Appendix B
Preliminary Drainage Report
(Available for review at City Hall)

WALDEN & ASSOCIATES

2552 WHITE ROAD, SUITE B • IRVINE, CA 92614
949/660-0110 FAX: 660-0418
CIVIL ENGINEERS - PLANNERS - LAND SURVEYORS

PRELIMINARY DRAINAGE STUDY

FOR

PALM SPRINGS HOTEL & RESIDENCES

IN THE

CITY OF PALM SPRINGS, CA

September 2023

PREPARED BY:

WALDEN & ASSOCIATES
2552 WHITE ROAD, SUITE B
IRVINE, CA 92614

JN: 1804-573-001

TABLE OF CONTENTS

	SECTION
DISCUSSION	1
PURPOSE	
PROJECT DESCRIPTION	
DESCRIPTION OF WATERSHED	
METHODOLOGY	
SUMMARY	
VICINITY MAP	2
HYDROLOGIC SOILS GROUP MAP	3
PRECIPITATION DATA AND INTENSITY DURATION CURVES	4
HYDROLOGY STUDY	5
EXISTING CONDITION (2-YEAR)	
EXISTING CONDITION (10-YEAR)	
EXISTING CONDITION (100-YEAR)	
PROPOSED CONDITION (2-YEAR)	
PROPOSED CONDITION (10-YEAR)	
PROPOSED CONDITION (100-YEAR)	
UNIT-HYDROGRAPH STUDY	6
EXISTING CONDITION 2-YEAR (1-HOUR, 3-HOUR, 6-HOUR AND 24-HOUR)	
EXISTING CONDITION 10-YEAR (1-HOUR, 3-HOUR, 6-HOUR AND 24-HOUR)	
EXISTING CONDITION 100-YEAR (1-HOUR, 3-HOUR, 6-HOUR AND 24-HOUR)	
PROPOSED CONDITION 2-YEAR (1-HOUR, 3-HOUR, 6-HOUR AND 24-HOUR)	
PROPOSED CONDITION 10-YEAR (1-HOUR, 3-HOUR, 6-HOUR AND 24-HOUR)	
PROPOSED CONDITION 100-YEAR (1-HOUR, 3-HOUR, 6-HOUR AND 24-HOUR)	

TABLE OF CONTENTS (CONTINUE)

	SECTION
HYDROLOGY MAP	POCKET
EXISTING	
PROPOSED	

SECTION 1

DISCUSSION

PURPOSE:

The purpose of this Drainage Study is to evaluate impact of the 2-year, 10-year, and 100-year storm frequencies due to the proposed improvements for The Andreas Project. The proposed drainage system will be designed per this report to achieve the desired conveyance. The project will provide the required storm protection following the standards of City of Palm Springs.

PROJECT DESCRIPTION:

The property (approximately 5.64 acres) is located at the Southeast corner of E. Andreas Road and N. Calle El Segundo intersection in the City of Palm Springs. It is bounded by E. Andreas Road on the North side, an alley way and Renaissance Palm Springs Hotel on the East side, historical buildings and retail center on the South side, and N. Calle El Segundo on the West side. The site is currently developed, and it has two existing driveways on E. Andreas Road and one existing driveway on N. Calle El Segundo. An existing 36" storm drain main runs along the eastern alley way.

The proposed development is PALM SPRINGS HOTEL & RESIDENCES. It consists of hotel, mixed-use, parking structure, concrete hardscape, and landscape areas. Concrete hardscape areas consist of alley ways on the East and South sides, walkways, drop-off areas, and truck and trash loading/unloading zones. There are one existing and four proposed driveways on E. Andreas Road and three proposed driveways on N. Calle El Segundo.

DESCRIPTION OF WATERSHED:

The existing site topography is relatively flat, and it generally flows from Northwest to Southeast. It consists of mostly hardscape areas, which include AC parking lot, AC alley way, and concrete walkways. There are landscape areas at the perimeter of the property and landscape islands spread throughout the parking lot.

The existing site is split into four tributary areas. Tributary area 'A' sheet flows into the existing curb & gutter on N. Calle El Segundo, where the runoff is collected at a public curb opening catch basin. Tributary area 'B' sheet flows Southeasterly and is collected using several private catch basins along the East and South sides of the parking lot; the collected runoff is discharged into a 36" RCP storm drain main in the alley way. Tributary area 'C' sheet flows into the existing curb & gutter on E. Andreas Road, where the runoff is collected at a public curb opening catch basin. Tributary area 'D' sheet flows southerly and is collected at a public inline catch basin in the alley way.

The proposed development is spilt into three major subareas. The first major subarea consists of subareas 'A' and 'D-1', the second consists of subareas 'B' and 'D-2', and the third consists of subarea 'C'. Subareas 'A', 'B', and 'C' contain roof drains, concrete hardscape, and landscape areas, while subareas 'D-1' and 'D-2' are concrete alley ways. Stormwater runoff from each subarea is collected and conveyed using catch basins and storm drain pipes. The collected runoff is detained in an underground infiltration system and the overflow is discharged to the existing 36" storm drain main.

METHODOLOGY:

The Hydrology and Unit Hydrograph studies were performed using the Rational Hydrology method programs by CivilCADD / Civil Design Engineering software, which is based on the Riverside County Hydrology Manual. The soil has been identified as being Soil Group 'A' from the Hydrologic Soils Group Map, accompanying the Riverside County Flood Control Hydrology Manual (Section 3).

The rational method was used to calculate the design discharge for the local drainage areas. Hydrologic calculations to determine the 2-year, 10-year, and 100-year discharges at critical locations throughout the project were performed using the Rational Hydrology method programs. The pre-project and post-project conditions hydrology analysis, that is considered for the overall on-site flood volume tributary to the project, was completed using the unit hydrograph method for the 1-hour, 3-hour, 6-hour, and 24-hour durations within the 2-year, 10-year, and 100-year storm events (See Table B).

SUMMARY:

The plans in conjunction with this report meets the standards of rainstorm protection as adopted by the City of Palm Springs. Positive overflow is available throughout the development for protection of habitable areas against a 100-year storm event when all inlets are clogged, and there will be no adverse impact to the existing system.

TABLE A
MITIGATION REQUIREMENTS

Storm Frequency	Q Existing	Q Proposed	Difference (Prop. – Ex.)
2-year	6.1 cfs	8.1 cfs	+2.0 cfs
10-year	12.8 cfs	17.5 cfs	+4.7 cfs
100-year	22.7 cfs	31.5 cfs	+8.8 cfs

TABLE B
UNIT HYDROGRAPH - SUMMARY

STORM EVENT = 2 YEAR

	EXISTING				PROPOSED			
DURATION	24-HOUR	6-HOUR	3-HOUR	1-HOUR	24-HOUR	6-HOUR	3-HOUR	1-HOUR
VOLUME (Cu. Ft.)	24,846	15,907	11,832	8,043	24,309	15,563	11,576	7,910
VOLUME (Ac. Ft.)	0.57	0.37	0.27	0.18	0.56	0.35	0.27	0.18
Q (CFS)	0.9	2.4	2.8	6.1	0.9	2.4	2.8	6.2

STORM EVENT = 10 YEAR

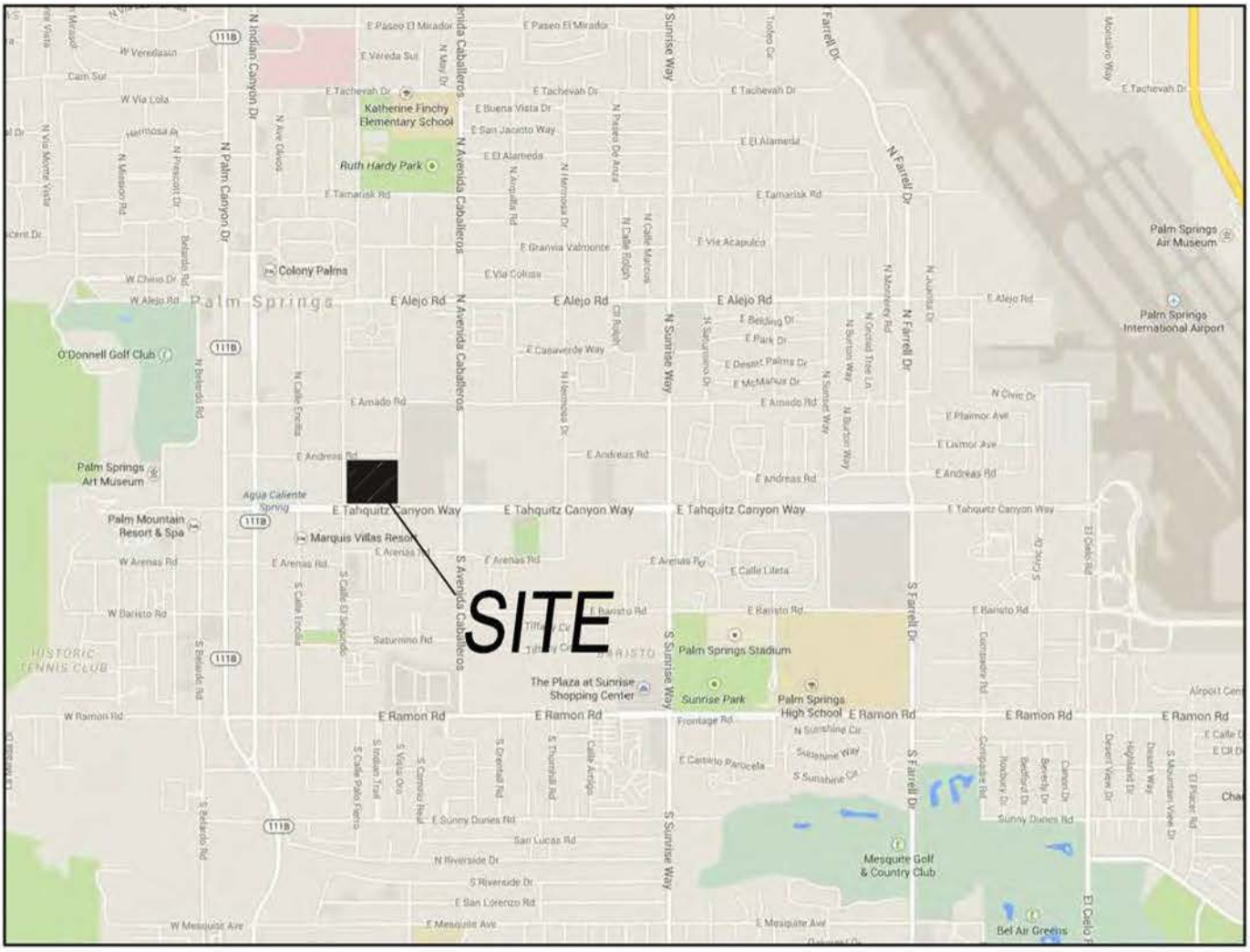
	EXISTING				PROPOSED			
DURATION	24-HOUR	6-HOUR	3-HOUR	1-HOUR	24-HOUR	6-HOUR	3-HOUR	1-HOUR
VOLUME (Cu. Ft.)	47,471	30,338	23,404	17,219	46,445	29,722	22,964	17,003
VOLUME (Ac. Ft.)	1.09	0.70	0.54	0.40	1.07	0.68	0.53	0.39
Q (CFS)	1.8	5.1	5.9	12.8	1.8	5.0	6.1	13.7

STORM EVENT = 100 YEAR

	EXISTING				PROPOSED			
DURATION	24-HOUR	6-HOUR	3-HOUR	1-HOUR	24-HOUR	6-HOUR	3-HOUR	1-HOUR
VOLUME (Cu. Ft.)	81,050	53,970	42,627	32,460	79,378	53,144	42,086	32,256
VOLUME (Ac. Ft.)	1.86	1.24	0.98	0.75	1.82	1.22	0.97	0.74
Q (CFS)	3.3	9.4	11.0	22.7	3.3	9.5	11.4	24.9

SECTION 2

VICINITY MAP



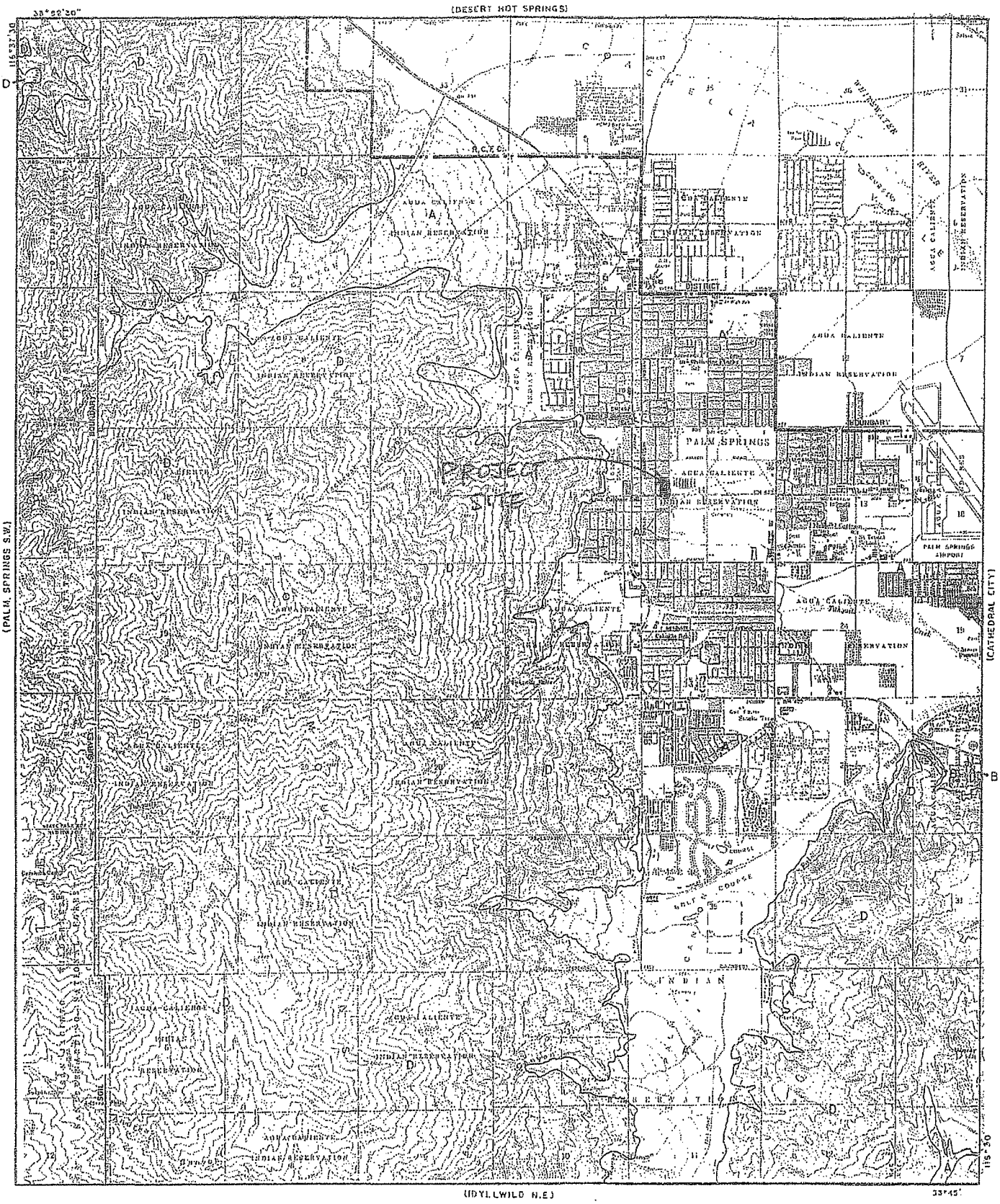
VICINITY MAP

NO SCALE

N

SECTION 3

HYDROLOGIC SOILS GROUP MAP



LEGEND

——— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC&WCD

HYDROLOGY MANUAL

0 FEET 5000

HYDROLOGIC SOILS GROUP MAP FOR PALM SPRINGS

PLATE C-1.35

SECTION 4

PRECIPITATION DATA AND INTENSITY DURATION CURVES

NOAA Atlas 14, Volume 6, Version 2
Location name: Palm Springs, California, USA*
Latitude: 33.8243°, Longitude: -116.5406°
Elevation: 450 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.095** (0.079-0.115)	**0.142** (0.118-0.172)	**0.209** (0.173-0.254)	**0.266** (0.219-0.327)	**0.351** (0.279-0.445)	**0.420** (0.327-0.545)	**0.496** (0.376-0.659)	**0.578** (0.427-0.791)	**0.698** (0.494-0.998)	**0.800** (0.546-1.18)
10-min	**0.136** (0.113-0.164)	**0.203** (0.169-0.247)	**0.299** (0.248-0.364)	**0.382** (0.314-0.468)	**0.503** (0.400-0.638)	**0.602** (0.469-0.782)	**0.710** (0.539-0.945)	**0.829** (0.611-1.13)	**1.00** (0.708-1.43)	**1.15** (0.783-1.70)
15-min	**0.164** (0.137-0.199)	**0.246** (0.205-0.299)	**0.361** (0.300-0.440)	**0.462** (0.380-0.566)	**0.608** (0.484-0.772)	**0.729** (0.567-0.945)	**0.859** (0.652-1.14)	**1.00** (0.739-1.37)	**1.21** (0.856-1.73)	**1.39** (0.946-2.05)
30-min	**0.231** (0.192-0.279)	**0.346** (0.288-0.420)	**0.509** (0.422-0.619)	**0.649** (0.534-0.797)	**0.855** (0.680-1.09)	**1.02** (0.798-1.33)	**1.21** (0.918-1.61)	**1.41** (1.04-1.93)	**1.70** (1.20-2.43)	**1.95** (1.33-2.88)
60-min	**0.332** (0.276-0.402)	**0.498** (0.414-0.604)	**0.731** (0.607-0.890)	**0.933** (0.768-1.15)	**1.23** (0.978-1.56)	**1.47** (1.15-1.91)	**1.74** (1.32-2.31)	**2.03** (1.50-2.77)	**2.45** (1.73-3.50)	**2.80** (1.91-4.15)
2-hr	**0.462** (0.385-0.560)	**0.656** (0.546-0.796)	**0.931** (0.773-1.13)	**1.17** (0.966-1.44)	**1.53** (1.22-1.94)	**1.82** (1.42-2.37)	**2.15** (1.63-2.86)	**2.50** (1.85-3.42)	**3.02** (2.14-4.31)	**3.46** (2.36-5.11)
3-hr	**0.559** (0.466-0.678)	**0.781** (0.650-0.948)	**1.10** (0.910-1.33)	**1.37** (1.13-1.69)	**1.78** (1.42-2.26)	**2.12** (1.65-2.76)	**2.50** (1.90-3.32)	**2.90** (2.14-3.98)	**3.50** (2.48-5.01)	**4.01** (2.74-5.93)
6-hr	**0.758** (0.632-0.918)	**1.05** (0.873-1.27)	**1.46** (1.21-1.78)	**1.82** (1.50-2.24)	**2.36** (1.88-2.99)	**2.80** (2.18-3.63)	**3.28** (2.49-4.36)	**3.81** (2.81-5.21)	**4.58** (3.24-6.55)	**5.23** (3.57-7.74)
12-hr	**0.954** (0.795-1.16)	**1.35** (1.12-1.64)	**1.90** (1.58-2.32)	**2.38** (1.96-2.92)	**3.07** (2.44-3.90)	**3.63** (2.83-4.71)	**4.24** (3.22-5.64)	**4.89** (3.61-6.70)	**5.84** (4.13-8.34)	**6.61** (4.52-9.78)
24-hr	**1.12** (0.996-1.30)	**1.64** (1.45-1.90)	**2.36** (2.08-2.73)	**2.97** (2.60-3.46)	**3.83** (3.25-4.62)	**4.53** (3.76-5.57)	**5.27** (4.28-6.64)	**6.07** (4.79-7.85)	**7.20** (5.46-9.69)	**8.12** (5.95-11.3)
2-day	**1.30** (1.15-1.50)	**1.94** (1.72-2.24)	**2.83** (2.49-3.27)	**3.59** (3.14-4.19)	**4.68** (3.96-5.64)	**5.56** (4.62-6.84)	**6.51** (5.28-8.19)	**7.52** (5.94-9.73)	**8.98** (6.81-12.1)	**10.2** (7.46-14.2)
3-day	**1.37** (1.21-1.58)	**2.06** (1.82-2.38)	**3.03** (2.67-3.51)	**3.86** (3.38-4.51)	**5.07** (4.30-6.11)	**6.06** (5.03-7.45)	**7.11** (5.77-8.95)	**8.26** (6.52-10.7)	**9.92** (7.52-13.3)	**11.3** (8.27-15.7)
4-day	**1.40** (1.24-1.62)	**2.13** (1.88-2.46)	**3.14** (2.77-3.64)	**4.02** (3.52-4.69)	**5.30** (4.48-6.38)	**6.34** (5.26-7.79)	**7.46** (6.05-9.39)	**8.69** (6.86-11.2)	**10.5** (7.93-14.1)	**11.9** (8.75-16.6)
7-day	**1.55** (1.37-1.79)	**2.36** (2.08-2.72)	**3.49** (3.08-4.04)	**4.48** (3.92-5.23)	**5.93** (5.03-7.15)	**7.13** (5.92-8.76)	**8.42** (6.83-10.6)	**9.84** (7.76-12.7)	**11.9** (9.02-16.0)	**13.6** (9.98-19.0)
10-day	**1.63** (1.45-1.88)	**2.48** (2.19-2.86)	**3.69** (3.25-4.27)	**4.74** (4.15-5.53)	**6.29** (5.33-7.58)	**7.58** (6.29-9.31)	**8.96** (7.27-11.3)	**10.5** (8.28-13.6)	**12.7** (9.65-17.1)	**14.6** (10.7-20.3)
20-day	**1.81** (1.61-2.09)	**2.78** (2.46-3.21)	**4.16** (3.67-4.81)	**5.37** (4.70-6.27)	**7.16** (6.07-8.63)	**8.66** (7.19-10.6)	**10.3** (8.33-12.9)	**12.1** (9.51-15.6)	**14.6** (11.1-19.7)	**16.8** (12.3-23.4)
30-day	**2.01** (1.78-2.32)	**3.10** (2.74-3.57)	**4.66** (4.10-5.39)	**6.03** (5.27-7.03)	**8.06** (6.83-9.71)	**9.75** (8.10-12.0)	**11.6** (9.39-14.6)	**13.6** (10.7-17.6)	**16.5** (12.5-22.2)	**19.0** (13.9-26.4)
45-day	**2.19** (1.94-2.53)	**3.40** (3.01-3.93)	**5.14** (4.54-5.95)	**6.68** (5.84-7.79)	**8.96** (7.59-10.8)	**10.9** (9.02-13.4)	**12.9** (10.5-16.2)	**15.2** (12.0-19.6)	**18.4** (13.9-24.8)	**21.1** (15.4-29.3)
60-day	**2.36** (2.08-2.72)	**3.68** (3.25-4.24)	**5.58** (4.92-6.46)	**7.27** (6.36-8.48)	**9.76** (8.27-11.8)	**11.8** (9.83-14.6)	**14.1** (11.4-17.7)	**16.5** (13.0-21.4)	**20.0** (15.2-27.0)	**22.9** (16.8-31.9)

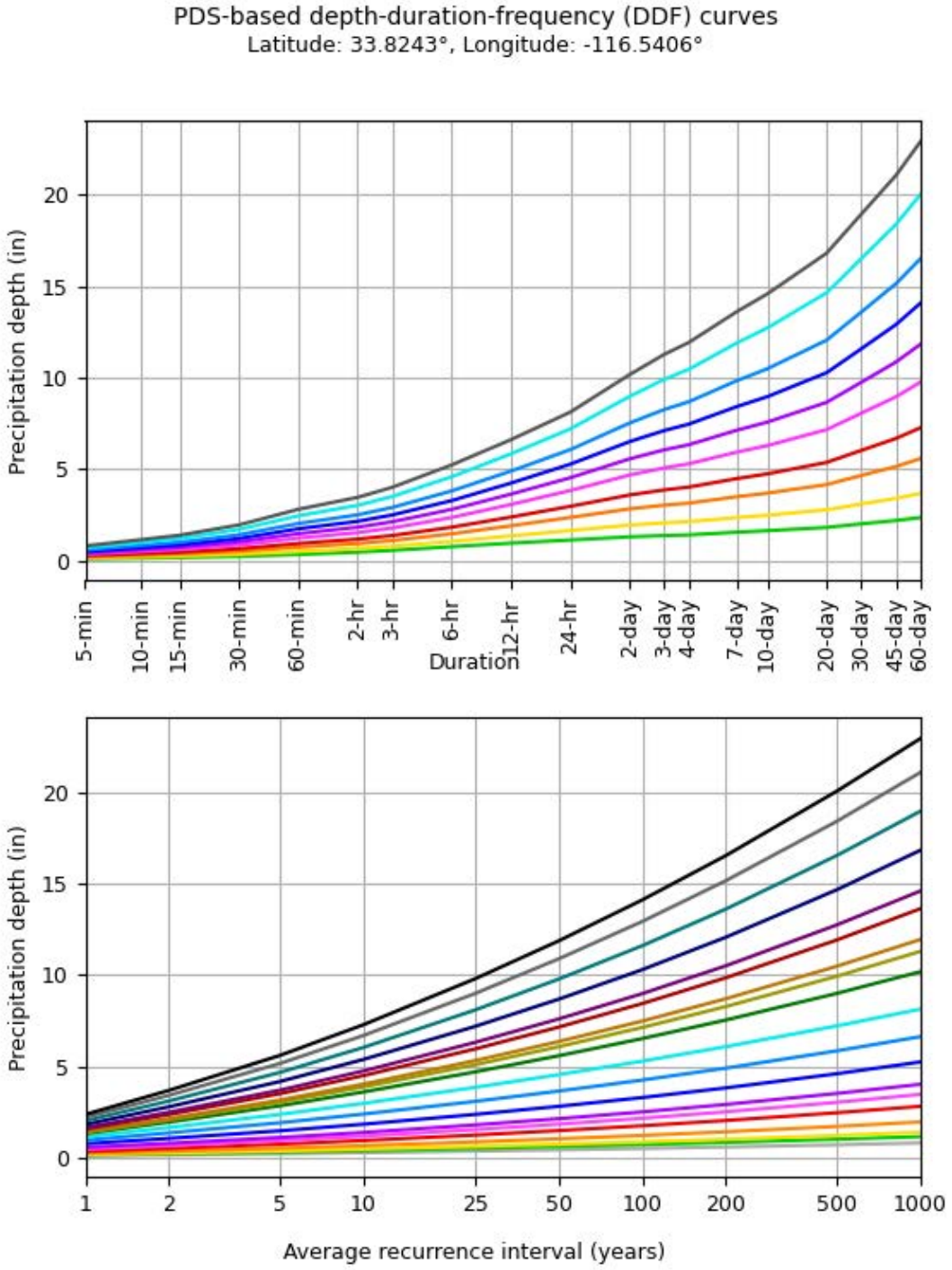
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



NOAA Atlas 14, Volume 6, Version 2

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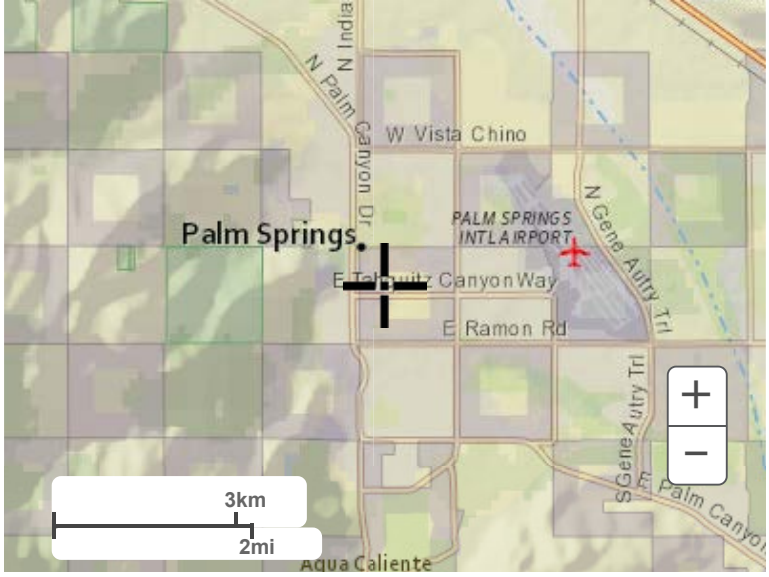
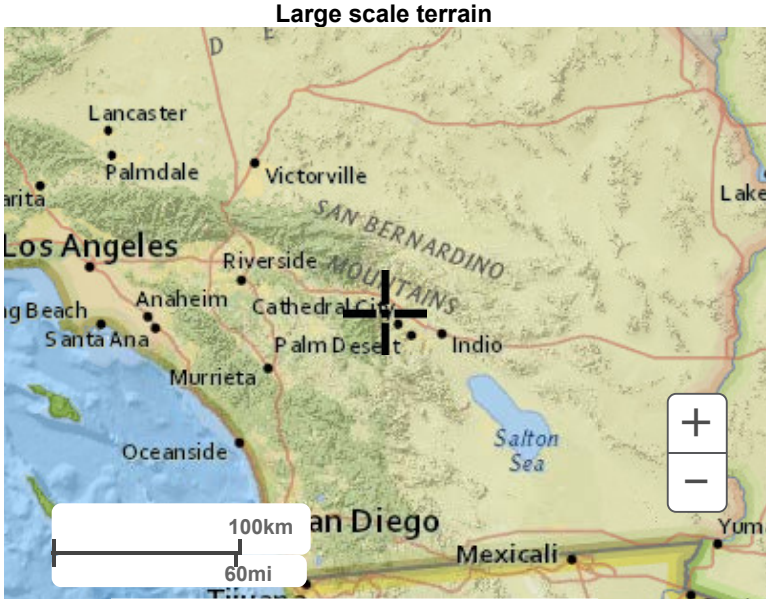
Back to Top

Maps & aerials

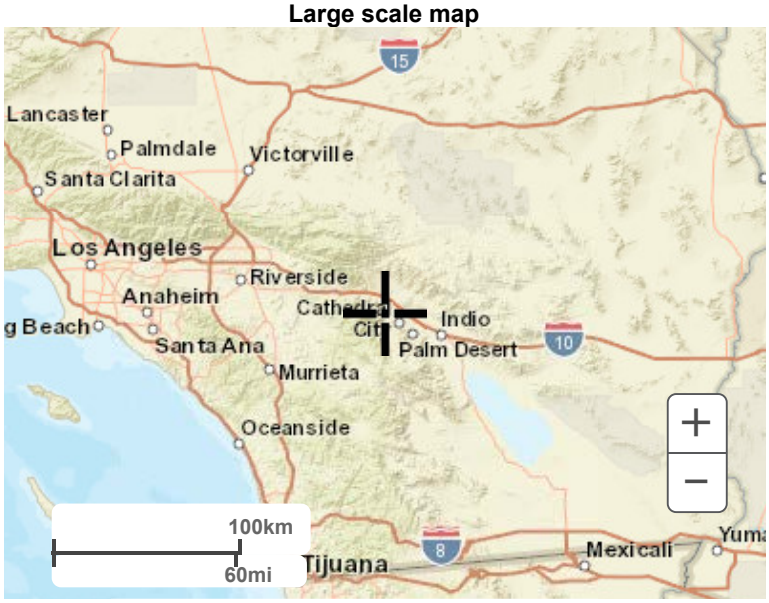
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

Back to Top

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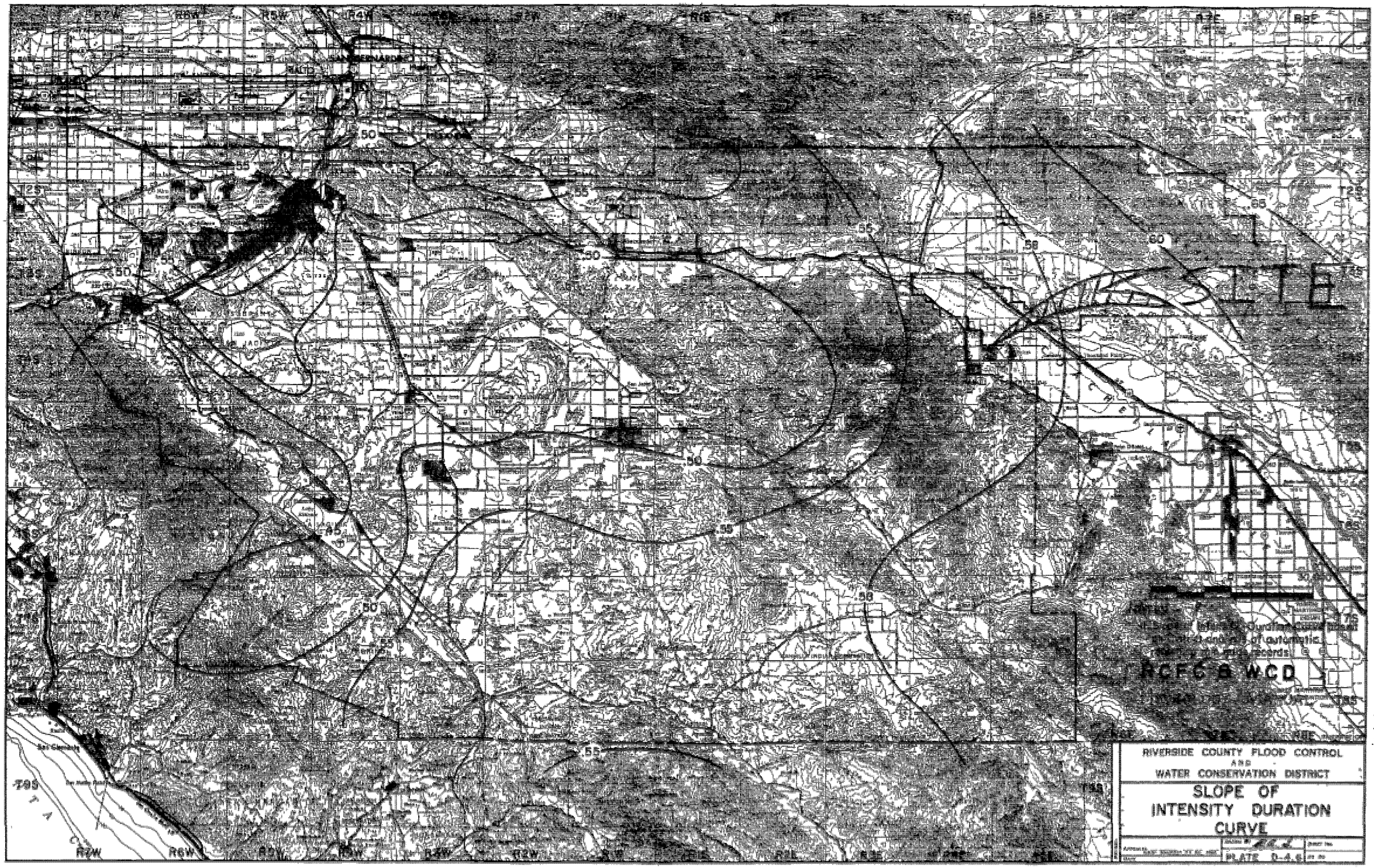
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer


RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
SLOPE OF
INTENSITY DURATION
CURVE
PLATE D-4.6

SECTION 5.1

HYDROLOGY STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**2-YEAR**
DURATION:	**1-HOUR**
ISOHYETAL:	**0.50 IN**
SOIL GROUP:	**A**
DEVELOPMENT:	**COMMERCIAL**

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804EH2YA.out

********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

Storm event (year) = 2.00 Antecedent Moisture Condition = 1

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.498(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 0.100 to Point/Station 0.200
**** INITIAL AREA EVALUATION **** EX - A

Initial area flow distance = 538.000(Ft.)
Top (of initial area) elevation = 450.300(Ft.)
Bottom (of initial area) elevation = 444.000(Ft.)
Difference in elevation = 6.300(Ft.)
Slope = 0.01171 s(percent)= 1.17
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.031 min.
Rainfall intensity = 1.494(In/Hr) for a 2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.826
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 1) = 16.20
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.222(CFS)
Total initial stream area = 0.180(Ac.)
Pervious area fraction = 0.100
End of computations, total study area = 0.18 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number = 32.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804EH2YBCD.out

********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

Storm event (year) = 2.00 Antecedent Moisture Condition = 1

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.498(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 0.100 to Point/Station 0.300
**** INITIAL AREA EVALUATION **** EX - B

Initial area flow distance = 651.000(Ft.)
Top (of initial area) elevation = 450.300(Ft.)
Bottom (of initial area) elevation = 445.100(Ft.)
Difference in elevation = 5.200(Ft.)
Slope = 0.00799 s(percent)= 0.80
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.521 min.
Rainfall intensity = 1.367(In/Hr) for a 2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.825
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 1) = 16.20
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 5.255(CFS)
Total initial stream area = 4.660(Ac.)
Pervious area fraction = 0.100

++

Process from Point/Station 0.300 to Point/Station 0.400
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 442.100(Ft.)
Downstream point/station elevation = 438.300(Ft.)
Pipe length = 97.00(Ft.) Manning's N = 0.011
No. of pipes = 1 Required pipe flow = 5.255(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 5.255(CFS)

```
Normal flow depth in pipe =    6.91(In.)
Flow top width inside pipe =   11.86(In.)
Critical Depth =   11.15(In.)
Pipe flow velocity =     11.22(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =    10.67 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.400 to Point/Station        0.400
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      4.660(Ac.)
Runoff from this stream =      5.255(CFS)
Time of concentration =   10.67 min.
Rainfall intensity =     1.356(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.100 to Point/Station        0.500
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   679.000(Ft.)
Top (of initial area) elevation =   450.300(Ft.)
Bottom (of initial area) elevation =   446.300(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.00589  s(percent)=       0.59
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.372 min.
Rainfall intensity =      1.307(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.824
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.420(CFS)
Total initial stream area =        0.390(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.500 to Point/Station        0.600
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   440.300(Ft.)
Downstream point/station elevation =   439.700(Ft.)
Pipe length  =   177.00(Ft.)   Manning's N = 0.017
No. of pipes = 1  Required pipe flow  =     0.420(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.420(CFS)
Normal flow depth in pipe =    4.88(In.)
Flow top width inside pipe =    8.97(In.)
Critical Depth =    3.49(In.)
Pipe flow velocity =      1.72(Ft/s)
Travel time through pipe =    1.71 min.
Time of concentration (TC) =    13.08 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.600
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
```

EX - C

```
Stream flow area =      0.390(Ac.)
Runoff from this stream =      0.420(CFS)
Time of concentration =   13.08 min.
Rainfall intensity =     1.205(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.700 to Point/Station        0.600
**** INITIAL AREA EVALUATION ****
```

EX - D

```
------------------------------------------------------------------------------
Initial area flow distance =   172.000(Ft.)
Top (of initial area) elevation =   448.500(Ft.)
Bottom (of initial area) elevation =   445.300(Ft.)
Difference in elevation =     3.200(Ft.)
Slope =    0.01860  s(percent)=       1.86
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.217 min.
Rainfall intensity =      2.053(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.699(CFS)
Total initial stream area =        0.410(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.600
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.410(Ac.)
Runoff from this stream =      0.699(CFS)
Time of concentration =    5.22 min.
Rainfall intensity =     2.053(In/Hr)
Summary of stream data:

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


1        0.420     13.08                1.205
2        0.699      5.22                2.053
Largest stream flow has longer or shorter time of concentration
Qp =      0.699 + sum of
          Qa          Tb/Ta
           0.420 *    0.399 =      0.167
Qp =      0.867

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.420       0.699
Area of streams before confluence:
        0.390        0.410
Results of confluence:
Total flow rate =      0.867(CFS)
Time of concentration =     5.217 min.
Effective stream area after confluence =      0.800(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.400
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
```

```
Upstream point/station elevation =   439.700(Ft.)
Downstream point/station elevation =   438.300(Ft.)
Pipe length  =   128.00(Ft.)   Manning's N = 0.017
No. of pipes = 1  Required pipe flow  =     0.867(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.867(CFS)
Normal flow depth in pipe =    5.31(In.)
Flow top width inside pipe =    8.85(In.)
Critical Depth =    5.11(In.)
Pipe flow velocity =      3.19(Ft/s)
Travel time through pipe =    0.67 min.
Time of concentration (TC) =     5.88 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.400 to Point/Station        0.400
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      0.800(Ac.)
Runoff from this stream =      0.867(CFS)
Time of concentration =    5.88 min.
Rainfall intensity =     1.915(In/Hr)
Summary of stream data:

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


1        5.255     10.67                1.356
2        0.867      5.88                1.915
Largest stream flow has longer time of concentration
Qp =      5.255 + sum of
          Qb         Ia/Ib
           0.867 *    0.708 =      0.614
Qp =      5.869

Total of 2 main streams to confluence:
Flow rates before confluence point:
       5.255       0.867
Area of streams before confluence:
        4.660        0.800


Results of confluence:
Total flow rate =      5.869(CFS)
Time of concentration =    10.665 min.
Effective stream area after confluence  =      5.460(Ac.)
End of computations, total study area =            5.46 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  32.0
```

SECTION 5.2

HYDROLOGY STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**10-YEAR**
DURATION:	**1-HOUR**
ISOHYETAL:	**1.01 IN**
SOIL GROUP:	**A**
DEVELOPMENT:	**COMMERCIAL**

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804EH10YA.out

********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 1.009(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 0.100 to Point/Station 0.200
**** INITIAL AREA EVALUATION **** EX - A

Initial area flow distance = 538.000(Ft.)
Top (of initial area) elevation = 450.300(Ft.)
Bottom (of initial area) elevation = 444.000(Ft.)
Difference in elevation = 6.300(Ft.)
Slope = 0.01171 s(percent)= 1.17
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.031 min.
Rainfall intensity = 3.026(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.856
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 = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.467(CFS)
Total initial stream area = 0.180(Ac.)
Pervious area fraction = 0.100
End of computations, total study area = 0.18 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number = 32.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804EH10YBCD.out

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********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 1.009(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 0.100 to Point/Station 0.300
**** INITIAL AREA EVALUATION **** EX - B

Initial area flow distance = 651.000(Ft.)
Top (of initial area) elevation = 450.300(Ft.)
Bottom (of initial area) elevation = 445.100(Ft.)
Difference in elevation = 5.200(Ft.)
Slope = 0.00799 s(percent)= 0.80
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.521 min.
Rainfall intensity = 2.770(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.854
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 = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 11.028(CFS)
Total initial stream area = 4.660(Ac.)
Pervious area fraction = 0.100

++

Process from Point/Station 0.300 to Point/Station 0.400
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 442.100(Ft.)
Downstream point/station elevation = 438.300(Ft.)
Pipe length = 97.00(Ft.) Manning's N = 0.011
No. of pipes = 1 Required pipe flow = 11.028(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 11.028(CFS)

```
Normal flow depth in pipe =    9.52(In.)
Flow top width inside pipe =   14.45(In.)
Critical depth could not be calculated.
Pipe flow velocity =     13.44(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =    10.64 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.400 to Point/Station        0.400
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      4.660(Ac.)
Runoff from this stream =     11.028(CFS)
Time of concentration =   10.64 min.
Rainfall intensity =     2.751(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.100 to Point/Station        0.500
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   679.000(Ft.)
Top (of initial area) elevation =   450.300(Ft.)
Bottom (of initial area) elevation =   446.300(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.00589  s(percent)=       0.59
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.372 min.
Rainfall intensity =      2.647(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.853
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.881(CFS)
Total initial stream area =        0.390(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.500 to Point/Station        0.600
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   440.300(Ft.)
Downstream point/station elevation =   439.700(Ft.)
Pipe length  =   177.00(Ft.)   Manning's N = 0.017
No. of pipes = 1  Required pipe flow  =     0.881(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     0.881(CFS)
Normal flow depth in pipe =    6.39(In.)
Flow top width inside pipe =   11.98(In.)
Critical Depth =    4.72(In.)
Pipe flow velocity =      2.07(Ft/s)
Travel time through pipe =    1.42 min.
Time of concentration (TC) =    12.80 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.600
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
```

EX - C

```
Stream flow area =      0.390(Ac.)
Runoff from this stream =      0.881(CFS)
Time of concentration =   12.80 min.
Rainfall intensity =     2.472(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.700 to Point/Station        0.600
**** INITIAL AREA EVALUATION ****
```

EX - D

```
----------------------------------------------------------------------------
Initial area flow distance =   172.000(Ft.)
Top (of initial area) elevation =   448.500(Ft.)
Bottom (of initial area) elevation =   445.300(Ft.)
Difference in elevation =     3.200(Ft.)
Slope =    0.01860  s(percent)=       1.86
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.217 min.
Rainfall intensity =      4.160(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.473(CFS)
Total initial stream area =        0.410(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.600
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.410(Ac.)
Runoff from this stream =      1.473(CFS)
Time of concentration =    5.22 min.
Rainfall intensity =     4.160(In/Hr)
Summary of stream data:

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


1        0.881     12.80                2.472
2        1.473      5.22                4.160
Largest stream flow has longer or shorter time of concentration
Qp =      1.473 + sum of
          Qa          Tb/Ta
           0.881 *    0.408 =      0.359
Qp =      1.832

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.881       1.473
Area of streams before confluence:
        0.390        0.410
Results of confluence:
Total flow rate =      1.832(CFS)
Time of concentration =     5.217 min.
Effective stream area after confluence =      0.800(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.400
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
```

```
Upstream point/station elevation =   439.700(Ft.)
Downstream point/station elevation =   438.300(Ft.)
Pipe length  =   128.00(Ft.)   Manning's N = 0.017
No. of pipes = 1  Required pipe flow  =     1.832(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.832(CFS)
Normal flow depth in pipe =    7.00(In.)
Flow top width inside pipe =   11.83(In.)
Critical Depth =    6.91(In.)
Pipe flow velocity =      3.85(Ft/s)
Travel time through pipe =    0.55 min.
Time of concentration (TC) =     5.77 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.400 to Point/Station        0.400
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      0.800(Ac.)
Runoff from this stream =      1.832(CFS)
Time of concentration =    5.77 min.
Rainfall intensity =     3.924(In/Hr)
Summary of stream data:

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


1       11.028     10.64                 2.751
2        1.832      5.77                 3.924
Largest stream flow has longer time of concentration
Qp =     11.028 + sum of
          Qb         Ia/Ib
           1.832 *    0.701 =      1.285
Qp =     12.313

Total of 2 main streams to confluence:
Flow rates before confluence point:
      11.028       1.832
Area of streams before confluence:
        4.660        0.800


Results of confluence:
Total flow rate =     12.313(CFS)
Time of concentration =    10.642 min.
Effective stream area after confluence  =      5.460(Ac.)
End of computations, total study area =            5.46 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  32.0
```

SECTION 5.3

HYDROLOGY STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**100-YEAR**
DURATION:	**1-HOUR**
ISOHYETAL:	**1.74 IN**
SOIL GROUP:	**A**
DEVELOPMENT:	**COMMERCIAL**

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804EH100YA.out

********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.740(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 0.100 to Point/Station 0.200

**** INITIAL AREA EVALUATION **** EX - A

Initial area flow distance = 538.000(Ft.)
Top (of initial area) elevation = 450.300(Ft.)
Bottom (of initial area) elevation = 444.000(Ft.)
Difference in elevation = 6.300(Ft.)
Slope = 0.01171 s(percent)= 1.17
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.031 min.
Rainfall intensity = 5.219(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.883
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 3) = 52.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.829(CFS)
Total initial stream area = 0.180(Ac.)
Pervious area fraction = 0.100
End of computations, total study area = 0.18 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number = 32.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804EH100YBCD.out

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********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.740(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 0.100 to Point/Station 0.300
**** INITIAL AREA EVALUATION **** EX - B

Initial area flow distance = 651.000(Ft.)
Top (of initial area) elevation = 450.300(Ft.)
Bottom (of initial area) elevation = 445.100(Ft.)
Difference in elevation = 5.200(Ft.)
Slope = 0.00799 s(percent)= 0.80
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.521 min.
Rainfall intensity = 4.776(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.882
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 3) = 52.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 19.621(CFS)
Total initial stream area = 4.660(Ac.)
Pervious area fraction = 0.100

++

Process from Point/Station 0.300 to Point/Station 0.400
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 442.100(Ft.)
Downstream point/station elevation = 438.300(Ft.)
Pipe length = 97.00(Ft.) Manning's N = 0.011
No. of pipes = 1 Required pipe flow = 19.621(CFS)
Nearest computed pipe diameter = 18.00(In.)
Calculated individual pipe flow = 19.621(CFS)

```
Normal flow depth in pipe =   12.16(In.)
Flow top width inside pipe =   16.85(In.)
Critical depth could not be calculated.
Pipe flow velocity =     15.44(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =    10.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.400 to Point/Station        0.400
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      4.660(Ac.)
Runoff from this stream =     19.621(CFS)
Time of concentration =   10.63 min.
Rainfall intensity =     4.749(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.100 to Point/Station        0.500
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   679.000(Ft.)
Top (of initial area) elevation =   450.300(Ft.)
Bottom (of initial area) elevation =   446.300(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.00589  s(percent)=       0.59
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.372 min.
Rainfall intensity =      4.566(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.881
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.568(CFS)
Total initial stream area =        0.390(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.500 to Point/Station        0.600
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   440.300(Ft.)
Downstream point/station elevation =   439.700(Ft.)
Pipe length  =   177.00(Ft.)   Manning's N = 0.017
No. of pipes = 1  Required pipe flow  =     1.568(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.568(CFS)
Normal flow depth in pipe =    9.71(In.)
Flow top width inside pipe =    9.42(In.)
Critical Depth =    6.38(In.)
Pipe flow velocity =      2.30(Ft/s)
Travel time through pipe =    1.28 min.
Time of concentration (TC) =    12.65 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.600
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
```

EX - C

```
Stream flow area =      0.390(Ac.)
Runoff from this stream =      1.568(CFS)
Time of concentration =   12.65 min.
Rainfall intensity =     4.291(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.700 to Point/Station        0.600
**** INITIAL AREA EVALUATION ****
```

EX - D

```
------------------------------------------------------------------------------
Initial area flow distance =   172.000(Ft.)
Top (of initial area) elevation =   448.500(Ft.)
Bottom (of initial area) elevation =   445.300(Ft.)
Difference in elevation =     3.200(Ft.)
Slope =    0.01860  s(percent)=       1.86
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.217 min.
Rainfall intensity =      7.174(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.609(CFS)
Total initial stream area =        0.410(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.600
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.410(Ac.)
Runoff from this stream =      2.609(CFS)
Time of concentration =    5.22 min.
Rainfall intensity =     7.174(In/Hr)
Summary of stream data:

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


1        1.568     12.65                4.291
2        2.609      5.22                7.174
Largest stream flow has longer or shorter time of concentration
Qp =      2.609 + sum of
          Qa          Tb/Ta
           1.568 *    0.412 =      0.647
Qp =      3.255

Total of 2 streams to confluence:
Flow rates before confluence point:
       1.568       2.609
Area of streams before confluence:
        0.390        0.410
Results of confluence:
Total flow rate =      3.255(CFS)
Time of concentration =     5.217 min.
Effective stream area after confluence =      0.800(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.600 to Point/Station        0.400
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
```

```
Upstream point/station elevation =   439.700(Ft.)
Downstream point/station elevation =   438.300(Ft.)
Pipe length  =   128.00(Ft.)   Manning's N = 0.017
No. of pipes = 1  Required pipe flow  =     3.255(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     3.255(CFS)
Normal flow depth in pipe =    8.64(In.)
Flow top width inside pipe =   14.83(In.)
Critical Depth =    8.73(In.)
Pipe flow velocity =      4.45(Ft/s)
Travel time through pipe =    0.48 min.
Time of concentration (TC) =     5.70 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.400 to Point/Station        0.400
**** CONFLUENCE OF MAIN STREAMS ****
_____________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      0.800(Ac.)
Runoff from this stream =      3.255(CFS)
Time of concentration =    5.70 min.
Rainfall intensity =     6.818(In/Hr)
Summary of stream data:

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


1       19.621     10.63                 4.749
2        3.255      5.70                 6.818
Largest stream flow has longer time of concentration
Qp =     19.621 + sum of
          Qb         Ia/Ib
           3.255 *    0.697 =      2.267
Qp =     21.888

Total of 2 main streams to confluence:
Flow rates before confluence point:
      19.621       3.255
Area of streams before confluence:
        4.660        0.800


Results of confluence:
Total flow rate =     21.888(CFS)
Time of concentration =    10.626 min.
Effective stream area after confluence  =      5.460(Ac.)
End of computations, total study area =            5.46 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  32.0
```

SECTION 5.4

HYDROLOGY STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**2-YEAR**
DURATION:	**1-HOUR**
ISOHYETAL:	**0.50 IN**
SOIL GROUP:	**A**
DEVELOPMENT:	**COMMERCIAL**

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804PH2Y.out

********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

Storm event (year) = 2.00 Antecedent Moisture Condition = 1

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.498(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION **** A - 1

Initial area flow distance = 65.000(Ft.)
Top (of initial area) elevation = 449.800(Ft.)
Bottom (of initial area) elevation = 448.500(Ft.)
Difference in elevation = 1.300(Ft.)
Slope = 0.02000 s(percent)= 2.00
TC = k(0.300)*[(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 = 2.105(In/Hr) for a 2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1) = 16.20
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.280(CFS)
Total initial stream area = 0.160(Ac.)
Pervious area fraction = 0.100

++

Process from Point/Station 2.000 to Point/Station 3.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 445.500(Ft.)
Downstream point/station elevation = 445.100(Ft.)
Pipe length = 71.00(Ft.) Manning's N = 0.011
No. of pipes = 1 Required pipe flow = 0.280(CFS)

```
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.280(CFS)
Normal flow depth in pipe =    3.22(In.)
Flow top width inside pipe =    5.98(In.)
Critical Depth =    3.20(In.)
Pipe flow velocity =      2.61(Ft/s)
Travel time through pipe =    0.45 min.
Time of concentration (TC) =     5.45 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      0.160(Ac.)
Runoff from this stream =      0.280(CFS)
Time of concentration =    5.45 min.
Rainfall intensity =     2.001(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.100 to Point/Station        3.200
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   142.000(Ft.)
Top (of initial area) elevation =   452.300(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.800(Ft.)
Slope =    0.01972  s(percent)=       1.97
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.385(CFS)
Total initial stream area =        0.220(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.200 to Point/Station        3.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   445.100(Ft.)
Pipe length  =    46.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.385(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.385(CFS)
Normal flow depth in pipe =    2.38(In.)
Flow top width inside pipe =    5.87(In.)
Critical Depth =    3.78(In.)
Pipe flow velocity =      5.30(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =     5.14 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
```

A - 2

```
_____________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.220(Ac.)
Runoff from this stream =      0.385(CFS)
Time of concentration =    5.14 min.
Rainfall intensity =     2.070(In/Hr)
Summary of stream data:

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


1        0.280      5.45                2.001
2        0.385      5.14                2.070
Largest stream flow has longer or shorter time of concentration
Qp =      0.385 + sum of
          Qa          Tb/Ta
           0.280 *    0.943 =      0.264
Qp =      0.649

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.280       0.385
Area of streams before confluence:
        0.160        0.220
Results of confluence:
Total flow rate =      0.649(CFS)
Time of concentration =     5.145 min.
Effective stream area after confluence =      0.380(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
_____________________________________________________________________
Upstream point/station elevation =   445.100(Ft.)
Downstream point/station elevation =   444.500(Ft.)
Pipe length  =   113.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.649(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.649(CFS)
Normal flow depth in pipe =    4.26(In.)
Flow top width inside pipe =    8.99(In.)
Critical Depth =    4.39(In.)
Pipe flow velocity =      3.15(Ft/s)
Travel time through pipe =    0.60 min.
Time of concentration (TC) =     5.74 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
_____________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      0.380(Ac.)
Runoff from this stream =      0.649(CFS)
Time of concentration =    5.74 min.
Rainfall intensity =     1.942(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.100 to Point/Station        4.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________
Initial area flow distance =   142.000(Ft.)
Top (of initial area) elevation =   449.400(Ft.)
Bottom (of initial area) elevation =   447.400(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.01408  s(percent)=       1.41
```

```
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.108 min.
Rainfall intensity =      2.078(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.863(CFS)
Total initial stream area =        0.500(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.500(Ac.)
Runoff from this stream =      0.863(CFS)
Time of concentration =    5.11 min.
Rainfall intensity =     2.078(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.200 to Point/Station        4.300
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    94.000(Ft.)
Top (of initial area) elevation =   449.600(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02021  s(percent)=       2.02
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.595(CFS)
Total initial stream area =        0.340(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.300 to Point/Station        4.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   444.500(Ft.)
Pipe length  =   120.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.595(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.595(CFS)
Normal flow depth in pipe =    4.44(In.)
Flow top width inside pipe =    5.26(In.)
Critical Depth =    4.71(In.)
Pipe flow velocity =      3.82(Ft/s)
Travel time through pipe =    0.52 min.
```

```
Time of concentration (TC) =     5.52 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      0.340(Ac.)
Runoff from this stream =      0.595(CFS)
Time of concentration =    5.52 min.
Rainfall intensity =     1.986(In/Hr)
Summary of stream data:

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


1        0.649      5.74                1.942
2        0.863      5.11                2.078
3        0.595      5.52                1.986
Largest stream flow has longer or shorter time of concentration
Qp =      0.863 + sum of
          Qa          Tb/Ta
           0.649 *    0.890 =      0.577
          Qa          Tb/Ta
           0.595 *    0.925 =      0.550
Qp =      1.991

Total of 3 streams to confluence:
Flow rates before confluence point:
       0.649       0.863       0.595
Area of streams before confluence:
        0.380        0.500        0.340
Results of confluence:
Total flow rate =      1.991(CFS)
Time of concentration =     5.108 min.
Effective stream area after confluence =      1.220(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   444.500(Ft.)
Downstream point/station elevation =   444.400(Ft.)
Pipe length  =    13.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.991(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.991(CFS)
Normal flow depth in pipe =    6.28(In.)
Flow top width inside pipe =   11.99(In.)
Critical Depth =    7.23(In.)
Pipe flow velocity =      4.79(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =     5.15 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        5.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      1.220(Ac.)
Runoff from this stream =      1.991(CFS)
Time of concentration =    5.15 min.
Rainfall intensity =     2.068(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.100 to Point/Station        5.200
**** INITIAL AREA EVALUATION ****
```



```
------------------------------------------------------------------------------
Initial area flow distance =   131.000(Ft.)
Top (of initial area) elevation =   448.400(Ft.)
Bottom (of initial area) elevation =   447.500(Ft.)
Difference in elevation =     0.900(Ft.)
Slope =    0.00687  s(percent)=       0.69
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.710 min.
Rainfall intensity =      1.949(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.830
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.550(CFS)
Total initial stream area =        0.340(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.200 to Point/Station        5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   445.500(Ft.)
Downstream point/station elevation =   444.400(Ft.)
Pipe length  =   158.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.550(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.550(CFS)
Normal flow depth in pipe =    4.88(In.)
Flow top width inside pipe =    4.68(In.)
Critical Depth =    4.53(In.)
Pipe flow velocity =      3.21(Ft/s)
Travel time through pipe =    0.82 min.
Time of concentration (TC) =     6.53 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        5.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.340(Ac.)
Runoff from this stream =      0.550(CFS)
Time of concentration =    6.53 min.
Rainfall intensity =     1.803(In/Hr)
Summary of stream data:

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


1        1.991      5.15                2.068
2        0.550      6.53                1.803
Largest stream flow has longer or shorter time of concentration
Qp =      1.991 + sum of
          Qa          Tb/Ta
           0.550 *    0.789 =      0.434
Qp =      2.424

Total of 2 streams to confluence:
Flow rates before confluence point:
       1.991       0.550
```

```
Area of streams before confluence:
        1.220        0.340
Results of confluence:
Total flow rate =      2.424(CFS)
Time of concentration =     5.154 min.
Effective stream area after confluence =      1.560(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        6.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   444.400(Ft.)
Downstream point/station elevation =   444.200(Ft.)
Pipe length  =    12.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.424(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     2.424(CFS)
Normal flow depth in pipe =    7.08(In.)
Flow top width inside pipe =    7.38(In.)
Critical Depth =    8.24(In.)
Pipe flow velocity =      6.51(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     5.18 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        7.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   444.200(Ft.)
Downstream point/station elevation =   442.600(Ft.)
Pipe length  =   324.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.424(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.424(CFS)
Normal flow depth in pipe =    8.26(In.)
Flow top width inside pipe =   11.11(In.)
Critical Depth =    8.00(In.)
Pipe flow velocity =      4.20(Ft/s)
Travel time through pipe =    1.28 min.
Time of concentration (TC) =     6.47 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        7.000
**** CONFLUENCE OF MAIN STREAMS ****
----------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      1.560(Ac.)
Runoff from this stream =      2.424(CFS)
Time of concentration =    6.47 min.
Rainfall intensity =     1.812(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        8.000 to Point/Station        9.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
Initial area flow distance =   128.000(Ft.)
Top (of initial area) elevation =   452.100(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.600(Ft.)
Slope =    0.02031  s(percent)=       2.03
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.402(CFS)
Total initial stream area =        0.230(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station        9.000 to Point/Station       10.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   446.000(Ft.)
Pipe length  =    42.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.402(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.402(CFS)
Normal flow depth in pipe =    3.20(In.)
Flow top width inside pipe =    5.99(In.)
Critical Depth =    3.87(In.)
Pipe flow velocity =      3.78(Ft/s)
Travel time through pipe =    0.19 min.
Time of concentration (TC) =     5.19 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.230(Ac.)
Runoff from this stream =      0.402(CFS)
Time of concentration =    5.19 min.
Rainfall intensity =     2.061(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.100 to Point/Station       10.200
**** INITIAL AREA EVALUATION ****
```



```
______________________________________________________________________________
Initial area flow distance =   186.000(Ft.)
Top (of initial area) elevation =   452.900(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.700(Ft.)
Slope =    0.01989  s(percent)=       1.99
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.311 min.
Rainfall intensity =      2.032(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.830
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.439(CFS)
Total initial stream area =        0.260(Ac.)
Pervious area fraction = 0.100
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.200 to Point/Station       10.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   446.000(Ft.)
Pipe length  =    35.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.439(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.439(CFS)
Normal flow depth in pipe =    4.35(In.)
Flow top width inside pipe =    5.36(In.)
Critical Depth =    4.05(In.)
Pipe flow velocity =      2.88(Ft/s)
Travel time through pipe =    0.20 min.
Time of concentration (TC) =     5.51 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.260(Ac.)
Runoff from this stream =      0.439(CFS)
Time of concentration =    5.51 min.
Rainfall intensity =     1.988(In/Hr)
Summary of stream data:

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


1        0.402      5.19                2.061
2        0.439      5.51                1.988
Largest stream flow has longer time of concentration
Qp =      0.439 + sum of
          Qb         Ia/Ib
           0.402 *    0.965 =      0.388
Qp =      0.827

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.402       0.439
Area of streams before confluence:
        0.230        0.260
Results of confluence:
Total flow rate =      0.827(CFS)
Time of concentration =     5.514 min.
Effective stream area after confluence =      0.490(Ac.)


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Process from Point/Station       10.000 to Point/Station       11.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.000(Ft.)
Downstream point/station elevation =   445.700(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.827(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.827(CFS)
Normal flow depth in pipe =    4.88(In.)
Flow top width inside pipe =    8.97(In.)
Critical Depth =    4.99(In.)
Pipe flow velocity =      3.38(Ft/s)
Travel time through pipe =    0.27 min.
Time of concentration (TC) =     5.79 min.
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.490(Ac.)
Runoff from this stream =      0.827(CFS)
Time of concentration =    5.79 min.
Rainfall intensity =     1.934(In/Hr)


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Process from Point/Station       11.100 to Point/Station       11.200
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
Initial area flow distance =   182.000(Ft.)
Top (of initial area) elevation =   452.800(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.600(Ft.)
Slope =    0.01978  s(percent)=       1.98
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.271 min.
Rainfall intensity =      2.041(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.509(CFS)
Total initial stream area =        0.300(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       11.200 to Point/Station       11.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.700(Ft.)
Pipe length  =    35.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.509(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.509(CFS)
Normal flow depth in pipe =    3.49(In.)
Flow top width inside pipe =    5.92(In.)
Critical Depth =    4.36(In.)
Pipe flow velocity =      4.28(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =     5.41 min.


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Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.300(Ac.)
Runoff from this stream =      0.509(CFS)
Time of concentration =    5.41 min.
Rainfall intensity =     2.011(In/Hr)


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Process from Point/Station       11.300 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
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```
Initial area flow distance =   124.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   448.300(Ft.)
Difference in elevation =     0.700(Ft.)
Slope =    0.00565  s(percent)=       0.56
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.810 min.
Rainfall intensity =      1.929(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.830
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.576(CFS)
Total initial stream area =        0.360(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 3
Stream flow area =      0.360(Ac.)
Runoff from this stream =      0.576(CFS)
Time of concentration =    5.81 min.
Rainfall intensity =     1.929(In/Hr)
Summary of stream data:

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


1        0.827      5.79                1.934
2        0.509      5.41                2.011
3        0.576      5.81                1.929
Largest stream flow has longer or shorter time of concentration
Qp =      0.827 + sum of
          Qb         Ia/Ib
           0.509 *    0.962 =      0.489
          Qa          Tb/Ta
           0.576 *    0.996 =      0.574
Qp =      1.890

Total of 3 streams to confluence:
Flow rates before confluence point:
       0.827       0.509       0.576
Area of streams before confluence:
        0.490        0.300        0.360
Results of confluence:
Total flow rate =      1.890(CFS)
Time of concentration =     5.785 min.
Effective stream area after confluence =      1.150(Ac.)


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Process from Point/Station       11.000 to Point/Station       12.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   445.400(Ft.)
Pipe length  =    25.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.890(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.890(CFS)
```

```
Normal flow depth in pipe =    6.56(In.)
Flow top width inside pipe =    8.00(In.)
Critical Depth =    7.53(In.)
Pipe flow velocity =      5.47(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     5.86 min.


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Process from Point/Station       12.000 to Point/Station       12.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.150(Ac.)
Runoff from this stream =      1.890(CFS)
Time of concentration =    5.86 min.
Rainfall intensity =     1.919(In/Hr)


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Process from Point/Station       12.100 to Point/Station       12.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    94.000(Ft.)
Top (of initial area) elevation =   449.600(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02021  s(percent)=       2.02
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.490(CFS)
Total initial stream area =        0.280(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       12.200 to Point/Station       12.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   445.400(Ft.)
Pipe length  =    68.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.490(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.490(CFS)
Normal flow depth in pipe =    3.83(In.)
Flow top width inside pipe =    8.90(In.)
Critical Depth =    3.79(In.)
Pipe flow velocity =      2.73(Ft/s)
Travel time through pipe =    0.41 min.
Time of concentration (TC) =     5.41 min.


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Process from Point/Station       12.000 to Point/Station       12.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
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```
Stream flow area =      0.280(Ac.)
Runoff from this stream =      0.490(CFS)
Time of concentration =    5.41 min.
Rainfall intensity =     2.010(In/Hr)
Summary of stream data:

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


1        1.890      5.86                1.919
2        0.490      5.41                2.010
Largest stream flow has longer time of concentration
Qp =      1.890 + sum of
          Qb         Ia/Ib
           0.490 *    0.955 =      0.468
Qp =      2.357

Total of 2 streams to confluence:
Flow rates before confluence point:
       1.890       0.490
Area of streams before confluence:
        1.150        0.280
Results of confluence:
Total flow rate =      2.357(CFS)
Time of concentration =     5.861 min.
Effective stream area after confluence =      1.430(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
____________________________________________________________________________
Upstream point/station elevation =   445.400(Ft.)
Downstream point/station elevation =   445.300(Ft.)
Pipe length  =    21.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.357(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.357(CFS)
Normal flow depth in pipe =    8.20(In.)
Flow top width inside pipe =   11.16(In.)
Critical Depth =    7.88(In.)
Pipe flow velocity =      4.12(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     5.95 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       13.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.430(Ac.)
Runoff from this stream =      2.357(CFS)
Time of concentration =    5.95 min.
Rainfall intensity =     1.903(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.100 to Point/Station       13.200
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
Initial area flow distance =   196.000(Ft.)
Top (of initial area) elevation =   453.100(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.900(Ft.)
Slope =    0.01990  s(percent)=       1.99
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.423 min.
```

```
Rainfall intensity =      2.008(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.830
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.467(CFS)
Total initial stream area =        0.280(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       13.200 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.300(Ft.)
Pipe length  =    77.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.467(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.467(CFS)
Normal flow depth in pipe =    3.53(In.)
Flow top width inside pipe =    5.91(In.)
Critical Depth =    4.18(In.)
Pipe flow velocity =      3.89(Ft/s)
Travel time through pipe =    0.33 min.
Time of concentration (TC) =     5.75 min.


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Process from Point/Station       13.000 to Point/Station       13.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.280(Ac.)
Runoff from this stream =      0.467(CFS)
Time of concentration =    5.75 min.
Rainfall intensity =     1.940(In/Hr)
Summary of stream data:

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


1        2.357      5.95                1.903
2        0.467      5.75                1.940
Largest stream flow has longer time of concentration
Qp =      2.357 + sum of
          Qb         Ia/Ib
           0.467 *    0.981 =      0.458
Qp =      2.815

Total of 2 streams to confluence:
Flow rates before confluence point:
       2.357       0.467
Area of streams before confluence:
        1.430        0.280
Results of confluence:
Total flow rate =      2.815(CFS)
Time of concentration =     5.946 min.
Effective stream area after confluence =      1.710(Ac.)


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Process from Point/Station       13.000 to Point/Station       14.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
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```
Upstream point/station elevation =   445.300(Ft.)
Downstream point/station elevation =   445.200(Ft.)
Pipe length  =     6.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.815(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.815(CFS)
Normal flow depth in pipe =    6.13(In.)
Flow top width inside pipe =   12.00(In.)
Critical Depth =    8.63(In.)
Pipe flow velocity =      6.98(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =     5.96 min.


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Process from Point/Station       14.000 to Point/Station        7.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   445.200(Ft.)
Downstream point/station elevation =   442.600(Ft.)
Pipe length  =    59.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.815(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     2.815(CFS)
Normal flow depth in pipe =    5.47(In.)
Flow top width inside pipe =    8.79(In.)
Critical Depth =    8.54(In.)
Pipe flow velocity =     10.01(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     6.06 min.


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Process from Point/Station        7.000 to Point/Station        7.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      1.710(Ac.)
Runoff from this stream =      2.815(CFS)
Time of concentration =    6.06 min.
Rainfall intensity =     1.883(In/Hr)
Summary of stream data:

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


1        2.424      6.47                1.812
2        2.815      6.06                1.883
Largest stream flow has longer or shorter time of concentration
Qp =      2.815 + sum of
          Qa          Tb/Ta
           2.424 *    0.937 =      2.271
Qp =      5.086

Total of 2 main streams to confluence:
Flow rates before confluence point:
       2.424       2.815
Area of streams before confluence:
        1.560        1.710


Results of confluence:
Total flow rate =      5.086(CFS)
Time of concentration =     6.059 min.
Effective stream area after confluence  =      3.270(Ac.)
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Process from Point/Station        7.000 to Point/Station       15.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   442.600(Ft.)
Downstream point/station elevation =   441.300(Ft.)
Pipe length  =   258.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.086(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.086(CFS)
Normal flow depth in pipe =   11.53(In.)
Flow top width inside pipe =   12.65(In.)
Critical Depth =   10.98(In.)
Pipe flow velocity =      5.02(Ft/s)
Travel time through pipe =    0.86 min.
Time of concentration (TC) =     6.92 min.


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Process from Point/Station       15.000 to Point/Station       15.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.270(Ac.)
Runoff from this stream =      5.086(CFS)
Time of concentration =    6.92 min.
Rainfall intensity =     1.744(In/Hr)


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Process from Point/Station       15.100 to Point/Station       15.200
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   350.000(Ft.)
Top (of initial area) elevation =   447.800(Ft.)
Bottom (of initial area) elevation =   445.000(Ft.)
Difference in elevation =     2.800(Ft.)
Slope =    0.00800  s(percent)=       0.80
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.206 min.
Rainfall intensity =      1.579(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.827
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.483(CFS)
Total initial stream area =        0.370(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       15.200 to Point/Station       15.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   443.000(Ft.)
Downstream point/station elevation =   441.300(Ft.)
Pipe length  =    11.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.483(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.483(CFS)
Normal flow depth in pipe =    1.75(In.)
Flow top width inside pipe =    5.46(In.)
Critical Depth =    4.25(In.)
Pipe flow velocity =     10.15(Ft/s)
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Travel time through pipe =    0.02 min.
Time of concentration (TC) =     8.22 min.


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Process from Point/Station       15.000 to Point/Station       15.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.370(Ac.)
Runoff from this stream =      0.483(CFS)
Time of concentration =    8.22 min.
Rainfall intensity =     1.577(In/Hr)
Summary of stream data:

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


1        5.086      6.92                1.744
2        0.483      8.22                1.577
Largest stream flow has longer or shorter time of concentration
Qp =      5.086 + sum of
          Qa          Tb/Ta
           0.483 *    0.841 =      0.406
Qp =      5.492

Total of 2 streams to confluence:
Flow rates before confluence point:
       5.086       0.483
Area of streams before confluence:
        3.270        0.370
Results of confluence:
Total flow rate =      5.492(CFS)
Time of concentration =     6.915 min.
Effective stream area after confluence =      3.640(Ac.)


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Process from Point/Station       15.000 to Point/Station       16.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   441.300(Ft.)
Downstream point/station elevation =   441.000(Ft.)
Pipe length  =    56.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.492(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.492(CFS)
Normal flow depth in pipe =   12.07(In.)
Flow top width inside pipe =   11.89(In.)
Critical Depth =   11.40(In.)
Pipe flow velocity =      5.19(Ft/s)
Travel time through pipe =    0.18 min.
Time of concentration (TC) =     7.10 min.


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Process from Point/Station       16.000 to Point/Station       16.000
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      3.640(Ac.)
Runoff from this stream =      5.492(CFS)
Time of concentration =    7.10 min.
Rainfall intensity =     1.718(In/Hr)
Program is now starting with Main Stream No. 2
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       17.000 to Point/Station       18.000
**** INITIAL AREA EVALUATION **** C - 1
------------------------------------------------------------------------------
Initial area flow distance =    77.000(Ft.)
Top (of initial area) elevation =   451.000(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.500(Ft.)
Slope =    0.01948  s(percent)=       1.95
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.192(CFS)
Total initial stream area =        0.110(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       18.000 to Point/Station       19.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   446.200(Ft.)
Pipe length  =    34.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.192(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.192(CFS)
Normal flow depth in pipe =    2.29(In.)
Flow top width inside pipe =    5.83(In.)
Critical Depth =    2.63(In.)
Pipe flow velocity =      2.80(Ft/s)
Travel time through pipe =    0.20 min.
Time of concentration (TC) =     5.20 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.000 to Point/Station       19.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.110(Ac.)
Runoff from this stream =      0.192(CFS)
Time of concentration =    5.20 min.
Rainfall intensity =     2.057(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.100 to Point/Station       19.000
**** INITIAL AREA EVALUATION **** C - 2
------------------------------------------------------------------------------
Initial area flow distance =    63.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.300(Ft.)
Slope =    0.02063  s(percent)=       2.06
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.770(CFS)
Total initial stream area =        0.440(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.000 to Point/Station       19.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.440(Ac.)
Runoff from this stream =      0.770(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     2.105(In/Hr)
Summary of stream data:

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


1        0.192      5.20                2.057
2        0.770      5.00                2.105
Largest stream flow has longer or shorter time of concentration
Qp =      0.770 + sum of
          Qa          Tb/Ta
           0.192 *    0.961 =      0.185
Qp =      0.954

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.192       0.770
Area of streams before confluence:
        0.110        0.440
Results of confluence:
Total flow rate =      0.954(CFS)
Time of concentration =     5.000 min.
Effective stream area after confluence =      0.550(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.000 to Point/Station       20.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.600(Ft.)
Pipe length  =   118.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.954(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.954(CFS)
Normal flow depth in pipe =    5.47(In.)
Flow top width inside pipe =    8.79(In.)
Critical Depth =    5.37(In.)
Pipe flow velocity =      3.40(Ft/s)
Travel time through pipe =    0.58 min.
Time of concentration (TC) =     5.58 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.000 to Point/Station       20.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.550(Ac.)
Runoff from this stream =      0.954(CFS)
Time of concentration =    5.58 min.
Rainfall intensity =     1.975(In/Hr)


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Process from Point/Station       20.100 to Point/Station       20.200
**** INITIAL AREA EVALUATION ****
```

C - 3

```
Initial area flow distance =   102.000(Ft.)
Top (of initial area) elevation =   451.500(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.01961  s(percent)=       1.96
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.262(CFS)
Total initial stream area =        0.150(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.200 to Point/Station       20.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   445.600(Ft.)
Pipe length  =    37.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.262(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.262(CFS)
Normal flow depth in pipe =    2.06(In.)
Flow top width inside pipe =    5.70(In.)
Critical Depth =    3.10(In.)
Pipe flow velocity =      4.40(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =     5.14 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.000 to Point/Station       20.000
**** CONFLUENCE OF MINOR STREAMS ****
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.150(Ac.)
Runoff from this stream =      0.262(CFS)
Time of concentration =    5.14 min.
Rainfall intensity =     2.071(In/Hr)
Summary of stream data:

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


1        0.954      5.58                1.975
```

```
2        0.262      5.14                 2.071
Largest stream flow has longer time of concentration
Qp =      0.954 + sum of
          Qb         Ia/Ib
           0.262 *    0.954 =      0.250
Qp =      1.205

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.954       0.262
Area of streams before confluence:
        0.550        0.150
Results of confluence:
Total flow rate =      1.205(CFS)
Time of concentration =     5.579 min.
Effective stream area after confluence =      0.700(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.000 to Point/Station       21.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.600(Ft.)
Downstream point/station elevation =   445.100(Ft.)
Pipe length  =    94.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.205(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.205(CFS)
Normal flow depth in pipe =    6.34(In.)
Flow top width inside pipe =    8.21(In.)
Critical Depth =    6.06(In.)
Pipe flow velocity =      3.62(Ft/s)
Travel time through pipe =    0.43 min.
Time of concentration (TC) =     6.01 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       21.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.700(Ac.)
Runoff from this stream =      1.205(CFS)
Time of concentration =    6.01 min.
Rainfall intensity =     1.891(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.100 to Point/Station       21.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    89.000(Ft.)
Top (of initial area) elevation =   449.500(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.800(Ft.)
Slope =    0.02022  s(percent)=       2.02
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
```

```
Initial subarea runoff =      0.315(CFS)
Total initial stream area =        0.180(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       21.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.180(Ac.)
Runoff from this stream =      0.315(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     2.105(In/Hr)
Summary of stream data:

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


1        1.205      6.01                1.891
2        0.315      5.00                2.105
Largest stream flow has longer time of concentration
Qp =      1.205 + sum of
          Qb         Ia/Ib
           0.315 *    0.899 =      0.283
Qp =      1.488

Total of 2 streams to confluence:
Flow rates before confluence point:
       1.205       0.315
Area of streams before confluence:
        0.700        0.180
Results of confluence:
Total flow rate =      1.488(CFS)
Time of concentration =     6.012 min.
Effective stream area after confluence =      0.880(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       22.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.100(Ft.)
Downstream point/station elevation =   444.600(Ft.)
Pipe length  =    99.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.488(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.488(CFS)
Normal flow depth in pipe =    5.98(In.)
Flow top width inside pipe =   12.00(In.)
Critical Depth =    6.20(In.)
Pipe flow velocity =      3.80(Ft/s)
Travel time through pipe =    0.43 min.
Time of concentration (TC) =     6.45 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.880(Ac.)
Runoff from this stream =      1.488(CFS)
Time of concentration =    6.45 min.
Rainfall intensity =     1.816(In/Hr)


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Process from Point/Station       22.100 to Point/Station       22.200
**** INITIAL AREA EVALUATION ****
```
C - 5
```
------------------------------------------------------------------------
Initial area flow distance =    97.000(Ft.)
Top (of initial area) elevation =   451.400(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.01959  s(percent)=       1.96
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.280(CFS)
Total initial stream area =        0.160(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.200 to Point/Station       22.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   444.600(Ft.)
Pipe length  =    46.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.280(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.280(CFS)
Normal flow depth in pipe =    1.86(In.)
Flow top width inside pipe =    5.55(In.)
Critical Depth =    3.20(In.)
Pipe flow velocity =      5.42(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =     5.14 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.160(Ac.)
Runoff from this stream =      0.280(CFS)
Time of concentration =    5.14 min.
Rainfall intensity =     2.071(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.300 to Point/Station       22.000
**** INITIAL AREA EVALUATION ****
```
C - 6
```
------------------------------------------------------------------------
Initial area flow distance =    58.000(Ft.)
Top (of initial area) elevation =   449.400(Ft.)
Bottom (of initial area) elevation =   448.000(Ft.)
Difference in elevation =     1.400(Ft.)
Slope =    0.02414  s(percent)=       2.41
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
```

```
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.402(CFS)
Total initial stream area =        0.230(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 3
Stream flow area =      0.230(Ac.)
Runoff from this stream =      0.402(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     2.105(In/Hr)
Summary of stream data:

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


1        1.488      6.45                1.816
2        0.280      5.14                2.071
3        0.402      5.00                2.105
Largest stream flow has longer time of concentration
Qp =      1.488 + sum of
          Qb         Ia/Ib
           0.280 *    0.877 =      0.245
          Qb         Ia/Ib
           0.402 *    0.863 =      0.347
Qp =      2.080

Total of 3 streams to confluence:
Flow rates before confluence point:
       1.488       0.280       0.402
Area of streams before confluence:
        0.880        0.160        0.230
Results of confluence:
Total flow rate =      2.080(CFS)
Time of concentration =     6.445 min.
Effective stream area after confluence =      1.270(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       23.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   444.600(Ft.)
Downstream point/station elevation =   444.000(Ft.)
Pipe length  =   113.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.080(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.080(CFS)
Normal flow depth in pipe =    7.24(In.)
Flow top width inside pipe =   11.74(In.)
Critical Depth =    7.40(In.)
Pipe flow velocity =      4.20(Ft/s)
Travel time through pipe =    0.45 min.
Time of concentration (TC) =     6.89 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

```
Process from Point/Station       23.000 to Point/Station       23.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.270(Ac.)
Runoff from this stream =      2.080(CFS)
Time of concentration =    6.89 min.
Rainfall intensity =     1.747(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.100 to Point/Station       23.200
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
Initial area flow distance =    79.000(Ft.)
Top (of initial area) elevation =   451.100(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.600(Ft.)
Slope =    0.02025  s(percent)=       2.03
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.245(CFS)
Total initial stream area =        0.140(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.200 to Point/Station       23.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
____________________________________________________________________________
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   444.000(Ft.)
Pipe length  =    36.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.245(CFS)
Nearest computed pipe diameter  =      3.00(In.)
Calculated individual pipe flow  =     0.245(CFS)
Normal flow depth in pipe =    2.21(In.)
Flow top width inside pipe =    2.64(In.)
Critical depth could not be calculated.
Pipe flow velocity =      6.34(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =     5.09 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station       23.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.140(Ac.)
Runoff from this stream =      0.245(CFS)
Time of concentration =    5.09 min.
Rainfall intensity =     2.082(In/Hr)
Summary of stream data:

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

C - 7

```
1        2.080      6.89                1.747
2        0.245      5.09                2.082
Largest stream flow has longer time of concentration
Qp =      2.080 + sum of
          Qb         Ia/Ib
           0.245 *    0.839 =      0.205
Qp =      2.286

Total of 2 streams to confluence:
Flow rates before confluence point:
       2.080       0.245
Area of streams before confluence:
        1.270        0.140
Results of confluence:
Total flow rate =      2.286(CFS)
Time of concentration =     6.894 min.
Effective stream area after confluence =      1.410(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station       24.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   444.000(Ft.)
Downstream point/station elevation =   443.700(Ft.)
Pipe length  =    65.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.286(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.286(CFS)
Normal flow depth in pipe =    8.11(In.)
Flow top width inside pipe =   11.23(In.)
Critical Depth =    7.76(In.)
Pipe flow velocity =      4.05(Ft/s)
Travel time through pipe =    0.27 min.
Time of concentration (TC) =     7.16 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       24.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.410(Ac.)
Runoff from this stream =      2.286(CFS)
Time of concentration =    7.16 min.
Rainfall intensity =     1.709(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.100 to Point/Station       24.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =    95.000(Ft.)
Top (of initial area) elevation =   451.400(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02000  s(percent)=       2.00
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.210(CFS)
Total initial stream area =        0.120(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.200 to Point/Station       24.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   443.700(Ft.)
Pipe length  =    28.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.210(CFS)
Nearest computed pipe diameter  =      3.00(In.)
Calculated individual pipe flow  =     0.210(CFS)
Normal flow depth in pipe =    1.74(In.)
Flow top width inside pipe =    2.96(In.)
Critical depth could not be calculated.
Pipe flow velocity =      7.13(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =     5.07 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       24.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.120(Ac.)
Runoff from this stream =      0.210(CFS)
Time of concentration =    5.07 min.
Rainfall intensity =     2.089(In/Hr)
Summary of stream data:

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


1        2.286      7.16                1.709
2        0.210      5.07                2.089
Largest stream flow has longer time of concentration
Qp =      2.286 + sum of
          Qb         Ia/Ib
           0.210 *    0.818 =      0.172
Qp =      2.457

Total of 2 streams to confluence:
Flow rates before confluence point:
       2.286       0.210
Area of streams before confluence:
        1.410        0.120
Results of confluence:
Total flow rate =      2.457(CFS)
Time of concentration =     7.162 min.
Effective stream area after confluence =      1.530(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       25.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   443.700(Ft.)
Downstream point/station elevation =   443.500(Ft.)
Pipe length  =    32.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.457(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.457(CFS)
```

```
Normal flow depth in pipe =    7.66(In.)
Flow top width inside pipe =   11.53(In.)
Critical Depth =    8.05(In.)
Pipe flow velocity =      4.64(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     7.28 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.000 to Point/Station       25.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.530(Ac.)
Runoff from this stream =      2.457(CFS)
Time of concentration =    7.28 min.
Rainfall intensity =     1.693(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.100 to Point/Station       25.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    48.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   448.000(Ft.)
Difference in elevation =     1.000(Ft.)
Slope =    0.02083  s(percent)=       2.08
TC = k(0.300)*[(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 =      2.105(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.831
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.385(CFS)
Total initial stream area =        0.220(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.000 to Point/Station       25.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.220(Ac.)
Runoff from this stream =      0.385(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     2.105(In/Hr)
Summary of stream data:

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


1        2.457      7.28                1.693
2        0.385      5.00                2.105
Largest stream flow has longer time of concentration
Qp =      2.457 + sum of
          Qb         Ia/Ib
           0.385 *    0.804 =      0.310
Qp =      2.767
```

```
Total of 2 streams to confluence:
Flow rates before confluence point:
       2.457       0.385
Area of streams before confluence:
        1.530        0.220
Results of confluence:
Total flow rate =      2.767(CFS)
Time of concentration =     7.277 min.
Effective stream area after confluence =      1.750(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.000 to Point/Station       26.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   443.500(Ft.)
Downstream point/station elevation =   443.300(Ft.)
Pipe length  =    31.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.767(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.767(CFS)
Normal flow depth in pipe =    8.25(In.)
Flow top width inside pipe =   11.12(In.)
Critical Depth =    8.56(In.)
Pipe flow velocity =      4.80(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =     7.38 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       26.000 to Point/Station       27.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   443.300(Ft.)
Downstream point/station elevation =   442.400(Ft.)
Pipe length  =   190.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.767(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.767(CFS)
Normal flow depth in pipe =    9.38(In.)
Flow top width inside pipe =    9.92(In.)
Critical Depth =    8.56(In.)
Pipe flow velocity =      4.20(Ft/s)
Travel time through pipe =    0.75 min.
Time of concentration (TC) =     8.14 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       27.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.750(Ac.)
Runoff from this stream =      2.767(CFS)
Time of concentration =    8.14 min.
Rainfall intensity =     1.587(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.100 to Point/Station       27.200
**** INITIAL AREA EVALUATION ****
```



```
________________________________________________________________________
Initial area flow distance =   178.000(Ft.)
Top (of initial area) elevation =   448.000(Ft.)
Bottom (of initial area) elevation =   445.900(Ft.)
Difference in elevation =     2.100(Ft.)
Slope =    0.01180  s(percent)=       1.18
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.793 min.
```

```
Rainfall intensity =      1.932(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.830
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 1)  =  16.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.401(CFS)
Total initial stream area =        0.250(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.200 to Point/Station       27.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   443.900(Ft.)
Downstream point/station elevation =   442.400(Ft.)
Pipe length  =    10.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.401(CFS)
Nearest computed pipe diameter  =      3.00(In.)
Calculated individual pipe flow  =     0.401(CFS)
Normal flow depth in pipe =    2.43(In.)
Flow top width inside pipe =    2.35(In.)
Critical depth could not be calculated.
Pipe flow velocity =      9.39(Ft/s)
Travel time through pipe =    0.02 min.
Time of concentration (TC) =     5.81 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       27.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.250(Ac.)
Runoff from this stream =      0.401(CFS)
Time of concentration =    5.81 min.
Rainfall intensity =     1.929(In/Hr)
Summary of stream data:

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


1        2.767      8.14                1.587
2        0.401      5.81                1.929
Largest stream flow has longer time of concentration
Qp =      2.767 + sum of
          Qb         Ia/Ib
           0.401 *    0.823 =      0.330
Qp =      3.096

Total of 2 streams to confluence:
Flow rates before confluence point:
       2.767       0.401
Area of streams before confluence:
        1.750        0.250
Results of confluence:
Total flow rate =      3.096(CFS)
Time of concentration =     8.139 min.
Effective stream area after confluence =      2.000(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       16.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
```

```
Upstream point/station elevation =   442.400(Ft.)
Downstream point/station elevation =   441.000(Ft.)
Pipe length  =    69.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     3.096(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     3.096(CFS)
Normal flow depth in pipe =    6.12(In.)
Flow top width inside pipe =   12.00(In.)
Critical Depth =    9.05(In.)
Pipe flow velocity =      7.70(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =     8.29 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       16.000 to Point/Station       16.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.000(Ac.)
Runoff from this stream =      3.096(CFS)
Time of concentration =    8.29 min.
Rainfall intensity =     1.570(In/Hr)
Summary of stream data:

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


1        5.492      7.10                1.718
2        3.096      8.29                1.570
Largest stream flow has longer or shorter time of concentration
Qp =      5.492 + sum of
          Qa          Tb/Ta
           3.096 *    0.856 =      2.651
Qp =      8.143

Total of 2 main streams to confluence:
Flow rates before confluence point:
       5.492       3.096
Area of streams before confluence:
        3.640        2.000


Results of confluence:
Total flow rate =      8.143(CFS)
Time of concentration =     7.095 min.
Effective stream area after confluence  =      5.640(Ac.)
End of computations, total study area =            5.64 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  32.0
```

SECTION 5.5

HYDROLOGY STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**10-YEAR**
DURATION:	**1-HOUR**
ISOHYETAL:	**1.01 IN**
SOIL GROUP:	**A**
DEVELOPMENT:	**COMMERCIAL**

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804PH10Y.out

********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 1.009(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION **** A - 1

Initial area flow distance = 65.000(Ft.)
Top (of initial area) elevation = 449.800(Ft.)
Bottom (of initial area) elevation = 448.500(Ft.)
Difference in elevation = 1.300(Ft.)
Slope = 0.02000 s(percent)= 2.00
TC = k(0.300)*[(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 = 4.264(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.589(CFS)
Total initial stream area = 0.160(Ac.)
Pervious area fraction = 0.100

++

Process from Point/Station 2.000 to Point/Station 3.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 445.500(Ft.)
Downstream point/station elevation = 445.100(Ft.)
Pipe length = 71.00(Ft.) Manning's N = 0.011
No. of pipes = 1 Required pipe flow = 0.589(CFS)

```
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.589(CFS)
Normal flow depth in pipe =    3.97(In.)
Flow top width inside pipe =    8.94(In.)
Critical Depth =    4.17(In.)
Pipe flow velocity =      3.14(Ft/s)
Travel time through pipe =    0.38 min.
Time of concentration (TC) =     5.38 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      0.160(Ac.)
Runoff from this stream =      0.589(CFS)
Time of concentration =    5.38 min.
Rainfall intensity =     4.088(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.100 to Point/Station        3.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   142.000(Ft.)
Top (of initial area) elevation =   452.300(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.800(Ft.)
Slope =    0.01972  s(percent)=       1.97
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.811(CFS)
Total initial stream area =        0.220(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.200 to Point/Station        3.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   445.100(Ft.)
Pipe length  =    46.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.811(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.811(CFS)
Normal flow depth in pipe =    3.70(In.)
Flow top width inside pipe =    5.83(In.)
Critical Depth =    5.35(In.)
Pipe flow velocity =      6.38(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     5.12 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
```

A - 2

```
_____________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.220(Ac.)
Runoff from this stream =      0.811(CFS)
Time of concentration =    5.12 min.
Rainfall intensity =     4.206(In/Hr)
Summary of stream data:

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


1        0.589      5.38                4.088
2        0.811      5.12                4.206
Largest stream flow has longer or shorter time of concentration
Qp =      0.811 + sum of
          Qa          Tb/Ta
           0.589 *    0.952 =      0.561
Qp =      1.372

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.589       0.811
Area of streams before confluence:
        0.160        0.220
Results of confluence:
Total flow rate =      1.372(CFS)
Time of concentration =     5.120 min.
Effective stream area after confluence =      0.380(Ac.)


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Process from Point/Station        3.000 to Point/Station        4.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
_____________________________________________________________________
Upstream point/station elevation =   445.100(Ft.)
Downstream point/station elevation =   444.500(Ft.)
Pipe length  =   113.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.372(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.372(CFS)
Normal flow depth in pipe =    7.09(In.)
Flow top width inside pipe =    7.36(In.)
Critical Depth =    6.48(In.)
Pipe flow velocity =      3.67(Ft/s)
Travel time through pipe =    0.51 min.
Time of concentration (TC) =     5.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
_____________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      0.380(Ac.)
Runoff from this stream =      1.372(CFS)
Time of concentration =    5.63 min.
Rainfall intensity =     3.979(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.100 to Point/Station        4.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________
Initial area flow distance =   142.000(Ft.)
Top (of initial area) elevation =   449.400(Ft.)
Bottom (of initial area) elevation =   447.400(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.01408  s(percent)=       1.41
```

```
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.108 min.
Rainfall intensity =      4.211(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.819(CFS)
Total initial stream area =        0.500(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.500(Ac.)
Runoff from this stream =      1.819(CFS)
Time of concentration =    5.11 min.
Rainfall intensity =     4.211(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.200 to Point/Station        4.300
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    94.000(Ft.)
Top (of initial area) elevation =   449.600(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02021  s(percent)=       2.02
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.253(CFS)
Total initial stream area =        0.340(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.300 to Point/Station        4.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   444.500(Ft.)
Pipe length  =   120.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.253(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.253(CFS)
Normal flow depth in pipe =    5.24(In.)
Flow top width inside pipe =    8.88(In.)
Critical Depth =    6.18(In.)
Pipe flow velocity =      4.70(Ft/s)
Travel time through pipe =    0.43 min.
```

A - 4

```
Time of concentration (TC) =     5.43 min.


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Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      0.340(Ac.)
Runoff from this stream =      1.253(CFS)
Time of concentration =    5.43 min.
Rainfall intensity =     4.066(In/Hr)
Summary of stream data:

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


1        1.372      5.63                3.979
2        1.819      5.11                4.211
3        1.253      5.43                4.066
Largest stream flow has longer or shorter time of concentration
Qp =      1.819 + sum of
          Qa          Tb/Ta
           1.372 *    0.907 =      1.244
          Qa          Tb/Ta
           1.253 *    0.942 =      1.179
Qp =      4.242

Total of 3 streams to confluence:
Flow rates before confluence point:
       1.372       1.819       1.253
Area of streams before confluence:
        0.380        0.500        0.340
Results of confluence:
Total flow rate =      4.242(CFS)
Time of concentration =     5.108 min.
Effective stream area after confluence =      1.220(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   444.500(Ft.)
Downstream point/station elevation =   444.400(Ft.)
Pipe length  =    13.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     4.242(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     4.242(CFS)
Normal flow depth in pipe =    8.67(In.)
Flow top width inside pipe =   14.82(In.)
Critical Depth =   10.01(In.)
Pipe flow velocity =      5.78(Ft/s)
Travel time through pipe =    0.04 min.
Time of concentration (TC) =     5.15 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        5.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      1.220(Ac.)
Runoff from this stream =      4.242(CFS)
Time of concentration =    5.15 min.
Rainfall intensity =     4.193(In/Hr)
```

++
Process from Point/Station 5.100 to Point/Station 5.200
**** INITIAL AREA EVALUATION **** A - 5

Initial area flow distance = 131.000(Ft.)
Top (of initial area) elevation = 448.400(Ft.)
Bottom (of initial area) elevation = 447.500(Ft.)
Difference in elevation = 0.900(Ft.)
Slope = 0.00687 s(percent)= 0.69
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.710 min.
Rainfall intensity = 3.948(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.862
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 = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 1.158(CFS)
Total initial stream area = 0.340(Ac.)
Pervious area fraction = 0.100

++
Process from Point/Station 5.200 to Point/Station 5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 445.500(Ft.)
Downstream point/station elevation = 444.400(Ft.)
Pipe length = 158.00(Ft.) Manning's N = 0.011
No. of pipes = 1 Required pipe flow = 1.158(CFS)
Nearest computed pipe diameter = 9.00(In.)
Calculated individual pipe flow = 1.158(CFS)
Normal flow depth in pipe = 5.60(In.)
Flow top width inside pipe = 8.73(In.)
Critical Depth = 5.94(In.)
Pipe flow velocity = 4.01(Ft/s)
Travel time through pipe = 0.66 min.
Time of concentration (TC) = 6.37 min.

++
Process from Point/Station 5.000 to Point/Station 5.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 0.340(Ac.)
Runoff from this stream = 1.158(CFS)
Time of concentration = 6.37 min.
Rainfall intensity = 3.706(In/Hr)
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	4.242	5.15	4.193
2	1.158	6.37	3.706

Largest stream flow has longer or shorter time of concentration
Qp = 4.242 + sum of
Qa Tb/Ta
1.158 * 0.808 = 0.936
Qp = 5.178

Total of 2 streams to confluence:
Flow rates before confluence point:
4.242 1.158

```
Area of streams before confluence:
        1.220        0.340
Results of confluence:
Total flow rate =      5.178(CFS)
Time of concentration =     5.146 min.
Effective stream area after confluence =      1.560(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        6.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   444.400(Ft.)
Downstream point/station elevation =   444.200(Ft.)
Pipe length  =    12.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.178(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     5.178(CFS)
Normal flow depth in pipe =    9.35(In.)
Flow top width inside pipe =    9.95(In.)
Critical Depth =   11.11(In.)
Pipe flow velocity =      7.88(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     5.17 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        7.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   444.200(Ft.)
Downstream point/station elevation =   442.600(Ft.)
Pipe length  =   324.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.178(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.178(CFS)
Normal flow depth in pipe =   11.86(In.)
Flow top width inside pipe =   12.21(In.)
Critical Depth =   11.07(In.)
Pipe flow velocity =      4.98(Ft/s)
Travel time through pipe =    1.08 min.
Time of concentration (TC) =     6.26 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        7.000
**** CONFLUENCE OF MAIN STREAMS ****
----------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      1.560(Ac.)
Runoff from this stream =      5.178(CFS)
Time of concentration =    6.26 min.
Rainfall intensity =     3.744(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        8.000 to Point/Station        9.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
Initial area flow distance =   128.000(Ft.)
Top (of initial area) elevation =   452.100(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.600(Ft.)
Slope =    0.02031  s(percent)=       2.03
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.847(CFS)
Total initial stream area =        0.230(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station       10.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   446.000(Ft.)
Pipe length  =    42.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.847(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.847(CFS)
Normal flow depth in pipe =    3.94(In.)
Flow top width inside pipe =    8.93(In.)
Critical Depth =    5.05(In.)
Pipe flow velocity =      4.55(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =     5.15 min.


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Process from Point/Station       10.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.230(Ac.)
Runoff from this stream =      0.847(CFS)
Time of concentration =    5.15 min.
Rainfall intensity =     4.190(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.100 to Point/Station       10.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   186.000(Ft.)
Top (of initial area) elevation =   452.900(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.700(Ft.)
Slope =    0.01989  s(percent)=       1.99
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.311 min.
Rainfall intensity =      4.117(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.863
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.924(CFS)
Total initial stream area =        0.260(Ac.)
Pervious area fraction = 0.100
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.200 to Point/Station       10.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   446.000(Ft.)
Pipe length  =    35.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.924(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.924(CFS)
Normal flow depth in pipe =    5.16(In.)
Flow top width inside pipe =    8.90(In.)
Critical Depth =    5.28(In.)
Pipe flow velocity =      3.53(Ft/s)
Travel time through pipe =    0.17 min.
Time of concentration (TC) =     5.48 min.


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Process from Point/Station       10.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.260(Ac.)
Runoff from this stream =      0.924(CFS)
Time of concentration =    5.48 min.
Rainfall intensity =     4.045(In/Hr)
Summary of stream data:

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


1        0.847      5.15                4.190
2        0.924      5.48                4.045
Largest stream flow has longer time of concentration
Qp =      0.924 + sum of
          Qb         Ia/Ib
           0.847 *    0.965 =      0.818
Qp =      1.742

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.847       0.924
Area of streams before confluence:
        0.230        0.260
Results of confluence:
Total flow rate =      1.742(CFS)
Time of concentration =     5.476 min.
Effective stream area after confluence =      0.490(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.000(Ft.)
Downstream point/station elevation =   445.700(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.742(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.742(CFS)
Normal flow depth in pipe =    6.42(In.)
Flow top width inside pipe =   11.97(In.)
Critical Depth =    6.74(In.)
Pipe flow velocity =      4.07(Ft/s)
Travel time through pipe =    0.23 min.
Time of concentration (TC) =     5.70 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.490(Ac.)
Runoff from this stream =      1.742(CFS)
Time of concentration =    5.70 min.
Rainfall intensity =     3.951(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.100 to Point/Station       11.200
**** INITIAL AREA EVALUATION ****
```

B - 3

```
----------------------------------------------------------------------------
Initial area flow distance =   182.000(Ft.)
Top (of initial area) elevation =   452.800(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.600(Ft.)
Slope =    0.01978  s(percent)=       1.98
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.271 min.
Rainfall intensity =      4.135(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.863
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.071(CFS)
Total initial stream area =        0.300(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.200 to Point/Station       11.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.700(Ft.)
Pipe length  =    35.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.071(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.071(CFS)
Normal flow depth in pipe =    4.28(In.)
Flow top width inside pipe =    8.99(In.)
Critical Depth =    5.70(In.)
Pipe flow velocity =      5.17(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =     5.38 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.300(Ac.)
Runoff from this stream =      1.071(CFS)
Time of concentration =    5.38 min.
Rainfall intensity =     4.085(In/Hr)


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Process from Point/Station       11.300 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
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B - 4

```
Initial area flow distance =   124.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   448.300(Ft.)
Difference in elevation =     0.700(Ft.)
Slope =    0.00565  s(percent)=       0.56
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.810 min.
Rainfall intensity =      3.908(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.862
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.213(CFS)
Total initial stream area =        0.360(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 3
Stream flow area =      0.360(Ac.)
Runoff from this stream =      1.213(CFS)
Time of concentration =    5.81 min.
Rainfall intensity =     3.908(In/Hr)
Summary of stream data:

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


1        1.742      5.70                3.951
2        1.071      5.38                4.085
3        1.213      5.81                3.908
Largest stream flow has longer or shorter time of concentration
Qp =      1.742 + sum of
          Qb         Ia/Ib
           1.071 *    0.967 =      1.036
          Qa          Tb/Ta
           1.213 *    0.981 =      1.191
Qp =      3.969

Total of 3 streams to confluence:
Flow rates before confluence point:
       1.742       1.071       1.213
Area of streams before confluence:
        0.490        0.300        0.360
Results of confluence:
Total flow rate =      3.969(CFS)
Time of concentration =     5.702 min.
Effective stream area after confluence =      1.150(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   445.400(Ft.)
Pipe length  =    25.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     3.969(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     3.969(CFS)
```

```
Normal flow depth in pipe =    8.58(In.)
Flow top width inside pipe =   10.84(In.)
Critical Depth =   10.13(In.)
Pipe flow velocity =      6.60(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =     5.76 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       12.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.150(Ac.)
Runoff from this stream =      3.969(CFS)
Time of concentration =    5.76 min.
Rainfall intensity =     3.926(In/Hr)


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Process from Point/Station       12.100 to Point/Station       12.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    94.000(Ft.)
Top (of initial area) elevation =   449.600(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02021  s(percent)=       2.02
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.032(CFS)
Total initial stream area =        0.280(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.200 to Point/Station       12.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   445.400(Ft.)
Pipe length  =    68.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.032(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.032(CFS)
Normal flow depth in pipe =    6.06(In.)
Flow top width inside pipe =    8.44(In.)
Critical Depth =    5.59(In.)
Pipe flow velocity =      3.26(Ft/s)
Travel time through pipe =    0.35 min.
Time of concentration (TC) =     5.35 min.


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Process from Point/Station       12.000 to Point/Station       12.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
```

```
Stream flow area =      0.280(Ac.)
Runoff from this stream =      1.032(CFS)
Time of concentration =    5.35 min.
Rainfall intensity =     4.101(In/Hr)
Summary of stream data:

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


1        3.969      5.76                3.926
2        1.032      5.35                4.101
Largest stream flow has longer time of concentration
Qp =      3.969 + sum of
          Qb         Ia/Ib
           1.032 *    0.957 =      0.988
Qp =      4.956

Total of 2 streams to confluence:
Flow rates before confluence point:
       3.969       1.032
Area of streams before confluence:
        1.150        0.280
Results of confluence:
Total flow rate =      4.956(CFS)
Time of concentration =     5.765 min.
Effective stream area after confluence =      1.430(Ac.)


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Process from Point/Station       12.000 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.400(Ft.)
Downstream point/station elevation =   445.300(Ft.)
Pipe length  =    21.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     4.956(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     4.956(CFS)
Normal flow depth in pipe =   11.57(In.)
Flow top width inside pipe =   12.60(In.)
Critical Depth =   10.84(In.)
Pipe flow velocity =      4.88(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =     5.84 min.


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Process from Point/Station       13.000 to Point/Station       13.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.430(Ac.)
Runoff from this stream =      4.956(CFS)
Time of concentration =    5.84 min.
Rainfall intensity =     3.898(In/Hr)


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Process from Point/Station       13.100 to Point/Station       13.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   196.000(Ft.)
Top (of initial area) elevation =   453.100(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.900(Ft.)
Slope =    0.01990  s(percent)=       1.99
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.423 min.
```

```
Rainfall intensity =      4.068(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.863
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.983(CFS)
Total initial stream area =        0.280(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       13.200 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.300(Ft.)
Pipe length  =    77.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.983(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.983(CFS)
Normal flow depth in pipe =    4.31(In.)
Flow top width inside pipe =    8.99(In.)
Critical Depth =    5.46(In.)
Pipe flow velocity =      4.70(Ft/s)
Travel time through pipe =    0.27 min.
Time of concentration (TC) =     5.70 min.


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Process from Point/Station       13.000 to Point/Station       13.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.280(Ac.)
Runoff from this stream =      0.983(CFS)
Time of concentration =    5.70 min.
Rainfall intensity =     3.953(In/Hr)
Summary of stream data:

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


1        4.956      5.84                3.898
2        0.983      5.70                3.953
Largest stream flow has longer time of concentration
Qp =      4.956 + sum of
          Qb         Ia/Ib
           0.983 *    0.986 =      0.969
Qp =      5.926

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.956       0.983
Area of streams before confluence:
        1.430        0.280
Results of confluence:
Total flow rate =      5.926(CFS)
Time of concentration =     5.836 min.
Effective stream area after confluence =      1.710(Ac.)


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Process from Point/Station       13.000 to Point/Station       14.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
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```
Upstream point/station elevation =   445.300(Ft.)
Downstream point/station elevation =   445.200(Ft.)
Pipe length  =     6.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.926(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.926(CFS)
Normal flow depth in pipe =    8.38(In.)
Flow top width inside pipe =   14.90(In.)
Critical Depth =   11.82(In.)
Pipe flow velocity =      8.40(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =     5.85 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.000 to Point/Station        7.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   445.200(Ft.)
Downstream point/station elevation =   442.600(Ft.)
Pipe length  =    59.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.926(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     5.926(CFS)
Normal flow depth in pipe =    7.19(In.)
Flow top width inside pipe =   11.76(In.)
Critical depth could not be calculated.
Pipe flow velocity =     12.06(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     5.93 min.


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Process from Point/Station        7.000 to Point/Station        7.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      1.710(Ac.)
Runoff from this stream =      5.926(CFS)
Time of concentration =    5.93 min.
Rainfall intensity =     3.862(In/Hr)
Summary of stream data:

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


1        5.178      6.26                3.744
2        5.926      5.93                3.862
Largest stream flow has longer or shorter time of concentration
Qp =      5.926 + sum of
          Qa          Tb/Ta
           5.178 *    0.948 =      4.908
Qp =     10.834

Total of 2 main streams to confluence:
Flow rates before confluence point:
       5.178       5.926
Area of streams before confluence:
        1.560        1.710


Results of confluence:
Total flow rate =     10.834(CFS)
Time of concentration =     5.930 min.
Effective stream area after confluence  =      3.270(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station       15.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   442.600(Ft.)
Downstream point/station elevation =   441.300(Ft.)
Pipe length  =   258.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    10.834(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    10.834(CFS)
Normal flow depth in pipe =   14.41(In.)
Flow top width inside pipe =   19.49(In.)
Critical Depth =   14.72(In.)
Pipe flow velocity =      6.16(Ft/s)
Travel time through pipe =    0.70 min.
Time of concentration (TC) =     6.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.000 to Point/Station       15.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.270(Ac.)
Runoff from this stream =     10.834(CFS)
Time of concentration =    6.63 min.
Rainfall intensity =     3.621(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.100 to Point/Station       15.200
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   350.000(Ft.)
Top (of initial area) elevation =   447.800(Ft.)
Bottom (of initial area) elevation =   445.000(Ft.)
Difference in elevation =     2.800(Ft.)
Slope =    0.00800  s(percent)=       0.80
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.206 min.
Rainfall intensity =      3.199(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.858
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.015(CFS)
Total initial stream area =        0.370(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.200 to Point/Station       15.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   443.000(Ft.)
Downstream point/station elevation =   441.300(Ft.)
Pipe length  =    11.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.015(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     1.015(CFS)
Normal flow depth in pipe =    2.60(In.)
Flow top width inside pipe =    5.95(In.)
Critical Depth =    5.69(In.)
Pipe flow velocity =     12.45(Ft/s)
```

D - 1

```
Travel time through pipe =    0.01 min.
Time of concentration (TC) =     8.22 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.000 to Point/Station       15.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.370(Ac.)
Runoff from this stream =      1.015(CFS)
Time of concentration =    8.22 min.
Rainfall intensity =     3.196(In/Hr)
Summary of stream data:

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


1       10.834      6.63                 3.621
2        1.015      8.22                 3.196
Largest stream flow has longer or shorter time of concentration
Qp =     10.834 + sum of
          Qa          Tb/Ta
           1.015 *    0.806 =      0.818
Qp =     11.652

Total of 2 streams to confluence:
Flow rates before confluence point:
      10.834       1.015
Area of streams before confluence:
        3.270        0.370
Results of confluence:
Total flow rate =     11.652(CFS)
Time of concentration =     6.628 min.
Effective stream area after confluence =      3.640(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.000 to Point/Station       16.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   441.300(Ft.)
Downstream point/station elevation =   441.000(Ft.)
Pipe length  =    56.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    11.652(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    11.652(CFS)
Normal flow depth in pipe =   14.88(In.)
Flow top width inside pipe =   19.08(In.)
Critical Depth =   15.27(In.)
Pipe flow velocity =      6.40(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =     6.77 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       16.000 to Point/Station       16.000
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      3.640(Ac.)
Runoff from this stream =     11.652(CFS)
Time of concentration =    6.77 min.
Rainfall intensity =     3.575(In/Hr)
Program is now starting with Main Stream No. 2
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       17.000 to Point/Station       18.000
**** INITIAL AREA EVALUATION ****
```
C - 1
```
------------------------------------------------------------------------------
Initial area flow distance =    77.000(Ft.)
Top (of initial area) elevation =   451.000(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.500(Ft.)
Slope =    0.01948  s(percent)=       1.95
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.405(CFS)
Total initial stream area =        0.110(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       18.000 to Point/Station       19.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   446.200(Ft.)
Pipe length  =    34.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.405(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.405(CFS)
Normal flow depth in pipe =    3.53(In.)
Flow top width inside pipe =    5.91(In.)
Critical Depth =    3.89(In.)
Pipe flow velocity =      3.38(Ft/s)
Travel time through pipe =    0.17 min.
Time of concentration (TC) =     5.17 min.


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Process from Point/Station       19.000 to Point/Station       19.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.110(Ac.)
Runoff from this stream =      0.405(CFS)
Time of concentration =    5.17 min.
Rainfall intensity =     4.183(In/Hr)


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Process from Point/Station       19.100 to Point/Station       19.000
**** INITIAL AREA EVALUATION ****
```
C - 2
```
------------------------------------------------------------------------------
Initial area flow distance =    63.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.300(Ft.)
Slope =    0.02063  s(percent)=       2.06
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.621(CFS)
Total initial stream area =        0.440(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       19.000 to Point/Station       19.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.440(Ac.)
Runoff from this stream =      1.621(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     4.264(In/Hr)
Summary of stream data:

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


1        0.405      5.17                4.183
2        1.621      5.00                4.264
Largest stream flow has longer or shorter time of concentration
Qp =      1.621 + sum of
          Qa          Tb/Ta
           0.405 *    0.968 =      0.392
Qp =      2.013

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.405       1.621
Area of streams before confluence:
        0.110        0.440
Results of confluence:
Total flow rate =      2.013(CFS)
Time of concentration =     5.000 min.
Effective stream area after confluence =      0.550(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.000 to Point/Station       20.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.600(Ft.)
Pipe length  =   118.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.013(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.013(CFS)
Normal flow depth in pipe =    7.20(In.)
Flow top width inside pipe =   11.76(In.)
Critical Depth =    7.27(In.)
Pipe flow velocity =      4.10(Ft/s)
Travel time through pipe =    0.48 min.
Time of concentration (TC) =     5.48 min.


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Process from Point/Station       20.000 to Point/Station       20.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.550(Ac.)
Runoff from this stream =      2.013(CFS)
Time of concentration =    5.48 min.
Rainfall intensity =     4.043(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.100 to Point/Station       20.200
**** INITIAL AREA EVALUATION ****
```

C - 3

```
Initial area flow distance =   102.000(Ft.)
Top (of initial area) elevation =   451.500(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.01961  s(percent)=       1.96
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.553(CFS)
Total initial stream area =        0.150(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.200 to Point/Station       20.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   445.600(Ft.)
Pipe length  =    37.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.553(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.553(CFS)
Normal flow depth in pipe =    3.12(In.)
Flow top width inside pipe =    5.99(In.)
Critical Depth =    4.54(In.)
Pipe flow velocity =      5.36(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     5.12 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.000 to Point/Station       20.000
**** CONFLUENCE OF MINOR STREAMS ****
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.150(Ac.)
Runoff from this stream =      0.553(CFS)
Time of concentration =    5.12 min.
Rainfall intensity =     4.208(In/Hr)
Summary of stream data:

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


1        2.013      5.48                4.043
```

```
2        0.553      5.12                 4.208
Largest stream flow has longer time of concentration
Qp =      2.013 + sum of
          Qb         Ia/Ib
           0.553 *    0.961 =      0.531
Qp =      2.544

Total of 2 streams to confluence:
Flow rates before confluence point:
       2.013       0.553
Area of streams before confluence:
        0.550        0.150
Results of confluence:
Total flow rate =      2.544(CFS)
Time of concentration =     5.480 min.
Effective stream area after confluence =      0.700(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.000 to Point/Station       21.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.600(Ft.)
Downstream point/station elevation =   445.100(Ft.)
Pipe length  =    94.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.544(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.544(CFS)
Normal flow depth in pipe =    8.33(In.)
Flow top width inside pipe =   11.06(In.)
Critical Depth =    8.20(In.)
Pipe flow velocity =      4.37(Ft/s)
Travel time through pipe =    0.36 min.
Time of concentration (TC) =     5.84 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       21.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.700(Ac.)
Runoff from this stream =      2.544(CFS)
Time of concentration =    5.84 min.
Rainfall intensity =     3.897(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.100 to Point/Station       21.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    89.000(Ft.)
Top (of initial area) elevation =   449.500(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.800(Ft.)
Slope =    0.02022  s(percent)=       2.02
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
```

```
Initial subarea runoff =      0.663(CFS)
Total initial stream area =        0.180(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       21.000 to Point/Station       21.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.180(Ac.)
Runoff from this stream =      0.663(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     4.264(In/Hr)
Summary of stream data:

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


1        2.544      5.84                3.897
2        0.663      5.00                4.264
Largest stream flow has longer time of concentration
Qp =      2.544 + sum of
          Qb         Ia/Ib
           0.663 *    0.914 =      0.606
Qp =      3.150

Total of 2 streams to confluence:
Flow rates before confluence point:
       2.544       0.663
Area of streams before confluence:
        0.700        0.180
Results of confluence:
Total flow rate =      3.150(CFS)
Time of concentration =     5.838 min.
Effective stream area after confluence =      0.880(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       22.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.100(Ft.)
Downstream point/station elevation =   444.600(Ft.)
Pipe length  =    99.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     3.150(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     3.150(CFS)
Normal flow depth in pipe =    8.20(In.)
Flow top width inside pipe =   14.93(In.)
Critical Depth =    8.57(In.)
Pipe flow velocity =      4.58(Ft/s)
Travel time through pipe =    0.36 min.
Time of concentration (TC) =     6.20 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.880(Ac.)
Runoff from this stream =      3.150(CFS)
Time of concentration =    6.20 min.
Rainfall intensity =     3.764(In/Hr)


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Process from Point/Station       22.100 to Point/Station       22.200
**** INITIAL AREA EVALUATION ****
```
C - 5
```
Initial area flow distance =    97.000(Ft.)
Top (of initial area) elevation =   451.400(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.01959  s(percent)=       1.96
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.589(CFS)
Total initial stream area =        0.160(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       22.200 to Point/Station       22.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   444.600(Ft.)
Pipe length  =    46.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.589(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.589(CFS)
Normal flow depth in pipe =    2.78(In.)
Flow top width inside pipe =    5.98(In.)
Critical Depth =    4.69(In.)
Pipe flow velocity =      6.63(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     5.12 min.


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Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.160(Ac.)
Runoff from this stream =      0.589(CFS)
Time of concentration =    5.12 min.
Rainfall intensity =     4.208(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.300 to Point/Station       22.000
**** INITIAL AREA EVALUATION ****
```
C - 6
```
------------------------------------------------------------------------
Initial area flow distance =    58.000(Ft.)
Top (of initial area) elevation =   449.400(Ft.)
Bottom (of initial area) elevation =   448.000(Ft.)
Difference in elevation =     1.400(Ft.)
Slope =    0.02414  s(percent)=       2.41
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
```

```
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.847(CFS)
Total initial stream area =        0.230(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 3
Stream flow area =      0.230(Ac.)
Runoff from this stream =      0.847(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     4.264(In/Hr)
Summary of stream data:

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


1        3.150      6.20                3.764
2        0.589      5.12                4.208
3        0.847      5.00                4.264
Largest stream flow has longer time of concentration
Qp =      3.150 + sum of
          Qb         Ia/Ib
           0.589 *    0.895 =      0.527
          Qb         Ia/Ib
           0.847 *    0.883 =      0.748
Qp =      4.426

Total of 3 streams to confluence:
Flow rates before confluence point:
       3.150       0.589       0.847
Area of streams before confluence:
        0.880        0.160        0.230
Results of confluence:
Total flow rate =      4.426(CFS)
Time of concentration =     6.198 min.
Effective stream area after confluence =      1.270(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       23.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   444.600(Ft.)
Downstream point/station elevation =   444.000(Ft.)
Pipe length  =   113.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     4.426(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     4.426(CFS)
Normal flow depth in pipe =   10.10(In.)
Flow top width inside pipe =   14.07(In.)
Critical Depth =   10.23(In.)
Pipe flow velocity =      5.03(Ft/s)
Travel time through pipe =    0.37 min.
Time of concentration (TC) =     6.57 min.


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Process from Point/Station       23.000 to Point/Station       23.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.270(Ac.)
Runoff from this stream =      4.426(CFS)
Time of concentration =    6.57 min.
Rainfall intensity =     3.638(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.100 to Point/Station       23.200
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =    79.000(Ft.)
Top (of initial area) elevation =   451.100(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.600(Ft.)
Slope =    0.02025  s(percent)=       2.03
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.516(CFS)
Total initial stream area =        0.140(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.200 to Point/Station       23.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   444.000(Ft.)
Pipe length  =    36.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.516(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.516(CFS)
Normal flow depth in pipe =    2.23(In.)
Flow top width inside pipe =    5.80(In.)
Critical Depth =    4.39(In.)
Pipe flow velocity =      7.75(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     5.08 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station       23.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.140(Ac.)
Runoff from this stream =      0.516(CFS)
Time of concentration =    5.08 min.
Rainfall intensity =     4.226(In/Hr)
Summary of stream data:

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

```
1        4.426      6.57                3.638
2        0.516      5.08                4.226
Largest stream flow has longer time of concentration
Qp =      4.426 + sum of
          Qb         Ia/Ib
           0.516 *    0.861 =      0.444
Qp =      4.870

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.426       0.516
Area of streams before confluence:
        1.270        0.140
Results of confluence:
Total flow rate =      4.870(CFS)
Time of concentration =     6.573 min.
Effective stream area after confluence =      1.410(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station       24.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   444.000(Ft.)
Downstream point/station elevation =   443.700(Ft.)
Pipe length  =    65.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     4.870(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     4.870(CFS)
Normal flow depth in pipe =   11.55(In.)
Flow top width inside pipe =   12.62(In.)
Critical Depth =   10.73(In.)
Pipe flow velocity =      4.81(Ft/s)
Travel time through pipe =    0.23 min.
Time of concentration (TC) =     6.80 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       24.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.410(Ac.)
Runoff from this stream =      4.870(CFS)
Time of concentration =    6.80 min.
Rainfall intensity =     3.568(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.100 to Point/Station       24.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    95.000(Ft.)
Top (of initial area) elevation =   451.400(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02000  s(percent)=       2.00
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.442(CFS)
Total initial stream area =        0.120(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.200 to Point/Station       24.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   443.700(Ft.)
Pipe length  =    28.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.442(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.442(CFS)
Normal flow depth in pipe =    1.87(In.)
Flow top width inside pipe =    5.56(In.)
Critical Depth =    4.06(In.)
Pipe flow velocity =      8.46(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =     5.06 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       24.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.120(Ac.)
Runoff from this stream =      0.442(CFS)
Time of concentration =    5.06 min.
Rainfall intensity =     4.237(In/Hr)
Summary of stream data:

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


1        4.870      6.80                 3.568
2        0.442      5.06                 4.237
Largest stream flow has longer time of concentration
Qp =      4.870 + sum of
          Qb         Ia/Ib
           0.442 *    0.842 =      0.372
Qp =      5.242

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.870       0.442
Area of streams before confluence:
        1.410        0.120
Results of confluence:
Total flow rate =      5.242(CFS)
Time of concentration =     6.798 min.
Effective stream area after confluence =      1.530(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       25.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   443.700(Ft.)
Downstream point/station elevation =   443.500(Ft.)
Pipe length  =    32.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.242(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.242(CFS)
```

```
Normal flow depth in pipe =   10.80(In.)
Flow top width inside pipe =   13.47(In.)
Critical Depth =   11.14(In.)
Pipe flow velocity =      5.54(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     6.89 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.000 to Point/Station       25.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.530(Ac.)
Runoff from this stream =      5.242(CFS)
Time of concentration =    6.89 min.
Rainfall intensity =     3.539(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.100 to Point/Station       25.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =    48.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   448.000(Ft.)
Difference in elevation =     1.000(Ft.)
Slope =    0.02083  s(percent)=       2.08
TC = k(0.300)*[(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 =      4.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.864
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.811(CFS)
Total initial stream area =        0.220(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       25.000 to Point/Station       25.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.220(Ac.)
Runoff from this stream =      0.811(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     4.264(In/Hr)
Summary of stream data:

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


1        5.242      6.89                3.539
2        0.811      5.00                4.264
Largest stream flow has longer time of concentration
Qp =      5.242 + sum of
          Qb         Ia/Ib
           0.811 *    0.830 =      0.673
Qp =      5.915
```

```
Total of 2 streams to confluence:
Flow rates before confluence point:
       5.242       0.811
Area of streams before confluence:
        1.530        0.220
Results of confluence:
Total flow rate =      5.915(CFS)
Time of concentration =     6.894 min.
Effective stream area after confluence =      1.750(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.000 to Point/Station       26.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   443.500(Ft.)
Downstream point/station elevation =   443.300(Ft.)
Pipe length  =    31.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.915(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.915(CFS)
Normal flow depth in pipe =   11.84(In.)
Flow top width inside pipe =   12.24(In.)
Critical Depth =   11.80(In.)
Pipe flow velocity =      5.69(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =     6.99 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       26.000 to Point/Station       27.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   443.300(Ft.)
Downstream point/station elevation =   442.400(Ft.)
Pipe length  =   190.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.915(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     5.915(CFS)
Normal flow depth in pipe =   11.02(In.)
Flow top width inside pipe =   17.54(In.)
Critical Depth =   11.26(In.)
Pipe flow velocity =      5.22(Ft/s)
Travel time through pipe =    0.61 min.
Time of concentration (TC) =     7.59 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       27.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.750(Ac.)
Runoff from this stream =      5.915(CFS)
Time of concentration =    7.59 min.
Rainfall intensity =     3.347(In/Hr)


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Process from Point/Station       27.100 to Point/Station       27.200
**** INITIAL AREA EVALUATION ****
```



```
________________________________________________________________________
Initial area flow distance =   178.000(Ft.)
Top (of initial area) elevation =   448.000(Ft.)
Bottom (of initial area) elevation =   445.900(Ft.)
Difference in elevation =     2.100(Ft.)
Slope =    0.01180  s(percent)=       1.18
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.793 min.
```

```
Rainfall intensity =      3.915(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.862
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 =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.844(CFS)
Total initial stream area =        0.250(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.200 to Point/Station       27.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   443.900(Ft.)
Downstream point/station elevation =   442.400(Ft.)
Pipe length  =    10.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.844(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.844(CFS)
Normal flow depth in pipe =    2.37(In.)
Flow top width inside pipe =    5.86(In.)
Critical Depth =    5.42(In.)
Pipe flow velocity =     11.72(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =     5.81 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       27.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.250(Ac.)
Runoff from this stream =      0.844(CFS)
Time of concentration =    5.81 min.
Rainfall intensity =     3.909(In/Hr)
Summary of stream data:

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


1        5.915      7.59                3.347
2        0.844      5.81                3.909
Largest stream flow has longer time of concentration
Qp =      5.915 + sum of
          Qb         Ia/Ib
           0.844 *    0.856 =      0.722
Qp =      6.637

Total of 2 streams to confluence:
Flow rates before confluence point:
       5.915       0.844
Area of streams before confluence:
        1.750        0.250
Results of confluence:
Total flow rate =      6.637(CFS)
Time of concentration =     7.592 min.
Effective stream area after confluence =      2.000(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       16.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
```

```
Upstream point/station elevation =   442.400(Ft.)
Downstream point/station elevation =   441.000(Ft.)
Pipe length  =    69.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     6.637(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.637(CFS)
Normal flow depth in pipe =    8.46(In.)
Flow top width inside pipe =   14.88(In.)
Critical Depth =   12.43(In.)
Pipe flow velocity =      9.30(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     7.72 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       16.000 to Point/Station       16.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.000(Ac.)
Runoff from this stream =      6.637(CFS)
Time of concentration =    7.72 min.
Rainfall intensity =     3.315(In/Hr)
Summary of stream data:

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


1       11.652      6.77                3.575
2        6.637      7.72                3.315
Largest stream flow has longer or shorter time of concentration
Qp =     11.652 + sum of
          Qa          Tb/Ta
            6.637 *    0.878 =      5.827
Qp =     17.479

Total of 2 main streams to confluence:
Flow rates before confluence point:
      11.652       6.637
Area of streams before confluence:
        3.640        2.000


Results of confluence:
Total flow rate =     17.479(CFS)
Time of concentration =     6.774 min.
Effective stream area after confluence  =      5.640(Ac.)
End of computations, total study area =            5.64 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  32.0
```

SECTION 5.6

HYDROLOGY STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**100-YEAR**
DURATION:	**1-HOUR**
ISOHYETAL:	**1.74 IN**
SOIL GROUP:	**A**
DEVELOPMENT:	**COMMERCIAL**

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
Rational Hydrology Study Date: 07/26/23 File:1804PH100Y.out

********* Hydrology Study Control Information **********

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

Program License Serial Number 6293

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

2 year, 1 hour precipitation = 0.498(In.)
100 year, 1 hour precipitation = 1.740(In.)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.740(In/Hr)
Slope of intensity duration curve = 0.5800

++

Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION **** A - 1

Initial area flow distance = 65.000(Ft.)
Top (of initial area) elevation = 449.800(Ft.)
Bottom (of initial area) elevation = 448.500(Ft.)
Difference in elevation = 1.300(Ft.)
Slope = 0.02000 s(percent)= 2.00
TC = k(0.300)*[(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 = 7.353(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3) = 52.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 1.044(CFS)
Total initial stream area = 0.160(Ac.)
Pervious area fraction = 0.100

++

Process from Point/Station 2.000 to Point/Station 3.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 445.500(Ft.)
Downstream point/station elevation = 445.100(Ft.)
Pipe length = 71.00(Ft.) Manning's N = 0.011
No. of pipes = 1 Required pipe flow = 1.044(CFS)

```
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.044(CFS)
Normal flow depth in pipe =    5.61(In.)
Flow top width inside pipe =    8.72(In.)
Critical Depth =    5.63(In.)
Pipe flow velocity =      3.61(Ft/s)
Travel time through pipe =    0.33 min.
Time of concentration (TC) =     5.33 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      0.160(Ac.)
Runoff from this stream =      1.044(CFS)
Time of concentration =    5.33 min.
Rainfall intensity =     7.087(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.100 to Point/Station        3.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   142.000(Ft.)
Top (of initial area) elevation =   452.300(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.800(Ft.)
Slope =    0.01972  s(percent)=       1.97
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.435(CFS)
Total initial stream area =        0.220(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.200 to Point/Station        3.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   445.100(Ft.)
Pipe length  =    46.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.435(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.435(CFS)
Normal flow depth in pipe =    4.07(In.)
Flow top width inside pipe =    8.96(In.)
Critical Depth =    6.62(In.)
Pipe flow velocity =      7.39(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     5.10 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
```

A - 2

```
_____________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.220(Ac.)
Runoff from this stream =      1.435(CFS)
Time of concentration =    5.10 min.
Rainfall intensity =     7.266(In/Hr)
Summary of stream data:

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


1        1.044      5.33                 7.087
2        1.435      5.10                 7.266
Largest stream flow has longer or shorter time of concentration
Qp =      1.435 + sum of
          Qa          Tb/Ta
           1.044 *    0.958 =      1.000
Qp =      2.435

Total of 2 streams to confluence:
Flow rates before confluence point:
       1.044       1.435
Area of streams before confluence:
        0.160        0.220
Results of confluence:
Total flow rate =      2.435(CFS)
Time of concentration =     5.104 min.
Effective stream area after confluence =      0.380(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
_____________________________________________________________________
Upstream point/station elevation =   445.100(Ft.)
Downstream point/station elevation =   444.500(Ft.)
Pipe length  =   113.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.435(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.435(CFS)
Normal flow depth in pipe =    8.07(In.)
Flow top width inside pipe =   11.26(In.)
Critical Depth =    8.02(In.)
Pipe flow velocity =      4.33(Ft/s)
Travel time through pipe =    0.43 min.
Time of concentration (TC) =     5.54 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
_____________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      0.380(Ac.)
Runoff from this stream =      2.435(CFS)
Time of concentration =    5.54 min.
Rainfall intensity =     6.930(In/Hr)


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Process from Point/Station        4.100 to Point/Station        4.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________
Initial area flow distance =   142.000(Ft.)
Top (of initial area) elevation =   449.400(Ft.)
Bottom (of initial area) elevation =   447.400(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.01408  s(percent)=       1.41
```

```
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.108 min.
Rainfall intensity =      7.262(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      3.221(CFS)
Total initial stream area =        0.500(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.500(Ac.)
Runoff from this stream =      3.221(CFS)
Time of concentration =    5.11 min.
Rainfall intensity =     7.262(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.200 to Point/Station        4.300
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    94.000(Ft.)
Top (of initial area) elevation =   449.600(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02021  s(percent)=       2.02
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.218(CFS)
Total initial stream area =        0.340(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.300 to Point/Station        4.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   444.500(Ft.)
Pipe length  =   120.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     2.218(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.218(CFS)
Normal flow depth in pipe =    6.19(In.)
Flow top width inside pipe =   11.99(In.)
Critical Depth =    7.64(In.)
Pipe flow velocity =      5.43(Ft/s)
Travel time through pipe =    0.37 min.
```

```
Time of concentration (TC) =     5.37 min.


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Process from Point/Station        4.000 to Point/Station        4.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      0.340(Ac.)
Runoff from this stream =      2.218(CFS)
Time of concentration =    5.37 min.
Rainfall intensity =     7.056(In/Hr)
Summary of stream data:

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


1        2.435      5.54                6.930
2        3.221      5.11                7.262
3        2.218      5.37                7.056
Largest stream flow has longer or shorter time of concentration
Qp =      3.221 + sum of
          Qa          Tb/Ta
           2.435 *    0.922 =      2.246
          Qa          Tb/Ta
           2.218 *    0.952 =      2.110
Qp =      7.577

Total of 3 streams to confluence:
Flow rates before confluence point:
       2.435       3.221       2.218
Area of streams before confluence:
        0.380        0.500        0.340
Results of confluence:
Total flow rate =      7.577(CFS)
Time of concentration =     5.108 min.
Effective stream area after confluence =      1.220(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   444.500(Ft.)
Downstream point/station elevation =   444.400(Ft.)
Pipe length  =    13.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     7.577(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     7.577(CFS)
Normal flow depth in pipe =   11.05(In.)
Flow top width inside pipe =   17.53(In.)
Critical Depth =   12.80(In.)
Pipe flow velocity =      6.66(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     5.14 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        5.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      1.220(Ac.)
Runoff from this stream =      7.577(CFS)
Time of concentration =    5.14 min.
Rainfall intensity =     7.236(In/Hr)
```

++
Process from Point/Station 5.100 to Point/Station 5.200
**** INITIAL AREA EVALUATION **** A - 5

Initial area flow distance = 131.000(Ft.)
Top (of initial area) elevation = 448.400(Ft.)
Bottom (of initial area) elevation = 447.500(Ft.)
Difference in elevation = 0.900(Ft.)
Slope = 0.00687 s(percent)= 0.69
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.710 min.
Rainfall intensity = 6.808(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.886
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 3) = 52.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 2.051(CFS)
Total initial stream area = 0.340(Ac.)
Pervious area fraction = 0.100

++
Process from Point/Station 5.200 to Point/Station 5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 445.500(Ft.)
Downstream point/station elevation = 444.400(Ft.)
Pipe length = 158.00(Ft.) Manning's N = 0.011
No. of pipes = 1 Required pipe flow = 2.051(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 2.051(CFS)
Normal flow depth in pipe = 6.59(In.)
Flow top width inside pipe = 11.94(In.)
Critical Depth = 7.34(In.)
Pipe flow velocity = 4.65(Ft/s)
Travel time through pipe = 0.57 min.
Time of concentration (TC) = 6.28 min.

++
Process from Point/Station 5.000 to Point/Station 5.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 0.340(Ac.)
Runoff from this stream = 2.051(CFS)
Time of concentration = 6.28 min.
Rainfall intensity = 6.444(In/Hr)
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	7.577	5.14	7.236
2	2.051	6.28	6.444

Largest stream flow has longer or shorter time of concentration
Qp = 7.577 + sum of
Qa Tb/Ta
2.051 * 0.819 = 1.680
Qp = 9.257

Total of 2 streams to confluence:
Flow rates before confluence point:
7.577 2.051

```
Area of streams before confluence:
        1.220        0.340
Results of confluence:
Total flow rate =      9.257(CFS)
Time of concentration =     5.141 min.
Effective stream area after confluence =      1.560(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        6.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   444.400(Ft.)
Downstream point/station elevation =   444.200(Ft.)
Pipe length  =    12.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     9.257(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     9.257(CFS)
Normal flow depth in pipe =   11.55(In.)
Flow top width inside pipe =   12.62(In.)
Critical Depth =   13.96(In.)
Pipe flow velocity =      9.13(Ft/s)
Travel time through pipe =    0.02 min.
Time of concentration (TC) =     5.16 min.


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Process from Point/Station        6.000 to Point/Station        7.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   444.200(Ft.)
Downstream point/station elevation =   442.600(Ft.)
Pipe length  =   324.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     9.257(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =     9.257(CFS)
Normal flow depth in pipe =   12.98(In.)
Flow top width inside pipe =   20.40(In.)
Critical Depth =   13.57(In.)
Pipe flow velocity =      5.93(Ft/s)
Travel time through pipe =    0.91 min.
Time of concentration (TC) =     6.07 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        7.000
**** CONFLUENCE OF MAIN STREAMS ****
----------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      1.560(Ac.)
Runoff from this stream =      9.257(CFS)
Time of concentration =    6.07 min.
Rainfall intensity =     6.568(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        8.000 to Point/Station        9.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
Initial area flow distance =   128.000(Ft.)
Top (of initial area) elevation =   452.100(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.600(Ft.)
Slope =    0.02031  s(percent)=       2.03
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.500(CFS)
Total initial stream area =        0.230(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station        9.000 to Point/Station       10.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   446.000(Ft.)
Pipe length  =    42.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.500(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.500(CFS)
Normal flow depth in pipe =    5.57(In.)
Flow top width inside pipe =    8.74(In.)
Critical Depth =    6.77(In.)
Pipe flow velocity =      5.23(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     5.13 min.


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Process from Point/Station       10.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.230(Ac.)
Runoff from this stream =      1.500(CFS)
Time of concentration =    5.13 min.
Rainfall intensity =     7.241(In/Hr)


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Process from Point/Station       10.100 to Point/Station       10.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   186.000(Ft.)
Top (of initial area) elevation =   452.900(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.700(Ft.)
Slope =    0.01989  s(percent)=       1.99
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.311 min.
Rainfall intensity =      7.100(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.637(CFS)
Total initial stream area =        0.260(Ac.)
Pervious area fraction = 0.100
```

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Process from Point/Station       10.200 to Point/Station       10.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   446.000(Ft.)
Pipe length  =    35.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.637(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.637(CFS)
Normal flow depth in pipe =    6.10(In.)
Flow top width inside pipe =   12.00(In.)
Critical Depth =    6.52(In.)
Pipe flow velocity =      4.08(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =     5.45 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.260(Ac.)
Runoff from this stream =      1.637(CFS)
Time of concentration =    5.45 min.
Rainfall intensity =     6.992(In/Hr)
Summary of stream data:

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


1        1.500      5.13                 7.241
2        1.637      5.45                 6.992
Largest stream flow has longer time of concentration
Qp =      1.637 + sum of
          Qb         Ia/Ib
           1.500 *    0.966 =      1.449
Qp =      3.085

Total of 2 streams to confluence:
Flow rates before confluence point:
       1.500       1.637
Area of streams before confluence:
        0.230        0.260
Results of confluence:
Total flow rate =      3.085(CFS)
Time of concentration =     5.454 min.
Effective stream area after confluence =      0.490(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.000(Ft.)
Downstream point/station elevation =   445.700(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     3.085(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     3.085(CFS)
Normal flow depth in pipe =    9.75(In.)
Flow top width inside pipe =    9.37(In.)
Critical Depth =    9.03(In.)
Pipe flow velocity =      4.51(Ft/s)
Travel time through pipe =    0.20 min.
Time of concentration (TC) =     5.66 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.490(Ac.)
Runoff from this stream =      3.085(CFS)
Time of concentration =    5.66 min.
Rainfall intensity =     6.845(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.100 to Point/Station       11.200
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
Initial area flow distance =   182.000(Ft.)
Top (of initial area) elevation =   452.800(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.600(Ft.)
Slope =    0.01978  s(percent)=       1.98
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.271 min.
Rainfall intensity =      7.131(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.897(CFS)
Total initial stream area =        0.300(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       11.200 to Point/Station       11.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.700(Ft.)
Pipe length  =    35.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.897(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.897(CFS)
Normal flow depth in pipe =    6.15(In.)
Flow top width inside pipe =    8.37(In.)
Critical Depth =    7.54(In.)
Pipe flow velocity =      5.89(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     5.37 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.300(Ac.)
Runoff from this stream =      1.897(CFS)
Time of concentration =    5.37 min.
Rainfall intensity =     7.055(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.300 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
```

```
Initial area flow distance =   124.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   448.300(Ft.)
Difference in elevation =     0.700(Ft.)
Slope =    0.00565  s(percent)=       0.56
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.810 min.
Rainfall intensity =      6.740(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.886
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.150(CFS)
Total initial stream area =        0.360(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       11.000 to Point/Station       11.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 3
Stream flow area =      0.360(Ac.)
Runoff from this stream =      2.150(CFS)
Time of concentration =    5.81 min.
Rainfall intensity =     6.740(In/Hr)
Summary of stream data:

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


1        3.085      5.66                6.845
2        1.897      5.37                7.055
3        2.150      5.81                6.740
Largest stream flow has longer or shorter time of concentration
Qp =      3.085 + sum of
          Qb         Ia/Ib
           1.897 *    0.970 =      1.841
          Qa          Tb/Ta
           2.150 *    0.974 =      2.094
Qp =      7.020

Total of 3 streams to confluence:
Flow rates before confluence point:
       3.085       1.897       2.150
Area of streams before confluence:
        0.490        0.300        0.360
Results of confluence:
Total flow rate =      7.020(CFS)
Time of concentration =     5.657 min.
Effective stream area after confluence =      1.150(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   445.400(Ft.)
Pipe length  =    25.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     7.020(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     7.020(CFS)
```

```
Normal flow depth in pipe =   10.52(In.)
Flow top width inside pipe =   13.73(In.)
Critical Depth =   12.74(In.)
Pipe flow velocity =      7.63(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =     5.71 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       12.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.150(Ac.)
Runoff from this stream =      7.020(CFS)
Time of concentration =    5.71 min.
Rainfall intensity =     6.807(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.100 to Point/Station       12.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    94.000(Ft.)
Top (of initial area) elevation =   449.600(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02021  s(percent)=       2.02
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.826(CFS)
Total initial stream area =        0.280(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.200 to Point/Station       12.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.700(Ft.)
Downstream point/station elevation =   445.400(Ft.)
Pipe length  =    68.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.826(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.826(CFS)
Normal flow depth in pipe =    7.07(In.)
Flow top width inside pipe =   11.81(In.)
Critical Depth =    6.91(In.)
Pipe flow velocity =      3.79(Ft/s)
Travel time through pipe =    0.30 min.
Time of concentration (TC) =     5.30 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       12.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
```

```
Stream flow area =      0.280(Ac.)
Runoff from this stream =      1.826(CFS)
Time of concentration =    5.30 min.
Rainfall intensity =     7.110(In/Hr)
Summary of stream data:

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


1        7.020      5.71                6.807
2        1.826      5.30                7.110
Largest stream flow has longer time of concentration
Qp =      7.020 + sum of
          Qb         Ia/Ib
           1.826 *    0.957 =      1.749
Qp =      8.768

Total of 2 streams to confluence:
Flow rates before confluence point:
       7.020       1.826
Area of streams before confluence:
        1.150        0.280
Results of confluence:
Total flow rate =      8.768(CFS)
Time of concentration =     5.712 min.
Effective stream area after confluence =      1.430(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
____________________________________________________________________________
Upstream point/station elevation =   445.400(Ft.)
Downstream point/station elevation =   445.300(Ft.)
Pipe length  =    21.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     8.768(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =     8.768(CFS)
Normal flow depth in pipe =   12.68(In.)
Flow top width inside pipe =   20.54(In.)
Critical Depth =   13.21(In.)
Pipe flow velocity =      5.77(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =     5.77 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       13.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.430(Ac.)
Runoff from this stream =      8.768(CFS)
Time of concentration =    5.77 min.
Rainfall intensity =     6.765(In/Hr)


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Process from Point/Station       13.100 to Point/Station       13.200
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
Initial area flow distance =   196.000(Ft.)
Top (of initial area) elevation =   453.100(Ft.)
Bottom (of initial area) elevation =   449.200(Ft.)
Difference in elevation =     3.900(Ft.)
Slope =    0.01990  s(percent)=       1.99
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.423 min.
```

```
Rainfall intensity =      7.015(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.741(CFS)
Total initial stream area =        0.280(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.200 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.300(Ft.)
Pipe length  =    77.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.741(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.741(CFS)
Normal flow depth in pipe =    6.22(In.)
Flow top width inside pipe =    8.31(In.)
Critical Depth =    7.26(In.)
Pipe flow velocity =      5.34(Ft/s)
Travel time through pipe =    0.24 min.
Time of concentration (TC) =     5.66 min.


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Process from Point/Station       13.000 to Point/Station       13.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.280(Ac.)
Runoff from this stream =      1.741(CFS)
Time of concentration =    5.66 min.
Rainfall intensity =     6.841(In/Hr)
Summary of stream data:

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


1        8.768      5.77                6.765
2        1.741      5.66                6.841
Largest stream flow has longer time of concentration
Qp =      8.768 + sum of
          Qb         Ia/Ib
           1.741 *    0.989 =      1.722
Qp =     10.491

Total of 2 streams to confluence:
Flow rates before confluence point:
       8.768       1.741
Area of streams before confluence:
        1.430        0.280
Results of confluence:
Total flow rate =     10.491(CFS)
Time of concentration =     5.772 min.
Effective stream area after confluence =      1.710(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
```

```
Upstream point/station elevation =   445.300(Ft.)
Downstream point/station elevation =   445.200(Ft.)
Pipe length  =     6.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    10.491(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    10.491(CFS)
Normal flow depth in pipe =   10.62(In.)
Flow top width inside pipe =   17.71(In.)
Critical Depth =   14.93(In.)
Pipe flow velocity =      9.67(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =     5.78 min.


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Process from Point/Station       14.000 to Point/Station        7.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   445.200(Ft.)
Downstream point/station elevation =   442.600(Ft.)
Pipe length  =    59.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    10.491(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    10.491(CFS)
Normal flow depth in pipe =    8.85(In.)
Flow top width inside pipe =   14.76(In.)
Critical depth could not be calculated.
Pipe flow velocity =     13.92(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =     5.85 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        7.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      1.710(Ac.)
Runoff from this stream =     10.491(CFS)
Time of concentration =    5.85 min.
Rainfall intensity =     6.711(In/Hr)
Summary of stream data:

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


1        9.257      6.07                6.568
2       10.491      5.85                6.711
Largest stream flow has longer or shorter time of concentration
Qp =     10.491 + sum of
          Qa          Tb/Ta
           9.257 *    0.964 =      8.920
Qp =     19.411

Total of 2 main streams to confluence:
Flow rates before confluence point:
       9.257      10.491
Area of streams before confluence:
        1.560        1.710


Results of confluence:
Total flow rate =     19.411(CFS)
Time of concentration =     5.853 min.
Effective stream area after confluence  =      3.270(Ac.)
```

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Process from Point/Station        7.000 to Point/Station       15.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   442.600(Ft.)
Downstream point/station elevation =   441.300(Ft.)
Pipe length  =   258.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    19.411(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    19.411(CFS)
Normal flow depth in pipe =   20.20(In.)
Flow top width inside pipe =   17.52(In.)
Critical Depth =   18.99(In.)
Pipe flow velocity =      6.88(Ft/s)
Travel time through pipe =    0.63 min.
Time of concentration (TC) =     6.48 min.


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Process from Point/Station       15.000 to Point/Station       15.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.270(Ac.)
Runoff from this stream =     19.411(CFS)
Time of concentration =    6.48 min.
Rainfall intensity =     6.327(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.100 to Point/Station       15.200
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   350.000(Ft.)
Top (of initial area) elevation =   447.800(Ft.)
Bottom (of initial area) elevation =   445.000(Ft.)
Difference in elevation =     2.800(Ft.)
Slope =    0.00800  s(percent)=       0.80
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.206 min.
Rainfall intensity =      5.517(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.884
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.804(CFS)
Total initial stream area =        0.370(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       15.200 to Point/Station       15.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   443.000(Ft.)
Downstream point/station elevation =   441.300(Ft.)
Pipe length  =    11.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.804(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     1.804(CFS)
Normal flow depth in pipe =    3.67(In.)
Flow top width inside pipe =    5.85(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.33(Ft/s)
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D - 1

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Travel time through pipe =    0.01 min.
Time of concentration (TC) =     8.22 min.


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Process from Point/Station       15.000 to Point/Station       15.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.370(Ac.)
Runoff from this stream =      1.804(CFS)
Time of concentration =    8.22 min.
Rainfall intensity =     5.512(In/Hr)
Summary of stream data:

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


1       19.411      6.48                6.327
2        1.804      8.22                5.512
Largest stream flow has longer or shorter time of concentration
Qp =     19.411 + sum of
          Qa          Tb/Ta
           1.804 *    0.788 =      1.422
Qp =     20.833

Total of 2 streams to confluence:
Flow rates before confluence point:
      19.411       1.804
Area of streams before confluence:
        3.270        0.370
Results of confluence:
Total flow rate =     20.833(CFS)
Time of concentration =     6.479 min.
Effective stream area after confluence =      3.640(Ac.)


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Process from Point/Station       15.000 to Point/Station       16.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   441.300(Ft.)
Downstream point/station elevation =   441.000(Ft.)
Pipe length  =    56.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    20.833(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    20.833(CFS)
Normal flow depth in pipe =   17.91(In.)
Flow top width inside pipe =   25.52(In.)
Critical Depth =   19.17(In.)
Pipe flow velocity =      7.45(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     6.60 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       16.000 to Point/Station       16.000
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      3.640(Ac.)
Runoff from this stream =     20.833(CFS)
Time of concentration =    6.60 min.
Rainfall intensity =     6.257(In/Hr)
Program is now starting with Main Stream No. 2
```

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Process from Point/Station       17.000 to Point/Station       18.000
**** INITIAL AREA EVALUATION **** C - 1
------------------------------------------------------------------------------
Initial area flow distance =    77.000(Ft.)
Top (of initial area) elevation =   451.000(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.500(Ft.)
Slope =    0.01948  s(percent)=       1.95
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.718(CFS)
Total initial stream area =        0.110(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       18.000 to Point/Station       19.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   446.200(Ft.)
Pipe length  =    34.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.718(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.718(CFS)
Normal flow depth in pipe =    3.91(In.)
Flow top width inside pipe =    8.92(In.)
Critical Depth =    4.63(In.)
Pipe flow velocity =      3.90(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =     5.15 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.000 to Point/Station       19.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.110(Ac.)
Runoff from this stream =      0.718(CFS)
Time of concentration =    5.15 min.
Rainfall intensity =     7.232(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.100 to Point/Station       19.000
**** INITIAL AREA EVALUATION **** C - 2
------------------------------------------------------------------------------
Initial area flow distance =    63.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.300(Ft.)
Slope =    0.02063  s(percent)=       2.06
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.870(CFS)
Total initial stream area =        0.440(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       19.000 to Point/Station       19.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.440(Ac.)
Runoff from this stream =      2.870(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     7.353(In/Hr)
Summary of stream data:

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


1        0.718      5.15                7.232
2        2.870      5.00                7.353
Largest stream flow has longer or shorter time of concentration
Qp =      2.870 + sum of
          Qa          Tb/Ta
           0.718 *    0.972 =      0.697
Qp =      3.567

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.718       2.870
Area of streams before confluence:
        0.110        0.440
Results of confluence:
Total flow rate =      3.567(CFS)
Time of concentration =     5.000 min.
Effective stream area after confluence =      0.550(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.000 to Point/Station       20.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.200(Ft.)
Downstream point/station elevation =   445.600(Ft.)
Pipe length  =   118.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     3.567(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     3.567(CFS)
Normal flow depth in pipe =    8.86(In.)
Flow top width inside pipe =   14.75(In.)
Critical Depth =    9.15(In.)
Pipe flow velocity =      4.73(Ft/s)
Travel time through pipe =    0.42 min.
Time of concentration (TC) =     5.42 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.000 to Point/Station       20.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.550(Ac.)
Runoff from this stream =      3.567(CFS)
Time of concentration =    5.42 min.
Rainfall intensity =     7.020(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       20.100 to Point/Station       20.200
**** INITIAL AREA EVALUATION ****
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Initial area flow distance =   102.000(Ft.)
Top (of initial area) elevation =   451.500(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.01961  s(percent)=       1.96
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.978(CFS)
Total initial stream area =        0.150(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       20.200 to Point/Station       20.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   445.600(Ft.)
Pipe length  =    37.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.978(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.978(CFS)
Normal flow depth in pipe =    4.65(In.)
Flow top width inside pipe =    5.01(In.)
Critical Depth =    5.64(In.)
Pipe flow velocity =      5.99(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     5.10 min.


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Process from Point/Station       20.000 to Point/Station       20.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.150(Ac.)
Runoff from this stream =      0.978(CFS)
Time of concentration =    5.10 min.
Rainfall intensity =     7.267(In/Hr)
Summary of stream data:

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


1        3.567      5.42                7.020
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```
2        0.978      5.10                 7.267
Largest stream flow has longer time of concentration
Qp =      3.567 + sum of
          Qb         Ia/Ib
           0.978 *    0.966 =      0.945
Qp =      4.513

Total of 2 streams to confluence:
Flow rates before confluence point:
       3.567       0.978
Area of streams before confluence:
        0.550        0.150
Results of confluence:
Total flow rate =      4.513(CFS)
Time of concentration =     5.416 min.
Effective stream area after confluence =      0.700(Ac.)


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Process from Point/Station       20.000 to Point/Station       21.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.600(Ft.)
Downstream point/station elevation =   445.100(Ft.)
Pipe length  =    94.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     4.513(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     4.513(CFS)
Normal flow depth in pipe =   10.24(In.)
Flow top width inside pipe =   13.96(In.)
Critical Depth =   10.32(In.)
Pipe flow velocity =      5.05(Ft/s)
Travel time through pipe =    0.31 min.
Time of concentration (TC) =     5.73 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       21.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.700(Ac.)
Runoff from this stream =      4.513(CFS)
Time of concentration =    5.73 min.
Rainfall intensity =     6.797(In/Hr)


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Process from Point/Station       21.100 to Point/Station       21.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    89.000(Ft.)
Top (of initial area) elevation =   449.500(Ft.)
Bottom (of initial area) elevation =   447.700(Ft.)
Difference in elevation =     1.800(Ft.)
Slope =    0.02022  s(percent)=       2.02
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
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Initial subarea runoff =      1.174(CFS)
Total initial stream area =        0.180(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       21.000 to Point/Station       21.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.180(Ac.)
Runoff from this stream =      1.174(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     7.353(In/Hr)
Summary of stream data:

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


1        4.513      5.73                6.797
2        1.174      5.00                7.353
Largest stream flow has longer time of concentration
Qp =      4.513 + sum of
          Qb         Ia/Ib
           1.174 *    0.924 =      1.085
Qp =      5.598

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.513       1.174
Area of streams before confluence:
        0.700        0.180
Results of confluence:
Total flow rate =      5.598(CFS)
Time of concentration =     5.726 min.
Effective stream area after confluence =      0.880(Ac.)


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Process from Point/Station       21.000 to Point/Station       22.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   445.100(Ft.)
Downstream point/station elevation =   444.600(Ft.)
Pipe length  =    99.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     5.598(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     5.598(CFS)
Normal flow depth in pipe =   10.41(In.)
Flow top width inside pipe =   17.78(In.)
Critical Depth =   10.95(In.)
Pipe flow velocity =      5.29(Ft/s)
Travel time through pipe =    0.31 min.
Time of concentration (TC) =     6.04 min.


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Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.880(Ac.)
Runoff from this stream =      5.598(CFS)
Time of concentration =    6.04 min.
Rainfall intensity =     6.591(In/Hr)


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Process from Point/Station       22.100 to Point/Station       22.200
**** INITIAL AREA EVALUATION ****
```
C - 5
```
----------------------------------------------------------------------
Initial area flow distance =    97.000(Ft.)
Top (of initial area) elevation =   451.400(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.01959  s(percent)=       1.96
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.044(CFS)
Total initial stream area =        0.160(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.200 to Point/Station       22.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   444.600(Ft.)
Pipe length  =    46.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.044(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     1.044(CFS)
Normal flow depth in pipe =    3.97(In.)
Flow top width inside pipe =    5.68(In.)
Critical depth could not be calculated.
Pipe flow velocity =      7.58(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     5.10 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.160(Ac.)
Runoff from this stream =      1.044(CFS)
Time of concentration =    5.10 min.
Rainfall intensity =     7.268(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.300 to Point/Station       22.000
**** INITIAL AREA EVALUATION ****
```
C - 6
```
----------------------------------------------------------------------
Initial area flow distance =    58.000(Ft.)
Top (of initial area) elevation =   449.400(Ft.)
Bottom (of initial area) elevation =   448.000(Ft.)
Difference in elevation =     1.400(Ft.)
Slope =    0.02414  s(percent)=       2.41
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
```

```
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.500(CFS)
Total initial stream area =        0.230(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 3
Stream flow area =      0.230(Ac.)
Runoff from this stream =      1.500(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     7.353(In/Hr)
Summary of stream data:

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


1        5.598      6.04                6.591
2        1.044      5.10                7.268
3        1.500      5.00                7.353
Largest stream flow has longer time of concentration
Qp =      5.598 + sum of
          Qb         Ia/Ib
           1.044 *    0.907 =      0.946
          Qb         Ia/Ib
           1.500 *    0.896 =      1.345
Qp =      7.889

Total of 3 streams to confluence:
Flow rates before confluence point:
       5.598       1.044       1.500
Area of streams before confluence:
        0.880        0.160        0.230
Results of confluence:
Total flow rate =      7.889(CFS)
Time of concentration =     6.038 min.
Effective stream area after confluence =      1.270(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       23.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   444.600(Ft.)
Downstream point/station elevation =   444.000(Ft.)
Pipe length  =   113.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     7.889(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     7.889(CFS)
Normal flow depth in pipe =   13.01(In.)
Flow top width inside pipe =   16.12(In.)
Critical Depth =   13.06(In.)
Pipe flow velocity =      5.77(Ft/s)
Travel time through pipe =    0.33 min.
Time of concentration (TC) =     6.36 min.


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```
Process from Point/Station       23.000 to Point/Station       23.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.270(Ac.)
Runoff from this stream =      7.889(CFS)
Time of concentration =    6.36 min.
Rainfall intensity =     6.393(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.100 to Point/Station       23.200
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =    79.000(Ft.)
Top (of initial area) elevation =   451.100(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.600(Ft.)
Slope =    0.02025  s(percent)=       2.03
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.913(CFS)
Total initial stream area =        0.140(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.200 to Point/Station       23.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   444.000(Ft.)
Pipe length  =    36.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.913(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.913(CFS)
Normal flow depth in pipe =    3.08(In.)
Flow top width inside pipe =    6.00(In.)
Critical Depth =    5.55(In.)
Pipe flow velocity =      9.00(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =     5.07 min.


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Process from Point/Station       23.000 to Point/Station       23.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.140(Ac.)
Runoff from this stream =      0.913(CFS)
Time of concentration =    5.07 min.
Rainfall intensity =     7.297(In/Hr)
Summary of stream data:

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

```
1        7.889      6.36                 6.393
2        0.913      5.07                 7.297
Largest stream flow has longer time of concentration
Qp =      7.889 + sum of
          Qb         Ia/Ib
           0.913 *    0.876 =      0.800
Qp =      8.689

Total of 2 streams to confluence:
Flow rates before confluence point:
       7.889       0.913
Area of streams before confluence:
        1.270        0.140
Results of confluence:
Total flow rate =      8.689(CFS)
Time of concentration =     6.364 min.
Effective stream area after confluence =      1.410(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station       24.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   444.000(Ft.)
Downstream point/station elevation =   443.700(Ft.)
Pipe length  =    65.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     8.689(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =     8.689(CFS)
Normal flow depth in pipe =   12.74(In.)
Flow top width inside pipe =   20.52(In.)
Critical Depth =   13.14(In.)
Pipe flow velocity =      5.69(Ft/s)
Travel time through pipe =    0.19 min.
Time of concentration (TC) =     6.55 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       24.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.410(Ac.)
Runoff from this stream =      8.689(CFS)
Time of concentration =    6.55 min.
Rainfall intensity =     6.285(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.100 to Point/Station       24.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =    95.000(Ft.)
Top (of initial area) elevation =   451.400(Ft.)
Bottom (of initial area) elevation =   449.500(Ft.)
Difference in elevation =     1.900(Ft.)
Slope =    0.02000  s(percent)=       2.00
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.783(CFS)
Total initial stream area =        0.120(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station       24.200 to Point/Station       24.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   446.500(Ft.)
Downstream point/station elevation =   443.700(Ft.)
Pipe length  =    28.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     0.783(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.783(CFS)
Normal flow depth in pipe =    2.54(In.)
Flow top width inside pipe =    5.93(In.)
Critical Depth =    5.29(In.)
Pipe flow velocity =      9.90(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =     5.05 min.


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Process from Point/Station       24.000 to Point/Station       24.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.120(Ac.)
Runoff from this stream =      0.783(CFS)
Time of concentration =    5.05 min.
Rainfall intensity =     7.313(In/Hr)
Summary of stream data:

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


1        8.689      6.55                6.285
2        0.783      5.05                7.313
Largest stream flow has longer time of concentration
Qp =      8.689 + sum of
          Qb         Ia/Ib
           0.783 *    0.859 =      0.673
Qp =      9.362

Total of 2 streams to confluence:
Flow rates before confluence point:
       8.689       0.783
Area of streams before confluence:
        1.410        0.120
Results of confluence:
Total flow rate =      9.362(CFS)
Time of concentration =     6.555 min.
Effective stream area after confluence =      1.530(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       25.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   443.700(Ft.)
Downstream point/station elevation =   443.500(Ft.)
Pipe length  =    32.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     9.362(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     9.362(CFS)
```

```
Normal flow depth in pipe =   14.06(In.)
Flow top width inside pipe =   14.88(In.)
Critical Depth =   14.19(In.)
Pipe flow velocity =      6.32(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     6.64 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.000 to Point/Station       25.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.530(Ac.)
Runoff from this stream =      9.362(CFS)
Time of concentration =    6.64 min.
Rainfall intensity =     6.238(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.100 to Point/Station       25.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =    48.000(Ft.)
Top (of initial area) elevation =   449.000(Ft.)
Bottom (of initial area) elevation =   448.000(Ft.)
Difference in elevation =     1.000(Ft.)
Slope =    0.02083  s(percent)=       2.08
TC = k(0.300)*[(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 =      7.353(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.435(CFS)
Total initial stream area =        0.220(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.000 to Point/Station       25.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.220(Ac.)
Runoff from this stream =      1.435(CFS)
Time of concentration =    5.00 min.
Rainfall intensity =     7.353(In/Hr)
Summary of stream data:

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


1        9.362      6.64                6.238
2        1.435      5.00                7.353
Largest stream flow has longer time of concentration
Qp =      9.362 + sum of
          Qb         Ia/Ib
           1.435 *    0.848 =      1.217
Qp =     10.579
```

```
Total of 2 streams to confluence:
Flow rates before confluence point:
       9.362       1.435
Area of streams before confluence:
        1.530        0.220
Results of confluence:
Total flow rate =     10.579(CFS)
Time of concentration =     6.639 min.
Effective stream area after confluence =      1.750(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       25.000 to Point/Station       26.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   443.500(Ft.)
Downstream point/station elevation =   443.300(Ft.)
Pipe length  =    31.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    10.579(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    10.579(CFS)
Normal flow depth in pipe =   12.98(In.)
Flow top width inside pipe =   20.40(In.)
Critical Depth =   14.55(In.)
Pipe flow velocity =      6.77(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     6.72 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       26.000 to Point/Station       27.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   443.300(Ft.)
Downstream point/station elevation =   442.400(Ft.)
Pipe length  =   190.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    10.579(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    10.579(CFS)
Normal flow depth in pipe =   14.48(In.)
Flow top width inside pipe =   19.43(In.)
Critical Depth =   14.55(In.)
Pipe flow velocity =      5.98(Ft/s)
Travel time through pipe =    0.53 min.
Time of concentration (TC) =     7.24 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       27.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.750(Ac.)
Runoff from this stream =     10.579(CFS)
Time of concentration =    7.24 min.
Rainfall intensity =     5.930(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.100 to Point/Station       27.200
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   178.000(Ft.)
Top (of initial area) elevation =   448.000(Ft.)
Bottom (of initial area) elevation =   445.900(Ft.)
Difference in elevation =     2.100(Ft.)
Slope =    0.01180  s(percent)=       1.18
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.793 min.
```

```
Rainfall intensity =      6.751(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.886
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 3)  =  52.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.496(CFS)
Total initial stream area =        0.250(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.200 to Point/Station       27.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   443.900(Ft.)
Downstream point/station elevation =   442.400(Ft.)
Pipe length  =    10.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =     1.496(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     1.496(CFS)
Normal flow depth in pipe =    3.29(In.)
Flow top width inside pipe =    5.97(In.)
Critical depth could not be calculated.
Pipe flow velocity =     13.57(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =     5.81 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       27.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.250(Ac.)
Runoff from this stream =      1.496(CFS)
Time of concentration =    5.81 min.
Rainfall intensity =     6.743(In/Hr)
Summary of stream data:

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


1       10.579      7.24                5.930
2        1.496      5.81                6.743
Largest stream flow has longer time of concentration
Qp =     10.579 + sum of
          Qb         Ia/Ib
           1.496 *    0.879 =      1.315
Qp =     11.895

Total of 2 streams to confluence:
Flow rates before confluence point:
      10.579       1.496
Area of streams before confluence:
        1.750        0.250
Results of confluence:
Total flow rate =     11.895(CFS)
Time of concentration =     7.245 min.
Effective stream area after confluence =      2.000(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       27.000 to Point/Station       16.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
```

```
Upstream point/station elevation =   442.400(Ft.)
Downstream point/station elevation =   441.000(Ft.)
Pipe length  =    69.00(Ft.)   Manning's N = 0.011
No. of pipes = 1  Required pipe flow  =    11.895(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    11.895(CFS)
Normal flow depth in pipe =   10.80(In.)
Flow top width inside pipe =   17.63(In.)
Critical Depth =   15.71(In.)
Pipe flow velocity =     10.73(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =     7.35 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       16.000 to Point/Station       16.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.000(Ac.)
Runoff from this stream =     11.895(CFS)
Time of concentration =    7.35 min.
Rainfall intensity =     5.880(In/Hr)
Summary of stream data:

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


1       20.833      6.60                6.257
2       11.895      7.35                5.880
Largest stream flow has longer or shorter time of concentration
Qp =     20.833 + sum of
          Qa          Tb/Ta
          11.895 *    0.898 =     10.684
Qp =     31.517

Total of 2 main streams to confluence:
Flow rates before confluence point:
      20.833      11.895
Area of streams before confluence:
        3.640        2.000


Results of confluence:
Total flow rate =     31.517(CFS)
Time of concentration =     6.604 min.
Effective stream area after confluence  =      5.640(Ac.)
End of computations, total study area =            5.64 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  32.0
```

SECTION 6.1

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**2-YEAR**
DURATION:	**1-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH2Y1H5M12.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.101 Hr.
Lag time = 6.06 Min.
25% of lag time = 1.52 Min.
40% of lag time = 2.42 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]
5.64	0.50	2.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	1.74	9.81

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.740(In)

Point rain (area averaged) = 0.498(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 0.498(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	16.2	0.870	0.800	0.244	1.000	0.244
					Sum (F) =	0.244

Area averaged mean soil loss (F) (In/Hr) = 0.244
Minimum soil loss rate ((In/Hr)) = 0.122

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

Slope of intensity-duration curve for a 1 hour storm =0.5800

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.508	11.511	0.654
2	0.167	165.017	47.364	2.692
3	0.250	247.525	19.873	1.130
4	0.333	330.033	8.871	0.504
5	0.417	412.541	4.940	0.281
6	0.500	495.050	3.072	0.175
7	0.583	577.558	1.885	0.107
8	0.667	660.066	1.016	0.058
9	0.750	742.574	0.921	0.052
10	0.833	825.083	0.547	0.031
			Sum = 100.000 Sum=	5.684

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	3.60	0.215	(0.244)	0.056	0.159
2	0.17	4.20	0.251	(0.244)	0.065	0.186
3	0.25	4.40	0.263	(0.244)	0.068	0.195
4	0.33	4.60	0.275	(0.244)	0.071	0.203
5	0.42	5.00	0.299	(0.244)	0.078	0.221
6	0.50	5.60	0.335	(0.244)	0.087	0.248
7	0.58	6.40	0.382	(0.244)	0.099	0.283
8	0.67	8.10	0.484	(0.244)	0.126	0.358
9	0.75	13.10	0.783	(0.244)	0.204	0.579
10	0.83	34.50	2.062	0.244	(0.536)	1.818
11	0.92	6.70	0.400	(0.244)	0.104	0.296
12	1.00	3.80	0.227	(0.244)	0.059	0.168
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	4.7

Flood volume = Effective rainfall 0.39(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 0.11(In)
Total soil loss = 0.049(Ac.Ft)
Total rainfall = 0.50(In)
Flood volume = 8043.1 Cubic Feet
Total soil loss = 2152.0 Cubic Feet

Peak flow rate of this hydrograph = 6.100(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	0.0007	0.10	Q				
0+10	0.0045	0.55	V Q				
0+15	0.0101	0.81	| VQ				

```
    0+20       0.0166      0.95  |  Q      |         |         |         |
    0+25       0.0238      1.05  |   QV    |         |         |         |
    0+30       0.0319      1.17  |   Q V   |         |         |         |
    0+35       0.0409      1.31  |    Q  V |         |         |         |
    0+40       0.0513      1.51  |     Q   |V        |         |         |
    0+45       0.0645      1.93  |      Q  |  V      |         |         |
    0+50       0.0883      3.45  |         |  Q     V|         |         |
    0+55       0.1303      6.10  |         |         |   Q   V |         |
    1+ 0       0.1542      3.46  |         |  Q      |         |  V      |
    1+ 5       0.1679      1.99  |      Q  |         |         |     V   |
    1+10       0.1750      1.03  |   Q     |         |         |      V  |
    1+15       0.1790      0.59  | Q       |         |         |       V |
    1+20       0.1815      0.35  |Q        |         |         |        V|
    1+25       0.1829      0.21  Q         |         |         |        V|
    1+30       0.1839      0.15  Q         |         |         |        V|
    1+35       0.1845      0.08  Q         |         |         |        V|
    1+40       0.1846      0.02  Q         |         |         |        V|
    1+45       0.1846      0.01  Q         |         |         |        V|
-------------------------------------------------------------------------
```

SECTION 6.1.1

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**2-YEAR**
DURATION:	**3-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH2Y3H5M32.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.101 Hr.
Lag time = 6.06 Min.
25% of lag time = 1.52 Min.
40% of lag time = 2.42 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]
5.64	0.78	4.40

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	2.50	14.10

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.781(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 0.781(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.781(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	16.2	0.870	0.800	0.244	1.000	0.244
					Sum (F) =	0.244

Area averaged mean soil loss (F) (In/Hr) = 0.244
Minimum soil loss rate ((In/Hr)) = 0.122

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.508	11.511	0.654
2	0.167	165.017	47.364	2.692
3	0.250	247.525	19.873	1.130
4	0.333	330.033	8.871	0.504
5	0.417	412.541	4.940	0.281
6	0.500	495.050	3.072	0.175
7	0.583	577.558	1.885	0.107
8	0.667	660.066	1.016	0.058
9	0.750	742.574	0.921	0.052
10	0.833	825.083	0.547	0.031
			Sum = 100.000	Sum= 5.684

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	0.122	(0.244)	0.032	0.090
2	0.17	1.30	0.122	(0.244)	0.032	0.090
3	0.25	1.10	0.103	(0.244)	0.027	0.076
4	0.33	1.50	0.141	(0.244)	0.037	0.104
5	0.42	1.50	0.141	(0.244)	0.037	0.104
6	0.50	1.80	0.169	(0.244)	0.044	0.125
7	0.58	1.50	0.141	(0.244)	0.037	0.104
8	0.67	1.80	0.169	(0.244)	0.044	0.125
9	0.75	1.80	0.169	(0.244)	0.044	0.125
10	0.83	1.50	0.141	(0.244)	0.037	0.104
11	0.92	1.60	0.150	(0.244)	0.039	0.111
12	1.00	1.80	0.169	(0.244)	0.044	0.125
13	1.08	2.20	0.206	(0.244)	0.054	0.153
14	1.17	2.20	0.206	(0.244)	0.054	0.153
15	1.25	2.20	0.206	(0.244)	0.054	0.153
16	1.33	2.00	0.187	(0.244)	0.049	0.139
17	1.42	2.60	0.244	(0.244)	0.063	0.180
18	1.50	2.70	0.253	(0.244)	0.066	0.187
19	1.58	2.40	0.225	(0.244)	0.058	0.166
20	1.67	2.70	0.253	(0.244)	0.066	0.187
21	1.75	3.30	0.309	(0.244)	0.080	0.229
22	1.83	3.10	0.291	(0.244)	0.076	0.215
23	1.92	2.90	0.272	(0.244)	0.071	0.201
24	2.00	3.00	0.281	(0.244)	0.073	0.208
25	2.08	3.10	0.291	(0.244)	0.076	0.215
26	2.17	4.20	0.394	(0.244)	0.102	0.291
27	2.25	5.00	0.469	(0.244)	0.122	0.347
28	2.33	3.50	0.328	(0.244)	0.085	0.243
29	2.42	6.80	0.637	(0.244)	0.166	0.472
30	2.50	7.30	0.684	(0.244)	0.178	0.506
31	2.58	8.20	0.768	(0.244)	0.200	0.569
32	2.67	5.90	0.553	(0.244)	0.144	0.409
33	2.75	2.00	0.187	(0.244)	0.049	0.139
34	2.83	1.80	0.169	(0.244)	0.044	0.125
35	2.92	1.80	0.169	(0.244)	0.044	0.125
36	3.00	0.60	0.056	(0.244)	0.015	0.042
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	6.9

```
      Flood volume = Effective rainfall      0.58(In)
       times area       5.6(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
      Total soil loss =      0.20(In)
      Total soil loss =     0.095(Ac.Ft)
      Total rainfall =      0.78(In)
      Flood volume =       11832.0 Cubic Feet
      Total soil loss =        4157.2 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      2.799(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       0.0004      0.06  Q         |         |         |         |
   0+10       0.0025      0.30  VQ        |         |         |         |
   0+15       0.0052      0.39  VQ        |         |         |         |
   0+20       0.0081      0.42  |Q        |         |         |         |
   0+25       0.0116      0.51  |VQ       |         |         |         |
   0+30       0.0154      0.56  | Q       |         |         |         |
   0+35       0.0197      0.62  | Q       |         |         |         |
   0+40       0.0239      0.61  | QV      |         |         |         |
   0+45       0.0285      0.66  | Q V     |         |         |         |
   0+50       0.0331      0.67  | Q V     |         |         |         |
   0+55       0.0375      0.63  | Q  V    |         |         |         |
   1+ 0       0.0419      0.64  | Q   V   |         |         |         |
   1+ 5       0.0467      0.70  | Q   V   |         |         |         |
   1+10       0.0522      0.79  |  Q   V  |         |         |         |
   1+15       0.0578      0.83  |  Q    V |         |         |         |
   1+20       0.0636      0.83  |  Q     V|         |         |         |
   1+25       0.0693      0.83  |  Q      V         |         |         |
   1+30       0.0758      0.94  |  Q      |V        |         |         |
   1+35       0.0826      0.99  |  Q      | V       |         |         |
   1+40       0.0893      0.97  |  Q      |  V      |         |         |
   1+45       0.0965      1.05  |   Q     |   V     |         |         |
   1+50       0.1046      1.17  |   Q     |    V    |         |         |
   1+55       0.1128      1.18  |   Q     |     V   |         |         |
   2+ 0       0.1208      1.16  |   Q     |      V  |         |         |
   2+ 5       0.1289      1.18  |   Q     |       V |         |         |
   2+10       0.1375      1.25  |    Q    |         V         |         |
   2+15       0.1479      1.50  |     Q   |         |V        |         |
   2+20       0.1594      1.68  |     Q   |         |  V      |         |
   2+25       0.1708      1.65  |     Q   |         |    V    |         |
   2+30       0.1861      2.22  |       Q |         |      V  |         |
   2+35       0.2039      2.59  |         Q         |         V         |
   2+40       0.2232      2.80  |         |Q        |         | V       |
   2+45       0.2393      2.34  |        Q|         |         |    V    |
   2+50       0.2496      1.50  |    Q    |         |         |     V   |
   2+55       0.2573      1.12  |   Q     |         |         |      V  |
   3+ 0       0.2635      0.89  |  Q      |         |         |       V |
   3+ 5       0.2673      0.55  | Q       |         |         |        V|
   3+10       0.2692      0.29  |Q        |         |         |        V|
   3+15       0.2704      0.16  Q         |         |         |        V|
   3+20       0.2710      0.09  Q         |         |         |        V|
   3+25       0.2713      0.05  Q         |         |         |        V|
   3+30       0.2715      0.02  Q         |         |         |        V|
   3+35       0.2716      0.01  Q         |         |         |        V|
   3+40       0.2716      0.01  Q         |         |         |        V|
   3+45       0.2716      0.00  Q         |         |         |        V|
------------------------------------------------------------------------
```

SECTION 6.1.2

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**2-YEAR**
DURATION:	**6-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH2Y6H5M62.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.101 Hr.
Lag time = 6.06 Min.
25% of lag time = 1.52 Min.
40% of lag time = 2.42 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]
5.64	1.05	5.92

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	3.28	18.50

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.050(In)
Area Averaged 100-Year Rainfall = 3.280(In)

Point rain (area averaged) = 1.050(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.050(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	16.2	0.870	0.800	0.244	1.000	0.244
					Sum (F) =	0.244

Area averaged mean soil loss (F) (In/Hr) = 0.244
Minimum soil loss rate ((In/Hr)) = 0.122

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

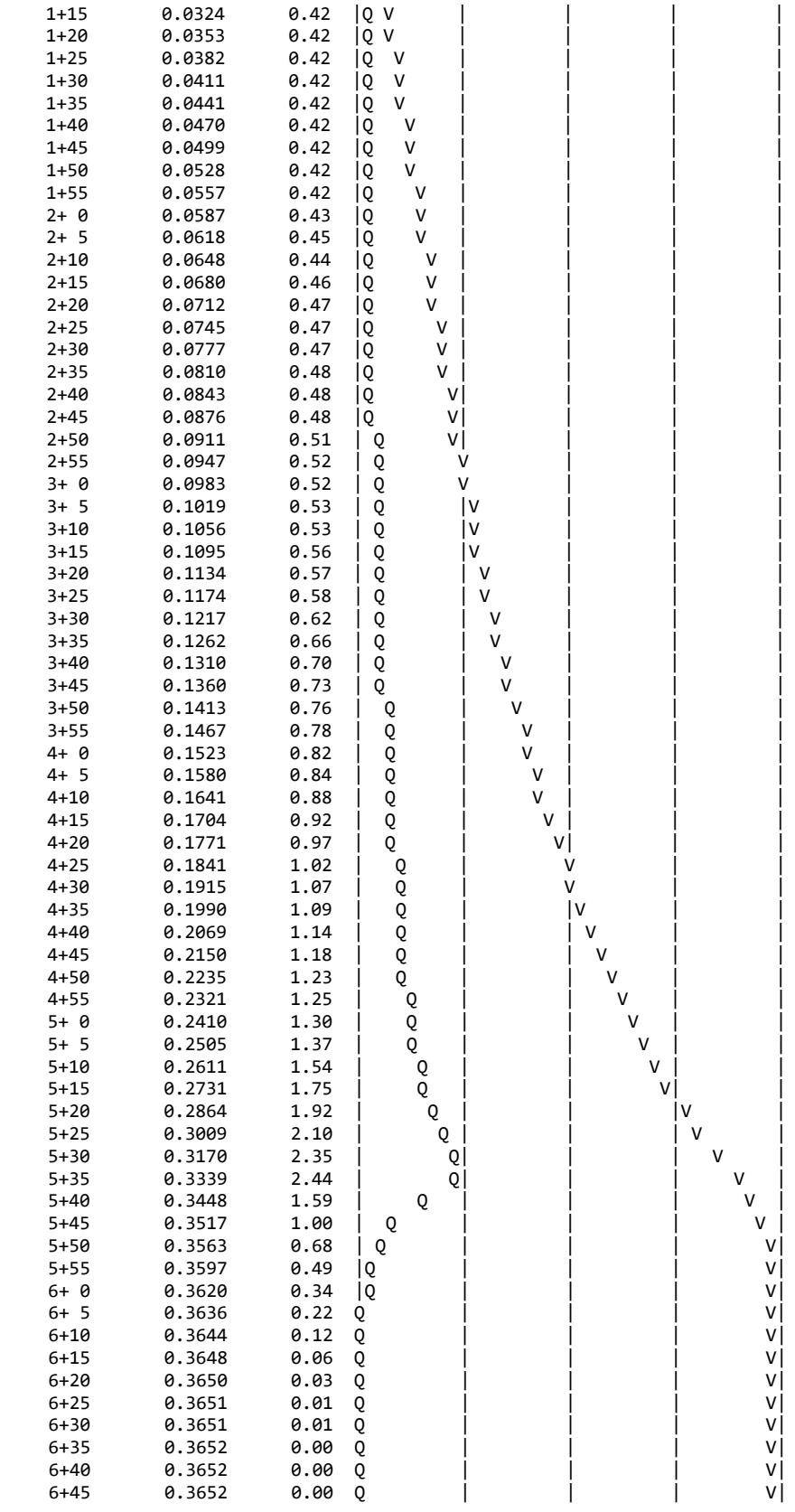
Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.508	11.511	0.654
2	0.167	165.017	47.364	2.692
3	0.250	247.525	19.873	1.130
4	0.333	330.033	8.871	0.504
5	0.417	412.541	4.940	0.281
6	0.500	495.050	3.072	0.175
7	0.583	577.558	1.885	0.107
8	0.667	660.066	1.016	0.058
9	0.750	742.574	0.921	0.052
10	0.833	825.083	0.547	0.031
			Sum = 100.000 Sum=	5.684

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	0.063	(0.244)	0.016	0.047
2	0.17	0.60	0.076	(0.244)	0.020	0.056
3	0.25	0.60	0.076	(0.244)	0.020	0.056
4	0.33	0.60	0.076	(0.244)	0.020	0.056
5	0.42	0.60	0.076	(0.244)	0.020	0.056
6	0.50	0.70	0.088	(0.244)	0.023	0.065
7	0.58	0.70	0.088	(0.244)	0.023	0.065
8	0.67	0.70	0.088	(0.244)	0.023	0.065
9	0.75	0.70	0.088	(0.244)	0.023	0.065
10	0.83	0.70	0.088	(0.244)	0.023	0.065
11	0.92	0.70	0.088	(0.244)	0.023	0.065
12	1.00	0.80	0.101	(0.244)	0.026	0.075
13	1.08	0.80	0.101	(0.244)	0.026	0.075
14	1.17	0.80	0.101	(0.244)	0.026	0.075
15	1.25	0.80	0.101	(0.244)	0.026	0.075
16	1.33	0.80	0.101	(0.244)	0.026	0.075
17	1.42	0.80	0.101	(0.244)	0.026	0.075
18	1.50	0.80	0.101	(0.244)	0.026	0.075
19	1.58	0.80	0.101	(0.244)	0.026	0.075
20	1.67	0.80	0.101	(0.244)	0.026	0.075
21	1.75	0.80	0.101	(0.244)	0.026	0.075
22	1.83	0.80	0.101	(0.244)	0.026	0.075
23	1.92	0.80	0.101	(0.244)	0.026	0.075
24	2.00	0.90	0.113	(0.244)	0.029	0.084
25	2.08	0.80	0.101	(0.244)	0.026	0.075
26	2.17	0.90	0.113	(0.244)	0.029	0.084
27	2.25	0.90	0.113	(0.244)	0.029	0.084
28	2.33	0.90	0.113	(0.244)	0.029	0.084
29	2.42	0.90	0.113	(0.244)	0.029	0.084
30	2.50	0.90	0.113	(0.244)	0.029	0.084
31	2.58	0.90	0.113	(0.244)	0.029	0.084
32	2.67	0.90	0.113	(0.244)	0.029	0.084
33	2.75	1.00	0.126	(0.244)	0.033	0.093
34	2.83	1.00	0.126	(0.244)	0.033	0.093
35	2.92	1.00	0.126	(0.244)	0.033	0.093
36	3.00	1.00	0.126	(0.244)	0.033	0.093
37	3.08	1.00	0.126	(0.244)	0.033	0.093
38	3.17	1.10	0.139	(0.244)	0.036	0.103

```
39   3.25     1.10      0.139       (  0.244)       0.036        0.103
40   3.33     1.10      0.139       (  0.244)       0.036        0.103
41   3.42     1.20      0.151       (  0.244)       0.039        0.112
42   3.50     1.30      0.164       (  0.244)       0.043        0.121
43   3.58     1.40      0.176       (  0.244)       0.046        0.131
44   3.67     1.40      0.176       (  0.244)       0.046        0.131
45   3.75     1.50      0.189       (  0.244)       0.049        0.140
46   3.83     1.50      0.189       (  0.244)       0.049        0.140
47   3.92     1.60      0.202       (  0.244)       0.052        0.149
48   4.00     1.60      0.202       (  0.244)       0.052        0.149
49   4.08     1.70      0.214       (  0.244)       0.056        0.159
50   4.17     1.80      0.227       (  0.244)       0.059        0.168
51   4.25     1.90      0.239       (  0.244)       0.062        0.177
52   4.33     2.00      0.252       (  0.244)       0.066        0.186
53   4.42     2.10      0.265       (  0.244)       0.069        0.196
54   4.50     2.10      0.265       (  0.244)       0.069        0.196
55   4.58     2.20      0.277       (  0.244)       0.072        0.205
56   4.67     2.30      0.290       (  0.244)       0.075        0.214
57   4.75     2.40      0.302       (  0.244)       0.079        0.224
58   4.83     2.40      0.302       (  0.244)       0.079        0.224
59   4.92     2.50      0.315       (  0.244)       0.082        0.233
60   5.00     2.60      0.328       (  0.244)       0.085        0.242
61   5.08     3.10      0.391       (  0.244)       0.102        0.289
62   5.17     3.60      0.454       (  0.244)       0.118        0.336
63   5.25     3.90      0.491       (  0.244)       0.128        0.364
64   5.33     4.20      0.529       (  0.244)       0.138        0.392
65   5.42     4.70      0.592       (  0.244)       0.154        0.438
66   5.50     5.60      0.706       (  0.244)       0.183        0.522
67   5.58     1.90      0.239       (  0.244)       0.062        0.177
68   5.67     0.90      0.113       (  0.244)       0.029        0.084
69   5.75     0.60      0.076       (  0.244)       0.020        0.056
70   5.83     0.50      0.063       (  0.244)       0.016        0.047
71   5.92     0.30      0.038       (  0.244)       0.010        0.028
72   6.00     0.20      0.025       (  0.244)       0.007        0.019
               (Loss Rate Not Used)
   Sum =     100.0                                    Sum =     9.3
      Flood volume = Effective rainfall      0.78(In)
       times area       5.6(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
      Total soil loss =      0.27(In)
      Total soil loss =     0.128(Ac.Ft)
      Total rainfall =      1.05(In)
      Flood volume =       15907.4 Cubic Feet
      Total soil loss =        5589.1 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      2.440(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       0.0002      0.03  Q         |         |         |         |
  0+10       0.0013      0.16  Q         |         |         |         |
  0+15       0.0030      0.24  Q         |         |         |         |
  0+20       0.0049      0.27  VQ        |         |         |         |
  0+25       0.0069      0.29  VQ        |         |         |         |
  0+30       0.0090      0.31  VQ        |         |         |         |
  0+35       0.0113      0.34  |Q        |         |         |         |
  0+40       0.0138      0.35  |Q        |         |         |         |
  0+45       0.0163      0.36  |Q        |         |         |         |
  0+50       0.0188      0.37  |QV       |         |         |         |
  0+55       0.0214      0.37  |QV       |         |         |         |
  1+ 0       0.0239      0.38  |QV       |         |         |         |
  1+ 5       0.0267      0.40  |QV       |         |         |         |
  1+10       0.0296      0.41  |Q V      |         |         |         |
```


1+15 0.0324 0.42
1+20 0.0353 0.42
1+25 0.0382 0.42
1+30 0.0411 0.42
1+35 0.0441 0.42
1+40 0.0470 0.42
1+45 0.0499 0.42
1+50 0.0528 0.42
1+55 0.0557 0.42
2+ 0 0.0587 0.43
2+ 5 0.0618 0.45
2+10 0.0648 0.44
2+15 0.0680 0.46
2+20 0.0712 0.47
2+25 0.0745 0.47
2+30 0.0777 0.47
2+35 0.0810 0.48
2+40 0.0843 0.48
2+45 0.0876 0.48
2+50 0.0911 0.51
2+55 0.0947 0.52
3+ 0 0.0983 0.52
3+ 5 0.1019 0.53
3+10 0.1056 0.53
3+15 0.1095 0.56
3+20 0.1134 0.57
3+25 0.1174 0.58
3+30 0.1217 0.62
3+35 0.1262 0.66
3+40 0.1310 0.70
3+45 0.1360 0.73
3+50 0.1413 0.76
3+55 0.1467 0.78
4+ 0 0.1523 0.82
4+ 5 0.1580 0.84
4+10 0.1641 0.88
4+15 0.1704 0.92
4+20 0.1771 0.97
4+25 0.1841 1.02
4+30 0.1915 1.07
4+35 0.1990 1.09
4+40 0.2069 1.14
4+45 0.2150 1.18
4+50 0.2235 1.23
4+55 0.2321 1.25
5+ 0 0.2410 1.30
5+ 5 0.2505 1.37
5+10 0.2611 1.54
5+15 0.2731 1.75
5+20 0.2864 1.92
5+25 0.3009 2.10
5+30 0.3170 2.35
5+35 0.3339 2.44
5+40 0.3448 1.59
5+45 0.3517 1.00
5+50 0.3563 0.68
5+55 0.3597 0.49
6+ 0 0.3620 0.34
6+ 5 0.3636 0.22
6+10 0.3644 0.12
6+15 0.3648 0.06
6+20 0.3650 0.03
6+25 0.3651 0.01
6+30 0.3651 0.01
6+35 0.3652 0.00
6+40 0.3652 0.00
6+45 0.3652 0.00

SECTION 6.1.3

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**2-YEAR**
DURATION:	**24-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH2Y24H5M242.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.101 Hr.
Lag time = 6.06 Min.
25% of lag time = 1.52 Min.
40% of lag time = 2.42 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]
5.64	1.64	9.25

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	5.27	29.72

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.640(In)
Area Averaged 100-Year Rainfall = 5.270(In)

Point rain (area averaged) = 1.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.640(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	16.2	0.870	0.800	0.244	1.000	0.244
					Sum (F) =	0.244

Area averaged mean soil loss (F) (In/Hr) = 0.244
Minimum soil loss rate ((In/Hr)) = 0.122

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.508	11.511	0.654
2	0.167	165.017	47.364	2.692
3	0.250	247.525	19.873	1.130
4	0.333	330.033	8.871	0.504
5	0.417	412.541	4.940	0.281
6	0.500	495.050	3.072	0.175
7	0.583	577.558	1.885	0.107
8	0.667	660.066	1.016	0.058
9	0.750	742.574	0.921	0.052
10	0.833	825.083	0.547	0.031
			Sum = 100.000	Sum= 5.684

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	0.013	(0.432)	0.003	0.010
2	0.17	0.07	0.013	(0.430)	0.003	0.010
3	0.25	0.07	0.013	(0.429)	0.003	0.010
4	0.33	0.10	0.020	(0.427)	0.005	0.015
5	0.42	0.10	0.020	(0.425)	0.005	0.015
6	0.50	0.10	0.020	(0.424)	0.005	0.015
7	0.58	0.10	0.020	(0.422)	0.005	0.015
8	0.67	0.10	0.020	(0.420)	0.005	0.015
9	0.75	0.10	0.020	(0.419)	0.005	0.015
10	0.83	0.13	0.026	(0.417)	0.007	0.019
11	0.92	0.13	0.026	(0.415)	0.007	0.019
12	1.00	0.13	0.026	(0.414)	0.007	0.019
13	1.08	0.10	0.020	(0.412)	0.005	0.015
14	1.17	0.10	0.020	(0.411)	0.005	0.015
15	1.25	0.10	0.020	(0.409)	0.005	0.015
16	1.33	0.10	0.020	(0.407)	0.005	0.015
17	1.42	0.10	0.020	(0.406)	0.005	0.015
18	1.50	0.10	0.020	(0.404)	0.005	0.015
19	1.58	0.10	0.020	(0.402)	0.005	0.015
20	1.67	0.10	0.020	(0.401)	0.005	0.015
21	1.75	0.10	0.020	(0.399)	0.005	0.015
22	1.83	0.13	0.026	(0.398)	0.007	0.019
23	1.92	0.13	0.026	(0.396)	0.007	0.019
24	2.00	0.13	0.026	(0.394)	0.007	0.019
25	2.08	0.13	0.026	(0.393)	0.007	0.019
26	2.17	0.13	0.026	(0.391)	0.007	0.019
27	2.25	0.13	0.026	(0.390)	0.007	0.019
28	2.33	0.13	0.026	(0.388)	0.007	0.019
29	2.42	0.13	0.026	(0.386)	0.007	0.019
30	2.50	0.13	0.026	(0.385)	0.007	0.019
31	2.58	0.17	0.033	(0.383)	0.009	0.024
32	2.67	0.17	0.033	(0.382)	0.009	0.024
33	2.75	0.17	0.033	(0.380)	0.009	0.024
34	2.83	0.17	0.033	(0.379)	0.009	0.024
35	2.92	0.17	0.033	(0.377)	0.009	0.024
36	3.00	0.17	0.033	(0.376)	0.009	0.024
37	3.08	0.17	0.033	(0.374)	0.009	0.024
38	3.17	0.17	0.033	(0.372)	0.009	0.024

39	3.25	0.17	0.033	(0.371)	0.009	0.024
40	3.33	0.17	0.033	(0.369)	0.009	0.024
41	3.42	0.17	0.033	(0.368)	0.009	0.024
42	3.50	0.17	0.033	(0.366)	0.009	0.024
43	3.58	0.17	0.033	(0.365)	0.009	0.024
44	3.67	0.17	0.033	(0.363)	0.009	0.024
45	3.75	0.17	0.033	(0.362)	0.009	0.024
46	3.83	0.20	0.039	(0.360)	0.010	0.029
47	3.92	0.20	0.039	(0.359)	0.010	0.029
48	4.00	0.20	0.039	(0.357)	0.010	0.029
49	4.08	0.20	0.039	(0.356)	0.010	0.029
50	4.17	0.20	0.039	(0.354)	0.010	0.029
51	4.25	0.20	0.039	(0.353)	0.010	0.029
52	4.33	0.23	0.046	(0.351)	0.012	0.034
53	4.42	0.23	0.046	(0.350)	0.012	0.034
54	4.50	0.23	0.046	(0.348)	0.012	0.034
55	4.58	0.23	0.046	(0.347)	0.012	0.034
56	4.67	0.23	0.046	(0.345)	0.012	0.034
57	4.75	0.23	0.046	(0.344)	0.012	0.034
58	4.83	0.27	0.052	(0.342)	0.014	0.039
59	4.92	0.27	0.052	(0.341)	0.014	0.039
60	5.00	0.27	0.052	(0.339)	0.014	0.039
61	5.08	0.20	0.039	(0.338)	0.010	0.029
62	5.17	0.20	0.039	(0.336)	0.010	0.029
63	5.25	0.20	0.039	(0.335)	0.010	0.029
64	5.33	0.23	0.046	(0.333)	0.012	0.034
65	5.42	0.23	0.046	(0.332)	0.012	0.034
66	5.50	0.23	0.046	(0.330)	0.012	0.034
67	5.58	0.27	0.052	(0.329)	0.014	0.039
68	5.67	0.27	0.052	(0.327)	0.014	0.039
69	5.75	0.27	0.052	(0.326)	0.014	0.039
70	5.83	0.27	0.052	(0.325)	0.014	0.039
71	5.92	0.27	0.052	(0.323)	0.014	0.039
72	6.00	0.27	0.052	(0.322)	0.014	0.039
73	6.08	0.30	0.059	(0.320)	0.015	0.044
74	6.17	0.30	0.059	(0.319)	0.015	0.044
75	6.25	0.30	0.059	(0.317)	0.015	0.044
76	6.33	0.30	0.059	(0.316)	0.015	0.044
77	6.42	0.30	0.059	(0.315)	0.015	0.044
78	6.50	0.30	0.059	(0.313)	0.015	0.044
79	6.58	0.33	0.066	(0.312)	0.017	0.049
80	6.67	0.33	0.066	(0.310)	0.017	0.049
81	6.75	0.33	0.066	(0.309)	0.017	0.049
82	6.83	0.33	0.066	(0.308)	0.017	0.049
83	6.92	0.33	0.066	(0.306)	0.017	0.049
84	7.00	0.33	0.066	(0.305)	0.017	0.049
85	7.08	0.33	0.066	(0.303)	0.017	0.049
86	7.17	0.33	0.066	(0.302)	0.017	0.049
87	7.25	0.33	0.066	(0.301)	0.017	0.049
88	7.33	0.37	0.072	(0.299)	0.019	0.053
89	7.42	0.37	0.072	(0.298)	0.019	0.053
90	7.50	0.37	0.072	(0.297)	0.019	0.053
91	7.58	0.40	0.079	(0.295)	0.020	0.058
92	7.67	0.40	0.079	(0.294)	0.020	0.058
93	7.75	0.40	0.079	(0.292)	0.020	0.058
94	7.83	0.43	0.085	(0.291)	0.022	0.063
95	7.92	0.43	0.085	(0.290)	0.022	0.063
96	8.00	0.43	0.085	(0.288)	0.022	0.063
97	8.08	0.50	0.098	(0.287)	0.026	0.073
98	8.17	0.50	0.098	(0.286)	0.026	0.073
99	8.25	0.50	0.098	(0.284)	0.026	0.073
100	8.33	0.50	0.098	(0.283)	0.026	0.073
101	8.42	0.50	0.098	(0.282)	0.026	0.073
102	8.50	0.50	0.098	(0.280)	0.026	0.073
103	8.58	0.53	0.105	(0.279)	0.027	0.078
104	8.67	0.53	0.105	(0.278)	0.027	0.078
105	8.75	0.53	0.105	(0.277)	0.027	0.078
106	8.83	0.57	0.112	(0.275)	0.029	0.083
107	8.92	0.57	0.112	(0.274)	0.029	0.083

108	9.00	0.57	0.112	(0.273)	0.029	0.083
109	9.08	0.63	0.125	(0.271)	0.032	0.092
110	9.17	0.63	0.125	(0.270)	0.032	0.092
111	9.25	0.63	0.125	(0.269)	0.032	0.092
112	9.33	0.67	0.131	(0.267)	0.034	0.097
113	9.42	0.67	0.131	(0.266)	0.034	0.097
114	9.50	0.67	0.131	(0.265)	0.034	0.097
115	9.58	0.70	0.138	(0.264)	0.036	0.102
116	9.67	0.70	0.138	(0.262)	0.036	0.102
117	9.75	0.70	0.138	(0.261)	0.036	0.102
118	9.83	0.73	0.144	(0.260)	0.038	0.107
119	9.92	0.73	0.144	(0.259)	0.038	0.107
120	10.00	0.73	0.144	(0.257)	0.038	0.107
121	10.08	0.50	0.098	(0.256)	0.026	0.073
122	10.17	0.50	0.098	(0.255)	0.026	0.073
123	10.25	0.50	0.098	(0.254)	0.026	0.073
124	10.33	0.50	0.098	(0.252)	0.026	0.073
125	10.42	0.50	0.098	(0.251)	0.026	0.073
126	10.50	0.50	0.098	(0.250)	0.026	0.073
127	10.58	0.67	0.131	(0.249)	0.034	0.097
128	10.67	0.67	0.131	(0.248)	0.034	0.097
129	10.75	0.67	0.131	(0.246)	0.034	0.097
130	10.83	0.67	0.131	(0.245)	0.034	0.097
131	10.92	0.67	0.131	(0.244)	0.034	0.097
132	11.00	0.67	0.131	(0.243)	0.034	0.097
133	11.08	0.63	0.125	(0.242)	0.032	0.092
134	11.17	0.63	0.125	(0.240)	0.032	0.092
135	11.25	0.63	0.125	(0.239)	0.032	0.092
136	11.33	0.63	0.125	(0.238)	0.032	0.092
137	11.42	0.63	0.125	(0.237)	0.032	0.092
138	11.50	0.63	0.125	(0.236)	0.032	0.092
139	11.58	0.57	0.112	(0.234)	0.029	0.083
140	11.67	0.57	0.112	(0.233)	0.029	0.083
141	11.75	0.57	0.112	(0.232)	0.029	0.083
142	11.83	0.60	0.118	(0.231)	0.031	0.087
143	11.92	0.60	0.118	(0.230)	0.031	0.087
144	12.00	0.60	0.118	(0.229)	0.031	0.087
145	12.08	0.83	0.164	(0.227)	0.043	0.121
146	12.17	0.83	0.164	(0.226)	0.043	0.121
147	12.25	0.83	0.164	(0.225)	0.043	0.121
148	12.33	0.87	0.171	(0.224)	0.044	0.126
149	12.42	0.87	0.171	(0.223)	0.044	0.126
150	12.50	0.87	0.171	(0.222)	0.044	0.126
151	12.58	0.93	0.184	(0.221)	0.048	0.136
152	12.67	0.93	0.184	(0.220)	0.048	0.136
153	12.75	0.93	0.184	(0.219)	0.048	0.136
154	12.83	0.97	0.190	(0.217)	0.049	0.141
155	12.92	0.97	0.190	(0.216)	0.049	0.141
156	13.00	0.97	0.190	(0.215)	0.049	0.141
157	13.08	1.13	0.223	(0.214)	0.058	0.165
158	13.17	1.13	0.223	(0.213)	0.058	0.165
159	13.25	1.13	0.223	(0.212)	0.058	0.165
160	13.33	1.13	0.223	(0.211)	0.058	0.165
161	13.42	1.13	0.223	(0.210)	0.058	0.165
162	13.50	1.13	0.223	(0.209)	0.058	0.165
163	13.58	0.77	0.151	(0.208)	0.039	0.112
164	13.67	0.77	0.151	(0.207)	0.039	0.112
165	13.75	0.77	0.151	(0.206)	0.039	0.112
166	13.83	0.77	0.151	(0.205)	0.039	0.112
167	13.92	0.77	0.151	(0.203)	0.039	0.112
168	14.00	0.77	0.151	(0.202)	0.039	0.112
169	14.08	0.90	0.177	(0.201)	0.046	0.131
170	14.17	0.90	0.177	(0.200)	0.046	0.131
171	14.25	0.90	0.177	(0.199)	0.046	0.131
172	14.33	0.87	0.171	(0.198)	0.044	0.126
173	14.42	0.87	0.171	(0.197)	0.044	0.126
174	14.50	0.87	0.171	(0.196)	0.044	0.126
175	14.58	0.87	0.171	(0.195)	0.044	0.126
176	14.67	0.87	0.171	(0.194)	0.044	0.126

177	14.75	0.87	0.171	(0.193)	0.044	0.126
178	14.83	0.83	0.164	(0.192)	0.043	0.121
179	14.92	0.83	0.164	(0.191)	0.043	0.121
180	15.00	0.83	0.164	(0.190)	0.043	0.121
181	15.08	0.80	0.157	(0.189)	0.041	0.117
182	15.17	0.80	0.157	(0.188)	0.041	0.117
183	15.25	0.80	0.157	(0.187)	0.041	0.117
184	15.33	0.77	0.151	(0.186)	0.039	0.112
185	15.42	0.77	0.151	(0.186)	0.039	0.112
186	15.50	0.77	0.151	(0.185)	0.039	0.112
187	15.58	0.63	0.125	(0.184)	0.032	0.092
188	15.67	0.63	0.125	(0.183)	0.032	0.092
189	15.75	0.63	0.125	(0.182)	0.032	0.092
190	15.83	0.63	0.125	(0.181)	0.032	0.092
191	15.92	0.63	0.125	(0.180)	0.032	0.092
192	16.00	0.63	0.125	(0.179)	0.032	0.092
193	16.08	0.13	0.026	(0.178)	0.007	0.019
194	16.17	0.13	0.026	(0.177)	0.007	0.019
195	16.25	0.13	0.026	(0.176)	0.007	0.019
196	16.33	0.13	0.026	(0.175)	0.007	0.019
197	16.42	0.13	0.026	(0.174)	0.007	0.019
198	16.50	0.13	0.026	(0.174)	0.007	0.019
199	16.58	0.10	0.020	(0.173)	0.005	0.015
200	16.67	0.10	0.020	(0.172)	0.005	0.015
201	16.75	0.10	0.020	(0.171)	0.005	0.015
202	16.83	0.10	0.020	(0.170)	0.005	0.015
203	16.92	0.10	0.020	(0.169)	0.005	0.015
204	17.00	0.10	0.020	(0.168)	0.005	0.015
205	17.08	0.17	0.033	(0.167)	0.009	0.024
206	17.17	0.17	0.033	(0.167)	0.009	0.024
207	17.25	0.17	0.033	(0.166)	0.009	0.024
208	17.33	0.17	0.033	(0.165)	0.009	0.024
209	17.42	0.17	0.033	(0.164)	0.009	0.024
210	17.50	0.17	0.033	(0.163)	0.009	0.024
211	17.58	0.17	0.033	(0.163)	0.009	0.024
212	17.67	0.17	0.033	(0.162)	0.009	0.024
213	17.75	0.17	0.033	(0.161)	0.009	0.024
214	17.83	0.13	0.026	(0.160)	0.007	0.019
215	17.92	0.13	0.026	(0.159)	0.007	0.019
216	18.00	0.13	0.026	(0.159)	0.007	0.019
217	18.08	0.13	0.026	(0.158)	0.007	0.019
218	18.17	0.13	0.026	(0.157)	0.007	0.019
219	18.25	0.13	0.026	(0.156)	0.007	0.019
220	18.33	0.13	0.026	(0.155)	0.007	0.019
221	18.42	0.13	0.026	(0.155)	0.007	0.019
222	18.50	0.13	0.026	(0.154)	0.007	0.019
223	18.58	0.10	0.020	(0.153)	0.005	0.015
224	18.67	0.10	0.020	(0.152)	0.005	0.015
225	18.75	0.10	0.020	(0.152)	0.005	0.015
226	18.83	0.07	0.013	(0.151)	0.003	0.010
227	18.92	0.07	0.013	(0.150)	0.003	0.010
228	19.00	0.07	0.013	(0.150)	0.003	0.010
229	19.08	0.10	0.020	(0.149)	0.005	0.015
230	19.17	0.10	0.020	(0.148)	0.005	0.015
231	19.25	0.10	0.020	(0.147)	0.005	0.015
232	19.33	0.13	0.026	(0.147)	0.007	0.019
233	19.42	0.13	0.026	(0.146)	0.007	0.019
234	19.50	0.13	0.026	(0.145)	0.007	0.019
235	19.58	0.10	0.020	(0.145)	0.005	0.015
236	19.67	0.10	0.020	(0.144)	0.005	0.015
237	19.75	0.10	0.020	(0.143)	0.005	0.015
238	19.83	0.07	0.013	(0.143)	0.003	0.010
239	19.92	0.07	0.013	(0.142)	0.003	0.010
240	20.00	0.07	0.013	(0.142)	0.003	0.010
241	20.08	0.10	0.020	(0.141)	0.005	0.015
242	20.17	0.10	0.020	(0.140)	0.005	0.015
243	20.25	0.10	0.020	(0.140)	0.005	0.015
244	20.33	0.10	0.020	(0.139)	0.005	0.015
245	20.42	0.10	0.020	(0.138)	0.005	0.015

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246  20.50     0.10      0.020       (  0.138)       0.005        0.015
247  20.58     0.10      0.020       (  0.137)       0.005        0.015
248  20.67     0.10      0.020       (  0.137)       0.005        0.015
249  20.75     0.10      0.020       (  0.136)       0.005        0.015
250  20.83     0.07      0.013       (  0.136)       0.003        0.010
251  20.92     0.07      0.013       (  0.135)       0.003        0.010
252  21.00     0.07      0.013       (  0.135)       0.003        0.010
253  21.08     0.10      0.020       (  0.134)       0.005        0.015
254  21.17     0.10      0.020       (  0.133)       0.005        0.015
255  21.25     0.10      0.020       (  0.133)       0.005        0.015
256  21.33     0.07      0.013       (  0.132)       0.003        0.010
257  21.42     0.07      0.013       (  0.132)       0.003        0.010
258  21.50     0.07      0.013       (  0.131)       0.003        0.010
259  21.58     0.10      0.020       (  0.131)       0.005        0.015
260  21.67     0.10      0.020       (  0.130)       0.005        0.015
261  21.75     0.10      0.020       (  0.130)       0.005        0.015
262  21.83     0.07      0.013       (  0.130)       0.003        0.010
263  21.92     0.07      0.013       (  0.129)       0.003        0.010
264  22.00     0.07      0.013       (  0.129)       0.003        0.010
265  22.08     0.10      0.020       (  0.128)       0.005        0.015
266  22.17     0.10      0.020       (  0.128)       0.005        0.015
267  22.25     0.10      0.020       (  0.127)       0.005        0.015
268  22.33     0.07      0.013       (  0.127)       0.003        0.010
269  22.42     0.07      0.013       (  0.127)       0.003        0.010
270  22.50     0.07      0.013       (  0.126)       0.003        0.010
271  22.58     0.07      0.013       (  0.126)       0.003        0.010
272  22.67     0.07      0.013       (  0.126)       0.003        0.010
273  22.75     0.07      0.013       (  0.125)       0.003        0.010
274  22.83     0.07      0.013       (  0.125)       0.003        0.010
275  22.92     0.07      0.013       (  0.125)       0.003        0.010
276  23.00     0.07      0.013       (  0.124)       0.003        0.010
277  23.08     0.07      0.013       (  0.124)       0.003        0.010
278  23.17     0.07      0.013       (  0.124)       0.003        0.010
279  23.25     0.07      0.013       (  0.123)       0.003        0.010
280  23.33     0.07      0.013       (  0.123)       0.003        0.010
281  23.42     0.07      0.013       (  0.123)       0.003        0.010
282  23.50     0.07      0.013       (  0.123)       0.003        0.010
283  23.58     0.07      0.013       (  0.123)       0.003        0.010
284  23.67     0.07      0.013       (  0.122)       0.003        0.010
285  23.75     0.07      0.013       (  0.122)       0.003        0.010
286  23.83     0.07      0.013       (  0.122)       0.003        0.010
287  23.92     0.07      0.013       (  0.122)       0.003        0.010
288  24.00     0.07      0.013       (  0.122)       0.003        0.010
               (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    14.6
       Flood volume = Effective rainfall      1.21(In)
        times area       5.6(Ac.)/[(In)/(Ft.)] =       0.6(Ac.Ft)
       Total soil loss =      0.43(In)
       Total soil loss =     0.200(Ac.Ft)
       Total rainfall =      1.64(In)
       Flood volume =       24846.0 Cubic Feet
       Total soil loss =        8729.7 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      0.932(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      0.01  Q         |         |         |         |
   0+10       0.0003      0.03  Q         |         |         |         |
   0+15       0.0006      0.04  Q         |         |         |         |
   0+20       0.0009      0.05  Q         |         |         |         |
   0+25       0.0014      0.07  Q         |         |         |         |
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0+30	0.0019	0.07	Q	|	|	|	|
0+35	0.0024	0.08	Q	|	|	|	|
0+40	0.0030	0.08	Q	|	|	|	|
0+45	0.0035	0.08	Q	|	|	|	|
0+50	0.0041	0.09	Q	|	|	|	|
0+55	0.0048	0.10	Q	|	|	|	|
1+ 0	0.0055	0.10	Q	|	|	|	|
1+ 5	0.0062	0.10	Q	|	|	|	|
1+10	0.0069	0.09	Q	|	|	|	|
1+15	0.0075	0.09	Q	|	|	|	|
1+20	0.0081	0.09	Q	|	|	|	|
1+25	0.0087	0.08	Q	|	|	|	|
1+30	0.0092	0.08	Q	|	|	|	|
1+35	0.0098	0.08	Q	|	|	|	|
1+40	0.0104	0.08	Q	|	|	|	|
1+45	0.0110	0.08	Q	|	|	|	|
1+50	0.0115	0.09	Q	|	|	|	|
1+55	0.0122	0.10	Q	|	|	|	|
2+ 0	0.0129	0.10	Q	|	|	|	|
2+ 5	0.0137	0.11	Q	|	|	|	|
2+10	0.0144	0.11	QV	|	|	|	|
2+15	0.0152	0.11	QV	|	|	|	|
2+20	0.0159	0.11	QV	|	|	|	|
2+25	0.0167	0.11	QV	|	|	|	|
2+30	0.0175	0.11	QV	|	|	|	|
2+35	0.0182	0.11	QV	|	|	|	|
2+40	0.0191	0.13	QV	|	|	|	|
2+45	0.0200	0.13	QV	|	|	|	|
2+50	0.0209	0.13	QV	|	|	|	|
2+55	0.0219	0.14	QV	|	|	|	|
3+ 0	0.0228	0.14	QV	|	|	|	|
3+ 5	0.0238	0.14	QV	|	|	|	|
3+10	0.0247	0.14	QV	|	|	|	|
3+15	0.0257	0.14	QV	|	|	|	|
3+20	0.0266	0.14	QV	|	|	|	|
3+25	0.0276	0.14	QV	|	|	|	|
3+30	0.0285	0.14	Q V	|	|	|	|
3+35	0.0295	0.14	Q V	|	|	|	|
3+40	0.0304	0.14	Q V	|	|	|	|
3+45	0.0314	0.14	Q V	|	|	|	|
3+50	0.0323	0.14	Q V	|	|	|	|
3+55	0.0334	0.15	Q V	|	|	|	|
4+ 0	0.0345	0.16	Q V	|	|	|	|
4+ 5	0.0356	0.16	Q V	|	|	|	|
4+10	0.0368	0.16	Q V	|	|	|	|
4+15	0.0379	0.16	Q V	|	|	|	|
4+20	0.0390	0.17	Q V	|	|	|	|
4+25	0.0403	0.18	Q V	|	|	|	|
4+30	0.0416	0.19	Q V	|	|	|	|
4+35	0.0429	0.19	Q V	|	|	|	|
4+40	0.0442	0.19	Q V	|	|	|	|
4+45	0.0455	0.19	Q V	|	|	|	|
4+50	0.0469	0.20	Q V	|	|	|	|
4+55	0.0483	0.21	Q V	|	|	|	|
5+ 0	0.0498	0.21	Q V	|	|	|	|
5+ 5	0.0513	0.21	Q V	|	|	|	|
5+10	0.0525	0.19	Q V	|	|	|	|
5+15	0.0537	0.18	Q V	|	|	|	|
5+20	0.0550	0.17	Q V	|	|	|	|
5+25	0.0562	0.19	Q V	|	|	|	|
5+30	0.0575	0.19	Q V	|	|	|	|
5+35	0.0589	0.19	Q V	|	|	|	|
5+40	0.0603	0.21	Q V	|	|	|	|
5+45	0.0618	0.21	Q V	|	|	|	|
5+50	0.0633	0.22	Q V	|	|	|	|
5+55	0.0648	0.22	Q V	|	|	|	|
6+ 0	0.0663	0.22	Q V	|	|	|	|
6+ 5	0.0678	0.22	Q V	|	|	|	|
6+10	0.0695	0.24	Q V	|	|	|	|

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 6+15       0.0711      0.24  Q   V     |         |         |         |
 6+20       0.0728      0.25  Q    V    |         |         |         |
 6+25       0.0745      0.25  Q    V    |         |         |         |
 6+30       0.0762      0.25  Q    V    |         |         |         |
 6+35       0.0779      0.25  |Q   V    |         |         |         |
 6+40       0.0798      0.26  |Q   V    |         |         |         |
 6+45       0.0816      0.27  |Q   V    |         |         |         |
 6+50       0.0835      0.27  |Q   V    |         |         |         |
 6+55       0.0854      0.27  |Q   V    |         |         |         |
 7+ 0       0.0873      0.27  |Q    V   |         |         |         |
 7+ 5       0.0892      0.28  |Q    V   |         |         |         |
 7+10       0.0911      0.28  |Q    V   |         |         |         |
 7+15       0.0930      0.28  |Q    V   |         |         |         |
 7+20       0.0949      0.28  |Q    V   |         |         |         |
 7+25       0.0969      0.29  |Q    V   |         |         |         |
 7+30       0.0990      0.30  |Q    V   |         |         |         |
 7+35       0.1011      0.30  |Q     V  |         |         |         |
 7+40       0.1032      0.32  |Q     V  |         |         |         |
 7+45       0.1055      0.32  |Q     V  |         |         |         |
 7+50       0.1078      0.33  |Q     V  |         |         |         |
 7+55       0.1101      0.35  |Q     V  |         |         |         |
 8+ 0       0.1126      0.35  |Q     V  |         |         |         |
 8+ 5       0.1150      0.36  |Q      V |         |         |         |
 8+10       0.1177      0.39  |Q      V |         |         |         |
 8+15       0.1205      0.40  |Q      V |         |         |         |
 8+20       0.1233      0.41  |Q      V |         |         |         |
 8+25       0.1261      0.41  |Q      V |         |         |         |
 8+30       0.1289      0.41  |Q       V|         |         |         |
 8+35       0.1318      0.42  |Q       V|         |         |         |
 8+40       0.1348      0.43  |Q       V|         |         |         |
 8+45       0.1378      0.44  |Q       V|         |         |         |
 8+50       0.1408      0.44  |Q       V|         |         |         |
 8+55       0.1439      0.46  |Q        V         |         |         |
 9+ 0       0.1471      0.46  |Q        V         |         |         |
 9+ 5       0.1504      0.47  |Q        V         |         |         |
 9+10       0.1538      0.50  |Q        V         |         |         |
 9+15       0.1573      0.51  | Q       |V        |         |         |
 9+20       0.1609      0.52  | Q       |V        |         |         |
 9+25       0.1646      0.54  | Q       |V        |         |         |
 9+30       0.1684      0.54  | Q       |V        |         |         |
 9+35       0.1721      0.55  | Q       | V       |         |         |
 9+40       0.1760      0.57  | Q       | V       |         |         |
 9+45       0.1800      0.57  | Q       | V       |         |         |
 9+50       0.1840      0.58  | Q       | V       |         |         |
 9+55       0.1881      0.59  | Q       |  V      |         |         |
10+ 0       0.1922      0.60  | Q       |  V      |         |         |
10+ 5       0.1962      0.58  | Q       |  V      |         |         |
10+10       0.1996      0.49  |Q        |  V      |         |         |
10+15       0.2027      0.45  |Q        |   V     |         |         |
10+20       0.2057      0.44  |Q        |   V     |         |         |
10+25       0.2087      0.43  |Q        |   V     |         |         |
10+30       0.2116      0.42  |Q        |   V     |         |         |
10+35       0.2146      0.43  |Q        |    V    |         |         |
10+40       0.2180      0.50  |Q        |    V    |         |         |
10+45       0.2216      0.52  | Q       |    V    |         |         |
10+50       0.2253      0.54  | Q       |    V    |         |         |
10+55       0.2290      0.54  | Q       |     V   |         |         |
11+ 0       0.2328      0.55  | Q       |     V   |         |         |
11+ 5       0.2365      0.55  | Q       |     V   |         |         |
11+10       0.2402      0.53  | Q       |     V   |         |         |
11+15       0.2439      0.53  | Q       |      V  |         |         |
11+20       0.2475      0.53  | Q       |      V  |         |         |
11+25       0.2511      0.53  | Q       |      V  |         |         |
11+30       0.2547      0.53  | Q       |      V  |         |         |
11+35       0.2583      0.52  | Q       |       V |         |         |
11+40       0.2617      0.49  |Q        |       V |         |         |
11+45       0.2650      0.48  |Q        |       V |         |         |
11+50       0.2683      0.48  |Q        |       V |         |         |
11+55       0.2717      0.49  |Q        |        V|         |         |
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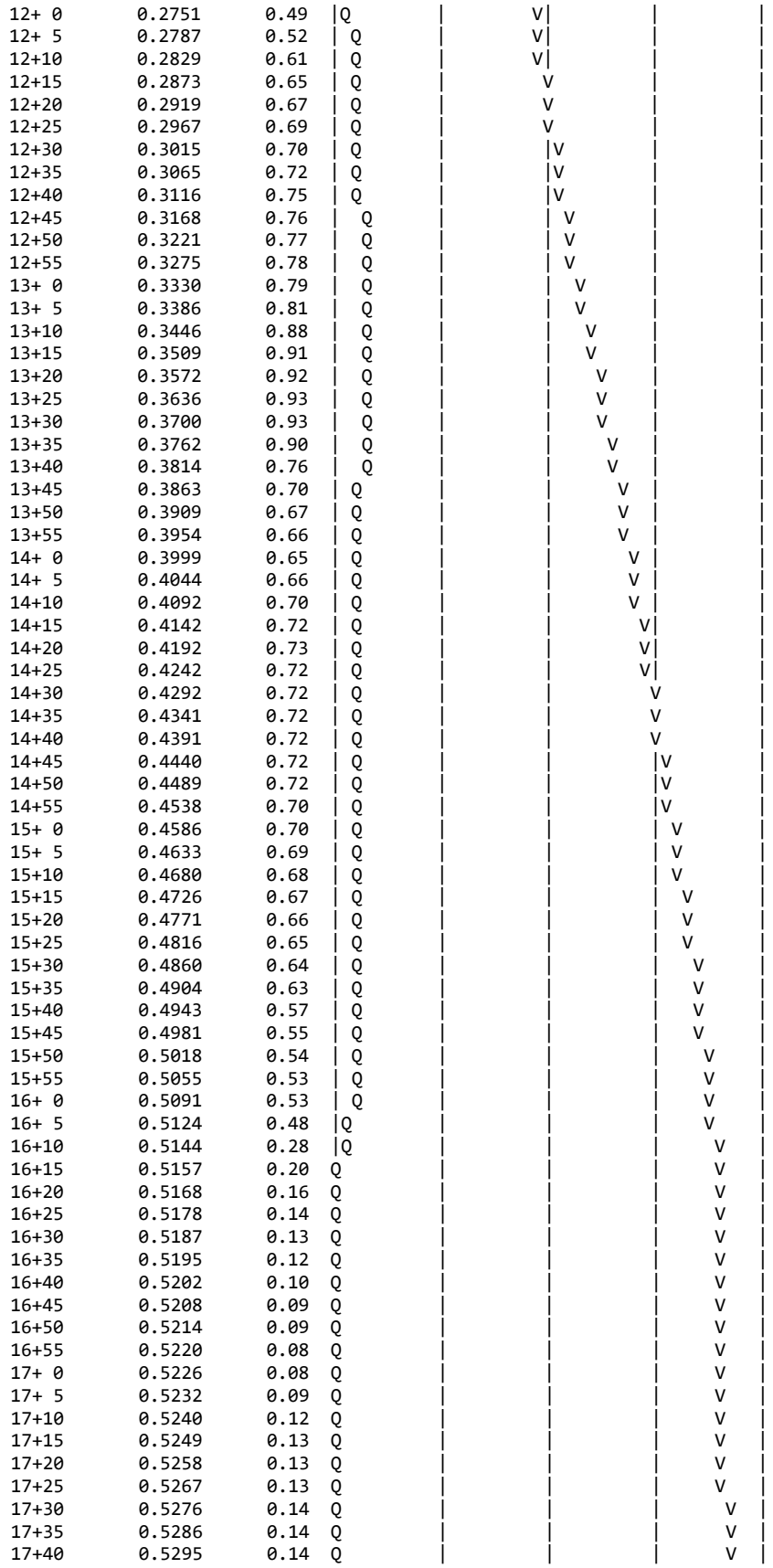
12+ 0 0.2751 0.49 |Q | V| | |
12+ 5 0.2787 0.52 | Q | V| | |
12+10 0.2829 0.61 | Q | V| | |
12+15 0.2873 0.65 | Q | V | | |
12+20 0.2919 0.67 | Q | V | | |
12+25 0.2967 0.69 | Q | V | | |
12+30 0.3015 0.70 | Q | |V | | |
12+35 0.3065 0.72 | Q | |V | | |
12+40 0.3116 0.75 | Q | |V | | |
12+45 0.3168 0.76 | Q | | V | | |
12+50 0.3221 0.77 | Q | | V | | |
12+55 0.3275 0.78 | Q | | V | | |
13+ 0 0.3330 0.79 | Q | | V | | |
13+ 5 0.3386 0.81 | Q | | V | | |
13+10 0.3446 0.88 | Q | | V | | |
13+15 0.3509 0.91 | Q | | V | | |
13+20 0.3572 0.92 | Q | | V | | |
13+25 0.3636 0.93 | Q | | V | | |
13+30 0.3700 0.93 | Q | | V | | |
13+35 0.3762 0.90 | Q | | V | | |
13+40 0.3814 0.76 | Q | | V | | |
13+45 0.3863 0.70 | Q | | V | | |
13+50 0.3909 0.67 | Q | | V | | |
13+55 0.3954 0.66 | Q | | V | | |
14+ 0 0.3999 0.65 | Q | | V | | |
14+ 5 0.4044 0.66 | Q | | V | | |
14+10 0.4092 0.70 | Q | | V | | |
14+15 0.4142 0.72 | Q | | V| | |
14+20 0.4192 0.73 | Q | | V| | |
14+25 0.4242 0.72 | Q | | V| | |
14+30 0.4292 0.72 | Q | | V | |
14+35 0.4341 0.72 | Q | | V | |
14+40 0.4391 0.72 | Q | | V | |
14+45 0.4440 0.72 | Q | | |V | |
14+50 0.4489 0.72 | Q | | |V | |
14+55 0.4538 0.70 | Q | | |V | |
15+ 0 0.4586 0.70 | Q | | | V | |
15+ 5 0.4633 0.69 | Q | | | V | |
15+10 0.4680 0.68 | Q | | | V | |
15+15 0.4726 0.67 | Q | | | V | |
15+20 0.4771 0.66 | Q | | | V | |
15+25 0.4816 0.65 | Q | | | V | |
15+30 0.4860 0.64 | Q | | | V | |
15+35 0.4904 0.63 | Q | | | V | |
15+40 0.4943 0.57 | Q | | | V | |
15+45 0.4981 0.55 | Q | | | V | |
15+50 0.5018 0.54 | Q | | | V | |
15+55 0.5055 0.53 | Q | | | V | |
16+ 0 0.5091 0.53 | Q | | | V | |
16+ 5 0.5124 0.48 |Q | | | V | |
16+10 0.5144 0.28 |Q | | | V | |
16+15 0.5157 0.20 Q | | | | V | |
16+20 0.5168 0.16 Q | | | | V | |
16+25 0.5178 0.14 Q | | | | V | |
16+30 0.5187 0.13 Q | | | | V | |
16+35 0.5195 0.12 Q | | | | V | |
16+40 0.5202 0.10 Q | | | | V | |
16+45 0.5208 0.09 Q | | | | V | |
16+50 0.5214 0.09 Q | | | | V | |
16+55 0.5220 0.08 Q | | | | V | |
17+ 0 0.5226 0.08 Q | | | | V | |
17+ 5 0.5232 0.09 Q | | | | V | |
17+10 0.5240 0.12 Q | | | | V | |
17+15 0.5249 0.13 Q | | | | V | |
17+20 0.5258 0.13 Q | | | | V | |
17+25 0.5267 0.13 Q | | | | V | |
17+30 0.5276 0.14 Q | | | | V | |
17+35 0.5286 0.14 Q | | | | V | |
17+40 0.5295 0.14 Q | | | | V | |

17+45	0.5305	0.14	Q	|	|	|	V |
17+50	0.5314	0.13	Q	|	|	|	V |
17+55	0.5322	0.12	Q	|	|	|	V |
18+ 0	0.5330	0.12	Q	|	|	|	V |
18+ 5	0.5338	0.11	Q	|	|	|	V |
18+10	0.5346	0.11	Q	|	|	|	V |
18+15	0.5354	0.11	Q	|	|	|	V |
18+20	0.5361	0.11	Q	|	|	|	V |
18+25	0.5369	0.11	Q	|	|	|	V |
18+30	0.5376	0.11	Q	|	|	|	V |
18+35	0.5384	0.11	Q	|	|	|	V |
18+40	0.5390	0.09	Q	|	|	|	V |
18+45	0.5396	0.09	Q	|	|	|	V |
18+50	0.5402	0.08	Q	|	|	|	V |
18+55	0.5407	0.07	Q	|	|	|	V |
19+ 0	0.5411	0.06	Q	|	|	|	V |
19+ 5	0.5416	0.06	Q	|	|	|	V |
19+10	0.5421	0.07	Q	|	|	|	V |
19+15	0.5426	0.08	Q	|	|	|	V |
19+20	0.5432	0.08	Q	|	|	|	V |
19+25	0.5438	0.10	Q	|	|	|	V |
19+30	0.5446	0.10	Q	|	|	|	V |
19+35	0.5453	0.10	Q	|	|	|	V |
19+40	0.5459	0.09	Q	|	|	|	V |
19+45	0.5465	0.09	Q	|	|	|	V |
19+50	0.5471	0.08	Q	|	|	|	V |
19+55	0.5475	0.07	Q	|	|	|	V |
20+ 0	0.5480	0.06	Q	|	|	|	V |
20+ 5	0.5484	0.06	Q	|	|	|	V |
20+10	0.5489	0.07	Q	|	|	|	V |
20+15	0.5494	0.08	Q	|	|	|	V |
20+20	0.5500	0.08	Q	|	|	|	V |
20+25	0.5506	0.08	Q	|	|	|	V |
20+30	0.5511	0.08	Q	|	|	|	V |
20+35	0.5517	0.08	Q	|	|	|	V |
20+40	0.5523	0.08	Q	|	|	|	V |
20+45	0.5528	0.08	Q	|	|	|	V |
20+50	0.5534	0.08	Q	|	|	|	V |
20+55	0.5538	0.07	Q	|	|	|	V |
21+ 0	0.5542	0.06	Q	|	|	|	V |
21+ 5	0.5547	0.06	Q	|	|	|	V |
21+10	0.5552	0.07	Q	|	|	|	V |
21+15	0.5557	0.08	Q	|	|	|	V |
21+20	0.5562	0.08	Q	|	|	|	V|
21+25	0.5567	0.06	Q	|	|	|	V|
21+30	0.5571	0.06	Q	|	|	|	V|
21+35	0.5575	0.06	Q	|	|	|	V|
21+40	0.5580	0.07	Q	|	|	|	V|
21+45	0.5586	0.08	Q	|	|	|	V|
21+50	0.5591	0.08	Q	|	|	|	V|
21+55	0.5595	0.06	Q	|	|	|	V|
22+ 0	0.5600	0.06	Q	|	|	|	V|
22+ 5	0.5604	0.06	Q	|	|	|	V|
22+10	0.5609	0.07	Q	|	|	|	V|
22+15	0.5614	0.08	Q	|	|	|	V|
22+20	0.5620	0.08	Q	|	|	|	V|
22+25	0.5624	0.06	Q	|	|	|	V|
22+30	0.5628	0.06	Q	|	|	|	V|
22+35	0.5632	0.06	Q	|	|	|	V|
22+40	0.5636	0.06	Q	|	|	|	V|
22+45	0.5640	0.06	Q	|	|	|	V|
22+50	0.5644	0.06	Q	|	|	|	V|
22+55	0.5648	0.06	Q	|	|	|	V|
23+ 0	0.5651	0.06	Q	|	|	|	V|
23+ 5	0.5655	0.06	Q	|	|	|	V|
23+10	0.5659	0.06	Q	|	|	|	V|
23+15	0.5663	0.06	Q	|	|	|	V|
23+20	0.5667	0.06	Q	|	|	|	V|
23+25	0.5670	0.06	Q	|	|	|	V|

```
   23+30       0.5674      0.06  Q        |         |         |        V|
   23+35       0.5678      0.06  Q        |         |         |        V|
   23+40       0.5682      0.06  Q        |         |         |        V|
   23+45       0.5686      0.06  Q        |         |         |        V|
   23+50       0.5689      0.06  Q        |         |         |        V|
   23+55       0.5693      0.06  Q        |         |         |        V|
   24+ 0       0.5697      0.06  Q        |         |         |        V|
   24+ 5       0.5700      0.05  Q        |         |         |        V|
   24+10       0.5702      0.02  Q        |         |         |        V|
   24+15       0.5703      0.01  Q        |         |         |        V|
   24+20       0.5703      0.01  Q        |         |         |        V|
   24+25       0.5704      0.00  Q        |         |         |        V|
   24+30       0.5704      0.00  Q        |         |         |        V|
   24+35       0.5704      0.00  Q        |         |         |        V|
   24+40       0.5704      0.00  Q        |         |         |        V|
   24+45       0.5704      0.00  Q        |         |         |         V
-------------------------------------------------------------------------
```

SECTION 6.2

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**10-YEAR**
DURATION:	**1-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH10Y1H5M110.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.115 Hr.
Lag time = 6.90 Min.
25% of lag time = 1.73 Min.
40% of lag time = 2.76 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]
5.64	0.50	2.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	1.74	9.81

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.740(In)

Point rain (area averaged) = 1.009(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.009(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	32.0	0.742	0.800	0.208	1.000	0.208
					Sum (F) =	0.208

Area averaged mean soil loss (F) (In/Hr) = 0.208
Minimum soil loss rate ((In/Hr)) = 0.104

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

Slope of intensity-duration curve for a 1 hour storm =0.5800

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	72.464	8.481	0.482
2	0.167	144.928	43.867	2.493
3	0.250	217.391	22.373	1.272
4	0.333	289.855	9.805	0.557
5	0.417	362.319	5.678	0.323
6	0.500	434.783	3.544	0.201
7	0.583	507.246	2.382	0.135
8	0.667	579.710	1.503	0.085
9	0.750	652.174	0.863	0.049
10	0.833	724.638	0.840	0.048
11	0.917	797.101	0.663	0.038
			Sum = 100.000	Sum= 5.684

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	3.60	0.436	(0.208)	0.113	0.323
2	0.17	4.20	0.508	(0.208)	0.132	0.376
3	0.25	4.40	0.533	(0.208)	0.139	0.394
4	0.33	4.60	0.557	(0.208)	0.145	0.412
5	0.42	5.00	0.605	(0.208)	0.157	0.448
6	0.50	5.60	0.678	(0.208)	0.176	0.502
7	0.58	6.40	0.775	(0.208)	0.201	0.573
8	0.67	8.10	0.981	0.208	(0.255)	0.773
9	0.75	13.10	1.586	0.208	(0.412)	1.378
10	0.83	34.50	4.177	0.208	(1.086)	3.969
11	0.92	6.70	0.811	0.208	(0.211)	0.603
12	1.00	3.80	0.460	(0.208)	0.120	0.340
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	10.1

Flood volume = Effective rainfall 0.84(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 0.17(In)
Total soil loss = 0.079(Ac.Ft)
Total rainfall = 1.01(In)
Flood volume = 17218.6 Cubic Feet
Total soil loss = 3437.1 Cubic Feet

Peak flow rate of this hydrograph = 12.809(CFS)

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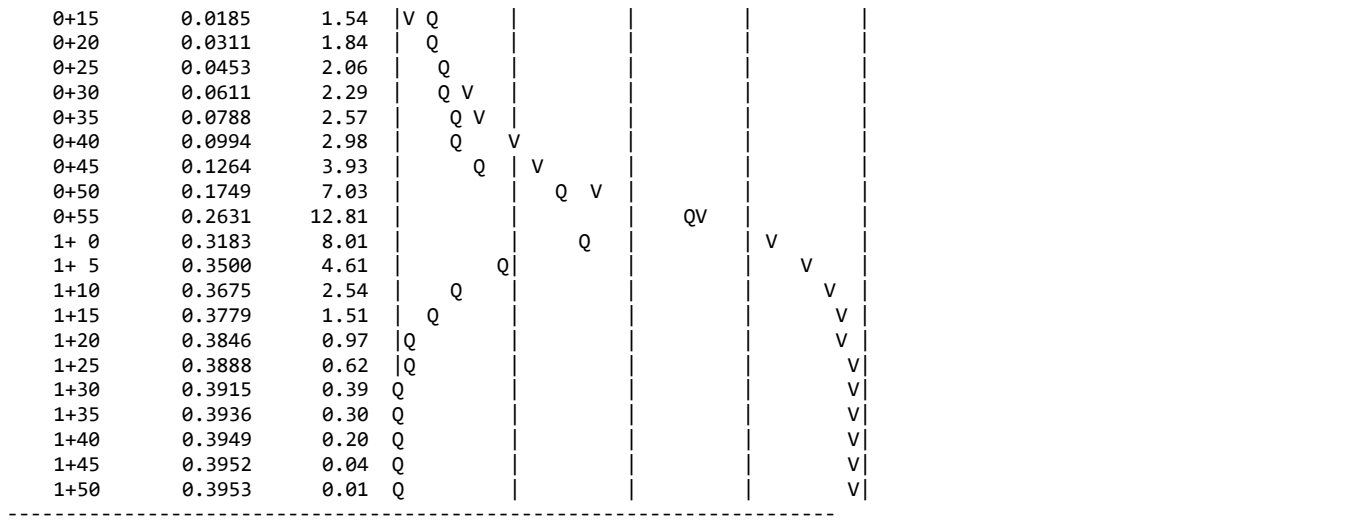
1 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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	0.0011	0.16	Q				
0+10	0.0079	0.99	VQ				


0+15 0.0185 1.54
0+20 0.0311 1.84
0+25 0.0453 2.06
0+30 0.0611 2.29
0+35 0.0788 2.57
0+40 0.0994 2.98
0+45 0.1264 3.93
0+50 0.1749 7.03
0+55 0.2631 12.81
1+ 0 0.3183 8.01
1+ 5 0.3500 4.61
1+10 0.3675 2.54
1+15 0.3779 1.51
1+20 0.3846 0.97
1+25 0.3888 0.62
1+30 0.3915 0.39
1+35 0.3936 0.30
1+40 0.3949 0.20
1+45 0.3952 0.04
1+50 0.3953 0.01

SECTION 6.2.1

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**10-YEAR**
DURATION:	**3-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH10Y3H5M310.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.115 Hr.
Lag time = 6.90 Min.
25% of lag time = 1.73 Min.
40% of lag time = 2.76 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]
5.64	0.78	4.40

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	2.50	14.10

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.781(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.488(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.488(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	32.0	0.742	0.800	0.208	1.000	0.208
					Sum (F) =	0.208

Area averaged mean soil loss (F) (In/Hr) = 0.208
Minimum soil loss rate ((In/Hr)) = 0.104

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	72.464	8.481	0.482
2	0.167	144.928	43.867	2.493
3	0.250	217.391	22.373	1.272
4	0.333	289.855	9.805	0.557
5	0.417	362.319	5.678	0.323
6	0.500	434.783	3.544	0.201
7	0.583	507.246	2.382	0.135
8	0.667	579.710	1.503	0.085
9	0.750	652.174	0.863	0.049
10	0.833	724.638	0.840	0.048
11	0.917	797.101	0.663	0.038
			Sum = 100.000	Sum= 5.684

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	0.232	(0.208)	0.060	0.172
2	0.17	1.30	0.232	(0.208)	0.060	0.172
3	0.25	1.10	0.196	(0.208)	0.051	0.145
4	0.33	1.50	0.268	(0.208)	0.070	0.198
5	0.42	1.50	0.268	(0.208)	0.070	0.198
6	0.50	1.80	0.321	(0.208)	0.084	0.238
7	0.58	1.50	0.268	(0.208)	0.070	0.198
8	0.67	1.80	0.321	(0.208)	0.084	0.238
9	0.75	1.80	0.321	(0.208)	0.084	0.238
10	0.83	1.50	0.268	(0.208)	0.070	0.198
11	0.92	1.60	0.286	(0.208)	0.074	0.211
12	1.00	1.80	0.321	(0.208)	0.084	0.238
13	1.08	2.20	0.393	(0.208)	0.102	0.291
14	1.17	2.20	0.393	(0.208)	0.102	0.291
15	1.25	2.20	0.393	(0.208)	0.102	0.291
16	1.33	2.00	0.357	(0.208)	0.093	0.264
17	1.42	2.60	0.464	(0.208)	0.121	0.344
18	1.50	2.70	0.482	(0.208)	0.125	0.357
19	1.58	2.40	0.429	(0.208)	0.111	0.317
20	1.67	2.70	0.482	(0.208)	0.125	0.357
21	1.75	3.30	0.589	(0.208)	0.153	0.436
22	1.83	3.10	0.554	(0.208)	0.144	0.410
23	1.92	2.90	0.518	(0.208)	0.135	0.383
24	2.00	3.00	0.536	(0.208)	0.139	0.396
25	2.08	3.10	0.554	(0.208)	0.144	0.410
26	2.17	4.20	0.750	(0.208)	0.195	0.555
27	2.25	5.00	0.893	0.208	(0.232)	0.685
28	2.33	3.50	0.625	(0.208)	0.163	0.463
29	2.42	6.80	1.214	0.208	(0.316)	1.007
30	2.50	7.30	1.304	0.208	(0.339)	1.096
31	2.58	8.20	1.464	0.208	(0.381)	1.257
32	2.67	5.90	1.054	0.208	(0.274)	0.846
33	2.75	2.00	0.357	(0.208)	0.093	0.264
34	2.83	1.80	0.321	(0.208)	0.084	0.238
35	2.92	1.80	0.321	(0.208)	0.084	0.238
36	3.00	0.60	0.107	(0.208)	0.028	0.079

(Loss Rate Not Used)

```
    Sum =     100.0                                    Sum =    13.7
       Flood volume = Effective rainfall      1.14(In)
        times area       5.6(Ac.)/[(In)/(Ft.)] =       0.5(Ac.Ft)
       Total soil loss =      0.35(In)
       Total soil loss =     0.162(Ac.Ft)
       Total rainfall =      1.49(In)
       Flood volume =       23403.8 Cubic Feet
       Total soil loss =        7063.9 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      5.949(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       0.0006      0.08  Q         |         |         |         |
     0+10       0.0041      0.51  V Q       |         |         |         |
     0+15       0.0090      0.72  V Q       |         |         |         |
     0+20       0.0144      0.77  |V Q      |         |         |         |
     0+25       0.0207      0.93  |V Q      |         |         |         |
     0+30       0.0278      1.03  | V Q     |         |         |         |
     0+35       0.0358      1.16  | V Q     |         |         |         |
     0+40       0.0438      1.15  |  VQ     |         |         |         |
     0+45       0.0523      1.24  |  VQ     |         |         |         |
     0+50       0.0611      1.27  |   VQ    |         |         |         |
     0+55       0.0694      1.21  |   QV    |         |         |         |
     1+ 0       0.0778      1.22  |   QV    |         |         |         |
     1+ 5       0.0868      1.31  |    QV   |         |         |         |
     1+10       0.0970      1.48  |    Q V  |         |         |         |
     1+15       0.1077      1.56  |     Q V |         |         |         |
     1+20       0.1186      1.58  |     Q V |         |         |         |
     1+25       0.1294      1.58  |     Q  V|         |         |         |
     1+30       0.1416      1.76  |      Q  V         |         |         |
     1+35       0.1544      1.87  |      Q  |V        |         |         |
     1+40       0.1671      1.85  |      Q  | V       |         |         |
     1+45       0.1807      1.97  |      Q  |  V      |         |         |
     1+50       0.1958      2.20  |       Q |   V     |         |         |
     1+55       0.2113      2.24  |       Q |    V    |         |         |
     2+ 0       0.2265      2.21  |       Q |     V   |         |         |
     2+ 5       0.2418      2.23  |       Q |       V |         |         |
     2+10       0.2580      2.35  |        Q|        V|         |         |
     2+15       0.2773      2.80  |         |Q        V         |         |
     2+20       0.2994      3.21  |         | Q       | V       |         |
     2+25       0.3212      3.17  |         | Q       |  V      |         |
     2+30       0.3516      4.41  |         |      Q  |     V   |         |
     2+35       0.3885      5.36  |         |         |Q      V |         |
     2+40       0.4295      5.95  |         |         |  Q      |V        |
     2+45       0.4643      5.06  |         |         Q         |   V     |
     2+50       0.4870      3.29  |         |  Q      |         |     V   |
     2+55       0.5035      2.39  |         Q|        |         |      V  |
     3+ 0       0.5167      1.92  |       Q  |        |         |       V |
     3+ 5       0.5253      1.25  |     Q    |        |         |        V|
     3+10       0.5301      0.70  | Q        |        |         |        V|
     3+15       0.5331      0.43  |Q         |        |         |        V|
     3+20       0.5350      0.27  |Q         |        |         |        V|
     3+25       0.5361      0.17  Q          |        |         |        V|
     3+30       0.5367      0.09  Q          |        |         |        V|
     3+35       0.5370      0.04  Q          |        |         |        V|
     3+40       0.5372      0.02  Q          |        |         |        V|
     3+45       0.5373      0.01  Q          |        |         |        V|
     3+50       0.5373      0.00  Q          |        |         |        V|
  ------------------------------------------------------------------------
```

SECTION 6.2.2

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**10-YEAR**
DURATION:	**6-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH10Y6H5M610.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.115 Hr.
Lag time = 6.90 Min.
25% of lag time = 1.73 Min.
40% of lag time = 2.76 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]
5.64	1.05	5.92

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	3.28	18.50

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.050(In)
Area Averaged 100-Year Rainfall = 3.280(In)

Point rain (area averaged) = 1.967(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.967(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	32.0	0.742	0.800	0.208	1.000	0.208
					Sum (F) =	0.208

Area averaged mean soil loss (F) (In/Hr) = 0.208
Minimum soil loss rate ((In/Hr)) = 0.104

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

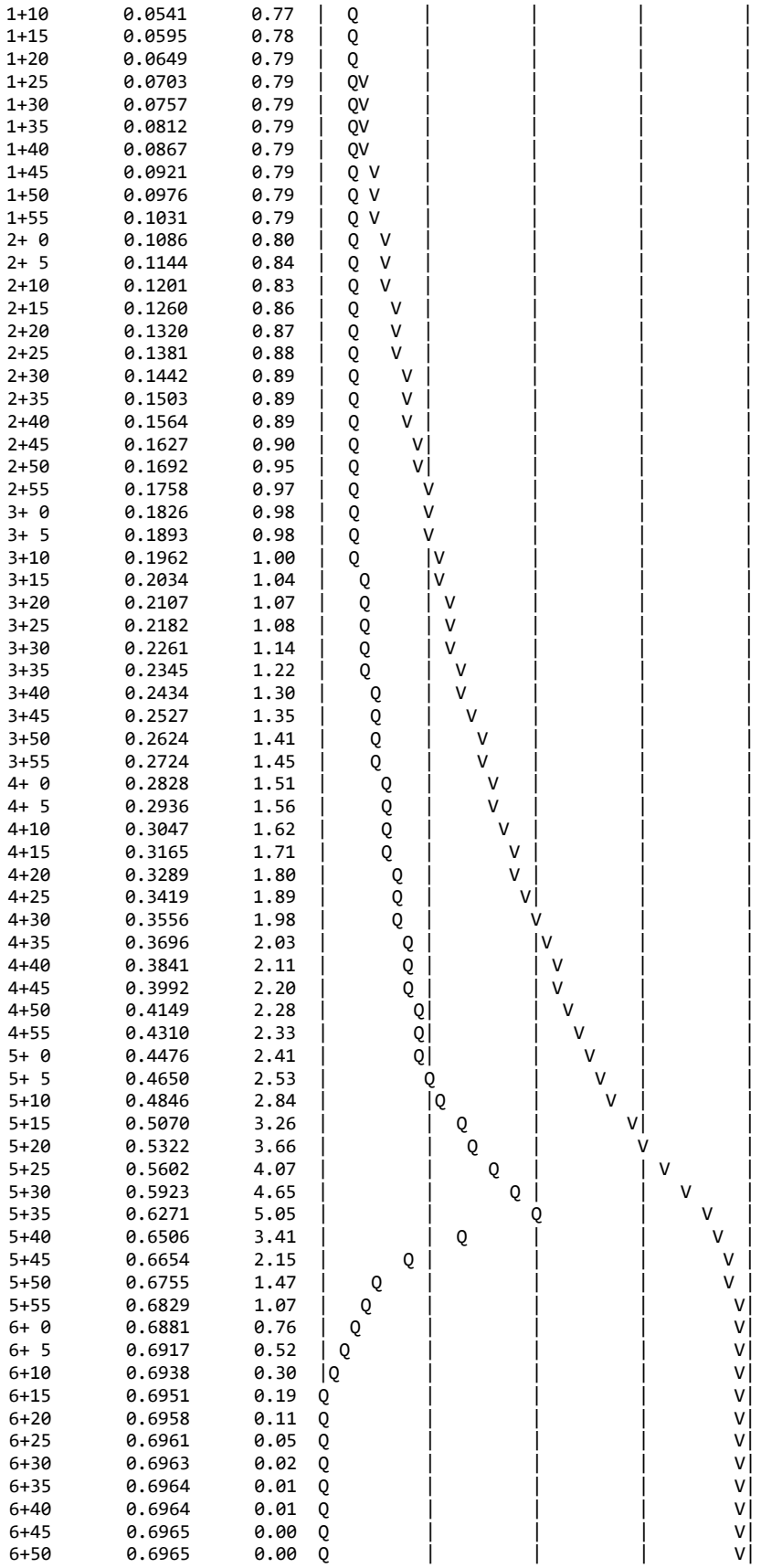
Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	72.464	8.481	0.482
2	0.167	144.928	43.867	2.493
3	0.250	217.391	22.373	1.272
4	0.333	289.855	9.805	0.557
5	0.417	362.319	5.678	0.323
6	0.500	434.783	3.544	0.201
7	0.583	507.246	2.382	0.135
8	0.667	579.710	1.503	0.085
9	0.750	652.174	0.863	0.049
10	0.833	724.638	0.840	0.048
11	0.917	797.101	0.663	0.038
			Sum = 100.000	Sum= 5.684

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	0.118	(0.208)	0.031	0.087
2	0.17	0.60	0.142	(0.208)	0.037	0.105
3	0.25	0.60	0.142	(0.208)	0.037	0.105
4	0.33	0.60	0.142	(0.208)	0.037	0.105
5	0.42	0.60	0.142	(0.208)	0.037	0.105
6	0.50	0.70	0.165	(0.208)	0.043	0.122
7	0.58	0.70	0.165	(0.208)	0.043	0.122
8	0.67	0.70	0.165	(0.208)	0.043	0.122
9	0.75	0.70	0.165	(0.208)	0.043	0.122
10	0.83	0.70	0.165	(0.208)	0.043	0.122
11	0.92	0.70	0.165	(0.208)	0.043	0.122
12	1.00	0.80	0.189	(0.208)	0.049	0.140
13	1.08	0.80	0.189	(0.208)	0.049	0.140
14	1.17	0.80	0.189	(0.208)	0.049	0.140
15	1.25	0.80	0.189	(0.208)	0.049	0.140
16	1.33	0.80	0.189	(0.208)	0.049	0.140
17	1.42	0.80	0.189	(0.208)	0.049	0.140
18	1.50	0.80	0.189	(0.208)	0.049	0.140
19	1.58	0.80	0.189	(0.208)	0.049	0.140
20	1.67	0.80	0.189	(0.208)	0.049	0.140
21	1.75	0.80	0.189	(0.208)	0.049	0.140
22	1.83	0.80	0.189	(0.208)	0.049	0.140
23	1.92	0.80	0.189	(0.208)	0.049	0.140
24	2.00	0.90	0.212	(0.208)	0.055	0.157
25	2.08	0.80	0.189	(0.208)	0.049	0.140
26	2.17	0.90	0.212	(0.208)	0.055	0.157
27	2.25	0.90	0.212	(0.208)	0.055	0.157
28	2.33	0.90	0.212	(0.208)	0.055	0.157
29	2.42	0.90	0.212	(0.208)	0.055	0.157
30	2.50	0.90	0.212	(0.208)	0.055	0.157
31	2.58	0.90	0.212	(0.208)	0.055	0.157
32	2.67	0.90	0.212	(0.208)	0.055	0.157
33	2.75	1.00	0.236	(0.208)	0.061	0.175
34	2.83	1.00	0.236	(0.208)	0.061	0.175
35	2.92	1.00	0.236	(0.208)	0.061	0.175
36	3.00	1.00	0.236	(0.208)	0.061	0.175
37	3.08	1.00	0.236	(0.208)	0.061	0.175

```
38   3.17     1.10      0.260       (  0.208)       0.068        0.192
39   3.25     1.10      0.260       (  0.208)       0.068        0.192
40   3.33     1.10      0.260       (  0.208)       0.068        0.192
41   3.42     1.20      0.283       (  0.208)       0.074        0.210
42   3.50     1.30      0.307       (  0.208)       0.080        0.227
43   3.58     1.40      0.331       (  0.208)       0.086        0.245
44   3.67     1.40      0.331       (  0.208)       0.086        0.245
45   3.75     1.50      0.354       (  0.208)       0.092        0.262
46   3.83     1.50      0.354       (  0.208)       0.092        0.262
47   3.92     1.60      0.378       (  0.208)       0.098        0.280
48   4.00     1.60      0.378       (  0.208)       0.098        0.280
49   4.08     1.70      0.401       (  0.208)       0.104        0.297
50   4.17     1.80      0.425       (  0.208)       0.110        0.314
51   4.25     1.90      0.449       (  0.208)       0.117        0.332
52   4.33     2.00      0.472       (  0.208)       0.123        0.349
53   4.42     2.10      0.496       (  0.208)       0.129        0.367
54   4.50     2.10      0.496       (  0.208)       0.129        0.367
55   4.58     2.20      0.519       (  0.208)       0.135        0.384
56   4.67     2.30      0.543       (  0.208)       0.141        0.402
57   4.75     2.40      0.567       (  0.208)       0.147        0.419
58   4.83     2.40      0.567       (  0.208)       0.147        0.419
59   4.92     2.50      0.590       (  0.208)       0.153        0.437
60   5.00     2.60      0.614       (  0.208)       0.160        0.454
61   5.08     3.10      0.732       (  0.208)       0.190        0.542
62   5.17     3.60      0.850          0.208    (  0.221)        0.642
63   5.25     3.90      0.921          0.208    (  0.239)        0.713
64   5.33     4.20      0.992          0.208    (  0.258)        0.784
65   5.42     4.70      1.110          0.208    (  0.288)        0.902
66   5.50     5.60      1.322          0.208    (  0.344)        1.114
67   5.58     1.90      0.449       (  0.208)       0.117        0.332
68   5.67     0.90      0.212       (  0.208)       0.055        0.157
69   5.75     0.60      0.142       (  0.208)       0.037        0.105
70   5.83     0.50      0.118       (  0.208)       0.031        0.087
71   5.92     0.30      0.071       (  0.208)       0.018        0.052
72   6.00     0.20      0.047       (  0.208)       0.012        0.035
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    17.8
      Flood volume = Effective rainfall      1.48(In)
       times area       5.6(Ac.)/[(In)/(Ft.)] =       0.7(Ac.Ft)
      Total soil loss =      0.49(In)
      Total soil loss =     0.228(Ac.Ft)
      Total rainfall =      1.97(In)
      Flood volume =       30338.1 Cubic Feet
      Total soil loss =        9940.9 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      5.054(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       0.0003      0.04  Q         |         |         |         |
  0+10       0.0021      0.27  VQ        |         |         |         |
  0+15       0.0051      0.42  VQ        |         |         |         |
  0+20       0.0085      0.49  VQ        |         |         |         |
  0+25       0.0121      0.53  V Q       |         |         |         |
  0+30       0.0160      0.56  V Q       |         |         |         |
  0+35       0.0203      0.62  |VQ       |         |         |         |
  0+40       0.0248      0.65  |VQ       |         |         |         |
  0+45       0.0294      0.67  |VQ       |         |         |         |
  0+50       0.0341      0.68  |VQ       |         |         |         |
  0+55       0.0389      0.69  | Q       |         |         |         |
  1+ 0       0.0437      0.70  | Q       |         |         |         |
  1+ 5       0.0488      0.75  | Q       |         |         |         |
```



SECTION 6.2.3

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**10-YEAR**
DURATION:	**24-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH10Y24H5M2410.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.115 Hr.
Lag time = 6.90 Min.
25% of lag time = 1.73 Min.
40% of lag time = 2.76 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]
5.64	1.64	9.25

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	5.27	29.72

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.640(In)
Area Averaged 100-Year Rainfall = 5.270(In)

Point rain (area averaged) = 3.133(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.133(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	32.0	0.742	0.800	0.208	1.000	0.208
					Sum (F) =	0.208

Area averaged mean soil loss (F) (In/Hr) = 0.208
Minimum soil loss rate ((In/Hr)) = 0.104

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	72.464	8.481	0.482
2	0.167	144.928	43.867	2.493
3	0.250	217.391	22.373	1.272
4	0.333	289.855	9.805	0.557
5	0.417	362.319	5.678	0.323
6	0.500	434.783	3.544	0.201
7	0.583	507.246	2.382	0.135
8	0.667	579.710	1.503	0.085
9	0.750	652.174	0.863	0.049
10	0.833	724.638	0.840	0.048
11	0.917	797.101	0.663	0.038
			Sum = 100.000	Sum= 5.684

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	0.025	(0.368)	0.007	0.019
2	0.17	0.07	0.025	(0.367)	0.007	0.019
3	0.25	0.07	0.025	(0.365)	0.007	0.019
4	0.33	0.10	0.038	(0.364)	0.010	0.028
5	0.42	0.10	0.038	(0.363)	0.010	0.028
6	0.50	0.10	0.038	(0.361)	0.010	0.028
7	0.58	0.10	0.038	(0.360)	0.010	0.028
8	0.67	0.10	0.038	(0.358)	0.010	0.028
9	0.75	0.10	0.038	(0.357)	0.010	0.028
10	0.83	0.13	0.050	(0.356)	0.013	0.037
11	0.92	0.13	0.050	(0.354)	0.013	0.037
12	1.00	0.13	0.050	(0.353)	0.013	0.037
13	1.08	0.10	0.038	(0.351)	0.010	0.028
14	1.17	0.10	0.038	(0.350)	0.010	0.028
15	1.25	0.10	0.038	(0.349)	0.010	0.028
16	1.33	0.10	0.038	(0.347)	0.010	0.028
17	1.42	0.10	0.038	(0.346)	0.010	0.028
18	1.50	0.10	0.038	(0.344)	0.010	0.028
19	1.58	0.10	0.038	(0.343)	0.010	0.028
20	1.67	0.10	0.038	(0.342)	0.010	0.028
21	1.75	0.10	0.038	(0.340)	0.010	0.028
22	1.83	0.13	0.050	(0.339)	0.013	0.037
23	1.92	0.13	0.050	(0.338)	0.013	0.037
24	2.00	0.13	0.050	(0.336)	0.013	0.037
25	2.08	0.13	0.050	(0.335)	0.013	0.037
26	2.17	0.13	0.050	(0.334)	0.013	0.037
27	2.25	0.13	0.050	(0.332)	0.013	0.037
28	2.33	0.13	0.050	(0.331)	0.013	0.037
29	2.42	0.13	0.050	(0.329)	0.013	0.037
30	2.50	0.13	0.050	(0.328)	0.013	0.037
31	2.58	0.17	0.063	(0.327)	0.016	0.046
32	2.67	0.17	0.063	(0.325)	0.016	0.046
33	2.75	0.17	0.063	(0.324)	0.016	0.046
34	2.83	0.17	0.063	(0.323)	0.016	0.046
35	2.92	0.17	0.063	(0.321)	0.016	0.046
36	3.00	0.17	0.063	(0.320)	0.016	0.046
37	3.08	0.17	0.063	(0.319)	0.016	0.046

38	3.17	0.17	0.063	(0.317)	0.016	0.046
39	3.25	0.17	0.063	(0.316)	0.016	0.046
40	3.33	0.17	0.063	(0.315)	0.016	0.046
41	3.42	0.17	0.063	(0.314)	0.016	0.046
42	3.50	0.17	0.063	(0.312)	0.016	0.046
43	3.58	0.17	0.063	(0.311)	0.016	0.046
44	3.67	0.17	0.063	(0.310)	0.016	0.046
45	3.75	0.17	0.063	(0.308)	0.016	0.046
46	3.83	0.20	0.075	(0.307)	0.020	0.056
47	3.92	0.20	0.075	(0.306)	0.020	0.056
48	4.00	0.20	0.075	(0.304)	0.020	0.056
49	4.08	0.20	0.075	(0.303)	0.020	0.056
50	4.17	0.20	0.075	(0.302)	0.020	0.056
51	4.25	0.20	0.075	(0.301)	0.020	0.056
52	4.33	0.23	0.088	(0.299)	0.023	0.065
53	4.42	0.23	0.088	(0.298)	0.023	0.065
54	4.50	0.23	0.088	(0.297)	0.023	0.065
55	4.58	0.23	0.088	(0.295)	0.023	0.065
56	4.67	0.23	0.088	(0.294)	0.023	0.065
57	4.75	0.23	0.088	(0.293)	0.023	0.065
58	4.83	0.27	0.100	(0.292)	0.026	0.074
59	4.92	0.27	0.100	(0.290)	0.026	0.074
60	5.00	0.27	0.100	(0.289)	0.026	0.074
61	5.08	0.20	0.075	(0.288)	0.020	0.056
62	5.17	0.20	0.075	(0.287)	0.020	0.056
63	5.25	0.20	0.075	(0.285)	0.020	0.056
64	5.33	0.23	0.088	(0.284)	0.023	0.065
65	5.42	0.23	0.088	(0.283)	0.023	0.065
66	5.50	0.23	0.088	(0.282)	0.023	0.065
67	5.58	0.27	0.100	(0.280)	0.026	0.074
68	5.67	0.27	0.100	(0.279)	0.026	0.074
69	5.75	0.27	0.100	(0.278)	0.026	0.074
70	5.83	0.27	0.100	(0.277)	0.026	0.074
71	5.92	0.27	0.100	(0.275)	0.026	0.074
72	6.00	0.27	0.100	(0.274)	0.026	0.074
73	6.08	0.30	0.113	(0.273)	0.029	0.083
74	6.17	0.30	0.113	(0.272)	0.029	0.083
75	6.25	0.30	0.113	(0.271)	0.029	0.083
76	6.33	0.30	0.113	(0.269)	0.029	0.083
77	6.42	0.30	0.113	(0.268)	0.029	0.083
78	6.50	0.30	0.113	(0.267)	0.029	0.083
79	6.58	0.33	0.125	(0.266)	0.033	0.093
80	6.67	0.33	0.125	(0.265)	0.033	0.093
81	6.75	0.33	0.125	(0.263)	0.033	0.093
82	6.83	0.33	0.125	(0.262)	0.033	0.093
83	6.92	0.33	0.125	(0.261)	0.033	0.093
84	7.00	0.33	0.125	(0.260)	0.033	0.093
85	7.08	0.33	0.125	(0.259)	0.033	0.093
86	7.17	0.33	0.125	(0.257)	0.033	0.093
87	7.25	0.33	0.125	(0.256)	0.033	0.093
88	7.33	0.37	0.138	(0.255)	0.036	0.102
89	7.42	0.37	0.138	(0.254)	0.036	0.102
90	7.50	0.37	0.138	(0.253)	0.036	0.102
91	7.58	0.40	0.150	(0.252)	0.039	0.111
92	7.67	0.40	0.150	(0.250)	0.039	0.111
93	7.75	0.40	0.150	(0.249)	0.039	0.111
94	7.83	0.43	0.163	(0.248)	0.042	0.121
95	7.92	0.43	0.163	(0.247)	0.042	0.121
96	8.00	0.43	0.163	(0.246)	0.042	0.121
97	8.08	0.50	0.188	(0.245)	0.049	0.139
98	8.17	0.50	0.188	(0.244)	0.049	0.139
99	8.25	0.50	0.188	(0.242)	0.049	0.139
100	8.33	0.50	0.188	(0.241)	0.049	0.139
101	8.42	0.50	0.188	(0.240)	0.049	0.139
102	8.50	0.50	0.188	(0.239)	0.049	0.139
103	8.58	0.53	0.201	(0.238)	0.052	0.148
104	8.67	0.53	0.201	(0.237)	0.052	0.148
105	8.75	0.53	0.201	(0.236)	0.052	0.148
106	8.83	0.57	0.213	(0.235)	0.055	0.158

107	8.92	0.57	0.213	(0.233)	0.055	0.158
108	9.00	0.57	0.213	(0.232)	0.055	0.158
109	9.08	0.63	0.238	(0.231)	0.062	0.176
110	9.17	0.63	0.238	(0.230)	0.062	0.176
111	9.25	0.63	0.238	(0.229)	0.062	0.176
112	9.33	0.67	0.251	(0.228)	0.065	0.185
113	9.42	0.67	0.251	(0.227)	0.065	0.185
114	9.50	0.67	0.251	(0.226)	0.065	0.185
115	9.58	0.70	0.263	(0.225)	0.068	0.195
116	9.67	0.70	0.263	(0.224)	0.068	0.195
117	9.75	0.70	0.263	(0.223)	0.068	0.195
118	9.83	0.73	0.276	(0.222)	0.072	0.204
119	9.92	0.73	0.276	(0.220)	0.072	0.204
120	10.00	0.73	0.276	(0.219)	0.072	0.204
121	10.08	0.50	0.188	(0.218)	0.049	0.139
122	10.17	0.50	0.188	(0.217)	0.049	0.139
123	10.25	0.50	0.188	(0.216)	0.049	0.139
124	10.33	0.50	0.188	(0.215)	0.049	0.139
125	10.42	0.50	0.188	(0.214)	0.049	0.139
126	10.50	0.50	0.188	(0.213)	0.049	0.139
127	10.58	0.67	0.251	(0.212)	0.065	0.185
128	10.67	0.67	0.251	(0.211)	0.065	0.185
129	10.75	0.67	0.251	(0.210)	0.065	0.185
130	10.83	0.67	0.251	(0.209)	0.065	0.185
131	10.92	0.67	0.251	(0.208)	0.065	0.185
132	11.00	0.67	0.251	(0.207)	0.065	0.185
133	11.08	0.63	0.238	(0.206)	0.062	0.176
134	11.17	0.63	0.238	(0.205)	0.062	0.176
135	11.25	0.63	0.238	(0.204)	0.062	0.176
136	11.33	0.63	0.238	(0.203)	0.062	0.176
137	11.42	0.63	0.238	(0.202)	0.062	0.176
138	11.50	0.63	0.238	(0.201)	0.062	0.176
139	11.58	0.57	0.213	(0.200)	0.055	0.158
140	11.67	0.57	0.213	(0.199)	0.055	0.158
141	11.75	0.57	0.213	(0.198)	0.055	0.158
142	11.83	0.60	0.226	(0.197)	0.059	0.167
143	11.92	0.60	0.226	(0.196)	0.059	0.167
144	12.00	0.60	0.226	(0.195)	0.059	0.167
145	12.08	0.83	0.313	(0.194)	0.081	0.232
146	12.17	0.83	0.313	(0.193)	0.081	0.232
147	12.25	0.83	0.313	(0.192)	0.081	0.232
148	12.33	0.87	0.326	(0.191)	0.085	0.241
149	12.42	0.87	0.326	(0.190)	0.085	0.241
150	12.50	0.87	0.326	(0.189)	0.085	0.241
151	12.58	0.93	0.351	(0.188)	0.091	0.260
152	12.67	0.93	0.351	(0.187)	0.091	0.260
153	12.75	0.93	0.351	(0.186)	0.091	0.260
154	12.83	0.97	0.363	(0.185)	0.095	0.269
155	12.92	0.97	0.363	(0.184)	0.095	0.269
156	13.00	0.97	0.363	(0.183)	0.095	0.269
157	13.08	1.13	0.426	(0.183)	0.111	0.315
158	13.17	1.13	0.426	(0.182)	0.111	0.315
159	13.25	1.13	0.426	(0.181)	0.111	0.315
160	13.33	1.13	0.426	(0.180)	0.111	0.315
161	13.42	1.13	0.426	(0.179)	0.111	0.315
162	13.50	1.13	0.426	(0.178)	0.111	0.315
163	13.58	0.77	0.288	(0.177)	0.075	0.213
164	13.67	0.77	0.288	(0.176)	0.075	0.213
165	13.75	0.77	0.288	(0.175)	0.075	0.213
166	13.83	0.77	0.288	(0.174)	0.075	0.213
167	13.92	0.77	0.288	(0.173)	0.075	0.213
168	14.00	0.77	0.288	(0.173)	0.075	0.213
169	14.08	0.90	0.338	(0.172)	0.088	0.250
170	14.17	0.90	0.338	(0.171)	0.088	0.250
171	14.25	0.90	0.338	(0.170)	0.088	0.250
172	14.33	0.87	0.326	(0.169)	0.085	0.241
173	14.42	0.87	0.326	(0.168)	0.085	0.241
174	14.50	0.87	0.326	(0.167)	0.085	0.241
175	14.58	0.87	0.326	(0.166)	0.085	0.241

176	14.67	0.87	0.326	(0.166)	0.085	0.241
177	14.75	0.87	0.326	(0.165)	0.085	0.241
178	14.83	0.83	0.313	(0.164)	0.081	0.232
179	14.92	0.83	0.313	(0.163)	0.081	0.232
180	15.00	0.83	0.313	(0.162)	0.081	0.232
181	15.08	0.80	0.301	(0.161)	0.078	0.223
182	15.17	0.80	0.301	(0.161)	0.078	0.223
183	15.25	0.80	0.301	(0.160)	0.078	0.223
184	15.33	0.77	0.288	(0.159)	0.075	0.213
185	15.42	0.77	0.288	(0.158)	0.075	0.213
186	15.50	0.77	0.288	(0.157)	0.075	0.213
187	15.58	0.63	0.238	(0.157)	0.062	0.176
188	15.67	0.63	0.238	(0.156)	0.062	0.176
189	15.75	0.63	0.238	(0.155)	0.062	0.176
190	15.83	0.63	0.238	(0.154)	0.062	0.176
191	15.92	0.63	0.238	(0.153)	0.062	0.176
192	16.00	0.63	0.238	(0.153)	0.062	0.176
193	16.08	0.13	0.050	(0.152)	0.013	0.037
194	16.17	0.13	0.050	(0.151)	0.013	0.037
195	16.25	0.13	0.050	(0.150)	0.013	0.037
196	16.33	0.13	0.050	(0.149)	0.013	0.037
197	16.42	0.13	0.050	(0.149)	0.013	0.037
198	16.50	0.13	0.050	(0.148)	0.013	0.037
199	16.58	0.10	0.038	(0.147)	0.010	0.028
200	16.67	0.10	0.038	(0.146)	0.010	0.028
201	16.75	0.10	0.038	(0.146)	0.010	0.028
202	16.83	0.10	0.038	(0.145)	0.010	0.028
203	16.92	0.10	0.038	(0.144)	0.010	0.028
204	17.00	0.10	0.038	(0.144)	0.010	0.028
205	17.08	0.17	0.063	(0.143)	0.016	0.046
206	17.17	0.17	0.063	(0.142)	0.016	0.046
207	17.25	0.17	0.063	(0.141)	0.016	0.046
208	17.33	0.17	0.063	(0.141)	0.016	0.046
209	17.42	0.17	0.063	(0.140)	0.016	0.046
210	17.50	0.17	0.063	(0.139)	0.016	0.046
211	17.58	0.17	0.063	(0.139)	0.016	0.046
212	17.67	0.17	0.063	(0.138)	0.016	0.046
213	17.75	0.17	0.063	(0.137)	0.016	0.046
214	17.83	0.13	0.050	(0.136)	0.013	0.037
215	17.92	0.13	0.050	(0.136)	0.013	0.037
216	18.00	0.13	0.050	(0.135)	0.013	0.037
217	18.08	0.13	0.050	(0.134)	0.013	0.037
218	18.17	0.13	0.050	(0.134)	0.013	0.037
219	18.25	0.13	0.050	(0.133)	0.013	0.037
220	18.33	0.13	0.050	(0.133)	0.013	0.037
221	18.42	0.13	0.050	(0.132)	0.013	0.037
222	18.50	0.13	0.050	(0.131)	0.013	0.037
223	18.58	0.10	0.038	(0.131)	0.010	0.028
224	18.67	0.10	0.038	(0.130)	0.010	0.028
225	18.75	0.10	0.038	(0.129)	0.010	0.028
226	18.83	0.07	0.025	(0.129)	0.007	0.019
227	18.92	0.07	0.025	(0.128)	0.007	0.019
228	19.00	0.07	0.025	(0.127)	0.007	0.019
229	19.08	0.10	0.038	(0.127)	0.010	0.028
230	19.17	0.10	0.038	(0.126)	0.010	0.028
231	19.25	0.10	0.038	(0.126)	0.010	0.028
232	19.33	0.13	0.050	(0.125)	0.013	0.037
233	19.42	0.13	0.050	(0.125)	0.013	0.037
234	19.50	0.13	0.050	(0.124)	0.013	0.037
235	19.58	0.10	0.038	(0.123)	0.010	0.028
236	19.67	0.10	0.038	(0.123)	0.010	0.028
237	19.75	0.10	0.038	(0.122)	0.010	0.028
238	19.83	0.07	0.025	(0.122)	0.007	0.019
239	19.92	0.07	0.025	(0.121)	0.007	0.019
240	20.00	0.07	0.025	(0.121)	0.007	0.019
241	20.08	0.10	0.038	(0.120)	0.010	0.028
242	20.17	0.10	0.038	(0.120)	0.010	0.028
243	20.25	0.10	0.038	(0.119)	0.010	0.028
244	20.33	0.10	0.038	(0.119)	0.010	0.028

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245  20.42     0.10      0.038       (  0.118)       0.010        0.028
246  20.50     0.10      0.038       (  0.118)       0.010        0.028
247  20.58     0.10      0.038       (  0.117)       0.010        0.028
248  20.67     0.10      0.038       (  0.117)       0.010        0.028
249  20.75     0.10      0.038       (  0.116)       0.010        0.028
250  20.83     0.07      0.025       (  0.116)       0.007        0.019
251  20.92     0.07      0.025       (  0.115)       0.007        0.019
252  21.00     0.07      0.025       (  0.115)       0.007        0.019
253  21.08     0.10      0.038       (  0.114)       0.010        0.028
254  21.17     0.10      0.038       (  0.114)       0.010        0.028
255  21.25     0.10      0.038       (  0.113)       0.010        0.028
256  21.33     0.07      0.025       (  0.113)       0.007        0.019
257  21.42     0.07      0.025       (  0.112)       0.007        0.019
258  21.50     0.07      0.025       (  0.112)       0.007        0.019
259  21.58     0.10      0.038       (  0.112)       0.010        0.028
260  21.67     0.10      0.038       (  0.111)       0.010        0.028
261  21.75     0.10      0.038       (  0.111)       0.010        0.028
262  21.83     0.07      0.025       (  0.110)       0.007        0.019
263  21.92     0.07      0.025       (  0.110)       0.007        0.019
264  22.00     0.07      0.025       (  0.110)       0.007        0.019
265  22.08     0.10      0.038       (  0.109)       0.010        0.028
266  22.17     0.10      0.038       (  0.109)       0.010        0.028
267  22.25     0.10      0.038       (  0.109)       0.010        0.028
268  22.33     0.07      0.025       (  0.108)       0.007        0.019
269  22.42     0.07      0.025       (  0.108)       0.007        0.019
270  22.50     0.07      0.025       (  0.108)       0.007        0.019
271  22.58     0.07      0.025       (  0.107)       0.007        0.019
272  22.67     0.07      0.025       (  0.107)       0.007        0.019
273  22.75     0.07      0.025       (  0.107)       0.007        0.019
274  22.83     0.07      0.025       (  0.106)       0.007        0.019
275  22.92     0.07      0.025       (  0.106)       0.007        0.019
276  23.00     0.07      0.025       (  0.106)       0.007        0.019
277  23.08     0.07      0.025       (  0.106)       0.007        0.019
278  23.17     0.07      0.025       (  0.105)       0.007        0.019
279  23.25     0.07      0.025       (  0.105)       0.007        0.019
280  23.33     0.07      0.025       (  0.105)       0.007        0.019
281  23.42     0.07      0.025       (  0.105)       0.007        0.019
282  23.50     0.07      0.025       (  0.105)       0.007        0.019
283  23.58     0.07      0.025       (  0.104)       0.007        0.019
284  23.67     0.07      0.025       (  0.104)       0.007        0.019
285  23.75     0.07      0.025       (  0.104)       0.007        0.019
286  23.83     0.07      0.025       (  0.104)       0.007        0.019
287  23.92     0.07      0.025       (  0.104)       0.007        0.019
288  24.00     0.07      0.025       (  0.104)       0.007        0.019
               (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    27.8
       Flood volume = Effective rainfall      2.32(In)
        times area       5.6(Ac.)/[(In)/(Ft.)] =       1.1(Ac.Ft)
       Total soil loss =      0.81(In)
       Total soil loss =     0.383(Ac.Ft)
       Total rainfall =      3.13(In)
       Flood volume =       47471.2 Cubic Feet
       Total soil loss =       16679.1 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      1.776(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
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   0+ 5       0.0001      0.01  Q         |         |         |         |
   0+10       0.0004      0.06  Q         |         |         |         |
   0+15       0.0010      0.08  Q         |         |         |         |
   0+20       0.0016      0.09  Q         |         |         |         |
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0+25       0.0025      0.12  Q         |         |         |         |
0+30       0.0034      0.14  Q         |         |         |         |
0+35       0.0044      0.15  Q         |         |         |         |
0+40       0.0055      0.15  Q         |         |         |         |
0+45       0.0065      0.15  Q         |         |         |         |
0+50       0.0076      0.16  Q         |         |         |         |
0+55       0.0089      0.18  Q         |         |         |         |
1+ 0       0.0103      0.20  Q         |         |         |         |
1+ 5       0.0116      0.20  Q         |         |         |         |
1+10       0.0128      0.18  Q         |         |         |         |
1+15       0.0140      0.17  Q         |         |         |         |
1+20       0.0151      0.16  Q         |         |         |         |
1+25       0.0163      0.16  Q         |         |         |         |
1+30       0.0174      0.16  Q         |         |         |         |
1+35       0.0185      0.16  Q         |         |         |         |
1+40       0.0196      0.16  Q         |         |         |         |
1+45       0.0207      0.16  Q         |         |         |         |
1+50       0.0218      0.16  Q         |         |         |         |
1+55       0.0231      0.19  Q         |         |         |         |
2+ 0       0.0244      0.20  Q         |         |         |         |
2+ 5       0.0258      0.20  Q         |         |         |         |
2+10       0.0272      0.21  Q         |         |         |         |
2+15       0.0287      0.21  QV        |         |         |         |
2+20       0.0301      0.21  QV        |         |         |         |
2+25       0.0315      0.21  QV        |         |         |         |
2+30       0.0330      0.21  QV        |         |         |         |
2+35       0.0345      0.22  QV        |         |         |         |
2+40       0.0361      0.24  QV        |         |         |         |
2+45       0.0378      0.25  |Q        |         |         |         |
2+50       0.0396      0.26  |Q        |         |         |         |
2+55       0.0414      0.26  |Q        |         |         |         |
3+ 0       0.0432      0.26  |Q        |         |         |         |
3+ 5       0.0450      0.26  |Q        |         |         |         |
3+10       0.0468      0.26  |Q        |         |         |         |
3+15       0.0486      0.26  |Q        |         |         |         |
3+20       0.0504      0.26  |Q        |         |         |         |
3+25       0.0522      0.26  |Q        |         |         |         |
3+30       0.0540      0.26  |Q        |         |         |         |
3+35       0.0559      0.26  |QV       |         |         |         |
3+40       0.0577      0.26  |QV       |         |         |         |
3+45       0.0595      0.26  |QV       |         |         |         |
3+50       0.0613      0.27  |QV       |         |         |         |
3+55       0.0633      0.29  |QV       |         |         |         |
4+ 0       0.0654      0.30  |QV       |         |         |         |
4+ 5       0.0676      0.31  |QV       |         |         |         |
4+10       0.0697      0.31  |QV       |         |         |         |
4+15       0.0719      0.31  |QV       |         |         |         |
4+20       0.0741      0.32  |QV       |         |         |         |
4+25       0.0764      0.34  |QV       |         |         |         |
4+30       0.0789      0.36  |QV       |         |         |         |
4+35       0.0813      0.36  |QV       |         |         |         |
4+40       0.0839      0.36  |Q V      |         |         |         |
4+45       0.0864      0.37  |Q V      |         |         |         |
4+50       0.0889      0.37  |Q V      |         |         |         |
4+55       0.0917      0.40  |Q V      |         |         |         |
5+ 0       0.0945      0.41  |Q V      |         |         |         |
5+ 5       0.0973      0.40  |Q V      |         |         |         |
5+10       0.0997      0.36  |Q V      |         |         |         |
5+15       0.1021      0.34  |Q V      |         |         |         |
5+20       0.1044      0.34  |Q V      |         |         |         |
5+25       0.1068      0.35  |Q V      |         |         |         |
5+30       0.1093      0.36  |Q  V     |         |         |         |
5+35       0.1119      0.37  |Q  V     |         |         |         |
5+40       0.1146      0.39  |Q  V     |         |         |         |
5+45       0.1174      0.41  |Q  V     |         |         |         |
5+50       0.1202      0.41  |Q  V     |         |         |         |
5+55       0.1231      0.42  |Q  V     |         |         |         |
6+ 0       0.1260      0.42  |Q  V     |         |         |         |
6+ 5       0.1289      0.42  |Q  V     |         |         |         |
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 6+10       0.1320      0.45  |Q  V     |         |         |         |
 6+15       0.1351      0.46  |Q  V     |         |         |         |
 6+20       0.1383      0.47  |Q   V    |         |         |         |
 6+25       0.1416      0.47  |Q   V    |         |         |         |
 6+30       0.1448      0.47  |Q   V    |         |         |         |
 6+35       0.1481      0.48  |Q   V    |         |         |         |
 6+40       0.1516      0.50  | Q  V    |         |         |         |
 6+45       0.1551      0.51  | Q  V    |         |         |         |
 6+50       0.1587      0.52  | Q  V    |         |         |         |
 6+55       0.1623      0.52  | Q  V    |         |         |         |
 7+ 0       0.1659      0.52  | Q   V   |         |         |         |
 7+ 5       0.1695      0.53  | Q   V   |         |         |         |
 7+10       0.1731      0.53  | Q   V   |         |         |         |
 7+15       0.1768      0.53  | Q   V   |         |         |         |
 7+20       0.1804      0.53  | Q   V   |         |         |         |
 7+25       0.1842      0.56  | Q   V   |         |         |         |
 7+30       0.1881      0.57  | Q   V   |         |         |         |
 7+35       0.1921      0.58  | Q    V  |         |         |         |
 7+40       0.1963      0.60  | Q    V  |         |         |         |
 7+45       0.2005      0.62  | Q    V  |         |         |         |
 7+50       0.2048      0.63  | Q    V  |         |         |         |
 7+55       0.2093      0.65  | Q    V  |         |         |         |
 8+ 0       0.2139      0.67  | Q    V  |         |         |         |
 8+ 5       0.2186      0.68  | Q     V |         |         |         |
 8+10       0.2237      0.73  | Q     V |         |         |         |
 8+15       0.2289      0.76  |  Q    V |         |         |         |
 8+20       0.2343      0.77  |  Q    V |         |         |         |
 8+25       0.2396      0.78  |  Q    V |         |         |         |
 8+30       0.2450      0.78  |  Q    V |         |         |         |
 8+35       0.2505      0.79  |  Q     V|         |         |         |
 8+40       0.2561      0.82  |  Q     V|         |         |         |
 8+45       0.2618      0.83  |  Q     V|         |         |         |
 8+50       0.2676      0.84  |  Q     V|         |         |         |
 8+55       0.2736      0.87  |  Q      V         |         |         |
 9+ 0       0.2796      0.88  |  Q      V         |         |         |
 9+ 5       0.2858      0.90  |  Q      V         |         |         |
 9+10       0.2923      0.95  |  Q      V         |         |         |
 9+15       0.2990      0.97  |  Q      V         |         |         |
 9+20       0.3058      0.99  |  Q      |V        |         |         |
 9+25       0.3128      1.02  |   Q     |V        |         |         |
 9+30       0.3199      1.03  |   Q     |V        |         |         |
 9+35       0.3271      1.05  |   Q     | V       |         |         |
 9+40       0.3345      1.07  |   Q     | V       |         |         |
 9+45       0.3420      1.09  |   Q     | V       |         |         |
 9+50       0.3496      1.10  |   Q     | V       |         |         |
 9+55       0.3574      1.13  |   Q     |  V      |         |         |
10+ 0       0.3653      1.14  |   Q     |  V      |         |         |
10+ 5       0.3730      1.12  |   Q     |  V      |         |         |
10+10       0.3796      0.96  |  Q      |  V      |         |         |
10+15       0.3857      0.88  |  Q      |   V     |         |         |
10+20       0.3915      0.85  |  Q      |   V     |         |         |
10+25       0.3972      0.83  |  Q      |   V     |         |         |
10+30       0.4028      0.81  |  Q      |   V     |         |         |
10+35       0.4085      0.83  |  Q      |   V     |         |         |
10+40       0.4149      0.94  |  Q      |    V    |         |         |
10+45       0.4218      0.99  |  Q      |    V    |         |         |
10+50       0.4288      1.02  |   Q     |    V    |         |         |
10+55       0.4359      1.03  |   Q     |    V    |         |         |
11+ 0       0.4430      1.04  |   Q     |     V   |         |         |
11+ 5       0.4502      1.04  |   Q     |     V   |         |         |
11+10       0.4572      1.02  |   Q     |     V   |         |         |
11+15       0.4642      1.01  |   Q     |      V  |         |         |
11+20       0.4711      1.01  |   Q     |      V  |         |         |
11+25       0.4781      1.01  |   Q     |      V  |         |         |
11+30       0.4850      1.01  |   Q     |      V  |         |         |
11+35       0.4918      1.00  |  Q      |       V |         |         |
11+40       0.4984      0.95  |  Q      |       V |         |         |
11+45       0.5047      0.92  |  Q      |       V |         |         |
11+50       0.5111      0.92  |  Q      |       V |         |         |
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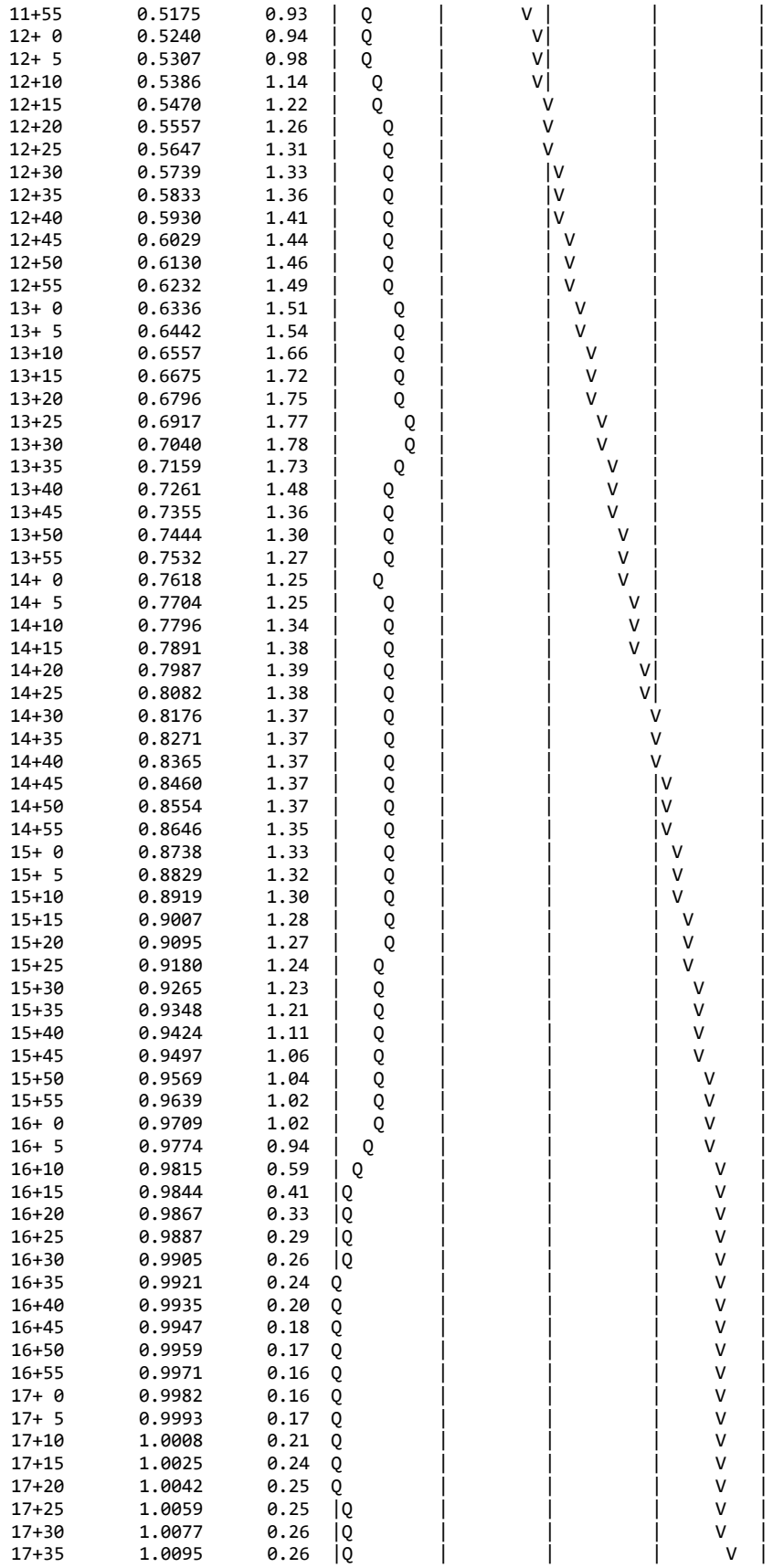

17+40	1.0113	0.26	|Q	|	|	|	V |
17+45	1.0131	0.26	|Q	|	|	|	V |
17+50	1.0148	0.26	|Q	|	|	|	V |
17+55	1.0165	0.24	Q	|	|	|	V |
18+ 0	1.0180	0.22	Q	|	|	|	V |
18+ 5	1.0195	0.22	Q	|	|	|	V |
18+10	1.0210	0.22	Q	|	|	|	V |
18+15	1.0225	0.21	Q	|	|	|	V |
18+20	1.0240	0.21	Q	|	|	|	V |
18+25	1.0254	0.21	Q	|	|	|	V |
18+30	1.0269	0.21	Q	|	|	|	V |
18+35	1.0283	0.21	Q	|	|	|	V |
18+40	1.0296	0.18	Q	|	|	|	V |
18+45	1.0307	0.17	Q	|	|	|	V |
18+50	1.0319	0.16	Q	|	|	|	V |
18+55	1.0328	0.14	Q	|	|	|	V |
19+ 0	1.0336	0.12	Q	|	|	|	V |
19+ 5	1.0345	0.12	Q	|	|	|	V |
19+10	1.0354	0.14	Q	|	|	|	V |
19+15	1.0365	0.15	Q	|	|	|	V |
19+20	1.0375	0.16	Q	|	|	|	V |
19+25	1.0388	0.18	Q	|	|	|	V |
19+30	1.0401	0.20	Q	|	|	|	V |
19+35	1.0415	0.20	Q	|	|	|	V |
19+40	1.0427	0.18	Q	|	|	|	V |
19+45	1.0439	0.17	Q	|	|	|	V |
19+50	1.0450	0.16	Q	|	|	|	V |
19+55	1.0459	0.13	Q	|	|	|	V |
20+ 0	1.0467	0.12	Q	|	|	|	V |
20+ 5	1.0475	0.12	Q	|	|	|	V |
20+10	1.0485	0.14	Q	|	|	|	V |
20+15	1.0495	0.15	Q	|	|	|	V |
20+20	1.0506	0.15	Q	|	|	|	V |
20+25	1.0516	0.15	Q	|	|	|	V |
20+30	1.0527	0.16	Q	|	|	|	V |
20+35	1.0538	0.16	Q	|	|	|	V |
20+40	1.0549	0.16	Q	|	|	|	V |
20+45	1.0560	0.16	Q	|	|	|	V |
20+50	1.0570	0.15	Q	|	|	|	V |
20+55	1.0579	0.13	Q	|	|	|	V |
21+ 0	1.0587	0.12	Q	|	|	|	V |
21+ 5	1.0595	0.12	Q	|	|	|	V |
21+10	1.0605	0.14	Q	|	|	|	V |
21+15	1.0615	0.15	Q	|	|	|	V |
21+20	1.0625	0.15	Q	|	|	|	V |
21+25	1.0634	0.13	Q	|	|	|	V|
21+30	1.0642	0.12	Q	|	|	|	V|
21+35	1.0650	0.12	Q	|	|	|	V|
21+40	1.0660	0.14	Q	|	|	|	V|
21+45	1.0670	0.15	Q	|	|	|	V|
21+50	1.0680	0.15	Q	|	|	|	V|
21+55	1.0689	0.13	Q	|	|	|	V|
22+ 0	1.0697	0.12	Q	|	|	|	V|
22+ 5	1.0705	0.12	Q	|	|	|	V|
22+10	1.0714	0.14	Q	|	|	|	V|
22+15	1.0724	0.15	Q	|	|	|	V|
22+20	1.0734	0.15	Q	|	|	|	V|
22+25	1.0743	0.13	Q	|	|	|	V|
22+30	1.0751	0.12	Q	|	|	|	V|
22+35	1.0759	0.11	Q	|	|	|	V|
22+40	1.0766	0.11	Q	|	|	|	V|
22+45	1.0774	0.11	Q	|	|	|	V|
22+50	1.0781	0.11	Q	|	|	|	V|
22+55	1.0789	0.11	Q	|	|	|	V|
23+ 0	1.0796	0.11	Q	|	|	|	V|
23+ 5	1.0803	0.11	Q	|	|	|	V|
23+10	1.0810	0.11	Q	|	|	|	V|
23+15	1.0818	0.11	Q	|	|	|	V|
23+20	1.0825	0.11	Q	|	|	|	V|

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   23+25       1.0832      0.11  Q        |         |         |        V|
   23+30       1.0839      0.11  Q        |         |         |        V|
   23+35       1.0847      0.11  Q        |         |         |        V|
   23+40       1.0854      0.11  Q        |         |         |        V|
   23+45       1.0861      0.11  Q        |         |         |        V|
   23+50       1.0869      0.11  Q        |         |         |        V|
   23+55       1.0876      0.11  Q        |         |         |        V|
   24+ 0       1.0883      0.11  Q        |         |         |        V|
   24+ 5       1.0890      0.10  Q        |         |         |        V|
   24+10       1.0893      0.05  Q        |         |         |        V|
   24+15       1.0895      0.03  Q        |         |         |        V|
   24+20       1.0896      0.02  Q        |         |         |        V|
   24+25       1.0897      0.01  Q        |         |         |        V|
   24+30       1.0897      0.01  Q        |         |         |        V|
   24+35       1.0898      0.00  Q        |         |         |        V|
   24+40       1.0898      0.00  Q        |         |         |        V|
   24+45       1.0898      0.00  Q        |         |         |        V|
   24+50       1.0898      0.00  Q        |         |         |        V|
-------------------------------------------------------------------------
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SECTION 6.3

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**100-YEAR**
DURATION:	**1-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH100Y1H5M1100.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.120 Hr.
Lag time = 7.20 Min.
25% of lag time = 1.80 Min.
40% of lag time = 2.88 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]
5.64	0.50	2.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	1.74	9.81

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.740(In)

Point rain (area averaged) = 1.740(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.740(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	52.0	0.552	0.800	0.154	1.000	0.154
					Sum (F) =	0.154

Area averaged mean soil loss (F) (In/Hr) = 0.154
Minimum soil loss rate ((In/Hr)) = 0.077

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

Slope of intensity-duration curve for a 1 hour storm =0.5800

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	69.444	7.669	0.436
2	0.167	138.889	42.365	2.408
3	0.250	208.333	23.272	1.323
4	0.333	277.778	10.129	0.576
5	0.417	347.222	5.930	0.337
6	0.500	416.667	3.698	0.210
7	0.583	486.111	2.509	0.143
8	0.667	555.556	1.690	0.096
9	0.750	625.000	0.950	0.054
10	0.833	694.444	0.805	0.046
11	0.917	763.889	0.664	0.038
12	1.000	833.333	0.319	0.018
		Sum = 100.000	Sum=	5.684

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	3.60	0.752	0.154	(0.195)	0.597
2	0.17	4.20	0.877	0.154	(0.228)	0.722
3	0.25	4.40	0.919	0.154	(0.239)	0.764
4	0.33	4.60	0.960	0.154	(0.250)	0.806
5	0.42	5.00	1.044	0.154	(0.271)	0.889
6	0.50	5.60	1.169	0.154	(0.304)	1.015
7	0.58	6.40	1.336	0.154	(0.347)	1.182
8	0.67	8.10	1.691	0.154	(0.440)	1.537
9	0.75	13.10	2.735	0.154	(0.711)	2.581
10	0.83	34.50	7.203	0.154	(1.873)	7.049
11	0.92	6.70	1.399	0.154	(0.364)	1.244
12	1.00	3.80	0.793	0.154	(0.206)	0.639
		(Loss Rate Not Used)			
Sum =		100.0			Sum = 19.0

Flood volume = Effective rainfall 1.59(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 0.7(Ac.Ft)
Total soil loss = 0.15(In)
Total soil loss = 0.073(Ac.Ft)
Total rainfall = 1.74(In)
Flood volume = 32459.5 Cubic Feet
Total soil loss = 3162.0 Cubic Feet

Peak flow rate of this hydrograph = 22.739(CFS)

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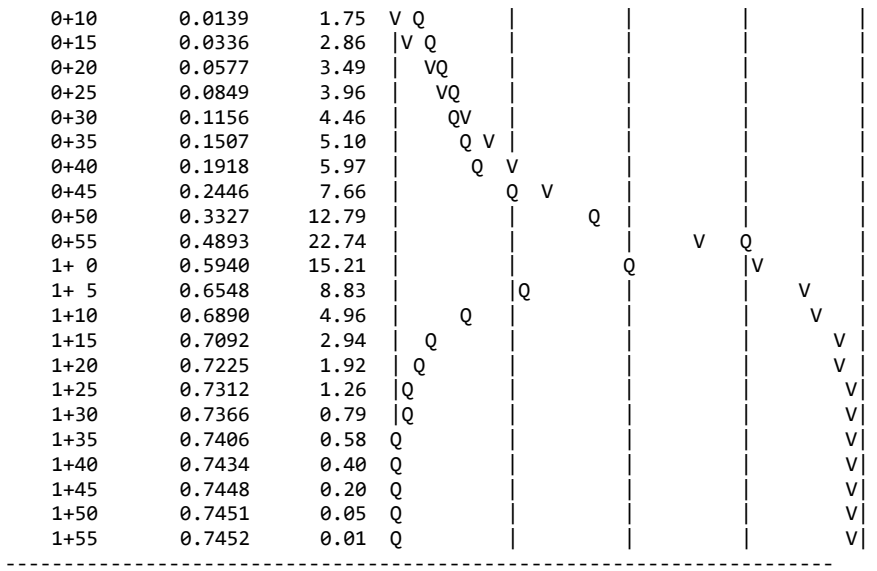
1 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.0018	0.26	Q	|	|	|	|


0+10 0.0139 1.75
0+15 0.0336 2.86
0+20 0.0577 3.49
0+25 0.0849 3.96
0+30 0.1156 4.46
0+35 0.1507 5.10
0+40 0.1918 5.97
0+45 0.2446 7.66
0+50 0.3327 12.79
0+55 0.4893 22.74
1+ 0 0.5940 15.21
1+ 5 0.6548 8.83
1+10 0.6890 4.96
1+15 0.7092 2.94
1+20 0.7225 1.92
1+25 0.7312 1.26
1+30 0.7366 0.79
1+35 0.7406 0.58
1+40 0.7434 0.40
1+45 0.7448 0.20
1+50 0.7451 0.05
1+55 0.7452 0.01

SECTION 6.3.1

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**100-YEAR**
DURATION:	**3-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH100Y3H5M3100.out

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

Program License Serial Number 6293

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

English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.120 Hr.
Lag time = 7.20 Min.
25% of lag time = 1.80 Min.
40% of lag time = 2.88 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]
5.64	0.78	4.40

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	2.50	14.10

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.781(In)
Area Averaged 100-Year Rainfall = 2.500(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 %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	52.0	0.552	0.800	0.154	1.000	0.154
					Sum (F) =	0.154

Area averaged mean soil loss (F) (In/Hr) = 0.154
Minimum soil loss rate ((In/Hr)) = 0.077

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	69.444	7.669	0.436
2	0.167	138.889	42.365	2.408
3	0.250	208.333	23.272	1.323
4	0.333	277.778	10.129	0.576
5	0.417	347.222	5.930	0.337
6	0.500	416.667	3.698	0.210
7	0.583	486.111	2.509	0.143
8	0.667	555.556	1.690	0.096
9	0.750	625.000	0.950	0.054
10	0.833	694.444	0.805	0.046
11	0.917	763.889	0.664	0.038
12	1.000	833.333	0.319	0.018
			Sum = 100.000	Sum= 5.684

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	0.390	(0.154)	0.101	0.289
2	0.17	1.30	0.390	(0.154)	0.101	0.289
3	0.25	1.10	0.330	(0.154)	0.086	0.244
4	0.33	1.50	0.450	(0.154)	0.117	0.333
5	0.42	1.50	0.450	(0.154)	0.117	0.333
6	0.50	1.80	0.540	(0.154)	0.140	0.400
7	0.58	1.50	0.450	(0.154)	0.117	0.333
8	0.67	1.80	0.540	(0.154)	0.140	0.400
9	0.75	1.80	0.540	(0.154)	0.140	0.400
10	0.83	1.50	0.450	(0.154)	0.117	0.333
11	0.92	1.60	0.480	(0.154)	0.125	0.355
12	1.00	1.80	0.540	(0.154)	0.140	0.400
13	1.08	2.20	0.660	0.154	(0.172)	0.506
14	1.17	2.20	0.660	0.154	(0.172)	0.506
15	1.25	2.20	0.660	0.154	(0.172)	0.506
16	1.33	2.00	0.600	0.154	(0.156)	0.446
17	1.42	2.60	0.780	0.154	(0.203)	0.626
18	1.50	2.70	0.810	0.154	(0.211)	0.656
19	1.58	2.40	0.720	0.154	(0.187)	0.566
20	1.67	2.70	0.810	0.154	(0.211)	0.656
21	1.75	3.30	0.990	0.154	(0.257)	0.836
22	1.83	3.10	0.930	0.154	(0.242)	0.776
23	1.92	2.90	0.870	0.154	(0.226)	0.716
24	2.00	3.00	0.900	0.154	(0.234)	0.746
25	2.08	3.10	0.930	0.154	(0.242)	0.776
26	2.17	4.20	1.260	0.154	(0.328)	1.106
27	2.25	5.00	1.500	0.154	(0.390)	1.346
28	2.33	3.50	1.050	0.154	(0.273)	0.896
29	2.42	6.80	2.040	0.154	(0.530)	1.886
30	2.50	7.30	2.190	0.154	(0.569)	2.035
31	2.58	8.20	2.460	0.154	(0.640)	2.305
32	2.67	5.90	1.770	0.154	(0.460)	1.616
33	2.75	2.00	0.600	0.154	(0.156)	0.446
34	2.83	1.80	0.540	(0.154)	0.140	0.400
35	2.92	1.80	0.540	(0.154)	0.140	0.400
36	3.00	0.60	0.180	(0.154)	0.047	0.133

```
              (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    25.0
       Flood volume = Effective rainfall      2.08(In)
        times area       5.6(Ac.)/[(In)/(Ft.)] =       1.0(Ac.Ft)
       Total soil loss =      0.42(In)
       Total soil loss =     0.196(Ac.Ft)
       Total rainfall =      2.50(In)
       Flood volume =       42627.4 Cubic Feet
       Total soil loss =        8554.3 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =     10.974(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           3 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ---------------------------------------------------------------------
                    Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
 ----------------------------------------------------------------------------
   0+ 5       0.0009      0.13  Q         |         |         |         |
   0+10       0.0065      0.82  VQ        |         |         |         |
   0+15       0.0147      1.18  V Q       |         |         |         |
   0+20       0.0235      1.28  V Q       |         |         |         |
   0+25       0.0341      1.53  |V Q      |         |         |         |
   0+30       0.0459      1.72  |V Q      |         |         |         |
   0+35       0.0591      1.92  | VQ      |         |         |         |
   0+40       0.0724      1.93  | VQ      |         |         |         |
   0+45       0.0867      2.07  |  VQ     |         |         |         |
   0+50       0.1014      2.13  |   Q     |         |         |         |
   0+55       0.1153      2.03  |   Q     |         |         |         |
   1+ 0       0.1294      2.04  |   QV    |         |         |         |
   1+ 5       0.1445      2.20  |   QV    |         |         |         |
   1+10       0.1618      2.51  |    QV   |         |         |         |
   1+15       0.1803      2.68  |    Q V  |         |         |         |
   1+20       0.1990      2.73  |    Q  V |         |         |         |
   1+25       0.2177      2.70  |    Q  V |         |         |         |
   1+30       0.2390      3.10  |     Q  V|         |         |         |
   1+35       0.2621      3.35  |     Q   V         |         |         |
   1+40       0.2849      3.31  |     Q   |V        |         |         |
   1+45       0.3094      3.56  |      Q  | V       |         |         |
   1+50       0.3375      4.08  |       Q |  V      |         |         |
   1+55       0.3665      4.20  |       Q |   V     |         |         |
   2+ 0       0.3949      4.13  |       Q |     V   |         |         |
   2+ 5       0.4236      4.17  |       Q |      V  |         |         |
   2+10       0.4541      4.42  |       Q |       V |         |         |
   2+15       0.4912      5.39  |         Q         V         |         |
   2+20       0.5341      6.23  |         | Q       |V        |         |
   2+25       0.5761      6.10  |         | Q       |  V      |         |
   2+30       0.6327      8.22  |         |     Q   |    V    |         |
   2+35       0.7010      9.91  |         |        Q|       V |         |
   2+40       0.7765     10.97  |         |         |Q        |V        |
   2+45       0.8423      9.55  |         |        Q|         |   V     |
   2+50       0.8849      6.19  |         | Q       |         |     V   |
   2+55       0.9151      4.38  |       Q |         |         |      V  |
   3+ 0       0.9391      3.47  |     Q   |         |         |       V |
   3+ 5       0.9550      2.31  |   Q     |         |         |        V|
   3+10       0.9642      1.34  | Q       |         |         |        V|
   3+15       0.9698      0.82  |Q        |         |         |        V|
   3+20       0.9735      0.53  |Q        |         |         |        V|
   3+25       0.9759      0.35  Q         |         |         |        V|
   3+30       0.9773      0.20  Q         |         |         |        V|
   3+35       0.9780      0.10  Q         |         |         |        V|
   3+40       0.9783      0.05  Q         |         |         |        V|
   3+45       0.9785      0.03  Q         |         |         |        V|
   3+50       0.9786      0.01  Q         |         |         |        V|
   3+55       0.9786      0.00  Q         |         |         |         V
----------------------------------------------------------------------------
```

SECTION 6.3.2

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**100-YEAR**
DURATION:	**6-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH100Y6H5M6100.out

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

Program License Serial Number 6293

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

English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.120 Hr.
Lag time = 7.20 Min.
25% of lag time = 1.80 Min.
40% of lag time = 2.88 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]
5.64	1.05	5.92

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	3.28	18.50

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.050(In)
Area Averaged 100-Year Rainfall = 3.280(In)

Point rain (area averaged) = 3.280(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.280(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	52.0	0.552	0.800	0.154	1.000	0.154
					Sum (F) =	0.154

Area averaged mean soil loss (F) (In/Hr) = 0.154
Minimum soil loss rate ((In/Hr)) = 0.077

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

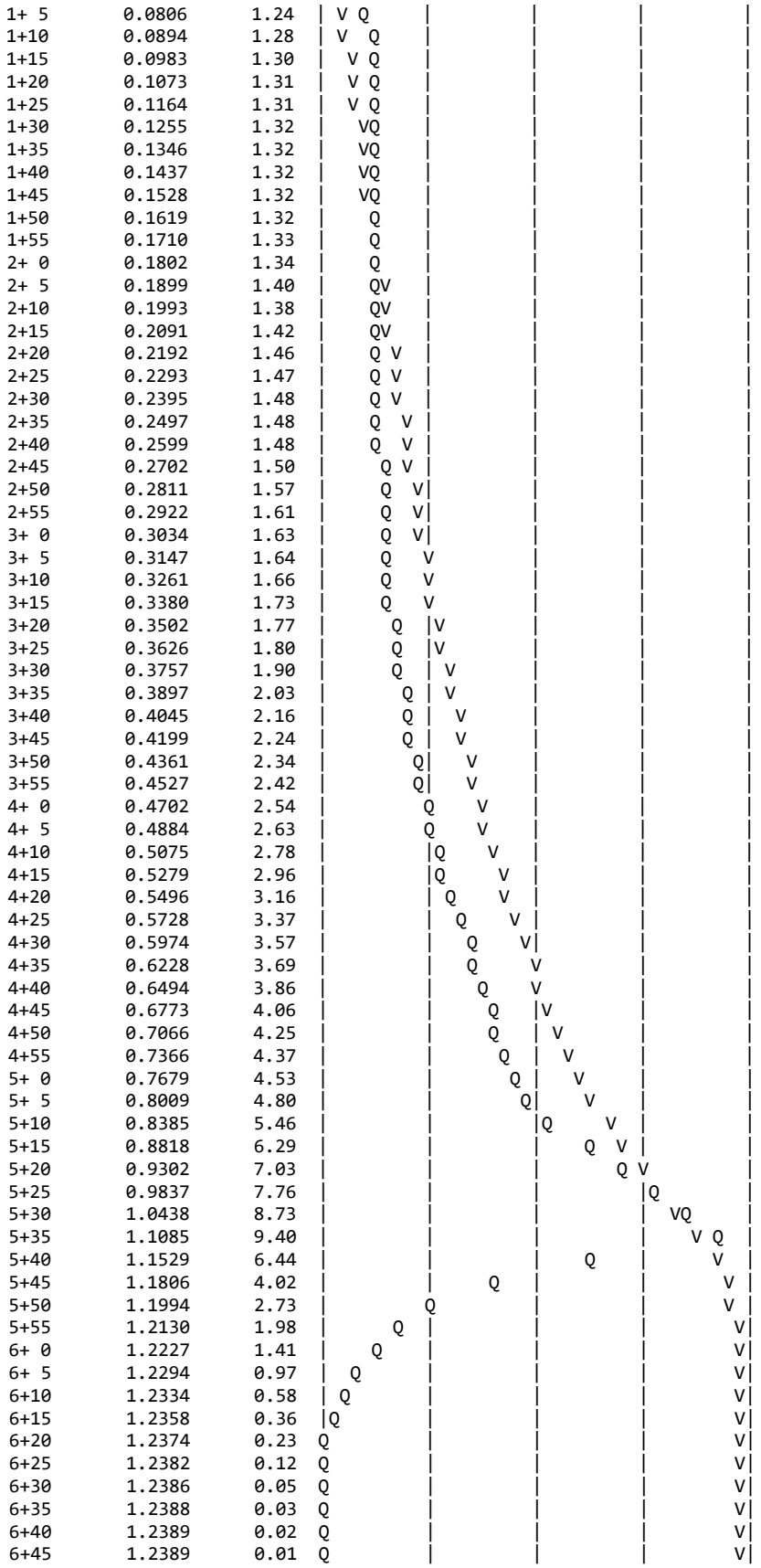
Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	69.444	7.669	0.436
2	0.167	138.889	42.365	2.408
3	0.250	208.333	23.272	1.323
4	0.333	277.778	10.129	0.576
5	0.417	347.222	5.930	0.337
6	0.500	416.667	3.698	0.210
7	0.583	486.111	2.509	0.143
8	0.667	555.556	1.690	0.096
9	0.750	625.000	0.950	0.054
10	0.833	694.444	0.805	0.046
11	0.917	763.889	0.664	0.038
12	1.000	833.333	0.319	0.018
			Sum = 100.000	Sum= 5.684

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	0.197	(0.154)	0.051	0.146
2	0.17	0.60	0.236	(0.154)	0.061	0.175
3	0.25	0.60	0.236	(0.154)	0.061	0.175
4	0.33	0.60	0.236	(0.154)	0.061	0.175
5	0.42	0.60	0.236	(0.154)	0.061	0.175
6	0.50	0.70	0.276	(0.154)	0.072	0.204
7	0.58	0.70	0.276	(0.154)	0.072	0.204
8	0.67	0.70	0.276	(0.154)	0.072	0.204
9	0.75	0.70	0.276	(0.154)	0.072	0.204
10	0.83	0.70	0.276	(0.154)	0.072	0.204
11	0.92	0.70	0.276	(0.154)	0.072	0.204
12	1.00	0.80	0.315	(0.154)	0.082	0.233
13	1.08	0.80	0.315	(0.154)	0.082	0.233
14	1.17	0.80	0.315	(0.154)	0.082	0.233
15	1.25	0.80	0.315	(0.154)	0.082	0.233
16	1.33	0.80	0.315	(0.154)	0.082	0.233
17	1.42	0.80	0.315	(0.154)	0.082	0.233
18	1.50	0.80	0.315	(0.154)	0.082	0.233
19	1.58	0.80	0.315	(0.154)	0.082	0.233
20	1.67	0.80	0.315	(0.154)	0.082	0.233
21	1.75	0.80	0.315	(0.154)	0.082	0.233
22	1.83	0.80	0.315	(0.154)	0.082	0.233
23	1.92	0.80	0.315	(0.154)	0.082	0.233
24	2.00	0.90	0.354	(0.154)	0.092	0.262
25	2.08	0.80	0.315	(0.154)	0.082	0.233
26	2.17	0.90	0.354	(0.154)	0.092	0.262
27	2.25	0.90	0.354	(0.154)	0.092	0.262
28	2.33	0.90	0.354	(0.154)	0.092	0.262
29	2.42	0.90	0.354	(0.154)	0.092	0.262
30	2.50	0.90	0.354	(0.154)	0.092	0.262
31	2.58	0.90	0.354	(0.154)	0.092	0.262
32	2.67	0.90	0.354	(0.154)	0.092	0.262
33	2.75	1.00	0.394	(0.154)	0.102	0.291
34	2.83	1.00	0.394	(0.154)	0.102	0.291
35	2.92	1.00	0.394	(0.154)	0.102	0.291
36	3.00	1.00	0.394	(0.154)	0.102	0.291

```
37   3.08     1.00      0.394       (  0.154)       0.102        0.291
38   3.17     1.10      0.433       (  0.154)       0.113        0.320
39   3.25     1.10      0.433       (  0.154)       0.113        0.320
40   3.33     1.10      0.433       (  0.154)       0.113        0.320
41   3.42     1.20      0.472       (  0.154)       0.123        0.350
42   3.50     1.30      0.512       (  0.154)       0.133        0.379
43   3.58     1.40      0.551       (  0.154)       0.143        0.408
44   3.67     1.40      0.551       (  0.154)       0.143        0.408
45   3.75     1.50      0.590       (  0.154)       0.154        0.437
46   3.83     1.50      0.590       (  0.154)       0.154        0.437
47   3.92     1.60      0.630          0.154    (  0.164)        0.475
48   4.00     1.60      0.630          0.154    (  0.164)        0.475
49   4.08     1.70      0.669          0.154    (  0.174)        0.515
50   4.17     1.80      0.708          0.154    (  0.184)        0.554
51   4.25     1.90      0.748          0.154    (  0.194)        0.593
52   4.33     2.00      0.787          0.154    (  0.205)        0.633
53   4.42     2.10      0.827          0.154    (  0.215)        0.672
54   4.50     2.10      0.827          0.154    (  0.215)        0.672
55   4.58     2.20      0.866          0.154    (  0.225)        0.711
56   4.67     2.30      0.905          0.154    (  0.235)        0.751
57   4.75     2.40      0.945          0.154    (  0.246)        0.790
58   4.83     2.40      0.945          0.154    (  0.246)        0.790
59   4.92     2.50      0.984          0.154    (  0.256)        0.830
60   5.00     2.60      1.023          0.154    (  0.266)        0.869
61   5.08     3.10      1.220          0.154    (  0.317)        1.066
62   5.17     3.60      1.417          0.154    (  0.368)        1.262
63   5.25     3.90      1.535          0.154    (  0.399)        1.381
64   5.33     4.20      1.653          0.154    (  0.430)        1.499
65   5.42     4.70      1.850          0.154    (  0.481)        1.695
66   5.50     5.60      2.204          0.154    (  0.573)        2.050
67   5.58     1.90      0.748          0.154    (  0.194)        0.593
68   5.67     0.90      0.354       (  0.154)       0.092        0.262
69   5.75     0.60      0.236       (  0.154)       0.061        0.175
70   5.83     0.50      0.197       (  0.154)       0.051        0.146
71   5.92     0.30      0.118       (  0.154)       0.031        0.087
72   6.00     0.20      0.079       (  0.154)       0.020        0.058
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    31.6
      Flood volume = Effective rainfall      2.64(In)
       times area       5.6(Ac.)/[(In)/(Ft.)] =       1.2(Ac.Ft)
      Total soil loss =      0.64(In)
      Total soil loss =     0.303(Ac.Ft)
      Total rainfall =      3.28(In)
      Flood volume =       53970.1 Cubic Feet
      Total soil loss =       13180.7 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      9.395(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       0.0004      0.06  Q         |         |         |         |
  0+10       0.0034      0.43  VQ        |         |         |         |
  0+15       0.0081      0.69  V Q       |         |         |         |
  0+20       0.0137      0.81  V  Q      |         |         |         |
  0+25       0.0198      0.88  V  Q      |         |         |         |
  0+30       0.0262      0.93  V  Q      |         |         |         |
  0+35       0.0333      1.03  |V  Q     |         |         |         |
  0+40       0.0407      1.09  |V  Q     |         |         |         |
  0+45       0.0484      1.11  |V  Q     |         |         |         |
  0+50       0.0562      1.13  |V  Q     |         |         |         |
  0+55       0.0641      1.14  | V Q     |         |         |         |
  1+ 0       0.0721      1.16  | V Q     |         |         |         |
```



```
    6+50       1.2390      0.00  Q        |        |        |       V|
    6+55       1.2390      0.00  Q        |        |        |       V|
-----------------------------------------------------------------------
```

SECTION 6.3.3

UNIT-HYDROGRAPH STUDY

CONDITION:	**EXISTING**
FREQUENCY:	**100-YEAR**
DURATION:	**24-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804EUH100Y24H5M24100.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.120 Hr.
Lag time = 7.20 Min.
25% of lag time = 1.80 Min.
40% of lag time = 2.88 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]
5.64	1.64	9.25

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	5.27	29.72

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.640(In)
Area Averaged 100-Year Rainfall = 5.270(In)

Point rain (area averaged) = 5.270(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.270(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.800

 Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	52.0	0.552	0.800	0.154	1.000	0.154
					Sum (F) =	0.154

Area averaged mean soil loss (F) (In/Hr) = 0.154
Minimum soil loss rate ((In/Hr)) = 0.077

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.260

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	69.444	7.669	0.436
2	0.167	138.889	42.365	2.408
3	0.250	208.333	23.272	1.323
4	0.333	277.778	10.129	0.576
5	0.417	347.222	5.930	0.337
6	0.500	416.667	3.698	0.210
7	0.583	486.111	2.509	0.143
8	0.667	555.556	1.690	0.096
9	0.750	625.000	0.950	0.054
10	0.833	694.444	0.805	0.046
11	0.917	763.889	0.664	0.038
12	1.000	833.333	0.319	0.018
			Sum = 100.000	Sum= 5.684

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	0.042	(0.274)	0.011	0.031
2	0.17	0.07	0.042	(0.273)	0.011	0.031
3	0.25	0.07	0.042	(0.272)	0.011	0.031
4	0.33	0.10	0.063	(0.271)	0.016	0.047
5	0.42	0.10	0.063	(0.270)	0.016	0.047
6	0.50	0.10	0.063	(0.269)	0.016	0.047
7	0.58	0.10	0.063	(0.267)	0.016	0.047
8	0.67	0.10	0.063	(0.266)	0.016	0.047
9	0.75	0.10	0.063	(0.265)	0.016	0.047
10	0.83	0.13	0.084	(0.264)	0.022	0.062
11	0.92	0.13	0.084	(0.263)	0.022	0.062
12	1.00	0.13	0.084	(0.262)	0.022	0.062
13	1.08	0.10	0.063	(0.261)	0.016	0.047
14	1.17	0.10	0.063	(0.260)	0.016	0.047
15	1.25	0.10	0.063	(0.259)	0.016	0.047
16	1.33	0.10	0.063	(0.258)	0.016	0.047
17	1.42	0.10	0.063	(0.257)	0.016	0.047
18	1.50	0.10	0.063	(0.256)	0.016	0.047
19	1.58	0.10	0.063	(0.255)	0.016	0.047
20	1.67	0.10	0.063	(0.254)	0.016	0.047
21	1.75	0.10	0.063	(0.253)	0.016	0.047
22	1.83	0.13	0.084	(0.252)	0.022	0.062
23	1.92	0.13	0.084	(0.251)	0.022	0.062
24	2.00	0.13	0.084	(0.250)	0.022	0.062
25	2.08	0.13	0.084	(0.249)	0.022	0.062
26	2.17	0.13	0.084	(0.248)	0.022	0.062
27	2.25	0.13	0.084	(0.247)	0.022	0.062
28	2.33	0.13	0.084	(0.246)	0.022	0.062
29	2.42	0.13	0.084	(0.245)	0.022	0.062
30	2.50	0.13	0.084	(0.244)	0.022	0.062
31	2.58	0.17	0.105	(0.243)	0.027	0.078
32	2.67	0.17	0.105	(0.242)	0.027	0.078
33	2.75	0.17	0.105	(0.241)	0.027	0.078
34	2.83	0.17	0.105	(0.240)	0.027	0.078
35	2.92	0.17	0.105	(0.239)	0.027	0.078
36	3.00	0.17	0.105	(0.238)	0.027	0.078

37	3.08	0.17	0.105	(0.237)	0.027	0.078
38	3.17	0.17	0.105	(0.236)	0.027	0.078
39	3.25	0.17	0.105	(0.235)	0.027	0.078
40	3.33	0.17	0.105	(0.234)	0.027	0.078
41	3.42	0.17	0.105	(0.233)	0.027	0.078
42	3.50	0.17	0.105	(0.232)	0.027	0.078
43	3.58	0.17	0.105	(0.231)	0.027	0.078
44	3.67	0.17	0.105	(0.230)	0.027	0.078
45	3.75	0.17	0.105	(0.229)	0.027	0.078
46	3.83	0.20	0.126	(0.228)	0.033	0.094
47	3.92	0.20	0.126	(0.227)	0.033	0.094
48	4.00	0.20	0.126	(0.226)	0.033	0.094
49	4.08	0.20	0.126	(0.225)	0.033	0.094
50	4.17	0.20	0.126	(0.224)	0.033	0.094
51	4.25	0.20	0.126	(0.223)	0.033	0.094
52	4.33	0.23	0.148	(0.222)	0.038	0.109
53	4.42	0.23	0.148	(0.222)	0.038	0.109
54	4.50	0.23	0.148	(0.221)	0.038	0.109
55	4.58	0.23	0.148	(0.220)	0.038	0.109
56	4.67	0.23	0.148	(0.219)	0.038	0.109
57	4.75	0.23	0.148	(0.218)	0.038	0.109
58	4.83	0.27	0.169	(0.217)	0.044	0.125
59	4.92	0.27	0.169	(0.216)	0.044	0.125
60	5.00	0.27	0.169	(0.215)	0.044	0.125
61	5.08	0.20	0.126	(0.214)	0.033	0.094
62	5.17	0.20	0.126	(0.213)	0.033	0.094
63	5.25	0.20	0.126	(0.212)	0.033	0.094
64	5.33	0.23	0.148	(0.211)	0.038	0.109
65	5.42	0.23	0.148	(0.210)	0.038	0.109
66	5.50	0.23	0.148	(0.209)	0.038	0.109
67	5.58	0.27	0.169	(0.208)	0.044	0.125
68	5.67	0.27	0.169	(0.208)	0.044	0.125
69	5.75	0.27	0.169	(0.207)	0.044	0.125
70	5.83	0.27	0.169	(0.206)	0.044	0.125
71	5.92	0.27	0.169	(0.205)	0.044	0.125
72	6.00	0.27	0.169	(0.204)	0.044	0.125
73	6.08	0.30	0.190	(0.203)	0.049	0.140
74	6.17	0.30	0.190	(0.202)	0.049	0.140
75	6.25	0.30	0.190	(0.201)	0.049	0.140
76	6.33	0.30	0.190	(0.200)	0.049	0.140
77	6.42	0.30	0.190	(0.199)	0.049	0.140
78	6.50	0.30	0.190	(0.198)	0.049	0.140
79	6.58	0.33	0.211	(0.198)	0.055	0.156
80	6.67	0.33	0.211	(0.197)	0.055	0.156
81	6.75	0.33	0.211	(0.196)	0.055	0.156
82	6.83	0.33	0.211	(0.195)	0.055	0.156
83	6.92	0.33	0.211	(0.194)	0.055	0.156
84	7.00	0.33	0.211	(0.193)	0.055	0.156
85	7.08	0.33	0.211	(0.192)	0.055	0.156
86	7.17	0.33	0.211	(0.191)	0.055	0.156
87	7.25	0.33	0.211	(0.191)	0.055	0.156
88	7.33	0.37	0.232	(0.190)	0.060	0.172
89	7.42	0.37	0.232	(0.189)	0.060	0.172
90	7.50	0.37	0.232	(0.188)	0.060	0.172
91	7.58	0.40	0.253	(0.187)	0.066	0.187
92	7.67	0.40	0.253	(0.186)	0.066	0.187
93	7.75	0.40	0.253	(0.185)	0.066	0.187
94	7.83	0.43	0.274	(0.184)	0.071	0.203
95	7.92	0.43	0.274	(0.184)	0.071	0.203
96	8.00	0.43	0.274	(0.183)	0.071	0.203
97	8.08	0.50	0.316	(0.182)	0.082	0.234
98	8.17	0.50	0.316	(0.181)	0.082	0.234
99	8.25	0.50	0.316	(0.180)	0.082	0.234
100	8.33	0.50	0.316	(0.179)	0.082	0.234
101	8.42	0.50	0.316	(0.179)	0.082	0.234
102	8.50	0.50	0.316	(0.178)	0.082	0.234
103	8.58	0.53	0.337	(0.177)	0.088	0.250
104	8.67	0.53	0.337	(0.176)	0.088	0.250
105	8.75	0.53	0.337	(0.175)	0.088	0.250

106	8.83	0.57	0.358	(0.174)	0.093	0.265
107	8.92	0.57	0.358	(0.174)	0.093	0.265
108	9.00	0.57	0.358	(0.173)	0.093	0.265
109	9.08	0.63	0.401	(0.172)	0.104	0.296
110	9.17	0.63	0.401	(0.171)	0.104	0.296
111	9.25	0.63	0.401	(0.170)	0.104	0.296
112	9.33	0.67	0.422	(0.169)	0.110	0.312
113	9.42	0.67	0.422	(0.169)	0.110	0.312
114	9.50	0.67	0.422	(0.168)	0.110	0.312
115	9.58	0.70	0.443	(0.167)	0.115	0.328
116	9.67	0.70	0.443	(0.166)	0.115	0.328
117	9.75	0.70	0.443	(0.165)	0.115	0.328
118	9.83	0.73	0.464	(0.165)	0.121	0.343
119	9.92	0.73	0.464	(0.164)	0.121	0.343
120	10.00	0.73	0.464	(0.163)	0.121	0.343
121	10.08	0.50	0.316	(0.162)	0.082	0.234
122	10.17	0.50	0.316	(0.162)	0.082	0.234
123	10.25	0.50	0.316	(0.161)	0.082	0.234
124	10.33	0.50	0.316	(0.160)	0.082	0.234
125	10.42	0.50	0.316	(0.159)	0.082	0.234
126	10.50	0.50	0.316	(0.158)	0.082	0.234
127	10.58	0.67	0.422	(0.158)	0.110	0.312
128	10.67	0.67	0.422	(0.157)	0.110	0.312
129	10.75	0.67	0.422	(0.156)	0.110	0.312
130	10.83	0.67	0.422	(0.155)	0.110	0.312
131	10.92	0.67	0.422	(0.155)	0.110	0.312
132	11.00	0.67	0.422	(0.154)	0.110	0.312
133	11.08	0.63	0.401	(0.153)	0.104	0.296
134	11.17	0.63	0.401	(0.152)	0.104	0.296
135	11.25	0.63	0.401	(0.152)	0.104	0.296
136	11.33	0.63	0.401	(0.151)	0.104	0.296
137	11.42	0.63	0.401	(0.150)	0.104	0.296
138	11.50	0.63	0.401	(0.149)	0.104	0.296
139	11.58	0.57	0.358	(0.149)	0.093	0.265
140	11.67	0.57	0.358	(0.148)	0.093	0.265
141	11.75	0.57	0.358	(0.147)	0.093	0.265
142	11.83	0.60	0.379	(0.146)	0.099	0.281
143	11.92	0.60	0.379	(0.146)	0.099	0.281
144	12.00	0.60	0.379	(0.145)	0.099	0.281
145	12.08	0.83	0.527	(0.144)	0.137	0.390
146	12.17	0.83	0.527	(0.143)	0.137	0.390
147	12.25	0.83	0.527	(0.143)	0.137	0.390
148	12.33	0.87	0.548	0.142	(0.142)	0.406
149	12.42	0.87	0.548	0.141	(0.142)	0.407
150	12.50	0.87	0.548	0.141	(0.142)	0.407
151	12.58	0.93	0.590	0.140	(0.153)	0.450
152	12.67	0.93	0.590	0.139	(0.153)	0.451
153	12.75	0.93	0.590	0.138	(0.153)	0.452
154	12.83	0.97	0.611	0.138	(0.159)	0.474
155	12.92	0.97	0.611	0.137	(0.159)	0.474
156	13.00	0.97	0.611	0.136	(0.159)	0.475
157	13.08	1.13	0.717	0.136	(0.186)	0.581
158	13.17	1.13	0.717	0.135	(0.186)	0.582
159	13.25	1.13	0.717	0.134	(0.186)	0.582
160	13.33	1.13	0.717	0.134	(0.186)	0.583
161	13.42	1.13	0.717	0.133	(0.186)	0.584
162	13.50	1.13	0.717	0.132	(0.186)	0.584
163	13.58	0.77	0.485	(0.132)	0.126	0.359
164	13.67	0.77	0.485	(0.131)	0.126	0.359
165	13.75	0.77	0.485	(0.130)	0.126	0.359
166	13.83	0.77	0.485	(0.130)	0.126	0.359
167	13.92	0.77	0.485	(0.129)	0.126	0.359
168	14.00	0.77	0.485	(0.128)	0.126	0.359
169	14.08	0.90	0.569	0.128	(0.148)	0.442
170	14.17	0.90	0.569	0.127	(0.148)	0.442
171	14.25	0.90	0.569	0.126	(0.148)	0.443
172	14.33	0.87	0.548	0.126	(0.142)	0.422
173	14.42	0.87	0.548	0.125	(0.142)	0.423
174	14.50	0.87	0.548	0.124	(0.142)	0.424

175	14.58	0.87	0.548	0.124	(0.142)	0.424
176	14.67	0.87	0.548	0.123	(0.142)	0.425
177	14.75	0.87	0.548	0.123	(0.142)	0.426
178	14.83	0.83	0.527	0.122	(0.137)	0.405
179	14.92	0.83	0.527	0.121	(0.137)	0.406
180	15.00	0.83	0.527	0.121	(0.137)	0.406
181	15.08	0.80	0.506	0.120	(0.132)	0.386
182	15.17	0.80	0.506	0.119	(0.132)	0.387
183	15.25	0.80	0.506	0.119	(0.132)	0.387
184	15.33	0.77	0.485	0.118	(0.126)	0.367
185	15.42	0.77	0.485	0.118	(0.126)	0.367
186	15.50	0.77	0.485	0.117	(0.126)	0.368
187	15.58	0.63	0.401	(0.116)	0.104	0.296
188	15.67	0.63	0.401	(0.116)	0.104	0.296
189	15.75	0.63	0.401	(0.115)	0.104	0.296
190	15.83	0.63	0.401	(0.115)	0.104	0.296
191	15.92	0.63	0.401	(0.114)	0.104	0.296
192	16.00	0.63	0.401	(0.113)	0.104	0.296
193	16.08	0.13	0.084	(0.113)	0.022	0.062
194	16.17	0.13	0.084	(0.112)	0.022	0.062
195	16.25	0.13	0.084	(0.112)	0.022	0.062
196	16.33	0.13	0.084	(0.111)	0.022	0.062
197	16.42	0.13	0.084	(0.111)	0.022	0.062
198	16.50	0.13	0.084	(0.110)	0.022	0.062
199	16.58	0.10	0.063	(0.109)	0.016	0.047
200	16.67	0.10	0.063	(0.109)	0.016	0.047
201	16.75	0.10	0.063	(0.108)	0.016	0.047
202	16.83	0.10	0.063	(0.108)	0.016	0.047
203	16.92	0.10	0.063	(0.107)	0.016	0.047
204	17.00	0.10	0.063	(0.107)	0.016	0.047
205	17.08	0.17	0.105	(0.106)	0.027	0.078
206	17.17	0.17	0.105	(0.106)	0.027	0.078
207	17.25	0.17	0.105	(0.105)	0.027	0.078
208	17.33	0.17	0.105	(0.105)	0.027	0.078
209	17.42	0.17	0.105	(0.104)	0.027	0.078
210	17.50	0.17	0.105	(0.104)	0.027	0.078
211	17.58	0.17	0.105	(0.103)	0.027	0.078
212	17.67	0.17	0.105	(0.102)	0.027	0.078
213	17.75	0.17	0.105	(0.102)	0.027	0.078
214	17.83	0.13	0.084	(0.101)	0.022	0.062
215	17.92	0.13	0.084	(0.101)	0.022	0.062
216	18.00	0.13	0.084	(0.100)	0.022	0.062
217	18.08	0.13	0.084	(0.100)	0.022	0.062
218	18.17	0.13	0.084	(0.099)	0.022	0.062
219	18.25	0.13	0.084	(0.099)	0.022	0.062
220	18.33	0.13	0.084	(0.099)	0.022	0.062
221	18.42	0.13	0.084	(0.098)	0.022	0.062
222	18.50	0.13	0.084	(0.098)	0.022	0.062
223	18.58	0.10	0.063	(0.097)	0.016	0.047
224	18.67	0.10	0.063	(0.097)	0.016	0.047
225	18.75	0.10	0.063	(0.096)	0.016	0.047
226	18.83	0.07	0.042	(0.096)	0.011	0.031
227	18.92	0.07	0.042	(0.095)	0.011	0.031
228	19.00	0.07	0.042	(0.095)	0.011	0.031
229	19.08	0.10	0.063	(0.094)	0.016	0.047
230	19.17	0.10	0.063	(0.094)	0.016	0.047
231	19.25	0.10	0.063	(0.093)	0.016	0.047
232	19.33	0.13	0.084	(0.093)	0.022	0.062
233	19.42	0.13	0.084	(0.093)	0.022	0.062
234	19.50	0.13	0.084	(0.092)	0.022	0.062
235	19.58	0.10	0.063	(0.092)	0.016	0.047
236	19.67	0.10	0.063	(0.091)	0.016	0.047
237	19.75	0.10	0.063	(0.091)	0.016	0.047
238	19.83	0.07	0.042	(0.090)	0.011	0.031
239	19.92	0.07	0.042	(0.090)	0.011	0.031
240	20.00	0.07	0.042	(0.090)	0.011	0.031
241	20.08	0.10	0.063	(0.089)	0.016	0.047
242	20.17	0.10	0.063	(0.089)	0.016	0.047
243	20.25	0.10	0.063	(0.089)	0.016	0.047

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244  20.33     0.10      0.063       (  0.088)       0.016        0.047
245  20.42     0.10      0.063       (  0.088)       0.016        0.047
246  20.50     0.10      0.063       (  0.087)       0.016        0.047
247  20.58     0.10      0.063       (  0.087)       0.016        0.047
248  20.67     0.10      0.063       (  0.087)       0.016        0.047
249  20.75     0.10      0.063       (  0.086)       0.016        0.047
250  20.83     0.07      0.042       (  0.086)       0.011        0.031
251  20.92     0.07      0.042       (  0.086)       0.011        0.031
252  21.00     0.07      0.042       (  0.085)       0.011        0.031
253  21.08     0.10      0.063       (  0.085)       0.016        0.047
254  21.17     0.10      0.063       (  0.085)       0.016        0.047
255  21.25     0.10      0.063       (  0.084)       0.016        0.047
256  21.33     0.07      0.042       (  0.084)       0.011        0.031
257  21.42     0.07      0.042       (  0.084)       0.011        0.031
258  21.50     0.07      0.042       (  0.083)       0.011        0.031
259  21.58     0.10      0.063       (  0.083)       0.016        0.047
260  21.67     0.10      0.063       (  0.083)       0.016        0.047
261  21.75     0.10      0.063       (  0.082)       0.016        0.047
262  21.83     0.07      0.042       (  0.082)       0.011        0.031
263  21.92     0.07      0.042       (  0.082)       0.011        0.031
264  22.00     0.07      0.042       (  0.082)       0.011        0.031
265  22.08     0.10      0.063       (  0.081)       0.016        0.047
266  22.17     0.10      0.063       (  0.081)       0.016        0.047
267  22.25     0.10      0.063       (  0.081)       0.016        0.047
268  22.33     0.07      0.042       (  0.081)       0.011        0.031
269  22.42     0.07      0.042       (  0.080)       0.011        0.031
270  22.50     0.07      0.042       (  0.080)       0.011        0.031
271  22.58     0.07      0.042       (  0.080)       0.011        0.031
272  22.67     0.07      0.042       (  0.080)       0.011        0.031
273  22.75     0.07      0.042       (  0.079)       0.011        0.031
274  22.83     0.07      0.042       (  0.079)       0.011        0.031
275  22.92     0.07      0.042       (  0.079)       0.011        0.031
276  23.00     0.07      0.042       (  0.079)       0.011        0.031
277  23.08     0.07      0.042       (  0.079)       0.011        0.031
278  23.17     0.07      0.042       (  0.078)       0.011        0.031
279  23.25     0.07      0.042       (  0.078)       0.011        0.031
280  23.33     0.07      0.042       (  0.078)       0.011        0.031
281  23.42     0.07      0.042       (  0.078)       0.011        0.031
282  23.50     0.07      0.042       (  0.078)       0.011        0.031
283  23.58     0.07      0.042       (  0.078)       0.011        0.031
284  23.67     0.07      0.042       (  0.078)       0.011        0.031
285  23.75     0.07      0.042       (  0.077)       0.011        0.031
286  23.83     0.07      0.042       (  0.077)       0.011        0.031
287  23.92     0.07      0.042       (  0.077)       0.011        0.031
288  24.00     0.07      0.042       (  0.077)       0.011        0.031
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    47.5
       Flood volume = Effective rainfall      3.96(In)
        times area       5.6(Ac.)/[(In)/(Ft.)] =       1.9(Ac.Ft)
       Total soil loss =      1.31(In)
       Total soil loss =     0.616(Ac.Ft)
       Total rainfall =      5.27(In)
       Flood volume =       81049.7 Cubic Feet
       Total soil loss =       26842.9 Cubic Feet
       ------------------------------------------------------------------------
        Peak flow rate of this hydrograph =      3.272(CFS)
       ------------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ------------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

       ------------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0001      0.01  Q         |         |         |         |
   0+10       0.0007      0.09  Q         |         |         |         |
   0+15       0.0016      0.13  Q         |         |         |         |
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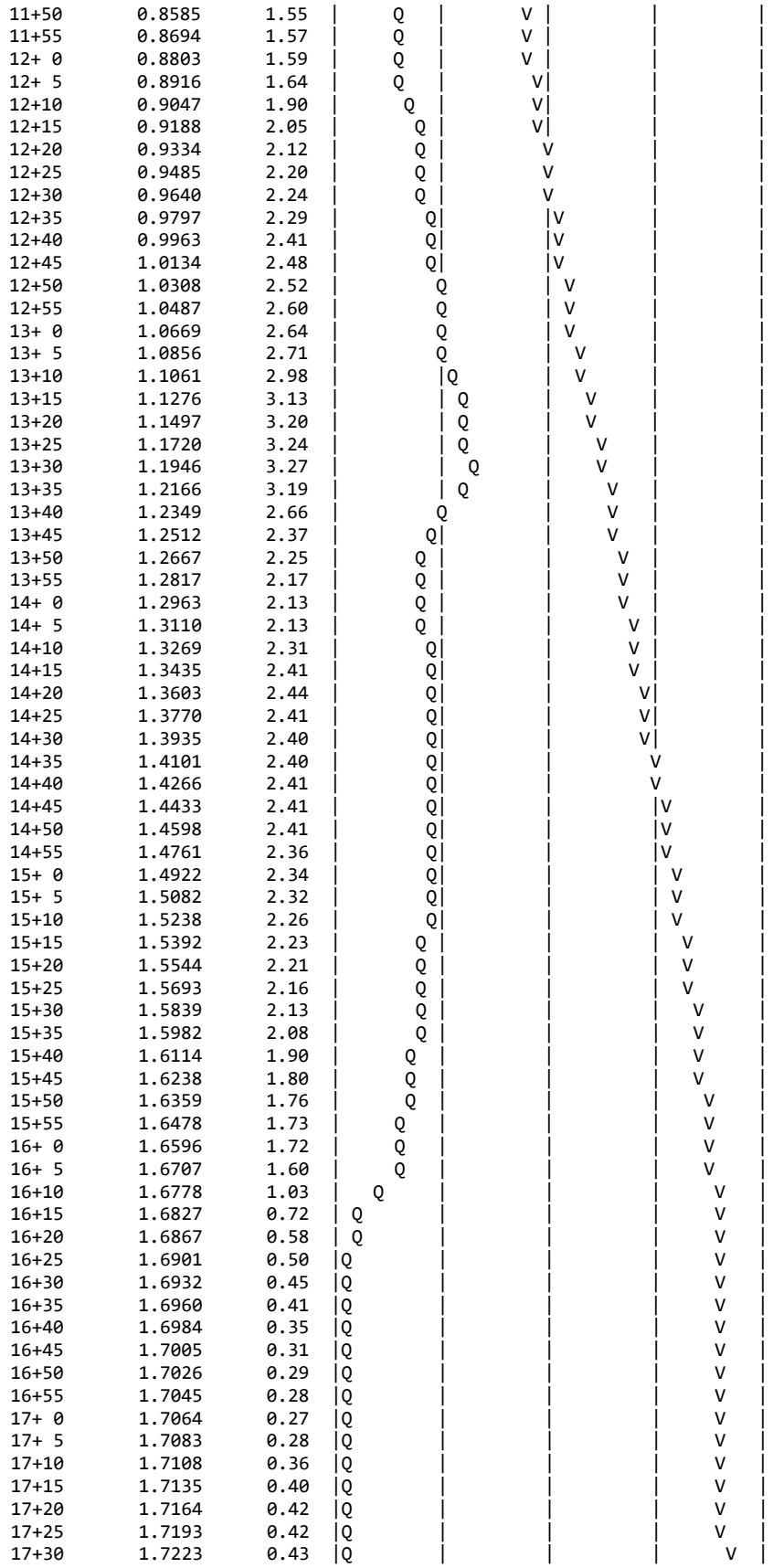
0+20	0.0027	0.15	Q				
0+25	0.0041	0.20	Q				
0+30	0.0056	0.23	Q				
0+35	0.0073	0.24	Q				
0+40	0.0091	0.25	VQ				
0+45	0.0108	0.26	VQ				
0+50	0.0127	0.27	VQ				
0+55	0.0148	0.31	VQ				
1+ 0	0.0171	0.33	VQ				
1+ 5	0.0193	0.33	VQ				
1+10	0.0214	0.30	VQ				
1+15	0.0234	0.28	VQ				
1+20	0.0253	0.28	VQ				
1+25	0.0272	0.27	VQ				
1+30	0.0290	0.27	VQ				
1+35	0.0309	0.27	VQ				
1+40	0.0327	0.27	VQ				
1+45	0.0346	0.27	VQ				
1+50	0.0365	0.27	VQ				
1+55	0.0386	0.31	VQ				
2+ 0	0.0409	0.33	VQ				
2+ 5	0.0432	0.34	VQ				
2+10	0.0456	0.35	VQ				
2+15	0.0480	0.35	|Q				
2+20	0.0504	0.35	|Q				
2+25	0.0528	0.35	|Q				
2+30	0.0553	0.35	|Q				
2+35	0.0578	0.36	|Q				
2+40	0.0605	0.40	|Q				
2+45	0.0634	0.42	|Q				
2+50	0.0664	0.43	|Q				
2+55	0.0693	0.43	|Q				
3+ 0	0.0724	0.44	|Q				
3+ 5	0.0754	0.44	|Q				
3+10	0.0784	0.44	|Q				
3+15	0.0815	0.44	|Q				
3+20	0.0845	0.44	|Q				
3+25	0.0876	0.44	|Q				
3+30	0.0906	0.44	|Q				
3+35	0.0937	0.44	|QV				
3+40	0.0967	0.44	|QV				
3+45	0.0998	0.44	|QV				
3+50	0.1029	0.45	|QV				
3+55	0.1063	0.49	|QV				
4+ 0	0.1098	0.51	| Q				
4+ 5	0.1133	0.52	| Q				
4+10	0.1169	0.52	| Q				
4+15	0.1205	0.53	| Q				
4+20	0.1242	0.54	| Q				
4+25	0.1282	0.57	| Q				
4+30	0.1323	0.60	| Q				
4+35	0.1365	0.61	| Q				
4+40	0.1407	0.61	| QV				
4+45	0.1449	0.61	| QV				
4+50	0.1492	0.62	| QV				
4+55	0.1538	0.66	| QV				
5+ 0	0.1585	0.68	| QV				
5+ 5	0.1632	0.68	| QV				
5+10	0.1674	0.61	| QV				
5+15	0.1713	0.57	| QV				
5+20	0.1752	0.56	| QV				
5+25	0.1793	0.59	| QV				
5+30	0.1835	0.61	| QV				
5+35	0.1878	0.62	| Q V				
5+40	0.1923	0.66	| Q V				
5+45	0.1970	0.68	| Q V				
5+50	0.2018	0.69	| Q V				
5+55	0.2066	0.70	| Q V				
6+ 0	0.2114	0.70	| Q V				

6+ 5	0.2163	0.71	Q V			
6+10	0.2215	0.75	QV			
6+15	0.2268	0.77	QV			
6+20	0.2322	0.78	QV			
6+25	0.2376	0.79	Q V			
6+30	0.2431	0.79	Q V			
6+35	0.2486	0.80	Q V			
6+40	0.2544	0.84	Q V			
6+45	0.2603	0.86	Q V			
6+50	0.2663	0.87	Q V			
6+55	0.2724	0.88	Q V			
7+ 0	0.2785	0.88	Q V			
7+ 5	0.2845	0.88	Q V			
7+10	0.2906	0.88	Q V			
7+15	0.2967	0.89	Q V			
7+20	0.3029	0.89	Q V			
7+25	0.3093	0.93	Q V			
7+30	0.3158	0.95	Q V			
7+35	0.3225	0.97	Q V			
7+40	0.3295	1.01	Q V			
7+45	0.3366	1.03	Q V			
7+50	0.3439	1.05	Q V			
7+55	0.3514	1.10	Q V			
8+ 0	0.3591	1.12	Q V			
8+ 5	0.3670	1.15	Q V			
8+10	0.3755	1.23	Q V			
8+15	0.3843	1.28	Q V			
8+20	0.3932	1.30	Q V			
8+25	0.4022	1.31	Q V			
8+30	0.4113	1.32	Q V			
8+35	0.4205	1.33	Q V			
8+40	0.4299	1.37	Q V			
8+45	0.4395	1.39	Q V			
8+50	0.4492	1.41	Q V			
8+55	0.4592	1.45	Q V			
9+ 0	0.4694	1.48	Q V			
9+ 5	0.4797	1.50	Q V			
9+10	0.4907	1.59	Q V			
9+15	0.5019	1.63	Q V			
9+20	0.5133	1.66	Q V			
9+25	0.5251	1.71	Q V			
9+30	0.5370	1.74	Q V			
9+35	0.5491	1.76	Q V			
9+40	0.5616	1.80	Q V			
9+45	0.5742	1.83	Q V			
9+50	0.5869	1.85	Q V			
9+55	0.5999	1.89	Q V			
10+ 0	0.6132	1.92	Q V			
10+ 5	0.6261	1.88	Q V			
10+10	0.6374	1.63	Q V			
10+15	0.6476	1.49	Q V			
10+20	0.6575	1.43	Q V			
10+25	0.6671	1.39	Q V			
10+30	0.6765	1.37	Q V			
10+35	0.6861	1.39	Q V			
10+40	0.6969	1.57	Q V			
10+45	0.7084	1.67	Q V			
10+50	0.7201	1.71	Q V			
10+55	0.7320	1.73	Q V			
11+ 0	0.7441	1.74	Q V			
11+ 5	0.7561	1.75	Q V			
11+10	0.7679	1.72	Q V			
11+15	0.7796	1.70	Q V			
11+20	0.7913	1.70	Q V			
11+25	0.8030	1.69	Q V			
11+30	0.8146	1.69	Q V			
11+35	0.8262	1.68	Q V			
11+40	0.8372	1.60	Q V			
11+45	0.8479	1.56	Q V			



17+35	1.7253	0.44	|Q	|	|	|	V |
17+40	1.7283	0.44	|Q	|	|	|	V |
17+45	1.7313	0.44	|Q	|	|	|	V |
17+50	1.7343	0.44	|Q	|	|	|	V |
17+55	1.7371	0.40	|Q	|	|	|	V |
18+ 0	1.7397	0.38	|Q	|	|	|	V |
18+ 5	1.7422	0.37	|Q	|	|	|	V |
18+10	1.7447	0.36	|Q	|	|	|	V |
18+15	1.7472	0.36	|Q	|	|	|	V |
18+20	1.7497	0.36	|Q	|	|	|	V |
18+25	1.7522	0.36	|Q	|	|	|	V |
18+30	1.7546	0.36	|Q	|	|	|	V |
18+35	1.7570	0.35	|Q	|	|	|	V |
18+40	1.7592	0.31	|Q	|	|	|	V |
18+45	1.7612	0.29	|Q	|	|	|	V |
18+50	1.7630	0.27	|Q	|	|	|	V |
18+55	1.7646	0.23	Q	|	|	|	V |
19+ 0	1.7661	0.21	Q	|	|	|	V |
19+ 5	1.7675	0.20	Q	|	|	|	V |
19+10	1.7691	0.23	Q	|	|	|	V |
19+15	1.7708	0.25	|Q	|	|	|	V |
19+20	1.7726	0.26	|Q	|	|	|	V |
19+25	1.7747	0.30	|Q	|	|	|	V |
19+30	1.7769	0.33	|Q	|	|	|	V |
19+35	1.7792	0.33	|Q	|	|	|	V |
19+40	1.7813	0.30	|Q	|	|	|	V |
19+45	1.7832	0.28	|Q	|	|	|	V |
19+50	1.7851	0.27	|Q	|	|	|	V |
19+55	1.7866	0.23	Q	|	|	|	V |
20+ 0	1.7881	0.21	Q	|	|	|	V |
20+ 5	1.7895	0.20	Q	|	|	|	V |
20+10	1.7911	0.23	Q	|	|	|	V |
20+15	1.7928	0.25	|Q	|	|	|	V |
20+20	1.7945	0.26	|Q	|	|	|	V |
20+25	1.7963	0.26	|Q	|	|	|	V |
20+30	1.7981	0.26	|Q	|	|	|	V |
20+35	1.7999	0.26	|Q	|	|	|	V |
20+40	1.8018	0.26	|Q	|	|	|	V |
20+45	1.8036	0.26	|Q	|	|	|	V |
20+50	1.8054	0.26	|Q	|	|	|	V |
20+55	1.8069	0.22	Q	|	|	|	V |
21+ 0	1.8083	0.20	Q	|	|	|	V |
21+ 5	1.8096	0.20	Q	|	|	|	V |
21+10	1.8112	0.23	Q	|	|	|	V |
21+15	1.8130	0.25	Q	|	|	|	V |
21+20	1.8147	0.25	Q	|	|	|	V|
21+25	1.8161	0.21	Q	|	|	|	V|
21+30	1.8175	0.20	Q	|	|	|	V|
21+35	1.8188	0.20	Q	|	|	|	V|
21+40	1.8204	0.23	Q	|	|	|	V|
21+45	1.8221	0.25	Q	|	|	|	V|
21+50	1.8238	0.25	Q	|	|	|	V|
21+55	1.8253	0.21	Q	|	|	|	V|
22+ 0	1.8267	0.20	Q	|	|	|	V|
22+ 5	1.8280	0.20	Q	|	|	|	V|
22+10	1.8296	0.23	Q	|	|	|	V|
22+15	1.8313	0.25	Q	|	|	|	V|
22+20	1.8330	0.25	Q	|	|	|	V|
22+25	1.8345	0.21	Q	|	|	|	V|
22+30	1.8358	0.20	Q	|	|	|	V|
22+35	1.8371	0.19	Q	|	|	|	V|
22+40	1.8384	0.18	Q	|	|	|	V|
22+45	1.8397	0.18	Q	|	|	|	V|
22+50	1.8409	0.18	Q	|	|	|	V|
22+55	1.8421	0.18	Q	|	|	|	V|
23+ 0	1.8434	0.18	Q	|	|	|	V|
23+ 5	1.8446	0.18	Q	|	|	|	V|
23+10	1.8458	0.18	Q	|	|	|	V|
23+15	1.8470	0.18	Q	|	|	|	V|

```
   23+20       1.8483      0.18  Q        |         |         |        V|
   23+25       1.8495      0.18  Q        |         |         |        V|
   23+30       1.8507      0.18  Q        |         |         |        V|
   23+35       1.8519      0.18  Q        |         |         |        V|
   23+40       1.8532      0.18  Q        |         |         |        V|
   23+45       1.8544      0.18  Q        |         |         |        V|
   23+50       1.8556      0.18  Q        |         |         |        V|
   23+55       1.8568      0.18  Q        |         |         |        V|
   24+ 0       1.8580      0.18  Q        |         |         |        V|
   24+ 5       1.8592      0.16  Q        |         |         |        V|
   24+10       1.8598      0.09  Q        |         |         |        V|
   24+15       1.8601      0.05  Q        |         |         |        V|
   24+20       1.8603      0.03  Q        |         |         |        V|
   24+25       1.8604      0.02  Q        |         |         |        V|
   24+30       1.8605      0.01  Q        |         |         |        V|
   24+35       1.8606      0.01  Q        |         |         |        V|
   24+40       1.8606      0.00  Q        |         |         |        V|
   24+45       1.8606      0.00  Q        |         |         |        V|
   24+50       1.8606      0.00  Q        |         |         |        V|
   24+55       1.8606      0.00  Q        |         |         |         V
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SECTION 6.4

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**2-YEAR**
DURATION:	**1-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804PUH2Y1H5M12.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 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]
5.64	0.50	2.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	1.74	9.81

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.740(In)

Point rain (area averaged) = 0.498(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 0.498(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	16.2	0.870	0.780	0.259	1.000	0.259
					Sum (F) =	0.259

Area averaged mean soil loss (F) (In/Hr) = 0.259
Minimum soil loss rate ((In/Hr)) = 0.130

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

Slope of intensity-duration curve for a 1 hour storm =0.5800

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.838	19.448	1.105
2	0.167	213.675	50.246	2.856
3	0.250	320.513	15.964	0.907
4	0.333	427.350	6.971	0.396
5	0.417	534.188	3.708	0.211
6	0.500	641.026	1.845	0.105
7	0.583	747.863	1.189	0.068
8	0.667	854.701	0.628	0.036
		Sum = 100.000	Sum=	5.684

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	3.60	0.215	(0.259)	0.059	0.156
2	0.17	4.20	0.251	(0.259)	0.069	0.182
3	0.25	4.40	0.263	(0.259)	0.073	0.190
4	0.33	4.60	0.275	(0.259)	0.076	0.199
5	0.42	5.00	0.299	(0.259)	0.082	0.216
6	0.50	5.60	0.335	(0.259)	0.092	0.242
7	0.58	6.40	0.382	(0.259)	0.106	0.277
8	0.67	8.10	0.484	(0.259)	0.134	0.350
9	0.75	13.10	0.783	(0.259)	0.216	0.567
10	0.83	34.50	2.062	0.259	(0.569)	1.802
11	0.92	6.70	0.400	(0.259)	0.111	0.290
12	1.00	3.80	0.227	(0.259)	0.063	0.164
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	4.6

Flood volume = Effective rainfall 0.39(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 0.11(In)
Total soil loss = 0.052(Ac.Ft)
Total rainfall = 0.50(In)
Flood volume = 7909.5 Cubic Feet
Total soil loss = 2285.6 Cubic Feet

Peak flow rate of this hydrograph = 6.230(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	2.5	5.0	7.5	10.0
0+ 5	0.0012	0.17	Q				
0+10	0.0056	0.65	VQ				
0+15	0.0116	0.87	VQ				
0+20	0.0185	0.99	QV				
0+25	0.0259	1.09	QV				

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    0+30       0.0342      1.20  |   Q  V  |         |         |         |
    0+35       0.0434      1.34  |    Q   V|         |         |         |
    0+40       0.0542      1.56  |     Q   |V        |         |         |
    0+45       0.0684      2.06  |       Q |    V    |         |         |
    0+50       0.0969      4.13  |         |     Q   |V        |         |
    0+55       0.1398      6.23  |         |         |   Q     V         |
    1+ 0       0.1604      3.00  |         |Q        |         |    V    |
    1+ 5       0.1717      1.63  |     Q   |         |         |      V  |
    1+10       0.1767      0.74  | Q       |         |         |       V |
    1+15       0.1793      0.37  |Q        |         |         |        V|
    1+20       0.1807      0.21  Q         |         |         |        V|
    1+25       0.1814      0.10  Q         |         |         |        V|
    1+30       0.1815      0.02  Q         |         |         |        V|
    1+35       0.1816      0.01  Q         |         |         |         V
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SECTION 6.4.1

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**2-YEAR**
DURATION:	**3-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804PUH2Y3H5M32.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 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]
5.64	0.78	4.40

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	2.50	14.10

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.781(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 0.781(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.781(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	16.2	0.870	0.780	0.259	1.000	0.259
					Sum (F) =	0.259

Area averaged mean soil loss (F) (In/Hr) = 0.259
Minimum soil loss rate ((In/Hr)) = 0.130

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.838	19.448	1.105
2	0.167	213.675	50.246	2.856
3	0.250	320.513	15.964	0.907
4	0.333	427.350	6.971	0.396
5	0.417	534.188	3.708	0.211
6	0.500	641.026	1.845	0.105
7	0.583	747.863	1.189	0.068
8	0.667	854.701	0.628	0.036
			Sum = 100.000	Sum= 5.684

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	0.122	(0.259)	0.034	0.088
2	0.17	1.30	0.122	(0.259)	0.034	0.088
3	0.25	1.10	0.103	(0.259)	0.028	0.075
4	0.33	1.50	0.141	(0.259)	0.039	0.102
5	0.42	1.50	0.141	(0.259)	0.039	0.102
6	0.50	1.80	0.169	(0.259)	0.047	0.122
7	0.58	1.50	0.141	(0.259)	0.039	0.102
8	0.67	1.80	0.169	(0.259)	0.047	0.122
9	0.75	1.80	0.169	(0.259)	0.047	0.122
10	0.83	1.50	0.141	(0.259)	0.039	0.102
11	0.92	1.60	0.150	(0.259)	0.041	0.109
12	1.00	1.80	0.169	(0.259)	0.047	0.122
13	1.08	2.20	0.206	(0.259)	0.057	0.149
14	1.17	2.20	0.206	(0.259)	0.057	0.149
15	1.25	2.20	0.206	(0.259)	0.057	0.149
16	1.33	2.00	0.187	(0.259)	0.052	0.136
17	1.42	2.60	0.244	(0.259)	0.067	0.176
18	1.50	2.70	0.253	(0.259)	0.070	0.183
19	1.58	2.40	0.225	(0.259)	0.062	0.163
20	1.67	2.70	0.253	(0.259)	0.070	0.183
21	1.75	3.30	0.309	(0.259)	0.085	0.224
22	1.83	3.10	0.291	(0.259)	0.080	0.210
23	1.92	2.90	0.272	(0.259)	0.075	0.197
24	2.00	3.00	0.281	(0.259)	0.078	0.204
25	2.08	3.10	0.291	(0.259)	0.080	0.210
26	2.17	4.20	0.394	(0.259)	0.109	0.285
27	2.25	5.00	0.469	(0.259)	0.129	0.339
28	2.33	3.50	0.328	(0.259)	0.091	0.237
29	2.42	6.80	0.637	(0.259)	0.176	0.461
30	2.50	7.30	0.684	(0.259)	0.189	0.495
31	2.58	8.20	0.768	(0.259)	0.212	0.556
32	2.67	5.90	0.553	(0.259)	0.153	0.400
33	2.75	2.00	0.187	(0.259)	0.052	0.136
34	2.83	1.80	0.169	(0.259)	0.047	0.122
35	2.92	1.80	0.169	(0.259)	0.047	0.122
36	3.00	0.60	0.056	(0.259)	0.016	0.041
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	6.8

Flood volume = Effective rainfall 0.57(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)

```
      Total soil loss =      0.22(In)
      Total soil loss =     0.101(Ac.Ft)
      Total rainfall =      0.78(In)
      Flood volume =       11576.2 Cubic Feet
      Total soil loss =        4413.0 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      2.778(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       0.0007      0.10  Q         |         |         |         |
   0+10       0.0031      0.35  VQ        |         |         |         |
   0+15       0.0059      0.41  VQ        |         |         |         |
   0+20       0.0090      0.44  |Q        |         |         |         |
   0+25       0.0126      0.52  |VQ       |         |         |         |
   0+30       0.0166      0.58  | Q       |         |         |         |
   0+35       0.0209      0.63  | QV      |         |         |         |
   0+40       0.0251      0.62  | QV      |         |         |         |
   0+45       0.0297      0.67  | Q V     |         |         |         |
   0+50       0.0342      0.66  | Q  V    |         |         |         |
   0+55       0.0385      0.61  | Q  V    |         |         |         |
   1+ 0       0.0428      0.63  | Q   V   |         |         |         |
   1+ 5       0.0477      0.70  | Q    V  |         |         |         |
   1+10       0.0531      0.79  |  Q   V  |         |         |         |
   1+15       0.0588      0.82  |  Q    V |         |         |         |
   1+20       0.0644      0.82  |  Q     V|         |         |         |
   1+25       0.0702      0.83  |  Q      V         |         |         |
   1+30       0.0767      0.95  |  Q      |V        |         |         |
   1+35       0.0834      0.98  |  Q      | V       |         |         |
   1+40       0.0901      0.96  |  Q      |  V      |         |         |
   1+45       0.0974      1.06  |   Q     |   V     |         |         |
   1+50       0.1055      1.17  |   Q     |    V    |         |         |
   1+55       0.1135      1.16  |   Q     |      V  |         |         |
   2+ 0       0.1213      1.14  |   Q     |       V |         |         |
   2+ 5       0.1293      1.16  |   Q     |        V|         |         |
   2+10       0.1380      1.27  |    Q    |         V         |         |
   2+15       0.1487      1.55  |     Q   |         | V       |         |
   2+20       0.1601      1.66  |     Q   |         |   V     |         |
   2+25       0.1718      1.70  |     Q   |         |    V    |         |
   2+30       0.1878      2.32  |        Q|         |       V |         |
   2+35       0.2061      2.67  |         Q         |         |V        |
   2+40       0.2253      2.78  |         |Q        |         |  V      |
   2+45       0.2401      2.15  |       Q |         |         |     V   |
   2+50       0.2490      1.29  |    Q    |         |         |      V  |
   2+55       0.2557      0.97  |  Q      |         |         |       V |
   3+ 0       0.2608      0.75  |  Q      |         |         |        V|
   3+ 5       0.2636      0.40  |Q        |         |         |        V|
   3+10       0.2648      0.17  Q         |         |         |        V|
   3+15       0.2653      0.08  Q         |         |         |        V|
   3+20       0.2656      0.03  Q         |         |         |        V|
   3+25       0.2657      0.02  Q         |         |         |        V|
   3+30       0.2657      0.01  Q         |         |         |        V|
   3+35       0.2658      0.00  Q         |         |         |        V|
---------------------------------------------------------------------------
```

SECTION 6.4.2

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**2-YEAR**
DURATION:	**6-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804PUH2Y6H5M62.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 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]
5.64	1.05	5.92

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	3.28	18.50

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.050(In)
Area Averaged 100-Year Rainfall = 3.280(In)

Point rain (area averaged) = 1.050(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.050(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	16.2	0.870	0.780	0.259	1.000	0.259
					Sum (F) =	0.259

Area averaged mean soil loss (F) (In/Hr) = 0.259
Minimum soil loss rate ((In/Hr)) = 0.130

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

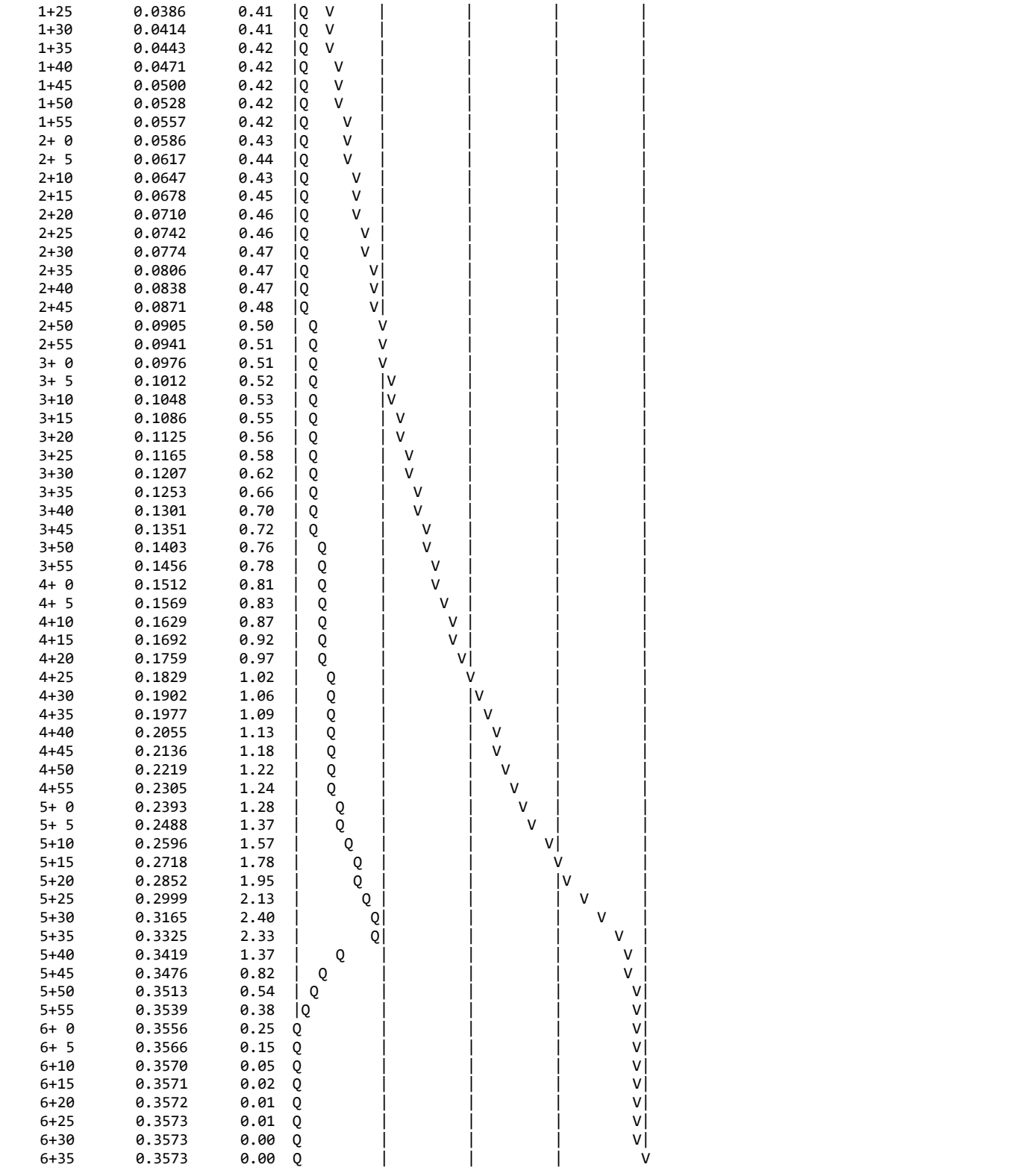
Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.838	19.448	1.105
2	0.167	213.675	50.246	2.856
3	0.250	320.513	15.964	0.907
4	0.333	427.350	6.971	0.396
5	0.417	534.188	3.708	0.211
6	0.500	641.026	1.845	0.105
7	0.583	747.863	1.189	0.068
8	0.667	854.701	0.628	0.036
		Sum = 100.000	Sum=	5.684

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	0.063	(0.259)	0.017	0.046
2	0.17	0.60	0.076	(0.259)	0.021	0.055
3	0.25	0.60	0.076	(0.259)	0.021	0.055
4	0.33	0.60	0.076	(0.259)	0.021	0.055
5	0.42	0.60	0.076	(0.259)	0.021	0.055
6	0.50	0.70	0.088	(0.259)	0.024	0.064
7	0.58	0.70	0.088	(0.259)	0.024	0.064
8	0.67	0.70	0.088	(0.259)	0.024	0.064
9	0.75	0.70	0.088	(0.259)	0.024	0.064
10	0.83	0.70	0.088	(0.259)	0.024	0.064
11	0.92	0.70	0.088	(0.259)	0.024	0.064
12	1.00	0.80	0.101	(0.259)	0.028	0.073
13	1.08	0.80	0.101	(0.259)	0.028	0.073
14	1.17	0.80	0.101	(0.259)	0.028	0.073
15	1.25	0.80	0.101	(0.259)	0.028	0.073
16	1.33	0.80	0.101	(0.259)	0.028	0.073
17	1.42	0.80	0.101	(0.259)	0.028	0.073
18	1.50	0.80	0.101	(0.259)	0.028	0.073
19	1.58	0.80	0.101	(0.259)	0.028	0.073
20	1.67	0.80	0.101	(0.259)	0.028	0.073
21	1.75	0.80	0.101	(0.259)	0.028	0.073
22	1.83	0.80	0.101	(0.259)	0.028	0.073
23	1.92	0.80	0.101	(0.259)	0.028	0.073
24	2.00	0.90	0.113	(0.259)	0.031	0.082
25	2.08	0.80	0.101	(0.259)	0.028	0.073
26	2.17	0.90	0.113	(0.259)	0.031	0.082
27	2.25	0.90	0.113	(0.259)	0.031	0.082
28	2.33	0.90	0.113	(0.259)	0.031	0.082
29	2.42	0.90	0.113	(0.259)	0.031	0.082
30	2.50	0.90	0.113	(0.259)	0.031	0.082
31	2.58	0.90	0.113	(0.259)	0.031	0.082
32	2.67	0.90	0.113	(0.259)	0.031	0.082
33	2.75	1.00	0.126	(0.259)	0.035	0.091
34	2.83	1.00	0.126	(0.259)	0.035	0.091
35	2.92	1.00	0.126	(0.259)	0.035	0.091
36	3.00	1.00	0.126	(0.259)	0.035	0.091
37	3.08	1.00	0.126	(0.259)	0.035	0.091
38	3.17	1.10	0.139	(0.259)	0.038	0.100
39	3.25	1.10	0.139	(0.259)	0.038	0.100
40	3.33	1.10	0.139	(0.259)	0.038	0.100

```
41   3.42     1.20      0.151       (  0.259)       0.042        0.109
42   3.50     1.30      0.164       (  0.259)       0.045        0.119
43   3.58     1.40      0.176       (  0.259)       0.049        0.128
44   3.67     1.40      0.176       (  0.259)       0.049        0.128
45   3.75     1.50      0.189       (  0.259)       0.052        0.137
46   3.83     1.50      0.189       (  0.259)       0.052        0.137
47   3.92     1.60      0.202       (  0.259)       0.056        0.146
48   4.00     1.60      0.202       (  0.259)       0.056        0.146
49   4.08     1.70      0.214       (  0.259)       0.059        0.155
50   4.17     1.80      0.227       (  0.259)       0.063        0.164
51   4.25     1.90      0.239       (  0.259)       0.066        0.173
52   4.33     2.00      0.252       (  0.259)       0.070        0.182
53   4.42     2.10      0.265       (  0.259)       0.073        0.192
54   4.50     2.10      0.265       (  0.259)       0.073        0.192
55   4.58     2.20      0.277       (  0.259)       0.077        0.201
56   4.67     2.30      0.290       (  0.259)       0.080        0.210
57   4.75     2.40      0.302       (  0.259)       0.083        0.219
58   4.83     2.40      0.302       (  0.259)       0.083        0.219
59   4.92     2.50      0.315       (  0.259)       0.087        0.228
60   5.00     2.60      0.328       (  0.259)       0.090        0.237
61   5.08     3.10      0.391       (  0.259)       0.108        0.283
62   5.17     3.60      0.454       (  0.259)       0.125        0.328
63   5.25     3.90      0.491       (  0.259)       0.136        0.356
64   5.33     4.20      0.529       (  0.259)       0.146        0.383
65   5.42     4.70      0.592       (  0.259)       0.163        0.429
66   5.50     5.60      0.706       (  0.259)       0.195        0.511
67   5.58     1.90      0.239       (  0.259)       0.066        0.173
68   5.67     0.90      0.113       (  0.259)       0.031        0.082
69   5.75     0.60      0.076       (  0.259)       0.021        0.055
70   5.83     0.50      0.063       (  0.259)       0.017        0.046
71   5.92     0.30      0.038       (  0.259)       0.010        0.027
72   6.00     0.20      0.025       (  0.259)       0.007        0.018
              (Loss Rate Not Used)
   Sum =     100.0                                  Sum =     9.1
      Flood volume = Effective rainfall      0.76(In)
       times area       5.6(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
      Total soil loss =      0.29(In)
      Total soil loss =     0.136(Ac.Ft)
      Total rainfall =      1.05(In)
      Flood volume =       15563.4 Cubic Feet
      Total soil loss =        5933.0 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      2.402(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       0.0003      0.05  Q         |         |         |         |
  0+10       0.0017      0.19  Q         |         |         |         |
  0+15       0.0034      0.26  VQ        |         |         |         |
  0+20       0.0054      0.28  VQ        |         |         |         |
  0+25       0.0075      0.30  VQ        |         |         |         |
  0+30       0.0096      0.31  |Q        |         |         |         |
  0+35       0.0120      0.34  |Q        |         |         |         |
  0+40       0.0144      0.36  |Q        |         |         |         |
  0+45       0.0169      0.36  |Q        |         |         |         |
  0+50       0.0194      0.36  |QV       |         |         |         |
  0+55       0.0219      0.36  |QV       |         |         |         |
  1+ 0       0.0245      0.37  |QV       |         |         |         |
  1+ 5       0.0272      0.40  |Q V      |         |         |         |
  1+10       0.0300      0.41  |Q V      |         |         |         |
  1+15       0.0329      0.41  |Q V      |         |         |         |
  1+20       0.0357      0.41  |Q V      |         |         |         |
```



SECTION 6.4.3

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**2-YEAR**
DURATION:	**24-HOUR**
INTERVAL:	**5-MINUTE**

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 07/26/23 File: 1804PUH2Y24H5M242.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 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]
5.64	1.64	9.25

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	5.27	29.72

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.640(In)
Area Averaged 100-Year Rainfall = 5.270(In)

Point rain (area averaged) = 1.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.640(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

 Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	16.2	0.870	0.780	0.259	1.000	0.259
					Sum (F) =	0.259

Area averaged mean soil loss (F) (In/Hr) = 0.259
Minimum soil loss rate ((In/Hr)) = 0.130

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.838	19.448	1.105
2	0.167	213.675	50.246	2.856
3	0.250	320.513	15.964	0.907
4	0.333	427.350	6.971	0.396
5	0.417	534.188	3.708	0.211
6	0.500	641.026	1.845	0.105
7	0.583	747.863	1.189	0.068
8	0.667	854.701	0.628	0.036
			Sum = 100.000	Sum= 5.684

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	0.013	(0.460)	0.004	0.009
2	0.17	0.07	0.013	(0.458)	0.004	0.009
3	0.25	0.07	0.013	(0.456)	0.004	0.009
4	0.33	0.10	0.020	(0.454)	0.005	0.014
5	0.42	0.10	0.020	(0.453)	0.005	0.014
6	0.50	0.10	0.020	(0.451)	0.005	0.014
7	0.58	0.10	0.020	(0.449)	0.005	0.014
8	0.67	0.10	0.020	(0.447)	0.005	0.014
9	0.75	0.10	0.020	(0.446)	0.005	0.014
10	0.83	0.13	0.026	(0.444)	0.007	0.019
11	0.92	0.13	0.026	(0.442)	0.007	0.019
12	1.00	0.13	0.026	(0.440)	0.007	0.019
13	1.08	0.10	0.020	(0.439)	0.005	0.014
14	1.17	0.10	0.020	(0.437)	0.005	0.014
15	1.25	0.10	0.020	(0.435)	0.005	0.014
16	1.33	0.10	0.020	(0.433)	0.005	0.014
17	1.42	0.10	0.020	(0.432)	0.005	0.014
18	1.50	0.10	0.020	(0.430)	0.005	0.014
19	1.58	0.10	0.020	(0.428)	0.005	0.014
20	1.67	0.10	0.020	(0.427)	0.005	0.014
21	1.75	0.10	0.020	(0.425)	0.005	0.014
22	1.83	0.13	0.026	(0.423)	0.007	0.019
23	1.92	0.13	0.026	(0.421)	0.007	0.019
24	2.00	0.13	0.026	(0.420)	0.007	0.019
25	2.08	0.13	0.026	(0.418)	0.007	0.019
26	2.17	0.13	0.026	(0.416)	0.007	0.019
27	2.25	0.13	0.026	(0.415)	0.007	0.019
28	2.33	0.13	0.026	(0.413)	0.007	0.019
29	2.42	0.13	0.026	(0.411)	0.007	0.019
30	2.50	0.13	0.026	(0.410)	0.007	0.019
31	2.58	0.17	0.033	(0.408)	0.009	0.024
32	2.67	0.17	0.033	(0.406)	0.009	0.024
33	2.75	0.17	0.033	(0.405)	0.009	0.024
34	2.83	0.17	0.033	(0.403)	0.009	0.024
35	2.92	0.17	0.033	(0.401)	0.009	0.024
36	3.00	0.17	0.033	(0.400)	0.009	0.024
37	3.08	0.17	0.033	(0.398)	0.009	0.024
38	3.17	0.17	0.033	(0.396)	0.009	0.024
39	3.25	0.17	0.033	(0.395)	0.009	0.024
40	3.33	0.17	0.033	(0.393)	0.009	0.024

41	3.42	0.17	0.033	(0.391)	0.009	0.024
42	3.50	0.17	0.033	(0.390)	0.009	0.024
43	3.58	0.17	0.033	(0.388)	0.009	0.024
44	3.67	0.17	0.033	(0.387)	0.009	0.024
45	3.75	0.17	0.033	(0.385)	0.009	0.024
46	3.83	0.20	0.039	(0.383)	0.011	0.028
47	3.92	0.20	0.039	(0.382)	0.011	0.028
48	4.00	0.20	0.039	(0.380)	0.011	0.028
49	4.08	0.20	0.039	(0.378)	0.011	0.028
50	4.17	0.20	0.039	(0.377)	0.011	0.028
51	4.25	0.20	0.039	(0.375)	0.011	0.028
52	4.33	0.23	0.046	(0.374)	0.013	0.033
53	4.42	0.23	0.046	(0.372)	0.013	0.033
54	4.50	0.23	0.046	(0.370)	0.013	0.033
55	4.58	0.23	0.046	(0.369)	0.013	0.033
56	4.67	0.23	0.046	(0.367)	0.013	0.033
57	4.75	0.23	0.046	(0.366)	0.013	0.033
58	4.83	0.27	0.052	(0.364)	0.014	0.038
59	4.92	0.27	0.052	(0.362)	0.014	0.038
60	5.00	0.27	0.052	(0.361)	0.014	0.038
61	5.08	0.20	0.039	(0.359)	0.011	0.028
62	5.17	0.20	0.039	(0.358)	0.011	0.028
63	5.25	0.20	0.039	(0.356)	0.011	0.028
64	5.33	0.23	0.046	(0.355)	0.013	0.033
65	5.42	0.23	0.046	(0.353)	0.013	0.033
66	5.50	0.23	0.046	(0.352)	0.013	0.033
67	5.58	0.27	0.052	(0.350)	0.014	0.038
68	5.67	0.27	0.052	(0.348)	0.014	0.038
69	5.75	0.27	0.052	(0.347)	0.014	0.038
70	5.83	0.27	0.052	(0.345)	0.014	0.038
71	5.92	0.27	0.052	(0.344)	0.014	0.038
72	6.00	0.27	0.052	(0.342)	0.014	0.038
73	6.08	0.30	0.059	(0.341)	0.016	0.043
74	6.17	0.30	0.059	(0.339)	0.016	0.043
75	6.25	0.30	0.059	(0.338)	0.016	0.043
76	6.33	0.30	0.059	(0.336)	0.016	0.043
77	6.42	0.30	0.059	(0.335)	0.016	0.043
78	6.50	0.30	0.059	(0.333)	0.016	0.043
79	6.58	0.33	0.066	(0.332)	0.018	0.047
80	6.67	0.33	0.066	(0.330)	0.018	0.047
81	6.75	0.33	0.066	(0.329)	0.018	0.047
82	6.83	0.33	0.066	(0.327)	0.018	0.047
83	6.92	0.33	0.066	(0.326)	0.018	0.047
84	7.00	0.33	0.066	(0.324)	0.018	0.047
85	7.08	0.33	0.066	(0.323)	0.018	0.047
86	7.17	0.33	0.066	(0.321)	0.018	0.047
87	7.25	0.33	0.066	(0.320)	0.018	0.047
88	7.33	0.37	0.072	(0.319)	0.020	0.052
89	7.42	0.37	0.072	(0.317)	0.020	0.052
90	7.50	0.37	0.072	(0.316)	0.020	0.052
91	7.58	0.40	0.079	(0.314)	0.022	0.057
92	7.67	0.40	0.079	(0.313)	0.022	0.057
93	7.75	0.40	0.079	(0.311)	0.022	0.057
94	7.83	0.43	0.085	(0.310)	0.024	0.062
95	7.92	0.43	0.085	(0.308)	0.024	0.062
96	8.00	0.43	0.085	(0.307)	0.024	0.062
97	8.08	0.50	0.098	(0.306)	0.027	0.071
98	8.17	0.50	0.098	(0.304)	0.027	0.071
99	8.25	0.50	0.098	(0.303)	0.027	0.071
100	8.33	0.50	0.098	(0.301)	0.027	0.071
101	8.42	0.50	0.098	(0.300)	0.027	0.071
102	8.50	0.50	0.098	(0.298)	0.027	0.071
103	8.58	0.53	0.105	(0.297)	0.029	0.076
104	8.67	0.53	0.105	(0.296)	0.029	0.076
105	8.75	0.53	0.105	(0.294)	0.029	0.076
106	8.83	0.57	0.112	(0.293)	0.031	0.081
107	8.92	0.57	0.112	(0.292)	0.031	0.081
108	9.00	0.57	0.112	(0.290)	0.031	0.081
109	9.08	0.63	0.125	(0.289)	0.034	0.090

110	9.17	0.63	0.125	(0.287)	0.034	0.090
111	9.25	0.63	0.125	(0.286)	0.034	0.090
112	9.33	0.67	0.131	(0.285)	0.036	0.095
113	9.42	0.67	0.131	(0.283)	0.036	0.095
114	9.50	0.67	0.131	(0.282)	0.036	0.095
115	9.58	0.70	0.138	(0.281)	0.038	0.100
116	9.67	0.70	0.138	(0.279)	0.038	0.100
117	9.75	0.70	0.138	(0.278)	0.038	0.100
118	9.83	0.73	0.144	(0.277)	0.040	0.104
119	9.92	0.73	0.144	(0.275)	0.040	0.104
120	10.00	0.73	0.144	(0.274)	0.040	0.104
121	10.08	0.50	0.098	(0.273)	0.027	0.071
122	10.17	0.50	0.098	(0.271)	0.027	0.071
123	10.25	0.50	0.098	(0.270)	0.027	0.071
124	10.33	0.50	0.098	(0.269)	0.027	0.071
125	10.42	0.50	0.098	(0.267)	0.027	0.071
126	10.50	0.50	0.098	(0.266)	0.027	0.071
127	10.58	0.67	0.131	(0.265)	0.036	0.095
128	10.67	0.67	0.131	(0.263)	0.036	0.095
129	10.75	0.67	0.131	(0.262)	0.036	0.095
130	10.83	0.67	0.131	(0.261)	0.036	0.095
131	10.92	0.67	0.131	(0.260)	0.036	0.095
132	11.00	0.67	0.131	(0.258)	0.036	0.095
133	11.08	0.63	0.125	(0.257)	0.034	0.090
134	11.17	0.63	0.125	(0.256)	0.034	0.090
135	11.25	0.63	0.125	(0.254)	0.034	0.090
136	11.33	0.63	0.125	(0.253)	0.034	0.090
137	11.42	0.63	0.125	(0.252)	0.034	0.090
138	11.50	0.63	0.125	(0.251)	0.034	0.090
139	11.58	0.57	0.112	(0.249)	0.031	0.081
140	11.67	0.57	0.112	(0.248)	0.031	0.081
141	11.75	0.57	0.112	(0.247)	0.031	0.081
142	11.83	0.60	0.118	(0.246)	0.033	0.085
143	11.92	0.60	0.118	(0.245)	0.033	0.085
144	12.00	0.60	0.118	(0.243)	0.033	0.085
145	12.08	0.83	0.164	(0.242)	0.045	0.119
146	12.17	0.83	0.164	(0.241)	0.045	0.119
147	12.25	0.83	0.164	(0.240)	0.045	0.119
148	12.33	0.87	0.171	(0.239)	0.047	0.123
149	12.42	0.87	0.171	(0.237)	0.047	0.123
150	12.50	0.87	0.171	(0.236)	0.047	0.123
151	12.58	0.93	0.184	(0.235)	0.051	0.133
152	12.67	0.93	0.184	(0.234)	0.051	0.133
153	12.75	0.93	0.184	(0.233)	0.051	0.133
154	12.83	0.97	0.190	(0.231)	0.053	0.138
155	12.92	0.97	0.190	(0.230)	0.053	0.138
156	13.00	0.97	0.190	(0.229)	0.053	0.138
157	13.08	1.13	0.223	(0.228)	0.062	0.161
158	13.17	1.13	0.223	(0.227)	0.062	0.161
159	13.25	1.13	0.223	(0.226)	0.062	0.161
160	13.33	1.13	0.223	(0.224)	0.062	0.161
161	13.42	1.13	0.223	(0.223)	0.062	0.161
162	13.50	1.13	0.223	(0.222)	0.062	0.161
163	13.58	0.77	0.151	(0.221)	0.042	0.109
164	13.67	0.77	0.151	(0.220)	0.042	0.109
165	13.75	0.77	0.151	(0.219)	0.042	0.109
166	13.83	0.77	0.151	(0.218)	0.042	0.109
167	13.92	0.77	0.151	(0.217)	0.042	0.109
168	14.00	0.77	0.151	(0.215)	0.042	0.109
169	14.08	0.90	0.177	(0.214)	0.049	0.128
170	14.17	0.90	0.177	(0.213)	0.049	0.128
171	14.25	0.90	0.177	(0.212)	0.049	0.128
172	14.33	0.87	0.171	(0.211)	0.047	0.123
173	14.42	0.87	0.171	(0.210)	0.047	0.123
174	14.50	0.87	0.171	(0.209)	0.047	0.123
175	14.58	0.87	0.171	(0.208)	0.047	0.123
176	14.67	0.87	0.171	(0.207)	0.047	0.123
177	14.75	0.87	0.171	(0.206)	0.047	0.123
178	14.83	0.83	0.164	(0.205)	0.045	0.119

179	14.92	0.83	0.164	(0.204)	0.045	0.119
180	15.00	0.83	0.164	(0.203)	0.045	0.119
181	15.08	0.80	0.157	(0.202)	0.043	0.114
182	15.17	0.80	0.157	(0.201)	0.043	0.114
183	15.25	0.80	0.157	(0.199)	0.043	0.114
184	15.33	0.77	0.151	(0.198)	0.042	0.109
185	15.42	0.77	0.151	(0.197)	0.042	0.109
186	15.50	0.77	0.151	(0.196)	0.042	0.109
187	15.58	0.63	0.125	(0.195)	0.034	0.090
188	15.67	0.63	0.125	(0.194)	0.034	0.090
189	15.75	0.63	0.125	(0.193)	0.034	0.090
190	15.83	0.63	0.125	(0.192)	0.034	0.090
191	15.92	0.63	0.125	(0.191)	0.034	0.090
192	16.00	0.63	0.125	(0.190)	0.034	0.090
193	16.08	0.13	0.026	(0.190)	0.007	0.019
194	16.17	0.13	0.026	(0.189)	0.007	0.019
195	16.25	0.13	0.026	(0.188)	0.007	0.019
196	16.33	0.13	0.026	(0.187)	0.007	0.019
197	16.42	0.13	0.026	(0.186)	0.007	0.019
198	16.50	0.13	0.026	(0.185)	0.007	0.019
199	16.58	0.10	0.020	(0.184)	0.005	0.014
200	16.67	0.10	0.020	(0.183)	0.005	0.014
201	16.75	0.10	0.020	(0.182)	0.005	0.014
202	16.83	0.10	0.020	(0.181)	0.005	0.014
203	16.92	0.10	0.020	(0.180)	0.005	0.014
204	17.00	0.10	0.020	(0.179)	0.005	0.014
205	17.08	0.17	0.033	(0.178)	0.009	0.024
206	17.17	0.17	0.033	(0.177)	0.009	0.024
207	17.25	0.17	0.033	(0.176)	0.009	0.024
208	17.33	0.17	0.033	(0.176)	0.009	0.024
209	17.42	0.17	0.033	(0.175)	0.009	0.024
210	17.50	0.17	0.033	(0.174)	0.009	0.024
211	17.58	0.17	0.033	(0.173)	0.009	0.024
212	17.67	0.17	0.033	(0.172)	0.009	0.024
213	17.75	0.17	0.033	(0.171)	0.009	0.024
214	17.83	0.13	0.026	(0.170)	0.007	0.019
215	17.92	0.13	0.026	(0.170)	0.007	0.019
216	18.00	0.13	0.026	(0.169)	0.007	0.019
217	18.08	0.13	0.026	(0.168)	0.007	0.019
218	18.17	0.13	0.026	(0.167)	0.007	0.019
219	18.25	0.13	0.026	(0.166)	0.007	0.019
220	18.33	0.13	0.026	(0.165)	0.007	0.019
221	18.42	0.13	0.026	(0.165)	0.007	0.019
222	18.50	0.13	0.026	(0.164)	0.007	0.019
223	18.58	0.10	0.020	(0.163)	0.005	0.014
224	18.67	0.10	0.020	(0.162)	0.005	0.014
225	18.75	0.10	0.020	(0.161)	0.005	0.014
226	18.83	0.07	0.013	(0.161)	0.004	0.009
227	18.92	0.07	0.013	(0.160)	0.004	0.009
228	19.00	0.07	0.013	(0.159)	0.004	0.009
229	19.08	0.10	0.020	(0.158)	0.005	0.014
230	19.17	0.10	0.020	(0.158)	0.005	0.014
231	19.25	0.10	0.020	(0.157)	0.005	0.014
232	19.33	0.13	0.026	(0.156)	0.007	0.019
233	19.42	0.13	0.026	(0.155)	0.007	0.019
234	19.50	0.13	0.026	(0.155)	0.007	0.019
235	19.58	0.10	0.020	(0.154)	0.005	0.014
236	19.67	0.10	0.020	(0.153)	0.005	0.014
237	19.75	0.10	0.020	(0.153)	0.005	0.014
238	19.83	0.07	0.013	(0.152)	0.004	0.009
239	19.92	0.07	0.013	(0.151)	0.004	0.009
240	20.00	0.07	0.013	(0.151)	0.004	0.009
241	20.08	0.10	0.020	(0.150)	0.005	0.014
242	20.17	0.10	0.020	(0.149)	0.005	0.014
243	20.25	0.10	0.020	(0.149)	0.005	0.014
244	20.33	0.10	0.020	(0.148)	0.005	0.014
245	20.42	0.10	0.020	(0.147)	0.005	0.014
246	20.50	0.10	0.020	(0.147)	0.005	0.014
247	20.58	0.10	0.020	(0.146)	0.005	0.014

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248  20.67     0.10      0.020       (  0.146)       0.005        0.014
249  20.75     0.10      0.020       (  0.145)       0.005        0.014
250  20.83     0.07      0.013       (  0.144)       0.004        0.009
251  20.92     0.07      0.013       (  0.144)       0.004        0.009
252  21.00     0.07      0.013       (  0.143)       0.004        0.009
253  21.08     0.10      0.020       (  0.143)       0.005        0.014
254  21.17     0.10      0.020       (  0.142)       0.005        0.014
255  21.25     0.10      0.020       (  0.141)       0.005        0.014
256  21.33     0.07      0.013       (  0.141)       0.004        0.009
257  21.42     0.07      0.013       (  0.140)       0.004        0.009
258  21.50     0.07      0.013       (  0.140)       0.004        0.009
259  21.58     0.10      0.020       (  0.139)       0.005        0.014
260  21.67     0.10      0.020       (  0.139)       0.005        0.014
261  21.75     0.10      0.020       (  0.138)       0.005        0.014
262  21.83     0.07      0.013       (  0.138)       0.004        0.009
263  21.92     0.07      0.013       (  0.137)       0.004        0.009
264  22.00     0.07      0.013       (  0.137)       0.004        0.009
265  22.08     0.10      0.020       (  0.136)       0.005        0.014
266  22.17     0.10      0.020       (  0.136)       0.005        0.014
267  22.25     0.10      0.020       (  0.136)       0.005        0.014
268  22.33     0.07      0.013       (  0.135)       0.004        0.009
269  22.42     0.07      0.013       (  0.135)       0.004        0.009
270  22.50     0.07      0.013       (  0.134)       0.004        0.009
271  22.58     0.07      0.013       (  0.134)       0.004        0.009
272  22.67     0.07      0.013       (  0.134)       0.004        0.009
273  22.75     0.07      0.013       (  0.133)       0.004        0.009
274  22.83     0.07      0.013       (  0.133)       0.004        0.009
275  22.92     0.07      0.013       (  0.133)       0.004        0.009
276  23.00     0.07      0.013       (  0.132)       0.004        0.009
277  23.08     0.07      0.013       (  0.132)       0.004        0.009
278  23.17     0.07      0.013       (  0.132)       0.004        0.009
279  23.25     0.07      0.013       (  0.131)       0.004        0.009
280  23.33     0.07      0.013       (  0.131)       0.004        0.009
281  23.42     0.07      0.013       (  0.131)       0.004        0.009
282  23.50     0.07      0.013       (  0.131)       0.004        0.009
283  23.58     0.07      0.013       (  0.130)       0.004        0.009
284  23.67     0.07      0.013       (  0.130)       0.004        0.009
285  23.75     0.07      0.013       (  0.130)       0.004        0.009
286  23.83     0.07      0.013       (  0.130)       0.004        0.009
287  23.92     0.07      0.013       (  0.130)       0.004        0.009
288  24.00     0.07      0.013       (  0.130)       0.004        0.009
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    14.2
       Flood volume = Effective rainfall      1.19(In)
        times area       5.6(Ac.)/[(In)/(Ft.)] =       0.6(Ac.Ft)
       Total soil loss =      0.45(In)
       Total soil loss =     0.213(Ac.Ft)
       Total rainfall =      1.64(In)
       Flood volume =       24308.8 Cubic Feet
       Total soil loss =        9266.9 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      0.916(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          24 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0001      0.01  Q         |         |         |         |
   0+10       0.0003      0.04  Q         |         |         |         |
   0+15       0.0007      0.05  Q         |         |         |         |
   0+20       0.0010      0.06  Q         |         |         |         |
   0+25       0.0015      0.07  Q         |         |         |         |
   0+30       0.0020      0.08  Q         |         |         |         |
   0+35       0.0026      0.08  Q         |         |         |         |
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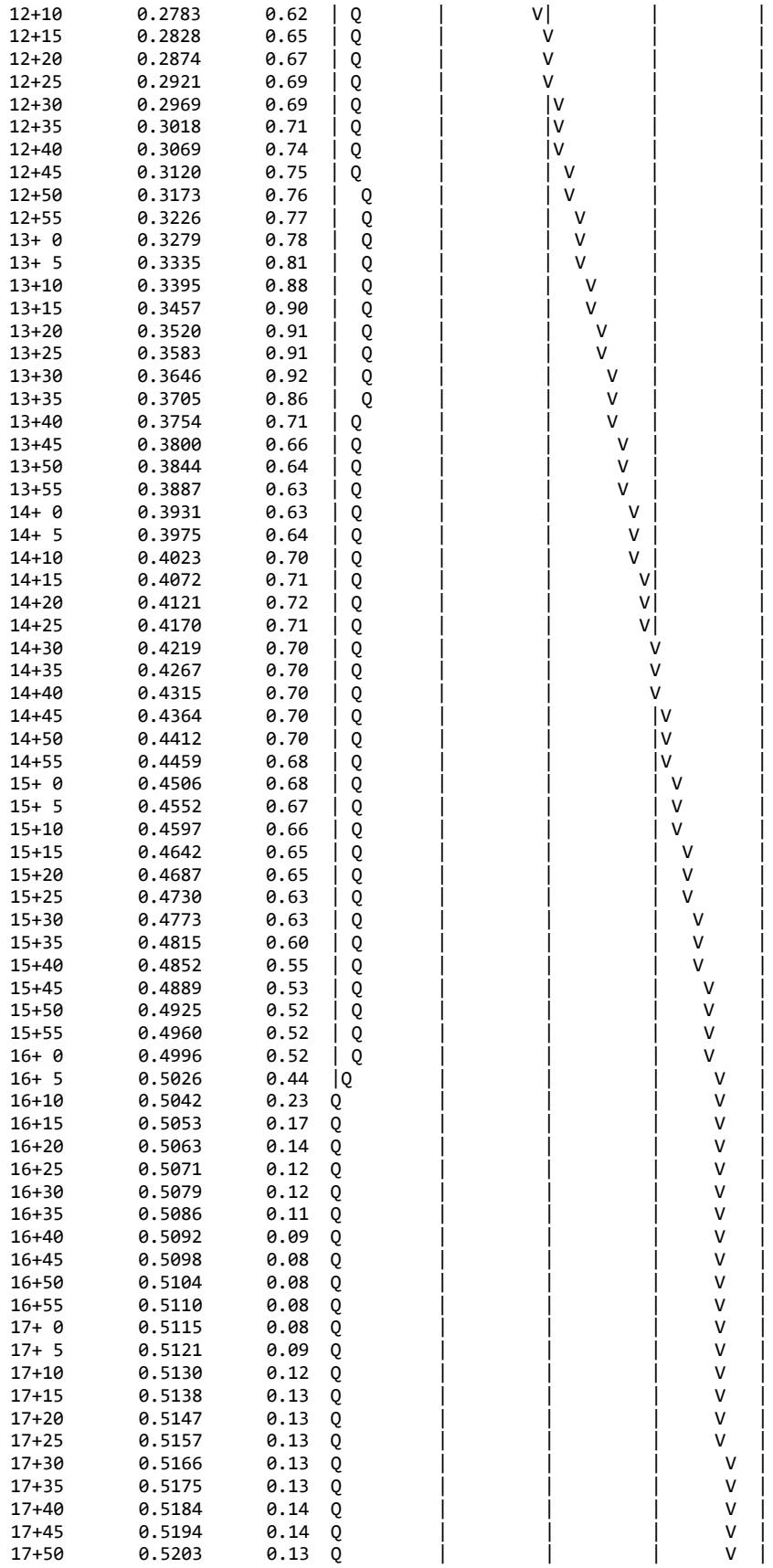
0+40	0.0031	0.08	Q	|	|	|	|
0+45	0.0037	0.08	Q	|	|	|	|
0+50	0.0043	0.09	Q	|	|	|	|
0+55	0.0050	0.10	Q	|	|	|	|
1+ 0	0.0057	0.10	Q	|	|	|	|
1+ 5	0.0064	0.10	Q	|	|	|	|
1+10	0.0070	0.09	Q	|	|	|	|
1+15	0.0076	0.08	Q	|	|	|	|
1+20	0.0081	0.08	Q	|	|	|	|
1+25	0.0087	0.08	Q	|	|	|	|
1+30	0.0093	0.08	Q	|	|	|	|
1+35	0.0098	0.08	Q	|	|	|	|
1+40	0.0104	0.08	Q	|	|	|	|
1+45	0.0109	0.08	Q	|	|	|	|
1+50	0.0115	0.09	Q	|	|	|	|
1+55	0.0122	0.10	Q	|	|	|	|
2+ 0	0.0129	0.10	Q	|	|	|	|
2+ 5	0.0137	0.11	Q	|	|	|	|
2+10	0.0144	0.11	QV	|	|	|	|
2+15	0.0152	0.11	QV	|	|	|	|
2+20	0.0159	0.11	QV	|	|	|	|
2+25	0.0166	0.11	QV	|	|	|	|
2+30	0.0174	0.11	QV	|	|	|	|
2+35	0.0182	0.11	QV	|	|	|	|
2+40	0.0190	0.13	QV	|	|	|	|
2+45	0.0199	0.13	QV	|	|	|	|
2+50	0.0209	0.13	QV	|	|	|	|
2+55	0.0218	0.13	QV	|	|	|	|
3+ 0	0.0227	0.13	QV	|	|	|	|
3+ 5	0.0236	0.13	QV	|	|	|	|
3+10	0.0246	0.14	QV	|	|	|	|
3+15	0.0255	0.14	QV	|	|	|	|
3+20	0.0264	0.14	QV	|	|	|	|
3+25	0.0274	0.14	QV	|	|	|	|
3+30	0.0283	0.14	Q V	|	|	|	|
3+35	0.0292	0.14	Q V	|	|	|	|
3+40	0.0301	0.14	Q V	|	|	|	|
3+45	0.0311	0.14	Q V	|	|	|	|
3+50	0.0320	0.14	Q V	|	|	|	|
3+55	0.0331	0.15	Q V	|	|	|	|
4+ 0	0.0342	0.16	Q V	|	|	|	|
4+ 5	0.0353	0.16	Q V	|	|	|	|
4+10	0.0364	0.16	Q V	|	|	|	|
4+15	0.0375	0.16	Q V	|	|	|	|
4+20	0.0387	0.17	Q V	|	|	|	|
4+25	0.0399	0.18	Q V	|	|	|	|
4+30	0.0412	0.19	Q V	|	|	|	|
4+35	0.0425	0.19	Q V	|	|	|	|
4+40	0.0438	0.19	Q V	|	|	|	|
4+45	0.0451	0.19	Q V	|	|	|	|
4+50	0.0464	0.19	Q V	|	|	|	|
4+55	0.0478	0.21	Q V	|	|	|	|
5+ 0	0.0493	0.21	Q V	|	|	|	|
5+ 5	0.0507	0.20	Q V	|	|	|	|
5+10	0.0519	0.18	Q V	|	|	|	|
5+15	0.0531	0.17	Q V	|	|	|	|
5+20	0.0543	0.17	Q V	|	|	|	|
5+25	0.0555	0.18	Q V	|	|	|	|
5+30	0.0568	0.19	Q V	|	|	|	|
5+35	0.0581	0.19	Q V	|	|	|	|
5+40	0.0596	0.21	Q V	|	|	|	|
5+45	0.0610	0.21	Q V	|	|	|	|
5+50	0.0625	0.21	Q V	|	|	|	|
5+55	0.0640	0.22	Q V	|	|	|	|
6+ 0	0.0655	0.22	Q V	|	|	|	|
6+ 5	0.0670	0.22	Q V	|	|	|	|
6+10	0.0686	0.23	Q V	|	|	|	|
6+15	0.0703	0.24	Q V	|	|	|	|
6+20	0.0719	0.24	Q V	|	|	|	|

```
 6+25       0.0736      0.24  Q    V    |         |         |         |
 6+30       0.0752      0.24  Q    V    |         |         |         |
 6+35       0.0770      0.25  Q    V    |         |         |         |
 6+40       0.0788      0.26  |Q   V    |         |         |         |
 6+45       0.0806      0.27  |Q   V    |         |         |         |
 6+50       0.0824      0.27  |Q   V    |         |         |         |
 6+55       0.0843      0.27  |Q    V   |         |         |         |
 7+ 0       0.0862      0.27  |Q    V   |         |         |         |
 7+ 5       0.0880      0.27  |Q    V   |         |         |         |
 7+10       0.0899      0.27  |Q    V   |         |         |         |
 7+15       0.0917      0.27  |Q    V   |         |         |         |
 7+20       0.0936      0.28  |Q    V   |         |         |         |
 7+25       0.0956      0.29  |Q    V   |         |         |         |
 7+30       0.0976      0.29  |Q    V   |         |         |         |
 7+35       0.0997      0.30  |Q     V  |         |         |         |
 7+40       0.1019      0.31  |Q     V  |         |         |         |
 7+45       0.1041      0.32  |Q     V  |         |         |         |
 7+50       0.1063      0.33  |Q     V  |         |         |         |
 7+55       0.1087      0.34  |Q     V  |         |         |         |
 8+ 0       0.1111      0.35  |Q     V  |         |         |         |
 8+ 5       0.1135      0.36  |Q      V |         |         |         |
 8+10       0.1162      0.39  |Q      V |         |         |         |
 8+15       0.1190      0.40  |Q      V |         |         |         |
 8+20       0.1217      0.40  |Q      V |         |         |         |
 8+25       0.1245      0.40  |Q      V |         |         |         |
 8+30       0.1273      0.40  |Q       V|         |         |         |
 8+35       0.1301      0.41  |Q       V|         |         |         |
 8+40       0.1330      0.42  |Q       V|         |         |         |
 8+45       0.1360      0.43  |Q       V|         |         |         |
 8+50       0.1390      0.44  |Q       V|         |         |         |
 8+55       0.1421      0.45  |Q        V         |         |         |
 9+ 0       0.1452      0.45  |Q        V         |         |         |
 9+ 5       0.1484      0.47  |Q        V         |         |         |
 9+10       0.1518      0.50  |Q        V         |         |         |
 9+15       0.1553      0.50  | Q       |V        |         |         |
 9+20       0.1589      0.51  | Q       |V        |         |         |
 9+25       0.1625      0.53  | Q       |V        |         |         |
 9+30       0.1662      0.54  | Q       |V        |         |         |
 9+35       0.1699      0.54  | Q       | V       |         |         |
 9+40       0.1738      0.56  | Q       | V       |         |         |
 9+45       0.1777      0.56  | Q       | V       |         |         |
 9+50       0.1816      0.57  | Q       |  V      |         |         |
 9+55       0.1856      0.59  | Q       |  V      |         |         |
10+ 0       0.1897      0.59  | Q       |  V      |         |         |
10+ 5       0.1935      0.56  | Q       |  V      |         |         |
10+10       0.1967      0.46  |Q        |   V     |         |         |
10+15       0.1996      0.43  |Q        |   V     |         |         |
10+20       0.2025      0.42  |Q        |   V     |         |         |
10+25       0.2054      0.41  |Q        |   V     |         |         |
10+30       0.2082      0.41  |Q        |   V     |         |         |
10+35       0.2112      0.43  |Q        |    V    |         |         |
10+40       0.2146      0.50  |Q        |    V    |         |         |
10+45       0.2182      0.52  | Q       |    V    |         |         |
10+50       0.2218      0.53  | Q       |    V    |         |         |
10+55       0.2255      0.54  | Q       |     V   |         |         |
11+ 0       0.2292      0.54  | Q       |     V   |         |         |
11+ 5       0.2329      0.53  | Q       |     V   |         |         |
11+10       0.2365      0.52  | Q       |     V   |         |         |
11+15       0.2401      0.52  | Q       |      V  |         |         |
11+20       0.2436      0.52  | Q       |      V  |         |         |
11+25       0.2471      0.51  | Q       |      V  |         |         |
11+30       0.2507      0.51  | Q       |      V  |         |         |
11+35       0.2541      0.50  | Q       |       V |         |         |
11+40       0.2574      0.48  |Q        |       V |         |         |
11+45       0.2606      0.47  |Q        |       V |         |         |
11+50       0.2639      0.47  |Q        |       V |         |         |
11+55       0.2672      0.48  |Q        |        V|         |         |
12+ 0       0.2705      0.48  |Q        |        V|         |         |
12+ 5       0.2741      0.52  | Q       |        V|         |         |
```



17+55	0.5211	0.12	Q	|	|	|	V |
18+ 0	0.5218	0.11	Q	|	|	|	V |
18+ 5	0.5226	0.11	Q	|	|	|	V |
18+10	0.5233	0.11	Q	|	|	|	V |
18+15	0.5241	0.11	Q	|	|	|	V |
18+20	0.5248	0.11	Q	|	|	|	V |
18+25	0.5256	0.11	Q	|	|	|	V |
18+30	0.5263	0.11	Q	|	|	|	V |
18+35	0.5270	0.10	Q	|	|	|	V |
18+40	0.5277	0.09	Q	|	|	|	V |
18+45	0.5282	0.08	Q	|	|	|	V |
18+50	0.5288	0.08	Q	|	|	|	V |
18+55	0.5292	0.06	Q	|	|	|	V |
19+ 0	0.5296	0.06	Q	|	|	|	V |
19+ 5	0.5300	0.06	Q	|	|	|	V |
19+10	0.5305	0.07	Q	|	|	|	V |
19+15	0.5311	0.08	Q	|	|	|	V |
19+20	0.5317	0.08	Q	|	|	|	V |
19+25	0.5323	0.10	Q	|	|	|	V |
19+30	0.5331	0.10	Q	|	|	|	V |
19+35	0.5337	0.10	Q	|	|	|	V |
19+40	0.5344	0.09	Q	|	|	|	V |
19+45	0.5349	0.08	Q	|	|	|	V |
19+50	0.5355	0.08	Q	|	|	|	V |
19+55	0.5359	0.06	Q	|	|	|	V |
20+ 0	0.5363	0.06	Q	|	|	|	V |
20+ 5	0.5367	0.06	Q	|	|	|	V |
20+10	0.5372	0.07	Q	|	|	|	V |
20+15	0.5378	0.08	Q	|	|	|	V |
20+20	0.5383	0.08	Q	|	|	|	V |
20+25	0.5389	0.08	Q	|	|	|	V |
20+30	0.5394	0.08	Q	|	|	|	V |
20+35	0.5400	0.08	Q	|	|	|	V |
20+40	0.5405	0.08	Q	|	|	|	V |
20+45	0.5411	0.08	Q	|	|	|	V |
20+50	0.5416	0.08	Q	|	|	|	V |
20+55	0.5420	0.06	Q	|	|	|	V |
21+ 0	0.5424	0.06	Q	|	|	|	V |
21+ 5	0.5429	0.06	Q	|	|	|	V |
21+10	0.5434	0.07	Q	|	|	|	V |
21+15	0.5439	0.08	Q	|	|	|	V |
21+20	0.5444	0.07	Q	|	|	|	V|
21+25	0.5448	0.06	Q	|	|	|	V|
21+30	0.5452	0.06	Q	|	|	|	V|
21+35	0.5457	0.06	Q	|	|	|	V|
21+40	0.5462	0.07	Q	|	|	|	V|
21+45	0.5467	0.08	Q	|	|	|	V|
21+50	0.5472	0.07	Q	|	|	|	V|
21+55	0.5476	0.06	Q	|	|	|	V|
22+ 0	0.5480	0.06	Q	|	|	|	V|
22+ 5	0.5484	0.06	Q	|	|	|	V|
22+10	0.5490	0.07	Q	|	|	|	V|
22+15	0.5495	0.08	Q	|	|	|	V|
22+20	0.5500	0.07	Q	|	|	|	V|
22+25	0.5504	0.06	Q	|	|	|	V|
22+30	0.5508	0.06	Q	|	|	|	V|
22+35	0.5512	0.06	Q	|	|	|	V|
22+40	0.5516	0.06	Q	|	|	|	V|
22+45	0.5520	0.05	Q	|	|	|	V|
22+50	0.5523	0.05	Q	|	|	|	V|
22+55	0.5527	0.05	Q	|	|	|	V|
23+ 0	0.5531	0.05	Q	|	|	|	V|
23+ 5	0.5534	0.05	Q	|	|	|	V|
23+10	0.5538	0.05	Q	|	|	|	V|
23+15	0.5542	0.05	Q	|	|	|	V|
23+20	0.5546	0.05	Q	|	|	|	V|
23+25	0.5549	0.05	Q	|	|	|	V|
23+30	0.5553	0.05	Q	|	|	|	V|
23+35	0.5557	0.05	Q	|	|	|	V|

```
   23+40       0.5560      0.05  Q        |         |         |        V|
   23+45       0.5564      0.05  Q        |         |         |        V|
   23+50       0.5568      0.05  Q        |         |         |        V|
   23+55       0.5572      0.05  Q        |         |         |        V|
   24+ 0       0.5575      0.05  Q        |         |         |        V|
   24+ 5       0.5578      0.04  Q        |         |         |        V|
   24+10       0.5579      0.02  Q        |         |         |        V|
   24+15       0.5580      0.01  Q        |         |         |        V|
   24+20       0.5580      0.00  Q        |         |         |        V|
   24+25       0.5580      0.00  Q        |         |         |        V|
   24+30       0.5581      0.00  Q        |         |         |        V|
   24+35       0.5581      0.00  Q        |         |         |         V
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SECTION 6.5

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**10-YEAR**
DURATION:	**1-HOUR**
INTERVAL:	**5-MINUTE**

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 09/12/23 File: 1804PUH10Y1H5M110.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 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]
5.64	0.50	2.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	1.74	9.81

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.740(In)

Point rain (area averaged) = 1.009(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.009(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	32.0	0.742	0.780	0.221	1.000	0.221
					Sum (F) =	0.221

Area averaged mean soil loss (F) (In/Hr) = 0.221
Minimum soil loss rate ((In/Hr)) = 0.111

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

Slope of intensity-duration curve for a 1 hour storm =0.5800

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	106.838	19.448	1.105
2 0.167	213.675	50.246	2.856
3 0.250	320.513	15.964	0.907
4 0.333	427.350	6.971	0.396
5 0.417	534.188	3.708	0.211
6 0.500	641.026	1.845	0.105
7 0.583	747.863	1.189	0.068
8 0.667	854.701	0.628	0.036
	Sum = 100.000	Sum=	5.684

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	3.60	0.436	(0.221)	0.120	0.316
2 0.17	4.20	0.508	(0.221)	0.140	0.368
3 0.25	4.40	0.533	(0.221)	0.147	0.386
4 0.33	4.60	0.557	(0.221)	0.154	0.403
5 0.42	5.00	0.605	(0.221)	0.167	0.438
6 0.50	5.60	0.678	(0.221)	0.187	0.491
7 0.58	6.40	0.775	(0.221)	0.214	0.561
8 0.67	8.10	0.981	0.221	(0.271)	0.760
9 0.75	13.10	1.586	0.221	(0.438)	1.365
10 0.83	34.50	4.177	0.221	(1.153)	3.956
11 0.92	6.70	0.811	0.221	(0.224)	0.590
12 1.00	3.80	0.460	(0.221)	0.127	0.333
	(Loss Rate Not Used)				
Sum =	100.0			Sum =	10.0

Flood volume = Effective rainfall 0.83(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 0.084(Ac.Ft)
Total rainfall = 1.01(In)
Flood volume = 17003.2 Cubic Feet
Total soil loss = 3652.6 Cubic Feet

Peak flow rate of this hydrograph = 13.710(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	0.0024	0.35	Q				
0+10	0.0114	1.31	VQ				
0+15	0.0236	1.77	VQ				
0+20	0.0374	2.01	VQ				
0+25	0.0525	2.20	QV				

```
    0+30       0.0692      2.42  |   Q  V  |         |         |         |
    0+35       0.0880      2.72  |    Q   V|         |         |         |
    0+40       0.1102      3.22  |     Q   |V        |         |         |
    0+45       0.1416      4.56  |        Q|   V     |         |         |
    0+50       0.2062      9.38  |         |       Q |V        |         |
    0+55       0.3006     13.71  |         |         |      Q  V         |
    1+ 0       0.3451      6.45  |         | Q       |         |    V    |
    1+ 5       0.3690      3.48  |     Q   |         |         |      V  |
    1+10       0.3799      1.59  |  Q      |         |         |       V |
    1+15       0.3854      0.79  |Q        |         |         |        V|
    1+20       0.3885      0.45  Q         |         |         |        V|
    1+25       0.3900      0.22  Q         |         |         |        V|
    1+30       0.3903      0.04  Q         |         |         |        V|
    1+35       0.3903      0.01  Q         |         |         |        V|
-------------------------------------------------------------------------
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SECTION 6.5.1

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**10-YEAR**
DURATION:	**3-HOUR**
INTERVAL:	**5-MINUTE**

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 09/12/23 File: 1804PUH10Y3H5M310.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 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]
5.64	0.78	4.40

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	2.50	14.10

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.781(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.488(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.488(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	32.0	0.742	0.780	0.221	1.000	0.221
					Sum (F) =	0.221

Area averaged mean soil loss (F) (In/Hr) = 0.221
Minimum soil loss rate ((In/Hr)) = 0.111

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.838	19.448	1.105
2	0.167	213.675	50.246	2.856
3	0.250	320.513	15.964	0.907
4	0.333	427.350	6.971	0.396
5	0.417	534.188	3.708	0.211
6	0.500	641.026	1.845	0.105
7	0.583	747.863	1.189	0.068
8	0.667	854.701	0.628	0.036
			Sum = 100.000	Sum= 5.684

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	0.232	(0.221)	0.064	0.168
2	0.17	1.30	0.232	(0.221)	0.064	0.168
3	0.25	1.10	0.196	(0.221)	0.054	0.142
4	0.33	1.50	0.268	(0.221)	0.074	0.194
5	0.42	1.50	0.268	(0.221)	0.074	0.194
6	0.50	1.80	0.321	(0.221)	0.089	0.233
7	0.58	1.50	0.268	(0.221)	0.074	0.194
8	0.67	1.80	0.321	(0.221)	0.089	0.233
9	0.75	1.80	0.321	(0.221)	0.089	0.233
10	0.83	1.50	0.268	(0.221)	0.074	0.194
11	0.92	1.60	0.286	(0.221)	0.079	0.207
12	1.00	1.80	0.321	(0.221)	0.089	0.233
13	1.08	2.20	0.393	(0.221)	0.108	0.284
14	1.17	2.20	0.393	(0.221)	0.108	0.284
15	1.25	2.20	0.393	(0.221)	0.108	0.284
16	1.33	2.00	0.357	(0.221)	0.099	0.259
17	1.42	2.60	0.464	(0.221)	0.128	0.336
18	1.50	2.70	0.482	(0.221)	0.133	0.349
19	1.58	2.40	0.429	(0.221)	0.118	0.310
20	1.67	2.70	0.482	(0.221)	0.133	0.349
21	1.75	3.30	0.589	(0.221)	0.163	0.427
22	1.83	3.10	0.554	(0.221)	0.153	0.401
23	1.92	2.90	0.518	(0.221)	0.143	0.375
24	2.00	3.00	0.536	(0.221)	0.148	0.388
25	2.08	3.10	0.554	(0.221)	0.153	0.401
26	2.17	4.20	0.750	(0.221)	0.207	0.543
27	2.25	5.00	0.893	0.221	(0.246)	0.672
28	2.33	3.50	0.625	(0.221)	0.173	0.453
29	2.42	6.80	1.214	0.221	(0.335)	0.993
30	2.50	7.30	1.304	0.221	(0.360)	1.083
31	2.58	8.20	1.464	0.221	(0.404)	1.243
32	2.67	5.90	1.054	0.221	(0.291)	0.833
33	2.75	2.00	0.357	(0.221)	0.099	0.259
34	2.83	1.80	0.321	(0.221)	0.089	0.233
35	2.92	1.80	0.321	(0.221)	0.089	0.233
36	3.00	0.60	0.107	(0.221)	0.030	0.078
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	13.5

Flood volume = Effective rainfall 1.12(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)

```
      Total soil loss =      0.37(In)
      Total soil loss =     0.172(Ac.Ft)
      Total rainfall =      1.49(In)
      Flood volume =       22964.2 Cubic Feet
      Total soil loss =        7503.5 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      6.067(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       0.0013      0.19  Q         |         |         |         |
   0+10       0.0059      0.67  V Q       |         |         |         |
   0+15       0.0113      0.79  V  Q      |         |         |         |
   0+20       0.0171      0.84  |V Q      |         |         |         |
   0+25       0.0240      1.00  |V Q      |         |         |         |
   0+30       0.0315      1.10  | V Q     |         |         |         |
   0+35       0.0397      1.19  |  VQ     |         |         |         |
   0+40       0.0478      1.17  |  VQ     |         |         |         |
   0+45       0.0566      1.27  |   VQ    |         |         |         |
   0+50       0.0652      1.26  |   VQ    |         |         |         |
   0+55       0.0733      1.17  |   QV    |         |         |         |
   1+ 0       0.0816      1.21  |   Q V   |         |         |         |
   1+ 5       0.0908      1.34  |    QV   |         |         |         |
   1+10       0.1012      1.51  |     QV  |         |         |         |
   1+15       0.1120      1.57  |     Q V |         |         |         |
   1+20       0.1228      1.56  |     Q  V|         |         |         |
   1+25       0.1337      1.59  |     Q   V         |         |         |
   1+30       0.1461      1.81  |      Q  |V        |         |         |
   1+35       0.1590      1.87  |      Q  | V       |         |         |
   1+40       0.1716      1.84  |      Q  |  V      |         |         |
   1+45       0.1855      2.02  |       Q |   V     |         |         |
   1+50       0.2009      2.24  |       Q |    V    |         |         |
   1+55       0.2162      2.22  |       Q |     V   |         |         |
   2+ 0       0.2312      2.18  |       Q |      V  |         |         |
   2+ 5       0.2464      2.21  |       Q |       V |         |         |
   2+10       0.2630      2.41  |        Q|        V|         |         |
   2+15       0.2835      2.97  |         |Q        |V        |         |
   2+20       0.3058      3.24  |         | Q       |  V      |         |
   2+25       0.3291      3.38  |         |  Q      |   V     |         |
   2+30       0.3629      4.91  |         |         Q|      V  |         |
   2+35       0.4028      5.79  |         |          |  Q      V         |
   2+40       0.4446      6.07  |         |          |   Q     |  V      |
   2+45       0.4759      4.54  |         |       Q  |         |     V   |
   2+50       0.4940      2.63  |         Q          |         |      V  |
   2+55       0.5074      1.95  |      Q  |          |         |       V |
   3+ 0       0.5176      1.48  |    Q    |          |         |        V|
   3+ 5       0.5230      0.79  |  Q      |          |         |        V|
   3+10       0.5254      0.34  |Q        |          |         |        V|
   3+15       0.5264      0.15  Q         |          |         |        V|
   3+20       0.5269      0.07  Q         |          |         |        V|
   3+25       0.5271      0.03  Q         |          |         |        V|
   3+30       0.5272      0.01  Q         |          |         |        V|
   3+35       0.5272      0.00  Q         |          |         |         V
------------------------------------------------------------------------
```

SECTION 6.5.2

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**10-YEAR**
DURATION:	**6-HOUR**
INTERVAL:	**5-MINUTE**

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 09/12/23 File: 1804PUH10Y6H5M610.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 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]
5.64	1.05	5.92

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	3.28	18.50

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.050(In)
Area Averaged 100-Year Rainfall = 3.280(In)

Point rain (area averaged) = 1.967(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.967(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

 Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	32.0	0.742	0.780	0.221	1.000	0.221
					Sum (F) =	0.221

Area averaged mean soil loss (F) (In/Hr) = 0.221
Minimum soil loss rate ((In/Hr)) = 0.111

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

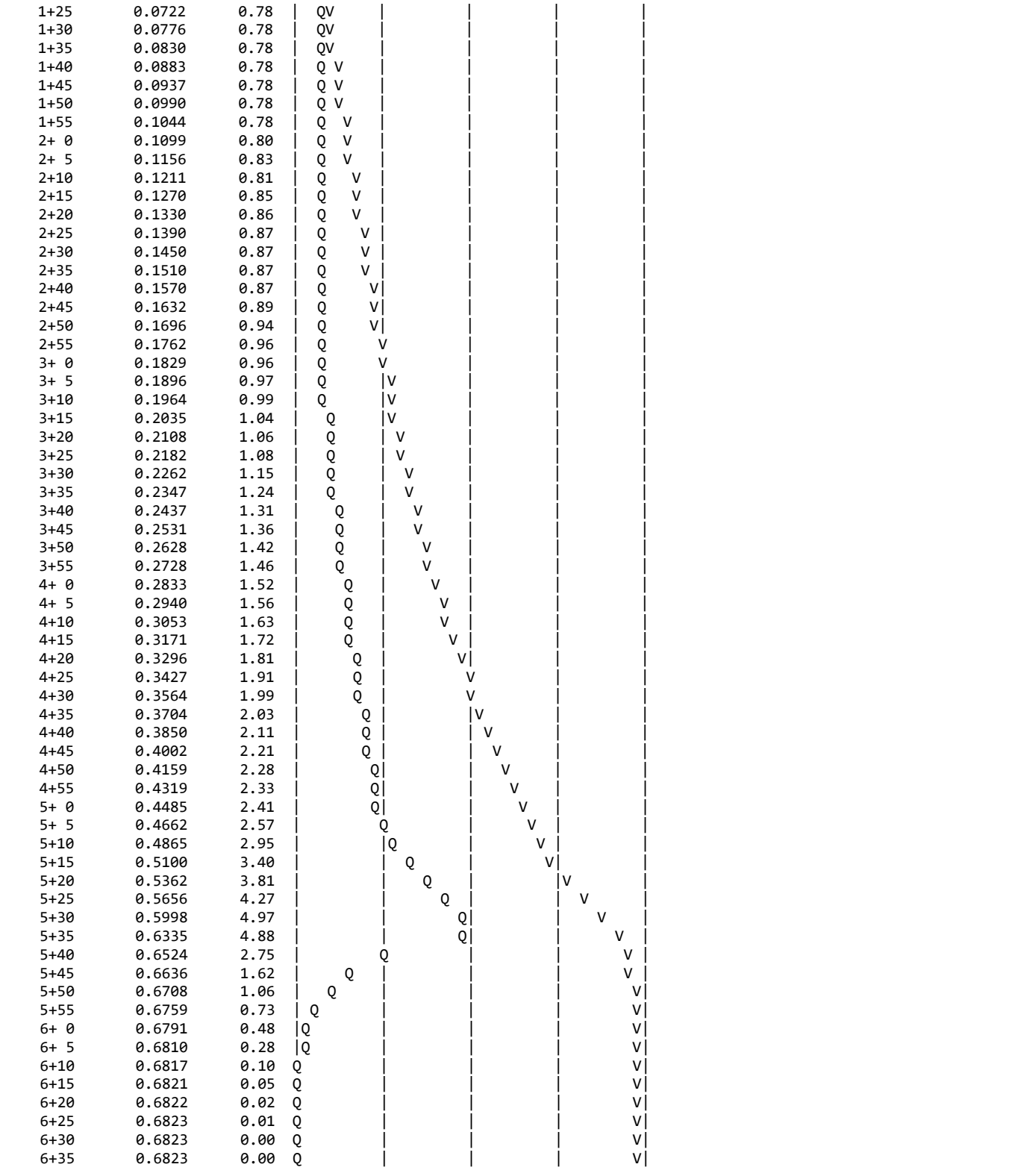
Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.838	19.448	1.105
2	0.167	213.675	50.246	2.856
3	0.250	320.513	15.964	0.907
4	0.333	427.350	6.971	0.396
5	0.417	534.188	3.708	0.211
6	0.500	641.026	1.845	0.105
7	0.583	747.863	1.189	0.068
8	0.667	854.701	0.628	0.036
			Sum = 100.000	Sum= 5.684

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	0.118	(0.221)	0.033	0.085
2	0.17	0.60	0.142	(0.221)	0.039	0.103
3	0.25	0.60	0.142	(0.221)	0.039	0.103
4	0.33	0.60	0.142	(0.221)	0.039	0.103
5	0.42	0.60	0.142	(0.221)	0.039	0.103
6	0.50	0.70	0.165	(0.221)	0.046	0.120
7	0.58	0.70	0.165	(0.221)	0.046	0.120
8	0.67	0.70	0.165	(0.221)	0.046	0.120
9	0.75	0.70	0.165	(0.221)	0.046	0.120
10	0.83	0.70	0.165	(0.221)	0.046	0.120
11	0.92	0.70	0.165	(0.221)	0.046	0.120
12	1.00	0.80	0.189	(0.221)	0.052	0.137
13	1.08	0.80	0.189	(0.221)	0.052	0.137
14	1.17	0.80	0.189	(0.221)	0.052	0.137
15	1.25	0.80	0.189	(0.221)	0.052	0.137
16	1.33	0.80	0.189	(0.221)	0.052	0.137
17	1.42	0.80	0.189	(0.221)	0.052	0.137
18	1.50	0.80	0.189	(0.221)	0.052	0.137
19	1.58	0.80	0.189	(0.221)	0.052	0.137
20	1.67	0.80	0.189	(0.221)	0.052	0.137
21	1.75	0.80	0.189	(0.221)	0.052	0.137
22	1.83	0.80	0.189	(0.221)	0.052	0.137
23	1.92	0.80	0.189	(0.221)	0.052	0.137
24	2.00	0.90	0.212	(0.221)	0.059	0.154
25	2.08	0.80	0.189	(0.221)	0.052	0.137
26	2.17	0.90	0.212	(0.221)	0.059	0.154
27	2.25	0.90	0.212	(0.221)	0.059	0.154
28	2.33	0.90	0.212	(0.221)	0.059	0.154
29	2.42	0.90	0.212	(0.221)	0.059	0.154
30	2.50	0.90	0.212	(0.221)	0.059	0.154
31	2.58	0.90	0.212	(0.221)	0.059	0.154
32	2.67	0.90	0.212	(0.221)	0.059	0.154
33	2.75	1.00	0.236	(0.221)	0.065	0.171
34	2.83	1.00	0.236	(0.221)	0.065	0.171
35	2.92	1.00	0.236	(0.221)	0.065	0.171
36	3.00	1.00	0.236	(0.221)	0.065	0.171
37	3.08	1.00	0.236	(0.221)	0.065	0.171
38	3.17	1.10	0.260	(0.221)	0.072	0.188
39	3.25	1.10	0.260	(0.221)	0.072	0.188
40	3.33	1.10	0.260	(0.221)	0.072	0.188

```
41   3.42     1.20      0.283       (  0.221)       0.078        0.205
42   3.50     1.30      0.307       (  0.221)       0.085        0.222
43   3.58     1.40      0.331       (  0.221)       0.091        0.239
44   3.67     1.40      0.331       (  0.221)       0.091        0.239
45   3.75     1.50      0.354       (  0.221)       0.098        0.256
46   3.83     1.50      0.354       (  0.221)       0.098        0.256
47   3.92     1.60      0.378       (  0.221)       0.104        0.273
48   4.00     1.60      0.378       (  0.221)       0.104        0.273
49   4.08     1.70      0.401       (  0.221)       0.111        0.291
50   4.17     1.80      0.425       (  0.221)       0.117        0.308
51   4.25     1.90      0.449       (  0.221)       0.124        0.325
52   4.33     2.00      0.472       (  0.221)       0.130        0.342
53   4.42     2.10      0.496       (  0.221)       0.137        0.359
54   4.50     2.10      0.496       (  0.221)       0.137        0.359
55   4.58     2.20      0.519       (  0.221)       0.143        0.376
56   4.67     2.30      0.543       (  0.221)       0.150        0.393
57   4.75     2.40      0.567       (  0.221)       0.156        0.410
58   4.83     2.40      0.567       (  0.221)       0.156        0.410
59   4.92     2.50      0.590       (  0.221)       0.163        0.427
60   5.00     2.60      0.614       (  0.221)       0.169        0.444
61   5.08     3.10      0.732       (  0.221)       0.202        0.530
62   5.17     3.60      0.850          0.221    (  0.235)       0.629
63   5.25     3.90      0.921          0.221    (  0.254)       0.700
64   5.33     4.20      0.992          0.221    (  0.274)       0.770
65   5.42     4.70      1.110          0.221    (  0.306)       0.888
66   5.50     5.60      1.322          0.221    (  0.365)       1.101
67   5.58     1.90      0.449       (  0.221)       0.124        0.325
68   5.67     0.90      0.212       (  0.221)       0.059        0.154
69   5.75     0.60      0.142       (  0.221)       0.039        0.103
70   5.83     0.50      0.118       (  0.221)       0.033        0.085
71   5.92     0.30      0.071       (  0.221)       0.020        0.051
72   6.00     0.20      0.047       (  0.221)       0.013        0.034
             (Loss Rate Not Used)
   Sum =     100.0                                  Sum =    17.4
      Flood volume = Effective rainfall      1.45(In)
       times area       5.6(Ac.)/[(In)/(Ft.)] =       0.7(Ac.Ft)
      Total soil loss =      0.52(In)
      Total soil loss =     0.242(Ac.Ft)
      Total rainfall =      1.97(In)
      Flood volume =       29721.5 Cubic Feet
      Total soil loss =       10557.5 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      4.967(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       0.0007      0.09  Q         |         |         |         |
  0+10       0.0031      0.36  VQ        |         |         |         |
  0+15       0.0064      0.48  VQ        |         |         |         |
  0+20       0.0101      0.53  V Q       |         |         |         |
  0+25       0.0140      0.56  V Q       |         |         |         |
  0+30       0.0180      0.59  |VQ       |         |         |         |
  0+35       0.0225      0.65  |VQ       |         |         |         |
  0+40       0.0271      0.67  |VQ       |         |         |         |
  0+45       0.0317      0.67  |VQ       |         |         |         |
  0+50       0.0364      0.68  | Q       |         |         |         |
  0+55       0.0410      0.68  | Q       |         |         |         |
  1+ 0       0.0458      0.70  | Q       |         |         |         |
  1+ 5       0.0510      0.75  | Q       |         |         |         |
  1+10       0.0563      0.76  |  Q      |         |         |         |
  1+15       0.0616      0.77  |  Q      |         |         |         |
  1+20       0.0669      0.77  |  Q      |         |         |         |
```



SECTION 6.5.3

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**10-YEAR**
DURATION:	**24-HOUR**
INTERVAL:	**5-MINUTE**

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 09/12/23 File: 1804PUH10Y24H5M2410.out

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

Program License Serial Number 6293

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

English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 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]
5.64	1.64	9.25

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	5.27	29.72

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.640(In)
Area Averaged 100-Year Rainfall = 5.270(In)

Point rain (area averaged) = 3.133(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.133(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	32.0	0.742	0.780	0.221	1.000	0.221
					Sum (F) =	0.221

Area averaged mean soil loss (F) (In/Hr) = 0.221
Minimum soil loss rate ((In/Hr)) = 0.111

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.838	19.448	1.105
2	0.167	213.675	50.246	2.856
3	0.250	320.513	15.964	0.907
4	0.333	427.350	6.971	0.396
5	0.417	534.188	3.708	0.211
6	0.500	641.026	1.845	0.105
7	0.583	747.863	1.189	0.068
8	0.667	854.701	0.628	0.036
			Sum = 100.000	Sum= 5.684

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	0.025	(0.392)	0.007	0.018
2	0.17	0.07	0.025	(0.390)	0.007	0.018
3	0.25	0.07	0.025	(0.389)	0.007	0.018
4	0.33	0.10	0.038	(0.387)	0.010	0.027
5	0.42	0.10	0.038	(0.386)	0.010	0.027
6	0.50	0.10	0.038	(0.384)	0.010	0.027
7	0.58	0.10	0.038	(0.383)	0.010	0.027
8	0.67	0.10	0.038	(0.381)	0.010	0.027
9	0.75	0.10	0.038	(0.380)	0.010	0.027
10	0.83	0.13	0.050	(0.378)	0.014	0.036
11	0.92	0.13	0.050	(0.377)	0.014	0.036
12	1.00	0.13	0.050	(0.375)	0.014	0.036
13	1.08	0.10	0.038	(0.374)	0.010	0.027
14	1.17	0.10	0.038	(0.373)	0.010	0.027
15	1.25	0.10	0.038	(0.371)	0.010	0.027
16	1.33	0.10	0.038	(0.370)	0.010	0.027
17	1.42	0.10	0.038	(0.368)	0.010	0.027
18	1.50	0.10	0.038	(0.367)	0.010	0.027
19	1.58	0.10	0.038	(0.365)	0.010	0.027
20	1.67	0.10	0.038	(0.364)	0.010	0.027
21	1.75	0.10	0.038	(0.362)	0.010	0.027
22	1.83	0.13	0.050	(0.361)	0.014	0.036
23	1.92	0.13	0.050	(0.359)	0.014	0.036
24	2.00	0.13	0.050	(0.358)	0.014	0.036
25	2.08	0.13	0.050	(0.356)	0.014	0.036
26	2.17	0.13	0.050	(0.355)	0.014	0.036
27	2.25	0.13	0.050	(0.354)	0.014	0.036
28	2.33	0.13	0.050	(0.352)	0.014	0.036
29	2.42	0.13	0.050	(0.351)	0.014	0.036
30	2.50	0.13	0.050	(0.349)	0.014	0.036
31	2.58	0.17	0.063	(0.348)	0.017	0.045
32	2.67	0.17	0.063	(0.346)	0.017	0.045
33	2.75	0.17	0.063	(0.345)	0.017	0.045
34	2.83	0.17	0.063	(0.344)	0.017	0.045
35	2.92	0.17	0.063	(0.342)	0.017	0.045
36	3.00	0.17	0.063	(0.341)	0.017	0.045
37	3.08	0.17	0.063	(0.339)	0.017	0.045
38	3.17	0.17	0.063	(0.338)	0.017	0.045
39	3.25	0.17	0.063	(0.336)	0.017	0.045
40	3.33	0.17	0.063	(0.335)	0.017	0.045

41	3.42	0.17	0.063	(0.334)	0.017	0.045
42	3.50	0.17	0.063	(0.332)	0.017	0.045
43	3.58	0.17	0.063	(0.331)	0.017	0.045
44	3.67	0.17	0.063	(0.329)	0.017	0.045
45	3.75	0.17	0.063	(0.328)	0.017	0.045
46	3.83	0.20	0.075	(0.327)	0.021	0.054
47	3.92	0.20	0.075	(0.325)	0.021	0.054
48	4.00	0.20	0.075	(0.324)	0.021	0.054
49	4.08	0.20	0.075	(0.323)	0.021	0.054
50	4.17	0.20	0.075	(0.321)	0.021	0.054
51	4.25	0.20	0.075	(0.320)	0.021	0.054
52	4.33	0.23	0.088	(0.318)	0.024	0.064
53	4.42	0.23	0.088	(0.317)	0.024	0.064
54	4.50	0.23	0.088	(0.316)	0.024	0.064
55	4.58	0.23	0.088	(0.314)	0.024	0.064
56	4.67	0.23	0.088	(0.313)	0.024	0.064
57	4.75	0.23	0.088	(0.312)	0.024	0.064
58	4.83	0.27	0.100	(0.310)	0.028	0.073
59	4.92	0.27	0.100	(0.309)	0.028	0.073
60	5.00	0.27	0.100	(0.308)	0.028	0.073
61	5.08	0.20	0.075	(0.306)	0.021	0.054
62	5.17	0.20	0.075	(0.305)	0.021	0.054
63	5.25	0.20	0.075	(0.304)	0.021	0.054
64	5.33	0.23	0.088	(0.302)	0.024	0.064
65	5.42	0.23	0.088	(0.301)	0.024	0.064
66	5.50	0.23	0.088	(0.300)	0.024	0.064
67	5.58	0.27	0.100	(0.298)	0.028	0.073
68	5.67	0.27	0.100	(0.297)	0.028	0.073
69	5.75	0.27	0.100	(0.296)	0.028	0.073
70	5.83	0.27	0.100	(0.294)	0.028	0.073
71	5.92	0.27	0.100	(0.293)	0.028	0.073
72	6.00	0.27	0.100	(0.292)	0.028	0.073
73	6.08	0.30	0.113	(0.291)	0.031	0.082
74	6.17	0.30	0.113	(0.289)	0.031	0.082
75	6.25	0.30	0.113	(0.288)	0.031	0.082
76	6.33	0.30	0.113	(0.287)	0.031	0.082
77	6.42	0.30	0.113	(0.285)	0.031	0.082
78	6.50	0.30	0.113	(0.284)	0.031	0.082
79	6.58	0.33	0.125	(0.283)	0.035	0.091
80	6.67	0.33	0.125	(0.282)	0.035	0.091
81	6.75	0.33	0.125	(0.280)	0.035	0.091
82	6.83	0.33	0.125	(0.279)	0.035	0.091
83	6.92	0.33	0.125	(0.278)	0.035	0.091
84	7.00	0.33	0.125	(0.277)	0.035	0.091
85	7.08	0.33	0.125	(0.275)	0.035	0.091
86	7.17	0.33	0.125	(0.274)	0.035	0.091
87	7.25	0.33	0.125	(0.273)	0.035	0.091
88	7.33	0.37	0.138	(0.272)	0.038	0.100
89	7.42	0.37	0.138	(0.270)	0.038	0.100
90	7.50	0.37	0.138	(0.269)	0.038	0.100
91	7.58	0.40	0.150	(0.268)	0.042	0.109
92	7.67	0.40	0.150	(0.267)	0.042	0.109
93	7.75	0.40	0.150	(0.265)	0.042	0.109
94	7.83	0.43	0.163	(0.264)	0.045	0.118
95	7.92	0.43	0.163	(0.263)	0.045	0.118
96	8.00	0.43	0.163	(0.262)	0.045	0.118
97	8.08	0.50	0.188	(0.260)	0.052	0.136
98	8.17	0.50	0.188	(0.259)	0.052	0.136
99	8.25	0.50	0.188	(0.258)	0.052	0.136
100	8.33	0.50	0.188	(0.257)	0.052	0.136
101	8.42	0.50	0.188	(0.256)	0.052	0.136
102	8.50	0.50	0.188	(0.254)	0.052	0.136
103	8.58	0.53	0.201	(0.253)	0.055	0.145
104	8.67	0.53	0.201	(0.252)	0.055	0.145
105	8.75	0.53	0.201	(0.251)	0.055	0.145
106	8.83	0.57	0.213	(0.250)	0.059	0.154
107	8.92	0.57	0.213	(0.249)	0.059	0.154
108	9.00	0.57	0.213	(0.247)	0.059	0.154
109	9.08	0.63	0.238	(0.246)	0.066	0.172

110	9.17	0.63	0.238	(0.245)	0.066	0.172
111	9.25	0.63	0.238	(0.244)	0.066	0.172
112	9.33	0.67	0.251	(0.243)	0.069	0.181
113	9.42	0.67	0.251	(0.242)	0.069	0.181
114	9.50	0.67	0.251	(0.240)	0.069	0.181
115	9.58	0.70	0.263	(0.239)	0.073	0.191
116	9.67	0.70	0.263	(0.238)	0.073	0.191
117	9.75	0.70	0.263	(0.237)	0.073	0.191
118	9.83	0.73	0.276	(0.236)	0.076	0.200
119	9.92	0.73	0.276	(0.235)	0.076	0.200
120	10.00	0.73	0.276	(0.233)	0.076	0.200
121	10.08	0.50	0.188	(0.232)	0.052	0.136
122	10.17	0.50	0.188	(0.231)	0.052	0.136
123	10.25	0.50	0.188	(0.230)	0.052	0.136
124	10.33	0.50	0.188	(0.229)	0.052	0.136
125	10.42	0.50	0.188	(0.228)	0.052	0.136
126	10.50	0.50	0.188	(0.227)	0.052	0.136
127	10.58	0.67	0.251	(0.226)	0.069	0.181
128	10.67	0.67	0.251	(0.225)	0.069	0.181
129	10.75	0.67	0.251	(0.223)	0.069	0.181
130	10.83	0.67	0.251	(0.222)	0.069	0.181
131	10.92	0.67	0.251	(0.221)	0.069	0.181
132	11.00	0.67	0.251	(0.220)	0.069	0.181
133	11.08	0.63	0.238	(0.219)	0.066	0.172
134	11.17	0.63	0.238	(0.218)	0.066	0.172
135	11.25	0.63	0.238	(0.217)	0.066	0.172
136	11.33	0.63	0.238	(0.216)	0.066	0.172
137	11.42	0.63	0.238	(0.215)	0.066	0.172
138	11.50	0.63	0.238	(0.214)	0.066	0.172
139	11.58	0.57	0.213	(0.213)	0.059	0.154
140	11.67	0.57	0.213	(0.212)	0.059	0.154
141	11.75	0.57	0.213	(0.211)	0.059	0.154
142	11.83	0.60	0.226	(0.210)	0.062	0.163
143	11.92	0.60	0.226	(0.208)	0.062	0.163
144	12.00	0.60	0.226	(0.207)	0.062	0.163
145	12.08	0.83	0.313	(0.206)	0.086	0.227
146	12.17	0.83	0.313	(0.205)	0.086	0.227
147	12.25	0.83	0.313	(0.204)	0.086	0.227
148	12.33	0.87	0.326	(0.203)	0.090	0.236
149	12.42	0.87	0.326	(0.202)	0.090	0.236
150	12.50	0.87	0.326	(0.201)	0.090	0.236
151	12.58	0.93	0.351	(0.200)	0.097	0.254
152	12.67	0.93	0.351	(0.199)	0.097	0.254
153	12.75	0.93	0.351	(0.198)	0.097	0.254
154	12.83	0.97	0.363	(0.197)	0.100	0.263
155	12.92	0.97	0.363	(0.196)	0.100	0.263
156	13.00	0.97	0.363	(0.195)	0.100	0.263
157	13.08	1.13	0.426	(0.194)	0.118	0.309
158	13.17	1.13	0.426	(0.193)	0.118	0.309
159	13.25	1.13	0.426	(0.192)	0.118	0.309
160	13.33	1.13	0.426	(0.191)	0.118	0.309
161	13.42	1.13	0.426	(0.190)	0.118	0.309
162	13.50	1.13	0.426	(0.189)	0.118	0.309
163	13.58	0.77	0.288	(0.188)	0.080	0.209
164	13.67	0.77	0.288	(0.187)	0.080	0.209
165	13.75	0.77	0.288	(0.187)	0.080	0.209
166	13.83	0.77	0.288	(0.186)	0.080	0.209
167	13.92	0.77	0.288	(0.185)	0.080	0.209
168	14.00	0.77	0.288	(0.184)	0.080	0.209
169	14.08	0.90	0.338	(0.183)	0.093	0.245
170	14.17	0.90	0.338	(0.182)	0.093	0.245
171	14.25	0.90	0.338	(0.181)	0.093	0.245
172	14.33	0.87	0.326	(0.180)	0.090	0.236
173	14.42	0.87	0.326	(0.179)	0.090	0.236
174	14.50	0.87	0.326	(0.178)	0.090	0.236
175	14.58	0.87	0.326	(0.177)	0.090	0.236
176	14.67	0.87	0.326	(0.176)	0.090	0.236
177	14.75	0.87	0.326	(0.175)	0.090	0.236
178	14.83	0.83	0.313	(0.174)	0.086	0.227

179	14.92	0.83	0.313	(0.174)	0.086	0.227
180	15.00	0.83	0.313	(0.173)	0.086	0.227
181	15.08	0.80	0.301	(0.172)	0.083	0.218
182	15.17	0.80	0.301	(0.171)	0.083	0.218
183	15.25	0.80	0.301	(0.170)	0.083	0.218
184	15.33	0.77	0.288	(0.169)	0.080	0.209
185	15.42	0.77	0.288	(0.168)	0.080	0.209
186	15.50	0.77	0.288	(0.167)	0.080	0.209
187	15.58	0.63	0.238	(0.167)	0.066	0.172
188	15.67	0.63	0.238	(0.166)	0.066	0.172
189	15.75	0.63	0.238	(0.165)	0.066	0.172
190	15.83	0.63	0.238	(0.164)	0.066	0.172
191	15.92	0.63	0.238	(0.163)	0.066	0.172
192	16.00	0.63	0.238	(0.162)	0.066	0.172
193	16.08	0.13	0.050	(0.162)	0.014	0.036
194	16.17	0.13	0.050	(0.161)	0.014	0.036
195	16.25	0.13	0.050	(0.160)	0.014	0.036
196	16.33	0.13	0.050	(0.159)	0.014	0.036
197	16.42	0.13	0.050	(0.158)	0.014	0.036
198	16.50	0.13	0.050	(0.157)	0.014	0.036
199	16.58	0.10	0.038	(0.157)	0.010	0.027
200	16.67	0.10	0.038	(0.156)	0.010	0.027
201	16.75	0.10	0.038	(0.155)	0.010	0.027
202	16.83	0.10	0.038	(0.154)	0.010	0.027
203	16.92	0.10	0.038	(0.154)	0.010	0.027
204	17.00	0.10	0.038	(0.153)	0.010	0.027
205	17.08	0.17	0.063	(0.152)	0.017	0.045
206	17.17	0.17	0.063	(0.151)	0.017	0.045
207	17.25	0.17	0.063	(0.150)	0.017	0.045
208	17.33	0.17	0.063	(0.150)	0.017	0.045
209	17.42	0.17	0.063	(0.149)	0.017	0.045
210	17.50	0.17	0.063	(0.148)	0.017	0.045
211	17.58	0.17	0.063	(0.147)	0.017	0.045
212	17.67	0.17	0.063	(0.147)	0.017	0.045
213	17.75	0.17	0.063	(0.146)	0.017	0.045
214	17.83	0.13	0.050	(0.145)	0.014	0.036
215	17.92	0.13	0.050	(0.145)	0.014	0.036
216	18.00	0.13	0.050	(0.144)	0.014	0.036
217	18.08	0.13	0.050	(0.143)	0.014	0.036
218	18.17	0.13	0.050	(0.142)	0.014	0.036
219	18.25	0.13	0.050	(0.142)	0.014	0.036
220	18.33	0.13	0.050	(0.141)	0.014	0.036
221	18.42	0.13	0.050	(0.140)	0.014	0.036
222	18.50	0.13	0.050	(0.140)	0.014	0.036
223	18.58	0.10	0.038	(0.139)	0.010	0.027
224	18.67	0.10	0.038	(0.138)	0.010	0.027
225	18.75	0.10	0.038	(0.138)	0.010	0.027
226	18.83	0.07	0.025	(0.137)	0.007	0.018
227	18.92	0.07	0.025	(0.136)	0.007	0.018
228	19.00	0.07	0.025	(0.136)	0.007	0.018
229	19.08	0.10	0.038	(0.135)	0.010	0.027
230	19.17	0.10	0.038	(0.134)	0.010	0.027
231	19.25	0.10	0.038	(0.134)	0.010	0.027
232	19.33	0.13	0.050	(0.133)	0.014	0.036
233	19.42	0.13	0.050	(0.133)	0.014	0.036
234	19.50	0.13	0.050	(0.132)	0.014	0.036
235	19.58	0.10	0.038	(0.131)	0.010	0.027
236	19.67	0.10	0.038	(0.131)	0.010	0.027
237	19.75	0.10	0.038	(0.130)	0.010	0.027
238	19.83	0.07	0.025	(0.130)	0.007	0.018
239	19.92	0.07	0.025	(0.129)	0.007	0.018
240	20.00	0.07	0.025	(0.128)	0.007	0.018
241	20.08	0.10	0.038	(0.128)	0.010	0.027
242	20.17	0.10	0.038	(0.127)	0.010	0.027
243	20.25	0.10	0.038	(0.127)	0.010	0.027
244	20.33	0.10	0.038	(0.126)	0.010	0.027
245	20.42	0.10	0.038	(0.126)	0.010	0.027
246	20.50	0.10	0.038	(0.125)	0.010	0.027
247	20.58	0.10	0.038	(0.125)	0.010	0.027

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248  20.67     0.10      0.038       (  0.124)       0.010        0.027
249  20.75     0.10      0.038       (  0.124)       0.010        0.027
250  20.83     0.07      0.025       (  0.123)       0.007        0.018
251  20.92     0.07      0.025       (  0.123)       0.007        0.018
252  21.00     0.07      0.025       (  0.122)       0.007        0.018
253  21.08     0.10      0.038       (  0.122)       0.010        0.027
254  21.17     0.10      0.038       (  0.121)       0.010        0.027
255  21.25     0.10      0.038       (  0.121)       0.010        0.027
256  21.33     0.07      0.025       (  0.120)       0.007        0.018
257  21.42     0.07      0.025       (  0.120)       0.007        0.018
258  21.50     0.07      0.025       (  0.119)       0.007        0.018
259  21.58     0.10      0.038       (  0.119)       0.010        0.027
260  21.67     0.10      0.038       (  0.118)       0.010        0.027
261  21.75     0.10      0.038       (  0.118)       0.010        0.027
262  21.83     0.07      0.025       (  0.118)       0.007        0.018
263  21.92     0.07      0.025       (  0.117)       0.007        0.018
264  22.00     0.07      0.025       (  0.117)       0.007        0.018
265  22.08     0.10      0.038       (  0.116)       0.010        0.027
266  22.17     0.10      0.038       (  0.116)       0.010        0.027
267  22.25     0.10      0.038       (  0.116)       0.010        0.027
268  22.33     0.07      0.025       (  0.115)       0.007        0.018
269  22.42     0.07      0.025       (  0.115)       0.007        0.018
270  22.50     0.07      0.025       (  0.115)       0.007        0.018
271  22.58     0.07      0.025       (  0.114)       0.007        0.018
272  22.67     0.07      0.025       (  0.114)       0.007        0.018
273  22.75     0.07      0.025       (  0.114)       0.007        0.018
274  22.83     0.07      0.025       (  0.113)       0.007        0.018
275  22.92     0.07      0.025       (  0.113)       0.007        0.018
276  23.00     0.07      0.025       (  0.113)       0.007        0.018
277  23.08     0.07      0.025       (  0.112)       0.007        0.018
278  23.17     0.07      0.025       (  0.112)       0.007        0.018
279  23.25     0.07      0.025       (  0.112)       0.007        0.018
280  23.33     0.07      0.025       (  0.112)       0.007        0.018
281  23.42     0.07      0.025       (  0.112)       0.007        0.018
282  23.50     0.07      0.025       (  0.111)       0.007        0.018
283  23.58     0.07      0.025       (  0.111)       0.007        0.018
284  23.67     0.07      0.025       (  0.111)       0.007        0.018
285  23.75     0.07      0.025       (  0.111)       0.007        0.018
286  23.83     0.07      0.025       (  0.111)       0.007        0.018
287  23.92     0.07      0.025       (  0.111)       0.007        0.018
288  24.00     0.07      0.025       (  0.111)       0.007        0.018
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    27.2
       Flood volume = Effective rainfall      2.27(In)
        times area       5.6(Ac.)/[(In)/(Ft.)] =       1.1(Ac.Ft)
       Total soil loss =      0.86(In)
       Total soil loss =     0.406(Ac.Ft)
       Total rainfall =      3.13(In)
       Flood volume =       46444.8 Cubic Feet
       Total soil loss =       17705.5 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      1.750(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          24 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0001      0.02  Q         |         |         |         |
   0+10       0.0006      0.07  Q         |         |         |         |
   0+15       0.0012      0.09  Q         |         |         |         |
   0+20       0.0020      0.11  Q         |         |         |         |
   0+25       0.0029      0.14  Q         |         |         |         |
   0+30       0.0039      0.15  Q         |         |         |         |
   0+35       0.0049      0.15  Q         |         |         |         |
```

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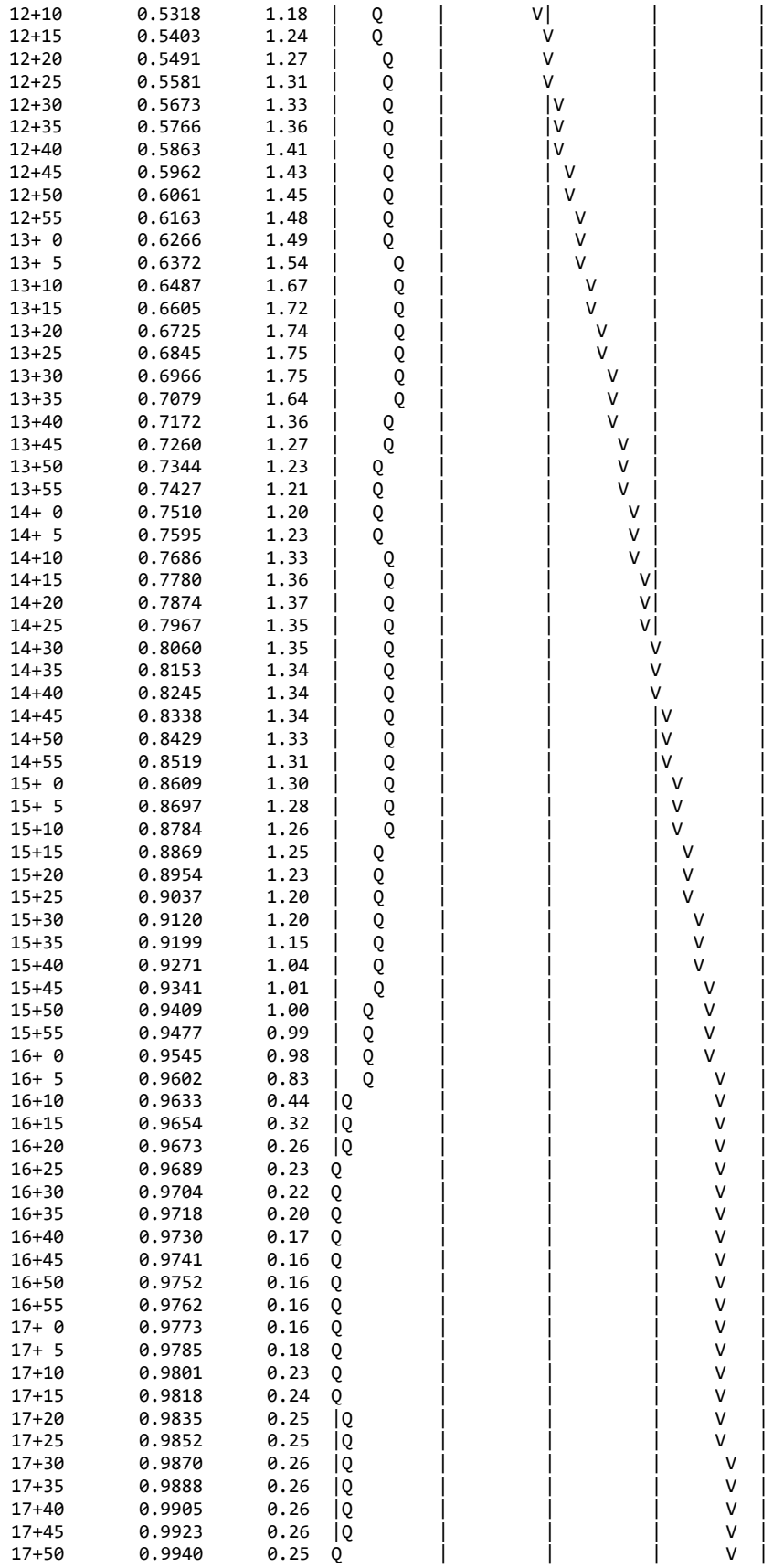
0+40       0.0060      0.15  Q         |         |         |         |
0+45       0.0071      0.15  Q         |         |         |         |
0+50       0.0082      0.16  Q         |         |         |         |
0+55       0.0095      0.19  Q         |         |         |         |
1+ 0       0.0109      0.20  Q         |         |         |         |
1+ 5       0.0122      0.19  Q         |         |         |         |
1+10       0.0134      0.17  Q         |         |         |         |
1+15       0.0145      0.16  Q         |         |         |         |
1+20       0.0156      0.16  Q         |         |         |         |
1+25       0.0166      0.16  Q         |         |         |         |
1+30       0.0177      0.16  Q         |         |         |         |
1+35       0.0188      0.16  Q         |         |         |         |
1+40       0.0198      0.15  Q         |         |         |         |
1+45       0.0209      0.15  Q         |         |         |         |
1+50       0.0220      0.16  Q         |         |         |         |
1+55       0.0234      0.19  Q         |         |         |         |
2+ 0       0.0247      0.20  Q         |         |         |         |
2+ 5       0.0261      0.20  Q         |         |         |         |
2+10       0.0275      0.20  QV        |         |         |         |
2+15       0.0290      0.21  QV        |         |         |         |
2+20       0.0304      0.21  QV        |         |         |         |
2+25       0.0318      0.21  QV        |         |         |         |
2+30       0.0332      0.21  QV        |         |         |         |
2+35       0.0347      0.22  QV        |         |         |         |
2+40       0.0364      0.24  QV        |         |         |         |
2+45       0.0381      0.25  |Q        |         |         |         |
2+50       0.0399      0.25  |Q        |         |         |         |
2+55       0.0416      0.26  |Q        |         |         |         |
3+ 0       0.0434      0.26  |Q        |         |         |         |
3+ 5       0.0452      0.26  |Q        |         |         |         |
3+10       0.0469      0.26  |Q        |         |         |         |
3+15       0.0487      0.26  |Q        |         |         |         |
3+20       0.0505      0.26  |Q        |         |         |         |
3+25       0.0523      0.26  |Q        |         |         |         |
3+30       0.0540      0.26  |QV       |         |         |         |
3+35       0.0558      0.26  |QV       |         |         |         |
3+40       0.0576      0.26  |QV       |         |         |         |
3+45       0.0594      0.26  |QV       |         |         |         |
3+50       0.0612      0.27  |QV       |         |         |         |
3+55       0.0632      0.29  |QV       |         |         |         |
4+ 0       0.0653      0.30  |QV       |         |         |         |
4+ 5       0.0674      0.31  |QV       |         |         |         |
4+10       0.0696      0.31  |QV       |         |         |         |
4+15       0.0717      0.31  |QV       |         |         |         |
4+20       0.0739      0.32  |QV       |         |         |         |
4+25       0.0763      0.35  |QV       |         |         |         |
4+30       0.0787      0.35  |QV       |         |         |         |
4+35       0.0812      0.36  |Q V      |         |         |         |
4+40       0.0836      0.36  |Q V      |         |         |         |
4+45       0.0861      0.36  |Q V      |         |         |         |
4+50       0.0887      0.37  |Q V      |         |         |         |
4+55       0.0914      0.40  |Q V      |         |         |         |
5+ 0       0.0942      0.41  |Q V      |         |         |         |
5+ 5       0.0969      0.39  |Q V      |         |         |         |
5+10       0.0992      0.34  |Q V      |         |         |         |
5+15       0.1014      0.32  |Q V      |         |         |         |
5+20       0.1037      0.33  |Q V      |         |         |         |
5+25       0.1061      0.35  |Q V      |         |         |         |
5+30       0.1085      0.36  |Q  V     |         |         |         |
5+35       0.1111      0.37  |Q  V     |         |         |         |
5+40       0.1138      0.40  |Q  V     |         |         |         |
5+45       0.1166      0.40  |Q  V     |         |         |         |
5+50       0.1194      0.41  |Q  V     |         |         |         |
5+55       0.1222      0.41  |Q  V     |         |         |         |
6+ 0       0.1251      0.41  |Q  V     |         |         |         |
6+ 5       0.1280      0.42  |Q  V     |         |         |         |
6+10       0.1311      0.45  |Q  V     |         |         |         |
6+15       0.1342      0.46  |Q   V    |         |         |         |
6+20       0.1374      0.46  |Q   V    |         |         |         |
```

```
 6+25       0.1406      0.46  |Q   V    |         |         |         |
 6+30       0.1438      0.46  |Q   V    |         |         |         |
 6+35       0.1470      0.47  |Q   V    |         |         |         |
 6+40       0.1505      0.50  | Q  V    |         |         |         |
 6+45       0.1540      0.51  | Q  V    |         |         |         |
 6+50       0.1575      0.51  | Q  V    |         |         |         |
 6+55       0.1611      0.51  | Q   V   |         |         |         |
 7+ 0       0.1646      0.52  | Q   V   |         |         |         |
 7+ 5       0.1682      0.52  | Q   V   |         |         |         |
 7+10       0.1717      0.52  | Q   V   |         |         |         |
 7+15       0.1753      0.52  | Q   V   |         |         |         |
 7+20       0.1789      0.53  | Q   V   |         |         |         |
 7+25       0.1827      0.55  | Q   V   |         |         |         |
 7+30       0.1865      0.56  | Q   V   |         |         |         |
 7+35       0.1905      0.57  | Q    V  |         |         |         |
 7+40       0.1946      0.60  | Q    V  |         |         |         |
 7+45       0.1989      0.61  | Q    V  |         |         |         |
 7+50       0.2032      0.63  | Q    V  |         |         |         |
 7+55       0.2077      0.65  | Q    V  |         |         |         |
 8+ 0       0.2122      0.66  | Q    V  |         |         |         |
 8+ 5       0.2169      0.69  | Q     V |         |         |         |
 8+10       0.2221      0.74  | Q     V |         |         |         |
 8+15       0.2273      0.76  |  Q    V |         |         |         |
 8+20       0.2326      0.77  |  Q    V |         |         |         |
 8+25       0.2379      0.77  |  Q    V |         |         |         |
 8+30       0.2432      0.77  |  Q     V|         |         |         |
 8+35       0.2486      0.78  |  Q     V|         |         |         |
 8+40       0.2541      0.81  |  Q     V|         |         |         |
 8+45       0.2598      0.82  |  Q     V|         |         |         |
 8+50       0.2655      0.83  |  Q     V|         |         |         |
 8+55       0.2714      0.86  |  Q      V         |         |         |
 9+ 0       0.2774      0.87  |  Q      V         |         |         |
 9+ 5       0.2836      0.89  |  Q      V         |         |         |
 9+10       0.2901      0.95  |  Q      V         |         |         |
 9+15       0.2967      0.96  |  Q      |V        |         |         |
 9+20       0.3035      0.98  |  Q      |V        |         |         |
 9+25       0.3105      1.01  |   Q     |V        |         |         |
 9+30       0.3175      1.02  |   Q     |V        |         |         |
 9+35       0.3247      1.04  |   Q     | V       |         |         |
 9+40       0.3320      1.07  |   Q     | V       |         |         |
 9+45       0.3394      1.08  |   Q     | V       |         |         |
 9+50       0.3469      1.09  |   Q     |  V      |         |         |
 9+55       0.3546      1.12  |   Q     |  V      |         |         |
10+ 0       0.3624      1.13  |   Q     |  V      |         |         |
10+ 5       0.3697      1.06  |   Q     |  V      |         |         |
10+10       0.3758      0.88  |  Q      |   V     |         |         |
10+15       0.3814      0.82  |  Q      |   V     |         |         |
10+20       0.3870      0.80  |  Q      |   V     |         |         |
10+25       0.3924      0.79  |  Q      |   V     |         |         |
10+30       0.3978      0.78  |  Q      |   V     |         |         |
10+35       0.4034      0.83  |  Q      |    V    |         |         |
10+40       0.4100      0.95  |  Q      |    V    |         |         |
10+45       0.4169      1.00  |  Q      |    V    |         |         |
10+50       0.4238      1.01  |   Q     |    V    |         |         |
10+55       0.4309      1.02  |   Q     |     V   |         |         |
11+ 0       0.4380      1.03  |   Q     |     V   |         |         |
11+ 5       0.4450      1.02  |   Q     |     V   |         |         |
11+10       0.4519      1.00  |  Q      |     V   |         |         |
11+15       0.4587      0.99  |  Q      |      V  |         |         |
11+20       0.4654      0.98  |  Q      |      V  |         |         |
11+25       0.4722      0.98  |  Q      |      V  |         |         |
11+30       0.4790      0.98  |  Q      |      V  |         |         |
11+35       0.4856      0.96  |  Q      |       V |         |         |
11+40       0.4918      0.91  |  Q      |       V |         |         |
11+45       0.4980      0.89  |  Q      |       V |         |         |
11+50       0.5041      0.89  |  Q      |       V |         |         |
11+55       0.5105      0.92  |  Q      |        V|         |         |
12+ 0       0.5168      0.92  |  Q      |        V|         |         |
12+ 5       0.5237      1.00  |  Q      |        V|         |         |
```



17+55	0.9956	0.22	Q	|	|	|	V |
18+ 0	0.9970	0.21	Q	|	|	|	V |
18+ 5	0.9985	0.21	Q	|	|	|	V |
18+10	0.9999	0.21	Q	|	|	|	V |
18+15	1.0013	0.21	Q	|	|	|	V |
18+20	1.0028	0.21	Q	|	|	|	V |
18+25	1.0042	0.21	Q	|	|	|	V |
18+30	1.0056	0.21	Q	|	|	|	V |
18+35	1.0070	0.20	Q	|	|	|	V |
18+40	1.0081	0.17	Q	|	|	|	V |
18+45	1.0093	0.16	Q	|	|	|	V |
18+50	1.0103	0.15	Q	|	|	|	V |
18+55	1.0111	0.12	Q	|	|	|	V |
19+ 0	1.0119	0.11	Q	|	|	|	V |
19+ 5	1.0127	0.12	Q	|	|	|	V |
19+10	1.0137	0.14	Q	|	|	|	V |
19+15	1.0147	0.15	Q	|	|	|	V |
19+20	1.0158	0.16	Q	|	|	|	V |
19+25	1.0171	0.19	Q	|	|	|	V |
19+30	1.0185	0.20	Q	|	|	|	V |
19+35	1.0198	0.19	Q	|	|	|	V |
19+40	1.0209	0.17	Q	|	|	|	V |
19+45	1.0221	0.16	Q	|	|	|	V |
19+50	1.0231	0.15	Q	|	|	|	V |
19+55	1.0239	0.12	Q	|	|	|	V |
20+ 0	1.0247	0.11	Q	|	|	|	V |
20+ 5	1.0255	0.12	Q	|	|	|	V |
20+10	1.0265	0.14	Q	|	|	|	V |
20+15	1.0275	0.15	Q	|	|	|	V |
20+20	1.0285	0.15	Q	|	|	|	V |
20+25	1.0296	0.15	Q	|	|	|	V |
20+30	1.0306	0.15	Q	|	|	|	V |
20+35	1.0317	0.15	Q	|	|	|	V |
20+40	1.0328	0.15	Q	|	|	|	V |
20+45	1.0338	0.15	Q	|	|	|	V |
20+50	1.0348	0.14	Q	|	|	|	V |
20+55	1.0356	0.12	Q	|	|	|	V |
21+ 0	1.0364	0.11	Q	|	|	|	V |
21+ 5	1.0372	0.12	Q	|	|	|	V |
21+10	1.0382	0.14	Q	|	|	|	V |
21+15	1.0392	0.15	Q	|	|	|	V |
21+20	1.0402	0.14	Q	|	|	|	V|
21+25	1.0410	0.12	Q	|	|	|	V|
21+30	1.0417	0.11	Q	|	|	|	V|
21+35	1.0425	0.12	Q	|	|	|	V|
21+40	1.0435	0.14	Q	|	|	|	V|
21+45	1.0445	0.15	Q	|	|	|	V|
21+50	1.0455	0.14	Q	|	|	|	V|
21+55	1.0463	0.12	Q	|	|	|	V|
22+ 0	1.0471	0.11	Q	|	|	|	V|
22+ 5	1.0479	0.12	Q	|	|	|	V|
22+10	1.0488	0.14	Q	|	|	|	V|
22+15	1.0499	0.15	Q	|	|	|	V|
22+20	1.0508	0.14	Q	|	|	|	V|
22+25	1.0516	0.12	Q	|	|	|	V|
22+30	1.0524	0.11	Q	|	|	|	V|
22+35	1.0531	0.11	Q	|	|	|	V|
22+40	1.0539	0.11	Q	|	|	|	V|
22+45	1.0546	0.10	Q	|	|	|	V|
22+50	1.0553	0.10	Q	|	|	|	V|
22+55	1.0560	0.10	Q	|	|	|	V|
23+ 0	1.0567	0.10	Q	|	|	|	V|
23+ 5	1.0574	0.10	Q	|	|	|	V|
23+10	1.0581	0.10	Q	|	|	|	V|
23+15	1.0588	0.10	Q	|	|	|	V|
23+20	1.0596	0.10	Q	|	|	|	V|
23+25	1.0603	0.10	Q	|	|	|	V|
23+30	1.0610	0.10	Q	|	|	|	V|
23+35	1.0617	0.10	Q	|	|	|	V|

```
   23+40       1.0624      0.10  Q        |         |         |        V|
   23+45       1.0631      0.10  Q        |         |         |        V|
   23+50       1.0638      0.10  Q        |         |         |        V|
   23+55       1.0645      0.10  Q        |         |         |        V|
   24+ 0       1.0652      0.10  Q        |         |         |        V|
   24+ 5       1.0658      0.08  Q        |         |         |        V|
   24+10       1.0660      0.03  Q        |         |         |        V|
   24+15       1.0661      0.01  Q        |         |         |        V|
   24+20       1.0662      0.01  Q        |         |         |        V|
   24+25       1.0662      0.00  Q        |         |         |        V|
   24+30       1.0662      0.00  Q        |         |         |        V|
   24+35       1.0662      0.00  Q        |         |         |         V
-------------------------------------------------------------------------
```

SECTION 6.6

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**100-YEAR**
DURATION:	**1-HOUR**
INTERVAL:	**5-MINUTE**

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 - 2012, Version 8.2
Study date 09/12/23 File: 1804PUH100Y1H5M1100.out

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

Program License Serial Number 6293

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

English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.077 Hr.
Lag time = 4.62 Min.
25% of lag time = 1.16 Min.
40% of lag time = 1.85 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]
5.64	0.50	2.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	1.74	9.81

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.740(In)

Point rain (area averaged) = 1.740(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.740(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	52.0	0.552	0.780	0.164	1.000	0.164
					Sum (F) =	0.164

Area averaged mean soil loss (F) (In/Hr) = 0.164
Minimum soil loss rate ((In/Hr)) = 0.082

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

Slope of intensity-duration curve for a 1 hour storm =0.5800

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	108.225	19.890	1.131
2 0.167	216.450	50.278	2.858
3 0.250	324.675	15.797	0.898
4 0.333	432.900	6.881	0.391
5 0.417	541.126	3.643	0.207
6 0.500	649.351	1.783	0.101
7 0.583	757.576	1.182	0.067
8 0.667	865.801	0.547	0.031
	Sum = 100.000	Sum=	5.684

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	3.60	0.752	0.164	(0.207)	0.587
2 0.17	4.20	0.877	0.164	(0.242)	0.713
3 0.25	4.40	0.919	0.164	(0.254)	0.754
4 0.33	4.60	0.960	0.164	(0.265)	0.796
5 0.42	5.00	1.044	0.164	(0.288)	0.880
6 0.50	5.60	1.169	0.164	(0.323)	1.005
7 0.58	6.40	1.336	0.164	(0.369)	1.172
8 0.67	8.10	1.691	0.164	(0.467)	1.527
9 0.75	13.10	2.735	0.164	(0.755)	2.571
10 0.83	34.50	7.203	0.164	(1.988)	7.039
11 0.92	6.70	1.399	0.164	(0.386)	1.235
12 1.00	3.80	0.793	0.164	(0.219)	0.629
(Loss Rate Not Used)					
Sum =	100.0			Sum =	18.9

Flood volume = Effective rainfall 1.58(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 0.7(Ac.Ft)
Total soil loss = 0.16(In)
Total soil loss = 0.077(Ac.Ft)
Total rainfall = 1.74(In)
Flood volume = 32256.2 Cubic Feet
Total soil loss = 3365.3 Cubic Feet

Peak flow rate of this hydrograph = 24.858(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	7.5	15.0	22.5	30.0
0+ 5	0.0046	0.66	Q				
0+10	0.0217	2.49	|V Q				
0+15	0.0452	3.42	| V Q				
0+20	0.0723	3.93	| V Q				
0+25	0.1022	4.35	| Q				

```
    0+30       0.1358      4.87  |     QV  |         |         |         |
    0+35       0.1741      5.57  |      Q V|         |         |         |
    0+40       0.2198      6.63  |       Q |V        |         |         |
    0+45       0.2822      9.06  |         | Q  V    |         |         |
    0+50       0.4028     17.52  |         |         |V Q      |         |
    0+55       0.5740     24.86  |         |         |         |V Q      |
    1+ 0       0.6573     12.10  |         |     Q   |         |    V    |
    1+ 5       0.7018      6.46  |       Q |         |         |      V  |
    1+10       0.7218      2.91  |  Q      |         |         |       V |
    1+15       0.7317      1.44  |Q        |         |         |        V|
    1+20       0.7373      0.81  |Q        |         |         |        V|
    1+25       0.7398      0.37  Q         |         |         |        V|
    1+30       0.7404      0.08  Q         |         |         |        V|
    1+35       0.7405      0.02  Q         |         |         |        V|
-------------------------------------------------------------------------
```

SECTION 6.6.1

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**100-YEAR**
DURATION:	**3-HOUR**
INTERVAL:	**5-MINUTE**

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 09/12/23 File: 1804PUH100Y3H5M3100.out

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

Program License Serial Number 6293

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

English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.077 Hr.
Lag time = 4.62 Min.
25% of lag time = 1.16 Min.
40% of lag time = 1.85 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]
5.64	0.78	4.40

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	2.50	14.10

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.781(In)
Area Averaged 100-Year Rainfall = 2.500(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 %
5.640	32.00	0.780

Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	52.0	0.552	0.780	0.164	1.000	0.164
					Sum (F) =	0.164

Area averaged mean soil loss (F) (In/Hr) = 0.164
Minimum soil loss rate ((In/Hr)) = 0.082

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	108.225	19.890	1.131
2	0.167	216.450	50.278	2.858
3	0.250	324.675	15.797	0.898
4	0.333	432.900	6.881	0.391
5	0.417	541.126	3.643	0.207
6	0.500	649.351	1.783	0.101
7	0.583	757.576	1.182	0.067
8	0.667	865.801	0.547	0.031
			Sum = 100.000	Sum= 5.684

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	0.390	(0.164)	0.108	0.282
2	0.17	1.30	0.390	(0.164)	0.108	0.282
3	0.25	1.10	0.330	(0.164)	0.091	0.239
4	0.33	1.50	0.450	(0.164)	0.124	0.326
5	0.42	1.50	0.450	(0.164)	0.124	0.326
6	0.50	1.80	0.540	(0.164)	0.149	0.391
7	0.58	1.50	0.450	(0.164)	0.124	0.326
8	0.67	1.80	0.540	(0.164)	0.149	0.391
9	0.75	1.80	0.540	(0.164)	0.149	0.391
10	0.83	1.50	0.450	(0.164)	0.124	0.326
11	0.92	1.60	0.480	(0.164)	0.132	0.348
12	1.00	1.80	0.540	(0.164)	0.149	0.391
13	1.08	2.20	0.660	0.164	(0.182)	0.496
14	1.17	2.20	0.660	0.164	(0.182)	0.496
15	1.25	2.20	0.660	0.164	(0.182)	0.496
16	1.33	2.00	0.600	0.164	(0.166)	0.436
17	1.42	2.60	0.780	0.164	(0.215)	0.616
18	1.50	2.70	0.810	0.164	(0.224)	0.646
19	1.58	2.40	0.720	0.164	(0.199)	0.556
20	1.67	2.70	0.810	0.164	(0.224)	0.646
21	1.75	3.30	0.990	0.164	(0.273)	0.826
22	1.83	3.10	0.930	0.164	(0.257)	0.766
23	1.92	2.90	0.870	0.164	(0.240)	0.706
24	2.00	3.00	0.900	0.164	(0.248)	0.736
25	2.08	3.10	0.930	0.164	(0.257)	0.766
26	2.17	4.20	1.260	0.164	(0.348)	1.096
27	2.25	5.00	1.500	0.164	(0.414)	1.336
28	2.33	3.50	1.050	0.164	(0.290)	0.886
29	2.42	6.80	2.040	0.164	(0.563)	1.876
30	2.50	7.30	2.190	0.164	(0.604)	2.026
31	2.58	8.20	2.460	0.164	(0.679)	2.296
32	2.67	5.90	1.770	0.164	(0.489)	1.606
33	2.75	2.00	0.600	0.164	(0.166)	0.436
34	2.83	1.80	0.540	(0.164)	0.149	0.391
35	2.92	1.80	0.540	(0.164)	0.149	0.391
36	3.00	0.60	0.180	(0.164)	0.050	0.130
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	24.7

Flood volume = Effective rainfall 2.06(In)
times area 5.6(Ac.)/[(In)/(Ft.)] = 1.0(Ac.Ft)

```
      Total soil loss =      0.44(In)
      Total soil loss =     0.209(Ac.Ft)
      Total rainfall =      2.50(In)
      Flood volume =       42085.8 Cubic Feet
      Total soil loss =        9095.9 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     11.350(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
 ---------------------------------------------------------------------------
   0+ 5       0.0022      0.32  Q         |         |         |         |
   0+10       0.0100      1.13  V Q       |         |         |         |
   0+15       0.0191      1.33  V Q       |         |         |         |
   0+20       0.0289      1.42  |VQ       |         |         |         |
   0+25       0.0405      1.68  |V Q      |         |         |         |
   0+30       0.0532      1.85  | VQ      |         |         |         |
   0+35       0.0670      2.00  | V Q     |         |         |         |
   0+40       0.0806      1.97  |  Q      |         |         |         |
   0+45       0.0953      2.13  |  VQ     |         |         |         |
   0+50       0.1098      2.11  |   Q     |         |         |         |
   0+55       0.1233      1.97  |  Q V    |         |         |         |
   1+ 0       0.1373      2.03  |   QV    |         |         |         |
   1+ 5       0.1530      2.27  |   Q V   |         |         |         |
   1+10       0.1709      2.61  |    Q V  |         |         |         |
   1+15       0.1897      2.72  |    Q V  |         |         |         |
   1+20       0.2083      2.70  |    Q  V |         |         |         |
   1+25       0.2272      2.76  |    Q   V|         |         |         |
   1+30       0.2497      3.27  |     Q   V         |         |         |
   1+35       0.2731      3.40  |     Q   |V        |         |         |
   1+40       0.2961      3.33  |     Q   | V       |         |         |
   1+45       0.3219      3.75  |      Q  |  V      |         |         |
   1+50       0.3513      4.26  |       Q |   V     |         |         |
   1+55       0.3803      4.22  |       Q |    V    |         |         |
   2+ 0       0.4086      4.11  |       Q |     V   |         |         |
   2+ 5       0.4375      4.20  |       Q |       V |         |         |
   2+10       0.4697      4.67  |        Q|        V|         |         |
   2+15       0.5104      5.92  |         |Q        |V        |         |
   2+20       0.5546      6.41  |         | Q       | V       |         |
   2+25       0.5999      6.59  |         |  Q      |   V     |         |
   2+30       0.6643      9.35  |         |       Q |      V  |         |
   2+35       0.7393     10.88  |         |         |Q        V         |
   2+40       0.8174     11.35  |         |         | Q       |  V      |
   2+45       0.8762      8.54  |         |      Q  |         |     V   |
   2+50       0.9089      4.74  |        Q|         |         |      V  |
   2+55       0.9324      3.41  |     Q   |         |         |       V |
   3+ 0       0.9499      2.55  |    Q    |         |         |        V|
   3+ 5       0.9592      1.35  | Q       |         |         |        V|
   3+10       0.9632      0.57  |Q        |         |         |        V|
   3+15       0.9649      0.25  Q         |         |         |        V|
   3+20       0.9656      0.11  Q         |         |         |        V|
   3+25       0.9660      0.05  Q         |         |         |        V|
   3+30       0.9661      0.02  Q         |         |         |        V|
   3+35       0.9662      0.00  Q         |         |         |         V
---------------------------------------------------------------------------
```

SECTION 6.6.2

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**100-YEAR**
DURATION:	**6-HOUR**
INTERVAL:	**5-MINUTE**

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 09/12/23 File: 1804PUH100Y6H5M6100.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.077 Hr.
Lag time = 4.62 Min.
25% of lag time = 1.16 Min.
40% of lag time = 1.85 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]
5.64	1.05	5.92

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	3.28	18.50

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.050(In)
Area Averaged 100-Year Rainfall = 3.280(In)

Point rain (area averaged) = 3.280(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.280(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

 Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	52.0	0.552	0.780	0.164	1.000	0.164
					Sum (F) =	0.164

Area averaged mean soil loss (F) (In/Hr) = 0.164
Minimum soil loss rate ((In/Hr)) = 0.082

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

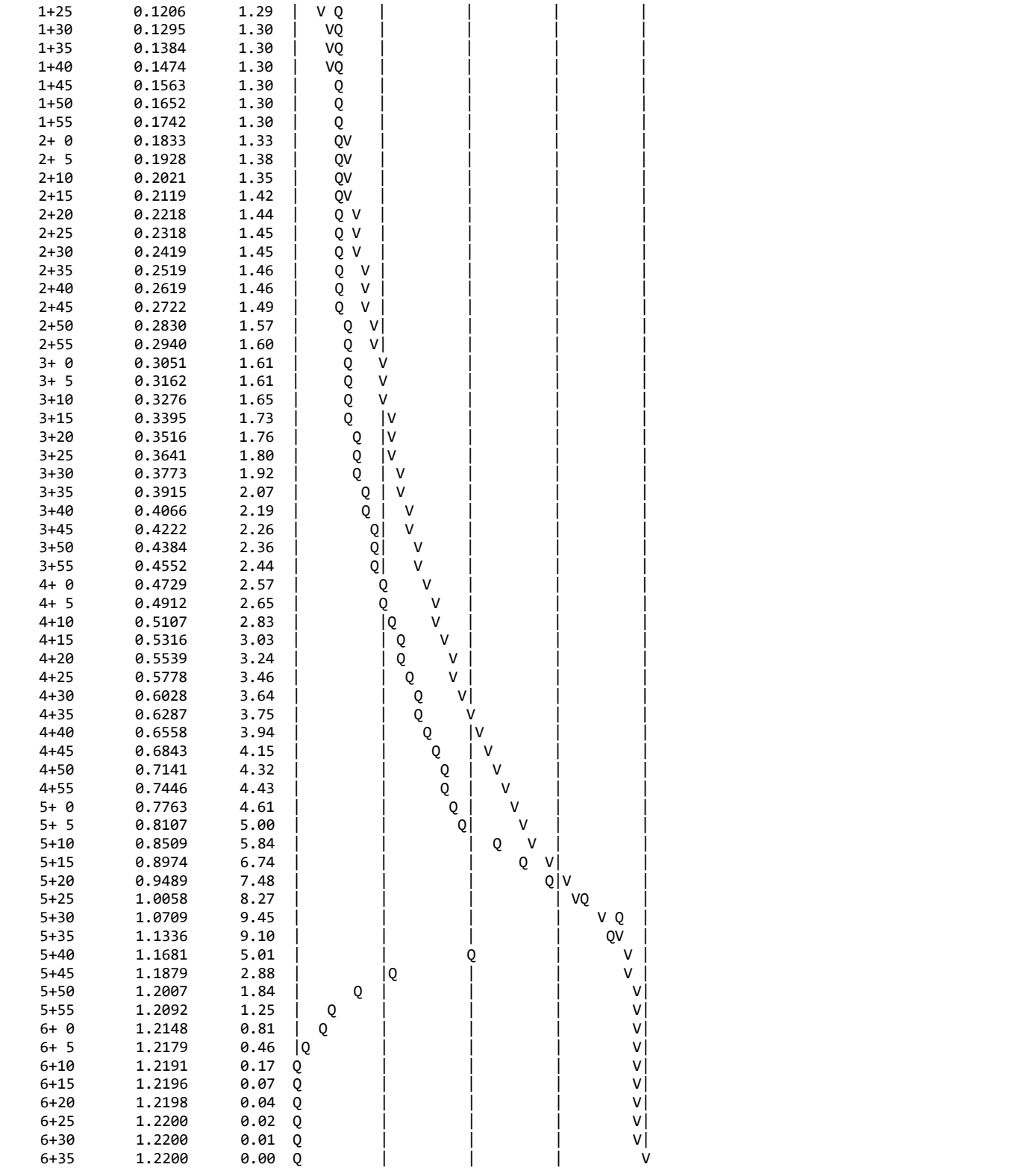
Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	108.225	19.890	1.131
2	0.167	216.450	50.278	2.858
3	0.250	324.675	15.797	0.898
4	0.333	432.900	6.881	0.391
5	0.417	541.126	3.643	0.207
6	0.500	649.351	1.783	0.101
7	0.583	757.576	1.182	0.067
8	0.667	865.801	0.547	0.031
		Sum = 100.000	Sum=	5.684

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	0.197	(0.164)	0.054	0.142
2	0.17	0.60	0.236	(0.164)	0.065	0.171
3	0.25	0.60	0.236	(0.164)	0.065	0.171
4	0.33	0.60	0.236	(0.164)	0.065	0.171
5	0.42	0.60	0.236	(0.164)	0.065	0.171
6	0.50	0.70	0.276	(0.164)	0.076	0.199
7	0.58	0.70	0.276	(0.164)	0.076	0.199
8	0.67	0.70	0.276	(0.164)	0.076	0.199
9	0.75	0.70	0.276	(0.164)	0.076	0.199
10	0.83	0.70	0.276	(0.164)	0.076	0.199
11	0.92	0.70	0.276	(0.164)	0.076	0.199
12	1.00	0.80	0.315	(0.164)	0.087	0.228
13	1.08	0.80	0.315	(0.164)	0.087	0.228
14	1.17	0.80	0.315	(0.164)	0.087	0.228
15	1.25	0.80	0.315	(0.164)	0.087	0.228
16	1.33	0.80	0.315	(0.164)	0.087	0.228
17	1.42	0.80	0.315	(0.164)	0.087	0.228
18	1.50	0.80	0.315	(0.164)	0.087	0.228
19	1.58	0.80	0.315	(0.164)	0.087	0.228
20	1.67	0.80	0.315	(0.164)	0.087	0.228
21	1.75	0.80	0.315	(0.164)	0.087	0.228
22	1.83	0.80	0.315	(0.164)	0.087	0.228
23	1.92	0.80	0.315	(0.164)	0.087	0.228
24	2.00	0.90	0.354	(0.164)	0.098	0.256
25	2.08	0.80	0.315	(0.164)	0.087	0.228
26	2.17	0.90	0.354	(0.164)	0.098	0.256
27	2.25	0.90	0.354	(0.164)	0.098	0.256
28	2.33	0.90	0.354	(0.164)	0.098	0.256
29	2.42	0.90	0.354	(0.164)	0.098	0.256
30	2.50	0.90	0.354	(0.164)	0.098	0.256
31	2.58	0.90	0.354	(0.164)	0.098	0.256
32	2.67	0.90	0.354	(0.164)	0.098	0.256
33	2.75	1.00	0.394	(0.164)	0.109	0.285
34	2.83	1.00	0.394	(0.164)	0.109	0.285
35	2.92	1.00	0.394	(0.164)	0.109	0.285
36	3.00	1.00	0.394	(0.164)	0.109	0.285
37	3.08	1.00	0.394	(0.164)	0.109	0.285
38	3.17	1.10	0.433	(0.164)	0.119	0.313
39	3.25	1.10	0.433	(0.164)	0.119	0.313
40	3.33	1.10	0.433	(0.164)	0.119	0.313

```
41   3.42     1.20      0.472       (  0.164)       0.130        0.342
42   3.50     1.30      0.512       (  0.164)       0.141        0.370
43   3.58     1.40      0.551       (  0.164)       0.152        0.399
44   3.67     1.40      0.551       (  0.164)       0.152        0.399
45   3.75     1.50      0.590       (  0.164)       0.163        0.427
46   3.83     1.50      0.590       (  0.164)       0.163        0.427
47   3.92     1.60      0.630          0.164    (  0.174)        0.465
48   4.00     1.60      0.630          0.164    (  0.174)        0.465
49   4.08     1.70      0.669          0.164    (  0.185)        0.505
50   4.17     1.80      0.708          0.164    (  0.196)        0.544
51   4.25     1.90      0.748          0.164    (  0.206)        0.583
52   4.33     2.00      0.787          0.164    (  0.217)        0.623
53   4.42     2.10      0.827          0.164    (  0.228)        0.662
54   4.50     2.10      0.827          0.164    (  0.228)        0.662
55   4.58     2.20      0.866          0.164    (  0.239)        0.702
56   4.67     2.30      0.905          0.164    (  0.250)        0.741
57   4.75     2.40      0.945          0.164    (  0.261)        0.780
58   4.83     2.40      0.945          0.164    (  0.261)        0.780
59   4.92     2.50      0.984          0.164    (  0.272)        0.820
60   5.00     2.60      1.023          0.164    (  0.282)        0.859
61   5.08     3.10      1.220          0.164    (  0.337)        1.056
62   5.17     3.60      1.417          0.164    (  0.391)        1.253
63   5.25     3.90      1.535          0.164    (  0.424)        1.371
64   5.33     4.20      1.653          0.164    (  0.456)        1.489
65   5.42     4.70      1.850          0.164    (  0.511)        1.686
66   5.50     5.60      2.204          0.164    (  0.608)        2.040
67   5.58     1.90      0.748          0.164    (  0.206)        0.583
68   5.67     0.90      0.354       (  0.164)       0.098        0.256
69   5.75     0.60      0.236       (  0.164)       0.065        0.171
70   5.83     0.50      0.197       (  0.164)       0.054        0.142
71   5.92     0.30      0.118       (  0.164)       0.033        0.085
72   6.00     0.20      0.079       (  0.164)       0.022        0.057
             (Loss Rate Not Used)
   Sum =     100.0                                  Sum =    31.1
      Flood volume = Effective rainfall      2.60(In)
       times area       5.6(Ac.)/[(In)/(Ft.)] =       1.2(Ac.Ft)
      Total soil loss =      0.68(In)
      Total soil loss =     0.322(Ac.Ft)
      Total rainfall =      3.28(In)
      Flood volume =       53143.8 Cubic Feet
      Total soil loss =       14007.0 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      9.450(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       0.0052      0.60  V Q       |         |         |         |
  0+15       0.0108      0.81  V  Q      |         |         |         |
  0+20       0.0170      0.89  V  Q      |         |         |         |
  0+25       0.0234      0.93  V  Q      |         |         |         |
  0+30       0.0302      0.98  V  Q      |         |         |         |
  0+35       0.0376      1.08  |V  Q     |         |         |         |
  0+40       0.0453      1.11  |V  Q     |         |         |         |
  0+45       0.0530      1.12  |V  Q     |         |         |         |
  0+50       0.0608      1.13  |V  Q     |         |         |         |
  0+55       0.0686      1.13  | V Q     |         |         |         |
  1+ 0       0.0766      1.17  | V Q     |         |         |         |
  1+ 5       0.0852      1.25  | V Q     |         |         |         |
  1+10       0.0939      1.27  |  V Q    |         |         |         |
  1+15       0.1028      1.28  |  V Q    |         |         |         |
  1+20       0.1117      1.29  |  V Q    |         |         |         |
```



SECTION 6.6.3

UNIT-HYDROGRAPH STUDY

CONDITION:	**PROPOSED**
FREQUENCY:	**100-YEAR**
DURATION:	**24-HOUR**
INTERVAL:	**5-MINUTE**

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 09/12/23 File: 1804PUH100Y24H5M24100.out

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

Program License Serial Number 6293

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

 English Units used in output format

Drainage Area = 5.64(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.64(Ac.) = 0.009 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.077 Hr.
Lag time = 4.62 Min.
25% of lag time = 1.16 Min.
40% of lag time = 1.85 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]
5.64	1.64	9.25

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.64	5.27	29.72

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.640(In)
Area Averaged 100-Year Rainfall = 5.270(In)

Point rain (area averaged) = 5.270(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.270(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.640	32.00	0.780

 Total Area Entered = 5.64(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
32.0	52.0	0.552	0.780	0.164	1.000	0.164
					Sum (F) =	0.164

Area averaged mean soil loss (F) (In/Hr) = 0.164
Minimum soil loss rate ((In/Hr)) = 0.082

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	108.225	19.890	1.131
2	0.167	216.450	50.278	2.858
3	0.250	324.675	15.797	0.898
4	0.333	432.900	6.881	0.391
5	0.417	541.126	3.643	0.207
6	0.500	649.351	1.783	0.101
7	0.583	757.576	1.182	0.067
8	0.667	865.801	0.547	0.031
			Sum = 100.000	Sum= 5.684

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	0.042	(0.291)	0.012	0.031
2	0.17	0.07	0.042	(0.290)	0.012	0.031
3	0.25	0.07	0.042	(0.289)	0.012	0.031
4	0.33	0.10	0.063	(0.288)	0.017	0.046
5	0.42	0.10	0.063	(0.287)	0.017	0.046
6	0.50	0.10	0.063	(0.286)	0.017	0.046
7	0.58	0.10	0.063	(0.285)	0.017	0.046
8	0.67	0.10	0.063	(0.284)	0.017	0.046
9	0.75	0.10	0.063	(0.282)	0.017	0.046
10	0.83	0.13	0.084	(0.281)	0.023	0.061
11	0.92	0.13	0.084	(0.280)	0.023	0.061
12	1.00	0.13	0.084	(0.279)	0.023	0.061
13	1.08	0.10	0.063	(0.278)	0.017	0.046
14	1.17	0.10	0.063	(0.277)	0.017	0.046
15	1.25	0.10	0.063	(0.276)	0.017	0.046
16	1.33	0.10	0.063	(0.275)	0.017	0.046
17	1.42	0.10	0.063	(0.274)	0.017	0.046
18	1.50	0.10	0.063	(0.273)	0.017	0.046
19	1.58	0.10	0.063	(0.271)	0.017	0.046
20	1.67	0.10	0.063	(0.270)	0.017	0.046
21	1.75	0.10	0.063	(0.269)	0.017	0.046
22	1.83	0.13	0.084	(0.268)	0.023	0.061
23	1.92	0.13	0.084	(0.267)	0.023	0.061
24	2.00	0.13	0.084	(0.266)	0.023	0.061
25	2.08	0.13	0.084	(0.265)	0.023	0.061
26	2.17	0.13	0.084	(0.264)	0.023	0.061
27	2.25	0.13	0.084	(0.263)	0.023	0.061
28	2.33	0.13	0.084	(0.262)	0.023	0.061
29	2.42	0.13	0.084	(0.261)	0.023	0.061
30	2.50	0.13	0.084	(0.260)	0.023	0.061
31	2.58	0.17	0.105	(0.259)	0.029	0.076
32	2.67	0.17	0.105	(0.257)	0.029	0.076
33	2.75	0.17	0.105	(0.256)	0.029	0.076
34	2.83	0.17	0.105	(0.255)	0.029	0.076
35	2.92	0.17	0.105	(0.254)	0.029	0.076
36	3.00	0.17	0.105	(0.253)	0.029	0.076
37	3.08	0.17	0.105	(0.252)	0.029	0.076
38	3.17	0.17	0.105	(0.251)	0.029	0.076
39	3.25	0.17	0.105	(0.250)	0.029	0.076
40	3.33	0.17	0.105	(0.249)	0.029	0.076

41	3.42	0.17	0.105	(0.248)	0.029	0.076
42	3.50	0.17	0.105	(0.247)	0.029	0.076
43	3.58	0.17	0.105	(0.246)	0.029	0.076
44	3.67	0.17	0.105	(0.245)	0.029	0.076
45	3.75	0.17	0.105	(0.244)	0.029	0.076
46	3.83	0.20	0.126	(0.243)	0.035	0.092
47	3.92	0.20	0.126	(0.242)	0.035	0.092
48	4.00	0.20	0.126	(0.241)	0.035	0.092
49	4.08	0.20	0.126	(0.240)	0.035	0.092
50	4.17	0.20	0.126	(0.239)	0.035	0.092
51	4.25	0.20	0.126	(0.238)	0.035	0.092
52	4.33	0.23	0.148	(0.237)	0.041	0.107
53	4.42	0.23	0.148	(0.236)	0.041	0.107
54	4.50	0.23	0.148	(0.235)	0.041	0.107
55	4.58	0.23	0.148	(0.234)	0.041	0.107
56	4.67	0.23	0.148	(0.233)	0.041	0.107
57	4.75	0.23	0.148	(0.232)	0.041	0.107
58	4.83	0.27	0.169	(0.231)	0.047	0.122
59	4.92	0.27	0.169	(0.230)	0.047	0.122
60	5.00	0.27	0.169	(0.229)	0.047	0.122
61	5.08	0.20	0.126	(0.228)	0.035	0.092
62	5.17	0.20	0.126	(0.227)	0.035	0.092
63	5.25	0.20	0.126	(0.226)	0.035	0.092
64	5.33	0.23	0.148	(0.225)	0.041	0.107
65	5.42	0.23	0.148	(0.224)	0.041	0.107
66	5.50	0.23	0.148	(0.223)	0.041	0.107
67	5.58	0.27	0.169	(0.222)	0.047	0.122
68	5.67	0.27	0.169	(0.221)	0.047	0.122
69	5.75	0.27	0.169	(0.220)	0.047	0.122
70	5.83	0.27	0.169	(0.219)	0.047	0.122
71	5.92	0.27	0.169	(0.218)	0.047	0.122
72	6.00	0.27	0.169	(0.217)	0.047	0.122
73	6.08	0.30	0.190	(0.216)	0.052	0.137
74	6.17	0.30	0.190	(0.215)	0.052	0.137
75	6.25	0.30	0.190	(0.214)	0.052	0.137
76	6.33	0.30	0.190	(0.213)	0.052	0.137
77	6.42	0.30	0.190	(0.212)	0.052	0.137
78	6.50	0.30	0.190	(0.211)	0.052	0.137
79	6.58	0.33	0.211	(0.210)	0.058	0.153
80	6.67	0.33	0.211	(0.209)	0.058	0.153
81	6.75	0.33	0.211	(0.208)	0.058	0.153
82	6.83	0.33	0.211	(0.207)	0.058	0.153
83	6.92	0.33	0.211	(0.207)	0.058	0.153
84	7.00	0.33	0.211	(0.206)	0.058	0.153
85	7.08	0.33	0.211	(0.205)	0.058	0.153
86	7.17	0.33	0.211	(0.204)	0.058	0.153
87	7.25	0.33	0.211	(0.203)	0.058	0.153
88	7.33	0.37	0.232	(0.202)	0.064	0.168
89	7.42	0.37	0.232	(0.201)	0.064	0.168
90	7.50	0.37	0.232	(0.200)	0.064	0.168
91	7.58	0.40	0.253	(0.199)	0.070	0.183
92	7.67	0.40	0.253	(0.198)	0.070	0.183
93	7.75	0.40	0.253	(0.197)	0.070	0.183
94	7.83	0.43	0.274	(0.196)	0.076	0.198
95	7.92	0.43	0.274	(0.195)	0.076	0.198
96	8.00	0.43	0.274	(0.195)	0.076	0.198
97	8.08	0.50	0.316	(0.194)	0.087	0.229
98	8.17	0.50	0.316	(0.193)	0.087	0.229
99	8.25	0.50	0.316	(0.192)	0.087	0.229
100	8.33	0.50	0.316	(0.191)	0.087	0.229
101	8.42	0.50	0.316	(0.190)	0.087	0.229
102	8.50	0.50	0.316	(0.189)	0.087	0.229
103	8.58	0.53	0.337	(0.188)	0.093	0.244
104	8.67	0.53	0.337	(0.187)	0.093	0.244
105	8.75	0.53	0.337	(0.186)	0.093	0.244
106	8.83	0.57	0.358	(0.186)	0.099	0.259
107	8.92	0.57	0.358	(0.185)	0.099	0.259
108	9.00	0.57	0.358	(0.184)	0.099	0.259
109	9.08	0.63	0.401	(0.183)	0.111	0.290

110	9.17	0.63	0.401	(0.182)	0.111	0.290
111	9.25	0.63	0.401	(0.181)	0.111	0.290
112	9.33	0.67	0.422	(0.180)	0.116	0.305
113	9.42	0.67	0.422	(0.180)	0.116	0.305
114	9.50	0.67	0.422	(0.179)	0.116	0.305
115	9.58	0.70	0.443	(0.178)	0.122	0.320
116	9.67	0.70	0.443	(0.177)	0.122	0.320
117	9.75	0.70	0.443	(0.176)	0.122	0.320
118	9.83	0.73	0.464	(0.175)	0.128	0.336
119	9.92	0.73	0.464	(0.174)	0.128	0.336
120	10.00	0.73	0.464	(0.174)	0.128	0.336
121	10.08	0.50	0.316	(0.173)	0.087	0.229
122	10.17	0.50	0.316	(0.172)	0.087	0.229
123	10.25	0.50	0.316	(0.171)	0.087	0.229
124	10.33	0.50	0.316	(0.170)	0.087	0.229
125	10.42	0.50	0.316	(0.169)	0.087	0.229
126	10.50	0.50	0.316	(0.169)	0.087	0.229
127	10.58	0.67	0.422	(0.168)	0.116	0.305
128	10.67	0.67	0.422	(0.167)	0.116	0.305
129	10.75	0.67	0.422	(0.166)	0.116	0.305
130	10.83	0.67	0.422	(0.165)	0.116	0.305
131	10.92	0.67	0.422	(0.165)	0.116	0.305
132	11.00	0.67	0.422	(0.164)	0.116	0.305
133	11.08	0.63	0.401	(0.163)	0.111	0.290
134	11.17	0.63	0.401	(0.162)	0.111	0.290
135	11.25	0.63	0.401	(0.161)	0.111	0.290
136	11.33	0.63	0.401	(0.160)	0.111	0.290
137	11.42	0.63	0.401	(0.160)	0.111	0.290
138	11.50	0.63	0.401	(0.159)	0.111	0.290
139	11.58	0.57	0.358	(0.158)	0.099	0.259
140	11.67	0.57	0.358	(0.157)	0.099	0.259
141	11.75	0.57	0.358	(0.157)	0.099	0.259
142	11.83	0.60	0.379	(0.156)	0.105	0.275
143	11.92	0.60	0.379	(0.155)	0.105	0.275
144	12.00	0.60	0.379	(0.154)	0.105	0.275
145	12.08	0.83	0.527	(0.153)	0.145	0.382
146	12.17	0.83	0.527	(0.153)	0.145	0.382
147	12.25	0.83	0.527	(0.152)	0.145	0.382
148	12.33	0.87	0.548	0.151	(0.151)	0.397
149	12.42	0.87	0.548	0.150	(0.151)	0.398
150	12.50	0.87	0.548	0.150	(0.151)	0.398
151	12.58	0.93	0.590	0.149	(0.163)	0.441
152	12.67	0.93	0.590	0.148	(0.163)	0.442
153	12.75	0.93	0.590	0.147	(0.163)	0.443
154	12.83	0.97	0.611	0.147	(0.169)	0.465
155	12.92	0.97	0.611	0.146	(0.169)	0.465
156	13.00	0.97	0.611	0.145	(0.169)	0.466
157	13.08	1.13	0.717	0.144	(0.198)	0.572
158	13.17	1.13	0.717	0.144	(0.198)	0.573
159	13.25	1.13	0.717	0.143	(0.198)	0.574
160	13.33	1.13	0.717	0.142	(0.198)	0.574
161	13.42	1.13	0.717	0.142	(0.198)	0.575
162	13.50	1.13	0.717	0.141	(0.198)	0.576
163	13.58	0.77	0.485	(0.140)	0.134	0.351
164	13.67	0.77	0.485	(0.139)	0.134	0.351
165	13.75	0.77	0.485	(0.139)	0.134	0.351
166	13.83	0.77	0.485	(0.138)	0.134	0.351
167	13.92	0.77	0.485	(0.137)	0.134	0.351
168	14.00	0.77	0.485	(0.137)	0.134	0.351
169	14.08	0.90	0.569	0.136	(0.157)	0.433
170	14.17	0.90	0.569	0.135	(0.157)	0.434
171	14.25	0.90	0.569	0.134	(0.157)	0.435
172	14.33	0.87	0.548	0.134	(0.151)	0.414
173	14.42	0.87	0.548	0.133	(0.151)	0.415
174	14.50	0.87	0.548	0.132	(0.151)	0.416
175	14.58	0.87	0.548	0.132	(0.151)	0.416
176	14.67	0.87	0.548	0.131	(0.151)	0.417
177	14.75	0.87	0.548	0.130	(0.151)	0.418
178	14.83	0.83	0.527	0.130	(0.145)	0.397

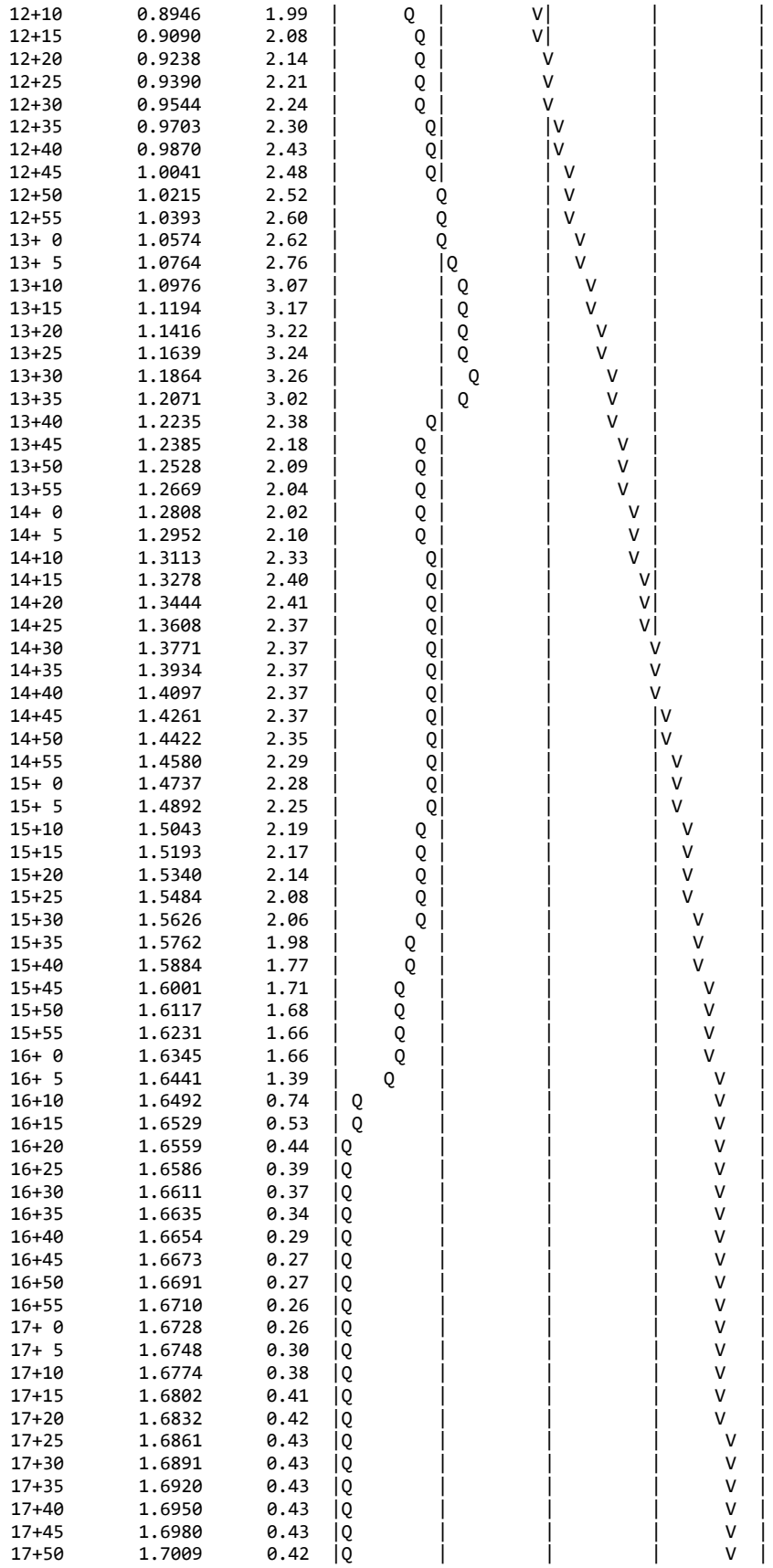
179	14.92	0.83	0.527	0.129	(0.145)	0.398
180	15.00	0.83	0.527	0.128	(0.145)	0.399
181	15.08	0.80	0.506	0.128	(0.140)	0.378
182	15.17	0.80	0.506	0.127	(0.140)	0.379
183	15.25	0.80	0.506	0.126	(0.140)	0.379
184	15.33	0.77	0.485	0.126	(0.134)	0.359
185	15.42	0.77	0.485	0.125	(0.134)	0.360
186	15.50	0.77	0.485	0.124	(0.134)	0.360
187	15.58	0.63	0.401	(0.124)	0.111	0.290
188	15.67	0.63	0.401	(0.123)	0.111	0.290
189	15.75	0.63	0.401	(0.123)	0.111	0.290
190	15.83	0.63	0.401	(0.122)	0.111	0.290
191	15.92	0.63	0.401	(0.121)	0.111	0.290
192	16.00	0.63	0.401	(0.121)	0.111	0.290
193	16.08	0.13	0.084	(0.120)	0.023	0.061
194	16.17	0.13	0.084	(0.119)	0.023	0.061
195	16.25	0.13	0.084	(0.119)	0.023	0.061
196	16.33	0.13	0.084	(0.118)	0.023	0.061
197	16.42	0.13	0.084	(0.118)	0.023	0.061
198	16.50	0.13	0.084	(0.117)	0.023	0.061
199	16.58	0.10	0.063	(0.116)	0.017	0.046
200	16.67	0.10	0.063	(0.116)	0.017	0.046
201	16.75	0.10	0.063	(0.115)	0.017	0.046
202	16.83	0.10	0.063	(0.115)	0.017	0.046
203	16.92	0.10	0.063	(0.114)	0.017	0.046
204	17.00	0.10	0.063	(0.114)	0.017	0.046
205	17.08	0.17	0.105	(0.113)	0.029	0.076
206	17.17	0.17	0.105	(0.112)	0.029	0.076
207	17.25	0.17	0.105	(0.112)	0.029	0.076
208	17.33	0.17	0.105	(0.111)	0.029	0.076
209	17.42	0.17	0.105	(0.111)	0.029	0.076
210	17.50	0.17	0.105	(0.110)	0.029	0.076
211	17.58	0.17	0.105	(0.110)	0.029	0.076
212	17.67	0.17	0.105	(0.109)	0.029	0.076
213	17.75	0.17	0.105	(0.109)	0.029	0.076
214	17.83	0.13	0.084	(0.108)	0.023	0.061
215	17.92	0.13	0.084	(0.107)	0.023	0.061
216	18.00	0.13	0.084	(0.107)	0.023	0.061
217	18.08	0.13	0.084	(0.106)	0.023	0.061
218	18.17	0.13	0.084	(0.106)	0.023	0.061
219	18.25	0.13	0.084	(0.105)	0.023	0.061
220	18.33	0.13	0.084	(0.105)	0.023	0.061
221	18.42	0.13	0.084	(0.104)	0.023	0.061
222	18.50	0.13	0.084	(0.104)	0.023	0.061
223	18.58	0.10	0.063	(0.103)	0.017	0.046
224	18.67	0.10	0.063	(0.103)	0.017	0.046
225	18.75	0.10	0.063	(0.102)	0.017	0.046
226	18.83	0.07	0.042	(0.102)	0.012	0.031
227	18.92	0.07	0.042	(0.101)	0.012	0.031
228	19.00	0.07	0.042	(0.101)	0.012	0.031
229	19.08	0.10	0.063	(0.100)	0.017	0.046
230	19.17	0.10	0.063	(0.100)	0.017	0.046
231	19.25	0.10	0.063	(0.099)	0.017	0.046
232	19.33	0.13	0.084	(0.099)	0.023	0.061
233	19.42	0.13	0.084	(0.099)	0.023	0.061
234	19.50	0.13	0.084	(0.098)	0.023	0.061
235	19.58	0.10	0.063	(0.098)	0.017	0.046
236	19.67	0.10	0.063	(0.097)	0.017	0.046
237	19.75	0.10	0.063	(0.097)	0.017	0.046
238	19.83	0.07	0.042	(0.096)	0.012	0.031
239	19.92	0.07	0.042	(0.096)	0.012	0.031
240	20.00	0.07	0.042	(0.095)	0.012	0.031
241	20.08	0.10	0.063	(0.095)	0.017	0.046
242	20.17	0.10	0.063	(0.095)	0.017	0.046
243	20.25	0.10	0.063	(0.094)	0.017	0.046
244	20.33	0.10	0.063	(0.094)	0.017	0.046
245	20.42	0.10	0.063	(0.093)	0.017	0.046
246	20.50	0.10	0.063	(0.093)	0.017	0.046
247	20.58	0.10	0.063	(0.093)	0.017	0.046

```
248  20.67     0.10      0.063       (  0.092)       0.017        0.046
249  20.75     0.10      0.063       (  0.092)       0.017        0.046
250  20.83     0.07      0.042       (  0.091)       0.012        0.031
251  20.92     0.07      0.042       (  0.091)       0.012        0.031
252  21.00     0.07      0.042       (  0.091)       0.012        0.031
253  21.08     0.10      0.063       (  0.090)       0.017        0.046
254  21.17     0.10      0.063       (  0.090)       0.017        0.046
255  21.25     0.10      0.063       (  0.090)       0.017        0.046
256  21.33     0.07      0.042       (  0.089)       0.012        0.031
257  21.42     0.07      0.042       (  0.089)       0.012        0.031
258  21.50     0.07      0.042       (  0.089)       0.012        0.031
259  21.58     0.10      0.063       (  0.088)       0.017        0.046
260  21.67     0.10      0.063       (  0.088)       0.017        0.046
261  21.75     0.10      0.063       (  0.088)       0.017        0.046
262  21.83     0.07      0.042       (  0.087)       0.012        0.031
263  21.92     0.07      0.042       (  0.087)       0.012        0.031
264  22.00     0.07      0.042       (  0.087)       0.012        0.031
265  22.08     0.10      0.063       (  0.087)       0.017        0.046
266  22.17     0.10      0.063       (  0.086)       0.017        0.046
267  22.25     0.10      0.063       (  0.086)       0.017        0.046
268  22.33     0.07      0.042       (  0.086)       0.012        0.031
269  22.42     0.07      0.042       (  0.085)       0.012        0.031
270  22.50     0.07      0.042       (  0.085)       0.012        0.031
271  22.58     0.07      0.042       (  0.085)       0.012        0.031
272  22.67     0.07      0.042       (  0.085)       0.012        0.031
273  22.75     0.07      0.042       (  0.084)       0.012        0.031
274  22.83     0.07      0.042       (  0.084)       0.012        0.031
275  22.92     0.07      0.042       (  0.084)       0.012        0.031
276  23.00     0.07      0.042       (  0.084)       0.012        0.031
277  23.08     0.07      0.042       (  0.084)       0.012        0.031
278  23.17     0.07      0.042       (  0.083)       0.012        0.031
279  23.25     0.07      0.042       (  0.083)       0.012        0.031
280  23.33     0.07      0.042       (  0.083)       0.012        0.031
281  23.42     0.07      0.042       (  0.083)       0.012        0.031
282  23.50     0.07      0.042       (  0.083)       0.012        0.031
283  23.58     0.07      0.042       (  0.083)       0.012        0.031
284  23.67     0.07      0.042       (  0.083)       0.012        0.031
285  23.75     0.07      0.042       (  0.082)       0.012        0.031
286  23.83     0.07      0.042       (  0.082)       0.012        0.031
287  23.92     0.07      0.042       (  0.082)       0.012        0.031
288  24.00     0.07      0.042       (  0.082)       0.012        0.031
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    46.5
       Flood volume = Effective rainfall      3.88(In)
        times area       5.6(Ac.)/[(In)/(Ft.)] =       1.8(Ac.Ft)
       Total soil loss =      1.39(In)
       Total soil loss =     0.655(Ac.Ft)
       Total rainfall =      5.27(In)
       Flood volume =       79377.9 Cubic Feet
       Total soil loss =       28514.7 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      3.259(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       0.0002      0.03  Q         |         |         |         |
   0+10       0.0011      0.12  Q         |         |         |         |
   0+15       0.0021      0.15  Q         |         |         |         |
   0+20       0.0033      0.18  Q         |         |         |         |
   0+25       0.0049      0.23  Q         |         |         |         |
   0+30       0.0066      0.25  Q         |         |         |         |
   0+35       0.0083      0.25  VQ        |         |         |         |
```

```
0+40       0.0101      0.26  VQ        |         |         |         |
0+45       0.0119      0.26  VQ        |         |         |         |
0+50       0.0138      0.28  VQ        |         |         |         |
0+55       0.0160      0.32  VQ        |         |         |         |
1+ 0       0.0183      0.33  VQ        |         |         |         |
1+ 5       0.0206      0.32  VQ        |         |         |         |
1+10       0.0225      0.28  VQ        |         |         |         |
1+15       0.0244      0.27  VQ        |         |         |         |
1+20       0.0262      0.27  VQ        |         |         |         |
1+25       0.0280      0.26  VQ        |         |         |         |
1+30       0.0298      0.26  VQ        |         |         |         |
1+35       0.0316      0.26  VQ        |         |         |         |
1+40       0.0334      0.26  VQ        |         |         |         |
1+45       0.0352      0.26  VQ        |         |         |         |
1+50       0.0371      0.28  VQ        |         |         |         |
1+55       0.0393      0.32  VQ        |         |         |         |
2+ 0       0.0416      0.33  VQ        |         |         |         |
2+ 5       0.0440      0.34  VQ        |         |         |         |
2+10       0.0464      0.34  |Q        |         |         |         |
2+15       0.0487      0.35  |Q        |         |         |         |
2+20       0.0511      0.35  |Q        |         |         |         |
2+25       0.0535      0.35  |Q        |         |         |         |
2+30       0.0559      0.35  |Q        |         |         |         |
2+35       0.0584      0.36  |Q        |         |         |         |
2+40       0.0612      0.41  |Q        |         |         |         |
2+45       0.0641      0.42  |Q        |         |         |         |
2+50       0.0671      0.43  |Q        |         |         |         |
2+55       0.0700      0.43  |Q        |         |         |         |
3+ 0       0.0730      0.43  |Q        |         |         |         |
3+ 5       0.0760      0.43  |Q        |         |         |         |
3+10       0.0790      0.43  |Q        |         |         |         |
3+15       0.0820      0.43  |Q        |         |         |         |
3+20       0.0850      0.43  |Q        |         |         |         |
3+25       0.0880      0.43  |Q        |         |         |         |
3+30       0.0910      0.43  |Q        |         |         |         |
3+35       0.0939      0.43  |QV       |         |         |         |
3+40       0.0969      0.43  |QV       |         |         |         |
3+45       0.0999      0.43  |QV       |         |         |         |
3+50       0.1030      0.45  |QV       |         |         |         |
3+55       0.1064      0.49  |QV       |         |         |         |
4+ 0       0.1099      0.51  | Q       |         |         |         |
4+ 5       0.1135      0.51  | Q       |         |         |         |
4+10       0.1170      0.52  | Q       |         |         |         |
4+15       0.1206      0.52  | Q       |         |         |         |
4+20       0.1243      0.54  | Q       |         |         |         |
4+25       0.1283      0.58  | Q       |         |         |         |
4+30       0.1324      0.60  | Q       |         |         |         |
4+35       0.1366      0.60  | Q       |         |         |         |
4+40       0.1407      0.60  | QV      |         |         |         |
4+45       0.1449      0.61  | QV      |         |         |         |
4+50       0.1492      0.62  | QV      |         |         |         |
4+55       0.1538      0.67  | QV      |         |         |         |
5+ 0       0.1585      0.68  | QV      |         |         |         |
5+ 5       0.1630      0.65  | QV      |         |         |         |
5+10       0.1669      0.57  | QV      |         |         |         |
5+15       0.1707      0.54  | QV      |         |         |         |
5+20       0.1745      0.55  | QV      |         |         |         |
5+25       0.1785      0.59  | QV      |         |         |         |
5+30       0.1826      0.60  | Q V     |         |         |         |
5+35       0.1869      0.62  | Q V     |         |         |         |
5+40       0.1915      0.67  | Q V     |         |         |         |
5+45       0.1962      0.68  | Q V     |         |         |         |
5+50       0.2009      0.69  | Q V     |         |         |         |
5+55       0.2057      0.69  | Q V     |         |         |         |
6+ 0       0.2104      0.69  | Q V     |         |         |         |
6+ 5       0.2153      0.71  | Q V     |         |         |         |
6+10       0.2205      0.76  |  QV     |         |         |         |
6+15       0.2258      0.77  |  QV     |         |         |         |
6+20       0.2312      0.77  |  Q V    |         |         |         |
```

6+25	0.2365	0.78	Q V			
6+30	0.2419	0.78	Q V			
6+35	0.2474	0.80	Q V			
6+40	0.2532	0.84	Q V			
6+45	0.2591	0.86	Q V			
6+50	0.2650	0.86	Q V			
6+55	0.2710	0.86	Q V			
7+ 0	0.2769	0.87	Q V			
7+ 5	0.2829	0.87	Q V			
7+10	0.2889	0.87	Q V			
7+15	0.2949	0.87	Q V			
7+20	0.3010	0.89	Q V			
7+25	0.3074	0.93	Q V			
7+30	0.3139	0.94	Q V			
7+35	0.3205	0.97	Q V			
7+40	0.3275	1.01	Q V			
7+45	0.3346	1.03	Q V			
7+50	0.3418	1.05	Q V			
7+55	0.3494	1.10	Q V			
8+ 0	0.3571	1.11	Q V			
8+ 5	0.3650	1.16	Q V			
8+10	0.3736	1.25	Q V			
8+15	0.3824	1.28	Q V			
8+20	0.3913	1.29	Q V			
8+25	0.4002	1.30	Q V			
8+30	0.4091	1.30	Q V			
8+35	0.4182	1.32	Q V			
8+40	0.4276	1.36	Q V			
8+45	0.4371	1.38	Q V			
8+50	0.4467	1.40	Q V			
8+55	0.4567	1.45	Q V			
9+ 0	0.4668	1.46	Q V			
9+ 5	0.4771	1.50	Q V			
9+10	0.4881	1.59	Q V			
9+15	0.4993	1.62	Q V			
9+20	0.5107	1.65	Q V			
9+25	0.5224	1.70	Q V			
9+30	0.5342	1.72	Q V			
9+35	0.5463	1.75	Q V			
9+40	0.5586	1.79	Q V			
9+45	0.5711	1.81	Q V			
9+50	0.5837	1.83	Q V			
9+55	0.5967	1.88	Q V			
10+ 0	0.6097	1.90	Q V			
10+ 5	0.6220	1.78	Q V			
10+10	0.6322	1.48	Q V			
10+15	0.6417	1.39	Q V			
10+20	0.6510	1.34	Q V			
10+25	0.6601	1.32	Q V			
10+30	0.6691	1.31	Q V			
10+35	0.6787	1.39	Q V			
10+40	0.6898	1.61	Q V			
10+45	0.7013	1.67	Q V			
10+50	0.7131	1.70	Q V			
10+55	0.7249	1.72	Q V			
11+ 0	0.7368	1.73	Q V			
11+ 5	0.7486	1.72	Q V			
11+10	0.7602	1.67	Q V			
11+15	0.7716	1.66	Q V			
11+20	0.7830	1.66	Q V			
11+25	0.7944	1.65	Q V			
11+30	0.8058	1.65	Q V			
11+35	0.8169	1.62	Q V			
11+40	0.8274	1.53	Q V			
11+45	0.8377	1.50	Q V			
11+50	0.8481	1.51	Q V			
11+55	0.8587	1.54	Q V			
12+ 0	0.8694	1.55	Q V			
12+ 5	0.8810	1.68	Q V			



17+55	1.7035	0.37	|Q	|	|	|	V |
18+ 0	1.7059	0.36	|Q	|	|	|	V |
18+ 5	1.7084	0.35	|Q	|	|	|	V |
18+10	1.7108	0.35	|Q	|	|	|	V |
18+15	1.7132	0.35	|Q	|	|	|	V |
18+20	1.7156	0.35	|Q	|	|	|	V |
18+25	1.7180	0.35	|Q	|	|	|	V |
18+30	1.7204	0.35	|Q	|	|	|	V |
18+35	1.7226	0.33	|Q	|	|	|	V |
18+40	1.7246	0.29	|Q	|	|	|	V |
18+45	1.7265	0.27	|Q	|	|	|	V |
18+50	1.7282	0.25	Q	|	|	|	V |
18+55	1.7296	0.20	Q	|	|	|	V |
19+ 0	1.7309	0.19	Q	|	|	|	V |
19+ 5	1.7322	0.20	Q	|	|	|	V |
19+10	1.7339	0.24	Q	|	|	|	V |
19+15	1.7356	0.25	Q	|	|	|	V |
19+20	1.7375	0.27	|Q	|	|	|	V |
19+25	1.7397	0.32	|Q	|	|	|	V |
19+30	1.7420	0.33	|Q	|	|	|	V |
19+35	1.7442	0.32	|Q	|	|	|	V |
19+40	1.7461	0.28	|Q	|	|	|	V |
19+45	1.7480	0.27	|Q	|	|	|	V |
19+50	1.7497	0.25	Q	|	|	|	V |
19+55	1.7511	0.20	Q	|	|	|	V |
20+ 0	1.7524	0.19	Q	|	|	|	V |
20+ 5	1.7538	0.20	Q	|	|	|	V |
20+10	1.7554	0.24	Q	|	|	|	V |
20+15	1.7571	0.25	Q	|	|	|	V |
20+20	1.7589	0.25	|Q	|	|	|	V |
20+25	1.7606	0.26	|Q	|	|	|	V |
20+30	1.7624	0.26	|Q	|	|	|	V |
20+35	1.7642	0.26	|Q	|	|	|	V |
20+40	1.7660	0.26	|Q	|	|	|	V |
20+45	1.7678	0.26	|Q	|	|	|	V |
20+50	1.7695	0.24	Q	|	|	|	V |
20+55	1.7709	0.20	Q	|	|	|	V |
21+ 0	1.7721	0.19	Q	|	|	|	V |
21+ 5	1.7735	0.20	Q	|	|	|	V |
21+10	1.7751	0.24	Q	|	|	|	V |
21+15	1.7768	0.25	Q	|	|	|	V|
21+20	1.7785	0.24	Q	|	|	|	V|
21+25	1.7798	0.20	Q	|	|	|	V|
21+30	1.7811	0.18	Q	|	|	|	V|
21+35	1.7825	0.20	Q	|	|	|	V|
21+40	1.7841	0.24	Q	|	|	|	V|
21+45	1.7858	0.25	Q	|	|	|	V|
21+50	1.7874	0.24	Q	|	|	|	V|
21+55	1.7888	0.20	Q	|	|	|	V|
22+ 0	1.7901	0.18	Q	|	|	|	V|
22+ 5	1.7914	0.20	Q	|	|	|	V|
22+10	1.7931	0.24	Q	|	|	|	V|
22+15	1.7948	0.25	Q	|	|	|	V|
22+20	1.7964	0.24	Q	|	|	|	V|
22+25	1.7978	0.20	Q	|	|	|	V|
22+30	1.7990	0.18	Q	|	|	|	V|
22+35	1.8003	0.18	Q	|	|	|	V|
22+40	1.8015	0.18	Q	|	|	|	V|
22+45	1.8027	0.18	Q	|	|	|	V|
22+50	1.8039	0.17	Q	|	|	|	V|
22+55	1.8051	0.17	Q	|	|	|	V|
23+ 0	1.8063	0.17	Q	|	|	|	V|
23+ 5	1.8075	0.17	Q	|	|	|	V|
23+10	1.8087	0.17	Q	|	|	|	V|
23+15	1.8099	0.17	Q	|	|	|	V|
23+20	1.8111	0.17	Q	|	|	|	V|
23+25	1.8123	0.17	Q	|	|	|	V|
23+30	1.8135	0.17	Q	|	|	|	V|
23+35	1.8147	0.17	Q	|	|	|	V|

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   23+40       1.8158      0.17  Q        |         |         |        V|
   23+45       1.8170      0.17  Q        |         |         |        V|
   23+50       1.8182      0.17  Q        |         |         |        V|
   23+55       1.8194      0.17  Q        |         |         |        V|
   24+ 0       1.8206      0.17  Q        |         |         |        V|
   24+ 5       1.8216      0.14  Q        |         |         |        V|
   24+10       1.8219      0.05  Q        |         |         |        V|
   24+15       1.8221      0.02  Q        |         |         |        V|
   24+20       1.8222      0.01  Q        |         |         |        V|
   24+25       1.8222      0.01  Q        |         |         |        V|
   24+30       1.8223      0.00  Q        |         |         |        V|
   24+35       1.8223      0.00  Q        |         |         |         V
-------------------------------------------------------------------------
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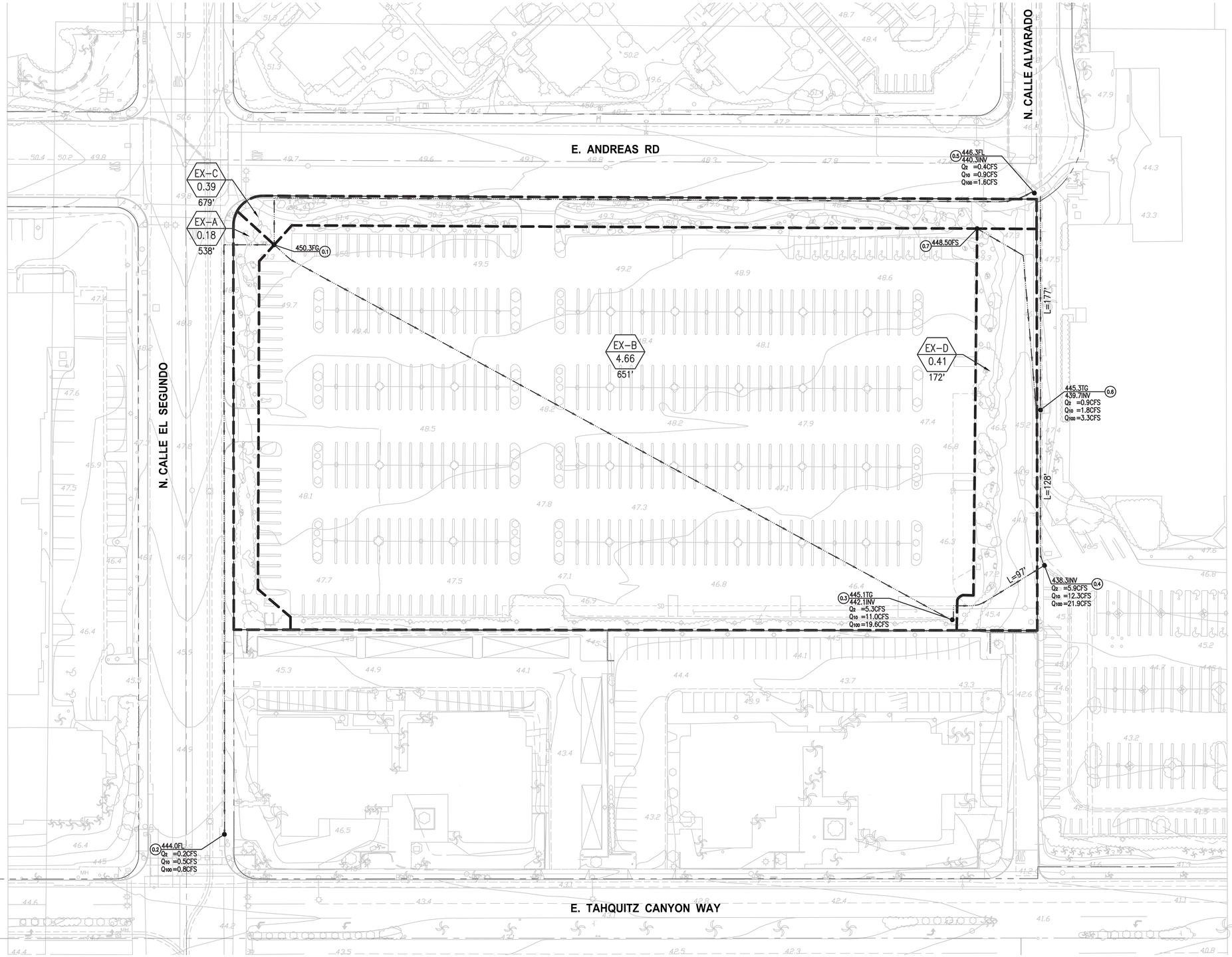


LEGEND:

EX-A / 0.18 / 538'	INDICATES TRIBUTARY SUBAREA DESIGNATION INDICATES TRIBUTARY SUBAREA, ACRES INDICATES FLOWPATH LENGTH, FEET
X XX.XX / XX.XX	INDICATES NODE NUMBER F.S. ELEV. / INV. ELEV.
	INDICATES DRAINAGE AREA BOUNDARY
	INDICATES PROPOSED STORM DRAIN SYSTEM
	INDICATES FLOW DIRECTION
Q2 =0.2CFS	DENOTES 2-YEAR RUN-OFF FROM SUB-AREA
Q10 =0.5CFS	DENOTES 10-YEAR RUN-OFF FROM SUB-AREA
Q100=0.8CFS	DENOTES 100-YEAR RUN-OFF FROM SUB-AREA

N

40 20 0 40 80

SCALE IN FEET
1 inch = 40 ft.

NO.	REVISION	APPROVED	DATE

BENCH MARK | ELEV.
LOCATION

WALDEN & ASSOCIATES
CIVIL ENGINEERS
LAND SURVEYORS
PLANNERS
2552 WHITE ROAD, SUITE B, IRVINE, CA 92614
(949) 660-0110 FAX: 660-0418

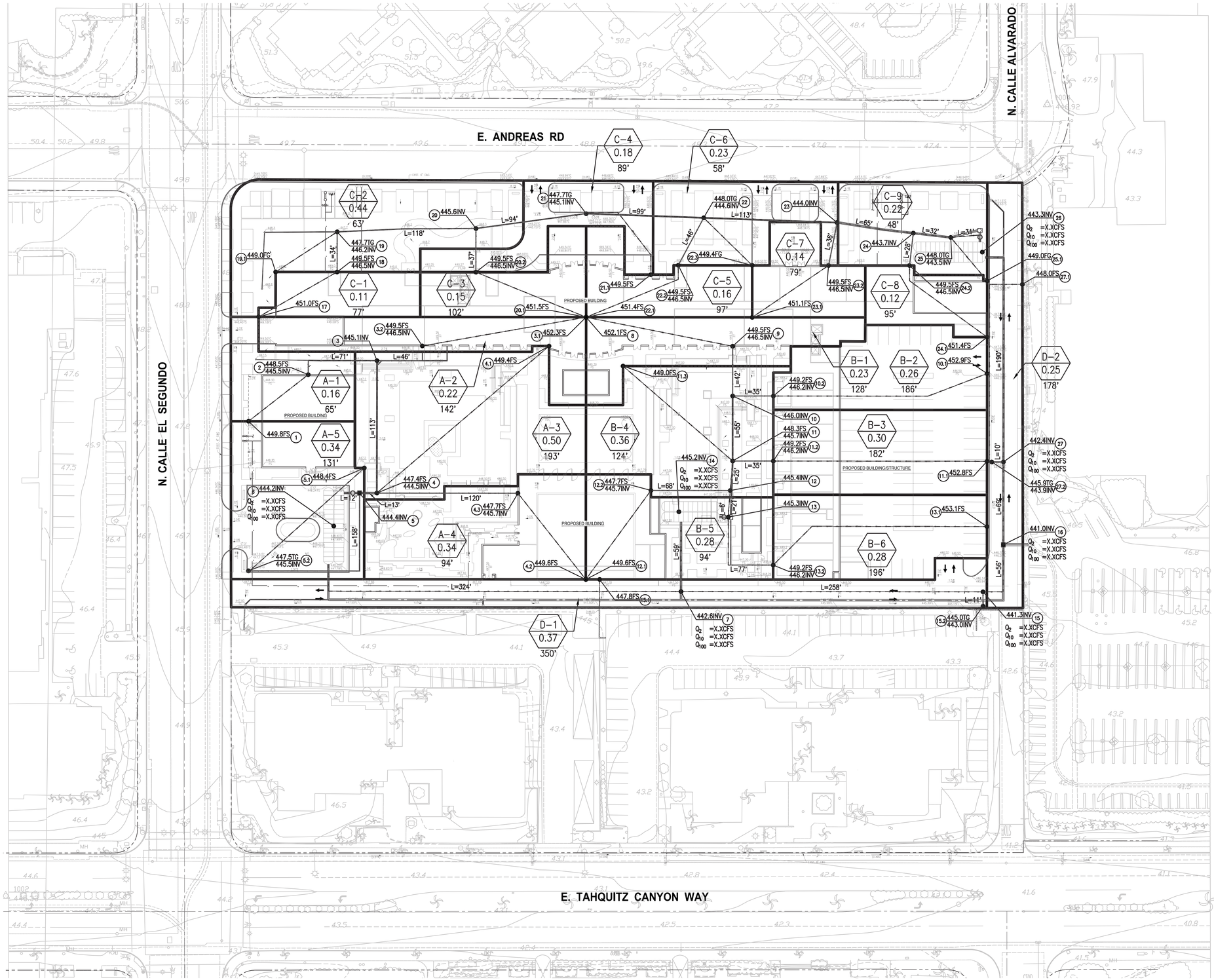
DESIGN BY: MP
DRAWN BY: SA
CHECKED BY: MP
PREPARED BY: MARCOS F. PADILLA
R.C.E. NO. 80426 DATE
CITY CHECK DATE 9/27/23
RIGHT-OF-WAY INITIAL DATE
TRAFFIC ENG'G
FIELD ENG'G
APPROVED BY: CITY ENGINEER
R.C.E. NO. DATE

CITY OF PALM SPRINGS, CALIFORNIA

HYDROLOGY MAP - EXISTING
THE ANDREAS PROJECT

FILE NO. .
DWG. NO. .
CADD FILE NAME .

SHEET 1 OF 1 SHTS.



LEGEND:

A-1 / 0.74 / 209'	INDICATES TRIBUTARY SUBAREA DESIGNATION INDICATES TRIBUTARY SUBAREA, ACRES INDICATES FLOWPATH LENGTH, FEET
X XX.XX / XX.XX	INDICATES NODE NUMBER F.S. ELEV. / INV. ELEV.
	INDICATES DRAINAGE AREA BOUNDARY
	INDICATES PROPOSED STORM DRAIN SYSTEM
	INDICATES FLOW DIRECTION
Q2=0.8CFS	DENOTES 2-YEAR RUN-OFF FROM SUB-AREA
Q10=1.6CFS	DENOTES 10-YEAR RUN-OFF FROM SUB-AREA
Q100=3.1CFS	DENOTES 100-YEAR RUN-OFF FROM SUB-AREA

N

40 20 0 40 80

SCALE IN FEET
1 inch = 40 ft.

NO.	REVISION	APPROVED	DATE

BENCH MARK | ELEV.
LOCATION

WALDEN & ASSOCIATES
CIVIL ENGINEERS
LAND SURVEYORS
PLANNERS
2552 WHITE ROAD, SUITE B, IRVINE, CA 92614
(949) 660-0110 FAX: 660-0418

DESIGN BY: MP	PREPARED BY: DAVID L. BACON		CITY CHECK	RIGHT-OF-WAY: INITIAL / DATE	APPROVED BY: CITY ENGINEER		
DRAWN BY: SA				TRAFFIC ENG'G:			
CHECKED BY: MP	R.C.E. NO. 40496	DATE	DATE 9/27/23	FIELD ENG'G:	R.C.E. NO. ·	DATE	

CITY OF PALM SPRINGS, CALIFORNIA

HYDROLOGY MAP - PROPOSED

THE PALM SPRINGS HOTEL & RESIDENCES PROJECT

FILE NO. ·
DWG. NO. ·
CADD FILE NAME ·

SHEET 1 OF 1 SHTS.