

PRELIMINARY HYDROLOGY STUDY

For:

Evergreen Development – Cambern & Central

Project Site Location/Address:

**18650 Cambern Street
Lake Elsinore, California**

Prepared For:

Evergreen Devco, Inc.

**2390 East Camelback Road, Suite 410
Phoenix, Arizona 85016
Contact: Jon Prystasz**

Lead Agency:

City of Lake Elsinore Engineering Department

**130 South Main Street
Lake Elsinore, CA 92530**

Prepared by:

DRC Engineering, Inc.

**160 S. Old Springs Road, Suite 210
Anaheim, CA 92808
(714) 685-6860
Christopher McKee, P.E.**

Date: December 17, 2021

DRC Engineering Project No. 19-400

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Section I

Introduction

This Preliminary Hydrology Study has been prepared for the Project Site; Evergreen Development; located on the east corner of Cambern Avenue and Central Avenue (CA-74) at 18650 Cambern Street, Lake Elsinore, California 92532. The Project Site is near-square in shape and approximately 9.07 acres. The Project Site is bounded by Central Avenue (CA-74) to the north west; residential homes to the northeast; a natural drainage course and residential homes to the southeast; and Cambern Avenue to the southwest. The general location of the site is illustrated on the Vicinity Map in Appendix A of this report.

For the Project Site, it is required to mitigate any potential hydromodification effects caused by development of the vacant land. The volume and time of concentration of runoff for the Proposed Condition must not be more than 10 percent greater than the Existing Condition for a 2-year, 24-hour frequency storm. Excess Volume will be captured via proposed underground detention system and will be discharged via outlet control at a limited flow rate no greater than 110 percent of the Existing Condition peak flow.

An additional hydraulic analysis was performed with HEC-RAS 5.0.5 software for the Third Street Channel Watershed which drains through an existing natural drainage course located along the southeast property line. *Technical Drainage Study (JN 148215)* prepared by *Michael Baker International* dated April 11, 2016 is referenced in this Preliminary Hydrology Study. The purpose of this additional analysis is to determine that a 36-inch diameter city-maintained reinforced concrete storm drain is adequate to mitigate the specific portion of stormwater discharge from the Third Street Channel Watershed that drains onto the Project Site. The HEC-RAS Analysis is detailed in Appendix E of this Preliminary Hydrology Study.

Section II

Methodology

For both the Existing and Proposed Conditions for the Project Site, *CivilDesign UNRIV* program was used to calculate hydrographs for the 2-year, 24-hour and 100-year, 24-hour storms with the Synthetic Unit Hydrograph Method. Using the results obtained from the Unit Hydrograph Method, storm runoff in the Proposed Condition was routed with *Hydraflow* software (*AutoCAD Civil 3D*® 2020) to determine the required detention system and outlet control sizing. The *RATSCX* program by *Advanced Engineering Software* (AES) was alternatively used to determine time of concentration and peak flowrates. See Appendix B and Appendix C for the hydrology maps and rational method calculations, respectively.

For determining the adequacy of a 36-inch diameter city-maintained reinforced concrete storm drain system to mitigate the portion of stormwater discharge from Third Street Channel Watershed that drains onto the Project Site, HEC-RAS 5.0.5 software was utilized in conjunction with aerial topography survey performed by *Inland Aerial Surveys, Inc.* on August 2020 and field topography survey performed by *DRC Engineering, Inc.* on March 4, 2021; and unit hydrograph data obtained from the 100-year, 3-hour storm event for Area A2 of the Third Street Channel Watershed as described in the *Technical Drainage Study (JN 148215)* prepared by *Michael Baker International*. Two (2) simulations were run to analyze the water surface elevation and flow depths for the Existing, and Proposed (with pipe) scenarios at three (3) locations along the existing drainage course.

Bentley FlowMaster V8i software was used to determine the full flow capacity of a 36-inch diameter reinforced concrete pipe at a channel slope of 0.0150 ft/ft.



Water Surface and Pressure Gradient (WSPGW) program was used for the hydraulic analysis. See Appendix F.

Section III

Project Description

Existing Condition

The Project Site is approximately 8.25 acres. In the Existing Condition, the Project Site is vacant with weeds and large trees. Dense large trees and weeds are present within the eastern portion of the Site where a natural drainage course flows through that area. The Site is gently sloping from the north to the south with elevations ranging from 1,330 to 1,310 feet above mean sea level based on the ALTA/NSPS Land Title Survey prepared by *DRC Engineering, Inc.* dated June 1, 2021.

In the Existing Condition, all runoff generated onsite flows southerly offsite into an existing Riverside County Flood Control and Water conservation District (RCFC&WCD) concrete outlet control drop inlet per *RCFC&WCD Drawing No. 3-0210* which connects to an existing RCFC&WCD 78-inch RCP Storm Drain pipe under Cambern Avenue. From there, stormwater is conveyed through RCFC&WCD facilities southwesterly along 3rd street and into Temescal Creek which drains into Lake Elsinore.

Drainage Areas

The Project Site in the Existing Condition has been delineated into two (2) separate Drainage Areas totaling 8.25 acres, as shown on the Existing Hydrology Map in Appendix B of this report.

Area A – 7.12-acre area consisting of the west majority of the Site that slopes from north to south toward Cambern Avenue.

Area B – 1.13-acre area consisting of a portion of the natural drainage course located on the east corner of the Site sloping from north to south. The natural drainage course is a part of the 700-acre Third Street Channel Watershed.

Proposed Condition

Overall

In the Proposed Condition, development of the Project Site will consist of the construction of four (4) total buildings including one (1) grocery building, one (1) gas station with building and fuel service pumps, one (1) car wash building, and two (2) quick-service restaurant buildings; the construction of paved drive aisles & parking areas, sidewalks, landscape planters; four (4) driveway entrances; the construction of underground utilities; the construction a city storm drain line and the construction of an underground private storm drain system with underground detention systems and proprietary water quality treatment units. All runoff will continue to flow to the same outlet compared to the Existing Condition.

Drainage Areas

The Proposed Project Site was graded and designed to balance the Drainage Areas in the Proposed Condition as close as possible to Drainage Areas in the Existing Condition. Therefore, the Project Site was delineated into a total of five (5) Drainage Areas—A through E. See Appendix B for the proposed map.

Each drainage area generally slopes north to south towards proposed drainage inlets that connect to the private storm drain system, and drains into five separate underground detention systems. Each detention system outlets into their respective outlet control manholes with steel weir orifices. Higher frequency storm flows (i.e., 2-year) are diverted from the manholes into proprietary water quality treatment units prior to discharging to the city (public) storm drain. Lower frequency storm flows (i.e. 100-year) bypass above the weir orifice plates and discharge directly into the city storm drain.



See tables below for the summary peak flows. Peak flows from the 2-year 24-hour and 100-year 24-hour storm events are results calculated from UNRIV—Unit Hydrograph Hydrology, Riverside County. See Appendix D for program calculations.

For the purpose of analyzing equal areas in this study (total existing drainage areas = total proposed drainage areas), the combined runoffs from the existing drainage areas will be compared to the combined runoffs from the proposed drainage areas. This is acceptable since both conditions eventually drain to the same off-site system.

Peak Flow Rate Summary Table

Existing Drainage Area	Q ₂ (cfs)	Q ₁₀₀ (cfs)
A	0.238	2.718
B	0.038	0.432
Total	0.276	3.150

Proposed Drainage Area	Q ₂ (cfs)	Q ₁₀₀ (cfs)	Q ₂ (cfs) after detention	Q ₁₀₀ (cfs) after detention
A	0.275	0.824	0.034	0.381
B	0.294	0.871	0.036	0.404
C	0.265	0.779	0.032	0.362
D	1.224	3.512	0.145	1.628
E	0.262	0.809	0.033	0.376
Total	2.320	6.795	0.280	3.151

Runoff Volume and Detention System Summary Tables

	Detention System A	Detention System B	Detention System C	Detention System D	Detention System E	Total
Pipe Diameter (in.)	60					
Total Pipe Length (lf)	855	920	882	3,650	825	7,132
Storage Capacity (cu. ft.)	16,791	18,068	17,321	71,682	16,202	140,064

2-Year Ex. Runoff Volume (cu. ft.)	7,248
2-Year Prop. Runoff Volume (cu. ft.)	61,398
Required Detention Volume (cu. ft.)	54,150
Detention Volume Provided (cu. ft.)	140,064



Proposed City Storm Drain

A portion of stormwater discharge from the Third Street Channel Watershed (as referenced in the *Technical Drainage Study (JN 148215)* prepared by *Michael Baker International* dated April 11th, 2016) drains onsite at the eastmost corner of the Project Site in the Existing Condition. In the Proposed Condition, a proposed concrete gutter and headwall will be constructed at the east corner of the Project Site to capture the specific portion of stormwater that previously drained from the Third Street Channel Watershed onto the Project Site. Stormwater will be conveyed underground through the proposed city storm drain system that will be sloped to drain southwesterly toward Cambern Ave. then southeasterly along Cambern Avenue and eventually connecting to the existing RCFC&WCD 78-inch storm drain under Cambern Avenue.

Proposed City Storm Drain HEC-RAS Analysis

See Appendix G for HEC-RAS Analysis data and results.

Section IV

Conclusion

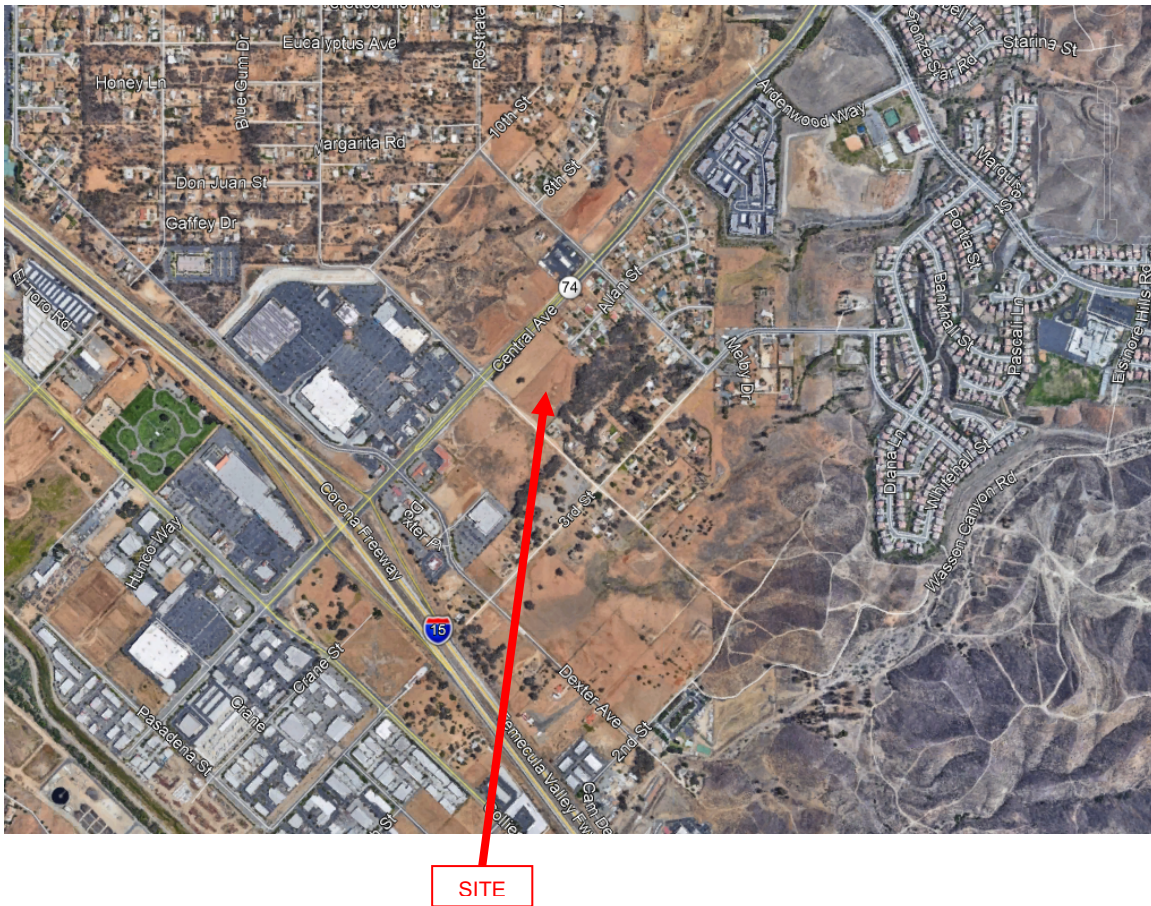
The 2-year and 100-year storm runoff peak flowrate and volumes were calculated using the Riverside County Unit Hydrograph method with CivilDesign software. The Project Site grading in the Proposed Condition were designed to best resemble the natural drainage patterns of the Existing Condition as close as possible. All runoff in the Proposed Condition drains to the same outlet as the Existing Condition.

The proposed onsite underground storm drain system implements five (5) proposed detention systems and outlet control manholes that are sized to provide a storage capacity such that the 2-year and 100-year peak flows and runoff volumes generated in the Proposed Condition do not exceed the peak flows and runoff volumes generated from the Existing Condition.

Based on the HEC-RAS analysis shown in Appendix G of this Preliminary Hydrology Study, the stormflow depths in the Third Street Channel during the peak of the 100-year, 3-hour duration storm event for the Proposed Project Site (with pipe) Scenario are not significantly greater than the flow depths in the Existing Scenario. During the worst-case scenario, at the peak of the 100-year, 3-hour storm event, it is anticipated that the proposed 36-diameter storm drain pipe will run at full flow capacity. The flow depths in the Proposed Scenario increase by approximately 0.2 feet (or 2.4 inches) compared to the flow depths in the Existing Scenario. This increase in flow depth will not have any significant impact to any downstream features, developments or facilities.

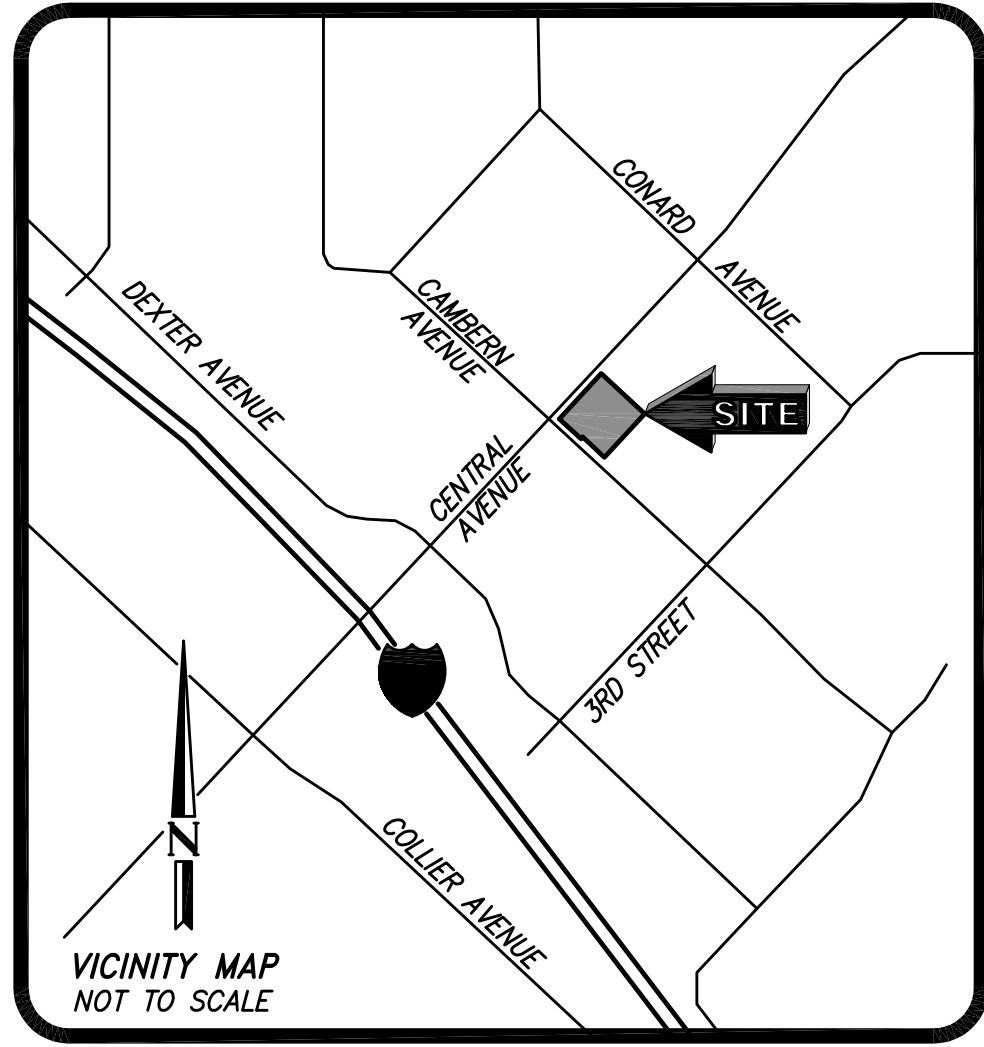
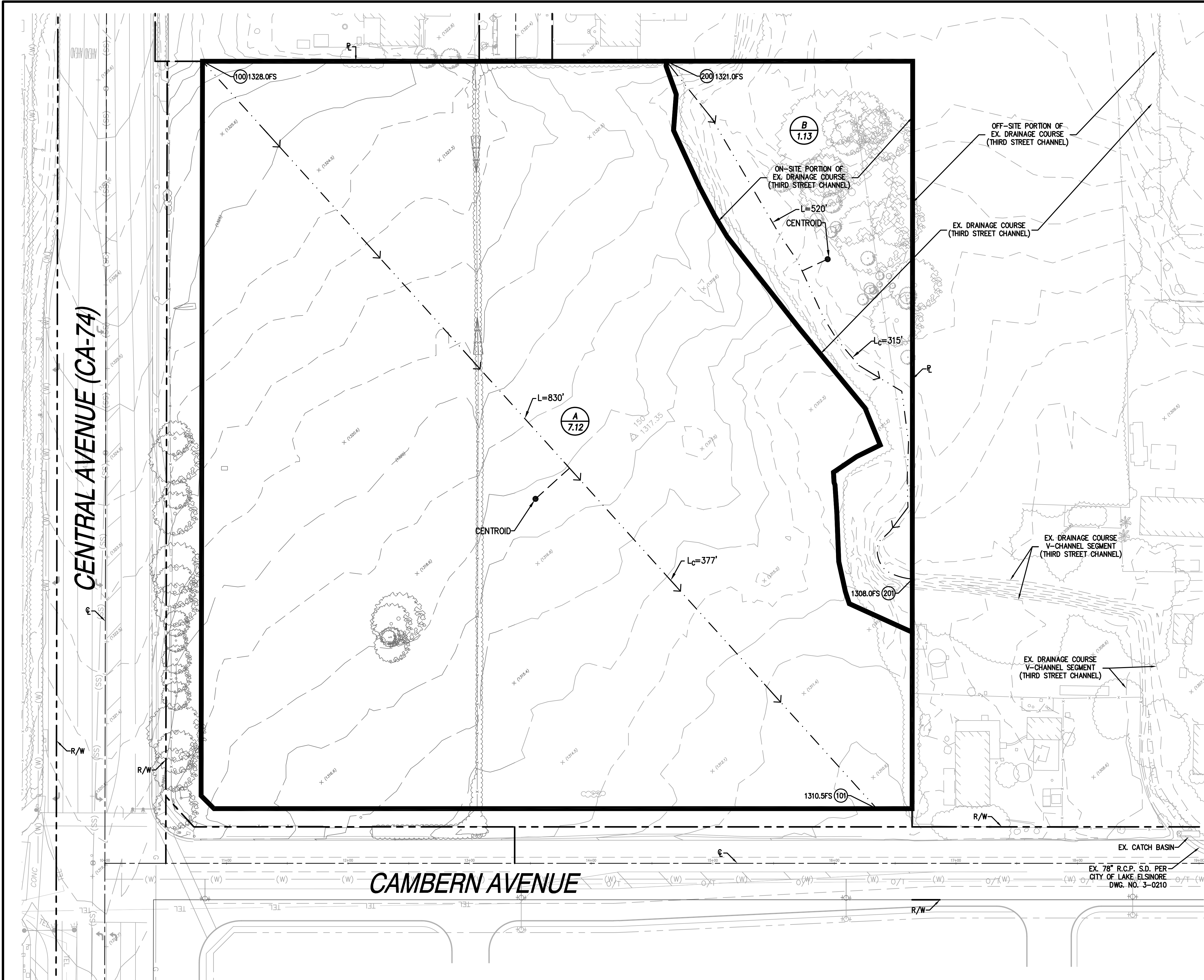
APPENDIX A

VICINITY MAP



APPENDIX B

Existing Hydrology Map
Proposed Hydrology Map
ALTA Topographic Survey



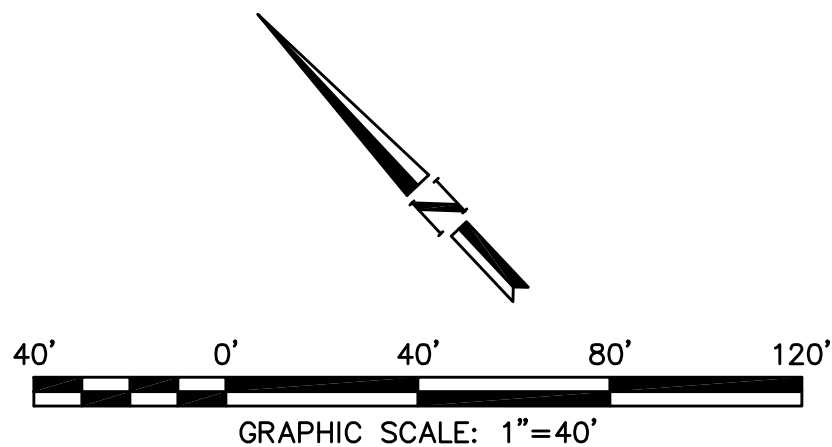
LEGEND:

- DRAINAGE AREA BOUNDARY
- - - OVERLAND FLOW PATH
- A 0.00 DRAINAGE AREA DESIGNATION
- AREA OF DMA (ACRES)

ID: AREA A
SOIL GROUP: B [PLATE C1.41]
AMC II RUNOFF INDEX NUMBER: 66 [OPEN BRUSH (SOFT WOOD SHRUBS - BUCKWHEAT, SAGE, ETC.)]
IMPERVIOUS PERCENTAGE: 0.0%
LENGTH: 830'
LENGTH FROM CENTROID: 389'
CHANGE IN ELEVATION: 17.5'
AREA: 7.12 ACRES

ID: AREA B
SOIL GROUP: B [PLATE C1.41]
AMC II RUNOFF INDEX NUMBER: 66 [OPEN BRUSH (SOFT WOOD SHRUBS - BUCKWHEAT, SAGE, ETC.)]
IMPERVIOUS PERCENTAGE: 0.0%
LENGTH: 520'
LENGTH FROM CENTROID: 315'
CHANGE IN ELEVATION: 13'
AREA: 1.13 ACRES

NODE	Qp2 (CFS)	Qp100 (CFS)	Tc (MIN)
100	-	-	-
101	1.47	8.04	22.58
200	-	-	-
201	0.29	1.54	15.70



PROJECT: **EVERGREEN DEVELOPMENT**
18650 CAMBERN STREET
LAKE ELSINORE, CALIFORNIA

DRAWING NAME: **EXISTING HYDROLOGY MAP**

ISSUE: **HYDROLOGY**
DATE: **12/15/2021**
CHECKED: CM DRAWN: HM
DRAWING FILE: **19400EXHM**
PROJECT NO.: **19-400**
SHEET NUMBER: **1**
OF 1 SHEETS
SCALE: **AS SHOWN**

160 S. Old Springs Road
Suite 210
Anaheim Hills, CA 92808
714-685-6860

ORC Engineering, Inc.
Civil Engineering/Land Surveying/Land Planning

CHRISTOPHER MCKEE R.C.E. 74414 DATE

CENTRAL AVENUE (CA-74)

CAMBERN AVENUE

ID: B
SOIL GROUP: B [PLATE C1.41]
AMC II RUNOFF INDEX NUMBER: 56 [COMMERCIAL L/S (LAWN, SHRUBS, ETC.)]
IMPERVIOUS PERCENTAGE: 78.3%
LENGTH: 645'
LENGTH FROM CENTROID: 457'
CHANGE IN ELEVATION: 9.6'
AREA: 1.13 ACRES

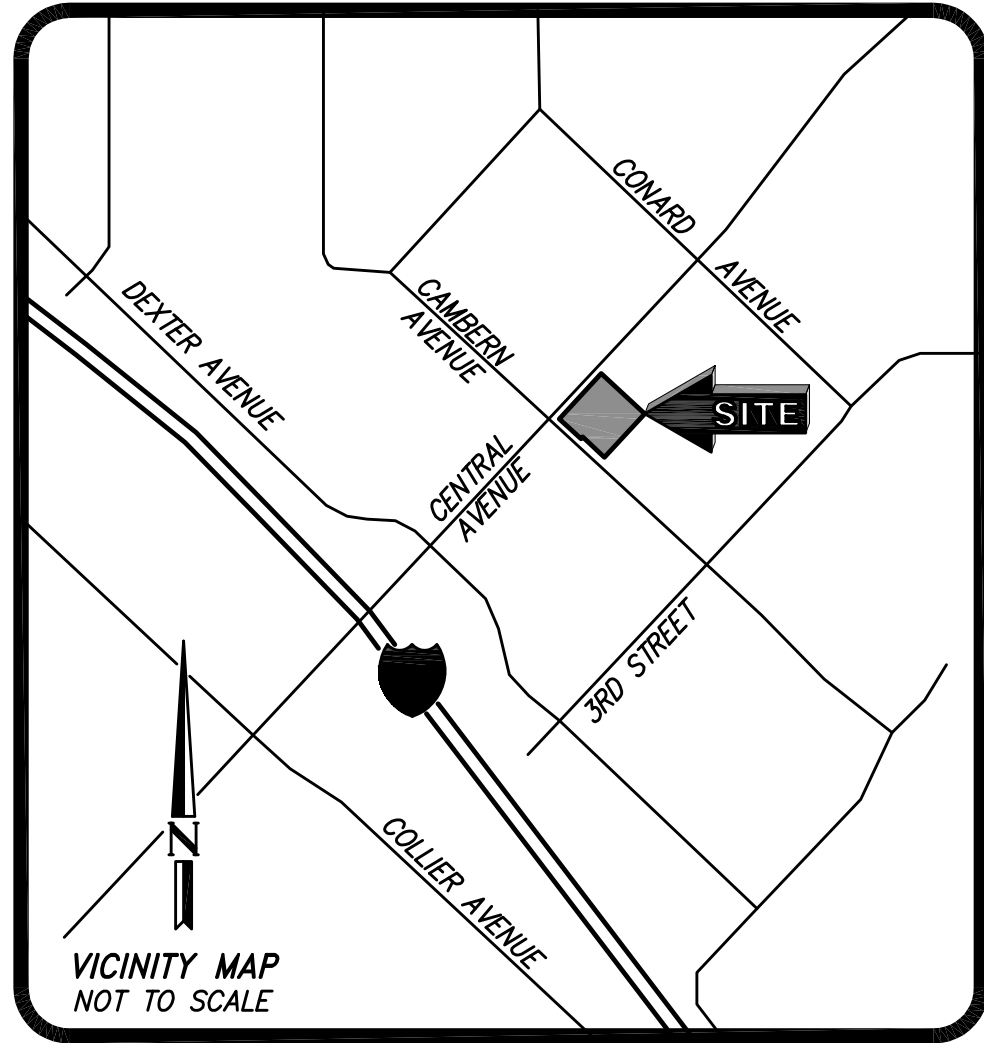
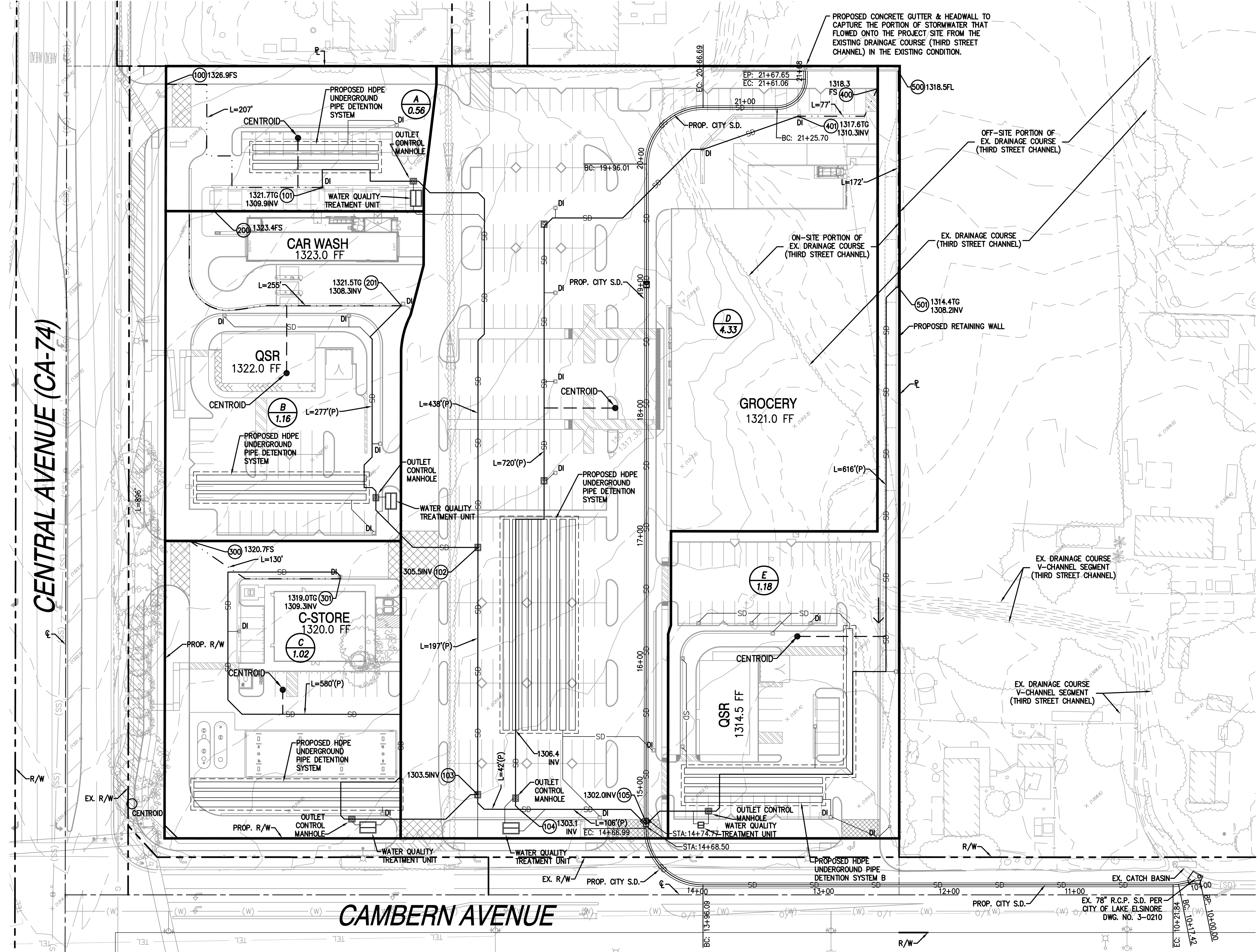
ID: B
SOIL GROUP: B [PLATE C1.41]
AMC II RUNOFF INDEX NUMBER: 56 [COMMERCIAL L/S (LAWN, SHRUBS, ETC.)]
IMPERVIOUS PERCENTAGE: 82.2%
LENGTH: 532'
LENGTH FROM CENTROID: 368'
CHANGE IN ELEVATION: 4.7'
AREA: 1.16 ACRES

ID: B
SOIL GROUP: B [PLATE C1.41]
AMC II RUNOFF INDEX NUMBER: 56 [COMMERCIAL L/S (LAWN, SHRUBS, ETC.)]
IMPERVIOUS PERCENTAGE: 84.5%
LENGTH: 710'
LENGTH FROM CENTROID: 338'
CHANGE IN ELEVATION: 7.5'
AREA: 1.02 ACRES

ID: B
SOIL GROUP: B [PLATE C1.41]
AMC II RUNOFF INDEX NUMBER: 56 [COMMERCIAL L/S (LAWN, SHRUBS, ETC.)]
IMPERVIOUS PERCENTAGE: 93.1%
LENGTH: 797'
LENGTH FROM CENTROID: 343'
CHANGE IN ELEVATION: 7.9'
AREA: 4.33 ACRES

ID: B
SOIL GROUP: B [PLATE C1.41]
AMC II RUNOFF INDEX NUMBER: 56 [COMMERCIAL L/S (LAWN, SHRUBS, ETC.)]
IMPERVIOUS PERCENTAGE: 70.3%
LENGTH: 788'
LENGTH FROM CENTROID: 333'
CHANGE IN ELEVATION: 10.3'
AREA: 1.18 ACRES

ID: B
SOIL GROUP: B [PLATE C1.41]
AMC II RUNOFF INDEX NUMBER: 56 [COMMERCIAL L/S (LAWN, SHRUBS, ETC.)]
IMPERVIOUS PERCENTAGE: 70.3%
LENGTH: 788'
LENGTH FROM CENTROID: 333'
CHANGE IN ELEVATION: 10.3'
AREA: 1.18 ACRES



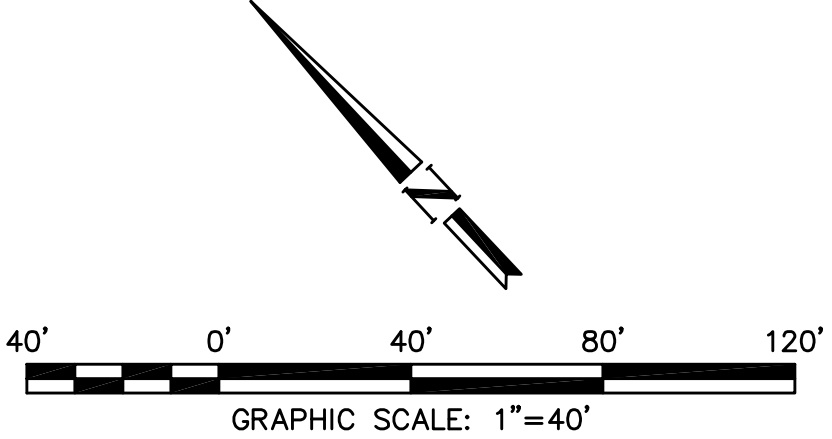
LEGEND:

- DRAINAGE AREA BOUNDARY
- - - OVERLAND FLOW PATH
- A 0.00 DRAINAGE AREA DESIGNATION
- AREA OF DMA (ACRES)

NODE DATA*:

NODE	Qp2 (CFS)	Tc (MIN)	Qp100 (CFS)	Tc (MIN)
100	-	-	-	-
101	0.52	5.34	1.67	5.35
102	1.42	8.51	4.55	8.23
103	2.31	9.21	7.36	8.75
104	5.87	6.97	18.67	6.48
105	6.98	7.23	22.22	6.68
200	-	-	-	-
201	0.95	7.41	3.04	7.41
300	-	-	-	-
301	0.97	5.06	3.11	5.06
400	-	-	-	-
401	4.15	5.00	13.28	5.00
500	-	-	-	-
501	1.13	5.02	3.61	5.02

* NODE DATA ARE CALCULATED USING THE RATIONAL METHOD BY AES; PRE-DETENTION



EVERGREEN DEVELOPMENT
18650 CAMBERN STREET
LAKE ELSINORE, CALIFORNIA
PROPOSED HYDROLOGY MAP

ISSUE: HYDROLOGY
DATE: 12/15/2021
CHECKED: CM DRAWN: HM
DRAWING FILE: -
PROJECT NO.: 18-400
SHEET NUMBER: 1
OF 1 SHEETS
SCALE: AS SHOWN

160 S. Old Springs Road
Suite 210
Anaheim Hills, CA 92808
714-685-6860
Engineering, Inc.
Civil Engineering/Land Surveying/Land Planning
NOT FOR CONSTRUCTION
DATE: R.C.E. 74414 CHRISTOPHER MCKEE

DATE OF FIELD SURVEY
AUGUST, 2020

TAX PARCEL NO.
377-020-016, 377-020-017
377-020-018, 377-020-019

TITLE INFORMATION

THE TITLE INFORMATION SHOWN HEREON IS PER COMMITMENT NO. 983972A AUGUST 5, 2020 AS PREPARED BY FIRST AMERICAN TITLE INSURANCE COMPANY, PHOENIX, AZ [TITLE OFFICER: ALIX GRAHAM, TELEPHONE: (602)567-8141]. NO RESPONSIBILITY OF CONTENT, COMPLETENESS OR ACCURACY OF SAID COMMITMENT IS ASSUMED BY THIS MAP OR THE SURVEYOR.

RECORD OWNER

TIMOTHY A. NIELSEN AND SHARON NIELSEN, CO-TRUSTEES OF THE RTT&T NIELSEN REVOCABLE LIVING TRUST D/T/D 7/20/19, AS TO PARCELS 1, 3 AND 4;

TIMOTHY A. NIELSEN AND SHARON NIELSEN, CO-TRUSTEES OF THE RTT&T NIELSEN REVOCABLE LIVING TRUST D/T/D 7/20/19 AS TO AN UNDIVIDED 1/2 INTEREST, AND THE HEIRS OR DEVISEES OF RODNEY A. NIELSEN, DECEASED, SUBJECT TO THE ADMINISTRATION OF THE DECEDENT'S ESTATE, AS TO AN UNDIVIDED 1/2 INTEREST, AS TO PARCEL 2.

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCELS 1, 2, 3 AND 4 OF PARCEL MAP NO.11504, AS SHOWN BY MAP ON FILE IN BOOK 54, PAGE 44 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

TITLE EXCEPTIONS AND EASEMENTS

1-6 TITLE COMPANY STATEMENTS.

7-8 TAXES.

9 ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM CENTRAL AVENUE, EXCEPT THE GENERAL EASEMENT OF TRAVEL, HAVE BEEN DEDICATED OR RELINQUISHED ON THE MAP OF PARCEL MAP 11,504 ON FILE IN BOOK 54, PAGE 44, OF PARCEL MAPS.

(DOCUMENT AFFECTS - PLOTTED HEREON AS [REDACTED])

10-11 THESE ITEMS HAVE BEEN INTENTIONALLY DELETED.

12 TITLE COMPANY STATEMENT.

13 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

14 TITLE COMPANY STATEMENT.

15 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

16-19 TITLE COMPANY STATEMENTS.

TAX PARCEL NO.

377-020-014-8

TITLE INFORMATION

THE TITLE INFORMATION SHOWN HEREON IS PER COMMITMENT NO. NCS-983972-PHY1 OCTOBER 03, 2019 AS PREPARED BY FIRST AMERICAN TITLE INSURANCE COMPANY, PHOENIX, AZ [TITLE OFFICER: RICHARD E. BROWN, TELEPHONE: (602)567-8100]. NO RESPONSIBILITY OF CONTENT, COMPLETENESS OR ACCURACY OF SAID COMMITMENT IS ASSUMED BY THIS MAP OR THE SURVEYOR.

RECORD OWNER

BILLIE J. BOYLE AND JOSEPHINE BOYLE, TRUSTEES OF THE BOYLE FAMILY TRUST (FOR THE BENEFIT OF BILLIE J. BOYLE AND JOSEPHINE BOYLE AND THEIR ISSUE) UNDER INSTRUMENT DATED JUNE 14, 1994

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

LOT 6 IN BLOCK 14, NORTH ELSINORE TRACT, AS PER MAP RECORDED IN BOOK 5 PAGE 105 MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

TITLE EXCEPTIONS AND EASEMENTS

1-6 TITLE COMPANY STATEMENTS.

7-8 TAXES.

9-11 TITLE COMPANY STATEMENTS.

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF STATE HIGHWAY 74 (CENTRAL AVENUE) AS SHOWN ON PARCEL MAP 11,504, FILED IN PARCEL MAP BOOK 54, PAGE 11, BEING NORTH 43°15'25" EAST.

MONUMENT AND ESTABLISHMENT NOTES

● INDICATES FOUND MONUMENT AS NOTED BELOW.

① INDICATES FOUND 1" IRON PIPE WITH TACK AND TAG STAMPED "L.S. 7629", PER R3, DOWN 0.3'.

② INDICATES FOUND 1 1/4" IRON PIPE TAGGED "L.S. 4343", PER R1, DOWN 0.5'.

③ INDICATES FOUND 2" IRON PIPE WITH ILLEGIBLE TAG, NO REFERENCE, DOWN 1.0'. ACCEPTED AS POINT ON THE WEST LINE OF R1.

④ INDICATES FOUND 2" IRON PIPE TAGGED "L.S. 4343" IN LIEU OF 1 1/4" IRON PIPE TAGGED "L.S. 4343", PER R1, DOWN 0.2'.

⑤ INDICATES SEARCHED, NOTHING FOUND. ESTABLISHED BY HOLDING R1 DATA.

ABBREVIATIONS

ASPH ASPHALT
CATV CABLE TELEVISION
PBX PULLBOX

SYMBOL LEGEND

● FIRE HYDRANT
— GATE
— GUY ANCHOR
— LIGHT POLE
— POWER POLE
— SEWER CLEANOUT
— SEWER MANHOLE
— SIGN
— STREET LIGHT
— TREE
— TRAFFIC SIGNAL WITH ARM
— TRAFFIC SIGNAL ON POLE
— UNKNOWN MANHOLE
— UTILITY PAINT MARK
— WATER VALVE

LINE LEGEND

— PROPERTY LINE
— CENTER LINE
— RIGHT-OF-WAY LINE
— UNDERLYING LOT LINE
— TIE LINE
— TITLE REPORT PARCEL LINE
— FENCE
— OVERHEAD LINES
— BLOCK WALL
— BUILDING FOOTPRINT

CONARD AVENUE
(PUBLIC STREET)

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N43°15'25"E	55.14'

REFERENCES

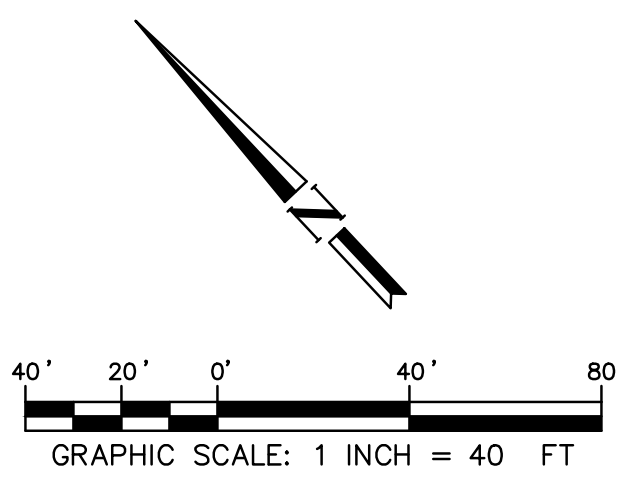
R1 PARCEL MAP 11,504, P.M.B. 54/11.

R2 TRACT NO. 11283, M.B. 111/96-98.

R3 PARCEL MAP NO. 32369, P.M.B. 209/84-88.

(...) INDICATES RECORD OR CALCULATED FROM RECORD DATA AS NOTED.

M&R INDICATES MEASURE DATA AND RECORD DATA ARE THE SAME.



ALTA/NSPS TABLE "A" ITEM NOTES

ITEM 2 NO ADDRESSES WERE OBSERVED WHILE CONDUCTING THE SURVEY.

ITEM 3 THE LAND SHOWN ON THIS SURVEY LIES ENTIRELY WITHIN FLOOD ZONE "X" (SHADED), BEING DESCRIBED AS "AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD" PER FLOOD INSURANCE RATE MAP (FIRM) - COMMUNITY PANEL NUMBER 06065C2029G, DATED AUGUST 28, 2008.

ITEM 4 THE GROSS LAND AREA IS: 395,141 SF / 9.071 ACRES

ITEM 5 THE CONTOURS AND ELEVATIONS SHOWN HEREON ARE BASED ON THE FOLLOWING BENCHMARK:

BM No.: EL-35-80 ELEV.: 1264.84' (COUNTY OF RIVERSIDE BENCHMARK)
DATUM: NVD 29
DESCRIPTION: FROM THE INTERSECTION OF RIVERSIDE DRIVE AND LAKESHORE DRIVE, SOUTHEAST 1.2 MILES ALONG LAKESHORE DRIVE TO ADDRESS #1787 LAKESHORE DRIVE; 50' ± NW OF ABOVE ADDRESS; 32' ± SW OF CENTERLINE OF LAKESHORE DRIVE; 7' ± W OF PP #0146349; 1' ± S OF SURVEY MARKER POST.

CONTOUR INTERVAL=1'

ITEM 7(a) THERE ARE NO BUILDINGS ON THE SUBJECT PROPERTY.

ITEM 7(b)(1) THERE ARE NO BUILDINGS ON THE SUBJECT PROPERTY.

ITEM 7(c) THERE ARE NO BUILDINGS ON THE SUBJECT PROPERTY.

ITEM 8 SEE THE SURVEY PLAT FOR ANY SUBSTANTIAL FEATURES OBSERVED IN THE PROCESS OF CONDUCTING THE SURVEY.

ITEM 9 THERE ARE NO PARKING SPACES ON THE SUBJECT PROPERTY.

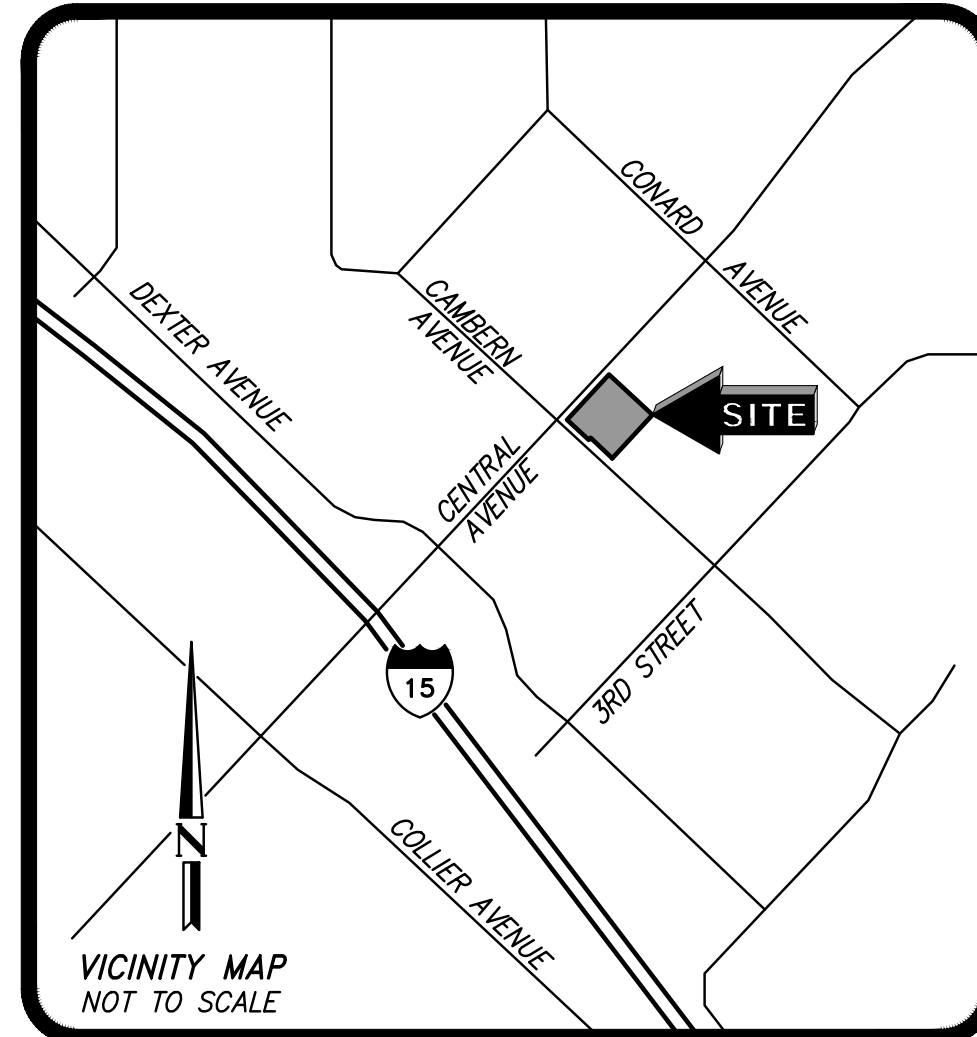
ITEM 11 SEE THE SURVEY PLAT FOR THE LOCATION OF UTILITY EVIDENCE OBSERVED WHILE CONDUCTING THE SURVEY.

ITEM 13 SEE THE SURVEY PLAT FOR THE NAMES OF ADJOINING OWNERS.

ITEM 14 SEE THE SURVEY PLAT FOR THE DISTANCE TO THE NEAREST INTERSECTING STREET.

ITEM 16 THE SURVEYOR HAS OBSERVED EVIDENCE OF EARTH MOVING WORK WITHIN RECENT MONTHS ALONG THE SOUTHWEST PROPERTY LINE.

ITEM 17 THE SURVEYOR IS AWARE OF PROPOSED CHANGES IN STREET RIGHT OF WAY LINES, AND HAS OBSERVED EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS. THERE ARE CONSTRUCTION STAKES ALONG THE SOUTHWEST PROPERTY LINE.



ALTA/NSPS LAND TITLE SURVEY
18650 CAMBERN STREET
LAKE ELSINORE, CALIFORNIA

TITLE, BOUNDARY, AND TOPOGRAPHIC INFORMATION

SURVEYOR'S CERTIFICATE

TO: EVERGREEN DEVCO, INC., A CALIFORNIA CORPORATION;
CAMBERN & CENTRAL NORTH, L.L.C.;
EVERGREEN-CAMBERN & CENTRAL SOUTH, L.L.C.; AND
FIRST AMERICAN TITLE INSURANCE COMPANY;

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 7(a), 7(b)(1), 7(c), 8, 9, 11, 13, 14, 16, 17, AND 20 OF TABLE "A" THEREOF. THE FIELD WORK WAS COMPLETED ON AUGUST 21, 2020.

Jake W. Lappert
JAKE W. LAPPERT
PLS 9303
EMAIL: jlapport@rc-eng.com



DATE: 06/01/2021

NO.	REVISION:	DATE:	ISSUE:
1	REVISED PER CLIENT COMMENTS	05/20/2021	FINAL
2	REVISED PER CLIENT COMMENTS	06/01/2021	DATE: 08/25/2020
		DRAWN: JWL	CHECKED: JWL
		DRAWING FILE: 19-400ata101	
		PROJECT NO.: 19-400	
		SHEET NUMBER:	
		1	
		OF 1 SHEET	
		SCALE: 1" = 40'	

ORC Engineering, Inc.
Civil Engineering/Land Surveying/Land Planning

160 S. Old Springs Road, Ste. 310
Anaheim Hills, California 92808
(714) 685-6860

APPENDIX C

Rational Method (AES)
Existing Condition 2-year 24-hr
Proposed Condition 2-year 24-hr
Existing Condition 100-year 24-hr
Proposed Condition 100-year 24-hr

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
(RCFC&WCD) 1978 HYDROLOGY MANUAL
(c) Copyright 1982-2015 Advanced Engineering Software (aes)
(Rational Tabling Version 22.0)
Release Date: 07/01/2015 License ID 1510

Analysis prepared by:

DRC Engineering, Inc.
160 South Old Springs Road, Suite 210
Anaheim Hills, CA 92808
714-685-6860

***** DESCRIPTION OF STUDY *****
* 19-400 Lake Elsinore *
* Existing 2-YR 24-HR *
* Area A *

FILE NAME: 400E2A.DAT
TIME/DATE OF STUDY: 11:25 12/13/2021

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT (YEAR) = 2.00
SPECIFIED MINIMUM PIPE SIZE (INCH) = 12.00
SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
10-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 1.600
10-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 0.791
100-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 2.660
100-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 1.320
SLOPE OF 10-YEAR INTENSITY-DURATION CURVE = 0.3931670
SLOPE OF 100-YEAR INTENSITY-DURATION CURVE = 0.3910649

COMPUTED RAINFALL INTENSITY DATA:

STORM EVENT = 2.00 1-HOUR INTENSITY (INCH/HOUR) = 0.421
SLOPE OF INTENSITY DURATION CURVE = 0.3932

RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD

NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

FLOW PROCESS FROM NODE 100.00 TO NODE 101.00 IS CODE = 21

>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER

```

TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH( FEET) = 830.00
UPSTREAM ELEVATION( FEET) = 1328.00
DOWNSTREAM ELEVATION( FEET) = 1310.50
ELEVATION DIFFERENCE( FEET) = 17.50
TC = 0.709*[( 830.00**3)/( 17.50)]**.2 = 22.580
2 YEAR RAINFALL INTENSITY( INCH/HOUR) = 0.619
UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .3341
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF( CFS) = 1.47
TOTAL AREA( ACRES) = 7.12 TOTAL RUNOFF( CFS) = 1.47
=====
END OF STUDY SUMMARY:
TOTAL AREA( ACRES) = 7.1 TC( MIN. ) = 22.58
PEAK FLOW RATE( CFS) = 1.47
=====
END OF RATIONAL METHOD ANALYSIS

```

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
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Release Date: 07/01/2015 License ID 1510

Analysis prepared by:

DRC Engineering, Inc.
160 South Old Springs Road, Suite 210
Anaheim Hills, CA 92808
714-685-6860

***** DESCRIPTION OF STUDY *****

* 19-400 Lake Elsinore *
* Existing 2-YR 24-HR *
* Area B *

FILE NAME: 400E2B.DAT
TIME/DATE OF STUDY: 12:11 12/13/2021

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT (YEAR) = 2.00
SPECIFIED MINIMUM PIPE SIZE (INCH) = 12.00
SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
10-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 1.600
10-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 0.791
100-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 2.660
100-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 1.320
SLOPE OF 10-YEAR INTENSITY-DURATION CURVE = 0.3931670
SLOPE OF 100-YEAR INTENSITY-DURATION CURVE = 0.3910649

COMPUTED RAINFALL INTENSITY DATA:

STORM EVENT = 2.00 1-HOUR INTENSITY (INCH/HOUR) = 0.421
SLOPE OF INTENSITY DURATION CURVE = 0.3932

RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD

NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH LIP (FT) (FT)	MANNING HIKE FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00 0.0313	0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

FLOW PROCESS FROM NODE 200.00 TO NODE 201.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER

```

TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH( FEET) = 410.00
UPSTREAM ELEVATION( FEET) = 1321.00
DOWNSTREAM ELEVATION( FEET) = 1308.00
ELEVATION DIFFERENCE( FEET) = 13.00
TC = 0.709*[( 410.00**3)/( 13.00)]**.2 = 15.695
2 YEAR RAINFALL INTENSITY( INCH/HOUR) = 0.714
UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .3647
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF( CFS) = 0.29
TOTAL AREA( ACRES) = 1.13 TOTAL RUNOFF( CFS) = 0.29
=====
END OF STUDY SUMMARY:
TOTAL AREA( ACRES) = 1.1 TC( MIN. ) = 15.70
PEAK FLOW RATE( CFS) = 0.29
=====
=====
END OF RATIONAL METHOD ANALYSIS

```

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
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(Rational Tabling Version 22.0)
Release Date: 07/01/2015 License ID 1510

Analysis prepared by:

DRC Engineering, Inc.
160 South Old Springs Road, Suite 210
Anaheim Hills, CA 92808
714-685-6860

***** DESCRIPTION OF STUDY *****
* 19-400 Lake Elsinore *
* Proposed 2-YR 24-HR *
* Areas A through E *

FILE NAME: 400P2.DAT
TIME/DATE OF STUDY: 16:49 12/13/2021

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT (YEAR) = 2.00
SPECIFIED MINIMUM PIPE SIZE (INCH) = 12.00
SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
10-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 1.600
10-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 0.791
100-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 2.660
100-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 1.320
SLOPE OF 10-YEAR INTENSITY-DURATION CURVE = 0.3931670
SLOPE OF 100-YEAR INTENSITY-DURATION CURVE = 0.3910649
COMPUTED RAINFALL INTENSITY DATA:
STORM EVENT = 2.00 1-HOUR INTENSITY (INCH/HOUR) = 0.421
SLOPE OF INTENSITY DURATION CURVE = 0.3932
RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (FT) (n)
=== =====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0313 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

+-----+
| Area A |
+-----+

FLOW PROCESS FROM NODE 100.00 TO NODE 101.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<

=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS COMMERCIAL
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 207.00
UPSTREAM ELEVATION(FEET) = 1326.90
DOWNSTREAM ELEVATION(FEET) = 1321.70
ELEVATION DIFFERENCE(FEET) = 5.20
TC = 0.303*[(207.00**3)/(5.20)]**.2 = 5.345
2 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.090
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8559
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) = 0.52
TOTAL AREA(ACRES) = 0.56 TOTAL RUNOFF(CFS) = 0.52

FLOW PROCESS FROM NODE 101.00 TO NODE 102.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 1321.70 DOWNSTREAM(FEET) = 1305.50
FLOW LENGTH(FEET) = 438.00 MANNING'S N = 0.011
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 12.000
DEPTH OF FLOW IN 12.0 INCH PIPE IS 2.1 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 5.60
ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 0.52
PIPE TRAVEL TIME(MIN.) = 1.30 Tc(MIN.) = 6.65
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 102.00 = 645.00 FEET.

FLOW PROCESS FROM NODE 102.00 TO NODE 102.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 6.65
RAINFALL INTENSITY(INCH/HR) = 1.00
TOTAL STREAM AREA(ACRES) = 0.56
PEAK FLOW RATE(CFS) AT CONFLUENCE = 0.52

+-----+
| Area B |
+-----+

FLOW PROCESS FROM NODE 200.00 TO NODE 201.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<

=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS COMMERCIAL
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 255.00
UPSTREAM ELEVATION(FEET) = 1323.40
DOWNSTREAM ELEVATION(FEET) = 1321.50

ELEVATION DIFFERENCE (FEET) = 1.90
 $TC = 0.303 * [(255.00 * 3) / (1.90)]^{.2} = 7.409$
 2 YEAR RAINFALL INTENSITY (INCH/HOUR) = 0.959
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8530
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF (CFS) = 0.95
 TOTAL AREA (ACRES) = 1.16 TOTAL RUNOFF (CFS) = 0.95

FLOW PROCESS FROM NODE 201.00 TO NODE 102.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 1308.30 DOWNSTREAM (FEET) = 1305.50
 FLOW LENGTH (FEET) = 277.00 MANNING'S N = 0.011
 ESTIMATED PIPE DIAMETER (INCH) INCREASED TO 12.000
 DEPTH OF FLOW IN 12.0 INCH PIPE IS 4.0 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 4.19
 ESTIMATED PIPE DIAMETER (INCH) = 12.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 0.95
 PIPE TRAVEL TIME (MIN.) = 1.10 T_c (MIN.) = 8.51
 LONGEST FLOWPATH FROM NODE 200.00 TO NODE 102.00 = 532.00 FEET.

FLOW PROCESS FROM NODE 102.00 TO NODE 102.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 8.51
 RAINFALL INTENSITY (INCH/HR) = 0.91
 TOTAL STREAM AREA (ACRES) = 1.16
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 0.95

** CONFLUENCE DATA **

STREAM NUMBER	RUNOFF (CFS)	T_c (MIN.)	INTENSITY (INCH/HOUR)	AREA (ACRE)
1	0.52	6.65	1.000	0.56
2	0.95	8.51	0.908	1.16

*****WARNING*****

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

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

** PEAK FLOW RATE TABLE **

STREAM NUMBER	RUNOFF (CFS)	T_c (MIN.)	INTENSITY (INCH/HOUR)
1	1.26	6.65	1.000
2	1.42	8.51	0.908

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 1.42 T_c (MIN.) = 8.51
 TOTAL AREA (ACRES) = 1.7
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 102.00 = 645.00 FEET.

```

*****
FLOW PROCESS FROM NODE      102.00 TO NODE      103.00 IS CODE =  31
-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1305.50  DOWNSTREAM(FEET) = 1303.50
FLOW LENGTH(FEET) = 197.00  MANNING'S N = 0.011
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 12.000
DEPTH OF FLOW IN 12.0 INCH PIPE IS 4.9 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 4.68
ESTIMATED PIPE DIAMETER(INCH) = 12.00  NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 1.42
PIPE TRAVEL TIME(MIN.) = 0.70  Tc(MIN.) = 9.21
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 103.00 = 842.00 FEET.

*****
FLOW PROCESS FROM NODE      103.00 TO NODE      103.00 IS CODE =  1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 9.21
RAINFALL INTENSITY(INCH/HR) = 0.88
TOTAL STREAM AREA(ACRES) = 1.72
PEAK FLOW RATE(CFS) AT CONFLUENCE = 1.42

+-----+
| Area C |
+-----+

*****
FLOW PROCESS FROM NODE      300.00 TO NODE      301.00 IS CODE =  21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
=====
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 130.00
UPSTREAM ELEVATION(FEET) = 1320.70
DOWNSTREAM ELEVATION(FEET) = 1319.00
ELEVATION DIFFERENCE(FEET) = 1.70
TC = 0.303*[( 130.00**3)/( 1.70)]**.2 = 5.057
      2 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.114
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8564
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) = 0.97
TOTAL AREA(ACRES) = 1.02  TOTAL RUNOFF(CFS) = 0.97

*****
FLOW PROCESS FROM NODE      301.00 TO NODE      103.00 IS CODE =  31
-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1309.30  DOWNSTREAM(FEET) = 1303.50
FLOW LENGTH(FEET) = 580.00  MANNING'S N = 0.011
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 12.000
DEPTH OF FLOW IN 12.0 INCH PIPE IS 4.0 INCHES

```

```

PIPE-FLOW VELOCITY(FEET/SEC.) = 4.19
ESTIMATED PIPE DIAMETER(INCH) = 12.00    NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 0.97
PIPE TRAVEL TIME(MIN.) = 2.31    Tc(MIN.) = 7.37
LONGEST FLOWPATH FROM NODE 300.00 TO NODE 103.00 = 710.00 FEET.

*****
FLOW PROCESS FROM NODE 103.00 TO NODE 103.00 IS CODE = 1
-----
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 7.37
RAINFALL INTENSITY(INCH/HR) = 0.96
TOTAL STREAM AREA(ACRES) = 1.02
PEAK FLOW RATE(CFS) AT CONFLUENCE = 0.97

** CONFLUENCE DATA **
STREAM      RUNOFF      Tc      INTENSITY      AREA
NUMBER      (CFS)      (MIN.)  (INCH/HR)      (ACRE)
  1          1.42      9.21      0.880          1.72
  2          0.97      7.37      0.961          1.02

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

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

** PEAK FLOW RATE TABLE **
STREAM      RUNOFF      Tc      INTENSITY
NUMBER      (CFS)      (MIN.)  (INCH/HR)
  1          2.11      7.37      0.961
  2          2.31      9.21      0.880

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2.31    Tc(MIN.) = 9.21
TOTAL AREA(ACRES) = 2.7
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 103.00 = 842.00 FEET.

*****
FLOW PROCESS FROM NODE 103.00 TO NODE 104.00 IS CODE = 31
-----
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1303.50 DOWNSTREAM(FEET) = 1303.10
FLOW LENGTH(FEET) = 42.00 MANNING'S N = 0.011
DEPTH OF FLOW IN 12.0 INCH PIPE IS 6.7 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 5.17
ESTIMATED PIPE DIAMETER(INCH) = 12.00    NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 2.31
PIPE TRAVEL TIME(MIN.) = 0.14    Tc(MIN.) = 9.35
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 104.00 = 884.00 FEET.

*****
FLOW PROCESS FROM NODE 104.00 TO NODE 104.00 IS CODE = 1
-----

```

```

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 9.35
RAINFALL INTENSITY(INCH/HR) = 0.87
TOTAL STREAM AREA(ACRES) = 2.74
PEAK FLOW RATE(CFS) AT CONFLUENCE = 2.31

+-----+
| Area D |
+-----+

*****
FLOW PROCESS FROM NODE 400.00 TO NODE 401.00 IS CODE = 21
-----

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
=====
ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS COMMERCIAL
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 77.00
UPSTREAM ELEVATION(FEET) = 1318.30
DOWNSTREAM ELEVATION(FEET) = 1317.60
ELEVATION DIFFERENCE(FEET) = 0.70
TC = 0.303*[( 77.00**3)/( 0.70)]**.2 = 4.410
COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
2 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.119
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8565
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) = 4.15
TOTAL AREA(ACRES) = 4.33 TOTAL RUNOFF(CFS) = 4.15

*****
FLOW PROCESS FROM NODE 401.00 TO NODE 104.00 IS CODE = 31
-----

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1310.30 DOWNSTREAM(FEET) = 1303.10
FLOW LENGTH(FEET) = 720.00 MANNING'S N = 0.011
DEPTH OF FLOW IN 15.0 INCH PIPE IS 8.1 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 6.10
ESTIMATED PIPE DIAMETER(INCH)= 15.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 4.15
PIPE TRAVEL TIME(MIN.) = 1.97 Tc(MIN.) = 6.97
LONGEST FLOWPATH FROM NODE 400.00 TO NODE 104.00 = 797.00 FEET.

*****
FLOW PROCESS FROM NODE 104.00 TO NODE 104.00 IS CODE = 1
-----

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 6.97
RAINFALL INTENSITY(INCH/HR) = 0.98
TOTAL STREAM AREA(ACRES) = 4.33
PEAK FLOW RATE(CFS) AT CONFLUENCE = 4.15

```

** CONFLUENCE DATA **

STREAM NUMBER	RUNOFF (CFS)	Tc (MIN.)	INTENSITY (INCH/HOUR)	AREA (ACRE)
1	2.31	9.35	0.875	2.74
2	4.15	6.97	0.982	4.33

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

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

** PEAK FLOW RATE TABLE **

STREAM NUMBER	RUNOFF (CFS)	Tc (MIN.)	INTENSITY (INCH/HOUR)
1	5.87	6.97	0.982
2	6.01	9.35	0.875

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 5.87 Tc(MIN.) = 6.97
 TOTAL AREA(ACRES) = 7.1
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 104.00 = 884.00 FEET.

 FLOW PROCESS FROM NODE 104.00 TO NODE 105.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 1303.10 DOWNSTREAM(FEET) = 1302.00
 FLOW LENGTH(FEET) = 106.00 MANNING'S N = 0.011
 DEPTH OF FLOW IN 15.0 INCH PIPE IS 10.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.68
 ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 5.87
 PIPE TRAVEL TIME(MIN.) = 0.26 Tc(MIN.) = 7.23
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 105.00 = 990.00 FEET.

 FLOW PROCESS FROM NODE 105.00 TO NODE 105.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 7.23
 RAINFALL INTENSITY(INCH/HR) = 0.97
 TOTAL STREAM AREA(ACRES) = 7.07
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 5.87

+-----+
 | Area E |
 +-----+

 FLOW PROCESS FROM NODE 500.00 TO NODE 501.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<

```

=====
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 172.00
UPSTREAM ELEVATION(FEET) = 1318.50
DOWNSTREAM ELEVATION(FEET) = 1314.40
ELEVATION DIFFERENCE(FEET) = 4.10
TC = 0.303*[(172.00**3)/(4.10)]**.2 = 5.016
2 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.118
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8565
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) = 1.13
TOTAL AREA(ACRES) = 1.18 TOTAL RUNOFF(CFS) = 1.13

*****
FLOW PROCESS FROM NODE 501.00 TO NODE 105.00 IS CODE = 31
-----
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1308.20 DOWNSTREAM(FEET) = 1302.00
FLOW LENGTH(FEET) = 616.00 MANNING'S N = 0.011
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 12.000
DEPTH OF FLOW IN 12.0 INCH PIPE IS 4.4 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 4.38
ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 1.13
PIPE TRAVEL TIME(MIN.) = 2.34 Tc(MIN.) = 7.36
LONGEST FLOWPATH FROM NODE 500.00 TO NODE 105.00 = 788.00 FEET.

*****
FLOW PROCESS FROM NODE 105.00 TO NODE 105.00 IS CODE = 1
-----
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 7.36
RAINFALL INTENSITY(INCH/HR) = 0.96
TOTAL STREAM AREA(ACRES) = 1.18
PEAK FLOW RATE(CFS) AT CONFLUENCE = 1.13

** CONFLUENCE DATA **
STREAM RUNOFF Tc INTENSITY AREA
NUMBER (CFS) (MIN.) (INCH/HOUR) (ACRE)
1 5.87 7.23 0.968 7.07
2 1.13 7.36 0.961 1.18

*****WARNING*****
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ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
*****

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

** PEAK FLOW RATE TABLE **
STREAM RUNOFF Tc INTENSITY
NUMBER (CFS) (MIN.) (INCH/HOUR)
1 6.98 7.23 0.968

```

2 6.96 7.36 0.961

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 6.98 TC (MIN.) = 7.23

TOTAL AREA (ACRES) = 8.2

LONGEST FLOWPATH FROM NODE 100.00 TO NODE 105.00 = 990.00 FEET.

=====

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 8.2 TC (MIN.) = 7.23

PEAK FLOW RATE (CFS) = 6.98

=====

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
(RCFC&WCD) 1978 HYDROLOGY MANUAL
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(Rational Tabling Version 22.0)
Release Date: 07/01/2015 License ID 1510

Analysis prepared by:

DRC Engineering, Inc.
160 South Old Springs Road, Suite 210
Anaheim Hills, CA 92808
714-685-6860

***** DESCRIPTION OF STUDY *****

* 19-400 Lake Elsinore *
* Existing 100-YR 24-HR *
* Area A *

FILE NAME: 400E100A.DAT
TIME/DATE OF STUDY: 12:16 12/13/2021

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT (YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE (INCH) = 12.00
SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
10-YEAR STORM 10-MINUTE INTENSITY (INCH/ HOUR) = 1.600
10-YEAR STORM 60-MINUTE INTENSITY (INCH/ HOUR) = 0.791
100-YEAR STORM 10-MINUTE INTENSITY (INCH/ HOUR) = 2.660
100-YEAR STORM 60-MINUTE INTENSITY (INCH/ HOUR) = 1.320
SLOPE OF 10-YEAR INTENSITY-DURATION CURVE = 0.3931670
SLOPE OF 100-YEAR INTENSITY-DURATION CURVE = 0.3910649

COMPUTED RAINFALL INTENSITY DATA:

STORM EVENT = 100.00 1-HOUR INTENSITY (INCH/ HOUR) = 1.320
SLOPE OF INTENSITY DURATION CURVE = 0.3911

RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD

NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH LIP (FT) (FT)	MANNING HIKE FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00 0.0313 0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

FLOW PROCESS FROM NODE 100.00 TO NODE 101.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER

```

TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 830.00
UPSTREAM ELEVATION(FEET) = 1328.00
DOWNSTREAM ELEVATION(FEET) = 1310.50
ELEVATION DIFFERENCE(FEET) = 17.50
TC = 0.709*[(830.00**3)/(17.50)]**.2 = 22.580
100 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.934
UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5838
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) = 8.04
TOTAL AREA(ACRES) = 7.12 TOTAL RUNOFF(CFS) = 8.04
=====
END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 7.1 TC(MIN.) = 22.58
PEAK FLOW RATE(CFS) = 8.04
=====
=====
END OF RATIONAL METHOD ANALYSIS

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RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
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Analysis prepared by:

DRC Engineering, Inc.
160 South Old Springs Road, Suite 210
Anaheim Hills, CA 92808
714-685-6860

***** DESCRIPTION OF STUDY *****

* 19-400 Lake Elsinore *
* Existing 100-YR 24-HR *
* Area B *

FILE NAME: 400E200B.DAT
TIME/DATE OF STUDY: 12:22 12/13/2021

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT (YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE (INCH) = 12.00
SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
10-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 1.600
10-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 0.791
100-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 2.660
100-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 1.320
SLOPE OF 10-YEAR INTENSITY-DURATION CURVE = 0.3931670
SLOPE OF 100-YEAR INTENSITY-DURATION CURVE = 0.3910649

COMPUTED RAINFALL INTENSITY DATA:

STORM EVENT = 100.00 1-HOUR INTENSITY (INCH/HOUR) = 1.320
SLOPE OF INTENSITY DURATION CURVE = 0.3911

RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD

NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

FLOW PROCESS FROM NODE 200.00 TO NODE 201.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<

=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER

```

TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH( FEET) = 410.00
UPSTREAM ELEVATION( FEET) = 1321.00
DOWNSTREAM ELEVATION( FEET) = 1308.00
ELEVATION DIFFERENCE( FEET) = 13.00
TC = 0.709*[( 410.00**3)/( 13.00)]**.2 = 15.695
100 YEAR RAINFALL INTENSITY( INCH/HOUR) = 2.230
UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6123
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF( CFS) = 1.54
TOTAL AREA( ACRES) = 1.13 TOTAL RUNOFF( CFS) = 1.54
=====
END OF STUDY SUMMARY:
TOTAL AREA( ACRES) = 1.1 TC( MIN.) = 15.70
PEAK FLOW RATE( CFS) = 1.54
=====
END OF RATIONAL METHOD ANALYSIS

```

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Release Date: 07/01/2015 License ID 1510

Analysis prepared by:

DRC Engineering, Inc.
160 South Old Springs Road, Suite 210
Anaheim Hills, CA 92808
714-685-6860

***** DESCRIPTION OF STUDY *****

* 19-400 Lake Elsinore *
* Proposed 100-YR 24-HR *
* Areas A through E *

FILE NAME: 400P100.DAT
TIME/DATE OF STUDY: 17:02 12/13/2021

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 12.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) = 1.600
10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) = 0.791
100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) = 2.660
100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) = 1.320
SLOPE OF 10-YEAR INTENSITY-DURATION CURVE = 0.3931670
SLOPE OF 100-YEAR INTENSITY-DURATION CURVE = 0.3910649

COMPUTED RAINFALL INTENSITY DATA:

STORM EVENT = 100.00 1-HOUR INTENSITY(INCH/HOUR) = 1.320
SLOPE OF INTENSITY DURATION CURVE = 0.3911

RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD

NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH LIP HIKE (FT) (FT) (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00 0.0313 0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

FLOW PROCESS FROM NODE 100.00 TO NODE 101.00 IS CODE = 21

>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS COMMERCIAL

```

TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 207.00
UPSTREAM ELEVATION(FEET) = 1326.90
DOWNSTREAM ELEVATION(FEET) = 1321.70
ELEVATION DIFFERENCE(FEET) = 5.20
TC = 0.303*[(207.00**3)/(5.20)]**.2 = 5.345
100 YEAR RAINFALL INTENSITY(INCH/HOUR) = 3.398
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8788
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) = 1.67
TOTAL AREA(ACRES) = 0.56 TOTAL RUNOFF(CFS) = 1.67

*****
FLOW PROCESS FROM NODE 101.00 TO NODE 102.00 IS CODE = 31
-----
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1321.70 DOWNSTREAM(FEET) = 1305.50
FLOW LENGTH(FEET) = 438.00 MANNING'S N = 0.011
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 12.000
DEPTH OF FLOW IN 12.0 INCH PIPE IS 3.8 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 7.82
ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 1.67
PIPE TRAVEL TIME(MIN.) = 0.93 Tc(MIN.) = 6.28
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 102.00 = 645.00 FEET.

*****
FLOW PROCESS FROM NODE 102.00 TO NODE 102.00 IS CODE = 1
-----
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 6.28
RAINFALL INTENSITY(INCH/HR) = 3.19
TOTAL STREAM AREA(ACRES) = 0.56
PEAK FLOW RATE(CFS) AT CONFLUENCE = 1.67

*****
FLOW PROCESS FROM NODE 200.00 TO NODE 201.00 IS CODE = 21
-----
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=====
ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS COMMERCIAL
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 255.00
UPSTREAM ELEVATION(FEET) = 1323.40
DOWNSTREAM ELEVATION(FEET) = 1321.50
ELEVATION DIFFERENCE(FEET) = 1.90
TC = 0.303*[(255.00**3)/(1.90)]**.2 = 7.409
100 YEAR RAINFALL INTENSITY(INCH/HOUR) = 2.991
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8767
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) = 3.04
TOTAL AREA(ACRES) = 1.16 TOTAL RUNOFF(CFS) = 3.04

*****
FLOW PROCESS FROM NODE 201.00 TO NODE 102.00 IS CODE = 31
-----
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<

```

```

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1308.30 DOWNSTREAM(FEET) = 1305.50
FLOW LENGTH(FEET) = 277.00 MANNING'S N = 0.011
DEPTH OF FLOW IN 12.0 INCH PIPE IS 7.8 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 5.63
ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 3.04
PIPE TRAVEL TIME(MIN.) = 0.82 Tc(MIN.) = 8.23
LONGEST FLOWPATH FROM NODE 200.00 TO NODE 102.00 = 532.00 FEET.

*****
FLOW PROCESS FROM NODE 102.00 TO NODE 102.00 IS CODE = 1
-----

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 8.23
RAINFALL INTENSITY(INCH/HR) = 2.87
TOTAL STREAM AREA(ACRES) = 1.16
PEAK FLOW RATE(CFS) AT CONFLUENCE = 3.04

** CONFLUENCE DATA **
STREAM RUNOFF Tc INTENSITY AREA
NUMBER (CFS) (MIN.) (INCH/HR) (ACRE)
1 1.67 6.28 3.191 0.56
2 3.04 8.23 2.871 1.16

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

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

** PEAK FLOW RATE TABLE **
STREAM RUNOFF Tc INTENSITY
NUMBER (CFS) (MIN.) (INCH/HR)
1 3.99 6.28 3.191
2 4.55 8.23 2.871

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4.55 Tc(MIN.) = 8.23
TOTAL AREA(ACRES) = 1.7
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 102.00 = 645.00 FEET.

*****
FLOW PROCESS FROM NODE 102.00 TO NODE 103.00 IS CODE = 31
-----

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1305.50 DOWNSTREAM(FEET) = 1303.50
FLOW LENGTH(FEET) = 197.00 MANNING'S N = 0.011
DEPTH OF FLOW IN 15.0 INCH PIPE IS 8.6 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 6.27
ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 4.55
PIPE TRAVEL TIME(MIN.) = 0.52 Tc(MIN.) = 8.75

```

```

LONGEST FLOWPATH FROM NODE      100.00 TO NODE      103.00 =      842.00 FEET.

*****
FLOW PROCESS FROM NODE      103.00 TO NODE      103.00 IS CODE =      1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====
TOTAL NUMBER OF STREAMS =      2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
TIME OF CONCENTRATION(MIN.) =      8.75
RAINFALL INTENSITY(INCH/HR) =      2.80
TOTAL STREAM AREA(ACRES) =      1.72
PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.55

*****
FLOW PROCESS FROM NODE      300.00 TO NODE      301.00 IS CODE =      21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
=====
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) =      130.00
UPSTREAM ELEVATION(FEET) =      1320.70
DOWNSTREAM ELEVATION(FEET) =      1319.00
ELEVATION DIFFERENCE(FEET) =      1.70
TC = 0.303*[( 130.00**3)/( 1.70)]**.2 =      5.057
100 YEAR RAINFALL INTENSITY(INCH/HOUR) =      3.473
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8791
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) =      3.11
TOTAL AREA(ACRES) =      1.02  TOTAL RUNOFF(CFS) =      3.11

*****
FLOW PROCESS FROM NODE      301.00 TO NODE      103.00 IS CODE =      31
-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1309.30  DOWNSTREAM(FEET) = 1303.50
FLOW LENGTH(FEET) = 580.00  MANNING'S N = 0.011
DEPTH OF FLOW IN 12.0 INCH PIPE IS 8.0 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 5.62
ESTIMATED PIPE DIAMETER(INCH) = 12.00  NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 3.11
PIPE TRAVEL TIME(MIN.) = 1.72  Tc(MIN.) = 6.78
LONGEST FLOWPATH FROM NODE      300.00 TO NODE      103.00 =      710.00 FEET.

*****
FLOW PROCESS FROM NODE      103.00 TO NODE      103.00 IS CODE =      1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS =      2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =      6.78
RAINFALL INTENSITY(INCH/HR) =      3.10
TOTAL STREAM AREA(ACRES) =      1.02
PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.11

** CONFLUENCE DATA **
STREAM      RUNOFF      Tc      INTENSITY      AREA

```

NUMBER	(CFS)	(MIN.)	(INCH/HOUR)	(ACRE)
1	4.55	8.75	2.802	1.72
2	3.11	6.78	3.097	1.02

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

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

** PEAK FLOW RATE TABLE **

STREAM NUMBER	RUNOFF (CFS)	Tc (MIN.)	INTENSITY (INCH/HOUR)
1	6.63	6.78	3.097
2	7.36	8.75	2.802

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 7.36 Tc(MIN.) = 8.75
 TOTAL AREA(ACRES) = 2.7
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 103.00 = 842.00 FEET.

 FLOW PROCESS FROM NODE 103.00 TO NODE 104.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 1303.50 DOWNSTREAM(FEET) = 1303.10
 FLOW LENGTH(FEET) = 42.00 MANNING'S N = 0.011
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 10.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.90
 ESTIMATED PIPE DIAMETER(INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 7.36
 PIPE TRAVEL TIME(MIN.) = 0.10 Tc(MIN.) = 8.85
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 104.00 = 884.00 FEET.

 FLOW PROCESS FROM NODE 104.00 TO NODE 104.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 8.85
 RAINFALL INTENSITY(INCH/HR) = 2.79
 TOTAL STREAM AREA(ACRES) = 2.74
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 7.36

 FLOW PROCESS FROM NODE 400.00 TO NODE 401.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<

=====

ASSUMED INITIAL SUBAREA UNIFORM
 DEVELOPMENT IS COMMERCIAL
 $TC = K * [(LENGTH**3) / (ELEVATION CHANGE)] **.2$
 INITIAL SUBAREA FLOW-LENGTH(FEET) = 77.00
 UPSTREAM ELEVATION(FEET) = 1318.30
 DOWNSTREAM ELEVATION(FEET) = 1317.60
 ELEVATION DIFFERENCE(FEET) = 0.70

$TC = 0.303 * [(77.00 * 3) / (0.70)]^{.2} = 4.410$
 COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
 100 YEAR RAINFALL INTENSITY (INCH/HOUR) = 3.488
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8792
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF (CFS) = 13.28
 TOTAL AREA (ACRES) = 4.33 TOTAL RUNOFF (CFS) = 13.28

FLOW PROCESS FROM NODE 401.00 TO NODE 104.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 1310.30 DOWNSTREAM (FEET) = 1303.10
 FLOW LENGTH (FEET) = 720.00 MANNING'S N = 0.011
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 13.5 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 8.10
 ESTIMATED PIPE DIAMETER (INCH) = 21.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 13.28
 PIPE TRAVEL TIME (MIN.) = 1.48 Tc (MIN.) = 6.48
 LONGEST FLOWPATH FROM NODE 400.00 TO NODE 104.00 = 797.00 FEET.

FLOW PROCESS FROM NODE 104.00 TO NODE 104.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 6.48
 RAINFALL INTENSITY (INCH/HR) = 3.15
 TOTAL STREAM AREA (ACRES) = 4.33
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 13.28

** CONFLUENCE DATA **

STREAM NUMBER	RUNOFF (CFS)	Tc (MIN.)	INTENSITY (INCH/HOUR)	AREA (ACRE)
1	7.36	8.85	2.790	2.74
2	13.28	6.48	3.152	4.33

*****WARNING*****

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 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.

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

** PEAK FLOW RATE TABLE **

STREAM NUMBER	RUNOFF (CFS)	Tc (MIN.)	INTENSITY (INCH/HOUR)
1	18.67	6.48	3.152
2	19.12	8.85	2.790

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 18.67 Tc (MIN.) = 6.48
 TOTAL AREA (ACRES) = 7.1
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 104.00 = 884.00 FEET.

```

FLOW PROCESS FROM NODE      104.00 TO NODE      105.00 IS CODE =  31
-----
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1303.10  DOWNSTREAM(FEET) = 1302.00
FLOW LENGTH(FEET) = 106.00  MANNING'S N = 0.011
DEPTH OF FLOW IN 24.0 INCH PIPE IS 15.1 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 8.96
ESTIMATED PIPE DIAMETER(INCH) = 24.00  NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 18.67
PIPE TRAVEL TIME(MIN.) = 0.20  Tc(MIN.) = 6.68
LONGEST FLOWPATH FROM NODE      100.00 TO NODE      105.00 = 990.00 FEET.

*****
FLOW PROCESS FROM NODE      105.00 TO NODE      105.00 IS CODE =  1
-----
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 6.68
RAINFALL INTENSITY(INCH/HR) = 3.11
TOTAL STREAM AREA(ACRES) = 7.07
PEAK FLOW RATE(CFS) AT CONFLUENCE = 18.67

*****
FLOW PROCESS FROM NODE      500.00 TO NODE      501.00 IS CODE =  21
-----
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=====
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 172.00
UPSTREAM ELEVATION(FEET) = 1318.50
DOWNSTREAM ELEVATION(FEET) = 1314.40
ELEVATION DIFFERENCE(FEET) = 4.10
TC = 0.303*[(172.00**3)/(4.10)]**.2 = 5.016
100 YEAR RAINFALL INTENSITY(INCH/HOUR) = 3.484
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8792
SOIL CLASSIFICATION IS "B"
SUBAREA RUNOFF(CFS) = 3.61
TOTAL AREA(ACRES) = 1.18  TOTAL RUNOFF(CFS) = 3.61

*****
FLOW PROCESS FROM NODE      501.00 TO NODE      105.00 IS CODE =  31
-----
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1308.20  DOWNSTREAM(FEET) = 1302.00
FLOW LENGTH(FEET) = 616.00  MANNING'S N = 0.011
DEPTH OF FLOW IN 12.0 INCH PIPE IS 8.9 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 5.77
ESTIMATED PIPE DIAMETER(INCH) = 12.00  NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 3.61
PIPE TRAVEL TIME(MIN.) = 1.78  Tc(MIN.) = 6.79
LONGEST FLOWPATH FROM NODE      500.00 TO NODE      105.00 = 788.00 FEET.

*****
FLOW PROCESS FROM NODE      105.00 TO NODE      105.00 IS CODE =  1
-----

```

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 6.79
RAINFALL INTENSITY(INCH/HR) = 3.09
TOTAL STREAM AREA(ACRES) = 1.18
PEAK FLOW RATE(CFS) AT CONFLUENCE = 3.61

** CONFLUENCE DATA **

STREAM NUMBER	RUNOFF (CFS)	Tc (MIN.)	INTENSITY (INCH/HOUR)	AREA (ACRE)
1	18.67	6.68	3.115	7.07
2	3.61	6.79	3.094	1.18

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WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.

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

** PEAK FLOW RATE TABLE **

STREAM NUMBER	RUNOFF (CFS)	Tc (MIN.)	INTENSITY (INCH/HOUR)
1	22.22	6.68	3.115
2	22.16	6.79	3.094

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 22.22 Tc(MIN.) = 6.68
TOTAL AREA(ACRES) = 8.2
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 105.00 = 990.00 FEET.

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 8.2 TC(MIN.) = 6.68
PEAK FLOW RATE(CFS) = 22.22

=====

END OF RATIONAL METHOD ANALYSIS

APPENDIX D

UNRIV:

Existing Condition 2-year Hydrographs
Proposed Condition 2-year Hydrographs
Existing Condition 100-year Hydrographs
Proposed Condition 100-year Hydrographs

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

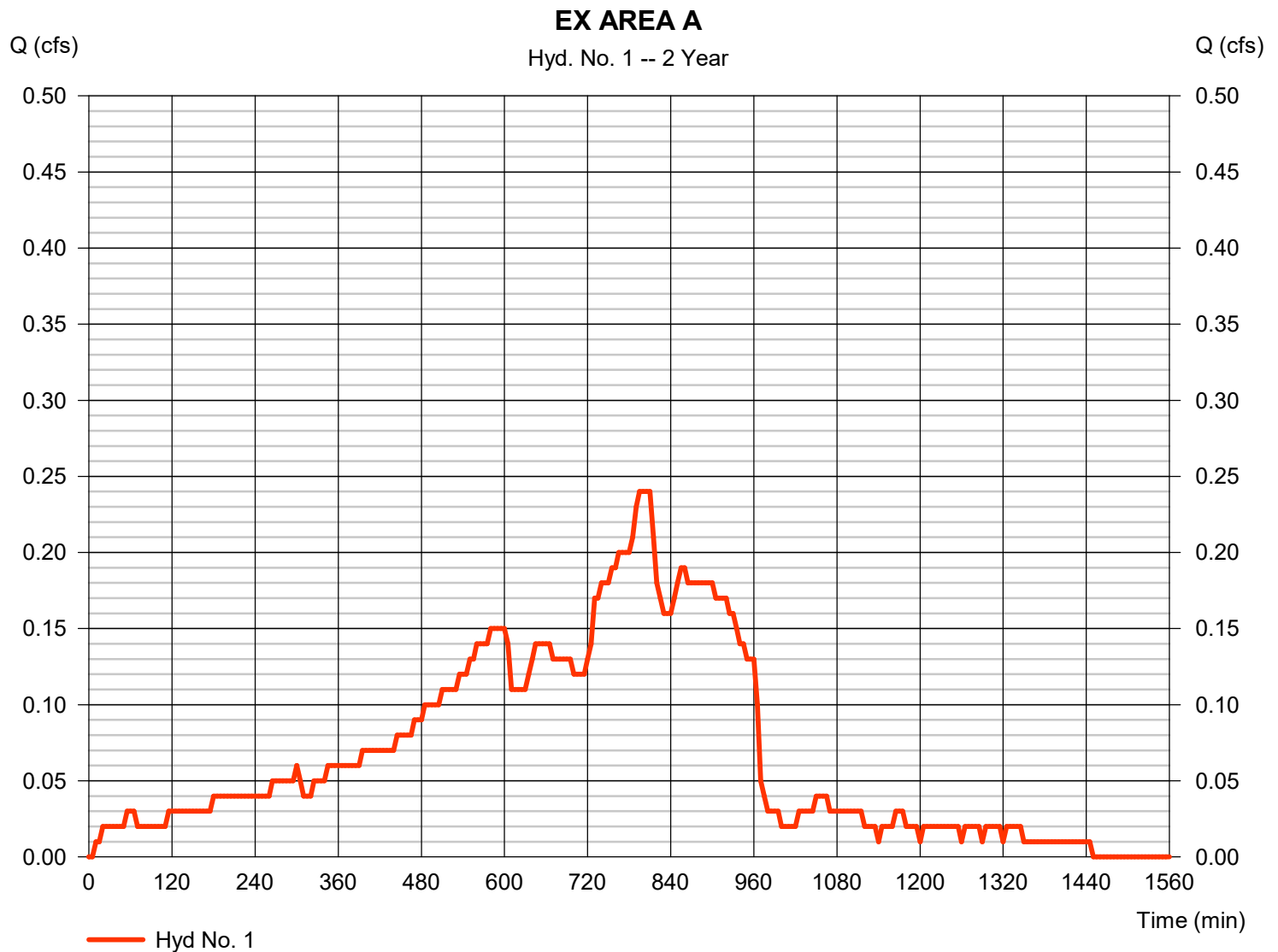
Friday, 12 / 17 / 2021

Hyd. No. 1

EX AREA A

Hydrograph type = Manual
 Storm frequency = 2 yrs
 Time interval = 5 min

Peak discharge = 0.240 cfs
 Time to peak = 795 min
 Hyd. volume = 6,303 cuft



Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2

Study date 12/14/21 File: 19400EA242.out

+++++

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Existing 2-yr 24-hr
Area A

Drainage Area = 7.12 (Ac.) = 0.011 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 7.12 (Ac.) = 0.011
Sq. Mi.
Length along longest watercourse = 830.00 (Ft.)
Length along longest watercourse measured to centroid = 389.00 (Ft.)
Length along longest watercourse = 0.157 Mi.
Length along longest watercourse measured to centroid = 0.074 Mi.
Difference in elevation = 17.50 (Ft.)
Slope along watercourse = 111.3253 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.054 Hr.
Lag time = 3.24 Min.
25% of lag time = 0.81 Min.
40% of lag time = 1.30 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]
7.12	2.44	17.37

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
7.12	6.64	47.28

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.440 (In)
Area Averaged 100-Year Rainfall = 6.640 (In)

Point rain (area averaged) = 2.440(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.440(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
7.120 66.00 0.000
Total Area Entered = 7.12(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
66.0	46.2	0.609	0.000	0.609	1.000	0.609
						Sum (F) = 0.609

Area averaged mean soil loss (F) (In/Hr) = 0.609
Minimum soil loss rate ((In/Hr)) = 0.305
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	154.209	34.178	2.453
2 0.167	308.418	46.700	3.351
3 0.250	462.628	10.942	0.785
4 0.333	616.837	4.757	0.341
5 0.417	771.046	2.349	0.169
6 0.500	925.255	1.075	0.077
		Sum = 100.000	Sum= 7.176

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

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)		Effective
(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1 0.08	0.07	0.020	(1.080)	0.018	0.002
2 0.17	0.07	0.020	(1.076)	0.018	0.002
3 0.25	0.07	0.020	(1.072)	0.018	0.002
4 0.33	0.10	0.029	(1.068)	0.026	0.003
5 0.42	0.10	0.029	(1.063)	0.026	0.003
6 0.50	0.10	0.029	(1.059)	0.026	0.003
7 0.58	0.10	0.029	(1.055)	0.026	0.003
8 0.67	0.10	0.029	(1.051)	0.026	0.003
9 0.75	0.10	0.029	(1.047)	0.026	0.003
10 0.83	0.13	0.039	(1.043)	0.035	0.004
11 0.92	0.13	0.039	(1.039)	0.035	0.004
12 1.00	0.13	0.039	(1.035)	0.035	0.004
13 1.08	0.10	0.029	(1.030)	0.026	0.003
14 1.17	0.10	0.029	(1.026)	0.026	0.003
15 1.25	0.10	0.029	(1.022)	0.026	0.003
16 1.33	0.10	0.029	(1.018)	0.026	0.003
17 1.42	0.10	0.029	(1.014)	0.026	0.003
18 1.50	0.10	0.029	(1.010)	0.026	0.003
19 1.58	0.10	0.029	(1.006)	0.026	0.003

20	1.67	0.10	0.029	(1.002)	0.026	0.003
21	1.75	0.10	0.029	(0.998)	0.026	0.003
22	1.83	0.13	0.039	(0.994)	0.035	0.004
23	1.92	0.13	0.039	(0.990)	0.035	0.004
24	2.00	0.13	0.039	(0.986)	0.035	0.004
25	2.08	0.13	0.039	(0.982)	0.035	0.004
26	2.17	0.13	0.039	(0.978)	0.035	0.004
27	2.25	0.13	0.039	(0.974)	0.035	0.004
28	2.33	0.13	0.039	(0.970)	0.035	0.004
29	2.42	0.13	0.039	(0.966)	0.035	0.004
30	2.50	0.13	0.039	(0.962)	0.035	0.004
31	2.58	0.17	0.049	(0.958)	0.044	0.005
32	2.67	0.17	0.049	(0.954)	0.044	0.005
33	2.75	0.17	0.049	(0.950)	0.044	0.005
34	2.83	0.17	0.049	(0.946)	0.044	0.005
35	2.92	0.17	0.049	(0.943)	0.044	0.005
36	3.00	0.17	0.049	(0.939)	0.044	0.005
37	3.08	0.17	0.049	(0.935)	0.044	0.005
38	3.17	0.17	0.049	(0.931)	0.044	0.005
39	3.25	0.17	0.049	(0.927)	0.044	0.005
40	3.33	0.17	0.049	(0.923)	0.044	0.005
41	3.42	0.17	0.049	(0.919)	0.044	0.005
42	3.50	0.17	0.049	(0.915)	0.044	0.005
43	3.58	0.17	0.049	(0.912)	0.044	0.005
44	3.67	0.17	0.049	(0.908)	0.044	0.005
45	3.75	0.17	0.049	(0.904)	0.044	0.005
46	3.83	0.20	0.059	(0.900)	0.053	0.006
47	3.92	0.20	0.059	(0.896)	0.053	0.006
48	4.00	0.20	0.059	(0.893)	0.053	0.006
49	4.08	0.20	0.059	(0.889)	0.053	0.006
50	4.17	0.20	0.059	(0.885)	0.053	0.006
51	4.25	0.20	0.059	(0.881)	0.053	0.006
52	4.33	0.23	0.068	(0.878)	0.061	0.007
53	4.42	0.23	0.068	(0.874)	0.061	0.007
54	4.50	0.23	0.068	(0.870)	0.061	0.007
55	4.58	0.23	0.068	(0.866)	0.061	0.007
56	4.67	0.23	0.068	(0.863)	0.061	0.007
57	4.75	0.23	0.068	(0.859)	0.061	0.007
58	4.83	0.27	0.078	(0.855)	0.070	0.008
59	4.92	0.27	0.078	(0.851)	0.070	0.008
60	5.00	0.27	0.078	(0.848)	0.070	0.008
61	5.08	0.20	0.059	(0.844)	0.053	0.006
62	5.17	0.20	0.059	(0.840)	0.053	0.006
63	5.25	0.20	0.059	(0.837)	0.053	0.006
64	5.33	0.23	0.068	(0.833)	0.061	0.007
65	5.42	0.23	0.068	(0.829)	0.061	0.007
66	5.50	0.23	0.068	(0.826)	0.061	0.007
67	5.58	0.27	0.078	(0.822)	0.070	0.008
68	5.67	0.27	0.078	(0.819)	0.070	0.008
69	5.75	0.27	0.078	(0.815)	0.070	0.008
70	5.83	0.27	0.078	(0.811)	0.070	0.008
71	5.92	0.27	0.078	(0.808)	0.070	0.008
72	6.00	0.27	0.078	(0.804)	0.070	0.008
73	6.08	0.30	0.088	(0.801)	0.079	0.009
74	6.17	0.30	0.088	(0.797)	0.079	0.009
75	6.25	0.30	0.088	(0.793)	0.079	0.009
76	6.33	0.30	0.088	(0.790)	0.079	0.009
77	6.42	0.30	0.088	(0.786)	0.079	0.009
78	6.50	0.30	0.088	(0.783)	0.079	0.009
79	6.58	0.33	0.098	(0.779)	0.088	0.010
80	6.67	0.33	0.098	(0.776)	0.088	0.010
81	6.75	0.33	0.098	(0.772)	0.088	0.010
82	6.83	0.33	0.098	(0.769)	0.088	0.010

83	6.92	0.33	0.098	(0.765)	0.088	0.010
84	7.00	0.33	0.098	(0.762)	0.088	0.010
85	7.08	0.33	0.098	(0.758)	0.088	0.010
86	7.17	0.33	0.098	(0.755)	0.088	0.010
87	7.25	0.33	0.098	(0.752)	0.088	0.010
88	7.33	0.37	0.107	(0.748)	0.097	0.011
89	7.42	0.37	0.107	(0.745)	0.097	0.011
90	7.50	0.37	0.107	(0.741)	0.097	0.011
91	7.58	0.40	0.117	(0.738)	0.105	0.012
92	7.67	0.40	0.117	(0.734)	0.105	0.012
93	7.75	0.40	0.117	(0.731)	0.105	0.012
94	7.83	0.43	0.127	(0.728)	0.114	0.013
95	7.92	0.43	0.127	(0.724)	0.114	0.013
96	8.00	0.43	0.127	(0.721)	0.114	0.013
97	8.08	0.50	0.146	(0.718)	0.132	0.015
98	8.17	0.50	0.146	(0.714)	0.132	0.015
99	8.25	0.50	0.146	(0.711)	0.132	0.015
100	8.33	0.50	0.146	(0.708)	0.132	0.015
101	8.42	0.50	0.146	(0.704)	0.132	0.015
102	8.50	0.50	0.146	(0.701)	0.132	0.015
103	8.58	0.53	0.156	(0.698)	0.141	0.016
104	8.67	0.53	0.156	(0.694)	0.141	0.016
105	8.75	0.53	0.156	(0.691)	0.141	0.016
106	8.83	0.57	0.166	(0.688)	0.149	0.017
107	8.92	0.57	0.166	(0.685)	0.149	0.017
108	9.00	0.57	0.166	(0.681)	0.149	0.017
109	9.08	0.63	0.185	(0.678)	0.167	0.019
110	9.17	0.63	0.185	(0.675)	0.167	0.019
111	9.25	0.63	0.185	(0.672)	0.167	0.019
112	9.33	0.67	0.195	(0.669)	0.176	0.020
113	9.42	0.67	0.195	(0.665)	0.176	0.020
114	9.50	0.67	0.195	(0.662)	0.176	0.020
115	9.58	0.70	0.205	(0.659)	0.184	0.020
116	9.67	0.70	0.205	(0.656)	0.184	0.020
117	9.75	0.70	0.205	(0.653)	0.184	0.020
118	9.83	0.73	0.215	(0.650)	0.193	0.021
119	9.92	0.73	0.215	(0.646)	0.193	0.021
120	10.00	0.73	0.215	(0.643)	0.193	0.021
121	10.08	0.50	0.146	(0.640)	0.132	0.015
122	10.17	0.50	0.146	(0.637)	0.132	0.015
123	10.25	0.50	0.146	(0.634)	0.132	0.015
124	10.33	0.50	0.146	(0.631)	0.132	0.015
125	10.42	0.50	0.146	(0.628)	0.132	0.015
126	10.50	0.50	0.146	(0.625)	0.132	0.015
127	10.58	0.67	0.195	(0.622)	0.176	0.020
128	10.67	0.67	0.195	(0.619)	0.176	0.020
129	10.75	0.67	0.195	(0.616)	0.176	0.020
130	10.83	0.67	0.195	(0.613)	0.176	0.020
131	10.92	0.67	0.195	(0.610)	0.176	0.020
132	11.00	0.67	0.195	(0.607)	0.176	0.020
133	11.08	0.63	0.185	(0.604)	0.167	0.019
134	11.17	0.63	0.185	(0.601)	0.167	0.019
135	11.25	0.63	0.185	(0.598)	0.167	0.019
136	11.33	0.63	0.185	(0.595)	0.167	0.019
137	11.42	0.63	0.185	(0.592)	0.167	0.019
138	11.50	0.63	0.185	(0.589)	0.167	0.019
139	11.58	0.57	0.166	(0.586)	0.149	0.017
140	11.67	0.57	0.166	(0.583)	0.149	0.017
141	11.75	0.57	0.166	(0.580)	0.149	0.017
142	11.83	0.60	0.176	(0.577)	0.158	0.018
143	11.92	0.60	0.176	(0.574)	0.158	0.018
144	12.00	0.60	0.176	(0.572)	0.158	0.018
145	12.08	0.83	0.244	(0.569)	0.220	0.024

146	12.17	0.83	0.244	(0.566)	0.220	0.024
147	12.25	0.83	0.244	(0.563)	0.220	0.024
148	12.33	0.87	0.254	(0.560)	0.228	0.025
149	12.42	0.87	0.254	(0.557)	0.228	0.025
150	12.50	0.87	0.254	(0.555)	0.228	0.025
151	12.58	0.93	0.273	(0.552)	0.246	0.027
152	12.67	0.93	0.273	(0.549)	0.246	0.027
153	12.75	0.93	0.273	(0.546)	0.246	0.027
154	12.83	0.97	0.283	(0.543)	0.255	0.028
155	12.92	0.97	0.283	(0.541)	0.255	0.028
156	13.00	0.97	0.283	(0.538)	0.255	0.028
157	13.08	1.13	0.332	(0.535)	0.299	0.033
158	13.17	1.13	0.332	(0.533)	0.299	0.033
159	13.25	1.13	0.332	(0.530)	0.299	0.033
160	13.33	1.13	0.332	(0.527)	0.299	0.033
161	13.42	1.13	0.332	(0.524)	0.299	0.033
162	13.50	1.13	0.332	(0.522)	0.299	0.033
163	13.58	0.77	0.224	(0.519)	0.202	0.022
164	13.67	0.77	0.224	(0.517)	0.202	0.022
165	13.75	0.77	0.224	(0.514)	0.202	0.022
166	13.83	0.77	0.224	(0.511)	0.202	0.022
167	13.92	0.77	0.224	(0.509)	0.202	0.022
168	14.00	0.77	0.224	(0.506)	0.202	0.022
169	14.08	0.90	0.264	(0.503)	0.237	0.026
170	14.17	0.90	0.264	(0.501)	0.237	0.026
171	14.25	0.90	0.264	(0.498)	0.237	0.026
172	14.33	0.87	0.254	(0.496)	0.228	0.025
173	14.42	0.87	0.254	(0.493)	0.228	0.025
174	14.50	0.87	0.254	(0.491)	0.228	0.025
175	14.58	0.87	0.254	(0.488)	0.228	0.025
176	14.67	0.87	0.254	(0.486)	0.228	0.025
177	14.75	0.87	0.254	(0.483)	0.228	0.025
178	14.83	0.83	0.244	(0.481)	0.220	0.024
179	14.92	0.83	0.244	(0.478)	0.220	0.024
180	15.00	0.83	0.244	(0.476)	0.220	0.024
181	15.08	0.80	0.234	(0.473)	0.211	0.023
182	15.17	0.80	0.234	(0.471)	0.211	0.023
183	15.25	0.80	0.234	(0.469)	0.211	0.023
184	15.33	0.77	0.224	(0.466)	0.202	0.022
185	15.42	0.77	0.224	(0.464)	0.202	0.022
186	15.50	0.77	0.224	(0.461)	0.202	0.022
187	15.58	0.63	0.185	(0.459)	0.167	0.019
188	15.67	0.63	0.185	(0.457)	0.167	0.019
189	15.75	0.63	0.185	(0.454)	0.167	0.019
190	15.83	0.63	0.185	(0.452)	0.167	0.019
191	15.92	0.63	0.185	(0.450)	0.167	0.019
192	16.00	0.63	0.185	(0.447)	0.167	0.019
193	16.08	0.13	0.039	(0.445)	0.035	0.004
194	16.17	0.13	0.039	(0.443)	0.035	0.004
195	16.25	0.13	0.039	(0.441)	0.035	0.004
196	16.33	0.13	0.039	(0.438)	0.035	0.004
197	16.42	0.13	0.039	(0.436)	0.035	0.004
198	16.50	0.13	0.039	(0.434)	0.035	0.004
199	16.58	0.10	0.029	(0.432)	0.026	0.003
200	16.67	0.10	0.029	(0.429)	0.026	0.003
201	16.75	0.10	0.029	(0.427)	0.026	0.003
202	16.83	0.10	0.029	(0.425)	0.026	0.003
203	16.92	0.10	0.029	(0.423)	0.026	0.003
204	17.00	0.10	0.029	(0.421)	0.026	0.003
205	17.08	0.17	0.049	(0.419)	0.044	0.005
206	17.17	0.17	0.049	(0.417)	0.044	0.005
207	17.25	0.17	0.049	(0.415)	0.044	0.005
208	17.33	0.17	0.049	(0.412)	0.044	0.005

209	17.42	0.17	0.049	(0.410)	0.044	0.005
210	17.50	0.17	0.049	(0.408)	0.044	0.005
211	17.58	0.17	0.049	(0.406)	0.044	0.005
212	17.67	0.17	0.049	(0.404)	0.044	0.005
213	17.75	0.17	0.049	(0.402)	0.044	0.005
214	17.83	0.13	0.039	(0.400)	0.035	0.004
215	17.92	0.13	0.039	(0.398)	0.035	0.004
216	18.00	0.13	0.039	(0.396)	0.035	0.004
217	18.08	0.13	0.039	(0.394)	0.035	0.004
218	18.17	0.13	0.039	(0.392)	0.035	0.004
219	18.25	0.13	0.039	(0.390)	0.035	0.004
220	18.33	0.13	0.039	(0.389)	0.035	0.004
221	18.42	0.13	0.039	(0.387)	0.035	0.004
222	18.50	0.13	0.039	(0.385)	0.035	0.004
223	18.58	0.10	0.029	(0.383)	0.026	0.003
224	18.67	0.10	0.029	(0.381)	0.026	0.003
225	18.75	0.10	0.029	(0.379)	0.026	0.003
226	18.83	0.07	0.020	(0.377)	0.018	0.002
227	18.92	0.07	0.020	(0.376)	0.018	0.002
228	19.00	0.07	0.020	(0.374)	0.018	0.002
229	19.08	0.10	0.029	(0.372)	0.026	0.003
230	19.17	0.10	0.029	(0.370)	0.026	0.003
231	19.25	0.10	0.029	(0.369)	0.026	0.003
232	19.33	0.13	0.039	(0.367)	0.035	0.004
233	19.42	0.13	0.039	(0.365)	0.035	0.004
234	19.50	0.13	0.039	(0.364)	0.035	0.004
235	19.58	0.10	0.029	(0.362)	0.026	0.003
236	19.67	0.10	0.029	(0.360)	0.026	0.003
237	19.75	0.10	0.029	(0.359)	0.026	0.003
238	19.83	0.07	0.020	(0.357)	0.018	0.002
239	19.92	0.07	0.020	(0.355)	0.018	0.002
240	20.00	0.07	0.020	(0.354)	0.018	0.002
241	20.08	0.10	0.029	(0.352)	0.026	0.003
242	20.17	0.10	0.029	(0.351)	0.026	0.003
243	20.25	0.10	0.029	(0.349)	0.026	0.003
244	20.33	0.10	0.029	(0.348)	0.026	0.003
245	20.42	0.10	0.029	(0.346)	0.026	0.003
246	20.50	0.10	0.029	(0.345)	0.026	0.003
247	20.58	0.10	0.029	(0.343)	0.026	0.003
248	20.67	0.10	0.029	(0.342)	0.026	0.003
249	20.75	0.10	0.029	(0.340)	0.026	0.003
250	20.83	0.07	0.020	(0.339)	0.018	0.002
251	20.92	0.07	0.020	(0.338)	0.018	0.002
252	21.00	0.07	0.020	(0.336)	0.018	0.002
253	21.08	0.10	0.029	(0.335)	0.026	0.003
254	21.17	0.10	0.029	(0.334)	0.026	0.003
255	21.25	0.10	0.029	(0.332)	0.026	0.003
256	21.33	0.07	0.020	(0.331)	0.018	0.002
257	21.42	0.07	0.020	(0.330)	0.018	0.002
258	21.50	0.07	0.020	(0.329)	0.018	0.002
259	21.58	0.10	0.029	(0.327)	0.026	0.003
260	21.67	0.10	0.029	(0.326)	0.026	0.003
261	21.75	0.10	0.029	(0.325)	0.026	0.003
262	21.83	0.07	0.020	(0.324)	0.018	0.002
263	21.92	0.07	0.020	(0.323)	0.018	0.002
264	22.00	0.07	0.020	(0.322)	0.018	0.002
265	22.08	0.10	0.029	(0.321)	0.026	0.003
266	22.17	0.10	0.029	(0.320)	0.026	0.003
267	22.25	0.10	0.029	(0.319)	0.026	0.003
268	22.33	0.07	0.020	(0.318)	0.018	0.002
269	22.42	0.07	0.020	(0.317)	0.018	0.002
270	22.50	0.07	0.020	(0.316)	0.018	0.002
271	22.58	0.07	0.020	(0.315)	0.018	0.002

272	22.67	0.07	0.020	(0.314)	0.018	0.002
273	22.75	0.07	0.020	(0.313)	0.018	0.002
274	22.83	0.07	0.020	(0.312)	0.018	0.002
275	22.92	0.07	0.020	(0.311)	0.018	0.002
276	23.00	0.07	0.020	(0.311)	0.018	0.002
277	23.08	0.07	0.020	(0.310)	0.018	0.002
278	23.17	0.07	0.020	(0.309)	0.018	0.002
279	23.25	0.07	0.020	(0.309)	0.018	0.002
280	23.33	0.07	0.020	(0.308)	0.018	0.002
281	23.42	0.07	0.020	(0.307)	0.018	0.002
282	23.50	0.07	0.020	(0.307)	0.018	0.002
283	23.58	0.07	0.020	(0.306)	0.018	0.002
284	23.67	0.07	0.020	(0.306)	0.018	0.002
285	23.75	0.07	0.020	(0.305)	0.018	0.002
286	23.83	0.07	0.020	(0.305)	0.018	0.002
287	23.92	0.07	0.020	(0.305)	0.018	0.002
288	24.00	0.07	0.020	(0.305)	0.018	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 2.9

Flood volume = Effective rainfall 0.24 (In)
times area 7.1 (Ac.) / [(In) / (Ft.)] = 0.1 (Ac.Ft)

Total soil loss = 2.20 (In)

Total soil loss = 1.303 (Ac.Ft)

Total rainfall = 2.44 (In)

Flood volume = 6306.2 Cubic Feet

Total soil loss = 56756.1 Cubic Feet

Peak flow rate of this hydrograph = 0.238 (CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.02	Q				
0+25	0.0004	0.02	Q				
0+30	0.0006	0.02	Q				
0+35	0.0007	0.02	Q				
0+40	0.0009	0.02	Q				
0+45	0.0010	0.02	Q				
0+50	0.0012	0.02	Q				
0+55	0.0014	0.03	Q				
1+ 0	0.0016	0.03	Q				
1+ 5	0.0017	0.03	Q				
1+10	0.0019	0.02	Q				
1+15	0.0020	0.02	Q				
1+20	0.0022	0.02	Q				
1+25	0.0023	0.02	Q				
1+30	0.0025	0.02	Q				
1+35	0.0026	0.02	Q				
1+40	0.0028	0.02	Q				
1+45	0.0029	0.02	Q				
1+50	0.0031	0.02	Q				
1+55	0.0032	0.03	Q				
2+ 0	0.0034	0.03	Q				
2+ 5	0.0036	0.03	QV				

2+10	0.0038	0.03	QV				
2+15	0.0040	0.03	QV				
2+20	0.0042	0.03	QV				
2+25	0.0044	0.03	QV				
2+30	0.0046	0.03	QV				
2+35	0.0048	0.03	QV				
2+40	0.0050	0.03	QV				
2+45	0.0053	0.03	QV				
2+50	0.0055	0.03	QV				
2+55	0.0057	0.03	QV				
3+ 0	0.0060	0.04	QV				
3+ 5	0.0062	0.04	QV				
3+10	0.0065	0.04	QV				
3+15	0.0067	0.04	QV				
3+20	0.0070	0.04	QV				
3+25	0.0072	0.04	QV				
3+30	0.0074	0.04	Q V				
3+35	0.0077	0.04	Q V				
3+40	0.0079	0.04	Q V				
3+45	0.0082	0.04	Q V				
3+50	0.0084	0.04	Q V				
3+55	0.0087	0.04	Q V				
4+ 0	0.0090	0.04	Q V				
4+ 5	0.0093	0.04	Q V				
4+10	0.0096	0.04	Q V				
4+15	0.0099	0.04	Q V				
4+20	0.0102	0.04	Q V				
4+25	0.0105	0.05	Q V				
4+30	0.0108	0.05	Q V				
4+35	0.0112	0.05	Q V				
4+40	0.0115	0.05	Q V				
4+45	0.0118	0.05	Q V				
4+50	0.0122	0.05	Q V				
4+55	0.0126	0.05	Q V				
5+ 0	0.0129	0.06	Q V				
5+ 5	0.0133	0.05	Q V				
5+10	0.0136	0.04	Q V				
5+15	0.0139	0.04	Q V				
5+20	0.0142	0.04	Q V				
5+25	0.0145	0.05	Q V				
5+30	0.0149	0.05	Q V				
5+35	0.0152	0.05	Q V				
5+40	0.0156	0.05	Q V				
5+45	0.0160	0.06	Q V				
5+50	0.0164	0.06	Q V				
5+55	0.0168	0.06	Q V				
6+ 0	0.0171	0.06	Q V				
6+ 5	0.0175	0.06	Q V				
6+10	0.0180	0.06	Q V				
6+15	0.0184	0.06	Q V				
6+20	0.0188	0.06	Q V				
6+25	0.0193	0.06	Q V				
6+30	0.0197	0.06	Q V				
6+35	0.0202	0.07	Q V				
6+40	0.0206	0.07	Q V				
6+45	0.0211	0.07	Q V				
6+50	0.0216	0.07	Q V				
6+55	0.0221	0.07	Q V				
7+ 0	0.0225	0.07	Q V				
7+ 5	0.0230	0.07	Q V				
7+10	0.0235	0.07	Q V				
7+15	0.0240	0.07	Q V				
7+20	0.0245	0.07	Q V				

7+25	0.0250	0.08	Q	V				
7+30	0.0255	0.08	Q	V				
7+35	0.0261	0.08	Q	V				
7+40	0.0267	0.08	Q	V				
7+45	0.0272	0.08	Q	V				
7+50	0.0278	0.09	Q	V				
7+55	0.0284	0.09	Q	V				
8+ 0	0.0291	0.09	Q	V				
8+ 5	0.0297	0.10	Q	V				
8+10	0.0304	0.10	Q	V				
8+15	0.0311	0.10	Q	V				
8+20	0.0319	0.10	Q	V				
8+25	0.0326	0.10	Q	V				
8+30	0.0333	0.11	Q	V				
8+35	0.0341	0.11	Q	V				
8+40	0.0348	0.11	Q	V				
8+45	0.0356	0.11	Q	V				
8+50	0.0364	0.11	Q	V				
8+55	0.0372	0.12	Q	V				
9+ 0	0.0380	0.12	Q	V				
9+ 5	0.0389	0.12	Q	V				
9+10	0.0397	0.13	Q	V				
9+15	0.0407	0.13	Q	V				
9+20	0.0416	0.14	Q	V				
9+25	0.0425	0.14	Q	V				
9+30	0.0435	0.14	Q	V				
9+35	0.0445	0.14	Q	V				
9+40	0.0455	0.15	Q	V				
9+45	0.0465	0.15	Q	V				
9+50	0.0475	0.15	Q	V				
9+55	0.0486	0.15	Q	V				
10+ 0	0.0496	0.15	Q	V				
10+ 5	0.0506	0.14	Q	V				
10+10	0.0514	0.11	Q	V				
10+15	0.0521	0.11	Q	V				
10+20	0.0529	0.11	Q	V				
10+25	0.0536	0.11	Q	V				
10+30	0.0543	0.11	Q	V				
10+35	0.0551	0.12	Q	V				
10+40	0.0560	0.13	Q	V				
10+45	0.0570	0.14	Q	V				
10+50	0.0579	0.14	Q	V				
10+55	0.0589	0.14	Q	V				
11+ 0	0.0599	0.14	Q	V				
11+ 5	0.0608	0.14	Q	V				
11+10	0.0617	0.13	Q	V				
11+15	0.0627	0.13	Q	V				
11+20	0.0636	0.13	Q	V				
11+25	0.0645	0.13	Q	V				
11+30	0.0654	0.13	Q	V				
11+35	0.0663	0.13	Q	V				
11+40	0.0671	0.12	Q	V				
11+45	0.0680	0.12	Q	V				
11+50	0.0688	0.12	Q	V				
11+55	0.0697	0.12	Q	V				
12+ 0	0.0705	0.13	Q	V				
12+ 5	0.0715	0.14	Q	V				
12+10	0.0727	0.17	Q	V				
12+15	0.0738	0.17	Q	V				
12+20	0.0750	0.18	Q	V				
12+25	0.0763	0.18	Q	V				
12+30	0.0775	0.18	Q	V				
12+35	0.0788	0.19	Q	V				

12+40	0.0802	0.19	Q			V		
12+45	0.0815	0.20	Q			V		
12+50	0.0829	0.20	Q			V		
12+55	0.0842	0.20	Q			V		
13+ 0	0.0856	0.20	Q			V		
13+ 5	0.0871	0.21	Q			V		
13+10	0.0887	0.23	Q			V		
13+15	0.0903	0.24	Q			V		
13+20	0.0920	0.24	Q			V		
13+25	0.0936	0.24	Q			V		
13+30	0.0953	0.24	Q			V		
13+35	0.0967	0.21	Q			V		
13+40	0.0979	0.18	Q			V		
13+45	0.0991	0.17	Q			V		
13+50	0.1002	0.16	Q			V		
13+55	0.1013	0.16	Q			V		
14+ 0	0.1024	0.16	Q			V		
14+ 5	0.1036	0.17	Q			V		
14+10	0.1049	0.18	Q			V		
14+15	0.1062	0.19	Q			V		
14+20	0.1074	0.19	Q			V		
14+25	0.1087	0.18	Q			V		
14+30	0.1100	0.18	Q			V		
14+35	0.1112	0.18	Q			V		
14+40	0.1125	0.18	Q			V		
14+45	0.1137	0.18	Q			V		
14+50	0.1150	0.18	Q			V		
14+55	0.1162	0.18	Q			V		
15+ 0	0.1174	0.18	Q			V		
15+ 5	0.1186	0.17	Q			V		
15+10	0.1197	0.17	Q			V		
15+15	0.1209	0.17	Q			V		
15+20	0.1221	0.17	Q			V		
15+25	0.1232	0.16	Q			V		
15+30	0.1243	0.16	Q			V		
15+35	0.1253	0.15	Q			V		
15+40	0.1263	0.14	Q			V		
15+45	0.1272	0.14	Q			V		
15+50	0.1281	0.13	Q			V		
15+55	0.1291	0.13	Q			V		
16+ 0	0.1300	0.13	Q			V		
16+ 5	0.1306	0.10	Q			V		
16+10	0.1310	0.05	Q			V		
16+15	0.1312	0.04	Q			V		
16+20	0.1314	0.03	Q			V		
16+25	0.1316	0.03	Q			V		
16+30	0.1318	0.03	Q			V		
16+35	0.1320	0.03	Q			V		
16+40	0.1322	0.02	Q			V		
16+45	0.1323	0.02	Q			V		
16+50	0.1325	0.02	Q			V		
16+55	0.1326	0.02	Q			V		
17+ 0	0.1328	0.02	Q			V		
17+ 5	0.1329	0.03	Q			V		
17+10	0.1332	0.03	Q			V		
17+15	0.1334	0.03	Q			V		
17+20	0.1336	0.03	Q			V		
17+25	0.1339	0.03	Q			V		
17+30	0.1341	0.04	Q			V		
17+35	0.1344	0.04	Q			V		
17+40	0.1346	0.04	Q			V		
17+45	0.1348	0.04	Q			V		
17+50	0.1351	0.03	Q			V		

17+55	0.1353	0.03	Q				V	
18+ 0	0.1355	0.03	Q				V	
18+ 5	0.1357	0.03	Q				V	
18+10	0.1358	0.03	Q				V	
18+15	0.1360	0.03	Q				V	
18+20	0.1362	0.03	Q				V	
18+25	0.1364	0.03	Q				V	
18+30	0.1366	0.03	Q				V	
18+35	0.1368	0.03	Q				V	
18+40	0.1370	0.02	Q				V	
18+45	0.1371	0.02	Q				V	
18+50	0.1372	0.02	Q				V	
18+55	0.1373	0.02	Q				V	
19+ 0	0.1374	0.01	Q				V	
19+ 5	0.1376	0.02	Q				V	
19+10	0.1377	0.02	Q				V	
19+15	0.1378	0.02	Q				V	
19+20	0.1380	0.02	Q				V	
19+25	0.1382	0.03	Q				V	
19+30	0.1384	0.03	Q				V	
19+35	0.1385	0.03	Q				V	
19+40	0.1387	0.02	Q				V	
19+45	0.1388	0.02	Q				V	
19+50	0.1390	0.02	Q				V	
19+55	0.1391	0.02	Q				V	
20+ 0	0.1392	0.01	Q				V	
20+ 5	0.1393	0.02	Q				V	
20+10	0.1394	0.02	Q				V	
20+15	0.1396	0.02	Q				V	
20+20	0.1397	0.02	Q				V	
20+25	0.1399	0.02	Q				V	
20+30	0.1400	0.02	Q				V	
20+35	0.1401	0.02	Q				V	
20+40	0.1403	0.02	Q				V	
20+45	0.1404	0.02	Q				V	
20+50	0.1406	0.02	Q				V	
20+55	0.1407	0.02	Q				V	
21+ 0	0.1408	0.01	Q				V	
21+ 5	0.1409	0.02	Q				V	
21+10	0.1410	0.02	Q				V	
21+15	0.1412	0.02	Q				V	
21+20	0.1413	0.02	Q				V	
21+25	0.1414	0.02	Q				V	
21+30	0.1415	0.01	Q				V	
21+35	0.1416	0.02	Q				V	
21+40	0.1417	0.02	Q				V	
21+45	0.1419	0.02	Q				V	
21+50	0.1420	0.02	Q				V	
21+55	0.1421	0.02	Q				V	
22+ 0	0.1422	0.01	Q				V	
22+ 5	0.1423	0.02	Q				V	
22+10	0.1425	0.02	Q				V	
22+15	0.1426	0.02	Q				V	
22+20	0.1427	0.02	Q				V	
22+25	0.1428	0.02	Q				V	
22+30	0.1429	0.01	Q				V	
22+35	0.1430	0.01	Q				V	
22+40	0.1431	0.01	Q				V	
22+45	0.1432	0.01	Q				V	
22+50	0.1433	0.01	Q				V	
22+55	0.1434	0.01	Q				V	
23+ 0	0.1435	0.01	Q				V	
23+ 5	0.1436	0.01	Q				V	

23+10	0.1437	0.01	Q				V
23+15	0.1438	0.01	Q				V
23+20	0.1439	0.01	Q				V
23+25	0.1440	0.01	Q				V
23+30	0.1441	0.01	Q				V
23+35	0.1442	0.01	Q				V
23+40	0.1443	0.01	Q				V
23+45	0.1444	0.01	Q				V
23+50	0.1445	0.01	Q				V
23+55	0.1446	0.01	Q				V
24+ 0	0.1447	0.01	Q				V
24+ 5	0.1447	0.01	Q				V
24+10	0.1448	0.00	Q				V
24+15	0.1448	0.00	Q				V
24+20	0.1448	0.00	Q				V
24+25	0.1448	0.00	Q				V

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

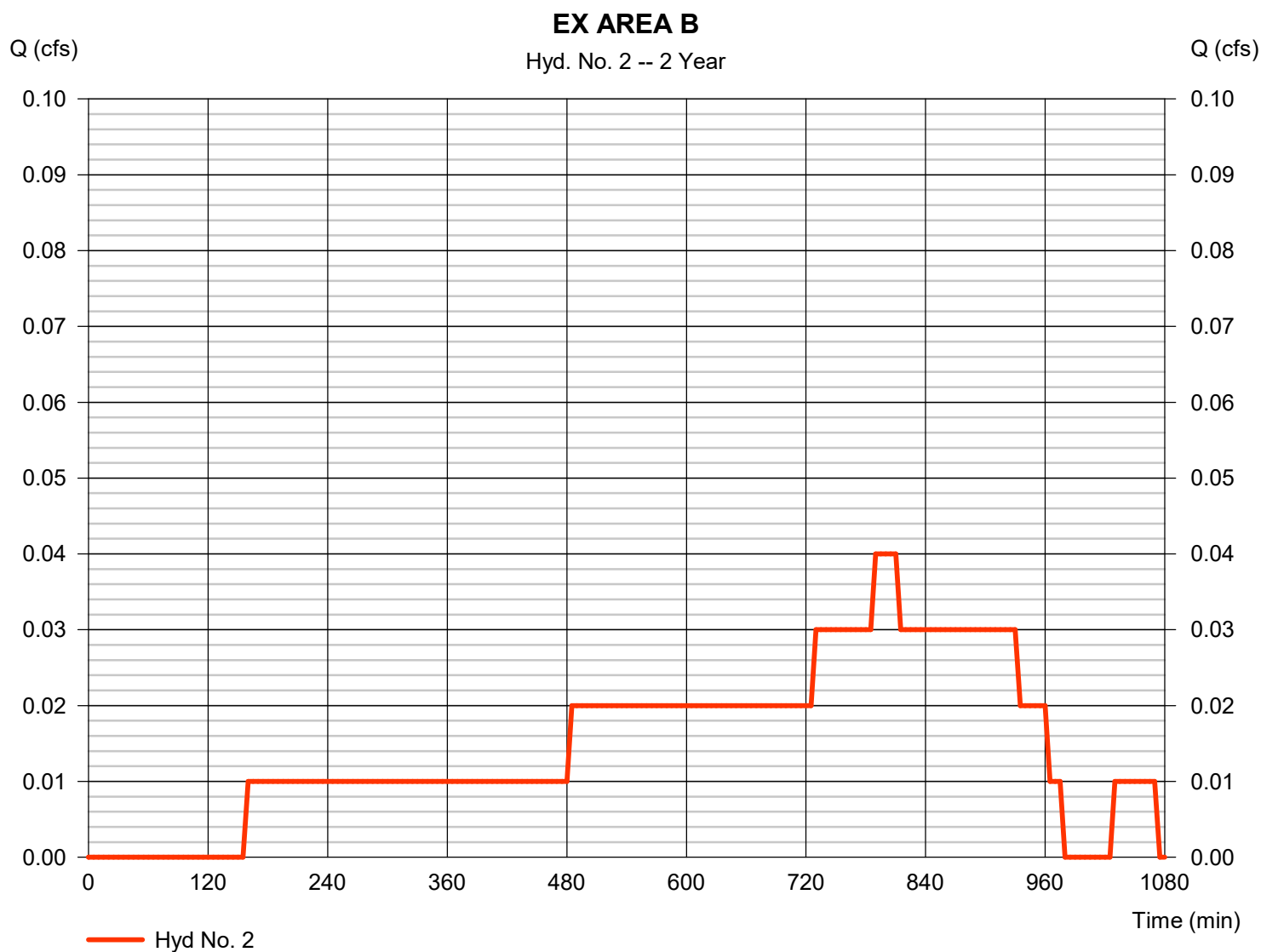
Friday, 12 / 17 / 2021

Hyd. No. 2

EX AREA B

Hydrograph type = Manual
 Storm frequency = 2 yrs
 Time interval = 5 min

Peak discharge = 0.040 cfs
 Time to peak = 790 min
 Hyd. volume = 945 cuft



Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2
Study date 12/14/21 File: 19400EB242.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Existing 2-yr 24-hr
Area B

Drainage Area = 1.13(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.13(Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 520.00(Ft.)
Length along longest watercourse measured to centroid = 315.00(Ft.)
Length along longest watercourse = 0.098 Mi.
Length along longest watercourse measured to centroid = 0.060 Mi.
Difference in elevation = 13.00(Ft.)
Slope along watercourse = 132.0000 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.040 Hr.
Lag time = 2.43 Min.
25% of lag time = 0.61 Min.
40% of lag time = 0.97 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]
1.13	2.44	2.76

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.13	6.64	7.50

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.440(In)
Area Averaged 100-Year Rainfall = 6.640(In)

Point rain (area averaged) = 2.440(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.440(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.130 66.00 0.000
Total Area Entered = 1.13(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
66.0	46.2	0.609	0.000	0.609	1.000	0.609
						Sum (F) = 0.609

Area averaged mean soil loss (F) (In/Hr) = 0.609
Minimum soil loss rate ((In/Hr)) = 0.305
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	206.138	44.442	0.506
2 0.167	412.276	42.941	0.489
3 0.250	618.414	8.549	0.097
4 0.333	824.552	4.067	0.046
		Sum = 100.000	Sum= 1.139

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1 0.08	0.07	0.020	(1.080)	0.018
2 0.17	0.07	0.020	(1.076)	0.018
3 0.25	0.07	0.020	(1.072)	0.018
4 0.33	0.10	0.029	(1.068)	0.026
5 0.42	0.10	0.029	(1.063)	0.026
6 0.50	0.10	0.029	(1.059)	0.026
7 0.58	0.10	0.029	(1.055)	0.026
8 0.67	0.10	0.029	(1.051)	0.026
9 0.75	0.10	0.029	(1.047)	0.026
10 0.83	0.13	0.039	(1.043)	0.035
11 0.92	0.13	0.039	(1.039)	0.035
12 1.00	0.13	0.039	(1.035)	0.035
13 1.08	0.10	0.029	(1.030)	0.026
14 1.17	0.10	0.029	(1.026)	0.026
15 1.25	0.10	0.029	(1.022)	0.026
16 1.33	0.10	0.029	(1.018)	0.026
17 1.42	0.10	0.029	(1.014)	0.026
18 1.50	0.10	0.029	(1.010)	0.026
19 1.58	0.10	0.029	(1.006)	0.026
20 1.67	0.10	0.029	(1.002)	0.026
21 1.75	0.10	0.029	(0.998)	0.026

22	1.83	0.13	0.039	(0.994)	0.035	0.004
23	1.92	0.13	0.039	(0.990)	0.035	0.004
24	2.00	0.13	0.039	(0.986)	0.035	0.004
25	2.08	0.13	0.039	(0.982)	0.035	0.004
26	2.17	0.13	0.039	(0.978)	0.035	0.004
27	2.25	0.13	0.039	(0.974)	0.035	0.004
28	2.33	0.13	0.039	(0.970)	0.035	0.004
29	2.42	0.13	0.039	(0.966)	0.035	0.004
30	2.50	0.13	0.039	(0.962)	0.035	0.004
31	2.58	0.17	0.049	(0.958)	0.044	0.005
32	2.67	0.17	0.049	(0.954)	0.044	0.005
33	2.75	0.17	0.049	(0.950)	0.044	0.005
34	2.83	0.17	0.049	(0.946)	0.044	0.005
35	2.92	0.17	0.049	(0.943)	0.044	0.005
36	3.00	0.17	0.049	(0.939)	0.044	0.005
37	3.08	0.17	0.049	(0.935)	0.044	0.005
38	3.17	0.17	0.049	(0.931)	0.044	0.005
39	3.25	0.17	0.049	(0.927)	0.044	0.005
40	3.33	0.17	0.049	(0.923)	0.044	0.005
41	3.42	0.17	0.049	(0.919)	0.044	0.005
42	3.50	0.17	0.049	(0.915)	0.044	0.005
43	3.58	0.17	0.049	(0.912)	0.044	0.005
44	3.67	0.17	0.049	(0.908)	0.044	0.005
45	3.75	0.17	0.049	(0.904)	0.044	0.005
46	3.83	0.20	0.059	(0.900)	0.053	0.006
47	3.92	0.20	0.059	(0.896)	0.053	0.006
48	4.00	0.20	0.059	(0.893)	0.053	0.006
49	4.08	0.20	0.059	(0.889)	0.053	0.006
50	4.17	0.20	0.059	(0.885)	0.053	0.006
51	4.25	0.20	0.059	(0.881)	0.053	0.006
52	4.33	0.23	0.068	(0.878)	0.061	0.007
53	4.42	0.23	0.068	(0.874)	0.061	0.007
54	4.50	0.23	0.068	(0.870)	0.061	0.007
55	4.58	0.23	0.068	(0.866)	0.061	0.007
56	4.67	0.23	0.068	(0.863)	0.061	0.007
57	4.75	0.23	0.068	(0.859)	0.061	0.007
58	4.83	0.27	0.078	(0.855)	0.070	0.008
59	4.92	0.27	0.078	(0.851)	0.070	0.008
60	5.00	0.27	0.078	(0.848)	0.070	0.008
61	5.08	0.20	0.059	(0.844)	0.053	0.006
62	5.17	0.20	0.059	(0.840)	0.053	0.006
63	5.25	0.20	0.059	(0.837)	0.053	0.006
64	5.33	0.23	0.068	(0.833)	0.061	0.007
65	5.42	0.23	0.068	(0.829)	0.061	0.007
66	5.50	0.23	0.068	(0.826)	0.061	0.007
67	5.58	0.27	0.078	(0.822)	0.070	0.008
68	5.67	0.27	0.078	(0.819)	0.070	0.008
69	5.75	0.27	0.078	(0.815)	0.070	0.008
70	5.83	0.27	0.078	(0.811)	0.070	0.008
71	5.92	0.27	0.078	(0.808)	0.070	0.008
72	6.00	0.27	0.078	(0.804)	0.070	0.008
73	6.08	0.30	0.088	(0.801)	0.079	0.009
74	6.17	0.30	0.088	(0.797)	0.079	0.009
75	6.25	0.30	0.088	(0.793)	0.079	0.009
76	6.33	0.30	0.088	(0.790)	0.079	0.009
77	6.42	0.30	0.088	(0.786)	0.079	0.009
78	6.50	0.30	0.088	(0.783)	0.079	0.009
79	6.58	0.33	0.098	(0.779)	0.088	0.010
80	6.67	0.33	0.098	(0.776)	0.088	0.010
81	6.75	0.33	0.098	(0.772)	0.088	0.010
82	6.83	0.33	0.098	(0.769)	0.088	0.010
83	6.92	0.33	0.098	(0.765)	0.088	0.010
84	7.00	0.33	0.098	(0.762)	0.088	0.010

85	7.08	0.33	0.098	(0.758)	0.088	0.010
86	7.17	0.33	0.098	(0.755)	0.088	0.010
87	7.25	0.33	0.098	(0.752)	0.088	0.010
88	7.33	0.37	0.107	(0.748)	0.097	0.011
89	7.42	0.37	0.107	(0.745)	0.097	0.011
90	7.50	0.37	0.107	(0.741)	0.097	0.011
91	7.58	0.40	0.117	(0.738)	0.105	0.012
92	7.67	0.40	0.117	(0.734)	0.105	0.012
93	7.75	0.40	0.117	(0.731)	0.105	0.012
94	7.83	0.43	0.127	(0.728)	0.114	0.013
95	7.92	0.43	0.127	(0.724)	0.114	0.013
96	8.00	0.43	0.127	(0.721)	0.114	0.013
97	8.08	0.50	0.146	(0.718)	0.132	0.015
98	8.17	0.50	0.146	(0.714)	0.132	0.015
99	8.25	0.50	0.146	(0.711)	0.132	0.015
100	8.33	0.50	0.146	(0.708)	0.132	0.015
101	8.42	0.50	0.146	(0.704)	0.132	0.015
102	8.50	0.50	0.146	(0.701)	0.132	0.015
103	8.58	0.53	0.156	(0.698)	0.141	0.016
104	8.67	0.53	0.156	(0.694)	0.141	0.016
105	8.75	0.53	0.156	(0.691)	0.141	0.016
106	8.83	0.57	0.166	(0.688)	0.149	0.017
107	8.92	0.57	0.166	(0.685)	0.149	0.017
108	9.00	0.57	0.166	(0.681)	0.149	0.017
109	9.08	0.63	0.185	(0.678)	0.167	0.019
110	9.17	0.63	0.185	(0.675)	0.167	0.019
111	9.25	0.63	0.185	(0.672)	0.167	0.019
112	9.33	0.67	0.195	(0.669)	0.176	0.020
113	9.42	0.67	0.195	(0.665)	0.176	0.020
114	9.50	0.67	0.195	(0.662)	0.176	0.020
115	9.58	0.70	0.205	(0.659)	0.184	0.020
116	9.67	0.70	0.205	(0.656)	0.184	0.020
117	9.75	0.70	0.205	(0.653)	0.184	0.020
118	9.83	0.73	0.215	(0.650)	0.193	0.021
119	9.92	0.73	0.215	(0.646)	0.193	0.021
120	10.00	0.73	0.215	(0.643)	0.193	0.021
121	10.08	0.50	0.146	(0.640)	0.132	0.015
122	10.17	0.50	0.146	(0.637)	0.132	0.015
123	10.25	0.50	0.146	(0.634)	0.132	0.015
124	10.33	0.50	0.146	(0.631)	0.132	0.015
125	10.42	0.50	0.146	(0.628)	0.132	0.015
126	10.50	0.50	0.146	(0.625)	0.132	0.015
127	10.58	0.67	0.195	(0.622)	0.176	0.020
128	10.67	0.67	0.195	(0.619)	0.176	0.020
129	10.75	0.67	0.195	(0.616)	0.176	0.020
130	10.83	0.67	0.195	(0.613)	0.176	0.020
131	10.92	0.67	0.195	(0.610)	0.176	0.020
132	11.00	0.67	0.195	(0.607)	0.176	0.020
133	11.08	0.63	0.185	(0.604)	0.167	0.019
134	11.17	0.63	0.185	(0.601)	0.167	0.019
135	11.25	0.63	0.185	(0.598)	0.167	0.019
136	11.33	0.63	0.185	(0.595)	0.167	0.019
137	11.42	0.63	0.185	(0.592)	0.167	0.019
138	11.50	0.63	0.185	(0.589)	0.167	0.019
139	11.58	0.57	0.166	(0.586)	0.149	0.017
140	11.67	0.57	0.166	(0.583)	0.149	0.017
141	11.75	0.57	0.166	(0.580)	0.149	0.017
142	11.83	0.60	0.176	(0.577)	0.158	0.018
143	11.92	0.60	0.176	(0.574)	0.158	0.018
144	12.00	0.60	0.176	(0.572)	0.158	0.018
145	12.08	0.83	0.244	(0.569)	0.220	0.024
146	12.17	0.83	0.244	(0.566)	0.220	0.024
147	12.25	0.83	0.244	(0.563)	0.220	0.024

148	12.33	0.87	0.254	(0.560)	0.228	0.025
149	12.42	0.87	0.254	(0.557)	0.228	0.025
150	12.50	0.87	0.254	(0.555)	0.228	0.025
151	12.58	0.93	0.273	(0.552)	0.246	0.027
152	12.67	0.93	0.273	(0.549)	0.246	0.027
153	12.75	0.93	0.273	(0.546)	0.246	0.027
154	12.83	0.97	0.283	(0.543)	0.255	0.028
155	12.92	0.97	0.283	(0.541)	0.255	0.028
156	13.00	0.97	0.283	(0.538)	0.255	0.028
157	13.08	1.13	0.332	(0.535)	0.299	0.033
158	13.17	1.13	0.332	(0.533)	0.299	0.033
159	13.25	1.13	0.332	(0.530)	0.299	0.033
160	13.33	1.13	0.332	(0.527)	0.299	0.033
161	13.42	1.13	0.332	(0.524)	0.299	0.033
162	13.50	1.13	0.332	(0.522)	0.299	0.033
163	13.58	0.77	0.224	(0.519)	0.202	0.022
164	13.67	0.77	0.224	(0.517)	0.202	0.022
165	13.75	0.77	0.224	(0.514)	0.202	0.022
166	13.83	0.77	0.224	(0.511)	0.202	0.022
167	13.92	0.77	0.224	(0.509)	0.202	0.022
168	14.00	0.77	0.224	(0.506)	0.202	0.022
169	14.08	0.90	0.264	(0.503)	0.237	0.026
170	14.17	0.90	0.264	(0.501)	0.237	0.026
171	14.25	0.90	0.264	(0.498)	0.237	0.026
172	14.33	0.87	0.254	(0.496)	0.228	0.025
173	14.42	0.87	0.254	(0.493)	0.228	0.025
174	14.50	0.87	0.254	(0.491)	0.228	0.025
175	14.58	0.87	0.254	(0.488)	0.228	0.025
176	14.67	0.87	0.254	(0.486)	0.228	0.025
177	14.75	0.87	0.254	(0.483)	0.228	0.025
178	14.83	0.83	0.244	(0.481)	0.220	0.024
179	14.92	0.83	0.244	(0.478)	0.220	0.024
180	15.00	0.83	0.244	(0.476)	0.220	0.024
181	15.08	0.80	0.234	(0.473)	0.211	0.023
182	15.17	0.80	0.234	(0.471)	0.211	0.023
183	15.25	0.80	0.234	(0.469)	0.211	0.023
184	15.33	0.77	0.224	(0.466)	0.202	0.022
185	15.42	0.77	0.224	(0.464)	0.202	0.022
186	15.50	0.77	0.224	(0.461)	0.202	0.022
187	15.58	0.63	0.185	(0.459)	0.167	0.019
188	15.67	0.63	0.185	(0.457)	0.167	0.019
189	15.75	0.63	0.185	(0.454)	0.167	0.019
190	15.83	0.63	0.185	(0.452)	0.167	0.019
191	15.92	0.63	0.185	(0.450)	0.167	0.019
192	16.00	0.63	0.185	(0.447)	0.167	0.019
193	16.08	0.13	0.039	(0.445)	0.035	0.004
194	16.17	0.13	0.039	(0.443)	0.035	0.004
195	16.25	0.13	0.039	(0.441)	0.035	0.004
196	16.33	0.13	0.039	(0.438)	0.035	0.004
197	16.42	0.13	0.039	(0.436)	0.035	0.004
198	16.50	0.13	0.039	(0.434)	0.035	0.004
199	16.58	0.10	0.029	(0.432)	0.026	0.003
200	16.67	0.10	0.029	(0.429)	0.026	0.003
201	16.75	0.10	0.029	(0.427)	0.026	0.003
202	16.83	0.10	0.029	(0.425)	0.026	0.003
203	16.92	0.10	0.029	(0.423)	0.026	0.003
204	17.00	0.10	0.029	(0.421)	0.026	0.003
205	17.08	0.17	0.049	(0.419)	0.044	0.005
206	17.17	0.17	0.049	(0.417)	0.044	0.005
207	17.25	0.17	0.049	(0.415)	0.044	0.005
208	17.33	0.17	0.049	(0.412)	0.044	0.005
209	17.42	0.17	0.049	(0.410)	0.044	0.005
210	17.50	0.17	0.049	(0.408)	0.044	0.005

211	17.58	0.17	0.049	(0.406)	0.044	0.005
212	17.67	0.17	0.049	(0.404)	0.044	0.005
213	17.75	0.17	0.049	(0.402)	0.044	0.005
214	17.83	0.13	0.039	(0.400)	0.035	0.004
215	17.92	0.13	0.039	(0.398)	0.035	0.004
216	18.00	0.13	0.039	(0.396)	0.035	0.004
217	18.08	0.13	0.039	(0.394)	0.035	0.004
218	18.17	0.13	0.039	(0.392)	0.035	0.004
219	18.25	0.13	0.039	(0.390)	0.035	0.004
220	18.33	0.13	0.039	(0.389)	0.035	0.004
221	18.42	0.13	0.039	(0.387)	0.035	0.004
222	18.50	0.13	0.039	(0.385)	0.035	0.004
223	18.58	0.10	0.029	(0.383)	0.026	0.003
224	18.67	0.10	0.029	(0.381)	0.026	0.003
225	18.75	0.10	0.029	(0.379)	0.026	0.003
226	18.83	0.07	0.020	(0.377)	0.018	0.002
227	18.92	0.07	0.020	(0.376)	0.018	0.002
228	19.00	0.07	0.020	(0.374)	0.018	0.002
229	19.08	0.10	0.029	(0.372)	0.026	0.003
230	19.17	0.10	0.029	(0.370)	0.026	0.003
231	19.25	0.10	0.029	(0.369)	0.026	0.003
232	19.33	0.13	0.039	(0.367)	0.035	0.004
233	19.42	0.13	0.039	(0.365)	0.035	0.004
234	19.50	0.13	0.039	(0.364)	0.035	0.004
235	19.58	0.10	0.029	(0.362)	0.026	0.003
236	19.67	0.10	0.029	(0.360)	0.026	0.003
237	19.75	0.10	0.029	(0.359)	0.026	0.003
238	19.83	0.07	0.020	(0.357)	0.018	0.002
239	19.92	0.07	0.020	(0.355)	0.018	0.002
240	20.00	0.07	0.020	(0.354)	0.018	0.002
241	20.08	0.10	0.029	(0.352)	0.026	0.003
242	20.17	0.10	0.029	(0.351)	0.026	0.003
243	20.25	0.10	0.029	(0.349)	0.026	0.003
244	20.33	0.10	0.029	(0.348)	0.026	0.003
245	20.42	0.10	0.029	(0.346)	0.026	0.003
246	20.50	0.10	0.029	(0.345)	0.026	0.003
247	20.58	0.10	0.029	(0.343)	0.026	0.003
248	20.67	0.10	0.029	(0.342)	0.026	0.003
249	20.75	0.10	0.029	(0.340)	0.026	0.003
250	20.83	0.07	0.020	(0.339)	0.018	0.002
251	20.92	0.07	0.020	(0.338)	0.018	0.002
252	21.00	0.07	0.020	(0.336)	0.018	0.002
253	21.08	0.10	0.029	(0.335)	0.026	0.003
254	21.17	0.10	0.029	(0.334)	0.026	0.003
255	21.25	0.10	0.029	(0.332)	0.026	0.003
256	21.33	0.07	0.020	(0.331)	0.018	0.002
257	21.42	0.07	0.020	(0.330)	0.018	0.002
258	21.50	0.07	0.020	(0.329)	0.018	0.002
259	21.58	0.10	0.029	(0.327)	0.026	0.003
260	21.67	0.10	0.029	(0.326)	0.026	0.003
261	21.75	0.10	0.029	(0.325)	0.026	0.003
262	21.83	0.07	0.020	(0.324)	0.018	0.002
263	21.92	0.07	0.020	(0.323)	0.018	0.002
264	22.00	0.07	0.020	(0.322)	0.018	0.002
265	22.08	0.10	0.029	(0.321)	0.026	0.003
266	22.17	0.10	0.029	(0.320)	0.026	0.003
267	22.25	0.10	0.029	(0.319)	0.026	0.003
268	22.33	0.07	0.020	(0.318)	0.018	0.002
269	22.42	0.07	0.020	(0.317)	0.018	0.002
270	22.50	0.07	0.020	(0.316)	0.018	0.002
271	22.58	0.07	0.020	(0.315)	0.018	0.002
272	22.67	0.07	0.020	(0.314)	0.018	0.002
273	22.75	0.07	0.020	(0.313)	0.018	0.002

274	22.83	0.07	0.020	(0.312)	0.018	0.002
275	22.92	0.07	0.020	(0.311)	0.018	0.002
276	23.00	0.07	0.020	(0.311)	0.018	0.002
277	23.08	0.07	0.020	(0.310)	0.018	0.002
278	23.17	0.07	0.020	(0.309)	0.018	0.002
279	23.25	0.07	0.020	(0.309)	0.018	0.002
280	23.33	0.07	0.020	(0.308)	0.018	0.002
281	23.42	0.07	0.020	(0.307)	0.018	0.002
282	23.50	0.07	0.020	(0.307)	0.018	0.002
283	23.58	0.07	0.020	(0.306)	0.018	0.002
284	23.67	0.07	0.020	(0.306)	0.018	0.002
285	23.75	0.07	0.020	(0.305)	0.018	0.002
286	23.83	0.07	0.020	(0.305)	0.018	0.002
287	23.92	0.07	0.020	(0.305)	0.018	0.002
288	24.00	0.07	0.020	(0.305)	0.018	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 2.9

Flood volume = Effective rainfall 0.24(In)
times area 1.1(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 2.20(In)
Total soil loss = 0.207(Ac.Ft)
Total rainfall = 2.44(In)
Flood volume = 1000.9 Cubic Feet
Total soil loss = 9007.8 Cubic Feet

Peak flow rate of this hydrograph = 0.038(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0000	0.00	Q				
0+15	0.0000	0.00	Q				
0+20	0.0001	0.00	Q				
0+25	0.0001	0.00	Q				
0+30	0.0001	0.00	Q				
0+35	0.0001	0.00	Q				
0+40	0.0001	0.00	Q				
0+45	0.0002	0.00	Q				
0+50	0.0002	0.00	Q				
0+55	0.0002	0.00	Q				
1+ 0	0.0003	0.00	Q				
1+ 5	0.0003	0.00	Q				
1+10	0.0003	0.00	Q				
1+15	0.0003	0.00	Q				
1+20	0.0004	0.00	Q				
1+25	0.0004	0.00	Q				
1+30	0.0004	0.00	Q				
1+35	0.0004	0.00	Q				
1+40	0.0004	0.00	Q				
1+45	0.0005	0.00	Q				
1+50	0.0005	0.00	Q				
1+55	0.0005	0.00	Q				
2+ 0	0.0006	0.00	Q				
2+ 5	0.0006	0.00	QV				
2+10	0.0006	0.00	QV				
2+15	0.0006	0.00	QV				

2+20	0.0007	0.00	QV				
2+25	0.0007	0.00	QV				
2+30	0.0007	0.00	QV				
2+35	0.0008	0.00	QV				
2+40	0.0008	0.01	QV				
2+45	0.0008	0.01	QV				
2+50	0.0009	0.01	QV				
2+55	0.0009	0.01	QV				
3+ 0	0.0010	0.01	QV				
3+ 5	0.0010	0.01	QV				
3+10	0.0010	0.01	QV				
3+15	0.0011	0.01	QV				
3+20	0.0011	0.01	QV				
3+25	0.0012	0.01	Q V				
3+30	0.0012	0.01	Q V				
3+35	0.0012	0.01	Q V				
3+40	0.0013	0.01	Q V				
3+45	0.0013	0.01	Q V				
3+50	0.0013	0.01	Q V				
3+55	0.0014	0.01	Q V				
4+ 0	0.0014	0.01	Q V				
4+ 5	0.0015	0.01	Q V				
4+10	0.0015	0.01	Q V				
4+15	0.0016	0.01	Q V				
4+20	0.0016	0.01	Q V				
4+25	0.0017	0.01	Q V				
4+30	0.0017	0.01	Q V				
4+35	0.0018	0.01	Q V				
4+40	0.0018	0.01	Q V				
4+45	0.0019	0.01	Q V				
4+50	0.0019	0.01	Q V				
4+55	0.0020	0.01	Q V				
5+ 0	0.0021	0.01	Q V				
5+ 5	0.0021	0.01	Q V				
5+10	0.0022	0.01	Q V				
5+15	0.0022	0.01	Q V				
5+20	0.0023	0.01	Q V				
5+25	0.0023	0.01	Q V				
5+30	0.0024	0.01	Q V				
5+35	0.0024	0.01	Q V				
5+40	0.0025	0.01	Q V				
5+45	0.0026	0.01	Q V				
5+50	0.0026	0.01	Q V				
5+55	0.0027	0.01	Q V				
6+ 0	0.0027	0.01	Q V				
6+ 5	0.0028	0.01	Q V				
6+10	0.0029	0.01	Q V				
6+15	0.0029	0.01	Q V				
6+20	0.0030	0.01	Q V				
6+25	0.0031	0.01	Q V				
6+30	0.0031	0.01	Q V				
6+35	0.0032	0.01	Q V				
6+40	0.0033	0.01	Q V				
6+45	0.0034	0.01	Q V				
6+50	0.0034	0.01	Q V				
6+55	0.0035	0.01	Q V				
7+ 0	0.0036	0.01	Q V				
7+ 5	0.0037	0.01	Q V				
7+10	0.0038	0.01	Q V				
7+15	0.0038	0.01	Q V				
7+20	0.0039	0.01	Q V				
7+25	0.0040	0.01	Q V				
7+30	0.0041	0.01	Q V				

7+35	0.0042	0.01	Q	V				
7+40	0.0043	0.01	Q	V				
7+45	0.0043	0.01	Q	V				
7+50	0.0044	0.01	Q	V				
7+55	0.0045	0.01	Q	V				
8+ 0	0.0046	0.01	Q	V				
8+ 5	0.0047	0.02	Q	V				
8+10	0.0049	0.02	Q	V				
8+15	0.0050	0.02	Q	V				
8+20	0.0051	0.02	Q	V				
8+25	0.0052	0.02	Q	V				
8+30	0.0053	0.02	Q	V				
8+35	0.0054	0.02	Q	V				
8+40	0.0056	0.02	Q	V				
8+45	0.0057	0.02	Q	V				
8+50	0.0058	0.02	Q	V				
8+55	0.0059	0.02	Q	V				
9+ 0	0.0061	0.02	Q	V				
9+ 5	0.0062	0.02	Q	V				
9+10	0.0063	0.02	Q	V				
9+15	0.0065	0.02	Q	V				
9+20	0.0066	0.02	Q	V				
9+25	0.0068	0.02	Q	V				
9+30	0.0069	0.02	Q	V				
9+35	0.0071	0.02	Q	V				
9+40	0.0073	0.02	Q	V				
9+45	0.0074	0.02	Q	V				
9+50	0.0076	0.02	Q	V				
9+55	0.0078	0.02	Q	V				
10+ 0	0.0079	0.02	Q	V				
10+ 5	0.0081	0.02	Q	V				
10+10	0.0082	0.02	Q	V				
10+15	0.0083	0.02	Q	V				
10+20	0.0084	0.02	Q	V				
10+25	0.0085	0.02	Q	V				
10+30	0.0086	0.02	Q	V				
10+35	0.0088	0.02	Q	V				
10+40	0.0089	0.02	Q	V				
10+45	0.0091	0.02	Q	V				
10+50	0.0092	0.02	Q	V				
10+55	0.0094	0.02	Q	V				
11+ 0	0.0095	0.02	Q	V				
11+ 5	0.0097	0.02	Q	V				
11+10	0.0098	0.02	Q	V				
11+15	0.0100	0.02	Q	V				
11+20	0.0101	0.02	Q	V				
11+25	0.0103	0.02	Q	V				
11+30	0.0104	0.02	Q	V				
11+35	0.0106	0.02	Q	V				
11+40	0.0107	0.02	Q	V				
11+45	0.0108	0.02	Q	V				
11+50	0.0110	0.02	Q	V				
11+55	0.0111	0.02	Q	V				
12+ 0	0.0112	0.02	Q	V				
12+ 5	0.0114	0.02	Q	V				
12+10	0.0116	0.03	Q	V				
12+15	0.0118	0.03	Q	V				
12+20	0.0120	0.03	Q	V				
12+25	0.0122	0.03	Q	V				
12+30	0.0124	0.03	Q	V				
12+35	0.0126	0.03	Q	V				
12+40	0.0128	0.03	Q	V				
12+45	0.0130	0.03	Q	V				

12+50	0.0132	0.03	Q			V		
12+55	0.0134	0.03	Q			V		
13+ 0	0.0136	0.03	Q			V		
13+ 5	0.0139	0.03	Q			V		
13+10	0.0141	0.04	Q			V		
13+15	0.0144	0.04	Q			V		
13+20	0.0147	0.04	Q			V		
13+25	0.0149	0.04	Q			V		
13+30	0.0152	0.04	Q			V		
13+35	0.0154	0.03	Q			V		
13+40	0.0156	0.03	Q			V		
13+45	0.0158	0.03	Q			V		
13+50	0.0159	0.03	Q			V		
13+55	0.0161	0.03	Q			V		
14+ 0	0.0163	0.03	Q			V		
14+ 5	0.0165	0.03	Q			V		
14+10	0.0167	0.03	Q			V		
14+15	0.0169	0.03	Q			V		
14+20	0.0171	0.03	Q			V		
14+25	0.0173	0.03	Q			V		
14+30	0.0175	0.03	Q			V		
14+35	0.0177	0.03	Q			V		
14+40	0.0179	0.03	Q			V		
14+45	0.0181	0.03	Q			V		
14+50	0.0183	0.03	Q			V		
14+55	0.0185	0.03	Q			V		
15+ 0	0.0187	0.03	Q			V		
15+ 5	0.0189	0.03	Q			V		
15+10	0.0191	0.03	Q			V		
15+15	0.0192	0.03	Q			V		
15+20	0.0194	0.03	Q			V		
15+25	0.0196	0.03	Q			V		
15+30	0.0198	0.03	Q			V		
15+35	0.0199	0.02	Q			V		
15+40	0.0201	0.02	Q			V		
15+45	0.0202	0.02	Q			V		
15+50	0.0204	0.02	Q			V		
15+55	0.0205	0.02	Q			V		
16+ 0	0.0207	0.02	Q			V		
16+ 5	0.0208	0.01	Q			V		
16+10	0.0208	0.01	Q			V		
16+15	0.0208	0.01	Q			V		
16+20	0.0209	0.00	Q			V		
16+25	0.0209	0.00	Q			V		
16+30	0.0209	0.00	Q			V		
16+35	0.0210	0.00	Q			V		
16+40	0.0210	0.00	Q			V		
16+45	0.0210	0.00	Q			V		
16+50	0.0210	0.00	Q			V		
16+55	0.0211	0.00	Q			V		
17+ 0	0.0211	0.00	Q			V		
17+ 5	0.0211	0.00	Q			V		
17+10	0.0211	0.01	Q			V		
17+15	0.0212	0.01	Q			V		
17+20	0.0212	0.01	Q			V		
17+25	0.0213	0.01	Q			V		
17+30	0.0213	0.01	Q			V		
17+35	0.0213	0.01	Q			V		
17+40	0.0214	0.01	Q			V		
17+45	0.0214	0.01	Q			V		
17+50	0.0214	0.01	Q			V		
17+55	0.0215	0.00	Q			V		
18+ 0	0.0215	0.00	Q			V		

18+ 5	0.0215	0.00	Q				V	
18+10	0.0216	0.00	Q				V	
18+15	0.0216	0.00	Q				V	
18+20	0.0216	0.00	Q				V	
18+25	0.0217	0.00	Q				V	
18+30	0.0217	0.00	Q				V	
18+35	0.0217	0.00	Q				V	
18+40	0.0217	0.00	Q				V	
18+45	0.0218	0.00	Q				V	
18+50	0.0218	0.00	Q				V	
18+55	0.0218	0.00	Q				V	
19+ 0	0.0218	0.00	Q				V	
19+ 5	0.0218	0.00	Q				V	
19+10	0.0219	0.00	Q				V	
19+15	0.0219	0.00	Q				V	
19+20	0.0219	0.00	Q				V	
19+25	0.0219	0.00	Q				V	
19+30	0.0220	0.00	Q				V	
19+35	0.0220	0.00	Q				V	
19+40	0.0220	0.00	Q				V	
19+45	0.0220	0.00	Q				V	
19+50	0.0221	0.00	Q				V	
19+55	0.0221	0.00	Q				V	
20+ 0	0.0221	0.00	Q				V	
20+ 5	0.0221	0.00	Q				V	
20+10	0.0221	0.00	Q				V	
20+15	0.0222	0.00	Q				V	
20+20	0.0222	0.00	Q				V	
20+25	0.0222	0.00	Q				V	
20+30	0.0222	0.00	Q				V	
20+35	0.0222	0.00	Q				V	
20+40	0.0223	0.00	Q				V	
20+45	0.0223	0.00	Q				V	
20+50	0.0223	0.00	Q				V	
20+55	0.0223	0.00	Q				V	
21+ 0	0.0223	0.00	Q				V	
21+ 5	0.0224	0.00	Q				V	
21+10	0.0224	0.00	Q				V	
21+15	0.0224	0.00	Q				V	
21+20	0.0224	0.00	Q				V	
21+25	0.0224	0.00	Q				V	
21+30	0.0225	0.00	Q				V	
21+35	0.0225	0.00	Q				V	
21+40	0.0225	0.00	Q				V	
21+45	0.0225	0.00	Q				V	
21+50	0.0225	0.00	Q				V	
21+55	0.0226	0.00	Q				V	
22+ 0	0.0226	0.00	Q				V	
22+ 5	0.0226	0.00	Q				V	
22+10	0.0226	0.00	Q				V	
22+15	0.0226	0.00	Q				V	
22+20	0.0227	0.00	Q				V	
22+25	0.0227	0.00	Q				V	
22+30	0.0227	0.00	Q				V	
22+35	0.0227	0.00	Q				V	
22+40	0.0227	0.00	Q				V	
22+45	0.0227	0.00	Q				V	
22+50	0.0228	0.00	Q				V	
22+55	0.0228	0.00	Q				V	
23+ 0	0.0228	0.00	Q				V	
23+ 5	0.0228	0.00	Q				V	
23+10	0.0228	0.00	Q				V	
23+15	0.0228	0.00	Q				V	

23+20	0.0228	0.00	Q				V
23+25	0.0229	0.00	Q				V
23+30	0.0229	0.00	Q				V
23+35	0.0229	0.00	Q				V
23+40	0.0229	0.00	Q				V
23+45	0.0229	0.00	Q				V
23+50	0.0229	0.00	Q				V
23+55	0.0230	0.00	Q				V
24+ 0	0.0230	0.00	Q				V
24+ 5	0.0230	0.00	Q				V
24+10	0.0230	0.00	Q				V
24+15	0.0230	0.00	Q				V

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

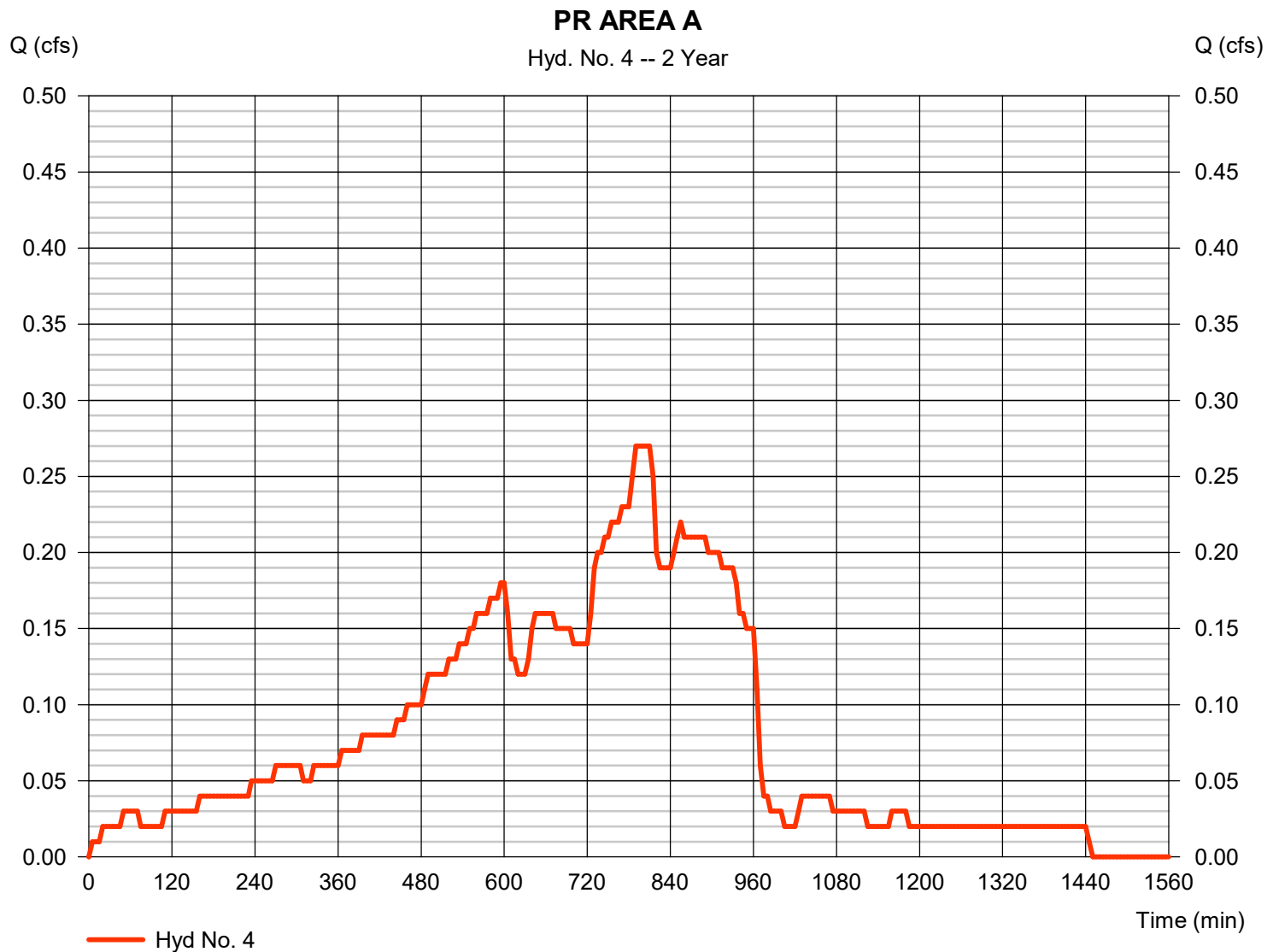
Friday, 12 / 17 / 2021

Hyd. No. 4

PR AREA A

Hydrograph type = Manual
 Storm frequency = 2 yrs
 Time interval = 5 min

Peak discharge = 0.270 cfs
 Time to peak = 790 min
 Hyd. volume = 7,239 cuft



Unit Hydrograph Analysis

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Study date 12/14/21 File: 19400PA242.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 2-yr 24-hr
Area A

Drainage Area = 1.13 (Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.13 (Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 645.00 (Ft.)
Length along longest watercourse measured to centroid = 457.00 (Ft.)
Length along longest watercourse = 0.122 Mi.
Length along longest watercourse measured to centroid = 0.087 Mi.
Difference in elevation = 9.60 (Ft.)
Slope along watercourse = 78.5860 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.056 Hr.
Lag time = 3.35 Min.
25% of lag time = 0.84 Min.
40% of lag time = 1.34 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]
1.13	2.44	2.76

100 YEAR Area rainfall data:

Area (Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
1.13	6.64	7.50

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.440 (In)
Area Averaged 100-Year Rainfall = 6.640 (In)

Point rain (area averaged) = 2.440(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.440(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.130 56.00 0.783
Total Area Entered = 1.13(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.783	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) = 0.274

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	149.418	33.034	0.376
2 0.167	298.836	47.053	0.536
3 0.250	448.254	11.216	0.128
4 0.333	597.672	4.901	0.056
5 0.417	747.090	2.484	0.028
6 0.500	896.508	1.313	0.015
		Sum = 100.000	Sum= 1.139

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)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.020	(0.370)	0.005	0.014
2	0.17	0.07	0.020	(0.368)	0.005	0.014
3	0.25	0.07	0.020	(0.367)	0.005	0.014
4	0.33	0.10	0.029	(0.365)	0.008	0.021
5	0.42	0.10	0.029	(0.364)	0.008	0.021
6	0.50	0.10	0.029	(0.362)	0.008	0.021
7	0.58	0.10	0.029	(0.361)	0.008	0.021
8	0.67	0.10	0.029	(0.360)	0.008	0.021
9	0.75	0.10	0.029	(0.358)	0.008	0.021
10	0.83	0.13	0.039	(0.357)	0.011	0.028
11	0.92	0.13	0.039	(0.355)	0.011	0.028
12	1.00	0.13	0.039	(0.354)	0.011	0.028
13	1.08	0.10	0.029	(0.353)	0.008	0.021
14	1.17	0.10	0.029	(0.351)	0.008	0.021
15	1.25	0.10	0.029	(0.350)	0.008	0.021
16	1.33	0.10	0.029	(0.348)	0.008	0.021
17	1.42	0.10	0.029	(0.347)	0.008	0.021
18	1.50	0.10	0.029	(0.346)	0.008	0.021
19	1.58	0.10	0.029	(0.344)	0.008	0.021

20	1.67	0.10	0.029	(0.343)	0.008	0.021
21	1.75	0.10	0.029	(0.342)	0.008	0.021
22	1.83	0.13	0.039	(0.340)	0.011	0.028
23	1.92	0.13	0.039	(0.339)	0.011	0.028
24	2.00	0.13	0.039	(0.337)	0.011	0.028
25	2.08	0.13	0.039	(0.336)	0.011	0.028
26	2.17	0.13	0.039	(0.335)	0.011	0.028
27	2.25	0.13	0.039	(0.333)	0.011	0.028
28	2.33	0.13	0.039	(0.332)	0.011	0.028
29	2.42	0.13	0.039	(0.331)	0.011	0.028
30	2.50	0.13	0.039	(0.329)	0.011	0.028
31	2.58	0.17	0.049	(0.328)	0.013	0.035
32	2.67	0.17	0.049	(0.327)	0.013	0.035
33	2.75	0.17	0.049	(0.325)	0.013	0.035
34	2.83	0.17	0.049	(0.324)	0.013	0.035
35	2.92	0.17	0.049	(0.323)	0.013	0.035
36	3.00	0.17	0.049	(0.321)	0.013	0.035
37	3.08	0.17	0.049	(0.320)	0.013	0.035
38	3.17	0.17	0.049	(0.319)	0.013	0.035
39	3.25	0.17	0.049	(0.317)	0.013	0.035
40	3.33	0.17	0.049	(0.316)	0.013	0.035
41	3.42	0.17	0.049	(0.315)	0.013	0.035
42	3.50	0.17	0.049	(0.313)	0.013	0.035
43	3.58	0.17	0.049	(0.312)	0.013	0.035
44	3.67	0.17	0.049	(0.311)	0.013	0.035
45	3.75	0.17	0.049	(0.309)	0.013	0.035
46	3.83	0.20	0.059	(0.308)	0.016	0.043
47	3.92	0.20	0.059	(0.307)	0.016	0.043
48	4.00	0.20	0.059	(0.305)	0.016	0.043
49	4.08	0.20	0.059	(0.304)	0.016	0.043
50	4.17	0.20	0.059	(0.303)	0.016	0.043
51	4.25	0.20	0.059	(0.302)	0.016	0.043
52	4.33	0.23	0.068	(0.300)	0.019	0.050
53	4.42	0.23	0.068	(0.299)	0.019	0.050
54	4.50	0.23	0.068	(0.298)	0.019	0.050
55	4.58	0.23	0.068	(0.296)	0.019	0.050
56	4.67	0.23	0.068	(0.295)	0.019	0.050
57	4.75	0.23	0.068	(0.294)	0.019	0.050
58	4.83	0.27	0.078	(0.293)	0.021	0.057
59	4.92	0.27	0.078	(0.291)	0.021	0.057
60	5.00	0.27	0.078	(0.290)	0.021	0.057
61	5.08	0.20	0.059	(0.289)	0.016	0.043
62	5.17	0.20	0.059	(0.288)	0.016	0.043
63	5.25	0.20	0.059	(0.286)	0.016	0.043
64	5.33	0.23	0.068	(0.285)	0.019	0.050
65	5.42	0.23	0.068	(0.284)	0.019	0.050
66	5.50	0.23	0.068	(0.283)	0.019	0.050
67	5.58	0.27	0.078	(0.281)	0.021	0.057
68	5.67	0.27	0.078	(0.280)	0.021	0.057
69	5.75	0.27	0.078	(0.279)	0.021	0.057
70	5.83	0.27	0.078	(0.278)	0.021	0.057
71	5.92	0.27	0.078	(0.276)	0.021	0.057
72	6.00	0.27	0.078	(0.275)	0.021	0.057
73	6.08	0.30	0.088	(0.274)	0.024	0.064
74	6.17	0.30	0.088	(0.273)	0.024	0.064
75	6.25	0.30	0.088	(0.272)	0.024	0.064
76	6.33	0.30	0.088	(0.270)	0.024	0.064
77	6.42	0.30	0.088	(0.269)	0.024	0.064
78	6.50	0.30	0.088	(0.268)	0.024	0.064
79	6.58	0.33	0.098	(0.267)	0.027	0.071
80	6.67	0.33	0.098	(0.266)	0.027	0.071
81	6.75	0.33	0.098	(0.264)	0.027	0.071
82	6.83	0.33	0.098	(0.263)	0.027	0.071

83	6.92	0.33	0.098	(0.262)	0.027	0.071
84	7.00	0.33	0.098	(0.261)	0.027	0.071
85	7.08	0.33	0.098	(0.260)	0.027	0.071
86	7.17	0.33	0.098	(0.258)	0.027	0.071
87	7.25	0.33	0.098	(0.257)	0.027	0.071
88	7.33	0.37	0.107	(0.256)	0.029	0.078
89	7.42	0.37	0.107	(0.255)	0.029	0.078
90	7.50	0.37	0.107	(0.254)	0.029	0.078
91	7.58	0.40	0.117	(0.253)	0.032	0.085
92	7.67	0.40	0.117	(0.251)	0.032	0.085
93	7.75	0.40	0.117	(0.250)	0.032	0.085
94	7.83	0.43	0.127	(0.249)	0.035	0.092
95	7.92	0.43	0.127	(0.248)	0.035	0.092
96	8.00	0.43	0.127	(0.247)	0.035	0.092
97	8.08	0.50	0.146	(0.246)	0.040	0.106
98	8.17	0.50	0.146	(0.244)	0.040	0.106
99	8.25	0.50	0.146	(0.243)	0.040	0.106
100	8.33	0.50	0.146	(0.242)	0.040	0.106
101	8.42	0.50	0.146	(0.241)	0.040	0.106
102	8.50	0.50	0.146	(0.240)	0.040	0.106
103	8.58	0.53	0.156	(0.239)	0.043	0.113
104	8.67	0.53	0.156	(0.238)	0.043	0.113
105	8.75	0.53	0.156	(0.237)	0.043	0.113
106	8.83	0.57	0.166	(0.235)	0.045	0.121
107	8.92	0.57	0.166	(0.234)	0.045	0.121
108	9.00	0.57	0.166	(0.233)	0.045	0.121
109	9.08	0.63	0.185	(0.232)	0.051	0.135
110	9.17	0.63	0.185	(0.231)	0.051	0.135
111	9.25	0.63	0.185	(0.230)	0.051	0.135
112	9.33	0.67	0.195	(0.229)	0.053	0.142
113	9.42	0.67	0.195	(0.228)	0.053	0.142
114	9.50	0.67	0.195	(0.227)	0.053	0.142
115	9.58	0.70	0.205	(0.226)	0.056	0.149
116	9.67	0.70	0.205	(0.224)	0.056	0.149
117	9.75	0.70	0.205	(0.223)	0.056	0.149
118	9.83	0.73	0.215	(0.222)	0.059	0.156
119	9.92	0.73	0.215	(0.221)	0.059	0.156
120	10.00	0.73	0.215	(0.220)	0.059	0.156
121	10.08	0.50	0.146	(0.219)	0.040	0.106
122	10.17	0.50	0.146	(0.218)	0.040	0.106
123	10.25	0.50	0.146	(0.217)	0.040	0.106
124	10.33	0.50	0.146	(0.216)	0.040	0.106
125	10.42	0.50	0.146	(0.215)	0.040	0.106
126	10.50	0.50	0.146	(0.214)	0.040	0.106
127	10.58	0.67	0.195	(0.213)	0.053	0.142
128	10.67	0.67	0.195	(0.212)	0.053	0.142
129	10.75	0.67	0.195	(0.211)	0.053	0.142
130	10.83	0.67	0.195	(0.210)	0.053	0.142
131	10.92	0.67	0.195	(0.209)	0.053	0.142
132	11.00	0.67	0.195	(0.208)	0.053	0.142
133	11.08	0.63	0.185	(0.207)	0.051	0.135
134	11.17	0.63	0.185	(0.206)	0.051	0.135
135	11.25	0.63	0.185	(0.205)	0.051	0.135
136	11.33	0.63	0.185	(0.204)	0.051	0.135
137	11.42	0.63	0.185	(0.203)	0.051	0.135
138	11.50	0.63	0.185	(0.202)	0.051	0.135
139	11.58	0.57	0.166	(0.201)	0.045	0.121
140	11.67	0.57	0.166	(0.200)	0.045	0.121
141	11.75	0.57	0.166	(0.199)	0.045	0.121
142	11.83	0.60	0.176	(0.198)	0.048	0.128
143	11.92	0.60	0.176	(0.197)	0.048	0.128
144	12.00	0.60	0.176	(0.196)	0.048	0.128
145	12.08	0.83	0.244	(0.195)	0.067	0.177

146	12.17	0.83	0.244	(0.194)	0.067	0.177
147	12.25	0.83	0.244	(0.193)	0.067	0.177
148	12.33	0.87	0.254	(0.192)	0.069	0.184
149	12.42	0.87	0.254	(0.191)	0.069	0.184
150	12.50	0.87	0.254	(0.190)	0.069	0.184
151	12.58	0.93	0.273	(0.189)	0.075	0.199
152	12.67	0.93	0.273	(0.188)	0.075	0.199
153	12.75	0.93	0.273	(0.187)	0.075	0.199
154	12.83	0.97	0.283	(0.186)	0.077	0.206
155	12.92	0.97	0.283	(0.185)	0.077	0.206
156	13.00	0.97	0.283	(0.184)	0.077	0.206
157	13.08	1.13	0.332	(0.183)	0.091	0.241
158	13.17	1.13	0.332	(0.182)	0.091	0.241
159	13.25	1.13	0.332	(0.181)	0.091	0.241
160	13.33	1.13	0.332	(0.180)	0.091	0.241
161	13.42	1.13	0.332	(0.179)	0.091	0.241
162	13.50	1.13	0.332	(0.179)	0.091	0.241
163	13.58	0.77	0.224	(0.178)	0.061	0.163
164	13.67	0.77	0.224	(0.177)	0.061	0.163
165	13.75	0.77	0.224	(0.176)	0.061	0.163
166	13.83	0.77	0.224	(0.175)	0.061	0.163
167	13.92	0.77	0.224	(0.174)	0.061	0.163
168	14.00	0.77	0.224	(0.173)	0.061	0.163
169	14.08	0.90	0.264	(0.172)	0.072	0.191
170	14.17	0.90	0.264	(0.171)	0.072	0.191
171	14.25	0.90	0.264	(0.171)	0.072	0.191
172	14.33	0.87	0.254	(0.170)	0.069	0.184
173	14.42	0.87	0.254	(0.169)	0.069	0.184
174	14.50	0.87	0.254	(0.168)	0.069	0.184
175	14.58	0.87	0.254	(0.167)	0.069	0.184
176	14.67	0.87	0.254	(0.166)	0.069	0.184
177	14.75	0.87	0.254	(0.165)	0.069	0.184
178	14.83	0.83	0.244	(0.165)	0.067	0.177
179	14.92	0.83	0.244	(0.164)	0.067	0.177
180	15.00	0.83	0.244	(0.163)	0.067	0.177
181	15.08	0.80	0.234	(0.162)	0.064	0.170
182	15.17	0.80	0.234	(0.161)	0.064	0.170
183	15.25	0.80	0.234	(0.160)	0.064	0.170
184	15.33	0.77	0.224	(0.160)	0.061	0.163
185	15.42	0.77	0.224	(0.159)	0.061	0.163
186	15.50	0.77	0.224	(0.158)	0.061	0.163
187	15.58	0.63	0.185	(0.157)	0.051	0.135
188	15.67	0.63	0.185	(0.156)	0.051	0.135
189	15.75	0.63	0.185	(0.155)	0.051	0.135
190	15.83	0.63	0.185	(0.155)	0.051	0.135
191	15.92	0.63	0.185	(0.154)	0.051	0.135
192	16.00	0.63	0.185	(0.153)	0.051	0.135
193	16.08	0.13	0.039	(0.152)	0.011	0.028
194	16.17	0.13	0.039	(0.152)	0.011	0.028
195	16.25	0.13	0.039	(0.151)	0.011	0.028
196	16.33	0.13	0.039	(0.150)	0.011	0.028
197	16.42	0.13	0.039	(0.149)	0.011	0.028
198	16.50	0.13	0.039	(0.148)	0.011	0.028
199	16.58	0.10	0.029	(0.148)	0.008	0.021
200	16.67	0.10	0.029	(0.147)	0.008	0.021
201	16.75	0.10	0.029	(0.146)	0.008	0.021
202	16.83	0.10	0.029	(0.145)	0.008	0.021
203	16.92	0.10	0.029	(0.145)	0.008	0.021
204	17.00	0.10	0.029	(0.144)	0.008	0.021
205	17.08	0.17	0.049	(0.143)	0.013	0.035
206	17.17	0.17	0.049	(0.143)	0.013	0.035
207	17.25	0.17	0.049	(0.142)	0.013	0.035
208	17.33	0.17	0.049	(0.141)	0.013	0.035

209	17.42	0.17	0.049	(0.140)	0.013	0.035
210	17.50	0.17	0.049	(0.140)	0.013	0.035
211	17.58	0.17	0.049	(0.139)	0.013	0.035
212	17.67	0.17	0.049	(0.138)	0.013	0.035
213	17.75	0.17	0.049	(0.138)	0.013	0.035
214	17.83	0.13	0.039	(0.137)	0.011	0.028
215	17.92	0.13	0.039	(0.136)	0.011	0.028
216	18.00	0.13	0.039	(0.136)	0.011	0.028
217	18.08	0.13	0.039	(0.135)	0.011	0.028
218	18.17	0.13	0.039	(0.134)	0.011	0.028
219	18.25	0.13	0.039	(0.134)	0.011	0.028
220	18.33	0.13	0.039	(0.133)	0.011	0.028
221	18.42	0.13	0.039	(0.132)	0.011	0.028
222	18.50	0.13	0.039	(0.132)	0.011	0.028
223	18.58	0.10	0.029	(0.131)	0.008	0.021
224	18.67	0.10	0.029	(0.130)	0.008	0.021
225	18.75	0.10	0.029	(0.130)	0.008	0.021
226	18.83	0.07	0.020	(0.129)	0.005	0.014
227	18.92	0.07	0.020	(0.129)	0.005	0.014
228	19.00	0.07	0.020	(0.128)	0.005	0.014
229	19.08	0.10	0.029	(0.127)	0.008	0.021
230	19.17	0.10	0.029	(0.127)	0.008	0.021
231	19.25	0.10	0.029	(0.126)	0.008	0.021
232	19.33	0.13	0.039	(0.126)	0.011	0.028
233	19.42	0.13	0.039	(0.125)	0.011	0.028
234	19.50	0.13	0.039	(0.124)	0.011	0.028
235	19.58	0.10	0.029	(0.124)	0.008	0.021
236	19.67	0.10	0.029	(0.123)	0.008	0.021
237	19.75	0.10	0.029	(0.123)	0.008	0.021
238	19.83	0.07	0.020	(0.122)	0.005	0.014
239	19.92	0.07	0.020	(0.122)	0.005	0.014
240	20.00	0.07	0.020	(0.121)	0.005	0.014
241	20.08	0.10	0.029	(0.121)	0.008	0.021
242	20.17	0.10	0.029	(0.120)	0.008	0.021
243	20.25	0.10	0.029	(0.119)	0.008	0.021
244	20.33	0.10	0.029	(0.119)	0.008	0.021
245	20.42	0.10	0.029	(0.118)	0.008	0.021
246	20.50	0.10	0.029	(0.118)	0.008	0.021
247	20.58	0.10	0.029	(0.117)	0.008	0.021
248	20.67	0.10	0.029	(0.117)	0.008	0.021
249	20.75	0.10	0.029	(0.116)	0.008	0.021
250	20.83	0.07	0.020	(0.116)	0.005	0.014
251	20.92	0.07	0.020	(0.116)	0.005	0.014
252	21.00	0.07	0.020	(0.115)	0.005	0.014
253	21.08	0.10	0.029	(0.115)	0.008	0.021
254	21.17	0.10	0.029	(0.114)	0.008	0.021
255	21.25	0.10	0.029	(0.114)	0.008	0.021
256	21.33	0.07	0.020	(0.113)	0.005	0.014
257	21.42	0.07	0.020	(0.113)	0.005	0.014
258	21.50	0.07	0.020	(0.112)	0.005	0.014
259	21.58	0.10	0.029	(0.112)	0.008	0.021
260	21.67	0.10	0.029	(0.112)	0.008	0.021
261	21.75	0.10	0.029	(0.111)	0.008	0.021
262	21.83	0.07	0.020	(0.111)	0.005	0.014
263	21.92	0.07	0.020	(0.110)	0.005	0.014
264	22.00	0.07	0.020	(0.110)	0.005	0.014
265	22.08	0.10	0.029	(0.110)	0.008	0.021
266	22.17	0.10	0.029	(0.109)	0.008	0.021
267	22.25	0.10	0.029	(0.109)	0.008	0.021
268	22.33	0.07	0.020	(0.109)	0.005	0.014
269	22.42	0.07	0.020	(0.108)	0.005	0.014
270	22.50	0.07	0.020	(0.108)	0.005	0.014
271	22.58	0.07	0.020	(0.108)	0.005	0.014

272	22.67	0.07	0.020	(0.107)	0.005	0.014
273	22.75	0.07	0.020	(0.107)	0.005	0.014
274	22.83	0.07	0.020	(0.107)	0.005	0.014
275	22.92	0.07	0.020	(0.107)	0.005	0.014
276	23.00	0.07	0.020	(0.106)	0.005	0.014
277	23.08	0.07	0.020	(0.106)	0.005	0.014
278	23.17	0.07	0.020	(0.106)	0.005	0.014
279	23.25	0.07	0.020	(0.106)	0.005	0.014
280	23.33	0.07	0.020	(0.105)	0.005	0.014
281	23.42	0.07	0.020	(0.105)	0.005	0.014
282	23.50	0.07	0.020	(0.105)	0.005	0.014
283	23.58	0.07	0.020	(0.105)	0.005	0.014
284	23.67	0.07	0.020	(0.105)	0.005	0.014
285	23.75	0.07	0.020	(0.105)	0.005	0.014
286	23.83	0.07	0.020	(0.104)	0.005	0.014
287	23.92	0.07	0.020	(0.104)	0.005	0.014
288	24.00	0.07	0.020	(0.104)	0.005	0.014

(Loss Rate Not Used)

Sum = 100.0 Sum = 21.3

Flood volume = Effective rainfall 1.77 (In)
times area 1.1 (Ac.) / [(In) / (Ft.)] = 0.2 (Ac.Ft)

Total soil loss = 0.67 (In)

Total soil loss = 0.063 (Ac.Ft)

Total rainfall = 2.44 (In)

Flood volume = 7270.3 Cubic Feet

Total soil loss = 2738.4 Cubic Feet

Peak flow rate of this hydrograph = 0.275 (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	0.0001	0.01	Q
0+15	0.0002	0.01	Q
0+20	0.0004	0.02	Q
0+25	0.0005	0.02	Q
0+30	0.0007	0.02	Q
0+35	0.0008	0.02	Q
0+40	0.0010	0.02	Q
0+45	0.0012	0.02	Q
0+50	0.0014	0.03	Q
0+55	0.0016	0.03	Q
1+ 0	0.0018	0.03	Q
1+ 5	0.0020	0.03	Q
1+10	0.0022	0.03	Q
1+15	0.0023	0.02	Q
1+20	0.0025	0.02	Q
1+25	0.0027	0.02	Q
1+30	0.0028	0.02	Q
1+35	0.0030	0.02	Q
1+40	0.0032	0.02	Q
1+45	0.0033	0.02	Q
1+50	0.0035	0.03	Q
1+55	0.0037	0.03	Q
2+ 0	0.0040	0.03	Q
2+ 5	0.0042	0.03	Q

2+10	0.0044	0.03	QV
2+15	0.0046	0.03	QV
2+20	0.0048	0.03	QV
2+25	0.0051	0.03	QV
2+30	0.0053	0.03	QV
2+35	0.0055	0.03	QV
2+40	0.0058	0.04	QV
2+45	0.0061	0.04	QV
2+50	0.0063	0.04	QV
2+55	0.0066	0.04	QV
3+ 0	0.0069	0.04	QV
3+ 5	0.0072	0.04	QV
3+10	0.0075	0.04	QV
3+15	0.0077	0.04	QV
3+20	0.0080	0.04	QV
3+25	0.0083	0.04	QV
3+30	0.0086	0.04	Q V
3+35	0.0088	0.04	Q V
3+40	0.0091	0.04	Q V
3+45	0.0094	0.04	Q V
3+50	0.0097	0.04	Q V
3+55	0.0100	0.05	Q V
4+ 0	0.0103	0.05	Q V
4+ 5	0.0107	0.05	Q V
4+10	0.0110	0.05	Q V
4+15	0.0113	0.05	Q V
4+20	0.0117	0.05	Q V
4+25	0.0121	0.05	Q V
4+30	0.0125	0.06	Q V
4+35	0.0128	0.06	Q V
4+40	0.0132	0.06	Q V
4+45	0.0136	0.06	Q V
4+50	0.0140	0.06	Q V
4+55	0.0145	0.06	Q V
5+ 0	0.0149	0.06	Q V
5+ 5	0.0153	0.06	Q V
5+10	0.0157	0.05	Q V
5+15	0.0160	0.05	Q V
5+20	0.0164	0.05	Q V
5+25	0.0168	0.06	Q V
5+30	0.0171	0.06	Q V
5+35	0.0175	0.06	Q V
5+40	0.0180	0.06	Q V
5+45	0.0184	0.06	Q V
5+50	0.0189	0.06	Q V
5+55	0.0193	0.06	Q V
6+ 0	0.0197	0.06	Q V
6+ 5	0.0202	0.07	Q V
6+10	0.0207	0.07	Q V
6+15	0.0212	0.07	Q V
6+20	0.0217	0.07	Q V
6+25	0.0222	0.07	Q V
6+30	0.0227	0.07	Q V
6+35	0.0232	0.08	Q V
6+40	0.0238	0.08	Q V
6+45	0.0243	0.08	Q V
6+50	0.0249	0.08	Q V
6+55	0.0254	0.08	Q V
7+ 0	0.0260	0.08	Q V
7+ 5	0.0265	0.08	Q V
7+10	0.0271	0.08	Q V
7+15	0.0276	0.08	Q V
7+20	0.0282	0.08	Q V

7+25	0.0288	0.09	Q	V				
7+30	0.0294	0.09	Q	V				
7+35	0.0301	0.09	Q	V				
7+40	0.0307	0.10	Q	V				
7+45	0.0314	0.10	Q	V				
7+50	0.0321	0.10	Q	V				
7+55	0.0328	0.10	Q	V				
8+ 0	0.0335	0.10	Q	V				
8+ 5	0.0342	0.11	Q	V				
8+10	0.0351	0.12	Q	V				
8+15	0.0359	0.12	Q	V				
8+20	0.0367	0.12	Q	V				
8+25	0.0375	0.12	Q	V				
8+30	0.0384	0.12	Q	V				
8+35	0.0392	0.12	Q	V				
8+40	0.0401	0.13	Q	V				
8+45	0.0410	0.13	Q	V				
8+50	0.0419	0.13	Q	V				
8+55	0.0428	0.14	Q	V				
9+ 0	0.0438	0.14	Q	V				
9+ 5	0.0448	0.14	Q	V				
9+10	0.0458	0.15	Q	V				
9+15	0.0468	0.15	Q	V				
9+20	0.0479	0.16	Q	V				
9+25	0.0490	0.16	Q	V				
9+30	0.0501	0.16	Q	V				
9+35	0.0513	0.16	Q	V				
9+40	0.0524	0.17	Q	V				
9+45	0.0536	0.17	Q	V				
9+50	0.0548	0.17	Q	V				
9+55	0.0560	0.18	Q	V				
10+ 0	0.0572	0.18	Q	V				
10+ 5	0.0583	0.16	Q	V				
10+10	0.0592	0.13	Q	V				
10+15	0.0601	0.13	Q	V				
10+20	0.0609	0.12	Q	V				
10+25	0.0617	0.12	Q	V				
10+30	0.0626	0.12	Q	V				
10+35	0.0635	0.13	Q	V				
10+40	0.0646	0.15	Q	V				
10+45	0.0657	0.16	Q	V				
10+50	0.0668	0.16	Q	V				
10+55	0.0679	0.16	Q	V				
11+ 0	0.0690	0.16	Q	V				
11+ 5	0.0701	0.16	Q	V				
11+10	0.0711	0.16	Q	V				
11+15	0.0722	0.15	Q	V				
11+20	0.0733	0.15	Q	V				
11+25	0.0743	0.15	Q	V				
11+30	0.0754	0.15	Q	V				
11+35	0.0764	0.15	Q	V				
11+40	0.0774	0.14	Q	V				
11+45	0.0783	0.14	Q	V				
11+50	0.0793	0.14	Q	V				
11+55	0.0803	0.14	Q	V				
12+ 0	0.0813	0.14	Q	V				
12+ 5	0.0824	0.16	Q	V				
12+10	0.0837	0.19	Q	V				
12+15	0.0851	0.20	Q	V				
12+20	0.0865	0.20	Q	V				
12+25	0.0879	0.21	Q	V				
12+30	0.0893	0.21	Q	V				
12+35	0.0908	0.22	Q	V				

12+40	0.0924	0.22	Q	V		
12+45	0.0939	0.22	Q	V		
12+50	0.0955	0.23	Q	V		
12+55	0.0971	0.23	Q	V		
13+ 0	0.0987	0.23	Q	V		
13+ 5	0.1004	0.25	Q	V		
13+10	0.1022	0.27	Q	V		
13+15	0.1041	0.27	Q	V		
13+20	0.1060	0.27	Q	V		
13+25	0.1079	0.27	Q	V		
13+30	0.1098	0.27	Q	V		
13+35	0.1114	0.25	Q	V		
13+40	0.1128	0.20	Q	V		
13+45	0.1142	0.19	Q	V		
13+50	0.1155	0.19	Q	V		
13+55	0.1168	0.19	Q	V		
14+ 0	0.1180	0.19	Q	V		
14+ 5	0.1194	0.20	Q	V		
14+10	0.1209	0.21	Q	V		
14+15	0.1223	0.22	Q	V		
14+20	0.1238	0.21	Q	V		
14+25	0.1253	0.21	Q	V		
14+30	0.1267	0.21	Q	V		
14+35	0.1282	0.21	Q	V		
14+40	0.1296	0.21	Q	V		
14+45	0.1311	0.21	Q	V		
14+50	0.1325	0.21	Q	V		
14+55	0.1339	0.20	Q	V		
15+ 0	0.1353	0.20	Q	V		
15+ 5	0.1367	0.20	Q	V		
15+10	0.1380	0.20	Q	V		
15+15	0.1394	0.19	Q	V		
15+20	0.1407	0.19	Q	V		
15+25	0.1420	0.19	Q	V		
15+30	0.1432	0.19	Q	V		
15+35	0.1445	0.18	Q	V		
15+40	0.1456	0.16	Q	V		
15+45	0.1466	0.16	Q	V		
15+50	0.1477	0.15	Q	V		
15+55	0.1488	0.15	Q	V		
16+ 0	0.1498	0.15	Q	V		
16+ 5	0.1506	0.11	Q	V		
16+10	0.1510	0.06	Q	V		
16+15	0.1513	0.04	Q	V		
16+20	0.1515	0.04	Q	V		
16+25	0.1518	0.03	Q	V		
16+30	0.1520	0.03	Q	V		
16+35	0.1522	0.03	Q	V		
16+40	0.1524	0.03	Q	V		
16+45	0.1525	0.02	Q	V		
16+50	0.1527	0.02	Q	V		
16+55	0.1529	0.02	Q	V		
17+ 0	0.1530	0.02	Q	V		
17+ 5	0.1533	0.03	Q	V		
17+10	0.1535	0.04	Q	V		
17+15	0.1538	0.04	Q	V		
17+20	0.1541	0.04	Q	V		
17+25	0.1543	0.04	Q	V		
17+30	0.1546	0.04	Q	V		
17+35	0.1549	0.04	Q	V		
17+40	0.1552	0.04	Q	V		
17+45	0.1554	0.04	Q	V		
17+50	0.1557	0.04	Q	V		

17+55	0.1559	0.03	Q				V
18+ 0	0.1562	0.03	Q				V
18+ 5	0.1564	0.03	Q				V
18+10	0.1566	0.03	Q				V
18+15	0.1568	0.03	Q				V
18+20	0.1571	0.03	Q				V
18+25	0.1573	0.03	Q				V
18+30	0.1575	0.03	Q				V
18+35	0.1577	0.03	Q				V
18+40	0.1579	0.03	Q				V
18+45	0.1581	0.02	Q				V
18+50	0.1582	0.02	Q				V
18+55	0.1583	0.02	Q				V
19+ 0	0.1584	0.02	Q				V
19+ 5	0.1586	0.02	Q				V
19+10	0.1587	0.02	Q				V
19+15	0.1589	0.02	Q				V
19+20	0.1591	0.03	Q				V
19+25	0.1593	0.03	Q				V
19+30	0.1595	0.03	Q				V
19+35	0.1597	0.03	Q				V
19+40	0.1599	0.03	Q				V
19+45	0.1601	0.02	Q				V
19+50	0.1602	0.02	Q				V
19+55	0.1603	0.02	Q				V
20+ 0	0.1604	0.02	Q				V
20+ 5	0.1606	0.02	Q				V
20+10	0.1607	0.02	Q				V
20+15	0.1609	0.02	Q				V
20+20	0.1611	0.02	Q				V
20+25	0.1612	0.02	Q				V
20+30	0.1614	0.02	Q				V
20+35	0.1616	0.02	Q				V
20+40	0.1617	0.02	Q				V
20+45	0.1619	0.02	Q				V
20+50	0.1620	0.02	Q				V
20+55	0.1622	0.02	Q				V
21+ 0	0.1623	0.02	Q				V
21+ 5	0.1624	0.02	Q				V
21+10	0.1626	0.02	Q				V
21+15	0.1627	0.02	Q				V
21+20	0.1629	0.02	Q				V
21+25	0.1630	0.02	Q				V
21+30	0.1631	0.02	Q				V
21+35	0.1632	0.02	Q				V
21+40	0.1634	0.02	Q				V
21+45	0.1636	0.02	Q				V
21+50	0.1637	0.02	Q				V
21+55	0.1638	0.02	Q				V
22+ 0	0.1639	0.02	Q				V
22+ 5	0.1641	0.02	Q				V
22+10	0.1642	0.02	Q				V
22+15	0.1644	0.02	Q				V
22+20	0.1645	0.02	Q				V
22+25	0.1647	0.02	Q				V
22+30	0.1648	0.02	Q				V
22+35	0.1649	0.02	Q				V
22+40	0.1650	0.02	Q				V
22+45	0.1651	0.02	Q				V
22+50	0.1652	0.02	Q				V
22+55	0.1653	0.02	Q				V
23+ 0	0.1655	0.02	Q				V
23+ 5	0.1656	0.02	Q				V

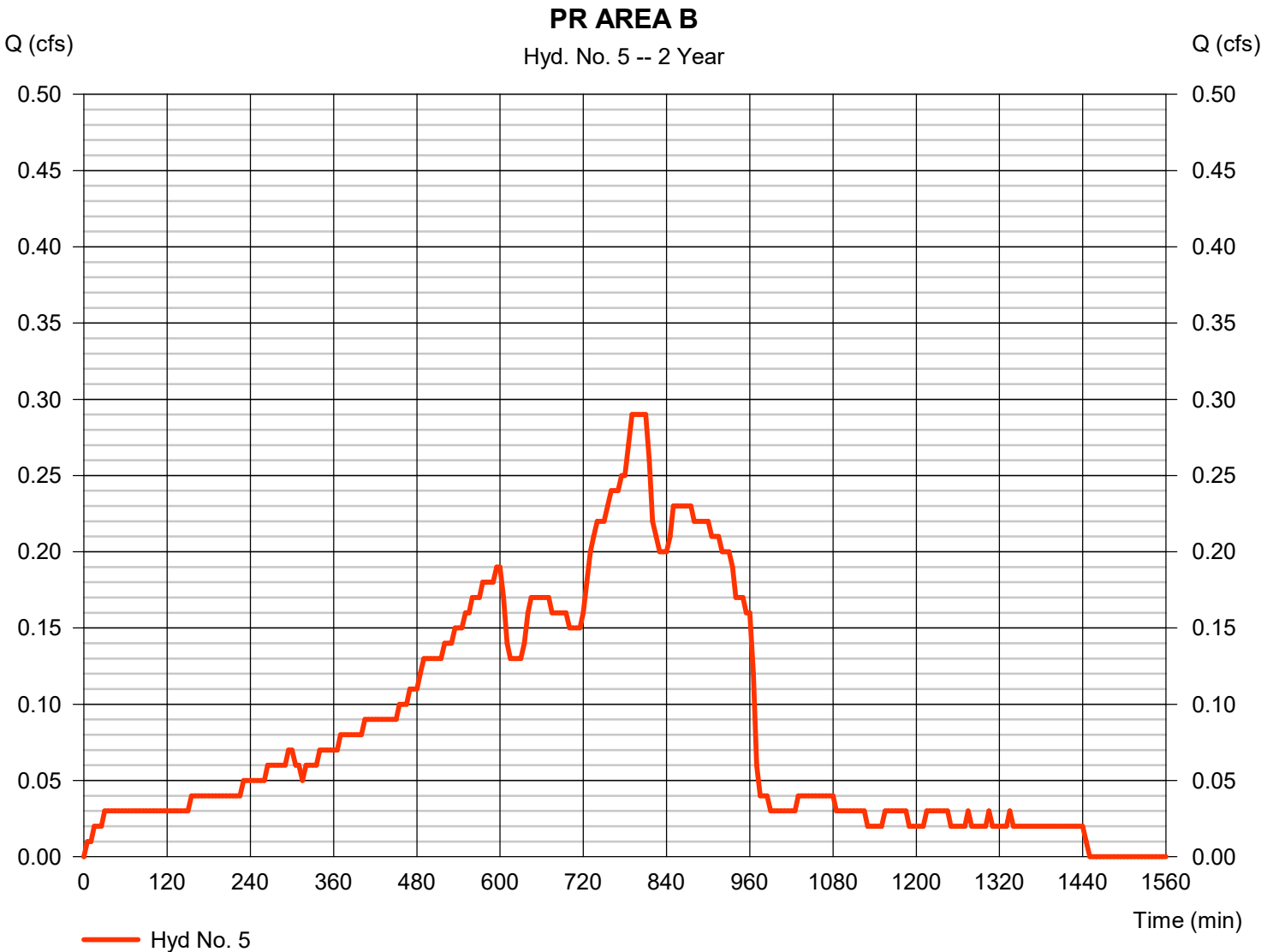
23+10	0.1657	0.02	Q				V
23+15	0.1658	0.02	Q				V
23+20	0.1659	0.02	Q				V
23+25	0.1660	0.02	Q				V
23+30	0.1661	0.02	Q				V
23+35	0.1662	0.02	Q				V
23+40	0.1663	0.02	Q				V
23+45	0.1665	0.02	Q				V
23+50	0.1666	0.02	Q				V
23+55	0.1667	0.02	Q				V
24+ 0	0.1668	0.02	Q				V
24+ 5	0.1669	0.01	Q				V
24+10	0.1669	0.00	Q				V
24+15	0.1669	0.00	Q				V
24+20	0.1669	0.00	Q				V
24+25	0.1669	0.00	Q				V

Hydrograph Report

Hyd. No. 5

PR AREA B

Hydrograph type	= Manual	Peak discharge	= 0.290 cfs
Storm frequency	= 2 yrs	Time to peak	= 790 min
Time interval	= 5 min	Hyd. volume	= 7,785 cuft



Unit Hydrograph Analysis

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Study date 12/14/21 File: 19400P2B242.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 2-yr 24-hr
Area B

Drainage Area = 1.16 (Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.16 (Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 532.00 (Ft.)
Length along longest watercourse measured to centroid = 368.00 (Ft.)
Length along longest watercourse = 0.101 Mi.
Length along longest watercourse measured to centroid = 0.070 Mi.
Difference in elevation = 4.70 (Ft.)
Slope along watercourse = 46.6466 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.053 Hr.
Lag time = 3.16 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 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]
1.16	2.44	2.83

100 YEAR Area rainfall data:

Area (Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
1.16	6.64	7.70

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.440 (In)
Area Averaged 100-Year Rainfall = 6.640 (In)

Point rain (area averaged) = 2.440(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.440(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.160 56.00 0.822
Total Area Entered = 1.16(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.822	0.184	1.000	0.184
						Sum (F) = 0.184

Area averaged mean soil loss (F) (In/Hr) = 0.184

Minimum soil loss rate ((In/Hr)) = 0.092

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.242

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	158.087	35.076	0.410
2 0.167	316.173	46.411	0.543
3 0.250	474.260	10.732	0.125
4 0.333	632.347	4.638	0.054
5 0.417	790.433	2.253	0.026
6 0.500	948.520	0.890	0.010
		Sum = 100.000	Sum= 1.169

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)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.020	(0.326)	0.005	0.015
2	0.17	0.07	0.020	(0.324)	0.005	0.015
3	0.25	0.07	0.020	(0.323)	0.005	0.015
4	0.33	0.10	0.029	(0.322)	0.007	0.022
5	0.42	0.10	0.029	(0.321)	0.007	0.022
6	0.50	0.10	0.029	(0.319)	0.007	0.022
7	0.58	0.10	0.029	(0.318)	0.007	0.022
8	0.67	0.10	0.029	(0.317)	0.007	0.022
9	0.75	0.10	0.029	(0.316)	0.007	0.022
10	0.83	0.13	0.039	(0.314)	0.009	0.030
11	0.92	0.13	0.039	(0.313)	0.009	0.030
12	1.00	0.13	0.039	(0.312)	0.009	0.030
13	1.08	0.10	0.029	(0.311)	0.007	0.022
14	1.17	0.10	0.029	(0.309)	0.007	0.022
15	1.25	0.10	0.029	(0.308)	0.007	0.022
16	1.33	0.10	0.029	(0.307)	0.007	0.022
17	1.42	0.10	0.029	(0.306)	0.007	0.022
18	1.50	0.10	0.029	(0.305)	0.007	0.022
19	1.58	0.10	0.029	(0.303)	0.007	0.022

20	1.67	0.10	0.029	(0.302)	0.007	0.022
21	1.75	0.10	0.029	(0.301)	0.007	0.022
22	1.83	0.13	0.039	(0.300)	0.009	0.030
23	1.92	0.13	0.039	(0.299)	0.009	0.030
24	2.00	0.13	0.039	(0.297)	0.009	0.030
25	2.08	0.13	0.039	(0.296)	0.009	0.030
26	2.17	0.13	0.039	(0.295)	0.009	0.030
27	2.25	0.13	0.039	(0.294)	0.009	0.030
28	2.33	0.13	0.039	(0.293)	0.009	0.030
29	2.42	0.13	0.039	(0.291)	0.009	0.030
30	2.50	0.13	0.039	(0.290)	0.009	0.030
31	2.58	0.17	0.049	(0.289)	0.012	0.037
32	2.67	0.17	0.049	(0.288)	0.012	0.037
33	2.75	0.17	0.049	(0.287)	0.012	0.037
34	2.83	0.17	0.049	(0.285)	0.012	0.037
35	2.92	0.17	0.049	(0.284)	0.012	0.037
36	3.00	0.17	0.049	(0.283)	0.012	0.037
37	3.08	0.17	0.049	(0.282)	0.012	0.037
38	3.17	0.17	0.049	(0.281)	0.012	0.037
39	3.25	0.17	0.049	(0.280)	0.012	0.037
40	3.33	0.17	0.049	(0.278)	0.012	0.037
41	3.42	0.17	0.049	(0.277)	0.012	0.037
42	3.50	0.17	0.049	(0.276)	0.012	0.037
43	3.58	0.17	0.049	(0.275)	0.012	0.037
44	3.67	0.17	0.049	(0.274)	0.012	0.037
45	3.75	0.17	0.049	(0.273)	0.012	0.037
46	3.83	0.20	0.059	(0.271)	0.014	0.044
47	3.92	0.20	0.059	(0.270)	0.014	0.044
48	4.00	0.20	0.059	(0.269)	0.014	0.044
49	4.08	0.20	0.059	(0.268)	0.014	0.044
50	4.17	0.20	0.059	(0.267)	0.014	0.044
51	4.25	0.20	0.059	(0.266)	0.014	0.044
52	4.33	0.23	0.068	(0.265)	0.017	0.052
53	4.42	0.23	0.068	(0.263)	0.017	0.052
54	4.50	0.23	0.068	(0.262)	0.017	0.052
55	4.58	0.23	0.068	(0.261)	0.017	0.052
56	4.67	0.23	0.068	(0.260)	0.017	0.052
57	4.75	0.23	0.068	(0.259)	0.017	0.052
58	4.83	0.27	0.078	(0.258)	0.019	0.059
59	4.92	0.27	0.078	(0.257)	0.019	0.059
60	5.00	0.27	0.078	(0.256)	0.019	0.059
61	5.08	0.20	0.059	(0.255)	0.014	0.044
62	5.17	0.20	0.059	(0.253)	0.014	0.044
63	5.25	0.20	0.059	(0.252)	0.014	0.044
64	5.33	0.23	0.068	(0.251)	0.017	0.052
65	5.42	0.23	0.068	(0.250)	0.017	0.052
66	5.50	0.23	0.068	(0.249)	0.017	0.052
67	5.58	0.27	0.078	(0.248)	0.019	0.059
68	5.67	0.27	0.078	(0.247)	0.019	0.059
69	5.75	0.27	0.078	(0.246)	0.019	0.059
70	5.83	0.27	0.078	(0.245)	0.019	0.059
71	5.92	0.27	0.078	(0.244)	0.019	0.059
72	6.00	0.27	0.078	(0.242)	0.019	0.059
73	6.08	0.30	0.088	(0.241)	0.021	0.067
74	6.17	0.30	0.088	(0.240)	0.021	0.067
75	6.25	0.30	0.088	(0.239)	0.021	0.067
76	6.33	0.30	0.088	(0.238)	0.021	0.067
77	6.42	0.30	0.088	(0.237)	0.021	0.067
78	6.50	0.30	0.088	(0.236)	0.021	0.067
79	6.58	0.33	0.098	(0.235)	0.024	0.074
80	6.67	0.33	0.098	(0.234)	0.024	0.074
81	6.75	0.33	0.098	(0.233)	0.024	0.074
82	6.83	0.33	0.098	(0.232)	0.024	0.074

83	6.92	0.33	0.098	(0.231)	0.024	0.074
84	7.00	0.33	0.098	(0.230)	0.024	0.074
85	7.08	0.33	0.098	(0.229)	0.024	0.074
86	7.17	0.33	0.098	(0.228)	0.024	0.074
87	7.25	0.33	0.098	(0.227)	0.024	0.074
88	7.33	0.37	0.107	(0.226)	0.026	0.081
89	7.42	0.37	0.107	(0.225)	0.026	0.081
90	7.50	0.37	0.107	(0.224)	0.026	0.081
91	7.58	0.40	0.117	(0.222)	0.028	0.089
92	7.67	0.40	0.117	(0.221)	0.028	0.089
93	7.75	0.40	0.117	(0.220)	0.028	0.089
94	7.83	0.43	0.127	(0.219)	0.031	0.096
95	7.92	0.43	0.127	(0.218)	0.031	0.096
96	8.00	0.43	0.127	(0.217)	0.031	0.096
97	8.08	0.50	0.146	(0.216)	0.035	0.111
98	8.17	0.50	0.146	(0.215)	0.035	0.111
99	8.25	0.50	0.146	(0.214)	0.035	0.111
100	8.33	0.50	0.146	(0.213)	0.035	0.111
101	8.42	0.50	0.146	(0.212)	0.035	0.111
102	8.50	0.50	0.146	(0.211)	0.035	0.111
103	8.58	0.53	0.156	(0.210)	0.038	0.118
104	8.67	0.53	0.156	(0.209)	0.038	0.118
105	8.75	0.53	0.156	(0.208)	0.038	0.118
106	8.83	0.57	0.166	(0.207)	0.040	0.126
107	8.92	0.57	0.166	(0.206)	0.040	0.126
108	9.00	0.57	0.166	(0.205)	0.040	0.126
109	9.08	0.63	0.185	(0.205)	0.045	0.140
110	9.17	0.63	0.185	(0.204)	0.045	0.140
111	9.25	0.63	0.185	(0.203)	0.045	0.140
112	9.33	0.67	0.195	(0.202)	0.047	0.148
113	9.42	0.67	0.195	(0.201)	0.047	0.148
114	9.50	0.67	0.195	(0.200)	0.047	0.148
115	9.58	0.70	0.205	(0.199)	0.050	0.155
116	9.67	0.70	0.205	(0.198)	0.050	0.155
117	9.75	0.70	0.205	(0.197)	0.050	0.155
118	9.83	0.73	0.215	(0.196)	0.052	0.163
119	9.92	0.73	0.215	(0.195)	0.052	0.163
120	10.00	0.73	0.215	(0.194)	0.052	0.163
121	10.08	0.50	0.146	(0.193)	0.035	0.111
122	10.17	0.50	0.146	(0.192)	0.035	0.111
123	10.25	0.50	0.146	(0.191)	0.035	0.111
124	10.33	0.50	0.146	(0.190)	0.035	0.111
125	10.42	0.50	0.146	(0.189)	0.035	0.111
126	10.50	0.50	0.146	(0.188)	0.035	0.111
127	10.58	0.67	0.195	(0.187)	0.047	0.148
128	10.67	0.67	0.195	(0.187)	0.047	0.148
129	10.75	0.67	0.195	(0.186)	0.047	0.148
130	10.83	0.67	0.195	(0.185)	0.047	0.148
131	10.92	0.67	0.195	(0.184)	0.047	0.148
132	11.00	0.67	0.195	(0.183)	0.047	0.148
133	11.08	0.63	0.185	(0.182)	0.045	0.140
134	11.17	0.63	0.185	(0.181)	0.045	0.140
135	11.25	0.63	0.185	(0.180)	0.045	0.140
136	11.33	0.63	0.185	(0.179)	0.045	0.140
137	11.42	0.63	0.185	(0.178)	0.045	0.140
138	11.50	0.63	0.185	(0.178)	0.045	0.140
139	11.58	0.57	0.166	(0.177)	0.040	0.126
140	11.67	0.57	0.166	(0.176)	0.040	0.126
141	11.75	0.57	0.166	(0.175)	0.040	0.126
142	11.83	0.60	0.176	(0.174)	0.043	0.133
143	11.92	0.60	0.176	(0.173)	0.043	0.133
144	12.00	0.60	0.176	(0.172)	0.043	0.133
145	12.08	0.83	0.244	(0.171)	0.059	0.185

146	12.17	0.83	0.244	(0.171)	0.059	0.185
147	12.25	0.83	0.244	(0.170)	0.059	0.185
148	12.33	0.87	0.254	(0.169)	0.062	0.192
149	12.42	0.87	0.254	(0.168)	0.062	0.192
150	12.50	0.87	0.254	(0.167)	0.062	0.192
151	12.58	0.93	0.273	(0.166)	0.066	0.207
152	12.67	0.93	0.273	(0.166)	0.066	0.207
153	12.75	0.93	0.273	(0.165)	0.066	0.207
154	12.83	0.97	0.283	(0.164)	0.069	0.214
155	12.92	0.97	0.283	(0.163)	0.069	0.214
156	13.00	0.97	0.283	(0.162)	0.069	0.214
157	13.08	1.13	0.332	(0.161)	0.080	0.251
158	13.17	1.13	0.332	(0.161)	0.080	0.251
159	13.25	1.13	0.332	(0.160)	0.080	0.251
160	13.33	1.13	0.332	(0.159)	0.080	0.251
161	13.42	1.13	0.332	(0.158)	0.080	0.251
162	13.50	1.13	0.332	(0.157)	0.080	0.251
163	13.58	0.77	0.224	(0.157)	0.054	0.170
164	13.67	0.77	0.224	(0.156)	0.054	0.170
165	13.75	0.77	0.224	(0.155)	0.054	0.170
166	13.83	0.77	0.224	(0.154)	0.054	0.170
167	13.92	0.77	0.224	(0.153)	0.054	0.170
168	14.00	0.77	0.224	(0.153)	0.054	0.170
169	14.08	0.90	0.264	(0.152)	0.064	0.200
170	14.17	0.90	0.264	(0.151)	0.064	0.200
171	14.25	0.90	0.264	(0.150)	0.064	0.200
172	14.33	0.87	0.254	(0.149)	0.062	0.192
173	14.42	0.87	0.254	(0.149)	0.062	0.192
174	14.50	0.87	0.254	(0.148)	0.062	0.192
175	14.58	0.87	0.254	(0.147)	0.062	0.192
176	14.67	0.87	0.254	(0.146)	0.062	0.192
177	14.75	0.87	0.254	(0.146)	0.062	0.192
178	14.83	0.83	0.244	(0.145)	0.059	0.185
179	14.92	0.83	0.244	(0.144)	0.059	0.185
180	15.00	0.83	0.244	(0.143)	0.059	0.185
181	15.08	0.80	0.234	(0.143)	0.057	0.177
182	15.17	0.80	0.234	(0.142)	0.057	0.177
183	15.25	0.80	0.234	(0.141)	0.057	0.177
184	15.33	0.77	0.224	(0.141)	0.054	0.170
185	15.42	0.77	0.224	(0.140)	0.054	0.170
186	15.50	0.77	0.224	(0.139)	0.054	0.170
187	15.58	0.63	0.185	(0.138)	0.045	0.140
188	15.67	0.63	0.185	(0.138)	0.045	0.140
189	15.75	0.63	0.185	(0.137)	0.045	0.140
190	15.83	0.63	0.185	(0.136)	0.045	0.140
191	15.92	0.63	0.185	(0.136)	0.045	0.140
192	16.00	0.63	0.185	(0.135)	0.045	0.140
193	16.08	0.13	0.039	(0.134)	0.009	0.030
194	16.17	0.13	0.039	(0.134)	0.009	0.030
195	16.25	0.13	0.039	(0.133)	0.009	0.030
196	16.33	0.13	0.039	(0.132)	0.009	0.030
197	16.42	0.13	0.039	(0.131)	0.009	0.030
198	16.50	0.13	0.039	(0.131)	0.009	0.030
199	16.58	0.10	0.029	(0.130)	0.007	0.022
200	16.67	0.10	0.029	(0.129)	0.007	0.022
201	16.75	0.10	0.029	(0.129)	0.007	0.022
202	16.83	0.10	0.029	(0.128)	0.007	0.022
203	16.92	0.10	0.029	(0.128)	0.007	0.022
204	17.00	0.10	0.029	(0.127)	0.007	0.022
205	17.08	0.17	0.049	(0.126)	0.012	0.037
206	17.17	0.17	0.049	(0.126)	0.012	0.037
207	17.25	0.17	0.049	(0.125)	0.012	0.037
208	17.33	0.17	0.049	(0.124)	0.012	0.037

209	17.42	0.17	0.049	(0.124)	0.012	0.037
210	17.50	0.17	0.049	(0.123)	0.012	0.037
211	17.58	0.17	0.049	(0.122)	0.012	0.037
212	17.67	0.17	0.049	(0.122)	0.012	0.037
213	17.75	0.17	0.049	(0.121)	0.012	0.037
214	17.83	0.13	0.039	(0.121)	0.009	0.030
215	17.92	0.13	0.039	(0.120)	0.009	0.030
216	18.00	0.13	0.039	(0.119)	0.009	0.030
217	18.08	0.13	0.039	(0.119)	0.009	0.030
218	18.17	0.13	0.039	(0.118)	0.009	0.030
219	18.25	0.13	0.039	(0.118)	0.009	0.030
220	18.33	0.13	0.039	(0.117)	0.009	0.030
221	18.42	0.13	0.039	(0.117)	0.009	0.030
222	18.50	0.13	0.039	(0.116)	0.009	0.030
223	18.58	0.10	0.029	(0.115)	0.007	0.022
224	18.67	0.10	0.029	(0.115)	0.007	0.022
225	18.75	0.10	0.029	(0.114)	0.007	0.022
226	18.83	0.07	0.020	(0.114)	0.005	0.015
227	18.92	0.07	0.020	(0.113)	0.005	0.015
228	19.00	0.07	0.020	(0.113)	0.005	0.015
229	19.08	0.10	0.029	(0.112)	0.007	0.022
230	19.17	0.10	0.029	(0.112)	0.007	0.022
231	19.25	0.10	0.029	(0.111)	0.007	0.022
232	19.33	0.13	0.039	(0.111)	0.009	0.030
233	19.42	0.13	0.039	(0.110)	0.009	0.030
234	19.50	0.13	0.039	(0.110)	0.009	0.030
235	19.58	0.10	0.029	(0.109)	0.007	0.022
236	19.67	0.10	0.029	(0.109)	0.007	0.022
237	19.75	0.10	0.029	(0.108)	0.007	0.022
238	19.83	0.07	0.020	(0.108)	0.005	0.015
239	19.92	0.07	0.020	(0.107)	0.005	0.015
240	20.00	0.07	0.020	(0.107)	0.005	0.015
241	20.08	0.10	0.029	(0.106)	0.007	0.022
242	20.17	0.10	0.029	(0.106)	0.007	0.022
243	20.25	0.10	0.029	(0.105)	0.007	0.022
244	20.33	0.10	0.029	(0.105)	0.007	0.022
245	20.42	0.10	0.029	(0.104)	0.007	0.022
246	20.50	0.10	0.029	(0.104)	0.007	0.022
247	20.58	0.10	0.029	(0.103)	0.007	0.022
248	20.67	0.10	0.029	(0.103)	0.007	0.022
249	20.75	0.10	0.029	(0.103)	0.007	0.022
250	20.83	0.07	0.020	(0.102)	0.005	0.015
251	20.92	0.07	0.020	(0.102)	0.005	0.015
252	21.00	0.07	0.020	(0.101)	0.005	0.015
253	21.08	0.10	0.029	(0.101)	0.007	0.022
254	21.17	0.10	0.029	(0.101)	0.007	0.022
255	21.25	0.10	0.029	(0.100)	0.007	0.022
256	21.33	0.07	0.020	(0.100)	0.005	0.015
257	21.42	0.07	0.020	(0.099)	0.005	0.015
258	21.50	0.07	0.020	(0.099)	0.005	0.015
259	21.58	0.10	0.029	(0.099)	0.007	0.022
260	21.67	0.10	0.029	(0.098)	0.007	0.022
261	21.75	0.10	0.029	(0.098)	0.007	0.022
262	21.83	0.07	0.020	(0.098)	0.005	0.015
263	21.92	0.07	0.020	(0.097)	0.005	0.015
264	22.00	0.07	0.020	(0.097)	0.005	0.015
265	22.08	0.10	0.029	(0.097)	0.007	0.022
266	22.17	0.10	0.029	(0.096)	0.007	0.022
267	22.25	0.10	0.029	(0.096)	0.007	0.022
268	22.33	0.07	0.020	(0.096)	0.005	0.015
269	22.42	0.07	0.020	(0.095)	0.005	0.015
270	22.50	0.07	0.020	(0.095)	0.005	0.015
271	22.58	0.07	0.020	(0.095)	0.005	0.015

272	22.67	0.07	0.020	(0.095)	0.005	0.015
273	22.75	0.07	0.020	(0.094)	0.005	0.015
274	22.83	0.07	0.020	(0.094)	0.005	0.015
275	22.92	0.07	0.020	(0.094)	0.005	0.015
276	23.00	0.07	0.020	(0.094)	0.005	0.015
277	23.08	0.07	0.020	(0.093)	0.005	0.015
278	23.17	0.07	0.020	(0.093)	0.005	0.015
279	23.25	0.07	0.020	(0.093)	0.005	0.015
280	23.33	0.07	0.020	(0.093)	0.005	0.015
281	23.42	0.07	0.020	(0.093)	0.005	0.015
282	23.50	0.07	0.020	(0.093)	0.005	0.015
283	23.58	0.07	0.020	(0.092)	0.005	0.015
284	23.67	0.07	0.020	(0.092)	0.005	0.015
285	23.75	0.07	0.020	(0.092)	0.005	0.015
286	23.83	0.07	0.020	(0.092)	0.005	0.015
287	23.92	0.07	0.020	(0.092)	0.005	0.015
288	24.00	0.07	0.020	(0.092)	0.005	0.015

(Loss Rate Not Used)

Sum = 100.0 Sum = 22.2

Flood volume = Effective rainfall 1.85(In)
times area 1.2(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)

Total soil loss = 0.59(In)

Total soil loss = 0.057(Ac.Ft)

Total rainfall = 2.44(In)

Flood volume = 7783.8 Cubic Feet

Total soil loss = 2490.5 Cubic Feet

Peak flow rate of this hydrograph = 0.294(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	0.0001	0.01	Q				
0+15	0.0002	0.02	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.02	Q				
0+30	0.0007	0.03	Q				
0+35	0.0009	0.03	Q				
0+40	0.0011	0.03	Q				
0+45	0.0013	0.03	Q				
0+50	0.0015	0.03	Q				
0+55	0.0017	0.03	Q				
1+ 0	0.0019	0.03	Q				
1+ 5	0.0021	0.03	Q				
1+10	0.0023	0.03	Q				
1+15	0.0025	0.03	Q				
1+20	0.0027	0.03	Q				
1+25	0.0029	0.03	Q				
1+30	0.0030	0.03	Q				
1+35	0.0032	0.03	Q				
1+40	0.0034	0.03	Q				
1+45	0.0036	0.03	Q				
1+50	0.0038	0.03	Q				
1+55	0.0040	0.03	Q				
2+ 0	0.0042	0.03	Q				
2+ 5	0.0045	0.03	QV				

2+10	0.0047	0.03	QV
2+15	0.0050	0.03	QV
2+20	0.0052	0.03	QV
2+25	0.0054	0.03	QV
2+30	0.0057	0.03	QV
2+35	0.0059	0.04	QV
2+40	0.0062	0.04	QV
2+45	0.0065	0.04	QV
2+50	0.0068	0.04	QV
2+55	0.0071	0.04	QV
3+ 0	0.0074	0.04	QV
3+ 5	0.0077	0.04	QV
3+10	0.0080	0.04	QV
3+15	0.0083	0.04	QV
3+20	0.0086	0.04	QV
3+25	0.0089	0.04	QV
3+30	0.0092	0.04	Q V
3+35	0.0095	0.04	Q V
3+40	0.0098	0.04	Q V
3+45	0.0101	0.04	Q V
3+50	0.0104	0.05	Q V
3+55	0.0107	0.05	Q V
4+ 0	0.0111	0.05	Q V
4+ 5	0.0115	0.05	Q V
4+10	0.0118	0.05	Q V
4+15	0.0122	0.05	Q V
4+20	0.0125	0.05	Q V
4+25	0.0130	0.06	Q V
4+30	0.0134	0.06	Q V
4+35	0.0138	0.06	Q V
4+40	0.0142	0.06	Q V
4+45	0.0146	0.06	Q V
4+50	0.0151	0.06	Q V
4+55	0.0155	0.07	Q V
5+ 0	0.0160	0.07	Q V
5+ 5	0.0164	0.06	Q V
5+10	0.0168	0.06	Q V
5+15	0.0172	0.05	Q V
5+20	0.0175	0.06	Q V
5+25	0.0180	0.06	Q V
5+30	0.0184	0.06	Q V
5+35	0.0188	0.06	Q V
5+40	0.0193	0.07	Q V
5+45	0.0197	0.07	Q V
5+50	0.0202	0.07	Q V
5+55	0.0207	0.07	Q V
6+ 0	0.0212	0.07	Q V
6+ 5	0.0217	0.07	Q V
6+10	0.0222	0.08	Q V
6+15	0.0227	0.08	Q V
6+20	0.0233	0.08	Q V
6+25	0.0238	0.08	Q V
6+30	0.0243	0.08	Q V
6+35	0.0249	0.08	Q V
6+40	0.0255	0.08	Q V
6+45	0.0261	0.09	Q V
6+50	0.0267	0.09	Q V
6+55	0.0272	0.09	Q V
7+ 0	0.0278	0.09	Q V
7+ 5	0.0284	0.09	Q V
7+10	0.0290	0.09	Q V
7+15	0.0296	0.09	Q V
7+20	0.0302	0.09	Q V

7+25	0.0309	0.09	Q	V				
7+30	0.0315	0.09	Q	V				
7+35	0.0322	0.10	Q	V				
7+40	0.0329	0.10	Q	V				
7+45	0.0336	0.10	Q	V				
7+50	0.0344	0.11	Q	V				
7+55	0.0351	0.11	Q	V				
8+ 0	0.0359	0.11	Q	V				
8+ 5	0.0367	0.12	Q	V				
8+10	0.0376	0.13	Q	V				
8+15	0.0385	0.13	Q	V				
8+20	0.0394	0.13	Q	V				
8+25	0.0402	0.13	Q	V				
8+30	0.0411	0.13	Q	V				
8+35	0.0421	0.13	Q	V				
8+40	0.0430	0.14	Q	V				
8+45	0.0439	0.14	Q	V				
8+50	0.0449	0.14	Q	V				
8+55	0.0459	0.15	Q	V				
9+ 0	0.0469	0.15	Q	V				
9+ 5	0.0480	0.15	Q	V				
9+10	0.0491	0.16	Q	V				
9+15	0.0502	0.16	Q	V				
9+20	0.0514	0.17	Q	V				
9+25	0.0525	0.17	Q	V				
9+30	0.0537	0.17	Q	V				
9+35	0.0549	0.18	Q	V				
9+40	0.0562	0.18	Q	V				
9+45	0.0574	0.18	Q	V				
9+50	0.0587	0.18	Q	V				
9+55	0.0600	0.19	Q	V				
10+ 0	0.0613	0.19	Q	V				
10+ 5	0.0625	0.17	Q	V				
10+10	0.0634	0.14	Q	V				
10+15	0.0644	0.13	Q	V				
10+20	0.0653	0.13	Q	V				
10+25	0.0662	0.13	Q	V				
10+30	0.0671	0.13	Q	V				
10+35	0.0680	0.14	Q	V				
10+40	0.0692	0.16	Q	V				
10+45	0.0704	0.17	Q	V				
10+50	0.0715	0.17	Q	V				
10+55	0.0727	0.17	Q	V				
11+ 0	0.0739	0.17	Q	V				
11+ 5	0.0751	0.17	Q	V				
11+10	0.0762	0.17	Q	V				
11+15	0.0774	0.16	Q	V				
11+20	0.0785	0.16	Q	V				
11+25	0.0796	0.16	Q	V				
11+30	0.0808	0.16	Q	V				
11+35	0.0819	0.16	Q	V				
11+40	0.0829	0.15	Q	V				
11+45	0.0839	0.15	Q	V				
11+50	0.0849	0.15	Q	V				
11+55	0.0860	0.15	Q	V				
12+ 0	0.0871	0.16	Q	V				
12+ 5	0.0883	0.18	Q	V				
12+10	0.0897	0.20	Q	V				
12+15	0.0912	0.21	Q	V				
12+20	0.0927	0.22	Q	V				
12+25	0.0942	0.22	Q	V				
12+30	0.0957	0.22	Q	V				
12+35	0.0973	0.23	Q	V				

12+40	0.0990	0.24	Q	V		
12+45	0.1006	0.24	Q	V		
12+50	0.1023	0.24	Q	V		
12+55	0.1040	0.25	Q	V		
13+ 0	0.1058	0.25	Q	V		
13+ 5	0.1076	0.27	Q	V		
13+10	0.1096	0.29	Q	V		
13+15	0.1116	0.29	Q	V		
13+20	0.1136	0.29	Q	V		
13+25	0.1156	0.29	Q	V		
13+30	0.1176	0.29	Q	V		
13+35	0.1194	0.26	Q	V		
13+40	0.1209	0.22	Q	V		
13+45	0.1223	0.21	Q	V		
13+50	0.1237	0.20	Q	V		
13+55	0.1251	0.20	Q	V		
14+ 0	0.1265	0.20	Q	V		
14+ 5	0.1279	0.21	Q	V		
14+10	0.1295	0.23	Q	V		
14+15	0.1311	0.23	Q	V		
14+20	0.1326	0.23	Q	V		
14+25	0.1342	0.23	Q	V		
14+30	0.1358	0.23	Q	V		
14+35	0.1373	0.23	Q	V		
14+40	0.1389	0.22	Q	V		
14+45	0.1404	0.22	Q	V		
14+50	0.1419	0.22	Q	V		
14+55	0.1434	0.22	Q	V		
15+ 0	0.1449	0.22	Q	V		
15+ 5	0.1464	0.21	Q	V		
15+10	0.1478	0.21	Q	V		
15+15	0.1493	0.21	Q	V		
15+20	0.1507	0.20	Q	V		
15+25	0.1521	0.20	Q	V		
15+30	0.1534	0.20	Q	V		
15+35	0.1547	0.19	Q	V		
15+40	0.1559	0.17	Q	V		
15+45	0.1571	0.17	Q	V		
15+50	0.1582	0.17	Q	V		
15+55	0.1593	0.16	Q	V		
16+ 0	0.1605	0.16	Q	V		
16+ 5	0.1613	0.12	Q	V		
16+10	0.1617	0.06	Q	V		
16+15	0.1620	0.04	Q	V		
16+20	0.1623	0.04	Q	V		
16+25	0.1625	0.04	Q	V		
16+30	0.1627	0.03	Q	V		
16+35	0.1630	0.03	Q	V		
16+40	0.1631	0.03	Q	V		
16+45	0.1633	0.03	Q	V		
16+50	0.1635	0.03	Q	V		
16+55	0.1637	0.03	Q	V		
17+ 0	0.1639	0.03	Q	V		
17+ 5	0.1641	0.03	Q	V		
17+10	0.1644	0.04	Q	V		
17+15	0.1647	0.04	Q	V		
17+20	0.1649	0.04	Q	V		
17+25	0.1652	0.04	Q	V		
17+30	0.1655	0.04	Q	V		
17+35	0.1658	0.04	Q	V		
17+40	0.1661	0.04	Q	V		
17+45	0.1664	0.04	Q	V		
17+50	0.1667	0.04	Q	V		

17+55	0.1670	0.04	Q				V
18+ 0	0.1672	0.04	Q				V
18+ 5	0.1674	0.03	Q				V
18+10	0.1677	0.03	Q				V
18+15	0.1679	0.03	Q				V
18+20	0.1682	0.03	Q				V
18+25	0.1684	0.03	Q				V
18+30	0.1686	0.03	Q				V
18+35	0.1689	0.03	Q				V
18+40	0.1690	0.03	Q				V
18+45	0.1692	0.03	Q				V
18+50	0.1694	0.02	Q				V
18+55	0.1695	0.02	Q				V
19+ 0	0.1696	0.02	Q				V
19+ 5	0.1698	0.02	Q				V
19+10	0.1700	0.02	Q				V
19+15	0.1701	0.03	Q				V
19+20	0.1703	0.03	Q				V
19+25	0.1706	0.03	Q				V
19+30	0.1708	0.03	Q				V
19+35	0.1710	0.03	Q				V
19+40	0.1712	0.03	Q				V
19+45	0.1714	0.03	Q				V
19+50	0.1715	0.02	Q				V
19+55	0.1717	0.02	Q				V
20+ 0	0.1718	0.02	Q				V
20+ 5	0.1719	0.02	Q				V
20+10	0.1721	0.02	Q				V
20+15	0.1723	0.03	Q				V
20+20	0.1724	0.03	Q				V
20+25	0.1726	0.03	Q				V
20+30	0.1728	0.03	Q				V
20+35	0.1730	0.03	Q				V
20+40	0.1732	0.03	Q				V
20+45	0.1733	0.03	Q				V
20+50	0.1735	0.02	Q				V
20+55	0.1736	0.02	Q				V
21+ 0	0.1738	0.02	Q				V
21+ 5	0.1739	0.02	Q				V
21+10	0.1741	0.02	Q				V
21+15	0.1742	0.03	Q				V
21+20	0.1744	0.02	Q				V
21+25	0.1745	0.02	Q				V
21+30	0.1746	0.02	Q				V
21+35	0.1748	0.02	Q				V
21+40	0.1750	0.02	Q				V
21+45	0.1751	0.03	Q				V
21+50	0.1753	0.02	Q				V
21+55	0.1754	0.02	Q				V
22+ 0	0.1755	0.02	Q				V
22+ 5	0.1757	0.02	Q				V
22+10	0.1758	0.02	Q				V
22+15	0.1760	0.03	Q				V
22+20	0.1762	0.02	Q				V
22+25	0.1763	0.02	Q				V
22+30	0.1764	0.02	Q				V
22+35	0.1766	0.02	Q				V
22+40	0.1767	0.02	Q				V
22+45	0.1768	0.02	Q				V
22+50	0.1769	0.02	Q				V
22+55	0.1770	0.02	Q				V
23+ 0	0.1771	0.02	Q				V
23+ 5	0.1773	0.02	Q				V

23+10	0.1774	0.02	Q				V
23+15	0.1775	0.02	Q				V
23+20	0.1776	0.02	Q				V
23+25	0.1777	0.02	Q				V
23+30	0.1779	0.02	Q				V
23+35	0.1780	0.02	Q				V
23+40	0.1781	0.02	Q				V
23+45	0.1782	0.02	Q				V
23+50	0.1783	0.02	Q				V
23+55	0.1785	0.02	Q				V
24+ 0	0.1786	0.02	Q				V
24+ 5	0.1787	0.01	Q				V
24+10	0.1787	0.00	Q				V
24+15	0.1787	0.00	Q				V
24+20	0.1787	0.00	Q				V
24+25	0.1787	0.00	Q				V

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

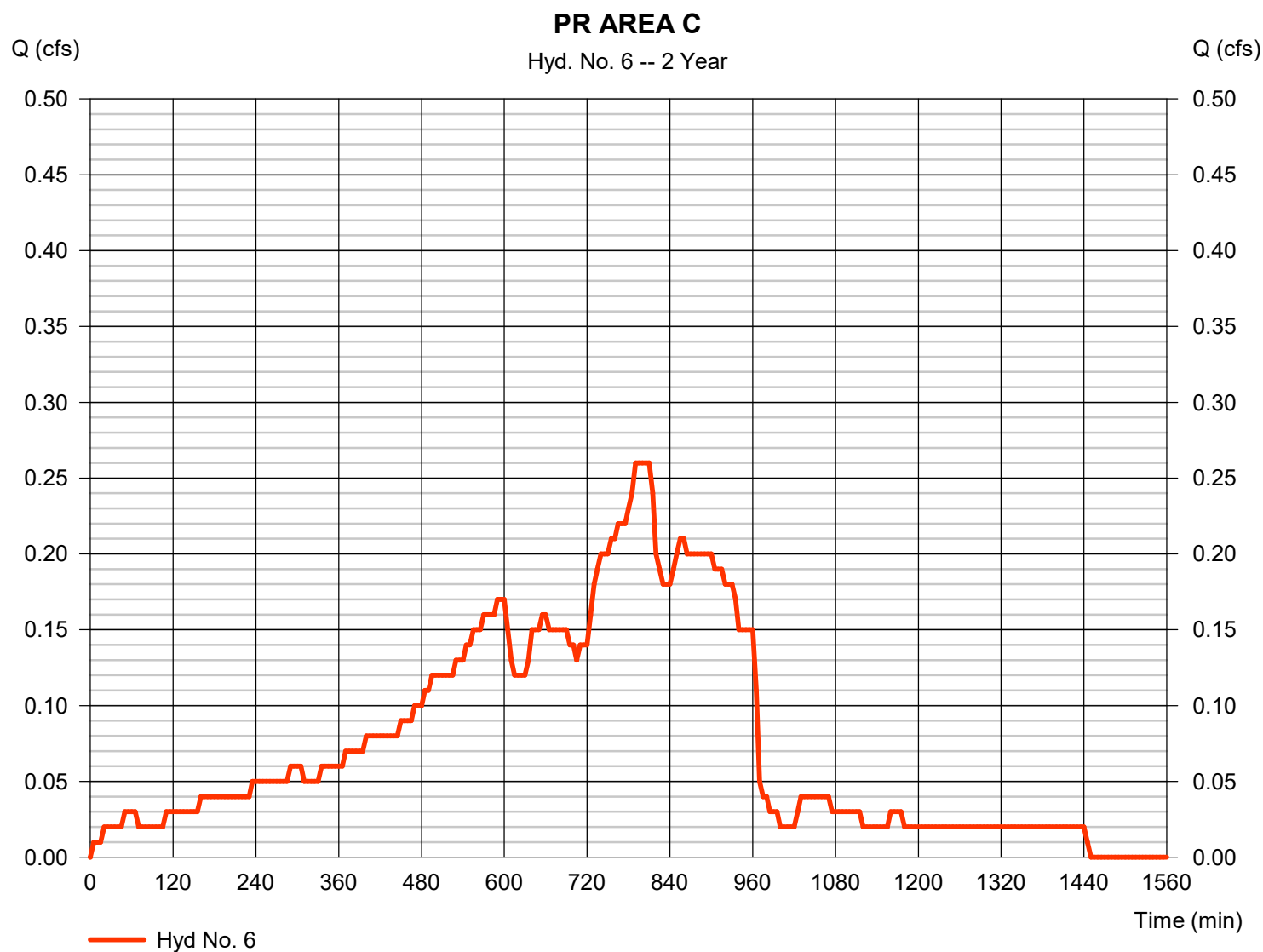
Friday, 12 / 17 / 2021

Hyd. No. 6

PR AREA C

Hydrograph type = Manual
 Storm frequency = 2 yrs
 Time interval = 5 min

Peak discharge = 0.260 cfs
 Time to peak = 790 min
 Hyd. volume = 7,026 cuft



Unit Hydrograph Analysis

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Study date 12/14/21 File: 19400PC242.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 2-yr 24-hr
Area C

Drainage Area = 1.02 (Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.02 (Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 710.00 (Ft.)
Length along longest watercourse measured to centroid = 338.00 (Ft.)
Length along longest watercourse = 0.134 Mi.
Length along longest watercourse measured to centroid = 0.064 Mi.
Difference in elevation = 7.50 (Ft.)
Slope along watercourse = 55.7746 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.055 Hr.
Lag time = 3.30 Min.
25% of lag time = 0.83 Min.
40% of lag time = 1.32 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]
1.02	2.44	2.49

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.02	6.64	6.77

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.440 (In)
Area Averaged 100-Year Rainfall = 6.640 (In)

Point rain (area averaged) = 2.440(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.440(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.020 56.00 0.845
Total Area Entered = 1.02(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.845	0.169	1.000	0.169
						Sum (F) = 0.169

Area averaged mean soil loss (F) (In/Hr) = 0.169

Minimum soil loss rate ((In/Hr)) = 0.085

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.224

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	151.372	33.505	0.344
2 0.167	302.743	46.909	0.482
3 0.250	454.115	11.102	0.114
4 0.333	605.487	4.842	0.050
5 0.417	756.858	2.427	0.025
6 0.500	908.230	1.214	0.012
		Sum = 100.000	Sum= 1.028

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)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.020	(0.300)	0.004	0.015
2	0.17	0.07	0.020	(0.299)	0.004	0.015
3	0.25	0.07	0.020	(0.297)	0.004	0.015
4	0.33	0.10	0.029	(0.296)	0.007	0.023
5	0.42	0.10	0.029	(0.295)	0.007	0.023
6	0.50	0.10	0.029	(0.294)	0.007	0.023
7	0.58	0.10	0.029	(0.293)	0.007	0.023
8	0.67	0.10	0.029	(0.292)	0.007	0.023
9	0.75	0.10	0.029	(0.291)	0.007	0.023
10	0.83	0.13	0.039	(0.289)	0.009	0.030
11	0.92	0.13	0.039	(0.288)	0.009	0.030
12	1.00	0.13	0.039	(0.287)	0.009	0.030
13	1.08	0.10	0.029	(0.286)	0.007	0.023
14	1.17	0.10	0.029	(0.285)	0.007	0.023
15	1.25	0.10	0.029	(0.284)	0.007	0.023
16	1.33	0.10	0.029	(0.283)	0.007	0.023
17	1.42	0.10	0.029	(0.281)	0.007	0.023
18	1.50	0.10	0.029	(0.280)	0.007	0.023
19	1.58	0.10	0.029	(0.279)	0.007	0.023

20	1.67	0.10	0.029	(0.278)	0.007	0.023
21	1.75	0.10	0.029	(0.277)	0.007	0.023
22	1.83	0.13	0.039	(0.276)	0.009	0.030
23	1.92	0.13	0.039	(0.275)	0.009	0.030
24	2.00	0.13	0.039	(0.274)	0.009	0.030
25	2.08	0.13	0.039	(0.273)	0.009	0.030
26	2.17	0.13	0.039	(0.271)	0.009	0.030
27	2.25	0.13	0.039	(0.270)	0.009	0.030
28	2.33	0.13	0.039	(0.269)	0.009	0.030
29	2.42	0.13	0.039	(0.268)	0.009	0.030
30	2.50	0.13	0.039	(0.267)	0.009	0.030
31	2.58	0.17	0.049	(0.266)	0.011	0.038
32	2.67	0.17	0.049	(0.265)	0.011	0.038
33	2.75	0.17	0.049	(0.264)	0.011	0.038
34	2.83	0.17	0.049	(0.263)	0.011	0.038
35	2.92	0.17	0.049	(0.262)	0.011	0.038
36	3.00	0.17	0.049	(0.261)	0.011	0.038
37	3.08	0.17	0.049	(0.259)	0.011	0.038
38	3.17	0.17	0.049	(0.258)	0.011	0.038
39	3.25	0.17	0.049	(0.257)	0.011	0.038
40	3.33	0.17	0.049	(0.256)	0.011	0.038
41	3.42	0.17	0.049	(0.255)	0.011	0.038
42	3.50	0.17	0.049	(0.254)	0.011	0.038
43	3.58	0.17	0.049	(0.253)	0.011	0.038
44	3.67	0.17	0.049	(0.252)	0.011	0.038
45	3.75	0.17	0.049	(0.251)	0.011	0.038
46	3.83	0.20	0.059	(0.250)	0.013	0.045
47	3.92	0.20	0.059	(0.249)	0.013	0.045
48	4.00	0.20	0.059	(0.248)	0.013	0.045
49	4.08	0.20	0.059	(0.247)	0.013	0.045
50	4.17	0.20	0.059	(0.246)	0.013	0.045
51	4.25	0.20	0.059	(0.245)	0.013	0.045
52	4.33	0.23	0.068	(0.244)	0.015	0.053
53	4.42	0.23	0.068	(0.243)	0.015	0.053
54	4.50	0.23	0.068	(0.241)	0.015	0.053
55	4.58	0.23	0.068	(0.240)	0.015	0.053
56	4.67	0.23	0.068	(0.239)	0.015	0.053
57	4.75	0.23	0.068	(0.238)	0.015	0.053
58	4.83	0.27	0.078	(0.237)	0.017	0.061
59	4.92	0.27	0.078	(0.236)	0.017	0.061
60	5.00	0.27	0.078	(0.235)	0.017	0.061
61	5.08	0.20	0.059	(0.234)	0.013	0.045
62	5.17	0.20	0.059	(0.233)	0.013	0.045
63	5.25	0.20	0.059	(0.232)	0.013	0.045
64	5.33	0.23	0.068	(0.231)	0.015	0.053
65	5.42	0.23	0.068	(0.230)	0.015	0.053
66	5.50	0.23	0.068	(0.229)	0.015	0.053
67	5.58	0.27	0.078	(0.228)	0.017	0.061
68	5.67	0.27	0.078	(0.227)	0.017	0.061
69	5.75	0.27	0.078	(0.226)	0.017	0.061
70	5.83	0.27	0.078	(0.225)	0.017	0.061
71	5.92	0.27	0.078	(0.224)	0.017	0.061
72	6.00	0.27	0.078	(0.223)	0.017	0.061
73	6.08	0.30	0.088	(0.222)	0.020	0.068
74	6.17	0.30	0.088	(0.221)	0.020	0.068
75	6.25	0.30	0.088	(0.220)	0.020	0.068
76	6.33	0.30	0.088	(0.219)	0.020	0.068
77	6.42	0.30	0.088	(0.218)	0.020	0.068
78	6.50	0.30	0.088	(0.217)	0.020	0.068
79	6.58	0.33	0.098	(0.216)	0.022	0.076
80	6.67	0.33	0.098	(0.215)	0.022	0.076
81	6.75	0.33	0.098	(0.214)	0.022	0.076
82	6.83	0.33	0.098	(0.213)	0.022	0.076

83	6.92	0.33	0.098	(0.212)	0.022	0.076
84	7.00	0.33	0.098	(0.211)	0.022	0.076
85	7.08	0.33	0.098	(0.211)	0.022	0.076
86	7.17	0.33	0.098	(0.210)	0.022	0.076
87	7.25	0.33	0.098	(0.209)	0.022	0.076
88	7.33	0.37	0.107	(0.208)	0.024	0.083
89	7.42	0.37	0.107	(0.207)	0.024	0.083
90	7.50	0.37	0.107	(0.206)	0.024	0.083
91	7.58	0.40	0.117	(0.205)	0.026	0.091
92	7.67	0.40	0.117	(0.204)	0.026	0.091
93	7.75	0.40	0.117	(0.203)	0.026	0.091
94	7.83	0.43	0.127	(0.202)	0.028	0.098
95	7.92	0.43	0.127	(0.201)	0.028	0.098
96	8.00	0.43	0.127	(0.200)	0.028	0.098
97	8.08	0.50	0.146	(0.199)	0.033	0.114
98	8.17	0.50	0.146	(0.198)	0.033	0.114
99	8.25	0.50	0.146	(0.197)	0.033	0.114
100	8.33	0.50	0.146	(0.196)	0.033	0.114
101	8.42	0.50	0.146	(0.195)	0.033	0.114
102	8.50	0.50	0.146	(0.195)	0.033	0.114
103	8.58	0.53	0.156	(0.194)	0.035	0.121
104	8.67	0.53	0.156	(0.193)	0.035	0.121
105	8.75	0.53	0.156	(0.192)	0.035	0.121
106	8.83	0.57	0.166	(0.191)	0.037	0.129
107	8.92	0.57	0.166	(0.190)	0.037	0.129
108	9.00	0.57	0.166	(0.189)	0.037	0.129
109	9.08	0.63	0.185	(0.188)	0.042	0.144
110	9.17	0.63	0.185	(0.187)	0.042	0.144
111	9.25	0.63	0.185	(0.186)	0.042	0.144
112	9.33	0.67	0.195	(0.186)	0.044	0.151
113	9.42	0.67	0.195	(0.185)	0.044	0.151
114	9.50	0.67	0.195	(0.184)	0.044	0.151
115	9.58	0.70	0.205	(0.183)	0.046	0.159
116	9.67	0.70	0.205	(0.182)	0.046	0.159
117	9.75	0.70	0.205	(0.181)	0.046	0.159
118	9.83	0.73	0.215	(0.180)	0.048	0.167
119	9.92	0.73	0.215	(0.179)	0.048	0.167
120	10.00	0.73	0.215	(0.179)	0.048	0.167
121	10.08	0.50	0.146	(0.178)	0.033	0.114
122	10.17	0.50	0.146	(0.177)	0.033	0.114
123	10.25	0.50	0.146	(0.176)	0.033	0.114
124	10.33	0.50	0.146	(0.175)	0.033	0.114
125	10.42	0.50	0.146	(0.174)	0.033	0.114
126	10.50	0.50	0.146	(0.173)	0.033	0.114
127	10.58	0.67	0.195	(0.173)	0.044	0.151
128	10.67	0.67	0.195	(0.172)	0.044	0.151
129	10.75	0.67	0.195	(0.171)	0.044	0.151
130	10.83	0.67	0.195	(0.170)	0.044	0.151
131	10.92	0.67	0.195	(0.169)	0.044	0.151
132	11.00	0.67	0.195	(0.168)	0.044	0.151
133	11.08	0.63	0.185	(0.168)	0.042	0.144
134	11.17	0.63	0.185	(0.167)	0.042	0.144
135	11.25	0.63	0.185	(0.166)	0.042	0.144
136	11.33	0.63	0.185	(0.165)	0.042	0.144
137	11.42	0.63	0.185	(0.164)	0.042	0.144
138	11.50	0.63	0.185	(0.163)	0.042	0.144
139	11.58	0.57	0.166	(0.163)	0.037	0.129
140	11.67	0.57	0.166	(0.162)	0.037	0.129
141	11.75	0.57	0.166	(0.161)	0.037	0.129
142	11.83	0.60	0.176	(0.160)	0.039	0.136
143	11.92	0.60	0.176	(0.159)	0.039	0.136
144	12.00	0.60	0.176	(0.159)	0.039	0.136
145	12.08	0.83	0.244	(0.158)	0.055	0.189

146	12.17	0.83	0.244	(0.157)	0.055	0.189
147	12.25	0.83	0.244	(0.156)	0.055	0.189
148	12.33	0.87	0.254	(0.155)	0.057	0.197
149	12.42	0.87	0.254	(0.155)	0.057	0.197
150	12.50	0.87	0.254	(0.154)	0.057	0.197
151	12.58	0.93	0.273	(0.153)	0.061	0.212
152	12.67	0.93	0.273	(0.152)	0.061	0.212
153	12.75	0.93	0.273	(0.152)	0.061	0.212
154	12.83	0.97	0.283	(0.151)	0.063	0.220
155	12.92	0.97	0.283	(0.150)	0.063	0.220
156	13.00	0.97	0.283	(0.149)	0.063	0.220
157	13.08	1.13	0.332	(0.149)	0.074	0.258
158	13.17	1.13	0.332	(0.148)	0.074	0.258
159	13.25	1.13	0.332	(0.147)	0.074	0.258
160	13.33	1.13	0.332	(0.146)	0.074	0.258
161	13.42	1.13	0.332	(0.146)	0.074	0.258
162	13.50	1.13	0.332	(0.145)	0.074	0.258
163	13.58	0.77	0.224	(0.144)	0.050	0.174
164	13.67	0.77	0.224	(0.143)	0.050	0.174
165	13.75	0.77	0.224	(0.143)	0.050	0.174
166	13.83	0.77	0.224	(0.142)	0.050	0.174
167	13.92	0.77	0.224	(0.141)	0.050	0.174
168	14.00	0.77	0.224	(0.140)	0.050	0.174
169	14.08	0.90	0.264	(0.140)	0.059	0.204
170	14.17	0.90	0.264	(0.139)	0.059	0.204
171	14.25	0.90	0.264	(0.138)	0.059	0.204
172	14.33	0.87	0.254	(0.138)	0.057	0.197
173	14.42	0.87	0.254	(0.137)	0.057	0.197
174	14.50	0.87	0.254	(0.136)	0.057	0.197
175	14.58	0.87	0.254	(0.135)	0.057	0.197
176	14.67	0.87	0.254	(0.135)	0.057	0.197
177	14.75	0.87	0.254	(0.134)	0.057	0.197
178	14.83	0.83	0.244	(0.133)	0.055	0.189
179	14.92	0.83	0.244	(0.133)	0.055	0.189
180	15.00	0.83	0.244	(0.132)	0.055	0.189
181	15.08	0.80	0.234	(0.131)	0.052	0.182
182	15.17	0.80	0.234	(0.131)	0.052	0.182
183	15.25	0.80	0.234	(0.130)	0.052	0.182
184	15.33	0.77	0.224	(0.129)	0.050	0.174
185	15.42	0.77	0.224	(0.129)	0.050	0.174
186	15.50	0.77	0.224	(0.128)	0.050	0.174
187	15.58	0.63	0.185	(0.127)	0.042	0.144
188	15.67	0.63	0.185	(0.127)	0.042	0.144
189	15.75	0.63	0.185	(0.126)	0.042	0.144
190	15.83	0.63	0.185	(0.125)	0.042	0.144
191	15.92	0.63	0.185	(0.125)	0.042	0.144
192	16.00	0.63	0.185	(0.124)	0.042	0.144
193	16.08	0.13	0.039	(0.124)	0.009	0.030
194	16.17	0.13	0.039	(0.123)	0.009	0.030
195	16.25	0.13	0.039	(0.122)	0.009	0.030
196	16.33	0.13	0.039	(0.122)	0.009	0.030
197	16.42	0.13	0.039	(0.121)	0.009	0.030
198	16.50	0.13	0.039	(0.120)	0.009	0.030
199	16.58	0.10	0.029	(0.120)	0.007	0.023
200	16.67	0.10	0.029	(0.119)	0.007	0.023
201	16.75	0.10	0.029	(0.119)	0.007	0.023
202	16.83	0.10	0.029	(0.118)	0.007	0.023
203	16.92	0.10	0.029	(0.117)	0.007	0.023
204	17.00	0.10	0.029	(0.117)	0.007	0.023
205	17.08	0.17	0.049	(0.116)	0.011	0.038
206	17.17	0.17	0.049	(0.116)	0.011	0.038
207	17.25	0.17	0.049	(0.115)	0.011	0.038
208	17.33	0.17	0.049	(0.114)	0.011	0.038

209	17.42	0.17	0.049	(0.114)	0.011	0.038
210	17.50	0.17	0.049	(0.113)	0.011	0.038
211	17.58	0.17	0.049	(0.113)	0.011	0.038
212	17.67	0.17	0.049	(0.112)	0.011	0.038
213	17.75	0.17	0.049	(0.112)	0.011	0.038
214	17.83	0.13	0.039	(0.111)	0.009	0.030
215	17.92	0.13	0.039	(0.111)	0.009	0.030
216	18.00	0.13	0.039	(0.110)	0.009	0.030
217	18.08	0.13	0.039	(0.109)	0.009	0.030
218	18.17	0.13	0.039	(0.109)	0.009	0.030
219	18.25	0.13	0.039	(0.108)	0.009	0.030
220	18.33	0.13	0.039	(0.108)	0.009	0.030
221	18.42	0.13	0.039	(0.107)	0.009	0.030
222	18.50	0.13	0.039	(0.107)	0.009	0.030
223	18.58	0.10	0.029	(0.106)	0.007	0.023
224	18.67	0.10	0.029	(0.106)	0.007	0.023
225	18.75	0.10	0.029	(0.105)	0.007	0.023
226	18.83	0.07	0.020	(0.105)	0.004	0.015
227	18.92	0.07	0.020	(0.104)	0.004	0.015
228	19.00	0.07	0.020	(0.104)	0.004	0.015
229	19.08	0.10	0.029	(0.103)	0.007	0.023
230	19.17	0.10	0.029	(0.103)	0.007	0.023
231	19.25	0.10	0.029	(0.102)	0.007	0.023
232	19.33	0.13	0.039	(0.102)	0.009	0.030
233	19.42	0.13	0.039	(0.101)	0.009	0.030
234	19.50	0.13	0.039	(0.101)	0.009	0.030
235	19.58	0.10	0.029	(0.100)	0.007	0.023
236	19.67	0.10	0.029	(0.100)	0.007	0.023
237	19.75	0.10	0.029	(0.100)	0.007	0.023
238	19.83	0.07	0.020	(0.099)	0.004	0.015
239	19.92	0.07	0.020	(0.099)	0.004	0.015
240	20.00	0.07	0.020	(0.098)	0.004	0.015
241	20.08	0.10	0.029	(0.098)	0.007	0.023
242	20.17	0.10	0.029	(0.097)	0.007	0.023
243	20.25	0.10	0.029	(0.097)	0.007	0.023
244	20.33	0.10	0.029	(0.096)	0.007	0.023
245	20.42	0.10	0.029	(0.096)	0.007	0.023
246	20.50	0.10	0.029	(0.096)	0.007	0.023
247	20.58	0.10	0.029	(0.095)	0.007	0.023
248	20.67	0.10	0.029	(0.095)	0.007	0.023
249	20.75	0.10	0.029	(0.094)	0.007	0.023
250	20.83	0.07	0.020	(0.094)	0.004	0.015
251	20.92	0.07	0.020	(0.094)	0.004	0.015
252	21.00	0.07	0.020	(0.093)	0.004	0.015
253	21.08	0.10	0.029	(0.093)	0.007	0.023
254	21.17	0.10	0.029	(0.093)	0.007	0.023
255	21.25	0.10	0.029	(0.092)	0.007	0.023
256	21.33	0.07	0.020	(0.092)	0.004	0.015
257	21.42	0.07	0.020	(0.092)	0.004	0.015
258	21.50	0.07	0.020	(0.091)	0.004	0.015
259	21.58	0.10	0.029	(0.091)	0.007	0.023
260	21.67	0.10	0.029	(0.091)	0.007	0.023
261	21.75	0.10	0.029	(0.090)	0.007	0.023
262	21.83	0.07	0.020	(0.090)	0.004	0.015
263	21.92	0.07	0.020	(0.090)	0.004	0.015
264	22.00	0.07	0.020	(0.089)	0.004	0.015
265	22.08	0.10	0.029	(0.089)	0.007	0.023
266	22.17	0.10	0.029	(0.089)	0.007	0.023
267	22.25	0.10	0.029	(0.088)	0.007	0.023
268	22.33	0.07	0.020	(0.088)	0.004	0.015
269	22.42	0.07	0.020	(0.088)	0.004	0.015
270	22.50	0.07	0.020	(0.088)	0.004	0.015
271	22.58	0.07	0.020	(0.087)	0.004	0.015

272	22.67	0.07	0.020	(0.087)	0.004	0.015
273	22.75	0.07	0.020	(0.087)	0.004	0.015
274	22.83	0.07	0.020	(0.087)	0.004	0.015
275	22.92	0.07	0.020	(0.086)	0.004	0.015
276	23.00	0.07	0.020	(0.086)	0.004	0.015
277	23.08	0.07	0.020	(0.086)	0.004	0.015
278	23.17	0.07	0.020	(0.086)	0.004	0.015
279	23.25	0.07	0.020	(0.086)	0.004	0.015
280	23.33	0.07	0.020	(0.085)	0.004	0.015
281	23.42	0.07	0.020	(0.085)	0.004	0.015
282	23.50	0.07	0.020	(0.085)	0.004	0.015
283	23.58	0.07	0.020	(0.085)	0.004	0.015
284	23.67	0.07	0.020	(0.085)	0.004	0.015
285	23.75	0.07	0.020	(0.085)	0.004	0.015
286	23.83	0.07	0.020	(0.085)	0.004	0.015
287	23.92	0.07	0.020	(0.085)	0.004	0.015
288	24.00	0.07	0.020	(0.085)	0.004	0.015

(Loss Rate Not Used)

Sum = 100.0 Sum = 22.7

Flood volume = Effective rainfall 1.89(In)
times area 1.0(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)

Total soil loss = 0.55(In)

Total soil loss = 0.046(Ac.Ft)

Total rainfall = 2.44(In)

Flood volume = 7010.6 Cubic Feet

Total soil loss = 2023.7 Cubic Feet

Peak flow rate of this hydrograph = 0.265(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.02	Q				
0+25	0.0005	0.02	Q				
0+30	0.0006	0.02	Q				
0+35	0.0008	0.02	Q				
0+40	0.0010	0.02	Q				
0+45	0.0011	0.02	Q				
0+50	0.0013	0.03	Q				
0+55	0.0015	0.03	Q				
1+ 0	0.0017	0.03	Q				
1+ 5	0.0019	0.03	Q				
1+10	0.0021	0.02	Q				
1+15	0.0023	0.02	Q				
1+20	0.0024	0.02	Q				
1+25	0.0026	0.02	Q				
1+30	0.0027	0.02	Q				
1+35	0.0029	0.02	Q				
1+40	0.0031	0.02	Q				
1+45	0.0032	0.02	Q				
1+50	0.0034	0.03	Q				
1+55	0.0036	0.03	Q				
2+ 0	0.0038	0.03	Q				
2+ 5	0.0040	0.03	QV				

2+10	0.0042	0.03	QV
2+15	0.0045	0.03	QV
2+20	0.0047	0.03	QV
2+25	0.0049	0.03	QV
2+30	0.0051	0.03	QV
2+35	0.0053	0.03	QV
2+40	0.0056	0.04	QV
2+45	0.0059	0.04	QV
2+50	0.0061	0.04	QV
2+55	0.0064	0.04	QV
3+ 0	0.0067	0.04	QV
3+ 5	0.0069	0.04	QV
3+10	0.0072	0.04	QV
3+15	0.0075	0.04	QV
3+20	0.0077	0.04	QV
3+25	0.0080	0.04	QV
3+30	0.0083	0.04	Q V
3+35	0.0085	0.04	Q V
3+40	0.0088	0.04	Q V
3+45	0.0091	0.04	Q V
3+50	0.0094	0.04	Q V
3+55	0.0097	0.05	Q V
4+ 0	0.0100	0.05	Q V
4+ 5	0.0103	0.05	Q V
4+10	0.0106	0.05	Q V
4+15	0.0109	0.05	Q V
4+20	0.0113	0.05	Q V
4+25	0.0117	0.05	Q V
4+30	0.0120	0.05	Q V
4+35	0.0124	0.05	Q V
4+40	0.0128	0.05	Q V
4+45	0.0131	0.05	Q V
4+50	0.0135	0.06	Q V
4+55	0.0140	0.06	Q V
5+ 0	0.0144	0.06	Q V
5+ 5	0.0148	0.06	Q V
5+10	0.0151	0.05	Q V
5+15	0.0154	0.05	Q V
5+20	0.0158	0.05	Q V
5+25	0.0162	0.05	Q V
5+30	0.0165	0.05	Q V
5+35	0.0169	0.06	Q V
5+40	0.0173	0.06	Q V
5+45	0.0178	0.06	Q V
5+50	0.0182	0.06	Q V
5+55	0.0186	0.06	Q V
6+ 0	0.0190	0.06	Q V
6+ 5	0.0195	0.06	Q V
6+10	0.0200	0.07	Q V
6+15	0.0204	0.07	Q V
6+20	0.0209	0.07	Q V
6+25	0.0214	0.07	Q V
6+30	0.0219	0.07	Q V
6+35	0.0224	0.07	Q V
6+40	0.0229	0.08	Q V
6+45	0.0234	0.08	Q V
6+50	0.0240	0.08	Q V
6+55	0.0245	0.08	Q V
7+ 0	0.0251	0.08	Q V
7+ 5	0.0256	0.08	Q V
7+10	0.0261	0.08	Q V
7+15	0.0267	0.08	Q V
7+20	0.0272	0.08	Q V

7+25	0.0278	0.08	Q	V				
7+30	0.0284	0.09	Q	V				
7+35	0.0290	0.09	Q	V				
7+40	0.0296	0.09	Q	V				
7+45	0.0303	0.09	Q	V				
7+50	0.0309	0.10	Q	V				
7+55	0.0316	0.10	Q	V				
8+ 0	0.0323	0.10	Q	V				
8+ 5	0.0330	0.11	Q	V				
8+10	0.0338	0.11	Q	V				
8+15	0.0346	0.12	Q	V				
8+20	0.0354	0.12	Q	V				
8+25	0.0362	0.12	Q	V				
8+30	0.0370	0.12	Q	V				
8+35	0.0378	0.12	Q	V				
8+40	0.0387	0.12	Q	V				
8+45	0.0395	0.12	Q	V				
8+50	0.0404	0.13	Q	V				
8+55	0.0413	0.13	Q	V				
9+ 0	0.0422	0.13	Q	V				
9+ 5	0.0432	0.14	Q	V				
9+10	0.0442	0.14	Q	V				
9+15	0.0452	0.15	Q	V				
9+20	0.0462	0.15	Q	V				
9+25	0.0473	0.15	Q	V				
9+30	0.0483	0.16	Q	V				
9+35	0.0494	0.16	Q	V				
9+40	0.0505	0.16	Q	V				
9+45	0.0517	0.16	Q	V				
9+50	0.0528	0.17	Q	V				
9+55	0.0540	0.17	Q	V				
10+ 0	0.0552	0.17	Q	V				
10+ 5	0.0562	0.15	Q	V				
10+10	0.0571	0.13	Q	V				
10+15	0.0579	0.12	Q	V				
10+20	0.0587	0.12	Q	V				
10+25	0.0596	0.12	Q	V				
10+30	0.0604	0.12	Q	V				
10+35	0.0613	0.13	Q	V				
10+40	0.0623	0.15	Q	V				
10+45	0.0633	0.15	Q	V				
10+50	0.0644	0.15	Q	V				
10+55	0.0655	0.16	Q	V				
11+ 0	0.0665	0.16	Q	V				
11+ 5	0.0676	0.15	Q	V				
11+10	0.0686	0.15	Q	V				
11+15	0.0696	0.15	Q	V				
11+20	0.0707	0.15	Q	V				
11+25	0.0717	0.15	Q	V				
11+30	0.0727	0.15	Q	V				
11+35	0.0737	0.14	Q	V				
11+40	0.0746	0.14	Q	V				
11+45	0.0755	0.13	Q	V				
11+50	0.0765	0.14	Q	V				
11+55	0.0774	0.14	Q	V				
12+ 0	0.0784	0.14	Q	V				
12+ 5	0.0795	0.16	Q	V				
12+10	0.0807	0.18	Q	V				
12+15	0.0821	0.19	Q	V				
12+20	0.0834	0.20	Q	V				
12+25	0.0848	0.20	Q	V				
12+30	0.0862	0.20	Q	V				
12+35	0.0876	0.21	Q	V				

12+40	0.0891	0.21	Q	V		
12+45	0.0906	0.22	Q	V		
12+50	0.0921	0.22	Q	V		
12+55	0.0936	0.22	Q	V		
13+ 0	0.0952	0.23	Q	V		
13+ 5	0.0968	0.24	Q	V		
13+10	0.0986	0.26	Q	V		
13+15	0.1004	0.26	Q	V		
13+20	0.1022	0.26	Q	V		
13+25	0.1040	0.26	Q	V		
13+30	0.1059	0.26	Q	V		
13+35	0.1075	0.24	Q	V		
13+40	0.1088	0.20	Q	V		
13+45	0.1101	0.19	Q	V		
13+50	0.1114	0.18	Q	V		
13+55	0.1126	0.18	Q	V		
14+ 0	0.1138	0.18	Q	V		
14+ 5	0.1152	0.19	Q	V		
14+10	0.1166	0.20	Q	V		
14+15	0.1180	0.21	Q	V		
14+20	0.1194	0.21	Q	V		
14+25	0.1208	0.20	Q	V		
14+30	0.1222	0.20	Q	V		
14+35	0.1236	0.20	Q	V		
14+40	0.1250	0.20	Q	V		
14+45	0.1264	0.20	Q	V		
14+50	0.1278	0.20	Q	V		
14+55	0.1291	0.20	Q	V		
15+ 0	0.1305	0.20	Q	V		
15+ 5	0.1318	0.19	Q	V		
15+10	0.1331	0.19	Q	V		
15+15	0.1344	0.19	Q	V		
15+20	0.1357	0.18	Q	V		
15+25	0.1369	0.18	Q	V		
15+30	0.1381	0.18	Q	V		
15+35	0.1393	0.17	Q	V		
15+40	0.1404	0.15	Q	V		
15+45	0.1414	0.15	Q	V		
15+50	0.1424	0.15	Q	V		
15+55	0.1435	0.15	Q	V		
16+ 0	0.1445	0.15	Q	V		
16+ 5	0.1452	0.11	Q	V		
16+10	0.1456	0.05	Q	V		
16+15	0.1459	0.04	Q	V		
16+20	0.1461	0.04	Q	V		
16+25	0.1464	0.03	Q	V		
16+30	0.1466	0.03	Q	V		
16+35	0.1468	0.03	Q	V		
16+40	0.1469	0.02	Q	V		
16+45	0.1471	0.02	Q	V		
16+50	0.1473	0.02	Q	V		
16+55	0.1474	0.02	Q	V		
17+ 0	0.1476	0.02	Q	V		
17+ 5	0.1478	0.03	Q	V		
17+10	0.1480	0.04	Q	V		
17+15	0.1483	0.04	Q	V		
17+20	0.1486	0.04	Q	V		
17+25	0.1488	0.04	Q	V		
17+30	0.1491	0.04	Q	V		
17+35	0.1494	0.04	Q	V		
17+40	0.1496	0.04	Q	V		
17+45	0.1499	0.04	Q	V		
17+50	0.1501	0.04	Q	V		

17+55	0.1504	0.03	Q				V
18+ 0	0.1506	0.03	Q				V
18+ 5	0.1508	0.03	Q				V
18+10	0.1510	0.03	Q				V
18+15	0.1512	0.03	Q				V
18+20	0.1514	0.03	Q				V
18+25	0.1517	0.03	Q				V
18+30	0.1519	0.03	Q				V
18+35	0.1521	0.03	Q				V
18+40	0.1522	0.02	Q				V
18+45	0.1524	0.02	Q				V
18+50	0.1526	0.02	Q				V
18+55	0.1527	0.02	Q				V
19+ 0	0.1528	0.02	Q				V
19+ 5	0.1529	0.02	Q				V
19+10	0.1531	0.02	Q				V
19+15	0.1532	0.02	Q				V
19+20	0.1534	0.03	Q				V
19+25	0.1536	0.03	Q				V
19+30	0.1538	0.03	Q				V
19+35	0.1540	0.03	Q				V
19+40	0.1542	0.02	Q				V
19+45	0.1543	0.02	Q				V
19+50	0.1545	0.02	Q				V
19+55	0.1546	0.02	Q				V
20+ 0	0.1547	0.02	Q				V
20+ 5	0.1548	0.02	Q				V
20+10	0.1550	0.02	Q				V
20+15	0.1552	0.02	Q				V
20+20	0.1553	0.02	Q				V
20+25	0.1555	0.02	Q				V
20+30	0.1556	0.02	Q				V
20+35	0.1558	0.02	Q				V
20+40	0.1560	0.02	Q				V
20+45	0.1561	0.02	Q				V
20+50	0.1563	0.02	Q				V
20+55	0.1564	0.02	Q				V
21+ 0	0.1565	0.02	Q				V
21+ 5	0.1566	0.02	Q				V
21+10	0.1568	0.02	Q				V
21+15	0.1569	0.02	Q				V
21+20	0.1571	0.02	Q				V
21+25	0.1572	0.02	Q				V
21+30	0.1573	0.02	Q				V
21+35	0.1574	0.02	Q				V
21+40	0.1576	0.02	Q				V
21+45	0.1577	0.02	Q				V
21+50	0.1579	0.02	Q				V
21+55	0.1580	0.02	Q				V
22+ 0	0.1581	0.02	Q				V
22+ 5	0.1582	0.02	Q				V
22+10	0.1584	0.02	Q				V
22+15	0.1585	0.02	Q				V
22+20	0.1587	0.02	Q				V
22+25	0.1588	0.02	Q				V
22+30	0.1589	0.02	Q				V
22+35	0.1590	0.02	Q				V
22+40	0.1591	0.02	Q				V
22+45	0.1592	0.02	Q				V
22+50	0.1593	0.02	Q				V
22+55	0.1594	0.02	Q				V
23+ 0	0.1595	0.02	Q				V
23+ 5	0.1597	0.02	Q				V

23+10	0.1598	0.02	Q				V
23+15	0.1599	0.02	Q				V
23+20	0.1600	0.02	Q				V
23+25	0.1601	0.02	Q				V
23+30	0.1602	0.02	Q				V
23+35	0.1603	0.02	Q				V
23+40	0.1604	0.02	Q				V
23+45	0.1605	0.02	Q				V
23+50	0.1606	0.02	Q				V
23+55	0.1607	0.02	Q				V
24+ 0	0.1608	0.02	Q				V
24+ 5	0.1609	0.01	Q				V
24+10	0.1609	0.00	Q				V
24+15	0.1609	0.00	Q				V
24+20	0.1609	0.00	Q				V
24+25	0.1609	0.00	Q				V

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

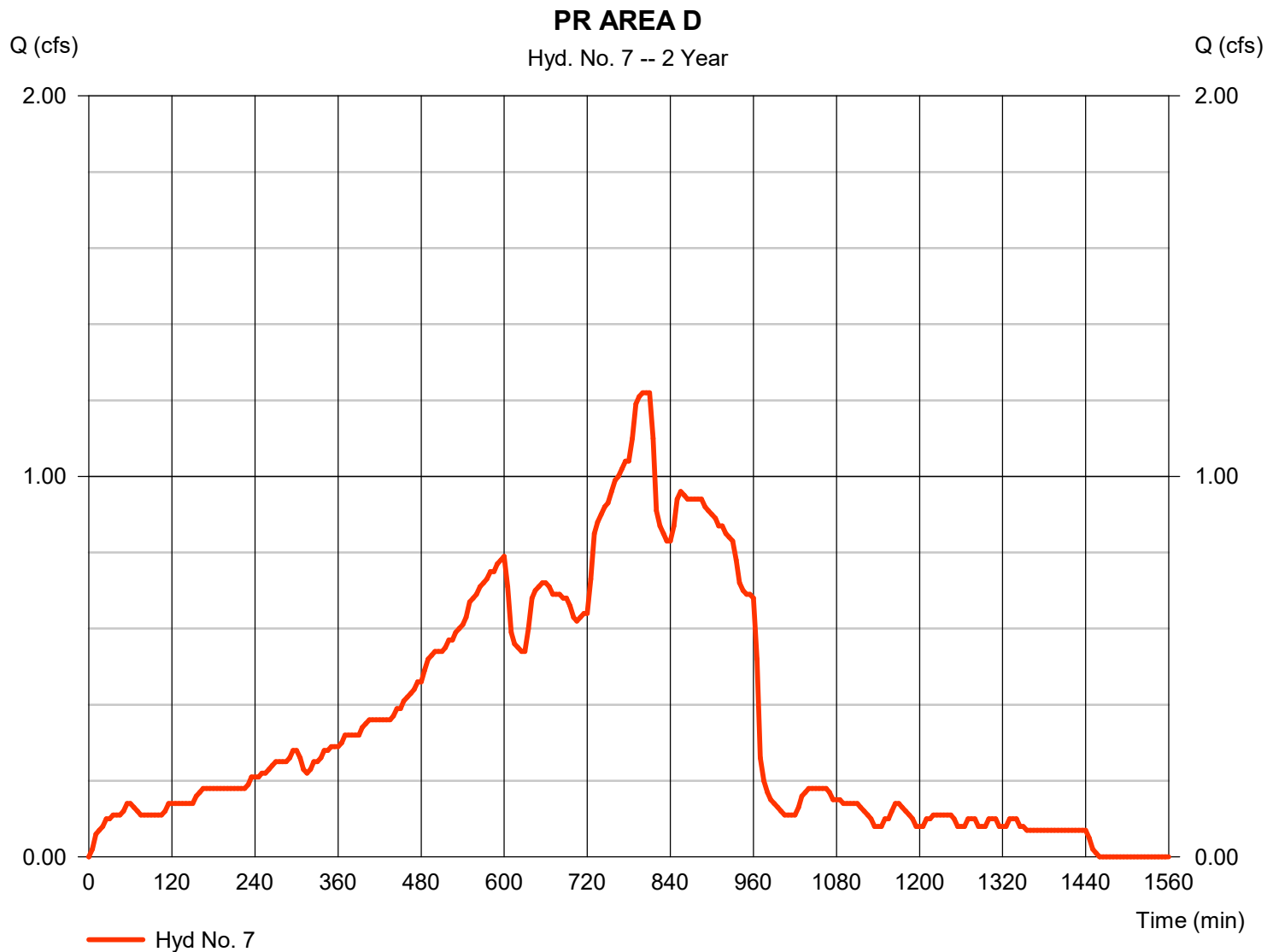
Friday, 12 / 17 / 2021

Hyd. No. 7

PR AREA D

Hydrograph type = Manual
 Storm frequency = 2 yrs
 Time interval = 5 min

Peak discharge = 1.220 cfs
 Time to peak = 800 min
 Hyd. volume = 32,397 cuft



Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2

Study date 12/14/21 File: 19400PD242.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 2-yr 24-hr
Area D

Drainage Area = 4.33 (Ac.) = 0.007 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.33 (Ac.) = 0.007
Sq. Mi.
Length along longest watercourse = 797.00 (Ft.)
Length along longest watercourse measured to centroid = 343.00 (Ft.)
Length along longest watercourse = 0.151 Mi.
Length along longest watercourse measured to centroid = 0.065 Mi.
Difference in elevation = 7.90 (Ft.)
Slope along watercourse = 52.3363 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.059 Hr.
Lag time = 3.51 Min.
25% of lag time = 0.88 Min.
40% of lag time = 1.41 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]
4.33	2.44	10.57

100 YEAR Area rainfall data:

Area (Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
4.33	6.64	28.75

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.440 (In)
Area Averaged 100-Year Rainfall = 6.640 (In)

Point rain (area averaged) = 2.440(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.440(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
4.330 56.00 0.931
Total Area Entered = 4.33(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.931	0.114	1.000	0.114
						Sum (F) = 0.114

Area averaged mean soil loss (F) (In/Hr) = 0.114

Minimum soil loss rate ((In/Hr)) = 0.057

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.155

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	142.329	31.273	1.365
2 0.167	284.659	47.551	2.075
3 0.250	426.988	11.651	0.508
4 0.333	569.318	5.125	0.224
5 0.417	711.647	2.700	0.118
6 0.500	853.976	1.700	0.074
		Sum = 100.000	Sum= 4.364

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)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.020	(0.203)	0.003	0.016
2	0.17	0.07	0.020	(0.202)	0.003	0.016
3	0.25	0.07	0.020	(0.201)	0.003	0.016
4	0.33	0.10	0.029	(0.201)	0.005	0.025
5	0.42	0.10	0.029	(0.200)	0.005	0.025
6	0.50	0.10	0.029	(0.199)	0.005	0.025
7	0.58	0.10	0.029	(0.198)	0.005	0.025
8	0.67	0.10	0.029	(0.197)	0.005	0.025
9	0.75	0.10	0.029	(0.197)	0.005	0.025
10	0.83	0.13	0.039	(0.196)	0.006	0.033
11	0.92	0.13	0.039	(0.195)	0.006	0.033
12	1.00	0.13	0.039	(0.194)	0.006	0.033
13	1.08	0.10	0.029	(0.194)	0.005	0.025
14	1.17	0.10	0.029	(0.193)	0.005	0.025
15	1.25	0.10	0.029	(0.192)	0.005	0.025
16	1.33	0.10	0.029	(0.191)	0.005	0.025
17	1.42	0.10	0.029	(0.191)	0.005	0.025
18	1.50	0.10	0.029	(0.190)	0.005	0.025
19	1.58	0.10	0.029	(0.189)	0.005	0.025

20	1.67	0.10	0.029	(0.188)	0.005	0.025
21	1.75	0.10	0.029	(0.187)	0.005	0.025
22	1.83	0.13	0.039	(0.187)	0.006	0.033
23	1.92	0.13	0.039	(0.186)	0.006	0.033
24	2.00	0.13	0.039	(0.185)	0.006	0.033
25	2.08	0.13	0.039	(0.184)	0.006	0.033
26	2.17	0.13	0.039	(0.184)	0.006	0.033
27	2.25	0.13	0.039	(0.183)	0.006	0.033
28	2.33	0.13	0.039	(0.182)	0.006	0.033
29	2.42	0.13	0.039	(0.181)	0.006	0.033
30	2.50	0.13	0.039	(0.181)	0.006	0.033
31	2.58	0.17	0.049	(0.180)	0.008	0.041
32	2.67	0.17	0.049	(0.179)	0.008	0.041
33	2.75	0.17	0.049	(0.179)	0.008	0.041
34	2.83	0.17	0.049	(0.178)	0.008	0.041
35	2.92	0.17	0.049	(0.177)	0.008	0.041
36	3.00	0.17	0.049	(0.176)	0.008	0.041
37	3.08	0.17	0.049	(0.176)	0.008	0.041
38	3.17	0.17	0.049	(0.175)	0.008	0.041
39	3.25	0.17	0.049	(0.174)	0.008	0.041
40	3.33	0.17	0.049	(0.173)	0.008	0.041
41	3.42	0.17	0.049	(0.173)	0.008	0.041
42	3.50	0.17	0.049	(0.172)	0.008	0.041
43	3.58	0.17	0.049	(0.171)	0.008	0.041
44	3.67	0.17	0.049	(0.171)	0.008	0.041
45	3.75	0.17	0.049	(0.170)	0.008	0.041
46	3.83	0.20	0.059	(0.169)	0.009	0.049
47	3.92	0.20	0.059	(0.168)	0.009	0.049
48	4.00	0.20	0.059	(0.168)	0.009	0.049
49	4.08	0.20	0.059	(0.167)	0.009	0.049
50	4.17	0.20	0.059	(0.166)	0.009	0.049
51	4.25	0.20	0.059	(0.166)	0.009	0.049
52	4.33	0.23	0.068	(0.165)	0.011	0.058
53	4.42	0.23	0.068	(0.164)	0.011	0.058
54	4.50	0.23	0.068	(0.163)	0.011	0.058
55	4.58	0.23	0.068	(0.163)	0.011	0.058
56	4.67	0.23	0.068	(0.162)	0.011	0.058
57	4.75	0.23	0.068	(0.161)	0.011	0.058
58	4.83	0.27	0.078	(0.161)	0.012	0.066
59	4.92	0.27	0.078	(0.160)	0.012	0.066
60	5.00	0.27	0.078	(0.159)	0.012	0.066
61	5.08	0.20	0.059	(0.159)	0.009	0.049
62	5.17	0.20	0.059	(0.158)	0.009	0.049
63	5.25	0.20	0.059	(0.157)	0.009	0.049
64	5.33	0.23	0.068	(0.156)	0.011	0.058
65	5.42	0.23	0.068	(0.156)	0.011	0.058
66	5.50	0.23	0.068	(0.155)	0.011	0.058
67	5.58	0.27	0.078	(0.154)	0.012	0.066
68	5.67	0.27	0.078	(0.154)	0.012	0.066
69	5.75	0.27	0.078	(0.153)	0.012	0.066
70	5.83	0.27	0.078	(0.152)	0.012	0.066
71	5.92	0.27	0.078	(0.152)	0.012	0.066
72	6.00	0.27	0.078	(0.151)	0.012	0.066
73	6.08	0.30	0.088	(0.150)	0.014	0.074
74	6.17	0.30	0.088	(0.150)	0.014	0.074
75	6.25	0.30	0.088	(0.149)	0.014	0.074
76	6.33	0.30	0.088	(0.148)	0.014	0.074
77	6.42	0.30	0.088	(0.148)	0.014	0.074
78	6.50	0.30	0.088	(0.147)	0.014	0.074
79	6.58	0.33	0.098	(0.146)	0.015	0.082
80	6.67	0.33	0.098	(0.146)	0.015	0.082
81	6.75	0.33	0.098	(0.145)	0.015	0.082
82	6.83	0.33	0.098	(0.144)	0.015	0.082

83	6.92	0.33	0.098	(0.144)	0.015	0.082
84	7.00	0.33	0.098	(0.143)	0.015	0.082
85	7.08	0.33	0.098	(0.142)	0.015	0.082
86	7.17	0.33	0.098	(0.142)	0.015	0.082
87	7.25	0.33	0.098	(0.141)	0.015	0.082
88	7.33	0.37	0.107	(0.141)	0.017	0.091
89	7.42	0.37	0.107	(0.140)	0.017	0.091
90	7.50	0.37	0.107	(0.139)	0.017	0.091
91	7.58	0.40	0.117	(0.139)	0.018	0.099
92	7.67	0.40	0.117	(0.138)	0.018	0.099
93	7.75	0.40	0.117	(0.137)	0.018	0.099
94	7.83	0.43	0.127	(0.137)	0.020	0.107
95	7.92	0.43	0.127	(0.136)	0.020	0.107
96	8.00	0.43	0.127	(0.135)	0.020	0.107
97	8.08	0.50	0.146	(0.135)	0.023	0.124
98	8.17	0.50	0.146	(0.134)	0.023	0.124
99	8.25	0.50	0.146	(0.134)	0.023	0.124
100	8.33	0.50	0.146	(0.133)	0.023	0.124
101	8.42	0.50	0.146	(0.132)	0.023	0.124
102	8.50	0.50	0.146	(0.132)	0.023	0.124
103	8.58	0.53	0.156	(0.131)	0.024	0.132
104	8.67	0.53	0.156	(0.130)	0.024	0.132
105	8.75	0.53	0.156	(0.130)	0.024	0.132
106	8.83	0.57	0.166	(0.129)	0.026	0.140
107	8.92	0.57	0.166	(0.129)	0.026	0.140
108	9.00	0.57	0.166	(0.128)	0.026	0.140
109	9.08	0.63	0.185	(0.127)	0.029	0.157
110	9.17	0.63	0.185	(0.127)	0.029	0.157
111	9.25	0.63	0.185	(0.126)	0.029	0.157
112	9.33	0.67	0.195	(0.126)	0.030	0.165
113	9.42	0.67	0.195	(0.125)	0.030	0.165
114	9.50	0.67	0.195	(0.124)	0.030	0.165
115	9.58	0.70	0.205	(0.124)	0.032	0.173
116	9.67	0.70	0.205	(0.123)	0.032	0.173
117	9.75	0.70	0.205	(0.123)	0.032	0.173
118	9.83	0.73	0.215	(0.122)	0.033	0.181
119	9.92	0.73	0.215	(0.121)	0.033	0.181
120	10.00	0.73	0.215	(0.121)	0.033	0.181
121	10.08	0.50	0.146	(0.120)	0.023	0.124
122	10.17	0.50	0.146	(0.120)	0.023	0.124
123	10.25	0.50	0.146	(0.119)	0.023	0.124
124	10.33	0.50	0.146	(0.119)	0.023	0.124
125	10.42	0.50	0.146	(0.118)	0.023	0.124
126	10.50	0.50	0.146	(0.117)	0.023	0.124
127	10.58	0.67	0.195	(0.117)	0.030	0.165
128	10.67	0.67	0.195	(0.116)	0.030	0.165
129	10.75	0.67	0.195	(0.116)	0.030	0.165
130	10.83	0.67	0.195	(0.115)	0.030	0.165
131	10.92	0.67	0.195	(0.115)	0.030	0.165
132	11.00	0.67	0.195	(0.114)	0.030	0.165
133	11.08	0.63	0.185	(0.113)	0.029	0.157
134	11.17	0.63	0.185	(0.113)	0.029	0.157
135	11.25	0.63	0.185	(0.112)	0.029	0.157
136	11.33	0.63	0.185	(0.112)	0.029	0.157
137	11.42	0.63	0.185	(0.111)	0.029	0.157
138	11.50	0.63	0.185	(0.111)	0.029	0.157
139	11.58	0.57	0.166	(0.110)	0.026	0.140
140	11.67	0.57	0.166	(0.110)	0.026	0.140
141	11.75	0.57	0.166	(0.109)	0.026	0.140
142	11.83	0.60	0.176	(0.108)	0.027	0.148
143	11.92	0.60	0.176	(0.108)	0.027	0.148
144	12.00	0.60	0.176	(0.107)	0.027	0.148
145	12.08	0.83	0.244	(0.107)	0.038	0.206

146	12.17	0.83	0.244	(0.106)	0.038	0.206
147	12.25	0.83	0.244	(0.106)	0.038	0.206
148	12.33	0.87	0.254	(0.105)	0.039	0.214
149	12.42	0.87	0.254	(0.105)	0.039	0.214
150	12.50	0.87	0.254	(0.104)	0.039	0.214
151	12.58	0.93	0.273	(0.104)	0.042	0.231
152	12.67	0.93	0.273	(0.103)	0.042	0.231
153	12.75	0.93	0.273	(0.103)	0.042	0.231
154	12.83	0.97	0.283	(0.102)	0.044	0.239
155	12.92	0.97	0.283	(0.102)	0.044	0.239
156	13.00	0.97	0.283	(0.101)	0.044	0.239
157	13.08	1.13	0.332	(0.101)	0.052	0.280
158	13.17	1.13	0.332	(0.100)	0.052	0.280
159	13.25	1.13	0.332	(0.100)	0.052	0.280
160	13.33	1.13	0.332	(0.099)	0.052	0.280
161	13.42	1.13	0.332	(0.099)	0.052	0.280
162	13.50	1.13	0.332	(0.098)	0.052	0.280
163	13.58	0.77	0.224	(0.098)	0.035	0.190
164	13.67	0.77	0.224	(0.097)	0.035	0.190
165	13.75	0.77	0.224	(0.097)	0.035	0.190
166	13.83	0.77	0.224	(0.096)	0.035	0.190
167	13.92	0.77	0.224	(0.096)	0.035	0.190
168	14.00	0.77	0.224	(0.095)	0.035	0.190
169	14.08	0.90	0.264	(0.095)	0.041	0.223
170	14.17	0.90	0.264	(0.094)	0.041	0.223
171	14.25	0.90	0.264	(0.094)	0.041	0.223
172	14.33	0.87	0.254	(0.093)	0.039	0.214
173	14.42	0.87	0.254	(0.093)	0.039	0.214
174	14.50	0.87	0.254	(0.092)	0.039	0.214
175	14.58	0.87	0.254	(0.092)	0.039	0.214
176	14.67	0.87	0.254	(0.091)	0.039	0.214
177	14.75	0.87	0.254	(0.091)	0.039	0.214
178	14.83	0.83	0.244	(0.090)	0.038	0.206
179	14.92	0.83	0.244	(0.090)	0.038	0.206
180	15.00	0.83	0.244	(0.089)	0.038	0.206
181	15.08	0.80	0.234	(0.089)	0.036	0.198
182	15.17	0.80	0.234	(0.088)	0.036	0.198
183	15.25	0.80	0.234	(0.088)	0.036	0.198
184	15.33	0.77	0.224	(0.088)	0.035	0.190
185	15.42	0.77	0.224	(0.087)	0.035	0.190
186	15.50	0.77	0.224	(0.087)	0.035	0.190
187	15.58	0.63	0.185	(0.086)	0.029	0.157
188	15.67	0.63	0.185	(0.086)	0.029	0.157
189	15.75	0.63	0.185	(0.085)	0.029	0.157
190	15.83	0.63	0.185	(0.085)	0.029	0.157
191	15.92	0.63	0.185	(0.084)	0.029	0.157
192	16.00	0.63	0.185	(0.084)	0.029	0.157
193	16.08	0.13	0.039	(0.084)	0.006	0.033
194	16.17	0.13	0.039	(0.083)	0.006	0.033
195	16.25	0.13	0.039	(0.083)	0.006	0.033
196	16.33	0.13	0.039	(0.082)	0.006	0.033
197	16.42	0.13	0.039	(0.082)	0.006	0.033
198	16.50	0.13	0.039	(0.082)	0.006	0.033
199	16.58	0.10	0.029	(0.081)	0.005	0.025
200	16.67	0.10	0.029	(0.081)	0.005	0.025
201	16.75	0.10	0.029	(0.080)	0.005	0.025
202	16.83	0.10	0.029	(0.080)	0.005	0.025
203	16.92	0.10	0.029	(0.079)	0.005	0.025
204	17.00	0.10	0.029	(0.079)	0.005	0.025
205	17.08	0.17	0.049	(0.079)	0.008	0.041
206	17.17	0.17	0.049	(0.078)	0.008	0.041
207	17.25	0.17	0.049	(0.078)	0.008	0.041
208	17.33	0.17	0.049	(0.077)	0.008	0.041

209	17.42	0.17	0.049	(0.077)	0.008	0.041
210	17.50	0.17	0.049	(0.077)	0.008	0.041
211	17.58	0.17	0.049	(0.076)	0.008	0.041
212	17.67	0.17	0.049	(0.076)	0.008	0.041
213	17.75	0.17	0.049	(0.076)	0.008	0.041
214	17.83	0.13	0.039	(0.075)	0.006	0.033
215	17.92	0.13	0.039	(0.075)	0.006	0.033
216	18.00	0.13	0.039	(0.074)	0.006	0.033
217	18.08	0.13	0.039	(0.074)	0.006	0.033
218	18.17	0.13	0.039	(0.074)	0.006	0.033
219	18.25	0.13	0.039	(0.073)	0.006	0.033
220	18.33	0.13	0.039	(0.073)	0.006	0.033
221	18.42	0.13	0.039	(0.073)	0.006	0.033
222	18.50	0.13	0.039	(0.072)	0.006	0.033
223	18.58	0.10	0.029	(0.072)	0.005	0.025
224	18.67	0.10	0.029	(0.072)	0.005	0.025
225	18.75	0.10	0.029	(0.071)	0.005	0.025
226	18.83	0.07	0.020	(0.071)	0.003	0.016
227	18.92	0.07	0.020	(0.071)	0.003	0.016
228	19.00	0.07	0.020	(0.070)	0.003	0.016
229	19.08	0.10	0.029	(0.070)	0.005	0.025
230	19.17	0.10	0.029	(0.070)	0.005	0.025
231	19.25	0.10	0.029	(0.069)	0.005	0.025
232	19.33	0.13	0.039	(0.069)	0.006	0.033
233	19.42	0.13	0.039	(0.069)	0.006	0.033
234	19.50	0.13	0.039	(0.068)	0.006	0.033
235	19.58	0.10	0.029	(0.068)	0.005	0.025
236	19.67	0.10	0.029	(0.068)	0.005	0.025
237	19.75	0.10	0.029	(0.067)	0.005	0.025
238	19.83	0.07	0.020	(0.067)	0.003	0.016
239	19.92	0.07	0.020	(0.067)	0.003	0.016
240	20.00	0.07	0.020	(0.066)	0.003	0.016
241	20.08	0.10	0.029	(0.066)	0.005	0.025
242	20.17	0.10	0.029	(0.066)	0.005	0.025
243	20.25	0.10	0.029	(0.066)	0.005	0.025
244	20.33	0.10	0.029	(0.065)	0.005	0.025
245	20.42	0.10	0.029	(0.065)	0.005	0.025
246	20.50	0.10	0.029	(0.065)	0.005	0.025
247	20.58	0.10	0.029	(0.064)	0.005	0.025
248	20.67	0.10	0.029	(0.064)	0.005	0.025
249	20.75	0.10	0.029	(0.064)	0.005	0.025
250	20.83	0.07	0.020	(0.064)	0.003	0.016
251	20.92	0.07	0.020	(0.063)	0.003	0.016
252	21.00	0.07	0.020	(0.063)	0.003	0.016
253	21.08	0.10	0.029	(0.063)	0.005	0.025
254	21.17	0.10	0.029	(0.063)	0.005	0.025
255	21.25	0.10	0.029	(0.062)	0.005	0.025
256	21.33	0.07	0.020	(0.062)	0.003	0.016
257	21.42	0.07	0.020	(0.062)	0.003	0.016
258	21.50	0.07	0.020	(0.062)	0.003	0.016
259	21.58	0.10	0.029	(0.061)	0.005	0.025
260	21.67	0.10	0.029	(0.061)	0.005	0.025
261	21.75	0.10	0.029	(0.061)	0.005	0.025
262	21.83	0.07	0.020	(0.061)	0.003	0.016
263	21.92	0.07	0.020	(0.061)	0.003	0.016
264	22.00	0.07	0.020	(0.060)	0.003	0.016
265	22.08	0.10	0.029	(0.060)	0.005	0.025
266	22.17	0.10	0.029	(0.060)	0.005	0.025
267	22.25	0.10	0.029	(0.060)	0.005	0.025
268	22.33	0.07	0.020	(0.060)	0.003	0.016
269	22.42	0.07	0.020	(0.059)	0.003	0.016
270	22.50	0.07	0.020	(0.059)	0.003	0.016
271	22.58	0.07	0.020	(0.059)	0.003	0.016

272	22.67	0.07	0.020	(0.059)	0.003	0.016
273	22.75	0.07	0.020	(0.059)	0.003	0.016
274	22.83	0.07	0.020	(0.059)	0.003	0.016
275	22.92	0.07	0.020	(0.058)	0.003	0.016
276	23.00	0.07	0.020	(0.058)	0.003	0.016
277	23.08	0.07	0.020	(0.058)	0.003	0.016
278	23.17	0.07	0.020	(0.058)	0.003	0.016
279	23.25	0.07	0.020	(0.058)	0.003	0.016
280	23.33	0.07	0.020	(0.058)	0.003	0.016
281	23.42	0.07	0.020	(0.058)	0.003	0.016
282	23.50	0.07	0.020	(0.058)	0.003	0.016
283	23.58	0.07	0.020	(0.058)	0.003	0.016
284	23.67	0.07	0.020	(0.057)	0.003	0.016
285	23.75	0.07	0.020	(0.057)	0.003	0.016
286	23.83	0.07	0.020	(0.057)	0.003	0.016
287	23.92	0.07	0.020	(0.057)	0.003	0.016
288	24.00	0.07	0.020	(0.057)	0.003	0.016

(Loss Rate Not Used)

Sum = 100.0 Sum = 24.7

Flood volume = Effective rainfall 2.06(In)
times area 4.3(Ac.)/[(In)/(Ft.)] = 0.7(Ac.Ft)

Total soil loss = 0.38(In)

Total soil loss = 0.137(Ac.Ft)

Total rainfall = 2.44(In)

Flood volume = 32399.2 Cubic Feet

Total soil loss = 5952.1 Cubic Feet

Peak flow rate of this hydrograph = 1.224(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q				
0+10	0.0005	0.06	Q				
0+15	0.0010	0.07	Q				
0+20	0.0015	0.08	Q				
0+25	0.0022	0.10	Q				
0+30	0.0029	0.10	Q				
0+35	0.0037	0.11	Q				
0+40	0.0044	0.11	Q				
0+45	0.0052	0.11	Q				
0+50	0.0060	0.12	Q				
0+55	0.0069	0.14	Q				
1+ 0	0.0079	0.14	Q				
1+ 5	0.0088	0.13	Q				
1+10	0.0096	0.12	Q				
1+15	0.0104	0.11	Q				
1+20	0.0111	0.11	Q				
1+25	0.0119	0.11	Q				
1+30	0.0126	0.11	Q				
1+35	0.0133	0.11	Q				
1+40	0.0141	0.11	Q				
1+45	0.0148	0.11	Q				
1+50	0.0157	0.12	Q				
1+55	0.0166	0.14	Q				
2+ 0	0.0176	0.14	Q				
2+ 5	0.0185	0.14	Q				

2+10	0.0195	0.14	QV
2+15	0.0205	0.14	QV
2+20	0.0215	0.14	QV
2+25	0.0225	0.14	QV
2+30	0.0235	0.14	QV
2+35	0.0246	0.16	QV
2+40	0.0258	0.17	QV
2+45	0.0270	0.18	QV
2+50	0.0282	0.18	QV
2+55	0.0294	0.18	QV
3+ 0	0.0307	0.18	QV
3+ 5	0.0319	0.18	QV
3+10	0.0332	0.18	QV
3+15	0.0344	0.18	QV
3+20	0.0356	0.18	QV
3+25	0.0369	0.18	QV
3+30	0.0381	0.18	Q V
3+35	0.0394	0.18	Q V
3+40	0.0406	0.18	Q V
3+45	0.0418	0.18	Q V
3+50	0.0431	0.19	Q V
3+55	0.0446	0.21	Q V
4+ 0	0.0460	0.21	Q V
4+ 5	0.0475	0.21	Q V
4+10	0.0490	0.22	Q V
4+15	0.0505	0.22	Q V
4+20	0.0521	0.23	Q V
4+25	0.0537	0.24	Q V
4+30	0.0555	0.25	Q V
4+35	0.0572	0.25	Q V
4+40	0.0589	0.25	Q V
4+45	0.0606	0.25	Q V
4+50	0.0625	0.26	Q V
4+55	0.0644	0.28	Q V
5+ 0	0.0664	0.28	Q V
5+ 5	0.0682	0.26	Q V
5+10	0.0698	0.23	Q V
5+15	0.0713	0.22	Q V
5+20	0.0729	0.23	Q V
5+25	0.0746	0.25	Q V
5+30	0.0763	0.25	Q V
5+35	0.0781	0.26	Q V
5+40	0.0800	0.28	Q V
5+45	0.0820	0.28	Q V
5+50	0.0839	0.29	Q V
5+55	0.0859	0.29	Q V
6+ 0	0.0879	0.29	Q V
6+ 5	0.0900	0.30	Q V
6+10	0.0921	0.32	Q V
6+15	0.0944	0.32	Q V
6+20	0.0966	0.32	Q V
6+25	0.0988	0.32	Q V
6+30	0.1010	0.32	Q V
6+35	0.1033	0.34	Q V
6+40	0.1058	0.35	Q V
6+45	0.1082	0.36	Q V
6+50	0.1107	0.36	Q V
6+55	0.1132	0.36	Q V
7+ 0	0.1156	0.36	Q V
7+ 5	0.1181	0.36	Q V
7+10	0.1206	0.36	Q V
7+15	0.1231	0.36	Q V
7+20	0.1256	0.37	Q V

7+25	0.1283	0.39	Q	V				
7+30	0.1310	0.39	Q	V				
7+35	0.1338	0.41	Q	V				
7+40	0.1367	0.42	Q	V				
7+45	0.1397	0.43	Q	V				
7+50	0.1427	0.44	Q	V				
7+55	0.1459	0.46	Q	V				
8+ 0	0.1491	0.46	Q	V				
8+ 5	0.1525	0.49	Q	V				
8+10	0.1561	0.52	Q	V				
8+15	0.1597	0.53	Q	V				
8+20	0.1634	0.54	Q	V				
8+25	0.1671	0.54	Q	V				
8+30	0.1709	0.54	Q	V				
8+35	0.1747	0.55	Q	V				
8+40	0.1786	0.57	Q	V				
8+45	0.1825	0.57	Q	V				
8+50	0.1866	0.59	Q	V				
8+55	0.1907	0.60	Q	V				
9+ 0	0.1949	0.61	Q	V				
9+ 5	0.1993	0.63	Q	V				
9+10	0.2039	0.67	Q	V				
9+15	0.2085	0.68	Q	V				
9+20	0.2133	0.69	Q	V				
9+25	0.2182	0.71	Q	V				
9+30	0.2231	0.72	Q	V				
9+35	0.2281	0.73	Q	V				
9+40	0.2333	0.75	Q	V				
9+45	0.2385	0.75	Q	V				
9+50	0.2438	0.77	Q	V				
9+55	0.2492	0.78	Q	V				
10+ 0	0.2546	0.79	Q	V				
10+ 5	0.2595	0.71	Q	V				
10+10	0.2636	0.59	Q	V				
10+15	0.2675	0.56	Q	V				
10+20	0.2712	0.55	Q	V				
10+25	0.2750	0.54	Q	V				
10+30	0.2787	0.54	Q	V				
10+35	0.2828	0.60	Q	V				
10+40	0.2875	0.68	Q	V				
10+45	0.2924	0.70	Q	V				
10+50	0.2973	0.71	Q	V				
10+55	0.3022	0.72	Q	V				
11+ 0	0.3072	0.72	Q	V				
11+ 5	0.3120	0.71	Q	V				
11+10	0.3168	0.69	Q	V				
11+15	0.3215	0.69	Q	V				
11+20	0.3263	0.69	Q	V				
11+25	0.3310	0.68	Q	V				
11+30	0.3357	0.68	Q	V				
11+35	0.3402	0.66	Q	V				
11+40	0.3446	0.63	Q	V				
11+45	0.3488	0.62	Q	V				
11+50	0.3531	0.63	Q	V				
11+55	0.3576	0.64	Q	V				
12+ 0	0.3620	0.64	Q	V				
12+ 5	0.3670	0.73	Q	V				
12+10	0.3728	0.85	Q	V				
12+15	0.3788	0.88	Q	V				
12+20	0.3850	0.90	Q	V				
12+25	0.3914	0.92	Q	V				
12+30	0.3978	0.93	Q	V				
12+35	0.4044	0.96	Q	V				

12+40	0.4113	0.99	Q		V	
12+45	0.4181	1.00	Q		V	
12+50	0.4251	1.02	Q		V	
12+55	0.4323	1.04	Q		V	
13+ 0	0.4394	1.04	Q		V	
13+ 5	0.4470	1.10	Q		V	
13+10	0.4552	1.19	Q		V	
13+15	0.4635	1.21	Q		V	
13+20	0.4719	1.22	Q		V	
13+25	0.4803	1.22	Q		V	
13+30	0.4887	1.22	Q		V	
13+35	0.4963	1.10	Q		V	
13+40	0.5026	0.91	Q		V	
13+45	0.5085	0.87	Q		V	
13+50	0.5143	0.85	Q		V	
13+55	0.5201	0.83	Q		V	
14+ 0	0.5258	0.83	Q		V	
14+ 5	0.5318	0.87	Q		V	
14+10	0.5383	0.94	Q		V	
14+15	0.5449	0.96	Q		V	
14+20	0.5515	0.95	Q		V	
14+25	0.5579	0.94	Q		V	
14+30	0.5644	0.94	Q		V	
14+35	0.5709	0.94	Q		V	
14+40	0.5773	0.94	Q		V	
14+45	0.5838	0.94	Q		V	
14+50	0.5901	0.92	Q		V	
14+55	0.5964	0.91	Q		V	
15+ 0	0.6026	0.90	Q		V	
15+ 5	0.6087	0.89	Q		V	
15+10	0.6147	0.87	Q		V	
15+15	0.6207	0.87	Q		V	
15+20	0.6266	0.85	Q		V	
15+25	0.6324	0.84	Q		V	
15+30	0.6381	0.83	Q		V	
15+35	0.6435	0.78	Q		V	
15+40	0.6484	0.72	Q		V	
15+45	0.6532	0.70	Q		V	
15+50	0.6580	0.69	Q		V	
15+55	0.6627	0.69	Q		V	
16+ 0	0.6674	0.68	Q		V	
16+ 5	0.6710	0.52	Q		V	
16+10	0.6727	0.26	Q		V	
16+15	0.6741	0.20	Q		V	
16+20	0.6752	0.17	Q		V	
16+25	0.6763	0.15	Q		V	
16+30	0.6773	0.14	Q		V	
16+35	0.6782	0.13	Q		V	
16+40	0.6790	0.12	Q		V	
16+45	0.6798	0.11	Q		V	
16+50	0.6805	0.11	Q		V	
16+55	0.6813	0.11	Q		V	
17+ 0	0.6820	0.11	Q		V	
17+ 5	0.6829	0.13	Q		V	
17+10	0.6840	0.16	Q		V	
17+15	0.6852	0.17	Q		V	
17+20	0.6865	0.18	Q		V	
17+25	0.6877	0.18	Q		V	
17+30	0.6889	0.18	Q		V	
17+35	0.6902	0.18	Q		V	
17+40	0.6914	0.18	Q		V	
17+45	0.6926	0.18	Q		V	
17+50	0.6938	0.17	Q		V	

17+55	0.6948	0.15	Q				V
18+ 0	0.6959	0.15	Q				V
18+ 5	0.6969	0.15	Q				V
18+10	0.6979	0.14	Q				V
18+15	0.6989	0.14	Q				V
18+20	0.6998	0.14	Q				V
18+25	0.7008	0.14	Q				V
18+30	0.7018	0.14	Q				V
18+35	0.7027	0.13	Q				V
18+40	0.7035	0.12	Q				V
18+45	0.7043	0.11	Q				V
18+50	0.7050	0.10	Q				V
18+55	0.7055	0.08	Q				V
19+ 0	0.7061	0.08	Q				V
19+ 5	0.7066	0.08	Q				V
19+10	0.7073	0.10	Q				V
19+15	0.7081	0.10	Q				V
19+20	0.7089	0.12	Q				V
19+25	0.7098	0.14	Q				V
19+30	0.7108	0.14	Q				V
19+35	0.7117	0.13	Q				V
19+40	0.7125	0.12	Q				V
19+45	0.7132	0.11	Q				V
19+50	0.7139	0.10	Q				V
19+55	0.7145	0.08	Q				V
20+ 0	0.7150	0.08	Q				V
20+ 5	0.7156	0.08	Q				V
20+10	0.7163	0.10	Q				V
20+15	0.7170	0.10	Q				V
20+20	0.7177	0.11	Q				V
20+25	0.7185	0.11	Q				V
20+30	0.7192	0.11	Q				V
20+35	0.7199	0.11	Q				V
20+40	0.7207	0.11	Q				V
20+45	0.7214	0.11	Q				V
20+50	0.7221	0.10	Q				V
20+55	0.7226	0.08	Q				V
21+ 0	0.7232	0.08	Q				V
21+ 5	0.7237	0.08	Q				V
21+10	0.7244	0.10	Q				V
21+15	0.7252	0.10	Q				V
21+20	0.7258	0.10	Q				V
21+25	0.7264	0.08	Q				V
21+30	0.7269	0.08	Q				V
21+35	0.7275	0.08	Q				V
21+40	0.7282	0.10	Q				V
21+45	0.7289	0.10	Q				V
21+50	0.7295	0.10	Q				V
21+55	0.7301	0.08	Q				V
22+ 0	0.7306	0.08	Q				V
22+ 5	0.7312	0.08	Q				V
22+10	0.7319	0.10	Q				V
22+15	0.7326	0.10	Q				V
22+20	0.7333	0.10	Q				V
22+25	0.7338	0.08	Q				V
22+30	0.7343	0.08	Q				V
22+35	0.7348	0.07	Q				V
22+40	0.7353	0.07	Q				V
22+45	0.7358	0.07	Q				V
22+50	0.7363	0.07	Q				V
22+55	0.7368	0.07	Q				V
23+ 0	0.7373	0.07	Q				V
23+ 5	0.7378	0.07	Q				V

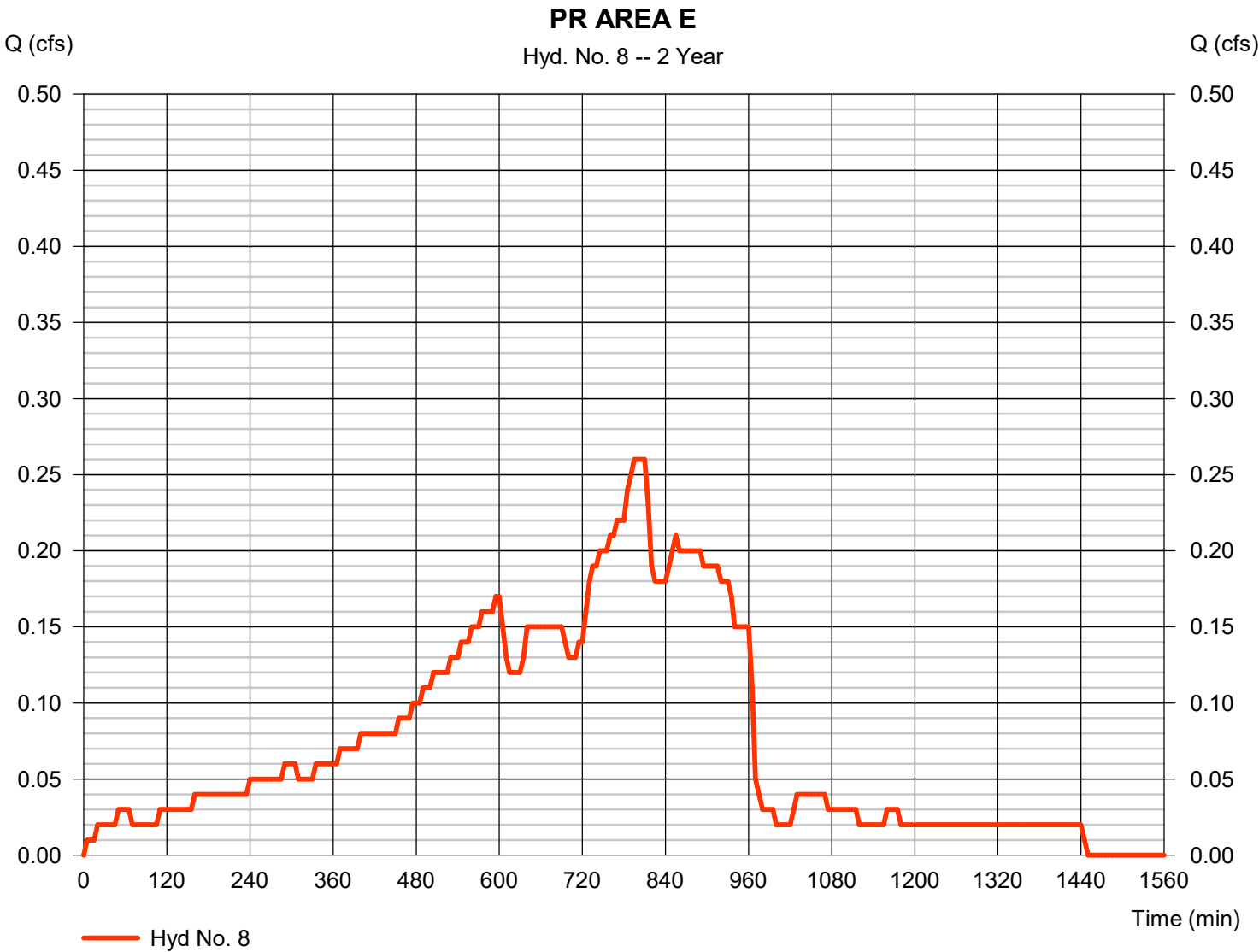
23+10	0.7383	0.07	Q				V
23+15	0.7388	0.07	Q				V
23+20	0.7393	0.07	Q				V
23+25	0.7398	0.07	Q				V
23+30	0.7403	0.07	Q				V
23+35	0.7408	0.07	Q				V
23+40	0.7413	0.07	Q				V
23+45	0.7418	0.07	Q				V
23+50	0.7423	0.07	Q				V
23+55	0.7428	0.07	Q				V
24+ 0	0.7433	0.07	Q				V
24+ 5	0.7436	0.05	Q				V
24+10	0.7437	0.02	Q				V
24+15	0.7438	0.01	Q				V
24+20	0.7438	0.00	Q				V
24+25	0.7438	0.00	Q				V

Hydrograph Report

Hyd. No. 8

PR AREA E

Hydrograph type	= Manual	Peak discharge	= 0.260 cfs
Storm frequency	= 2 yrs	Time to peak	= 795 min
Time interval	= 5 min	Hyd. volume	= 6,951 cuft



Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2

Study date 12/14/21 File: 19400PE242.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 2-yr 24-hr
Area E

Drainage Area = 1.18 (Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.18 (Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 788.00 (Ft.)
Length along longest watercourse measured to centroid = 333.00 (Ft.)
Length along longest watercourse = 0.149 Mi.
Length along longest watercourse measured to centroid = 0.063 Mi.
Difference in elevation = 10.30 (Ft.)
Slope along watercourse = 69.0152 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.055 Hr.
Lag time = 3.28 Min.
25% of lag time = 0.82 Min.
40% of lag time = 1.31 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]
1.18	2.44	2.88

100 YEAR Area rainfall data:

Area (Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
1.18	6.64	7.84

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.440 (In)
Area Averaged 100-Year Rainfall = 6.640 (In)

Point rain (area averaged) = 2.440(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.440(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.180 56.00 0.703
Total Area Entered = 1.18(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.703	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) = 0.338

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	152.363	33.742	0.401
2 0.167	304.726	46.836	0.557
3 0.250	457.088	11.045	0.131
4 0.333	609.451	4.812	0.057
5 0.417	761.814	2.399	0.029
6 0.500	914.177	1.165	0.014
		Sum = 100.000	Sum= 1.189

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)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.020	(0.460)	0.007	0.013
2	0.17	0.07	0.020	(0.458)	0.007	0.013
3	0.25	0.07	0.020	(0.456)	0.007	0.013
4	0.33	0.10	0.029	(0.454)	0.010	0.019
5	0.42	0.10	0.029	(0.453)	0.010	0.019
6	0.50	0.10	0.029	(0.451)	0.010	0.019
7	0.58	0.10	0.029	(0.449)	0.010	0.019
8	0.67	0.10	0.029	(0.447)	0.010	0.019
9	0.75	0.10	0.029	(0.446)	0.010	0.019
10	0.83	0.13	0.039	(0.444)	0.013	0.026
11	0.92	0.13	0.039	(0.442)	0.013	0.026
12	1.00	0.13	0.039	(0.440)	0.013	0.026
13	1.08	0.10	0.029	(0.439)	0.010	0.019
14	1.17	0.10	0.029	(0.437)	0.010	0.019
15	1.25	0.10	0.029	(0.435)	0.010	0.019
16	1.33	0.10	0.029	(0.433)	0.010	0.019
17	1.42	0.10	0.029	(0.432)	0.010	0.019
18	1.50	0.10	0.029	(0.430)	0.010	0.019
19	1.58	0.10	0.029	(0.428)	0.010	0.019

20	1.67	0.10	0.029	(0.427)	0.010	0.019
21	1.75	0.10	0.029	(0.425)	0.010	0.019
22	1.83	0.13	0.039	(0.423)	0.013	0.026
23	1.92	0.13	0.039	(0.421)	0.013	0.026
24	2.00	0.13	0.039	(0.420)	0.013	0.026
25	2.08	0.13	0.039	(0.418)	0.013	0.026
26	2.17	0.13	0.039	(0.416)	0.013	0.026
27	2.25	0.13	0.039	(0.415)	0.013	0.026
28	2.33	0.13	0.039	(0.413)	0.013	0.026
29	2.42	0.13	0.039	(0.411)	0.013	0.026
30	2.50	0.13	0.039	(0.410)	0.013	0.026
31	2.58	0.17	0.049	(0.408)	0.016	0.032
32	2.67	0.17	0.049	(0.406)	0.016	0.032
33	2.75	0.17	0.049	(0.405)	0.016	0.032
34	2.83	0.17	0.049	(0.403)	0.016	0.032
35	2.92	0.17	0.049	(0.401)	0.016	0.032
36	3.00	0.17	0.049	(0.400)	0.016	0.032
37	3.08	0.17	0.049	(0.398)	0.016	0.032
38	3.17	0.17	0.049	(0.396)	0.016	0.032
39	3.25	0.17	0.049	(0.395)	0.016	0.032
40	3.33	0.17	0.049	(0.393)	0.016	0.032
41	3.42	0.17	0.049	(0.391)	0.016	0.032
42	3.50	0.17	0.049	(0.390)	0.016	0.032
43	3.58	0.17	0.049	(0.388)	0.016	0.032
44	3.67	0.17	0.049	(0.386)	0.016	0.032
45	3.75	0.17	0.049	(0.385)	0.016	0.032
46	3.83	0.20	0.059	(0.383)	0.020	0.039
47	3.92	0.20	0.059	(0.382)	0.020	0.039
48	4.00	0.20	0.059	(0.380)	0.020	0.039
49	4.08	0.20	0.059	(0.378)	0.020	0.039
50	4.17	0.20	0.059	(0.377)	0.020	0.039
51	4.25	0.20	0.059	(0.375)	0.020	0.039
52	4.33	0.23	0.068	(0.373)	0.023	0.045
53	4.42	0.23	0.068	(0.372)	0.023	0.045
54	4.50	0.23	0.068	(0.370)	0.023	0.045
55	4.58	0.23	0.068	(0.369)	0.023	0.045
56	4.67	0.23	0.068	(0.367)	0.023	0.045
57	4.75	0.23	0.068	(0.366)	0.023	0.045
58	4.83	0.27	0.078	(0.364)	0.026	0.052
59	4.92	0.27	0.078	(0.362)	0.026	0.052
60	5.00	0.27	0.078	(0.361)	0.026	0.052
61	5.08	0.20	0.059	(0.359)	0.020	0.039
62	5.17	0.20	0.059	(0.358)	0.020	0.039
63	5.25	0.20	0.059	(0.356)	0.020	0.039
64	5.33	0.23	0.068	(0.355)	0.023	0.045
65	5.42	0.23	0.068	(0.353)	0.023	0.045
66	5.50	0.23	0.068	(0.351)	0.023	0.045
67	5.58	0.27	0.078	(0.350)	0.026	0.052
68	5.67	0.27	0.078	(0.348)	0.026	0.052
69	5.75	0.27	0.078	(0.347)	0.026	0.052
70	5.83	0.27	0.078	(0.345)	0.026	0.052
71	5.92	0.27	0.078	(0.344)	0.026	0.052
72	6.00	0.27	0.078	(0.342)	0.026	0.052
73	6.08	0.30	0.088	(0.341)	0.030	0.058
74	6.17	0.30	0.088	(0.339)	0.030	0.058
75	6.25	0.30	0.088	(0.338)	0.030	0.058
76	6.33	0.30	0.088	(0.336)	0.030	0.058
77	6.42	0.30	0.088	(0.335)	0.030	0.058
78	6.50	0.30	0.088	(0.333)	0.030	0.058
79	6.58	0.33	0.098	(0.332)	0.033	0.065
80	6.67	0.33	0.098	(0.330)	0.033	0.065
81	6.75	0.33	0.098	(0.329)	0.033	0.065
82	6.83	0.33	0.098	(0.327)	0.033	0.065

83	6.92	0.33	0.098	(0.326)	0.033	0.065
84	7.00	0.33	0.098	(0.324)	0.033	0.065
85	7.08	0.33	0.098	(0.323)	0.033	0.065
86	7.17	0.33	0.098	(0.321)	0.033	0.065
87	7.25	0.33	0.098	(0.320)	0.033	0.065
88	7.33	0.37	0.107	(0.318)	0.036	0.071
89	7.42	0.37	0.107	(0.317)	0.036	0.071
90	7.50	0.37	0.107	(0.316)	0.036	0.071
91	7.58	0.40	0.117	(0.314)	0.040	0.078
92	7.67	0.40	0.117	(0.313)	0.040	0.078
93	7.75	0.40	0.117	(0.311)	0.040	0.078
94	7.83	0.43	0.127	(0.310)	0.043	0.084
95	7.92	0.43	0.127	(0.308)	0.043	0.084
96	8.00	0.43	0.127	(0.307)	0.043	0.084
97	8.08	0.50	0.146	(0.305)	0.049	0.097
98	8.17	0.50	0.146	(0.304)	0.049	0.097
99	8.25	0.50	0.146	(0.303)	0.049	0.097
100	8.33	0.50	0.146	(0.301)	0.049	0.097
101	8.42	0.50	0.146	(0.300)	0.049	0.097
102	8.50	0.50	0.146	(0.298)	0.049	0.097
103	8.58	0.53	0.156	(0.297)	0.053	0.103
104	8.67	0.53	0.156	(0.296)	0.053	0.103
105	8.75	0.53	0.156	(0.294)	0.053	0.103
106	8.83	0.57	0.166	(0.293)	0.056	0.110
107	8.92	0.57	0.166	(0.291)	0.056	0.110
108	9.00	0.57	0.166	(0.290)	0.056	0.110
109	9.08	0.63	0.185	(0.289)	0.063	0.123
110	9.17	0.63	0.185	(0.287)	0.063	0.123
111	9.25	0.63	0.185	(0.286)	0.063	0.123
112	9.33	0.67	0.195	(0.285)	0.066	0.129
113	9.42	0.67	0.195	(0.283)	0.066	0.129
114	9.50	0.67	0.195	(0.282)	0.066	0.129
115	9.58	0.70	0.205	(0.281)	0.069	0.136
116	9.67	0.70	0.205	(0.279)	0.069	0.136
117	9.75	0.70	0.205	(0.278)	0.069	0.136
118	9.83	0.73	0.215	(0.276)	0.072	0.142
119	9.92	0.73	0.215	(0.275)	0.072	0.142
120	10.00	0.73	0.215	(0.274)	0.072	0.142
121	10.08	0.50	0.146	(0.273)	0.049	0.097
122	10.17	0.50	0.146	(0.271)	0.049	0.097
123	10.25	0.50	0.146	(0.270)	0.049	0.097
124	10.33	0.50	0.146	(0.269)	0.049	0.097
125	10.42	0.50	0.146	(0.267)	0.049	0.097
126	10.50	0.50	0.146	(0.266)	0.049	0.097
127	10.58	0.67	0.195	(0.265)	0.066	0.129
128	10.67	0.67	0.195	(0.263)	0.066	0.129
129	10.75	0.67	0.195	(0.262)	0.066	0.129
130	10.83	0.67	0.195	(0.261)	0.066	0.129
131	10.92	0.67	0.195	(0.260)	0.066	0.129
132	11.00	0.67	0.195	(0.258)	0.066	0.129
133	11.08	0.63	0.185	(0.257)	0.063	0.123
134	11.17	0.63	0.185	(0.256)	0.063	0.123
135	11.25	0.63	0.185	(0.254)	0.063	0.123
136	11.33	0.63	0.185	(0.253)	0.063	0.123
137	11.42	0.63	0.185	(0.252)	0.063	0.123
138	11.50	0.63	0.185	(0.251)	0.063	0.123
139	11.58	0.57	0.166	(0.249)	0.056	0.110
140	11.67	0.57	0.166	(0.248)	0.056	0.110
141	11.75	0.57	0.166	(0.247)	0.056	0.110
142	11.83	0.60	0.176	(0.246)	0.059	0.116
143	11.92	0.60	0.176	(0.245)	0.059	0.116
144	12.00	0.60	0.176	(0.243)	0.059	0.116
145	12.08	0.83	0.244	(0.242)	0.082	0.162

146	12.17	0.83	0.244	(0.241)	0.082	0.162
147	12.25	0.83	0.244	(0.240)	0.082	0.162
148	12.33	0.87	0.254	(0.238)	0.086	0.168
149	12.42	0.87	0.254	(0.237)	0.086	0.168
150	12.50	0.87	0.254	(0.236)	0.086	0.168
151	12.58	0.93	0.273	(0.235)	0.092	0.181
152	12.67	0.93	0.273	(0.234)	0.092	0.181
153	12.75	0.93	0.273	(0.233)	0.092	0.181
154	12.83	0.97	0.283	(0.231)	0.096	0.187
155	12.92	0.97	0.283	(0.230)	0.096	0.187
156	13.00	0.97	0.283	(0.229)	0.096	0.187
157	13.08	1.13	0.332	(0.228)	0.112	0.220
158	13.17	1.13	0.332	(0.227)	0.112	0.220
159	13.25	1.13	0.332	(0.226)	0.112	0.220
160	13.33	1.13	0.332	(0.224)	0.112	0.220
161	13.42	1.13	0.332	(0.223)	0.112	0.220
162	13.50	1.13	0.332	(0.222)	0.112	0.220
163	13.58	0.77	0.224	(0.221)	0.076	0.149
164	13.67	0.77	0.224	(0.220)	0.076	0.149
165	13.75	0.77	0.224	(0.219)	0.076	0.149
166	13.83	0.77	0.224	(0.218)	0.076	0.149
167	13.92	0.77	0.224	(0.217)	0.076	0.149
168	14.00	0.77	0.224	(0.215)	0.076	0.149
169	14.08	0.90	0.264	(0.214)	0.089	0.175
170	14.17	0.90	0.264	(0.213)	0.089	0.175
171	14.25	0.90	0.264	(0.212)	0.089	0.175
172	14.33	0.87	0.254	(0.211)	0.086	0.168
173	14.42	0.87	0.254	(0.210)	0.086	0.168
174	14.50	0.87	0.254	(0.209)	0.086	0.168
175	14.58	0.87	0.254	(0.208)	0.086	0.168
176	14.67	0.87	0.254	(0.207)	0.086	0.168
177	14.75	0.87	0.254	(0.206)	0.086	0.168
178	14.83	0.83	0.244	(0.205)	0.082	0.162
179	14.92	0.83	0.244	(0.204)	0.082	0.162
180	15.00	0.83	0.244	(0.203)	0.082	0.162
181	15.08	0.80	0.234	(0.201)	0.079	0.155
182	15.17	0.80	0.234	(0.200)	0.079	0.155
183	15.25	0.80	0.234	(0.199)	0.079	0.155
184	15.33	0.77	0.224	(0.198)	0.076	0.149
185	15.42	0.77	0.224	(0.197)	0.076	0.149
186	15.50	0.77	0.224	(0.196)	0.076	0.149
187	15.58	0.63	0.185	(0.195)	0.063	0.123
188	15.67	0.63	0.185	(0.194)	0.063	0.123
189	15.75	0.63	0.185	(0.193)	0.063	0.123
190	15.83	0.63	0.185	(0.192)	0.063	0.123
191	15.92	0.63	0.185	(0.191)	0.063	0.123
192	16.00	0.63	0.185	(0.190)	0.063	0.123
193	16.08	0.13	0.039	(0.189)	0.013	0.026
194	16.17	0.13	0.039	(0.188)	0.013	0.026
195	16.25	0.13	0.039	(0.188)	0.013	0.026
196	16.33	0.13	0.039	(0.187)	0.013	0.026
197	16.42	0.13	0.039	(0.186)	0.013	0.026
198	16.50	0.13	0.039	(0.185)	0.013	0.026
199	16.58	0.10	0.029	(0.184)	0.010	0.019
200	16.67	0.10	0.029	(0.183)	0.010	0.019
201	16.75	0.10	0.029	(0.182)	0.010	0.019
202	16.83	0.10	0.029	(0.181)	0.010	0.019
203	16.92	0.10	0.029	(0.180)	0.010	0.019
204	17.00	0.10	0.029	(0.179)	0.010	0.019
205	17.08	0.17	0.049	(0.178)	0.016	0.032
206	17.17	0.17	0.049	(0.177)	0.016	0.032
207	17.25	0.17	0.049	(0.176)	0.016	0.032
208	17.33	0.17	0.049	(0.176)	0.016	0.032

209	17.42	0.17	0.049	(0.175)	0.016	0.032
210	17.50	0.17	0.049	(0.174)	0.016	0.032
211	17.58	0.17	0.049	(0.173)	0.016	0.032
212	17.67	0.17	0.049	(0.172)	0.016	0.032
213	17.75	0.17	0.049	(0.171)	0.016	0.032
214	17.83	0.13	0.039	(0.170)	0.013	0.026
215	17.92	0.13	0.039	(0.170)	0.013	0.026
216	18.00	0.13	0.039	(0.169)	0.013	0.026
217	18.08	0.13	0.039	(0.168)	0.013	0.026
218	18.17	0.13	0.039	(0.167)	0.013	0.026
219	18.25	0.13	0.039	(0.166)	0.013	0.026
220	18.33	0.13	0.039	(0.165)	0.013	0.026
221	18.42	0.13	0.039	(0.165)	0.013	0.026
222	18.50	0.13	0.039	(0.164)	0.013	0.026
223	18.58	0.10	0.029	(0.163)	0.010	0.019
224	18.67	0.10	0.029	(0.162)	0.010	0.019
225	18.75	0.10	0.029	(0.161)	0.010	0.019
226	18.83	0.07	0.020	(0.161)	0.007	0.013
227	18.92	0.07	0.020	(0.160)	0.007	0.013
228	19.00	0.07	0.020	(0.159)	0.007	0.013
229	19.08	0.10	0.029	(0.158)	0.010	0.019
230	19.17	0.10	0.029	(0.158)	0.010	0.019
231	19.25	0.10	0.029	(0.157)	0.010	0.019
232	19.33	0.13	0.039	(0.156)	0.013	0.026
233	19.42	0.13	0.039	(0.155)	0.013	0.026
234	19.50	0.13	0.039	(0.155)	0.013	0.026
235	19.58	0.10	0.029	(0.154)	0.010	0.019
236	19.67	0.10	0.029	(0.153)	0.010	0.019
237	19.75	0.10	0.029	(0.153)	0.010	0.019
238	19.83	0.07	0.020	(0.152)	0.007	0.013
239	19.92	0.07	0.020	(0.151)	0.007	0.013
240	20.00	0.07	0.020	(0.151)	0.007	0.013
241	20.08	0.10	0.029	(0.150)	0.010	0.019
242	20.17	0.10	0.029	(0.149)	0.010	0.019
243	20.25	0.10	0.029	(0.149)	0.010	0.019
244	20.33	0.10	0.029	(0.148)	0.010	0.019
245	20.42	0.10	0.029	(0.147)	0.010	0.019
246	20.50	0.10	0.029	(0.147)	0.010	0.019
247	20.58	0.10	0.029	(0.146)	0.010	0.019
248	20.67	0.10	0.029	(0.145)	0.010	0.019
249	20.75	0.10	0.029	(0.145)	0.010	0.019
250	20.83	0.07	0.020	(0.144)	0.007	0.013
251	20.92	0.07	0.020	(0.144)	0.007	0.013
252	21.00	0.07	0.020	(0.143)	0.007	0.013
253	21.08	0.10	0.029	(0.143)	0.010	0.019
254	21.17	0.10	0.029	(0.142)	0.010	0.019
255	21.25	0.10	0.029	(0.141)	0.010	0.019
256	21.33	0.07	0.020	(0.141)	0.007	0.013
257	21.42	0.07	0.020	(0.140)	0.007	0.013
258	21.50	0.07	0.020	(0.140)	0.007	0.013
259	21.58	0.10	0.029	(0.139)	0.010	0.019
260	21.67	0.10	0.029	(0.139)	0.010	0.019
261	21.75	0.10	0.029	(0.138)	0.010	0.019
262	21.83	0.07	0.020	(0.138)	0.007	0.013
263	21.92	0.07	0.020	(0.137)	0.007	0.013
264	22.00	0.07	0.020	(0.137)	0.007	0.013
265	22.08	0.10	0.029	(0.136)	0.010	0.019
266	22.17	0.10	0.029	(0.136)	0.010	0.019
267	22.25	0.10	0.029	(0.136)	0.010	0.019
268	22.33	0.07	0.020	(0.135)	0.007	0.013
269	22.42	0.07	0.020	(0.135)	0.007	0.013
270	22.50	0.07	0.020	(0.134)	0.007	0.013
271	22.58	0.07	0.020	(0.134)	0.007	0.013

272	22.67	0.07	0.020	(0.134)	0.007	0.013
273	22.75	0.07	0.020	(0.133)	0.007	0.013
274	22.83	0.07	0.020	(0.133)	0.007	0.013
275	22.92	0.07	0.020	(0.133)	0.007	0.013
276	23.00	0.07	0.020	(0.132)	0.007	0.013
277	23.08	0.07	0.020	(0.132)	0.007	0.013
278	23.17	0.07	0.020	(0.132)	0.007	0.013
279	23.25	0.07	0.020	(0.131)	0.007	0.013
280	23.33	0.07	0.020	(0.131)	0.007	0.013
281	23.42	0.07	0.020	(0.131)	0.007	0.013
282	23.50	0.07	0.020	(0.131)	0.007	0.013
283	23.58	0.07	0.020	(0.130)	0.007	0.013
284	23.67	0.07	0.020	(0.130)	0.007	0.013
285	23.75	0.07	0.020	(0.130)	0.007	0.013
286	23.83	0.07	0.020	(0.130)	0.007	0.013
287	23.92	0.07	0.020	(0.130)	0.007	0.013
288	24.00	0.07	0.020	(0.130)	0.007	0.013

(Loss Rate Not Used)

Sum = 100.0 Sum = 19.4

Flood volume = Effective rainfall 1.62 (In)
times area 1.2 (Ac.) / [(In) / (Ft.)] = 0.2 (Ac.Ft)

Total soil loss = 0.82 (In)

Total soil loss = 0.081 (Ac.Ft)

Total rainfall = 2.44 (In)

Flood volume = 6923.1 Cubic Feet

Total soil loss = 3528.4 Cubic Feet

Peak flow rate of this hydrograph = 0.262 (CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q (CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.02	Q				
0+25	0.0005	0.02	Q				
0+30	0.0006	0.02	Q				
0+35	0.0008	0.02	Q				
0+40	0.0010	0.02	Q				
0+45	0.0011	0.02	Q				
0+50	0.0013	0.03	Q				
0+55	0.0015	0.03	Q				
1+ 0	0.0017	0.03	Q				
1+ 5	0.0019	0.03	Q				
1+10	0.0021	0.02	Q				
1+15	0.0022	0.02	Q				
1+20	0.0024	0.02	Q				
1+25	0.0025	0.02	Q				
1+30	0.0027	0.02	Q				
1+35	0.0029	0.02	Q				
1+40	0.0030	0.02	Q				
1+45	0.0032	0.02	Q				
1+50	0.0034	0.03	Q				
1+55	0.0036	0.03	Q				
2+ 0	0.0038	0.03	Q				
2+ 5	0.0040	0.03	QV				

2+10	0.0042	0.03	QV
2+15	0.0044	0.03	QV
2+20	0.0046	0.03	QV
2+25	0.0048	0.03	QV
2+30	0.0050	0.03	QV
2+35	0.0053	0.03	QV
2+40	0.0055	0.04	QV
2+45	0.0058	0.04	QV
2+50	0.0060	0.04	QV
2+55	0.0063	0.04	QV
3+ 0	0.0066	0.04	QV
3+ 5	0.0068	0.04	QV
3+10	0.0071	0.04	QV
3+15	0.0074	0.04	QV
3+20	0.0076	0.04	QV
3+25	0.0079	0.04	QV
3+30	0.0082	0.04	Q V
3+35	0.0084	0.04	Q V
3+40	0.0087	0.04	Q V
3+45	0.0090	0.04	Q V
3+50	0.0092	0.04	Q V
3+55	0.0095	0.04	Q V
4+ 0	0.0099	0.05	Q V
4+ 5	0.0102	0.05	Q V
4+10	0.0105	0.05	Q V
4+15	0.0108	0.05	Q V
4+20	0.0111	0.05	Q V
4+25	0.0115	0.05	Q V
4+30	0.0119	0.05	Q V
4+35	0.0122	0.05	Q V
4+40	0.0126	0.05	Q V
4+45	0.0130	0.05	Q V
4+50	0.0134	0.06	Q V
4+55	0.0138	0.06	Q V
5+ 0	0.0142	0.06	Q V
5+ 5	0.0146	0.06	Q V
5+10	0.0149	0.05	Q V
5+15	0.0153	0.05	Q V
5+20	0.0156	0.05	Q V
5+25	0.0160	0.05	Q V
5+30	0.0163	0.05	Q V
5+35	0.0167	0.06	Q V
5+40	0.0171	0.06	Q V
5+45	0.0175	0.06	Q V
5+50	0.0180	0.06	Q V
5+55	0.0184	0.06	Q V
6+ 0	0.0188	0.06	Q V
6+ 5	0.0193	0.06	Q V
6+10	0.0197	0.07	Q V
6+15	0.0202	0.07	Q V
6+20	0.0207	0.07	Q V
6+25	0.0211	0.07	Q V
6+30	0.0216	0.07	Q V
6+35	0.0221	0.07	Q V
6+40	0.0226	0.08	Q V
6+45	0.0232	0.08	Q V
6+50	0.0237	0.08	Q V
6+55	0.0242	0.08	Q V
7+ 0	0.0247	0.08	Q V
7+ 5	0.0253	0.08	Q V
7+10	0.0258	0.08	Q V
7+15	0.0263	0.08	Q V
7+20	0.0269	0.08	Q V

7+25	0.0275	0.08	Q	V				
7+30	0.0280	0.08	Q	V				
7+35	0.0286	0.09	Q	V				
7+40	0.0293	0.09	Q	V				
7+45	0.0299	0.09	Q	V				
7+50	0.0305	0.09	Q	V				
7+55	0.0312	0.10	Q	V				
8+ 0	0.0319	0.10	Q	V				
8+ 5	0.0326	0.10	Q	V				
8+10	0.0334	0.11	Q	V				
8+15	0.0342	0.11	Q	V				
8+20	0.0350	0.11	Q	V				
8+25	0.0358	0.12	Q	V				
8+30	0.0366	0.12	Q	V				
8+35	0.0374	0.12	Q	V				
8+40	0.0382	0.12	Q	V				
8+45	0.0391	0.12	Q	V				
8+50	0.0399	0.13	Q	V				
8+55	0.0408	0.13	Q	V				
9+ 0	0.0417	0.13	Q	V				
9+ 5	0.0426	0.14	Q	V				
9+10	0.0436	0.14	Q	V				
9+15	0.0446	0.14	Q	V				
9+20	0.0456	0.15	Q	V				
9+25	0.0467	0.15	Q	V				
9+30	0.0477	0.15	Q	V				
9+35	0.0488	0.16	Q	V				
9+40	0.0499	0.16	Q	V				
9+45	0.0510	0.16	Q	V				
9+50	0.0522	0.16	Q	V				
9+55	0.0533	0.17	Q	V				
10+ 0	0.0545	0.17	Q	V				
10+ 5	0.0555	0.15	Q	V				
10+10	0.0564	0.13	Q	V				
10+15	0.0572	0.12	Q	V				
10+20	0.0580	0.12	Q	V				
10+25	0.0588	0.12	Q	V				
10+30	0.0596	0.12	Q	V				
10+35	0.0605	0.13	Q	V				
10+40	0.0615	0.15	Q	V				
10+45	0.0625	0.15	Q	V				
10+50	0.0636	0.15	Q	V				
10+55	0.0646	0.15	Q	V				
11+ 0	0.0657	0.15	Q	V				
11+ 5	0.0667	0.15	Q	V				
11+10	0.0678	0.15	Q	V				
11+15	0.0688	0.15	Q	V				
11+20	0.0698	0.15	Q	V				
11+25	0.0708	0.15	Q	V				
11+30	0.0718	0.15	Q	V				
11+35	0.0728	0.14	Q	V				
11+40	0.0737	0.13	Q	V				
11+45	0.0746	0.13	Q	V				
11+50	0.0755	0.13	Q	V				
11+55	0.0765	0.14	Q	V				
12+ 0	0.0774	0.14	Q	V				
12+ 5	0.0785	0.16	Q	V				
12+10	0.0797	0.18	Q	V				
12+15	0.0810	0.19	Q	V				
12+20	0.0824	0.19	Q	V				
12+25	0.0837	0.20	Q	V				
12+30	0.0851	0.20	Q	V				
12+35	0.0865	0.20	Q	V				

12+40	0.0880	0.21	Q	V		
12+45	0.0894	0.21	Q	V		
12+50	0.0909	0.22	Q	V		
12+55	0.0925	0.22	Q	V		
13+ 0	0.0940	0.22	Q	V		
13+ 5	0.0956	0.24	Q	V		
13+10	0.0974	0.25	Q	V		
13+15	0.0992	0.26	Q	V		
13+20	0.1009	0.26	Q	V		
13+25	0.1027	0.26	Q	V		
13+30	0.1045	0.26	Q	V		
13+35	0.1062	0.23	Q	V		
13+40	0.1075	0.19	Q	V		
13+45	0.1087	0.18	Q	V		
13+50	0.1100	0.18	Q	V		
13+55	0.1112	0.18	Q	V		
14+ 0	0.1124	0.18	Q	V		
14+ 5	0.1137	0.19	Q	V		
14+10	0.1151	0.20	Q	V		
14+15	0.1165	0.21	Q	V		
14+20	0.1179	0.20	Q	V		
14+25	0.1193	0.20	Q	V		
14+30	0.1207	0.20	Q	V		
14+35	0.1221	0.20	Q	V		
14+40	0.1235	0.20	Q	V		
14+45	0.1248	0.20	Q	V		
14+50	0.1262	0.20	Q	V		
14+55	0.1275	0.19	Q	V		
15+ 0	0.1289	0.19	Q	V		
15+ 5	0.1302	0.19	Q	V		
15+10	0.1314	0.19	Q	V		
15+15	0.1327	0.19	Q	V		
15+20	0.1340	0.18	Q	V		
15+25	0.1352	0.18	Q	V		
15+30	0.1364	0.18	Q	V		
15+35	0.1376	0.17	Q	V		
15+40	0.1386	0.15	Q	V		
15+45	0.1396	0.15	Q	V		
15+50	0.1407	0.15	Q	V		
15+55	0.1417	0.15	Q	V		
16+ 0	0.1427	0.15	Q	V		
16+ 5	0.1434	0.11	Q		V	
16+10	0.1438	0.05	Q		V	
16+15	0.1441	0.04	Q		V	
16+20	0.1443	0.03	Q		V	
16+25	0.1445	0.03	Q		V	
16+30	0.1447	0.03	Q		V	
16+35	0.1449	0.03	Q		V	
16+40	0.1451	0.02	Q		V	
16+45	0.1453	0.02	Q		V	
16+50	0.1454	0.02	Q		V	
16+55	0.1456	0.02	Q		V	
17+ 0	0.1457	0.02	Q		V	
17+ 5	0.1459	0.03	Q		V	
17+10	0.1462	0.04	Q		V	
17+15	0.1464	0.04	Q		V	
17+20	0.1467	0.04	Q		V	
17+25	0.1470	0.04	Q		V	
17+30	0.1472	0.04	Q		V	
17+35	0.1475	0.04	Q		V	
17+40	0.1478	0.04	Q		V	
17+45	0.1480	0.04	Q		V	
17+50	0.1483	0.04	Q		V	

17+55	0.1485	0.03	Q				V
18+ 0	0.1487	0.03	Q				V
18+ 5	0.1489	0.03	Q				V
18+10	0.1491	0.03	Q				V
18+15	0.1493	0.03	Q				V
18+20	0.1496	0.03	Q				V
18+25	0.1498	0.03	Q				V
18+30	0.1500	0.03	Q				V
18+35	0.1502	0.03	Q				V
18+40	0.1503	0.02	Q				V
18+45	0.1505	0.02	Q				V
18+50	0.1507	0.02	Q				V
18+55	0.1508	0.02	Q				V
19+ 0	0.1509	0.02	Q				V
19+ 5	0.1510	0.02	Q				V
19+10	0.1512	0.02	Q				V
19+15	0.1513	0.02	Q				V
19+20	0.1515	0.03	Q				V
19+25	0.1517	0.03	Q				V
19+30	0.1519	0.03	Q				V
19+35	0.1521	0.03	Q				V
19+40	0.1523	0.02	Q				V
19+45	0.1524	0.02	Q				V
19+50	0.1526	0.02	Q				V
19+55	0.1527	0.02	Q				V
20+ 0	0.1528	0.02	Q				V
20+ 5	0.1529	0.02	Q				V
20+10	0.1531	0.02	Q				V
20+15	0.1532	0.02	Q				V
20+20	0.1534	0.02	Q				V
20+25	0.1535	0.02	Q				V
20+30	0.1537	0.02	Q				V
20+35	0.1538	0.02	Q				V
20+40	0.1540	0.02	Q				V
20+45	0.1542	0.02	Q				V
20+50	0.1543	0.02	Q				V
20+55	0.1544	0.02	Q				V
21+ 0	0.1545	0.02	Q				V
21+ 5	0.1547	0.02	Q				V
21+10	0.1548	0.02	Q				V
21+15	0.1550	0.02	Q				V
21+20	0.1551	0.02	Q				V
21+25	0.1552	0.02	Q				V
21+30	0.1553	0.02	Q				V
21+35	0.1555	0.02	Q				V
21+40	0.1556	0.02	Q				V
21+45	0.1558	0.02	Q				V
21+50	0.1559	0.02	Q				V
21+55	0.1560	0.02	Q				V
22+ 0	0.1561	0.02	Q				V
22+ 5	0.1562	0.02	Q				V
22+10	0.1564	0.02	Q				V
22+15	0.1566	0.02	Q				V
22+20	0.1567	0.02	Q				V
22+25	0.1568	0.02	Q				V
22+30	0.1569	0.02	Q				V
22+35	0.1570	0.02	Q				V
22+40	0.1571	0.02	Q				V
22+45	0.1572	0.02	Q				V
22+50	0.1573	0.02	Q				V
22+55	0.1574	0.02	Q				V
23+ 0	0.1576	0.02	Q				V
23+ 5	0.1577	0.02	Q				V

23+10	0.1578	0.02	Q				V
23+15	0.1579	0.02	Q				V
23+20	0.1580	0.02	Q				V
23+25	0.1581	0.02	Q				V
23+30	0.1582	0.02	Q				V
23+35	0.1583	0.02	Q				V
23+40	0.1584	0.02	Q				V
23+45	0.1585	0.02	Q				V
23+50	0.1586	0.02	Q				V
23+55	0.1587	0.02	Q				V
24+ 0	0.1588	0.02	Q				V
24+ 5	0.1589	0.01	Q				V
24+10	0.1589	0.00	Q				V
24+15	0.1589	0.00	Q				V
24+20	0.1589	0.00	Q				V
24+25	0.1589	0.00	Q				V

Hydrograph Report

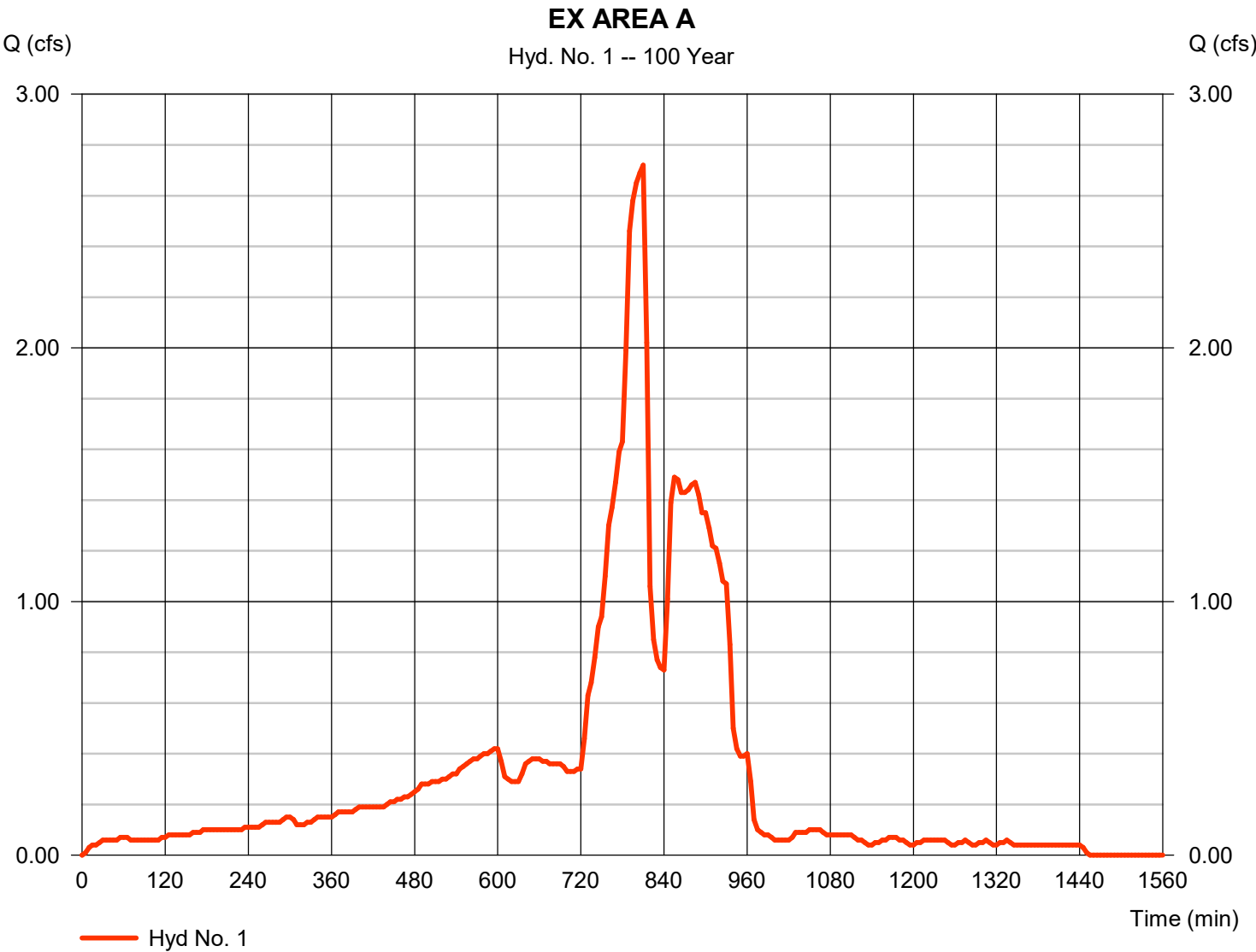
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

Friday, 12 / 17 / 2021

Hyd. No. 1

EX AREA A

Hydrograph type	= Manual	Peak discharge	= 2.720 cfs
Storm frequency	= 100 yrs	Time to peak	= 810 min
Time interval	= 5 min	Hyd. volume	= 28,401 cuft



Unit Hydrograph Analysis

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Study date 12/14/21 File: 19400EA24100.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Existing 100-yr 24-hr
Area A

Drainage Area = 7.12 (Ac.) = 0.011 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 7.12 (Ac.) = 0.011
Sq. Mi.
Length along longest watercourse = 830.00 (Ft.)
Length along longest watercourse measured to centroid = 389.00 (Ft.)
Length along longest watercourse = 0.157 Mi.
Length along longest watercourse measured to centroid = 0.074 Mi.
Difference in elevation = 17.50 (Ft.)
Slope along watercourse = 111.3253 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.054 Hr.
Lag time = 3.24 Min.
25% of lag time = 0.81 Min.
40% of lag time = 1.30 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]
7.12	2.44	17.37

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
7.12	6.64	47.28

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 2.440 (In)
Area Averaged 100-Year Rainfall = 6.640 (In)

Point rain (area averaged) = 6.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 6.640(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
7.120 66.00 0.000
Total Area Entered = 7.12(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
66.0	46.2	0.609	0.000	0.609	1.000	0.609
						Sum (F) = 0.609

Area averaged mean soil loss (F) (In/Hr) = 0.609

Minimum soil loss rate ((In/Hr)) = 0.305

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	154.209	34.178	2.453
2 0.167	308.418	46.700	3.351
3 0.250	462.628	10.942	0.785
4 0.333	616.837	4.757	0.341
5 0.417	771.046	2.349	0.169
6 0.500	925.255	1.075	0.077
		Sum = 100.000	Sum= 7.176

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	(1.080)	0.048
2	0.17	0.07	(1.076)	0.048
3	0.25	0.07	(1.072)	0.048
4	0.33	0.10	(1.068)	0.072
5	0.42	0.10	(1.063)	0.072
6	0.50	0.10	(1.059)	0.072
7	0.58	0.10	(1.055)	0.072
8	0.67	0.10	(1.051)	0.072
9	0.75	0.10	(1.047)	0.072
10	0.83	0.13	(1.043)	0.096
11	0.92	0.13	(1.039)	0.096
12	1.00	0.13	(1.035)	0.096
13	1.08	0.10	(1.030)	0.072
14	1.17	0.10	(1.026)	0.072
15	1.25	0.10	(1.022)	0.072
16	1.33	0.10	(1.018)	0.072
17	1.42	0.10	(1.014)	0.072
18	1.50	0.10	(1.010)	0.072
19	1.58	0.10	(1.006)	0.072

20	1.67	0.10	0.080	(1.002)	0.072	0.008
21	1.75	0.10	0.080	(0.998)	0.072	0.008
22	1.83	0.13	0.106	(0.994)	0.096	0.011
23	1.92	0.13	0.106	(0.990)	0.096	0.011
24	2.00	0.13	0.106	(0.986)	0.096	0.011
25	2.08	0.13	0.106	(0.982)	0.096	0.011
26	2.17	0.13	0.106	(0.978)	0.096	0.011
27	2.25	0.13	0.106	(0.974)	0.096	0.011
28	2.33	0.13	0.106	(0.970)	0.096	0.011
29	2.42	0.13	0.106	(0.966)	0.096	0.011
30	2.50	0.13	0.106	(0.962)	0.096	0.011
31	2.58	0.17	0.133	(0.958)	0.120	0.013
32	2.67	0.17	0.133	(0.954)	0.120	0.013
33	2.75	0.17	0.133	(0.950)	0.120	0.013
34	2.83	0.17	0.133	(0.946)	0.120	0.013
35	2.92	0.17	0.133	(0.943)	0.120	0.013
36	3.00	0.17	0.133	(0.939)	0.120	0.013
37	3.08	0.17	0.133	(0.935)	0.120	0.013
38	3.17	0.17	0.133	(0.931)	0.120	0.013
39	3.25	0.17	0.133	(0.927)	0.120	0.013
40	3.33	0.17	0.133	(0.923)	0.120	0.013
41	3.42	0.17	0.133	(0.919)	0.120	0.013
42	3.50	0.17	0.133	(0.915)	0.120	0.013
43	3.58	0.17	0.133	(0.912)	0.120	0.013
44	3.67	0.17	0.133	(0.908)	0.120	0.013
45	3.75	0.17	0.133	(0.904)	0.120	0.013
46	3.83	0.20	0.159	(0.900)	0.143	0.016
47	3.92	0.20	0.159	(0.896)	0.143	0.016
48	4.00	0.20	0.159	(0.893)	0.143	0.016
49	4.08	0.20	0.159	(0.889)	0.143	0.016
50	4.17	0.20	0.159	(0.885)	0.143	0.016
51	4.25	0.20	0.159	(0.881)	0.143	0.016
52	4.33	0.23	0.186	(0.878)	0.167	0.019
53	4.42	0.23	0.186	(0.874)	0.167	0.019
54	4.50	0.23	0.186	(0.870)	0.167	0.019
55	4.58	0.23	0.186	(0.866)	0.167	0.019
56	4.67	0.23	0.186	(0.863)	0.167	0.019
57	4.75	0.23	0.186	(0.859)	0.167	0.019
58	4.83	0.27	0.212	(0.855)	0.191	0.021
59	4.92	0.27	0.212	(0.851)	0.191	0.021
60	5.00	0.27	0.212	(0.848)	0.191	0.021
61	5.08	0.20	0.159	(0.844)	0.143	0.016
62	5.17	0.20	0.159	(0.840)	0.143	0.016
63	5.25	0.20	0.159	(0.837)	0.143	0.016
64	5.33	0.23	0.186	(0.833)	0.167	0.019
65	5.42	0.23	0.186	(0.829)	0.167	0.019
66	5.50	0.23	0.186	(0.826)	0.167	0.019
67	5.58	0.27	0.212	(0.822)	0.191	0.021
68	5.67	0.27	0.212	(0.819)	0.191	0.021
69	5.75	0.27	0.212	(0.815)	0.191	0.021
70	5.83	0.27	0.212	(0.811)	0.191	0.021
71	5.92	0.27	0.212	(0.808)	0.191	0.021
72	6.00	0.27	0.212	(0.804)	0.191	0.021
73	6.08	0.30	0.239	(0.801)	0.215	0.024
74	6.17	0.30	0.239	(0.797)	0.215	0.024
75	6.25	0.30	0.239	(0.793)	0.215	0.024
76	6.33	0.30	0.239	(0.790)	0.215	0.024
77	6.42	0.30	0.239	(0.786)	0.215	0.024
78	6.50	0.30	0.239	(0.783)	0.215	0.024
79	6.58	0.33	0.266	(0.779)	0.239	0.027
80	6.67	0.33	0.266	(0.776)	0.239	0.027
81	6.75	0.33	0.266	(0.772)	0.239	0.027
82	6.83	0.33	0.266	(0.769)	0.239	0.027

83	6.92	0.33	0.266	(0.765)	0.239	0.027
84	7.00	0.33	0.266	(0.762)	0.239	0.027
85	7.08	0.33	0.266	(0.758)	0.239	0.027
86	7.17	0.33	0.266	(0.755)	0.239	0.027
87	7.25	0.33	0.266	(0.752)	0.239	0.027
88	7.33	0.37	0.292	(0.748)	0.263	0.029
89	7.42	0.37	0.292	(0.745)	0.263	0.029
90	7.50	0.37	0.292	(0.741)	0.263	0.029
91	7.58	0.40	0.319	(0.738)	0.287	0.032
92	7.67	0.40	0.319	(0.734)	0.287	0.032
93	7.75	0.40	0.319	(0.731)	0.287	0.032
94	7.83	0.43	0.345	(0.728)	0.311	0.035
95	7.92	0.43	0.345	(0.724)	0.311	0.035
96	8.00	0.43	0.345	(0.721)	0.311	0.035
97	8.08	0.50	0.398	(0.718)	0.359	0.040
98	8.17	0.50	0.398	(0.714)	0.359	0.040
99	8.25	0.50	0.398	(0.711)	0.359	0.040
100	8.33	0.50	0.398	(0.708)	0.359	0.040
101	8.42	0.50	0.398	(0.704)	0.359	0.040
102	8.50	0.50	0.398	(0.701)	0.359	0.040
103	8.58	0.53	0.425	(0.698)	0.382	0.042
104	8.67	0.53	0.425	(0.694)	0.382	0.042
105	8.75	0.53	0.425	(0.691)	0.382	0.042
106	8.83	0.57	0.452	(0.688)	0.406	0.045
107	8.92	0.57	0.452	(0.685)	0.406	0.045
108	9.00	0.57	0.452	(0.681)	0.406	0.045
109	9.08	0.63	0.505	(0.678)	0.454	0.050
110	9.17	0.63	0.505	(0.675)	0.454	0.050
111	9.25	0.63	0.505	(0.672)	0.454	0.050
112	9.33	0.67	0.531	(0.669)	0.478	0.053
113	9.42	0.67	0.531	(0.665)	0.478	0.053
114	9.50	0.67	0.531	(0.662)	0.478	0.053
115	9.58	0.70	0.558	(0.659)	0.502	0.056
116	9.67	0.70	0.558	(0.656)	0.502	0.056
117	9.75	0.70	0.558	(0.653)	0.502	0.056
118	9.83	0.73	0.584	(0.650)	0.526	0.058
119	9.92	0.73	0.584	(0.646)	0.526	0.058
120	10.00	0.73	0.584	(0.643)	0.526	0.058
121	10.08	0.50	0.398	(0.640)	0.359	0.040
122	10.17	0.50	0.398	(0.637)	0.359	0.040
123	10.25	0.50	0.398	(0.634)	0.359	0.040
124	10.33	0.50	0.398	(0.631)	0.359	0.040
125	10.42	0.50	0.398	(0.628)	0.359	0.040
126	10.50	0.50	0.398	(0.625)	0.359	0.040
127	10.58	0.67	0.531	(0.622)	0.478	0.053
128	10.67	0.67	0.531	(0.619)	0.478	0.053
129	10.75	0.67	0.531	(0.616)	0.478	0.053
130	10.83	0.67	0.531	(0.613)	0.478	0.053
131	10.92	0.67	0.531	(0.610)	0.478	0.053
132	11.00	0.67	0.531	(0.607)	0.478	0.053
133	11.08	0.63	0.505	(0.604)	0.454	0.050
134	11.17	0.63	0.505	(0.601)	0.454	0.050
135	11.25	0.63	0.505	(0.598)	0.454	0.050
136	11.33	0.63	0.505	(0.595)	0.454	0.050
137	11.42	0.63	0.505	(0.592)	0.454	0.050
138	11.50	0.63	0.505	(0.589)	0.454	0.050
139	11.58	0.57	0.452	(0.586)	0.406	0.045
140	11.67	0.57	0.452	(0.583)	0.406	0.045
141	11.75	0.57	0.452	(0.580)	0.406	0.045
142	11.83	0.60	0.478	(0.577)	0.430	0.048
143	11.92	0.60	0.478	(0.574)	0.430	0.048
144	12.00	0.60	0.478	(0.572)	0.430	0.048
145	12.08	0.83	0.664	0.569 (0.598)		0.095

146	12.17	0.83	0.664	0.566	(0.598)	0.098
147	12.25	0.83	0.664	0.563	(0.598)	0.101
148	12.33	0.87	0.691	0.560	(0.621)	0.130
149	12.42	0.87	0.691	0.557	(0.621)	0.133
150	12.50	0.87	0.691	0.555	(0.621)	0.136
151	12.58	0.93	0.744	0.552	(0.669)	0.192
152	12.67	0.93	0.744	0.549	(0.669)	0.195
153	12.75	0.93	0.744	0.546	(0.669)	0.197
154	12.83	0.97	0.770	0.543	(0.693)	0.227
155	12.92	0.97	0.770	0.541	(0.693)	0.229
156	13.00	0.97	0.770	0.538	(0.693)	0.232
157	13.08	1.13	0.903	0.535	(0.813)	0.368
158	13.17	1.13	0.903	0.533	(0.813)	0.370
159	13.25	1.13	0.903	0.530	(0.813)	0.373
160	13.33	1.13	0.903	0.527	(0.813)	0.376
161	13.42	1.13	0.903	0.524	(0.813)	0.379
162	13.50	1.13	0.903	0.522	(0.813)	0.381
163	13.58	0.77	0.611	0.519	(0.550)	0.092
164	13.67	0.77	0.611	0.517	(0.550)	0.094
165	13.75	0.77	0.611	0.514	(0.550)	0.097
166	13.83	0.77	0.611	0.511	(0.550)	0.100
167	13.92	0.77	0.611	0.509	(0.550)	0.102
168	14.00	0.77	0.611	0.506	(0.550)	0.105
169	14.08	0.90	0.717	0.503	(0.645)	0.214
170	14.17	0.90	0.717	0.501	(0.645)	0.216
171	14.25	0.90	0.717	0.498	(0.645)	0.219
172	14.33	0.87	0.691	0.496	(0.621)	0.195
173	14.42	0.87	0.691	0.493	(0.621)	0.197
174	14.50	0.87	0.691	0.491	(0.621)	0.200
175	14.58	0.87	0.691	0.488	(0.621)	0.202
176	14.67	0.87	0.691	0.486	(0.621)	0.205
177	14.75	0.87	0.691	0.483	(0.621)	0.207
178	14.83	0.83	0.664	0.481	(0.598)	0.183
179	14.92	0.83	0.664	0.478	(0.598)	0.186
180	15.00	0.83	0.664	0.476	(0.598)	0.188
181	15.08	0.80	0.637	0.473	(0.574)	0.164
182	15.17	0.80	0.637	0.471	(0.574)	0.166
183	15.25	0.80	0.637	0.469	(0.574)	0.169
184	15.33	0.77	0.611	0.466	(0.550)	0.145
185	15.42	0.77	0.611	0.464	(0.550)	0.147
186	15.50	0.77	0.611	0.461	(0.550)	0.149
187	15.58	0.63	0.505	(0.459)	0.454	0.050
188	15.67	0.63	0.505	(0.457)	0.454	0.050
189	15.75	0.63	0.505	(0.454)	0.454	0.050
190	15.83	0.63	0.505	0.452	(0.454)	0.053
191	15.92	0.63	0.505	0.450	(0.454)	0.055
192	16.00	0.63	0.505	0.447	(0.454)	0.057
193	16.08	0.13	0.106	(0.445)	0.096	0.011
194	16.17	0.13	0.106	(0.443)	0.096	0.011
195	16.25	0.13	0.106	(0.441)	0.096	0.011
196	16.33	0.13	0.106	(0.438)	0.096	0.011
197	16.42	0.13	0.106	(0.436)	0.096	0.011
198	16.50	0.13	0.106	(0.434)	0.096	0.011
199	16.58	0.10	0.080	(0.432)	0.072	0.008
200	16.67	0.10	0.080	(0.429)	0.072	0.008
201	16.75	0.10	0.080	(0.427)	0.072	0.008
202	16.83	0.10	0.080	(0.425)	0.072	0.008
203	16.92	0.10	0.080	(0.423)	0.072	0.008
204	17.00	0.10	0.080	(0.421)	0.072	0.008
205	17.08	0.17	0.133	(0.419)	0.120	0.013
206	17.17	0.17	0.133	(0.417)	0.120	0.013
207	17.25	0.17	0.133	(0.415)	0.120	0.013
208	17.33	0.17	0.133	(0.412)	0.120	0.013

209	17.42	0.17	0.133	(0.410)	0.120	0.013
210	17.50	0.17	0.133	(0.408)	0.120	0.013
211	17.58	0.17	0.133	(0.406)	0.120	0.013
212	17.67	0.17	0.133	(0.404)	0.120	0.013
213	17.75	0.17	0.133	(0.402)	0.120	0.013
214	17.83	0.13	0.106	(0.400)	0.096	0.011
215	17.92	0.13	0.106	(0.398)	0.096	0.011
216	18.00	0.13	0.106	(0.396)	0.096	0.011
217	18.08	0.13	0.106	(0.394)	0.096	0.011
218	18.17	0.13	0.106	(0.392)	0.096	0.011
219	18.25	0.13	0.106	(0.390)	0.096	0.011
220	18.33	0.13	0.106	(0.389)	0.096	0.011
221	18.42	0.13	0.106	(0.387)	0.096	0.011
222	18.50	0.13	0.106	(0.385)	0.096	0.011
223	18.58	0.10	0.080	(0.383)	0.072	0.008
224	18.67	0.10	0.080	(0.381)	0.072	0.008
225	18.75	0.10	0.080	(0.379)	0.072	0.008
226	18.83	0.07	0.053	(0.377)	0.048	0.005
227	18.92	0.07	0.053	(0.376)	0.048	0.005
228	19.00	0.07	0.053	(0.374)	0.048	0.005
229	19.08	0.10	0.080	(0.372)	0.072	0.008
230	19.17	0.10	0.080	(0.370)	0.072	0.008
231	19.25	0.10	0.080	(0.369)	0.072	0.008
232	19.33	0.13	0.106	(0.367)	0.096	0.011
233	19.42	0.13	0.106	(0.365)	0.096	0.011
234	19.50	0.13	0.106	(0.364)	0.096	0.011
235	19.58	0.10	0.080	(0.362)	0.072	0.008
236	19.67	0.10	0.080	(0.360)	0.072	0.008
237	19.75	0.10	0.080	(0.359)	0.072	0.008
238	19.83	0.07	0.053	(0.357)	0.048	0.005
239	19.92	0.07	0.053	(0.355)	0.048	0.005
240	20.00	0.07	0.053	(0.354)	0.048	0.005
241	20.08	0.10	0.080	(0.352)	0.072	0.008
242	20.17	0.10	0.080	(0.351)	0.072	0.008
243	20.25	0.10	0.080	(0.349)	0.072	0.008
244	20.33	0.10	0.080	(0.348)	0.072	0.008
245	20.42	0.10	0.080	(0.346)	0.072	0.008
246	20.50	0.10	0.080	(0.345)	0.072	0.008
247	20.58	0.10	0.080	(0.343)	0.072	0.008
248	20.67	0.10	0.080	(0.342)	0.072	0.008
249	20.75	0.10	0.080	(0.340)	0.072	0.008
250	20.83	0.07	0.053	(0.339)	0.048	0.005
251	20.92	0.07	0.053	(0.338)	0.048	0.005
252	21.00	0.07	0.053	(0.336)	0.048	0.005
253	21.08	0.10	0.080	(0.335)	0.072	0.008
254	21.17	0.10	0.080	(0.334)	0.072	0.008
255	21.25	0.10	0.080	(0.332)	0.072	0.008
256	21.33	0.07	0.053	(0.331)	0.048	0.005
257	21.42	0.07	0.053	(0.330)	0.048	0.005
258	21.50	0.07	0.053	(0.329)	0.048	0.005
259	21.58	0.10	0.080	(0.327)	0.072	0.008
260	21.67	0.10	0.080	(0.326)	0.072	0.008
261	21.75	0.10	0.080	(0.325)	0.072	0.008
262	21.83	0.07	0.053	(0.324)	0.048	0.005
263	21.92	0.07	0.053	(0.323)	0.048	0.005
264	22.00	0.07	0.053	(0.322)	0.048	0.005
265	22.08	0.10	0.080	(0.321)	0.072	0.008
266	22.17	0.10	0.080	(0.320)	0.072	0.008
267	22.25	0.10	0.080	(0.319)	0.072	0.008
268	22.33	0.07	0.053	(0.318)	0.048	0.005
269	22.42	0.07	0.053	(0.317)	0.048	0.005
270	22.50	0.07	0.053	(0.316)	0.048	0.005
271	22.58	0.07	0.053	(0.315)	0.048	0.005

272	22.67	0.07	0.053	(0.314)	0.048	0.005
273	22.75	0.07	0.053	(0.313)	0.048	0.005
274	22.83	0.07	0.053	(0.312)	0.048	0.005
275	22.92	0.07	0.053	(0.311)	0.048	0.005
276	23.00	0.07	0.053	(0.311)	0.048	0.005
277	23.08	0.07	0.053	(0.310)	0.048	0.005
278	23.17	0.07	0.053	(0.309)	0.048	0.005
279	23.25	0.07	0.053	(0.309)	0.048	0.005
280	23.33	0.07	0.053	(0.308)	0.048	0.005
281	23.42	0.07	0.053	(0.307)	0.048	0.005
282	23.50	0.07	0.053	(0.307)	0.048	0.005
283	23.58	0.07	0.053	(0.306)	0.048	0.005
284	23.67	0.07	0.053	(0.306)	0.048	0.005
285	23.75	0.07	0.053	(0.305)	0.048	0.005
286	23.83	0.07	0.053	(0.305)	0.048	0.005
287	23.92	0.07	0.053	(0.305)	0.048	0.005
288	24.00	0.07	0.053	(0.305)	0.048	0.005

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.2

Flood volume = Effective rainfall 1.10(In)
times area 7.1(Ac.)/[(In)/(Ft.)] = 0.7(Ac.Ft)

Total soil loss = 5.54(In)

Total soil loss = 3.289(Ac.Ft)

Total rainfall = 6.64(In)

Flood volume = 28354.4 Cubic Feet

Total soil loss = 143258.0 Cubic Feet

Peak flow rate of this hydrograph = 2.718(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0003	0.03	Q				
0+15	0.0005	0.04	Q				
0+20	0.0008	0.04	Q				
0+25	0.0012	0.05	Q				
0+30	0.0016	0.06	Q				
0+35	0.0020	0.06	Q				
0+40	0.0024	0.06	Q				
0+45	0.0028	0.06	Q				
0+50	0.0032	0.06	Q				
0+55	0.0037	0.07	Q				
1+ 0	0.0042	0.07	Q				
1+ 5	0.0047	0.07	Q				
1+10	0.0051	0.06	Q				
1+15	0.0055	0.06	Q				
1+20	0.0059	0.06	Q				
1+25	0.0063	0.06	Q				
1+30	0.0067	0.06	Q				
1+35	0.0071	0.06	Q				
1+40	0.0075	0.06	Q				
1+45	0.0079	0.06	Q				
1+50	0.0083	0.06	Q				
1+55	0.0088	0.07	Q				
2+ 0	0.0093	0.07	Q				
2+ 5	0.0099	0.08	Q				

2+10	0.0104	0.08	Q				
2+15	0.0109	0.08	Q				
2+20	0.0114	0.08	Q				
2+25	0.0120	0.08	Q				
2+30	0.0125	0.08	Q				
2+35	0.0131	0.08	Q				
2+40	0.0137	0.09	Q				
2+45	0.0143	0.09	Q				
2+50	0.0150	0.09	Q				
2+55	0.0156	0.10	Q				
3+ 0	0.0163	0.10	QV				
3+ 5	0.0170	0.10	QV				
3+10	0.0176	0.10	QV				
3+15	0.0183	0.10	QV				
3+20	0.0189	0.10	QV				
3+25	0.0196	0.10	QV				
3+30	0.0202	0.10	QV				
3+35	0.0209	0.10	QV				
3+40	0.0216	0.10	QV				
3+45	0.0222	0.10	QV				
3+50	0.0229	0.10	QV				
3+55	0.0237	0.11	QV				
4+ 0	0.0245	0.11	QV				
4+ 5	0.0252	0.11	QV				
4+10	0.0260	0.11	QV				
4+15	0.0268	0.11	QV				
4+20	0.0276	0.12	QV				
4+25	0.0285	0.13	QV				
4+30	0.0294	0.13	QV				
4+35	0.0304	0.13	QV				
4+40	0.0313	0.13	QV				
4+45	0.0322	0.13	QV				
4+50	0.0332	0.14	Q V				
4+55	0.0342	0.15	Q V				
5+ 0	0.0352	0.15	Q V				
5+ 5	0.0362	0.14	Q V				
5+10	0.0370	0.12	Q V				
5+15	0.0378	0.12	Q V				
5+20	0.0387	0.12	Q V				
5+25	0.0396	0.13	Q V				
5+30	0.0405	0.13	Q V				
5+35	0.0414	0.14	Q V				
5+40	0.0425	0.15	Q V				
5+45	0.0435	0.15	Q V				
5+50	0.0445	0.15	Q V				
5+55	0.0456	0.15	Q V				
6+ 0	0.0466	0.15	Q V				
6+ 5	0.0477	0.16	Q V				
6+10	0.0489	0.17	Q V				
6+15	0.0501	0.17	Q V				
6+20	0.0512	0.17	Q V				
6+25	0.0524	0.17	Q V				
6+30	0.0536	0.17	Q V				
6+35	0.0548	0.18	Q V				
6+40	0.0561	0.19	Q V				
6+45	0.0574	0.19	Q V				
6+50	0.0587	0.19	Q V				
6+55	0.0600	0.19	Q V				
7+ 0	0.0614	0.19	Q V				
7+ 5	0.0627	0.19	Q V				
7+10	0.0640	0.19	Q V				
7+15	0.0653	0.19	Q V				
7+20	0.0667	0.20	Q V				

7+25	0.0681	0.21	Q	V				
7+30	0.0695	0.21	Q	V				
7+35	0.0710	0.22	Q	V				
7+40	0.0725	0.22	Q	V				
7+45	0.0741	0.23	Q	V				
7+50	0.0757	0.23	Q	V				
7+55	0.0774	0.24	Q	V				
8+ 0	0.0791	0.25	Q	V				
8+ 5	0.0809	0.26	Q	V				
8+10	0.0828	0.28	Q	V				
8+15	0.0848	0.28	Q	V				
8+20	0.0867	0.28	Q	V				
8+25	0.0887	0.29	Q	V				
8+30	0.0907	0.29	Q	V				
8+35	0.0927	0.29	Q	V				
8+40	0.0948	0.30	Q	V				
8+45	0.0968	0.30	Q	V				
8+50	0.0990	0.31	Q	V				
8+55	0.1012	0.32	Q	V				
9+ 0	0.1034	0.32	Q	V				
9+ 5	0.1057	0.34	Q	V				
9+10	0.1082	0.35	Q	V				
9+15	0.1106	0.36	Q	V				
9+20	0.1132	0.37	Q	V				
9+25	0.1158	0.38	Q	V				
9+30	0.1184	0.38	Q	V				
9+35	0.1211	0.39	Q	V				
9+40	0.1238	0.40	Q	V				
9+45	0.1265	0.40	Q	V				
9+50	0.1293	0.41	Q	V				
9+55	0.1322	0.42	Q	V				
10+ 0	0.1351	0.42	Q	V				
10+ 5	0.1376	0.37	Q	V				
10+10	0.1398	0.31	Q	V				
10+15	0.1418	0.30	Q	V				
10+20	0.1438	0.29	Q	V				
10+25	0.1458	0.29	Q	V				
10+30	0.1478	0.29	Q	V				
10+35	0.1500	0.32	Q	V				
10+40	0.1525	0.36	Q	V				
10+45	0.1551	0.37	Q	V				
10+50	0.1577	0.38	Q	V				
10+55	0.1603	0.38	Q	V				
11+ 0	0.1629	0.38	Q	V				
11+ 5	0.1655	0.37	Q	V				
11+10	0.1680	0.37	Q	V				
11+15	0.1705	0.36	Q	V				
11+20	0.1730	0.36	Q	V				
11+25	0.1755	0.36	Q	V				
11+30	0.1780	0.36	Q	V				
11+35	0.1804	0.35	Q	V				
11+40	0.1827	0.33	Q	V				
11+45	0.1849	0.33	Q	V				
11+50	0.1872	0.33	Q	V				
11+55	0.1896	0.34	Q	V				
12+ 0	0.1919	0.34	Q	V				
12+ 5	0.1951	0.46	Q	V				
12+10	0.1994	0.63	Q	V				
12+15	0.2041	0.68	Q	V				
12+20	0.2094	0.78	Q	V				
12+25	0.2156	0.90	Q	V				
12+30	0.2221	0.94	Q	V				
12+35	0.2297	1.10	Q	V				

12+40	0.2387	1.30		Q		V			
12+45	0.2481	1.37		Q		V			
12+50	0.2582	1.47		Q		V			
12+55	0.2691	1.59		Q		V			
13+ 0	0.2804	1.63		Q		V			
13+ 5	0.2940	1.99		Q		V			
13+10	0.3110	2.46			Q	V			
13+15	0.3287	2.58			Q	V			
13+20	0.3470	2.65			Q	V			
13+25	0.3655	2.69			Q		V		
13+30	0.3842	2.72			Q		V		
13+35	0.3981	2.02			Q		V		
13+40	0.4054	1.06		Q			V		
13+45	0.4113	0.85		Q			V		
13+50	0.4166	0.77		Q			V		
13+55	0.4216	0.74		Q			V		
14+ 0	0.4267	0.73		Q			V		
14+ 5	0.4337	1.01		Q			V		
14+10	0.4432	1.39		Q			V		
14+15	0.4535	1.49		Q			V		
14+20	0.4637	1.48		Q			V		
14+25	0.4735	1.43		Q			V		
14+30	0.4834	1.43		Q			V		
14+35	0.4933	1.44		Q			V		
14+40	0.5033	1.46		Q			V		
14+45	0.5135	1.47		Q			V		
14+50	0.5233	1.42		Q				V	
14+55	0.5326	1.35		Q				V	
15+ 0	0.5419	1.35		Q				V	
15+ 5	0.5508	1.29		Q				V	
15+10	0.5592	1.22		Q				V	
15+15	0.5675	1.21		Q				V	
15+20	0.5755	1.15		Q				V	
15+25	0.5829	1.08		Q				V	
15+30	0.5903	1.07		Q				V	
15+35	0.5960	0.83		Q				V	
15+40	0.5994	0.50		Q				V	
15+45	0.6023	0.42		Q				V	
15+50	0.6050	0.39		Q				V	
15+55	0.6077	0.39		Q				V	
16+ 0	0.6104	0.40		Q				V	
16+ 5	0.6124	0.29		Q				V	
16+10	0.6134	0.14	Q					V	
16+15	0.6141	0.10	Q					V	
16+20	0.6147	0.09	Q					V	
16+25	0.6152	0.08	Q					V	
16+30	0.6157	0.08	Q					V	
16+35	0.6162	0.07	Q					V	
16+40	0.6166	0.06	Q					V	
16+45	0.6170	0.06	Q					V	
16+50	0.6174	0.06	Q					V	
16+55	0.6178	0.06	Q					V	
17+ 0	0.6182	0.06	Q					V	
17+ 5	0.6187	0.07	Q					V	
17+10	0.6193	0.09	Q					V	
17+15	0.6200	0.09	Q					V	
17+20	0.6206	0.09	Q					V	
17+25	0.6213	0.09	Q					V	
17+30	0.6219	0.10	Q					V	
17+35	0.6226	0.10	Q					V	
17+40	0.6232	0.10	Q					V	
17+45	0.6239	0.10	Q					V	
17+50	0.6245	0.09	Q					V	

17+55	0.6251	0.08	Q				V
18+ 0	0.6256	0.08	Q				V
18+ 5	0.6261	0.08	Q				V
18+10	0.6266	0.08	Q				V
18+15	0.6272	0.08	Q				V
18+20	0.6277	0.08	Q				V
18+25	0.6282	0.08	Q				V
18+30	0.6287	0.08	Q				V
18+35	0.6292	0.07	Q				V
18+40	0.6296	0.06	Q				V
18+45	0.6301	0.06	Q				V
18+50	0.6304	0.05	Q				V
18+55	0.6307	0.04	Q				V
19+ 0	0.6310	0.04	Q				V
19+ 5	0.6313	0.05	Q				V
19+10	0.6316	0.05	Q				V
19+15	0.6320	0.06	Q				V
19+20	0.6325	0.06	Q				V
19+25	0.6330	0.07	Q				V
19+30	0.6335	0.07	Q				V
19+35	0.6340	0.07	Q				V
19+40	0.6344	0.06	Q				V
19+45	0.6348	0.06	Q				V
19+50	0.6351	0.05	Q				V
19+55	0.6354	0.04	Q				V
20+ 0	0.6357	0.04	Q				V
20+ 5	0.6360	0.05	Q				V
20+10	0.6364	0.05	Q				V
20+15	0.6368	0.06	Q				V
20+20	0.6371	0.06	Q				V
20+25	0.6375	0.06	Q				V
20+30	0.6379	0.06	Q				V
20+35	0.6383	0.06	Q				V
20+40	0.6387	0.06	Q				V
20+45	0.6391	0.06	Q				V
20+50	0.6395	0.05	Q				V
20+55	0.6398	0.04	Q				V
21+ 0	0.6400	0.04	Q				V
21+ 5	0.6403	0.05	Q				V
21+10	0.6407	0.05	Q				V
21+15	0.6411	0.06	Q				V
21+20	0.6414	0.05	Q				V
21+25	0.6417	0.04	Q				V
21+30	0.6420	0.04	Q				V
21+35	0.6423	0.05	Q				V
21+40	0.6427	0.05	Q				V
21+45	0.6431	0.06	Q				V
21+50	0.6434	0.05	Q				V
21+55	0.6437	0.04	Q				V
22+ 0	0.6440	0.04	Q				V
22+ 5	0.6443	0.05	Q				V
22+10	0.6446	0.05	Q				V
22+15	0.6450	0.06	Q				V
22+20	0.6454	0.05	Q				V
22+25	0.6457	0.04	Q				V
22+30	0.6459	0.04	Q				V
22+35	0.6462	0.04	Q				V
22+40	0.6465	0.04	Q				V
22+45	0.6467	0.04	Q				V
22+50	0.6470	0.04	Q				V
22+55	0.6473	0.04	Q				V
23+ 0	0.6475	0.04	Q				V
23+ 5	0.6478	0.04	Q				V

23+10	0.6480	0.04	Q				V
23+15	0.6483	0.04	Q				V
23+20	0.6486	0.04	Q				V
23+25	0.6488	0.04	Q				V
23+30	0.6491	0.04	Q				V
23+35	0.6494	0.04	Q				V
23+40	0.6496	0.04	Q				V
23+45	0.6499	0.04	Q				V
23+50	0.6501	0.04	Q				V
23+55	0.6504	0.04	Q				V
24+ 0	0.6507	0.04	Q				V
24+ 5	0.6508	0.03	Q				V
24+10	0.6509	0.01	Q				V
24+15	0.6509	0.00	Q				V
24+20	0.6509	0.00	Q				V
24+25	0.6509	0.00	Q				V

Hydrograph Report

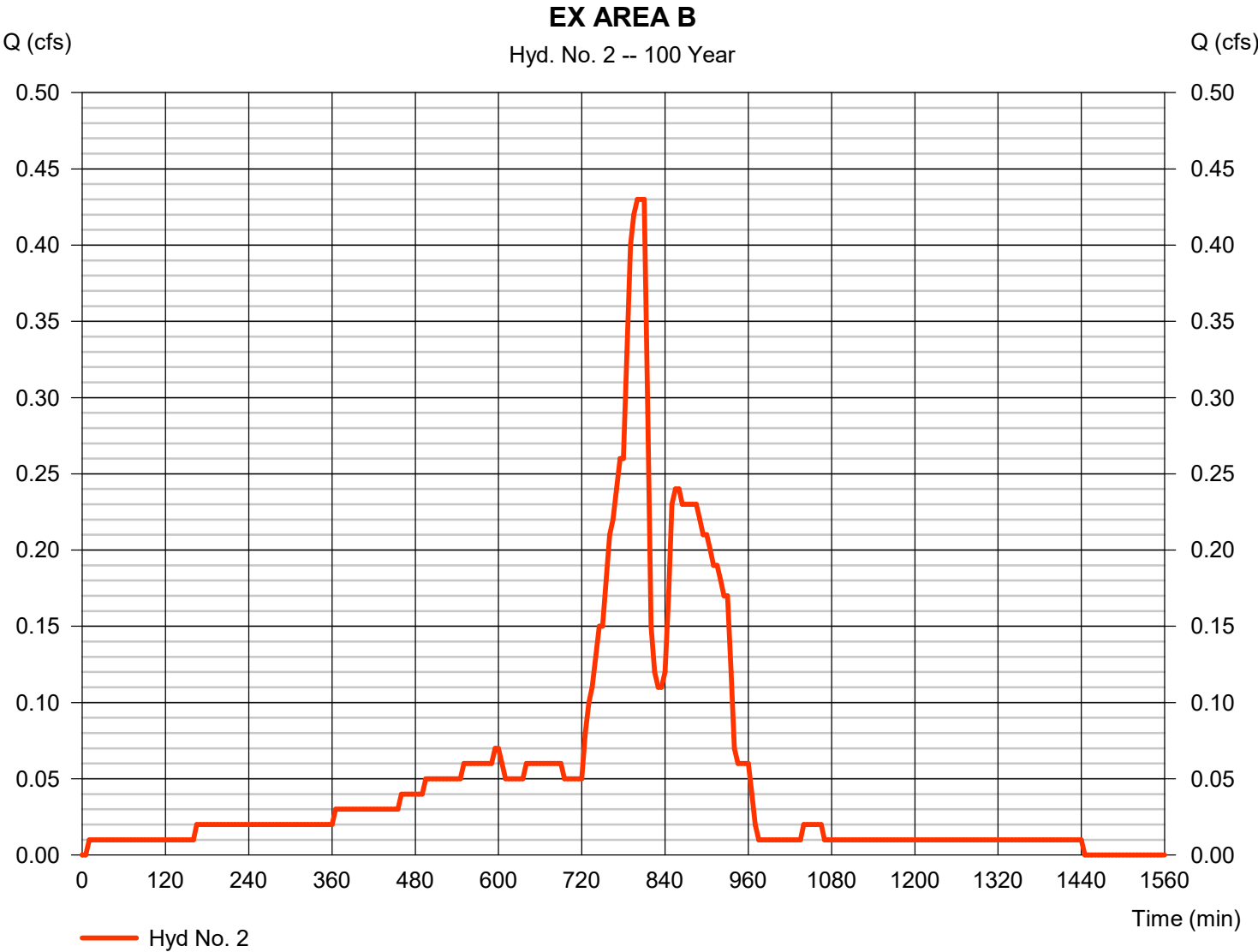
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

Friday, 12 / 17 / 2021

Hyd. No. 2

EX AREA B

Hydrograph type	= Manual	Peak discharge	= 0.430 cfs
Storm frequency	= 100 yrs	Time to peak	= 800 min
Time interval	= 5 min	Hyd. volume	= 4,560 cuft



Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2

Study date 12/14/21 File: 19400EB24100.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Existing 100-yr 24-hr
Area B

Drainage Area = 1.13(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.13(Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 520.00(Ft.)
Length along longest watercourse measured to centroid = 315.00(Ft.)
Length along longest watercourse = 0.098 Mi.
Length along longest watercourse measured to centroid = 0.060 Mi.
Difference in elevation = 13.00(Ft.)
Slope along watercourse = 132.0000 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.040 Hr.
Lag time = 2.43 Min.
25% of lag time = 0.61 Min.
40% of lag time = 0.97 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]
1.13	2.44	2.76

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.13	6.64	7.50

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 2.440(In)
Area Averaged 100-Year Rainfall = 6.640(In)

Point rain (area averaged) = 6.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 6.640(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.130 66.00 0.000
Total Area Entered = 1.13(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
66.0	46.2	0.609	0.000	0.609	1.000	0.609
						Sum (F) = 0.609

Area averaged mean soil loss (F) (In/Hr) = 0.609
Minimum soil loss rate ((In/Hr)) = 0.305
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	206.138	44.442	0.506
2 0.167	412.276	42.941	0.489
3 0.250	618.414	8.549	0.097
4 0.333	824.552	4.067	0.046
		Sum = 100.000	Sum= 1.139

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	0.053	(1.080)	0.048	0.005
2 0.17	0.07	0.053	(1.076)	0.048	0.005
3 0.25	0.07	0.053	(1.072)	0.048	0.005
4 0.33	0.10	0.080	(1.068)	0.072	0.008
5 0.42	0.10	0.080	(1.063)	0.072	0.008
6 0.50	0.10	0.080	(1.059)	0.072	0.008
7 0.58	0.10	0.080	(1.055)	0.072	0.008
8 0.67	0.10	0.080	(1.051)	0.072	0.008
9 0.75	0.10	0.080	(1.047)	0.072	0.008
10 0.83	0.13	0.106	(1.043)	0.096	0.011
11 0.92	0.13	0.106	(1.039)	0.096	0.011
12 1.00	0.13	0.106	(1.035)	0.096	0.011
13 1.08	0.10	0.080	(1.030)	0.072	0.008
14 1.17	0.10	0.080	(1.026)	0.072	0.008
15 1.25	0.10	0.080	(1.022)	0.072	0.008
16 1.33	0.10	0.080	(1.018)	0.072	0.008
17 1.42	0.10	0.080	(1.014)	0.072	0.008
18 1.50	0.10	0.080	(1.010)	0.072	0.008
19 1.58	0.10	0.080	(1.006)	0.072	0.008
20 1.67	0.10	0.080	(1.002)	0.072	0.008
21 1.75	0.10	0.080	(0.998)	0.072	0.008

22	1.83	0.13	0.106	(0.994)	0.096	0.011
23	1.92	0.13	0.106	(0.990)	0.096	0.011
24	2.00	0.13	0.106	(0.986)	0.096	0.011
25	2.08	0.13	0.106	(0.982)	0.096	0.011
26	2.17	0.13	0.106	(0.978)	0.096	0.011
27	2.25	0.13	0.106	(0.974)	0.096	0.011
28	2.33	0.13	0.106	(0.970)	0.096	0.011
29	2.42	0.13	0.106	(0.966)	0.096	0.011
30	2.50	0.13	0.106	(0.962)	0.096	0.011
31	2.58	0.17	0.133	(0.958)	0.120	0.013
32	2.67	0.17	0.133	(0.954)	0.120	0.013
33	2.75	0.17	0.133	(0.950)	0.120	0.013
34	2.83	0.17	0.133	(0.946)	0.120	0.013
35	2.92	0.17	0.133	(0.943)	0.120	0.013
36	3.00	0.17	0.133	(0.939)	0.120	0.013
37	3.08	0.17	0.133	(0.935)	0.120	0.013
38	3.17	0.17	0.133	(0.931)	0.120	0.013
39	3.25	0.17	0.133	(0.927)	0.120	0.013
40	3.33	0.17	0.133	(0.923)	0.120	0.013
41	3.42	0.17	0.133	(0.919)	0.120	0.013
42	3.50	0.17	0.133	(0.915)	0.120	0.013
43	3.58	0.17	0.133	(0.912)	0.120	0.013
44	3.67	0.17	0.133	(0.908)	0.120	0.013
45	3.75	0.17	0.133	(0.904)	0.120	0.013
46	3.83	0.20	0.159	(0.900)	0.143	0.016
47	3.92	0.20	0.159	(0.896)	0.143	0.016
48	4.00	0.20	0.159	(0.893)	0.143	0.016
49	4.08	0.20	0.159	(0.889)	0.143	0.016
50	4.17	0.20	0.159	(0.885)	0.143	0.016
51	4.25	0.20	0.159	(0.881)	0.143	0.016
52	4.33	0.23	0.186	(0.878)	0.167	0.019
53	4.42	0.23	0.186	(0.874)	0.167	0.019
54	4.50	0.23	0.186	(0.870)	0.167	0.019
55	4.58	0.23	0.186	(0.866)	0.167	0.019
56	4.67	0.23	0.186	(0.863)	0.167	0.019
57	4.75	0.23	0.186	(0.859)	0.167	0.019
58	4.83	0.27	0.212	(0.855)	0.191	0.021
59	4.92	0.27	0.212	(0.851)	0.191	0.021
60	5.00	0.27	0.212	(0.848)	0.191	0.021
61	5.08	0.20	0.159	(0.844)	0.143	0.016
62	5.17	0.20	0.159	(0.840)	0.143	0.016
63	5.25	0.20	0.159	(0.837)	0.143	0.016
64	5.33	0.23	0.186	(0.833)	0.167	0.019
65	5.42	0.23	0.186	(0.829)	0.167	0.019
66	5.50	0.23	0.186	(0.826)	0.167	0.019
67	5.58	0.27	0.212	(0.822)	0.191	0.021
68	5.67	0.27	0.212	(0.819)	0.191	0.021
69	5.75	0.27	0.212	(0.815)	0.191	0.021
70	5.83	0.27	0.212	(0.811)	0.191	0.021
71	5.92	0.27	0.212	(0.808)	0.191	0.021
72	6.00	0.27	0.212	(0.804)	0.191	0.021
73	6.08	0.30	0.239	(0.801)	0.215	0.024
74	6.17	0.30	0.239	(0.797)	0.215	0.024
75	6.25	0.30	0.239	(0.793)	0.215	0.024
76	6.33	0.30	0.239	(0.790)	0.215	0.024
77	6.42	0.30	0.239	(0.786)	0.215	0.024
78	6.50	0.30	0.239	(0.783)	0.215	0.024
79	6.58	0.33	0.266	(0.779)	0.239	0.027
80	6.67	0.33	0.266	(0.776)	0.239	0.027
81	6.75	0.33	0.266	(0.772)	0.239	0.027
82	6.83	0.33	0.266	(0.769)	0.239	0.027
83	6.92	0.33	0.266	(0.765)	0.239	0.027
84	7.00	0.33	0.266	(0.762)	0.239	0.027

85	7.08	0.33	0.266	(0.758)	0.239	0.027
86	7.17	0.33	0.266	(0.755)	0.239	0.027
87	7.25	0.33	0.266	(0.752)	0.239	0.027
88	7.33	0.37	0.292	(0.748)	0.263	0.029
89	7.42	0.37	0.292	(0.745)	0.263	0.029
90	7.50	0.37	0.292	(0.741)	0.263	0.029
91	7.58	0.40	0.319	(0.738)	0.287	0.032
92	7.67	0.40	0.319	(0.734)	0.287	0.032
93	7.75	0.40	0.319	(0.731)	0.287	0.032
94	7.83	0.43	0.345	(0.728)	0.311	0.035
95	7.92	0.43	0.345	(0.724)	0.311	0.035
96	8.00	0.43	0.345	(0.721)	0.311	0.035
97	8.08	0.50	0.398	(0.718)	0.359	0.040
98	8.17	0.50	0.398	(0.714)	0.359	0.040
99	8.25	0.50	0.398	(0.711)	0.359	0.040
100	8.33	0.50	0.398	(0.708)	0.359	0.040
101	8.42	0.50	0.398	(0.704)	0.359	0.040
102	8.50	0.50	0.398	(0.701)	0.359	0.040
103	8.58	0.53	0.425	(0.698)	0.382	0.042
104	8.67	0.53	0.425	(0.694)	0.382	0.042
105	8.75	0.53	0.425	(0.691)	0.382	0.042
106	8.83	0.57	0.452	(0.688)	0.406	0.045
107	8.92	0.57	0.452	(0.685)	0.406	0.045
108	9.00	0.57	0.452	(0.681)	0.406	0.045
109	9.08	0.63	0.505	(0.678)	0.454	0.050
110	9.17	0.63	0.505	(0.675)	0.454	0.050
111	9.25	0.63	0.505	(0.672)	0.454	0.050
112	9.33	0.67	0.531	(0.669)	0.478	0.053
113	9.42	0.67	0.531	(0.665)	0.478	0.053
114	9.50	0.67	0.531	(0.662)	0.478	0.053
115	9.58	0.70	0.558	(0.659)	0.502	0.056
116	9.67	0.70	0.558	(0.656)	0.502	0.056
117	9.75	0.70	0.558	(0.653)	0.502	0.056
118	9.83	0.73	0.584	(0.650)	0.526	0.058
119	9.92	0.73	0.584	(0.646)	0.526	0.058
120	10.00	0.73	0.584	(0.643)	0.526	0.058
121	10.08	0.50	0.398	(0.640)	0.359	0.040
122	10.17	0.50	0.398	(0.637)	0.359	0.040
123	10.25	0.50	0.398	(0.634)	0.359	0.040
124	10.33	0.50	0.398	(0.631)	0.359	0.040
125	10.42	0.50	0.398	(0.628)	0.359	0.040
126	10.50	0.50	0.398	(0.625)	0.359	0.040
127	10.58	0.67	0.531	(0.622)	0.478	0.053
128	10.67	0.67	0.531	(0.619)	0.478	0.053
129	10.75	0.67	0.531	(0.616)	0.478	0.053
130	10.83	0.67	0.531	(0.613)	0.478	0.053
131	10.92	0.67	0.531	(0.610)	0.478	0.053
132	11.00	0.67	0.531	(0.607)	0.478	0.053
133	11.08	0.63	0.505	(0.604)	0.454	0.050
134	11.17	0.63	0.505	(0.601)	0.454	0.050
135	11.25	0.63	0.505	(0.598)	0.454	0.050
136	11.33	0.63	0.505	(0.595)	0.454	0.050
137	11.42	0.63	0.505	(0.592)	0.454	0.050
138	11.50	0.63	0.505	(0.589)	0.454	0.050
139	11.58	0.57	0.452	(0.586)	0.406	0.045
140	11.67	0.57	0.452	(0.583)	0.406	0.045
141	11.75	0.57	0.452	(0.580)	0.406	0.045
142	11.83	0.60	0.478	(0.577)	0.430	0.048
143	11.92	0.60	0.478	(0.574)	0.430	0.048
144	12.00	0.60	0.478	(0.572)	0.430	0.048
145	12.08	0.83	0.664	0.569	(0.598)	0.095
146	12.17	0.83	0.664	0.566	(0.598)	0.098
147	12.25	0.83	0.664	0.563	(0.598)	0.101

148	12.33	0.87	0.691	0.560	(0.622)	0.130
149	12.42	0.87	0.691	0.557	(0.622)	0.133
150	12.50	0.87	0.691	0.555	(0.622)	0.136
151	12.58	0.93	0.744	0.552	(0.669)	0.192
152	12.67	0.93	0.744	0.549	(0.669)	0.195
153	12.75	0.93	0.744	0.546	(0.669)	0.197
154	12.83	0.97	0.770	0.543	(0.693)	0.227
155	12.92	0.97	0.770	0.541	(0.693)	0.229
156	13.00	0.97	0.770	0.538	(0.693)	0.232
157	13.08	1.13	0.903	0.535	(0.813)	0.368
158	13.17	1.13	0.903	0.533	(0.813)	0.370
159	13.25	1.13	0.903	0.530	(0.813)	0.373
160	13.33	1.13	0.903	0.527	(0.813)	0.376
161	13.42	1.13	0.903	0.524	(0.813)	0.379
162	13.50	1.13	0.903	0.522	(0.813)	0.381
163	13.58	0.77	0.611	0.519	(0.550)	0.092
164	13.67	0.77	0.611	0.517	(0.550)	0.094
165	13.75	0.77	0.611	0.514	(0.550)	0.097
166	13.83	0.77	0.611	0.511	(0.550)	0.100
167	13.92	0.77	0.611	0.509	(0.550)	0.102
168	14.00	0.77	0.611	0.506	(0.550)	0.105
169	14.08	0.90	0.717	0.503	(0.645)	0.214
170	14.17	0.90	0.717	0.501	(0.645)	0.216
171	14.25	0.90	0.717	0.498	(0.645)	0.219
172	14.33	0.87	0.691	0.496	(0.622)	0.195
173	14.42	0.87	0.691	0.493	(0.622)	0.197
174	14.50	0.87	0.691	0.491	(0.622)	0.200
175	14.58	0.87	0.691	0.488	(0.622)	0.202
176	14.67	0.87	0.691	0.486	(0.622)	0.205
177	14.75	0.87	0.691	0.483	(0.622)	0.207
178	14.83	0.83	0.664	0.481	(0.598)	0.183
179	14.92	0.83	0.664	0.478	(0.598)	0.186
180	15.00	0.83	0.664	0.476	(0.598)	0.188
181	15.08	0.80	0.637	0.473	(0.574)	0.164
182	15.17	0.80	0.637	0.471	(0.574)	0.166
183	15.25	0.80	0.637	0.469	(0.574)	0.169
184	15.33	0.77	0.611	0.466	(0.550)	0.145
185	15.42	0.77	0.611	0.464	(0.550)	0.147
186	15.50	0.77	0.611	0.461	(0.550)	0.149
187	15.58	0.63	0.505	(0.459)	0.454	0.050
188	15.67	0.63	0.505	(0.457)	0.454	0.050
189	15.75	0.63	0.505	(0.454)	0.454	0.050
190	15.83	0.63	0.505	0.452	(0.454)	0.053
191	15.92	0.63	0.505	0.450	(0.454)	0.055
192	16.00	0.63	0.505	0.447	(0.454)	0.057
193	16.08	0.13	0.106	(0.445)	0.096	0.011
194	16.17	0.13	0.106	(0.443)	0.096	0.011
195	16.25	0.13	0.106	(0.441)	0.096	0.011
196	16.33	0.13	0.106	(0.438)	0.096	0.011
197	16.42	0.13	0.106	(0.436)	0.096	0.011
198	16.50	0.13	0.106	(0.434)	0.096	0.011
199	16.58	0.10	0.080	(0.432)	0.072	0.008
200	16.67	0.10	0.080	(0.429)	0.072	0.008
201	16.75	0.10	0.080	(0.427)	0.072	0.008
202	16.83	0.10	0.080	(0.425)	0.072	0.008
203	16.92	0.10	0.080	(0.423)	0.072	0.008
204	17.00	0.10	0.080	(0.421)	0.072	0.008
205	17.08	0.17	0.133	(0.419)	0.120	0.013
206	17.17	0.17	0.133	(0.417)	0.120	0.013
207	17.25	0.17	0.133	(0.415)	0.120	0.013
208	17.33	0.17	0.133	(0.412)	0.120	0.013
209	17.42	0.17	0.133	(0.410)	0.120	0.013
210	17.50	0.17	0.133	(0.408)	0.120	0.013

211	17.58	0.17	0.133	(0.406)	0.120	0.013
212	17.67	0.17	0.133	(0.404)	0.120	0.013
213	17.75	0.17	0.133	(0.402)	0.120	0.013
214	17.83	0.13	0.106	(0.400)	0.096	0.011
215	17.92	0.13	0.106	(0.398)	0.096	0.011
216	18.00	0.13	0.106	(0.396)	0.096	0.011
217	18.08	0.13	0.106	(0.394)	0.096	0.011
218	18.17	0.13	0.106	(0.392)	0.096	0.011
219	18.25	0.13	0.106	(0.390)	0.096	0.011
220	18.33	0.13	0.106	(0.389)	0.096	0.011
221	18.42	0.13	0.106	(0.387)	0.096	0.011
222	18.50	0.13	0.106	(0.385)	0.096	0.011
223	18.58	0.10	0.080	(0.383)	0.072	0.008
224	18.67	0.10	0.080	(0.381)	0.072	0.008
225	18.75	0.10	0.080	(0.379)	0.072	0.008
226	18.83	0.07	0.053	(0.377)	0.048	0.005
227	18.92	0.07	0.053	(0.376)	0.048	0.005
228	19.00	0.07	0.053	(0.374)	0.048	0.005
229	19.08	0.10	0.080	(0.372)	0.072	0.008
230	19.17	0.10	0.080	(0.370)	0.072	0.008
231	19.25	0.10	0.080	(0.369)	0.072	0.008
232	19.33	0.13	0.106	(0.367)	0.096	0.011
233	19.42	0.13	0.106	(0.365)	0.096	0.011
234	19.50	0.13	0.106	(0.364)	0.096	0.011
235	19.58	0.10	0.080	(0.362)	0.072	0.008
236	19.67	0.10	0.080	(0.360)	0.072	0.008
237	19.75	0.10	0.080	(0.359)	0.072	0.008
238	19.83	0.07	0.053	(0.357)	0.048	0.005
239	19.92	0.07	0.053	(0.355)	0.048	0.005
240	20.00	0.07	0.053	(0.354)	0.048	0.005
241	20.08	0.10	0.080	(0.352)	0.072	0.008
242	20.17	0.10	0.080	(0.351)	0.072	0.008
243	20.25	0.10	0.080	(0.349)	0.072	0.008
244	20.33	0.10	0.080	(0.348)	0.072	0.008
245	20.42	0.10	0.080	(0.346)	0.072	0.008
246	20.50	0.10	0.080	(0.345)	0.072	0.008
247	20.58	0.10	0.080	(0.343)	0.072	0.008
248	20.67	0.10	0.080	(0.342)	0.072	0.008
249	20.75	0.10	0.080	(0.340)	0.072	0.008
250	20.83	0.07	0.053	(0.339)	0.048	0.005
251	20.92	0.07	0.053	(0.338)	0.048	0.005
252	21.00	0.07	0.053	(0.336)	0.048	0.005
253	21.08	0.10	0.080	(0.335)	0.072	0.008
254	21.17	0.10	0.080	(0.334)	0.072	0.008
255	21.25	0.10	0.080	(0.332)	0.072	0.008
256	21.33	0.07	0.053	(0.331)	0.048	0.005
257	21.42	0.07	0.053	(0.330)	0.048	0.005
258	21.50	0.07	0.053	(0.329)	0.048	0.005
259	21.58	0.10	0.080	(0.327)	0.072	0.008
260	21.67	0.10	0.080	(0.326)	0.072	0.008
261	21.75	0.10	0.080	(0.325)	0.072	0.008
262	21.83	0.07	0.053	(0.324)	0.048	0.005
263	21.92	0.07	0.053	(0.323)	0.048	0.005
264	22.00	0.07	0.053	(0.322)	0.048	0.005
265	22.08	0.10	0.080	(0.321)	0.072	0.008
266	22.17	0.10	0.080	(0.320)	0.072	0.008
267	22.25	0.10	0.080	(0.319)	0.072	0.008
268	22.33	0.07	0.053	(0.318)	0.048	0.005
269	22.42	0.07	0.053	(0.317)	0.048	0.005
270	22.50	0.07	0.053	(0.316)	0.048	0.005
271	22.58	0.07	0.053	(0.315)	0.048	0.005
272	22.67	0.07	0.053	(0.314)	0.048	0.005
273	22.75	0.07	0.053	(0.313)	0.048	0.005

274	22.83	0.07	0.053	(0.312)	0.048	0.005
275	22.92	0.07	0.053	(0.311)	0.048	0.005
276	23.00	0.07	0.053	(0.311)	0.048	0.005
277	23.08	0.07	0.053	(0.310)	0.048	0.005
278	23.17	0.07	0.053	(0.309)	0.048	0.005
279	23.25	0.07	0.053	(0.309)	0.048	0.005
280	23.33	0.07	0.053	(0.308)	0.048	0.005
281	23.42	0.07	0.053	(0.307)	0.048	0.005
282	23.50	0.07	0.053	(0.307)	0.048	0.005
283	23.58	0.07	0.053	(0.306)	0.048	0.005
284	23.67	0.07	0.053	(0.306)	0.048	0.005
285	23.75	0.07	0.053	(0.305)	0.048	0.005
286	23.83	0.07	0.053	(0.305)	0.048	0.005
287	23.92	0.07	0.053	(0.305)	0.048	0.005
288	24.00	0.07	0.053	(0.305)	0.048	0.005

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.2

Flood volume = Effective rainfall 1.10(In)
times area 1.1(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)

Total soil loss = 5.54(In)
Total soil loss = 0.522(Ac.Ft)
Total rainfall = 6.64(In)
Flood volume = 4500.2 Cubic Feet
Total soil loss = 22736.3 Cubic Feet

Peak flow rate of this hydrograph = 0.432(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0001	0.01	Q				
0+20	0.0001	0.01	Q				
0+25	0.0002	0.01	Q				
0+30	0.0003	0.01	Q				
0+35	0.0003	0.01	Q				
0+40	0.0004	0.01	Q				
0+45	0.0005	0.01	Q				
0+50	0.0005	0.01	Q				
0+55	0.0006	0.01	Q				
1+ 0	0.0007	0.01	Q				
1+ 5	0.0008	0.01	Q				
1+10	0.0008	0.01	Q				
1+15	0.0009	0.01	Q				
1+20	0.0010	0.01	Q				
1+25	0.0010	0.01	Q				
1+30	0.0011	0.01	Q				
1+35	0.0011	0.01	Q				
1+40	0.0012	0.01	Q				
1+45	0.0013	0.01	Q				
1+50	0.0013	0.01	Q				
1+55	0.0014	0.01	Q				
2+ 0	0.0015	0.01	Q				
2+ 5	0.0016	0.01	Q				
2+10	0.0017	0.01	Q				
2+15	0.0018	0.01	Q				

2+20	0.0018	0.01	Q				
2+25	0.0019	0.01	Q				
2+30	0.0020	0.01	Q				
2+35	0.0021	0.01	Q				
2+40	0.0022	0.01	Q				
2+45	0.0023	0.02	Q				
2+50	0.0024	0.02	Q				
2+55	0.0025	0.02	Q				
3+ 0	0.0026	0.02	QV				
3+ 5	0.0027	0.02	QV				
3+10	0.0028	0.02	QV				
3+15	0.0029	0.02	QV				
3+20	0.0030	0.02	QV				
3+25	0.0031	0.02	QV				
3+30	0.0032	0.02	QV				
3+35	0.0033	0.02	QV				
3+40	0.0034	0.02	QV				
3+45	0.0036	0.02	QV				
3+50	0.0037	0.02	QV				
3+55	0.0038	0.02	QV				
4+ 0	0.0039	0.02	QV				
4+ 5	0.0040	0.02	QV				
4+10	0.0042	0.02	QV				
4+15	0.0043	0.02	QV				
4+20	0.0044	0.02	QV				
4+25	0.0046	0.02	QV				
4+30	0.0047	0.02	QV				
4+35	0.0049	0.02	QV				
4+40	0.0050	0.02	QV				
4+45	0.0051	0.02	QV				
4+50	0.0053	0.02	Q V				
4+55	0.0055	0.02	Q V				
5+ 0	0.0056	0.02	Q V				
5+ 5	0.0058	0.02	Q V				
5+10	0.0059	0.02	Q V				
5+15	0.0060	0.02	Q V				
5+20	0.0062	0.02	Q V				
5+25	0.0063	0.02	Q V				
5+30	0.0065	0.02	Q V				
5+35	0.0066	0.02	Q V				
5+40	0.0068	0.02	Q V				
5+45	0.0069	0.02	Q V				
5+50	0.0071	0.02	Q V				
5+55	0.0073	0.02	Q V				
6+ 0	0.0074	0.02	Q V				
6+ 5	0.0076	0.03	Q V				
6+10	0.0078	0.03	Q V				
6+15	0.0080	0.03	Q V				
6+20	0.0082	0.03	Q V				
6+25	0.0084	0.03	Q V				
6+30	0.0086	0.03	Q V				
6+35	0.0088	0.03	Q V				
6+40	0.0090	0.03	Q V				
6+45	0.0092	0.03	Q V				
6+50	0.0094	0.03	Q V				
6+55	0.0096	0.03	Q V				
7+ 0	0.0098	0.03	Q V				
7+ 5	0.0100	0.03	Q V				
7+10	0.0102	0.03	Q V				
7+15	0.0104	0.03	Q V				
7+20	0.0106	0.03	Q V				
7+25	0.0109	0.03	Q V				
7+30	0.0111	0.03	Q V				

7+35	0.0113	0.03	Q	V				
7+40	0.0116	0.04	Q	V				
7+45	0.0118	0.04	Q	V				
7+50	0.0121	0.04	Q	V				
7+55	0.0124	0.04	Q	V				
8+ 0	0.0126	0.04	Q	V				
8+ 5	0.0129	0.04	Q	V				
8+10	0.0132	0.04	Q	V				
8+15	0.0135	0.05	Q	V				
8+20	0.0138	0.05	Q	V				
8+25	0.0142	0.05	Q	V				
8+30	0.0145	0.05	Q	V				
8+35	0.0148	0.05	Q	V				
8+40	0.0151	0.05	Q	V				
8+45	0.0155	0.05	Q	V				
8+50	0.0158	0.05	Q	V				
8+55	0.0161	0.05	Q	V				
9+ 0	0.0165	0.05	Q	V				
9+ 5	0.0169	0.05	Q	V				
9+10	0.0173	0.06	Q	V				
9+15	0.0177	0.06	Q	V				
9+20	0.0181	0.06	Q	V				
9+25	0.0185	0.06	Q	V				
9+30	0.0189	0.06	Q	V				
9+35	0.0193	0.06	Q	V				
9+40	0.0198	0.06	Q	V				
9+45	0.0202	0.06	Q	V				
9+50	0.0206	0.06	Q	V				
9+55	0.0211	0.07	Q	V				
10+ 0	0.0216	0.07	Q	V				
10+ 5	0.0219	0.06	Q	V				
10+10	0.0223	0.05	Q	V				
10+15	0.0226	0.05	Q	V				
10+20	0.0229	0.05	Q	V				
10+25	0.0232	0.05	Q	V				
10+30	0.0235	0.05	Q	V				
10+35	0.0239	0.05	Q	V				
10+40	0.0243	0.06	Q	V				
10+45	0.0247	0.06	Q	V				
10+50	0.0251	0.06	Q	V				
10+55	0.0255	0.06	Q	V				
11+ 0	0.0260	0.06	Q	V				
11+ 5	0.0264	0.06	Q	V				
11+10	0.0268	0.06	Q	V				
11+15	0.0272	0.06	Q	V				
11+20	0.0276	0.06	Q	V				
11+25	0.0280	0.06	Q	V				
11+30	0.0284	0.06	Q	V				
11+35	0.0287	0.05	Q	V				
11+40	0.0291	0.05	Q	V				
11+45	0.0294	0.05	Q	V				
11+50	0.0298	0.05	Q	V				
11+55	0.0302	0.05	Q	V				
12+ 0	0.0306	0.05	Q	V				
12+ 5	0.0311	0.08	Q	V				
12+10	0.0318	0.10	Q	V				
12+15	0.0326	0.11	Q	V				
12+20	0.0335	0.13	Q	V				
12+25	0.0345	0.15	Q	V				
12+30	0.0355	0.15	Q	V				
12+35	0.0368	0.18	Q	V				
12+40	0.0382	0.21	Q	V				
12+45	0.0397	0.22	Q	V				

12+50	0.0414	0.24	Q		V			
12+55	0.0431	0.26	IQ		V			
13+ 0	0.0449	0.26	IQ		V			
13+ 5	0.0472	0.33	IQ		V			
13+10	0.0500	0.40	IQ		V			
13+15	0.0529	0.42	IQ		V			
13+20	0.0558	0.43	IQ		V			
13+25	0.0588	0.43	IQ		V			
13+30	0.0617	0.43	IQ		V			
13+35	0.0637	0.29	IQ		V			
13+40	0.0647	0.15	Q		V			
13+45	0.0656	0.12	Q		V			
13+50	0.0663	0.11	Q		V			
13+55	0.0671	0.11	Q		V			
14+ 0	0.0679	0.12	Q		V			
14+ 5	0.0691	0.17	Q		V			
14+10	0.0707	0.23	Q		V			
14+15	0.0724	0.24	Q		V			
14+20	0.0740	0.24	Q		V			
14+25	0.0756	0.23	Q		V			
14+30	0.0771	0.23	Q		V			
14+35	0.0787	0.23	Q		V			
14+40	0.0803	0.23	Q		V			
14+45	0.0819	0.23	Q		V			
14+50	0.0834	0.22	Q		V			
14+55	0.0849	0.21	Q		V			
15+ 0	0.0864	0.21	Q		V			
15+ 5	0.0878	0.20	Q		V			
15+10	0.0891	0.19	Q		V			
15+15	0.0904	0.19	Q		V			
15+20	0.0916	0.18	Q		V			
15+25	0.0928	0.17	Q		V			
15+30	0.0940	0.17	Q		V			
15+35	0.0948	0.12	Q		V			
15+40	0.0953	0.07	Q		V			
15+45	0.0957	0.06	Q		V			
15+50	0.0961	0.06	Q		V			
15+55	0.0966	0.06	Q		V			
16+ 0	0.0970	0.06	Q		V			
16+ 5	0.0973	0.04	Q		V			
16+10	0.0974	0.02	Q		V			
16+15	0.0975	0.01	Q		V			
16+20	0.0976	0.01	Q		V			
16+25	0.0977	0.01	Q		V			
16+30	0.0977	0.01	Q		V			
16+35	0.0978	0.01	Q		V			
16+40	0.0979	0.01	Q		V			
16+45	0.0980	0.01	Q		V			
16+50	0.0980	0.01	Q		V			
16+55	0.0981	0.01	Q		V			
17+ 0	0.0981	0.01	Q		V			
17+ 5	0.0982	0.01	Q		V			
17+10	0.0983	0.01	Q		V			
17+15	0.0984	0.01	Q		V			
17+20	0.0985	0.02	Q		V			
17+25	0.0986	0.02	Q		V			
17+30	0.0987	0.02	Q		V			
17+35	0.0988	0.02	Q		V			
17+40	0.0989	0.02	Q		V			
17+45	0.0990	0.02	Q		V			
17+50	0.0991	0.01	Q		V			
17+55	0.0992	0.01	Q		V			
18+ 0	0.0993	0.01	Q		V			

18+ 5	0.0994	0.01	Q				V
18+10	0.0995	0.01	Q				V
18+15	0.0996	0.01	Q				V
18+20	0.0996	0.01	Q				V
18+25	0.0997	0.01	Q				V
18+30	0.0998	0.01	Q				V
18+35	0.0999	0.01	Q				V
18+40	0.1000	0.01	Q				V
18+45	0.1000	0.01	Q				V
18+50	0.1001	0.01	Q				V
18+55	0.1001	0.01	Q				V
19+ 0	0.1002	0.01	Q				V
19+ 5	0.1002	0.01	Q				V
19+10	0.1003	0.01	Q				V
19+15	0.1003	0.01	Q				V
19+20	0.1004	0.01	Q				V
19+25	0.1005	0.01	Q				V
19+30	0.1006	0.01	Q				V
19+35	0.1006	0.01	Q				V
19+40	0.1007	0.01	Q				V
19+45	0.1008	0.01	Q				V
19+50	0.1008	0.01	Q				V
19+55	0.1009	0.01	Q				V
20+ 0	0.1009	0.01	Q				V
20+ 5	0.1010	0.01	Q				V
20+10	0.1010	0.01	Q				V
20+15	0.1011	0.01	Q				V
20+20	0.1011	0.01	Q				V
20+25	0.1012	0.01	Q				V
20+30	0.1013	0.01	Q				V
20+35	0.1013	0.01	Q				V
20+40	0.1014	0.01	Q				V
20+45	0.1015	0.01	Q				V
20+50	0.1015	0.01	Q				V
20+55	0.1015	0.01	Q				V
21+ 0	0.1016	0.01	Q				V
21+ 5	0.1016	0.01	Q				V
21+10	0.1017	0.01	Q				V
21+15	0.1018	0.01	Q				V
21+20	0.1018	0.01	Q				V
21+25	0.1019	0.01	Q				V
21+30	0.1019	0.01	Q				V
21+35	0.1020	0.01	Q				V
21+40	0.1020	0.01	Q				V
21+45	0.1021	0.01	Q				V
21+50	0.1021	0.01	Q				V
21+55	0.1022	0.01	Q				V
22+ 0	0.1022	0.01	Q				V
22+ 5	0.1023	0.01	Q				V
22+10	0.1023	0.01	Q				V
22+15	0.1024	0.01	Q				V
22+20	0.1024	0.01	Q				V
22+25	0.1025	0.01	Q				V
22+30	0.1025	0.01	Q				V
22+35	0.1026	0.01	Q				V
22+40	0.1026	0.01	Q				V
22+45	0.1027	0.01	Q				V
22+50	0.1027	0.01	Q				V
22+55	0.1027	0.01	Q				V
23+ 0	0.1028	0.01	Q				V
23+ 5	0.1028	0.01	Q				V
23+10	0.1029	0.01	Q				V
23+15	0.1029	0.01	Q				V

23+20	0.1029	0.01	Q				V
23+25	0.1030	0.01	Q				V
23+30	0.1030	0.01	Q				V
23+35	0.1031	0.01	Q				V
23+40	0.1031	0.01	Q				V
23+45	0.1032	0.01	Q				V
23+50	0.1032	0.01	Q				V
23+55	0.1032	0.01	Q				V
24+ 0	0.1033	0.01	Q				V
24+ 5	0.1033	0.00	Q				V
24+10	0.1033	0.00	Q				V
24+15	0.1033	0.00	Q				V

Hydrograph Report

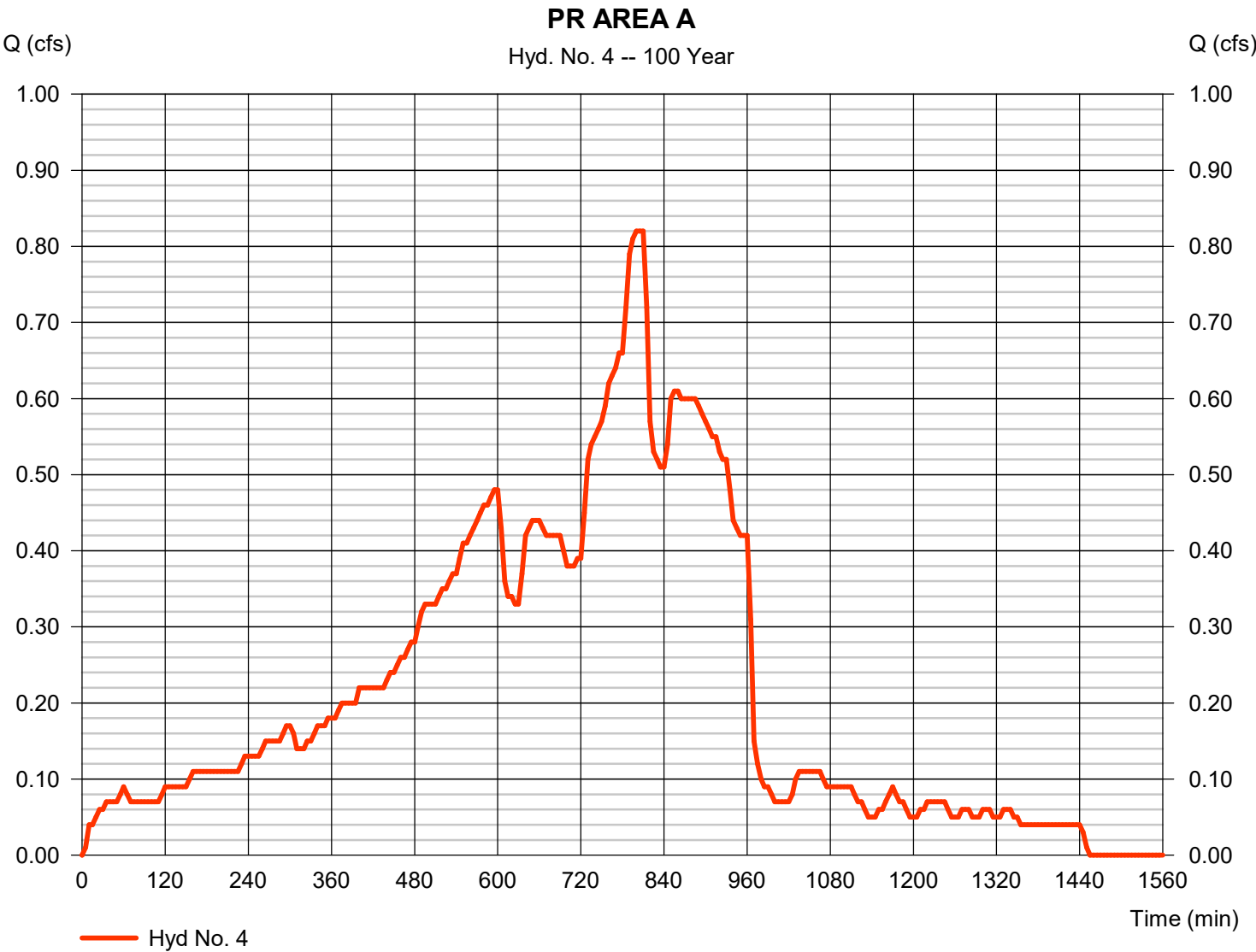
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

Friday, 12 / 17 / 2021

Hyd. No. 4

PR AREA A

Hydrograph type	= Manual	Peak discharge	= 0.820 cfs
Storm frequency	= 100 yrs	Time to peak	= 800 min
Time interval	= 5 min	Hyd. volume	= 20,094 cuft



Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2
Study date 12/14/21 File: 19400PA24100.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 100-yr 24-hr
Area A

Drainage Area = 1.13(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.13(Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 645.00(Ft.)
Length along longest watercourse measured to centroid = 457.00(Ft.)
Length along longest watercourse = 0.122 Mi.
Length along longest watercourse measured to centroid = 0.087 Mi.
Difference in elevation = 9.60(Ft.)
Slope along watercourse = 78.5860 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.056 Hr.
Lag time = 3.35 Min.
25% of lag time = 0.84 Min.
40% of lag time = 1.34 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]
1.13	2.44	2.76

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.13	6.64	7.50

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 2.440(In)
Area Averaged 100-Year Rainfall = 6.640(In)

Point rain (area averaged) = 6.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 6.640(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.130 56.00 0.783
Total Area Entered = 1.13(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.783	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) = 0.274

Unit Hydrograph
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	149.418	33.034	0.376
2 0.167	298.836	47.053	0.536
3 0.250	448.254	11.216	0.128
4 0.333	597.672	4.901	0.056
5 0.417	747.090	2.484	0.028
6 0.500	896.508	1.313	0.015
Sum = 100.000		Sum=	1.139

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	0.053	(0.370)	0.015
2 0.17	0.07	0.053	(0.368)	0.015
3 0.25	0.07	0.053	(0.367)	0.015
4 0.33	0.10	0.080	(0.365)	0.022
5 0.42	0.10	0.080	(0.364)	0.022
6 0.50	0.10	0.080	(0.362)	0.022
7 0.58	0.10	0.080	(0.361)	0.022
8 0.67	0.10	0.080	(0.360)	0.022
9 0.75	0.10	0.080	(0.358)	0.022
10 0.83	0.13	0.106	(0.357)	0.029
11 0.92	0.13	0.106	(0.355)	0.029
12 1.00	0.13	0.106	(0.354)	0.029
13 1.08	0.10	0.080	(0.353)	0.022
14 1.17	0.10	0.080	(0.351)	0.022
15 1.25	0.10	0.080	(0.350)	0.022
16 1.33	0.10	0.080	(0.348)	0.022
17 1.42	0.10	0.080	(0.347)	0.022
18 1.50	0.10	0.080	(0.346)	0.022
19 1.58	0.10	0.080	(0.344)	0.022

20	1.67	0.10	0.080	(0.343)	0.022	0.058
21	1.75	0.10	0.080	(0.342)	0.022	0.058
22	1.83	0.13	0.106	(0.340)	0.029	0.077
23	1.92	0.13	0.106	(0.339)	0.029	0.077
24	2.00	0.13	0.106	(0.337)	0.029	0.077
25	2.08	0.13	0.106	(0.336)	0.029	0.077
26	2.17	0.13	0.106	(0.335)	0.029	0.077
27	2.25	0.13	0.106	(0.333)	0.029	0.077
28	2.33	0.13	0.106	(0.332)	0.029	0.077
29	2.42	0.13	0.106	(0.331)	0.029	0.077
30	2.50	0.13	0.106	(0.329)	0.029	0.077
31	2.58	0.17	0.133	(0.328)	0.036	0.096
32	2.67	0.17	0.133	(0.327)	0.036	0.096
33	2.75	0.17	0.133	(0.325)	0.036	0.096
34	2.83	0.17	0.133	(0.324)	0.036	0.096
35	2.92	0.17	0.133	(0.323)	0.036	0.096
36	3.00	0.17	0.133	(0.321)	0.036	0.096
37	3.08	0.17	0.133	(0.320)	0.036	0.096
38	3.17	0.17	0.133	(0.319)	0.036	0.096
39	3.25	0.17	0.133	(0.317)	0.036	0.096
40	3.33	0.17	0.133	(0.316)	0.036	0.096
41	3.42	0.17	0.133	(0.315)	0.036	0.096
42	3.50	0.17	0.133	(0.313)	0.036	0.096
43	3.58	0.17	0.133	(0.312)	0.036	0.096
44	3.67	0.17	0.133	(0.311)	0.036	0.096
45	3.75	0.17	0.133	(0.309)	0.036	0.096
46	3.83	0.20	0.159	(0.308)	0.044	0.116
47	3.92	0.20	0.159	(0.307)	0.044	0.116
48	4.00	0.20	0.159	(0.305)	0.044	0.116
49	4.08	0.20	0.159	(0.304)	0.044	0.116
50	4.17	0.20	0.159	(0.303)	0.044	0.116
51	4.25	0.20	0.159	(0.302)	0.044	0.116
52	4.33	0.23	0.186	(0.300)	0.051	0.135
53	4.42	0.23	0.186	(0.299)	0.051	0.135
54	4.50	0.23	0.186	(0.298)	0.051	0.135
55	4.58	0.23	0.186	(0.296)	0.051	0.135
56	4.67	0.23	0.186	(0.295)	0.051	0.135
57	4.75	0.23	0.186	(0.294)	0.051	0.135
58	4.83	0.27	0.212	(0.293)	0.058	0.154
59	4.92	0.27	0.212	(0.291)	0.058	0.154
60	5.00	0.27	0.212	(0.290)	0.058	0.154
61	5.08	0.20	0.159	(0.289)	0.044	0.116
62	5.17	0.20	0.159	(0.288)	0.044	0.116
63	5.25	0.20	0.159	(0.286)	0.044	0.116
64	5.33	0.23	0.186	(0.285)	0.051	0.135
65	5.42	0.23	0.186	(0.284)	0.051	0.135
66	5.50	0.23	0.186	(0.283)	0.051	0.135
67	5.58	0.27	0.212	(0.281)	0.058	0.154
68	5.67	0.27	0.212	(0.280)	0.058	0.154
69	5.75	0.27	0.212	(0.279)	0.058	0.154
70	5.83	0.27	0.212	(0.278)	0.058	0.154
71	5.92	0.27	0.212	(0.276)	0.058	0.154
72	6.00	0.27	0.212	(0.275)	0.058	0.154
73	6.08	0.30	0.239	(0.274)	0.065	0.174
74	6.17	0.30	0.239	(0.273)	0.065	0.174
75	6.25	0.30	0.239	(0.272)	0.065	0.174
76	6.33	0.30	0.239	(0.270)	0.065	0.174
77	6.42	0.30	0.239	(0.269)	0.065	0.174
78	6.50	0.30	0.239	(0.268)	0.065	0.174
79	6.58	0.33	0.266	(0.267)	0.073	0.193
80	6.67	0.33	0.266	(0.266)	0.073	0.193
81	6.75	0.33	0.266	(0.264)	0.073	0.193
82	6.83	0.33	0.266	(0.263)	0.073	0.193

83	6.92	0.33	0.266	(0.262)	0.073	0.193
84	7.00	0.33	0.266	(0.261)	0.073	0.193
85	7.08	0.33	0.266	(0.260)	0.073	0.193
86	7.17	0.33	0.266	(0.258)	0.073	0.193
87	7.25	0.33	0.266	(0.257)	0.073	0.193
88	7.33	0.37	0.292	(0.256)	0.080	0.212
89	7.42	0.37	0.292	(0.255)	0.080	0.212
90	7.50	0.37	0.292	(0.254)	0.080	0.212
91	7.58	0.40	0.319	(0.253)	0.087	0.231
92	7.67	0.40	0.319	(0.251)	0.087	0.231
93	7.75	0.40	0.319	(0.250)	0.087	0.231
94	7.83	0.43	0.345	(0.249)	0.095	0.251
95	7.92	0.43	0.345	(0.248)	0.095	0.251
96	8.00	0.43	0.345	(0.247)	0.095	0.251
97	8.08	0.50	0.398	(0.246)	0.109	0.289
98	8.17	0.50	0.398	(0.244)	0.109	0.289
99	8.25	0.50	0.398	(0.243)	0.109	0.289
100	8.33	0.50	0.398	(0.242)	0.109	0.289
101	8.42	0.50	0.398	(0.241)	0.109	0.289
102	8.50	0.50	0.398	(0.240)	0.109	0.289
103	8.58	0.53	0.425	(0.239)	0.116	0.309
104	8.67	0.53	0.425	(0.238)	0.116	0.309
105	8.75	0.53	0.425	(0.237)	0.116	0.309
106	8.83	0.57	0.452	(0.235)	0.124	0.328
107	8.92	0.57	0.452	(0.234)	0.124	0.328
108	9.00	0.57	0.452	(0.233)	0.124	0.328
109	9.08	0.63	0.505	(0.232)	0.138	0.366
110	9.17	0.63	0.505	(0.231)	0.138	0.366
111	9.25	0.63	0.505	(0.230)	0.138	0.366
112	9.33	0.67	0.531	(0.229)	0.146	0.386
113	9.42	0.67	0.531	(0.228)	0.146	0.386
114	9.50	0.67	0.531	(0.227)	0.146	0.386
115	9.58	0.70	0.558	(0.226)	0.153	0.405
116	9.67	0.70	0.558	(0.224)	0.153	0.405
117	9.75	0.70	0.558	(0.223)	0.153	0.405
118	9.83	0.73	0.584	(0.222)	0.160	0.424
119	9.92	0.73	0.584	(0.221)	0.160	0.424
120	10.00	0.73	0.584	(0.220)	0.160	0.424
121	10.08	0.50	0.398	(0.219)	0.109	0.289
122	10.17	0.50	0.398	(0.218)	0.109	0.289
123	10.25	0.50	0.398	(0.217)	0.109	0.289
124	10.33	0.50	0.398	(0.216)	0.109	0.289
125	10.42	0.50	0.398	(0.215)	0.109	0.289
126	10.50	0.50	0.398	(0.214)	0.109	0.289
127	10.58	0.67	0.531	(0.213)	0.146	0.386
128	10.67	0.67	0.531	(0.212)	0.146	0.386
129	10.75	0.67	0.531	(0.211)	0.146	0.386
130	10.83	0.67	0.531	(0.210)	0.146	0.386
131	10.92	0.67	0.531	(0.209)	0.146	0.386
132	11.00	0.67	0.531	(0.208)	0.146	0.386
133	11.08	0.63	0.505	(0.207)	0.138	0.366
134	11.17	0.63	0.505	(0.206)	0.138	0.366
135	11.25	0.63	0.505	(0.205)	0.138	0.366
136	11.33	0.63	0.505	(0.204)	0.138	0.366
137	11.42	0.63	0.505	(0.203)	0.138	0.366
138	11.50	0.63	0.505	(0.202)	0.138	0.366
139	11.58	0.57	0.452	(0.201)	0.124	0.328
140	11.67	0.57	0.452	(0.200)	0.124	0.328
141	11.75	0.57	0.452	(0.199)	0.124	0.328
142	11.83	0.60	0.478	(0.198)	0.131	0.347
143	11.92	0.60	0.478	(0.197)	0.131	0.347
144	12.00	0.60	0.478	(0.196)	0.131	0.347
145	12.08	0.83	0.664	(0.195)	0.182	0.482

146	12.17	0.83	0.664	(0.194)	0.182	0.482
147	12.25	0.83	0.664	(0.193)	0.182	0.482
148	12.33	0.87	0.691	(0.192)	0.189	0.501
149	12.42	0.87	0.691	(0.191)	0.189	0.501
150	12.50	0.87	0.691	(0.190)	0.189	0.501
151	12.58	0.93	0.744	0.189	(0.204)	0.555
152	12.67	0.93	0.744	0.188	(0.204)	0.556
153	12.75	0.93	0.744	0.187	(0.204)	0.557
154	12.83	0.97	0.770	0.186	(0.211)	0.584
155	12.92	0.97	0.770	0.185	(0.211)	0.585
156	13.00	0.97	0.770	0.184	(0.211)	0.586
157	13.08	1.13	0.903	0.183	(0.247)	0.720
158	13.17	1.13	0.903	0.182	(0.247)	0.721
159	13.25	1.13	0.903	0.181	(0.247)	0.722
160	13.33	1.13	0.903	0.180	(0.247)	0.723
161	13.42	1.13	0.903	0.179	(0.247)	0.724
162	13.50	1.13	0.903	0.179	(0.247)	0.724
163	13.58	0.77	0.611	(0.178)	0.167	0.443
164	13.67	0.77	0.611	(0.177)	0.167	0.443
165	13.75	0.77	0.611	(0.176)	0.167	0.443
166	13.83	0.77	0.611	(0.175)	0.167	0.443
167	13.92	0.77	0.611	(0.174)	0.167	0.443
168	14.00	0.77	0.611	(0.173)	0.167	0.443
169	14.08	0.90	0.717	0.172	(0.196)	0.545
170	14.17	0.90	0.717	0.171	(0.196)	0.546
171	14.25	0.90	0.717	0.171	(0.196)	0.547
172	14.33	0.87	0.691	0.170	(0.189)	0.521
173	14.42	0.87	0.691	0.169	(0.189)	0.522
174	14.50	0.87	0.691	0.168	(0.189)	0.523
175	14.58	0.87	0.691	0.167	(0.189)	0.523
176	14.67	0.87	0.691	0.166	(0.189)	0.524
177	14.75	0.87	0.691	0.165	(0.189)	0.525
178	14.83	0.83	0.664	0.165	(0.182)	0.499
179	14.92	0.83	0.664	0.164	(0.182)	0.500
180	15.00	0.83	0.664	0.163	(0.182)	0.501
181	15.08	0.80	0.637	0.162	(0.175)	0.475
182	15.17	0.80	0.637	0.161	(0.175)	0.476
183	15.25	0.80	0.637	0.160	(0.175)	0.477
184	15.33	0.77	0.611	0.160	(0.167)	0.451
185	15.42	0.77	0.611	0.159	(0.167)	0.452
186	15.50	0.77	0.611	0.158	(0.167)	0.453
187	15.58	0.63	0.505	(0.157)	0.138	0.366
188	15.67	0.63	0.505	(0.156)	0.138	0.366
189	15.75	0.63	0.505	(0.155)	0.138	0.366
190	15.83	0.63	0.505	(0.155)	0.138	0.366
191	15.92	0.63	0.505	(0.154)	0.138	0.366
192	16.00	0.63	0.505	(0.153)	0.138	0.366
193	16.08	0.13	0.106	(0.152)	0.029	0.077
194	16.17	0.13	0.106	(0.152)	0.029	0.077
195	16.25	0.13	0.106	(0.151)	0.029	0.077
196	16.33	0.13	0.106	(0.150)	0.029	0.077
197	16.42	0.13	0.106	(0.149)	0.029	0.077
198	16.50	0.13	0.106	(0.148)	0.029	0.077
199	16.58	0.10	0.080	(0.148)	0.022	0.058
200	16.67	0.10	0.080	(0.147)	0.022	0.058
201	16.75	0.10	0.080	(0.146)	0.022	0.058
202	16.83	0.10	0.080	(0.145)	0.022	0.058
203	16.92	0.10	0.080	(0.145)	0.022	0.058
204	17.00	0.10	0.080	(0.144)	0.022	0.058
205	17.08	0.17	0.133	(0.143)	0.036	0.096
206	17.17	0.17	0.133	(0.143)	0.036	0.096
207	17.25	0.17	0.133	(0.142)	0.036	0.096
208	17.33	0.17	0.133	(0.141)	0.036	0.096

209	17.42	0.17	0.133	(0.140)	0.036	0.096
210	17.50	0.17	0.133	(0.140)	0.036	0.096
211	17.58	0.17	0.133	(0.139)	0.036	0.096
212	17.67	0.17	0.133	(0.138)	0.036	0.096
213	17.75	0.17	0.133	(0.138)	0.036	0.096
214	17.83	0.13	0.106	(0.137)	0.029	0.077
215	17.92	0.13	0.106	(0.136)	0.029	0.077
216	18.00	0.13	0.106	(0.136)	0.029	0.077
217	18.08	0.13	0.106	(0.135)	0.029	0.077
218	18.17	0.13	0.106	(0.134)	0.029	0.077
219	18.25	0.13	0.106	(0.134)	0.029	0.077
220	18.33	0.13	0.106	(0.133)	0.029	0.077
221	18.42	0.13	0.106	(0.132)	0.029	0.077
222	18.50	0.13	0.106	(0.132)	0.029	0.077
223	18.58	0.10	0.080	(0.131)	0.022	0.058
224	18.67	0.10	0.080	(0.130)	0.022	0.058
225	18.75	0.10	0.080	(0.130)	0.022	0.058
226	18.83	0.07	0.053	(0.129)	0.015	0.039
227	18.92	0.07	0.053	(0.129)	0.015	0.039
228	19.00	0.07	0.053	(0.128)	0.015	0.039
229	19.08	0.10	0.080	(0.127)	0.022	0.058
230	19.17	0.10	0.080	(0.127)	0.022	0.058
231	19.25	0.10	0.080	(0.126)	0.022	0.058
232	19.33	0.13	0.106	(0.126)	0.029	0.077
233	19.42	0.13	0.106	(0.125)	0.029	0.077
234	19.50	0.13	0.106	(0.124)	0.029	0.077
235	19.58	0.10	0.080	(0.124)	0.022	0.058
236	19.67	0.10	0.080	(0.123)	0.022	0.058
237	19.75	0.10	0.080	(0.123)	0.022	0.058
238	19.83	0.07	0.053	(0.122)	0.015	0.039
239	19.92	0.07	0.053	(0.122)	0.015	0.039
240	20.00	0.07	0.053	(0.121)	0.015	0.039
241	20.08	0.10	0.080	(0.121)	0.022	0.058
242	20.17	0.10	0.080	(0.120)	0.022	0.058
243	20.25	0.10	0.080	(0.119)	0.022	0.058
244	20.33	0.10	0.080	(0.119)	0.022	0.058
245	20.42	0.10	0.080	(0.118)	0.022	0.058
246	20.50	0.10	0.080	(0.118)	0.022	0.058
247	20.58	0.10	0.080	(0.117)	0.022	0.058
248	20.67	0.10	0.080	(0.117)	0.022	0.058
249	20.75	0.10	0.080	(0.116)	0.022	0.058
250	20.83	0.07	0.053	(0.116)	0.015	0.039
251	20.92	0.07	0.053	(0.116)	0.015	0.039
252	21.00	0.07	0.053	(0.115)	0.015	0.039
253	21.08	0.10	0.080	(0.115)	0.022	0.058
254	21.17	0.10	0.080	(0.114)	0.022	0.058
255	21.25	0.10	0.080	(0.114)	0.022	0.058
256	21.33	0.07	0.053	(0.113)	0.015	0.039
257	21.42	0.07	0.053	(0.113)	0.015	0.039
258	21.50	0.07	0.053	(0.112)	0.015	0.039
259	21.58	0.10	0.080	(0.112)	0.022	0.058
260	21.67	0.10	0.080	(0.112)	0.022	0.058
261	21.75	0.10	0.080	(0.111)	0.022	0.058
262	21.83	0.07	0.053	(0.111)	0.015	0.039
263	21.92	0.07	0.053	(0.110)	0.015	0.039
264	22.00	0.07	0.053	(0.110)	0.015	0.039
265	22.08	0.10	0.080	(0.110)	0.022	0.058
266	22.17	0.10	0.080	(0.109)	0.022	0.058
267	22.25	0.10	0.080	(0.109)	0.022	0.058
268	22.33	0.07	0.053	(0.109)	0.015	0.039
269	22.42	0.07	0.053	(0.108)	0.015	0.039
270	22.50	0.07	0.053	(0.108)	0.015	0.039
271	22.58	0.07	0.053	(0.108)	0.015	0.039

272	22.67	0.07	0.053	(0.107)	0.015	0.039
273	22.75	0.07	0.053	(0.107)	0.015	0.039
274	22.83	0.07	0.053	(0.107)	0.015	0.039
275	22.92	0.07	0.053	(0.107)	0.015	0.039
276	23.00	0.07	0.053	(0.106)	0.015	0.039
277	23.08	0.07	0.053	(0.106)	0.015	0.039
278	23.17	0.07	0.053	(0.106)	0.015	0.039
279	23.25	0.07	0.053	(0.106)	0.015	0.039
280	23.33	0.07	0.053	(0.105)	0.015	0.039
281	23.42	0.07	0.053	(0.105)	0.015	0.039
282	23.50	0.07	0.053	(0.105)	0.015	0.039
283	23.58	0.07	0.053	(0.105)	0.015	0.039
284	23.67	0.07	0.053	(0.105)	0.015	0.039
285	23.75	0.07	0.053	(0.105)	0.015	0.039
286	23.83	0.07	0.053	(0.104)	0.015	0.039
287	23.92	0.07	0.053	(0.104)	0.015	0.039
288	24.00	0.07	0.053	(0.104)	0.015	0.039

(Loss Rate Not Used)

Sum = 100.0 Sum = 58.7

Flood volume = Effective rainfall 4.89(In)
times area 1.1(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)

Total soil loss = 1.75(In)

Total soil loss = 0.165(Ac.Ft)

Total rainfall = 6.64(In)

Flood volume = 20064.9 Cubic Feet

Total soil loss = 7171.6 Cubic Feet

Peak flow rate of this hydrograph = 0.824(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0003	0.04	Q				
0+15	0.0006	0.04	Q				
0+20	0.0010	0.05	Q				
0+25	0.0014	0.06	Q				
0+30	0.0018	0.06	Q				
0+35	0.0023	0.07	Q				
0+40	0.0027	0.07	Q				
0+45	0.0032	0.07	Q				
0+50	0.0037	0.07	Q				
0+55	0.0043	0.08	Q				
1+ 0	0.0048	0.09	Q				
1+ 5	0.0054	0.08	Q				
1+10	0.0059	0.07	Q				
1+15	0.0063	0.07	Q				
1+20	0.0068	0.07	Q				
1+25	0.0073	0.07	Q				
1+30	0.0077	0.07	Q				
1+35	0.0082	0.07	Q				
1+40	0.0086	0.07	Q				
1+45	0.0091	0.07	Q				
1+50	0.0096	0.07	Q				
1+55	0.0102	0.08	Q				
2+ 0	0.0107	0.09	Q				
2+ 5	0.0113	0.09	Q				

2+10	0.0119	0.09	QV				
2+15	0.0126	0.09	QV				
2+20	0.0132	0.09	QV				
2+25	0.0138	0.09	QV				
2+30	0.0144	0.09	QV				
2+35	0.0150	0.10	QV				
2+40	0.0158	0.11	QV				
2+45	0.0165	0.11	QV				
2+50	0.0172	0.11	QV				
2+55	0.0180	0.11	QV				
3+ 0	0.0188	0.11	QV				
3+ 5	0.0195	0.11	QV				
3+10	0.0203	0.11	QV				
3+15	0.0210	0.11	QV				
3+20	0.0218	0.11	QV				
3+25	0.0225	0.11	QV				
3+30	0.0233	0.11	Q V				
3+35	0.0241	0.11	Q V				
3+40	0.0248	0.11	Q V				
3+45	0.0256	0.11	Q V				
3+50	0.0264	0.12	Q V				
3+55	0.0273	0.13	Q V				
4+ 0	0.0281	0.13	Q V				
4+ 5	0.0290	0.13	Q V				
4+10	0.0300	0.13	Q V				
4+15	0.0309	0.13	Q V				
4+20	0.0318	0.14	Q V				
4+25	0.0328	0.15	Q V				
4+30	0.0339	0.15	Q V				
4+35	0.0349	0.15	Q V				
4+40	0.0360	0.15	Q V				
4+45	0.0371	0.15	Q V				
4+50	0.0382	0.16	Q V				
4+55	0.0394	0.17	Q V				
5+ 0	0.0406	0.17	Q V				
5+ 5	0.0417	0.16	Q V				
5+10	0.0426	0.14	Q V				
5+15	0.0436	0.14	Q V				
5+20	0.0445	0.14	Q V				
5+25	0.0456	0.15	Q V				
5+30	0.0466	0.15	Q V				
5+35	0.0477	0.16	Q V				
5+40	0.0489	0.17	Q V				
5+45	0.0501	0.17	Q V				
5+50	0.0513	0.17	Q V				
5+55	0.0525	0.18	Q V				
6+ 0	0.0537	0.18	Q V				
6+ 5	0.0550	0.18	Q V				
6+10	0.0563	0.19	Q V				
6+15	0.0576	0.20	Q V				
6+20	0.0590	0.20	Q V				
6+25	0.0604	0.20	Q V				
6+30	0.0617	0.20	Q V				
6+35	0.0631	0.20	Q V				
6+40	0.0646	0.22	Q V				
6+45	0.0661	0.22	Q V				
6+50	0.0676	0.22	Q V				
6+55	0.0691	0.22	Q V				
7+ 0	0.0707	0.22	Q V				
7+ 5	0.0722	0.22	Q V				
7+10	0.0737	0.22	Q V				
7+15	0.0752	0.22	Q V				
7+20	0.0768	0.23	Q V				

7+25	0.0784	0.24	Q	V				
7+30	0.0800	0.24	Q	V				
7+35	0.0818	0.25	Q	V				
7+40	0.0835	0.26	Q	V				
7+45	0.0853	0.26	Q	V				
7+50	0.0872	0.27	Q	V				
7+55	0.0891	0.28	Q	V				
8+ 0	0.0911	0.28	Q	V				
8+ 5	0.0931	0.30	Q	V				
8+10	0.0954	0.32	Q	V				
8+15	0.0976	0.33	Q	V				
8+20	0.0999	0.33	Q	V				
8+25	0.1021	0.33	Q	V				
8+30	0.1044	0.33	Q	V				
8+35	0.1067	0.34	Q	V				
8+40	0.1091	0.35	Q	V				
8+45	0.1115	0.35	Q	V				
8+50	0.1140	0.36	Q	V				
8+55	0.1165	0.37	Q	V				
9+ 0	0.1191	0.37	Q	V				
9+ 5	0.1217	0.39	Q	V				
9+10	0.1246	0.41	Q	V				
9+15	0.1274	0.41	Q	V				
9+20	0.1303	0.42	Q	V				
9+25	0.1333	0.43	Q	V				
9+30	0.1363	0.44	Q	V				
9+35	0.1394	0.45	Q	V				
9+40	0.1425	0.46	Q	V				
9+45	0.1457	0.46	Q	V				
9+50	0.1489	0.47	Q	V				
9+55	0.1522	0.48	Q	V				
10+ 0	0.1555	0.48	Q	V				
10+ 5	0.1585	0.43	Q	V				
10+10	0.1610	0.36	Q	V				
10+15	0.1633	0.34	Q	V				
10+20	0.1657	0.34	Q	V				
10+25	0.1679	0.33	Q	V				
10+30	0.1702	0.33	Q	V				
10+35	0.1727	0.37	Q	V				
10+40	0.1756	0.42	Q	V				
10+45	0.1786	0.43	Q	V				
10+50	0.1816	0.44	Q	V				
10+55	0.1846	0.44	Q	V				
11+ 0	0.1876	0.44	Q	V				
11+ 5	0.1906	0.43	Q	V				
11+10	0.1935	0.42	Q	V				
11+15	0.1964	0.42	Q	V				
11+20	0.1993	0.42	Q	V				
11+25	0.2021	0.42	Q	V				
11+30	0.2050	0.42	Q	V				
11+35	0.2078	0.40	Q	V				
11+40	0.2104	0.38	Q	V				
11+45	0.2130	0.38	Q	V				
11+50	0.2157	0.38	Q	V				
11+55	0.2183	0.39	Q	V				
12+ 0	0.2211	0.39	Q	V				
12+ 5	0.2241	0.45	Q	V				
12+10	0.2277	0.52	Q	V				
12+15	0.2314	0.54	Q	V				
12+20	0.2352	0.55	Q	V				
12+25	0.2391	0.56	Q	V				
12+30	0.2430	0.57	Q	V				
12+35	0.2471	0.59	Q	V				

12+40	0.2513	0.62	Q		V		
12+45	0.2557	0.63	Q		V		
12+50	0.2601	0.64	Q		V		
12+55	0.2646	0.66	Q		V		
13+ 0	0.2692	0.66	Q		V		
13+ 5	0.2741	0.72	Q		V		
13+10	0.2796	0.79	Q		V		
13+15	0.2851	0.81	Q		V		
13+20	0.2908	0.82	Q		V		
13+25	0.2964	0.82	Q		V		
13+30	0.3021	0.82	Q		V		
13+35	0.3070	0.72	Q		V		
13+40	0.3110	0.57	Q		V		
13+45	0.3146	0.53	Q		V		
13+50	0.3182	0.52	Q		V		
13+55	0.3217	0.51	Q		V		
14+ 0	0.3252	0.51	Q		V		
14+ 5	0.3289	0.54	Q		V		
14+10	0.3330	0.60	Q		V		
14+15	0.3373	0.61	Q		V		
14+20	0.3415	0.61	Q		V		
14+25	0.3456	0.60	Q		V		
14+30	0.3497	0.60	Q		V		
14+35	0.3538	0.60	Q		V		
14+40	0.3579	0.60	Q		V		
14+45	0.3620	0.60	Q		V		
14+50	0.3661	0.59	Q		V		
14+55	0.3700	0.58	Q		V		
15+ 0	0.3740	0.57	Q		V		
15+ 5	0.3778	0.56	Q		V		
15+10	0.3816	0.55	Q		V		
15+15	0.3854	0.55	Q		V		
15+20	0.3891	0.53	Q		V		
15+25	0.3926	0.52	Q		V		
15+30	0.3962	0.52	Q		V		
15+35	0.3995	0.48	Q		V		
15+40	0.4026	0.44	Q		V		
15+45	0.4055	0.43	Q		V		
15+50	0.4084	0.42	Q		V		
15+55	0.4113	0.42	Q		V		
16+ 0	0.4142	0.42	Q		V		
16+ 5	0.4163	0.31	Q		V		
16+10	0.4173	0.15	Q		V		
16+15	0.4181	0.12	Q		V		
16+20	0.4188	0.10	Q		V		
16+25	0.4195	0.09	Q		V		
16+30	0.4201	0.09	Q		V		
16+35	0.4206	0.08	Q		V		
16+40	0.4211	0.07	Q		V		
16+45	0.4216	0.07	Q		V		
16+50	0.4220	0.07	Q		V		
16+55	0.4225	0.07	Q		V		
17+ 0	0.4229	0.07	Q		V		
17+ 5	0.4235	0.08	Q		V		
17+10	0.4242	0.10	Q		V		
17+15	0.4249	0.11	Q		V		
17+20	0.4257	0.11	Q		V		
17+25	0.4264	0.11	Q		V		
17+30	0.4272	0.11	Q		V		
17+35	0.4279	0.11	Q		V		
17+40	0.4287	0.11	Q		V		
17+45	0.4295	0.11	Q		V		
17+50	0.4302	0.10	Q		V		

17+55	0.4308	0.09	Q				V	
18+ 0	0.4314	0.09	Q				V	
18+ 5	0.4320	0.09	Q				V	
18+10	0.4326	0.09	Q				V	
18+15	0.4332	0.09	Q				V	
18+20	0.4338	0.09	Q				V	
18+25	0.4344	0.09	Q				V	
18+30	0.4351	0.09	Q				V	
18+35	0.4356	0.08	Q				V	
18+40	0.4361	0.07	Q				V	
18+45	0.4366	0.07	Q				V	
18+50	0.4370	0.06	Q				V	
18+55	0.4373	0.05	Q				V	
19+ 0	0.4376	0.05	Q				V	
19+ 5	0.4380	0.05	Q				V	
19+10	0.4384	0.06	Q				V	
19+15	0.4388	0.06	Q				V	
19+20	0.4393	0.07	Q				V	
19+25	0.4399	0.08	Q				V	
19+30	0.4405	0.09	Q				V	
19+35	0.4411	0.08	Q				V	
19+40	0.4415	0.07	Q				V	
19+45	0.4420	0.07	Q				V	
19+50	0.4424	0.06	Q				V	
19+55	0.4427	0.05	Q				V	
20+ 0	0.4431	0.05	Q				V	
20+ 5	0.4434	0.05	Q				V	
20+10	0.4438	0.06	Q				V	
20+15	0.4443	0.06	Q				V	
20+20	0.4447	0.07	Q				V	
20+25	0.4452	0.07	Q				V	
20+30	0.4456	0.07	Q				V	
20+35	0.4461	0.07	Q				V	
20+40	0.4466	0.07	Q				V	
20+45	0.4470	0.07	Q				V	
20+50	0.4474	0.06	Q				V	
20+55	0.4477	0.05	Q				V	
21+ 0	0.4481	0.05	Q				V	
21+ 5	0.4484	0.05	Q				V	
21+10	0.4488	0.06	Q				V	
21+15	0.4493	0.06	Q				V	
21+20	0.4497	0.06	Q				V	
21+25	0.4500	0.05	Q				V	
21+30	0.4503	0.05	Q				V	
21+35	0.4507	0.05	Q				V	
21+40	0.4511	0.06	Q				V	
21+45	0.4516	0.06	Q				V	
21+50	0.4520	0.06	Q				V	
21+55	0.4523	0.05	Q				V	
22+ 0	0.4526	0.05	Q				V	
22+ 5	0.4530	0.05	Q				V	
22+10	0.4534	0.06	Q				V	
22+15	0.4538	0.06	Q				V	
22+20	0.4542	0.06	Q				V	
22+25	0.4546	0.05	Q				V	
22+30	0.4549	0.05	Q				V	
22+35	0.4552	0.04	Q				V	
22+40	0.4555	0.04	Q				V	
22+45	0.4558	0.04	Q				V	
22+50	0.4561	0.04	Q				V	
22+55	0.4564	0.04	Q				V	
23+ 0	0.4567	0.04	Q				V	
23+ 5	0.4570	0.04	Q				V	

23+10	0.4573	0.04	Q				V
23+15	0.4576	0.04	Q				V
23+20	0.4579	0.04	Q				V
23+25	0.4582	0.04	Q				V
23+30	0.4585	0.04	Q				V
23+35	0.4588	0.04	Q				V
23+40	0.4591	0.04	Q				V
23+45	0.4594	0.04	Q				V
23+50	0.4597	0.04	Q				V
23+55	0.4600	0.04	Q				V
24+ 0	0.4603	0.04	Q				V
24+ 5	0.4605	0.03	Q				V
24+10	0.4606	0.01	Q				V
24+15	0.4606	0.00	Q				V
24+20	0.4606	0.00	Q				V
24+25	0.4606	0.00	Q				V

Hydrograph Report

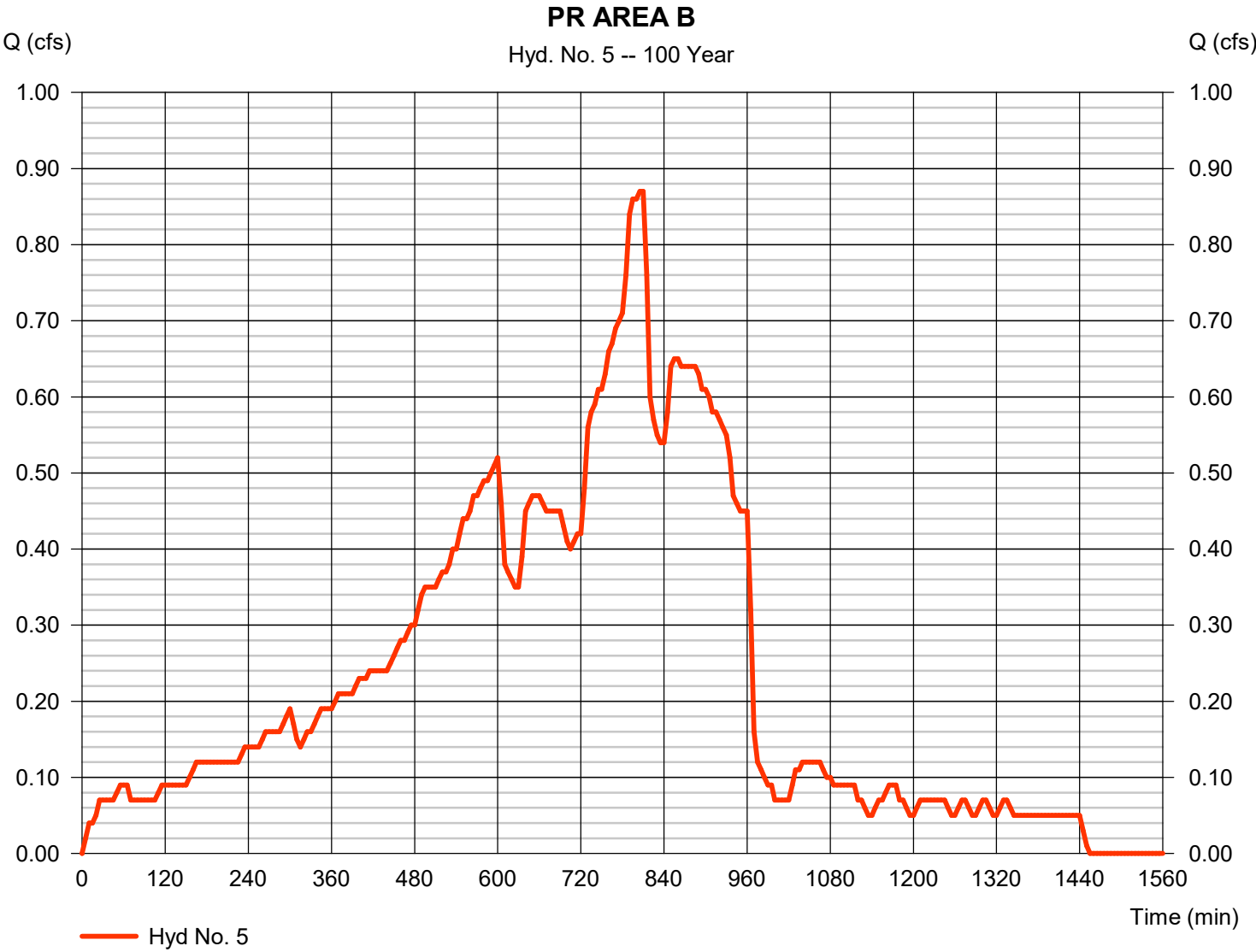
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

Friday, 12 / 17 / 2021

Hyd. No. 5

PR AREA B

Hydrograph type	= Manual	Peak discharge	= 0.870 cfs
Storm frequency	= 100 yrs	Time to peak	= 805 min
Time interval	= 5 min	Hyd. volume	= 21,465 cuft



Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2
Study date 12/14/21 File: 19400P2B24100.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 100-yr 24-hr
Area B

Drainage Area = 1.16(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.16(Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 532.00(Ft.)
Length along longest watercourse measured to centroid = 368.00(Ft.)
Length along longest watercourse = 0.101 Mi.
Length along longest watercourse measured to centroid = 0.070 Mi.
Difference in elevation = 4.70(Ft.)
Slope along watercourse = 46.6466 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.053 Hr.
Lag time = 3.16 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 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]
1.16	2.44	2.83

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.16	6.64	7.70

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 2.440(In)
Area Averaged 100-Year Rainfall = 6.640(In)

Point rain (area averaged) = 6.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 6.640(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.160 56.00 0.822
Total Area Entered = 1.16(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.822	0.184	1.000	0.184
						Sum (F) = 0.184

Area averaged mean soil loss (F) (In/Hr) = 0.184

Minimum soil loss rate ((In/Hr)) = 0.092

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.242

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	158.087	35.076	0.410
2 0.167	316.173	46.411	0.543
3 0.250	474.260	10.732	0.125
4 0.333	632.347	4.638	0.054
5 0.417	790.433	2.253	0.026
6 0.500	948.520	0.890	0.010
		Sum = 100.000	Sum= 1.169

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	(0.326)	0.013
2	0.17	0.07	(0.324)	0.013
3	0.25	0.07	(0.323)	0.013
4	0.33	0.10	(0.322)	0.019
5	0.42	0.10	(0.321)	0.019
6	0.50	0.10	(0.319)	0.019
7	0.58	0.10	(0.318)	0.019
8	0.67	0.10	(0.317)	0.019
9	0.75	0.10	(0.316)	0.019
10	0.83	0.13	(0.314)	0.026
11	0.92	0.13	(0.313)	0.026
12	1.00	0.13	(0.312)	0.026
13	1.08	0.10	(0.311)	0.019
14	1.17	0.10	(0.309)	0.019
15	1.25	0.10	(0.308)	0.019
16	1.33	0.10	(0.307)	0.019
17	1.42	0.10	(0.306)	0.019
18	1.50	0.10	(0.305)	0.019
19	1.58	0.10	(0.303)	0.019

20	1.67	0.10	0.080	(0.302)	0.019	0.060
21	1.75	0.10	0.080	(0.301)	0.019	0.060
22	1.83	0.13	0.106	(0.300)	0.026	0.080
23	1.92	0.13	0.106	(0.299)	0.026	0.080
24	2.00	0.13	0.106	(0.297)	0.026	0.080
25	2.08	0.13	0.106	(0.296)	0.026	0.080
26	2.17	0.13	0.106	(0.295)	0.026	0.080
27	2.25	0.13	0.106	(0.294)	0.026	0.080
28	2.33	0.13	0.106	(0.293)	0.026	0.080
29	2.42	0.13	0.106	(0.291)	0.026	0.080
30	2.50	0.13	0.106	(0.290)	0.026	0.080
31	2.58	0.17	0.133	(0.289)	0.032	0.101
32	2.67	0.17	0.133	(0.288)	0.032	0.101
33	2.75	0.17	0.133	(0.287)	0.032	0.101
34	2.83	0.17	0.133	(0.285)	0.032	0.101
35	2.92	0.17	0.133	(0.284)	0.032	0.101
36	3.00	0.17	0.133	(0.283)	0.032	0.101
37	3.08	0.17	0.133	(0.282)	0.032	0.101
38	3.17	0.17	0.133	(0.281)	0.032	0.101
39	3.25	0.17	0.133	(0.280)	0.032	0.101
40	3.33	0.17	0.133	(0.278)	0.032	0.101
41	3.42	0.17	0.133	(0.277)	0.032	0.101
42	3.50	0.17	0.133	(0.276)	0.032	0.101
43	3.58	0.17	0.133	(0.275)	0.032	0.101
44	3.67	0.17	0.133	(0.274)	0.032	0.101
45	3.75	0.17	0.133	(0.273)	0.032	0.101
46	3.83	0.20	0.159	(0.271)	0.039	0.121
47	3.92	0.20	0.159	(0.270)	0.039	0.121
48	4.00	0.20	0.159	(0.269)	0.039	0.121
49	4.08	0.20	0.159	(0.268)	0.039	0.121
50	4.17	0.20	0.159	(0.267)	0.039	0.121
51	4.25	0.20	0.159	(0.266)	0.039	0.121
52	4.33	0.23	0.186	(0.265)	0.045	0.141
53	4.42	0.23	0.186	(0.263)	0.045	0.141
54	4.50	0.23	0.186	(0.262)	0.045	0.141
55	4.58	0.23	0.186	(0.261)	0.045	0.141
56	4.67	0.23	0.186	(0.260)	0.045	0.141
57	4.75	0.23	0.186	(0.259)	0.045	0.141
58	4.83	0.27	0.212	(0.258)	0.052	0.161
59	4.92	0.27	0.212	(0.257)	0.052	0.161
60	5.00	0.27	0.212	(0.256)	0.052	0.161
61	5.08	0.20	0.159	(0.255)	0.039	0.121
62	5.17	0.20	0.159	(0.253)	0.039	0.121
63	5.25	0.20	0.159	(0.252)	0.039	0.121
64	5.33	0.23	0.186	(0.251)	0.045	0.141
65	5.42	0.23	0.186	(0.250)	0.045	0.141
66	5.50	0.23	0.186	(0.249)	0.045	0.141
67	5.58	0.27	0.212	(0.248)	0.052	0.161
68	5.67	0.27	0.212	(0.247)	0.052	0.161
69	5.75	0.27	0.212	(0.246)	0.052	0.161
70	5.83	0.27	0.212	(0.245)	0.052	0.161
71	5.92	0.27	0.212	(0.244)	0.052	0.161
72	6.00	0.27	0.212	(0.242)	0.052	0.161
73	6.08	0.30	0.239	(0.241)	0.058	0.181
74	6.17	0.30	0.239	(0.240)	0.058	0.181
75	6.25	0.30	0.239	(0.239)	0.058	0.181
76	6.33	0.30	0.239	(0.238)	0.058	0.181
77	6.42	0.30	0.239	(0.237)	0.058	0.181
78	6.50	0.30	0.239	(0.236)	0.058	0.181
79	6.58	0.33	0.266	(0.235)	0.064	0.201
80	6.67	0.33	0.266	(0.234)	0.064	0.201
81	6.75	0.33	0.266	(0.233)	0.064	0.201
82	6.83	0.33	0.266	(0.232)	0.064	0.201

83	6.92	0.33	0.266	(0.231)	0.064	0.201
84	7.00	0.33	0.266	(0.230)	0.064	0.201
85	7.08	0.33	0.266	(0.229)	0.064	0.201
86	7.17	0.33	0.266	(0.228)	0.064	0.201
87	7.25	0.33	0.266	(0.227)	0.064	0.201
88	7.33	0.37	0.292	(0.226)	0.071	0.221
89	7.42	0.37	0.292	(0.225)	0.071	0.221
90	7.50	0.37	0.292	(0.224)	0.071	0.221
91	7.58	0.40	0.319	(0.222)	0.077	0.241
92	7.67	0.40	0.319	(0.221)	0.077	0.241
93	7.75	0.40	0.319	(0.220)	0.077	0.241
94	7.83	0.43	0.345	(0.219)	0.084	0.262
95	7.92	0.43	0.345	(0.218)	0.084	0.262
96	8.00	0.43	0.345	(0.217)	0.084	0.262
97	8.08	0.50	0.398	(0.216)	0.097	0.302
98	8.17	0.50	0.398	(0.215)	0.097	0.302
99	8.25	0.50	0.398	(0.214)	0.097	0.302
100	8.33	0.50	0.398	(0.213)	0.097	0.302
101	8.42	0.50	0.398	(0.212)	0.097	0.302
102	8.50	0.50	0.398	(0.211)	0.097	0.302
103	8.58	0.53	0.425	(0.210)	0.103	0.322
104	8.67	0.53	0.425	(0.209)	0.103	0.322
105	8.75	0.53	0.425	(0.208)	0.103	0.322
106	8.83	0.57	0.452	(0.207)	0.109	0.342
107	8.92	0.57	0.452	(0.206)	0.109	0.342
108	9.00	0.57	0.452	(0.205)	0.109	0.342
109	9.08	0.63	0.505	(0.205)	0.122	0.382
110	9.17	0.63	0.505	(0.204)	0.122	0.382
111	9.25	0.63	0.505	(0.203)	0.122	0.382
112	9.33	0.67	0.531	(0.202)	0.129	0.402
113	9.42	0.67	0.531	(0.201)	0.129	0.402
114	9.50	0.67	0.531	(0.200)	0.129	0.402
115	9.58	0.70	0.558	(0.199)	0.135	0.423
116	9.67	0.70	0.558	(0.198)	0.135	0.423
117	9.75	0.70	0.558	(0.197)	0.135	0.423
118	9.83	0.73	0.584	(0.196)	0.142	0.443
119	9.92	0.73	0.584	(0.195)	0.142	0.443
120	10.00	0.73	0.584	(0.194)	0.142	0.443
121	10.08	0.50	0.398	(0.193)	0.097	0.302
122	10.17	0.50	0.398	(0.192)	0.097	0.302
123	10.25	0.50	0.398	(0.191)	0.097	0.302
124	10.33	0.50	0.398	(0.190)	0.097	0.302
125	10.42	0.50	0.398	(0.189)	0.097	0.302
126	10.50	0.50	0.398	(0.188)	0.097	0.302
127	10.58	0.67	0.531	(0.187)	0.129	0.402
128	10.67	0.67	0.531	(0.187)	0.129	0.402
129	10.75	0.67	0.531	(0.186)	0.129	0.402
130	10.83	0.67	0.531	(0.185)	0.129	0.402
131	10.92	0.67	0.531	(0.184)	0.129	0.402
132	11.00	0.67	0.531	(0.183)	0.129	0.402
133	11.08	0.63	0.505	(0.182)	0.122	0.382
134	11.17	0.63	0.505	(0.181)	0.122	0.382
135	11.25	0.63	0.505	(0.180)	0.122	0.382
136	11.33	0.63	0.505	(0.179)	0.122	0.382
137	11.42	0.63	0.505	(0.178)	0.122	0.382
138	11.50	0.63	0.505	(0.178)	0.122	0.382
139	11.58	0.57	0.452	(0.177)	0.109	0.342
140	11.67	0.57	0.452	(0.176)	0.109	0.342
141	11.75	0.57	0.452	(0.175)	0.109	0.342
142	11.83	0.60	0.478	(0.174)	0.116	0.362
143	11.92	0.60	0.478	(0.173)	0.116	0.362
144	12.00	0.60	0.478	(0.172)	0.116	0.362
145	12.08	0.83	0.664	(0.171)	0.161	0.503

146	12.17	0.83	0.664	(0.171)	0.161	0.503
147	12.25	0.83	0.664	(0.170)	0.161	0.503
148	12.33	0.87	0.691	(0.169)	0.167	0.523
149	12.42	0.87	0.691	(0.168)	0.167	0.523
150	12.50	0.87	0.691	0.167	(0.167)	0.523
151	12.58	0.93	0.744	0.166	(0.180)	0.577
152	12.67	0.93	0.744	0.166	(0.180)	0.578
153	12.75	0.93	0.744	0.165	(0.180)	0.579
154	12.83	0.97	0.770	0.164	(0.187)	0.606
155	12.92	0.97	0.770	0.163	(0.187)	0.607
156	13.00	0.97	0.770	0.162	(0.187)	0.608
157	13.08	1.13	0.903	0.161	(0.219)	0.742
158	13.17	1.13	0.903	0.161	(0.219)	0.742
159	13.25	1.13	0.903	0.160	(0.219)	0.743
160	13.33	1.13	0.903	0.159	(0.219)	0.744
161	13.42	1.13	0.903	0.158	(0.219)	0.745
162	13.50	1.13	0.903	0.157	(0.219)	0.746
163	13.58	0.77	0.611	(0.157)	0.148	0.463
164	13.67	0.77	0.611	(0.156)	0.148	0.463
165	13.75	0.77	0.611	(0.155)	0.148	0.463
166	13.83	0.77	0.611	(0.154)	0.148	0.463
167	13.92	0.77	0.611	(0.153)	0.148	0.463
168	14.00	0.77	0.611	(0.153)	0.148	0.463
169	14.08	0.90	0.717	0.152	(0.174)	0.565
170	14.17	0.90	0.717	0.151	(0.174)	0.566
171	14.25	0.90	0.717	0.150	(0.174)	0.567
172	14.33	0.87	0.691	0.149	(0.167)	0.541
173	14.42	0.87	0.691	0.149	(0.167)	0.542
174	14.50	0.87	0.691	0.148	(0.167)	0.543
175	14.58	0.87	0.691	0.147	(0.167)	0.543
176	14.67	0.87	0.691	0.146	(0.167)	0.544
177	14.75	0.87	0.691	0.146	(0.167)	0.545
178	14.83	0.83	0.664	0.145	(0.161)	0.519
179	14.92	0.83	0.664	0.144	(0.161)	0.520
180	15.00	0.83	0.664	0.143	(0.161)	0.521
181	15.08	0.80	0.637	0.143	(0.155)	0.495
182	15.17	0.80	0.637	0.142	(0.155)	0.495
183	15.25	0.80	0.637	0.141	(0.155)	0.496
184	15.33	0.77	0.611	0.141	(0.148)	0.470
185	15.42	0.77	0.611	0.140	(0.148)	0.471
186	15.50	0.77	0.611	0.139	(0.148)	0.472
187	15.58	0.63	0.505	(0.138)	0.122	0.382
188	15.67	0.63	0.505	(0.138)	0.122	0.382
189	15.75	0.63	0.505	(0.137)	0.122	0.382
190	15.83	0.63	0.505	(0.136)	0.122	0.382
191	15.92	0.63	0.505	(0.136)	0.122	0.382
192	16.00	0.63	0.505	(0.135)	0.122	0.382
193	16.08	0.13	0.106	(0.134)	0.026	0.080
194	16.17	0.13	0.106	(0.134)	0.026	0.080
195	16.25	0.13	0.106	(0.133)	0.026	0.080
196	16.33	0.13	0.106	(0.132)	0.026	0.080
197	16.42	0.13	0.106	(0.131)	0.026	0.080
198	16.50	0.13	0.106	(0.131)	0.026	0.080
199	16.58	0.10	0.080	(0.130)	0.019	0.060
200	16.67	0.10	0.080	(0.129)	0.019	0.060
201	16.75	0.10	0.080	(0.129)	0.019	0.060
202	16.83	0.10	0.080	(0.128)	0.019	0.060
203	16.92	0.10	0.080	(0.128)	0.019	0.060
204	17.00	0.10	0.080	(0.127)	0.019	0.060
205	17.08	0.17	0.133	(0.126)	0.032	0.101
206	17.17	0.17	0.133	(0.126)	0.032	0.101
207	17.25	0.17	0.133	(0.125)	0.032	0.101
208	17.33	0.17	0.133	(0.124)	0.032	0.101

209	17.42	0.17	0.133	(0.124)	0.032	0.101
210	17.50	0.17	0.133	(0.123)	0.032	0.101
211	17.58	0.17	0.133	(0.122)	0.032	0.101
212	17.67	0.17	0.133	(0.122)	0.032	0.101
213	17.75	0.17	0.133	(0.121)	0.032	0.101
214	17.83	0.13	0.106	(0.121)	0.026	0.080
215	17.92	0.13	0.106	(0.120)	0.026	0.080
216	18.00	0.13	0.106	(0.119)	0.026	0.080
217	18.08	0.13	0.106	(0.119)	0.026	0.080
218	18.17	0.13	0.106	(0.118)	0.026	0.080
219	18.25	0.13	0.106	(0.118)	0.026	0.080
220	18.33	0.13	0.106	(0.117)	0.026	0.080
221	18.42	0.13	0.106	(0.117)	0.026	0.080
222	18.50	0.13	0.106	(0.116)	0.026	0.080
223	18.58	0.10	0.080	(0.115)	0.019	0.060
224	18.67	0.10	0.080	(0.115)	0.019	0.060
225	18.75	0.10	0.080	(0.114)	0.019	0.060
226	18.83	0.07	0.053	(0.114)	0.013	0.040
227	18.92	0.07	0.053	(0.113)	0.013	0.040
228	19.00	0.07	0.053	(0.113)	0.013	0.040
229	19.08	0.10	0.080	(0.112)	0.019	0.060
230	19.17	0.10	0.080	(0.112)	0.019	0.060
231	19.25	0.10	0.080	(0.111)	0.019	0.060
232	19.33	0.13	0.106	(0.111)	0.026	0.080
233	19.42	0.13	0.106	(0.110)	0.026	0.080
234	19.50	0.13	0.106	(0.110)	0.026	0.080
235	19.58	0.10	0.080	(0.109)	0.019	0.060
236	19.67	0.10	0.080	(0.109)	0.019	0.060
237	19.75	0.10	0.080	(0.108)	0.019	0.060
238	19.83	0.07	0.053	(0.108)	0.013	0.040
239	19.92	0.07	0.053	(0.107)	0.013	0.040
240	20.00	0.07	0.053	(0.107)	0.013	0.040
241	20.08	0.10	0.080	(0.106)	0.019	0.060
242	20.17	0.10	0.080	(0.106)	0.019	0.060
243	20.25	0.10	0.080	(0.105)	0.019	0.060
244	20.33	0.10	0.080	(0.105)	0.019	0.060
245	20.42	0.10	0.080	(0.104)	0.019	0.060
246	20.50	0.10	0.080	(0.104)	0.019	0.060
247	20.58	0.10	0.080	(0.103)	0.019	0.060
248	20.67	0.10	0.080	(0.103)	0.019	0.060
249	20.75	0.10	0.080	(0.103)	0.019	0.060
250	20.83	0.07	0.053	(0.102)	0.013	0.040
251	20.92	0.07	0.053	(0.102)	0.013	0.040
252	21.00	0.07	0.053	(0.101)	0.013	0.040
253	21.08	0.10	0.080	(0.101)	0.019	0.060
254	21.17	0.10	0.080	(0.101)	0.019	0.060
255	21.25	0.10	0.080	(0.100)	0.019	0.060
256	21.33	0.07	0.053	(0.100)	0.013	0.040
257	21.42	0.07	0.053	(0.099)	0.013	0.040
258	21.50	0.07	0.053	(0.099)	0.013	0.040
259	21.58	0.10	0.080	(0.099)	0.019	0.060
260	21.67	0.10	0.080	(0.098)	0.019	0.060
261	21.75	0.10	0.080	(0.098)	0.019	0.060
262	21.83	0.07	0.053	(0.098)	0.013	0.040
263	21.92	0.07	0.053	(0.097)	0.013	0.040
264	22.00	0.07	0.053	(0.097)	0.013	0.040
265	22.08	0.10	0.080	(0.097)	0.019	0.060
266	22.17	0.10	0.080	(0.096)	0.019	0.060
267	22.25	0.10	0.080	(0.096)	0.019	0.060
268	22.33	0.07	0.053	(0.096)	0.013	0.040
269	22.42	0.07	0.053	(0.095)	0.013	0.040
270	22.50	0.07	0.053	(0.095)	0.013	0.040
271	22.58	0.07	0.053	(0.095)	0.013	0.040

272	22.67	0.07	0.053	(0.095)	0.013	0.040
273	22.75	0.07	0.053	(0.094)	0.013	0.040
274	22.83	0.07	0.053	(0.094)	0.013	0.040
275	22.92	0.07	0.053	(0.094)	0.013	0.040
276	23.00	0.07	0.053	(0.094)	0.013	0.040
277	23.08	0.07	0.053	(0.093)	0.013	0.040
278	23.17	0.07	0.053	(0.093)	0.013	0.040
279	23.25	0.07	0.053	(0.093)	0.013	0.040
280	23.33	0.07	0.053	(0.093)	0.013	0.040
281	23.42	0.07	0.053	(0.093)	0.013	0.040
282	23.50	0.07	0.053	(0.093)	0.013	0.040
283	23.58	0.07	0.053	(0.092)	0.013	0.040
284	23.67	0.07	0.053	(0.092)	0.013	0.040
285	23.75	0.07	0.053	(0.092)	0.013	0.040
286	23.83	0.07	0.053	(0.092)	0.013	0.040
287	23.92	0.07	0.053	(0.092)	0.013	0.040
288	24.00	0.07	0.053	(0.092)	0.013	0.040

(Loss Rate Not Used)

Sum = 100.0 Sum = 61.1

Flood volume = Effective rainfall 5.09(In)
times area 1.2(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)

Total soil loss = 1.55(In)

Total soil loss = 0.149(Ac.Ft)

Total rainfall = 6.64(In)

Flood volume = 21453.2 Cubic Feet

Total soil loss = 6506.5 Cubic Feet

Peak flow rate of this hydrograph = 0.871(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0004	0.04	Q				
0+15	0.0007	0.04	Q				
0+20	0.0010	0.05	Q				
0+25	0.0015	0.07	Q				
0+30	0.0020	0.07	Q				
0+35	0.0025	0.07	Q				
0+40	0.0029	0.07	Q				
0+45	0.0034	0.07	Q				
0+50	0.0040	0.08	Q				
0+55	0.0046	0.09	Q				
1+ 0	0.0052	0.09	Q				
1+ 5	0.0058	0.09	Q				
1+10	0.0063	0.07	Q				
1+15	0.0068	0.07	Q				
1+20	0.0073	0.07	Q				
1+25	0.0078	0.07	Q				
1+30	0.0083	0.07	Q				
1+35	0.0088	0.07	Q				
1+40	0.0093	0.07	Q				
1+45	0.0097	0.07	Q				
1+50	0.0103	0.08	Q				
1+55	0.0109	0.09	Q				
2+ 0	0.0115	0.09	Q				
2+ 5	0.0122	0.09	Q				

2+10	0.0128	0.09	QV				
2+15	0.0135	0.09	QV				
2+20	0.0141	0.09	QV				
2+25	0.0148	0.09	QV				
2+30	0.0154	0.09	QV				
2+35	0.0161	0.10	QV				
2+40	0.0169	0.11	QV				
2+45	0.0177	0.12	QV				
2+50	0.0185	0.12	QV				
2+55	0.0193	0.12	QV				
3+ 0	0.0201	0.12	QV				
3+ 5	0.0209	0.12	QV				
3+10	0.0218	0.12	QV				
3+15	0.0226	0.12	QV				
3+20	0.0234	0.12	QV				
3+25	0.0242	0.12	QV				
3+30	0.0250	0.12	Q V				
3+35	0.0258	0.12	Q V				
3+40	0.0266	0.12	Q V				
3+45	0.0274	0.12	Q V				
3+50	0.0283	0.13	Q V				
3+55	0.0292	0.14	Q V				
4+ 0	0.0302	0.14	Q V				
4+ 5	0.0312	0.14	Q V				
4+10	0.0321	0.14	Q V				
4+15	0.0331	0.14	Q V				
4+20	0.0341	0.15	Q V				
4+25	0.0352	0.16	Q V				
4+30	0.0364	0.16	Q V				
4+35	0.0375	0.16	Q V				
4+40	0.0386	0.16	Q V				
4+45	0.0398	0.16	Q V				
4+50	0.0410	0.17	Q V				
4+55	0.0422	0.18	Q V				
5+ 0	0.0435	0.19	Q V				
5+ 5	0.0447	0.17	Q V				
5+10	0.0457	0.15	Q V				
5+15	0.0467	0.14	Q V				
5+20	0.0478	0.15	Q V				
5+25	0.0489	0.16	Q V				
5+30	0.0500	0.16	Q V				
5+35	0.0512	0.17	Q V				
5+40	0.0524	0.18	Q V				
5+45	0.0537	0.19	Q V				
5+50	0.0550	0.19	Q V				
5+55	0.0563	0.19	Q V				
6+ 0	0.0576	0.19	Q V				
6+ 5	0.0590	0.20	Q V				
6+10	0.0604	0.21	Q V				
6+15	0.0618	0.21	Q V				
6+20	0.0633	0.21	Q V				
6+25	0.0647	0.21	Q V				
6+30	0.0662	0.21	Q V				
6+35	0.0677	0.22	Q V				
6+40	0.0693	0.23	Q V				
6+45	0.0709	0.23	Q V				
6+50	0.0725	0.23	Q V				
6+55	0.0742	0.24	Q V				
7+ 0	0.0758	0.24	Q V				
7+ 5	0.0774	0.24	Q V				
7+10	0.0790	0.24	Q V				
7+15	0.0806	0.24	Q V				
7+20	0.0823	0.24	Q V				

7+25	0.0841	0.25	Q	V				
7+30	0.0858	0.26	Q	V				
7+35	0.0877	0.27	Q	V				
7+40	0.0896	0.28	Q	V				
7+45	0.0915	0.28	Q	V				
7+50	0.0935	0.29	Q	V				
7+55	0.0956	0.30	Q	V				
8+ 0	0.0977	0.30	Q	V				
8+ 5	0.0999	0.32	Q	V				
8+10	0.1023	0.34	Q	V				
8+15	0.1047	0.35	Q	V				
8+20	0.1071	0.35	Q	V				
8+25	0.1095	0.35	Q	V				
8+30	0.1120	0.35	Q	V				
8+35	0.1144	0.36	Q	V				
8+40	0.1170	0.37	Q	V				
8+45	0.1196	0.37	Q	V				
8+50	0.1222	0.38	Q	V				
8+55	0.1250	0.40	Q	V				
9+ 0	0.1277	0.40	Q	V				
9+ 5	0.1306	0.42	Q	V				
9+10	0.1336	0.44	Q	V				
9+15	0.1366	0.44	Q	V				
9+20	0.1398	0.45	Q	V				
9+25	0.1430	0.47	Q	V				
9+30	0.1462	0.47	Q	V				
9+35	0.1495	0.48	Q	V				
9+40	0.1529	0.49	Q	V				
9+45	0.1563	0.49	Q	V				
9+50	0.1597	0.50	Q	V				
9+55	0.1633	0.51	Q	V				
10+ 0	0.1668	0.52	Q	V				
10+ 5	0.1700	0.46	Q	V				
10+10	0.1726	0.38	Q	V				
10+15	0.1751	0.37	Q	V				
10+20	0.1776	0.36	Q	V				
10+25	0.1800	0.35	Q	V				
10+30	0.1825	0.35	Q	V				
10+35	0.1852	0.39	Q	V				
10+40	0.1883	0.45	Q	V				
10+45	0.1915	0.46	Q	V				
10+50	0.1947	0.47	Q	V				
10+55	0.1979	0.47	Q	V				
11+ 0	0.2011	0.47	Q	V				
11+ 5	0.2043	0.46	Q	V				
11+10	0.2074	0.45	Q	V				
11+15	0.2105	0.45	Q	V				
11+20	0.2136	0.45	Q	V				
11+25	0.2167	0.45	Q	V				
11+30	0.2198	0.45	Q	V				
11+35	0.2227	0.43	Q	V				
11+40	0.2256	0.41	Q	V				
11+45	0.2283	0.40	Q	V				
11+50	0.2312	0.41	Q	V				
11+55	0.2341	0.42	Q	V				
12+ 0	0.2370	0.42	Q	V				
12+ 5	0.2403	0.48	Q	V				
12+10	0.2441	0.56	Q	V				
12+15	0.2481	0.58	Q	V				
12+20	0.2522	0.59	Q	V				
12+25	0.2563	0.61	Q	V				
12+30	0.2605	0.61	Q	V				
12+35	0.2649	0.63	Q	V				

12+40	0.2695	0.66	Q		V		
12+45	0.2741	0.67	Q		V		
12+50	0.2788	0.69	Q		V		
12+55	0.2837	0.70	Q		V		
13+ 0	0.2885	0.71	Q		V		
13+ 5	0.2938	0.76	Q		V		
13+10	0.2996	0.84	Q		V		
13+15	0.3055	0.86	Q		V		
13+20	0.3114	0.86	Q		V		
13+25	0.3174	0.87	Q		V		
13+30	0.3234	0.87	Q		V		
13+35	0.3286	0.76	Q		V		
13+40	0.3328	0.60	Q		V		
13+45	0.3367	0.57	Q		V		
13+50	0.3405	0.55	Q		V		
13+55	0.3442	0.54	Q		V		
14+ 0	0.3479	0.54	Q		V		
14+ 5	0.3520	0.58	Q		V		
14+10	0.3564	0.64	Q		V		
14+15	0.3609	0.65	Q		V		
14+20	0.3653	0.65	Q		V		
14+25	0.3697	0.64	Q		V		
14+30	0.3741	0.64	Q		V		
14+35	0.3785	0.64	Q		V		
14+40	0.3829	0.64	Q		V		
14+45	0.3872	0.64	Q		V		
14+50	0.3916	0.63	Q		V		
14+55	0.3958	0.61	Q		V		
15+ 0	0.4000	0.61	Q		V		
15+ 5	0.4041	0.60	Q		V		
15+10	0.4081	0.58	Q		V		
15+15	0.4121	0.58	Q		V		
15+20	0.4161	0.57	Q		V		
15+25	0.4199	0.56	Q		V		
15+30	0.4237	0.55	Q		V		
15+35	0.4273	0.52	Q		V		
15+40	0.4305	0.47	Q		V		
15+45	0.4336	0.46	Q		V		
15+50	0.4367	0.45	Q		V		
15+55	0.4398	0.45	Q		V		
16+ 0	0.4429	0.45	Q		V		
16+ 5	0.4451	0.32	Q		V		
16+10	0.4462	0.16	Q		V		
16+15	0.4470	0.12	Q		V		
16+20	0.4478	0.11	Q		V		
16+25	0.4484	0.10	Q		V		
16+30	0.4491	0.09	Q		V		
16+35	0.4497	0.09	Q		V		
16+40	0.4502	0.07	Q		V		
16+45	0.4507	0.07	Q		V		
16+50	0.4512	0.07	Q		V		
16+55	0.4517	0.07	Q		V		
17+ 0	0.4522	0.07	Q		V		
17+ 5	0.4528	0.09	Q		V		
17+10	0.4535	0.11	Q		V		
17+15	0.4543	0.11	Q		V		
17+20	0.4551	0.12	Q		V		
17+25	0.4559	0.12	Q		V		
17+30	0.4567	0.12	Q		V		
17+35	0.4575	0.12	Q		V		
17+40	0.4583	0.12	Q		V		
17+45	0.4591	0.12	Q		V		
17+50	0.4599	0.11	Q		V		

17+55	0.4606	0.10	Q				V	
18+ 0	0.4612	0.10	Q				V	
18+ 5	0.4619	0.09	Q				V	
18+10	0.4625	0.09	Q				V	
18+15	0.4632	0.09	Q				V	
18+20	0.4638	0.09	Q				V	
18+25	0.4645	0.09	Q				V	
18+30	0.4651	0.09	Q				V	
18+35	0.4657	0.09	Q				V	
18+40	0.4662	0.07	Q				V	
18+45	0.4667	0.07	Q				V	
18+50	0.4672	0.06	Q				V	
18+55	0.4675	0.05	Q				V	
19+ 0	0.4679	0.05	Q				V	
19+ 5	0.4683	0.06	Q				V	
19+10	0.4687	0.07	Q				V	
19+15	0.4692	0.07	Q				V	
19+20	0.4697	0.08	Q				V	
19+25	0.4703	0.09	Q				V	
19+30	0.4710	0.09	Q				V	
19+35	0.4716	0.09	Q				V	
19+40	0.4721	0.07	Q				V	
19+45	0.4726	0.07	Q				V	
19+50	0.4730	0.06	Q				V	
19+55	0.4734	0.05	Q				V	
20+ 0	0.4737	0.05	Q				V	
20+ 5	0.4741	0.06	Q				V	
20+10	0.4745	0.07	Q				V	
20+15	0.4750	0.07	Q				V	
20+20	0.4755	0.07	Q				V	
20+25	0.4760	0.07	Q				V	
20+30	0.4765	0.07	Q				V	
20+35	0.4770	0.07	Q				V	
20+40	0.4774	0.07	Q				V	
20+45	0.4779	0.07	Q				V	
20+50	0.4784	0.06	Q				V	
20+55	0.4787	0.05	Q				V	
21+ 0	0.4791	0.05	Q				V	
21+ 5	0.4794	0.06	Q				V	
21+10	0.4799	0.07	Q				V	
21+15	0.4804	0.07	Q				V	
21+20	0.4808	0.06	Q				V	
21+25	0.4811	0.05	Q				V	
21+30	0.4815	0.05	Q				V	
21+35	0.4819	0.06	Q				V	
21+40	0.4823	0.07	Q				V	
21+45	0.4828	0.07	Q				V	
21+50	0.4832	0.06	Q				V	
21+55	0.4836	0.05	Q				V	
22+ 0	0.4839	0.05	Q				V	
22+ 5	0.4843	0.06	Q				V	
22+10	0.4848	0.07	Q				V	
22+15	0.4852	0.07	Q				V	
22+20	0.4857	0.06	Q				V	
22+25	0.4860	0.05	Q				V	
22+30	0.4863	0.05	Q				V	
22+35	0.4867	0.05	Q				V	
22+40	0.4870	0.05	Q				V	
22+45	0.4873	0.05	Q				V	
22+50	0.4876	0.05	Q				V	
22+55	0.4880	0.05	Q				V	
23+ 0	0.4883	0.05	Q				V	
23+ 5	0.4886	0.05	Q				V	

23+10	0.4889	0.05	Q				V
23+15	0.4893	0.05	Q				V
23+20	0.4896	0.05	Q				V
23+25	0.4899	0.05	Q				V
23+30	0.4902	0.05	Q				V
23+35	0.4906	0.05	Q				V
23+40	0.4909	0.05	Q				V
23+45	0.4912	0.05	Q				V
23+50	0.4915	0.05	Q				V
23+55	0.4919	0.05	Q				V
24+ 0	0.4922	0.05	Q				V
24+ 5	0.4924	0.03	Q				V
24+10	0.4925	0.01	Q				V
24+15	0.4925	0.00	Q				V
24+20	0.4925	0.00	Q				V
24+25	0.4925	0.00	Q				V

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

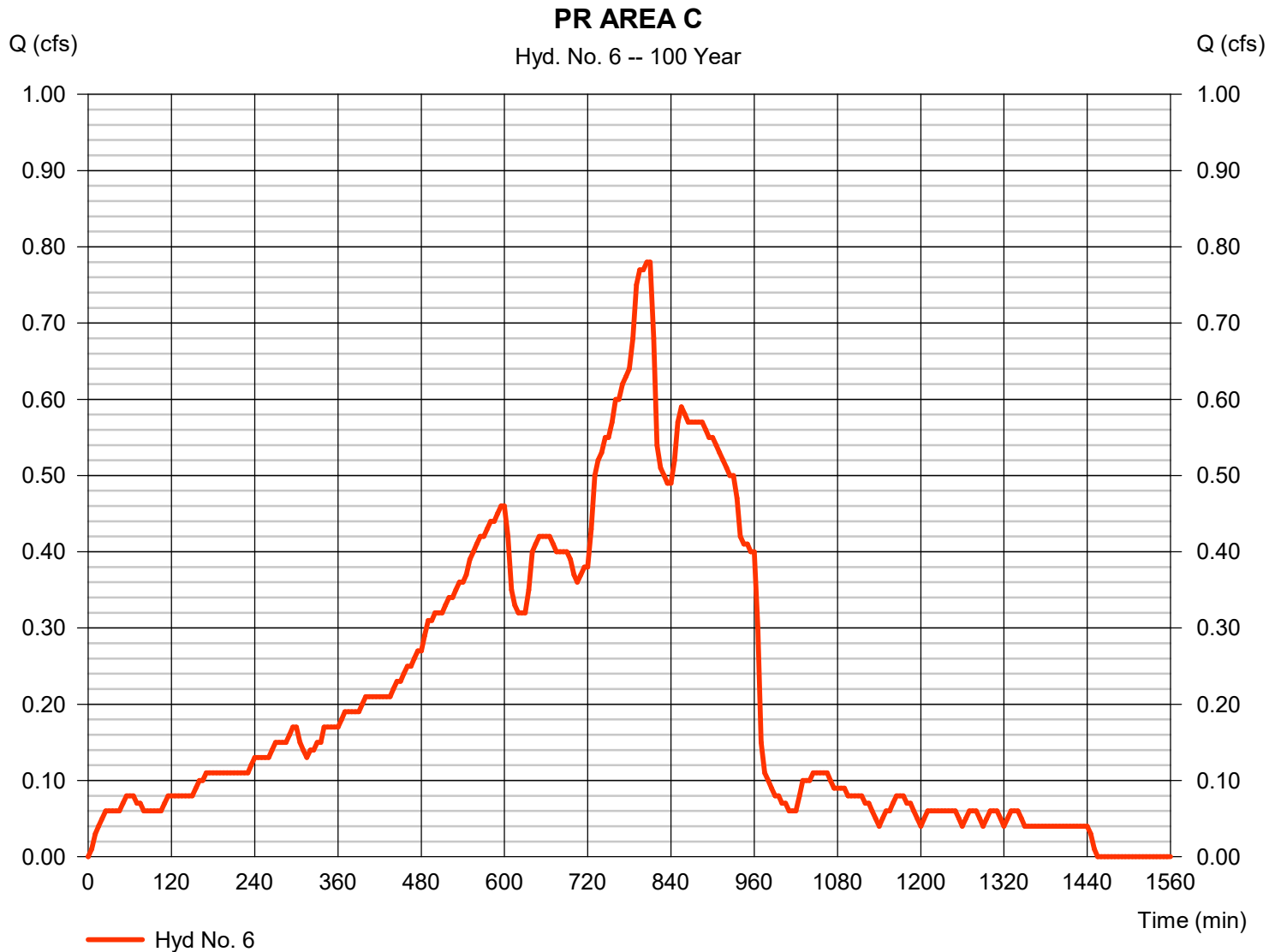
Friday, 12 / 17 / 2021

Hyd. No. 6

PR AREA C

Hydrograph type = Manual
 Storm frequency = 100 yrs
 Time interval = 5 min

Peak discharge = 0.780 cfs
 Time to peak = 805 min
 Hyd. volume = 19,290 cuft



Unit Hydrograph Analysis

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Study date 12/14/21 File: 19400PC24100.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 100-yr 24-hr
Area C

Drainage Area = 1.02 (Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.02 (Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 710.00 (Ft.)
Length along longest watercourse measured to centroid = 338.00 (Ft.)
Length along longest watercourse = 0.134 Mi.
Length along longest watercourse measured to centroid = 0.064 Mi.
Difference in elevation = 7.50 (Ft.)
Slope along watercourse = 55.7746 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.055 Hr.
Lag time = 3.30 Min.
25% of lag time = 0.83 Min.
40% of lag time = 1.32 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]
1.02	2.44	2.49

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.02	6.64	6.77

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 2.440 (In)
Area Averaged 100-Year Rainfall = 6.640 (In)

Point rain (area averaged) = 6.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 6.640(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.020 56.00 0.845
Total Area Entered = 1.02(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.845	0.169	1.000	0.169
						Sum (F) = 0.169

Area averaged mean soil loss (F) (In/Hr) = 0.169
Minimum soil loss rate ((In/Hr)) = 0.085
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.224

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	151.372	33.505	0.344
2 0.167	302.743	46.909	0.482
3 0.250	454.115	11.102	0.114
4 0.333	605.487	4.842	0.050
5 0.417	756.858	2.427	0.025
6 0.500	908.230	1.214	0.012
		Sum = 100.000	Sum= 1.028

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

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)		Effective
(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1 0.08	0.07	0.053	(0.300)	0.012	0.041
2 0.17	0.07	0.053	(0.299)	0.012	0.041
3 0.25	0.07	0.053	(0.297)	0.012	0.041
4 0.33	0.10	0.080	(0.296)	0.018	0.062
5 0.42	0.10	0.080	(0.295)	0.018	0.062
6 0.50	0.10	0.080	(0.294)	0.018	0.062
7 0.58	0.10	0.080	(0.293)	0.018	0.062
8 0.67	0.10	0.080	(0.292)	0.018	0.062
9 0.75	0.10	0.080	(0.291)	0.018	0.062
10 0.83	0.13	0.106	(0.289)	0.024	0.082
11 0.92	0.13	0.106	(0.288)	0.024	0.082
12 1.00	0.13	0.106	(0.287)	0.024	0.082
13 1.08	0.10	0.080	(0.286)	0.018	0.062
14 1.17	0.10	0.080	(0.285)	0.018	0.062
15 1.25	0.10	0.080	(0.284)	0.018	0.062
16 1.33	0.10	0.080	(0.283)	0.018	0.062
17 1.42	0.10	0.080	(0.281)	0.018	0.062
18 1.50	0.10	0.080	(0.280)	0.018	0.062
19 1.58	0.10	0.080	(0.279)	0.018	0.062

20	1.67	0.10	0.080	(0.278)	0.018	0.062
21	1.75	0.10	0.080	(0.277)	0.018	0.062
22	1.83	0.13	0.106	(0.276)	0.024	0.082
23	1.92	0.13	0.106	(0.275)	0.024	0.082
24	2.00	0.13	0.106	(0.274)	0.024	0.082
25	2.08	0.13	0.106	(0.273)	0.024	0.082
26	2.17	0.13	0.106	(0.271)	0.024	0.082
27	2.25	0.13	0.106	(0.270)	0.024	0.082
28	2.33	0.13	0.106	(0.269)	0.024	0.082
29	2.42	0.13	0.106	(0.268)	0.024	0.082
30	2.50	0.13	0.106	(0.267)	0.024	0.082
31	2.58	0.17	0.133	(0.266)	0.030	0.103
32	2.67	0.17	0.133	(0.265)	0.030	0.103
33	2.75	0.17	0.133	(0.264)	0.030	0.103
34	2.83	0.17	0.133	(0.263)	0.030	0.103
35	2.92	0.17	0.133	(0.262)	0.030	0.103
36	3.00	0.17	0.133	(0.261)	0.030	0.103
37	3.08	0.17	0.133	(0.259)	0.030	0.103
38	3.17	0.17	0.133	(0.258)	0.030	0.103
39	3.25	0.17	0.133	(0.257)	0.030	0.103
40	3.33	0.17	0.133	(0.256)	0.030	0.103
41	3.42	0.17	0.133	(0.255)	0.030	0.103
42	3.50	0.17	0.133	(0.254)	0.030	0.103
43	3.58	0.17	0.133	(0.253)	0.030	0.103
44	3.67	0.17	0.133	(0.252)	0.030	0.103
45	3.75	0.17	0.133	(0.251)	0.030	0.103
46	3.83	0.20	0.159	(0.250)	0.036	0.124
47	3.92	0.20	0.159	(0.249)	0.036	0.124
48	4.00	0.20	0.159	(0.248)	0.036	0.124
49	4.08	0.20	0.159	(0.247)	0.036	0.124
50	4.17	0.20	0.159	(0.246)	0.036	0.124
51	4.25	0.20	0.159	(0.245)	0.036	0.124
52	4.33	0.23	0.186	(0.244)	0.042	0.144
53	4.42	0.23	0.186	(0.243)	0.042	0.144
54	4.50	0.23	0.186	(0.241)	0.042	0.144
55	4.58	0.23	0.186	(0.240)	0.042	0.144
56	4.67	0.23	0.186	(0.239)	0.042	0.144
57	4.75	0.23	0.186	(0.238)	0.042	0.144
58	4.83	0.27	0.212	(0.237)	0.048	0.165
59	4.92	0.27	0.212	(0.236)	0.048	0.165
60	5.00	0.27	0.212	(0.235)	0.048	0.165
61	5.08	0.20	0.159	(0.234)	0.036	0.124
62	5.17	0.20	0.159	(0.233)	0.036	0.124
63	5.25	0.20	0.159	(0.232)	0.036	0.124
64	5.33	0.23	0.186	(0.231)	0.042	0.144
65	5.42	0.23	0.186	(0.230)	0.042	0.144
66	5.50	0.23	0.186	(0.229)	0.042	0.144
67	5.58	0.27	0.212	(0.228)	0.048	0.165
68	5.67	0.27	0.212	(0.227)	0.048	0.165
69	5.75	0.27	0.212	(0.226)	0.048	0.165
70	5.83	0.27	0.212	(0.225)	0.048	0.165
71	5.92	0.27	0.212	(0.224)	0.048	0.165
72	6.00	0.27	0.212	(0.223)	0.048	0.165
73	6.08	0.30	0.239	(0.222)	0.054	0.185
74	6.17	0.30	0.239	(0.221)	0.054	0.185
75	6.25	0.30	0.239	(0.220)	0.054	0.185
76	6.33	0.30	0.239	(0.219)	0.054	0.185
77	6.42	0.30	0.239	(0.218)	0.054	0.185
78	6.50	0.30	0.239	(0.217)	0.054	0.185
79	6.58	0.33	0.266	(0.216)	0.059	0.206
80	6.67	0.33	0.266	(0.215)	0.059	0.206
81	6.75	0.33	0.266	(0.214)	0.059	0.206
82	6.83	0.33	0.266	(0.213)	0.059	0.206

83	6.92	0.33	0.266	(0.212)	0.059	0.206
84	7.00	0.33	0.266	(0.211)	0.059	0.206
85	7.08	0.33	0.266	(0.211)	0.059	0.206
86	7.17	0.33	0.266	(0.210)	0.059	0.206
87	7.25	0.33	0.266	(0.209)	0.059	0.206
88	7.33	0.37	0.292	(0.208)	0.065	0.227
89	7.42	0.37	0.292	(0.207)	0.065	0.227
90	7.50	0.37	0.292	(0.206)	0.065	0.227
91	7.58	0.40	0.319	(0.205)	0.071	0.247
92	7.67	0.40	0.319	(0.204)	0.071	0.247
93	7.75	0.40	0.319	(0.203)	0.071	0.247
94	7.83	0.43	0.345	(0.202)	0.077	0.268
95	7.92	0.43	0.345	(0.201)	0.077	0.268
96	8.00	0.43	0.345	(0.200)	0.077	0.268
97	8.08	0.50	0.398	(0.199)	0.089	0.309
98	8.17	0.50	0.398	(0.198)	0.089	0.309
99	8.25	0.50	0.398	(0.197)	0.089	0.309
100	8.33	0.50	0.398	(0.196)	0.089	0.309
101	8.42	0.50	0.398	(0.195)	0.089	0.309
102	8.50	0.50	0.398	(0.195)	0.089	0.309
103	8.58	0.53	0.425	(0.194)	0.095	0.330
104	8.67	0.53	0.425	(0.193)	0.095	0.330
105	8.75	0.53	0.425	(0.192)	0.095	0.330
106	8.83	0.57	0.452	(0.191)	0.101	0.350
107	8.92	0.57	0.452	(0.190)	0.101	0.350
108	9.00	0.57	0.452	(0.189)	0.101	0.350
109	9.08	0.63	0.505	(0.188)	0.113	0.392
110	9.17	0.63	0.505	(0.187)	0.113	0.392
111	9.25	0.63	0.505	(0.186)	0.113	0.392
112	9.33	0.67	0.531	(0.186)	0.119	0.412
113	9.42	0.67	0.531	(0.185)	0.119	0.412
114	9.50	0.67	0.531	(0.184)	0.119	0.412
115	9.58	0.70	0.558	(0.183)	0.125	0.433
116	9.67	0.70	0.558	(0.182)	0.125	0.433
117	9.75	0.70	0.558	(0.181)	0.125	0.433
118	9.83	0.73	0.584	(0.180)	0.131	0.453
119	9.92	0.73	0.584	(0.179)	0.131	0.453
120	10.00	0.73	0.584	(0.179)	0.131	0.453
121	10.08	0.50	0.398	(0.178)	0.089	0.309
122	10.17	0.50	0.398	(0.177)	0.089	0.309
123	10.25	0.50	0.398	(0.176)	0.089	0.309
124	10.33	0.50	0.398	(0.175)	0.089	0.309
125	10.42	0.50	0.398	(0.174)	0.089	0.309
126	10.50	0.50	0.398	(0.173)	0.089	0.309
127	10.58	0.67	0.531	(0.173)	0.119	0.412
128	10.67	0.67	0.531	(0.172)	0.119	0.412
129	10.75	0.67	0.531	(0.171)	0.119	0.412
130	10.83	0.67	0.531	(0.170)	0.119	0.412
131	10.92	0.67	0.531	(0.169)	0.119	0.412
132	11.00	0.67	0.531	(0.168)	0.119	0.412
133	11.08	0.63	0.505	(0.168)	0.113	0.392
134	11.17	0.63	0.505	(0.167)	0.113	0.392
135	11.25	0.63	0.505	(0.166)	0.113	0.392
136	11.33	0.63	0.505	(0.165)	0.113	0.392
137	11.42	0.63	0.505	(0.164)	0.113	0.392
138	11.50	0.63	0.505	(0.163)	0.113	0.392
139	11.58	0.57	0.452	(0.163)	0.101	0.350
140	11.67	0.57	0.452	(0.162)	0.101	0.350
141	11.75	0.57	0.452	(0.161)	0.101	0.350
142	11.83	0.60	0.478	(0.160)	0.107	0.371
143	11.92	0.60	0.478	(0.159)	0.107	0.371
144	12.00	0.60	0.478	(0.159)	0.107	0.371
145	12.08	0.83	0.664	(0.158)	0.149	0.515

146	12.17	0.83	0.664	(0.157)	0.149	0.515
147	12.25	0.83	0.664	(0.156)	0.149	0.515
148	12.33	0.87	0.691	(0.155)	0.155	0.536
149	12.42	0.87	0.691	(0.155)	0.155	0.536
150	12.50	0.87	0.691	0.154	(0.155)	0.537
151	12.58	0.93	0.744	0.153	(0.167)	0.591
152	12.67	0.93	0.744	0.152	(0.167)	0.591
153	12.75	0.93	0.744	0.152	(0.167)	0.592
154	12.83	0.97	0.770	0.151	(0.173)	0.619
155	12.92	0.97	0.770	0.150	(0.173)	0.620
156	13.00	0.97	0.770	0.149	(0.173)	0.621
157	13.08	1.13	0.903	0.149	(0.202)	0.754
158	13.17	1.13	0.903	0.148	(0.202)	0.755
159	13.25	1.13	0.903	0.147	(0.202)	0.756
160	13.33	1.13	0.903	0.146	(0.202)	0.757
161	13.42	1.13	0.903	0.146	(0.202)	0.757
162	13.50	1.13	0.903	0.145	(0.202)	0.758
163	13.58	0.77	0.611	(0.144)	0.137	0.474
164	13.67	0.77	0.611	(0.143)	0.137	0.474
165	13.75	0.77	0.611	(0.143)	0.137	0.474
166	13.83	0.77	0.611	(0.142)	0.137	0.474
167	13.92	0.77	0.611	(0.141)	0.137	0.474
168	14.00	0.77	0.611	(0.140)	0.137	0.474
169	14.08	0.90	0.717	0.140	(0.161)	0.577
170	14.17	0.90	0.717	0.139	(0.161)	0.578
171	14.25	0.90	0.717	0.138	(0.161)	0.579
172	14.33	0.87	0.691	0.138	(0.155)	0.553
173	14.42	0.87	0.691	0.137	(0.155)	0.554
174	14.50	0.87	0.691	0.136	(0.155)	0.554
175	14.58	0.87	0.691	0.135	(0.155)	0.555
176	14.67	0.87	0.691	0.135	(0.155)	0.556
177	14.75	0.87	0.691	0.134	(0.155)	0.556
178	14.83	0.83	0.664	0.133	(0.149)	0.531
179	14.92	0.83	0.664	0.133	(0.149)	0.531
180	15.00	0.83	0.664	0.132	(0.149)	0.532
181	15.08	0.80	0.637	0.131	(0.143)	0.506
182	15.17	0.80	0.637	0.131	(0.143)	0.507
183	15.25	0.80	0.637	0.130	(0.143)	0.507
184	15.33	0.77	0.611	0.129	(0.137)	0.482
185	15.42	0.77	0.611	0.129	(0.137)	0.482
186	15.50	0.77	0.611	0.128	(0.137)	0.483
187	15.58	0.63	0.505	(0.127)	0.113	0.392
188	15.67	0.63	0.505	(0.127)	0.113	0.392
189	15.75	0.63	0.505	(0.126)	0.113	0.392
190	15.83	0.63	0.505	(0.125)	0.113	0.392
191	15.92	0.63	0.505	(0.125)	0.113	0.392
192	16.00	0.63	0.505	(0.124)	0.113	0.392
193	16.08	0.13	0.106	(0.124)	0.024	0.082
194	16.17	0.13	0.106	(0.123)	0.024	0.082
195	16.25	0.13	0.106	(0.122)	0.024	0.082
196	16.33	0.13	0.106	(0.122)	0.024	0.082
197	16.42	0.13	0.106	(0.121)	0.024	0.082
198	16.50	0.13	0.106	(0.120)	0.024	0.082
199	16.58	0.10	0.080	(0.120)	0.018	0.062
200	16.67	0.10	0.080	(0.119)	0.018	0.062
201	16.75	0.10	0.080	(0.119)	0.018	0.062
202	16.83	0.10	0.080	(0.118)	0.018	0.062
203	16.92	0.10	0.080	(0.117)	0.018	0.062
204	17.00	0.10	0.080	(0.117)	0.018	0.062
205	17.08	0.17	0.133	(0.116)	0.030	0.103
206	17.17	0.17	0.133	(0.116)	0.030	0.103
207	17.25	0.17	0.133	(0.115)	0.030	0.103
208	17.33	0.17	0.133	(0.114)	0.030	0.103

209	17.42	0.17	0.133	(0.114)	0.030	0.103
210	17.50	0.17	0.133	(0.113)	0.030	0.103
211	17.58	0.17	0.133	(0.113)	0.030	0.103
212	17.67	0.17	0.133	(0.112)	0.030	0.103
213	17.75	0.17	0.133	(0.112)	0.030	0.103
214	17.83	0.13	0.106	(0.111)	0.024	0.082
215	17.92	0.13	0.106	(0.111)	0.024	0.082
216	18.00	0.13	0.106	(0.110)	0.024	0.082
217	18.08	0.13	0.106	(0.109)	0.024	0.082
218	18.17	0.13	0.106	(0.109)	0.024	0.082
219	18.25	0.13	0.106	(0.108)	0.024	0.082
220	18.33	0.13	0.106	(0.108)	0.024	0.082
221	18.42	0.13	0.106	(0.107)	0.024	0.082
222	18.50	0.13	0.106	(0.107)	0.024	0.082
223	18.58	0.10	0.080	(0.106)	0.018	0.062
224	18.67	0.10	0.080	(0.106)	0.018	0.062
225	18.75	0.10	0.080	(0.105)	0.018	0.062
226	18.83	0.07	0.053	(0.105)	0.012	0.041
227	18.92	0.07	0.053	(0.104)	0.012	0.041
228	19.00	0.07	0.053	(0.104)	0.012	0.041
229	19.08	0.10	0.080	(0.103)	0.018	0.062
230	19.17	0.10	0.080	(0.103)	0.018	0.062
231	19.25	0.10	0.080	(0.102)	0.018	0.062
232	19.33	0.13	0.106	(0.102)	0.024	0.082
233	19.42	0.13	0.106	(0.101)	0.024	0.082
234	19.50	0.13	0.106	(0.101)	0.024	0.082
235	19.58	0.10	0.080	(0.100)	0.018	0.062
236	19.67	0.10	0.080	(0.100)	0.018	0.062
237	19.75	0.10	0.080	(0.100)	0.018	0.062
238	19.83	0.07	0.053	(0.099)	0.012	0.041
239	19.92	0.07	0.053	(0.099)	0.012	0.041
240	20.00	0.07	0.053	(0.098)	0.012	0.041
241	20.08	0.10	0.080	(0.098)	0.018	0.062
242	20.17	0.10	0.080	(0.097)	0.018	0.062
243	20.25	0.10	0.080	(0.097)	0.018	0.062
244	20.33	0.10	0.080	(0.096)	0.018	0.062
245	20.42	0.10	0.080	(0.096)	0.018	0.062
246	20.50	0.10	0.080	(0.096)	0.018	0.062
247	20.58	0.10	0.080	(0.095)	0.018	0.062
248	20.67	0.10	0.080	(0.095)	0.018	0.062
249	20.75	0.10	0.080	(0.094)	0.018	0.062
250	20.83	0.07	0.053	(0.094)	0.012	0.041
251	20.92	0.07	0.053	(0.094)	0.012	0.041
252	21.00	0.07	0.053	(0.093)	0.012	0.041
253	21.08	0.10	0.080	(0.093)	0.018	0.062
254	21.17	0.10	0.080	(0.093)	0.018	0.062
255	21.25	0.10	0.080	(0.092)	0.018	0.062
256	21.33	0.07	0.053	(0.092)	0.012	0.041
257	21.42	0.07	0.053	(0.092)	0.012	0.041
258	21.50	0.07	0.053	(0.091)	0.012	0.041
259	21.58	0.10	0.080	(0.091)	0.018	0.062
260	21.67	0.10	0.080	(0.091)	0.018	0.062
261	21.75	0.10	0.080	(0.090)	0.018	0.062
262	21.83	0.07	0.053	(0.090)	0.012	0.041
263	21.92	0.07	0.053	(0.090)	0.012	0.041
264	22.00	0.07	0.053	(0.089)	0.012	0.041
265	22.08	0.10	0.080	(0.089)	0.018	0.062
266	22.17	0.10	0.080	(0.089)	0.018	0.062
267	22.25	0.10	0.080	(0.088)	0.018	0.062
268	22.33	0.07	0.053	(0.088)	0.012	0.041
269	22.42	0.07	0.053	(0.088)	0.012	0.041
270	22.50	0.07	0.053	(0.088)	0.012	0.041
271	22.58	0.07	0.053	(0.087)	0.012	0.041

272	22.67	0.07	0.053	(0.087)	0.012	0.041
273	22.75	0.07	0.053	(0.087)	0.012	0.041
274	22.83	0.07	0.053	(0.087)	0.012	0.041
275	22.92	0.07	0.053	(0.086)	0.012	0.041
276	23.00	0.07	0.053	(0.086)	0.012	0.041
277	23.08	0.07	0.053	(0.086)	0.012	0.041
278	23.17	0.07	0.053	(0.086)	0.012	0.041
279	23.25	0.07	0.053	(0.086)	0.012	0.041
280	23.33	0.07	0.053	(0.085)	0.012	0.041
281	23.42	0.07	0.053	(0.085)	0.012	0.041
282	23.50	0.07	0.053	(0.085)	0.012	0.041
283	23.58	0.07	0.053	(0.085)	0.012	0.041
284	23.67	0.07	0.053	(0.085)	0.012	0.041
285	23.75	0.07	0.053	(0.085)	0.012	0.041
286	23.83	0.07	0.053	(0.085)	0.012	0.041
287	23.92	0.07	0.053	(0.085)	0.012	0.041
288	24.00	0.07	0.053	(0.085)	0.012	0.041

(Loss Rate Not Used)

Sum = 100.0 Sum = 62.6

Flood volume = Effective rainfall 5.21(In)
times area 1.0(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)

Total soil loss = 1.43(In)

Total soil loss = 0.121(Ac.Ft)

Total rainfall = 6.64(In)

Flood volume = 19303.6 Cubic Feet

Total soil loss = 5281.6 Cubic Feet

Peak flow rate of this hydrograph = 0.779(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0003	0.03	Q				
0+15	0.0006	0.04	Q				
0+20	0.0009	0.05	Q				
0+25	0.0013	0.06	Q				
0+30	0.0018	0.06	Q				
0+35	0.0022	0.06	Q				
0+40	0.0026	0.06	Q				
0+45	0.0031	0.06	Q				
0+50	0.0036	0.07	Q				
0+55	0.0041	0.08	Q				
1+ 0	0.0047	0.08	Q				
1+ 5	0.0052	0.08	Q				
1+10	0.0057	0.07	Q				
1+15	0.0061	0.07	Q				
1+20	0.0066	0.06	Q				
1+25	0.0070	0.06	Q				
1+30	0.0074	0.06	Q				
1+35	0.0079	0.06	Q				
1+40	0.0083	0.06	Q				
1+45	0.0088	0.06	Q				
1+50	0.0092	0.07	Q				
1+55	0.0098	0.08	Q				
2+ 0	0.0104	0.08	Q				
2+ 5	0.0110	0.08	Q				

2+10	0.0115	0.08	QV				
2+15	0.0121	0.08	QV				
2+20	0.0127	0.08	QV				
2+25	0.0133	0.08	QV				
2+30	0.0139	0.08	QV				
2+35	0.0145	0.09	QV				
2+40	0.0152	0.10	QV				
2+45	0.0159	0.10	QV				
2+50	0.0166	0.11	QV				
2+55	0.0174	0.11	QV				
3+ 0	0.0181	0.11	QV				
3+ 5	0.0188	0.11	QV				
3+10	0.0196	0.11	QV				
3+15	0.0203	0.11	QV				
3+20	0.0210	0.11	QV				
3+25	0.0218	0.11	QV				
3+30	0.0225	0.11	Q V				
3+35	0.0232	0.11	Q V				
3+40	0.0239	0.11	Q V				
3+45	0.0247	0.11	Q V				
3+50	0.0255	0.11	Q V				
3+55	0.0263	0.12	Q V				
4+ 0	0.0272	0.13	Q V				
4+ 5	0.0280	0.13	Q V				
4+10	0.0289	0.13	Q V				
4+15	0.0298	0.13	Q V				
4+20	0.0307	0.13	Q V				
4+25	0.0317	0.14	Q V				
4+30	0.0327	0.15	Q V				
4+35	0.0337	0.15	Q V				
4+40	0.0348	0.15	Q V				
4+45	0.0358	0.15	Q V				
4+50	0.0368	0.16	Q V				
4+55	0.0380	0.17	Q V				
5+ 0	0.0391	0.17	Q V				
5+ 5	0.0402	0.15	Q V				
5+10	0.0411	0.14	Q V				
5+15	0.0420	0.13	Q V				
5+20	0.0430	0.14	Q V				
5+25	0.0440	0.14	Q V				
5+30	0.0450	0.15	Q V				
5+35	0.0460	0.15	Q V				
5+40	0.0472	0.17	Q V				
5+45	0.0483	0.17	Q V				
5+50	0.0495	0.17	Q V				
5+55	0.0507	0.17	Q V				
6+ 0	0.0518	0.17	Q V				
6+ 5	0.0531	0.18	Q V				
6+10	0.0543	0.19	Q V				
6+15	0.0556	0.19	Q V				
6+20	0.0569	0.19	Q V				
6+25	0.0583	0.19	Q V				
6+30	0.0596	0.19	Q V				
6+35	0.0609	0.20	Q V				
6+40	0.0624	0.21	Q V				
6+45	0.0638	0.21	Q V				
6+50	0.0653	0.21	Q V				
6+55	0.0667	0.21	Q V				
7+ 0	0.0682	0.21	Q V				
7+ 5	0.0696	0.21	Q V				
7+10	0.0711	0.21	Q V				
7+15	0.0726	0.21	Q V				
7+20	0.0741	0.22	Q V				

7+25	0.0757	0.23	Q	V					
7+30	0.0772	0.23	Q	V					
7+35	0.0789	0.24	Q	V					
7+40	0.0806	0.25	Q	V					
7+45	0.0824	0.25	IQ	V					
7+50	0.0842	0.26	IQ	V					
7+55	0.0860	0.27	IQ	V					
8+ 0	0.0879	0.27	IQ	V					
8+ 5	0.0899	0.29	IQ	V					
8+10	0.0920	0.31	IQ	V					
8+15	0.0942	0.31	IQ	V					
8+20	0.0964	0.32	IQ	V					
8+25	0.0986	0.32	IQ	V					
8+30	0.1007	0.32	IQ	V					
8+35	0.1030	0.33	IQ	V					
8+40	0.1053	0.34	IQ	V					
8+45	0.1076	0.34	IQ	V					
8+50	0.1100	0.35	IQ	V					
8+55	0.1124	0.36	IQ	V					
9+ 0	0.1149	0.36	IQ	V					
9+ 5	0.1175	0.37	IQ	V					
9+10	0.1202	0.39	IQ	V					
9+15	0.1230	0.40	IQ	V					
9+20	0.1258	0.41	IQ	V					
9+25	0.1287	0.42	IQ	V					
9+30	0.1316	0.42	IQ	V					
9+35	0.1345	0.43	IQ	V					
9+40	0.1376	0.44	IQ	V					
9+45	0.1406	0.44	IQ	V					
9+50	0.1437	0.45	IQ	V					
9+55	0.1469	0.46	IQ	V					
10+ 0	0.1501	0.46	IQ	V					
10+ 5	0.1530	0.42	IQ	V					
10+10	0.1554	0.35	IQ	V					
10+15	0.1576	0.33	IQ	V					
10+20	0.1599	0.32	IQ	V					
10+25	0.1621	0.32	IQ	V					
10+30	0.1643	0.32	IQ	V					
10+35	0.1667	0.35	IQ	V					
10+40	0.1695	0.40	IQ	V					
10+45	0.1723	0.41	IQ	V					
10+50	0.1752	0.42	IQ	V					
10+55	0.1781	0.42	IQ	V					
11+ 0	0.1810	0.42	IQ	V					
11+ 5	0.1839	0.42	IQ	V					
11+10	0.1867	0.41	IQ	V					
11+15	0.1895	0.40	IQ	V					
11+20	0.1923	0.40	IQ	V					
11+25	0.1951	0.40	IQ	V					
11+30	0.1978	0.40	IQ	V					
11+35	0.2005	0.39	IQ	V					
11+40	0.2030	0.37	IQ	V					
11+45	0.2056	0.36	IQ	V					
11+50	0.2081	0.37	IQ	V					
11+55	0.2107	0.38	IQ	V					
12+ 0	0.2133	0.38	IQ	V					
12+ 5	0.2163	0.43	IQ	V					
12+10	0.2197	0.50	I Q	V					
12+15	0.2233	0.52	I Q	V					
12+20	0.2270	0.53	I Q	V					
12+25	0.2307	0.55	I Q	V					
12+30	0.2345	0.55	I Q	V					
12+35	0.2384	0.57	I Q	V					

12+40	0.2425	0.60	Q		V		
12+45	0.2467	0.60	Q		V		
12+50	0.2509	0.62	Q		V		
12+55	0.2553	0.63	Q		V		
13+ 0	0.2596	0.64	Q		V		
13+ 5	0.2644	0.68	Q		V		
13+10	0.2695	0.75	Q		V		
13+15	0.2748	0.77	Q		V		
13+20	0.2801	0.77	Q		V		
13+25	0.2854	0.78	Q		V		
13+30	0.2908	0.78	Q		V		
13+35	0.2955	0.68	Q		V		
13+40	0.2993	0.54	Q		V		
13+45	0.3028	0.51	Q		V		
13+50	0.3062	0.50	Q		V		
13+55	0.3096	0.49	Q		V		
14+ 0	0.3130	0.49	Q		V		
14+ 5	0.3166	0.52	Q		V		
14+10	0.3205	0.57	Q		V		
14+15	0.3245	0.59	Q		V		
14+20	0.3286	0.58	Q		V		
14+25	0.3325	0.57	Q		V		
14+30	0.3364	0.57	Q		V		
14+35	0.3404	0.57	Q		V		
14+40	0.3443	0.57	Q		V		
14+45	0.3482	0.57	Q		V		
14+50	0.3521	0.56	Q		V		
14+55	0.3559	0.55	Q		V		
15+ 0	0.3597	0.55	Q		V		
15+ 5	0.3634	0.54	Q		V		
15+10	0.3670	0.53	Q		V		
15+15	0.3706	0.52	Q		V		
15+20	0.3742	0.51	Q		V		
15+25	0.3776	0.50	Q		V		
15+30	0.3811	0.50	Q		V		
15+35	0.3843	0.47	Q		V		
15+40	0.3872	0.42	Q		V		
15+45	0.3900	0.41	Q		V		
15+50	0.3928	0.41	Q		V		
15+55	0.3956	0.40	Q		V		
16+ 0	0.3983	0.40	Q		V		
16+ 5	0.4004	0.30	Q		V		
16+10	0.4014	0.15	Q		V		
16+15	0.4022	0.11	Q		V		
16+20	0.4028	0.10	Q		V		
16+25	0.4034	0.09	Q		V		
16+30	0.4040	0.08	Q		V		
16+35	0.4046	0.08	Q		V		
16+40	0.4050	0.07	Q		V		
16+45	0.4055	0.07	Q		V		
16+50	0.4059	0.06	Q		V		
16+55	0.4064	0.06	Q		V		
17+ 0	0.4068	0.06	Q		V		
17+ 5	0.4073	0.08	Q		V		
17+10	0.4080	0.10	Q		V		
17+15	0.4087	0.10	Q		V		
17+20	0.4094	0.10	Q		V		
17+25	0.4102	0.11	Q		V		
17+30	0.4109	0.11	Q		V		
17+35	0.4116	0.11	Q		V		
17+40	0.4123	0.11	Q		V		
17+45	0.4131	0.11	Q		V		
17+50	0.4138	0.10	Q		V		

17+55	0.4144	0.09	Q				V	
18+ 0	0.4150	0.09	Q				V	
18+ 5	0.4156	0.09	Q				V	
18+10	0.4161	0.09	Q				V	
18+15	0.4167	0.08	Q				V	
18+20	0.4173	0.08	Q				V	
18+25	0.4179	0.08	Q				V	
18+30	0.4185	0.08	Q				V	
18+35	0.4190	0.08	Q				V	
18+40	0.4195	0.07	Q				V	
18+45	0.4199	0.07	Q				V	
18+50	0.4203	0.06	Q				V	
18+55	0.4206	0.05	Q				V	
19+ 0	0.4210	0.04	Q				V	
19+ 5	0.4213	0.05	Q				V	
19+10	0.4217	0.06	Q				V	
19+15	0.4221	0.06	Q				V	
19+20	0.4226	0.07	Q				V	
19+25	0.4232	0.08	Q				V	
19+30	0.4237	0.08	Q				V	
19+35	0.4243	0.08	Q				V	
19+40	0.4247	0.07	Q				V	
19+45	0.4252	0.07	Q				V	
19+50	0.4256	0.06	Q				V	
19+55	0.4259	0.05	Q				V	
20+ 0	0.4262	0.04	Q				V	
20+ 5	0.4266	0.05	Q				V	
20+10	0.4270	0.06	Q				V	
20+15	0.4274	0.06	Q				V	
20+20	0.4278	0.06	Q				V	
20+25	0.4283	0.06	Q				V	
20+30	0.4287	0.06	Q				V	
20+35	0.4291	0.06	Q				V	
20+40	0.4296	0.06	Q				V	
20+45	0.4300	0.06	Q				V	
20+50	0.4304	0.06	Q				V	
20+55	0.4307	0.05	Q				V	
21+ 0	0.4310	0.04	Q				V	
21+ 5	0.4314	0.05	Q				V	
21+10	0.4318	0.06	Q				V	
21+15	0.4322	0.06	Q				V	
21+20	0.4326	0.06	Q				V	
21+25	0.4329	0.05	Q				V	
21+30	0.4332	0.04	Q				V	
21+35	0.4336	0.05	Q				V	
21+40	0.4340	0.06	Q				V	
21+45	0.4344	0.06	Q				V	
21+50	0.4348	0.06	Q				V	
21+55	0.4351	0.05	Q				V	
22+ 0	0.4354	0.04	Q				V	
22+ 5	0.4358	0.05	Q				V	
22+10	0.4362	0.06	Q				V	
22+15	0.4366	0.06	Q				V	
22+20	0.4370	0.06	Q				V	
22+25	0.4373	0.05	Q				V	
22+30	0.4376	0.04	Q				V	
22+35	0.4379	0.04	Q				V	
22+40	0.4382	0.04	Q				V	
22+45	0.4385	0.04	Q				V	
22+50	0.4388	0.04	Q				V	
22+55	0.4391	0.04	Q				V	
23+ 0	0.4394	0.04	Q				V	
23+ 5	0.4396	0.04	Q				V	

23+10	0.4399	0.04	Q				V
23+15	0.4402	0.04	Q				V
23+20	0.4405	0.04	Q				V
23+25	0.4408	0.04	Q				V
23+30	0.4411	0.04	Q				V
23+35	0.4414	0.04	Q				V
23+40	0.4417	0.04	Q				V
23+45	0.4420	0.04	Q				V
23+50	0.4423	0.04	Q				V
23+55	0.4426	0.04	Q				V
24+ 0	0.4429	0.04	Q				V
24+ 5	0.4431	0.03	Q				V
24+10	0.4431	0.01	Q				V
24+15	0.4431	0.00	Q				V
24+20	0.4431	0.00	Q				V
24+25	0.4431	0.00	Q				V

Hydrograph Report

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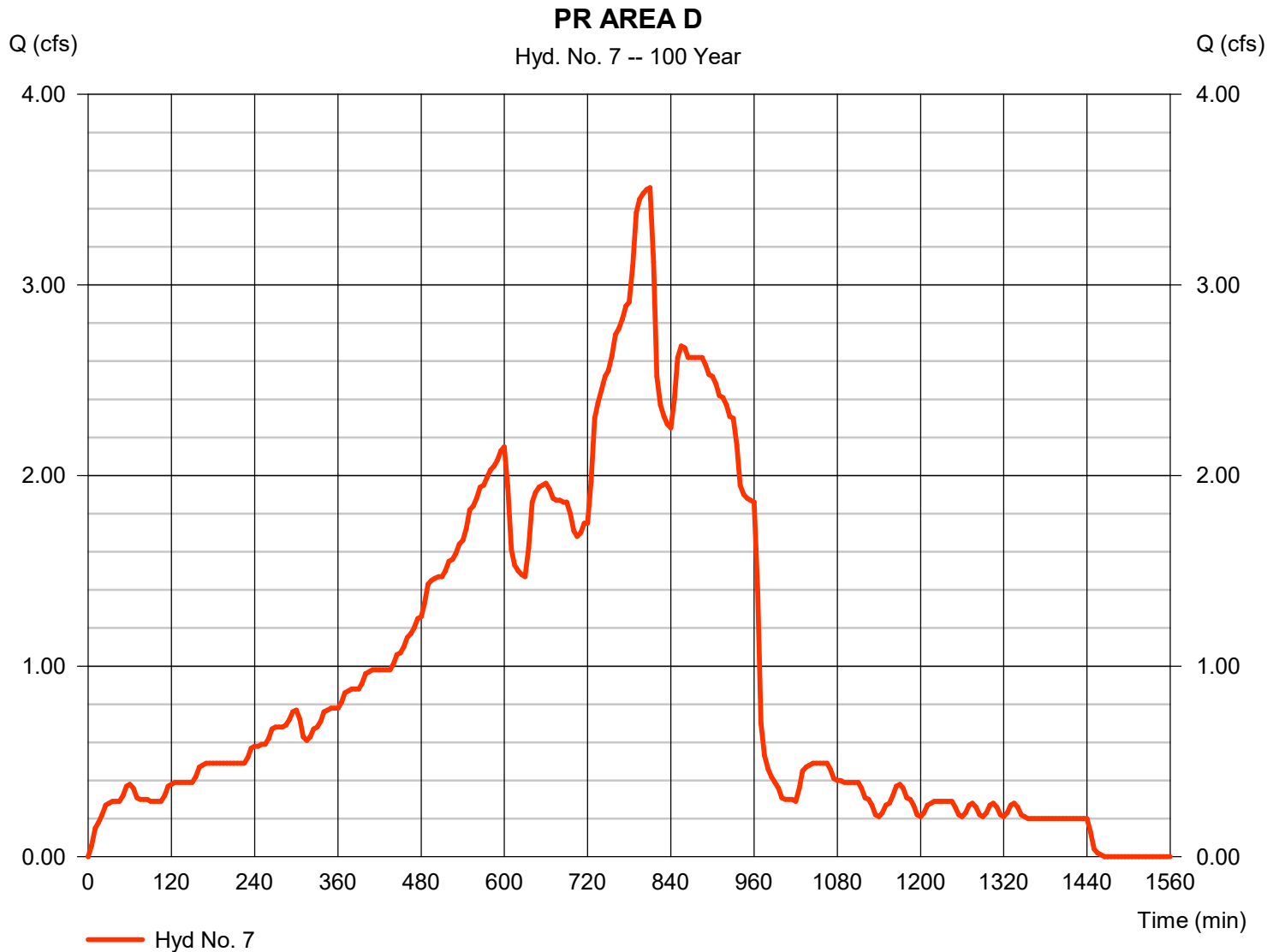
Friday, 12 / 17 / 2021

Hyd. No. 7

PR AREA D

Hydrograph type = Manual
Storm frequency = 100 yrs
Time interval = 5 min

Peak discharge = 3.510 cfs
Time to peak = 810 min
Hyd. volume = 88,920 cuft



Unit Hydrograph Analysis

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Study date 12/14/21 File: 19400PD24100.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 100-yr 24-hr
Area D

Drainage Area = 4.33(Ac.) = 0.007 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.33(Ac.) = 0.007
Sq. Mi.
Length along longest watercourse = 797.00(Ft.)
Length along longest watercourse measured to centroid = 343.00(Ft.)
Length along longest watercourse = 0.151 Mi.
Length along longest watercourse measured to centroid = 0.065 Mi.
Difference in elevation = 7.90(Ft.)
Slope along watercourse = 52.3363 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.059 Hr.
Lag time = 3.51 Min.
25% of lag time = 0.88 Min.
40% of lag time = 1.41 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]
4.33	2.44	10.57

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
4.33	6.64	28.75

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 2.440(In)
Area Averaged 100-Year Rainfall = 6.640(In)

Point rain (area averaged) = 6.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 6.640(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
4.330 56.00 0.931
Total Area Entered = 4.33(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.931	0.114	1.000	0.114
						Sum (F) = 0.114

Area averaged mean soil loss (F) (In/Hr) = 0.114
Minimum soil loss rate ((In/Hr)) = 0.057
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.155

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	142.329	31.273	1.365
2 0.167	284.659	47.551	2.075
3 0.250	426.988	11.651	0.508
4 0.333	569.318	5.125	0.224
5 0.417	711.647	2.700	0.118
6 0.500	853.976	1.700	0.074
Sum = 100.000			Sum= 4.364

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

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)		Effective
(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1 0.08	0.07	0.053	(0.203)	0.008	0.045
2 0.17	0.07	0.053	(0.202)	0.008	0.045
3 0.25	0.07	0.053	(0.201)	0.008	0.045
4 0.33	0.10	0.080	(0.201)	0.012	0.067
5 0.42	0.10	0.080	(0.200)	0.012	0.067
6 0.50	0.10	0.080	(0.199)	0.012	0.067
7 0.58	0.10	0.080	(0.198)	0.012	0.067
8 0.67	0.10	0.080	(0.197)	0.012	0.067
9 0.75	0.10	0.080	(0.197)	0.012	0.067
10 0.83	0.13	0.106	(0.196)	0.016	0.090
11 0.92	0.13	0.106	(0.195)	0.016	0.090
12 1.00	0.13	0.106	(0.194)	0.016	0.090
13 1.08	0.10	0.080	(0.194)	0.012	0.067
14 1.17	0.10	0.080	(0.193)	0.012	0.067
15 1.25	0.10	0.080	(0.192)	0.012	0.067
16 1.33	0.10	0.080	(0.191)	0.012	0.067
17 1.42	0.10	0.080	(0.191)	0.012	0.067
18 1.50	0.10	0.080	(0.190)	0.012	0.067
19 1.58	0.10	0.080	(0.189)	0.012	0.067

20	1.67	0.10	0.080	(0.188)	0.012	0.067
21	1.75	0.10	0.080	(0.187)	0.012	0.067
22	1.83	0.13	0.106	(0.187)	0.016	0.090
23	1.92	0.13	0.106	(0.186)	0.016	0.090
24	2.00	0.13	0.106	(0.185)	0.016	0.090
25	2.08	0.13	0.106	(0.184)	0.016	0.090
26	2.17	0.13	0.106	(0.184)	0.016	0.090
27	2.25	0.13	0.106	(0.183)	0.016	0.090
28	2.33	0.13	0.106	(0.182)	0.016	0.090
29	2.42	0.13	0.106	(0.181)	0.016	0.090
30	2.50	0.13	0.106	(0.181)	0.016	0.090
31	2.58	0.17	0.133	(0.180)	0.021	0.112
32	2.67	0.17	0.133	(0.179)	0.021	0.112
33	2.75	0.17	0.133	(0.179)	0.021	0.112
34	2.83	0.17	0.133	(0.178)	0.021	0.112
35	2.92	0.17	0.133	(0.177)	0.021	0.112
36	3.00	0.17	0.133	(0.176)	0.021	0.112
37	3.08	0.17	0.133	(0.176)	0.021	0.112
38	3.17	0.17	0.133	(0.175)	0.021	0.112
39	3.25	0.17	0.133	(0.174)	0.021	0.112
40	3.33	0.17	0.133	(0.173)	0.021	0.112
41	3.42	0.17	0.133	(0.173)	0.021	0.112
42	3.50	0.17	0.133	(0.172)	0.021	0.112
43	3.58	0.17	0.133	(0.171)	0.021	0.112
44	3.67	0.17	0.133	(0.171)	0.021	0.112
45	3.75	0.17	0.133	(0.170)	0.021	0.112
46	3.83	0.20	0.159	(0.169)	0.025	0.135
47	3.92	0.20	0.159	(0.168)	0.025	0.135
48	4.00	0.20	0.159	(0.168)	0.025	0.135
49	4.08	0.20	0.159	(0.167)	0.025	0.135
50	4.17	0.20	0.159	(0.166)	0.025	0.135
51	4.25	0.20	0.159	(0.166)	0.025	0.135
52	4.33	0.23	0.186	(0.165)	0.029	0.157
53	4.42	0.23	0.186	(0.164)	0.029	0.157
54	4.50	0.23	0.186	(0.163)	0.029	0.157
55	4.58	0.23	0.186	(0.163)	0.029	0.157
56	4.67	0.23	0.186	(0.162)	0.029	0.157
57	4.75	0.23	0.186	(0.161)	0.029	0.157
58	4.83	0.27	0.212	(0.161)	0.033	0.180
59	4.92	0.27	0.212	(0.160)	0.033	0.180
60	5.00	0.27	0.212	(0.159)	0.033	0.180
61	5.08	0.20	0.159	(0.159)	0.025	0.135
62	5.17	0.20	0.159	(0.158)	0.025	0.135
63	5.25	0.20	0.159	(0.157)	0.025	0.135
64	5.33	0.23	0.186	(0.156)	0.029	0.157
65	5.42	0.23	0.186	(0.156)	0.029	0.157
66	5.50	0.23	0.186	(0.155)	0.029	0.157
67	5.58	0.27	0.212	(0.154)	0.033	0.180
68	5.67	0.27	0.212	(0.154)	0.033	0.180
69	5.75	0.27	0.212	(0.153)	0.033	0.180
70	5.83	0.27	0.212	(0.152)	0.033	0.180
71	5.92	0.27	0.212	(0.152)	0.033	0.180
72	6.00	0.27	0.212	(0.151)	0.033	0.180
73	6.08	0.30	0.239	(0.150)	0.037	0.202
74	6.17	0.30	0.239	(0.150)	0.037	0.202
75	6.25	0.30	0.239	(0.149)	0.037	0.202
76	6.33	0.30	0.239	(0.148)	0.037	0.202
77	6.42	0.30	0.239	(0.148)	0.037	0.202
78	6.50	0.30	0.239	(0.147)	0.037	0.202
79	6.58	0.33	0.266	(0.146)	0.041	0.224
80	6.67	0.33	0.266	(0.146)	0.041	0.224
81	6.75	0.33	0.266	(0.145)	0.041	0.224
82	6.83	0.33	0.266	(0.144)	0.041	0.224

83	6.92	0.33	0.266	(0.144)	0.041	0.224
84	7.00	0.33	0.266	(0.143)	0.041	0.224
85	7.08	0.33	0.266	(0.142)	0.041	0.224
86	7.17	0.33	0.266	(0.142)	0.041	0.224
87	7.25	0.33	0.266	(0.141)	0.041	0.224
88	7.33	0.37	0.292	(0.141)	0.045	0.247
89	7.42	0.37	0.292	(0.140)	0.045	0.247
90	7.50	0.37	0.292	(0.139)	0.045	0.247
91	7.58	0.40	0.319	(0.139)	0.049	0.269
92	7.67	0.40	0.319	(0.138)	0.049	0.269
93	7.75	0.40	0.319	(0.137)	0.049	0.269
94	7.83	0.43	0.345	(0.137)	0.054	0.292
95	7.92	0.43	0.345	(0.136)	0.054	0.292
96	8.00	0.43	0.345	(0.135)	0.054	0.292
97	8.08	0.50	0.398	(0.135)	0.062	0.337
98	8.17	0.50	0.398	(0.134)	0.062	0.337
99	8.25	0.50	0.398	(0.134)	0.062	0.337
100	8.33	0.50	0.398	(0.133)	0.062	0.337
101	8.42	0.50	0.398	(0.132)	0.062	0.337
102	8.50	0.50	0.398	(0.132)	0.062	0.337
103	8.58	0.53	0.425	(0.131)	0.066	0.359
104	8.67	0.53	0.425	(0.130)	0.066	0.359
105	8.75	0.53	0.425	(0.130)	0.066	0.359
106	8.83	0.57	0.452	(0.129)	0.070	0.381
107	8.92	0.57	0.452	(0.129)	0.070	0.381
108	9.00	0.57	0.452	(0.128)	0.070	0.381
109	9.08	0.63	0.505	(0.127)	0.078	0.426
110	9.17	0.63	0.505	(0.127)	0.078	0.426
111	9.25	0.63	0.505	(0.126)	0.078	0.426
112	9.33	0.67	0.531	(0.126)	0.082	0.449
113	9.42	0.67	0.531	(0.125)	0.082	0.449
114	9.50	0.67	0.531	(0.124)	0.082	0.449
115	9.58	0.70	0.558	(0.124)	0.087	0.471
116	9.67	0.70	0.558	(0.123)	0.087	0.471
117	9.75	0.70	0.558	(0.123)	0.087	0.471
118	9.83	0.73	0.584	(0.122)	0.091	0.494
119	9.92	0.73	0.584	(0.121)	0.091	0.494
120	10.00	0.73	0.584	(0.121)	0.091	0.494
121	10.08	0.50	0.398	(0.120)	0.062	0.337
122	10.17	0.50	0.398	(0.120)	0.062	0.337
123	10.25	0.50	0.398	(0.119)	0.062	0.337
124	10.33	0.50	0.398	(0.119)	0.062	0.337
125	10.42	0.50	0.398	(0.118)	0.062	0.337
126	10.50	0.50	0.398	(0.117)	0.062	0.337
127	10.58	0.67	0.531	(0.117)	0.082	0.449
128	10.67	0.67	0.531	(0.116)	0.082	0.449
129	10.75	0.67	0.531	(0.116)	0.082	0.449
130	10.83	0.67	0.531	(0.115)	0.082	0.449
131	10.92	0.67	0.531	(0.115)	0.082	0.449
132	11.00	0.67	0.531	(0.114)	0.082	0.449
133	11.08	0.63	0.505	(0.113)	0.078	0.426
134	11.17	0.63	0.505	(0.113)	0.078	0.426
135	11.25	0.63	0.505	(0.112)	0.078	0.426
136	11.33	0.63	0.505	(0.112)	0.078	0.426
137	11.42	0.63	0.505	(0.111)	0.078	0.426
138	11.50	0.63	0.505	(0.111)	0.078	0.426
139	11.58	0.57	0.452	(0.110)	0.070	0.381
140	11.67	0.57	0.452	(0.110)	0.070	0.381
141	11.75	0.57	0.452	(0.109)	0.070	0.381
142	11.83	0.60	0.478	(0.108)	0.074	0.404
143	11.92	0.60	0.478	(0.108)	0.074	0.404
144	12.00	0.60	0.478	(0.107)	0.074	0.404
145	12.08	0.83	0.664	(0.107)	0.103	0.561

146	12.17	0.83	0.664	(0.106)	0.103	0.561
147	12.25	0.83	0.664	(0.106)	0.103	0.561
148	12.33	0.87	0.691	0.105	(0.107)	0.585
149	12.42	0.87	0.691	0.105	(0.107)	0.586
150	12.50	0.87	0.691	0.104	(0.107)	0.586
151	12.58	0.93	0.744	0.104	(0.115)	0.640
152	12.67	0.93	0.744	0.103	(0.115)	0.641
153	12.75	0.93	0.744	0.103	(0.115)	0.641
154	12.83	0.97	0.770	0.102	(0.120)	0.668
155	12.92	0.97	0.770	0.102	(0.120)	0.669
156	13.00	0.97	0.770	0.101	(0.120)	0.669
157	13.08	1.13	0.903	0.101	(0.140)	0.802
158	13.17	1.13	0.903	0.100	(0.140)	0.803
159	13.25	1.13	0.903	0.100	(0.140)	0.804
160	13.33	1.13	0.903	0.099	(0.140)	0.804
161	13.42	1.13	0.903	0.099	(0.140)	0.805
162	13.50	1.13	0.903	0.098	(0.140)	0.805
163	13.58	0.77	0.611	(0.098)	0.095	0.516
164	13.67	0.77	0.611	(0.097)	0.095	0.516
165	13.75	0.77	0.611	(0.097)	0.095	0.516
166	13.83	0.77	0.611	(0.096)	0.095	0.516
167	13.92	0.77	0.611	(0.096)	0.095	0.516
168	14.00	0.77	0.611	(0.095)	0.095	0.516
169	14.08	0.90	0.717	0.095	(0.111)	0.623
170	14.17	0.90	0.717	0.094	(0.111)	0.623
171	14.25	0.90	0.717	0.094	(0.111)	0.624
172	14.33	0.87	0.691	0.093	(0.107)	0.597
173	14.42	0.87	0.691	0.093	(0.107)	0.598
174	14.50	0.87	0.691	0.092	(0.107)	0.598
175	14.58	0.87	0.691	0.092	(0.107)	0.599
176	14.67	0.87	0.691	0.091	(0.107)	0.599
177	14.75	0.87	0.691	0.091	(0.107)	0.600
178	14.83	0.83	0.664	0.090	(0.103)	0.574
179	14.92	0.83	0.664	0.090	(0.103)	0.574
180	15.00	0.83	0.664	0.089	(0.103)	0.575
181	15.08	0.80	0.637	0.089	(0.099)	0.549
182	15.17	0.80	0.637	0.088	(0.099)	0.549
183	15.25	0.80	0.637	0.088	(0.099)	0.549
184	15.33	0.77	0.611	0.088	(0.095)	0.523
185	15.42	0.77	0.611	0.087	(0.095)	0.524
186	15.50	0.77	0.611	0.087	(0.095)	0.524
187	15.58	0.63	0.505	(0.086)	0.078	0.426
188	15.67	0.63	0.505	(0.086)	0.078	0.426
189	15.75	0.63	0.505	(0.085)	0.078	0.426
190	15.83	0.63	0.505	(0.085)	0.078	0.426
191	15.92	0.63	0.505	(0.084)	0.078	0.426
192	16.00	0.63	0.505	(0.084)	0.078	0.426
193	16.08	0.13	0.106	(0.084)	0.016	0.090
194	16.17	0.13	0.106	(0.083)	0.016	0.090
195	16.25	0.13	0.106	(0.083)	0.016	0.090
196	16.33	0.13	0.106	(0.082)	0.016	0.090
197	16.42	0.13	0.106	(0.082)	0.016	0.090
198	16.50	0.13	0.106	(0.082)	0.016	0.090
199	16.58	0.10	0.080	(0.081)	0.012	0.067
200	16.67	0.10	0.080	(0.081)	0.012	0.067
201	16.75	0.10	0.080	(0.080)	0.012	0.067
202	16.83	0.10	0.080	(0.080)	0.012	0.067
203	16.92	0.10	0.080	(0.079)	0.012	0.067
204	17.00	0.10	0.080	(0.079)	0.012	0.067
205	17.08	0.17	0.133	(0.079)	0.021	0.112
206	17.17	0.17	0.133	(0.078)	0.021	0.112
207	17.25	0.17	0.133	(0.078)	0.021	0.112
208	17.33	0.17	0.133	(0.077)	0.021	0.112

209	17.42	0.17	0.133	(0.077)	0.021	0.112
210	17.50	0.17	0.133	(0.077)	0.021	0.112
211	17.58	0.17	0.133	(0.076)	0.021	0.112
212	17.67	0.17	0.133	(0.076)	0.021	0.112
213	17.75	0.17	0.133	(0.076)	0.021	0.112
214	17.83	0.13	0.106	(0.075)	0.016	0.090
215	17.92	0.13	0.106	(0.075)	0.016	0.090
216	18.00	0.13	0.106	(0.074)	0.016	0.090
217	18.08	0.13	0.106	(0.074)	0.016	0.090
218	18.17	0.13	0.106	(0.074)	0.016	0.090
219	18.25	0.13	0.106	(0.073)	0.016	0.090
220	18.33	0.13	0.106	(0.073)	0.016	0.090
221	18.42	0.13	0.106	(0.073)	0.016	0.090
222	18.50	0.13	0.106	(0.072)	0.016	0.090
223	18.58	0.10	0.080	(0.072)	0.012	0.067
224	18.67	0.10	0.080	(0.072)	0.012	0.067
225	18.75	0.10	0.080	(0.071)	0.012	0.067
226	18.83	0.07	0.053	(0.071)	0.008	0.045
227	18.92	0.07	0.053	(0.071)	0.008	0.045
228	19.00	0.07	0.053	(0.070)	0.008	0.045
229	19.08	0.10	0.080	(0.070)	0.012	0.067
230	19.17	0.10	0.080	(0.070)	0.012	0.067
231	19.25	0.10	0.080	(0.069)	0.012	0.067
232	19.33	0.13	0.106	(0.069)	0.016	0.090
233	19.42	0.13	0.106	(0.069)	0.016	0.090
234	19.50	0.13	0.106	(0.068)	0.016	0.090
235	19.58	0.10	0.080	(0.068)	0.012	0.067
236	19.67	0.10	0.080	(0.068)	0.012	0.067
237	19.75	0.10	0.080	(0.067)	0.012	0.067
238	19.83	0.07	0.053	(0.067)	0.008	0.045
239	19.92	0.07	0.053	(0.067)	0.008	0.045
240	20.00	0.07	0.053	(0.066)	0.008	0.045
241	20.08	0.10	0.080	(0.066)	0.012	0.067
242	20.17	0.10	0.080	(0.066)	0.012	0.067
243	20.25	0.10	0.080	(0.066)	0.012	0.067
244	20.33	0.10	0.080	(0.065)	0.012	0.067
245	20.42	0.10	0.080	(0.065)	0.012	0.067
246	20.50	0.10	0.080	(0.065)	0.012	0.067
247	20.58	0.10	0.080	(0.064)	0.012	0.067
248	20.67	0.10	0.080	(0.064)	0.012	0.067
249	20.75	0.10	0.080	(0.064)	0.012	0.067
250	20.83	0.07	0.053	(0.064)	0.008	0.045
251	20.92	0.07	0.053	(0.063)	0.008	0.045
252	21.00	0.07	0.053	(0.063)	0.008	0.045
253	21.08	0.10	0.080	(0.063)	0.012	0.067
254	21.17	0.10	0.080	(0.063)	0.012	0.067
255	21.25	0.10	0.080	(0.062)	0.012	0.067
256	21.33	0.07	0.053	(0.062)	0.008	0.045
257	21.42	0.07	0.053	(0.062)	0.008	0.045
258	21.50	0.07	0.053	(0.062)	0.008	0.045
259	21.58	0.10	0.080	(0.061)	0.012	0.067
260	21.67	0.10	0.080	(0.061)	0.012	0.067
261	21.75	0.10	0.080	(0.061)	0.012	0.067
262	21.83	0.07	0.053	(0.061)	0.008	0.045
263	21.92	0.07	0.053	(0.061)	0.008	0.045
264	22.00	0.07	0.053	(0.060)	0.008	0.045
265	22.08	0.10	0.080	(0.060)	0.012	0.067
266	22.17	0.10	0.080	(0.060)	0.012	0.067
267	22.25	0.10	0.080	(0.060)	0.012	0.067
268	22.33	0.07	0.053	(0.060)	0.008	0.045
269	22.42	0.07	0.053	(0.059)	0.008	0.045
270	22.50	0.07	0.053	(0.059)	0.008	0.045
271	22.58	0.07	0.053	(0.059)	0.008	0.045

272	22.67	0.07	0.053	(0.059)	0.008	0.045
273	22.75	0.07	0.053	(0.059)	0.008	0.045
274	22.83	0.07	0.053	(0.059)	0.008	0.045
275	22.92	0.07	0.053	(0.058)	0.008	0.045
276	23.00	0.07	0.053	(0.058)	0.008	0.045
277	23.08	0.07	0.053	(0.058)	0.008	0.045
278	23.17	0.07	0.053	(0.058)	0.008	0.045
279	23.25	0.07	0.053	(0.058)	0.008	0.045
280	23.33	0.07	0.053	(0.058)	0.008	0.045
281	23.42	0.07	0.053	(0.058)	0.008	0.045
282	23.50	0.07	0.053	(0.058)	0.008	0.045
283	23.58	0.07	0.053	(0.058)	0.008	0.045
284	23.67	0.07	0.053	(0.057)	0.008	0.045
285	23.75	0.07	0.053	(0.057)	0.008	0.045
286	23.83	0.07	0.053	(0.057)	0.008	0.045
287	23.92	0.07	0.053	(0.057)	0.008	0.045
288	24.00	0.07	0.053	(0.057)	0.008	0.045

(Loss Rate Not Used)

Sum = 100.0 Sum = 67.9

Flood volume = Effective rainfall 5.66(In)
times area 4.3(Ac.)/[(In)/(Ft.)] = 2.0(Ac.Ft)

Total soil loss = 0.98(In)

Total soil loss = 0.354(Ac.Ft)

Total rainfall = 6.64(In)

Flood volume = 88928.6 Cubic Feet

Total soil loss = 15437.4 Cubic Feet

Peak flow rate of this hydrograph = 3.512(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0015	0.15	Q				
0+15	0.0027	0.18	Q				
0+20	0.0042	0.22	Q				
0+25	0.0061	0.27	VQ				
0+30	0.0080	0.28	VQ				
0+35	0.0100	0.29	VQ				
0+40	0.0120	0.29	VQ				
0+45	0.0141	0.29	VQ				
0+50	0.0163	0.32	VQ				
0+55	0.0188	0.37	VQ				
1+ 0	0.0215	0.38	VQ				
1+ 5	0.0239	0.36	VQ				
1+10	0.0261	0.31	VQ				
1+15	0.0282	0.30	VQ				
1+20	0.0302	0.30	VQ				
1+25	0.0323	0.30	VQ				
1+30	0.0343	0.29	VQ				
1+35	0.0363	0.29	VQ				
1+40	0.0383	0.29	VQ				
1+45	0.0404	0.29	VQ				
1+50	0.0426	0.32	VQ				
1+55	0.0452	0.37	VQ				
2+ 0	0.0478	0.38	VQ				
2+ 5	0.0505	0.39	VQ				

2+10	0.0532	0.39	Q				
2+15	0.0559	0.39	Q				
2+20	0.0585	0.39	Q				
2+25	0.0612	0.39	Q				
2+30	0.0639	0.39	Q				
2+35	0.0669	0.42	Q				
2+40	0.0701	0.47	Q				
2+45	0.0734	0.48	Q				
2+50	0.0767	0.49	Q				
2+55	0.0801	0.49	Q				
3+ 0	0.0835	0.49	Q				
3+ 5	0.0868	0.49	Q				
3+10	0.0902	0.49	Q				
3+15	0.0936	0.49	Q				
3+20	0.0970	0.49	Q				
3+25	0.1003	0.49	Q				
3+30	0.1037	0.49	QV				
3+35	0.1071	0.49	QV				
3+40	0.1105	0.49	QV				
3+45	0.1138	0.49	QV				
3+50	0.1174	0.52	Q				
3+55	0.1213	0.57	Q				
4+ 0	0.1253	0.58	Q				
4+ 5	0.1293	0.58	Q				
4+10	0.1334	0.59	Q				
4+15	0.1374	0.59	Q				
4+20	0.1417	0.62	Q				
4+25	0.1463	0.67	Q				
4+30	0.1509	0.68	Q				
4+35	0.1556	0.68	QV				
4+40	0.1603	0.68	QV				
4+45	0.1650	0.69	QV				
4+50	0.1700	0.72	QV				
4+55	0.1752	0.76	Q				
5+ 0	0.1806	0.77	Q				
5+ 5	0.1855	0.72	QV				
5+10	0.1898	0.63	QV				
5+15	0.1940	0.61	QV				
5+20	0.1983	0.63	QV				
5+25	0.2029	0.67	QV				
5+30	0.2076	0.68	Q V				
5+35	0.2125	0.71	Q V				
5+40	0.2177	0.76	QV				
5+45	0.2231	0.77	QV				
5+50	0.2284	0.78	QV				
5+55	0.2338	0.78	QV				
6+ 0	0.2392	0.78	QV				
6+ 5	0.2448	0.81	QV				
6+10	0.2508	0.86	QV				
6+15	0.2568	0.87	Q V				
6+20	0.2628	0.88	Q V				
6+25	0.2689	0.88	Q V				
6+30	0.2749	0.88	Q V				
6+35	0.2812	0.91	Q V				
6+40	0.2878	0.96	Q V				
6+45	0.2945	0.97	Q V				
6+50	0.3012	0.98	Q V				
6+55	0.3080	0.98	Q V				
7+ 0	0.3147	0.98	Q V				
7+ 5	0.3215	0.98	Q V				
7+10	0.3282	0.98	Q V				
7+15	0.3349	0.98	Q V				
7+20	0.3419	1.01	Q V				

7+25	0.3492	1.06		Q	V					
7+30	0.3565	1.07		Q	V					
7+35	0.3641	1.10		Q	V					
7+40	0.3721	1.15		Q	V					
7+45	0.3801	1.17		Q	V					
7+50	0.3884	1.20		Q	V					
7+55	0.3970	1.25		Q	V					
8+ 0	0.4057	1.26		Q	V					
8+ 5	0.4149	1.33		Q	V					
8+10	0.4247	1.43		Q	V					
8+15	0.4347	1.45		Q	V					
8+20	0.4448	1.46		Q	V					
8+25	0.4549	1.47		Q	V					
8+30	0.4650	1.47		Q	V					
8+35	0.4753	1.50		Q	V					
8+40	0.4860	1.55		Q	V					
8+45	0.4967	1.56		Q	V					
8+50	0.5077	1.59		Q	V					
8+55	0.5190	1.64		Q	V					
9+ 0	0.5304	1.66		Q	V					
9+ 5	0.5422	1.72		Q	V					
9+10	0.5548	1.82		Q	V					
9+15	0.5675	1.84		Q	V					
9+20	0.5804	1.88		Q	V					
9+25	0.5938	1.94		Q	V					
9+30	0.6072	1.95		Q	V					
9+35	0.6209	1.99		Q	V					
9+40	0.6349	2.03		Q	V					
9+45	0.6490	2.05		Q	V					
9+50	0.6633	2.08		Q	V					
9+55	0.6780	2.13		Q	V					
10+ 0	0.6928	2.15		Q	V					
10+ 5	0.7061	1.94		Q	V					
10+10	0.7172	1.61		Q	V					
10+15	0.7278	1.53		Q	V					
10+20	0.7381	1.50		Q	V					
10+25	0.7483	1.48		Q	V					
10+30	0.7585	1.47		Q	V					
10+35	0.7696	1.62		Q	V					
10+40	0.7824	1.86		Q	V					
10+45	0.7956	1.91		Q	V					
10+50	0.8089	1.94		Q	V					
10+55	0.8224	1.95		Q	V					
11+ 0	0.8359	1.96		Q	V					
11+ 5	0.8492	1.93		Q	V					
11+10	0.8621	1.88		Q	V					
11+15	0.8750	1.87		Q	V					
11+20	0.8878	1.87		Q	V					
11+25	0.9007	1.86		Q	V					
11+30	0.9135	1.86		Q	V					
11+35	0.9259	1.80		Q	V					
11+40	0.9376	1.71		Q	V					
11+45	0.9492	1.68		Q	V					
11+50	0.9610	1.70		Q	V					
11+55	0.9730	1.75		Q	V					
12+ 0	0.9851	1.75		Q	V					
12+ 5	0.9987	1.97		Q	V					
12+10	1.0145	2.30		Q	V					
12+15	1.0310	2.38		Q	V					
12+20	1.0478	2.45		Q	V					
12+25	1.0652	2.52		Q	V					
12+30	1.0828	2.55		Q	V					
12+35	1.1009	2.63		Q	V					

12+40	1.1198	2.74		Q	V		
12+45	1.1389	2.77		Q	V		
12+50	1.1583	2.82		Q	V		
12+55	1.1782	2.89		Q	V		
13+ 0	1.1982	2.91		Q	V		
13+ 5	1.2196	3.10		Q	V		
13+10	1.2428	3.38		Q	V		
13+15	1.2666	3.45		Q	V		
13+20	1.2906	3.48		Q	V		
13+25	1.3147	3.50		Q	V		
13+30	1.3389	3.51		Q	V		
13+35	1.3604	3.12		Q	V		
13+40	1.3777	2.52		Q	V		
13+45	1.3941	2.37		Q	V		
13+50	1.4100	2.31		Q	V		
13+55	1.4256	2.27		Q	V		
14+ 0	1.4412	2.25		Q	V		
14+ 5	1.4577	2.40		Q	V		
14+10	1.4757	2.62		Q	V		
14+15	1.4942	2.68		Q	V		
14+20	1.5125	2.67		Q	V		
14+25	1.5306	2.62		Q	V		
14+30	1.5486	2.62		Q	V		
14+35	1.5667	2.62		Q	V		
14+40	1.5847	2.62		Q	V		
14+45	1.6027	2.62		Q	V		
14+50	1.6205	2.58		Q	V		
14+55	1.6379	2.53		Q	V		
15+ 0	1.6553	2.52		Q	V		
15+ 5	1.6723	2.48		Q	V		
15+10	1.6890	2.42		Q	V		
15+15	1.7056	2.41		Q	V		
15+20	1.7219	2.37		Q	V		
15+25	1.7378	2.31		Q	V		
15+30	1.7536	2.30		Q	V		
15+35	1.7685	2.16		Q	V		
15+40	1.7819	1.95		Q	V		
15+45	1.7950	1.90		Q	V		
15+50	1.8080	1.88		Q	V		
15+55	1.8209	1.87		Q	V		
16+ 0	1.8337	1.86		Q	V		
16+ 5	1.8433	1.40		Q	V		
16+10	1.8482	0.70	Q		V		
16+15	1.8518	0.53	Q		V		
16+20	1.8550	0.46	Q		V		
16+25	1.8579	0.42	Q		V		
16+30	1.8606	0.39	Q		V		
16+35	1.8630	0.36	Q		V		
16+40	1.8652	0.31	Q		V		
16+45	1.8673	0.30	Q		V		
16+50	1.8694	0.30	Q		V		
16+55	1.8714	0.30	Q		V		
17+ 0	1.8734	0.29	Q		V		
17+ 5	1.8759	0.36	Q		V		
17+10	1.8789	0.45	Q		V		
17+15	1.8822	0.47	Q		V		
17+20	1.8855	0.48	Q		V		
17+25	1.8889	0.49	Q		V		
17+30	1.8922	0.49	Q		V		
17+35	1.8956	0.49	Q		V		
17+40	1.8990	0.49	Q		V		
17+45	1.9023	0.49	Q		V		
17+50	1.9055	0.46	Q		V		

17+55	1.9084	0.41	IQ				V	
18+ 0	1.9111	0.40	IQ				V	
18+ 5	1.9138	0.40	IQ				V	
18+10	1.9166	0.39	IQ				V	
18+15	1.9193	0.39	IQ				V	
18+20	1.9220	0.39	IQ				V	
18+25	1.9246	0.39	IQ				V	
18+30	1.9273	0.39	IQ				V	
18+35	1.9298	0.36	IQ				V	
18+40	1.9320	0.31	IQ				V	
18+45	1.9341	0.30	IQ				V	
18+50	1.9359	0.27	IQ				V	
18+55	1.9374	0.22	Q				V	
19+ 0	1.9389	0.21	Q				V	
19+ 5	1.9404	0.23	Q				V	
19+10	1.9423	0.27	IQ				V	
19+15	1.9443	0.28	IQ				V	
19+20	1.9465	0.32	IQ				V	
19+25	1.9490	0.37	IQ				V	
19+30	1.9517	0.38	IQ				V	
19+35	1.9541	0.36	IQ				V	
19+40	1.9563	0.31	IQ				V	
19+45	1.9584	0.30	IQ				V	
19+50	1.9602	0.27	IQ				V	
19+55	1.9617	0.22	Q				V	
20+ 0	1.9631	0.21	Q				V	
20+ 5	1.9647	0.23	Q				V	
20+10	1.9666	0.27	IQ				V	
20+15	1.9686	0.28	IQ				V	
20+20	1.9706	0.29	IQ				V	
20+25	1.9726	0.29	IQ				V	
20+30	1.9746	0.29	IQ				V	
20+35	1.9766	0.29	IQ				V	
20+40	1.9787	0.29	IQ				V	
20+45	1.9807	0.29	IQ				V	
20+50	1.9825	0.26	IQ				V	
20+55	1.9840	0.22	Q				V	
21+ 0	1.9854	0.21	Q				V	
21+ 5	1.9870	0.23	Q				V	
21+10	1.9889	0.27	IQ				V	
21+15	1.9908	0.28	IQ				V	
21+20	1.9926	0.26	IQ				V	
21+25	1.9941	0.22	Q				V	
21+30	1.9955	0.21	Q				V	
21+35	1.9971	0.23	Q				V	
21+40	1.9990	0.27	IQ				V	
21+45	2.0010	0.28	IQ				V	
21+50	2.0028	0.26	IQ				V	
21+55	2.0042	0.22	Q				V	
22+ 0	2.0056	0.21	Q				V	
22+ 5	2.0072	0.23	Q				V	
22+10	2.0091	0.27	IQ				V	
22+15	2.0111	0.28	IQ				V	
22+20	2.0129	0.26	IQ				V	
22+25	2.0144	0.22	Q				V	
22+30	2.0158	0.21	Q				V	
22+35	2.0171	0.20	Q				V	
22+40	2.0185	0.20	Q				V	
22+45	2.0199	0.20	Q				V	
22+50	2.0212	0.20	Q				V	
22+55	2.0226	0.20	Q				V	
23+ 0	2.0239	0.20	Q				V	
23+ 5	2.0253	0.20	Q				V	

23+10	2.0266	0.20	Q				V
23+15	2.0280	0.20	Q				V
23+20	2.0293	0.20	Q				V
23+25	2.0307	0.20	Q				V
23+30	2.0320	0.20	Q				V
23+35	2.0333	0.20	Q				V
23+40	2.0347	0.20	Q				V
23+45	2.0360	0.20	Q				V
23+50	2.0374	0.20	Q				V
23+55	2.0387	0.20	Q				V
24+ 0	2.0401	0.20	Q				V
24+ 5	2.0410	0.13	Q				V
24+10	2.0413	0.04	Q				V
24+15	2.0414	0.02	Q				V
24+20	2.0415	0.01	Q				V
24+25	2.0415	0.00	Q				V

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

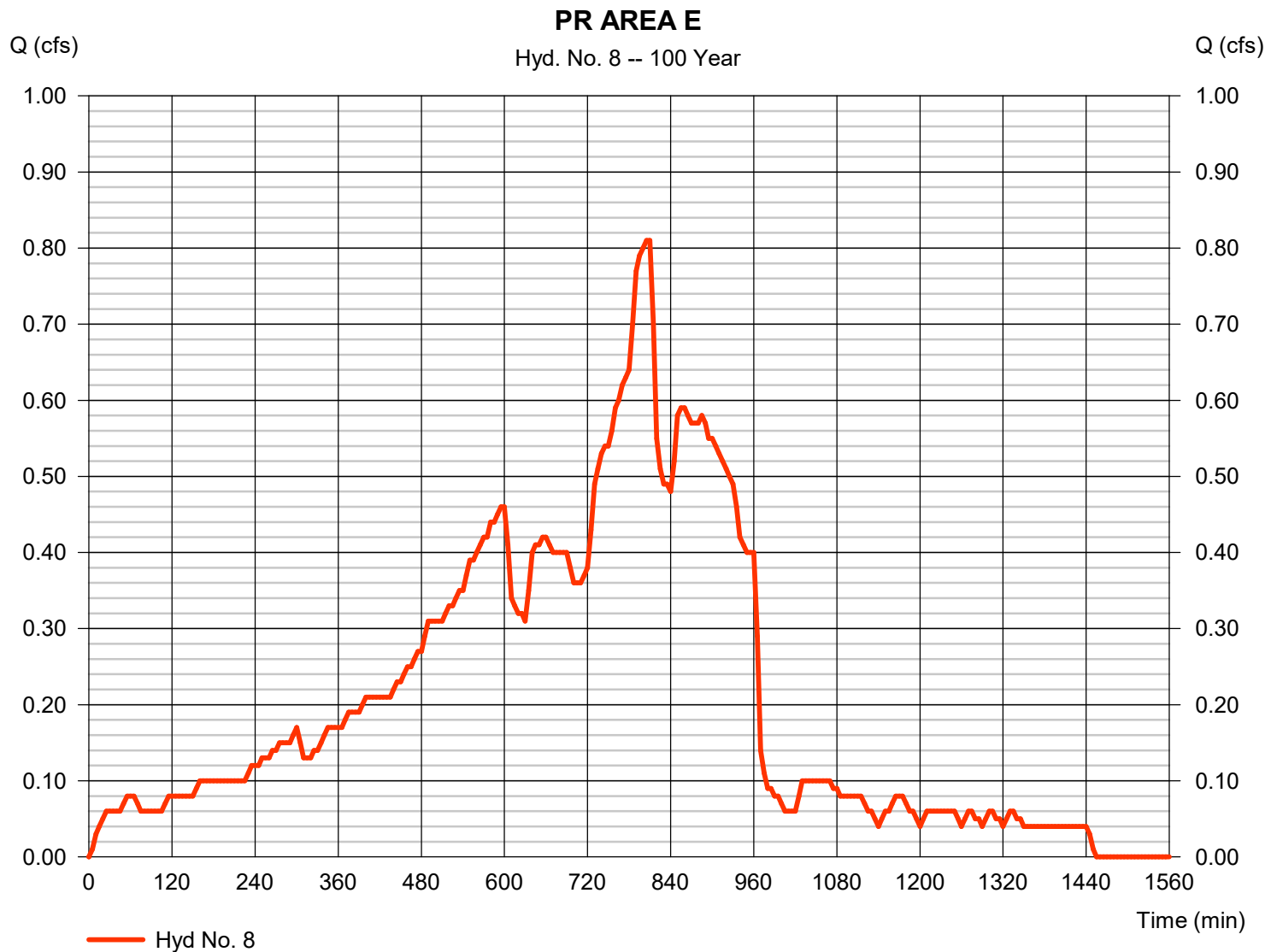
Friday, 12 / 17 / 2021

Hyd. No. 8

PR AREA E

Hydrograph type = Manual
Storm frequency = 100 yrs
Time interval = 5 min

Peak discharge = 0.810 cfs
Time to peak = 805 min
Hyd. volume = 19,137 cuft



Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2
Study date 12/14/21 File: 19400PE24100.out

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

Program License Serial Number 6310

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

English Units used in output format

19-400 Lake Elsinore
Proposed 100-yr 24-hr
Area E

Drainage Area = 1.18(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.18(Ac.) = 0.002
Sq. Mi.
Length along longest watercourse = 788.00(Ft.)
Length along longest watercourse measured to centroid = 333.00(Ft.)
Length along longest watercourse = 0.149 Mi.
Length along longest watercourse measured to centroid = 0.063 Mi.
Difference in elevation = 10.30(Ft.)
Slope along watercourse = 69.0152 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.055 Hr.
Lag time = 3.28 Min.
25% of lag time = 0.82 Min.
40% of lag time = 1.31 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]
1.18	2.44	2.88

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.18	6.64	7.84

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 2.440(In)
Area Averaged 100-Year Rainfall = 6.640(In)

Point rain (area averaged) = 6.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 6.640(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.180 56.00 0.703
Total Area Entered = 1.18 (Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	36.0	0.706	0.703	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) = 0.338

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	152.363	33.742	0.401
2 0.167	304.726	46.836	0.557
3 0.250	457.088	11.045	0.131
4 0.333	609.451	4.812	0.057
5 0.417	761.814	2.399	0.029
6 0.500	914.177	1.165	0.014
		Sum = 100.000	Sum= 1.189

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	(0.460)	0.018
2	0.17	0.07	(0.458)	0.018
3	0.25	0.07	(0.456)	0.018
4	0.33	0.10	(0.454)	0.027
5	0.42	0.10	(0.453)	0.027
6	0.50	0.10	(0.451)	0.027
7	0.58	0.10	(0.449)	0.027
8	0.67	0.10	(0.447)	0.027
9	0.75	0.10	(0.446)	0.027
10	0.83	0.13	(0.444)	0.036
11	0.92	0.13	(0.442)	0.036
12	1.00	0.13	(0.440)	0.036
13	1.08	0.10	(0.439)	0.027
14	1.17	0.10	(0.437)	0.027
15	1.25	0.10	(0.435)	0.027
16	1.33	0.10	(0.433)	0.027
17	1.42	0.10	(0.432)	0.027
18	1.50	0.10	(0.430)	0.027
19	1.58	0.10	(0.428)	0.027

20	1.67	0.10	0.080	(0.427)	0.027	0.053
21	1.75	0.10	0.080	(0.425)	0.027	0.053
22	1.83	0.13	0.106	(0.423)	0.036	0.070
23	1.92	0.13	0.106	(0.421)	0.036	0.070
24	2.00	0.13	0.106	(0.420)	0.036	0.070
25	2.08	0.13	0.106	(0.418)	0.036	0.070
26	2.17	0.13	0.106	(0.416)	0.036	0.070
27	2.25	0.13	0.106	(0.415)	0.036	0.070
28	2.33	0.13	0.106	(0.413)	0.036	0.070
29	2.42	0.13	0.106	(0.411)	0.036	0.070
30	2.50	0.13	0.106	(0.410)	0.036	0.070
31	2.58	0.17	0.133	(0.408)	0.045	0.088
32	2.67	0.17	0.133	(0.406)	0.045	0.088
33	2.75	0.17	0.133	(0.405)	0.045	0.088
34	2.83	0.17	0.133	(0.403)	0.045	0.088
35	2.92	0.17	0.133	(0.401)	0.045	0.088
36	3.00	0.17	0.133	(0.400)	0.045	0.088
37	3.08	0.17	0.133	(0.398)	0.045	0.088
38	3.17	0.17	0.133	(0.396)	0.045	0.088
39	3.25	0.17	0.133	(0.395)	0.045	0.088
40	3.33	0.17	0.133	(0.393)	0.045	0.088
41	3.42	0.17	0.133	(0.391)	0.045	0.088
42	3.50	0.17	0.133	(0.390)	0.045	0.088
43	3.58	0.17	0.133	(0.388)	0.045	0.088
44	3.67	0.17	0.133	(0.386)	0.045	0.088
45	3.75	0.17	0.133	(0.385)	0.045	0.088
46	3.83	0.20	0.159	(0.383)	0.054	0.106
47	3.92	0.20	0.159	(0.382)	0.054	0.106
48	4.00	0.20	0.159	(0.380)	0.054	0.106
49	4.08	0.20	0.159	(0.378)	0.054	0.106
50	4.17	0.20	0.159	(0.377)	0.054	0.106
51	4.25	0.20	0.159	(0.375)	0.054	0.106
52	4.33	0.23	0.186	(0.373)	0.063	0.123
53	4.42	0.23	0.186	(0.372)	0.063	0.123
54	4.50	0.23	0.186	(0.370)	0.063	0.123
55	4.58	0.23	0.186	(0.369)	0.063	0.123
56	4.67	0.23	0.186	(0.367)	0.063	0.123
57	4.75	0.23	0.186	(0.366)	0.063	0.123
58	4.83	0.27	0.212	(0.364)	0.072	0.141
59	4.92	0.27	0.212	(0.362)	0.072	0.141
60	5.00	0.27	0.212	(0.361)	0.072	0.141
61	5.08	0.20	0.159	(0.359)	0.054	0.106
62	5.17	0.20	0.159	(0.358)	0.054	0.106
63	5.25	0.20	0.159	(0.356)	0.054	0.106
64	5.33	0.23	0.186	(0.355)	0.063	0.123
65	5.42	0.23	0.186	(0.353)	0.063	0.123
66	5.50	0.23	0.186	(0.351)	0.063	0.123
67	5.58	0.27	0.212	(0.350)	0.072	0.141
68	5.67	0.27	0.212	(0.348)	0.072	0.141
69	5.75	0.27	0.212	(0.347)	0.072	0.141
70	5.83	0.27	0.212	(0.345)	0.072	0.141
71	5.92	0.27	0.212	(0.344)	0.072	0.141
72	6.00	0.27	0.212	(0.342)	0.072	0.141
73	6.08	0.30	0.239	(0.341)	0.081	0.158
74	6.17	0.30	0.239	(0.339)	0.081	0.158
75	6.25	0.30	0.239	(0.338)	0.081	0.158
76	6.33	0.30	0.239	(0.336)	0.081	0.158
77	6.42	0.30	0.239	(0.335)	0.081	0.158
78	6.50	0.30	0.239	(0.333)	0.081	0.158
79	6.58	0.33	0.266	(0.332)	0.090	0.176
80	6.67	0.33	0.266	(0.330)	0.090	0.176
81	6.75	0.33	0.266	(0.329)	0.090	0.176
82	6.83	0.33	0.266	(0.327)	0.090	0.176

83	6.92	0.33	0.266	(0.326)	0.090	0.176
84	7.00	0.33	0.266	(0.324)	0.090	0.176
85	7.08	0.33	0.266	(0.323)	0.090	0.176
86	7.17	0.33	0.266	(0.321)	0.090	0.176
87	7.25	0.33	0.266	(0.320)	0.090	0.176
88	7.33	0.37	0.292	(0.318)	0.099	0.194
89	7.42	0.37	0.292	(0.317)	0.099	0.194
90	7.50	0.37	0.292	(0.316)	0.099	0.194
91	7.58	0.40	0.319	(0.314)	0.108	0.211
92	7.67	0.40	0.319	(0.313)	0.108	0.211
93	7.75	0.40	0.319	(0.311)	0.108	0.211
94	7.83	0.43	0.345	(0.310)	0.117	0.229
95	7.92	0.43	0.345	(0.308)	0.117	0.229
96	8.00	0.43	0.345	(0.307)	0.117	0.229
97	8.08	0.50	0.398	(0.305)	0.134	0.264
98	8.17	0.50	0.398	(0.304)	0.134	0.264
99	8.25	0.50	0.398	(0.303)	0.134	0.264
100	8.33	0.50	0.398	(0.301)	0.134	0.264
101	8.42	0.50	0.398	(0.300)	0.134	0.264
102	8.50	0.50	0.398	(0.298)	0.134	0.264
103	8.58	0.53	0.425	(0.297)	0.143	0.281
104	8.67	0.53	0.425	(0.296)	0.143	0.281
105	8.75	0.53	0.425	(0.294)	0.143	0.281
106	8.83	0.57	0.452	(0.293)	0.152	0.299
107	8.92	0.57	0.452	(0.291)	0.152	0.299
108	9.00	0.57	0.452	(0.290)	0.152	0.299
109	9.08	0.63	0.505	(0.289)	0.170	0.334
110	9.17	0.63	0.505	(0.287)	0.170	0.334
111	9.25	0.63	0.505	(0.286)	0.170	0.334
112	9.33	0.67	0.531	(0.285)	0.179	0.352
113	9.42	0.67	0.531	(0.283)	0.179	0.352
114	9.50	0.67	0.531	(0.282)	0.179	0.352
115	9.58	0.70	0.558	(0.281)	0.188	0.369
116	9.67	0.70	0.558	(0.279)	0.188	0.369
117	9.75	0.70	0.558	(0.278)	0.188	0.369
118	9.83	0.73	0.584	(0.276)	0.197	0.387
119	9.92	0.73	0.584	(0.275)	0.197	0.387
120	10.00	0.73	0.584	(0.274)	0.197	0.387
121	10.08	0.50	0.398	(0.273)	0.134	0.264
122	10.17	0.50	0.398	(0.271)	0.134	0.264
123	10.25	0.50	0.398	(0.270)	0.134	0.264
124	10.33	0.50	0.398	(0.269)	0.134	0.264
125	10.42	0.50	0.398	(0.267)	0.134	0.264
126	10.50	0.50	0.398	(0.266)	0.134	0.264
127	10.58	0.67	0.531	(0.265)	0.179	0.352
128	10.67	0.67	0.531	(0.263)	0.179	0.352
129	10.75	0.67	0.531	(0.262)	0.179	0.352
130	10.83	0.67	0.531	(0.261)	0.179	0.352
131	10.92	0.67	0.531	(0.260)	0.179	0.352
132	11.00	0.67	0.531	(0.258)	0.179	0.352
133	11.08	0.63	0.505	(0.257)	0.170	0.334
134	11.17	0.63	0.505	(0.256)	0.170	0.334
135	11.25	0.63	0.505	(0.254)	0.170	0.334
136	11.33	0.63	0.505	(0.253)	0.170	0.334
137	11.42	0.63	0.505	(0.252)	0.170	0.334
138	11.50	0.63	0.505	(0.251)	0.170	0.334
139	11.58	0.57	0.452	(0.249)	0.152	0.299
140	11.67	0.57	0.452	(0.248)	0.152	0.299
141	11.75	0.57	0.452	(0.247)	0.152	0.299
142	11.83	0.60	0.478	(0.246)	0.161	0.317
143	11.92	0.60	0.478	(0.245)	0.161	0.317
144	12.00	0.60	0.478	(0.243)	0.161	0.317
145	12.08	0.83	0.664	(0.242)	0.224	0.440

146	12.17	0.83	0.664	(0.241)	0.224	0.440
147	12.25	0.83	0.664	(0.240)	0.224	0.440
148	12.33	0.87	0.691	(0.238)	0.233	0.457
149	12.42	0.87	0.691	(0.237)	0.233	0.457
150	12.50	0.87	0.691	(0.236)	0.233	0.457
151	12.58	0.93	0.744	0.235	(0.251)	0.509
152	12.67	0.93	0.744	0.234	(0.251)	0.510
153	12.75	0.93	0.744	0.233	(0.251)	0.511
154	12.83	0.97	0.770	0.231	(0.260)	0.539
155	12.92	0.97	0.770	0.230	(0.260)	0.540
156	13.00	0.97	0.770	0.229	(0.260)	0.541
157	13.08	1.13	0.903	0.228	(0.305)	0.675
158	13.17	1.13	0.903	0.227	(0.305)	0.676
159	13.25	1.13	0.903	0.226	(0.305)	0.678
160	13.33	1.13	0.903	0.224	(0.305)	0.679
161	13.42	1.13	0.903	0.223	(0.305)	0.680
162	13.50	1.13	0.903	0.222	(0.305)	0.681
163	13.58	0.77	0.611	(0.221)	0.206	0.405
164	13.67	0.77	0.611	(0.220)	0.206	0.405
165	13.75	0.77	0.611	(0.219)	0.206	0.405
166	13.83	0.77	0.611	(0.218)	0.206	0.405
167	13.92	0.77	0.611	(0.217)	0.206	0.405
168	14.00	0.77	0.611	(0.215)	0.206	0.405
169	14.08	0.90	0.717	0.214	(0.242)	0.503
170	14.17	0.90	0.717	0.213	(0.242)	0.504
171	14.25	0.90	0.717	0.212	(0.242)	0.505
172	14.33	0.87	0.691	0.211	(0.233)	0.480
173	14.42	0.87	0.691	0.210	(0.233)	0.481
174	14.50	0.87	0.691	0.209	(0.233)	0.482
175	14.58	0.87	0.691	0.208	(0.233)	0.483
176	14.67	0.87	0.691	0.207	(0.233)	0.484
177	14.75	0.87	0.691	0.206	(0.233)	0.485
178	14.83	0.83	0.664	0.205	(0.224)	0.459
179	14.92	0.83	0.664	0.204	(0.224)	0.460
180	15.00	0.83	0.664	0.203	(0.224)	0.461
181	15.08	0.80	0.637	0.201	(0.215)	0.436
182	15.17	0.80	0.637	0.200	(0.215)	0.437
183	15.25	0.80	0.637	0.199	(0.215)	0.438
184	15.33	0.77	0.611	0.198	(0.206)	0.412
185	15.42	0.77	0.611	0.197	(0.206)	0.413
186	15.50	0.77	0.611	0.196	(0.206)	0.414
187	15.58	0.63	0.505	(0.195)	0.170	0.334
188	15.67	0.63	0.505	(0.194)	0.170	0.334
189	15.75	0.63	0.505	(0.193)	0.170	0.334
190	15.83	0.63	0.505	(0.192)	0.170	0.334
191	15.92	0.63	0.505	(0.191)	0.170	0.334
192	16.00	0.63	0.505	(0.190)	0.170	0.334
193	16.08	0.13	0.106	(0.189)	0.036	0.070
194	16.17	0.13	0.106	(0.188)	0.036	0.070
195	16.25	0.13	0.106	(0.188)	0.036	0.070
196	16.33	0.13	0.106	(0.187)	0.036	0.070
197	16.42	0.13	0.106	(0.186)	0.036	0.070
198	16.50	0.13	0.106	(0.185)	0.036	0.070
199	16.58	0.10	0.080	(0.184)	0.027	0.053
200	16.67	0.10	0.080	(0.183)	0.027	0.053
201	16.75	0.10	0.080	(0.182)	0.027	0.053
202	16.83	0.10	0.080	(0.181)	0.027	0.053
203	16.92	0.10	0.080	(0.180)	0.027	0.053
204	17.00	0.10	0.080	(0.179)	0.027	0.053
205	17.08	0.17	0.133	(0.178)	0.045	0.088
206	17.17	0.17	0.133	(0.177)	0.045	0.088
207	17.25	0.17	0.133	(0.176)	0.045	0.088
208	17.33	0.17	0.133	(0.176)	0.045	0.088

209	17.42	0.17	0.133	(0.175)	0.045	0.088
210	17.50	0.17	0.133	(0.174)	0.045	0.088
211	17.58	0.17	0.133	(0.173)	0.045	0.088
212	17.67	0.17	0.133	(0.172)	0.045	0.088
213	17.75	0.17	0.133	(0.171)	0.045	0.088
214	17.83	0.13	0.106	(0.170)	0.036	0.070
215	17.92	0.13	0.106	(0.170)	0.036	0.070
216	18.00	0.13	0.106	(0.169)	0.036	0.070
217	18.08	0.13	0.106	(0.168)	0.036	0.070
218	18.17	0.13	0.106	(0.167)	0.036	0.070
219	18.25	0.13	0.106	(0.166)	0.036	0.070
220	18.33	0.13	0.106	(0.165)	0.036	0.070
221	18.42	0.13	0.106	(0.165)	0.036	0.070
222	18.50	0.13	0.106	(0.164)	0.036	0.070
223	18.58	0.10	0.080	(0.163)	0.027	0.053
224	18.67	0.10	0.080	(0.162)	0.027	0.053
225	18.75	0.10	0.080	(0.161)	0.027	0.053
226	18.83	0.07	0.053	(0.161)	0.018	0.035
227	18.92	0.07	0.053	(0.160)	0.018	0.035
228	19.00	0.07	0.053	(0.159)	0.018	0.035
229	19.08	0.10	0.080	(0.158)	0.027	0.053
230	19.17	0.10	0.080	(0.158)	0.027	0.053
231	19.25	0.10	0.080	(0.157)	0.027	0.053
232	19.33	0.13	0.106	(0.156)	0.036	0.070
233	19.42	0.13	0.106	(0.155)	0.036	0.070
234	19.50	0.13	0.106	(0.155)	0.036	0.070
235	19.58	0.10	0.080	(0.154)	0.027	0.053
236	19.67	0.10	0.080	(0.153)	0.027	0.053
237	19.75	0.10	0.080	(0.153)	0.027	0.053
238	19.83	0.07	0.053	(0.152)	0.018	0.035
239	19.92	0.07	0.053	(0.151)	0.018	0.035
240	20.00	0.07	0.053	(0.151)	0.018	0.035
241	20.08	0.10	0.080	(0.150)	0.027	0.053
242	20.17	0.10	0.080	(0.149)	0.027	0.053
243	20.25	0.10	0.080	(0.149)	0.027	0.053
244	20.33	0.10	0.080	(0.148)	0.027	0.053
245	20.42	0.10	0.080	(0.147)	0.027	0.053
246	20.50	0.10	0.080	(0.147)	0.027	0.053
247	20.58	0.10	0.080	(0.146)	0.027	0.053
248	20.67	0.10	0.080	(0.145)	0.027	0.053
249	20.75	0.10	0.080	(0.145)	0.027	0.053
250	20.83	0.07	0.053	(0.144)	0.018	0.035
251	20.92	0.07	0.053	(0.144)	0.018	0.035
252	21.00	0.07	0.053	(0.143)	0.018	0.035
253	21.08	0.10	0.080	(0.143)	0.027	0.053
254	21.17	0.10	0.080	(0.142)	0.027	0.053
255	21.25	0.10	0.080	(0.141)	0.027	0.053
256	21.33	0.07	0.053	(0.141)	0.018	0.035
257	21.42	0.07	0.053	(0.140)	0.018	0.035
258	21.50	0.07	0.053	(0.140)	0.018	0.035
259	21.58	0.10	0.080	(0.139)	0.027	0.053
260	21.67	0.10	0.080	(0.139)	0.027	0.053
261	21.75	0.10	0.080	(0.138)	0.027	0.053
262	21.83	0.07	0.053	(0.138)	0.018	0.035
263	21.92	0.07	0.053	(0.137)	0.018	0.035
264	22.00	0.07	0.053	(0.137)	0.018	0.035
265	22.08	0.10	0.080	(0.136)	0.027	0.053
266	22.17	0.10	0.080	(0.136)	0.027	0.053
267	22.25	0.10	0.080	(0.136)	0.027	0.053
268	22.33	0.07	0.053	(0.135)	0.018	0.035
269	22.42	0.07	0.053	(0.135)	0.018	0.035
270	22.50	0.07	0.053	(0.134)	0.018	0.035
271	22.58	0.07	0.053	(0.134)	0.018	0.035

272	22.67	0.07	0.053	(0.134)	0.018	0.035
273	22.75	0.07	0.053	(0.133)	0.018	0.035
274	22.83	0.07	0.053	(0.133)	0.018	0.035
275	22.92	0.07	0.053	(0.133)	0.018	0.035
276	23.00	0.07	0.053	(0.132)	0.018	0.035
277	23.08	0.07	0.053	(0.132)	0.018	0.035
278	23.17	0.07	0.053	(0.132)	0.018	0.035
279	23.25	0.07	0.053	(0.131)	0.018	0.035
280	23.33	0.07	0.053	(0.131)	0.018	0.035
281	23.42	0.07	0.053	(0.131)	0.018	0.035
282	23.50	0.07	0.053	(0.131)	0.018	0.035
283	23.58	0.07	0.053	(0.130)	0.018	0.035
284	23.67	0.07	0.053	(0.130)	0.018	0.035
285	23.75	0.07	0.053	(0.130)	0.018	0.035
286	23.83	0.07	0.053	(0.130)	0.018	0.035
287	23.92	0.07	0.053	(0.130)	0.018	0.035
288	24.00	0.07	0.053	(0.130)	0.018	0.035

(Loss Rate Not Used)

Sum = 100.0 Sum = 53.8

Flood volume = Effective rainfall 4.48(In)
times area 1.2(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)

Total soil loss = 2.16(In)

Total soil loss = 0.212(Ac.Ft)

Total rainfall = 6.64(In)

Flood volume = 19192.8 Cubic Feet

Total soil loss = 9248.9 Cubic Feet

Peak flow rate of this hydrograph = 0.809(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0003	0.03	Q				
0+15	0.0006	0.04	Q				
0+20	0.0009	0.05	Q				
0+25	0.0013	0.06	Q				
0+30	0.0017	0.06	Q				
0+35	0.0022	0.06	Q				
0+40	0.0026	0.06	Q				
0+45	0.0030	0.06	Q				
0+50	0.0035	0.07	Q				
0+55	0.0041	0.08	Q				
1+ 0	0.0046	0.08	Q				
1+ 5	0.0052	0.08	Q				
1+10	0.0056	0.07	Q				
1+15	0.0061	0.06	Q				
1+20	0.0065	0.06	Q				
1+25	0.0069	0.06	Q				
1+30	0.0074	0.06	Q				
1+35	0.0078	0.06	Q				
1+40	0.0082	0.06	Q				
1+45	0.0087	0.06	Q				
1+50	0.0091	0.07	Q				
1+55	0.0097	0.08	Q				
2+ 0	0.0102	0.08	Q				
2+ 5	0.0108	0.08	Q				

2+10	0.0114	0.08	QV				
2+15	0.0120	0.08	QV				
2+20	0.0125	0.08	QV				
2+25	0.0131	0.08	QV				
2+30	0.0137	0.08	QV				
2+35	0.0143	0.09	QV				
2+40	0.0150	0.10	QV				
2+45	0.0157	0.10	QV				
2+50	0.0164	0.10	QV				
2+55	0.0172	0.10	QV				
3+ 0	0.0179	0.10	QV				
3+ 5	0.0186	0.10	QV				
3+10	0.0193	0.10	QV				
3+15	0.0200	0.10	QV				
3+20	0.0208	0.10	QV				
3+25	0.0215	0.10	QV				
3+30	0.0222	0.10	Q V				
3+35	0.0229	0.10	Q V				
3+40	0.0237	0.10	Q V				
3+45	0.0244	0.10	Q V				
3+50	0.0251	0.11	Q V				
3+55	0.0260	0.12	Q V				
4+ 0	0.0268	0.12	Q V				
4+ 5	0.0277	0.12	Q V				
4+10	0.0286	0.13	Q V				
4+15	0.0294	0.13	Q V				
4+20	0.0303	0.13	Q V				
4+25	0.0313	0.14	Q V				
4+30	0.0323	0.14	Q V				
4+35	0.0333	0.15	Q V				
4+40	0.0343	0.15	Q V				
4+45	0.0353	0.15	Q V				
4+50	0.0364	0.15	Q V				
4+55	0.0375	0.16	Q V				
5+ 0	0.0387	0.17	Q V				
5+ 5	0.0397	0.15	Q V				
5+10	0.0406	0.13	Q V				
5+15	0.0415	0.13	Q V				
5+20	0.0424	0.13	Q V				
5+25	0.0434	0.14	Q V				
5+30	0.0444	0.14	Q V				
5+35	0.0455	0.15	Q V				
5+40	0.0466	0.16	Q V				
5+45	0.0477	0.17	Q V				
5+50	0.0489	0.17	Q V				
5+55	0.0500	0.17	Q V				
6+ 0	0.0512	0.17	Q V				
6+ 5	0.0524	0.17	Q V				
6+10	0.0537	0.18	Q V				
6+15	0.0550	0.19	Q V				
6+20	0.0562	0.19	Q V				
6+25	0.0575	0.19	Q V				
6+30	0.0588	0.19	Q V				
6+35	0.0602	0.20	Q V				
6+40	0.0616	0.21	Q V				
6+45	0.0630	0.21	Q V				
6+50	0.0645	0.21	Q V				
6+55	0.0659	0.21	Q V				
7+ 0	0.0673	0.21	Q V				
7+ 5	0.0688	0.21	Q V				
7+10	0.0702	0.21	Q V				
7+15	0.0717	0.21	Q V				
7+20	0.0732	0.22	Q V				

7+25	0.0747	0.23	Q	V				
7+30	0.0763	0.23	Q	V				
7+35	0.0779	0.24	Q	V				
7+40	0.0796	0.25	Q	V				
7+45	0.0813	0.25	Q	V				
7+50	0.0831	0.26	Q	V				
7+55	0.0850	0.27	Q	V				
8+ 0	0.0868	0.27	Q	V				
8+ 5	0.0888	0.29	Q	V				
8+10	0.0909	0.31	Q	V				
8+15	0.0930	0.31	Q	V				
8+20	0.0952	0.31	Q	V				
8+25	0.0973	0.31	Q	V				
8+30	0.0995	0.31	Q	V				
8+35	0.1017	0.32	Q	V				
8+40	0.1040	0.33	Q	V				
8+45	0.1063	0.33	Q	V				
8+50	0.1086	0.34	Q	V				
8+55	0.1111	0.35	Q	V				
9+ 0	0.1135	0.35	Q	V				
9+ 5	0.1160	0.37	Q	V				
9+10	0.1187	0.39	Q	V				
9+15	0.1214	0.39	Q	V				
9+20	0.1242	0.40	Q	V				
9+25	0.1271	0.41	Q	V				
9+30	0.1299	0.42	Q	V				
9+35	0.1329	0.42	Q	V				
9+40	0.1359	0.44	Q	V				
9+45	0.1389	0.44	Q	V				
9+50	0.1419	0.45	Q	V				
9+55	0.1451	0.46	Q	V				
10+ 0	0.1482	0.46	Q	V				
10+ 5	0.1511	0.41	Q	V				
10+10	0.1534	0.34	Q	V				
10+15	0.1557	0.33	Q	V				
10+20	0.1579	0.32	Q	V				
10+25	0.1601	0.32	Q	V				
10+30	0.1622	0.31	Q	V				
10+35	0.1646	0.35	Q	V				
10+40	0.1674	0.40	Q	V				
10+45	0.1702	0.41	Q	V				
10+50	0.1730	0.41	Q	V				
10+55	0.1759	0.42	Q	V				
11+ 0	0.1788	0.42	Q	V				
11+ 5	0.1816	0.41	Q	V				
11+10	0.1844	0.40	Q	V				
11+15	0.1872	0.40	Q	V				
11+20	0.1899	0.40	Q	V				
11+25	0.1926	0.40	Q	V				
11+30	0.1954	0.40	Q	V				
11+35	0.1980	0.38	Q	V				
11+40	0.2005	0.36	Q	V				
11+45	0.2030	0.36	Q	V				
11+50	0.2055	0.36	Q	V				
11+55	0.2081	0.37	Q	V				
12+ 0	0.2107	0.38	Q	V				
12+ 5	0.2136	0.43	Q	V				
12+10	0.2170	0.49	Q	V				
12+15	0.2205	0.51	Q	V				
12+20	0.2241	0.53	Q	V				
12+25	0.2278	0.54	Q	V				
12+30	0.2316	0.54	Q	V				
12+35	0.2355	0.56	Q	V				

12+40	0.2396	0.59	Q		V		
12+45	0.2437	0.60	Q		V		
12+50	0.2480	0.62	Q		V		
12+55	0.2523	0.63	Q		V		
13+ 0	0.2567	0.64	Q		V		
13+ 5	0.2615	0.70	Q		V		
13+10	0.2668	0.77	Q		V		
13+15	0.2723	0.79	Q		V		
13+20	0.2778	0.80	Q		V		
13+25	0.2834	0.81	Q		V		
13+30	0.2889	0.81	Q		V		
13+35	0.2937	0.70	Q		V		
13+40	0.2975	0.55	Q		V		
13+45	0.3010	0.51	Q		V		
13+50	0.3044	0.49	Q		V		
13+55	0.3077	0.49	Q		V		
14+ 0	0.3111	0.48	Q		V		
14+ 5	0.3146	0.52	Q		V		
14+10	0.3186	0.58	Q		V		
14+15	0.3227	0.59	Q		V		
14+20	0.3267	0.59	Q		V		
14+25	0.3307	0.58	Q		V		
14+30	0.3346	0.57	Q		V		
14+35	0.3386	0.57	Q		V		
14+40	0.3425	0.57	Q		V		
14+45	0.3465	0.58	Q		V		
14+50	0.3504	0.57	Q		V		
14+55	0.3542	0.55	Q		V		
15+ 0	0.3580	0.55	Q		V		
15+ 5	0.3617	0.54	Q		V		
15+10	0.3653	0.53	Q		V		
15+15	0.3689	0.52	Q		V		
15+20	0.3725	0.51	Q		V		
15+25	0.3759	0.50	Q		V		
15+30	0.3793	0.49	Q		V		
15+35	0.3825	0.46	Q		V		
15+40	0.3853	0.42	Q		V		
15+45	0.3881	0.41	Q		V		
15+50	0.3909	0.40	Q		V		
15+55	0.3936	0.40	Q		V		
16+ 0	0.3964	0.40	Q		V		
16+ 5	0.3984	0.29	Q		V		
16+10	0.3994	0.14	Q		V		
16+15	0.4001	0.11	Q		V		
16+20	0.4008	0.09	Q		V		
16+25	0.4014	0.09	Q		V		
16+30	0.4020	0.08	Q		V		
16+35	0.4025	0.08	Q		V		
16+40	0.4030	0.07	Q		V		
16+45	0.4034	0.06	Q		V		
16+50	0.4038	0.06	Q		V		
16+55	0.4043	0.06	Q		V		
17+ 0	0.4047	0.06	Q		V		
17+ 5	0.4052	0.08	Q		V		
17+10	0.4059	0.10	Q		V		
17+15	0.4066	0.10	Q		V		
17+20	0.4073	0.10	Q		V		
17+25	0.4080	0.10	Q		V		
17+30	0.4088	0.10	Q		V		
17+35	0.4095	0.10	Q		V		
17+40	0.4102	0.10	Q		V		
17+45	0.4109	0.10	Q		V		
17+50	0.4116	0.10	Q		V		

17+55	0.4122	0.09	Q				V	
18+ 0	0.4128	0.09	Q				V	
18+ 5	0.4134	0.08	Q				V	
18+10	0.4139	0.08	Q				V	
18+15	0.4145	0.08	Q				V	
18+20	0.4151	0.08	Q				V	
18+25	0.4157	0.08	Q				V	
18+30	0.4162	0.08	Q				V	
18+35	0.4168	0.08	Q				V	
18+40	0.4172	0.07	Q				V	
18+45	0.4177	0.06	Q				V	
18+50	0.4181	0.06	Q				V	
18+55	0.4184	0.05	Q				V	
19+ 0	0.4187	0.04	Q				V	
19+ 5	0.4190	0.05	Q				V	
19+10	0.4194	0.06	Q				V	
19+15	0.4199	0.06	Q				V	
19+20	0.4203	0.07	Q				V	
19+25	0.4209	0.08	Q				V	
19+30	0.4214	0.08	Q				V	
19+35	0.4220	0.08	Q				V	
19+40	0.4224	0.07	Q				V	
19+45	0.4229	0.06	Q				V	
19+50	0.4233	0.06	Q				V	
19+55	0.4236	0.05	Q				V	
20+ 0	0.4239	0.04	Q				V	
20+ 5	0.4242	0.05	Q				V	
20+10	0.4246	0.06	Q				V	
20+15	0.4250	0.06	Q				V	
20+20	0.4255	0.06	Q				V	
20+25	0.4259	0.06	Q				V	
20+30	0.4263	0.06	Q				V	
20+35	0.4268	0.06	Q				V	
20+40	0.4272	0.06	Q				V	
20+45	0.4276	0.06	Q				V	
20+50	0.4280	0.06	Q				V	
20+55	0.4283	0.05	Q				V	
21+ 0	0.4286	0.04	Q				V	
21+ 5	0.4290	0.05	Q				V	
21+10	0.4294	0.06	Q				V	
21+15	0.4298	0.06	Q				V	
21+20	0.4302	0.05	Q				V	
21+25	0.4305	0.05	Q				V	
21+30	0.4308	0.04	Q				V	
21+35	0.4311	0.05	Q				V	
21+40	0.4315	0.06	Q				V	
21+45	0.4320	0.06	Q				V	
21+50	0.4323	0.05	Q				V	
21+55	0.4327	0.05	Q				V	
22+ 0	0.4330	0.04	Q				V	
22+ 5	0.4333	0.05	Q				V	
22+10	0.4337	0.06	Q				V	
22+15	0.4341	0.06	Q				V	
22+20	0.4345	0.05	Q				V	
22+25	0.4348	0.05	Q				V	
22+30	0.4351	0.04	Q				V	
22+35	0.4354	0.04	Q				V	
22+40	0.4357	0.04	Q				V	
22+45	0.4360	0.04	Q				V	
22+50	0.4363	0.04	Q				V	
22+55	0.4366	0.04	Q				V	
23+ 0	0.4369	0.04	Q				V	
23+ 5	0.4372	0.04	Q				V	

23+10	0.4374	0.04	Q				V
23+15	0.4377	0.04	Q				V
23+20	0.4380	0.04	Q				V
23+25	0.4383	0.04	Q				V
23+30	0.4386	0.04	Q				V
23+35	0.4389	0.04	Q				V
23+40	0.4392	0.04	Q				V
23+45	0.4395	0.04	Q				V
23+50	0.4397	0.04	Q				V
23+55	0.4400	0.04	Q				V
24+ 0	0.4403	0.04	Q				V
24+ 5	0.4405	0.03	Q				V
24+10	0.4406	0.01	Q				V
24+15	0.4406	0.00	Q				V
24+20	0.4406	0.00	Q				V
24+25	0.4406	0.00	Q				V

APPENDIX E

Detention Analysis Hydrographs

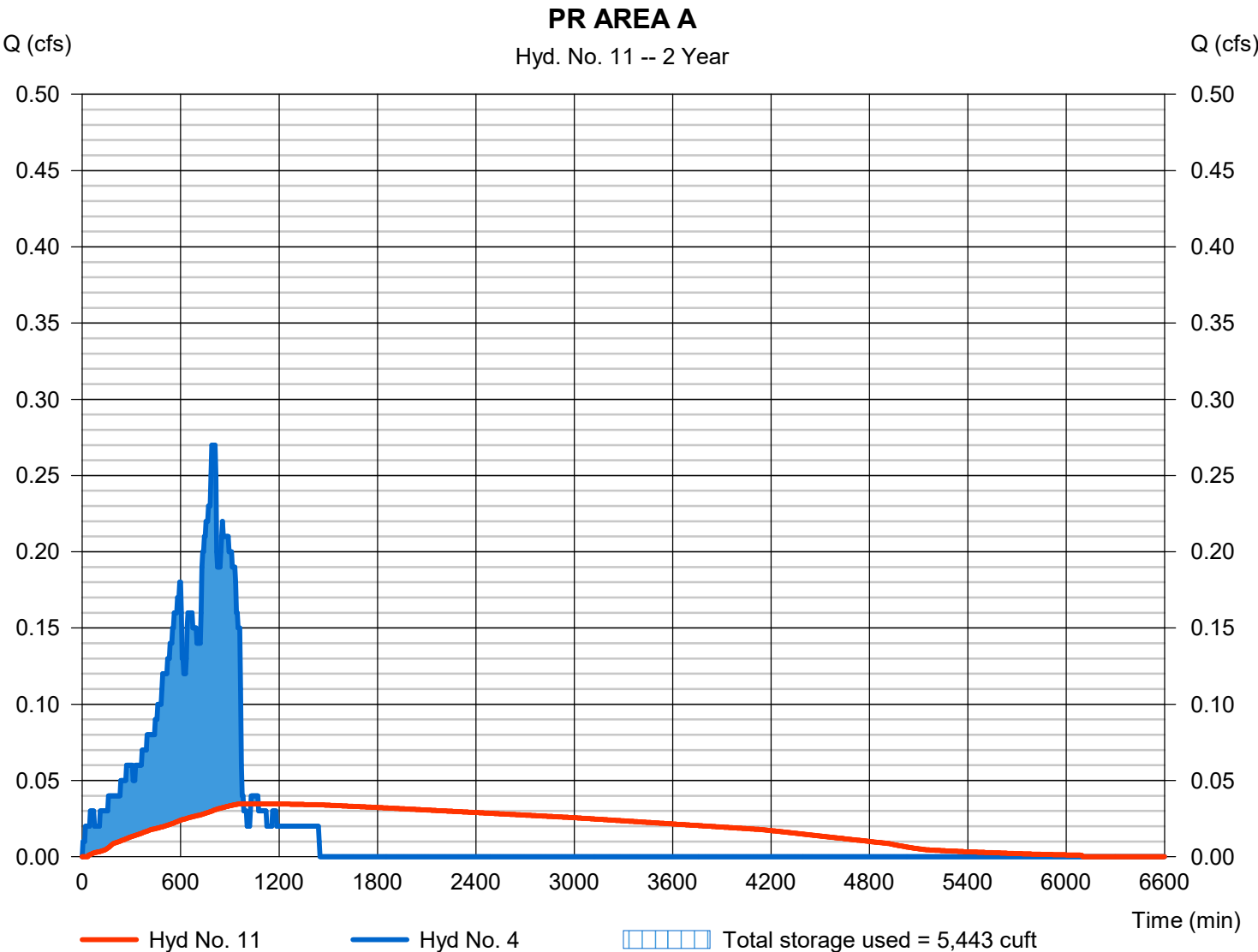
Hydrograph Report

Hyd. No. 11

PR AREA A

Hydrograph type	= Reservoir	Peak discharge	= 0.035 cfs
Storm frequency	= 2 yrs	Time to peak	= 985 min
Time interval	= 5 min	Hyd. volume	= 7,205 cuft
Inflow hyd. No.	= 4 - PR AREA A	Max. Elevation	= 101.80 ft
Reservoir name	= DET-A	Max. Storage	= 5,443 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

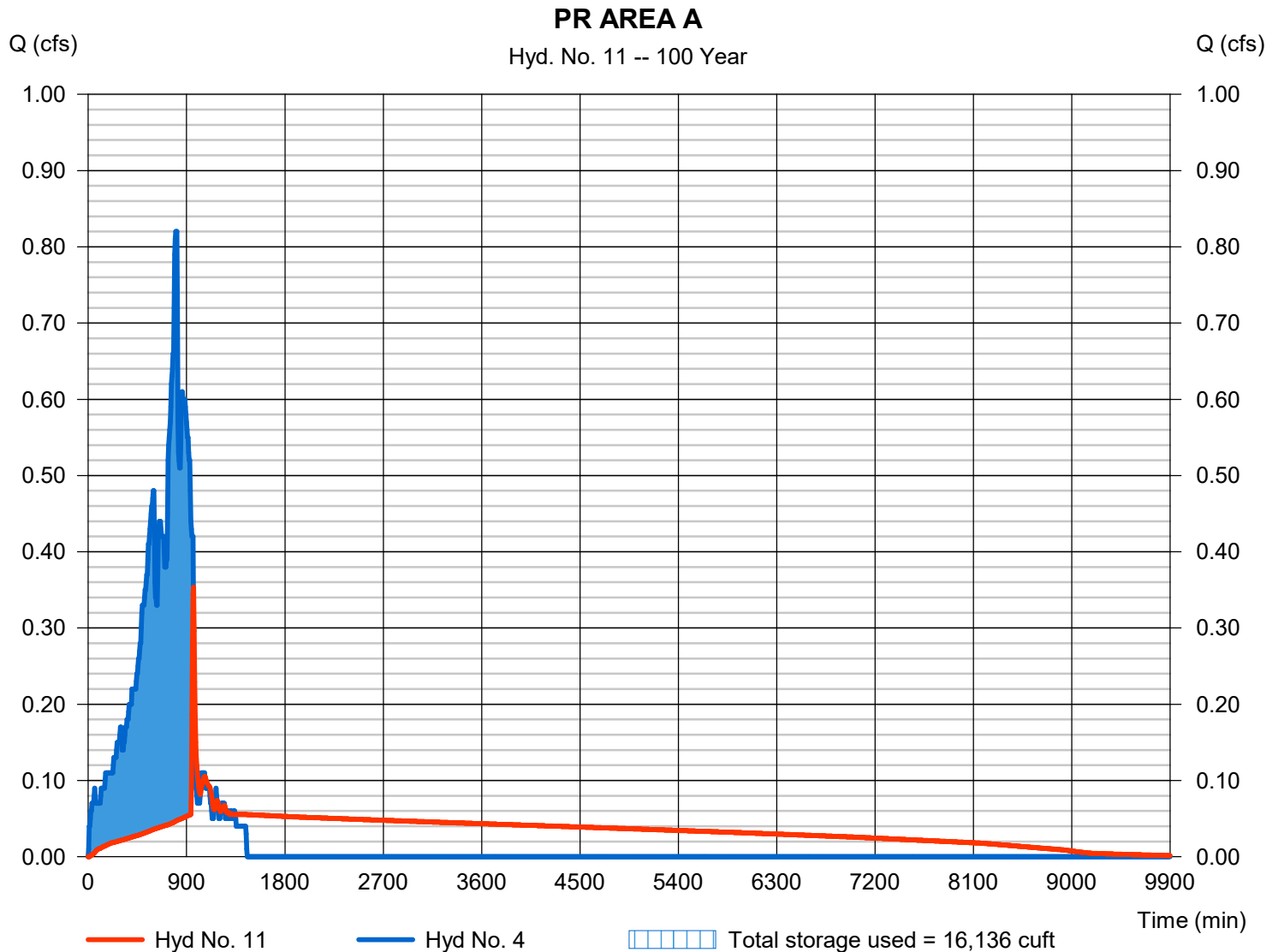
Friday, 12 / 17 / 2021

Hyd. No. 11

PR AREA A

Hydrograph type	= Reservoir	Peak discharge	= 0.354 cfs
Storm frequency	= 100 yrs	Time to peak	= 965 min
Time interval	= 5 min	Hyd. volume	= 20,060 cuft
Inflow hyd. No.	= 4 - PR AREA A	Max. Elevation	= 104.62 ft
Reservoir name	= DET-A	Max. Storage	= 16,136 cuft

Storage Indication method used.



Pond Report

9

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

Friday, 12 / 17 / 2021

Pond No. 1 - DET-A

Pond Data

UG Chambers -Invert elev. = 100.00 ft, Rise x Span = 5.00 x 5.00 ft, Barrel Len = 855.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	n/a	0	0
0.50	100.50	n/a	874	874
1.00	101.00	n/a	1,518	2,392
1.50	101.50	n/a	1,847	4,239
2.00	102.00	n/a	2,034	6,273
2.50	102.50	n/a	2,125	8,398
3.00	103.00	n/a	2,125	10,522
3.50	103.50	n/a	2,033	12,556
4.00	104.00	n/a	1,846	14,401
4.50	104.50	n/a	1,517	15,919
5.00	105.00	n/a	873	16,791

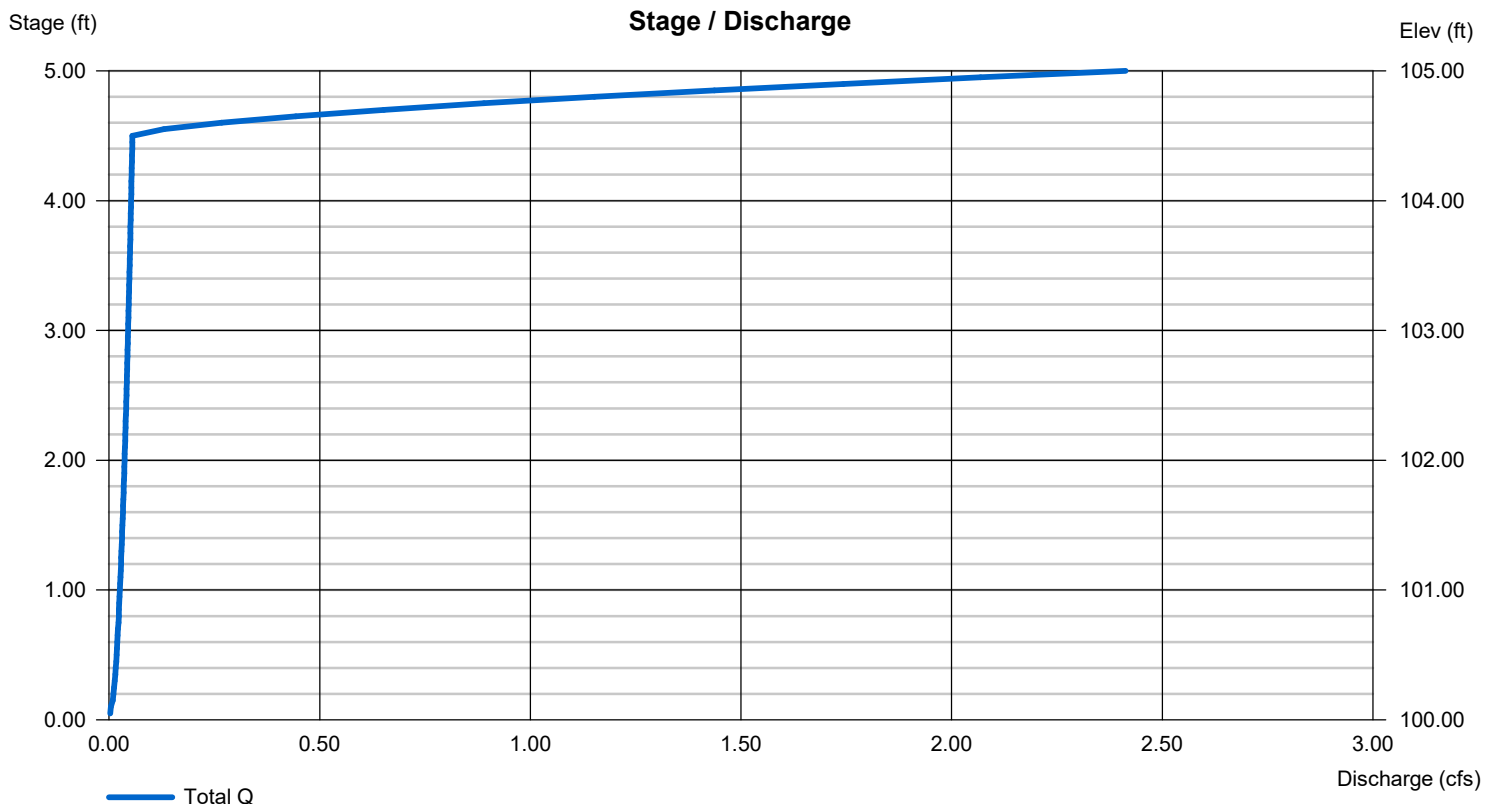
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.00	Inactive	Inactive	Inactive
Span (in)	= 1.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 100.00	0.00	0.00	0.00
Length (ft)	= 0.04	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 104.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

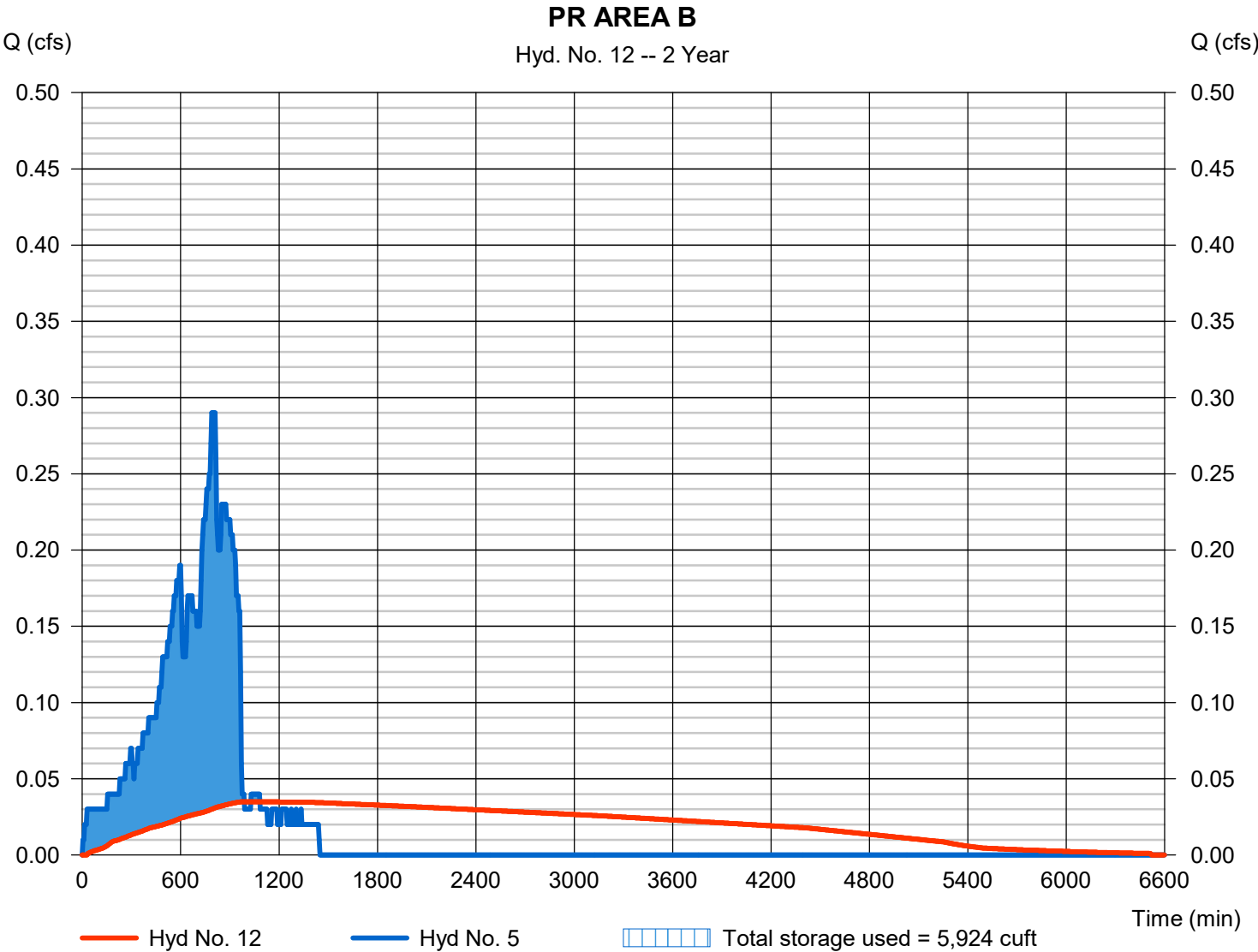
Friday, 12 / 17 / 2021

Hyd. No. 12

PR AREA B

Hydrograph type	= Reservoir	Peak discharge	= 0.035 cfs
Storm frequency	= 2 yrs	Time to peak	= 1085 min
Time interval	= 5 min	Hyd. volume	= 7,749 cuft
Inflow hyd. No.	= 5 - PR AREA B	Max. Elevation	= 101.81 ft
Reservoir name	= DET-B	Max. Storage	= 5,924 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

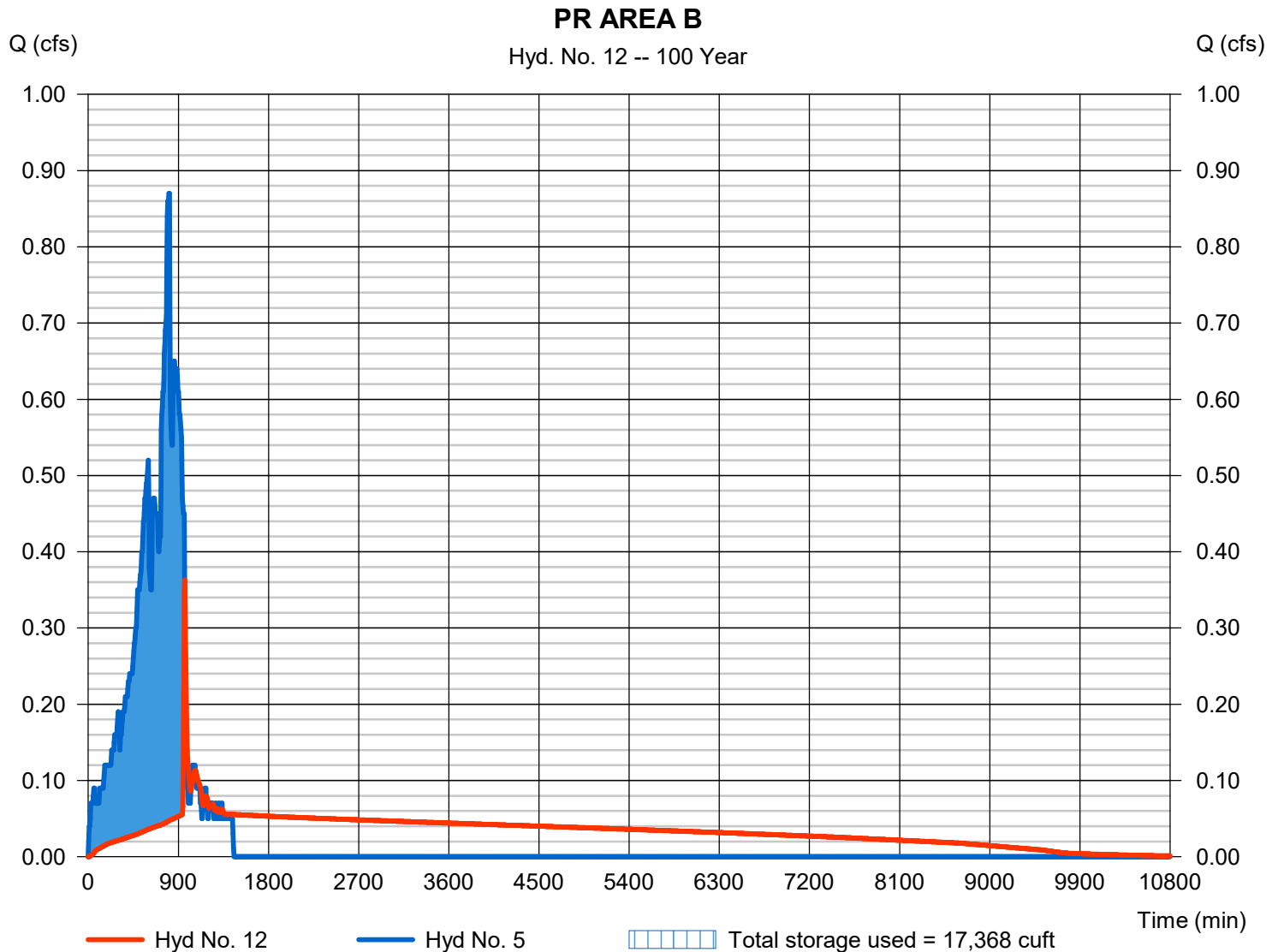
Friday, 12 / 17 / 2021

Hyd. No. 12

PR AREA B

Hydrograph type	= Reservoir	Peak discharge	= 0.363 cfs
Storm frequency	= 100 yrs	Time to peak	= 965 min
Time interval	= 5 min	Hyd. volume	= 21,429 cuft
Inflow hyd. No.	= 5 - PR AREA B	Max. Elevation	= 104.63 ft
Reservoir name	= DET-B	Max. Storage	= 17,368 cuft

Storage Indication method used.



Pond No. 2 - DET-B

Pond Data

UG Chambers -Invert elev. = 100.00 ft, Rise x Span = 5.00 x 5.00 ft, Barrel Len = 920.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	n/a	0	0
0.50	100.50	n/a	940	940
1.00	101.00	n/a	1,634	2,574
1.50	101.50	n/a	1,987	4,561
2.00	102.00	n/a	2,188	6,749
2.50	102.50	n/a	2,287	9,036
3.00	103.00	n/a	2,286	11,322
3.50	103.50	n/a	2,188	13,510
4.00	104.00	n/a	1,986	15,496
4.50	104.50	n/a	1,632	17,129
5.00	105.00	n/a	939	18,068

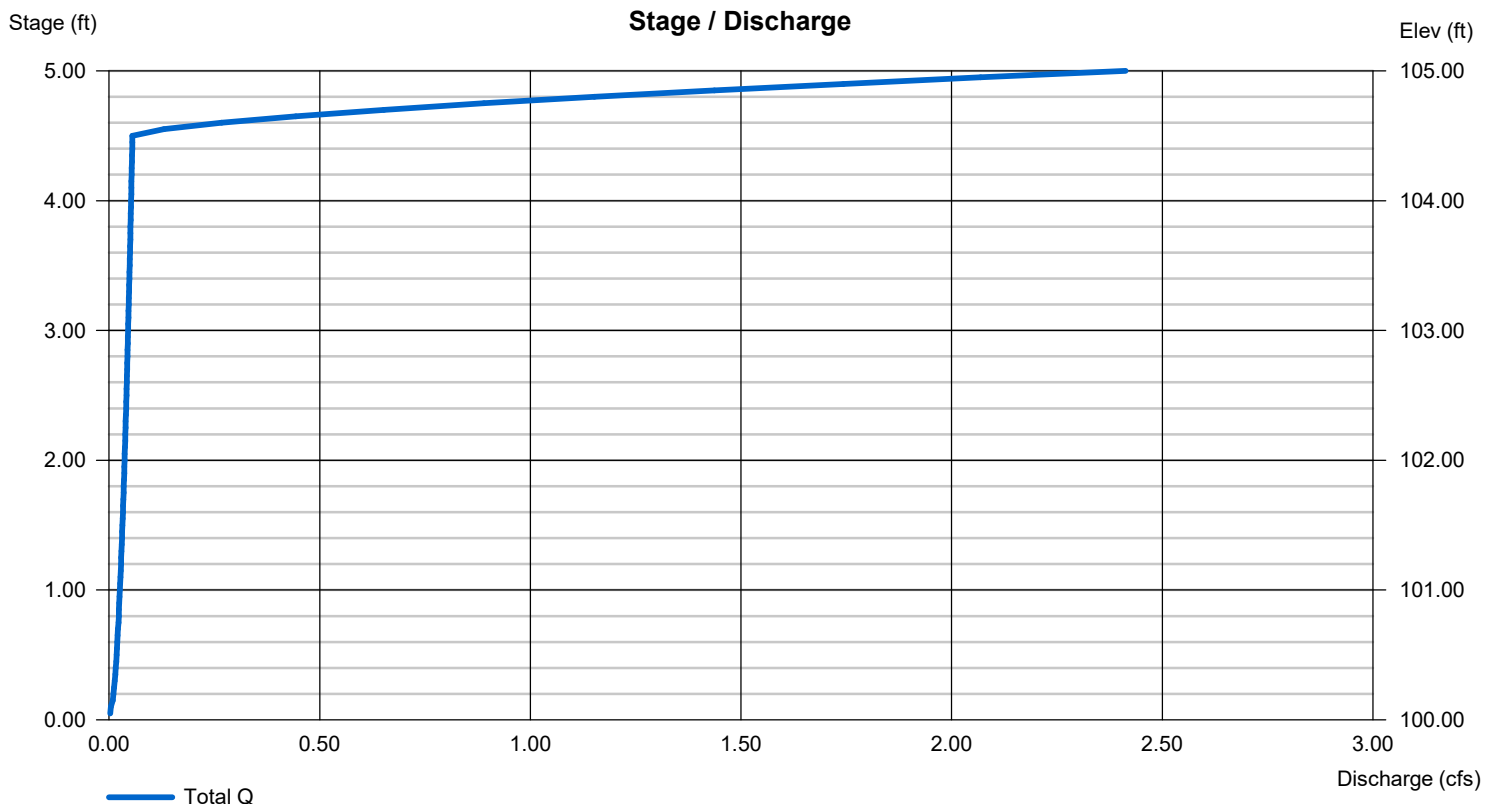
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.00	Inactive	Inactive	Inactive
Span (in)	= 1.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 100.00	0.00	0.00	0.00
Length (ft)	= 0.04	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 104.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

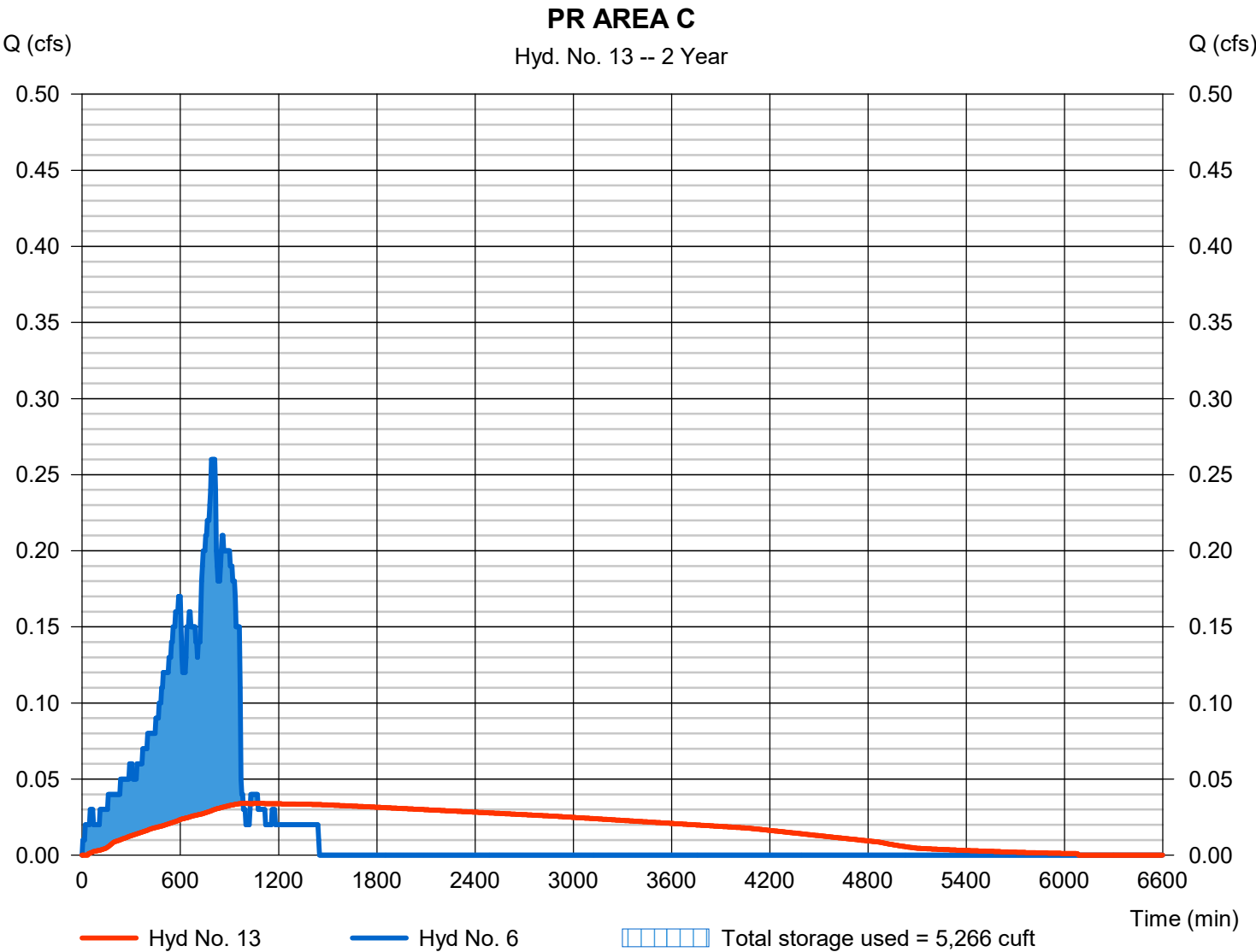
Friday, 12 / 17 / 2021

Hyd. No. 13

PR AREA C

Hydrograph type	= Reservoir	Peak discharge	= 0.034 cfs
Storm frequency	= 2 yrs	Time to peak	= 985 min
Time interval	= 5 min	Hyd. volume	= 6,991 cuft
Inflow hyd. No.	= 6 - PR AREA C	Max. Elevation	= 101.71 ft
Reservoir name	= DET-C	Max. Storage	= 5,266 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

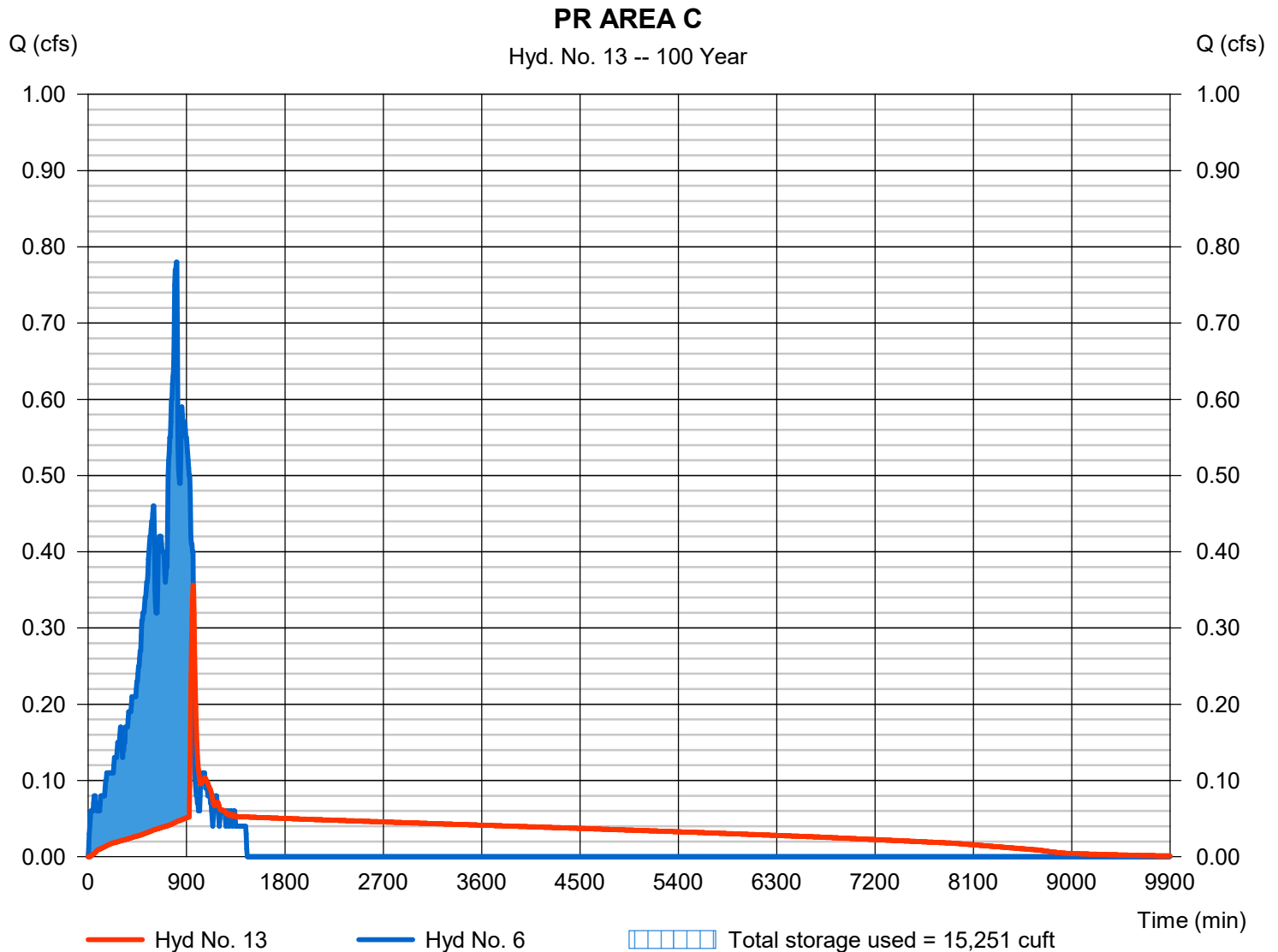
Friday, 12 / 17 / 2021

Hyd. No. 13

PR AREA C

Hydrograph type	= Reservoir	Peak discharge	= 0.356 cfs
Storm frequency	= 100 yrs	Time to peak	= 960 min
Time interval	= 5 min	Hyd. volume	= 19,255 cuft
Inflow hyd. No.	= 6 - PR AREA C	Max. Elevation	= 104.13 ft
Reservoir name	= DET-C	Max. Storage	= 15,251 cuft

Storage Indication method used.



Pond No. 3 - DET-C

Pond Data

UG Chambers -Invert elev. = 100.00 ft, Rise x Span = 5.00 x 5.00 ft, Barrel Len = 882.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	n/a	0	0
0.50	100.50	n/a	901	901
1.00	101.00	n/a	1,566	2,468
1.50	101.50	n/a	1,905	4,373
2.00	102.00	n/a	2,098	6,471
2.50	102.50	n/a	2,192	8,663
3.00	103.00	n/a	2,192	10,855
3.50	103.50	n/a	2,098	12,952
4.00	104.00	n/a	1,904	14,856
4.50	104.50	n/a	1,565	16,421
5.00	105.00	n/a	900	17,321

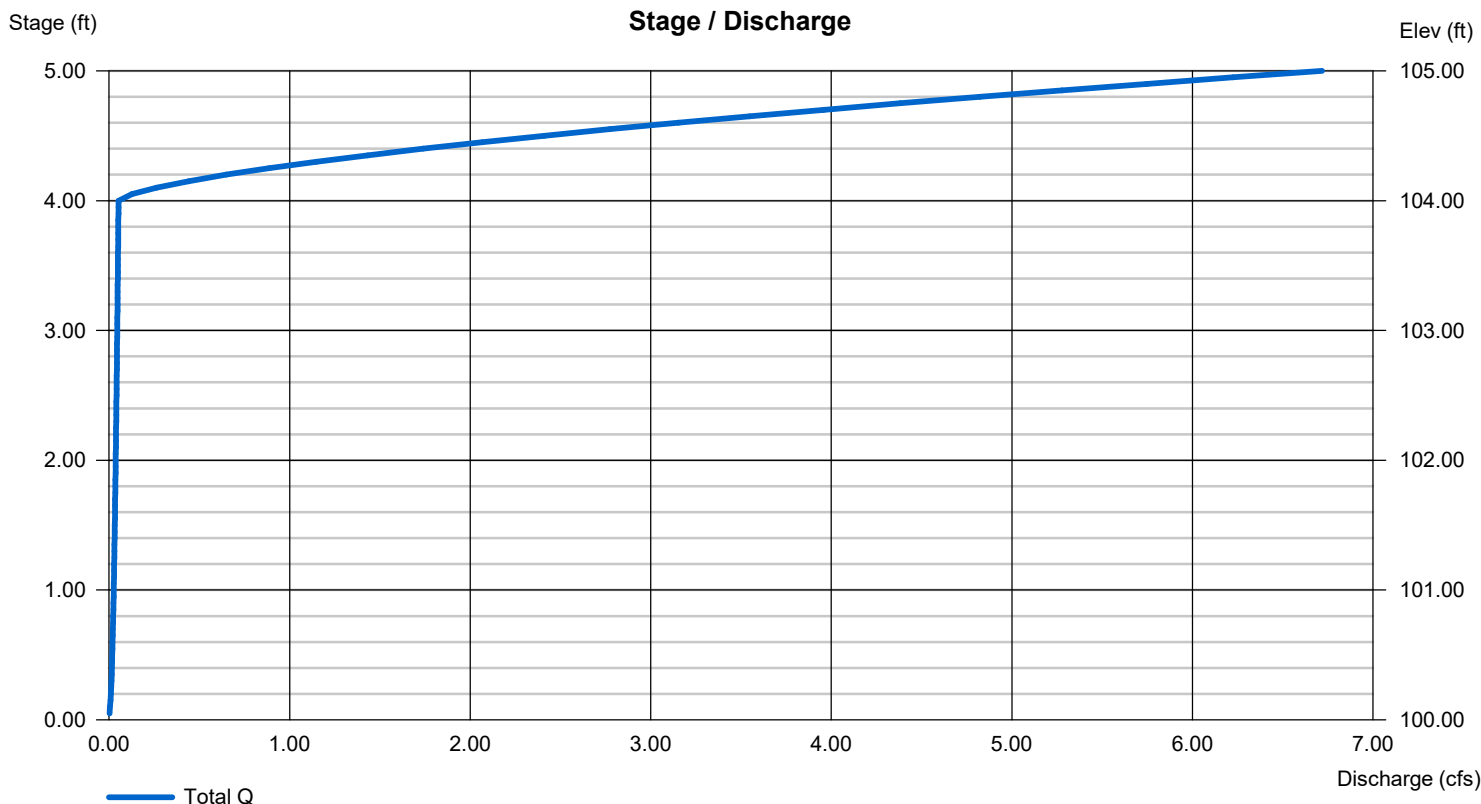
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.00	Inactive	Inactive	Inactive
Span (in)	= 1.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 100.00	0.00	0.00	0.00
Length (ft)	= 0.04	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 104.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



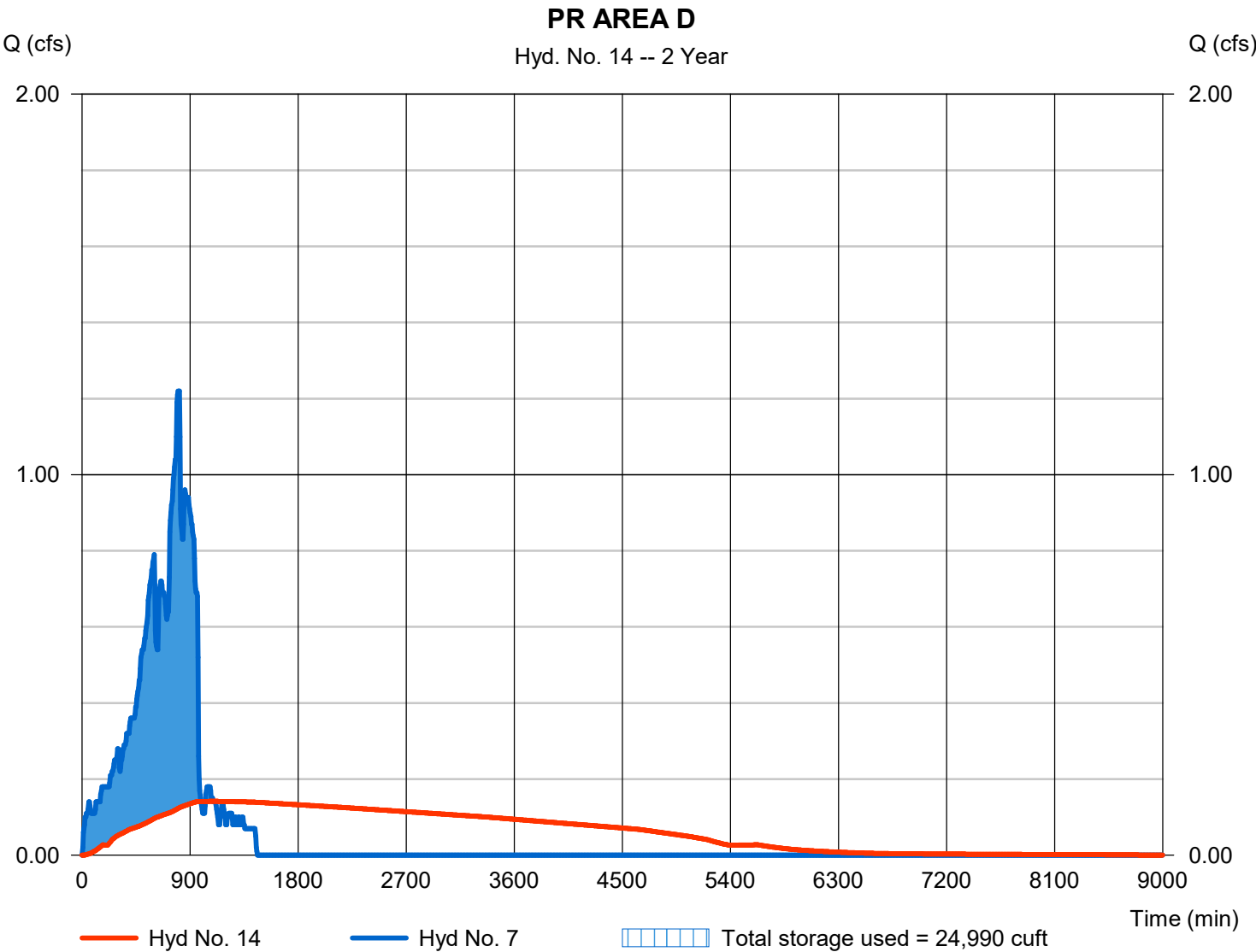
Hydrograph Report

Hyd. No. 14

PR AREA D

Hydrograph type	= Reservoir	Peak discharge	= 0.141 cfs
Storm frequency	= 2 yrs	Time to peak	= 1090 min
Time interval	= 5 min	Hyd. volume	= 32,308 cuft
Inflow hyd. No.	= 7 - PR AREA D	Max. Elevation	= 101.90 ft
Reservoir name	= DET-D	Max. Storage	= 24,990 cuft

Storage Indication method used.



Hydrograph Report

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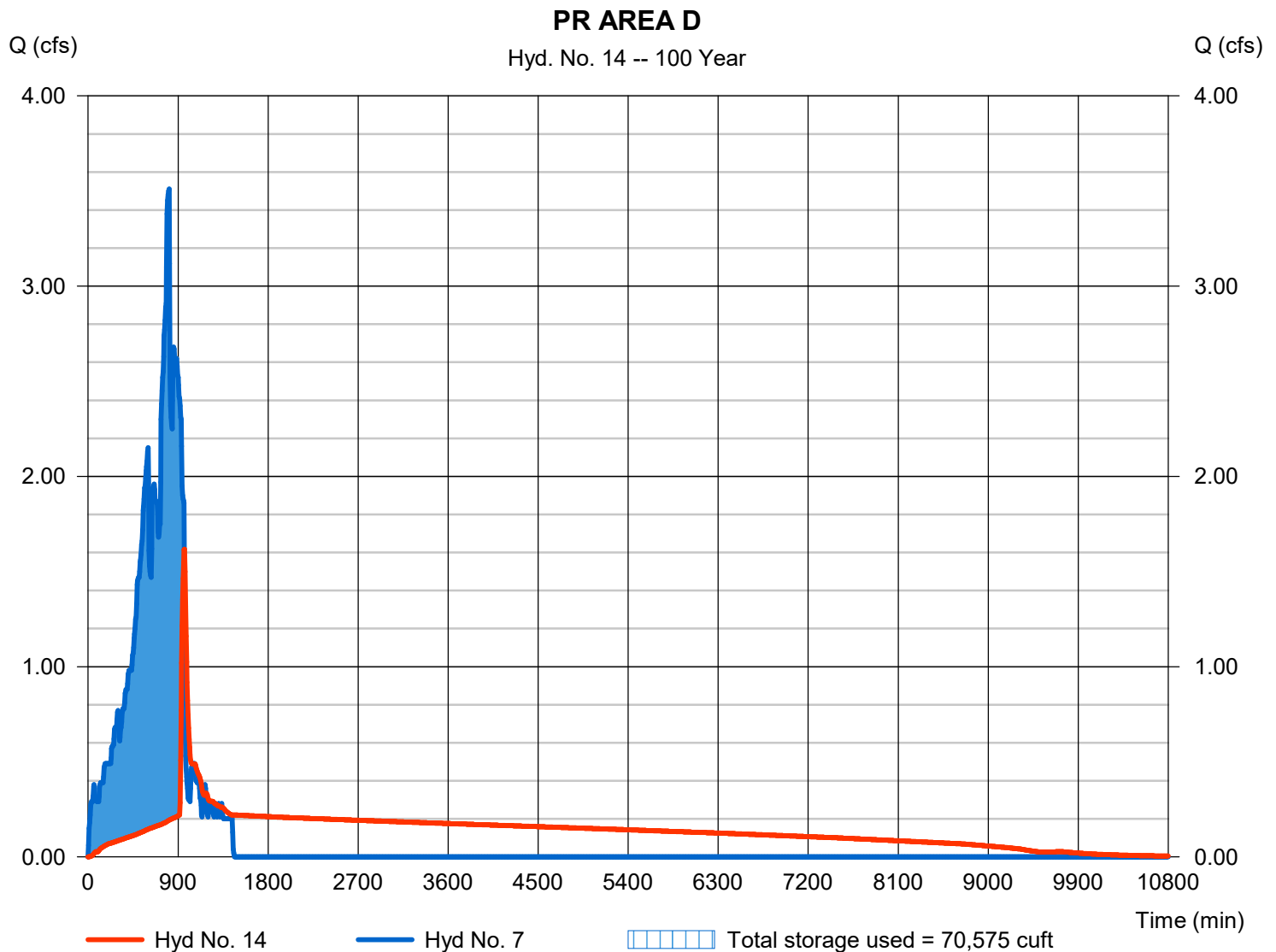
Friday, 12 / 17 / 2021

Hyd. No. 14

PR AREA D

Hydrograph type	= Reservoir	Peak discharge	= 1.618 cfs
Storm frequency	= 100 yrs	Time to peak	= 965 min
Time interval	= 5 min	Hyd. volume	= 88,831 cuft
Inflow hyd. No.	= 7 - PR AREA D	Max. Elevation	= 104.85 ft
Reservoir name	= DET-D	Max. Storage	= 70,575 cuft

Storage Indication method used.



Pond No. 4 - DET-D

Pond Data

UG Chambers -Invert elev. = 100.00 ft, Rise x Span = 5.00 x 5.00 ft, Barrel Len = 3650.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	n/a	0	0
0.50	100.50	n/a	3,731	3,731
1.00	101.00	n/a	6,482	10,212
1.50	101.50	n/a	7,883	18,095
2.00	102.00	n/a	8,682	26,778
2.50	102.50	n/a	9,072	35,849
3.00	103.00	n/a	9,071	44,920
3.50	103.50	n/a	8,681	53,601
4.00	104.00	n/a	7,879	61,480
4.50	104.50	n/a	6,477	67,957
5.00	105.00	n/a	3,725	71,682

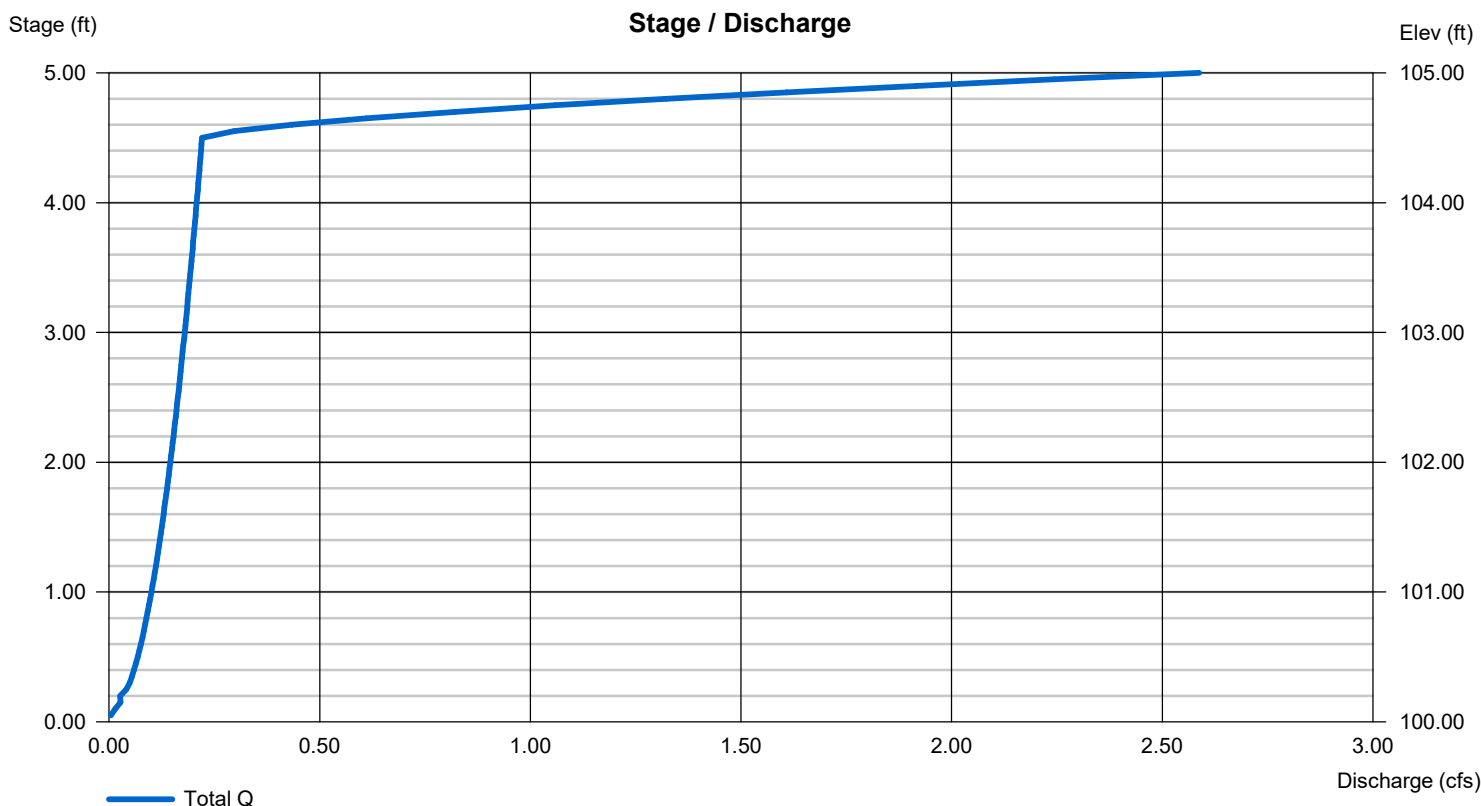
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 2.00	Inactive	Inactive	Inactive
Span (in)	= 2.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 100.00	0.00	0.00	0.00
Length (ft)	= 0.04	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 104.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



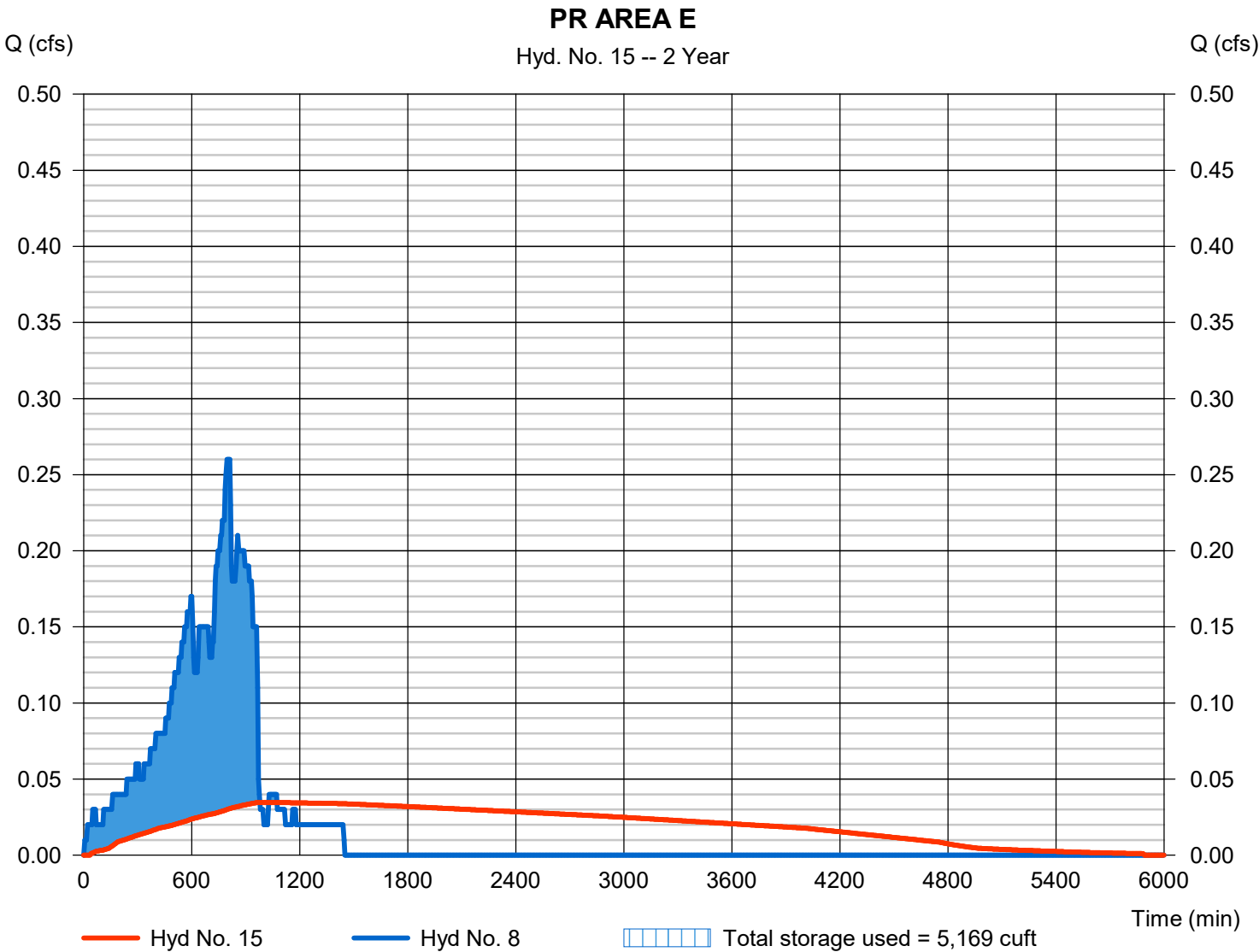
Hydrograph Report

Hyd. No. 15

PR AREA E

Hydrograph type	= Reservoir	Peak discharge	= 0.035 cfs
Storm frequency	= 2 yrs	Time to peak	= 980 min
Time interval	= 5 min	Hyd. volume	= 6,919 cuft
Inflow hyd. No.	= 8 - PR AREA E	Max. Elevation	= 101.77 ft
Reservoir name	= DET-E	Max. Storage	= 5,169 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4

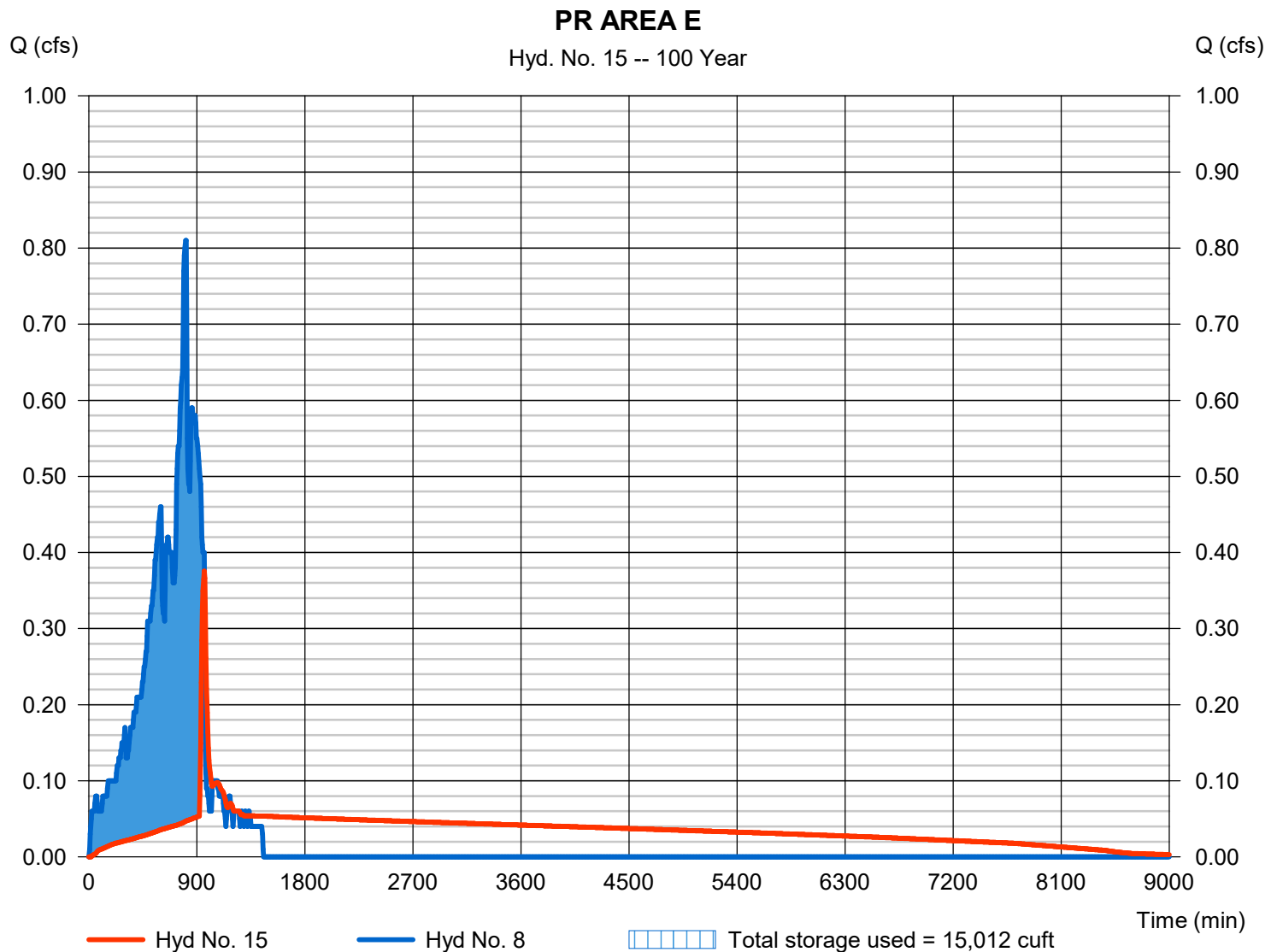
Friday, 12 / 17 / 2021

Hyd. No. 15

PR AREA E

Hydrograph type	= Reservoir	Peak discharge	= 0.376 cfs
Storm frequency	= 100 yrs	Time to peak	= 960 min
Time interval	= 5 min	Hyd. volume	= 19,105 cuft
Inflow hyd. No.	= 8 - PR AREA E	Max. Elevation	= 104.38 ft
Reservoir name	= DET-E	Max. Storage	= 15,012 cuft

Storage Indication method used.



Pond No. 5 - DET-E

Pond Data

UG Chambers -Invert elev. = 100.00 ft, Rise x Span = 5.00 x 5.00 ft, Barrel Len = 825.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	n/a	0	0
0.50	100.50	n/a	843	843
1.00	101.00	n/a	1,465	2,308
1.50	101.50	n/a	1,782	4,090
2.00	102.00	n/a	1,962	6,052
2.50	102.50	n/a	2,050	8,103
3.00	103.00	n/a	2,050	10,153
3.50	103.50	n/a	1,962	12,115
4.00	104.00	n/a	1,781	13,896
4.50	104.50	n/a	1,464	15,360
5.00	105.00	n/a	842	16,202

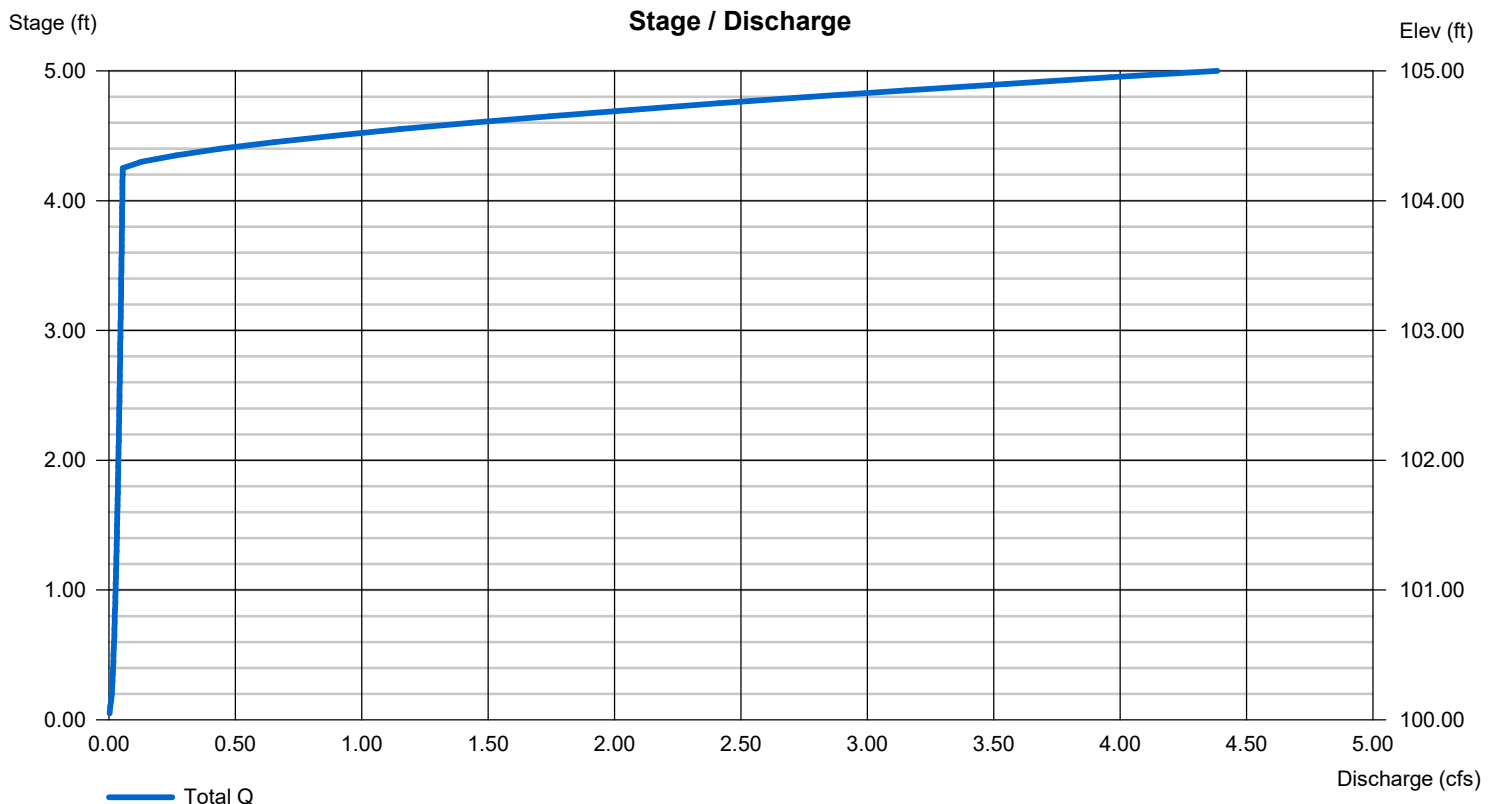
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.00	Inactive	Inactive	Inactive
Span (in)	= 1.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 100.00	0.00	0.00	0.00
Length (ft)	= 0.04	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 104.25	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



APPENDIX F

Hydraulic Calculations for Public 36" RCP (WSPG)



19-400 Lake Elsinore
Proposed 36" Public Storm Drain

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1005.560	1295.440	7.560	1303.000	91.58	12.96	2.61	1305.61	.00	2.86	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.860	.0000					.0189	.22	7.56	.00	.00	.013	.00	.00	PIPE
1017.420	1295.440	7.784	1303.224	91.58	12.96	2.61	1305.83	.00	2.86	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.420	.0159					.0189	.08	.00	.00	3.00	.013	.00	.00	PIPE
1021.840	1295.510	7.981	1303.491	91.58	12.96	2.61	1306.10	.00	2.86	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
374.250	.0150					.0189	7.06	7.98	.00	3.00	.013	.00	.00	PIPE
1396.090	1301.120	9.427	1310.547	91.58	12.96	2.61	1313.15	.00	2.86	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70.900	.0150					.0189	1.34	.00	.00	3.00	.013	.00	.00	PIPE
1466.990	1302.180	10.226	1312.406	91.58	12.96	2.61	1315.01	.00	2.86	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.930	.0155					.0189	.04	10.23	.00	3.00	.013	.00	.00	PIPE
1468.920	1302.210	10.232	1312.442	91.58	12.96	2.61	1315.05	.00	2.86	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.0166					.0170	.09	10.23	.00		.013	.00	.00	PIPE
1474.350	1302.300	11.268	1313.568	82.00	11.60	2.09	1315.66	.00	2.79	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
423.650	.0150					.0151	6.40	11.27	.00	2.47	.013	.00	.00	PIPE
1898.000	1308.650	11.321	1319.971	82.00	11.60	2.09	1322.06	.00	2.79	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.0015					.0151	.06	11.32	.00		.013	.00	.00	PIPE
1902.000	1308.656	11.376	1320.032	82.00	11.60	2.09	1322.12	.00	2.79	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94.010	.0156					.0151	1.42	11.38	.00	2.42	.013	.00	.00	PIPE

19-400 Lake Elsinore
 Proposed 36" Public Storm Drain

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1996.010	1310.120	11.333	1321.453	82.00	11.60	2.09	1323.54	.00	2.79	.00	3.000	.000	.00	1 .0
70.680	.0150					.0151	1.07	.00	.00	2.47	.013	.00	.00	PIPE
2066.690	1311.180	11.759	1322.939	82.00	11.60	2.09	1325.03	.00	2.79	.00	3.000	.000	.00	1 .0
59.010	.0151					.0151	.89	11.76	.00	2.46	.013	.00	.00	PIPE
2125.700	1312.070	11.761	1323.831	82.00	11.60	2.09	1325.92	.00	2.79	.00	3.000	.000	.00	1 .0
35.360	.0151					.0151	.53	.00	.00	2.46	.013	.00	.00	PIPE
2161.060	1312.603	12.180	1324.783	82.00	11.60	2.09	1326.87	.00	2.79	.00	3.000	.000	.00	1 .0
6.590	.0132					.0151	.10	12.18	.00	2.73	.013	.00	.00	PIPE
2167.650	1312.690	12.193	1324.883	82.00	11.60	2.09	1326.97	.00	2.79	.00	3.000	.000	.00	1 .0

APPENDIX G

HEC-RAS Analysis

HEC-RAS Analysis

Two (2) simulations were run to analyze the water surface elevation and flow depths of the existing drainage course for the Existing Scenario and the Proposed (with pipe) scenario at three (3) locations along the existing drainage course.

Existing Scenario

The existing topography surface was generated with AutoCAD Civil3D using topography survey performed by *Inland Aerial Surveys, Inc.* on August 2020 and field topography survey performed by *DRC Engineering, Inc.* on March 4, 2021. The HEC-RAS upstream flow data was generated from the unit hydrograph data from the 100-year, 3-hour storm event for Area A2 of the Third Street Channel Watershed as described in the *Technical Drainage Study (JN 148215)* prepared by *Michael Baker International*. Refer to the flow hydrograph on Figure 1 on the following pages.

Proposed Scenario

The proposed topography surface was generated with AutoCAD Civil3D using proposed features and elevations from the Concept Grading Plan for the Proposed Condition onsite combined with the existing offsite topography surface. For this analysis, it is reasonable to assume that the proposed pipe will not be at full flow capacity for the entirety of the storm. In the HEC-RAS model, the pipe will flow at 25% capacity for the first hour of the storm event, 50% capacity for the second hour of the storm event, and at 100% capacity for the remainder of the storm event. The HEC-RAS upstream flow data was generated from subtracting the various capacities of a 36-inch diameter reinforced concrete pipe (Manning's $n = 0.013$) at a pipe slope of 0.015 ft/ft from the 100-year 3-hour storm event unit hydrograph used in the Existing Scenario. Refer to the flow hydrograph on Figure 2 on the following pages.

Using *Bentley FlowMaster V8i* software:

- The 25% capacity of a 36-inch diameter reinforced concrete pipe (Manning's $n = 0.013$) at a pipe slope of 0.015 ft/ft is approximately 11 cfs. This value was subtracted from the hydrograph in Figure 1 for the first hour of the storm event.
- The 50% capacity of a 36-inch diameter reinforced concrete pipe (Manning's $n = 0.013$) at a pipe slope of 0.015 ft/ft is approximately 41 cfs. This value was subtracted from the hydrograph in Figure 1 for the second hour of the storm event.
- The full flow capacity (100% full) of a 36-inch diameter reinforced concrete pipe (Manning's $n = 0.013$) at a pipe slope of 0.015 ft/ft is approximately 82 cfs. This value was subtracted from the hydrograph in Figure 1 for the remainder of the storm event.

Profile Sections

Figures 3a to 5b on the following pages depict the terrain and flow depths at various profile sections. Profile section locations are shown on the HEC-RAS Exhibit. It should be noted that the depths shown may not represent the actual flow depths, but should only be used as a comparison model between the Existing and Proposed scenarios.

- Section A: Located at the northeasterly Property Line of the Project Site.
- Section B: Located perpendicular to the southeasterly Property Line at the northeast face of the proposed onsite grocery building.
- Section C: Located perpendicular to the southeasterly Property Line near the mid-section of the Proposed onsite grocery building.



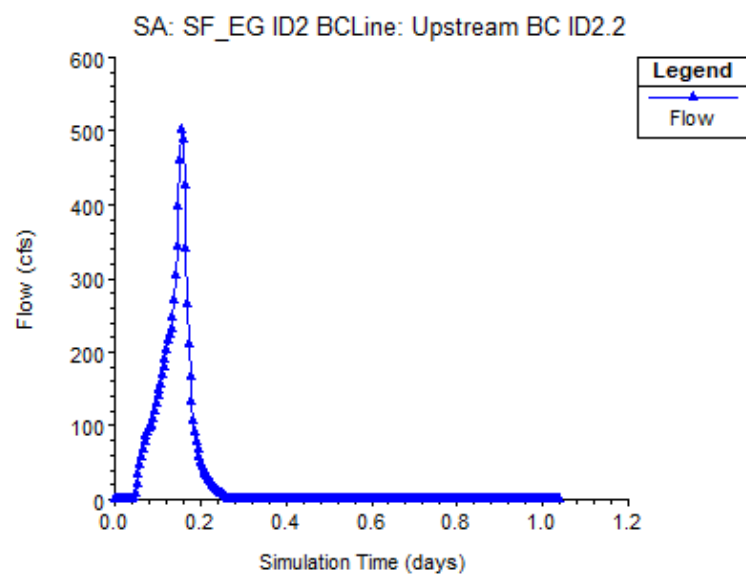
**Figure 1**

Figure 1 above depicts the flow hydrograph for Upstream Boundary Condition used in both the Existing and Proposed Scenarios of the HEC-RAS analysis. The data inputted into HEC-RAS flow hydrograph is obtained from Watershed A2 Unit Hydrograph Analysis for the 100-year, 3-hour storm event in the *Technical Drainage Study* prepared by *Michael Baker International*.

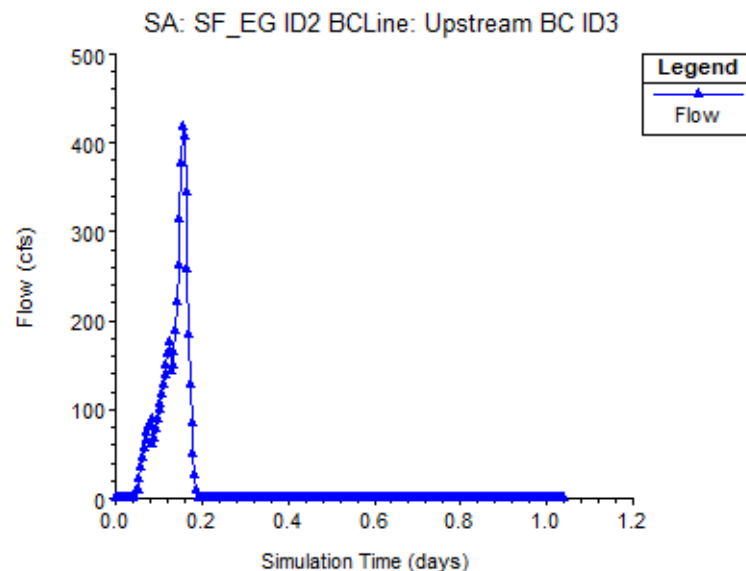
**Figure 2**

Figure 2 above depicts the inflow hydrograph for Upstream Boundary Condition used in the Proposed (with pipe) Scenario. The hydrograph was created by subtracting the pipe capacities (shown on the previous page) from the existing hydrograph. The goal is to determine that the Proposed (with pipe) Scenario does not produce flow depth results significantly greater than the Existing Scenario.

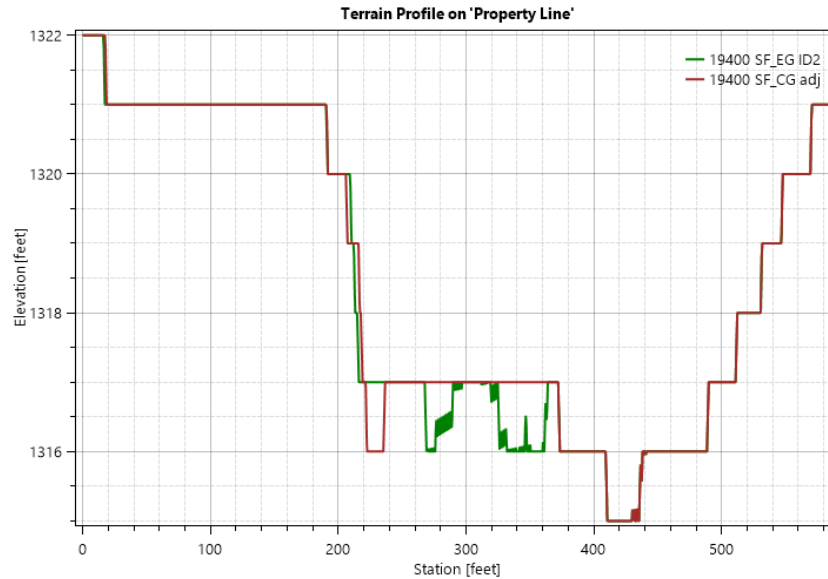


Figure 3a – Terrain at Section A: Property Line

Dark Green Line: Existing Scenario – Flow Depth at Section A: Property Line

Dark Red Line: Proposed (with Pipe) Scenario – Flow Depth at Section A: Property Line



Figure 3b – Flow Depth at Section A: Property Line

Blue Line: Existing Scenario – Flow Depth at Section A: Property Line

Green Line: Proposed (with Pipe) Scenario – Flow Depth at Section A: Property Line

Max Flow Depth at Section A: Property Line

Existing Scenario = 2.61 ft

Proposed (with Pipe) Scenario = 2.81 ft

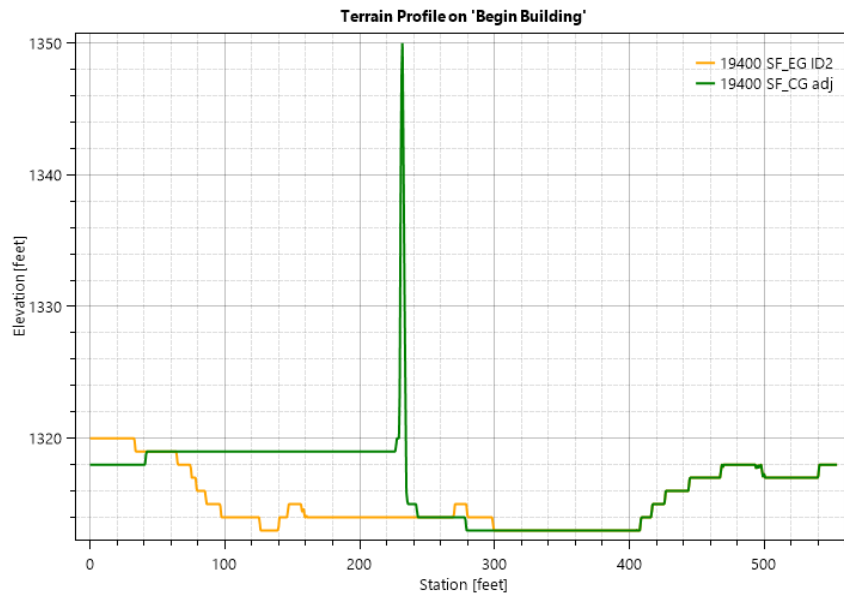


Figure 4a – Terrain at Section B: Beginning of Building

Yellow Line: Existing Scenario – Terrain at Section B: Beginning of Building

Green Line: Proposed (with Pipe) Scenario – Terrain at Section B: Beginning of Building

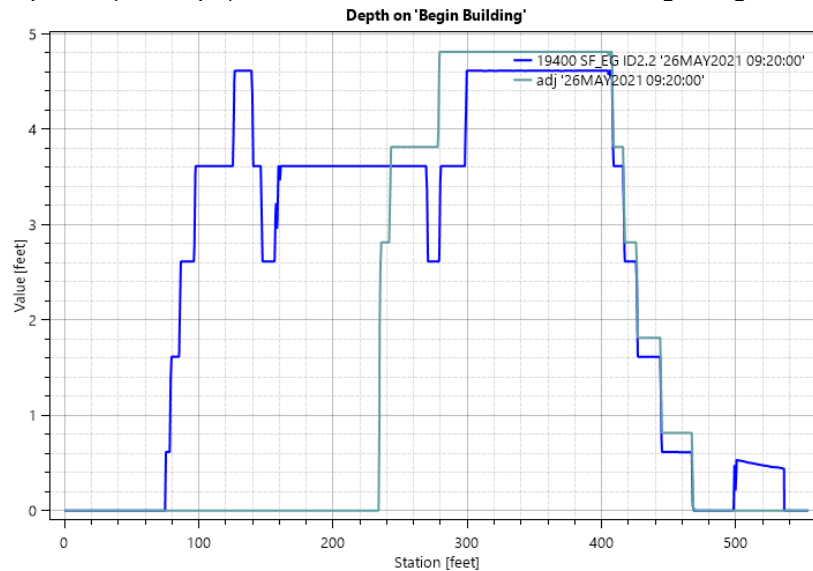


Figure 4b – Flow Depth at Section B: Beginning of Building

Blue Line: Existing Scenario – Flow Depth at Section B: Beginning of Building

Green Line: Proposed (with Pipe) Scenario – Flow Depth at Section B: Beginning of Building

Max Flow Depth at Section B: Beginning of Building

Existing Scenario = 4.61 ft (offsite)

Proposed (with Pipe) Scenario = 4.81 ft (offsite)

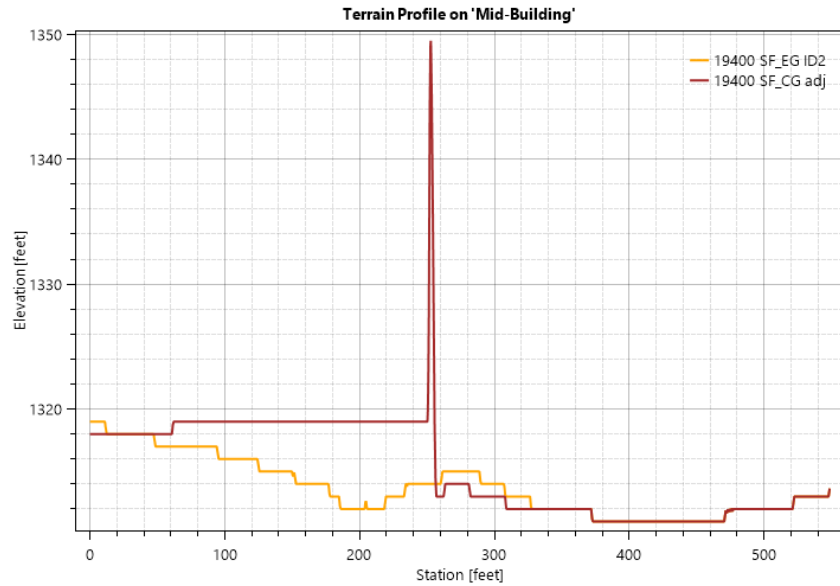


Figure 5a – Terrain at Section C: Mid-Building

Yellow Line: Existing Scenario – Terrain at Section C: Mid-Building

Dark Red Line: Proposed (with Pipe) Scenario – Terrain at Section C: Mid-Building

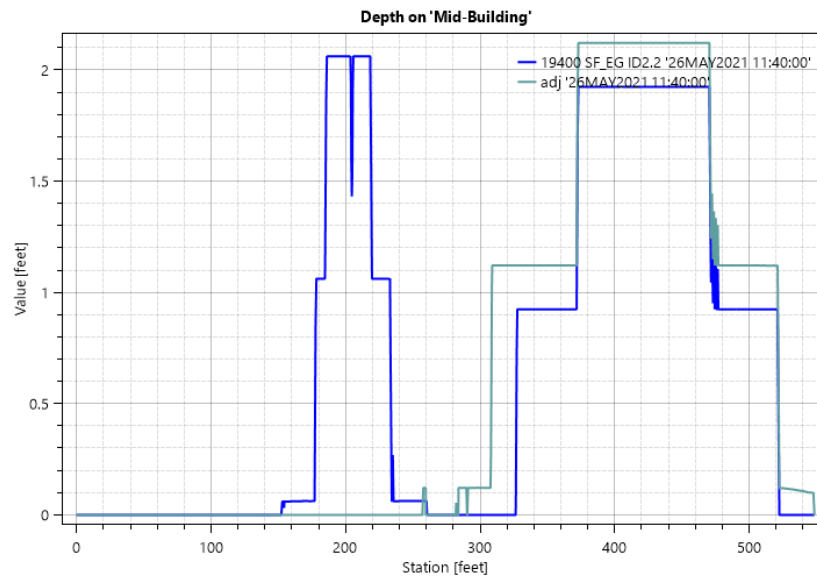


Figure 5b – Flow Depth at Section C: Mid-Building

Blue Line: Existing Scenario – Flow Depth at Section C: Mid-Building

Green Line: Proposed (with Pipe) Scenario – Flow Depth at Section C: Mid-Building

Max Flow Depth at Section C: Mid-Building

Existing Scenario = 1.92 ft (offsite)

Proposed (with Pipe) Scenario = 2.12 ft (offsite)

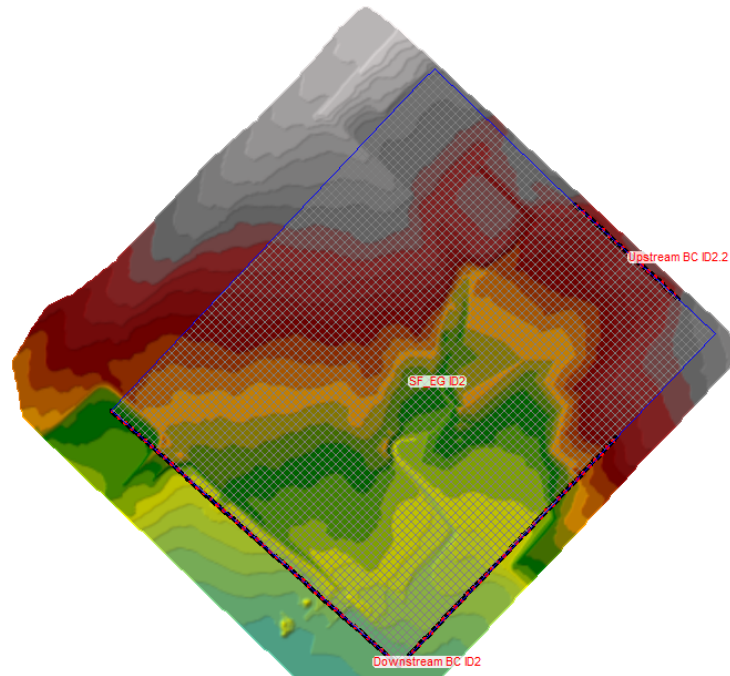


Figure 6 – HEC-RAS Topography (Existing Scenario)

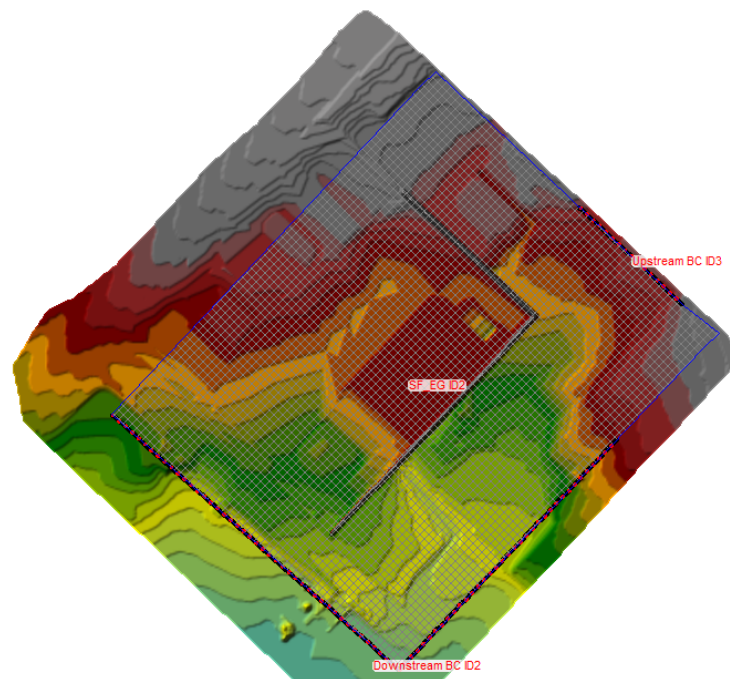


Figure 7 – HEC-RAS Topography (Proposed Scenario)

Summary of Results

Below is a table summary of the maximum flow depths (ft) of the existing drainage course at the three different Sections of the HEC-RAS hydraulic analysis. For the 100-year, 3-hour storm event, it has been determined that in the Proposed Scenario, the flow depth increase compared to the Existing Scenario is limited to approximately 0.20-ft. As stated previously, it should be noted that the depths shown may not represent the actual flow depths, but should only be used as a comparison model between the Existing and Proposed scenarios.

	Max Flow Depths (ft)			% Increase (%)
	Existing Scenario	Proposed Scenario	Depth Increase (ft)	
Section A: Property Line	2.61	2.81	0.20	7.7
Section B: Beginning of Building	4.61	4.81	0.20	4.3
Section C: Mid-Building	1.92	2.12	0.20	10.4

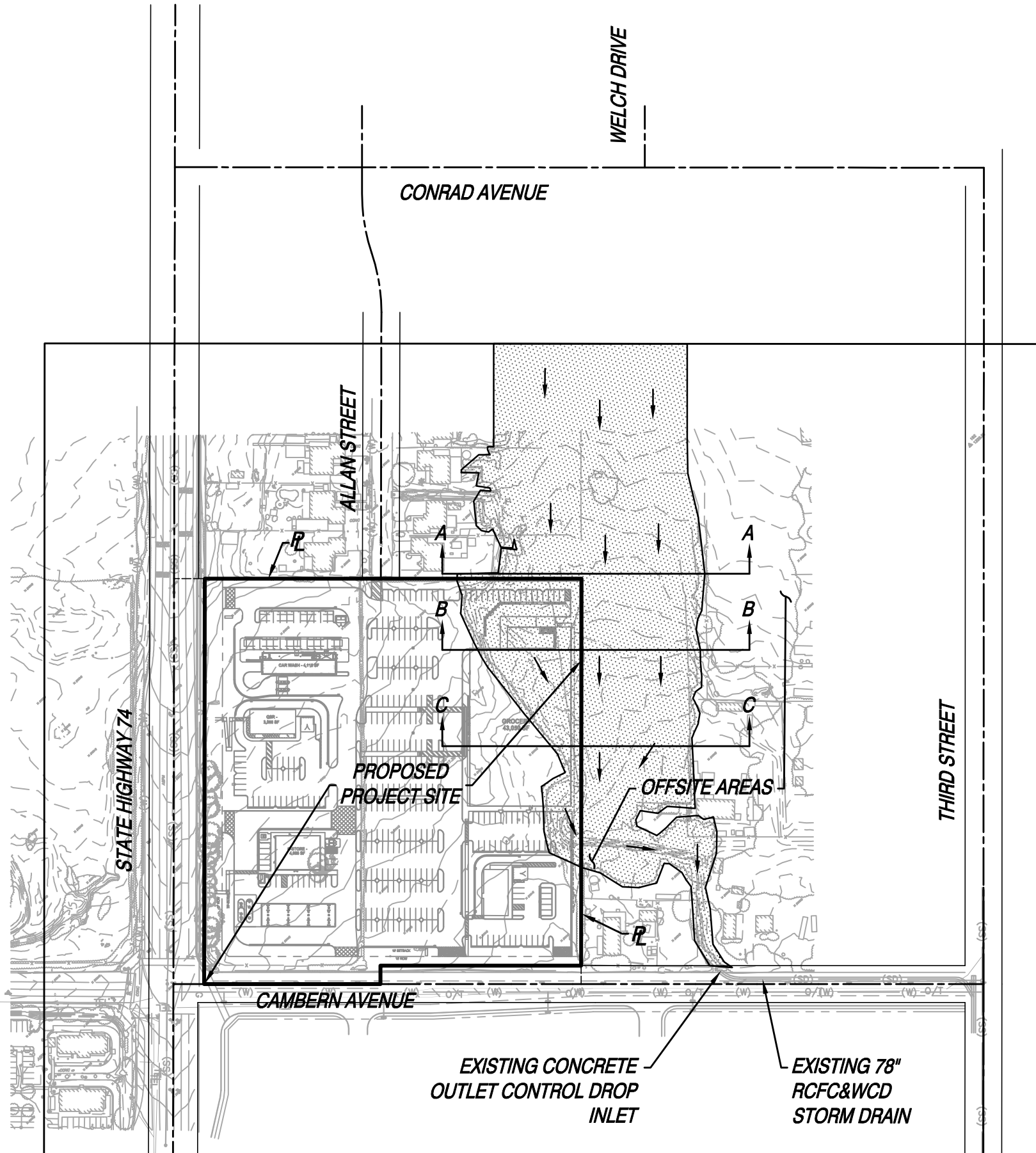
Conclusion

In the existing (undeveloped) condition, a specific portion of the Third Street Channel Watershed drains onsite onto the Project Site property. In the proposed (developed) condition, a proposed headwall near the easterly corner of the Project Site will be designed to capture that portion of flows to be drained into a proposed 36-inch storm drain pipe. The 36-inch storm drain pipe is sloped at 1.5% and provides approximately 82 cubic-feet per second (cfs) at full flow capacity. The pipe is designed to mitigate the specific portion of flow from the Third Street Channel that drains onsite in the existing condition. Based on the existing topography of the Third Street Channel adjacent to the Project Site, the majority of stormwater flows remain offsite.

As described in the *Technical Drainage Study* prepared by *Michael Baker International* on April 11, 2016; the Synthetic Unit Hydrograph Method for Area A2 of the Third Street Channel Watershed produced a peak flow rate of 500.6 cfs for the 100-year, 3-hour duration storm event. In comparison, the 100-year 24-hour duration storm event produces approximately 265.0 cfs. In this preliminary Hydrology Study, the 3-hour duration storm was chosen for analysis to produce a more conservative result for the highest peak flow rate during the 100-year storm event.

Using HEC-RAS software, it has been determined that the flow-depth of Third Street Channel during the peak of the 100-year, 3-hour duration storm event would not significantly increase in the proposed (developed) condition with the proposed 36-inch storm drain pipe, when compared to the existing condition. During the peak of the 100-year, 3-hour storm event, it is anticipated that the proposed 36-inch storm drain pipe will run at full flow capacity. At the three analyzed sections; A, B and C; the maximum flow depths within the offsite portion of Third Street Channel increase by approximately 0.20 feet, or 2.4 inches. This will not have any significant impact to any downstream features, developments or facilities.





HEC-RAS SECTION LEGEND:

SECTION A-A: PROPERTY LINE

SECTION B-B: BEGINNING OF BUILDING

SECTION C-C: MID-BUILDING

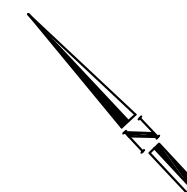
LEGEND



APPROXIMATE LOCATION OF
EXISTING DRAINAGE COURSE



CHANNEL FLOW DIRECTION



SCALE: 1" = 200'

18650 CAMBERN STREET

HEC-RAS

HYDRAULIC ANALYSIS EXHIBIT

LAKE ELSINORE, CALIFORNIA



DRC Engineering, Inc.
Civil Engineering/Land Surveying/Land Planning

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Anaheim Hills, CA 92808
714-685-6860

APPENDIX H

Excerpts from Technical Drainage Study (JN 148215) by Michael Baker International

**TECHNICAL
DRAINAGE STUDY**

**THIRD STREET DRAINAGE
IMPROVEMENTS
Lake Elsinore, California
April 11th, 2016**

Prepared for:

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Francisco Martinez Jr P.E.

JN 148215



4/11/2016

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Exhibit 7:	Watershed Area “A3” Boundary with GIS Hydrologic Soil Unit Map.....	App. D
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Appendix C	Watershed Area A2: Synthetic Unit Hydrograph Analysis, 100-year frequency, 3-hr, 6-hr & 24-hr
Appendix D	Watershed Area A3: Synthetic Unit Hydrograph Analysis, 100-year frequency, 3-hr, 6-hr & 24-hr

- Appendix E** Watershed Area A4: Synthetic Unit Hydrograph Analysis, 100-year frequency, 3-hr, 6-hr & 24-hr
- Appendix F** Storm Drain Hydraulics (WSPG Input/Output)
- Appendix G** Existing CALTRANS Storm Drain Facilities
- Appendix H** Memorandum of Understanding

SECTION 1 – INTRODUCTION

1.1 BACKGROUND

Michael Baker International has been retained by the City of Lake Elsinore to provide professional engineering services for the design and plan preparation of final PS&E for Third Street Channel Watershed Drainage Improvements, a Master Drainage facility or as cited in City's RFP as Third Street Drainage Improvements.

The watershed is approximately 700-acres, located in the City of Lake Elsinore, County of Riverside, California. It lays within the Santa Ana River Basin and the RCFC&WCD Zone 3 watershed. It is bounded roughly to north by Central Avenue (State Highway 74) and Mauricio Avenue, to the east by the ridgeline of Wasson Canyon Wash, to the west by Collier Avenue and to the south by 2nd Street. The existing land use consists primarily of vacant parcels with fewer medium to low residential development with some commercial areas.

The watershed topography ranges from mildly steep-sloped foothills to relatively flat valley terrain and generally flows in the southwesterly direction. The Third Street Drainage Improvements will convey storm water through this area, out-letting into the existing Third Street Channel and double culvert located on 3rd Street and Collier Avenue.

On February 11, 2016 the City met with Riverside County Flood Control & Water Conservation District (RCFC&WCD) to discuss the master drainage improvements (MDP) for the existing Third Street Channel Watershed, its funding, operation and maintenance, where agreement was made for RCFC&WCD to own, operate and maintain the Third Street Channel Watershed Improvements.

1.2 PURPOSE

The purpose of this technical drainage study is to investigate and evaluate deficiencies in the Third Street Channel watershed and to develop an economical drainage plan which considers protection of both existing development and potential future development. The results from the engineering analysis will ultimately serve as technical documentation for the preparation of Final engineering design and selection of the recommended watershed improvements.

The recommendations of this Plan will provide increased flood protection as facilities are installed and will be used as a guide for locating and sizing major drainage facilities, as development increases in the area.

SECTION 2 - HYDROLOGY

2.1 METHODOLOGY

The hydrology analysis for this watershed will be developed using the Synthetic Unit Hydrograph Method (SUH) which is suitable for watersheds larger than 300 to 500 acres as described and in accordance with the procedures and recommendations outlined in the Riverside County Flood Control and Water Conservation District Hydrology Manual 1978 edition (Ref. 1), referred to hereafter as “Hydrology Manual”. CivilDesign® Unit Hydrograph Hydrology, Riverside County Software was used to perform the Synthetic Unit Hydrograph Hydrology.

The Antecedent Moisture Conditions (AMC) used in this study is AMC II, defined in the District’s Hydrology Manual as moderate runoff potential, an intermediate condition. The composite runoff index coefficients for each sub-basin were determined based upon land-use and hydrological soil types.

The SUH 100 year frequency storm flows are summarized in Table 1.

TABLE 1

Duration Storm Analyzed	A1	A2	A3	A4	A
	Peak flow rates (cfs)	Peak flow rates (cfs)	Peak flow rates (cfs)	Peak flow rates (cfs)	Peak flow rates (cfs)
3-HR	485.7	500.6	529.5	832.1	926.0
6-HR	457.4	470.9	506.6	776.2	869.0
24-HR	257.3	265.0	290.2	436.7	493.2
Tributary Area (acres)	378.2	387.9	425.0	625.0	698.4

2.2 CRITERIA

A preliminary analysis, hydrology study and 35% schematic drawings were previously completed by Otte Berkeley Group on behalf of Walmart, and provided to Michael Baker International for reference. The schematic drawings under Otte Berkeley’s preliminary design proposes drainage improvements along 3rd street between Collier Avenue and Cambern Avenue.

The drainage watercourse was determined based on Flood Control topography, City as-built drawings, sub division and road survey plans and field investigations. The watershed under this study has been designated watershed “A” and divided into 4 sub areas, where each sub area corresponds to the segment or reach evaluated for necessary drainage improvements along the proposed alignment. The initial area is Watershed “A1” with concentration point at Cambern

Avenue, roughly 400 lineal feet north of 3rd Street. Most of the storm flows at this location are being released upstream from an existing storm drain located at Conard Avenue, approximately 90 lineal feet north of Welch Drive. From the outlet point on Cambern, storm flows travel downstream traversing private property via a meandering natural channel with unknown widths towards Cambern Avenue. However there appears to be a more or less defined small v-shape earthen channel located between private properties at the “A1” concentration point.

A preliminary normal depth analysis performed for the v-channel segment and based on the aerial topography shows a maximum channel capacity of 80 cfs. Therefore it is being assumed that actual developed storm flows do not concentrate at this point but disperse and continue in the southerly direction. The proposed inlet structure proposed at this location is for an interim condition until the master drainage facility is extended to the intersection of Conard Avenue and Welch Drive and collects storm flows tributary to this point. It is anticipated that the flows at “A1” under ultimate conditions will be less than the interim.

The next sub-area is “A2” which allows us to estimate developed storm water flows within Cambern Avenue between Highway 74 and 3rd Street; and it is followed by the next downstream Sub-area “A3 with a concentration point at the Intersection of Dexter Avenue and 3rd Street; the next and final sub-area is “A4” with a concentration point at the existing low point located at the existing CALTRANS 8’x6’ RCB, approximately 450 lineal feet south of 3rd Street along highway right-of-way. Finally, watershed “A” has the concentration point at the existing double reinforced concrete culvert located at the intersection of 3rd street and Collier Avenue.

The watershed is traversed at the lower end (downstream) in a north-south direction by California Interstate 15. Per our investigation, there are five (5) storm drain culverts crossing underneath the highway. The culverts lay roughly perpendicular to the highway allowing storm water to flow unobstructed from its natural watercourse. There is an existing 24-inch pipe culvert beginning from the north, followed in a southerly direction by a 30, 36, and 54-inch pipe culverts; and near the southerly end of the watershed an 8’x6’ Reinforced Concrete Box. These facilities are owned, maintained and located in CALTRANS right-of-way.

2.3 RAINFALL VALUES

The NOAA Atlas 14 rainfall data was used in this technical drainage study. This will be consistent with the data used in recent studies prepared by RCFC&WCD for the Lakeland Village MDP, as described in the Memorandum of Understanding (Ref. 2). See Table 2 for Point Rainfall amounts.

TABLE 2: POINT RAINFALL AMOUNTS

FREQUENCY YEARS	DURATION HOURS	POINT RAINFALL INCHES ⁽¹⁾
2	1	0.48
	3	0.86
	6	1.24
	24	2.34
100	1	1.34
	3	2.17
	6	3.06
	24	6.29

(1) AREA WEIGHTED POINT RAINFALL. SOURCE: Ref. 2

2.4 HYDROLOGIC SOIL TYPES

Hydrologic soil types were determined from City G.I.S database which includes soil names and descriptions. The majority of the area consists of soil types D, to lesser extent C, small amounts of B and negligible amounts of A. The composite soil map is included in Appendix.

2.5 LAND USE

Land use assumptions used throughout the study were based on the City of Lake Elsinore General Plan, updated 2011 and with revisions adopted by the City Council on April 23, 2013. The watershed lays within two City Districts, the Lake Elsinore Hills District and the Business District, with an area within the Ramsgate Specific Plan.

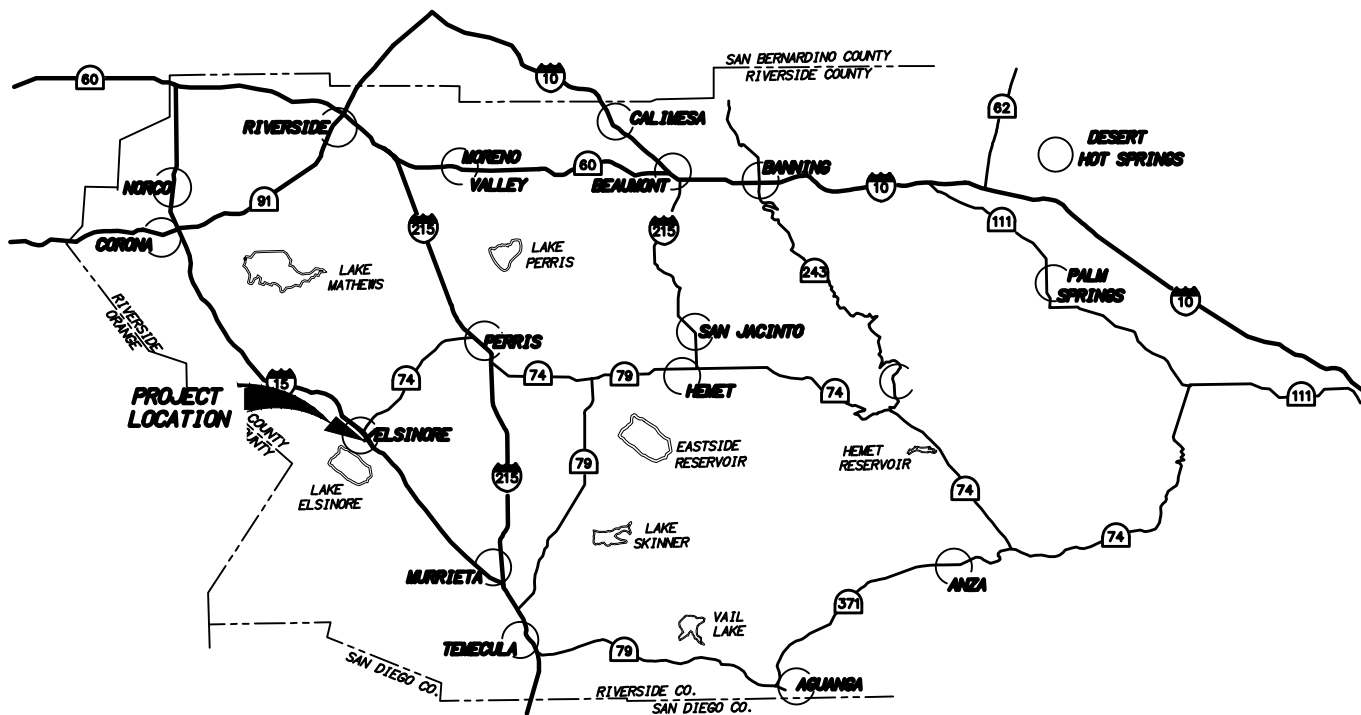
SECTION 3 - HYDRAULICS

3.1 STORM DRAIN ANALYSIS

The storm drains were sized to convey the 100-year storm without exceeding RCF&WCD hydraulic criteria. The hydraulic analysis was performed using the Water Surface Pressure Gradient (WSPG) computer program. The starting water surface elevation controls for storm drains out-letting into the Third Street Channel uses the maximum 100-year water surface in the channel. For laterals, the starting water surface used was the hydraulic grade line at the confluence. The WSPG input and output files are included in Appendix.

SECTION 4 – REFERENCES

1. Riverside County Flood Control and Water Conservation District (RCFC&WCD)
Hydrology Manual, 1978
2. Memorandum of Understanding by Albert A. Webb Associates, dated July 20, 2015.
3. CivilDesign® *Unit Hydrograph Hydrology, Riverside County*. Ver. 9.0
4. CivilDesign® *Water Surface and Pressure Gradient Hydraulic Analysis System Program WSPGW*. Ver. 14.07



VICINITY MAP

NTS

Michael Baker
INTERNATIONAL

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TEMECULA, CA 92591
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MBAKERINTL.COM

3rd STREET STORM DRAIN

FIGURE 1
VICINITY MAP

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 11/18/15 File: 3rdsta23100.out

+++++

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

Program License Serial Number 6341

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

English Units used in output format

LAKE ELSINORE 3RD STREET STORM DRAIN
WATERSHED AREA A2 (DESIGN POINT AT CAMBERN/PIPE CONFLUENCE)
100-YEAR STORM EVENT

Drainage Area = 387.86(Ac.) = 0.606 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 387.86(Ac.) = 0.606 Sq. Mi.
Length along longest watercourse = 13247.00(Ft.)
Length along longest watercourse measured to centroid = 6240.00(Ft.)
Length along longest watercourse = 2.509 Mi.
Length along longest watercourse measured to centroid = 1.182 Mi.
Difference in elevation = 370.50(Ft.)
Slope along watercourse = 147.6742 Ft./Mi.
Average Manning's 'N' = 0.023
Lag time = 0.323 Hr.
Lag time = 19.38 Min.
25% of lag time = 4.84 Min.
40% of lag time = 7.75 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]
387.86	0.86	333.56

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
387.86	2.17	841.66

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.860(In)
Area Averaged 100-Year Rainfall = 2.170(In)

Point rain (area averaged) = 2.170(In)
Areal adjustment factor = 99.83 %
Adjusted average point rain = 2.166(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
17.090	92.20	0.750
1.110	94.40	0.900
3.170	95.40	0.900
0.220	93.90	0.900
101.110	78.50	0.150
11.000	95.10	0.900

4.010	88.40	0.750
39.430	78.40	0.400
22.570	86.20	0.500
43.520	86.20	0.500
11.530	84.90	0.500
109.900	86.10	0.500
13.360	89.50	0.050
9.840	84.20	0.400
Total Area Entered = 387.86(Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
		(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
AMC2	AMC-2					
92.2	92.2	0.101	0.750	0.033	0.044	0.001
94.4	94.4	0.073	0.900	0.014	0.003	0.000
95.4	95.4	0.060	0.900	0.011	0.008	0.000
93.9	93.9	0.079	0.900	0.015	0.001	0.000
78.5	78.5	0.262	0.150	0.226	0.261	0.059
95.1	95.1	0.064	0.900	0.012	0.028	0.000
88.4	88.4	0.148	0.750	0.048	0.010	0.000
78.4	78.4	0.263	0.400	0.168	0.102	0.017
86.2	86.2	0.173	0.500	0.095	0.058	0.006
86.2	86.2	0.173	0.500	0.095	0.112	0.011
84.9	84.9	0.188	0.500	0.103	0.030	0.003
86.1	86.1	0.174	0.500	0.096	0.283	0.027
89.5	89.5	0.136	0.050	0.130	0.034	0.004
84.2	84.2	0.196	0.400	0.126	0.025	0.003
Sum (F) =						0.133

Area averaged mean soil loss (F) (In/Hr) = 0.133
 Minimum soil loss rate ((In/Hr)) = 0.066
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.572

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period	Time % of lag	Distribution	Unit Hydrograph
(hrs)		Graph %	(CFS)
1	0.083	25.803	2.389
2	0.167	51.607	8.088
3	0.250	77.410	14.413
4	0.333	103.213	18.096
5	0.417	129.016	15.029
6	0.500	154.820	9.158
7	0.583	180.623	5.803
8	0.667	206.426	4.044
9	0.750	232.229	3.280
10	0.833	258.033	2.699
11	0.917	283.836	2.320
12	1.000	309.639	1.925
13	1.083	335.442	1.609
14	1.167	361.246	1.509
15	1.250	387.049	1.201
16	1.333	412.852	1.097
17	1.417	438.655	0.865
18	1.500	464.459	0.818
19	1.583	490.262	0.779
20	1.667	516.065	0.734
21	1.750	541.868	0.582
22	1.833	567.672	0.543
23	1.917	593.475	0.470
24	2.000	619.278	0.436
25	2.083	645.081	0.365
26	2.167	670.885	0.327
27	2.250	696.688	0.260
28	2.333	722.491	0.258
29	2.417	748.294	0.258
30	2.500	774.098	0.258
31	2.583	799.901	0.258
32	2.667	825.704	0.130
Sum =		100.000	Sum= 390.890

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)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.338	0.133	(0.193)	0.205
2	0.17	1.30	0.338	0.133	(0.193)	0.205
3	0.25	1.10	0.286	0.133	(0.164)	0.153
4	0.33	1.50	0.390	0.133	(0.223)	0.257
5	0.42	1.50	0.390	0.133	(0.223)	0.257
6	0.50	1.80	0.468	0.133	(0.268)	0.335
7	0.58	1.50	0.390	0.133	(0.223)	0.257
8	0.67	1.80	0.468	0.133	(0.268)	0.335
9	0.75	1.80	0.468	0.133	(0.268)	0.335
10	0.83	1.50	0.390	0.133	(0.223)	0.257
11	0.92	1.60	0.416	0.133	(0.238)	0.283
12	1.00	1.80	0.468	0.133	(0.268)	0.335
13	1.08	2.20	0.572	0.133	(0.327)	0.439
14	1.17	2.20	0.572	0.133	(0.327)	0.439
15	1.25	2.20	0.572	0.133	(0.327)	0.439
16	1.33	2.00	0.520	0.133	(0.297)	0.387
17	1.42	2.60	0.676	0.133	(0.387)	0.543
18	1.50	2.70	0.702	0.133	(0.401)	0.569
19	1.58	2.40	0.624	0.133	(0.357)	0.491
20	1.67	2.70	0.702	0.133	(0.401)	0.569
21	1.75	3.30	0.858	0.133	(0.491)	0.725
22	1.83	3.10	0.806	0.133	(0.461)	0.673
23	1.92	2.90	0.754	0.133	(0.431)	0.621
24	2.00	3.00	0.780	0.133	(0.446)	0.647
25	2.08	3.10	0.806	0.133	(0.461)	0.673
26	2.17	4.20	1.092	0.133	(0.625)	0.959
27	2.25	5.00	1.300	0.133	(0.743)	1.167
28	2.33	3.50	0.910	0.133	(0.520)	0.777
29	2.42	6.80	1.768	0.133	(1.011)	1.635
30	2.50	7.30	1.898	0.133	(1.085)	1.765
31	2.58	8.20	2.132	0.133	(1.219)	1.999
32	2.67	5.90	1.534	0.133	(0.877)	1.401
33	2.75	2.00	0.520	0.133	(0.297)	0.387
34	2.83	1.80	0.468	0.133	(0.268)	0.335
35	2.92	1.80	0.468	0.133	(0.268)	0.335
36	3.00	0.60	0.156	(0.133)	0.089	0.067

(Loss Rate Not Used)

Sum = 100.0 Sum = 21.3
 Flood volume = Effective rainfall 1.77(In)
 times area 387.9(Ac.)/[(In)/(Ft.)] = 57.3(Ac.Ft)
 Total soil loss = 0.39(In)
 Total soil loss = 12.751(Ac.Ft)
 Total rainfall = 2.17(In)
 Flood volume = 2494608.2 Cubic Feet
 Total soil loss = 555419.4 Cubic Feet

Peak flow rate of this hydrograph = 500.588(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	150.0	300.0	450.0	600.0
0+ 5	0.0132	1.92	Q				
0+10	0.0711	8.41	Q				
0+15	0.2054	19.49	VQ				
0+20	0.4350	33.34	V Q				
0+25	0.7502	45.77	V Q				
0+30	1.1361	56.03	V Q				
0+35	1.5956	66.73	V Q				
0+40	2.1251	76.88	V Q				
0+45	2.7150	85.65	V Q				
0+50	3.3492	92.08	V Q				

0+55	4.0133	96.43	V	Q					
1+ 0	4.6967	99.23	V	Q					
1+ 5	5.3989	101.97	V	Q					
1+10	6.1478	108.74	V	Q					
1+15	6.9708	119.49	V	Q					
1+20	7.8709	130.70	V	Q					
1+25	8.8324	139.61	V	Q					
1+30	9.8496	147.70	V	Q					
1+35	10.9313	157.05	V	Q					
1+40	12.0870	167.81	V	Q					
1+45	13.3204	179.09	V	Q					
1+50	14.6325	190.52	V	Q					
1+55	16.0352	203.68	V	Q					
2+ 0	17.5242	216.19	V	Q					
2+ 5	19.0676	224.10	V	Q					
2+10	20.6600	231.22	V	Q					
2+15	22.3593	246.74	V	Q					
2+20	24.2240	270.76	V	Q					
2+25	26.3084	302.66	V	Q					
2+30	28.6773	343.96	V	Q					
2+35	31.4059	396.18	V	Q					
2+40	34.5683	459.18	V	Q					
2+45	38.0158	500.59	V	Q					
2+50	41.3832	488.94	V	Q					
2+55	44.3211	426.59	V	Q					
3+ 0	46.6635	340.12	V	Q					
3+ 5	48.4922	265.52	V	Q					
3+10	49.9416	210.45	V	Q					
3+15	51.0875	166.39	V	Q					
3+20	51.9960	131.91	V	Q					
3+25	52.7344	107.22	V	Q					
3+30	53.3556	90.20	V	Q					
3+35	53.8853	76.91	V	Q					
3+40	54.3455	66.82	V	Q					
3+45	54.7442	57.90	V	Q					
3+50	55.0897	50.16	V	Q					
3+55	55.3923	43.95	V	Q					
4+ 0	55.6613	39.05	V	Q					
4+ 5	55.9002	34.70	V	Q					
4+10	56.1123	30.79	V	Q					
4+15	56.2974	26.88	V	Q					
4+20	56.4591	23.48	V	Q					
4+25	56.6004	20.52	V	Q					
4+30	56.7239	17.93	V	Q					
4+35	56.8305	15.48	V	Q					
4+40	56.9229	13.41	V	Q					
4+45	57.0027	11.59	V	Q					
4+50	57.0710	9.92	V	Q					
4+55	57.1307	8.67	V	Q					
5+ 0	57.1810	7.30	V	Q					
5+ 5	57.2187	5.48	V	Q					
5+10	57.2433	3.57	V	Q					
5+15	57.2560	1.85	V	Q					
5+20	57.2625	0.94	V	Q					
5+25	57.2665	0.58	V	Q					
5+30	57.2681	0.24	V	Q					
5+35	57.2683	0.03	V	Q					

TABLE 5.1
THIRD STREET STORM DRAIN
POST-DEVELOPMENT
COMPOSITE RUNOFF INDEX - AMC II

WATERSHEAD "A2"									
LAND USE	SOIL TYPE	PERCENT IMPERVIOUS	PERVIOUS RI	INDEX	AREA ACRES	DECIMAL PORTION OF TOTAL AREA	COMPOSITE INDEX	LAND USE AREA (ACRES)	LAND USE COMPOSITE INDEX
APARTMENT DENSITY	A	75.0%	32.0	81.5	0.00	0.000	0.00		
	B	75.0%	56.0	87.5	0.00	0.000	0.00		
	C	75.0%	69.0	90.8	0.76	0.002	0.18		
	D	75.0%	75.0	92.3	16.33	0.042	3.88	17.09	92.2
BUSINESS PROFESSIONAL	A	90.0%	32.0	91.4	0.33	0.001	0.08		
	B	90.0%	56.0	93.8	0.00	0.000	0.00		
	C	90.0%	69.0	95.1	0.02	0.000	0.02		
	D	90.0%	75.0	95.7	0.68	0.002	0.17	1.11	94.4
COMMERCIAL	A	90.0%	32.0	91.4	0.21	0.001	0.05		
	B	90.0%	56.0	93.8	0.00	0.000	0.00		
	C	90.0%	69.0	95.1	0.26	0.001	0.06		
	D	90.0%	75.0	95.7	2.70	0.007	0.67	3.17	95.4
COMMERCIAL MIXED-USE	A	90.0%	32.0	91.4	0.00	0.000	0.00		
	B	90.0%	56.0	93.8	0.20	0.001	0.05		
	C	90.0%	69.0	95.1	0.02	0.000	0.00		
	D	90.0%	75.0	95.7	0.00	0.000	0.00	0.22	93.9
COMMUNITY PARK	A	15.0%	32.0	41.9	0.00	0.000	0.00		
	B	15.0%	56.0	62.3	0.00	0.000	0.00		
	C	15.0%	69.0	73.4	0.00	0.000	0.00		
	D	15.0%	75.0	78.5	101.11	0.261	20.45	101.11	78.5
GENERAL COMMERCIAL	A	90.0%	32.0	91.4	0.00	0.000	0.00		
	B	90.0%	56.0	93.8	0.17	0.000	0.04		
	C	90.0%	69.0	95.1	10.83	0.028	2.66		
	D	90.0%	75.0	95.7	0.00	0.000	0.00	11.00	95.1
HIGH DENSITY-R	A	75.0%	32.0	81.5	0.00	0.000	0.00		
	B	75.0%	56.0	87.5	2.96	0.008	0.67		
	C	75.0%	69.0	90.8	1.05	0.003	0.25		
	D	75.0%	75.0	92.3	0.00	0.000	0.00	4.01	88.4
LOW DENSITY-R	A	40.0%	32.0	58.4	0.00	0.000	0.00		
	B	40.0%	56.0	72.8	1.93	0.031	2.24		
	C	40.0%	69.0	80.6	26.19	0.068	5.44		
	D	40.0%	75.0	84.2	1.31	0.003	0.28	39.43	78.4
LOW-MEDIUM R	A	50.0%	32.0	65.0	0.00	0.000	0.00		
	B	50.0%	56.0	77.0	0.00	0.000	0.00		
	C	50.0%	69.0	83.5	2.25	0.006	0.48		
	D	50.0%	75.0	86.5	20.32	0.052	4.53	22.57	86.2
MEDIUM DENSITY	A	50.0%	32.0	65.0	0.00	0.000	0.00		
	B	50.0%	56.0	77.0	0.00	0.000	0.00		
	C	50.0%	69.0	83.5	4.93	0.013	1.06		
	D	50.0%	75.0	86.5	38.59	0.099	8.61	43.52	86.2
MEDIUM DENSITY-R	A	50.0%	32.0	65.0	0.00	0.000	0.00		
	B	50.0%	56.0	77.0	1.56	0.004	0.31		
	C	50.0%	69.0	83.5	1.15	0.003	0.25		
	D	50.0%	75.0	86.5	8.82	0.023	1.97	11.53	84.9
MEDIUM LOW DENSITY	A	50.0%	32.0	65.0	0.00	0.000	0.00		
	B	50.0%	56.0	77.0	3.95	0.010	0.78		
	C	50.0%	69.0	83.5	1.78	0.005	0.38		
	D	50.0%	75.0	86.5	104.17	0.269	23.23	109.90	86.1
MODIFIED MLD	A	50.0%	32.0	65.0	0.00	0.000	0.00		
	B	50.0%	56.0	77.0	0.00	0.000	0.00		
	C	50.0%	69.0	83.5	0.00	0.000	0.00		
	D	50.0%	75.0	86.5	0.00	0.000	0.00	0.00	#DIV/0!
NP - PARK	A	15.0%	56.0	62.3	0.00	0.000	0.00		
	B	15.0%	56.0	62.3	0.00	0.000	0.00		
	C	15.0%	69.0	73.4	0.00	0.000	0.00		
	D	15.0%	75.0	78.5	0.00	0.000	0.00	0.00	#DIV/0!
OPEN SPACE	A	5.0%	67.0	68.6	0.00	0.000	0.00		
	B	5.0%	78.0	79.0	0.00	0.000	0.00		
	C	5.0%	86.0	86.6	0.00	0.000	0.00		
	D	5.0%	89.0	89.5	13.36	0.034	3.08	13.36	89.5
PUBLIC INSTITUTIONAL	A	40.0%	32.0	58.4	0.00	0.000	0.00		
	B	40.0%	56.0	72.8	0.00	0.000	0.00		
	C	40.0%	69.0	80.6	0.00	0.000	0.00		
	D	40.0%	75.0	84.2	0.00	0.000	0.00	0.00	#DIV/0!
ROAD	A	90.0%	32.0	91.4	0.00	0.000	0.00		
	B	90.0%	56.0	93.8	0.00	0.000	0.00		
	C	90.0%	69.0	95.1	0.00	0.000	0.00		
	D	90.0%	75.0	95.7	0.00	0.000	0.00	0.00	#DIV/0!
SCHOOL	A	40.0%	32.0	58.4	0.00	0.000	0.00		
	B	40.0%	56.0	72.8	0.00	0.000	0.00		
	C	40.0%	69.0	80.6	0.00	0.000	0.00		
	D	40.0%	75.0	84.2	9.84	0.025	2.14	9.84	84.2
					387.86	1.000		387.86	
COMPOSITE RUN OFF INDEX - AMC II							84.0		

RUNOFF INDEX (RI) NO. PER RCFC&WCD HYDROLOGY MANUAL PLATE D-5.5 THE URBAN COVERS RI IN PLATE D-5.5 IS FOR THE PERVIOUS PORTION ONLY. THE IMPERVIOUS PORTIONS ARE ASSIGNED AN RI OF 98 AND THE RI IS A COMPOSITE OF THE IMPERVIOUS PERCENTAGE WITH RI EQUAL TO 100 AND THE RI FOR THE PERVIOUS PORTION PER PLATE D-5.5. VALUES USED FOR IMPERVIOUS PERCENTAGES ARE AS RECOMMENDED IN THE MEMORANDUM OF UNDERSTANDING (REF.2)

TABLE 5.2
THIRD STREET STORM DRAIN
POST-DEVELOPMENT
LOW LOSS RATES

CRITERIA:

UNDEVELOPED AREAS = 0.9

DEVELOPED AREAS = $0.9 - (0.8 \times \% \text{ IMPERVIOUS})$

WATERSHEAD "A2"					
LAND USE	[1] % IMPERVIOUS	[2] LOW LOSS RATE	[3] AREA ACRES	[4] DECIMAL PORTION OF TOTAL AREA	[5] COMPOSITE LOW LOSS RATE
		$0.9 - (0.8 \times [1])$		$[3] / \text{SUM } [3]$	$[2] \times [4]$
APARTMENT DENSITY	0.75	0.3	17.09	0.044	0.013
BUSINESS PROFESSIONAL	0.9	0.18	1.11	0.003	0.001
COMMERCIAL	0.9	0.18	3.17	0.008	0.001
COMMERCIAL MIXED-USE	0.9	0.18	0.22	0.001	0.000
COMMUNITY PARK	0.15	0.78	101.11	0.261	0.203
GENERAL COMMERCIAL	0.9	0.18	11.00	0.028	0.005
HIGH DENSITY-R	0.75	0.3	4.01	0.010	0.003
LOW DENSITY-R	0.4	0.58	39.43	0.102	0.059
LOW-MEDIUM R	0.5	0.5	22.57	0.058	0.029
MEDIUM DENSITY	0.5	0.5	43.52	0.112	0.056
MEDIUM DENSITY-R	0.5	0.5	11.53	0.030	0.015
MEDIUM LOW DENSITY	0.5	0.5	109.90	0.283	0.142
MODIFIED MLD	0.5	0.5	0.00	0.000	0.000
NP - PARK	0.15	0.78	0.00	0.000	0.000
OPEN SPACE	0.05	0.86	13.36	0.034	0.030
PUBLIC INSTITUTIONAL	0.4	0.58	0.00	0.000	0.000
ROAD	0.9	0.18	0.00	0.000	0.000
SCHOOL	0.4	0.58	9.84	0.025	0.015
			387.86	1.000	
COMPOSITE LOW LOSS RATE					0.572

TABLE 5.3
THIRD STREET STORM DRAIN
POST-DEVELOPMENT
COMPOSITE MANNING'S "n" VALUE

WATERSHEAD "A2"				
LAND USE	"n" VALUE	AREA ACRES	DECIMAL PORTION OF TOTAL AREA	COMPOSITE "n" VALUE
APARTMENT DENSITY	0.015	17.09	0.044	0.0007
BUSINESS PROFESSIONAL	0.015	1.11	0.003	0.0000
COMMERCIAL	0.015	3.17	0.008	0.0001
COMMERCIAL MIXED-USE	0.015	0.22	0.001	0.0000
COMMUNITY PARK	0.035	101.11	0.261	0.0091
GENERAL COMMERCIAL	0.015	11.00	0.028	0.0004
HIGH DENSITY-R	0.015	4.01	0.010	0.0002
LOW DENSITY-R	0.02	39.43	0.102	0.0020
LOW-MEDIUM R	0.015	22.57	0.058	0.0009
MEDIUM DENSITY	0.015	43.52	0.112	0.0017
MEDIUM DENSITY-R	0.015	11.53	0.030	0.0004
MEDIUM LOW DENSITY	0.02	109.90	0.283	0.0057
MODIFIED MLD	0.02	0.00	0.000	0.0000
NP - PARK	0.035	0.00	0.000	0.0000
OPEN SPACE (Natural)	0.04	13.36	0.034	0.0014
PUBLIC INSTITUTIONAL	0.015	0.00	0.000	0.0000
ROAD	0.015	0.00	0.000	0.0000
SCHOOL	0.015	9.84	0.025	0.0004
		387.9	1.000	
COMPOSITE MANNING'S "n" VALUE				0.0230

