.487          1.180              0.074
                                Sum = 100.000    Sum=       6.269
--------------------------------------------------------------------------
 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     0.07      0.020       (  0.488)       0.010         0.010
  2   0.17     0.07      0.020       (  0.486)       0.010         0.010
```

3	0.25	0.07	0.020	(0.484)	0.010	0.010
4	0.33	0.10	0.030	(0.482)	0.015	0.015
5	0.42	0.10	0.030	(0.481)	0.015	0.015
6	0.50	0.10	0.030	(0.479)	0.015	0.015
7	0.58	0.10	0.030	(0.477)	0.015	0.015
8	0.67	0.10	0.030	(0.475)	0.015	0.015
9	0.75	0.10	0.030	(0.473)	0.015	0.015
10	0.83	0.13	0.040	(0.471)	0.020	0.020
11	0.92	0.13	0.040	(0.469)	0.020	0.020
12	1.00	0.13	0.040	(0.468)	0.020	0.020
13	1.08	0.10	0.030	(0.466)	0.015	0.015
14	1.17	0.10	0.030	(0.464)	0.015	0.015
15	1.25	0.10	0.030	(0.462)	0.015	0.015
16	1.33	0.10	0.030	(0.460)	0.015	0.015
17	1.42	0.10	0.030	(0.458)	0.015	0.015
18	1.50	0.10	0.030	(0.456)	0.015	0.015
19	1.58	0.10	0.030	(0.455)	0.015	0.015
20	1.67	0.10	0.030	(0.453)	0.015	0.015
21	1.75	0.10	0.030	(0.451)	0.015	0.015
22	1.83	0.13	0.040	(0.449)	0.020	0.020
23	1.92	0.13	0.040	(0.447)	0.020	0.020
24	2.00	0.13	0.040	(0.446)	0.020	0.020
25	2.08	0.13	0.040	(0.444)	0.020	0.020
26	2.17	0.13	0.040	(0.442)	0.020	0.020
27	2.25	0.13	0.040	(0.440)	0.020	0.020
28	2.33	0.13	0.040	(0.438)	0.020	0.020
29	2.42	0.13	0.040	(0.437)	0.020	0.020
30	2.50	0.13	0.040	(0.435)	0.020	0.020
31	2.58	0.17	0.050	(0.433)	0.025	0.025
32	2.67	0.17	0.050	(0.431)	0.025	0.025
33	2.75	0.17	0.050	(0.430)	0.025	0.025
34	2.83	0.17	0.050	(0.428)	0.025	0.025
35	2.92	0.17	0.050	(0.426)	0.025	0.025
36	3.00	0.17	0.050	(0.424)	0.025	0.025
37	3.08	0.17	0.050	(0.422)	0.025	0.025
38	3.17	0.17	0.050	(0.421)	0.025	0.025
39	3.25	0.17	0.050	(0.419)	0.025	0.025
40	3.33	0.17	0.050	(0.417)	0.025	0.025
41	3.42	0.17	0.050	(0.415)	0.025	0.025
42	3.50	0.17	0.050	(0.414)	0.025	0.025
43	3.58	0.17	0.050	(0.412)	0.025	0.025
44	3.67	0.17	0.050	(0.410)	0.025	0.025
45	3.75	0.17	0.050	(0.409)	0.025	0.025
46	3.83	0.20	0.060	(0.407)	0.030	0.030
47	3.92	0.20	0.060	(0.405)	0.030	0.030
48	4.00	0.20	0.060	(0.403)	0.030	0.030
49	4.08	0.20	0.060	(0.402)	0.030	0.030
50	4.17	0.20	0.060	(0.400)	0.030	0.030
51	4.25	0.20	0.060	(0.398)	0.030	0.030
52	4.33	0.23	0.070	(0.397)	0.035	0.035
53	4.42	0.23	0.070	(0.395)	0.035	0.035
54	4.50	0.23	0.070	(0.393)	0.035	0.035
55	4.58	0.23	0.070	(0.391)	0.035	0.035
56	4.67	0.23	0.070	(0.390)	0.035	0.035
57	4.75	0.23	0.070	(0.388)	0.035	0.035
58	4.83	0.27	0.080	(0.386)	0.040	0.040
59	4.92	0.27	0.080	(0.385)	0.040	0.040
60	5.00	0.27	0.080	(0.383)	0.040	0.040
61	5.08	0.20	0.060	(0.381)	0.030	0.030
62	5.17	0.20	0.060	(0.380)	0.030	0.030
63	5.25	0.20	0.060	(0.378)	0.030	0.030
64	5.33	0.23	0.070	(0.376)	0.035	0.035
65	5.42	0.23	0.070	(0.375)	0.035	0.035
66	5.50	0.23	0.070	(0.373)	0.035	0.035
67	5.58	0.27	0.080	(0.372)	0.040	0.040
68	5.67	0.27	0.080	(0.370)	0.040	0.040
69	5.75	0.27	0.080	(0.368)	0.040	0.040
70	5.83	0.27	0.080	(0.367)	0.040	0.040
71	5.92	0.27	0.080	(0.365)	0.040	0.040
72	6.00	0.27	0.080	(0.363)	0.040	0.040
73	6.08	0.30	0.090	(0.362)	0.045	0.045
74	6.17	0.30	0.090	(0.360)	0.045	0.045
75	6.25	0.30	0.090	(0.359)	0.045	0.045
76	6.33	0.30	0.090	(0.357)	0.045	0.045
77	6.42	0.30	0.090	(0.355)	0.045	0.045
78	6.50	0.30	0.090	(0.354)	0.045	0.045
79	6.58	0.33	0.100	(0.352)	0.050	0.050
80	6.67	0.33	0.100	(0.351)	0.050	0.050
81	6.75	0.33	0.100	(0.349)	0.050	0.050
82	6.83	0.33	0.100	(0.347)	0.050	0.050
83	6.92	0.33	0.100	(0.346)	0.050	0.050
84	7.00	0.33	0.100	(0.344)	0.050	0.050
85	7.08	0.33	0.100	(0.343)	0.050	0.050
86	7.17	0.33	0.100	(0.341)	0.050	0.050
87	7.25	0.33	0.100	(0.340)	0.050	0.050
88	7.33	0.37	0.110	(0.338)	0.055	0.055

89	7.42	0.37	0.110	(0.337)	0.055	0.055
90	7.50	0.37	0.110	(0.335)	0.055	0.055
91	7.58	0.40	0.120	(0.333)	0.060	0.060
92	7.67	0.40	0.120	(0.332)	0.060	0.060
93	7.75	0.40	0.120	(0.330)	0.060	0.060
94	7.83	0.43	0.130	(0.329)	0.065	0.065
95	7.92	0.43	0.130	(0.327)	0.065	0.065
96	8.00	0.43	0.130	(0.326)	0.065	0.065
97	8.08	0.50	0.150	(0.324)	0.075	0.075
98	8.17	0.50	0.150	(0.323)	0.075	0.075
99	8.25	0.50	0.150	(0.321)	0.075	0.075
100	8.33	0.50	0.150	(0.320)	0.075	0.075
101	8.42	0.50	0.150	(0.318)	0.075	0.075
102	8.50	0.50	0.150	(0.317)	0.075	0.075
103	8.58	0.53	0.160	(0.315)	0.080	0.080
104	8.67	0.53	0.160	(0.314)	0.080	0.080
105	8.75	0.53	0.160	(0.312)	0.080	0.080
106	8.83	0.57	0.170	(0.311)	0.085	0.085
107	8.92	0.57	0.170	(0.309)	0.085	0.085
108	9.00	0.57	0.170	(0.308)	0.085	0.085
109	9.08	0.63	0.190	(0.307)	0.095	0.095
110	9.17	0.63	0.190	(0.305)	0.095	0.095
111	9.25	0.63	0.190	(0.304)	0.095	0.095
112	9.33	0.67	0.200	(0.302)	0.100	0.100
113	9.42	0.67	0.200	(0.301)	0.100	0.100
114	9.50	0.67	0.200	(0.299)	0.100	0.100
115	9.58	0.70	0.210	(0.298)	0.105	0.105
116	9.67	0.70	0.210	(0.296)	0.105	0.105
117	9.75	0.70	0.210	(0.295)	0.105	0.105
118	9.83	0.73	0.220	(0.294)	0.110	0.110
119	9.92	0.73	0.220	(0.292)	0.110	0.110
120	10.00	0.73	0.220	(0.291)	0.110	0.110
121	10.08	0.50	0.150	(0.289)	0.075	0.075
122	10.17	0.50	0.150	(0.288)	0.075	0.075
123	10.25	0.50	0.150	(0.287)	0.075	0.075
124	10.33	0.50	0.150	(0.285)	0.075	0.075
125	10.42	0.50	0.150	(0.284)	0.075	0.075
126	10.50	0.50	0.150	(0.282)	0.075	0.075
127	10.58	0.67	0.200	(0.281)	0.100	0.100
128	10.67	0.67	0.200	(0.280)	0.100	0.100
129	10.75	0.67	0.200	(0.278)	0.100	0.100
130	10.83	0.67	0.200	(0.277)	0.100	0.100
131	10.92	0.67	0.200	(0.276)	0.100	0.100
132	11.00	0.67	0.200	(0.274)	0.100	0.100
133	11.08	0.63	0.190	(0.273)	0.095	0.095
134	11.17	0.63	0.190	(0.271)	0.095	0.095
135	11.25	0.63	0.190	(0.270)	0.095	0.095
136	11.33	0.63	0.190	(0.269)	0.095	0.095
137	11.42	0.63	0.190	(0.267)	0.095	0.095
138	11.50	0.63	0.190	(0.266)	0.095	0.095
139	11.58	0.57	0.170	(0.265)	0.085	0.085
140	11.67	0.57	0.170	(0.264)	0.085	0.085
141	11.75	0.57	0.170	(0.262)	0.085	0.085
142	11.83	0.60	0.180	(0.261)	0.090	0.090
143	11.92	0.60	0.180	(0.260)	0.090	0.090
144	12.00	0.60	0.180	(0.258)	0.090	0.090
145	12.08	0.83	0.250	(0.257)	0.125	0.125
146	12.17	0.83	0.250	(0.256)	0.125	0.125
147	12.25	0.83	0.250	(0.254)	0.125	0.125
148	12.33	0.87	0.260	(0.253)	0.130	0.130
149	12.42	0.87	0.260	(0.252)	0.130	0.130
150	12.50	0.87	0.260	(0.251)	0.130	0.130
151	12.58	0.93	0.280	(0.249)	0.140	0.140
152	12.67	0.93	0.280	(0.248)	0.140	0.140
153	12.75	0.93	0.280	(0.247)	0.140	0.140
154	12.83	0.97	0.290	(0.246)	0.145	0.145
155	12.92	0.97	0.290	(0.244)	0.145	0.145
156	13.00	0.97	0.290	(0.243)	0.145	0.145
157	13.08	1.13	0.340	(0.242)	0.170	0.170
158	13.17	1.13	0.340	(0.241)	0.170	0.170
159	13.25	1.13	0.340	(0.239)	0.170	0.170
160	13.33	1.13	0.340	(0.238)	0.170	0.170
161	13.42	1.13	0.340	(0.237)	0.170	0.170
162	13.50	1.13	0.340	(0.236)	0.170	0.170
163	13.58	0.77	0.230	(0.235)	0.115	0.115
164	13.67	0.77	0.230	(0.233)	0.115	0.115
165	13.75	0.77	0.230	(0.232)	0.115	0.115
166	13.83	0.77	0.230	(0.231)	0.115	0.115
167	13.92	0.77	0.230	(0.230)	0.115	0.115
168	14.00	0.77	0.230	(0.229)	0.115	0.115
169	14.08	0.90	0.270	(0.228)	0.135	0.135
170	14.17	0.90	0.270	(0.226)	0.135	0.135
171	14.25	0.90	0.270	(0.225)	0.135	0.135
172	14.33	0.87	0.260	(0.224)	0.130	0.130
173	14.42	0.87	0.260	(0.223)	0.130	0.130
174	14.50	0.87	0.260	(0.222)	0.130	0.130

175	14.58	0.87	0.260	(0.221)	0.130	0.130
176	14.67	0.87	0.260	(0.220)	0.130	0.130
177	14.75	0.87	0.260	(0.218)	0.130	0.130
178	14.83	0.83	0.250	(0.217)	0.125	0.125
179	14.92	0.83	0.250	(0.216)	0.125	0.125
180	15.00	0.83	0.250	(0.215)	0.125	0.125
181	15.08	0.80	0.240	(0.214)	0.120	0.120
182	15.17	0.80	0.240	(0.213)	0.120	0.120
183	15.25	0.80	0.240	(0.212)	0.120	0.120
184	15.33	0.77	0.230	(0.211)	0.115	0.115
185	15.42	0.77	0.230	(0.210)	0.115	0.115
186	15.50	0.77	0.230	(0.209)	0.115	0.115
187	15.58	0.63	0.190	(0.207)	0.095	0.095
188	15.67	0.63	0.190	(0.206)	0.095	0.095
189	15.75	0.63	0.190	(0.205)	0.095	0.095
190	15.83	0.63	0.190	(0.204)	0.095	0.095
191	15.92	0.63	0.190	(0.203)	0.095	0.095
192	16.00	0.63	0.190	(0.202)	0.095	0.095
193	16.08	0.13	0.040	(0.201)	0.020	0.020
194	16.17	0.13	0.040	(0.200)	0.020	0.020
195	16.25	0.13	0.040	(0.199)	0.020	0.020
196	16.33	0.13	0.040	(0.198)	0.020	0.020
197	16.42	0.13	0.040	(0.197)	0.020	0.020
198	16.50	0.13	0.040	(0.196)	0.020	0.020
199	16.58	0.10	0.030	(0.195)	0.015	0.015
200	16.67	0.10	0.030	(0.194)	0.015	0.015
201	16.75	0.10	0.030	(0.193)	0.015	0.015
202	16.83	0.10	0.030	(0.192)	0.015	0.015
203	16.92	0.10	0.030	(0.191)	0.015	0.015
204	17.00	0.10	0.030	(0.190)	0.015	0.015
205	17.08	0.17	0.050	(0.189)	0.025	0.025
206	17.17	0.17	0.050	(0.188)	0.025	0.025
207	17.25	0.17	0.050	(0.187)	0.025	0.025
208	17.33	0.17	0.050	(0.186)	0.025	0.025
209	17.42	0.17	0.050	(0.185)	0.025	0.025
210	17.50	0.17	0.050	(0.185)	0.025	0.025
211	17.58	0.17	0.050	(0.184)	0.025	0.025
212	17.67	0.17	0.050	(0.183)	0.025	0.025
213	17.75	0.17	0.050	(0.182)	0.025	0.025
214	17.83	0.13	0.040	(0.181)	0.020	0.020
215	17.92	0.13	0.040	(0.180)	0.020	0.020
216	18.00	0.13	0.040	(0.179)	0.020	0.020
217	18.08	0.13	0.040	(0.178)	0.020	0.020
218	18.17	0.13	0.040	(0.177)	0.020	0.020
219	18.25	0.13	0.040	(0.176)	0.020	0.020
220	18.33	0.13	0.040	(0.176)	0.020	0.020
221	18.42	0.13	0.040	(0.175)	0.020	0.020
222	18.50	0.13	0.040	(0.174)	0.020	0.020
223	18.58	0.10	0.030	(0.173)	0.015	0.015
224	18.67	0.10	0.030	(0.172)	0.015	0.015
225	18.75	0.10	0.030	(0.171)	0.015	0.015
226	18.83	0.07	0.020	(0.171)	0.010	0.010
227	18.92	0.07	0.020	(0.170)	0.010	0.010
228	19.00	0.07	0.020	(0.169)	0.010	0.010
229	19.08	0.10	0.030	(0.168)	0.015	0.015
230	19.17	0.10	0.030	(0.167)	0.015	0.015
231	19.25	0.10	0.030	(0.167)	0.015	0.015
232	19.33	0.13	0.040	(0.166)	0.020	0.020
233	19.42	0.13	0.040	(0.165)	0.020	0.020
234	19.50	0.13	0.040	(0.164)	0.020	0.020
235	19.58	0.10	0.030	(0.164)	0.015	0.015
236	19.67	0.10	0.030	(0.163)	0.015	0.015
237	19.75	0.10	0.030	(0.162)	0.015	0.015
238	19.83	0.07	0.020	(0.161)	0.010	0.010
239	19.92	0.07	0.020	(0.161)	0.010	0.010
240	20.00	0.07	0.020	(0.160)	0.010	0.010
241	20.08	0.10	0.030	(0.159)	0.015	0.015
242	20.17	0.10	0.030	(0.158)	0.015	0.015
243	20.25	0.10	0.030	(0.158)	0.015	0.015
244	20.33	0.10	0.030	(0.157)	0.015	0.015
245	20.42	0.10	0.030	(0.156)	0.015	0.015
246	20.50	0.10	0.030	(0.156)	0.015	0.015
247	20.58	0.10	0.030	(0.155)	0.015	0.015
248	20.67	0.10	0.030	(0.154)	0.015	0.015
249	20.75	0.10	0.030	(0.154)	0.015	0.015
250	20.83	0.07	0.020	(0.153)	0.010	0.010
251	20.92	0.07	0.020	(0.153)	0.010	0.010
252	21.00	0.07	0.020	(0.152)	0.010	0.010
253	21.08	0.10	0.030	(0.151)	0.015	0.015
254	21.17	0.10	0.030	(0.151)	0.015	0.015
255	21.25	0.10	0.030	(0.150)	0.015	0.015
256	21.33	0.07	0.020	(0.150)	0.010	0.010
257	21.42	0.07	0.020	(0.149)	0.010	0.010
258	21.50	0.07	0.020	(0.148)	0.010	0.010
259	21.58	0.10	0.030	(0.148)	0.015	0.015
260	21.67	0.10	0.030	(0.147)	0.015	0.015

261	21.75	0.10	0.030	(0.147)	0.015	0.015
262	21.83	0.07	0.020	(0.146)	0.010	0.010
263	21.92	0.07	0.020	(0.146)	0.010	0.010
264	22.00	0.07	0.020	(0.145)	0.010	0.010
265	22.08	0.10	0.030	(0.145)	0.015	0.015
266	22.17	0.10	0.030	(0.144)	0.015	0.015
267	22.25	0.10	0.030	(0.144)	0.015	0.015
268	22.33	0.07	0.020	(0.144)	0.010	0.010
269	22.42	0.07	0.020	(0.143)	0.010	0.010
270	22.50	0.07	0.020	(0.143)	0.010	0.010
271	22.58	0.07	0.020	(0.142)	0.010	0.010
272	22.67	0.07	0.020	(0.142)	0.010	0.010
273	22.75	0.07	0.020	(0.141)	0.010	0.010
274	22.83	0.07	0.020	(0.141)	0.010	0.010
275	22.92	0.07	0.020	(0.141)	0.010	0.010
276	23.00	0.07	0.020	(0.140)	0.010	0.010
277	23.08	0.07	0.020	(0.140)	0.010	0.010
278	23.17	0.07	0.020	(0.140)	0.010	0.010
279	23.25	0.07	0.020	(0.139)	0.010	0.010
280	23.33	0.07	0.020	(0.139)	0.010	0.010
281	23.42	0.07	0.020	(0.139)	0.010	0.010
282	23.50	0.07	0.020	(0.139)	0.010	0.010
283	23.58	0.07	0.020	(0.138)	0.010	0.010
284	23.67	0.07	0.020	(0.138)	0.010	0.010
285	23.75	0.07	0.020	(0.138)	0.010	0.010
286	23.83	0.07	0.020	(0.138)	0.010	0.010
287	23.92	0.07	0.020	(0.138)	0.010	0.010
288	24.00	0.07	0.020	(0.138)	0.010	0.010

(Loss Rate Not Used)

Sum = 100.0 Sum = 15.0

Flood volume = Effective rainfall 1.25(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
Total soil loss = 1.25(In)
Total soil loss = 0.648(Ac.Ft)
Total rainfall = 2.50(In)
Flood volume = 28222.9 Cubic Feet
Total soil loss = 28222.9 Cubic Feet

Peak flow rate of this hydrograph = 1.066(CFS)

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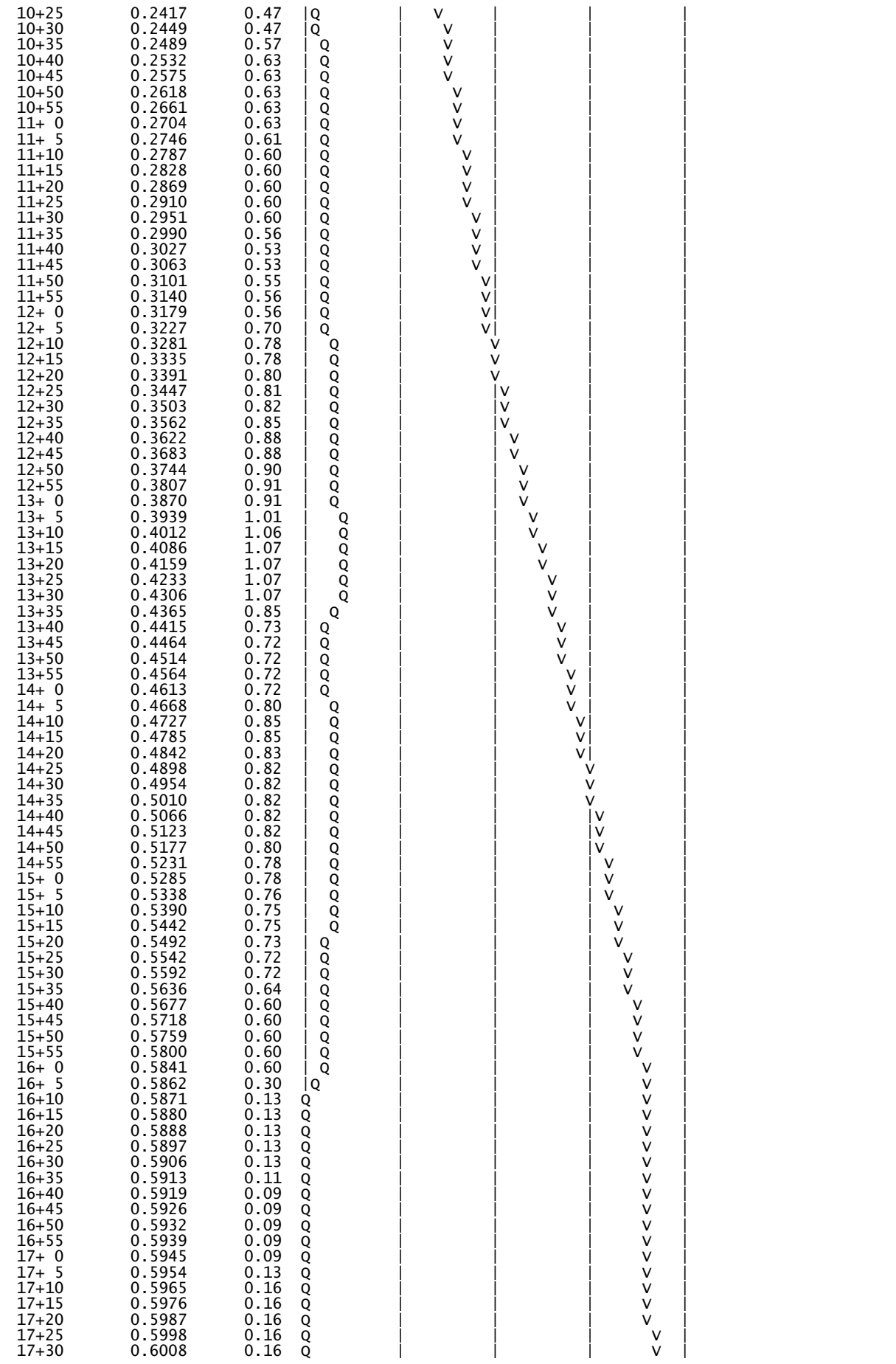
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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	0.0003	0.04	Q				
0+10	0.0007	0.06	Q				
0+15	0.0011	0.06	Q				
0+20	0.0017	0.08	Q				
0+25	0.0023	0.09	Q				
0+30	0.0030	0.09	Q				
0+35	0.0036	0.09	Q				
0+40	0.0043	0.09	Q				
0+45	0.0049	0.09	Q				
0+50	0.0057	0.11	Q				
0+55	0.0066	0.13	Q				
1+ 0	0.0074	0.13	Q				
1+ 5	0.0082	0.11	Q				
1+10	0.0088	0.09	Q				
1+15	0.0095	0.09	Q				
1+20	0.0101	0.09	Q				
1+25	0.0108	0.09	Q				
1+30	0.0114	0.09	Q				
1+35	0.0121	0.09	Q				
1+40	0.0127	0.09	Q				
1+45	0.0134	0.09	Q				
1+50	0.0141	0.11	Q				
1+55	0.0150	0.13	Q				
2+ 0	0.0159	0.13	Q				
2+ 5	0.0167	0.13	QV				
2+10	0.0176	0.13	QV				
2+15	0.0185	0.13	QV				
2+20	0.0193	0.13	QV				
2+25	0.0202	0.13	QV				
2+30	0.0210	0.13	QV				
2+35	0.0220	0.14	QV				
2+40	0.0231	0.16	QV				
2+45	0.0242	0.16	QV				
2+50	0.0253	0.16	QV				
2+55	0.0264	0.16	QV				
3+ 0	0.0274	0.16	QV				
3+ 5	0.0285	0.16	QV				
3+10	0.0296	0.16	QV				

3+15	0.0307	0.16	QV	|	|	|	|
3+20	0.0318	0.16	QV	|	|	|	|
3+25	0.0328	0.16	Q V	|	|	|	|
3+30	0.0339	0.16	Q V	|	|	|	|
3+35	0.0350	0.16	Q V	|	|	|	|
3+40	0.0361	0.16	Q V	|	|	|	|
3+45	0.0372	0.16	Q V	|	|	|	|
3+50	0.0384	0.18	Q V	|	|	|	|
3+55	0.0397	0.19	Q V	|	|	|	|
4+ 0	0.0410	0.19	Q V	|	|	|	|
4+ 5	0.0423	0.19	Q V	|	|	|	|
4+10	0.0436	0.19	Q V	|	|	|	|
4+15	0.0449	0.19	Q V	|	|	|	|
4+20	0.0463	0.21	Q V	|	|	|	|
4+25	0.0478	0.22	Q V	|	|	|	|
4+30	0.0493	0.22	Q V	|	|	|	|
4+35	0.0508	0.22	Q V	|	|	|	|
4+40	0.0523	0.22	Q V	|	|	|	|
4+45	0.0538	0.22	Q V	|	|	|	|
4+50	0.0555	0.24	Q V	|	|	|	|
4+55	0.0572	0.25	|Q V	|	|	|	|
5+ 0	0.0589	0.25	|Q V	|	|	|	|
5+ 5	0.0604	0.21	Q V	|	|	|	|
5+10	0.0617	0.19	Q V	|	|	|	|
5+15	0.0630	0.19	Q V	|	|	|	|
5+20	0.0644	0.21	Q V	|	|	|	|
5+25	0.0659	0.22	Q V	|	|	|	|
5+30	0.0674	0.22	Q V	|	|	|	|
5+35	0.0691	0.24	Q V	|	|	|	|
5+40	0.0708	0.25	|Q V	|	|	|	|
5+45	0.0725	0.25	|Q V	|	|	|	|
5+50	0.0743	0.25	|Q V	|	|	|	|
5+55	0.0760	0.25	|Q V	|	|	|	|
6+ 0	0.0777	0.25	|Q V	|	|	|	|
6+ 5	0.0796	0.27	|Q V	|	|	|	|
6+10	0.0815	0.28	|Q V	|	|	|	|
6+15	0.0835	0.28	|Q V	|	|	|	|
6+20	0.0854	0.28	|Q V	|	|	|	|
6+25	0.0874	0.28	|Q V	|	|	|	|
6+30	0.0893	0.28	|Q V	|	|	|	|
6+35	0.0914	0.30	|Q V	|	|	|	|
6+40	0.0935	0.31	|Q V	|	|	|	|
6+45	0.0957	0.31	|Q V	|	|	|	|
6+50	0.0979	0.31	|Q V	|	|	|	|
6+55	0.1000	0.31	|Q V	|	|	|	|
7+ 0	0.1022	0.31	|Q V	|	|	|	|
7+ 5	0.1043	0.31	|Q V	|	|	|	|
7+10	0.1065	0.31	|Q V	|	|	|	|
7+15	0.1087	0.31	|Q V	|	|	|	|
7+20	0.1110	0.33	|Q V	|	|	|	|
7+25	0.1133	0.34	|Q V	|	|	|	|
7+30	0.1157	0.34	|Q V	|	|	|	|
7+35	0.1182	0.36	|Q V	|	|	|	|
7+40	0.1208	0.38	|Q V	|	|	|	|
7+45	0.1234	0.38	|Q V	|	|	|	|
7+50	0.1261	0.40	|Q V	|	|	|	|
7+55	0.1289	0.41	|Q V	|	|	|	|
8+ 0	0.1317	0.41	|Q V	|	|	|	|
8+ 5	0.1348	0.45	|Q V	|	|	|	|
8+10	0.1380	0.47	|Q V	|	|	|	|
8+15	0.1413	0.47	|Q V	|	|	|	|
8+20	0.1445	0.47	|Q V	|	|	|	|
8+25	0.1478	0.47	|Q V|	|	|	|	|
8+30	0.1510	0.47	|Q V|	|	|	|	|
8+35	0.1544	0.49	|Q V|	|	|	|	|
8+40	0.1578	0.50	| Q V|	|	|	|	|
8+45	0.1613	0.50	| Q V|	|	|	|	|
8+50	0.1649	0.52	| Q V	|	|	|	|
8+55	0.1685	0.53	| Q V	|	|	|	|
9+ 0	0.1722	0.53	| Q V	|	|	|	|
9+ 5	0.1762	0.57	| Q V	|	|	|	|
9+10	0.1803	0.60	| Q |V	|	|	|	|
9+15	0.1844	0.60	| Q |V	|	|	|	|
9+20	0.1886	0.62	| Q |V	|	|	|	|
9+25	0.1929	0.63	| Q |V	|	|	|	|
9+30	0.1972	0.63	| Q | V	|	|	|	|
9+35	0.2017	0.65	| Q | V	|	|	|	|
9+40	0.2062	0.66	| Q | V	|	|	|	|
9+45	0.2108	0.66	| Q | V	|	|	|	|
9+50	0.2154	0.68	| Q | V	|	|	|	|
9+55	0.2202	0.69	| Q | V	|	|	|	|
10+ 0	0.2249	0.69	| Q | V	|	|	|	|
10+ 5	0.2287	0.55	| Q | V	|	|	|	|
10+10	0.2320	0.47	|Q | V	|	|	|	|
10+15	0.2352	0.47	|Q | V	|	|	|	|
10+20	0.2385	0.47	|Q | V	|	|	|	|



10+25	0.2417	0.47	
10+30	0.2449	0.47	
10+35	0.2489	0.57	
10+40	0.2532	0.63	
10+45	0.2575	0.63	
10+50	0.2618	0.63	
10+55	0.2661	0.63	
11+ 0	0.2704	0.63	
11+ 5	0.2746	0.61	
11+10	0.2787	0.60	
11+15	0.2828	0.60	
11+20	0.2869	0.60	
11+25	0.2910	0.60	
11+30	0.2951	0.60	
11+35	0.2990	0.56	
11+40	0.3027	0.53	
11+45	0.3063	0.53	
11+50	0.3101	0.55	
11+55	0.3140	0.56	
12+ 0	0.3179	0.56	
12+ 5	0.3227	0.70	
12+10	0.3281	0.78	
12+15	0.3335	0.78	
12+20	0.3391	0.80	
12+25	0.3447	0.81	
12+30	0.3503	0.82	
12+35	0.3562	0.85	
12+40	0.3622	0.88	
12+45	0.3683	0.88	
12+50	0.3744	0.90	
12+55	0.3807	0.91	
13+ 0	0.3870	0.91	
13+ 5	0.3939	1.01	
13+10	0.4012	1.06	
13+15	0.4086	1.07	
13+20	0.4159	1.07	
13+25	0.4233	1.07	
13+30	0.4306	1.07	
13+35	0.4365	0.85	
13+40	0.4415	0.73	
13+45	0.4464	0.72	
13+50	0.4514	0.72	
13+55	0.4564	0.72	
14+ 0	0.4613	0.72	
14+ 5	0.4668	0.80	
14+10	0.4727	0.85	
14+15	0.4785	0.85	
14+20	0.4842	0.83	
14+25	0.4898	0.82	
14+30	0.4954	0.82	
14+35	0.5010	0.82	
14+40	0.5066	0.82	
14+45	0.5123	0.82	
14+50	0.5177	0.80	
14+55	0.5231	0.78	
15+ 0	0.5285	0.78	
15+ 5	0.5338	0.76	
15+10	0.5390	0.75	
15+15	0.5442	0.75	
15+20	0.5492	0.73	
15+25	0.5542	0.72	
15+30	0.5592	0.72	
15+35	0.5636	0.64	
15+40	0.5677	0.60	
15+45	0.5718	0.60	
15+50	0.5759	0.60	
15+55	0.5800	0.60	
16+ 0	0.5841	0.60	
16+ 5	0.5862	0.30	
16+10	0.5871	0.13	
16+15	0.5880	0.13	
16+20	0.5888	0.13	
16+25	0.5897	0.13	
16+30	0.5906	0.13	
16+35	0.5913	0.11	
16+40	0.5919	0.09	
16+45	0.5926	0.09	
16+50	0.5932	0.09	
16+55	0.5939	0.09	
17+ 0	0.5945	0.09	
17+ 5	0.5954	0.13	
17+10	0.5965	0.16	
17+15	0.5976	0.16	
17+20	0.5987	0.16	
17+25	0.5998	0.16	
17+30	0.6008	0.16	

```
  17+35       0.6019      0.16  Q          |          |          |       V  |
  17+40       0.6030      0.16  Q          |          |          |       V  |
  17+45       0.6041      0.16  Q          |          |          |       V  |
  17+50       0.6050      0.14  Q          |          |          |       V  |
  17+55       0.6059      0.13  Q          |          |          |       V  |
  18+ 0       0.6068      0.13  Q          |          |          |       V  |
  18+ 5       0.6076      0.13  Q          |          |          |       V  |
  18+10       0.6085      0.13  Q          |          |          |       V  |
  18+15       0.6093      0.13  Q          |          |          |       V  |
  18+20       0.6102      0.13  Q          |          |          |       V  |
  18+25       0.6111      0.13  Q          |          |          |       V  |
  18+30       0.6119      0.13  Q          |          |          |       V  |
  18+35       0.6127      0.11  Q          |          |          |       V  |
  18+40       0.6133      0.09  Q          |          |          |       V  |
  18+45       0.6140      0.09  Q          |          |          |       V  |
  18+50       0.6145      0.07  Q          |          |          |       V  |
  18+55       0.6149      0.06  Q          |          |          |       V  |
  19+ 0       0.6153      0.06  Q          |          |          |       V  |
  19+ 5       0.6159      0.08  Q          |          |          |        V |
  19+10       0.6166      0.09  Q          |          |          |        V |
  19+15       0.6172      0.09  Q          |          |          |        V |
  19+20       0.6180      0.11  Q          |          |          |        V |
  19+25       0.6188      0.13  Q          |          |          |        V |
  19+30       0.6197      0.13  Q          |          |          |        V |
  19+35       0.6204      0.11  Q          |          |          |        V |
  19+40       0.6211      0.09  Q          |          |          |        V |
  19+45       0.6217      0.09  Q          |          |          |        V |
  19+50       0.6223      0.07  Q          |          |          |        V |
  19+55       0.6227      0.06  Q          |          |          |        V |
  20+ 0       0.6231      0.06  Q          |          |          |        V |
  20+ 5       0.6237      0.08  Q          |          |          |        V |
  20+10       0.6243      0.09  Q          |          |          |        V |
  20+15       0.6250      0.09  Q          |          |          |        V |
  20+20       0.6256      0.09  Q          |          |          |        V |
  20+25       0.6263      0.09  Q          |          |          |        V |
  20+30       0.6269      0.09  Q          |          |          |        V |
  20+35       0.6276      0.09  Q          |          |          |        V |
  20+40       0.6282      0.09  Q          |          |          |        V |
  20+45       0.6289      0.09  Q          |          |          |        V |
  20+50       0.6294      0.07  Q          |          |          |        V |
  20+55       0.6298      0.06  Q          |          |          |        V |
  21+ 0       0.6302      0.06  Q          |          |          |        V |
  21+ 5       0.6308      0.08  Q          |          |          |        V |
  21+10       0.6315      0.09  Q          |          |          |        V |
  21+15       0.6321      0.09  Q          |          |          |         V|
  21+20       0.6326      0.07  Q          |          |          |         V|
  21+25       0.6331      0.06  Q          |          |          |         V|
  21+30       0.6335      0.06  Q          |          |          |         V|
  21+35       0.6341      0.08  Q          |          |          |         V|
  21+40       0.6347      0.09  Q          |          |          |         V|
  21+45       0.6353      0.09  Q          |          |          |         V|
  21+50       0.6359      0.07  Q          |          |          |         V|
  21+55       0.6363      0.06  Q          |          |          |         V|
  22+ 0       0.6367      0.06  Q          |          |          |         V|
  22+ 5       0.6373      0.08  Q          |          |          |         V|
  22+10       0.6379      0.09  Q          |          |          |         V|
  22+15       0.6386      0.09  Q          |          |          |         V|
  22+20       0.6391      0.07  Q          |          |          |         V|
  22+25       0.6395      0.06  Q          |          |          |         V|
  22+30       0.6400      0.06  Q          |          |          |         V|
  22+35       0.6404      0.06  Q          |          |          |         V|
  22+40       0.6408      0.06  Q          |          |          |         V|
  22+45       0.6413      0.06  Q          |          |          |         V|
  22+50       0.6417      0.06  Q          |          |          |         V|
  22+55       0.6421      0.06  Q          |          |          |         V|
  23+ 0       0.6426      0.06  Q          |          |          |         V|
  23+ 5       0.6430      0.06  Q          |          |          |         V|
  23+10       0.6434      0.06  Q          |          |          |         V|
  23+15       0.6439      0.06  Q          |          |          |         V|
  23+20       0.6443      0.06  Q          |          |          |         V|
  23+25       0.6447      0.06  Q          |          |          |         V|
  23+30       0.6451      0.06  Q          |          |          |         V|
  23+35       0.6456      0.06  Q          |          |          |         V|
  23+40       0.6460      0.06  Q          |          |          |         V|
  23+45       0.6464      0.06  Q          |          |          |         V|
  23+50       0.6469      0.06  Q          |          |          |         V|
  23+55       0.6473      0.06  Q          |          |          |         V|
  24+ 0       0.6477      0.06  Q          |          |          |         V|
  24+ 5       0.6479      0.02  Q          |          |          |         V|
  24+10       0.6479      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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------------------------------------------------------------------------------

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


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22            0.55                 3.42

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            1.45                 9.02

STORM EVENT (YEAR) =    5.00
Area Averaged 2-Year Rainfall =    0.550(In)
Area Averaged 100-Year Rainfall =    1.450(In)

Point rain (area averaged) =    0.761(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.761(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  57.0      0.501     0.500        0.275       1.000      0.275
                                                 Sum (F) =   0.275
Area averaged mean soil loss (F) (In/Hr) =  0.275
Minimum soil loss rate ((In/Hr)) =  0.138
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
---------------------------------------------------------------
               Unit Hydrograph Data
---------------------------------------------------------------
```

```
       Unit time period   Time % of lag   Distribution   Unit Hydrograph
           (hrs)                           Graph %           (CFS)
       ------------------------------------------------------------------------
           1   0.083        342.829         62.333              3.907
           2   0.167        685.658         36.487              2.287
           3   0.250       1028.487          1.180              0.074
                                    Sum = 100.000   Sum=        6.269
-------------------------------------------------------------------------
```

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	4.40	0.402	(0.275)	0.201	0.201
2	0.17	4.50	0.411	(0.275)	0.205	0.205
3	0.25	5.40	0.493	(0.275)	0.246	0.246
4	0.33	5.40	0.493	(0.275)	0.246	0.246
5	0.42	5.70	0.520	(0.275)	0.260	0.260
6	0.50	6.40	0.584	0.275	(0.292)	0.309
7	0.58	7.90	0.721	0.275	(0.361)	0.446
8	0.67	9.10	0.831	0.275	(0.415)	0.555
9	0.75	12.80	1.169	0.275	(0.584)	0.893
10	0.83	25.60	2.337	0.275	(1.169)	2.062
11	0.92	7.90	0.721	0.275	(0.361)	0.446
12	1.00	4.90	0.447	(0.275)	0.224	0.224
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	6.1

```
   Flood volume = Effective rainfall      0.51(In)
    times area       6.2(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
   Total soil loss =      0.25(In)
   Total soil loss =     0.131(Ac.Ft)
   Total rainfall =      0.76(In)
   Flood volume =       11466.3 Cubic Feet
   Total soil loss =        5710.6 Cubic Feet
   ---------------------------------------------------------------------
    Peak flow rate of this hydrograph =     10.145(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        5.0      10.0      15.0      20.0
---------------------------------------------------------------------------
  0+ 5       0.0054      0.79  VQ        |         |         |         |
  0+10       0.0141      1.26  | Q       |         |         |         |
  0+15       0.0241      1.45  | QV      |         |         |         |
  0+20       0.0347      1.54  |  Q V    |         |         |         |
  0+25       0.0457      1.60  |  Q  V   |         |         |         |
  0+30       0.0583      1.82  |  Q    V |         |         |         |
  0+35       0.0753      2.47  |   Q     |V        |         |         |
  0+40       0.0974      3.21  |     Q   |   V     |         |         |
  0+45       0.1304      4.80  |         Q|        V|         |         |
  0+50       0.2003     10.15  |          |         Q         V         |
  0+55       0.2453      6.53  |          |  Q      |         |      V  |
  1+ 0       0.2594      2.05  |   Q      |         |         |        V|
  1+ 5       0.2631      0.54  |Q         |         |         |        V|
  1+10       0.2632      0.02  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 04/30/19 File: pro535.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978
Program License Serial Number 5006

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

Drainage Area = 6.22(Ac.) = 0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 6.22(Ac.) = 0.010 Sq. Mi.
Length along longest watercourse = 885.00(Ft.)
Length along longest watercourse measured to centroid = 442.50(Ft.)
Length along longest watercourse = 0.168 Mi.
Length along longest watercourse measured to centroid = 0.084 Mi.
Difference in elevation = 47.90(Ft.)
Slope along watercourse = 285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.024 Hr.
Lag time = 1.46 Min.
25% of lag time = 0.36 Min.
40% of lag time = 0.58 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]
6.22	1.00	6.22

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
6.22	2.50	15.55

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)
Point rain (area averaged) = 1.351(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.351(In)
Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
6.220	75.00	0.500

Total Area Entered = 6.22(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
75.0	57.0	0.501	0.500	0.275	1.000	0.275
					Sum (F) =	0.275

Area averaged mean soil loss (F) (In/Hr) = 0.275
Minimum soil loss rate ((In/Hr)) = 0.138
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.500

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	342.829	62.333	3.907
2	0.167	685.658	36.487	2.287
3	0.250	1028.487	1.180	0.074
		Sum = 100.000	Sum=	6.269

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	0.211	(0.275)	0.105	0.105
2	0.17	1.30	0.211	(0.275)	0.105	0.105
3	0.25	1.10	0.178	(0.275)	0.089	0.089
4	0.33	1.50	0.243	(0.275)	0.122	0.122
5	0.42	1.50	0.243	(0.275)	0.122	0.122
6	0.50	1.80	0.292	(0.275)	0.146	0.146
7	0.58	1.50	0.243	(0.275)	0.122	0.122
8	0.67	1.80	0.292	(0.275)	0.146	0.146
9	0.75	1.80	0.292	(0.275)	0.146	0.146
10	0.83	1.50	0.243	(0.275)	0.122	0.122

11	0.92	1.60	0.259	(	0.275)	0.130	0.130
12	1.00	1.80	0.292	(	0.275)	0.146	0.146
13	1.08	2.20	0.357	(	0.275)	0.178	0.178
14	1.17	2.20	0.357	(	0.275)	0.178	0.178
15	1.25	2.20	0.357	(	0.275)	0.178	0.178
16	1.33	2.00	0.324	(	0.275)	0.162	0.162
17	1.42	2.60	0.422	(	0.275)	0.211	0.211
18	1.50	2.70	0.438	(	0.275)	0.219	0.219
19	1.58	2.40	0.389	(	0.275)	0.195	0.195
20	1.67	2.70	0.438	(	0.275)	0.219	0.219
21	1.75	3.30	0.535	(	0.275)	0.268	0.268
22	1.83	3.10	0.503	(	0.275)	0.251	0.251
23	1.92	2.90	0.470	(	0.275)	0.235	0.235
24	2.00	3.00	0.486	(	0.275)	0.243	0.243
25	2.08	3.10	0.503	(	0.275)	0.251	0.251
26	2.17	4.20	0.681		0.275	(0.341)	0.406
27	2.25	5.00	0.811		0.275	(0.405)	0.535
28	2.33	3.50	0.568		0.275	(0.284)	0.292
29	2.42	6.80	1.103		0.275	(0.551)	0.827
30	2.50	7.30	1.184		0.275	(0.592)	0.908
31	2.58	8.20	1.330		0.275	(0.665)	1.054
32	2.67	5.90	0.957		0.275	(0.478)	0.681
33	2.75	2.00	0.324	(	0.275)	0.162	0.162
34	2.83	1.80	0.292	(	0.275)	0.146	0.146
35	2.92	1.80	0.292	(	0.275)	0.146	0.146
36	3.00	0.60	0.097	(	0.275)	0.049	0.049

(Loss Rate Not Used)

Sum = 100.0 Sum = 9.5

Flood volume = Effective rainfall 0.79(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 0.56(In)
Total soil loss = 0.290(Ac.Ft)
Total rainfall = 1.35(In)
Flood volume = 17868.3 Cubic Feet
Total soil loss = 12642.2 Cubic Feet

Peak flow rate of this hydrograph = 6.262(CFS)

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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	2.5	5.0	7.5	10.0
0+ 5	0.0028	0.41	VQ				
0+10	0.0073	0.65	V Q				
0+15	0.0115	0.60	|VQ				
0+20	0.0162	0.69	|VQ				
0+25	0.0214	0.76	| VQ				
0+30	0.0273	0.86	| VQ				
0+35	0.0330	0.82	| Q				
0+40	0.0389	0.86	| Q				
0+45	0.0452	0.91	| QV				
0+50	0.0508	0.82	| QV				
0+55	0.0563	0.80	| Q V				
1+ 0	0.0623	0.88	| Q V				
1+ 5	0.0695	1.04	| Q V				
1+10	0.0772	1.12	| Q V				
1+15	0.0849	1.12	| Q V				
1+20	0.0922	1.06	| Q V				
1+25	0.1005	1.21	| Q V				
1+30	0.1098	1.35	| Q V				
1+35	0.1186	1.28	| Q V				
1+40	0.1277	1.32	| Q V				
1+45	0.1384	1.56	| Q V				
1+50	0.1495	1.61	| Q V				
1+55	0.1599	1.51	| Q V				
2+ 0	0.1703	1.51	| Q V				
2+ 5	0.1810	1.56	| Q V				
2+10	0.1961	2.18	| Q V				
2+15	0.2170	3.04	| Q V				
2+20	0.2335	2.40	| Q V				
2+25	0.2607	3.94	| Q V				
2+30	0.2983	5.47	| Q V				
2+35	0.3414	6.26	| Q V				
2+40	0.3769	5.14	| Q V				
2+45	0.3925	2.27	| Q V				
2+50	0.3993	0.99	| Q V				
2+55	0.4056	0.92	| Q V				
3+ 0	0.4093	0.53	| Q V				
3+ 5	0.4102	0.12	Q V				
3+10	0.4102	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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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 5006

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

 English Units used in output format



--------------------------------------------------------------------------
--------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22           1.40                 8.71
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22           3.50                21.77
STORM EVENT (YEAR) =    5.00
Area Averaged 2-Year Rainfall =    1.400(In)
Area Averaged 100-Year Rainfall =    3.500(In)

Point rain (area averaged) =    1.892(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.892(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  57.0      0.501     0.500        0.275       1.000      0.275
                                                 Sum (F) =   0.275
Area averaged mean soil loss (F) (In/Hr) =  0.275
Minimum soil loss rate ((In/Hr)) =  0.138
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
--------------------------------------------------------------------------
               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
--------------------------------------------------------------------------
               Unit Hydrograph Data
--------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------------
    1   0.083        342.829         62.333              3.907
    2   0.167        685.658         36.487              2.287
    3   0.250       1028.487          1.180              0.074
                              Sum = 100.000   Sum=       6.269
--------------------------------------------------------------------------
 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     0.50      0.114       (  0.275)       0.057        0.057
```

2	0.17	0.60	0.136	(0.275)	0.068	0.068
3	0.25	0.60	0.136	(0.275)	0.068	0.068
4	0.33	0.60	0.136	(0.275)	0.068	0.068
5	0.42	0.60	0.136	(0.275)	0.068	0.068
6	0.50	0.70	0.159	(0.275)	0.079	0.079
7	0.58	0.70	0.159	(0.275)	0.079	0.079
8	0.67	0.70	0.159	(0.275)	0.079	0.079
9	0.75	0.70	0.159	(0.275)	0.079	0.079
10	0.83	0.70	0.159	(0.275)	0.079	0.079
11	0.92	0.70	0.159	(0.275)	0.079	0.079
12	1.00	0.80	0.182	(0.275)	0.091	0.091
13	1.08	0.80	0.182	(0.275)	0.091	0.091
14	1.17	0.80	0.182	(0.275)	0.091	0.091
15	1.25	0.80	0.182	(0.275)	0.091	0.091
16	1.33	0.80	0.182	(0.275)	0.091	0.091
17	1.42	0.80	0.182	(0.275)	0.091	0.091
18	1.50	0.80	0.182	(0.275)	0.091	0.091
19	1.58	0.80	0.182	(0.275)	0.091	0.091
20	1.67	0.80	0.182	(0.275)	0.091	0.091
21	1.75	0.80	0.182	(0.275)	0.091	0.091
22	1.83	0.80	0.182	(0.275)	0.091	0.091
23	1.92	0.80	0.182	(0.275)	0.091	0.091
24	2.00	0.90	0.204	(0.275)	0.102	0.102
25	2.08	0.80	0.182	(0.275)	0.091	0.091
26	2.17	0.90	0.204	(0.275)	0.102	0.102
27	2.25	0.90	0.204	(0.275)	0.102	0.102
28	2.33	0.90	0.204	(0.275)	0.102	0.102
29	2.42	0.90	0.204	(0.275)	0.102	0.102
30	2.50	0.90	0.204	(0.275)	0.102	0.102
31	2.58	0.90	0.204	(0.275)	0.102	0.102
32	2.67	0.90	0.204	(0.275)	0.102	0.102
33	2.75	1.00	0.227	(0.275)	0.114	0.114
34	2.83	1.00	0.227	(0.275)	0.114	0.114
35	2.92	1.00	0.227	(0.275)	0.114	0.114
36	3.00	1.00	0.227	(0.275)	0.114	0.114
37	3.08	1.00	0.227	(0.275)	0.114	0.114
38	3.17	1.10	0.250	(0.275)	0.125	0.125
39	3.25	1.10	0.250	(0.275)	0.125	0.125
40	3.33	1.10	0.250	(0.275)	0.125	0.125
41	3.42	1.20	0.272	(0.275)	0.136	0.136
42	3.50	1.30	0.295	(0.275)	0.148	0.148
43	3.58	1.40	0.318	(0.275)	0.159	0.159
44	3.67	1.40	0.318	(0.275)	0.159	0.159
45	3.75	1.50	0.341	(0.275)	0.170	0.170
46	3.83	1.50	0.341	(0.275)	0.170	0.170
47	3.92	1.60	0.363	(0.275)	0.182	0.182
48	4.00	1.60	0.363	(0.275)	0.182	0.182
49	4.08	1.70	0.386	(0.275)	0.193	0.193
50	4.17	1.80	0.409	(0.275)	0.204	0.204
51	4.25	1.90	0.431	(0.275)	0.216	0.216
52	4.33	2.00	0.454	(0.275)	0.227	0.227
53	4.42	2.10	0.477	(0.275)	0.238	0.238
54	4.50	2.10	0.477	(0.275)	0.238	0.238
55	4.58	2.20	0.499	(0.275)	0.250	0.250
56	4.67	2.30	0.522	(0.275)	0.261	0.261
57	4.75	2.40	0.545	(0.275)	0.272	0.272
58	4.83	2.40	0.545	(0.275)	0.272	0.272
59	4.92	2.50	0.568	0.275	(0.284)	0.292
60	5.00	2.60	0.590	0.275	(0.295)	0.315
61	5.08	3.10	0.704	0.275	(0.352)	0.428
62	5.17	3.60	0.817	0.275	(0.409)	0.542
63	5.25	3.90	0.885	0.275	(0.443)	0.610
64	5.33	4.20	0.953	0.275	(0.477)	0.678
65	5.42	4.70	1.067	0.275	(0.533)	0.792
66	5.50	5.60	1.271	0.275	(0.636)	0.996
67	5.58	1.90	0.431	(0.275)	0.216	0.216
68	5.67	0.90	0.204	(0.275)	0.102	0.102
69	5.75	0.60	0.136	(0.275)	0.068	0.068
70	5.83	0.50	0.114	(0.275)	0.057	0.057
71	5.92	0.30	0.068	(0.275)	0.034	0.034
72	6.00	0.20	0.045	(0.275)	0.023	0.023

(Loss Rate Not Used)

Sum = 100.0 Sum = 12.6

Flood volume = Effective rainfall 1.05(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)
Total soil loss = 0.84(In)
Total soil loss = 0.437(Ac.Ft)
Total rainfall = 1.89(In)
Flood volume = 23663.0 Cubic Feet
Total soil loss = 19051.9 Cubic Feet

Peak flow rate of this hydrograph = 5.756(CFS)

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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	2.5	5.0	7.5	10.0
0+ 5	0.0015	0.22	Q				
0+10	0.0043	0.40	VQ				
0+15	0.0072	0.43	VQ				
0+20	0.0101	0.43	VQ				
0+25	0.0131	0.43	VQ				
0+30	0.0163	0.47	|Q				
0+35	0.0197	0.50	|Q				
0+40	0.0232	0.50	|Q				
0+45	0.0266	0.50	|Q				
0+50	0.0300	0.50	|QV				
0+55	0.0335	0.50	|QV				
1+ 0	0.0372	0.54	| Q				
1+ 5	0.0411	0.57	| QV				
1+10	0.0451	0.57	| QV				
1+15	0.0490	0.57	| QV				
1+20	0.0529	0.57	| QV				
1+25	0.0568	0.57	| Q V				
1+30	0.0607	0.57	| Q V				
1+35	0.0647	0.57	| Q V				
1+40	0.0686	0.57	| Q V				
1+45	0.0725	0.57	| Q V				
1+50	0.0764	0.57	| Q V				
1+55	0.0804	0.57	| Q V				
2+ 0	0.0846	0.61	| Q V				
2+ 5	0.0887	0.60	| Q V				
2+10	0.0929	0.61	| Q V				
2+15	0.0973	0.64	| Q V				
2+20	0.1017	0.64	| Q V				
2+25	0.1062	0.64	| Q V				
2+30	0.1106	0.64	| Q V				
2+35	0.1150	0.64	| Q V				
2+40	0.1194	0.64	| Q V				
2+45	0.1241	0.69	| Q V				
2+50	0.1290	0.71	| Q V				
2+55	0.1339	0.71	| Q V				
3+ 0	0.1388	0.71	| Q V				
3+ 5	0.1437	0.71	| Q V				
3+10	0.1489	0.76	| Q V				
3+15	0.1543	0.78	| Q |V				
3+20	0.1597	0.78	| Q |V				
3+25	0.1654	0.83	| Q | V				
3+30	0.1716	0.90	| Q | V				
3+35	0.1783	0.97	| Q | V				
3+40	0.1851	1.00	| Q | V				
3+45	0.1923	1.04	| Q | V				
3+50	0.1996	1.07	| Q | V				
3+55	0.2073	1.11	| Q | V				
4+ 0	0.2151	1.14	| Q | V				
4+ 5	0.2233	1.18	| Q | V				
4+10	0.2319	1.25	| Q | V				
4+15	0.2410	1.32	| Q | V				
4+20	0.2507	1.40	| Q | V				
4+25	0.2608	1.47	| Q | V				
4+30	0.2711	1.49	| Q | V				
4+35	0.2817	1.54	| Q | V				
4+40	0.2927	1.61	| Q | |V				
4+45	0.3043	1.68	| Q | | V				
4+50	0.3161	1.71	| Q | | V				
4+55	0.3284	1.79	| Q | | V				
5+ 0	0.3416	1.92	| Q | | V				
5+ 5	0.3583	2.42	| Q| | V				
5+10	0.3798	3.12	| Q | | V				
5+15	0.4049	3.66	| | Q | | V|			
5+20	0.4331	4.09	| | Q | |V			
5+25	0.4654	4.69	| | Q | | V			
5+30	0.5050	5.76	| | | Q | | V			
5+35	0.5270	3.18	| Q | | | V			
5+40	0.5336	0.97	| Q | | | V|			
5+45	0.5372	0.52	| Q | | | V|			
5+50	0.5398	0.39	|Q | | | V|			
5+55	0.5417	0.27	|Q | | | V|			
6+ 0	0.5428	0.17	Q | | | V|			
6+ 5	0.5432	0.05	Q | | | V|			
6+10	0.5432	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  04/30/19 File: pro5245.out

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


Program License Serial Number 5006

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

 English Units used in output format



--------------------------------------------------------------------------
--------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22              2.50                 15.55
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22              7.00                 43.54
STORM EVENT (YEAR) =    5.00
Area Averaged 2-Year Rainfall =    2.500(In)
Area Averaged 100-Year Rainfall =    7.000(In)
Point rain (area averaged) =    3.554(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    3.554(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  57.0      0.501     0.500        0.275       1.000      0.275
                                                 Sum (F) =   0.275
Area averaged mean soil loss (F) (In/Hr) =  0.275
Minimum soil loss rate ((In/Hr)) =  0.138
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
--------------------------------------------------------------------------
               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
--------------------------------------------------------------------------
               Unit Hydrograph Data
--------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------------
    1   0.083        342.829         62.333              3.907
    2   0.167        685.658         36.487              2.287
    3   0.250       1028.487          1.180              0.074
                               Sum = 100.000   Sum=       6.269
--------------------------------------------------------------------------
 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     0.07      0.028       (  0.488)       0.014        0.014
```

2	0.17	0.07	0.028	(0.486)	0.014	0.014
3	0.25	0.07	0.028	(0.484)	0.014	0.014
4	0.33	0.10	0.043	(0.482)	0.021	0.021
5	0.42	0.10	0.043	(0.481)	0.021	0.021
6	0.50	0.10	0.043	(0.479)	0.021	0.021
7	0.58	0.10	0.043	(0.477)	0.021	0.021
8	0.67	0.10	0.043	(0.475)	0.021	0.021
9	0.75	0.10	0.043	(0.473)	0.021	0.021
10	0.83	0.13	0.057	(0.471)	0.028	0.028
11	0.92	0.13	0.057	(0.469)	0.028	0.028
12	1.00	0.13	0.057	(0.468)	0.028	0.028
13	1.08	0.10	0.043	(0.466)	0.021	0.021
14	1.17	0.10	0.043	(0.464)	0.021	0.021
15	1.25	0.10	0.043	(0.462)	0.021	0.021
16	1.33	0.10	0.043	(0.460)	0.021	0.021
17	1.42	0.10	0.043	(0.458)	0.021	0.021
18	1.50	0.10	0.043	(0.456)	0.021	0.021
19	1.58	0.10	0.043	(0.455)	0.021	0.021
20	1.67	0.10	0.043	(0.453)	0.021	0.021
21	1.75	0.10	0.043	(0.451)	0.021	0.021
22	1.83	0.13	0.057	(0.449)	0.028	0.028
23	1.92	0.13	0.057	(0.447)	0.028	0.028
24	2.00	0.13	0.057	(0.446)	0.028	0.028
25	2.08	0.13	0.057	(0.444)	0.028	0.028
26	2.17	0.13	0.057	(0.442)	0.028	0.028
27	2.25	0.13	0.057	(0.440)	0.028	0.028
28	2.33	0.13	0.057	(0.438)	0.028	0.028
29	2.42	0.13	0.057	(0.437)	0.028	0.028
30	2.50	0.13	0.057	(0.435)	0.028	0.028
31	2.58	0.17	0.071	(0.433)	0.036	0.036
32	2.67	0.17	0.071	(0.431)	0.036	0.036
33	2.75	0.17	0.071	(0.430)	0.036	0.036
34	2.83	0.17	0.071	(0.428)	0.036	0.036
35	2.92	0.17	0.071	(0.426)	0.036	0.036
36	3.00	0.17	0.071	(0.424)	0.036	0.036
37	3.08	0.17	0.071	(0.422)	0.036	0.036
38	3.17	0.17	0.071	(0.421)	0.036	0.036
39	3.25	0.17	0.071	(0.419)	0.036	0.036
40	3.33	0.17	0.071	(0.417)	0.036	0.036
41	3.42	0.17	0.071	(0.415)	0.036	0.036
42	3.50	0.17	0.071	(0.414)	0.036	0.036
43	3.58	0.17	0.071	(0.412)	0.036	0.036
44	3.67	0.17	0.071	(0.410)	0.036	0.036
45	3.75	0.17	0.071	(0.409)	0.036	0.036
46	3.83	0.20	0.085	(0.407)	0.043	0.043
47	3.92	0.20	0.085	(0.405)	0.043	0.043
48	4.00	0.20	0.085	(0.403)	0.043	0.043
49	4.08	0.20	0.085	(0.402)	0.043	0.043
50	4.17	0.20	0.085	(0.400)	0.043	0.043
51	4.25	0.20	0.085	(0.398)	0.043	0.043
52	4.33	0.23	0.100	(0.397)	0.050	0.050
53	4.42	0.23	0.100	(0.395)	0.050	0.050
54	4.50	0.23	0.100	(0.393)	0.050	0.050
55	4.58	0.23	0.100	(0.391)	0.050	0.050
56	4.67	0.23	0.100	(0.390)	0.050	0.050
57	4.75	0.23	0.100	(0.388)	0.050	0.050
58	4.83	0.27	0.114	(0.386)	0.057	0.057
59	4.92	0.27	0.114	(0.385)	0.057	0.057
60	5.00	0.27	0.114	(0.383)	0.057	0.057
61	5.08	0.20	0.085	(0.381)	0.043	0.043
62	5.17	0.20	0.085	(0.380)	0.043	0.043
63	5.25	0.20	0.085	(0.378)	0.043	0.043
64	5.33	0.23	0.100	(0.376)	0.050	0.050
65	5.42	0.23	0.100	(0.375)	0.050	0.050
66	5.50	0.23	0.100	(0.373)	0.050	0.050
67	5.58	0.27	0.114	(0.372)	0.057	0.057
68	5.67	0.27	0.114	(0.370)	0.057	0.057
69	5.75	0.27	0.114	(0.368)	0.057	0.057
70	5.83	0.27	0.114	(0.367)	0.057	0.057
71	5.92	0.27	0.114	(0.365)	0.057	0.057
72	6.00	0.27	0.114	(0.363)	0.057	0.057
73	6.08	0.30	0.128	(0.362)	0.064	0.064
74	6.17	0.30	0.128	(0.360)	0.064	0.064
75	6.25	0.30	0.128	(0.359)	0.064	0.064
76	6.33	0.30	0.128	(0.357)	0.064	0.064
77	6.42	0.30	0.128	(0.355)	0.064	0.064
78	6.50	0.30	0.128	(0.354)	0.064	0.064
79	6.58	0.33	0.142	(0.352)	0.071	0.071
80	6.67	0.33	0.142	(0.351)	0.071	0.071
81	6.75	0.33	0.142	(0.349)	0.071	0.071
82	6.83	0.33	0.142	(0.347)	0.071	0.071
83	6.92	0.33	0.142	(0.346)	0.071	0.071
84	7.00	0.33	0.142	(0.344)	0.071	0.071
85	7.08	0.33	0.142	(0.343)	0.071	0.071
86	7.17	0.33	0.142	(0.341)	0.071	0.071
87	7.25	0.33	0.142	(0.340)	0.071	0.071

88	7.33	0.37	0.156	(0.338)	0.078	0.078
89	7.42	0.37	0.156	(0.337)	0.078	0.078
90	7.50	0.37	0.156	(0.335)	0.078	0.078
91	7.58	0.40	0.171	(0.333)	0.085	0.085
92	7.67	0.40	0.171	(0.332)	0.085	0.085
93	7.75	0.40	0.171	(0.330)	0.085	0.085
94	7.83	0.43	0.185	(0.329)	0.092	0.092
95	7.92	0.43	0.185	(0.327)	0.092	0.092
96	8.00	0.43	0.185	(0.326)	0.092	0.092
97	8.08	0.50	0.213	(0.324)	0.107	0.107
98	8.17	0.50	0.213	(0.323)	0.107	0.107
99	8.25	0.50	0.213	(0.321)	0.107	0.107
100	8.33	0.50	0.213	(0.320)	0.107	0.107
101	8.42	0.50	0.213	(0.318)	0.107	0.107
102	8.50	0.50	0.213	(0.317)	0.107	0.107
103	8.58	0.53	0.227	(0.315)	0.114	0.114
104	8.67	0.53	0.227	(0.314)	0.114	0.114
105	8.75	0.53	0.227	(0.312)	0.114	0.114
106	8.83	0.57	0.242	(0.311)	0.121	0.121
107	8.92	0.57	0.242	(0.309)	0.121	0.121
108	9.00	0.57	0.242	(0.308)	0.121	0.121
109	9.08	0.63	0.270	(0.307)	0.135	0.135
110	9.17	0.63	0.270	(0.305)	0.135	0.135
111	9.25	0.63	0.270	(0.304)	0.135	0.135
112	9.33	0.67	0.284	(0.302)	0.142	0.142
113	9.42	0.67	0.284	(0.301)	0.142	0.142
114	9.50	0.67	0.284	(0.299)	0.142	0.142
115	9.58	0.70	0.299	(0.298)	0.149	0.149
116	9.67	0.70	0.299	(0.296)	0.149	0.149
117	9.75	0.70	0.299	(0.295)	0.149	0.149
118	9.83	0.73	0.313	(0.294)	0.156	0.156
119	9.92	0.73	0.313	(0.292)	0.156	0.156
120	10.00	0.73	0.313	(0.291)	0.156	0.156
121	10.08	0.50	0.213	(0.289)	0.107	0.107
122	10.17	0.50	0.213	(0.288)	0.107	0.107
123	10.25	0.50	0.213	(0.287)	0.107	0.107
124	10.33	0.50	0.213	(0.285)	0.107	0.107
125	10.42	0.50	0.213	(0.284)	0.107	0.107
126	10.50	0.50	0.213	(0.282)	0.107	0.107
127	10.58	0.67	0.284	(0.281)	0.142	0.142
128	10.67	0.67	0.284	(0.280)	0.142	0.142
129	10.75	0.67	0.284	(0.278)	0.142	0.142
130	10.83	0.67	0.284	(0.277)	0.142	0.142
131	10.92	0.67	0.284	(0.276)	0.142	0.142
132	11.00	0.67	0.284	(0.274)	0.142	0.142
133	11.08	0.63	0.270	(0.273)	0.135	0.135
134	11.17	0.63	0.270	(0.271)	0.135	0.135
135	11.25	0.63	0.270	(0.270)	0.135	0.135
136	11.33	0.63	0.270	(0.269)	0.135	0.135
137	11.42	0.63	0.270	(0.267)	0.135	0.135
138	11.50	0.63	0.270	(0.266)	0.135	0.135
139	11.58	0.57	0.242	(0.265)	0.121	0.121
140	11.67	0.57	0.242	(0.264)	0.121	0.121
141	11.75	0.57	0.242	(0.262)	0.121	0.121
142	11.83	0.60	0.256	(0.261)	0.128	0.128
143	11.92	0.60	0.256	(0.260)	0.128	0.128
144	12.00	0.60	0.256	(0.258)	0.128	0.128
145	12.08	0.83	0.355	(0.257)	0.178	0.178
146	12.17	0.83	0.355	(0.256)	0.178	0.178
147	12.25	0.83	0.355	(0.254)	0.178	0.178
148	12.33	0.87	0.370	(0.253)	0.185	0.185
149	12.42	0.87	0.370	(0.252)	0.185	0.185
150	12.50	0.87	0.370	(0.251)	0.185	0.185
151	12.58	0.93	0.398	(0.249)	0.199	0.199
152	12.67	0.93	0.398	(0.248)	0.199	0.199
153	12.75	0.93	0.398	(0.247)	0.199	0.199
154	12.83	0.97	0.412	(0.246)	0.206	0.206
155	12.92	0.97	0.412	(0.244)	0.206	0.206
156	13.00	0.97	0.412	(0.243)	0.206	0.206
157	13.08	1.13	0.483	(0.242)	0.242	0.242
158	13.17	1.13	0.483	0.241	(0.242)	0.243
159	13.25	1.13	0.483	0.239	(0.242)	0.244
160	13.33	1.13	0.483	0.238	(0.242)	0.245
161	13.42	1.13	0.483	0.237	(0.242)	0.246
162	13.50	1.13	0.483	0.236	(0.242)	0.248
163	13.58	0.77	0.327	(0.235)	0.163	0.163
164	13.67	0.77	0.327	(0.233)	0.163	0.163
165	13.75	0.77	0.327	(0.232)	0.163	0.163
166	13.83	0.77	0.327	(0.231)	0.163	0.163
167	13.92	0.77	0.327	(0.230)	0.163	0.163
168	14.00	0.77	0.327	(0.229)	0.163	0.163
169	14.08	0.90	0.384	(0.228)	0.192	0.192
170	14.17	0.90	0.384	(0.226)	0.192	0.192
171	14.25	0.90	0.384	(0.225)	0.192	0.192
172	14.33	0.87	0.370	(0.224)	0.185	0.185
173	14.42	0.87	0.370	(0.223)	0.185	0.185

174	14.50	0.87	0.370	(0.222)	0.185	0.185
175	14.58	0.87	0.370	(0.221)	0.185	0.185
176	14.67	0.87	0.370	(0.220)	0.185	0.185
177	14.75	0.87	0.370	(0.218)	0.185	0.185
178	14.83	0.83	0.355	(0.217)	0.178	0.178
179	14.92	0.83	0.355	(0.216)	0.178	0.178
180	15.00	0.83	0.355	(0.215)	0.178	0.178
181	15.08	0.80	0.341	(0.214)	0.171	0.171
182	15.17	0.80	0.341	(0.213)	0.171	0.171
183	15.25	0.80	0.341	(0.212)	0.171	0.171
184	15.33	0.77	0.327	(0.211)	0.163	0.163
185	15.42	0.77	0.327	(0.210)	0.163	0.163
186	15.50	0.77	0.327	(0.209)	0.163	0.163
187	15.58	0.63	0.270	(0.207)	0.135	0.135
188	15.67	0.63	0.270	(0.206)	0.135	0.135
189	15.75	0.63	0.270	(0.205)	0.135	0.135
190	15.83	0.63	0.270	(0.204)	0.135	0.135
191	15.92	0.63	0.270	(0.203)	0.135	0.135
192	16.00	0.63	0.270	(0.202)	0.135	0.135
193	16.08	0.13	0.057	(0.201)	0.028	0.028
194	16.17	0.13	0.057	(0.200)	0.028	0.028
195	16.25	0.13	0.057	(0.199)	0.028	0.028
196	16.33	0.13	0.057	(0.198)	0.028	0.028
197	16.42	0.13	0.057	(0.197)	0.028	0.028
198	16.50	0.13	0.057	(0.196)	0.028	0.028
199	16.58	0.10	0.043	(0.195)	0.021	0.021
200	16.67	0.10	0.043	(0.194)	0.021	0.021
201	16.75	0.10	0.043	(0.193)	0.021	0.021
202	16.83	0.10	0.043	(0.192)	0.021	0.021
203	16.92	0.10	0.043	(0.191)	0.021	0.021
204	17.00	0.10	0.043	(0.190)	0.021	0.021
205	17.08	0.17	0.071	(0.189)	0.036	0.036
206	17.17	0.17	0.071	(0.188)	0.036	0.036
207	17.25	0.17	0.071	(0.187)	0.036	0.036
208	17.33	0.17	0.071	(0.186)	0.036	0.036
209	17.42	0.17	0.071	(0.185)	0.036	0.036
210	17.50	0.17	0.071	(0.185)	0.036	0.036
211	17.58	0.17	0.071	(0.184)	0.036	0.036
212	17.67	0.17	0.071	(0.183)	0.036	0.036
213	17.75	0.17	0.071	(0.182)	0.036	0.036
214	17.83	0.13	0.057	(0.181)	0.028	0.028
215	17.92	0.13	0.057	(0.180)	0.028	0.028
216	18.00	0.13	0.057	(0.179)	0.028	0.028
217	18.08	0.13	0.057	(0.178)	0.028	0.028
218	18.17	0.13	0.057	(0.177)	0.028	0.028
219	18.25	0.13	0.057	(0.176)	0.028	0.028
220	18.33	0.13	0.057	(0.176)	0.028	0.028
221	18.42	0.13	0.057	(0.175)	0.028	0.028
222	18.50	0.13	0.057	(0.174)	0.028	0.028
223	18.58	0.10	0.043	(0.173)	0.021	0.021
224	18.67	0.10	0.043	(0.172)	0.021	0.021
225	18.75	0.10	0.043	(0.171)	0.021	0.021
226	18.83	0.07	0.028	(0.171)	0.014	0.014
227	18.92	0.07	0.028	(0.170)	0.014	0.014
228	19.00	0.07	0.028	(0.169)	0.014	0.014
229	19.08	0.10	0.043	(0.168)	0.021	0.021
230	19.17	0.10	0.043	(0.167)	0.021	0.021
231	19.25	0.10	0.043	(0.167)	0.021	0.021
232	19.33	0.13	0.057	(0.166)	0.028	0.028
233	19.42	0.13	0.057	(0.165)	0.028	0.028
234	19.50	0.13	0.057	(0.164)	0.028	0.028
235	19.58	0.10	0.043	(0.164)	0.021	0.021
236	19.67	0.10	0.043	(0.163)	0.021	0.021
237	19.75	0.10	0.043	(0.162)	0.021	0.021
238	19.83	0.07	0.028	(0.161)	0.014	0.014
239	19.92	0.07	0.028	(0.161)	0.014	0.014
240	20.00	0.07	0.028	(0.160)	0.014	0.014
241	20.08	0.10	0.043	(0.159)	0.021	0.021
242	20.17	0.10	0.043	(0.158)	0.021	0.021
243	20.25	0.10	0.043	(0.158)	0.021	0.021
244	20.33	0.10	0.043	(0.157)	0.021	0.021
245	20.42	0.10	0.043	(0.156)	0.021	0.021
246	20.50	0.10	0.043	(0.156)	0.021	0.021
247	20.58	0.10	0.043	(0.155)	0.021	0.021
248	20.67	0.10	0.043	(0.154)	0.021	0.021
249	20.75	0.10	0.043	(0.154)	0.021	0.021
250	20.83	0.07	0.028	(0.153)	0.014	0.014
251	20.92	0.07	0.028	(0.153)	0.014	0.014
252	21.00	0.07	0.028	(0.152)	0.014	0.014
253	21.08	0.10	0.043	(0.151)	0.021	0.021
254	21.17	0.10	0.043	(0.151)	0.021	0.021
255	21.25	0.10	0.043	(0.150)	0.021	0.021
256	21.33	0.07	0.028	(0.150)	0.014	0.014
257	21.42	0.07	0.028	(0.149)	0.014	0.014
258	21.50	0.07	0.028	(0.148)	0.014	0.014
259	21.58	0.10	0.043	(0.148)	0.021	0.021

260	21.67	0.10	0.043	(0.147)	0.021	0.021
261	21.75	0.10	0.043	(0.147)	0.021	0.021
262	21.83	0.07	0.028	(0.146)	0.014	0.014
263	21.92	0.07	0.028	(0.146)	0.014	0.014
264	22.00	0.07	0.028	(0.145)	0.014	0.014
265	22.08	0.10	0.043	(0.145)	0.021	0.021
266	22.17	0.10	0.043	(0.144)	0.021	0.021
267	22.25	0.10	0.043	(0.144)	0.021	0.021
268	22.33	0.07	0.028	(0.144)	0.014	0.014
269	22.42	0.07	0.028	(0.143)	0.014	0.014
270	22.50	0.07	0.028	(0.143)	0.014	0.014
271	22.58	0.07	0.028	(0.142)	0.014	0.014
272	22.67	0.07	0.028	(0.142)	0.014	0.014
273	22.75	0.07	0.028	(0.141)	0.014	0.014
274	22.83	0.07	0.028	(0.141)	0.014	0.014
275	22.92	0.07	0.028	(0.141)	0.014	0.014
276	23.00	0.07	0.028	(0.140)	0.014	0.014
277	23.08	0.07	0.028	(0.140)	0.014	0.014
278	23.17	0.07	0.028	(0.140)	0.014	0.014
279	23.25	0.07	0.028	(0.139)	0.014	0.014
280	23.33	0.07	0.028	(0.139)	0.014	0.014
281	23.42	0.07	0.028	(0.139)	0.014	0.014
282	23.50	0.07	0.028	(0.139)	0.014	0.014
283	23.58	0.07	0.028	(0.138)	0.014	0.014
284	23.67	0.07	0.028	(0.138)	0.014	0.014
285	23.75	0.07	0.028	(0.138)	0.014	0.014
286	23.83	0.07	0.028	(0.138)	0.014	0.014
287	23.92	0.07	0.028	(0.138)	0.014	0.014
288	24.00	0.07	0.028	(0.138)	0.014	0.014

(Loss Rate Not Used)

Sum = 100.0 Sum = 21.3

Flood volume = Effective rainfall 1.78(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.9(Ac.Ft)
Total soil loss = 1.78(In)
Total soil loss = 0.920(Ac.Ft)
Total rainfall = 3.55(In)
Flood volume = 40154.0 Cubic Feet
Total soil loss = 40089.6 Cubic Feet

Peak flow rate of this hydrograph = 1.549(CFS)

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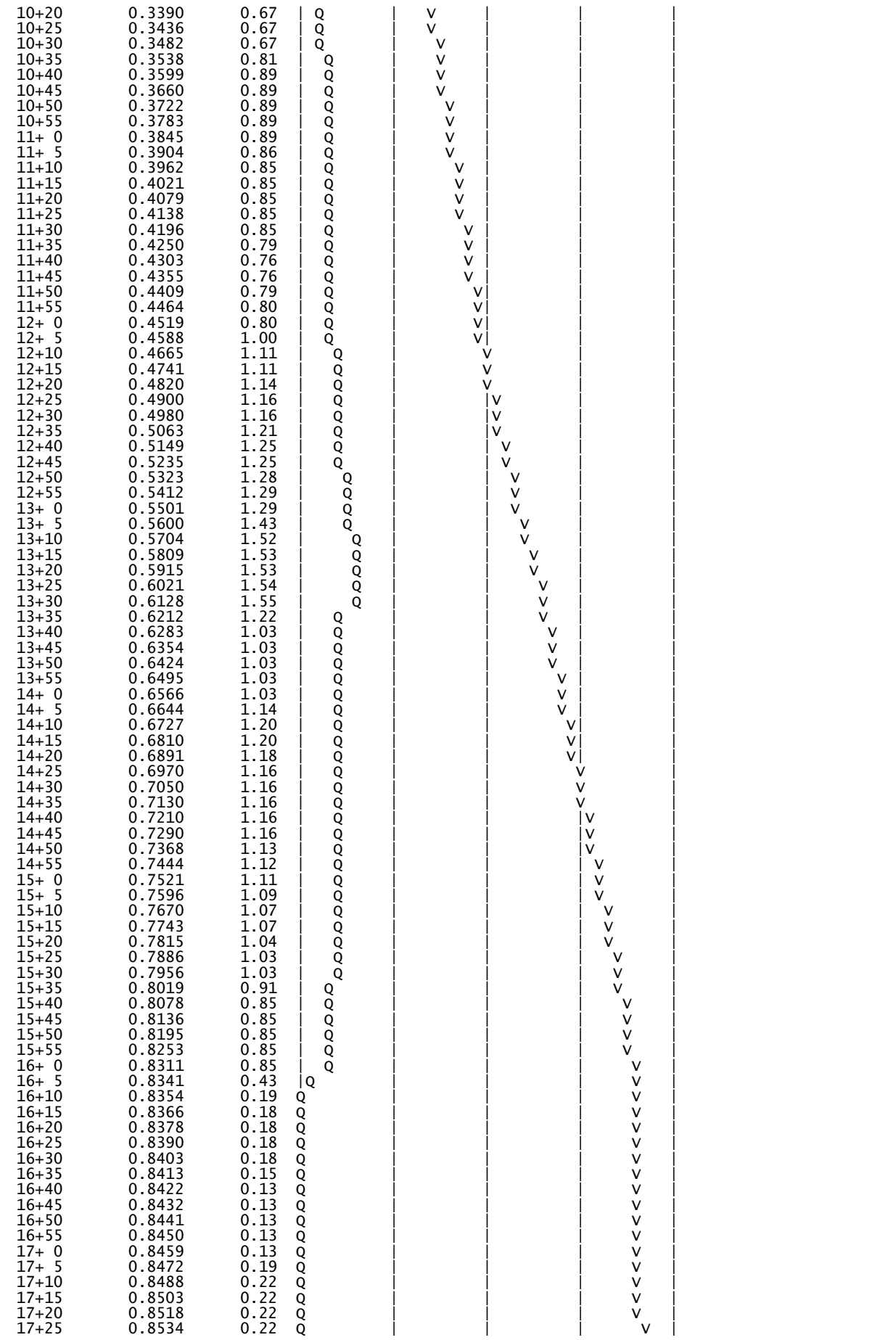
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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	0.0004	0.06	Q				
0+10	0.0010	0.09	Q				
0+15	0.0016	0.09	Q				
0+20	0.0024	0.12	Q				
0+25	0.0033	0.13	Q				
0+30	0.0042	0.13	Q				
0+35	0.0052	0.13	Q				
0+40	0.0061	0.13	Q				
0+45	0.0070	0.13	Q				
0+50	0.0081	0.16	Q				
0+55	0.0093	0.18	Q				
1+ 0	0.0106	0.18	Q				
1+ 5	0.0116	0.15	Q				
1+10	0.0125	0.13	Q				
1+15	0.0135	0.13	Q				
1+20	0.0144	0.13	Q				
1+25	0.0153	0.13	Q				
1+30	0.0162	0.13	Q				
1+35	0.0171	0.13	Q				
1+40	0.0181	0.13	Q				
1+45	0.0190	0.13	Q				
1+50	0.0201	0.16	Q				
1+55	0.0213	0.18	Q				
2+ 0	0.0225	0.18	Q				
2+ 5	0.0238	0.18	QV				
2+10	0.0250	0.18	QV				
2+15	0.0262	0.18	QV				
2+20	0.0275	0.18	QV				
2+25	0.0287	0.18	QV				
2+30	0.0299	0.18	QV				
2+35	0.0313	0.21	QV				
2+40	0.0329	0.22	QV				
2+45	0.0344	0.22	QV				
2+50	0.0359	0.22	QV				
2+55	0.0375	0.22	QV				
3+ 0	0.0390	0.22	QV				
3+ 5	0.0405	0.22	QV				

3+10	0.0421	0.22	QV	|	|	|	|
3+15	0.0436	0.22	QV	|	|	|	|
3+20	0.0452	0.22	QV	|	|	|	|
3+25	0.0467	0.22	Q V	|	|	|	|
3+30	0.0482	0.22	Q V	|	|	|	|
3+35	0.0498	0.22	Q V	|	|	|	|
3+40	0.0513	0.22	Q V	|	|	|	|
3+45	0.0528	0.22	Q V	|	|	|	|
3+50	0.0546	0.25	|QV	|	|	|	|
3+55	0.0564	0.27	|QV	|	|	|	|
4+ 0	0.0582	0.27	|QV	|	|	|	|
4+ 5	0.0601	0.27	|QV	|	|	|	|
4+10	0.0619	0.27	|QV	|	|	|	|
4+15	0.0638	0.27	|QV	|	|	|	|
4+20	0.0658	0.30	|QV	|	|	|	|
4+25	0.0679	0.31	|QV	|	|	|	|
4+30	0.0701	0.31	|Q V	|	|	|	|
4+35	0.0722	0.31	|Q V	|	|	|	|
4+40	0.0744	0.31	|Q V	|	|	|	|
4+45	0.0765	0.31	|Q V	|	|	|	|
4+50	0.0789	0.34	|Q V	|	|	|	|
4+55	0.0813	0.36	|Q V	|	|	|	|
5+ 0	0.0838	0.36	|Q V	|	|	|	|
5+ 5	0.0859	0.30	|Q V	|	|	|	|
5+10	0.0877	0.27	|Q V	|	|	|	|
5+15	0.0895	0.27	|Q V	|	|	|	|
5+20	0.0916	0.30	|Q V	|	|	|	|
5+25	0.0937	0.31	|Q V	|	|	|	|
5+30	0.0959	0.31	|Q V	|	|	|	|
5+35	0.0982	0.34	|Q V	|	|	|	|
5+40	0.1007	0.36	|Q V	|	|	|	|
5+45	0.1031	0.36	|Q V	|	|	|	|
5+50	0.1056	0.36	|Q V	|	|	|	|
5+55	0.1080	0.36	|Q V	|	|	|	|
6+ 0	0.1105	0.36	|Q V	|	|	|	|
6+ 5	0.1131	0.38	|Q V	|	|	|	|
6+10	0.1159	0.40	|Q V	|	|	|	|
6+15	0.1187	0.40	|Q V	|	|	|	|
6+20	0.1214	0.40	|Q V	|	|	|	|
6+25	0.1242	0.40	|Q V	|	|	|	|
6+30	0.1270	0.40	|Q V	|	|	|	|
6+35	0.1299	0.43	|Q V	|	|	|	|
6+40	0.1330	0.45	|Q V	|	|	|	|
6+45	0.1360	0.45	|Q V	|	|	|	|
6+50	0.1391	0.45	|Q V	|	|	|	|
6+55	0.1422	0.45	|Q V	|	|	|	|
7+ 0	0.1453	0.45	|Q V	|	|	|	|
7+ 5	0.1483	0.45	|Q V	|	|	|	|
7+10	0.1514	0.45	|Q V	|	|	|	|
7+15	0.1545	0.45	|Q V	|	|	|	|
7+20	0.1577	0.47	|Q V	|	|	|	|
7+25	0.1611	0.49	|Q V	|	|	|	|
7+30	0.1645	0.49	|Q V	|	|	|	|
7+35	0.1680	0.52	| Q V	|	|	|	|
7+40	0.1717	0.53	| Q V	|	|	|	|
7+45	0.1754	0.53	| Q V	|	|	|	|
7+50	0.1793	0.56	| Q V	|	|	|	|
7+55	0.1833	0.58	| Q V	|	|	|	|
8+ 0	0.1873	0.58	| Q V	|	|	|	|
8+ 5	0.1916	0.64	| Q V	|	|	|	|
8+10	0.1962	0.67	| Q V	|	|	|	|
8+15	0.2008	0.67	| Q V	|	|	|	|
8+20	0.2055	0.67	| Q V	|	|	|	|
8+25	0.2101	0.67	| Q V|	|	|	|
8+30	0.2147	0.67	| Q V|	|	|	|
8+35	0.2195	0.70	| Q V|	|	|	|
8+40	0.2244	0.71	| Q V|	|	|	|
8+45	0.2293	0.71	| Q V|	|	|	|
8+50	0.2344	0.74	| Q V	|	|	|
8+55	0.2396	0.76	| Q V	|	|	|
9+ 0	0.2448	0.76	| Q V	|	|	|
9+ 5	0.2504	0.81	| Q V	|	|	|
9+10	0.2562	0.85	| Q |V	|	|	|
9+15	0.2621	0.85	| Q |V	|	|	|
9+20	0.2681	0.87	| Q |V	|	|	|
9+25	0.2742	0.89	| Q |V	|	|	|
9+30	0.2804	0.89	| Q | V	|	|	|
9+35	0.2867	0.92	| Q | V	|	|	|
9+40	0.2932	0.94	| Q | V	|	|	|
9+45	0.2996	0.94	| Q | V	|	|	|
9+50	0.3062	0.96	| Q | V	|	|	|
9+55	0.3130	0.98	| Q | V	|	|	|
10+ 0	0.3198	0.98	| Q | V	|	|	|
10+ 5	0.3252	0.79	| Q | V	|	|	|
10+10	0.3298	0.67	| Q | V	|	|	|
10+15	0.3344	0.67	| Q | V	|	|	|



10+20	0.3390	0.67	Q	V			
10+25	0.3436	0.67	Q	V			
10+30	0.3482	0.67	Q	V			
10+35	0.3538	0.81	Q	V			
10+40	0.3599	0.89	Q	V			
10+45	0.3660	0.89	Q	V			
10+50	0.3722	0.89	Q	V			
10+55	0.3783	0.89	Q	V			
11+ 0	0.3845	0.89	Q	V			
11+ 5	0.3904	0.86	Q	V			
11+10	0.3962	0.85	Q	V			
11+15	0.4021	0.85	Q	V			
11+20	0.4079	0.85	Q	V			
11+25	0.4138	0.85	Q	V			
11+30	0.4196	0.85	Q	V			
11+35	0.4250	0.79	Q	V			
11+40	0.4303	0.76	Q	V			
11+45	0.4355	0.76	Q	V			
11+50	0.4409	0.79	Q	V			
11+55	0.4464	0.80	Q	V			
12+ 0	0.4519	0.80	Q	V			
12+ 5	0.4588	1.00	Q	V			
12+10	0.4665	1.11	Q	V			
12+15	0.4741	1.11	Q	V			
12+20	0.4820	1.14	Q	V			
12+25	0.4900	1.16	Q	V			
12+30	0.4980	1.16	Q	V			
12+35	0.5063	1.21	Q	V			
12+40	0.5149	1.25	Q	V			
12+45	0.5235	1.25	Q	V			
12+50	0.5323	1.28	Q	V			
12+55	0.5412	1.29	Q	V			
13+ 0	0.5501	1.29	Q	V			
13+ 5	0.5600	1.43	Q	V			
13+10	0.5704	1.52	Q	V			
13+15	0.5809	1.53	Q	V			
13+20	0.5915	1.53	Q	V			
13+25	0.6021	1.54	Q	V			
13+30	0.6128	1.55	Q	V			
13+35	0.6212	1.22	Q	V			
13+40	0.6283	1.03	Q	V			
13+45	0.6354	1.03	Q	V			
13+50	0.6424	1.03	Q	V			
13+55	0.6495	1.03	Q	V			
14+ 0	0.6566	1.03	Q	V			
14+ 5	0.6644	1.14	Q	V			
14+10	0.6727	1.20	Q	V			
14+15	0.6810	1.20	Q	V			
14+20	0.6891	1.18	Q	V			
14+25	0.6970	1.16	Q	V			
14+30	0.7050	1.16	Q	V			
14+35	0.7130	1.16	Q	V			
14+40	0.7210	1.16	Q	V			
14+45	0.7290	1.16	Q	V			
14+50	0.7368	1.13	Q	V			
14+55	0.7444	1.12	Q	V			
15+ 0	0.7521	1.11	Q	V			
15+ 5	0.7596	1.09	Q	V			
15+10	0.7670	1.07	Q	V			
15+15	0.7743	1.07	Q	V			
15+20	0.7815	1.04	Q	V			
15+25	0.7886	1.03	Q	V			
15+30	0.7956	1.03	Q	V			
15+35	0.8019	0.91	Q	V			
15+40	0.8078	0.85	Q	V			
15+45	0.8136	0.85	Q	V			
15+50	0.8195	0.85	Q	V			
15+55	0.8253	0.85	Q	V			
16+ 0	0.8311	0.85	Q	V			
16+ 5	0.8341	0.43	Q	V			
16+10	0.8354	0.19	Q	V			
16+15	0.8366	0.18	Q	V			
16+20	0.8378	0.18	Q	V			
16+25	0.8390	0.18	Q	V			
16+30	0.8403	0.18	Q	V			
16+35	0.8413	0.15	Q	V			
16+40	0.8422	0.13	Q	V			
16+45	0.8432	0.13	Q	V			
16+50	0.8441	0.13	Q	V			
16+55	0.8450	0.13	Q	V			
17+ 0	0.8459	0.13	Q	V			
17+ 5	0.8472	0.19	Q	V			
17+10	0.8488	0.22	Q	V			
17+15	0.8503	0.22	Q	V			
17+20	0.8518	0.22	Q	V			
17+25	0.8534	0.22	Q	V			

```
   17+30       0.8549      0.22  Q          |          |          |       V  |
   17+35       0.8564      0.22  Q          |          |          |       V  |
   17+40       0.8580      0.22  Q          |          |          |       V  |
   17+45       0.8595      0.22  Q          |          |          |       V  |
   17+50       0.8608      0.20  Q          |          |          |       V  |
   17+55       0.8621      0.18  Q          |          |          |       V  |
   18+ 0       0.8633      0.18  Q          |          |          |       V  |
   18+ 5       0.8645      0.18  Q          |          |          |       V  |
   18+10       0.8658      0.18  Q          |          |          |       V  |
   18+15       0.8670      0.18  Q          |          |          |       V  |
   18+20       0.8682      0.18  Q          |          |          |       V  |
   18+25       0.8694      0.18  Q          |          |          |       V  |
   18+30       0.8707      0.18  Q          |          |          |       V  |
   18+35       0.8717      0.15  Q          |          |          |       V  |
   18+40       0.8726      0.13  Q          |          |          |       V  |
   18+45       0.8736      0.13  Q          |          |          |       V  |
   18+50       0.8743      0.11  Q          |          |          |       V  |
   18+55       0.8749      0.09  Q          |          |          |       V  |
   19+ 0       0.8755      0.09  Q          |          |          |       V  |
   19+ 5       0.8763      0.12  Q          |          |          |        V |
   19+10       0.8772      0.13  Q          |          |          |        V |
   19+15       0.8782      0.13  Q          |          |          |        V |
   19+20       0.8793      0.16  Q          |          |          |        V |
   19+25       0.8805      0.18  Q          |          |          |        V |
   19+30       0.8817      0.18  Q          |          |          |        V |
   19+35       0.8828      0.15  Q          |          |          |        V |
   19+40       0.8837      0.13  Q          |          |          |        V |
   19+45       0.8846      0.13  Q          |          |          |        V |
   19+50       0.8853      0.11  Q          |          |          |        V |
   19+55       0.8860      0.09  Q          |          |          |        V |
   20+ 0       0.8866      0.09  Q          |          |          |        V |
   20+ 5       0.8874      0.12  Q          |          |          |        V |
   20+10       0.8883      0.13  Q          |          |          |        V |
   20+15       0.8892      0.13  Q          |          |          |        V |
   20+20       0.8901      0.13  Q          |          |          |        V |
   20+25       0.8911      0.13  Q          |          |          |        V |
   20+30       0.8920      0.13  Q          |          |          |        V |
   20+35       0.8929      0.13  Q          |          |          |        V |
   20+40       0.8938      0.13  Q          |          |          |        V |
   20+45       0.8947      0.13  Q          |          |          |        V |
   20+50       0.8955      0.11  Q          |          |          |        V |
   20+55       0.8961      0.09  Q          |          |          |        V |
   21+ 0       0.8967      0.09  Q          |          |          |        V |
   21+ 5       0.8975      0.12  Q          |          |          |        V |
   21+10       0.8984      0.13  Q          |          |          |        V |
   21+15       0.8993      0.13  Q          |          |          |         V|
   21+20       0.9001      0.11  Q          |          |          |         V|
   21+25       0.9007      0.09  Q          |          |          |         V|
   21+30       0.9013      0.09  Q          |          |          |         V|
   21+35       0.9021      0.12  Q          |          |          |         V|
   21+40       0.9030      0.13  Q          |          |          |         V|
   21+45       0.9040      0.13  Q          |          |          |         V|
   21+50       0.9047      0.11  Q          |          |          |         V|
   21+55       0.9053      0.09  Q          |          |          |         V|
   22+ 0       0.9059      0.09  Q          |          |          |         V|
   22+ 5       0.9067      0.12  Q          |          |          |         V|
   22+10       0.9076      0.13  Q          |          |          |         V|
   22+15       0.9086      0.13  Q          |          |          |         V|
   22+20       0.9093      0.11  Q          |          |          |         V|
   22+25       0.9099      0.09  Q          |          |          |         V|
   22+30       0.9105      0.09  Q          |          |          |         V|
   22+35       0.9111      0.09  Q          |          |          |         V|
   22+40       0.9117      0.09  Q          |          |          |         V|
   22+45       0.9124      0.09  Q          |          |          |         V|
   22+50       0.9130      0.09  Q          |          |          |         V|
   22+55       0.9136      0.09  Q          |          |          |         V|
   23+ 0       0.9142      0.09  Q          |          |          |         V|
   23+ 5       0.9148      0.09  Q          |          |          |         V|
   23+10       0.9154      0.09  Q          |          |          |         V|
   23+15       0.9160      0.09  Q          |          |          |         V|
   23+20       0.9167      0.09  Q          |          |          |         V|
   23+25       0.9173      0.09  Q          |          |          |         V|
   23+30       0.9179      0.09  Q          |          |          |         V|
   23+35       0.9185      0.09  Q          |          |          |         V|
   23+40       0.9191      0.09  Q          |          |          |         V|
   23+45       0.9197      0.09  Q          |          |          |         V|
   23+50       0.9203      0.09  Q          |          |          |         V|
   23+55       0.9210      0.09  Q          |          |          |         V|
   24+ 0       0.9216      0.09  Q          |          |          |         V|
   24+ 5       0.9218      0.03  Q          |          |          |         V|
   24+10       0.9218      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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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 5006

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

 English Units used in output format



------------------------------------------------------------------------
------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22            0.55                 3.42

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            1.45                 9.02

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.550(In)
Area Averaged 100-Year Rainfall =    1.450(In)

Point rain (area averaged) =    0.920(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.920(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  75.0      0.303     0.500        0.167       1.000      0.167
                                                 Sum (F) =   0.167
Area averaged mean soil loss (F) (In/Hr) =  0.167
Minimum soil loss rate ((In/Hr)) =  0.083
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
---------------------------------------------------------------
               Unit Hydrograph Data
---------------------------------------------------------------
```

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	342.829	62.333	3.907
2	0.167	685.658	36.487	2.287
3	0.250	1028.487	1.180	0.074
		Sum = 100.000	Sum=	6.269

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	4.40	0.486	0.167	(0.243)	0.319
2	0.17	4.50	0.497	0.167	(0.248)	0.330
3	0.25	5.40	0.596	0.167	(0.298)	0.430
4	0.33	5.40	0.596	0.167	(0.298)	0.430
5	0.42	5.70	0.629	0.167	(0.315)	0.463
6	0.50	6.40	0.707	0.167	(0.353)	0.540
7	0.58	7.90	0.872	0.167	(0.436)	0.706
8	0.67	9.10	1.005	0.167	(0.502)	0.838
9	0.75	12.80	1.413	0.167	(0.707)	1.247
10	0.83	25.60	2.827	0.167	(1.413)	2.660
11	0.92	7.90	0.872	0.167	(0.436)	0.706
12	1.00	4.90	0.541	0.167	(0.271)	0.374
		(Loss Rate Not Used)			
Sum =		100.0			Sum = 9.0

Flood volume = Effective rainfall 0.75(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 0.17(In)
Total soil loss = 0.086(Ac.Ft)
Total rainfall = 0.92(In)
Flood volume = 17014.5 Cubic Feet
Total soil loss = 3762.7 Cubic Feet

Peak flow rate of this hydrograph = 13.315(CFS)

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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 5.0 10.0 15.0 20.0
0+ 5	0.0086	1.25	V Q
0+10	0.0225	2.02	V Q
0+15	0.0395	2.46	Q
0+20	0.0580	2.69	Q
0+25	0.0774	2.82	Q V
0+30	0.0995	3.20	Q V
0+35	0.1272	4.03	Q V
0+40	0.1612	4.93	Q V
0+45	0.2083	6.84	Q V
0+50	0.3000	13.32	Q V
0+55	0.3616	8.94	Q V
1+ 0	0.3841	3.28	Q V
1+ 5	0.3904	0.91	Q V
1+10	0.3906	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 04/30/19 File: pro10310.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978
Program License Serial Number 5006

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

Drainage Area = 6.22(Ac.) = 0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 6.22(Ac.) = 0.010 Sq. Mi.
Length along longest watercourse = 885.00(Ft.)
Length along longest watercourse measured to centroid = 442.50(Ft.)
Length along longest watercourse = 0.168 Mi.
Length along longest watercourse measured to centroid = 0.084 Mi.
Difference in elevation = 47.90(Ft.)
Slope along watercourse = 285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.024 Hr.
Lag time = 1.46 Min.
25% of lag time = 0.36 Min.
40% of lag time = 0.58 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]
6.22	1.00	6.22

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
6.22	2.50	15.55

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 = 100.00 %
Adjusted average point rain = 1.617(In)
Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
6.220	75.00	0.500

Total Area Entered = 6.22(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
75.0	75.0	0.303	0.500	0.167	1.000	0.167
					Sum (F) =	0.167

Area averaged mean soil loss (F) (In/Hr) = 0.167
Minimum soil loss rate ((In/Hr)) = 0.083
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.500

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	342.829	62.333	3.907
2	0.167	685.658	36.487	2.287
3	0.250	1028.487	1.180	0.074
		Sum = 100.000	Sum=	6.269

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	0.252	(0.167)	0.126	0.126
2	0.17	1.30	0.252	(0.167)	0.126	0.126
3	0.25	1.10	0.213	(0.167)	0.107	0.107
4	0.33	1.50	0.291	(0.167)	0.146	0.146
5	0.42	1.50	0.291	(0.167)	0.146	0.146
6	0.50	1.80	0.349	0.167	(0.175)	0.183
7	0.58	1.50	0.291	(0.167)	0.146	0.146
8	0.67	1.80	0.349	0.167	(0.175)	0.183
9	0.75	1.80	0.349	0.167	(0.175)	0.183
10	0.83	1.50	0.291	(0.167)	0.146	0.146

```
 11   0.92     1.60      0.310       (  0.167)       0.155        0.155
 12   1.00     1.80      0.349          0.167    (  0.175)        0.183
 13   1.08     2.20      0.427          0.167    (  0.213)        0.260
 14   1.17     2.20      0.427          0.167    (  0.213)        0.260
 15   1.25     2.20      0.427          0.167    (  0.213)        0.260
 16   1.33     2.00      0.388          0.167    (  0.194)        0.221
 17   1.42     2.60      0.505          0.167    (  0.252)        0.338
 18   1.50     2.70      0.524          0.167    (  0.262)        0.357
 19   1.58     2.40      0.466          0.167    (  0.233)        0.299
 20   1.67     2.70      0.524          0.167    (  0.262)        0.357
 21   1.75     3.30      0.640          0.167    (  0.320)        0.474
 22   1.83     3.10      0.602          0.167    (  0.301)        0.435
 23   1.92     2.90      0.563          0.167    (  0.281)        0.396
 24   2.00     3.00      0.582          0.167    (  0.291)        0.415
 25   2.08     3.10      0.602          0.167    (  0.301)        0.435
 26   2.17     4.20      0.815          0.167    (  0.408)        0.648
 27   2.25     5.00      0.970          0.167    (  0.485)        0.804
 28   2.33     3.50      0.679          0.167    (  0.340)        0.513
 29   2.42     6.80      1.320          0.167    (  0.660)        1.153
 30   2.50     7.30      1.417          0.167    (  0.708)        1.250
 31   2.58     8.20      1.591          0.167    (  0.796)        1.425
 32   2.67     5.90      1.145          0.167    (  0.572)        0.978
 33   2.75     2.00      0.388          0.167    (  0.194)        0.221
 34   2.83     1.80      0.349          0.167    (  0.175)        0.183
 35   2.92     1.80      0.349          0.167    (  0.175)        0.183
 36   3.00     0.60      0.116       (  0.167)       0.058        0.058
             (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    13.8
      Flood volume = Effective rainfall      1.15(In)
       times area       6.2(Ac.)/[(In)/(Ft.)] =       0.6(Ac.Ft)
      Total soil loss =      0.47(In)
      Total soil loss =     0.244(Ac.Ft)
      Total rainfall =      1.62(In)
      Flood volume =       25872.6 Cubic Feet
      Total soil loss =       10638.5 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      8.515(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        2.5       5.0       7.5      10.0
-------------------------------------------------------------------------
  0+ 5       0.0034      0.49  VQ        |         |         |         |
  0+10       0.0088      0.78  V  Q      |         |         |         |
  0+15       0.0137      0.72  V Q       |         |         |         |
  0+20       0.0194      0.82  |V Q      |         |         |         |
  0+25       0.0256      0.91  |V Q      |         |         |         |
  0+30       0.0329      1.06  | V Q     |         |         |         |
  0+35       0.0398      1.00  | VQ      |         |         |         |
  0+40       0.0471      1.06  |  VQ     |         |         |         |
  0+45       0.0550      1.14  |  VQ     |         |         |         |
  0+50       0.0619      1.00  |   Q     |         |         |         |
  0+55       0.0684      0.95  |  QV     |         |         |         |
  1+ 0       0.0759      1.08  |   QV    |         |         |         |
  1+ 5       0.0858      1.45  |    Q    |         |         |         |
  1+10       0.0970      1.63  |     Q   |         |         |         |
  1+15       0.1083      1.63  |     QV  |         |         |         |
  1+20       0.1185      1.48  |    Q V  |         |         |         |
  1+25       0.1312      1.85  |      QV |         |         |         |
  1+30       0.1462      2.19  |       QV|         |         |         |
  1+35       0.1601      2.01  |       Q V         |         |         |
  1+40       0.1746      2.11  |       Q |V        |         |         |
  1+45       0.1932      2.69  |         Q  V      |         |         |
  1+50       0.2125      2.81  |         |Q  V     |         |         |
  1+55       0.2303      2.58  |         Q    V    |         |         |
  2+ 0       0.2479      2.56  |         Q     V   |         |         |
  2+ 5       0.2664      2.68  |         Q      V  |         |         |
  2+10       0.2909      3.56  |         |   Q    V|         |         |
  2+15       0.3230      4.66  |         |       Q |V        |         |
  2+20       0.3498      3.89  |         |    Q    |  V      |         |
  2+25       0.3893      5.74  |         |         | Q   V   |         |
  2+30       0.4414      7.56  |         |         |       VQ|         |
  2+35       0.5000      8.51  |         |         |        |  VQ     |
  2+40       0.5495      7.18  |         |         |       Q |     V   |
  2+45       0.5716      3.21  |         | Q       |         |      V  |
  2+50       0.5805      1.29  |    Q    |         |         |       V |
  2+55       0.5884      1.15  |   Q     |         |         |       V |
  3+ 0       0.5929      0.66  | Q       |         |         |       V |
  3+ 5       0.5939      0.15  Q         |         |         |       V |
  3+10       0.5940      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  04/30/19 File: pro10610.out

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

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


Program License Serial Number 5006

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

 English Units used in output format



----------------------------------------------------------------------
----------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22            1.40                 8.71
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22            3.50                21.77
STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    1.400(In)
Area Averaged 100-Year Rainfall =    3.500(In)
Point rain (area averaged) =    2.264(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.264(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  75.0      0.303     0.500        0.167       1.000      0.167
                                                 Sum (F) =    0.167
Area averaged mean soil loss (F) (In/Hr) =  0.167
Minimum soil loss rate ((In/Hr)) =  0.083
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
----------------------------------------------------------------------
                U n i t  H y d r o g r a p h
                       FOOTHILL S-Curve
----------------------------------------------------------------------
                Unit Hydrograph Data
----------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
----------------------------------------------------------------------
    1   0.083        342.829         62.333              3.907
    2   0.167        685.658         36.487              2.287
    3   0.250       1028.487          1.180              0.074
                                Sum = 100.000    Sum=       6.269
----------------------------------------------------------------------
 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     0.50      0.136        (  0.167)       0.068        0.068
  2   0.17     0.60      0.163        (  0.167)       0.082        0.082
```

3	0.25	0.60	0.163	(0.167)		0.082	0.082
4	0.33	0.60	0.163	(0.167)		0.082	0.082
5	0.42	0.60	0.163	(0.167)		0.082	0.082
6	0.50	0.70	0.190	(0.167)		0.095	0.095
7	0.58	0.70	0.190	(0.167)		0.095	0.095
8	0.67	0.70	0.190	(0.167)		0.095	0.095
9	0.75	0.70	0.190	(0.167)		0.095	0.095
10	0.83	0.70	0.190	(0.167)		0.095	0.095
11	0.92	0.70	0.190	(0.167)		0.095	0.095
12	1.00	0.80	0.217	(0.167)		0.109	0.109
13	1.08	0.80	0.217	(0.167)		0.109	0.109
14	1.17	0.80	0.217	(0.167)		0.109	0.109
15	1.25	0.80	0.217	(0.167)		0.109	0.109
16	1.33	0.80	0.217	(0.167)		0.109	0.109
17	1.42	0.80	0.217	(0.167)		0.109	0.109
18	1.50	0.80	0.217	(0.167)		0.109	0.109
19	1.58	0.80	0.217	(0.167)		0.109	0.109
20	1.67	0.80	0.217	(0.167)		0.109	0.109
21	1.75	0.80	0.217	(0.167)		0.109	0.109
22	1.83	0.80	0.217	(0.167)		0.109	0.109
23	1.92	0.80	0.217	(0.167)		0.109	0.109
24	2.00	0.90	0.245	(0.167)		0.122	0.122
25	2.08	0.80	0.217	(0.167)		0.109	0.109
26	2.17	0.90	0.245	(0.167)		0.122	0.122
27	2.25	0.90	0.245	(0.167)		0.122	0.122
28	2.33	0.90	0.245	(0.167)		0.122	0.122
29	2.42	0.90	0.245	(0.167)		0.122	0.122
30	2.50	0.90	0.245	(0.167)		0.122	0.122
31	2.58	0.90	0.245	(0.167)		0.122	0.122
32	2.67	0.90	0.245	(0.167)		0.122	0.122
33	2.75	1.00	0.272	(0.167)		0.136	0.136
34	2.83	1.00	0.272	(0.167)		0.136	0.136
35	2.92	1.00	0.272	(0.167)		0.136	0.136
36	3.00	1.00	0.272	(0.167)		0.136	0.136
37	3.08	1.00	0.272	(0.167)		0.136	0.136
38	3.17	1.10	0.299	(0.167)		0.149	0.149
39	3.25	1.10	0.299	(0.167)		0.149	0.149
40	3.33	1.10	0.299	(0.167)		0.149	0.149
41	3.42	1.20	0.326	(0.167)		0.163	0.163
42	3.50	1.30	0.353	0.167	(0.177)		0.187
43	3.58	1.40	0.380	0.167	(0.190)		0.214
44	3.67	1.40	0.380	0.167	(0.190)		0.214
45	3.75	1.50	0.408	0.167	(0.204)		0.241
46	3.83	1.50	0.408	0.167	(0.204)		0.241
47	3.92	1.60	0.435	0.167	(0.217)		0.268
48	4.00	1.60	0.435	0.167	(0.217)		0.268
49	4.08	1.70	0.462	0.167	(0.231)		0.295
50	4.17	1.80	0.489	0.167	(0.245)		0.322
51	4.25	1.90	0.516	0.167	(0.258)		0.350
52	4.33	2.00	0.543	0.167	(0.272)		0.377
53	4.42	2.10	0.571	0.167	(0.285)		0.404
54	4.50	2.10	0.571	0.167	(0.285)		0.404
55	4.58	2.20	0.598	0.167	(0.299)		0.431
56	4.67	2.30	0.625	0.167	(0.312)		0.458
57	4.75	2.40	0.652	0.167	(0.326)		0.485
58	4.83	2.40	0.652	0.167	(0.326)		0.485
59	4.92	2.50	0.679	0.167	(0.340)		0.513
60	5.00	2.60	0.706	0.167	(0.353)		0.540
61	5.08	3.10	0.842	0.167	(0.421)		0.676
62	5.17	3.60	0.978	0.167	(0.489)		0.811
63	5.25	3.90	1.060	0.167	(0.530)		0.893
64	5.33	4.20	1.141	0.167	(0.571)		0.974
65	5.42	4.70	1.277	0.167	(0.638)		1.110
66	5.50	5.60	1.521	0.167	(0.761)		1.355
67	5.58	1.90	0.516	0.167	(0.258)		0.350
68	5.67	0.90	0.245	(0.167)		0.122	0.122
69	5.75	0.60	0.163	(0.167)		0.082	0.082
70	5.83	0.50	0.136	(0.167)		0.068	0.068
71	5.92	0.30	0.082	(0.167)		0.041	0.041
72	6.00	0.20	0.054	(0.167)		0.027	0.027

(Loss Rate Not Used)

Sum = 100.0 Sum = 17.8

Flood volume = Effective rainfall 1.49(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft)
Total soil loss = 0.78(In)
Total soil loss = 0.402(Ac.Ft)
Total rainfall = 2.26(In)
Flood volume = 33583.6 Cubic Feet
Total soil loss = 17532.3 Cubic Feet

Peak flow rate of this hydrograph = 7.909(CFS)

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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	2.5	5.0	7.5	10.0
0+ 5	0.0018	0.27	VQ				
0+10	0.0051	0.47	VQ				
0+15	0.0086	0.51	V Q				
0+20	0.0121	0.51	V Q				
0+25	0.0156	0.51	V Q				
0+30	0.0195	0.56	|VQ				
0+35	0.0236	0.60	|VQ				
0+40	0.0277	0.60	|VQ				
0+45	0.0318	0.60	|VQ				
0+50	0.0360	0.60	|VQ				
0+55	0.0401	0.60	| Q				
1+ 0	0.0445	0.65	| Q				
1+ 5	0.0492	0.68	| Q				
1+10	0.0539	0.68	| Q				
1+15	0.0586	0.68	| QV				
1+20	0.0633	0.68	| QV				
1+25	0.0680	0.68	| QV				
1+30	0.0727	0.68	| QV				
1+35	0.0774	0.68	| Q V				
1+40	0.0821	0.68	| Q V				
1+45	0.0868	0.68	| Q V				
1+50	0.0915	0.68	| Q V				
1+55	0.0962	0.68	| Q V				
2+ 0	0.1012	0.73	| Q V				
2+ 5	0.1061	0.71	| Q V				
2+10	0.1112	0.74	| Q V				
2+15	0.1165	0.77	| Q V				
2+20	0.1217	0.77	| Q V				
2+25	0.1270	0.77	| Q V				
2+30	0.1323	0.77	| Q V				
2+35	0.1376	0.77	| Q V				
2+40	0.1429	0.77	| Q V				
2+45	0.1485	0.82	| Q V				
2+50	0.1544	0.85	| Q V				
2+55	0.1602	0.85	| Q V				
3+ 0	0.1661	0.85	| Q V				
3+ 5	0.1720	0.85	| Q V				
3+10	0.1782	0.91	| Q V				
3+15	0.1847	0.94	| Q V				
3+20	0.1911	0.94	| Q V				
3+25	0.1979	0.99	| Q V				
3+30	0.2056	1.11	| Q V				
3+35	0.2144	1.27	| Q |V				
3+40	0.2236	1.34	| Q |V				
3+45	0.2336	1.45	| Q | V				
3+50	0.2439	1.51	| Q | V				
3+55	0.2551	1.62	| Q | V				
4+ 0	0.2666	1.68	| Q | V				
4+ 5	0.2790	1.79	| Q | V				
4+10	0.2924	1.96	| Q | V				
4+15	0.3071	2.13	| Q | V				
4+20	0.3229	2.30	| Q| V				
4+25	0.3399	2.47	| Q| V				
4+30	0.3573	2.53	| Q V				
4+35	0.3755	2.64	| Q V|				
4+40	0.3948	2.81	| Q V				
4+45	0.4153	2.98	| Q |V				
4+50	0.4363	3.04	| Q | V				
4+55	0.4580	3.15	| Q | V				
5+ 0	0.4808	3.32	| Q | V				
5+ 5	0.5078	3.91	| Q | V				
5+10	0.5405	4.76	| Q| V				
5+15	0.5777	5.40	| Q V|				
5+20	0.6184	5.91	| Q | V				
5+25	0.6641	6.64	| Q | V				
5+30	0.7186	7.91	| Q V				
5+35	0.7499	4.55	| Q | V				
5+40	0.7594	1.38	| Q | V				
5+45	0.7637	0.62	| Q | V				
5+50	0.7669	0.46	|Q | V				
5+55	0.7691	0.32	|Q | V				
6+ 0	0.7705	0.20	Q | V				
6+ 5	0.7710	0.07	Q | V				
6+10	0.7710	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  04/30/19 File: pro102410.out

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


Program License Serial Number 5006

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

 English Units used in output format



--------------------------------------------------------------------------
--------------------------------------------------------------------------
Drainage Area =       6.22(Ac.)  =      0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       6.22(Ac.)  =      0.010 Sq. Mi.
Length along longest watercourse =     885.00(Ft.)
Length along longest watercourse measured to centroid =     442.50(Ft.)
Length along longest watercourse =      0.168 Mi.
Length along longest watercourse measured to centroid =      0.084 Mi.
Difference in elevation =      47.90(Ft.)
Slope along watercourse =    285.7763 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.024 Hr.
Lag time =     1.46 Min.
25% of lag time =     0.36 Min.
40% of lag time =     0.58 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]
        6.22           2.50                 15.55
100 YEAR Area rainfall data:
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        6.22           7.00                 43.54
STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    2.500(In)
Area Averaged 100-Year Rainfall =    7.000(In)
Point rain (area averaged) =    4.351(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    4.351(In)
Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     6.220           75.00          0.500
 Total Area Entered =      6.22(Ac.)
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  75.0      0.303     0.500        0.167       1.000      0.167
                                                 Sum (F) =    0.167
Area averaged mean soil loss (F) (In/Hr) =  0.167
Minimum soil loss rate ((In/Hr)) =  0.083
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
--------------------------------------------------------------------------
                U n i t  H y d r o g r a p h
                       FOOTHILL S-Curve
--------------------------------------------------------------------------
                Unit Hydrograph Data
--------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------------
    1   0.083        342.829         62.333              3.907
    2   0.167        685.658         36.487              2.287
    3   0.250       1028.487          1.180              0.074
                                Sum = 100.000    Sum=       6.269
--------------------------------------------------------------------------
 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     0.07      0.035       (  0.295)       0.017        0.017
  2   0.17     0.07      0.035       (  0.294)       0.017        0.017
```

3	0.25	0.07	0.035	(0.293)	0.017	0.017
4	0.33	0.10	0.052	(0.292)	0.026	0.026
5	0.42	0.10	0.052	(0.291)	0.026	0.026
6	0.50	0.10	0.052	(0.290)	0.026	0.026
7	0.58	0.10	0.052	(0.289)	0.026	0.026
8	0.67	0.10	0.052	(0.287)	0.026	0.026
9	0.75	0.10	0.052	(0.286)	0.026	0.026
10	0.83	0.13	0.070	(0.285)	0.035	0.035
11	0.92	0.13	0.070	(0.284)	0.035	0.035
12	1.00	0.13	0.070	(0.283)	0.035	0.035
13	1.08	0.10	0.052	(0.282)	0.026	0.026
14	1.17	0.10	0.052	(0.281)	0.026	0.026
15	1.25	0.10	0.052	(0.280)	0.026	0.026
16	1.33	0.10	0.052	(0.279)	0.026	0.026
17	1.42	0.10	0.052	(0.277)	0.026	0.026
18	1.50	0.10	0.052	(0.276)	0.026	0.026
19	1.58	0.10	0.052	(0.275)	0.026	0.026
20	1.67	0.10	0.052	(0.274)	0.026	0.026
21	1.75	0.10	0.052	(0.273)	0.026	0.026
22	1.83	0.13	0.070	(0.272)	0.035	0.035
23	1.92	0.13	0.070	(0.271)	0.035	0.035
24	2.00	0.13	0.070	(0.270)	0.035	0.035
25	2.08	0.13	0.070	(0.269)	0.035	0.035
26	2.17	0.13	0.070	(0.268)	0.035	0.035
27	2.25	0.13	0.070	(0.266)	0.035	0.035
28	2.33	0.13	0.070	(0.265)	0.035	0.035
29	2.42	0.13	0.070	(0.264)	0.035	0.035
30	2.50	0.13	0.070	(0.263)	0.035	0.035
31	2.58	0.17	0.087	(0.262)	0.044	0.044
32	2.67	0.17	0.087	(0.261)	0.044	0.044
33	2.75	0.17	0.087	(0.260)	0.044	0.044
34	2.83	0.17	0.087	(0.259)	0.044	0.044
35	2.92	0.17	0.087	(0.258)	0.044	0.044
36	3.00	0.17	0.087	(0.257)	0.044	0.044
37	3.08	0.17	0.087	(0.256)	0.044	0.044
38	3.17	0.17	0.087	(0.255)	0.044	0.044
39	3.25	0.17	0.087	(0.254)	0.044	0.044
40	3.33	0.17	0.087	(0.253)	0.044	0.044
41	3.42	0.17	0.087	(0.251)	0.044	0.044
42	3.50	0.17	0.087	(0.250)	0.044	0.044
43	3.58	0.17	0.087	(0.249)	0.044	0.044
44	3.67	0.17	0.087	(0.248)	0.044	0.044
45	3.75	0.17	0.087	(0.247)	0.044	0.044
46	3.83	0.20	0.104	(0.246)	0.052	0.052
47	3.92	0.20	0.104	(0.245)	0.052	0.052
48	4.00	0.20	0.104	(0.244)	0.052	0.052
49	4.08	0.20	0.104	(0.243)	0.052	0.052
50	4.17	0.20	0.104	(0.242)	0.052	0.052
51	4.25	0.20	0.104	(0.241)	0.052	0.052
52	4.33	0.23	0.122	(0.240)	0.061	0.061
53	4.42	0.23	0.122	(0.239)	0.061	0.061
54	4.50	0.23	0.122	(0.238)	0.061	0.061
55	4.58	0.23	0.122	(0.237)	0.061	0.061
56	4.67	0.23	0.122	(0.236)	0.061	0.061
57	4.75	0.23	0.122	(0.235)	0.061	0.061
58	4.83	0.27	0.139	(0.234)	0.070	0.070
59	4.92	0.27	0.139	(0.233)	0.070	0.070
60	5.00	0.27	0.139	(0.232)	0.070	0.070
61	5.08	0.20	0.104	(0.231)	0.052	0.052
62	5.17	0.20	0.104	(0.230)	0.052	0.052
63	5.25	0.20	0.104	(0.229)	0.052	0.052
64	5.33	0.23	0.122	(0.228)	0.061	0.061
65	5.42	0.23	0.122	(0.227)	0.061	0.061
66	5.50	0.23	0.122	(0.226)	0.061	0.061
67	5.58	0.27	0.139	(0.225)	0.070	0.070
68	5.67	0.27	0.139	(0.224)	0.070	0.070
69	5.75	0.27	0.139	(0.223)	0.070	0.070
70	5.83	0.27	0.139	(0.222)	0.070	0.070
71	5.92	0.27	0.139	(0.221)	0.070	0.070
72	6.00	0.27	0.139	(0.220)	0.070	0.070
73	6.08	0.30	0.157	(0.219)	0.078	0.078
74	6.17	0.30	0.157	(0.218)	0.078	0.078
75	6.25	0.30	0.157	(0.217)	0.078	0.078
76	6.33	0.30	0.157	(0.216)	0.078	0.078
77	6.42	0.30	0.157	(0.215)	0.078	0.078
78	6.50	0.30	0.157	(0.214)	0.078	0.078
79	6.58	0.33	0.174	(0.213)	0.087	0.087
80	6.67	0.33	0.174	(0.212)	0.087	0.087
81	6.75	0.33	0.174	(0.211)	0.087	0.087
82	6.83	0.33	0.174	(0.210)	0.087	0.087
83	6.92	0.33	0.174	(0.209)	0.087	0.087
84	7.00	0.33	0.174	(0.208)	0.087	0.087
85	7.08	0.33	0.174	(0.207)	0.087	0.087
86	7.17	0.33	0.174	(0.207)	0.087	0.087
87	7.25	0.33	0.174	(0.206)	0.087	0.087
88	7.33	0.37	0.191	(0.205)	0.096	0.096

89	7.42	0.37	0.191	(	0.204)	0.096		0.096
90	7.50	0.37	0.191	(	0.203)	0.096		0.096
91	7.58	0.40	0.209	(	0.202)	0.104		0.104
92	7.67	0.40	0.209	(	0.201)	0.104		0.104
93	7.75	0.40	0.209	(	0.200)	0.104		0.104
94	7.83	0.43	0.226	(	0.199)	0.113		0.113
95	7.92	0.43	0.226	(	0.198)	0.113		0.113
96	8.00	0.43	0.226	(	0.197)	0.113		0.113
97	8.08	0.50	0.261	(	0.196)	0.131		0.131
98	8.17	0.50	0.261	(	0.195)	0.131		0.131
99	8.25	0.50	0.261	(	0.194)	0.131		0.131
100	8.33	0.50	0.261	(	0.194)	0.131		0.131
101	8.42	0.50	0.261	(	0.193)	0.131		0.131
102	8.50	0.50	0.261	(	0.192)	0.131		0.131
103	8.58	0.53	0.278	(	0.191)	0.139		0.139
104	8.67	0.53	0.278	(	0.190)	0.139		0.139
105	8.75	0.53	0.278	(	0.189)	0.139		0.139
106	8.83	0.57	0.296	(	0.188)	0.148		0.148
107	8.92	0.57	0.296	(	0.187)	0.148		0.148
108	9.00	0.57	0.296	(	0.186)	0.148		0.148
109	9.08	0.63	0.331	(	0.186)	0.165		0.165
110	9.17	0.63	0.331	(	0.185)	0.165		0.165
111	9.25	0.63	0.331	(	0.184)	0.165		0.165
112	9.33	0.67	0.348	(	0.183)	0.174		0.174
113	9.42	0.67	0.348	(	0.182)	0.174		0.174
114	9.50	0.67	0.348	(	0.181)	0.174		0.174
115	9.58	0.70	0.366		0.180	(0.183)		0.185
116	9.67	0.70	0.366		0.179	(0.183)		0.186
117	9.75	0.70	0.366		0.179	(0.183)		0.187
118	9.83	0.73	0.383		0.178	(0.191)		0.205
119	9.92	0.73	0.383		0.177	(0.191)		0.206
120	10.00	0.73	0.383		0.176	(0.191)		0.207
121	10.08	0.50	0.261	(	0.175)	0.131		0.131
122	10.17	0.50	0.261	(	0.174)	0.131		0.131
123	10.25	0.50	0.261	(	0.173)	0.131		0.131
124	10.33	0.50	0.261	(	0.173)	0.131		0.131
125	10.42	0.50	0.261	(	0.172)	0.131		0.131
126	10.50	0.50	0.261	(	0.171)	0.131		0.131
127	10.58	0.67	0.348		0.170	(0.174)		0.178
128	10.67	0.67	0.348		0.169	(0.174)		0.179
129	10.75	0.67	0.348		0.168	(0.174)		0.180
130	10.83	0.67	0.348		0.168	(0.174)		0.181
131	10.92	0.67	0.348		0.167	(0.174)		0.181
132	11.00	0.67	0.348		0.166	(0.174)		0.182
133	11.08	0.63	0.331		0.165	(0.165)		0.166
134	11.17	0.63	0.331		0.164	(0.165)		0.166
135	11.25	0.63	0.331		0.164	(0.165)		0.167
136	11.33	0.63	0.331		0.163	(0.165)		0.168
137	11.42	0.63	0.331		0.162	(0.165)		0.169
138	11.50	0.63	0.331		0.161	(0.165)		0.170
139	11.58	0.57	0.296	(	0.160)	0.148		0.148
140	11.67	0.57	0.296	(	0.160)	0.148		0.148
141	11.75	0.57	0.296	(	0.159)	0.148		0.148
142	11.83	0.60	0.313	(	0.158)	0.157		0.157
143	11.92	0.60	0.313	(	0.157)	0.157		0.157
144	12.00	0.60	0.313		0.156	(0.157)		0.157
145	12.08	0.83	0.435		0.156	(0.218)		0.280
146	12.17	0.83	0.435		0.155	(0.218)		0.280
147	12.25	0.83	0.435		0.154	(0.218)		0.281
148	12.33	0.87	0.453		0.153	(0.226)		0.299
149	12.42	0.87	0.453		0.152	(0.226)		0.300
150	12.50	0.87	0.453		0.152	(0.226)		0.301
151	12.58	0.93	0.487		0.151	(0.244)		0.336
152	12.67	0.93	0.487		0.150	(0.244)		0.337
153	12.75	0.93	0.487		0.149	(0.244)		0.338
154	12.83	0.97	0.505		0.149	(0.252)		0.356
155	12.92	0.97	0.505		0.148	(0.252)		0.357
156	13.00	0.97	0.505		0.147	(0.252)		0.358
157	13.08	1.13	0.592		0.146	(0.296)		0.445
158	13.17	1.13	0.592		0.146	(0.296)		0.446
159	13.25	1.13	0.592		0.145	(0.296)		0.447
160	13.33	1.13	0.592		0.144	(0.296)		0.448
161	13.42	1.13	0.592		0.143	(0.296)		0.448
162	13.50	1.13	0.592		0.143	(0.296)		0.449
163	13.58	0.77	0.400		0.142	(0.200)		0.258
164	13.67	0.77	0.400		0.141	(0.200)		0.259
165	13.75	0.77	0.400		0.141	(0.200)		0.260
166	13.83	0.77	0.400		0.140	(0.200)		0.260
167	13.92	0.77	0.400		0.139	(0.200)		0.261
168	14.00	0.77	0.400		0.138	(0.200)		0.262
169	14.08	0.90	0.470		0.138	(0.235)		0.332
170	14.17	0.90	0.470		0.137	(0.235)		0.333
171	14.25	0.90	0.470		0.136	(0.235)		0.334
172	14.33	0.87	0.453		0.136	(0.226)		0.317
173	14.42	0.87	0.453		0.135	(0.226)		0.318
174	14.50	0.87	0.453		0.134	(0.226)		0.318

175	14.58	0.87	0.453	0.134	(0.226)	0.319
176	14.67	0.87	0.453	0.133	(0.226)	0.320
177	14.75	0.87	0.453	0.132	(0.226)	0.320
178	14.83	0.83	0.435	0.132	(0.218)	0.304
179	14.92	0.83	0.435	0.131	(0.218)	0.304
180	15.00	0.83	0.435	0.130	(0.218)	0.305
181	15.08	0.80	0.418	0.129	(0.209)	0.288
182	15.17	0.80	0.418	0.129	(0.209)	0.289
183	15.25	0.80	0.418	0.128	(0.209)	0.290
184	15.33	0.77	0.400	0.128	(0.200)	0.273
185	15.42	0.77	0.400	0.127	(0.200)	0.273
186	15.50	0.77	0.400	0.126	(0.200)	0.274
187	15.58	0.63	0.331	0.126	(0.165)	0.205
188	15.67	0.63	0.331	0.125	(0.165)	0.206
189	15.75	0.63	0.331	0.124	(0.165)	0.206
190	15.83	0.63	0.331	0.124	(0.165)	0.207
191	15.92	0.63	0.331	0.123	(0.165)	0.208
192	16.00	0.63	0.331	0.122	(0.165)	0.208
193	16.08	0.13	0.070	(0.122)	0.035	0.035
194	16.17	0.13	0.070	(0.121)	0.035	0.035
195	16.25	0.13	0.070	(0.121)	0.035	0.035
196	16.33	0.13	0.070	(0.120)	0.035	0.035
197	16.42	0.13	0.070	(0.119)	0.035	0.035
198	16.50	0.13	0.070	(0.119)	0.035	0.035
199	16.58	0.10	0.052	(0.118)	0.026	0.026
200	16.67	0.10	0.052	(0.117)	0.026	0.026
201	16.75	0.10	0.052	(0.117)	0.026	0.026
202	16.83	0.10	0.052	(0.116)	0.026	0.026
203	16.92	0.10	0.052	(0.116)	0.026	0.026
204	17.00	0.10	0.052	(0.115)	0.026	0.026
205	17.08	0.17	0.087	(0.115)	0.044	0.044
206	17.17	0.17	0.087	(0.114)	0.044	0.044
207	17.25	0.17	0.087	(0.113)	0.044	0.044
208	17.33	0.17	0.087	(0.113)	0.044	0.044
209	17.42	0.17	0.087	(0.112)	0.044	0.044
210	17.50	0.17	0.087	(0.112)	0.044	0.044
211	17.58	0.17	0.087	(0.111)	0.044	0.044
212	17.67	0.17	0.087	(0.111)	0.044	0.044
213	17.75	0.17	0.087	(0.110)	0.044	0.044
214	17.83	0.13	0.070	(0.109)	0.035	0.035
215	17.92	0.13	0.070	(0.109)	0.035	0.035
216	18.00	0.13	0.070	(0.108)	0.035	0.035
217	18.08	0.13	0.070	(0.108)	0.035	0.035
218	18.17	0.13	0.070	(0.107)	0.035	0.035
219	18.25	0.13	0.070	(0.107)	0.035	0.035
220	18.33	0.13	0.070	(0.106)	0.035	0.035
221	18.42	0.13	0.070	(0.106)	0.035	0.035
222	18.50	0.13	0.070	(0.105)	0.035	0.035
223	18.58	0.10	0.052	(0.105)	0.026	0.026
224	18.67	0.10	0.052	(0.104)	0.026	0.026
225	18.75	0.10	0.052	(0.104)	0.026	0.026
226	18.83	0.07	0.035	(0.103)	0.017	0.017
227	18.92	0.07	0.035	(0.103)	0.017	0.017
228	19.00	0.07	0.035	(0.102)	0.017	0.017
229	19.08	0.10	0.052	(0.102)	0.026	0.026
230	19.17	0.10	0.052	(0.101)	0.026	0.026
231	19.25	0.10	0.052	(0.101)	0.026	0.026
232	19.33	0.13	0.070	(0.100)	0.035	0.035
233	19.42	0.13	0.070	(0.100)	0.035	0.035
234	19.50	0.13	0.070	(0.099)	0.035	0.035
235	19.58	0.10	0.052	(0.099)	0.026	0.026
236	19.67	0.10	0.052	(0.099)	0.026	0.026
237	19.75	0.10	0.052	(0.098)	0.026	0.026
238	19.83	0.07	0.035	(0.098)	0.017	0.017
239	19.92	0.07	0.035	(0.097)	0.017	0.017
240	20.00	0.07	0.035	(0.097)	0.017	0.017
241	20.08	0.10	0.052	(0.096)	0.026	0.026
242	20.17	0.10	0.052	(0.096)	0.026	0.026
243	20.25	0.10	0.052	(0.096)	0.026	0.026
244	20.33	0.10	0.052	(0.095)	0.026	0.026
245	20.42	0.10	0.052	(0.095)	0.026	0.026
246	20.50	0.10	0.052	(0.094)	0.026	0.026
247	20.58	0.10	0.052	(0.094)	0.026	0.026
248	20.67	0.10	0.052	(0.093)	0.026	0.026
249	20.75	0.10	0.052	(0.093)	0.026	0.026
250	20.83	0.07	0.035	(0.093)	0.017	0.017
251	20.92	0.07	0.035	(0.092)	0.017	0.017
252	21.00	0.07	0.035	(0.092)	0.017	0.017
253	21.08	0.10	0.052	(0.092)	0.026	0.026
254	21.17	0.10	0.052	(0.091)	0.026	0.026
255	21.25	0.10	0.052	(0.091)	0.026	0.026
256	21.33	0.07	0.035	(0.091)	0.017	0.017
257	21.42	0.07	0.035	(0.090)	0.017	0.017
258	21.50	0.07	0.035	(0.090)	0.017	0.017
259	21.58	0.10	0.052	(0.090)	0.026	0.026
260	21.67	0.10	0.052	(0.089)	0.026	0.026

261	21.75	0.10	0.052	(0.089)	0.026	0.026
262	21.83	0.07	0.035	(0.089)	0.017	0.017
263	21.92	0.07	0.035	(0.088)	0.017	0.017
264	22.00	0.07	0.035	(0.088)	0.017	0.017
265	22.08	0.10	0.052	(0.088)	0.026	0.026
266	22.17	0.10	0.052	(0.087)	0.026	0.026
267	22.25	0.10	0.052	(0.087)	0.026	0.026
268	22.33	0.07	0.035	(0.087)	0.017	0.017
269	22.42	0.07	0.035	(0.087)	0.017	0.017
270	22.50	0.07	0.035	(0.086)	0.017	0.017
271	22.58	0.07	0.035	(0.086)	0.017	0.017
272	22.67	0.07	0.035	(0.086)	0.017	0.017
273	22.75	0.07	0.035	(0.086)	0.017	0.017
274	22.83	0.07	0.035	(0.085)	0.017	0.017
275	22.92	0.07	0.035	(0.085)	0.017	0.017
276	23.00	0.07	0.035	(0.085)	0.017	0.017
277	23.08	0.07	0.035	(0.085)	0.017	0.017
278	23.17	0.07	0.035	(0.085)	0.017	0.017
279	23.25	0.07	0.035	(0.084)	0.017	0.017
280	23.33	0.07	0.035	(0.084)	0.017	0.017
281	23.42	0.07	0.035	(0.084)	0.017	0.017
282	23.50	0.07	0.035	(0.084)	0.017	0.017
283	23.58	0.07	0.035	(0.084)	0.017	0.017
284	23.67	0.07	0.035	(0.084)	0.017	0.017
285	23.75	0.07	0.035	(0.084)	0.017	0.017
286	23.83	0.07	0.035	(0.083)	0.017	0.017
287	23.92	0.07	0.035	(0.083)	0.017	0.017
288	24.00	0.07	0.035	(0.083)	0.017	0.017

(Loss Rate Not Used)

Sum = 100.0 Sum = 30.3

Flood volume = Effective rainfall 2.52(In)
times area 6.2(Ac.)/[(In)/(Ft.)] = 1.3(Ac.Ft)
Total soil loss = 1.83(In)
Total soil loss = 0.947(Ac.Ft)
Total rainfall = 4.35(In)
Flood volume = 57009.5 Cubic Feet
Total soil loss = 41236.4 Cubic Feet

Peak flow rate of this hydrograph = 2.814(CFS)

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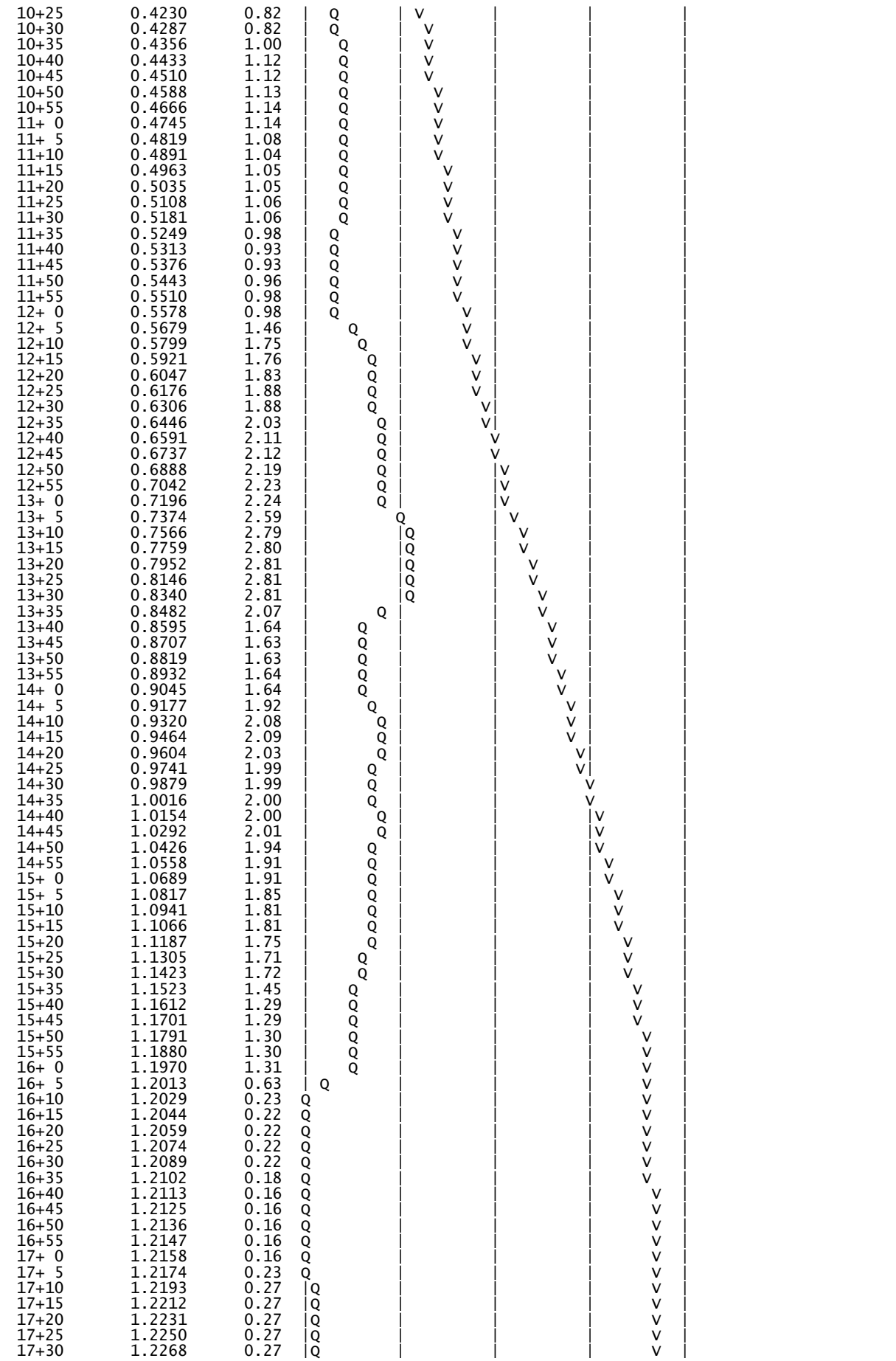
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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	0.0005	0.07	Q				
0+10	0.0012	0.11	Q				
0+15	0.0020	0.11	Q				
0+20	0.0029	0.14	Q				
0+25	0.0041	0.16	Q				
0+30	0.0052	0.16	Q				
0+35	0.0063	0.16	Q				
0+40	0.0075	0.16	Q				
0+45	0.0086	0.16	Q				
0+50	0.0099	0.20	Q				
0+55	0.0114	0.22	Q				
1+ 0	0.0129	0.22	Q				
1+ 5	0.0142	0.18	Q				
1+10	0.0153	0.16	Q				
1+15	0.0165	0.16	Q				
1+20	0.0176	0.16	Q				
1+25	0.0187	0.16	Q				
1+30	0.0199	0.16	Q				
1+35	0.0210	0.16	Q				
1+40	0.0221	0.16	Q				
1+45	0.0232	0.16	Q				
1+50	0.0246	0.20	Q				
1+55	0.0261	0.22	Q				
2+ 0	0.0276	0.22	Q				
2+ 5	0.0291	0.22	Q				
2+10	0.0306	0.22	Q				
2+15	0.0321	0.22	Q				
2+20	0.0336	0.22	QV				
2+25	0.0351	0.22	QV				
2+30	0.0366	0.22	QV				
2+35	0.0384	0.25	|Q				
2+40	0.0402	0.27	|Q				
2+45	0.0421	0.27	|Q				
2+50	0.0440	0.27	|Q				
2+55	0.0459	0.27	|Q				
3+ 0	0.0478	0.27	|Q				
3+ 5	0.0496	0.27	|Q				
3+10	0.0515	0.27	|Q				

```
 3+15       0.0534      0.27  |Q         |          |          |          |
 3+20       0.0553      0.27  |Q         |          |          |          |
 3+25       0.0572      0.27  |Q         |          |          |          |
 3+30       0.0590      0.27  |Q         |          |          |          |
 3+35       0.0609      0.27  |Q         |          |          |          |
 3+40       0.0628      0.27  |Q         |          |          |          |
 3+45       0.0647      0.27  |Q         |          |          |          |
 3+50       0.0668      0.31  |QV        |          |          |          |
 3+55       0.0690      0.33  |QV        |          |          |          |
 4+ 0       0.0713      0.33  |QV        |          |          |          |
 4+ 5       0.0736      0.33  |QV        |          |          |          |
 4+10       0.0758      0.33  |QV        |          |          |          |
 4+15       0.0781      0.33  |QV        |          |          |          |
 4+20       0.0806      0.36  |QV        |          |          |          |
 4+25       0.0832      0.38  |QV        |          |          |          |
 4+30       0.0858      0.38  |QV        |          |          |          |
 4+35       0.0884      0.38  |QV        |          |          |          |
 4+40       0.0911      0.38  |QV        |          |          |          |
 4+45       0.0937      0.38  |QV        |          |          |          |
 4+50       0.0966      0.42  |QV        |          |          |          |
 4+55       0.0996      0.44  |Q V       |          |          |          |
 5+ 0       0.1026      0.44  |Q V       |          |          |          |
 5+ 5       0.1051      0.37  |Q V       |          |          |          |
 5+10       0.1074      0.33  |Q V       |          |          |          |
 5+15       0.1096      0.33  |Q V       |          |          |          |
 5+20       0.1121      0.36  |Q V       |          |          |          |
 5+25       0.1148      0.38  |Q V       |          |          |          |
 5+30       0.1174      0.38  |Q V       |          |          |          |
 5+35       0.1203      0.42  |Q V       |          |          |          |
 5+40       0.1233      0.44  |Q V       |          |          |          |
 5+45       0.1263      0.44  |Q V       |          |          |          |
 5+50       0.1293      0.44  |Q V       |          |          |          |
 5+55       0.1323      0.44  |Q  V      |          |          |          |
 6+ 0       0.1353      0.44  |Q  V      |          |          |          |
 6+ 5       0.1385      0.47  |Q  V      |          |          |          |
 6+10       0.1419      0.49  |Q  V      |          |          |          |
 6+15       0.1453      0.49  |Q  V      |          |          |          |
 6+20       0.1487      0.49  |Q  V      |          |          |          |
 6+25       0.1521      0.49  |Q  V      |          |          |          |
 6+30       0.1554      0.49  |Q  V      |          |          |          |
 6+35       0.1591      0.53  | Q V      |          |          |          |
 6+40       0.1628      0.55  | Q V      |          |          |          |
 6+45       0.1666      0.55  | Q  V     |          |          |          |
 6+50       0.1703      0.55  | Q  V     |          |          |          |
 6+55       0.1741      0.55  | Q  V     |          |          |          |
 7+ 0       0.1778      0.55  | Q  V     |          |          |          |
 7+ 5       0.1816      0.55  | Q  V     |          |          |          |
 7+10       0.1854      0.55  | Q  V     |          |          |          |
 7+15       0.1891      0.55  | Q  V     |          |          |          |
 7+20       0.1931      0.58  | Q  V     |          |          |          |
 7+25       0.1972      0.60  | Q   V    |          |          |          |
 7+30       0.2014      0.60  | Q   V    |          |          |          |
 7+35       0.2058      0.63  | Q   V    |          |          |          |
 7+40       0.2103      0.65  | Q   V    |          |          |          |
 7+45       0.2148      0.65  | Q   V    |          |          |          |
 7+50       0.2195      0.69  | Q   V    |          |          |          |
 7+55       0.2244      0.71  | Q   V    |          |          |          |
 8+ 0       0.2293      0.71  | Q    V   |          |          |          |
 8+ 5       0.2346      0.78  |  Q   V   |          |          |          |
 8+10       0.2403      0.82  |  Q   V   |          |          |          |
 8+15       0.2459      0.82  |  Q   V   |          |          |          |
 8+20       0.2515      0.82  |  Q   V   |          |          |          |
 8+25       0.2572      0.82  |  Q   V   |          |          |          |
 8+30       0.2628      0.82  |  Q    V  |          |          |          |
 8+35       0.2687      0.85  |  Q    V  |          |          |          |
 8+40       0.2747      0.87  |  Q    V  |          |          |          |
 8+45       0.2807      0.87  |  Q    V  |          |          |          |
 8+50       0.2870      0.91  |  Q    V  |          |          |          |
 8+55       0.2934      0.93  |  Q    V  |          |          |          |
 9+ 0       0.2997      0.93  |  Q     V |          |          |          |
 9+ 5       0.3066      1.00  |  Q     V |          |          |          |
 9+10       0.3137      1.04  |   Q    V |          |          |          |
 9+15       0.3209      1.04  |   Q    V |          |          |          |
 9+20       0.3283      1.07  |   Q     V|          |          |          |
 9+25       0.3358      1.09  |   Q     V|          |          |          |
 9+30       0.3433      1.09  |   Q     V|          |          |          |
 9+35       0.3511      1.14  |   Q     V|          |          |          |
 9+40       0.3591      1.16  |   Q     V|          |          |          |
 9+45       0.3672      1.17  |   Q      |V         |          |          |
 9+50       0.3758      1.24  |   Q      |V         |          |          |
 9+55       0.3846      1.29  |    Q     |V         |          |          |
10+ 0       0.3936      1.30  |    Q     | V        |          |          |
10+ 5       0.4004      1.00  |  Q       | V        |          |          |
10+10       0.4061      0.82  |  Q       | V        |          |          |
10+15       0.4118      0.82  |  Q       | V        |          |          |
10+20       0.4174      0.82  |  Q       | V        |          |          |
```



10+25	0.4230	0.82	
10+30	0.4287	0.82	
10+35	0.4356	1.00	
10+40	0.4433	1.12	
10+45	0.4510	1.12	
10+50	0.4588	1.13	
10+55	0.4666	1.14	
11+ 0	0.4745	1.14	
11+ 5	0.4819	1.08	
11+10	0.4891	1.04	
11+15	0.4963	1.05	
11+20	0.5035	1.05	
11+25	0.5108	1.06	
11+30	0.5181	1.06	
11+35	0.5249	0.98	
11+40	0.5313	0.93	
11+45	0.5376	0.93	
11+50	0.5443	0.96	
11+55	0.5510	0.98	
12+ 0	0.5578	0.98	
12+ 5	0.5679	1.46	
12+10	0.5799	1.75	
12+15	0.5921	1.76	
12+20	0.6047	1.83	
12+25	0.6176	1.88	
12+30	0.6306	1.88	
12+35	0.6446	2.03	
12+40	0.6591	2.11	
12+45	0.6737	2.12	
12+50	0.6888	2.19	
12+55	0.7042	2.23	
13+ 0	0.7196	2.24	
13+ 5	0.7374	2.59	
13+10	0.7566	2.79	
13+15	0.7759	2.80	
13+20	0.7952	2.81	
13+25	0.8146	2.81	
13+30	0.8340	2.81	
13+35	0.8482	2.07	
13+40	0.8595	1.64	
13+45	0.8707	1.63	
13+50	0.8819	1.63	
13+55	0.8932	1.64	
14+ 0	0.9045	1.64	
14+ 5	0.9177	1.92	
14+10	0.9320	2.08	
14+15	0.9464	2.09	
14+20	0.9604	2.03	
14+25	0.9741	1.99	
14+30	0.9879	1.99	
14+35	1.0016	2.00	
14+40	1.0154	2.00	
14+45	1.0292	2.01	
14+50	1.0426	1.94	
14+55	1.0558	1.91	
15+ 0	1.0689	1.91	
15+ 5	1.0817	1.85	
15+10	1.0941	1.81	
15+15	1.1066	1.81	
15+20	1.1187	1.75	
15+25	1.1305	1.71	
15+30	1.1423	1.72	
15+35	1.1523	1.45	
15+40	1.1612	1.29	
15+45	1.1701	1.29	
15+50	1.1791	1.30	
15+55	1.1880	1.30	
16+ 0	1.1970	1.31	
16+ 5	1.2013	0.63	
16+10	1.2029	0.23	
16+15	1.2044	0.22	
16+20	1.2059	0.22	
16+25	1.2074	0.22	
16+30	1.2089	0.22	
16+35	1.2102	0.18	
16+40	1.2113	0.16	
16+45	1.2125	0.16	
16+50	1.2136	0.16	
16+55	1.2147	0.16	
17+ 0	1.2158	0.16	
17+ 5	1.2174	0.23	
17+10	1.2193	0.27	
17+15	1.2212	0.27	
17+20	1.2231	0.27	
17+25	1.2250	0.27	
17+30	1.2268	0.27	

```
  17+35       1.2287      0.27  |Q        |         |         |       V  |
  17+40       1.2306      0.27  |Q        |         |         |       V  |
  17+45       1.2325      0.27  |Q        |         |         |       V  |
  17+50       1.2341      0.24  Q         |         |         |       V  |
  17+55       1.2356      0.22  Q         |         |         |       V  |
  18+ 0       1.2371      0.22  Q         |         |         |       V  |
  18+ 5       1.2386      0.22  Q         |         |         |       V  |
  18+10       1.2401      0.22  Q         |         |         |       V  |
  18+15       1.2416      0.22  Q         |         |         |       V  |
  18+20       1.2431      0.22  Q         |         |         |       V  |
  18+25       1.2446      0.22  Q         |         |         |        V |
  18+30       1.2462      0.22  Q         |         |         |        V |
  18+35       1.2474      0.18  Q         |         |         |        V |
  18+40       1.2486      0.16  Q         |         |         |        V |
  18+45       1.2497      0.16  Q         |         |         |        V |
  18+50       1.2506      0.13  Q         |         |         |        V |
  18+55       1.2513      0.11  Q         |         |         |        V |
  19+ 0       1.2521      0.11  Q         |         |         |        V |
  19+ 5       1.2531      0.14  Q         |         |         |        V |
  19+10       1.2542      0.16  Q         |         |         |        V |
  19+15       1.2553      0.16  Q         |         |         |        V |
  19+20       1.2567      0.20  Q         |         |         |        V |
  19+25       1.2582      0.22  Q         |         |         |        V |
  19+30       1.2597      0.22  Q         |         |         |        V |
  19+35       1.2610      0.18  Q         |         |         |        V |
  19+40       1.2621      0.16  Q         |         |         |        V |
  19+45       1.2632      0.16  Q         |         |         |        V |
  19+50       1.2641      0.13  Q         |         |         |        V |
  19+55       1.2649      0.11  Q         |         |         |        V |
  20+ 0       1.2656      0.11  Q         |         |         |        V |
  20+ 5       1.2666      0.14  Q         |         |         |        V |
  20+10       1.2677      0.16  Q         |         |         |        V |
  20+15       1.2689      0.16  Q         |         |         |        V |
  20+20       1.2700      0.16  Q         |         |         |        V |
  20+25       1.2711      0.16  Q         |         |         |        V |
  20+30       1.2722      0.16  Q         |         |         |        V |
  20+35       1.2734      0.16  Q         |         |         |        V |
  20+40       1.2745      0.16  Q         |         |         |        V |
  20+45       1.2756      0.16  Q         |         |         |        V |
  20+50       1.2765      0.13  Q         |         |         |         V|
  20+55       1.2773      0.11  Q         |         |         |         V|
  21+ 0       1.2780      0.11  Q         |         |         |         V|
  21+ 5       1.2790      0.14  Q         |         |         |         V|
  21+10       1.2801      0.16  Q         |         |         |         V|
  21+15       1.2813      0.16  Q         |         |         |         V|
  21+20       1.2821      0.13  Q         |         |         |         V|
  21+25       1.2829      0.11  Q         |         |         |         V|
  21+30       1.2837      0.11  Q         |         |         |         V|
  21+35       1.2846      0.14  Q         |         |         |         V|
  21+40       1.2858      0.16  Q         |         |         |         V|
  21+45       1.2869      0.16  Q         |         |         |         V|
  21+50       1.2878      0.13  Q         |         |         |         V|
  21+55       1.2885      0.11  Q         |         |         |         V|
  22+ 0       1.2893      0.11  Q         |         |         |         V|
  22+ 5       1.2903      0.14  Q         |         |         |         V|
  22+10       1.2914      0.16  Q         |         |         |         V|
  22+15       1.2925      0.16  Q         |         |         |         V|
  22+20       1.2934      0.13  Q         |         |         |         V|
  22+25       1.2942      0.11  Q         |         |         |         V|
  22+30       1.2949      0.11  Q         |         |         |         V|
  22+35       1.2957      0.11  Q         |         |         |         V|
  22+40       1.2964      0.11  Q         |         |         |         V|
  22+45       1.2972      0.11  Q         |         |         |         V|
  22+50       1.2979      0.11  Q         |         |         |         V|
  22+55       1.2987      0.11  Q         |         |         |         V|
  23+ 0       1.2994      0.11  Q         |         |         |         V|
  23+ 5       1.3002      0.11  Q         |         |         |         V|
  23+10       1.3009      0.11  Q         |         |         |         V|
  23+15       1.3017      0.11  Q         |         |         |         V|
  23+20       1.3025      0.11  Q         |         |         |         V|
  23+25       1.3032      0.11  Q         |         |         |         V|
  23+30       1.3040      0.11  Q         |         |         |         V|
  23+35       1.3047      0.11  Q         |         |         |         V|
  23+40       1.3055      0.11  Q         |         |         |         V|
  23+45       1.3062      0.11  Q         |         |         |         V|
  23+50       1.3070      0.11  Q         |         |         |         V|
  23+55       1.3077      0.11  Q         |         |         |         V|
  24+ 0       1.3085      0.11  Q         |         |         |         V|
  24+ 5       1.3087      0.04  Q         |         |         |         V|
  24+10       1.3088      0.00  Q         |         |         |         V|
-------------------------------------------------------------------------
```

TRACT 37154
PRELIMINARY UNIT HYDROLOGY MAP

LEGEND

AREA | ACRES
LENGTH | SOIL

NODE
ELEV

WATERSHED BOUNDARY

FLOW PATH

0 40 120
20 80 160
SCALE: 1" = 40'

PRELIMINARY UNIT HYDROLOGY MAP
PREPARATION DATE : JANUARY 2019
REVISION DATE : JANUARY 2020

PLAN PREPARED BY:
adkan ENGINEERS
Civil Engineering · Surveying · Planning
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APPENDIX E – BASIN ROUTING

	Existing		Proposed		Basin		
	Existing Volume Ac.Ft.	Existing CFS	Proposed Volume Ac.Ft.	Proposed CFS	Basin Volume Ac.Ft.	CFS	Depth
2yr1hr	0.1787	6.375	0.1746	6.856	0.1090	1.809	1.57
2yr3hr	0.2263	4.275	0.2857	4.185	0.1100	1.812	1.57
2yr6hr	0.2558	3.763	0.3832	3.810	0.1030	1.749	1.48
2yr24hr	0.2555	1.024	0.6479	1.066	0.0450	0.935	0.69
5yr1hr	0.2879	9.312	0.2632	10.145	0.1520	4.700	2.09
5yr3hr	0.3896	6.229	0.4102	6.262	0.1540	5.584	2.12
5yr6hr	0.4305	5.538	0.5432	5.756	0.1510	4.563	2.09
5yr24hr	0.5640	1.923	0.9218	1.549	0.0670	1.336	1.00
10yr1hr	0.4298	12.250	0.3906	13.315	0.1710	11.369	2.32
10yr3hr	0.6967	8.424	0.5940	8.515	0.1620	8.143	2.21
10yr6hr	0.8930	7.596	0.7710	7.909	0.1590	7.352	2.18
10yr24hr	1.3517	3.220	1.3088	2.814	0.1340	2.024	1.88

Basin Size and Flow Calculations

Tract 37154

	BASIN PARAMETERS					OUTLET		
Basin Elevation	Depth	Area S.F.	Volume C.F.	Volume AC-FT	Effective Volume AC-FT	Q_1 Orifice Plate (cfs)	Q Weir 1 (cfs)	Q Total (cfs)
1376.00	0.00	2,688.0	0.00	0.000	0.000	0.000	0.000	0.000
1376.50	0.50	2,904.5	1,398.13	0.032	0.032	0.689	0.000	0.689
1377.00	1.00	3,121.0	2,904.50	0.067	0.067	1.340	0.000	1.340
1377.50	1.50	3,346.5	4,521.38	0.104	0.104	1.765	0.000	1.765
1378.00	2.00	3,572.0	6,251.00	0.144	0.144	2.106	0.000	2.106
1378.50	2.50	3,801.5	8,094.38	0.186	0.186	2.399	14.128	16.527
1379.00	3.00	4,031.0	10,052.50	0.231	0.231	2.660	39.960	42.620
1379.50	3.50	4,239.5	12,120.13	0.278	0.278	2.898	73.411	76.309
1380.00	4.00	4,448.0	14,292.00	0.328	0.328	3.117	113.024	116.141

SUPPORTING DESIGN PARAMETERS

Orifice Coefficient	0.66	Dia of Orifice	7.50
Gravimetric Constant	32.2 ft/s^2	Eff Dia of Orifice	0.6250
Number of Rows		Area of Orifice	0.3068
Minimum Orifice Plate Height		Number of Orifeces	1
Minimum Orifice Plate Width		Elev	1376.32

Weir	Broad Crest Weir Coefficient	3.33
	Length of Weir	12.00
	Elev. at Crest of Weir	1378

Q100 Elevation Weir Calc		
Basin Weir Calc		
Crest Wier Elev.	1378.00	
Q100	17.95	cfs
Weir Length	12	
Weir Coeff.	3.33	
H Weir	0.5865	
Q100 Elevation	**1378.59**	

Q100 Elevation Weir Calc		
Spillway Weir Calc		
Crest Wier Elev.	1378.60	
Q100	17.95	cfs
Weir Length	21	
Weir Coeff.	3.33	
H Weir	0.4039	
Q100 Elevation	**1379.00**	

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004
Study date: 05/15/19

Program License Serial Number 5006

********** HYDROGRAPH INFORMATION **********

From study/file name: pro212.rte
**********HYDROGRAPH DATA**********
Number of intervals = 14
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.856 (CFS)
Total volume = 0.175 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
****

++++++++++
Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 14
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 1.7 3.43 5.14 6.86	Depth (Ft.)
0.083	0.57	0.04	0.002	O I	0.03
0.167	0.91	0.14	0.006	O I	0.10
0.250	1.05	0.25	0.012	O I	0.18
0.333	1.12	0.37	0.017	O I	0.27
0.417	1.16	0.47	0.022	O I	0.34
0.500	1.27	0.58	0.027	O I	0.42
0.583	1.52	0.69	0.032	O I	0.50
0.667	1.88	0.81	0.039	O I	0.59
0.750	2.99	1.01	0.049	O I	0.74
0.833	6.86	1.43	0.075	O I	1.10
0.917	4.30	1.74	0.102	O I	1.47
1.000	1.33	1.81	0.109	I O	1.57
1.083	0.39	1.75	0.103	I O	1.48
1.167	0.01	1.63	0.093	I O	1.35
1.250	0.00	1.51	0.082	I O	1.20
1.333	0.00	1.40	0.072	I O	1.06
1.417	0.00	1.26	0.063	I O	0.94
1.500	0.00	1.11	0.055	I O	0.82

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1.583    0.00    0.97      0.047  I   O   |       |       |       |     0.72
1.667    0.00    0.86      0.041  I   O   |       |       |       |     0.63
1.750    0.00    0.75      0.035  I  O    |       |       |       |     0.55
1.833    0.00    0.66      0.031  I  O    |       |       |       |     0.48
1.917    0.00    0.57      0.026  I O     |       |       |       |     0.41
2.000    0.00    0.49      0.023  I O     |       |       |       |     0.36
2.083    0.00    0.42      0.020  IO      |       |       |       |     0.31
2.167    0.00    0.36      0.017  IO      |       |       |       |     0.26
2.250    0.00    0.31      0.015  IO      |       |       |       |     0.23
2.333    0.00    0.27      0.013  IO      |       |       |       |     0.20
2.417    0.00    0.23      0.011  IO      |       |       |       |     0.17
2.500    0.00    0.20      0.009  O       |       |       |       |     0.15
2.583    0.00    0.17      0.008  O       |       |       |       |     0.13
2.667    0.00    0.15      0.007  O       |       |       |       |     0.11
2.750    0.00    0.13      0.006  O       |       |       |       |     0.09
2.833    0.00    0.11      0.005  O       |       |       |       |     0.08
2.917    0.00    0.10      0.004  O       |       |       |       |     0.07

Remaining water in basin =    0.00 (Ac.Ft)


****************************HYDROGRAPH DATA****************************
               Number of intervals =    35
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =        1.809 (CFS)
               Total volume =       0.170 (Ac.Ft)
       Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
***********************************************************************

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                      Study date: 05/15/19

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Program License Serial Number 5006

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********************* HYDROGRAPH INFORMATION **********************

               From study/file name: pro232.rte
*****************************HYDROGRAPH DATA*****************************
               Number of intervals =    38
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =       4.185 (CFS)
               Total volume =       0.286 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*************************************************************************



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Process from Point/Station        1.000 to Point/Station        1.000
**** RETARDING BASIN ROUTING ****
___________________________________________________________________________

User entry of depth-outflow-storage data
---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 38
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
   0.000      0.000      0.000      0.000        0.000
   0.500      0.032      0.689      0.030        0.034
   1.000      0.067      1.340      0.062        0.072
   1.500      0.104      1.765      0.098        0.110
   2.000      0.144      2.106      0.137        0.151
   2.500      0.186     16.527      0.129        0.243
   3.000      0.231     42.620      0.084        0.378
   3.500      0.278     76.309      0.015        0.541
   4.000      0.328    116.141     -0.072        0.728
---------------------------------------------------------------------
               Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                  Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       1.0    2.09    3.14    4.18 (Ft.)
 0.083    0.30    0.02      0.001  O I     |       |       |       |     0.02
 0.167    0.48    0.07      0.003  O  I    |       |       |       |     0.05
 0.250    0.44    0.13      0.006  O  I    |       |       |       |     0.09
 0.333    0.51    0.17      0.008  |O I    |       |       |       |     0.13
 0.417    0.56    0.22      0.010  |O  I   |       |       |       |     0.16
 0.500    0.63    0.28      0.013  | O I   |       |       |       |     0.20
 0.583    0.61    0.32      0.015  | O I   |       |       |       |     0.23
 0.667    0.64    0.36      0.017  | O I   |       |       |       |     0.26
 0.750    0.68    0.40      0.019  |  O I  |       |       |       |     0.29
 0.833    0.61    0.44      0.020  |  OI   |       |       |       |     0.32
 0.917    0.59    0.46      0.021  |  OI   |       |       |       |     0.33
 1.000    0.65    0.48      0.022  |  OI   |       |       |       |     0.35
 1.083    0.77    0.51      0.024  |  O I  |       |       |       |     0.37
 1.167    0.83    0.55      0.026  |   O I |       |       |       |     0.40
 1.250    0.83    0.59      0.027  |   O I |       |       |       |     0.43
 1.333    0.78    0.62      0.029  |   OI  |       |       |       |     0.45
 1.417    0.89    0.65      0.030  |   O I |       |       |       |     0.47
 1.500    1.00    0.69      0.032  |    O I|       |       |       |     0.50
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1.583    0.95    0.72      0.034  |    O I|       |       |       |     0.53
1.667    0.97    0.75      0.035  |    O I|       |       |       |     0.55
1.750    1.16    0.79      0.037  |     O I       |       |       |     0.58
1.833    1.19    0.84      0.040  |     O |I      |       |       |     0.61
1.917    1.12    0.88      0.042  |     O I       |       |       |     0.64
2.000    1.12    0.90      0.044  |     O I       |       |       |     0.67
2.083    1.15    0.93      0.045  |      OI       |       |       |     0.69
2.167    1.42    0.97      0.047  |      O| I     |       |       |     0.72
2.250    1.86    1.06      0.052  |       O     I |       |       |     0.78
2.333    1.58    1.14      0.056  |       O   I   |       |       |     0.84
2.417    2.62    1.25      0.062  |       |O      |   I   |       |     0.93
2.500    3.60    1.43      0.074  |       | O     |       |  I    |     1.10
2.583    4.18    1.61      0.091  |       |   O   |       |       I     1.32
2.667    3.36    1.77      0.105  |       |    O  |       |I      |     1.51
2.750    1.51    1.81      0.110  |       |  I O  |       |       |     1.57
2.833    0.73    1.77      0.105  |    I  |    O  |       |       |     1.51
2.917    0.68    1.69      0.098  |    I  |   O   |       |       |     1.42
3.000    0.40    1.61      0.090  |  I    |   O   |       |       |     1.31
3.083    0.09    1.50      0.081  I       |  O    |       |       |     1.19
3.167    0.00    1.39      0.071  I       | O     |       |       |     1.06
3.250    0.00    1.25      0.062  I       |O      |       |       |     0.93
3.333    0.00    1.10      0.054  I       O       |       |       |     0.82
3.417    0.00    0.97      0.047  I      O|       |       |       |     0.72
3.500    0.00    0.85      0.041  I     O |       |       |       |     0.63
3.583    0.00    0.75      0.035  I    O  |       |       |       |     0.55
3.667    0.00    0.66      0.030  I    O  |       |       |       |     0.48
3.750    0.00    0.57      0.026  I   O   |       |       |       |     0.41
3.833    0.00    0.49      0.023  I  O    |       |       |       |     0.35
3.917    0.00    0.42      0.020  I  O    |       |       |       |     0.30
4.000    0.00    0.36      0.017  I O     |       |       |       |     0.26
4.083    0.00    0.31      0.014  I O     |       |       |       |     0.23
4.167    0.00    0.27      0.012  I O     |       |       |       |     0.20
4.250    0.00    0.23      0.011  IO      |       |       |       |     0.17
4.333    0.00    0.20      0.009  IO      |       |       |       |     0.15
4.417    0.00    0.17      0.008  IO      |       |       |       |     0.13
4.500    0.00    0.15      0.007  IO      |       |       |       |     0.11
4.583    0.00    0.13      0.006  O       |       |       |       |     0.09
4.667    0.00    0.11      0.005  O       |       |       |       |     0.08
4.750    0.00    0.10      0.004  O       |       |       |       |     0.07

Remaining water in basin =    0.00 (Ac.Ft)

*****************************HYDROGRAPH DATA*****************************
              Number of intervals =    57
              Time interval =    5.0 (Min.)
              Maximum/Peak flow rate =        1.812 (CFS)
              Total volume =       0.282 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
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********** HYDROGRAPH INFORMATION **********

From study/file name: pro262.rte
**********HYDROGRAPH DATA**********
Number of intervals = 74
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 3.810 (CFS)
Total volume = 0.383 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
****

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Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 74
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 1.0 1.91 2.86 3.81	Depth (Ft.)
0.083	0.16	0.01	0.001	OI | | | |	0.01
0.167	0.29	0.04	0.002	O I | | | |	0.03
0.250	0.32	0.08	0.004	O I | | | |	0.06
0.333	0.32	0.11	0.005	O I | | | |	0.08
0.417	0.32	0.14	0.006	|OI | | | |	0.10
0.500	0.35	0.17	0.008	|OI | | | |	0.12
0.583	0.37	0.19	0.009	|O I | | | |	0.14
0.667	0.37	0.22	0.010	|O I | | | |	0.16
0.750	0.37	0.24	0.011	|O I | | | |	0.17
0.833	0.37	0.26	0.012	| OI | | | |	0.19
0.917	0.37	0.27	0.013	| OI | | | |	0.20
1.000	0.40	0.29	0.013	| OI | | | |	0.21
1.083	0.42	0.30	0.014	| OI | | | |	0.22
1.167	0.42	0.32	0.015	| OI | | | |	0.23
1.250	0.42	0.33	0.016	| OI | | | |	0.24
1.333	0.42	0.35	0.016	| OI | | | |	0.25
1.417	0.42	0.36	0.017	| OI | | | |	0.26
1.500	0.42	0.37	0.017	| O | | | |	0.27

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1.583    0.42    0.37      0.017  |  O    |       |       |       |     0.27
1.667    0.42    0.38      0.018  |  O    |       |       |       |     0.28
1.750    0.42    0.39      0.018  |  O    |       |       |       |     0.28
1.833    0.42    0.39      0.018  |  O    |       |       |       |     0.28
1.917    0.42    0.39      0.018  |  O    |       |       |       |     0.29
2.000    0.45    0.40      0.019  |  O    |       |       |       |     0.29
2.083    0.44    0.41      0.019  |  O    |       |       |       |     0.30
2.167    0.45    0.41      0.019  |  O    |       |       |       |     0.30
2.250    0.47    0.42      0.020  |  O    |       |       |       |     0.30
2.333    0.47    0.43      0.020  |  O    |       |       |       |     0.31
2.417    0.47    0.43      0.020  |  O    |       |       |       |     0.31
2.500    0.47    0.44      0.020  |  O    |       |       |       |     0.32
2.583    0.47    0.44      0.021  |  O    |       |       |       |     0.32
2.667    0.47    0.45      0.021  |  O    |       |       |       |     0.33
2.750    0.51    0.45      0.021  |  OI   |       |       |       |     0.33
2.833    0.53    0.46      0.021  |  OI   |       |       |       |     0.34
2.917    0.53    0.47      0.022  |  OI   |       |       |       |     0.34
3.000    0.53    0.48      0.022  |   O   |       |       |       |     0.35
3.083    0.53    0.49      0.023  |   O   |       |       |       |     0.35
3.167    0.56    0.49      0.023  |   O   |       |       |       |     0.36
3.250    0.58    0.50      0.023  |   O   |       |       |       |     0.37
3.333    0.58    0.51      0.024  |   O   |       |       |       |     0.37
3.417    0.61    0.53      0.024  |   OI  |       |       |       |     0.38
3.500    0.66    0.54      0.025  |   OI  |       |       |       |     0.39
3.583    0.72    0.56      0.026  |   O I |       |       |       |     0.41
3.667    0.74    0.58      0.027  |   O I |       |       |       |     0.42
3.750    0.77    0.61      0.028  |    OI |       |       |       |     0.44
3.833    0.79    0.63      0.029  |    OI |       |       |       |     0.46
3.917    0.82    0.66      0.030  |    OI |       |       |       |     0.48
4.000    0.84    0.68      0.032  |    O I|       |       |       |     0.49
4.083    0.88    0.70      0.033  |    O I|       |       |       |     0.51
4.167    0.93    0.73      0.034  |     OI|       |       |       |     0.53
4.250    0.98    0.75      0.036  |     O I       |       |       |     0.55
4.333    1.03    0.78      0.037  |     O I       |       |       |     0.57
4.417    1.09    0.82      0.039  |     O |I      |       |       |     0.60
4.500    1.11    0.85      0.041  |      O|I      |       |       |     0.62
4.583    1.14    0.88      0.042  |      O|I      |       |       |     0.65
4.667    1.19    0.92      0.044  |      O| I     |       |       |     0.68
4.750    1.24    0.95      0.046  |       O I     |       |       |     0.70
4.833    1.26    0.99      0.048  |       O I     |       |       |     0.73
4.917    1.30    1.02      0.050  |       O I     |       |       |     0.76
5.000    1.35    1.06      0.052  |       O  I    |       |       |     0.79
5.083    1.53    1.11      0.054  |       |O  I   |       |       |     0.82
5.167    1.90    1.18      0.058  |       |O     I|       |       |     0.88
5.250    2.26    1.29      0.064  |       | O     | I     |       |     0.96
5.333    2.58    1.39      0.072  |       |  O    |    I  |       |     1.06
5.417    3.02    1.50      0.081  |       |   O   |       |I      |     1.19
5.500    3.81    1.65      0.094  |       |    O  |       |      I|     1.36
5.583    2.18    1.75      0.103  |       |     O | I     |       |     1.48
5.667    0.71    1.73      0.101  |    I  |     O |       |       |     1.45
5.750    0.38    1.64      0.093  |  I    |    O  |       |       |     1.35
5.833    0.29    1.54      0.084  | I     |   O   |       |       |     1.23
5.917    0.20    1.44      0.076  |I      |   O   |       |       |     1.12
6.000    0.13    1.34      0.067  |I      |  O    |       |       |     1.00
6.083    0.04    1.19      0.059  I       | O     |       |       |     0.89
6.167    0.00    1.05      0.051  I       O       |       |       |     0.78
6.250    0.00    0.92      0.045  I      O|       |       |       |     0.68
6.333    0.00    0.81      0.039  I     O |       |       |       |     0.59
6.417    0.00    0.71      0.033  I     O |       |       |       |     0.52
6.500    0.00    0.62      0.029  I    O  |       |       |       |     0.45
6.583    0.00    0.53      0.025  I   O   |       |       |       |     0.39
6.667    0.00    0.46      0.021  I  O    |       |       |       |     0.33
6.750    0.00    0.40      0.018  I  O    |       |       |       |     0.29
6.833    0.00    0.34      0.016  I O     |       |       |       |     0.25
6.917    0.00    0.29      0.014  I O     |       |       |       |     0.21
7.000    0.00    0.25      0.012  I O     |       |       |       |     0.18
7.083    0.00    0.22      0.010  IO      |       |       |       |     0.16
7.167    0.00    0.19      0.009  IO      |       |       |       |     0.14
7.250    0.00    0.16      0.008  IO      |       |       |       |     0.12
7.333    0.00    0.14      0.007  IO      |       |       |       |     0.10
7.417    0.00    0.12      0.006  IO      |       |       |       |     0.09
7.500    0.00    0.10      0.005  O       |       |       |       |     0.08
7.583    0.00    0.09      0.004  O       |       |       |       |     0.07
      Remaining water in basin =    0.00 (Ac.Ft)
      ****************************HYDROGRAPH DATA****************************
                  Number of intervals =    91
                  Time interval =    5.0 (Min.)
                  Maximum/Peak flow rate =        1.749 (CFS)
                  Total volume =       0.379 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ************************************************************************
      ------------------------------------------------------------------------
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                FLOOD HYDROGRAPH ROUTING PROGRAM
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                      Study date: 05/15/19

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Program License Serial Number 5006

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********************* HYDROGRAPH INFORMATION **********************

               From study/file name: pro2242.rte
*****************************HYDROGRAPH DATA*****************************
               Number of intervals =   290
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =        1.066 (CFS)
               Total volume =       0.648 (Ac.Ft)
       Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
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Process from Point/Station        1.000 to Point/Station        1.000
**** RETARDING BASIN ROUTING ****
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User entry of depth-outflow-storage data
---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 290
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
   0.000      0.000      0.000      0.000        0.000
   0.500      0.032      0.689      0.030        0.034
   1.000      0.067      1.340      0.062        0.072
   1.500      0.104      1.765      0.098        0.110
   2.000      0.144      2.106      0.137        0.151
   2.500      0.186     16.527      0.129        0.243
   3.000      0.231     42.620      0.084        0.378
   3.500      0.278     76.309      0.015        0.541
   4.000      0.328    116.141     -0.072        0.728
---------------------------------------------------------------------
               Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                  Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       0.3    0.53    0.80    1.07 (Ft.)
 0.083    0.04    0.00      0.000  OI      |       |       |       |     0.00
 0.167    0.06    0.01      0.000  OI      |       |       |       |     0.01
 0.250    0.06    0.02      0.001  OI      |       |       |       |     0.01
 0.333    0.08    0.02      0.001  O I     |       |       |       |     0.02
 0.417    0.09    0.03      0.002  O I     |       |       |       |     0.02
 0.500    0.09    0.04      0.002  |OI     |       |       |       |     0.03
 0.583    0.09    0.05      0.002  |OI     |       |       |       |     0.04
 0.667    0.09    0.06      0.003  |OI     |       |       |       |     0.04
 0.750    0.09    0.06      0.003  |OI     |       |       |       |     0.04
 0.833    0.11    0.07      0.003  |O I    |       |       |       |     0.05
 0.917    0.13    0.07      0.003  | OI    |       |       |       |     0.05
 1.000    0.13    0.08      0.004  | OI    |       |       |       |     0.06
 1.083    0.11    0.09      0.004  | OI    |       |       |       |     0.06
 1.167    0.09    0.09      0.004  | O     |       |       |       |     0.06
 1.250    0.09    0.09      0.004  | O     |       |       |       |     0.06
 1.333    0.09    0.09      0.004  | O     |       |       |       |     0.06
 1.417    0.09    0.09      0.004  | O     |       |       |       |     0.07
 1.500    0.09    0.09      0.004  | O     |       |       |       |     0.07
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1.583	0.09	0.09	0.004	O				0.07
1.667	0.09	0.09	0.004	O				0.07
1.750	0.09	0.09	0.004	O				0.07
1.833	0.11	0.09	0.004	OI				0.07
1.917	0.13	0.10	0.005	OI				0.07
2.000	0.13	0.10	0.005	O				0.07
2.083	0.13	0.10	0.005	O				0.08
2.167	0.13	0.11	0.005	O				0.08
2.250	0.13	0.11	0.005	O				0.08
2.333	0.13	0.11	0.005	O				0.08
2.417	0.13	0.11	0.005	O				0.08
2.500	0.13	0.12	0.005	O				0.08
2.583	0.14	0.12	0.005	OI				0.09
2.667	0.16	0.12	0.006	OI				0.09
2.750	0.16	0.13	0.006	OI				0.09
2.833	0.16	0.13	0.006	OI				0.10
2.917	0.16	0.13	0.006	O				0.10
3.000	0.16	0.14	0.006	O				0.10
3.083	0.16	0.14	0.007	O				0.10
3.167	0.16	0.14	0.007	O				0.10
3.250	0.16	0.14	0.007	O				0.11
3.333	0.16	0.15	0.007	O				0.11
3.417	0.16	0.15	0.007	O				0.11
3.500	0.16	0.15	0.007	O				0.11
3.583	0.16	0.15	0.007	O				0.11
3.667	0.16	0.15	0.007	O				0.11
3.750	0.16	0.15	0.007	O				0.11
3.833	0.18	0.15	0.007	OI				0.11
3.917	0.19	0.16	0.007	OI				0.11
4.000	0.19	0.16	0.008	OI				0.12
4.083	0.19	0.17	0.008	OI				0.12
4.167	0.19	0.17	0.008	O				0.12
4.250	0.19	0.17	0.008	O				0.12
4.333	0.21	0.18	0.008	OI				0.13
4.417	0.22	0.18	0.008	OI				0.13
4.500	0.22	0.19	0.009	OI				0.13
4.583	0.22	0.19	0.009	OI				0.14
4.667	0.22	0.19	0.009	OI				0.14
4.750	0.22	0.20	0.009	OI				0.14
4.833	0.24	0.20	0.009	OI				0.15
4.917	0.25	0.21	0.010	OI				0.15
5.000	0.25	0.21	0.010	OI				0.16
5.083	0.21	0.22	0.010	O				0.16
5.167	0.19	0.21	0.010	IO				0.16
5.250	0.19	0.21	0.010	IO				0.15
5.333	0.21	0.21	0.010	O				0.15
5.417	0.22	0.21	0.010	O				0.15
5.500	0.22	0.21	0.010	O				0.15
5.583	0.24	0.21	0.010	OI				0.15
5.667	0.25	0.22	0.010	OI				0.16
5.750	0.25	0.22	0.010	OI				0.16
5.833	0.25	0.23	0.011	OI				0.16
5.917	0.25	0.23	0.011	OI				0.17
6.000	0.25	0.23	0.011	OI				0.17
6.083	0.27	0.24	0.011	OI				0.17
6.167	0.28	0.24	0.011	OI				0.18
6.250	0.28	0.25	0.011	OI				0.18
6.333	0.28	0.25	0.012	OI				0.18
6.417	0.28	0.26	0.012	OI				0.19
6.500	0.28	0.26	0.012	OI				0.19
6.583	0.30	0.26	0.012	OI				0.19
6.667	0.31	0.27	0.013	OI				0.20
6.750	0.31	0.28	0.013	OI				0.20
6.833	0.31	0.28	0.013	OI				0.20
6.917	0.31	0.29	0.013	OI				0.21
7.000	0.31	0.29	0.013	OI				0.21
7.083	0.31	0.29	0.014	OI				0.21
7.167	0.31	0.30	0.014	OI				0.21
7.250	0.31	0.30	0.014	OI				0.22
7.333	0.33	0.30	0.014	O				0.22
7.417	0.34	0.31	0.014	OI				0.22
7.500	0.34	0.31	0.014	OI				0.23
7.583	0.36	0.32	0.015	OI				0.23
7.667	0.38	0.33	0.015	O I				0.24
7.750	0.38	0.33	0.015	O I				0.24
7.833	0.40	0.34	0.016	OI				0.25
7.917	0.41	0.35	0.016	O I				0.25
8.000	0.41	0.36	0.017	O I				0.26
8.083	0.45	0.37	0.017	O I				0.27
8.167	0.47	0.38	0.018	O I				0.27
8.250	0.47	0.39	0.018	O I				0.28
8.333	0.47	0.40	0.019	O I				0.29
8.417	0.47	0.41	0.019	O I				0.30
8.500	0.47	0.42	0.019	O I				0.30
8.583	0.49	0.43	0.020	O I				0.31
8.667	0.50	0.44	0.020	O I				0.32

8.750	0.50	0.45	0.021		O I		0.32
8.833	0.52	0.46	0.021		O I		0.33
8.917	0.53	0.47	0.022		O I		0.34
9.000	0.53	0.47	0.022		O I		0.34
9.083	0.57	0.49	0.023		O |I		0.35
9.167	0.60	0.50	0.023		O |I		0.36
9.250	0.60	0.51	0.024		O|I		0.37
9.333	0.62	0.53	0.024		O| I		0.38
9.417	0.63	0.54	0.025		O I		0.39
9.500	0.63	0.55	0.026		O I		0.40
9.583	0.65	0.56	0.026		O I		0.41
9.667	0.66	0.57	0.027		|O I		0.42
9.750	0.66	0.59	0.027		|O I		0.43
9.833	0.68	0.60	0.028		|O I		0.43
9.917	0.69	0.61	0.028		| O I		0.44
10.000	0.69	0.62	0.029		| O I		0.45
10.083	0.55	0.62	0.029		I O		0.45
10.167	0.47	0.61	0.028		I | O		0.44
10.250	0.47	0.59	0.027		I |O		0.43
10.333	0.47	0.57	0.027		I |O		0.41
10.417	0.47	0.56	0.026		I O		0.40
10.500	0.47	0.55	0.025		I O		0.40
10.583	0.57	0.54	0.025		OI		0.39
10.667	0.63	0.55	0.026		O I		0.40
10.750	0.63	0.56	0.026		O I		0.41
10.833	0.63	0.57	0.026		|OI		0.41
10.917	0.63	0.58	0.027		|OI		0.42
11.000	0.63	0.58	0.027		|OI		0.42
11.083	0.61	0.59	0.027		|OI		0.43
11.167	0.60	0.59	0.027		|O		0.43
11.250	0.60	0.59	0.027		|O		0.43
11.333	0.60	0.59	0.027		|O		0.43
11.417	0.60	0.59	0.028		|O		0.43
11.500	0.60	0.59	0.028		|O		0.43
11.583	0.56	0.59	0.027		IO		0.43
11.667	0.53	0.58	0.027		IO		0.42
11.750	0.53	0.58	0.027		IO		0.42
11.833	0.55	0.57	0.027		IO		0.42
11.917	0.56	0.57	0.027		IO		0.41
12.000	0.56	0.57	0.026		IO		0.41
12.083	0.70	0.58	0.027		|O I		0.42
12.167	0.78	0.60	0.028		| O I|		0.44
12.250	0.78	0.63	0.029		| O I|		0.45
12.333	0.80	0.65	0.030		| O I		0.47
12.417	0.81	0.67	0.031		| O I		0.49
12.500	0.82	0.69	0.032		| O I		0.50
12.583	0.85	0.71	0.033		| O |I		0.51
12.667	0.88	0.73	0.034		| O | I		0.53
12.750	0.88	0.75	0.035		| O | I		0.54
12.833	0.90	0.76	0.036		| O | I		0.56
12.917	0.91	0.78	0.037		| O| I		0.57
13.000	0.91	0.80	0.038		| O| I		0.58
13.083	1.01	0.81	0.039		| O I		0.60
13.167	1.06	0.84	0.040		| |O I|		0.62
13.250	1.07	0.87	0.042		| | O I		0.64
13.333	1.07	0.89	0.043		| | O I		0.66
13.417	1.07	0.91	0.044		| | O I		0.67
13.500	1.07	0.93	0.045		| | O I		0.69
13.583	0.85	0.93	0.045		| |I O |		0.69
13.667	0.73	0.92	0.044		| I | O |		0.68
13.750	0.72	0.89	0.043		| I | O |		0.66
13.833	0.72	0.87	0.042		| I | O |		0.64
13.917	0.72	0.85	0.041		| I |O |		0.63
14.000	0.72	0.84	0.040		| I |O |		0.61
14.083	0.80	0.83	0.040		| IO |		0.61
14.167	0.85	0.83	0.039		| OI |		0.61
14.250	0.85	0.83	0.040		| OI |		0.61
14.333	0.83	0.83	0.040		| O |		0.61
14.417	0.82	0.83	0.040		| O |		0.61
14.500	0.82	0.83	0.039		| O |		0.61
14.583	0.82	0.83	0.039		| O |		0.61
14.667	0.82	0.83	0.039		| O |		0.60
14.750	0.82	0.82	0.039		| O |		0.60
14.833	0.80	0.82	0.039		| IO |		0.60
14.917	0.78	0.82	0.039		| IO |		0.60
15.000	0.78	0.81	0.039		| IO |		0.60
15.083	0.76	0.81	0.038		| I O |		0.59
15.167	0.75	0.80	0.038		| I O |		0.59
15.250	0.75	0.80	0.038		| IO|		0.58
15.333	0.73	0.79	0.037		| IO|		0.58
15.417	0.72	0.78	0.037		| I O|		0.57
15.500	0.72	0.78	0.037		| I O|		0.57
15.583	0.64	0.76	0.036		| I O |		0.56
15.667	0.60	0.75	0.035		|I O |		0.54
15.750	0.60	0.73	0.034		|I O |		0.53
15.833	0.60	0.71	0.033		|I O |		0.52

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15.917    0.60    0.70      0.033  |        |        |I  O    |        |      0.51
16.000    0.60    0.69      0.032  |        |        |I  O    |        |      0.50
16.083    0.30    0.65      0.030  |        |       I|   O    |        |      0.47
16.167    0.13    0.59      0.028  |   I    |        |O       |        |      0.43
16.250    0.13    0.53      0.025  |   I    |         O|      |        |      0.38
16.333    0.13    0.47      0.022  |   I    |          O      |        |      0.34
16.417    0.13    0.43      0.020  |   I    |           O     |        |      0.31
16.500    0.13    0.38      0.018  |   I    |            O    |        |      0.28
16.583    0.11    0.35      0.016  |   I    |             O   |        |      0.25
16.667    0.09    0.31      0.015  |  I     |             O   |        |      0.23
16.750    0.09    0.28      0.013  |  I     |              O  |        |      0.21
16.833    0.09    0.26      0.012  |  I     |               O|        |      0.19
16.917    0.09    0.23      0.011  |  I     |               O|        |      0.17
17.000    0.09    0.21      0.010  |  I     |                O        |      0.16
17.083    0.13    0.20      0.009  |   I    |                O        |      0.15
17.167    0.16    0.19      0.009  |    I   |                O        |      0.14
17.250    0.16    0.19      0.009  |    I   |                O        |      0.14
17.333    0.16    0.18      0.009  |    I   |                O        |      0.13
17.417    0.16    0.18      0.008  |    I   |                O        |      0.13
17.500    0.16    0.18      0.008  |    I   |                O        |      0.13
17.583    0.16    0.17      0.008  |    I   |                O        |      0.13
17.667    0.16    0.17      0.008  |    I   |                O        |      0.12
17.750    0.16    0.17      0.008  |    I   |                O        |      0.12
17.833    0.14    0.17      0.008  |    I   |                O        |      0.12
17.917    0.13    0.16      0.008  |   I    |                O        |      0.12
18.000    0.13    0.16      0.007  |   I    |                O        |      0.11
18.083    0.13    0.15      0.007  |   I    |                O        |      0.11
18.167    0.13    0.15      0.007  |   I    |                O        |      0.11
18.250    0.13    0.15      0.007  |   I    |                O        |      0.11
18.333    0.13    0.14      0.007  |   I    |                O        |      0.10
18.417    0.13    0.14      0.007  |   I    |                O        |      0.10
18.500    0.13    0.14      0.006  |   I    |                O        |      0.10
18.583    0.11    0.14      0.006  |   I    |                O        |      0.10
18.667    0.09    0.13      0.006  |  I     |                O        |      0.09
18.750    0.09    0.13      0.006  |  I     |                O        |      0.09
18.833    0.07    0.12      0.006  |  I     |                O        |      0.09
18.917    0.06    0.11      0.005  | I      |                O        |      0.08
19.000    0.06    0.11      0.005  | I      |                O        |      0.08
19.083    0.08    0.10      0.005  |  I     |                O        |      0.07
19.167    0.09    0.10      0.005  |  O     |                O        |      0.07
19.250    0.09    0.10      0.005  |  O     |                O        |      0.07
19.333    0.11    0.10      0.005  |  OI    |                O        |      0.07
19.417    0.13    0.10      0.005  |   O    |                O        |      0.07
19.500    0.13    0.11      0.005  |   O    |                O        |      0.08
19.583    0.11    0.11      0.005  |   O    |                O        |      0.08
19.667    0.09    0.11      0.005  |  I     |                O        |      0.08
19.750    0.09    0.10      0.005  |  I     |                O        |      0.08
19.833    0.07    0.10      0.005  |  I     |                O        |      0.07
19.917    0.06    0.10      0.005  | I      |                O        |      0.07
20.000    0.06    0.09      0.004  | I      |                O        |      0.07
20.083    0.08    0.09      0.004  |  O     |                O        |      0.06
20.167    0.09    0.09      0.004  |  O     |                O        |      0.06
20.250    0.09    0.09      0.004  |  O     |                O        |      0.07
20.333    0.09    0.09      0.004  |  O     |                O        |      0.07
20.417    0.09    0.09      0.004  |  O     |                O        |      0.07
20.500    0.09    0.09      0.004  |  O     |                O        |      0.07
20.583    0.09    0.09      0.004  |  O     |                O        |      0.07
20.667    0.09    0.09      0.004  |  O     |                O        |      0.07
20.750    0.09    0.09      0.004  |  O     |                O        |      0.07
20.833    0.07    0.09      0.004  |  O     |                O        |      0.07
20.917    0.06    0.09      0.004  | I      |                O        |      0.06
21.000    0.06    0.08      0.004  | I      |                O        |      0.06
21.083    0.08    0.08      0.004  |  O     |                O        |      0.06
21.167    0.09    0.08      0.004  |  O     |                O        |      0.06
21.250    0.09    0.09      0.004  |  O     |                O        |      0.06
21.333    0.07    0.08      0.004  |  O     |                O        |      0.06
21.417    0.06    0.08      0.004  | I      |                O        |      0.06
21.500    0.06    0.08      0.004  | I      |                O        |      0.06
21.583    0.08    0.08      0.004  |  O     |                O        |      0.06
21.667    0.09    0.08      0.004  |  O     |                O        |      0.06
21.750    0.09    0.08      0.004  |  O     |                O        |      0.06
21.833    0.07    0.08      0.004  |  O     |                O        |      0.06
21.917    0.06    0.08      0.004  | I      |                O        |      0.06
22.000    0.06    0.08      0.004  | I      |                O        |      0.06
22.083    0.08    0.08      0.004  |  O     |                O        |      0.06
22.167    0.09    0.08      0.004  |  O     |                O        |      0.06
22.250    0.09    0.08      0.004  |  O     |                O        |      0.06
22.333    0.07    0.08      0.004  |  O     |                O        |      0.06
22.417    0.06    0.08      0.004  | I      |                O        |      0.06
22.500    0.06    0.08      0.004  | I      |                O        |      0.06
22.583    0.06    0.08      0.003  | I      |                O        |      0.05
22.667    0.06    0.07      0.003  | I      |                O        |      0.05
22.750    0.06    0.07      0.003  | I      |                O        |      0.05
22.833    0.06    0.07      0.003  | I      |                O        |      0.05
22.917    0.06    0.07      0.003  | I      |                O        |      0.05
23.000    0.06    0.07      0.003  | I      |                O        |      0.05
```

```
23.083    0.06    0.07      0.003  |IO     |       |       |       |     0.05
23.167    0.06    0.07      0.003  |IO     |       |       |       |     0.05
23.250    0.06    0.07      0.003  |O      |       |       |       |     0.05
23.333    0.06    0.07      0.003  |O      |       |       |       |     0.05
23.417    0.06    0.07      0.003  |O      |       |       |       |     0.05
23.500    0.06    0.07      0.003  |O      |       |       |       |     0.05
23.583    0.06    0.06      0.003  |O      |       |       |       |     0.05
23.667    0.06    0.06      0.003  |O      |       |       |       |     0.05
23.750    0.06    0.06      0.003  |O      |       |       |       |     0.05
23.833    0.06    0.06      0.003  |O      |       |       |       |     0.05
23.917    0.06    0.06      0.003  |O      |       |       |       |     0.05
24.000    0.06    0.06      0.003  |O      |       |       |       |     0.05
24.083    0.02    0.06      0.003  IO      |       |       |       |     0.04
24.167    0.00    0.05      0.003  IO      |       |       |       |     0.04
24.250    0.00    0.05      0.002  IO      |       |       |       |     0.03

Remaining water in basin =    0.00 (Ac.Ft)

****************************HYDROGRAPH DATA****************************
                Number of intervals =   291
                Time interval =    5.0 (Min.)
                Maximum/Peak flow rate =        0.935 (CFS)
                Total volume =       0.646 (Ac.Ft)
        Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)      0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
***********************************************************************

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                      Study date: 05/15/19

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********************* HYDROGRAPH INFORMATION **********************

               From study/file name: pro515.rte
*****************************HYDROGRAPH DATA*****************************
               Number of intervals =    14
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =       10.145 (CFS)
               Total volume =       0.263 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*************************************************************************



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Process from Point/Station        1.000 to Point/Station        1.000
**** RETARDING BASIN ROUTING ****
_____________________________________________________________________________

User entry of depth-outflow-storage data
-----------------------------------------------------------------------
Total number of inflow hydrograph intervals = 14
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
-----------------------------------------------------------------------
-----------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
-----------------------------------------------------------------------
-----------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
-----------------------------------------------------------------------
   0.000      0.000      0.000      0.000        0.000
   0.500      0.032      0.689      0.030        0.034
   1.000      0.067      1.340      0.062        0.072
   1.500      0.104      1.765      0.098        0.110
   2.000      0.144      2.106      0.137        0.151
   2.500      0.186     16.527      0.129        0.243
   3.000      0.231     42.620      0.084        0.378
   3.500      0.278     76.309      0.015        0.541
   4.000      0.328    116.141     -0.072        0.728
-----------------------------------------------------------------------
               Hydrograph Detention Basin Routing
-----------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
-----------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                  Depth
(Hours) (CFS)   (CFS)     (Ac.Ft) .0       2.5    5.07    7.61   10.15 (Ft.)
 0.083    0.79    0.05      0.003  O I     |       |       |       |     0.04
 0.167    1.26    0.19      0.009  O  I    |       |       |       |     0.14
 0.250    1.45    0.35      0.016  |O  I   |       |       |       |     0.25
 0.333    1.54    0.51      0.024  |O  I   |       |       |       |     0.37
 0.417    1.60    0.65      0.030  | O  I  |       |       |       |     0.47
 0.500    1.82    0.79      0.037  | O  I  |       |       |       |     0.57
 0.583    2.47    0.95      0.046  | O    I|       |       |       |     0.70
 0.667    3.21    1.18      0.058  |  O     | I     |       |       |     0.88
 0.750    4.80    1.45      0.077  |   O    |      I|       |       |     1.13
 0.833   10.15    1.87      0.117  |    O   |       |       |       I     1.66
 0.917    6.53    4.70      0.152  |        |     O |   I   |       |     2.09
 1.000    2.05    4.25      0.150  |     I  |    O  |       |       |     2.07
 1.083    0.54    2.05      0.137  |I    O  |       |       |       |     1.92
 1.167    0.02    1.95      0.126  I     O  |       |       |       |     1.77
 1.250    0.00    1.84      0.113  I    O   |       |       |       |     1.61
 1.333    0.00    1.72      0.100  I    O   |       |       |       |     1.45
 1.417    0.00    1.59      0.089  I    O   |       |       |       |     1.30
 1.500    0.00    1.47      0.078  I   O    |       |       |       |     1.15
```

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1.583    0.00    1.36      0.069  I   O   |       |       |       |     1.02
1.667    0.00    1.21      0.060  I  O    |       |       |       |     0.90
1.750    0.00    1.06      0.052  I  O    |       |       |       |     0.79
1.833    0.00    0.93      0.045  I O     |       |       |       |     0.69
1.917    0.00    0.82      0.039  I O     |       |       |       |     0.60
2.000    0.00    0.72      0.034  I O     |       |       |       |     0.53
2.083    0.00    0.63      0.029  IO      |       |       |       |     0.46
2.167    0.00    0.54      0.025  IO      |       |       |       |     0.39
2.250    0.00    0.47      0.022  IO      |       |       |       |     0.34
2.333    0.00    0.40      0.019  IO      |       |       |       |     0.29
2.417    0.00    0.35      0.016  IO      |       |       |       |     0.25
2.500    0.00    0.30      0.014  O       |       |       |       |     0.22
2.583    0.00    0.26      0.012  O       |       |       |       |     0.19
2.667    0.00    0.22      0.010  O       |       |       |       |     0.16
2.750    0.00    0.19      0.009  O       |       |       |       |     0.14
2.833    0.00    0.16      0.008  O       |       |       |       |     0.12
2.917    0.00    0.14      0.007  O       |       |       |       |     0.10
3.000    0.00    0.12      0.006  O       |       |       |       |     0.09
3.083    0.00    0.11      0.005  O       |       |       |       |     0.08
3.167    0.00    0.09      0.004  O       |       |       |       |     0.07

Remaining water in basin =    0.00 (Ac.Ft)

****************************HYDROGRAPH DATA****************************
               Number of intervals =    38
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =        4.700 (CFS)
               Total volume =       0.259 (Ac.Ft)
       Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
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********** HYDROGRAPH INFORMATION **********

From study/file name: pro535.rte
**********HYDROGRAPH DATA**********
Number of intervals = 38
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.262 (CFS)
Total volume = 0.410 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
****

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Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 38
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 1.6 3.13 4.70 6.26	Depth (Ft.)
0.083	0.41	0.03	0.001	O I	0.02
0.167	0.65	0.10	0.005	O I	0.07
0.250	0.60	0.17	0.008	O I	0.12
0.333	0.69	0.24	0.011	O I	0.17
0.417	0.76	0.30	0.014	O I	0.22
0.500	0.86	0.37	0.017	O I	0.27
0.583	0.82	0.44	0.020	O I	0.32
0.667	0.86	0.49	0.023	O I	0.36
0.750	0.91	0.55	0.025	O I	0.40
0.833	0.82	0.59	0.027	OI	0.43
0.917	0.80	0.62	0.029	OI	0.45
1.000	0.88	0.65	0.030	OI	0.47
1.083	1.04	0.69	0.032	O I	0.50
1.167	1.12	0.74	0.035	O I	0.54
1.250	1.12	0.78	0.037	OI	0.57
1.333	1.06	0.82	0.039	OI	0.60
1.417	1.21	0.86	0.041	O I	0.63
1.500	1.35	0.91	0.044	O I	0.67

```
1.583    1.28    0.96      0.046  |   O I |       |       |       |     0.71
1.667    1.32    1.00      0.049  |    OI |       |       |       |     0.74
1.750    1.56    1.05      0.052  |    O I|       |       |       |     0.78
1.833    1.61    1.12      0.055  |    O  I       |       |       |     0.83
1.917    1.51    1.17      0.058  |    O I|       |       |       |     0.87
2.000    1.51    1.21      0.060  |     OI|       |       |       |     0.90
2.083    1.56    1.25      0.062  |     OI|       |       |       |     0.93
2.167    2.18    1.32      0.066  |     O |  I    |       |       |     0.99
2.250    3.04    1.43      0.075  |      O|      I|       |       |     1.10
2.333    2.40    1.53      0.083  |      O|   I   |       |       |     1.22
2.417    3.94    1.65      0.094  |       O       |   I   |       |     1.37
2.500    5.47    1.85      0.114  |        |O     |       |  I    |     1.63
2.583    6.26    2.08      0.141  |        | O    |       |       I     1.97
2.667    5.14    5.58      0.154  |        |      |       | I O   |     2.12
2.750    2.27    3.55      0.148  |        |  I   | O     |       |     2.05
2.833    0.99    2.07      0.140  |    I   | O    |       |       |     1.95
2.917    0.92    2.01      0.133  |   I    | O    |       |       |     1.86
3.000    0.53    1.94      0.124  | I      |O     |       |       |     1.75
3.083    0.12    1.84      0.113  I        |O     |       |       |     1.62
3.167    0.00    1.73      0.101  I       O     |       |       |     1.46
3.250    0.00    1.60      0.090  I       O     |       |       |     1.31
3.333    0.00    1.48      0.079  I      O|     |       |       |     1.17
3.417    0.00    1.37      0.069  I     O |     |       |       |     1.03
3.500    0.00    1.22      0.061  I     O |     |       |       |     0.91
3.583    0.00    1.07      0.053  I    O  |     |       |       |     0.80
3.667    0.00    0.94      0.046  I   O   |     |       |       |     0.70
3.750    0.00    0.83      0.040  I   O   |     |       |       |     0.61
3.833    0.00    0.73      0.034  I  O    |     |       |       |     0.53
3.917    0.00    0.64      0.030  I  O    |     |       |       |     0.46
4.000    0.00    0.55      0.025  I O     |     |       |       |     0.40
4.083    0.00    0.47      0.022  I O     |     |       |       |     0.34
4.167    0.00    0.41      0.019  I O     |     |       |       |     0.30
4.250    0.00    0.35      0.016  IO      |     |       |       |     0.25
4.333    0.00    0.30      0.014  IO      |     |       |       |     0.22
4.417    0.00    0.26      0.012  IO      |     |       |       |     0.19
4.500    0.00    0.22      0.010  IO      |     |       |       |     0.16
4.583    0.00    0.19      0.009  O       |     |       |       |     0.14
4.667    0.00    0.17      0.008  O       |     |       |       |     0.12
4.750    0.00    0.14      0.007  O       |     |       |       |     0.10
4.833    0.00    0.12      0.006  O       |     |       |       |     0.09
4.917    0.00    0.11      0.005  O       |     |       |       |     0.08
5.000    0.00    0.09      0.004  O       |     |       |       |     0.07

Remaining water in basin =    0.00 (Ac.Ft)

****************************HYDROGRAPH DATA****************************
              Number of intervals =    60
              Time interval =    5.0 (Min.)
              Maximum/Peak flow rate =        5.584 (CFS)
              Total volume =       0.406 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
***********************************************************************

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********** HYDROGRAPH INFORMATION **********
From study/file name: pro565.rte
**********HYDROGRAPH DATA**********
Number of intervals = 74
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 5.756 (CFS)
Total volume = 0.543 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****
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Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 74
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 1.4 2.88 4.32 5.76 (Ft.)	Depth
0.083	0.22	0.02	0.001	OI	0.01
0.167	0.40	0.06	0.003	O I	0.04
0.250	0.43	0.10	0.005	O I	0.08
0.333	0.43	0.15	0.007	O I	0.11
0.417	0.43	0.19	0.009	|OI	0.14
0.500	0.47	0.22	0.010	|OI	0.16
0.583	0.50	0.26	0.012	|OI	0.19
0.667	0.50	0.29	0.014	|OI	0.21
0.750	0.50	0.32	0.015	|OI	0.23
0.833	0.50	0.35	0.016	|OI	0.25
0.917	0.50	0.37	0.017	| O	0.27
1.000	0.54	0.39	0.018	| OI	0.28
1.083	0.57	0.41	0.019	| OI	0.30
1.167	0.57	0.43	0.020	| OI	0.31
1.250	0.57	0.45	0.021	| OI	0.33
1.333	0.57	0.47	0.022	| OI	0.34
1.417	0.57	0.48	0.022	| OI	0.35
1.500	0.57	0.49	0.023	| OI	0.36
1.583	0.57	0.50	0.023	| OI	0.37
1.667	0.57	0.51	0.024	| OI	0.37
1.750	0.57	0.52	0.024	| OI	0.38
1.833	0.57	0.53	0.025	| OI	0.38
1.917	0.57	0.53	0.025	| OI	0.39
2.000	0.61	0.54	0.025	| O	0.39

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2.083    0.60    0.55      0.026  |  O    |       |       |       |     0.40
2.167    0.61    0.56      0.026  |  O    |       |       |       |     0.40
2.250    0.64    0.57      0.026  |  O    |       |       |       |     0.41
2.333    0.64    0.58      0.027  |  O    |       |       |       |     0.42
2.417    0.64    0.59      0.027  |  O    |       |       |       |     0.43
2.500    0.64    0.59      0.028  |  O    |       |       |       |     0.43
2.583    0.64    0.60      0.028  |  O    |       |       |       |     0.44
2.667    0.64    0.61      0.028  |  O    |       |       |       |     0.44
2.750    0.69    0.61      0.029  |  O    |       |       |       |     0.45
2.833    0.71    0.63      0.029  |  O    |       |       |       |     0.45
2.917    0.71    0.64      0.030  |  O    |       |       |       |     0.46
3.000    0.71    0.65      0.030  |  O    |       |       |       |     0.47
3.083    0.71    0.66      0.030  |  O    |       |       |       |     0.48
3.167    0.76    0.67      0.031  |  OI   |       |       |       |     0.48
3.250    0.78    0.68      0.032  |  OI   |       |       |       |     0.49
3.333    0.78    0.69      0.032  |  OI   |       |       |       |     0.50
3.417    0.83    0.71      0.033  |  OI   |       |       |       |     0.51
3.500    0.90    0.73      0.034  |   O   |       |       |       |     0.53
3.583    0.97    0.75      0.035  |   OI  |       |       |       |     0.55
3.667    1.00    0.78      0.037  |   OI  |       |       |       |     0.57
3.750    1.04    0.81      0.038  |   OI  |       |       |       |     0.59
3.833    1.07    0.84      0.040  |   OI  |       |       |       |     0.61
3.917    1.11    0.87      0.042  |   O I |       |       |       |     0.64
4.000    1.14    0.90      0.043  |   O I |       |       |       |     0.66
4.083    1.18    0.93      0.045  |    OI |       |       |       |     0.69
4.167    1.25    0.97      0.047  |    OI |       |       |       |     0.71
4.250    1.32    1.00      0.049  |    O I|       |       |       |     0.74
4.333    1.40    1.05      0.051  |    O I|       |       |       |     0.78
4.417    1.47    1.09      0.054  |     O I       |       |       |     0.81
4.500    1.49    1.14      0.056  |     O I       |       |       |     0.85
4.583    1.54    1.19      0.059  |     O I       |       |       |     0.88
4.667    1.61    1.23      0.061  |     O I       |       |       |     0.92
4.750    1.68    1.28      0.064  |      O|I       |       |       |     0.96
4.833    1.71    1.33      0.067  |      O|I       |       |       |     0.99
4.917    1.79    1.37      0.069  |      O|I       |       |       |     1.03
5.000    1.92    1.40      0.073  |      O| I      |       |       |     1.07
5.083    2.42    1.46      0.078  |       O    I  |       |       |     1.14
5.167    3.12    1.56      0.086  |       O       |I      |       |     1.26
5.250    3.66    1.70      0.098  |       |O      |   I   |       |     1.42
5.333    4.09    1.84      0.113  |       | O     |     I |       |     1.61
5.417    4.69    1.99      0.130  |       |  O    |       | I     |     1.82
5.500    5.76    3.33      0.148  |       |       | O     |       I     2.04
5.583    3.18    4.56      0.151  |       |       |I      |O      |     2.09
5.667    0.97    2.09      0.143  |    I  |  O    |       |       |     1.98
5.750    0.52    2.02      0.133  | I     |  O    |       |       |     1.87
5.833    0.39    1.93      0.123  | I     | O     |       |       |     1.74
5.917    0.27    1.84      0.112  |I      | O     |       |       |     1.60
6.000    0.17    1.74      0.102  I       |O      |       |       |     1.47
6.083    0.05    1.61      0.091  I       O       |       |       |     1.32
6.167    0.00    1.49      0.080  I       O       |       |       |     1.18
6.250    0.00    1.38      0.070  I      O|       |       |       |     1.05
6.333    0.00    1.24      0.061  I     O |       |       |       |     0.92
6.417    0.00    1.09      0.053  I     O |       |       |       |     0.81
6.500    0.00    0.96      0.046  I    O  |       |       |       |     0.70
6.583    0.00    0.84      0.040  I   O   |       |       |       |     0.62
6.667    0.00    0.74      0.035  I   O   |       |       |       |     0.54
6.750    0.00    0.64      0.030  I  O    |       |       |       |     0.47
6.833    0.00    0.56      0.026  I  O    |       |       |       |     0.40
6.917    0.00    0.48      0.022  I O     |       |       |       |     0.35
7.000    0.00    0.41      0.019  I O     |       |       |       |     0.30
7.083    0.00    0.36      0.017  IO      |       |       |       |     0.26
7.167    0.00    0.31      0.014  IO      |       |       |       |     0.22
7.250    0.00    0.26      0.012  IO      |       |       |       |     0.19
7.333    0.00    0.23      0.011  IO      |       |       |       |     0.17
7.417    0.00    0.20      0.009  IO      |       |       |       |     0.14
7.500    0.00    0.17      0.008  O       |       |       |       |     0.12
7.583    0.00    0.15      0.007  O       |       |       |       |     0.11
7.667    0.00    0.13      0.006  O       |       |       |       |     0.09
7.750    0.00    0.11      0.005  O       |       |       |       |     0.08
7.833    0.00    0.09      0.004  O       |       |       |       |     0.07
Remaining water in basin =    0.00 (Ac.Ft)
****************************HYDROGRAPH DATA****************************
              Number of intervals =    94
              Time interval =    5.0 (Min.)
              Maximum/Peak flow rate =        4.563 (CFS)
              Total volume =       0.539 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************

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FLOOD HYDROGRAPH ROUTING PROGRAM
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Study date: 05/15/19

Program License Serial Number 5006

********** HYDROGRAPH INFORMATION **********

From study/file name: pro5245.rte
**********HYDROGRAPH DATA**********
Number of intervals = 290
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 1.549 (CFS)
Total volume = 0.922 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
****

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Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 290
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	0.4	0.77	1.16	1.55	Depth (Ft.)
0.083	0.06	0.00	0.000	OI					0.00
0.167	0.09	0.01	0.001	OI					0.01
0.250	0.09	0.02	0.001	OI					0.02
0.333	0.12	0.03	0.002	O I					0.03
0.417	0.13	0.05	0.002	O I					0.03
0.500	0.13	0.06	0.003	|OI					0.04
0.583	0.13	0.07	0.003	|OI					0.05
0.667	0.13	0.08	0.004	|OI					0.06
0.750	0.13	0.09	0.004	|OI					0.06
0.833	0.16	0.09	0.004	|O I					0.07
0.917	0.18	0.10	0.005	| OI					0.08
1.000	0.18	0.11	0.005	| OI					0.08
1.083	0.15	0.12	0.006	| OI					0.09
1.167	0.13	0.12	0.006	| O					0.09
1.250	0.13	0.13	0.006	| O					0.09
1.333	0.13	0.13	0.006	| O					0.09
1.417	0.13	0.13	0.006	| O					0.09
1.500	0.13	0.13	0.006	| O					0.09

1.583	0.13	0.13	0.006	O				0.09
1.667	0.13	0.13	0.006	O				0.09
1.750	0.13	0.13	0.006	O				0.09
1.833	0.16	0.13	0.006	OI				0.10
1.917	0.18	0.14	0.006	OI				0.10
2.000	0.18	0.14	0.007	OI				0.10
2.083	0.18	0.15	0.007	O				0.11
2.167	0.18	0.15	0.007	O				0.11
2.250	0.18	0.16	0.007	O				0.11
2.333	0.18	0.16	0.007	O				0.12
2.417	0.18	0.16	0.008	O				0.12
2.500	0.18	0.16	0.008	O				0.12
2.583	0.21	0.17	0.008	OI				0.12
2.667	0.22	0.17	0.008	OI				0.13
2.750	0.22	0.18	0.008	OI				0.13
2.833	0.22	0.19	0.009	OI				0.14
2.917	0.22	0.19	0.009	OI				0.14
3.000	0.22	0.20	0.009	O				0.14
3.083	0.22	0.20	0.009	O				0.14
3.167	0.22	0.20	0.009	O				0.15
3.250	0.22	0.21	0.010	O				0.15
3.333	0.22	0.21	0.010	O				0.15
3.417	0.22	0.21	0.010	O				0.15
3.500	0.22	0.21	0.010	O				0.15
3.583	0.22	0.21	0.010	O				0.15
3.667	0.22	0.21	0.010	O				0.16
3.750	0.22	0.22	0.010	O				0.16
3.833	0.25	0.22	0.010	OI				0.16
3.917	0.27	0.22	0.010	OI				0.16
4.000	0.27	0.23	0.011	OI				0.17
4.083	0.27	0.24	0.011	OI				0.17
4.167	0.27	0.24	0.011	OI				0.17
4.250	0.27	0.24	0.011	O				0.18
4.333	0.30	0.25	0.012	OI				0.18
4.417	0.31	0.26	0.012	OI				0.19
4.500	0.31	0.26	0.012	OI				0.19
4.583	0.31	0.27	0.013	OI				0.20
4.667	0.31	0.28	0.013	OI				0.20
4.750	0.31	0.28	0.013	OI				0.20
4.833	0.34	0.29	0.013	O I				0.21
4.917	0.36	0.30	0.014	OI				0.21
5.000	0.36	0.30	0.014	OI				0.22
5.083	0.30	0.31	0.014	O				0.22
5.167	0.27	0.30	0.014	IO				0.22
5.250	0.27	0.30	0.014	IO				0.22
5.333	0.30	0.30	0.014	O				0.22
5.417	0.31	0.30	0.014	O				0.22
5.500	0.31	0.30	0.014	O				0.22
5.583	0.34	0.30	0.014	OI				0.22
5.667	0.36	0.31	0.014	OI				0.22
5.750	0.36	0.32	0.015	OI				0.23
5.833	0.36	0.32	0.015	OI				0.23
5.917	0.36	0.33	0.015	OI				0.24
6.000	0.36	0.33	0.015	OI				0.24
6.083	0.38	0.34	0.016	OI				0.24
6.167	0.40	0.34	0.016	OI				0.25
6.250	0.40	0.35	0.016	OI				0.26
6.333	0.40	0.36	0.017	OI				0.26
6.417	0.40	0.36	0.017	OI				0.26
6.500	0.40	0.37	0.017	OI				0.27
6.583	0.43	0.38	0.017	OI				0.27
6.667	0.45	0.38	0.018	O I				0.28
6.750	0.45	0.39	0.018	OI				0.29
6.833	0.45	0.40	0.019	OI				0.29
6.917	0.45	0.41	0.019	OI				0.29
7.000	0.45	0.41	0.019	OI				0.30
7.083	0.45	0.42	0.019	OI				0.30
7.167	0.45	0.42	0.020	OI				0.31
7.250	0.45	0.42	0.020	OI				0.31
7.333	0.47	0.43	0.020	OI				0.31
7.417	0.49	0.44	0.020	OI				0.32
7.500	0.49	0.44	0.021	OI				0.32
7.583	0.52	0.45	0.021	OI				0.33
7.667	0.53	0.46	0.021	O I				0.34
7.750	0.53	0.47	0.022	O I				0.34
7.833	0.56	0.48	0.022	O I				0.35
7.917	0.58	0.50	0.023	OI				0.36
8.000	0.58	0.51	0.024	OI				0.37
8.083	0.64	0.52	0.024	O I				0.38
8.167	0.67	0.54	0.025	O I				0.39
8.250	0.67	0.56	0.026	O I				0.40
8.333	0.67	0.57	0.027	O I				0.42
8.417	0.67	0.59	0.027	OI				0.42
8.500	0.67	0.60	0.028	OI				0.43
8.583	0.70	0.61	0.028	O I				0.44
8.667	0.71	0.62	0.029	O I				0.45

8.750	0.71	0.63	0.029	|	|	OI |	|	0.46
8.833	0.74	0.65	0.030	|	|	O I|	|	0.47
8.917	0.76	0.66	0.031	|	|	O I|	|	0.48
9.000	0.76	0.67	0.031	|	|	O I|	|	0.49
9.083	0.81	0.69	0.032	|	|	O I	|	0.50
9.167	0.85	0.71	0.033	|	|	O |I	|	0.51
9.250	0.85	0.72	0.034	|	|	O |I	|	0.53
9.333	0.87	0.74	0.035	|	|	O| I	|	0.54
9.417	0.89	0.76	0.036	|	|	O| I	|	0.55
9.500	0.89	0.77	0.037	|	|	O| I	|	0.56
9.583	0.92	0.79	0.037	|	|	O I	|	0.58
9.667	0.94	0.81	0.038	|	|	O I	|	0.59
9.750	0.94	0.82	0.039	|	|	O I	|	0.60
9.833	0.96	0.84	0.040	|	|	|O I	|	0.61
9.917	0.98	0.85	0.041	|	|	|O I	|	0.63
10.000	0.98	0.87	0.042	|	|	|O I	|	0.64
10.083	0.79	0.87	0.042	|	|	IO	|	0.64
10.167	0.67	0.85	0.041	|	|	I |O	|	0.63
10.250	0.67	0.83	0.040	|	|	I |O	|	0.61
10.333	0.67	0.81	0.039	|	|	I O	|	0.59
10.417	0.67	0.79	0.038	|	|	I O	|	0.58
10.500	0.67	0.78	0.037	|	|	I O	|	0.57
10.583	0.81	0.77	0.037	|	|	OI	|	0.57
10.667	0.89	0.78	0.037	|	|	O I	|	0.57
10.750	0.89	0.80	0.038	|	|	O I	|	0.58
10.833	0.89	0.81	0.038	|	|	O I	|	0.59
10.917	0.89	0.82	0.039	|	|	O I	|	0.60
11.000	0.89	0.83	0.039	|	|	|OI	|	0.61
11.083	0.86	0.83	0.040	|	|	|O	|	0.61
11.167	0.85	0.84	0.040	|	|	|O	|	0.61
11.250	0.85	0.84	0.040	|	|	|O	|	0.61
11.333	0.85	0.84	0.040	|	|	|O	|	0.61
11.417	0.85	0.84	0.040	|	|	|O	|	0.62
11.500	0.85	0.84	0.040	|	|	|O	|	0.62
11.583	0.79	0.84	0.040	|	|	IO	|	0.61
11.667	0.76	0.83	0.040	|	|	I|O	|	0.61
11.750	0.76	0.82	0.039	|	|	IO	|	0.60
11.833	0.79	0.82	0.039	|	|	O	|	0.60
11.917	0.80	0.81	0.039	|	|	O	|	0.60
12.000	0.80	0.81	0.039	|	|	O	|	0.59
12.083	1.00	0.82	0.039	|	|	O I	|	0.60
12.167	1.11	0.85	0.041	|	|	|O I	|	0.62
12.250	1.11	0.88	0.042	|	|	| O I|	|	0.65
12.333	1.14	0.91	0.044	|	|	| O I|	|	0.67
12.417	1.16	0.94	0.046	|	|	| O I|	|	0.69
12.500	1.16	0.97	0.047	|	|	| O I|	|	0.71
12.583	1.21	0.99	0.048	|	|	| O |I	|	0.73
12.667	1.25	1.02	0.050	|	|	| O |I	|	0.76
12.750	1.25	1.05	0.051	|	|	| O |I	|	0.78
12.833	1.28	1.07	0.053	|	|	| O | I	|	0.80
12.917	1.29	1.10	0.054	|	|	| O | I	|	0.82
13.000	1.29	1.12	0.055	|	|	| O| I	|	0.83
13.083	1.43	1.15	0.057	|	|	| O| I	|	0.86
13.167	1.52	1.19	0.059	|	|	| O I|	|	0.89
13.250	1.53	1.23	0.061	|	|	| |O I|	|	0.92
13.333	1.53	1.27	0.063	|	|	| | O I|	|	0.94
13.417	1.54	1.30	0.065	|	|	| | O I|	|	0.97
13.500	1.55	1.33	0.066	|	|	| | O I	|	0.99
13.583	1.22	1.34	0.067	|	|	| |I O	|	1.00
13.667	1.03	1.31	0.065	|	|	| I | O	|	0.98
13.750	1.03	1.28	0.064	|	|	| I | O	|	0.95
13.833	1.03	1.25	0.062	|	|	| I |O	|	0.93
13.917	1.03	1.22	0.061	|	|	| I |O	|	0.91
14.000	1.03	1.20	0.059	|	|	| I O	|	0.89
14.083	1.14	1.18	0.059	|	|	| IO	|	0.88
14.167	1.20	1.18	0.058	|	|	| O	|	0.88
14.250	1.20	1.18	0.059	|	|	| O	|	0.88
14.333	1.18	1.18	0.059	|	|	| O	|	0.88
14.417	1.16	1.18	0.059	|	|	| IO	|	0.88
14.500	1.16	1.18	0.058	|	|	| IO	|	0.88
14.583	1.16	1.18	0.058	|	|	| IO	|	0.87
14.667	1.16	1.17	0.058	|	|	| IO	|	0.87
14.750	1.16	1.17	0.058	|	|	| IO	|	0.87
14.833	1.13	1.17	0.058	|	|	| IO	|	0.87
14.917	1.12	1.16	0.058	|	|	| IO	|	0.86
15.000	1.11	1.16	0.057	|	|	| O|	|	0.86
15.083	1.09	1.15	0.057	|	|	| IO|	|	0.85
15.167	1.07	1.14	0.056	|	|	| IO|	|	0.85
15.250	1.07	1.13	0.056	|	|	| IO|	|	0.84
15.333	1.04	1.12	0.055	|	|	| I O|	|	0.83
15.417	1.03	1.11	0.055	|	|	| IO |	|	0.83
15.500	1.03	1.10	0.054	|	|	| IO |	|	0.82
15.583	0.91	1.09	0.053	|	|	| I O |	|	0.81
15.667	0.85	1.06	0.052	|	|	|I O |	|	0.79
15.750	0.85	1.04	0.051	|	|	|I O |	|	0.77
15.833	0.85	1.01	0.049	|	|	|I O |	|	0.75

15.917	0.85	0.99	0.048	|	|	|I O	|	|	0.73
16.000	0.85	0.98	0.047	|	|	|I O	|	|	0.72
16.083	0.43	0.94	0.045	|	I	| O	|	|	0.69
16.167	0.19	0.86	0.041	| I	|	|O	|	|	0.63
16.250	0.18	0.78	0.037	| I	|	O	|	|	0.57
16.333	0.18	0.71	0.033	| I	|	O |	|	|	0.51
16.417	0.18	0.64	0.030	| I	|	O |	|	|	0.46
16.500	0.18	0.57	0.027	| I	| O	|	|	|	0.42
16.583	0.15	0.52	0.024	| I	| O	|	|	|	0.37
16.667	0.13	0.46	0.022	| I	|O	|	|	|	0.34
16.750	0.13	0.42	0.019	| I	O	|	|	|	0.30
16.833	0.13	0.38	0.018	| I	O|	|	|	|	0.28
16.917	0.13	0.35	0.016	| I	O|	|	|	|	0.25
17.000	0.13	0.32	0.015	| I	O |	|	|	|	0.23
17.083	0.19	0.30	0.014	| I	O |	|	|	|	0.21
17.167	0.22	0.28	0.013	| I	O |	|	|	|	0.21
17.250	0.22	0.27	0.013	| I	O |	|	|	|	0.20
17.333	0.22	0.27	0.012	| I	O |	|	|	|	0.19
17.417	0.22	0.26	0.012	| I	O |	|	|	|	0.19
17.500	0.22	0.26	0.012	| I	O |	|	|	|	0.19
17.583	0.22	0.25	0.012	| I	O |	|	|	|	0.18
17.667	0.22	0.25	0.011	| I	O |	|	|	|	0.18
17.750	0.22	0.24	0.011	| I	O |	|	|	|	0.18
17.833	0.20	0.24	0.011	| I	O |	|	|	|	0.17
17.917	0.18	0.23	0.011	| I	O |	|	|	|	0.17
18.000	0.18	0.22	0.010	| I	O |	|	|	|	0.16
18.083	0.18	0.22	0.010	| I	O |	|	|	|	0.16
18.167	0.18	0.21	0.010	| I	O |	|	|	|	0.15
18.250	0.18	0.21	0.010	| I	O |	|	|	|	0.15
18.333	0.18	0.20	0.009	| I	O |	|	|	|	0.15
18.417	0.18	0.20	0.009	| I	O |	|	|	|	0.15
18.500	0.18	0.20	0.009	| I	O |	|	|	|	0.14
18.583	0.15	0.19	0.009	| I	O |	|	|	|	0.14
18.667	0.13	0.19	0.009	| I	O |	|	|	|	0.13
18.750	0.13	0.18	0.008	| I	O |	|	|	|	0.13
18.833	0.11	0.17	0.008	| I	O |	|	|	|	0.12
18.917	0.09	0.16	0.007	|I O	|	|	|	|	0.12
19.000	0.09	0.15	0.007	|I O	|	|	|	|	0.11
19.083	0.12	0.14	0.007	| O	|	|	|	|	0.10
19.167	0.13	0.14	0.007	| O	|	|	|	|	0.10
19.250	0.13	0.14	0.007	| O	|	|	|	|	0.10
19.333	0.16	0.14	0.007	| OI	|	|	|	|	0.10
19.417	0.18	0.15	0.007	| O	|	|	|	|	0.11
19.500	0.18	0.15	0.007	| O	|	|	|	|	0.11
19.583	0.15	0.15	0.007	| O	|	|	|	|	0.11
19.667	0.13	0.15	0.007	| IO	|	|	|	|	0.11
19.750	0.13	0.15	0.007	| IO	|	|	|	|	0.11
19.833	0.11	0.14	0.007	| O	|	|	|	|	0.10
19.917	0.09	0.14	0.006	|IO	|	|	|	|	0.10
20.000	0.09	0.13	0.006	|IO	|	|	|	|	0.10
20.083	0.12	0.13	0.006	| O	|	|	|	|	0.09
20.167	0.13	0.13	0.006	| O	|	|	|	|	0.09
20.250	0.13	0.13	0.006	| O	|	|	|	|	0.09
20.333	0.13	0.13	0.006	| O	|	|	|	|	0.09
20.417	0.13	0.13	0.006	| O	|	|	|	|	0.09
20.500	0.13	0.13	0.006	| O	|	|	|	|	0.09
20.583	0.13	0.13	0.006	| O	|	|	|	|	0.09
20.667	0.13	0.13	0.006	| O	|	|	|	|	0.10
20.750	0.13	0.13	0.006	| O	|	|	|	|	0.10
20.833	0.11	0.13	0.006	| O	|	|	|	|	0.09
20.917	0.09	0.13	0.006	|IO	|	|	|	|	0.09
21.000	0.09	0.12	0.006	|IO	|	|	|	|	0.09
21.083	0.12	0.12	0.005	| O	|	|	|	|	0.09
21.167	0.13	0.12	0.006	| O	|	|	|	|	0.09
21.250	0.13	0.12	0.006	| O	|	|	|	|	0.09
21.333	0.11	0.12	0.006	| O	|	|	|	|	0.09
21.417	0.09	0.12	0.005	|IO	|	|	|	|	0.09
21.500	0.09	0.11	0.005	|IO	|	|	|	|	0.08
21.583	0.12	0.11	0.005	| O	|	|	|	|	0.08
21.667	0.13	0.11	0.005	| O	|	|	|	|	0.08
21.750	0.13	0.12	0.005	| O	|	|	|	|	0.08
21.833	0.11	0.12	0.005	| O	|	|	|	|	0.09
21.917	0.09	0.11	0.005	|IO	|	|	|	|	0.08
22.000	0.09	0.11	0.005	|IO	|	|	|	|	0.08
22.083	0.12	0.11	0.005	| O	|	|	|	|	0.08
22.167	0.13	0.11	0.005	| O	|	|	|	|	0.08
22.250	0.13	0.11	0.005	| O	|	|	|	|	0.08
22.333	0.11	0.12	0.005	| O	|	|	|	|	0.08
22.417	0.09	0.11	0.005	|IO	|	|	|	|	0.08
22.500	0.09	0.11	0.005	|IO	|	|	|	|	0.08
22.583	0.09	0.11	0.005	|IO	|	|	|	|	0.08
22.667	0.09	0.10	0.005	|IO	|	|	|	|	0.08
22.750	0.09	0.10	0.005	|IO	|	|	|	|	0.07
22.833	0.09	0.10	0.005	|IO	|	|	|	|	0.07
22.917	0.09	0.10	0.005	|IO	|	|	|	|	0.07
23.000	0.09	0.10	0.005	|IO	|	|	|	|	0.07

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23.083    0.09    0.10      0.004  |O      |       |       |       |     0.07
23.167    0.09    0.10      0.004  |O      |       |       |       |     0.07
23.250    0.09    0.09      0.004  |O      |       |       |       |     0.07
23.333    0.09    0.09      0.004  |O      |       |       |       |     0.07
23.417    0.09    0.09      0.004  |O      |       |       |       |     0.07
23.500    0.09    0.09      0.004  |O      |       |       |       |     0.07
23.583    0.09    0.09      0.004  |O      |       |       |       |     0.07
23.667    0.09    0.09      0.004  |O      |       |       |       |     0.07
23.750    0.09    0.09      0.004  |O      |       |       |       |     0.07
23.833    0.09    0.09      0.004  |O      |       |       |       |     0.07
23.917    0.09    0.09      0.004  |O      |       |       |       |     0.07
24.000    0.09    0.09      0.004  |O      |       |       |       |     0.07
24.083    0.03    0.09      0.004  IO      |       |       |       |     0.06
24.167    0.00    0.08      0.004  IO      |       |       |       |     0.06
24.250    0.00    0.07      0.003  IO      |       |       |       |     0.05

Remaining water in basin =    0.00 (Ac.Ft)

****************************HYDROGRAPH DATA****************************
               Number of intervals =   291
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =        1.336 (CFS)
               Total volume =       0.919 (Ac.Ft)
       Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
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********** HYDROGRAPH INFORMATION **********

From study/file name: pro10110.rte
**********HYDROGRAPH DATA**********
Number of intervals = 14
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 13.315 (CFS)
Total volume = 0.391 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
****

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Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****
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User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 14
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 3.3 6.66 9.99 13.32	Depth (Ft.)
0.083	1.25	0.09	0.004	O I	0.06
0.167	2.02	0.30	0.014	O I	0.22
0.250	2.46	0.57	0.026	O I	0.41
0.333	2.69	0.82	0.039	O I	0.60
0.417	2.82	1.06	0.052	O I	0.78
0.500	3.20	1.29	0.064	O I	0.96
0.583	4.03	1.49	0.080	O I	1.17
0.667	4.93	1.71	0.100	O I	1.44
0.750	6.84	1.97	0.128	O I	1.79
0.833	13.32	8.23	0.162	O I	2.21
0.917	8.94	11.37	0.171	I O	2.32
1.000	3.28	5.67	0.154	I O	2.12
1.083	0.91	2.09	0.142	I O	1.98
1.167	0.03	2.00	0.131	I O	1.84
1.250	0.00	1.88	0.118	I O	1.67
1.333	0.00	1.78	0.105	I O	1.52
1.417	0.00	1.65	0.094	I O	1.36
1.500	0.00	1.52	0.083	I O	1.21

1.583	0.00	1.40	0.073	I O	|	|	|	1.08
1.667	0.00	1.27	0.063	I O	|	|	|	0.95
1.750	0.00	1.12	0.055	I O	|	|	|	0.83
1.833	0.00	0.98	0.048	I O	|	|	|	0.73
1.917	0.00	0.87	0.042	I O	|	|	|	0.64
2.000	0.00	0.76	0.036	IO	|	|	|	0.56
2.083	0.00	0.67	0.031	IO	|	|	|	0.48
2.167	0.00	0.58	0.027	IO	|	|	|	0.42
2.250	0.00	0.50	0.023	IO	|	|	|	0.36
2.333	0.00	0.43	0.020	IO	|	|	|	0.31
2.417	0.00	0.37	0.017	O	|	|	|	0.27
2.500	0.00	0.32	0.015	O	|	|	|	0.23
2.583	0.00	0.27	0.013	O	|	|	|	0.20
2.667	0.00	0.24	0.011	O	|	|	|	0.17
2.750	0.00	0.20	0.009	O	|	|	|	0.15
2.833	0.00	0.18	0.008	O	|	|	|	0.13
2.917	0.00	0.15	0.007	O	|	|	|	0.11
3.000	0.00	0.13	0.006	O	|	|	|	0.09
3.083	0.00	0.11	0.005	O	|	|	|	0.08
3.167	0.00	0.10	0.004	O	|	|	|	0.07

Remaining water in basin = 0.00 (Ac.Ft)

**********HYDROGRAPH DATA**********

Number of intervals = 38
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 11.369 (CFS)
Total volume = 0.386 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

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********** HYDROGRAPH INFORMATION **********

From study/file name: pro10310.rte
**********HYDROGRAPH DATA**********
Number of intervals = 38
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 8.515 (CFS)
Total volume = 0.594 (Ac.Ft)
Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

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Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 38
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	2.1	4.26	6.39	8.51	Depth (Ft.)
0.083	0.49	0.03	0.002	OI	|	|	|	|	0.02
0.167	0.78	0.12	0.005	O I	|	|	|	|	0.09
0.250	0.72	0.20	0.009	O I	|	|	|	|	0.15
0.333	0.82	0.28	0.013	|O I	|	|	|	|	0.20
0.417	0.91	0.36	0.017	|O I	|	|	|	|	0.26
0.500	1.06	0.45	0.021	|O I	|	|	|	|	0.33
0.583	1.00	0.53	0.025	|O I	|	|	|	|	0.38
0.667	1.06	0.60	0.028	| OI	|	|	|	|	0.43
0.750	1.14	0.67	0.031	| O I	|	|	|	|	0.48
0.833	1.00	0.72	0.034	| OI	|	|	|	|	0.52
0.917	0.95	0.75	0.035	| OI	|	|	|	|	0.55
1.000	1.08	0.78	0.037	| O I	|	|	|	|	0.57
1.083	1.45	0.84	0.040	| O I	|	|	|	|	0.62
1.167	1.63	0.92	0.045	| O I	|	|	|	|	0.68
1.250	1.63	1.01	0.049	| O I	|	|	|	|	0.75
1.333	1.48	1.07	0.053	| OI	|	|	|	|	0.80
1.417	1.85	1.15	0.057	| O I	|	|	|	|	0.85
1.500	2.19	1.25	0.062	| O I	|	|	|	|	0.93

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1.583    2.01    1.35      0.068  |     O I|        |        |        |     1.01
1.667    2.11    1.40      0.072  |     O I|        |        |        |     1.07
1.750    2.69    1.48      0.079  |     O  | I      |        |        |     1.16
1.833    2.81    1.57      0.087  |     O  | I      |        |        |     1.28
1.917    2.58    1.66      0.095  |      O |I       |        |        |     1.38
2.000    2.56    1.73      0.101  |      O |I       |        |        |     1.46
2.083    2.68    1.79      0.107  |      O | I      |        |        |     1.54
2.167    3.56    1.87      0.116  |       O|    I   |        |        |     1.65
2.250    4.66    1.99      0.131  |       O|        |I       |        |     1.83
2.333    3.89    2.43      0.145  |        |O    I  |        |        |     2.01
2.417    5.74    5.01      0.152  |        |        | O  I   |        |     2.10
2.500    7.56    6.79      0.158  |        |        |        |O  I    |     2.16
2.583    8.51    8.14      0.162  |        |        |        |     O I|     2.21
2.667    7.18    7.82      0.161  |        |        |        | I  O   |     2.20
2.750    3.21    4.97      0.152  |        |   I    | O      |        |     2.10
2.833    1.29    2.10      0.143  |    I  O|        |        |        |     1.99
2.917    1.15    2.05      0.138  |    I  O|        |        |        |     1.92
3.000    0.66    1.99      0.130  | I    O|        |        |        |     1.82
3.083    0.15    1.90      0.119  I      O|        |        |        |     1.69
3.167    0.00    1.79      0.107  I     O |        |        |        |     1.54
3.250    0.00    1.66      0.095  I     O |        |        |        |     1.38
3.333    0.00    1.54      0.084  I    O  |        |        |        |     1.23
3.417    0.00    1.42      0.074  I    O  |        |        |        |     1.10
3.500    0.00    1.30      0.065  I   O   |        |        |        |     0.97
3.583    0.00    1.14      0.056  I   O   |        |        |        |     0.85
3.667    0.00    1.00      0.049  I  O    |        |        |        |     0.74
3.750    0.00    0.88      0.042  I  O    |        |        |        |     0.65
3.833    0.00    0.78      0.037  I O     |        |        |        |     0.57
3.917    0.00    0.68      0.032  I O     |        |        |        |     0.49
4.000    0.00    0.59      0.027  I O     |        |        |        |     0.43
4.083    0.00    0.51      0.024  IO      |        |        |        |     0.37
4.167    0.00    0.44      0.020  IO      |        |        |        |     0.32
4.250    0.00    0.38      0.017  IO      |        |        |        |     0.27
4.333    0.00    0.32      0.015  IO      |        |        |        |     0.24
4.417    0.00    0.28      0.013  IO      |        |        |        |     0.20
4.500    0.00    0.24      0.011  O       |        |        |        |     0.17
4.583    0.00    0.21      0.010  O       |        |        |        |     0.15
4.667    0.00    0.18      0.008  O       |        |        |        |     0.13
4.750    0.00    0.15      0.007  O       |        |        |        |     0.11
4.833    0.00    0.13      0.006  O       |        |        |        |     0.10
4.917    0.00    0.11      0.005  O       |        |        |        |     0.08
5.000    0.00    0.10      0.005  O       |        |        |        |     0.07

      Remaining water in basin =    0.00 (Ac.Ft)

      ****************************HYDROGRAPH DATA****************************
                    Number of intervals =    60
                    Time interval =    5.0 (Min.)
                    Maximum/Peak flow rate =        8.143 (CFS)
                    Total volume =       0.590 (Ac.Ft)
             Status of hydrographs being held in storage
                       Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
             Peak (CFS)      0.000     0.000     0.000     0.000     0.000
             Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ***********************************************************************

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********** HYDROGRAPH INFORMATION **********

From study/file name: pro10610.rte
**********HYDROGRAPH DATA**********
Number of intervals = 74
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 7.909 (CFS)
Total volume = 0.771 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
****
++++++++++
Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 74
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	2.0	3.95	5.93	7.91	Depth (Ft.)
0.083	0.27	0.02	0.001	OI					0.01
0.167	0.47	0.07	0.003	OI					0.05
0.250	0.51	0.13	0.006	O I					0.09
0.333	0.51	0.18	0.008	O I					0.13
0.417	0.51	0.22	0.010	O I					0.16
0.500	0.56	0.27	0.012	|OI					0.19
0.583	0.60	0.31	0.014	|OI					0.23
0.667	0.60	0.35	0.016	|OI					0.25
0.750	0.60	0.38	0.018	|OI					0.28
0.833	0.60	0.41	0.019	|OI					0.30
0.917	0.60	0.44	0.020	|OI					0.32
1.000	0.65	0.46	0.022	|OI					0.34
1.083	0.68	0.49	0.023	|OI					0.36
1.167	0.68	0.52	0.024	| O					0.38
1.250	0.68	0.54	0.025	| O					0.39
1.333	0.68	0.56	0.026	| O					0.41
1.417	0.68	0.58	0.027	| O					0.42
1.500	0.68	0.59	0.027	| O					0.43
1.583	0.68	0.60	0.028	| O					0.44
1.667	0.68	0.61	0.029	| O					0.45
1.750	0.68	0.62	0.029	| O					0.45
1.833	0.68	0.63	0.029	| O					0.46
1.917	0.68	0.64	0.030	| O					0.46

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2.000    0.73    0.65      0.030  | O     |       |       |       |     0.47
2.083    0.71    0.66      0.031  | O     |       |       |       |     0.48
2.167    0.74    0.67      0.031  | O     |       |       |       |     0.48
2.250    0.77    0.68      0.032  | OI    |       |       |       |     0.49
2.333    0.77    0.69      0.032  | OI    |       |       |       |     0.50
2.417    0.77    0.70      0.033  | OI    |       |       |       |     0.51
2.500    0.77    0.71      0.033  | OI    |       |       |       |     0.51
2.583    0.77    0.72      0.033  | OI    |       |       |       |     0.52
2.667    0.77    0.72      0.034  | OI    |       |       |       |     0.52
2.750    0.82    0.73      0.034  | OI    |       |       |       |     0.53
2.833    0.85    0.74      0.035  |  O    |       |       |       |     0.54
2.917    0.85    0.76      0.036  |  O    |       |       |       |     0.55
3.000    0.85    0.77      0.036  |  O    |       |       |       |     0.56
3.083    0.85    0.78      0.037  |  O    |       |       |       |     0.57
3.167    0.91    0.79      0.037  |  O    |       |       |       |     0.58
3.250    0.94    0.81      0.038  |  O    |       |       |       |     0.59
3.333    0.94    0.82      0.039  |  O    |       |       |       |     0.60
3.417    0.99    0.84      0.040  |  OI   |       |       |       |     0.61
3.500    1.11    0.86      0.041  |  OI   |       |       |       |     0.63
3.583    1.27    0.90      0.044  |  O I  |       |       |       |     0.66
3.667    1.34    0.95      0.046  |  O I  |       |       |       |     0.70
3.750    1.45    1.01      0.049  |   OI  |       |       |       |     0.74
3.833    1.51    1.06      0.052  |   O I |       |       |       |     0.79
3.917    1.62    1.12      0.055  |   O I |       |       |       |     0.83
4.000    1.68    1.19      0.059  |   O I |       |       |       |     0.88
4.083    1.79    1.25      0.062  |    O I|       |       |       |     0.93
4.167    1.96    1.33      0.066  |    O I|       |       |       |     0.99
4.250    2.13    1.39      0.071  |    O  I       |       |       |     1.05
4.333    2.30    1.45      0.076  |    O  |I      |       |       |     1.13
4.417    2.47    1.52      0.083  |     O |I      |       |       |     1.21
4.500    2.53    1.59      0.089  |     O |  I    |       |       |     1.30
4.583    2.64    1.67      0.096  |     O |  I    |       |       |     1.39
4.667    2.81    1.75      0.103  |      O|   I   |       |       |     1.48
4.750    2.98    1.82      0.110  |      O|    I  |       |       |     1.58
4.833    3.04    1.89      0.118  |      O|    I  |       |       |     1.68
4.917    3.15    1.96      0.126  |      O|    I  |       |       |     1.78
5.000    3.32    2.03      0.135  |       O    I  |       |       |     1.89
5.083    3.91    2.35      0.145  |        |O     I|       |       |     2.01
5.167    4.76    4.50      0.151  |        |       | OI    |       |     2.08
5.250    5.40    5.13      0.153  |        |       |   OI  |       |     2.10
5.333    5.91    5.70      0.154  |        |       |      O|       |     2.12
5.417    6.64    6.32      0.156  |        |       |       |OI     |     2.15
5.500    7.91    7.35      0.159  |        |       |       |    O  I     2.18
5.583    4.55    6.13      0.156  |        |       | I     O       |     2.14
5.667    1.38    2.70      0.146  |    I   | O     |       |       |     2.02
5.750    0.62    2.04      0.136  |  I     O       |       |       |     1.90
5.833    0.46    1.95      0.126  |I     O|       |       |       |     1.78
5.917    0.32    1.87      0.116  |I     O|       |       |       |     1.65
6.000    0.20    1.77      0.105  I      O|       |       |       |     1.51
6.083    0.07    1.65      0.094  I     O |       |       |       |     1.37
6.167    0.00    1.53      0.083  I     O |       |       |       |     1.22
6.250    0.00    1.41      0.073  I    O  |       |       |       |     1.09
6.333    0.00    1.29      0.064  I    O  |       |       |       |     0.96
6.417    0.00    1.13      0.056  I   O   |       |       |       |     0.84
6.500    0.00    0.99      0.048  I   O   |       |       |       |     0.73
6.583    0.00    0.87      0.042  I  O    |       |       |       |     0.64
6.667    0.00    0.77      0.036  I  O    |       |       |       |     0.56
6.750    0.00    0.68      0.031  I O     |       |       |       |     0.49
6.833    0.00    0.58      0.027  I O     |       |       |       |     0.42
6.917    0.00    0.50      0.023  I O     |       |       |       |     0.36
7.000    0.00    0.43      0.020  IO      |       |       |       |     0.31
7.083    0.00    0.37      0.017  IO      |       |       |       |     0.27
7.167    0.00    0.32      0.015  IO      |       |       |       |     0.23
7.250    0.00    0.28      0.013  IO      |       |       |       |     0.20
7.333    0.00    0.24      0.011  O       |       |       |       |     0.17
7.417    0.00    0.21      0.010  O       |       |       |       |     0.15
7.500    0.00    0.18      0.008  O       |       |       |       |     0.13
7.583    0.00    0.15      0.007  O       |       |       |       |     0.11
7.667    0.00    0.13      0.006  O       |       |       |       |     0.10
7.750    0.00    0.11      0.005  O       |       |       |       |     0.08
7.833    0.00    0.10      0.005  O       |       |       |       |     0.07
     Remaining water in basin =    0.00 (Ac.Ft)
     ****************************HYDROGRAPH DATA****************************
                  Number of intervals =    94
                  Time interval =    5.0 (Min.)
                  Maximum/Peak flow rate =        7.352 (CFS)
                  Total volume =       0.767 (Ac.Ft)
           Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
           Peak (CFS)      0.000     0.000     0.000     0.000     0.000
           Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
     ************************************************************************
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FLOOD HYDROGRAPH ROUTING PROGRAM
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Study date: 05/15/19

Program License Serial Number 5006

********** HYDROGRAPH INFORMATION **********

From study/file name: pro102410.rte
**********HYDROGRAPH DATA**********
Number of intervals = 290
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.814 (CFS)
Total volume = 1.309 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
****

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Process from Point/Station 1.000 to Point/Station 1.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 290
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.500	0.032	0.689	0.030	0.034
1.000	0.067	1.340	0.062	0.072
1.500	0.104	1.765	0.098	0.110
2.000	0.144	2.106	0.137	0.151
2.500	0.186	16.527	0.129	0.243
3.000	0.231	42.620	0.084	0.378
3.500	0.278	76.309	0.015	0.541
4.000	0.328	116.141	-0.072	0.728

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	0.7	1.41	2.11	2.81	Depth (Ft.)
0.083	0.07	0.00	0.000	O					0.00
0.167	0.11	0.02	0.001	OI					0.01
0.250	0.11	0.03	0.001	OI					0.02
0.333	0.14	0.04	0.002	OI					0.03
0.417	0.16	0.06	0.003	OI					0.04
0.500	0.16	0.07	0.003	OI					0.05
0.583	0.16	0.08	0.004	OI					0.06
0.667	0.16	0.10	0.004	|O					0.07
0.750	0.16	0.11	0.005	|O					0.08
0.833	0.20	0.12	0.005	|OI					0.08
0.917	0.22	0.13	0.006	|OI					0.09
1.000	0.22	0.14	0.007	|OI					0.10
1.083	0.18	0.15	0.007	|OI					0.11
1.167	0.16	0.15	0.007	|O					0.11
1.250	0.16	0.15	0.007	|O					0.11
1.333	0.16	0.16	0.007	|O					0.11
1.417	0.16	0.16	0.007	|O					0.11
1.500	0.16	0.16	0.007	|O					0.11

1.583	0.16	0.16	0.007	O				0.11
1.667	0.16	0.16	0.007	O				0.12
1.750	0.16	0.16	0.007	O				0.12
1.833	0.20	0.16	0.008	OI				0.12
1.917	0.22	0.17	0.008	OI				0.12
2.000	0.22	0.18	0.008	OI				0.13
2.083	0.22	0.18	0.008	O				0.13
2.167	0.22	0.19	0.009	O				0.14
2.250	0.22	0.19	0.009	O				0.14
2.333	0.22	0.19	0.009	O				0.14
2.417	0.22	0.20	0.009	O				0.14
2.500	0.22	0.20	0.009	O				0.15
2.583	0.25	0.21	0.010	O				0.15
2.667	0.27	0.21	0.010	OI				0.15
2.750	0.27	0.22	0.010	OI				0.16
2.833	0.27	0.23	0.011	OI				0.17
2.917	0.27	0.23	0.011	OI				0.17
3.000	0.27	0.24	0.011	OI				0.17
3.083	0.27	0.24	0.011	OI				0.18
3.167	0.27	0.25	0.012	OI				0.18
3.250	0.27	0.25	0.012	OI				0.18
3.333	0.27	0.25	0.012	OI				0.18
3.417	0.27	0.26	0.012	OI				0.19
3.500	0.27	0.26	0.012	OI				0.19
3.583	0.27	0.26	0.012	OI				0.19
3.667	0.27	0.26	0.012	OI				0.19
3.750	0.27	0.26	0.012	O				0.19
3.833	0.31	0.27	0.012	O				0.19
3.917	0.33	0.27	0.013	O				0.20
4.000	0.33	0.28	0.013	O				0.20
4.083	0.33	0.29	0.013	O				0.21
4.167	0.33	0.29	0.014	O				0.21
4.250	0.33	0.30	0.014	O				0.22
4.333	0.36	0.30	0.014	OI				0.22
4.417	0.38	0.31	0.015	OI				0.23
4.500	0.38	0.32	0.015	OI				0.23
4.583	0.38	0.33	0.015	OI				0.24
4.667	0.38	0.34	0.016	OI				0.25
4.750	0.38	0.34	0.016	OI				0.25
4.833	0.42	0.35	0.016	O				0.26
4.917	0.44	0.36	0.017	O				0.26
5.000	0.44	0.37	0.017	O				0.27
5.083	0.37	0.38	0.017	O				0.27
5.167	0.33	0.37	0.017	IO				0.27
5.250	0.33	0.37	0.017	IO				0.27
5.333	0.36	0.36	0.017	O				0.26
5.417	0.38	0.36	0.017	O				0.26
5.500	0.38	0.37	0.017	O				0.27
5.583	0.42	0.37	0.017	O				0.27
5.667	0.44	0.38	0.018	O				0.28
5.750	0.44	0.39	0.018	O				0.28
5.833	0.44	0.39	0.018	O				0.29
5.917	0.44	0.40	0.019	O				0.29
6.000	0.44	0.40	0.019	O				0.29
6.083	0.47	0.41	0.019	OI				0.30
6.167	0.49	0.42	0.020	OI				0.31
6.250	0.49	0.43	0.020	OI				0.31
6.333	0.49	0.44	0.020	OI				0.32
6.417	0.49	0.45	0.021	O				0.32
6.500	0.49	0.45	0.021	O				0.33
6.583	0.53	0.46	0.021	O				0.33
6.667	0.55	0.47	0.022	OI				0.34
6.750	0.55	0.48	0.022	OI				0.35
6.833	0.55	0.49	0.023	OI				0.36
6.917	0.55	0.50	0.023	OI				0.36
7.000	0.55	0.50	0.023	OI				0.37
7.083	0.55	0.51	0.024	OI				0.37
7.167	0.55	0.51	0.024	OI				0.37
7.250	0.55	0.52	0.024	OI				0.38
7.333	0.58	0.53	0.024	OI				0.38
7.417	0.60	0.53	0.025	O				0.39
7.500	0.60	0.54	0.025	O				0.39
7.583	0.63	0.55	0.026	OI				0.40
7.667	0.65	0.57	0.026	OI				0.41
7.750	0.65	0.58	0.027	OI				0.42
7.833	0.69	0.59	0.027	OI				0.43
7.917	0.71	0.61	0.028	O I				0.44
8.000	0.71	0.62	0.029	OI				0.45
8.083	0.78	0.64	0.030	OI				0.46
8.167	0.82	0.66	0.031	O|I				0.48
8.250	0.82	0.68	0.032	O|I				0.49
8.333	0.82	0.70	0.033	O|I				0.51
8.417	0.82	0.71	0.033	OI				0.52
8.500	0.82	0.73	0.034	OI				0.53
8.583	0.85	0.74	0.035	OI				0.54
8.667	0.87	0.75	0.035	OI				0.55

8.750	0.87	0.77	0.036	|	OI	|	|	|	0.56
8.833	0.91	0.78	0.037	|	O I	|	|	|	0.57
8.917	0.93	0.80	0.038	|	OI	|	|	|	0.58
9.000	0.93	0.81	0.039	|	OI	|	|	|	0.60
9.083	1.00	0.83	0.040	|	O I	|	|	|	0.61
9.167	1.04	0.85	0.041	|	O I	|	|	|	0.63
9.250	1.04	0.88	0.042	|	O I	|	|	|	0.64
9.333	1.07	0.90	0.043	|	O I	|	|	|	0.66
9.417	1.09	0.92	0.044	|	O I	|	|	|	0.68
9.500	1.09	0.94	0.046	|	O I	|	|	|	0.69
9.583	1.14	0.96	0.047	|	O I	|	|	|	0.71
9.667	1.16	0.98	0.048	|	O I	|	|	|	0.73
9.750	1.17	1.01	0.049	|	O I	|	|	|	0.74
9.833	1.24	1.03	0.050	|	O I	|	|	|	0.76
9.917	1.29	1.06	0.052	|	O I	|	|	|	0.78
10.000	1.30	1.09	0.053	|	O I	|	|	|	0.81
10.083	1.00	1.09	0.054	|	IO	|	|	|	0.81
10.167	0.82	1.07	0.053	|	I O	|	|	|	0.79
10.250	0.82	1.04	0.051	|	I O	|	|	|	0.77
10.333	0.82	1.02	0.050	|	I O	|	|	|	0.75
10.417	0.82	0.99	0.048	|	I O	|	|	|	0.73
10.500	0.82	0.97	0.047	|	I O	|	|	|	0.72
10.583	1.00	0.96	0.047	|	OI	|	|	|	0.71
10.667	1.12	0.98	0.047	|	OI	|	|	|	0.72
10.750	1.12	0.99	0.048	|	OI	|	|	|	0.73
10.833	1.13	1.01	0.049	|	OI	|	|	|	0.75
10.917	1.14	1.02	0.050	|	OI	|	|	|	0.76
11.000	1.14	1.04	0.051	|	OI	|	|	|	0.77
11.083	1.08	1.05	0.051	|	OI	|	|	|	0.77
11.167	1.04	1.05	0.051	|	O	|	|	|	0.78
11.250	1.05	1.05	0.051	|	O	|	|	|	0.78
11.333	1.05	1.05	0.051	|	O	|	|	|	0.78
11.417	1.06	1.05	0.051	|	OI	|	|	|	0.78
11.500	1.06	1.05	0.051	|	OI	|	|	|	0.78
11.583	0.98	1.05	0.051	|	O	|	|	|	0.77
11.667	0.93	1.04	0.051	|	IO	|	|	|	0.77
11.750	0.93	1.02	0.050	|	IO	|	|	|	0.76
11.833	0.96	1.01	0.049	|	IO	|	|	|	0.75
11.917	0.98	1.01	0.049	|	O	|	|	|	0.75
12.000	0.98	1.00	0.049	|	O	|	|	|	0.74
12.083	1.46	1.03	0.050	|	O I	|	|	|	0.76
12.167	1.75	1.10	0.054	|	O | I	|	|	|	0.82
12.250	1.76	1.18	0.058	|	O | I	|	|	|	0.88
12.333	1.83	1.25	0.062	|	O | I	|	|	|	0.93
12.417	1.88	1.33	0.066	|	O| I	|	|	|	0.99
12.500	1.88	1.37	0.070	|	O| I	|	|	|	1.04
12.583	2.03	1.42	0.074	|	O I|	|	|	|	1.09
12.667	2.11	1.47	0.078	|	O I|	|	|	|	1.15
12.750	2.12	1.52	0.082	|	|O I	|	|	|	1.21
12.833	2.19	1.57	0.087	|	|O I	|	|	|	1.26
12.917	2.23	1.61	0.091	|	| O |I	|	|	|	1.32
13.000	2.24	1.66	0.095	|	| O |I	|	|	|	1.38
13.083	2.59	1.72	0.100	|	| O | I	|	|	|	1.45
13.167	2.79	1.79	0.106	|	| O |	|	| I|	|	1.53
13.250	2.80	1.84	0.113	|	| O |	|	| I|	|	1.61
13.333	2.81	1.90	0.120	|	| O |	|	| I|	|	1.70
13.417	2.81	1.95	0.126	|	| O |	|	| I|	|	1.77
13.500	2.81	2.00	0.131	|	| O |	|	| I	|	1.84
13.583	2.07	2.02	0.134	|	| O|	|	|	|	1.88
13.667	1.64	2.01	0.133	|	| I O |	|	|	|	1.87
13.750	1.63	1.99	0.131	|	| I O |	|	|	|	1.83
13.833	1.63	1.97	0.128	|	| I O |	|	|	|	1.80
13.917	1.64	1.95	0.126	|	| I O |	|	|	|	1.78
14.000	1.64	1.93	0.124	|	| I O |	|	|	|	1.75
14.083	1.92	1.93	0.123	|	| O |	|	|	|	1.74
14.167	2.08	1.93	0.123	|	| O I|	|	|	|	1.74
14.250	2.09	1.94	0.124	|	| OI|	|	|	|	1.76
14.333	2.03	1.95	0.125	|	| OI|	|	|	|	1.77
14.417	1.99	1.95	0.126	|	| O |	|	|	|	1.77
14.500	1.99	1.95	0.126	|	| O |	|	|	|	1.77
14.583	2.00	1.95	0.126	|	| O |	|	|	|	1.78
14.667	2.00	1.96	0.127	|	| O |	|	|	|	1.78
14.750	2.01	1.96	0.127	|	| O |	|	|	|	1.79
14.833	1.94	1.96	0.127	|	| O |	|	|	|	1.79
14.917	1.91	1.96	0.127	|	| IO |	|	|	|	1.78
15.000	1.91	1.96	0.126	|	| IO |	|	|	|	1.78
15.083	1.85	1.95	0.126	|	| IO |	|	|	|	1.77
15.167	1.81	1.94	0.125	|	| I O |	|	|	|	1.76
15.250	1.81	1.94	0.124	|	| I O |	|	|	|	1.75
15.333	1.75	1.93	0.123	|	| I O |	|	|	|	1.74
15.417	1.71	1.92	0.122	|	| I O |	|	|	|	1.72
15.500	1.72	1.91	0.121	|	| I O |	|	|	|	1.71
15.583	1.45	1.89	0.118	|	I | O |	|	|	|	1.68
15.667	1.29	1.86	0.115	|	I | O |	|	|	|	1.64
15.750	1.29	1.83	0.111	|	I | O |	|	|	|	1.59
15.833	1.30	1.80	0.108	|	I | O |	|	|	|	1.54

15.917	1.30	1.77	0.104			I	O		1.50
16.000	1.31	1.73	0.101			I	O		1.46
16.083	0.63	1.67	0.096		I		O		1.39
16.167	0.23	1.58	0.088	I			O		1.28
16.250	0.22	1.48	0.079	I		O			1.16
16.333	0.22	1.38	0.071	I		O			1.05
16.417	0.22	1.26	0.063	I		O			0.94
16.500	0.22	1.14	0.056	I	O				0.85
16.583	0.18	1.03	0.050	I	O				0.76
16.667	0.16	0.92	0.045	I	O				0.68
16.750	0.16	0.83	0.040	I	O				0.61
16.833	0.16	0.75	0.035	I	O				0.55
16.917	0.16	0.68	0.032	I	O				0.49
17.000	0.16	0.61	0.028	I	O				0.44
17.083	0.23	0.55	0.026	I	O				0.40
17.167	0.27	0.51	0.024	I	O				0.37
17.250	0.27	0.48	0.022	I	O				0.35
17.333	0.27	0.45	0.021	I	O				0.33
17.417	0.27	0.42	0.020	I	O				0.31
17.500	0.27	0.40	0.019	I	O				0.29
17.583	0.27	0.39	0.018	I	O				0.28
17.667	0.27	0.37	0.017	I	O				0.27
17.750	0.27	0.36	0.017	I	O				0.26
17.833	0.24	0.34	0.016	I	O				0.25
17.917	0.22	0.33	0.015	I	O				0.24
18.000	0.22	0.31	0.014	I	O				0.23
18.083	0.22	0.30	0.014	I	O				0.22
18.167	0.22	0.29	0.013	I	O				0.21
18.250	0.22	0.28	0.013	I	O				0.20
18.333	0.22	0.27	0.013	I	O				0.20
18.417	0.22	0.26	0.012	O					0.19
18.500	0.22	0.26	0.012	O					0.19
18.583	0.18	0.25	0.012	O					0.18
18.667	0.16	0.24	0.011	I	O				0.17
18.750	0.16	0.23	0.011	I	O				0.17
18.833	0.13	0.22	0.010	I	O				0.16
18.917	0.11	0.20	0.009	I	O				0.15
19.000	0.11	0.19	0.009	I	O				0.14
19.083	0.14	0.18	0.008	I	O				0.13
19.167	0.16	0.18	0.008	I	O				0.13
19.250	0.16	0.18	0.008	O					0.13
19.333	0.20	0.18	0.008	O					0.13
19.417	0.22	0.18	0.008	O					0.13
19.500	0.22	0.19	0.009	O					0.13
19.583	0.18	0.19	0.009	O					0.14
19.667	0.16	0.19	0.009	I	O				0.14
19.750	0.16	0.18	0.009	I	O				0.13
19.833	0.13	0.18	0.008	I	O				0.13
19.917	0.11	0.17	0.008	O					0.12
20.000	0.11	0.16	0.008	O					0.12
20.083	0.14	0.16	0.007	O					0.11
20.167	0.16	0.16	0.007	O					0.11
20.250	0.16	0.16	0.007	O					0.11
20.333	0.16	0.16	0.007	O					0.11
20.417	0.16	0.16	0.007	O					0.12
20.500	0.16	0.16	0.007	O					0.12
20.583	0.16	0.16	0.007	O					0.12
20.667	0.16	0.16	0.007	O					0.12
20.750	0.16	0.16	0.007	O					0.12
20.833	0.13	0.16	0.007	O					0.12
20.917	0.11	0.15	0.007	O					0.11
21.000	0.11	0.15	0.007	O					0.11
21.083	0.14	0.14	0.007	O					0.10
21.167	0.16	0.15	0.007	O					0.11
21.250	0.16	0.15	0.007	O					0.11
21.333	0.13	0.15	0.007	O					0.11
21.417	0.11	0.14	0.007	O					0.10
21.500	0.11	0.14	0.006	O					0.10
21.583	0.14	0.14	0.006	O					0.10
21.667	0.16	0.14	0.006	O					0.10
21.750	0.16	0.14	0.007	O					0.10
21.833	0.13	0.14	0.007	O					0.10
21.917	0.11	0.14	0.007	O					0.10
22.000	0.11	0.14	0.006	O					0.10
22.083	0.14	0.13	0.006	O					0.10
22.167	0.16	0.14	0.006	O					0.10
22.250	0.16	0.14	0.007	O					0.10
22.333	0.13	0.14	0.007	O					0.10
22.417	0.11	0.14	0.006	O					0.10
22.500	0.11	0.13	0.006	O					0.10
22.583	0.11	0.13	0.006	O					0.10
22.667	0.11	0.13	0.006	O					0.09
22.750	0.11	0.13	0.006	O					0.09
22.833	0.11	0.12	0.006	O					0.09
22.917	0.11	0.12	0.006	O					0.09
23.000	0.11	0.12	0.006	O					0.09

```
23.083    0.11    0.12      0.005  |O      |       |       |       |     0.09
23.167    0.11    0.12      0.005  |O      |       |       |       |     0.08
23.250    0.11    0.12      0.005  |O      |       |       |       |     0.08
23.333    0.11    0.11      0.005  |O      |       |       |       |     0.08
23.417    0.11    0.11      0.005  |O      |       |       |       |     0.08
23.500    0.11    0.11      0.005  |O      |       |       |       |     0.08
23.583    0.11    0.11      0.005  |O      |       |       |       |     0.08
23.667    0.11    0.11      0.005  |O      |       |       |       |     0.08
23.750    0.11    0.11      0.005  |O      |       |       |       |     0.08
23.833    0.11    0.11      0.005  |O      |       |       |       |     0.08
23.917    0.11    0.11      0.005  |O      |       |       |       |     0.08
24.000    0.11    0.11      0.005  |O      |       |       |       |     0.08
24.083    0.04    0.11      0.005  IO      |       |       |       |     0.08
24.167    0.00    0.09      0.004  IO      |       |       |       |     0.07
24.250    0.00    0.08      0.004  O       |       |       |       |     0.06

Remaining water in basin =    0.00 (Ac.Ft)

****************************HYDROGRAPH DATA****************************
               Number of intervals =   291
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =        2.024 (CFS)
               Total volume =       1.305 (Ac.Ft)
       Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
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APPENDIX F – HYDRAULIC CALCULATIONS

NODE 121_CB#1
Worksheet for Curb Inlet On Grade

Project Description	
Worksheet	CB1
Type	Curb Inlet On Grade
Solve For	Efficiency

Input Data		
Discharge	5.00	cfs
Slope	0.023000	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.080000	ft/ft
Road Cross Slope	0.020000	ft/ft
Mannings Coefficient	0.015	
Curb Opening Length	14.00	ft
Local Depression	6.0	in
Local Depression Width	2.00	ft

Results		
Efficiency	1.00	
Intercepted Flow	5.00	cfs
Bypass Flow	0.00	cfs
Spread	10.03	ft
Depth	0.32	ft
Flow Area	1.1	ft²
Gutter Depression	1.4	in
Total Depression	7.4	in
Velocity	4.44	ft/s
Equivalent Cross Slope	0.196964	ft/ft
Length Factor	1.12	
Total Interception Length	12.53	ft

Node 124_CB#2
Worksheet for Curb Inlet On Grade

Project Description	
Worksheet	CB2
Type	Curb Inlet On Grade
Solve For	Efficiency

Input Data		
Discharge	5.65	cfs
Slope	0.030000	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.080000	ft/ft
Road Cross Slope	0.020000	ft/ft
Mannings Coefficient	0.015	
Curb Opening Length	14.00	ft
Local Depression	6.0	in
Local Depression Width	2.00	ft

Results		
Efficiency	1.00	
Intercepted Flow	5.65	cfs
Bypass Flow	0	cfs
Spread	9.98	ft
Depth	0.32	ft
Flow Area	1.1	ft²
Gutter Depression	1.4	in
Total Depression	7.4	in
Velocity	5.06	ft/s
Equivalent Cross Slope	0.197689	ft/ft
Length Factor	0.98	
Total Interception Length	14.25	ft

Node 127 CB#3
Worksheet for Curb Inlet On Grade

Project Description	
Worksheet	CB3
Type	Curb Inlet On Grade
Solve For	Efficiency

Input Data		
Discharge	3.98	cfs
Slope	0.048800	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.080000	ft/ft
Road Cross Slope	0.020000	ft/ft
Mannings Coefficient	0.015	
Curb Opening Length	14.00	ft
Local Depression	6.0	in
Local Depression Width	2.00	ft

Results		
Efficiency	1.00	
Intercepted Flow	3.98	cfs
Bypass Flow	0.00	cfs
Spread	7.50	ft
Depth	0.27	ft
Flow Area	0.7	ft²
Gutter Depression	1.4	in
Total Depression	7.4	in
Velocity	5.83	ft/s
Equivalent Cross Slope	0.241168	ft/ft
Length Factor	1.11	
Total Interception Length	12.64	ft

NODE 110_GRATE INLET #1
Worksheet for Grate Inlet In Sag

Project Description	
Worksheet	NODE 110_GRATE INLET
Type	Grate Inlet In Sag
Solve For	Spread

Input Data		
Discharge	4.96	cfs
Gutter Width	0.00	ft
Gutter Cross Slope	0.000000	ft/ft
Road Cross Slope	0.200000	ft/ft
Grate Width	3.00	ft
Grate Length	3.00	ft
Local Depression	2.0	in
Local Depression Width	3.00	ft
Grate Type	P-50 mm (P-1-7/8")	
Clogging	50.0	%

Results		
Spread	1.66	ft
Depth	0.26	ft
Gutter Depression	0.0	in
Total Depression	2.0	in
Open Grate Area	4.0	ft²
Active Grate Weir Length	6.00	ft

NODE 107_GRATE INLET #2
Worksheet for Grate Inlet In Sag

Project Description	
Worksheet	NODE 107_GRATE INLET #2
Type	Grate Inlet In Sag
Solve For	Spread

Input Data		
Discharge	3.00	cfs
Gutter Width	0.00	ft
Gutter Cross Slope	0.000000	ft/ft
Road Cross Slope	0.500000	ft/ft
Grate Width	3.00	ft
Grate Length	3.00	ft
Local Depression	2.0	in
Local Depression Width	3.00	ft
Grate Type	P-50 mm (P-1-7/8")	
Clogging	50.0	%

Results		
Spread	0.55	ft
Depth	0.14	ft
Gutter Depression	0.0	in
Total Depression	2.0	in
Open Grate Area	4.0	ft²
Active Grate Weir Length	6.00	ft

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NODE 118_GRATE INLET #3
Worksheet for Grate Inlet In Sag

Project Description	
Worksheet	NODE 118_GRATE INLET #3
Type	Grate Inlet In Sag
Solve For	Spread

Input Data		
Discharge	2.07	cfs
Gutter Width	0.00	ft
Gutter Cross Slope	0.000000	ft/ft
Road Cross Slope	0.500000	ft/ft
Grate Width	3.00	ft
Grate Length	3.00	ft
Local Depression	2.0	in
Local Depression Width	3.00	ft
Grate Type	P-50 mm (P-1-7/8")	
Clogging	50.0	%

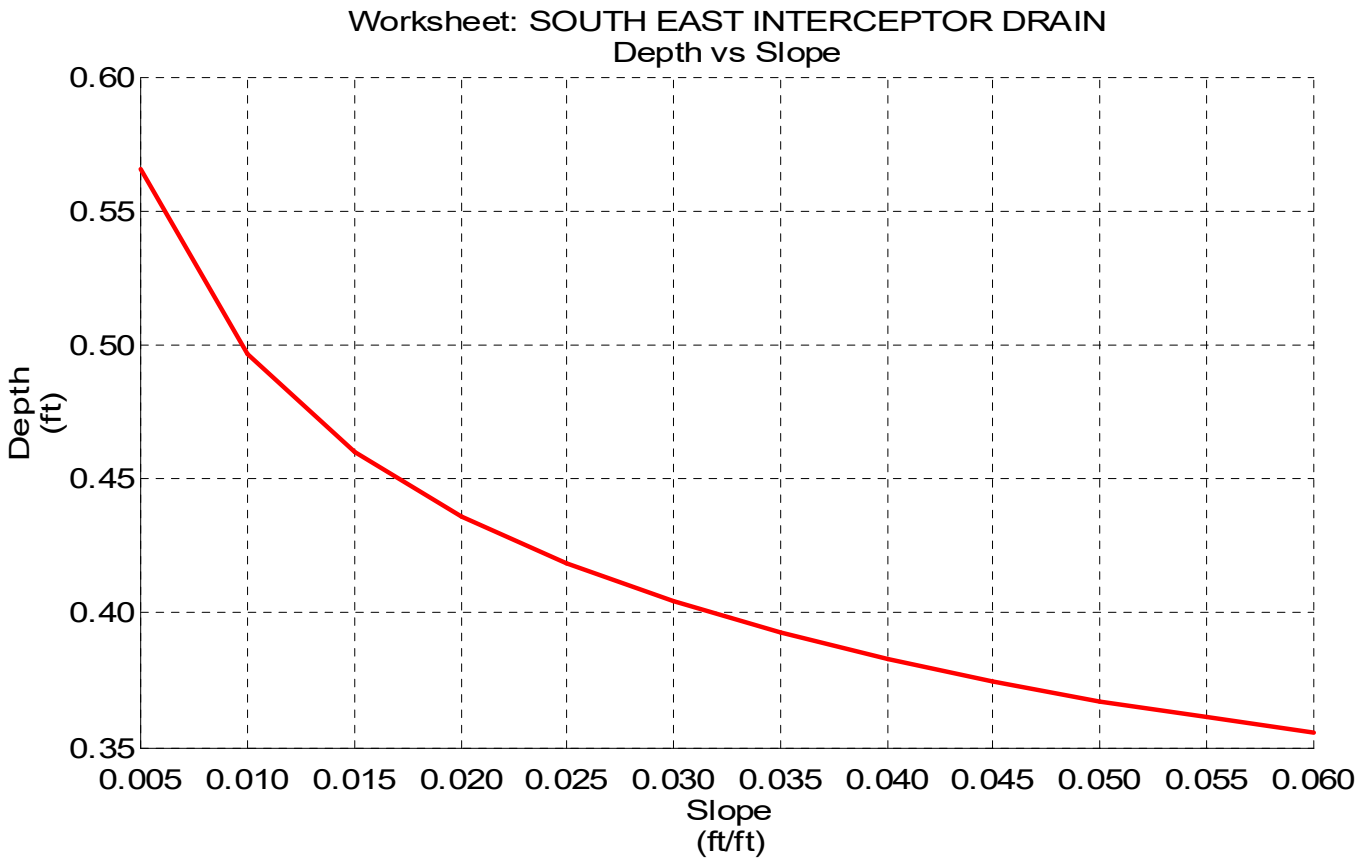
Results		
Spread	0.43	ft
Depth	0.07	ft
Gutter Depression	0.0	in
Total Depression	2.0	in
Open Grate Area	4.0	ft²
Active Grate Weir Length	6.00	ft

SOUTH EAST INTERCEPTOR DRAIN
Worksheet for Triangular Channel

Project Description	
Worksheet	SOUTH EAST INTERCEPTOR DRAIN
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Slope	0.005000	ft/ft
Left Side Slope	2.00	H : V
Right Side Slope	2.00	H : V
Discharge	2.07	cfs

Results		
Depth	0.57	ft
Flow Area	0.6	ft²
Wetted Perimeter	2.53	ft
Top Width	2.26	ft
Critical Depth	0.58	ft
Critical Slope	0.004313	ft/ft
Velocity	3.23	ft/s
Velocity Head	0.16	ft
Specific Energy	0.73	ft
Froude Number	1.07	
Flow Type	Supercritical	

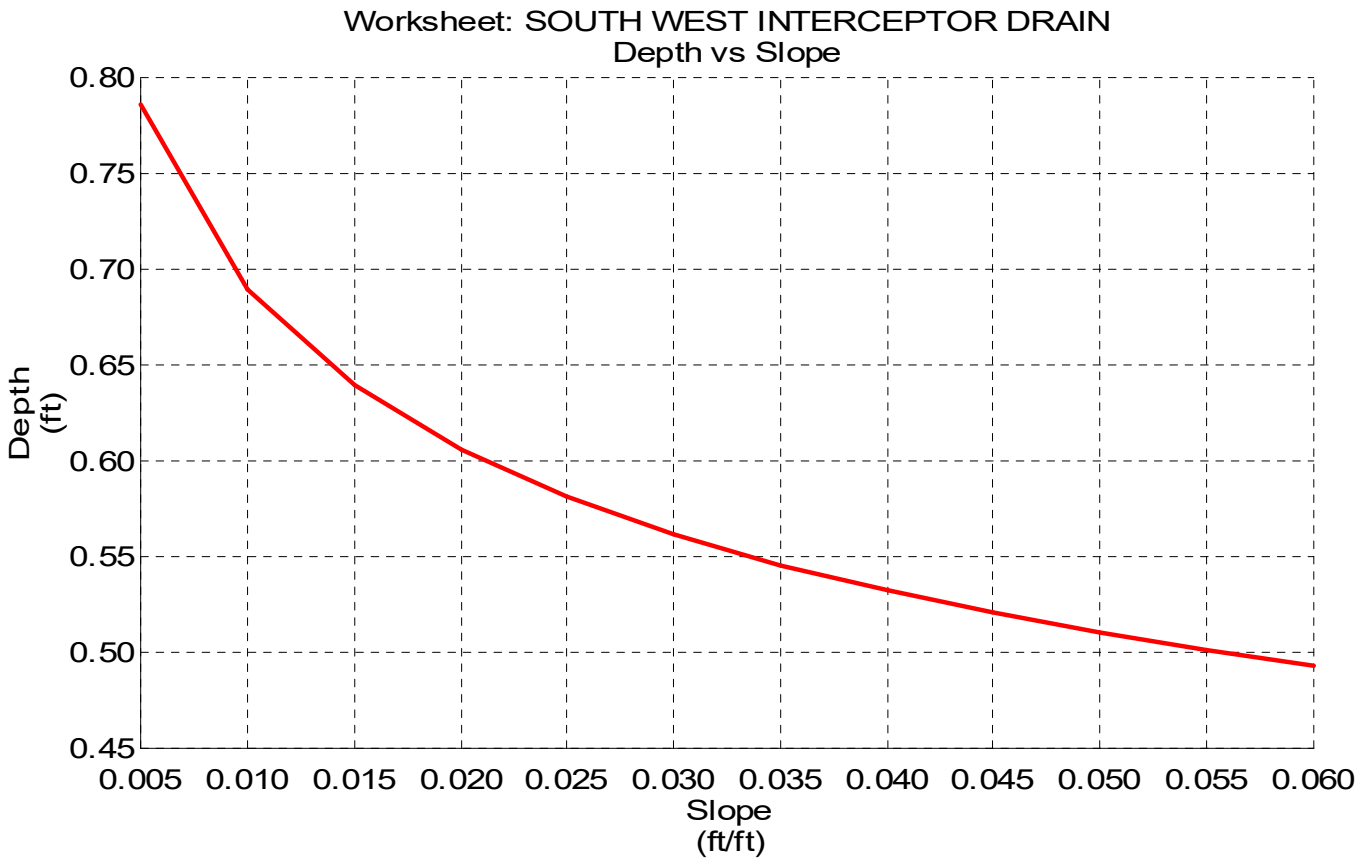


SOUTH WEST INTERCEPTOR DRAIN
Worksheet for Triangular Channel

Project Description	
Worksheet	SOUTH WEST INTERCEPTOR DRAIN
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Slope	0.010000	ft/ft
Left Side Slope	2.00	H : V
Right Side Slope	2.00	H : V
Discharge	4.96	cfs

Results		
Depth	0.69	ft
Flow Area	1.0	ft²
Wetted Perimeter	3.08	ft
Top Width	2.76	ft
Critical Depth	0.83	ft
Critical Slope	0.003839	ft/ft
Velocity	5.22	ft/s
Velocity Head	0.42	ft
Specific Energy	1.11	ft
Froude Number	1.57	
Flow Type	Supercritical	



Culvert Calculator Report
NODE 104 Southwest Headwall

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	1,433.00 ft	Headwater Depth/Height	2.79
Computed Headwater Elevation	1,431.75 ft	Discharge	628.00 cfs
Inlet Control HW Elev.	1,431.75 ft	Tailwater Elevation	1,411.34 ft
Outlet Control HW Elev.	1,430.17 ft	Control Type	Inlet Control

Grades			
Upstream Invert	1,415.00 ft	Downstream Invert	1,405.34 ft
Length	131.63 ft	Constructed Slope	0.073388 ft/ft

Hydraulic Profile			
Profile	CompositeS1 S2	Depth, Downstream	3.96 ft
Slope Type	Steep	Normal Depth	3.17 ft
Flow Regime	N/A	Critical Depth	5.86 ft
Velocity Downstream	31.72 ft/s	Critical Slope	0.019565 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	6.00 ft
Section Size	72 inch	Rise	6.00 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	1,430.17 ft	Upstream Velocity Head	7.76 ft
Ke	0.20	Entrance Loss	1.55 ft

Inlet Control Properties			
Inlet Control HW Elev.	1,431.75 ft	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	28.3 ft²
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

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Culvert Calculator Report
NODE 115

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	1,434.50 ft	Headwater Depth/Height	1.09
Computed Headwater Elevation	1,433.36 ft	Discharge	86.00 cfs
Inlet Control HW Elev.	1,432.56 ft	Tailwater Elevation	1,404.33 ft
Outlet Control HW Elev.	1,433.36 ft	Control Type	Entrance Control

Grades			
Upstream Invert	1,429.00 ft	Downstream Invert	1,400.33 ft
Length	81.93 ft	Constructed Slope	0.349946 ft/ft

Hydraulic Profile			
Profile	CompositeS1 S2	Depth, Downstream	4.00 ft
Slope Type	Steep	Normal Depth	0.86 ft
Flow Regime	N/A	Critical Depth	2.81 ft
Velocity Downstream	6.84 ft/s	Critical Slope	0.005061 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	4.00 ft
Section Size	48 inch	Rise	4.00 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	1,433.36 ft	Upstream Velocity Head	1.29 ft
Ke	0.20	Entrance Loss	0.26 ft

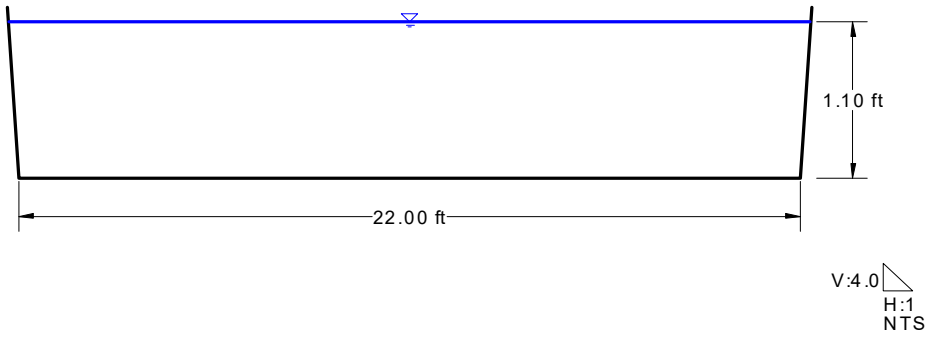
Inlet Control Properties			
Inlet Control HW Elev.	1,432.56 ft	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	12.6 ft²
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

SOUTH EAST EMERGENCY OVERFLOW
Worksheet for Sharp Crested Cipolletti Weir

Project Description	
Worksheet	South East Emergency Overflow
Type	Sharp Crested Cipolletti Weir
Solve For	Headwater Elevation

Input Data		
Discharge	86.00	cfs
Crest Elevation	1,434.50	ft
Tailwater Elevation	1,424.39	ft
Discharge Coefficient	3.37	US
Crest Length	22.00	ft

Results		
Headwater Elevation	1,435.60	ft
Headwater Height Above Crest	1.10	ft
Tailwater Height Above Crest	-10.11	ft
Equal Side Slopes	0.25	H : V
Flow Area	24.6	ft²
Velocity	3.49	ft/s
Wetted Perimeter	24.28	ft
Top Width	22.55	ft

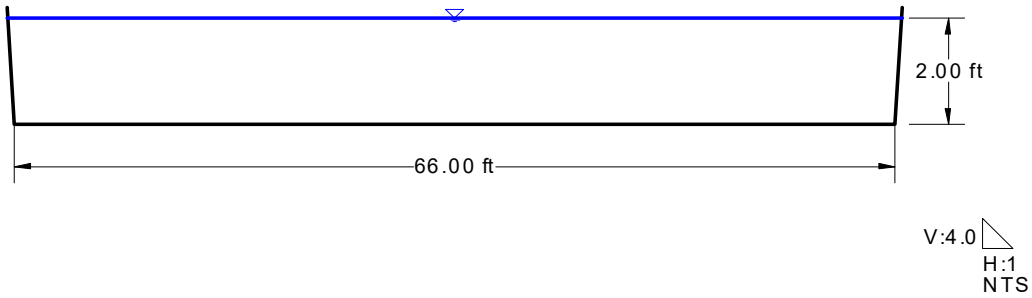


SOUTH WEST EMERGENCY OVERFLOW
Worksheet for Sharp Crested Cipolletti Weir

Project Description	
Worksheet	South West Emergency Overflow
Type	Sharp Crested Cipolletti Weir
Solve For	Headwater Elevation

Input Data		
Discharge	628.00	cfs
Crest Elevation	1,433.00	ft
Tailwater Elevation	1,425.59	ft
Discharge Coefficient	3.37	US
Crest Length	66.00	ft

Results		
Headwater Elevation	1,435.00	ft
Headwater Height Above Crest	2.00	ft
Tailwater Height Above Crest	-7.41	ft
Equal Side Slopes	0.25	H : V
Flow Area	132.8	ft²
Velocity	4.73	ft/s
Wetted Perimeter	70.12	ft
Top Width	67.00	ft



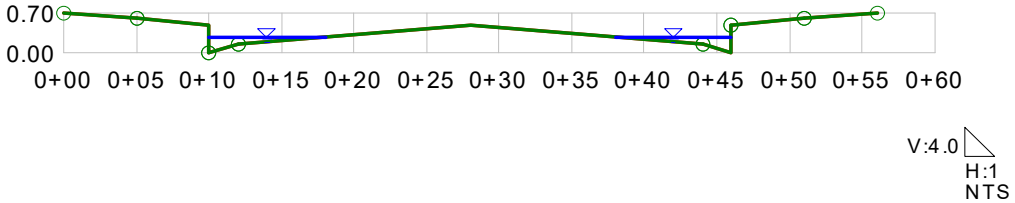
Litchi Street w/ 100yr
Worksheet for Irregular Channel

Project Description	
Worksheet	Litchi Street
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth
Input Data	
Slope	0.031000 ft/ft
Discharge	5.65 cfs
Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method
Results	
Mannings Coefficient	0.014
Water Surface Elevation	0.28 ft
Elevation Range	0.00 to 0.70
Flow Area	1.5 ft²
Wetted Perimeter	16.58 ft
Top Width	16.02 ft
Actual Depth	0.28 ft
Critical Elevation	0.35 ft
Critical Slope	0.006259 ft/ft
Velocity	3.71 ft/s
Velocity Head	0.21 ft
Specific Energy	0.49 ft
Froude Number	2.12
Flow Type	Supercritical

Calculation Messages: Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00	0+05	0.010
0+05	0+10	0.300
0+10	0+12	0.010
0+12	0+44	0.015
0+44	0+46	0.010
0+46	0+51	0.300
0+51	0+56	0.010

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00	0.70
0+05	0.60
0+10	0.50
0+10	0.00
0+12	0.16
0+28	0.48
0+44	0.16
0+46	0.00
0+46	0.50
0+51	0.60
0+56	0.70



Towhee Lane w/ 100yr Flow
Worksheet for Irregular Channel

Project Description	
Worksheet	Towhee Lane
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth
Input Data	
Slope	0.010000 ft/ft
Discharge	10.00 cfs
Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method
Results	
Mannings Coefficient	0.013
Water Surface Elevation	0.36 ft
Elevation Range	0.00 to 0.70
Flow Area	3.5 ft²
Wetted Perimeter	28.18 ft
Top Width	27.44 ft
Actual Depth	0.36 ft
Critical Elevation	0.40 ft
Critical Slope	0.004843 ft/ft
Velocity	2.85 ft/s
Velocity Head	0.13 ft
Specific Energy	0.49 ft
Froude Number	1.41
Flow Type	Supercritical

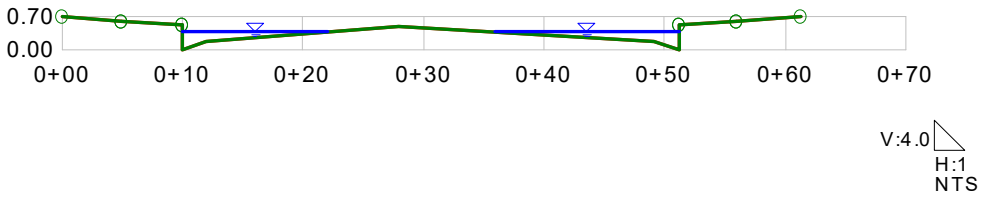
Calculation Messages: Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	0+05	0.013
0+05	0+10	0.030
0+10	0+51	0.013
0+51	0+56	0.030
0+56	0+61	0.013

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	0.70
0+05	0.60
0+10	0.50
0+10	0.00
0+12	0.16
0+28	0.48
0+49	0.16
0+51	0.00
0+51	0.50
0+56	0.60
0+61	0.70



Towhee Lane Emergency Overflow Condition Lot 6 & 3
Worksheet for Irregular Channel

Project Description	
Worksheet	Towhee Lane Emergency Overflow Condition Lot 6&3
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.050000	ft/ft
Discharge	713.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

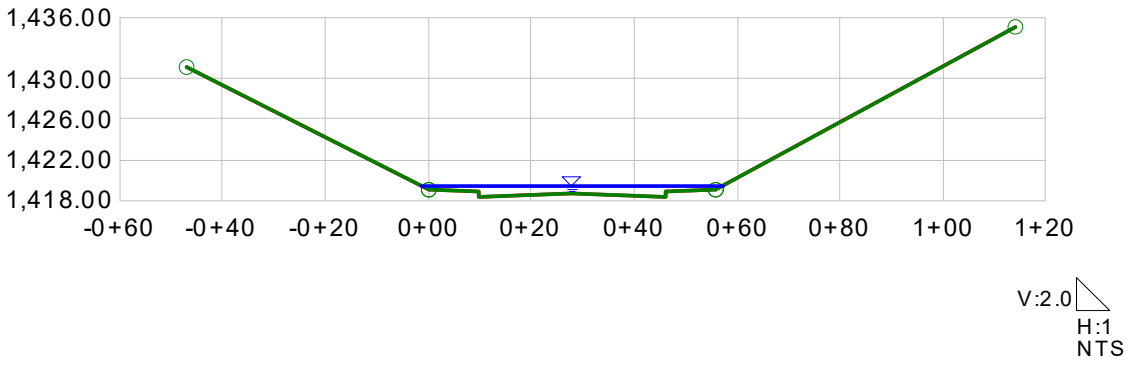
Results		
Mannings Coefficient	0.014	
Water Surface Elevation	1,419.35	ft
Elevation Range	1,418.30 to 1,435.00	
Flow Area	38.8	ft²
Wetted Perimeter	59.73	ft
Top Width	58.64	ft
Actual Depth	1.05	ft
Critical Elevation	1,420.36	ft
Critical Slope	0.002391	ft/ft
Velocity	18.37	ft/s
Velocity Head	5.25	ft
Specific Energy	1,424.60	ft
Froude Number	3.98	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
-0+47	0+00	0.035
0+00	0+56	0.013
0+56	1+14	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
-0+47	1,431.00
0+00	1,419.00
0+10	1,418.80
0+10	1,418.30
0+28	1,418.77
0+46	1,418.30
0+46	1,418.80
0+56	1,419.00
1+14	1,435.00



Towhee Lane Emergency Overflow Condition Lots 7 & 2
Worksheet for Irregular Channel

Project Description	
Worksheet	Towhee Lane Emergency Overflow Condition Lots 7 & 2
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.050000	ft/ft
Discharge	713.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

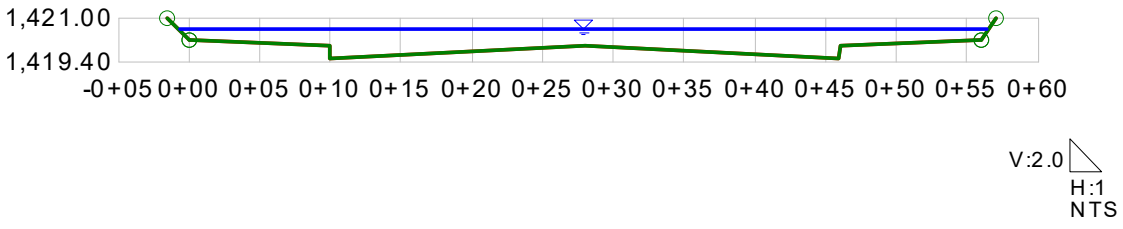
Results		
Mannings Coefficient	0.014	
Water Surface Elevation	1,420.55	ft
Elevation Range	1,419.50 to 1,421.00	
Flow Area	38.6	ft²
Wetted Perimeter	58.31	ft
Top Width	57.10	ft
Actual Depth	1.05	ft
Critical Elevation	1,421.56	ft
Critical Slope	0.002429	ft/ft
Velocity	18.48	ft/s
Velocity Head	5.31	ft
Specific Energy	1,425.86	ft
Froude Number	3.96	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
-0+02	0+00	0.035
0+00	0+56	0.013
0+56	0+57	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
-0+02	1,421.00
0+00	1,420.20
0+10	1,420.00
0+10	1,419.50
0+28	1,419.97
0+46	1,419.50
0+46	1,420.00
0+56	1,420.20
0+57	1,421.00



Towhee Lane Emergency Overflow Condition Lots 8 & 1
Worksheet for Irregular Channel

Project Description	
Worksheet	Towhee Lane Emergency Overflow Condition Lots 8 & 1
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.050000	ft/ft
Discharge	713.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

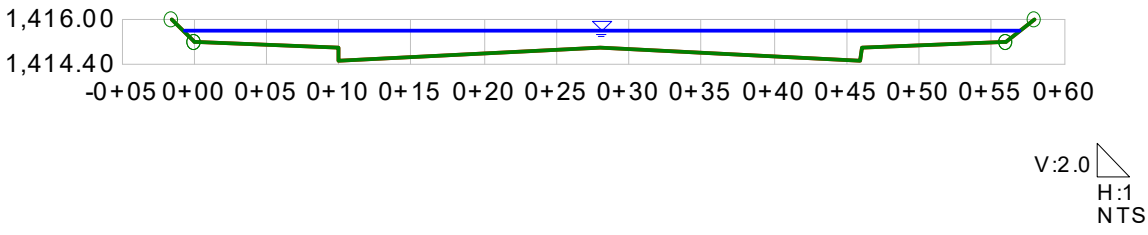
Results		
Mannings Coefficient	0.014	
Water Surface Elevation	1,415.56	ft
Elevation Range	1,414.50 to 1,416.00	
Flow Area	39.1	ft²
Wetted Perimeter	58.72	ft
Top Width	57.56	ft
Actual Depth	1.06	ft
Critical Elevation	1,416.56	ft
Critical Slope	0.002500	ft/ft
Velocity	18.27	ft/s
Velocity Head	5.19	ft
Specific Energy	1,420.75	ft
Froude Number	3.91	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
-0+02	0+00	0.035
0+00	0+56	0.013
0+56	0+58	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
-0+02	1,416.00
0+00	1,415.20
0+10	1,415.00
0+10	1,414.50
0+28	1,414.97
0+46	1,414.50
0+46	1,415.00
0+56	1,415.20
0+58	1,416.00



APPENDIX G – HEC-RAS ANALYSIS & ROCK SLOPE PROTECTION DESIGN

HEC-RAS ANALYSIS EXHIBIT
TRACT MAP NO. 37154

TR 37155

TR 36317

TOWHEE LANE

LITCHI STREET

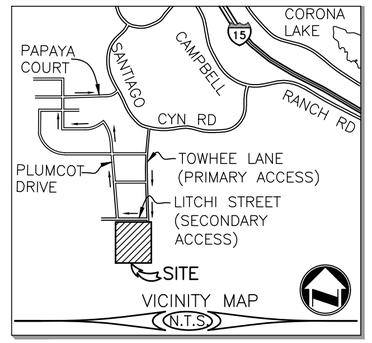
PROP. 100-YR FLOODPLAIN EXTENTS

TRACT BOUNDARY

NATURAL CHANNEL CENTERLINE. STATIONING USED IN HEC-RAS ANALYSIS

$Q_{OUT-100\ YR\ BULKED}$ = 713.48 CFS

$Q_{IN-100\ YR\ BULKED}$ = 713.48 CFS



SEC. 13, T.5S, R.6W

0 30 60 90 120

15

SCALE

SCALE: 1"=30'

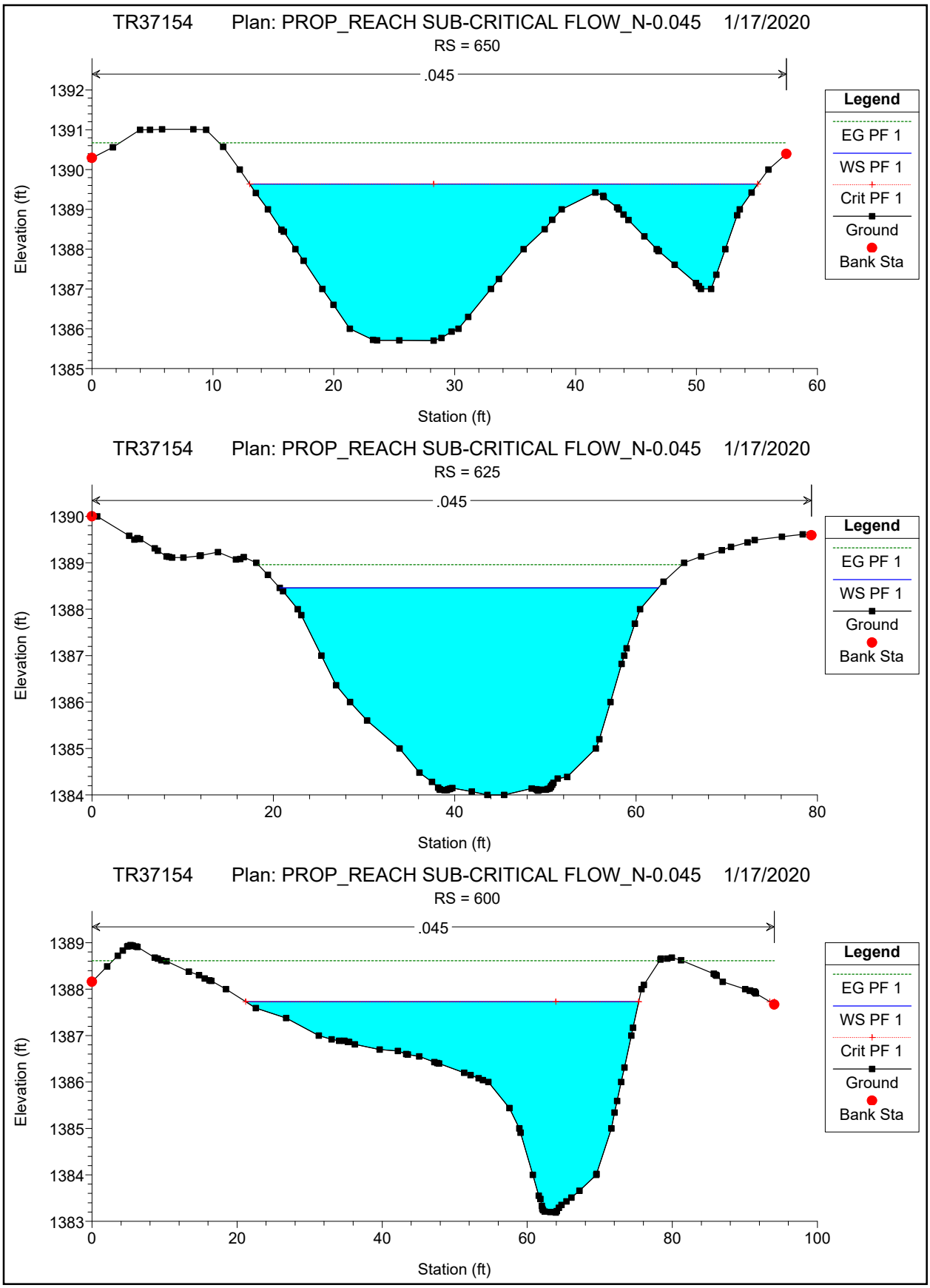
HEC-RAS ANALYSIS EXHIBIT
TRACT NO. 37154

PREPARATION DATE : JANUARY 2020

adkan ENGINEERS
Civil Engineering · Surveying · Planning
6879 Airport Drive, Riverside, CA 92504
Tel:(951) 688-0241 Fax:(951) 688-0599

Plot Date: 1/20/2020

U:\Projects\Kiley\8770.13 TR 37154\Hydrology\HECRAS\HECRAS EXHIBIT.dwg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RS = 650
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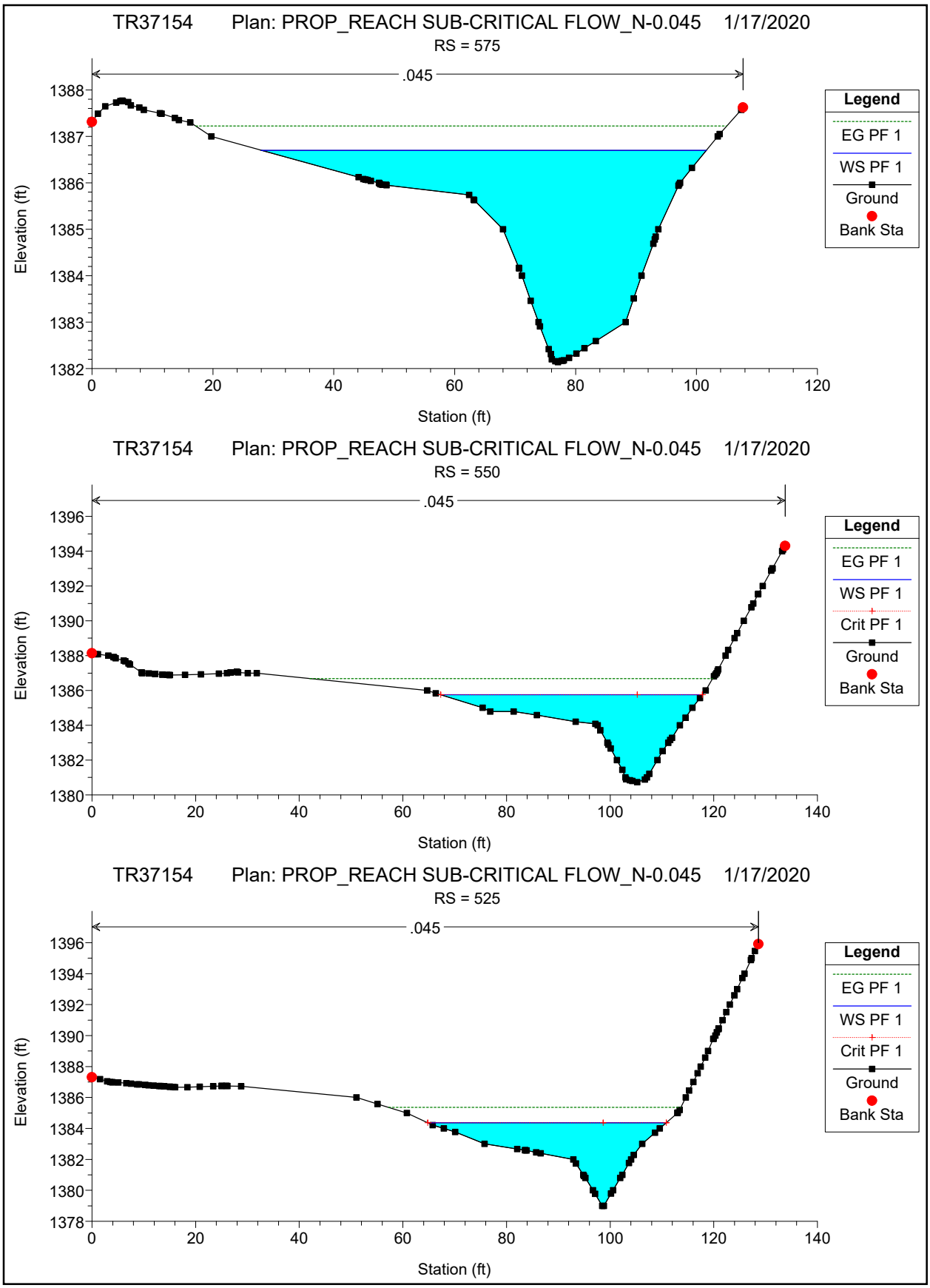
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 625
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 600
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta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RS = 575
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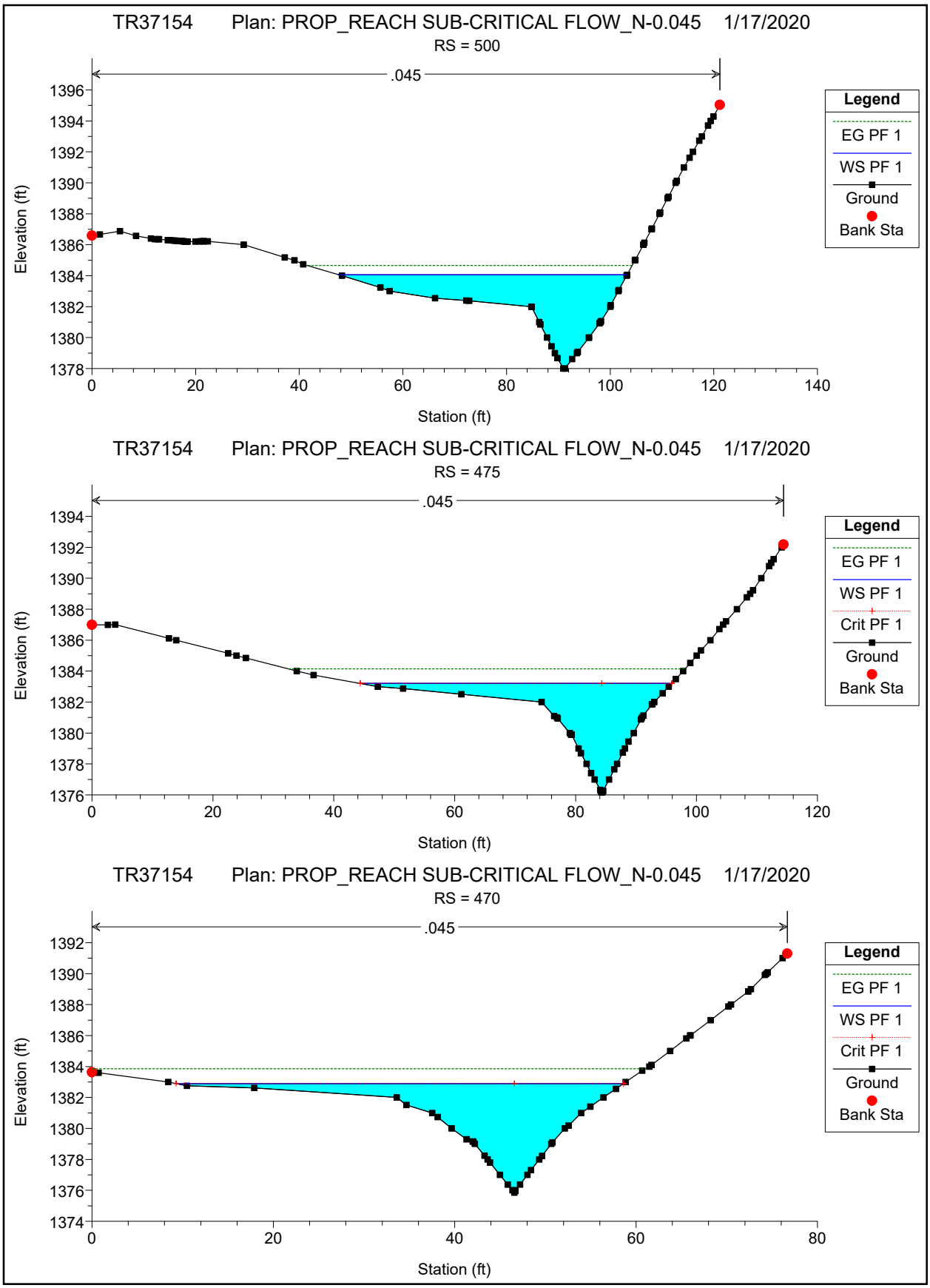
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 550
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 525
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta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RS = 500
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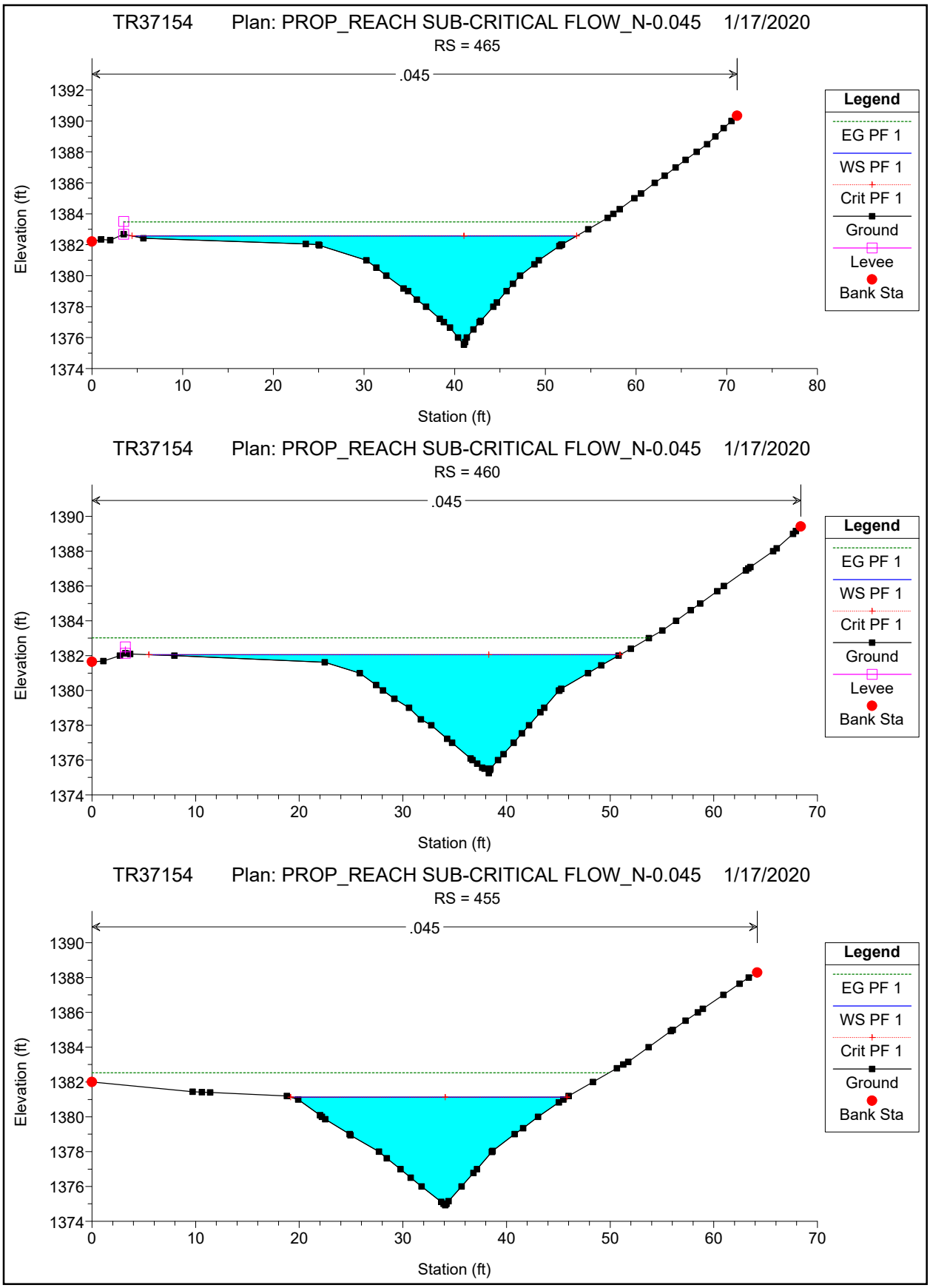
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 475
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 470
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta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RS = 465
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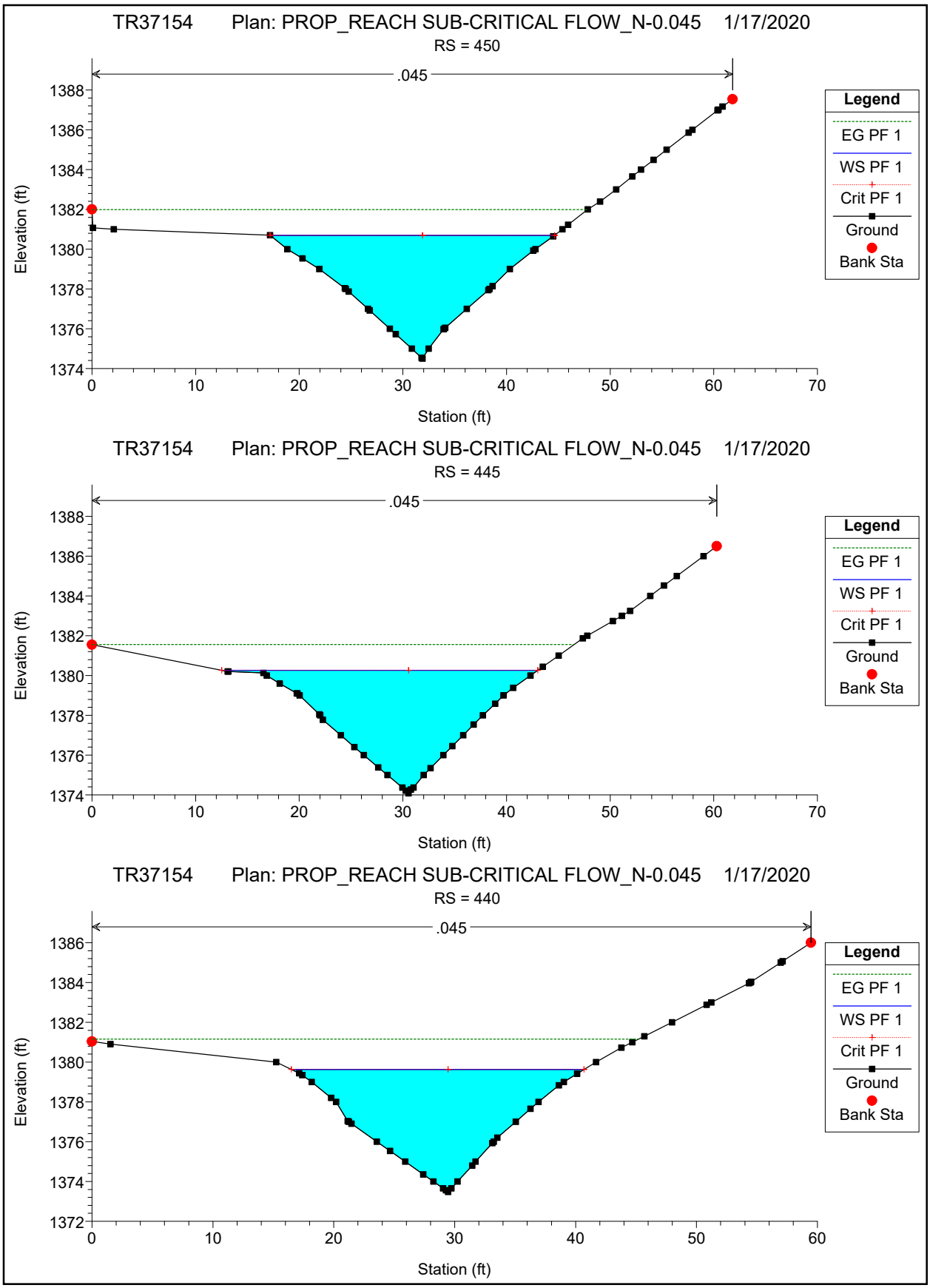
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 460
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 455
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta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RS = 450
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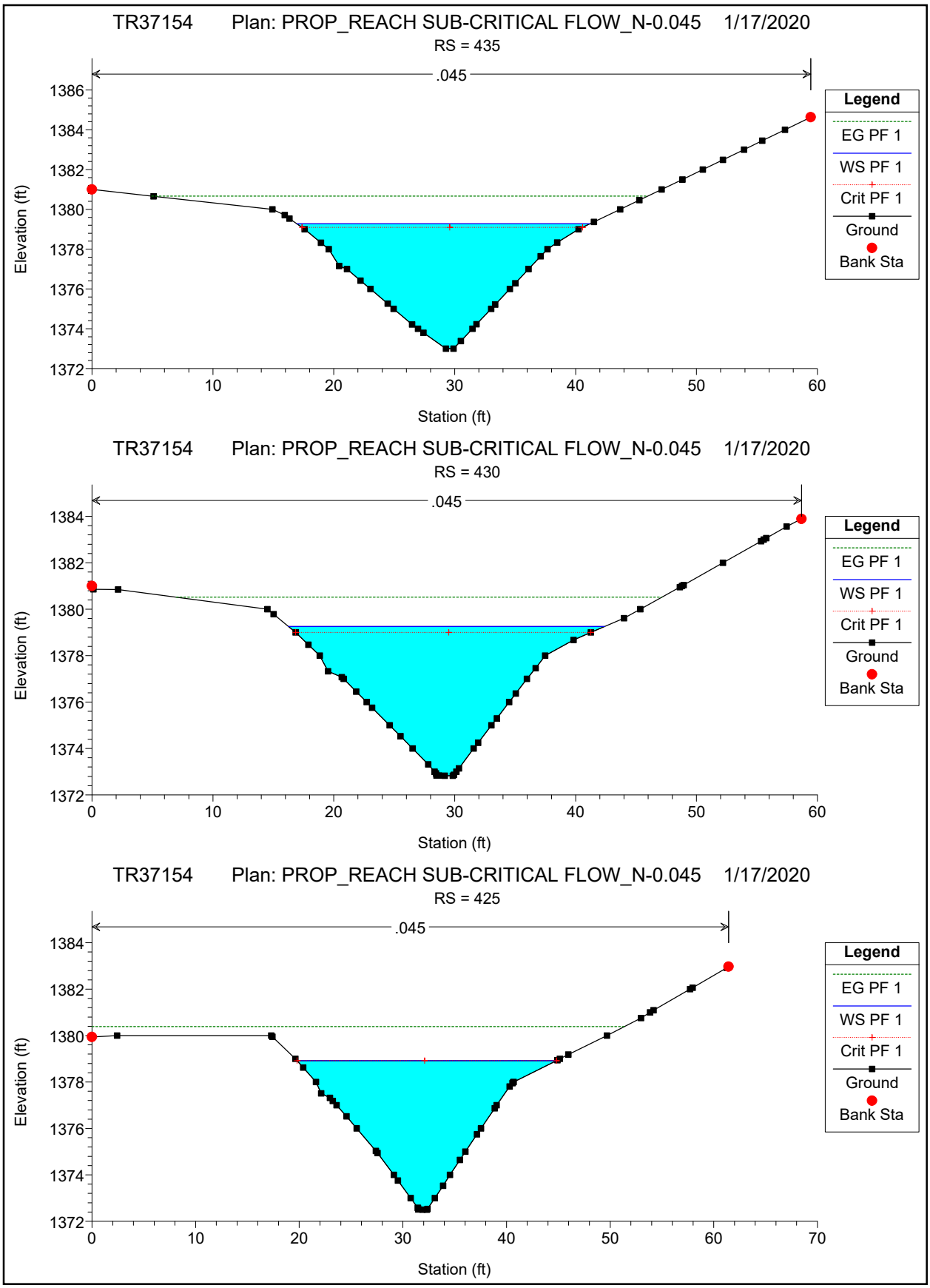
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 445
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 440
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta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RS = 435
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Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 430
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 425
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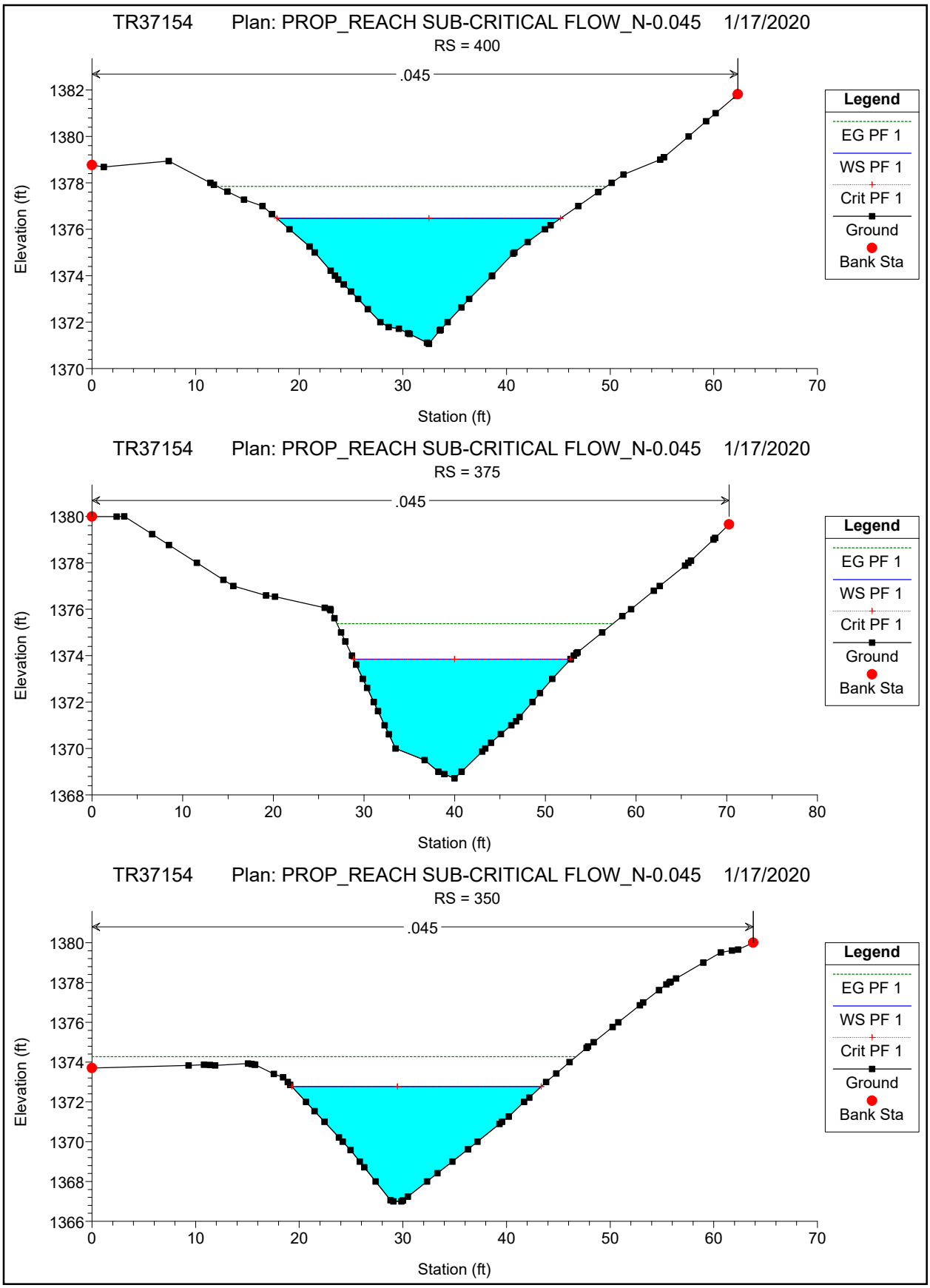
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 400
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Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 375
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 350
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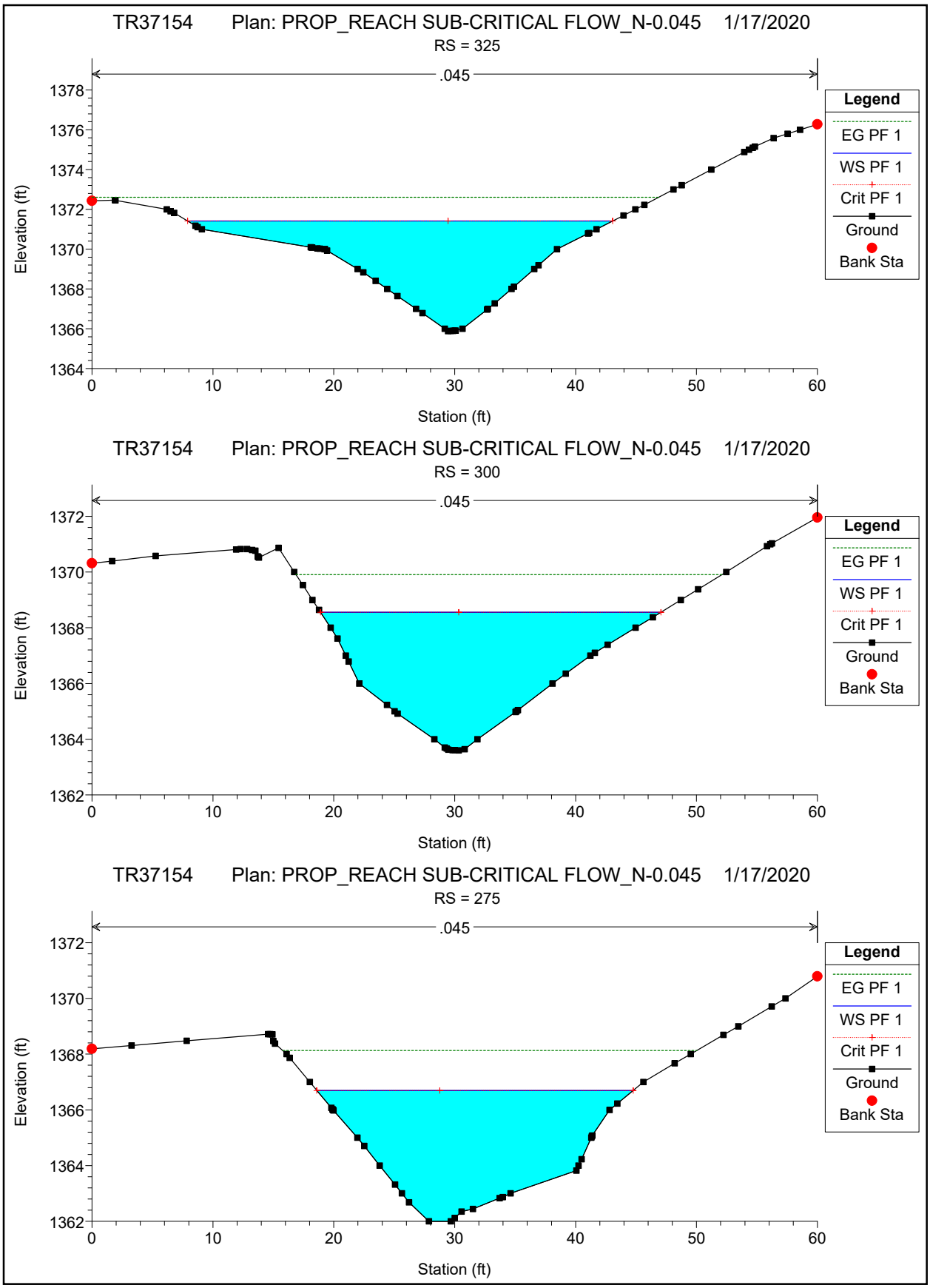
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 325
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Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 300
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 275
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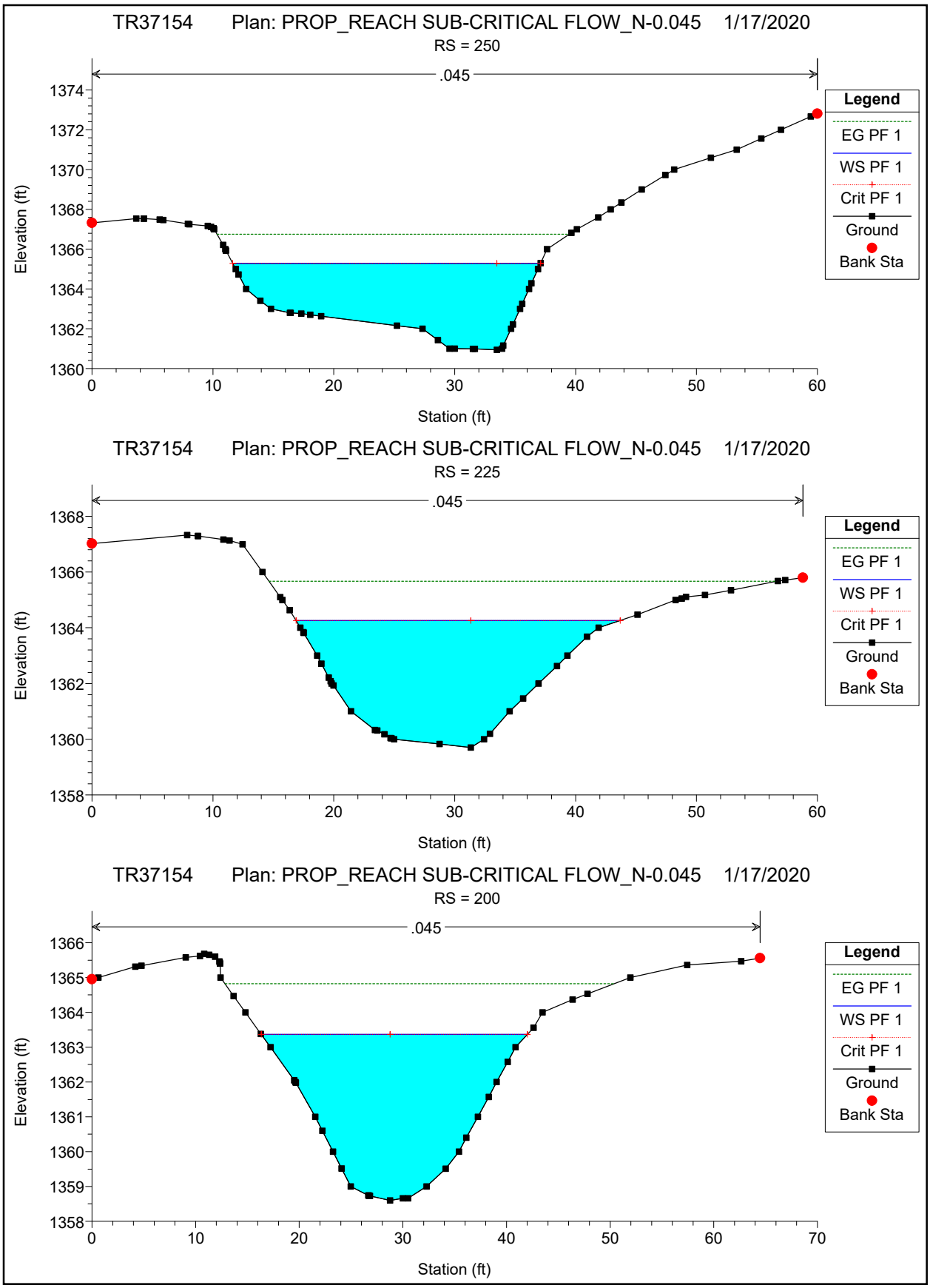
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 250
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Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 225
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 200
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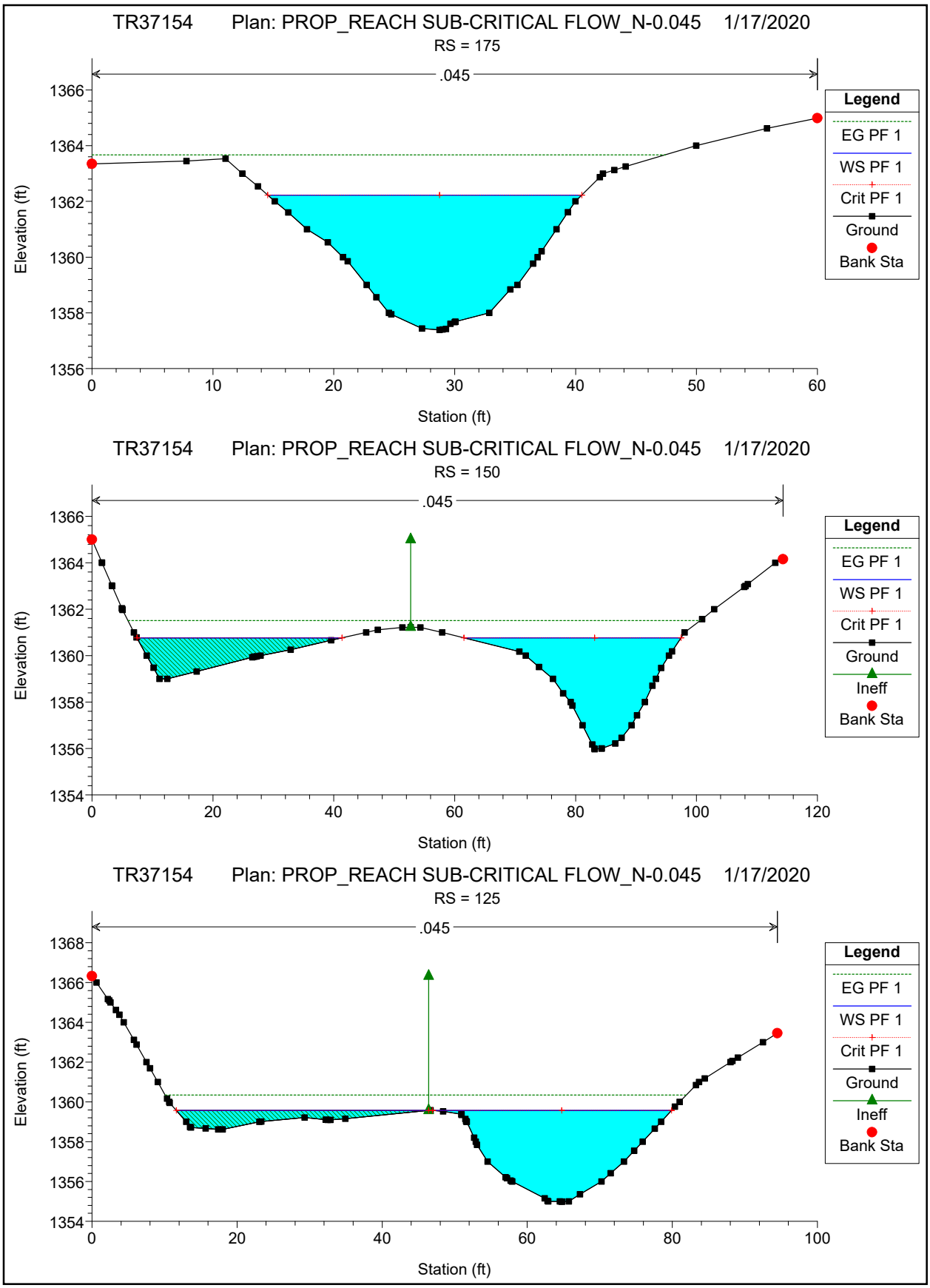
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta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RS = 175
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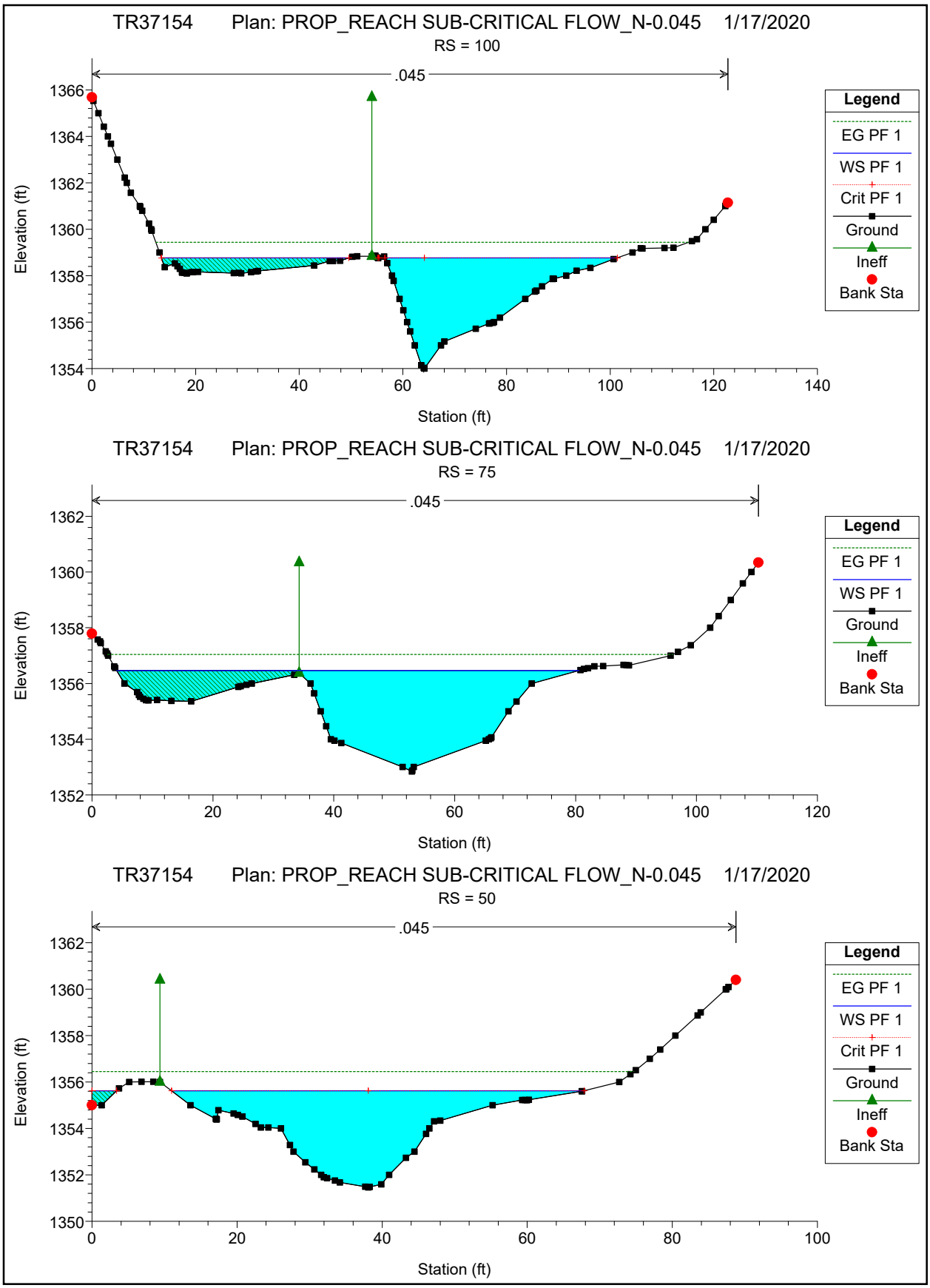
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 150
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 125
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta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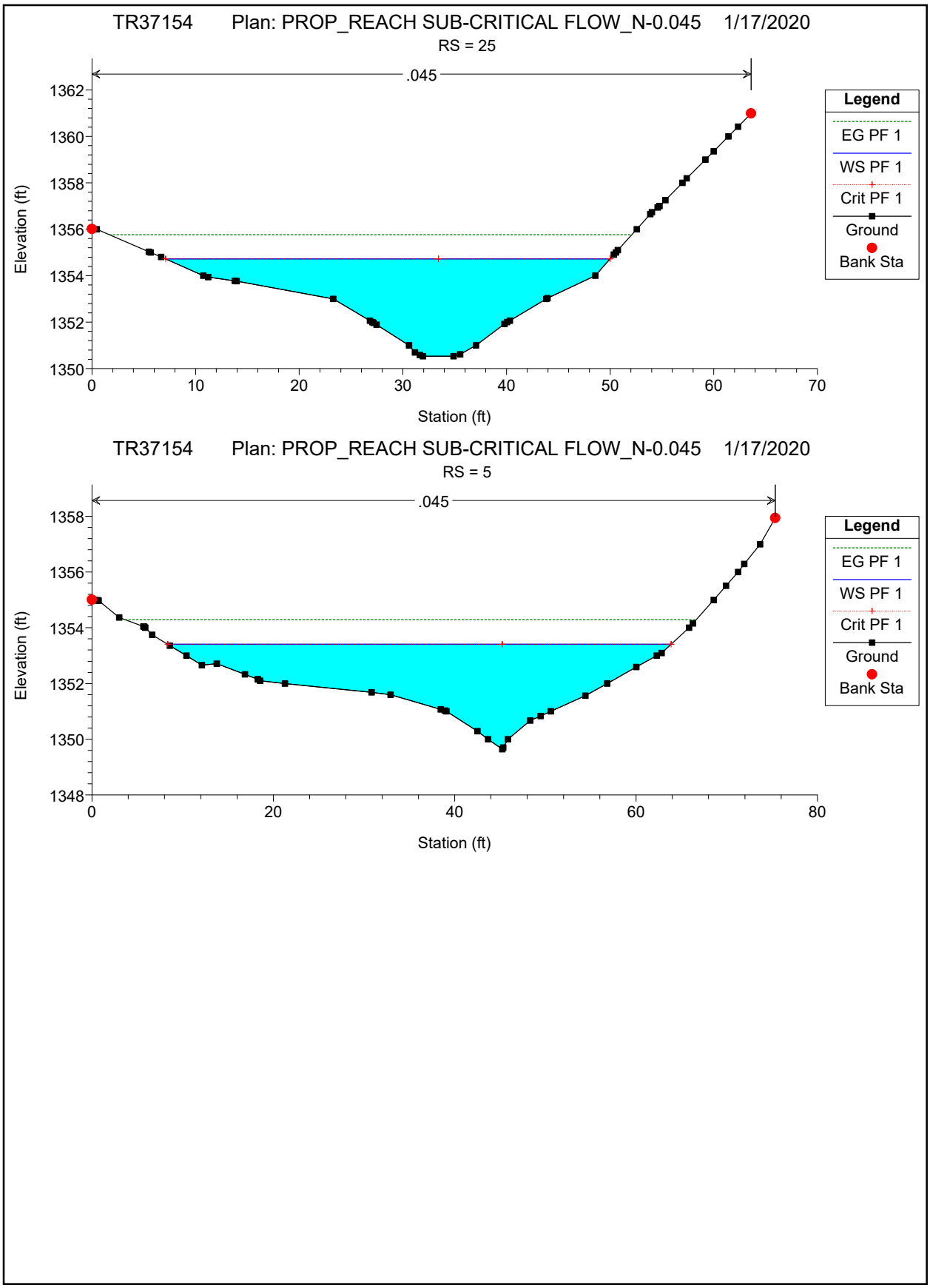
RS = 100
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 75
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 50
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta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RS = 25
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Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
TR37154 Plan: PROP_REACH SUB-CRITICAL FLOW_N-0.045 1/17/2020
RS = 5
.045
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta

Proposed Super-Critical Flow Regime
Channel Velocities

HEC-RAS Plan: TR37154 River: PROP_REACH Reach: PROP_REACH Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
PROP_REACH	650	PF 1	713.48	1385.70	1388.95	1389.63	1391.09	0.062769	11.74	60.78	33.78	1.54
PROP_REACH	625	PF 1	713.48	1384.00	1386.40	1387.28	1389.22	0.083996	13.47	52.96	30.97	1.82
PROP_REACH	600	PF 1	713.48	1383.19	1387.74	1387.74	1388.61	0.026029	7.51	95.06	54.96	1.01
PROP_REACH	575	PF 1	713.48	1382.14	1385.53	1386.34	1387.60	0.051889	11.53	61.87	31.60	1.45
PROP_REACH	550	PF 1	713.48	1380.74	1385.74	1385.74	1386.68	0.026217	7.77	91.78	50.41	1.02
PROP_REACH	525	PF 1	713.48	1379.00	1383.80	1384.37	1385.65	0.058763	10.91	65.41	39.15	1.49
PROP_REACH	500	PF 1	713.48	1378.00	1383.61	1383.61	1384.54	0.026440	7.75	92.10	50.56	1.01
PROP_REACH	475	PF 1	713.48	1376.15	1383.21	1383.21	1384.14	0.027717	7.73	92.36	51.65	1.02
PROP_REACH	470	PF 1	713.48	1375.85	1382.60	1382.90	1383.94	0.036762	9.28	76.91	39.77	1.18
PROP_REACH	465	PF 1	713.48	1375.55	1381.77	1382.55	1383.69	0.038116	11.12	64.16	25.07	1.23
PROP_REACH	460	PF 1	713.48	1375.25	1380.87	1382.08	1383.41	0.049536	12.80	55.76	21.34	1.40
PROP_REACH	455	PF 1	713.48	1374.92	1380.15	1381.31	1383.09	0.062190	13.75	51.90	21.56	1.56
PROP_REACH	450	PF 1	713.48	1374.50	1379.54	1380.92	1382.73	0.069942	14.33	49.78	21.34	1.65
PROP_REACH	445	PF 1	713.48	1374.08	1379.00	1380.26	1382.36	0.069354	14.71	48.51	19.69	1.65
PROP_REACH	440	PF 1	713.48	1373.48	1378.46	1379.63	1381.99	0.071573	15.08	47.32	18.61	1.67
PROP_REACH	435	PF 1	713.48	1373.00	1377.84	1379.10	1381.60	0.074993	15.55	45.87	17.68	1.70
PROP_REACH	430	PF 1	713.48	1372.83	1377.95	1378.99	1381.08	0.059513	14.20	50.23	18.51	1.52
PROP_REACH	425	PF 1	713.48	1372.50	1378.25	1378.92	1380.60	0.042623	12.31	57.98	20.67	1.30
PROP_REACH	400	PF 1	713.48	1371.07	1375.20	1376.46	1379.00	0.084650	15.64	45.63	20.22	1.84
PROP_REACH	375	PF 1	713.48	1368.71	1372.52	1373.86	1376.72	0.094493	16.45	43.38	19.25	1.93
PROP_REACH	350	PF 1	713.48	1367.00	1372.02	1372.75	1374.59	0.048438	12.87	55.45	21.12	1.40
PROP_REACH	325	PF 1	713.48	1365.88	1370.60	1371.44	1373.18	0.065268	12.89	55.35	27.40	1.60
PROP_REACH	300	PF 1	713.48	1363.60	1367.32	1368.55	1371.14	0.091747	15.67	45.52	21.74	1.91
PROP_REACH	275	PF 1	713.48	1362.00	1365.62	1366.70	1368.94	0.072824	14.62	48.80	21.50	1.71
PROP_REACH	250	PF 1	713.48	1360.94	1364.57	1365.29	1367.11	0.056480	12.78	55.82	24.31	1.49
PROP_REACH	225	PF 1	713.48	1359.70	1363.69	1364.26	1365.83	0.038875	11.73	60.81	23.30	1.28
PROP_REACH	200	PF 1	713.48	1358.60	1363.04	1363.37	1364.88	0.031386	10.89	65.54	23.83	1.16
PROP_REACH	175	PF 1	713.48	1357.39	1361.59	1362.23	1363.91	0.043939	12.21	58.45	23.09	1.35
PROP_REACH	150	PF 1	713.48	1355.97	1360.28	1361.12	1362.67	0.056058	12.39	57.59	51.96	1.50
PROP_REACH	125	PF 1	713.48	1354.99	1358.41	1359.28	1361.16	0.061163	13.32	53.58	24.51	1.59
PROP_REACH	100	PF 1	713.48	1354.00	1358.69	1358.71	1359.71	0.024899	8.10	88.13	78.68	1.01
PROP_REACH	75	PF 1	713.48	1352.84	1355.23	1356.28	1358.37	0.105634	14.20	50.24	32.35	2.01
PROP_REACH	50	PF 1	713.48	1351.46	1355.56	1355.63	1356.48	0.028323	7.70	92.69	58.63	1.05
PROP_REACH	25	PF 1	713.48	1350.53	1354.66	1354.74	1355.77	0.027026	8.45	84.48	42.45	1.06
PROP_REACH	5	PF 1	713.48	1349.64	1352.82	1353.43	1354.79	0.086589	11.28	63.23	49.92	1.77

River Station	Channel Velocity (ft/s)
650	11.74
625	13.47
600	7.51
575	11.53
550	7.77
525	10.91
500	7.75
475	7.73
470	9.28
465	11.12
460	12.8
455	13.75
450	14.33
445	14.71
440	15.08
435	15.55
430	14.2
425	12.31
400	15.64
375	16.45
350	12.87
325	12.89
300	15.67
275	14.62
250	12.78
225	11.73
200	10.89
175	12.21
150	12.39
125	13.32
100	8.1
75	14.2
50	7.7
25	8.45
0	11.28
Average Velocity	12.08

5-1-C. Determine Minimum Stone Weight. Solve Equation 1 for W in US customary units. To get values in System International (SI), metric units, first divide the weight of minimum stable rock, W in pounds by 2.2 to get W in kilograms, then divide by 1000 to get W in tonnes. Use W later in section 5-1-D.
See Figure 5-1 for key variables in Equation 1.

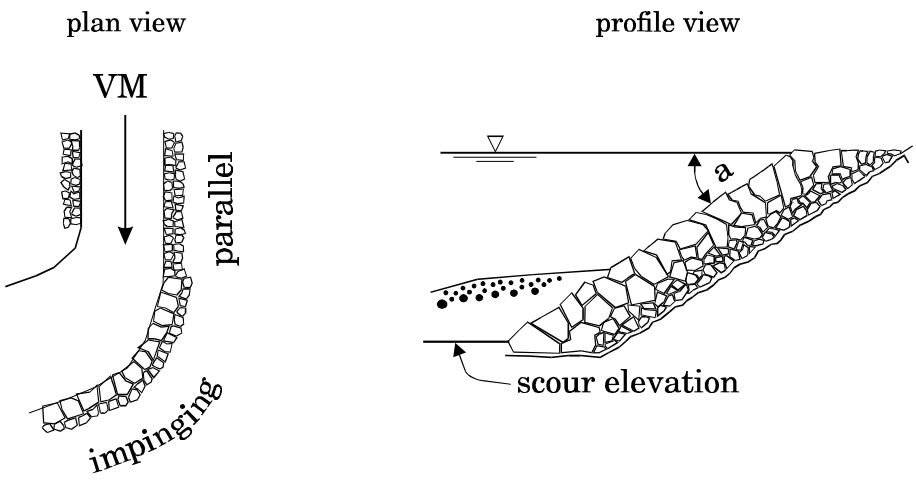
Equation 1. $$W = \frac{0.00002 \quad V^6 \quad SG}{(SG - 1)^3 \quad SIN^3 (r - a)} = \frac{0.00002 \times 8.09^6 \times 2.65}{(2.65-1)^3 \times \sin(70-63.44)^3}$$ = 2,218 lbs
= 1.11 tons

W = theoretical **minimum rock mass (size or weight)** which resists forces of flowing water and remains stable on slope of stream or river bank, POUNDS.
V = velocity to which bank is exposed, FEET PER SECOND.
for PARALLEL flow multiply average channel velocity VM by 0.67 (2/3)
for IMPINGING flow multiply average channel velocity VM by 1.33 (4/3)
SG = specific gravity of the rock. SG = 2.65
r = 70 DEGREES (for randomly placed rubble, a constant).
a = outside slope face angle with horizontal, DEGREES.

V_{avg} (HECRAS output) = 12.08 ft/s
V= 0.67 x 12.08 = 8.09 ft/s
a = 63.44

In profile, the lower elevation limit of riverbank RSP is based on expected scour (determined by experience, measurements, or scour equations). The upper elevation limit is based on design high water, although it may be set higher.

Figure 5-1. Key Variables in Equation 1



Review the inputs of Equation 1. Was average stream velocity decreased for parallel flow or increased for impinging flow? Estimate whether parallel flow is likely to persist in the future. Do not arbitrarily raise velocities to higher values, because Equation 1 is very sensitive to velocity. If you must be conservative, wait until section 5-1-D, where you select the outside layer RSP-*Class*. For preliminary calculations, use 2.65 as the value of specific gravity. Consult with a materials engineer and determine likely sources of rock and values of specific gravity, which are based on material tests. In California practice, the minimum specific gravity is 2.50. Other required rock properties and tests are shown in Appendix B page B-2, a copy of section 72-2.02 of the 1995 Caltrans *Standard Specifications*. Additional requirements or rock property tests are normally not required by Caltrans, according to research in Reference 29 (Gamble and Mearns, out-of-print).

A guideline for the maximum outside slope face angle of the RSP with the horizontal is 33.69 degrees, that is, 1.0 vertical to 1.5 horizontal (1V:1.5H). The outside layer of rocks must interlock and must be stable in flowing water. The underlying bank must be stable during construction, therefore consult with a geotechnical engineer and confirm that the proposed angle of the underlying bank slope is acceptable. The outside slope face and underlying bank slope angles do not necessarily have to be the same.

5-1-D. Determine RSP-Class of Outside Layer. With W in metric units, determine the RSP-*Class* of the outside layer of the revetment using Table 5-1.

Before proceeding, an explanation of the Caltrans standard RSP gradations and terminology is needed. For this discussion see Table 5-1, which is similar to page 72-1 Section 72-2.02 Materials of the 1995 Caltrans *Standard Specifications*. All the standard gradations are named **RSP-Classes**. Table 5-1 is divided into two sections with a bold dashed vertical line, which separates two construction methods of placing rock. "Method A" is for larger RSP-Classes, and "Method B" is for smaller RSP-Classes. Column headings listed immediately above the bold horizontal line are SI (metric) **names** of RSP-Classes, and US Customary names are listed above the SI (metric) names. RSP-Classes are used on typical cross sections and plans and pay item descriptions in the engineer's estimate. In SI (metric) units they are: *8T, 4T, 2T, 1T, 1/2T, 1/4T, Light, Facing, Backing No. 1, Backing No. 2, and Backing No. 3*.

The label for each horizontal row is a STANDARD Rock SIZE or Rock Mass or Rock WEIGHT. To clarify that they are row labels, the STANDARD Rock SIZES are

STANDARD Rock SIZE or Rock MASS or Rock WEIGHT		GRADING OF ROCK SLOPE PROTECTION **PERCENTAGE LARGER THAN**											
		RSP-Classes [A]											
		Method A Placement					Method B Placement						
		RSP-Classes other than Backing									Backing No.		
US unit		8 ton	4 ton	2 ton	1 ton	1/2 ton	1 ton	1/2 ton	1/4 ton	Light	1 [B]	2	3
	SI unit	8 T	4 T	2 T	1 T	1/2 T	1 T	1/2 T	1/4 T	Light	1 [B]	2	3
16 ton	14.5 tonne	0-5											
8 ton	7.25 tonne	50-100	0-5										
4 ton	3.6 tonne	95-100	50-100	0-5									
2 ton	1.8 tonne		95-100	50-100	0-5		0-5						
1 ton	900 kg			95-100	50-100	0-5	50-100	0-5					
1/2 ton	450 kg				95-100	50-100	-----	50-100	0-5				
1/4 ton	220 kg					95-100	95-100	-----	50-100	0-5			
200 lb	90 kg							95-100	-----	50-100	0-5		
75 lb	34 kg								95-100	-----	50-100	0-5	
25 lb	11 kg									95-100	90-100	25-75	0-5
5 lb	2.2 kg											90-100	25-75
1 lb	0.4 kg												90-100

[A] US customary names (units) of RSP-Classes listed above SI names, example US is "2 ton" metric is "2 T".
[B] "Facing" has same gradation as "Backing No. 1". To conserve space "Facing" is not shown .

Example for determining RSP-Class of outside layer. By using Equation 1, if the calculated W=135 kg (minimum stable rock size):
1. Enter table at left and select closest value of STANDARD Rock SIZE which is greater than calculated W, in this case 220 kg
2. Trace to right and locate "50-100" entry 3. Trace upward and read column heading "1/4 T", then 1/4 T is first trial RSP-Class.

Table 5-1. Guide for Determining RSP-Class of Outside Layer

separated from the gradations by a bold vertical line. Almost all RSP-Classes are named by the "50-100" percent STANDARD Rock SIZE, also called **W50**.

The gradations in Table 5-1 were adopted by the California Division of Highways in the late 1950's; they are similar to gradations which were recommended by AASHO (American Association of State Highway Officials). Although the table is labeled in bold print as **PERCENTAGE LARGER THAN**, gradations are sometimes misquoted as percentage passing or percentage smaller than. To help understand the table, look at *METHOD A Placement, 1T RSP-Class*. "95-100" percent means nearly all the rocks are heavier than 450 kg and lighter than 1.8 tonne, the maximum STANDARD Rock SIZE of the *1T RSP-Class*. The "95" allows 5 percent of the rocks to be lighter than 450 kg, for breakage during production at the quarry, transport, or placement at the site. "50-100" percent means at least half the individual rocks must be heavier than 900 kg and lighter than 1.8 tonne. "0-5" allows 5 percent of the rocks to be heavier than 1.8 tonne, and with the slope tolerance dimension of 300 mm, not too many out-of-spec oversized rocks should show up on a job. Nowhere in the table or footnote does it say that "all rocks must be the same weight as the 50-100 standard rock weight."

Sometimes quarries produce what is called "Caltrans spec rock." That is, each rock is nearly the same size as the "50-100" percent standard rock size (**W50**) of the RSP-Class, such that there is no visible range of rock sizes. Table 5-1 does not clearly exclude same-sized rocks in an RSP-Class. When a quarry consistently produces nearly same-sized rocks for standard RSP-Classes, consider multiplying the **D50** by 2 (effective diameter of the "50-100" percent standard rock size of the RSP-Class), for minimum layer thickness. This assures adequate rock interlock, which is required for a stable RSP facility. Section 5-1-F presents more information about thickness.

To determine the RSP-Class of the outside layer, enter Table 5-1 at the left. Select the closest STANDARD Rock SIZE greater than W, the minimum rock weight calculated in section 5-1-C. Trace horizontally to the right and find the "50-100" (or "25-75") table entry. Finally, trace upward vertically to the column heading and simply read the RSP-Class. Use this as the "first trial" RSP-Class of the outside layer of bank protection; it may also become the "final selection."

With historical, site-specific knowledge and engineering judgment of existing and expected field conditions, decide whether the "first trial" RSP-Class should be lighter or heavier for the "final selection." Some considerations are:

1. Rocks lighter than 90 kilograms can be moved by recreational users. There have

been reports of rocks being stolen and used in home landscaping projects. Therefore, if the project is in a populated area or where there is high recreational use, and if Equation 1 ultimately gives an RSP-Class smaller than *Light* for the outside layer, then consider specifying *Light*.

2. If sections of RSP have sloughed into the river where the road closely follows the river, check design notes and nearby RSP site histories, which might reveal that parallel flow was assumed. By field-reviewing the site at low and moderate stages, you may note meandering flows that impinge and attack the toe of RSP. Meanders can be caused by migrating gravel bars and deposited debris during floods. Recalculate the minimum W in Equation 1 using an impinging velocity, determine the RSP-Class of the outside layer, and compare it to the existing RSP-Class. Consider a heavier Class or extending the toe of the revetment.

5-1-E. Determine the Required Layers of RSP. Inexperienced designers sometimes use Table 5-1 and specify all the RSP-Classes between the "final selection" outside RSP layer and Backing No. 3. To avoid this pitfall, use Table 5-2, **California Layered RSP**. Standard designs include RSP-fabric, Backing Class, Inner, and Outside layers of RSP as shown. Table 5-2 is based on Equation 1, section 5-1-C on page 23. It's the same equation (and nomograph solution) in Figure 873.3A of Reference 46 (Caltrans, *Highway Design Manual*). If Table 873.3B is used to check the design, then you must include layers of RSP according to the method described herein. Do not arbitrarily eliminate **inner layers** to reduce thickness. In Table 5-2, in conformance with filtration theory, from the bank to the stream, each layer was designed progressively larger, so an inner layer will not pass through voids of the next layer. The thickness of the entire cross section is reduced and less costly when RSP-fabric replaces Backing No. 3. Do not arbitrarily eliminate RSP-fabric. If you do not use RSP-fabric, then 230 mm of *Backing No. 3* is normally required as the initial "filter-separator" layer, and it is placed directly on the bank to be protected. If *Backing No. 3* is rounded, river-run material, then the steepest allowable slope angle should be 1V:2.5H, contrary to the recommended 1V:2H of the Caltrans *Standard Specifications*.

An example using RSP-fabric is: *Type B RSP-fabric* is placed directly on the bank as the initial "filter-separator" material, the inner layer is *Light,* and the outside layer is *1T*. Notice that in Table 5-2, when the outside layer is 1T or larger there is more than one possible design for inner layers. Each design satisfies filtration theory, that is, underlying layers are retained. Rock availability and/or cost of producing one design versus another may determine which RSP-classes are selected as inner layers. Or on another part of a project there may already be a specified inner RSP-class, and rather than introducing another inner RSP-class, use the one that is already specified.

Table 5-2. California Layered RSP
SI metric (US customary values shown for OUTSIDE LAYER only)

OUTSIDE LAYER RSP-CLASS *	INNER LAYERS RSP-CLASS *	BACKING CLASS No. *	RSP-FABRIC TYPE **
8 T (8 ton)	2 T over 1/2 T	1	B
8 T (8 ton)	1 T over 1/4 T	1 or 2	B
4 T (4 ton)	1/2 T	1	B
4 T (4 ton)	1 T over 1/4 T	1 or 2	B
2 T (2 ton)	1/2 T	1	B
2 T (2 ton)	1/4 T	1 or 2	B
1 T (1 ton)	LIGHT	NONE	B
1 T (1 ton)	1/4 T	1 or 2	B
1/2 T (1/2 ton)	NONE	1	B
1/4 T (1/4 ton)	NONE	1 or 2	A
LIGHT (LIGHT)	NONE	NONE	A
Backing No. 1*** (Backing No. 1)	NONE	NONE	A

***** Rock grading and quality requirements per Section 72-2.02 Materials of the Caltrans *Standard Specifications*. (See Appendix B).

** RSP-fabric Type of geotextile and quality requirements per Section 88-1.04 Rock Slope Protection Fabric of the Caltrans *Standard Specifications*. (See Appendix B). Type A RSP-fabric has lighter mass per unit area and it also has lower toughness (tensile x elongation, both at break) than Type B RSP-fabric. Both types require minimum permittivity of 0.5 per second.

*** "Facing" RSP-Class has same gradation as Backing No. 1.

Material property values were selected for the RSP-fabric in Section 88-1.04 of the Caltrans *Standard Specifications*, by assuming that construction inspectors will limit the maximum height of rockfall during placement to about 1 meter. End dumping of rock down embankments is not recommended, because rocks will damage and dislodge the RSP-fabric and the rock sizes will segregate.

A layer of *Backing No. 1* or *No. 2* is the first layer of rock, which is placed directly on RSP-fabric, unless there is only *Light* or *Facing*. Backing keeps the RSP-fabric in contact with bank soil, thereby preventing soil movement and loss of fines by piping and erosion through overlapped RSP-fabric, which can ultimately lead to failure. *Light* or *Facing* is the largest RSP-Class which should be placed directly on RSP-fabrics. When the revetment cross section includes RSP-Classes greater than *Light*, inner layers of RSP are required. When the cross section of the revetment includes any RSP-Class greater than *1/4 T*, then *TYPE B RSP-fabric* is required. Placing a layer of sand to protect RSP-fabric from damage is normally not needed. Caltrans specifies RSP-fabrics to be tough enough to withstand normal construction practices like rockfall of 1 meter or less.

5-1-F. Determine the Thickness of the RSP Revetment. First determine t, the minimum layer thickness. Sum each minimum layer thickness to get the **total** thickness of the revetment. In the Engineer's estimate, for each RSP-Class, a method of placement is specified: either Method A or Method B. Typically, Method A is used for large RSP-Classes, which require individual placement by equipment to achieve "3-point bearing" (no wobbling) on adjacent rocks. Method B, also called "dumped RSP" does not mean that rock can be dumped from the top to the bottom of long embankments. Placing rock by Method B means that rock is dumped near its planned location, then machinery works the rock to its final position. When feasible, work normally progresses from lower to higher elevations to control thickness and size segregation.

Table 5-3 provides guidance for the minimum layer thickness. First an effective diameter **D50** was calculated with assumptions: specific gravity is 2.65 and rock shape factor is spherical. This does not mean the rocks are actually spheres. Use the formula for the volume of a sphere to calculate **D50**, but first select **W50**, the "50-100" percent standard rock weight and use the "definition" formula, Volume is Weight divided by Specific Weight. In US customary units:

cubic feet = pounds / [(62.4 pounds / cubic foot) x specific gravity].

For Method A placement, the resulting **D50's** were multiplied by 1.5, which is a reasonable value to assure interlock of rocks within the same layer, and for interlock with subsequent layers. For Method B Classes *Backing No. 1* through *1T*, the **D50's** were multiplied by 1.875. The 25 percent increase accounts for looser placement by spreading and for placing in flowing water. The factors 1.5 and 1.875 are empirical and usually have worked well in CA. Local experience or data of flume studies could support factors other than 1.5 or 1.875 for layer thicknesses on a particular job.

Table 5-3. Minimum Layer Thickness SI metric (US customary)		
RSP-Class Layer	Method of Placement	Minimum Thickness
8 T (8 ton)	A	2.60 meters (8.5 feet)
4 T (4 ton)	A	2.07 meters (6.8 feet)
2 T (2 ton)	A	1.65 meters (5.4 feet)
1 T (1 ton)	A	1.31 meters (4.3 feet)
1/2 T (1/2 ton)	A	1.04 meters (3.4 feet)
1 T (1 ton)	B	1.65 meters (5.4 feet)
1/2 T (1/2 ton)	B	1.31 meters (4.3 feet)
1/4 T (1/4 ton)	B	1.00 meters (3.3 feet)
Light	B	760 millimeters (2.5 feet)
Facing	B	550 millimeters (1.8 feet)
Backing No. 1	B	550 millimeters (1.8 feet)
Backing No. 2	B	380 millimeters (1.25 feet)
Backing No. 3	B	230 millimeters (0.75 feet)

For total thickness, add each layer thickness. Use zero thickness for the RSP-fabric. Before adopting values in Table 5-3, consult with a materials engineer about rock sources, quality, shapes, and specific gravity. Calculate new thickness values if the shape factor is not spherical and specific gravity is not reasonably close to 2.65. "Minimum Thickness" values were calculated by starting with US customary units, hard-converting to a value in feet, then soft-converting to SI metric values.

5-1-G. Review Hydraulic Calculations at Site With RSP and Possibility of Vegetation. This step of the layered design process is required to help assure future success of the revetment under changed channel dimensions, roughness coefficients, and other permit/agreement requirements. Examples are: filling voids among RSP with soil and/or covering RSP with soil then planting local species, and/or enhancing fish habitat by placing large-sized rock along the toe. Discuss site hydraulics with people of permit agencies and feasible revegetation efforts. Historically, sites with no prior vegetation are usually not revegetated, especially when subjected to scouring velocities or high wave attack.

LEVEE CRITERIA

L.A. County Hydraulic Design Manual - Toe Down Depth

Cut-Off Depths

Velocities	Straight Reaches	*Curved Reach
0 - 6 f.p.s.	6-ft.	9-ft.
6 - 10 f.p.s.	8-ft.	12-ft.
10 - 15 f.p.s.	10-ft.	15-ft.
15 - 18 f.p.s.	12.5 ft.	18-ft.
18 - 20 f.p.s.	14 ft.	21-ft.

*Check the cut off depth for curved reach on Chart F-06 on Page F-38
Use that depth if greater than given hereon.

Material and Structural Requirements

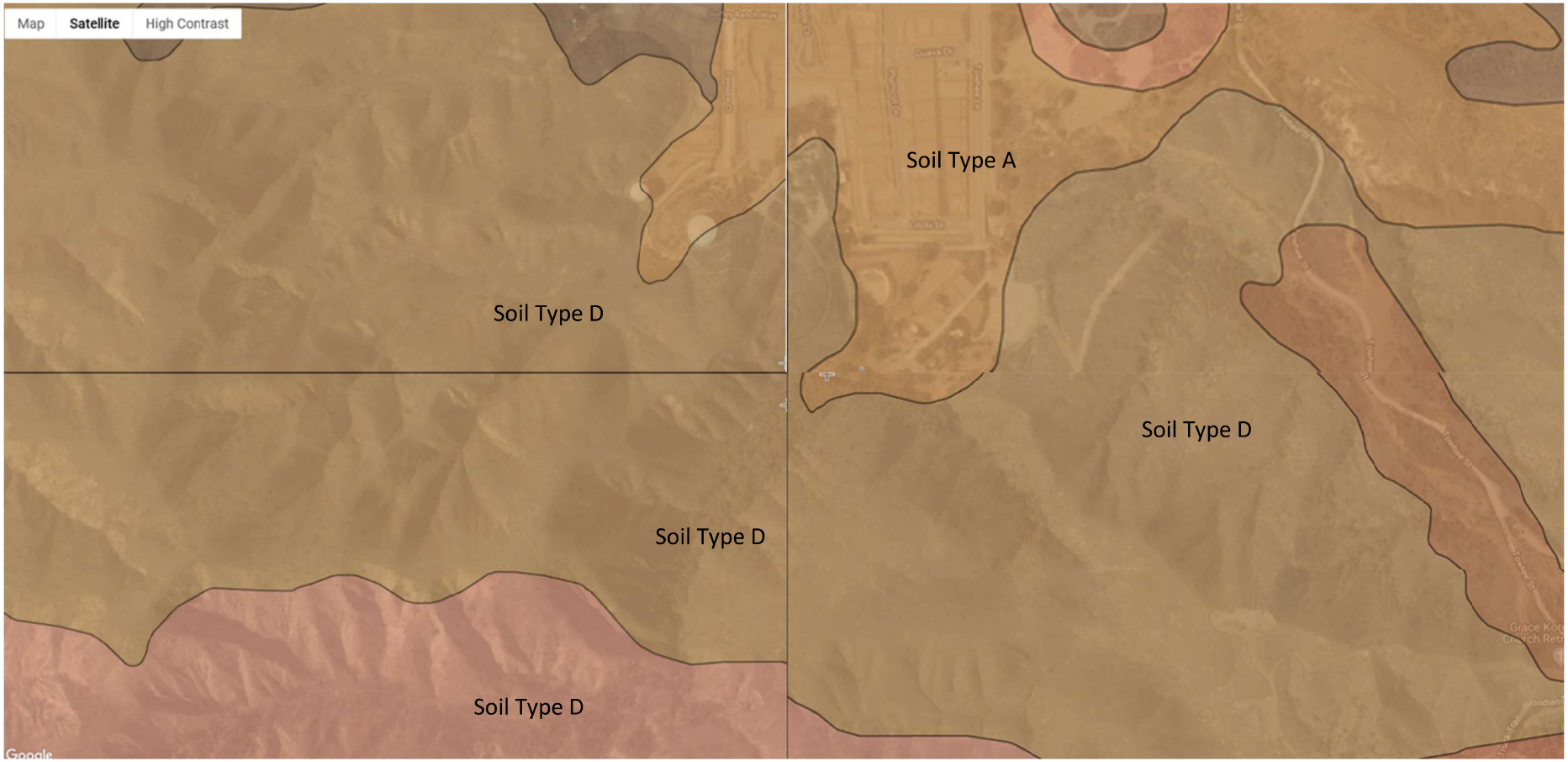
Concrete Levees (1 1/2:1 max. side slope)

Velocities	Levee Thickness - T		Reinforcing
	Straight Reach	Curved Reach	
0 - 10 f.p.s.	6-inch	8-inch	#4 @ 18" Bothways
10 - 20 f.p.s.	8-inch	10-inch	#4 @ 18" Bothways

Gunite Levees (1 1/2:1 max. side slopes)

Velocities	Levee Thickness - T		Reinforcing
	Straight Reach	Curved Reach	
0 - 10 f.p.s.	8-inch	10-inch	#4 @ 18" Bothways
Gunite levees not permitted where velocities exceed 10 f.p.s.			

APPENDIX H – RIVERSIDE COUNTY HYDROLOGY DATA


Map
Satellite
High Contrast
Soil Type D
Soil Type D
Soil Type D
Soil Type A
Soil Type D
Google

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

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RUNOFF INDEX NUMBERS FOR PERVIOUS AREA

PLATE D-5.5 (1 of 2)

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

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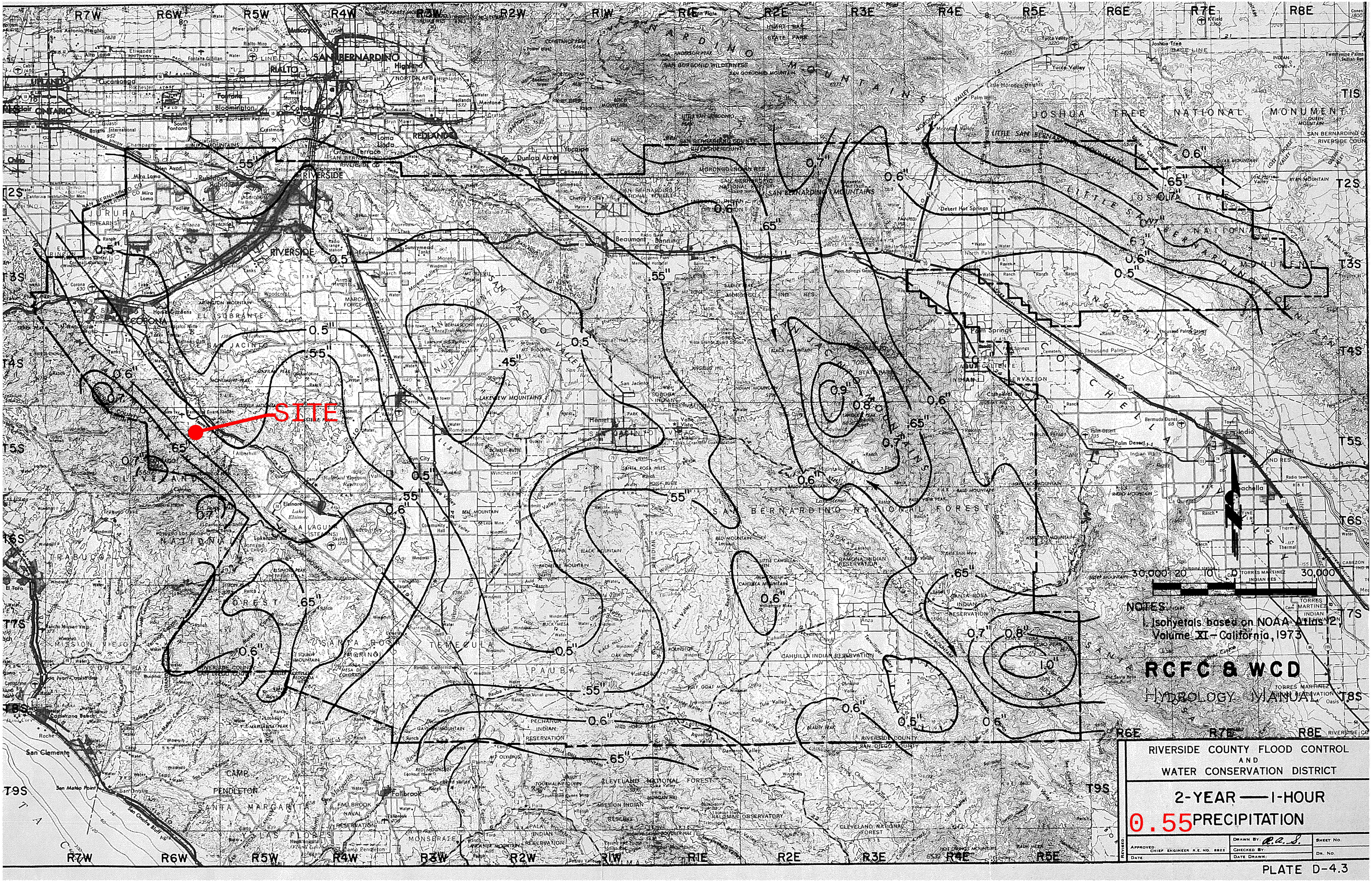
IMPERVIOUS COVER FOR DEVELOPED AREAS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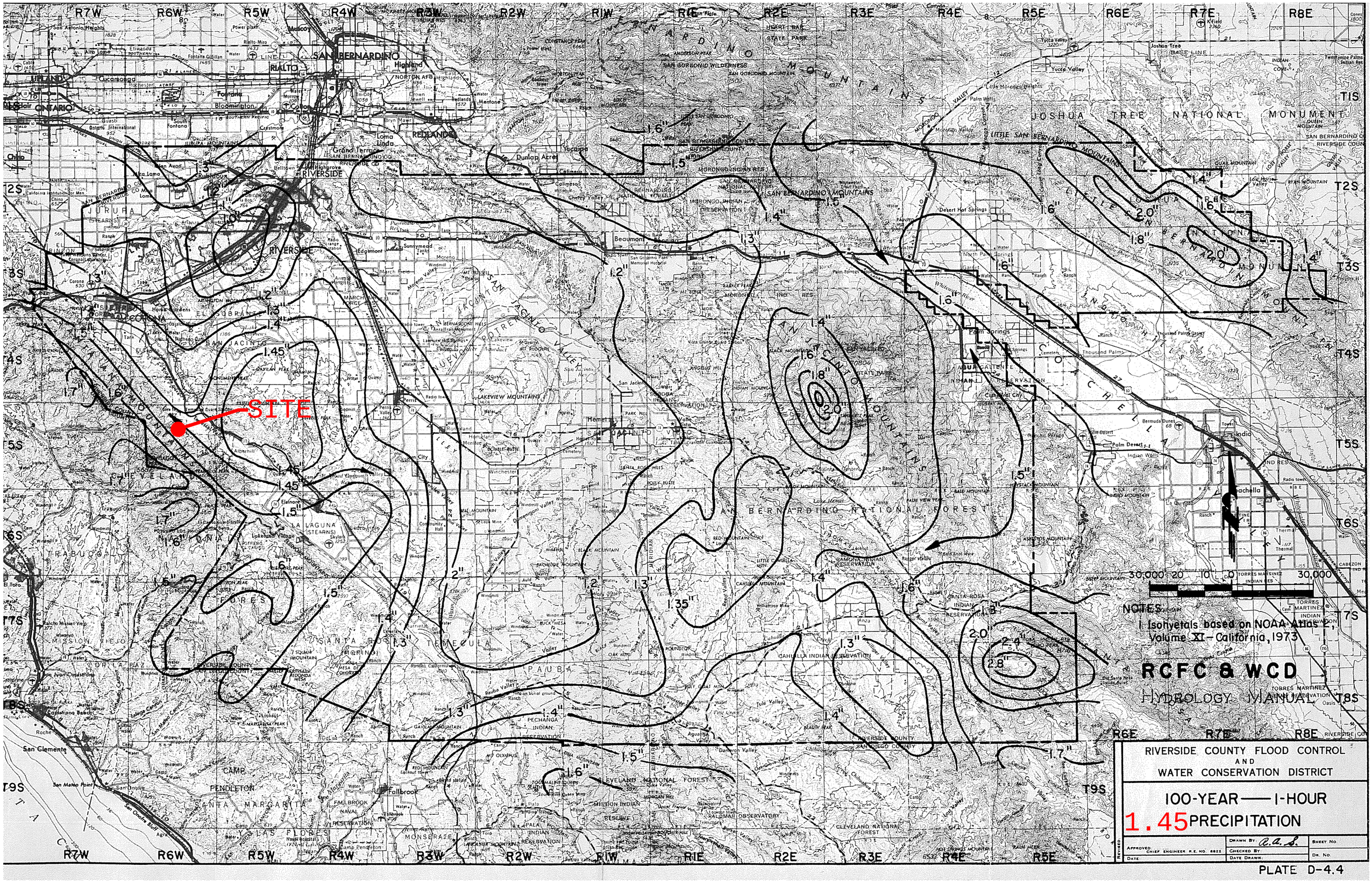
NOTES
1. Isohyetals based on NOAA Atlas 2, Volume XI-California, 1973
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2-YEAR — 1-HOUR
0.55 PRECIPITATION
PLATE D-4.3



NOTES

1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973

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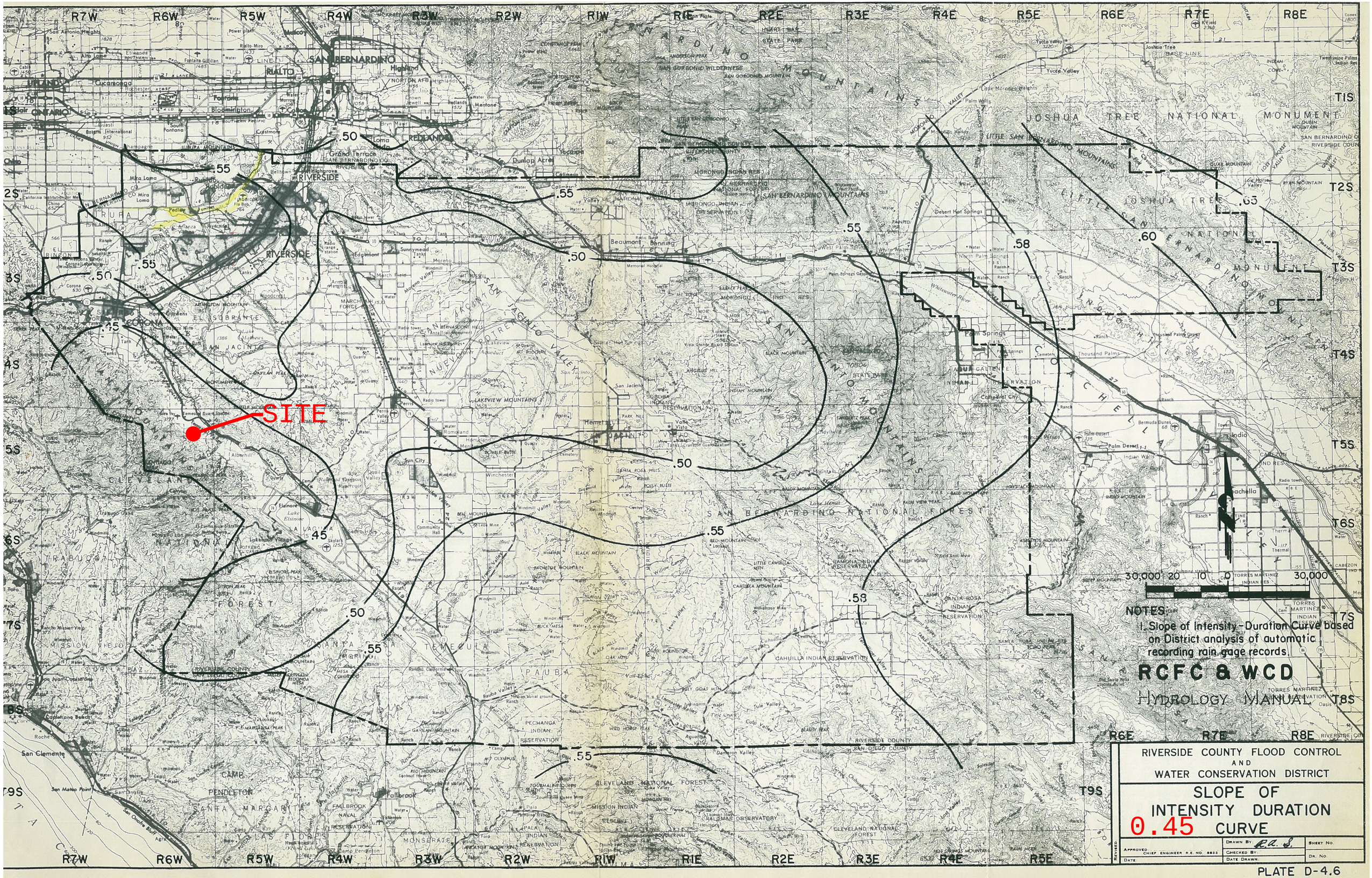
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

100-YEAR — 1-HOUR

1.45 PRECIPITATION

APPROVED CHIEF ENGINEER R.E. NO. 6822	DRAWN BY: C.A.S.	SHEET NO.
DATE	CHECKED BY	DR. NO.
REVISED	DATE DRAWN	

PLATE D-4.4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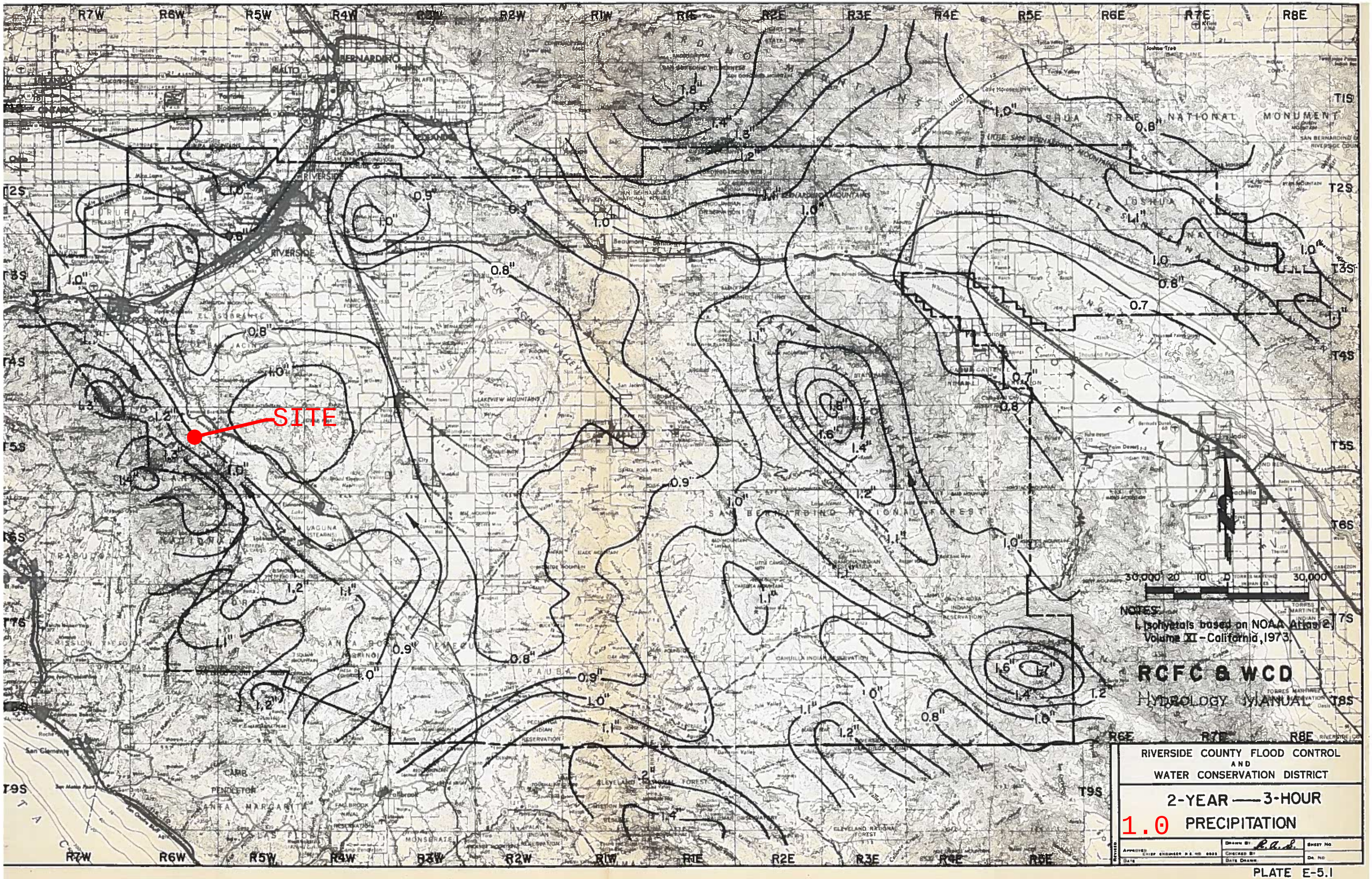
.55
.58
.60
.63
NOTES:
1. Slope of Intensity-Duration Curve based on District analysis of automatic recording rain gage records.
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
SLOPE OF INTENSITY DURATION 0.45 CURVE
APPROVED CHIEF ENGINEER R.E. NO. 8822
DATE
DRAWN BY R.A.S.
CHECKED BY
DATE DRAWN:
REVISED
SHEET No.
DR. No
PLATE D-4.6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1.0"
0.9"
0.8"
1.1"
1.2"
1.4"
1.6"
1.8"
0.7"
NOTES:
1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973.
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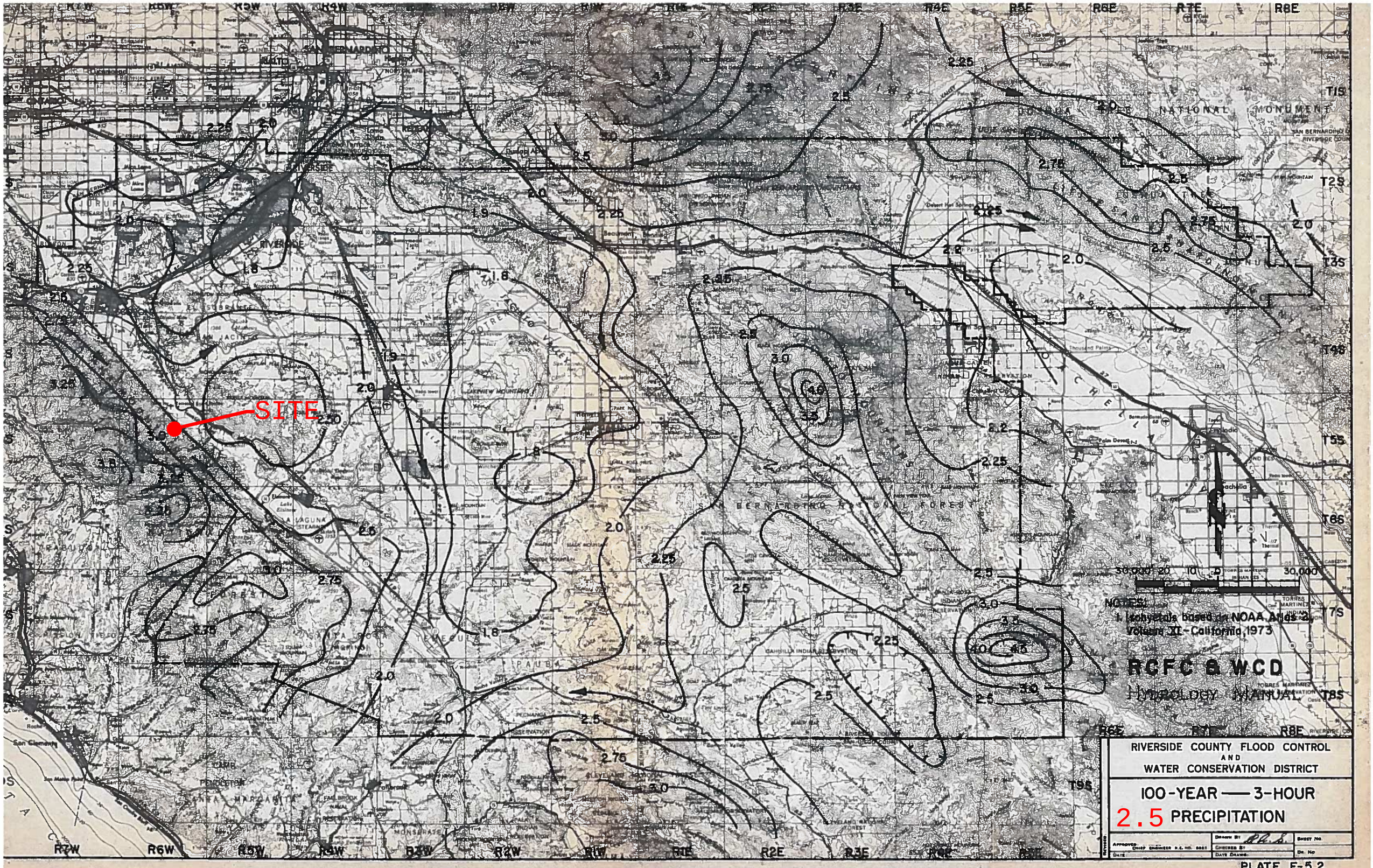
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2-YEAR — 3-HOUR
1.0 PRECIPITATION

PLATE E-5.1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1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973
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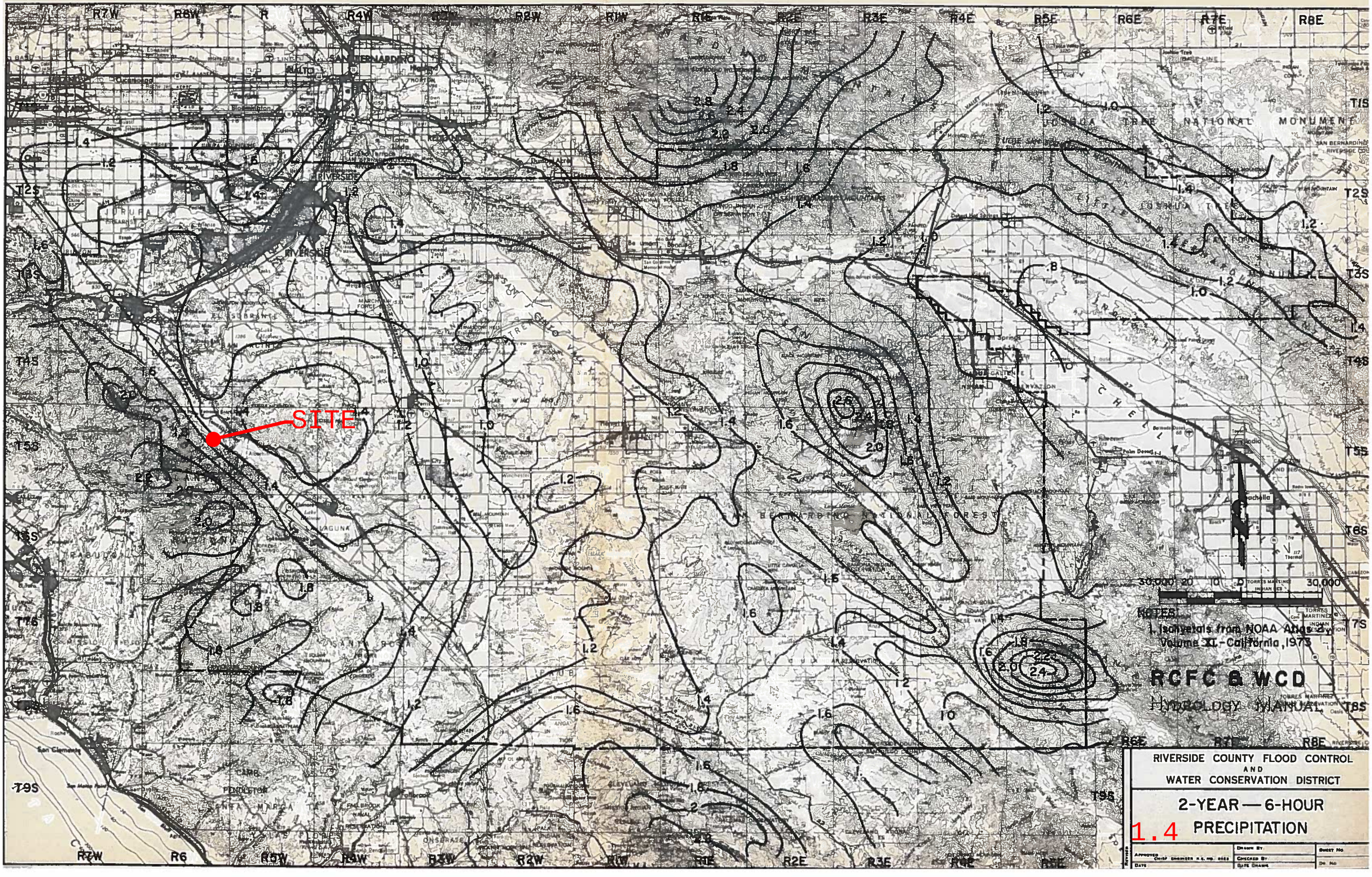
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
100-YEAR — 3-HOUR
2.5 PRECIPITATION

PLATE E-5.2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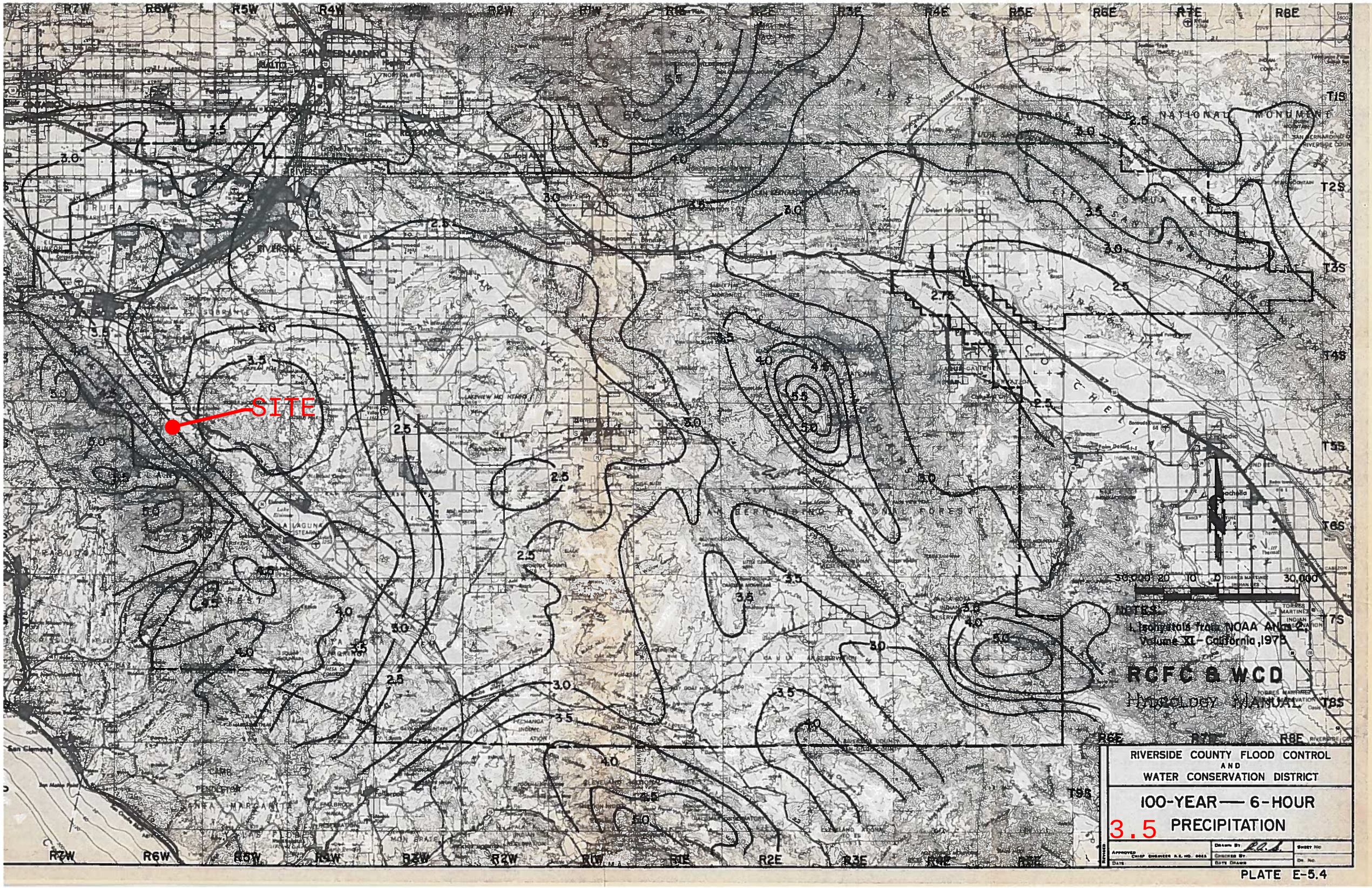
1. Isohyetals from NOAA Atlas 2, Volume XI - California, 1973
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2-YEAR — 6-HOUR
1.4 PRECIPITATION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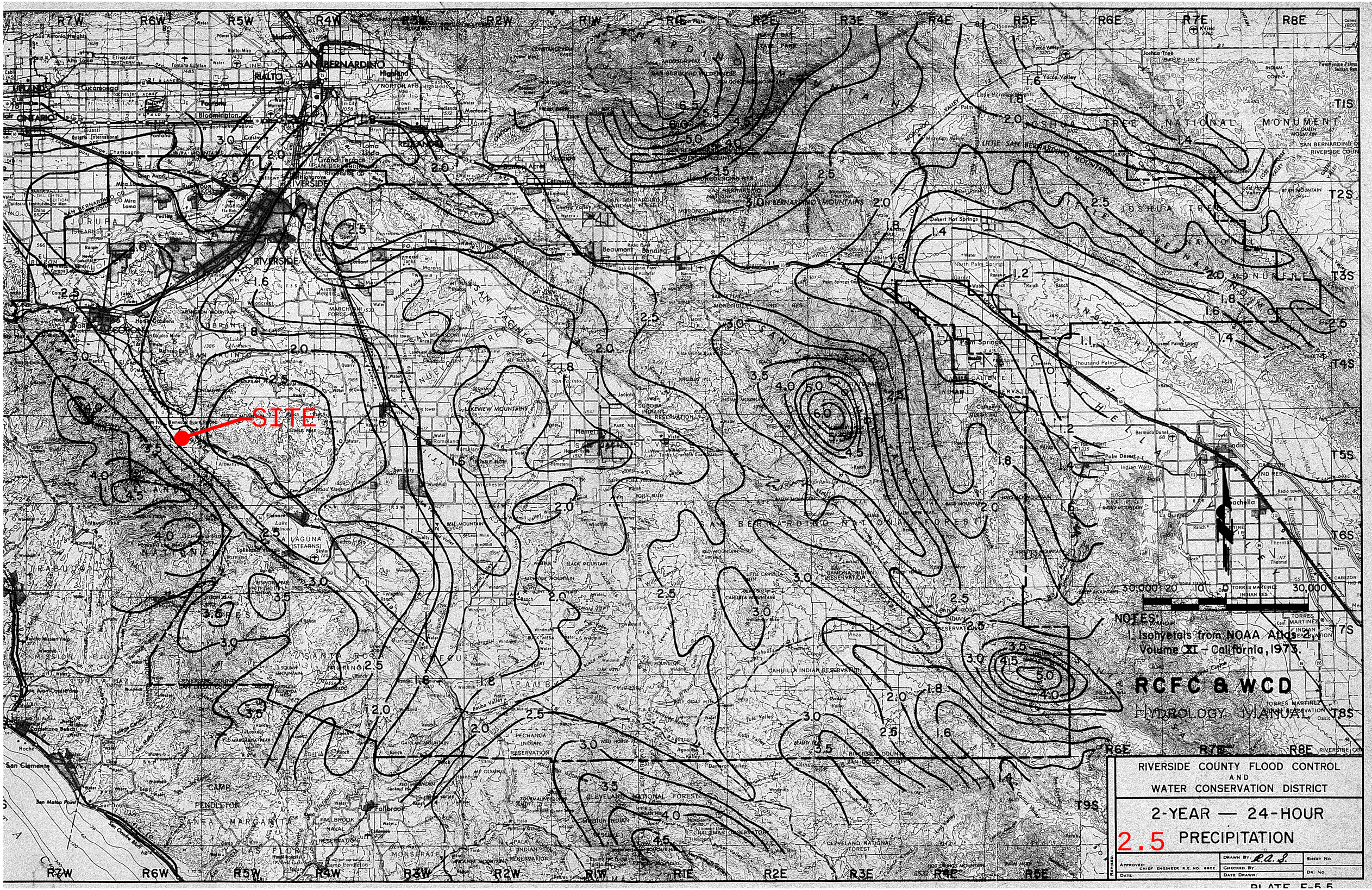
RIVERSIDE
SAN BERNARDINO
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
100-YEAR — 6-HOUR
3.5 PRECIPITATION
RCFC & WCD
Hydrology MANUAL
1. Isohyetals from NOAA Atlas 2, Volume XI - California, 1973

PLATE E-5.4


SITE
SAN BERNARDINO
RIVERSIDE
RIALTO
ONTARIO
CORONA
NORCO
JURUPA
LOMA LINDA
REDLANDS
HIGHGROVE
BEAUMONT
BANNING
PALM SPRINGS
DESERT HOT SPRINGS
CATHEDRAL CITY
THOUSAND PALMS
INDIO
LA QUINTA
BERMUDA DUNES
INDIAN WELLS
PALM DESERT
LA SIERRA
EL SOBRANTE
WOODCREST
MORENO VALLEY
SUN CITY
HEMET
SAN JACINTO
WINCHESTER
MURRIETA
TEMECULA
WILDOMAR
LAKE ELSINORE
LAKE MATHEWS
LAKE PERRIS
MARCH AFB
NORTON AFB
CAMP PENDLETON
FALLBROOK
SAN CLEMENTE
SAN MATEO POINT
SAN ONOFRE BLUFF
SAN BERNARDINO MOUNTAINS
SAN JACINTO MOUNTAINS
SAN JACINTO WILDERNESS
SAN BERNARDINO NATIONAL FOREST
CLEVELAND NATIONAL FOREST
JOSHUA TREE NATIONAL MONUMENT
SANTA ROSA PLATEAU
AGUANGA
PECHANGA INDIAN RESERVATION
SOBOBA INDIAN RESERVATION
AGUA CALIENTE INDIAN RESERVATION
CAHUILLA INDIAN RESERVATION
SANTA ROSA INDIAN RESERVATION
MORONGO INDIAN RESERVATION
TORRES MARTINEZ INDIAN RESERVATION
SAN DIEGUITO RIVER
SAN JACINTO RIVER
SANTA ANA RIVER
SANTA MARGARITA RIVER
SAN LUIS REY RIVER
SAN DIEGO COUNTY
R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E
T1S T2S T3S T4S T5S T6S T7S T8S T9S
30,000 20 10 0 30,000
NOTES:
1. Isohyetals from NOAA Atlas 2, Volume XI - California, 1973.
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2-YEAR — 24-HOUR
2.5 PRECIPITATION
APPROVED: CHIEF ENGINEER R.E. NO. 6822
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CHECKED BY
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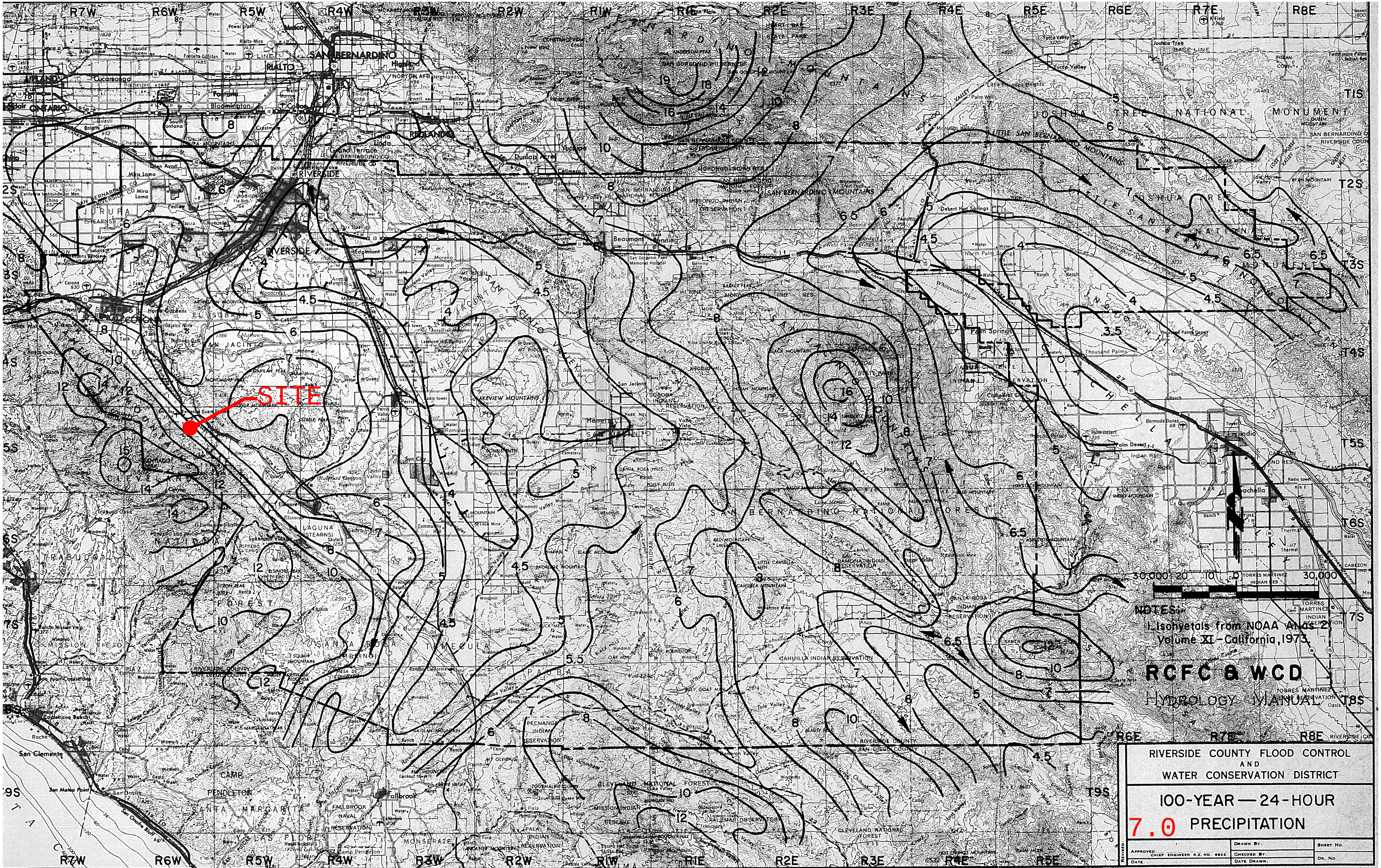
SHEET NO.
DR. NO.
PLATE E-5.5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RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
100-YEAR — 24-HOUR
7.0 PRECIPITATION
JOSHUA TREE NATIONAL MONUMENT
SAN BERNARDINO NATIONAL FOREST
CLEVELAND NATIONAL FOREST
RIVERSIDE
SAN BERNARDINO
REDLANDS
TEMECULA
LAGUNA
CAMP PENDLETON
San Clemente
Beaumont
Hemet
Palm Springs
Indio
Fallbrook

PLATE E-5.6