PRELIMINARY
DRAINAGE STUDY

TENTATIVE TRACT MAP NO. 20527

PARCEL 1 OF PARCEL MAP No. 8362, PER
PLAT RECORDED IN BOOK 203 OF PARCEL
MAPS, PAGES 59 AND 60, AND PARCEL A OF
LLA, PER RECORDED INSTRUMENT
No. 15-12789 IN THE CITY OF VICTORVILLE
COUNTY OF SAN BERNARDINO
STATE OF CALIFORNIA
RECORDS OF SAID COUNTY
July 7, 2022

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DISCUSSION AND SUMMARY

INTRODUCTION:

This study is an analysis of existing and proposed drainage patterns for proposed Tract 20527, APN 0396-341-04 and APN 0396-341-09. Tract 20527 is a 19.07 acre, 53 lot single family residential development (2-3 units/ac) located at the southwest corner of Luna Road and Fremontia Road, bounded on the north by Luna Road, on the south by vacant lot with APN 3096-351-01, on the west is vacant lot with APN 3096-341-10 and on the east by Fremontia Road in the City of Victorville, California.

OFFSITE HYDROLOGY:

The existing terrain consists of sparse to moderately dense growth of native desert open brush, including annual weeds and grasses. The topography of the property is relatively planar, consisting of a very gentle descent from the southwest to the northeast at 1.4% grade. Offsite sheet flows from the south are intercepted by Line A-01 Master Plan of Drainage Regional facility with Trapezoidal concrete side Channel, 110ft earthen bottom, 7.5 depth 2:1 side slope and conveyed northerly and confluence to Luna Road future culvert crossing. The existing street improvements for Fremontia street was constructed by Tract 16507. The Flow from southeast of Fremontia Road will convey portions of the street flow coming from Tract 20527 onsite then west on Luna Road into the MDP Channel Line.

ONSITE HYDROLOGY:

Onsite flow is handled in the streets. The tract has four cul-de-sac streets they are Hixon Place, Huxley Way, Felix Court and Axtoll Lane. All onsite cul-de-sacs spanning from west to east each have a high point located approximately in the middle of the streets with east to west separation. Approximately more than 60% of the tributary areas on each street discharge westerly to 2-36in dia. corrugation aluminized Type II CSP Underground Detention System wrapped with non-woven geotextile membrane with ¾" -2" dia. angular washed stone around the pipes. They outflow to the MDP Channel A-01. All remaining areas flow easterly in street flow towards reverse parkway drains located at the beginning or end of the curb returns. Then the flows transition into trapezoidal Infiltration Trench containing a 4" dia. PVC storm drain pipe for conveyance. The linear basins/infiltration trenches located west of Fremontia Road where excess clean water will continue north on Fremontia Road. The linear basins have a constant grade at the bottom, and will have no standing water in the trenchs, except in a large storm event.

Total runoff leaving the site has been reduced to 90% from the undeveloped conditions. We have designed a Underground detention system with positive flows through the system in lieu of a retention basin, which would require a much deeper basin.

HYDROLOGY METHODOLOGY:

a) The calculated runoff flows are depicted on the enclosed Drainage Maps.
b) All flows were calculated using "RSBC.exe" of the San Bernardino County Program by CivilCADD/CivilDesign engineering software, version 7.1, 1989-2005.
c) The calculated run-off flows are depicted on the enclosed Drainage Maps. All run-off values are calculated using the rational method as outlined in the 1986 San Bernardino County Hydrology Manual, assuming:
d) 100-, 10- & 2-year storm frequency
e) 1-hour rainfall intensity = 100yr - 1.13 in/hr.; 10yr - 0.678 in/hr.; 2yr - 0.392 in/hr. Per Latitude 34.4907°, Longitude -117.4137° of the NOAA Atlas 14, Volume 6, version 2, Located at Victorville, CA, USA San Bernardino County.
f) Slope on the intensity /duration curve = 0.7 desert areas, Per Figure D-3 of the S. B. County Hydrology Manual.
g) Residential cover @ 2-3u.p.a.
h) Antecedent Moisture Content value (AMC) of 3 per Figure ADD-1 for Rational Method and (AMC) of III for the Unit Hydrograph per section C.5 of the S. B. County Hydrology Manual.
i) Soils group “a” Per USDA Resources Conservation Service Web Soil Survey of the S. B. County, CA, San Bernardino Southwestern Part, and the San Bernardino WAP Report.
j) All flows were calculated using “RSBC.EXE” & UNSBC.EXE, a San Bernardino County Rational Hydrology Program by Civilcadd/Civildesign engineering software, version 7.1, 1989-2005.

The site was divided into sub-areas and the data for each sub-area tabulated and entered into the hydrology program developed by CivilCadd/Civil Design. The estimated Q_{100} for each sub-area and points of concentration are shown for each street collecting and conveying flows through the subdivision.

The onsite drainage map shows the location of the estimated Q_{100} at different concentrated points per drainage report for this project.

An inflow of offsite and onsite hydrograph was prepared using the San Bernardino County Flood Control District’s synthetic unit hydrograph method. The outflow from the offsite and onsite basin is provided by different alternatives using an earth bottom channel.

CONCLUSION:

In the proposed development of Tract 20527 there will be the construction of 53 single-family dwelling units and 10 lettered lots on an approximate area of 19 acres. The site is divided into eight drainage areas, "A1A", “A2A”,”A3A”,”A4A”,”A1B”,”A2B”,”A3B” and “A4B", as shown on the map.

Drainage area "A1A"(DA1) has an area of 1.97 acres and produces a 100-yearstorm runoff of 6.6cfs.
Drainage area "A2A"(DA2) has an area of 2.1 acres and produces a 100-yearstorm runoff of 7.1cfs.
Drainage area "A3A"(DA3) has an area of 2.32 acres and produces a 100-yearstorm runoff of 7.1cfs.
Drainage area "A4A"(DA4) has an area of 2.87 acres and produces a 100-yearstorm runoff of 8.0cfs.
This flow will be conveyed to the proposed Facility A-01 per the Baldy Mesa Master Plan of Drainage (BMPD) through a proposed underground drainage system at the westerly corner of cul-de-sac of each onsite street from east to west and then running between drainage easement lots 49 and 50, lots 38 and 39, lots 25 and 26, lots 9 and 10.

Details of the proposed drainage system are shown on the grading plans and drainage map; calculations of the proposed catch basin and storm drain pipe are in section 3 of this report.
Drainage area "A1B"(DA5) has an area of 0.92 acres and produces a 100-year storm runoff of 3.4cfs.
Drainage area "A2B"(DA6) has an area of 1.19 acres and produces a 100-year storm runoff of 4.0cfs.
Drainage area "A3B"(DA7) has an area of 1.33 acres and produces a 100-year storm runoff of 3.9cfs.
Drainage area "A4B"(DA8) has an area of 2.35 acres and produces a 100-year storm runoff of 4.6cfs.
This flow will be conveyed to the Fremontia Road through a proposed Infiltration Trenches drainage system at the easterly property line with a width of 7 ft. draining from south to north and discharge to westerly of Luna Road. This runoff represents less than of 39% compared to the existing condition.

This flow will be conveyed to the proposed Facility A-01 per the Baldy Mesa MPD Regional Facility Line A-01.

In the existing condition the site is also divided into two drainage areas, "AA1" thru "AA8", as shown on the pre-developed map. In order to compare with the proposed condition in producing 100-year storm runoff we used the same drainage boundary; therefore, the total area of the site is also approx. 15 acres.

Drainage area "AA5"(DA1) has an area of 1.42 acres and produces a 100-yearstorm runoff of 2.6cfs.
Drainage area "AA6"(DA2) has an area of 1.18 acres and produces a 100-yearstorm runoff of 2.5cfs.
Drainage area "AA7"(DA3) has an area of 0.58 acres and produces a 100-yearstorm runoff of 1.1cfs.
Drainage area "AA8"(DA4) has an area of 1.71 acres and produces a 100-yearstorm runoff of 3.8cfs.
Drainage area "AA1"(DA5) has an area of 1.47 acres and produces a 100-yearstorm runoff of 2.9cfs.
Drainage area "AA2"(DA6) has an area of 2.13 acres and produces a 100-yearstorm runoff of 3.4cfs.
Drainage area "AA3"(DA7) has an area of 3.08 acres and produces a 100-yearstorm runoff of 4.2cfs.
Drainage area "AA4"(DA8) has an area of 3.48 acres and produces a 100-yearstorm runoff of 3.7cfs.

This flow will be conveyed to the proposed Facility A-01 per the MPD.

UNDERGROUND STORAGE CHAMBERS:

Area A1-A: (DA1)
The inflow of 4.83cfs was used to determine the size of underground basin to handle onsite developed flow and capture volume of 3,364cu.ft. for 2-yr storm as per W.Q.M.P. requirements. A maximum of 4.7' depth of water will be in the underground basin and will percolate within 19 hours of a 100-year, 24hours storm event, with an outflow of Q100= 2.92cfs.

Area A2-A; (DA2)
The inflow of 4.95cfs was used to determine the size of underground basin to handle onsite developed flow and capture volume of 3,511cu.ft. for 2-yr storm event as per W.Q.M.P. requirements. A maximum of 6.0' depth of water will be in the underground basin and will percolate within 20 hours of a 100-year, 24hours storm event, with an outflow of Q100= 4.3cfs.

Area A3-A; (DA3)
The inflow of 5.67cfs was used to determine the size of underground basin to handle onsite developed flow and capture volume of 3,587cu.ft. for 2-yr storm event as per W.Q.M.P. requirements. A maximum of 4.95' depth of water will be in the underground basin and will percolate within 20 hours of a 100-year, 24hours storm event, with an outflow of Q100= 3.2cfs.

Area A4-A; (DA4)
The inflow of 6.13cfs was used to determine the size of underground basin to handle onsite developed flow and capture volume of 3,587cu.ft. for 2-yr storm event as per W.Q.M.P. requirements. A maximum of 5.83' depth of water will be in the underground basin and will percolate within 23 hours of a 100-year, 24hours storm event, with an outflow of Q100= 4.37cfs.

INFILTRATION TRENCH:

Area A1-B: (DA5) For each BMP 5 North & BMP 5 South:
The inflow of 2.84cfs was used to determine the size of infiltration trench to handle onsite developed flow and capture volume of 1,813cu.ft. for 2-yr storm event as per W.Q.M.P. requirements. A maximum of 3' depth of water will be in the infiltration trench and will percolate in bottom area (1.32 in/hr. /12 x 230Lf (Avg.) x 4.5ft wide) within 15.9 hours of a 100-year, 24hours storm event, with an outflow of Q100= 0.53cfs.

Area A2-B: (DA6) For each BMP 6 North & BMP 6 South:
The inflow of 3.39cfs was used to determine the size of infiltration trench to handle onsite developed flow and capture volume of 1,734cu.ft. for 2-yr storm event as per W.Q.M.P. requirements. A maximum of 3' depth of water will be in the infiltration trench and will percolate (1.32 in/hr. /12 x 220Lf (Avg.) x 4.5ft wide) within 15.9 hours of a 100-year, 24hours storm event, with an outflow of Q100= 0.88cfs.

Area A3-B: (DA7) For each BMP 7 North & BMP 7 South:
The inflow of 3.32cfs was used to determine the size of infiltration trench to handle onsite developed flow and capture volume of 1,5762cu.ft. for 2-yr storm event as per W.Q.M.P. requirements. A maximum of 4' depth of water will be in the infiltration trench and will percolate in bottom area (1.32 in/hr. /12 x 102Lf (Avg.) x 4.5ft wide) within 15.9 hours of a 100-year, 24hours storm event, with an outflow of Q100= 2.69cfs.

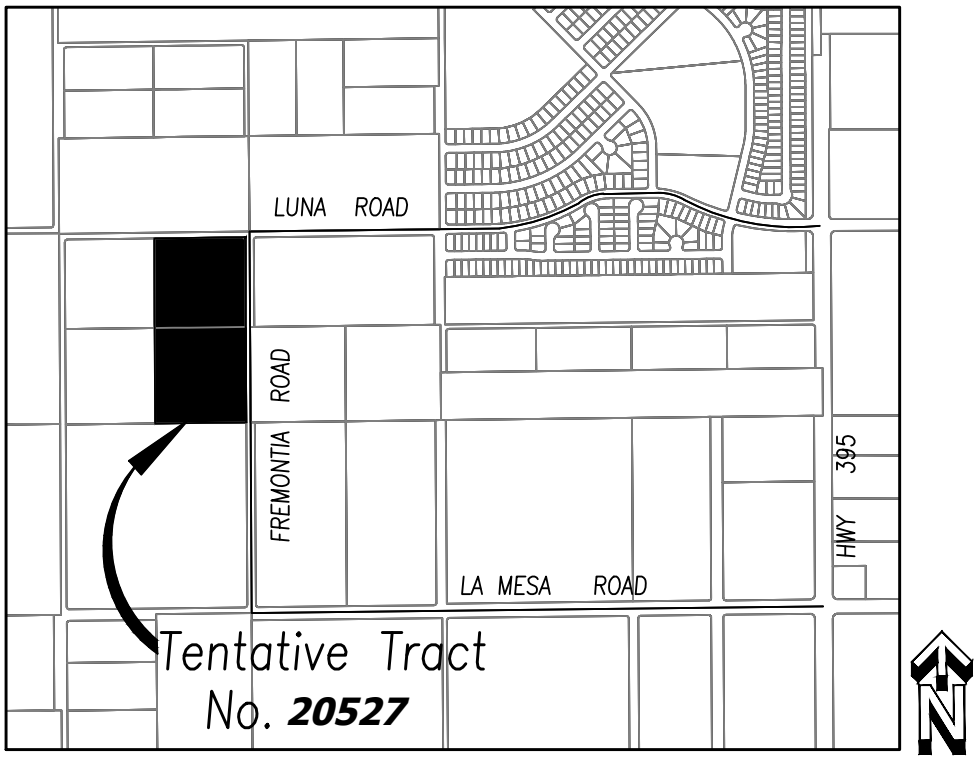
Area A4-B: (DA8) For each BMP 8 North & BMP 8 South:
The inflow of 4.81cfs was used to determine the size of infiltration trench to handle onsite developed flow and capture volume of 4,304cu.ft. for 2-yr storm event as per W.Q.M.P. requirements. A maximum of 4' depth of water will be in the infiltration trench and will percolate (1.32 in/hr. /12 x 546Lf (Avg.) x 4.5ft wide) within 15.9 hours of a 100-year, 24hours storm event, with an outflow of Q100= 2.52cfs.

Using the basin routing programs, the unit hydrograph for the 100year – 24 hours storm was reduced by 10% of pre-developed condition. Only 90% or less of pre-developed flows will be leaving the site using infiltration trench and underground storage chambers combine. Onsite Post developed after mitigation from BMP's Q100= 22.9cfs and Onsite Pre-developed condition Q100= 25.0cfs.

HYDRAULIC METHODOLOGY:

All computed depths of flow were based on the manning's equation. Various interior and perimeter streets were spot checked for adequate hydraulic capacity per the table found in the street hydraulic section of this report.

Manning calculations for typical street section capacities are based on the following:
1. The City of Victorville standard street cross-sections;
2. Design flows and street slopes per various drainage maps;
3. 6-inch curbs face for onsite street.
4. A Manning's roughness coefficient of 0.015 for the street and 0.017 for the parkway.



VICINITY MAP
NOT TO SCALE

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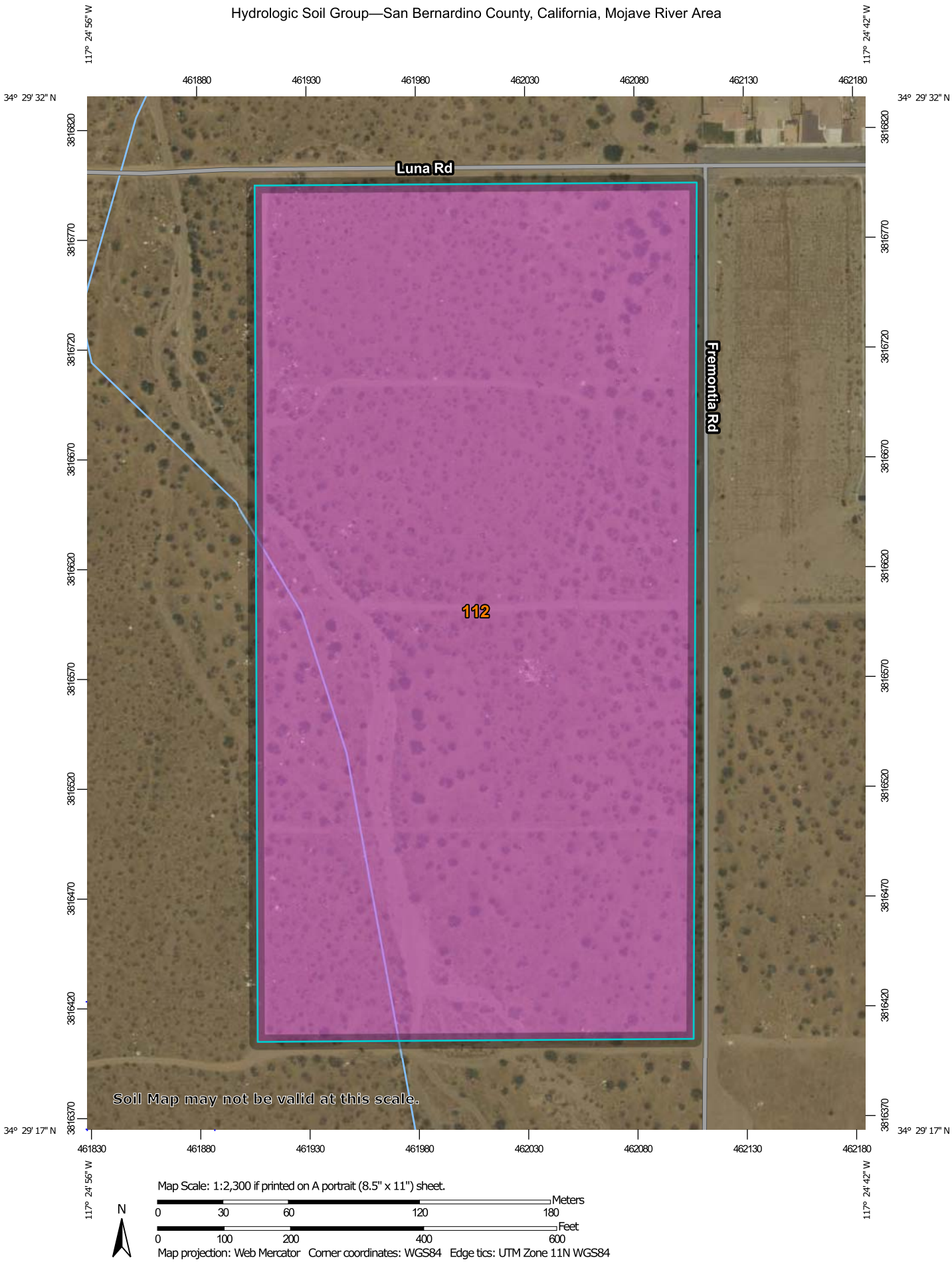
Hydrologic Soil Group—San Bernardino County, California, Mojave River Area



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino County, California, Mojave River Area
Survey Area Data: Version 12, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 26, 2019—Jul 8, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
112	CAJON SAND, 0 TO 2 PERCENT SLOPES	A	19.4	100.0%
Totals for Area of Interest			**19.4**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOAA Atlas 14, Volume 6, Version 2
Location name: Victorville, California, USA*
Latitude: 34.4907°, Longitude: -117.4137°
Elevation: 3230.88 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.078 (0.064-0.095)	0.112 (0.093-0.137)	0.157 (0.130-0.193)	0.194 (0.159-0.240)	0.245 (0.194-0.313)	0.284 (0.220-0.371)	0.324 (0.245-0.434)	0.366 (0.269-0.503)	0.422 (0.297-0.606)	0.466 (0.317-0.692)
10-min	0.112 (0.092-0.137)	0.161 (0.133-0.197)	0.226 (0.186-0.277)	0.278 (0.227-0.344)	0.351 (0.277-0.449)	0.407 (0.315-0.532)	0.465 (0.351-0.622)	0.524 (0.385-0.722)	0.605 (0.426-0.868)	0.668 (0.455-0.992)
15-min	0.135 (0.112-0.165)	0.195 (0.161-0.238)	0.273 (0.225-0.335)	0.337 (0.275-0.417)	0.425 (0.335-0.543)	0.493 (0.381-0.643)	0.562 (0.424-0.752)	0.634 (0.465-0.873)	0.732 (0.516-1.05)	0.808 (0.550-1.20)
30-min	0.202 (0.167-0.247)	0.291 (0.240-0.356)	0.408 (0.336-0.501)	0.504 (0.412-0.624)	0.636 (0.502-0.813)	0.737 (0.570-0.963)	0.841 (0.635-1.13)	0.949 (0.697-1.31)	1.10 (0.772-1.57)	1.21 (0.823-1.80)
60-min	0.272 (0.225-0.333)	0.392 (0.323-0.479)	0.549 (0.452-0.673)	0.678 (0.554-0.838)	0.855 (0.675-1.09)	0.991 (0.767-1.30)	1.13 (0.854-1.51)	1.28 (0.937-1.76)	1.47 (1.04-2.11)	1.63 (1.11-2.42)
2-hr	0.382 (0.316-0.467)	0.520 (0.429-0.636)	0.707 (0.582-0.867)	0.864 (0.706-1.07)	1.09 (0.859-1.39)	1.26 (0.978-1.65)	1.45 (1.10-1.94)	1.65 (1.21-2.27)	1.92 (1.35-2.76)	2.14 (1.46-3.18)
3-hr	0.480 (0.397-0.586)	0.641 (0.529-0.784)	0.864 (0.711-1.06)	1.05 (0.861-1.30)	1.33 (1.05-1.70)	1.55 (1.20-2.02)	1.78 (1.34-2.38)	2.03 (1.49-2.79)	2.39 (1.68-3.42)	2.68 (1.82-3.97)
6-hr	0.658 (0.544-0.804)	0.871 (0.719-1.07)	1.17 (0.964-1.44)	1.43 (1.17-1.77)	1.81 (1.43-2.31)	2.12 (1.64-2.77)	2.46 (1.86-3.29)	2.82 (2.07-3.88)	3.35 (2.36-4.81)	3.79 (2.58-5.63)
12-hr	0.823 (0.680-1.01)	1.13 (0.934-1.38)	1.56 (1.29-1.92)	1.94 (1.58-2.40)	2.49 (1.96-3.18)	2.94 (2.27-3.83)	3.42 (2.58-4.58)	3.95 (2.90-5.44)	4.72 (3.32-6.77)	5.36 (3.65-7.95)
24-hr	1.12 (0.997-1.29)	1.61 (1.43-1.86)	2.29 (2.02-2.65)	2.88 (2.52-3.35)	3.73 (3.16-4.49)	4.43 (3.68-5.45)	5.19 (4.20-6.53)	6.01 (4.73-7.78)	7.20 (5.44-9.72)	8.19 (5.98-11.4)
2-day	1.21 (1.08-1.40)	1.73 (1.53-2.00)	2.46 (2.17-2.85)	3.10 (2.71-3.61)	4.03 (3.41-4.85)	4.80 (3.98-5.90)	5.63 (4.56-7.09)	6.54 (5.15-8.47)	7.87 (5.95-10.6)	8.98 (6.56-12.6)
3-day	1.30 (1.15-1.49)	1.84 (1.63-2.12)	2.60 (2.30-3.01)	3.27 (2.87-3.81)	4.26 (3.61-5.12)	5.07 (4.21-6.23)	5.95 (4.82-7.50)	6.93 (5.46-8.97)	8.35 (6.31-11.3)	9.54 (6.97-13.3)
4-day	1.39 (1.23-1.60)	1.97 (1.74-2.27)	2.78 (2.46-3.22)	3.50 (3.06-4.07)	4.54 (3.85-5.47)	5.41 (4.49-6.65)	6.35 (5.14-7.99)	7.38 (5.81-9.56)	8.89 (6.72-12.0)	10.2 (7.42-14.2)
7-day	1.51 (1.34-1.74)	2.12 (1.87-2.44)	2.98 (2.63-3.44)	3.72 (3.26-4.34)	4.81 (4.08-5.79)	5.71 (4.74-7.02)	6.67 (5.41-8.41)	7.73 (6.09-10.0)	9.26 (7.00-12.5)	10.5 (7.69-14.7)
10-day	1.61 (1.43-1.86)	2.25 (1.99-2.59)	3.15 (2.78-3.64)	3.93 (3.45-4.58)	5.07 (4.30-6.11)	6.00 (4.98-7.38)	7.01 (5.67-8.82)	8.09 (6.38-10.5)	9.67 (7.31-13.1)	11.0 (8.01-15.3)
20-day	1.94 (1.72-2.24)	2.70 (2.39-3.11)	3.77 (3.33-4.35)	4.69 (4.11-5.47)	6.04 (5.12-7.28)	7.15 (5.93-8.79)	8.33 (6.75-10.5)	9.61 (7.57-12.4)	11.4 (8.65-15.4)	12.9 (9.46-18.1)
30-day	2.27 (2.01-2.61)	3.13 (2.77-3.60)	4.35 (3.84-5.03)	5.41 (4.74-6.30)	6.96 (5.90-8.38)	8.23 (6.83-10.1)	9.59 (7.77-12.1)	11.1 (8.71-14.3)	13.1 (9.94-17.7)	14.9 (10.8-20.8)
45-day	2.66 (2.36-3.06)	3.63 (3.21-4.18)	5.01 (4.42-5.79)	6.21 (5.44-7.24)	7.98 (6.77-9.61)	9.44 (7.83-11.6)	11.0 (8.90-13.8)	12.7 (9.98-16.4)	15.1 (11.4-20.3)	17.0 (12.4-23.7)
60-day	2.99 (2.65-3.44)	4.03 (3.57-4.64)	5.52 (4.87-6.37)	6.82 (5.98-7.95)	8.74 (7.40-10.5)	10.3 (8.57-12.7)	12.0 (9.73-15.1)	13.8 (10.9-17.9)	16.5 (12.4-22.2)	18.6 (13.6-25.9)

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

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

Please refer to NOAA Atlas 14 document for more information.

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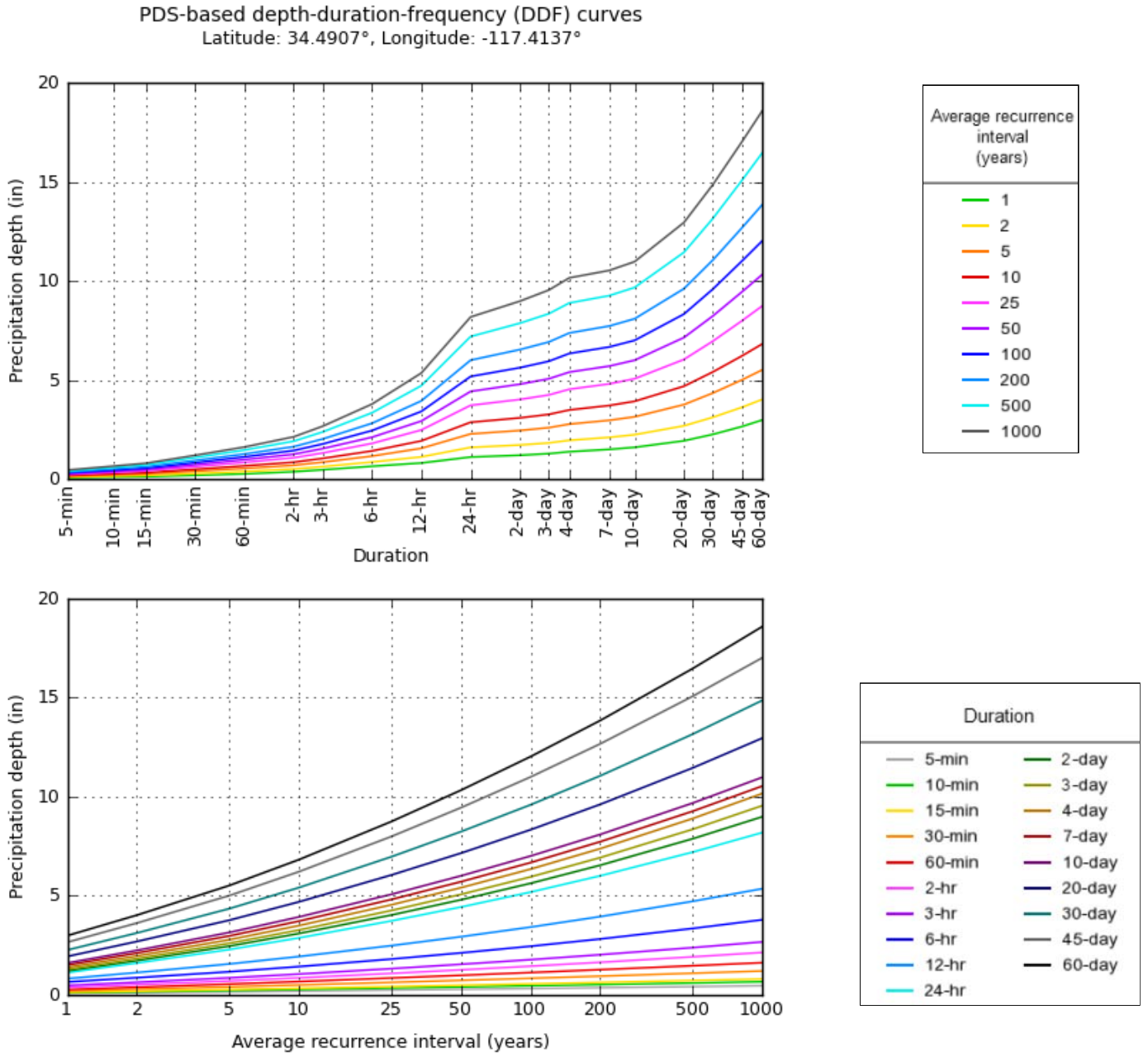
PF graphical



NOAA Atlas 14, Volume 6, Version 2

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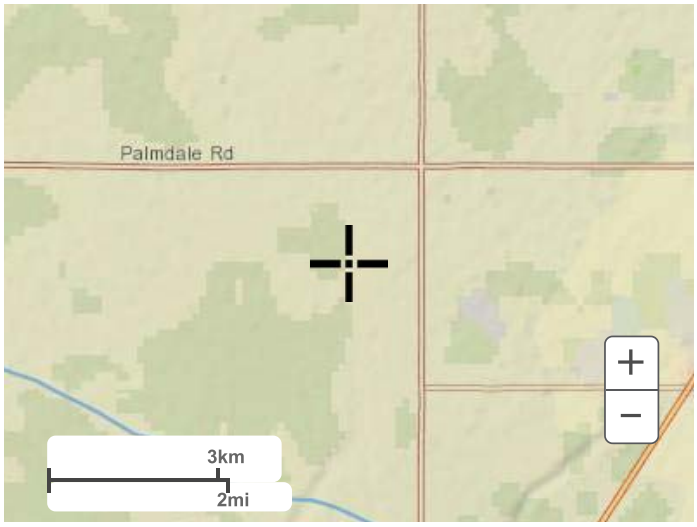
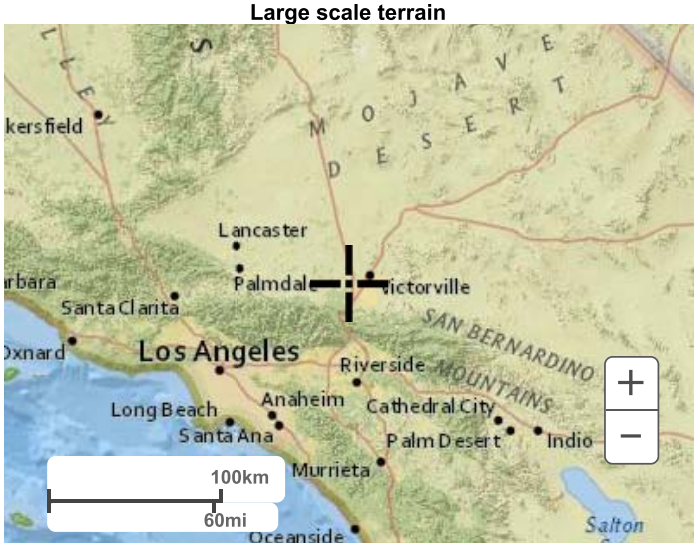
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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

Disclaimer

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	71	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent.)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	25	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		77	86	91	94

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

CURVE NUMBERS FOR PERVIOUS AREAS

Figure C-3 (1 of 2)

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS (Continued)					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

1. All curve numbers are for Antecedent Moisture Condition (AMC) II.
2. Quality of cover definitions:

   Poor-Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.

   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
3. See Figure C-2 for definition of cover types.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

CURVE NUMBERS FOR PERVIOUS AREAS

Figure C-3 (2 of 2)

TABLE C.2. Fm (in/hr) VALUES
FOR TYPICAL COVER TYPES

COVER TYPE	A_p(1)	SOIL GROUP A	B	C	D
NATURAL:					
Barren	1.0	0.41	0.27	0.18	0.14
Row Crops (good)	1.0	0.59	0.41	0.29	0.22
Grass (fair)	1.0	0.82	0.56	0.40	0.31
Orchards (fair)	1.0	0.88	0.62	0.43	0.34
Woodland (fair)	1.0	0.95	0.69	0.50	0.40
URBAN:					
Residential (1 DU/AC)	0.80	0.78	0.60	0.45	0.37
Residential (2 DU/AC)	0.70	0.68	0.53	0.39	0.32
Residential (4 DU/AC)	0.60	0.58	0.45	0.34	0.28
Residential (10 DU/AC)	0.40	0.39	0.30	0.22	0.18
Condominium	0.35	0.34	0.26	0.20	0.16
Mobile Home Park	0.25	0.24	0.19	0.14	0.12
Apartments	0.20	0.19	0.15	0.11	0.09
Commercial/Industrial	0.10	0.10	0.08	0.06	0.05

NOTES:

(1) Recommended a_p values from Figure C-4

(2) AMC II assumed for all Fm values

(3) CN values obtained from Figure C-3

(4) DU/AC=dwelling unit per acre

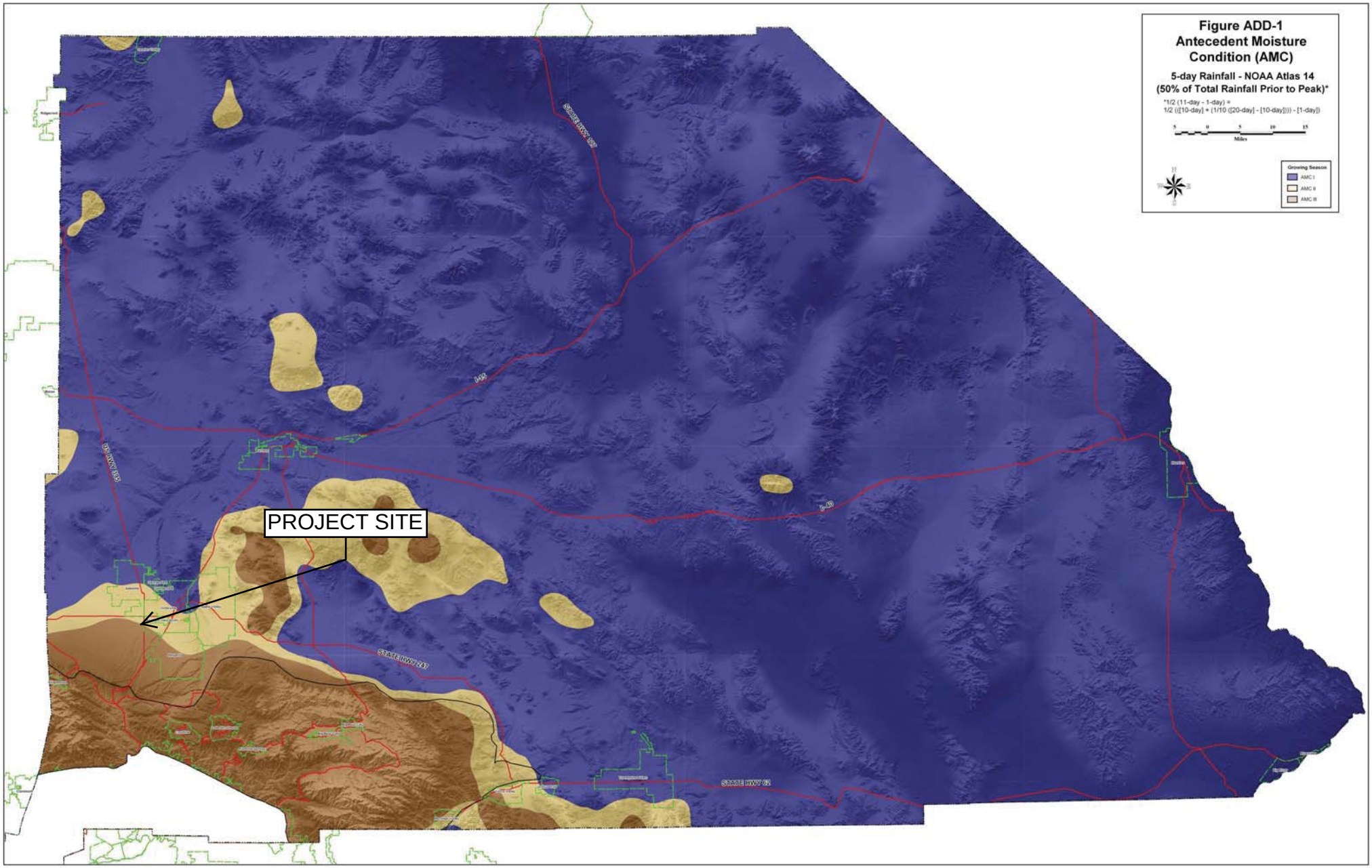
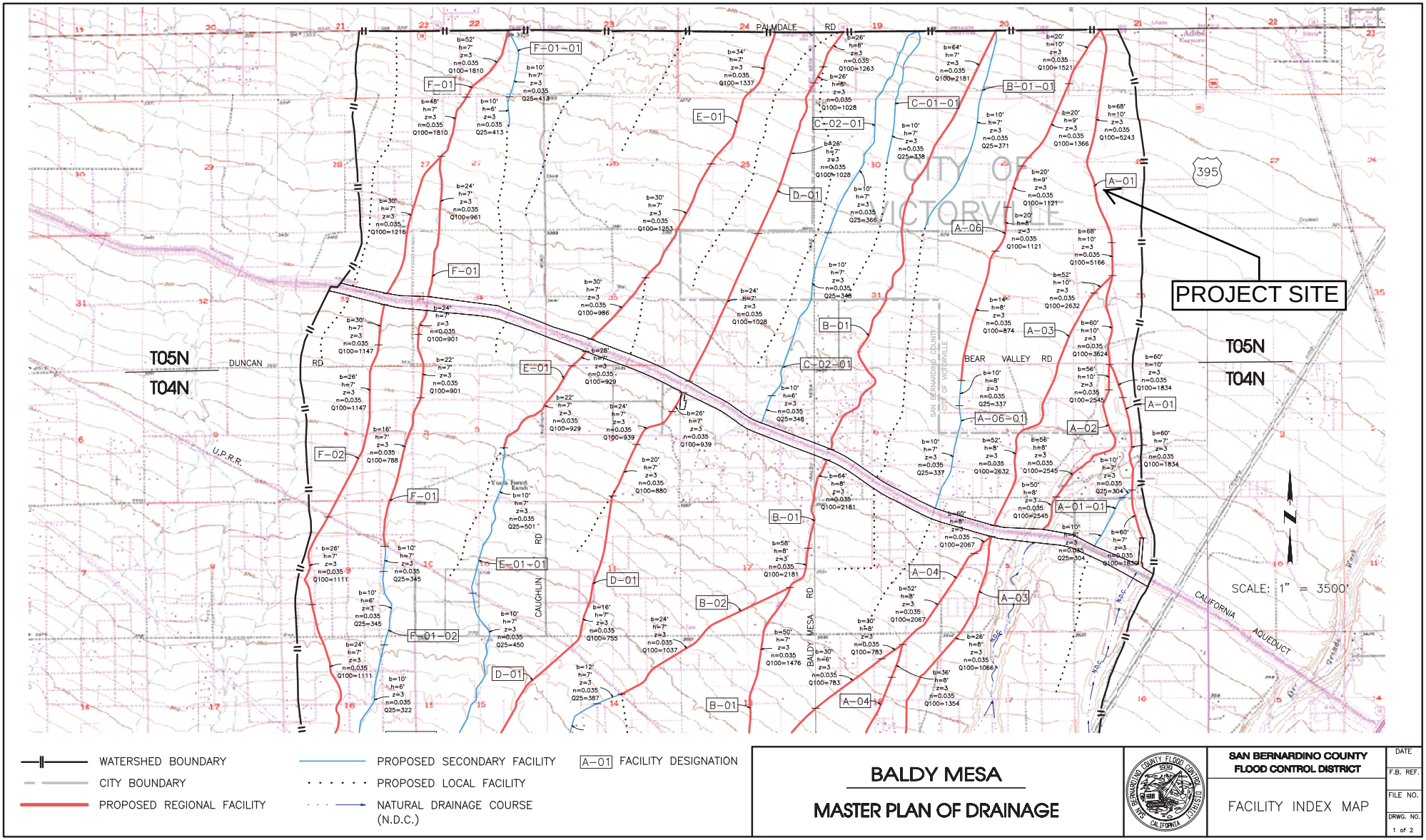


Figure ADD-1
Antecedent Moisture
Condition (AMC)
5-day Rainfall - NOAA Atlas 14
(50% of Total Rainfall Prior to Peak)*
*1/2 (11-day - 1-day) =
1/2 ([10-day] + (1/10 ([20-day] - [10-day]))) - [1-day])
Miles
Growing Season
AMC I
AMC II
AMC III
PROJECT SITE
STATE HWY 237
STATE HWY 60



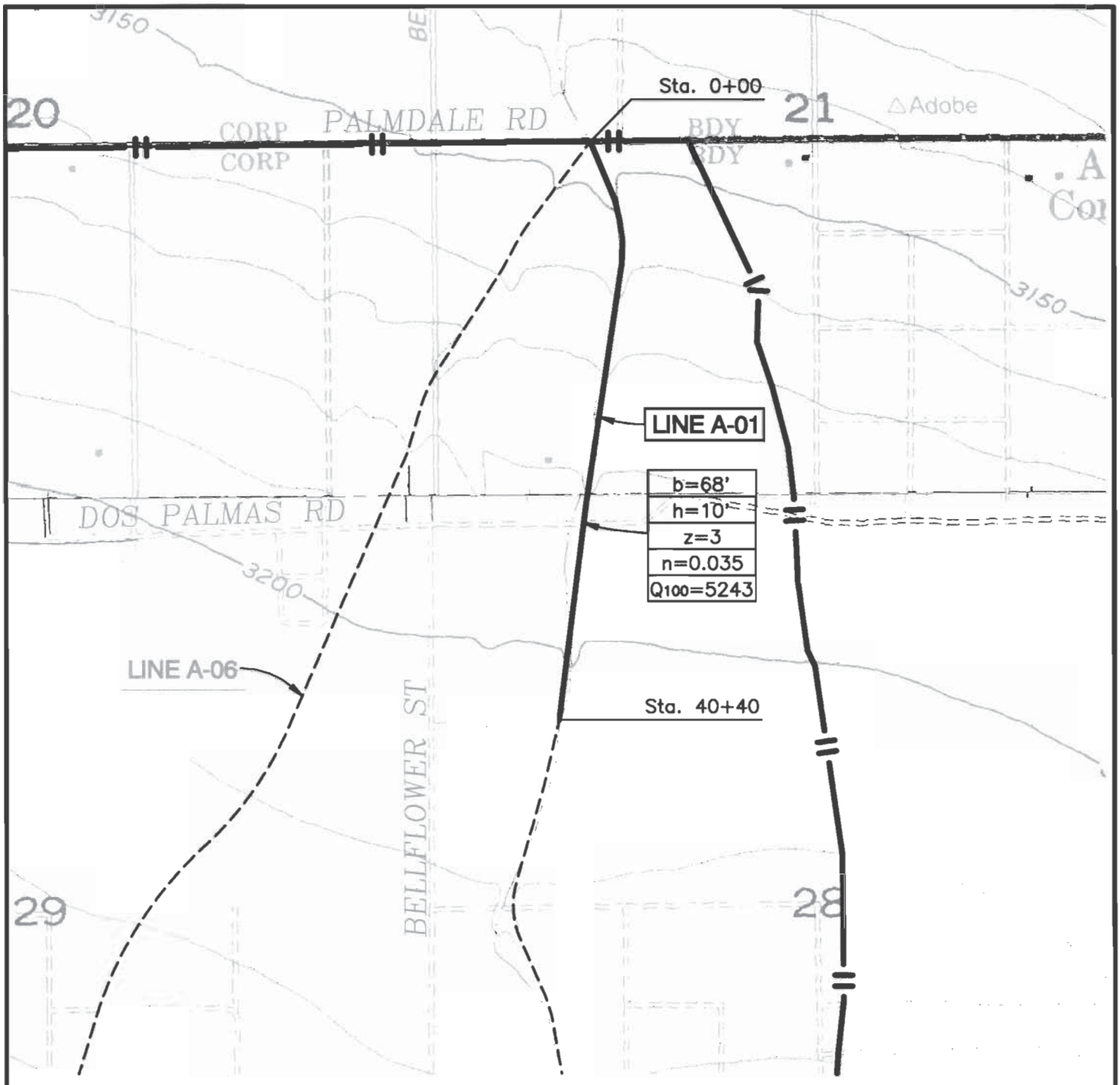
WATERSHED BOUNDARY
CITY BOUNDARY
PROPOSED REGIONAL FACILITY
PROPOSED SECONDARY FACILITY
PROPOSED LOCAL FACILITY
NATURAL DRAINAGE COURSE (N.D.C.)
A-01 FACILITY DESIGNATION

BALDY MESA
MASTER PLAN OF DRAINAGE

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

FACILITY INDEX MAP

DATE
F.B. REF.
FILE NO.
DRWG. NO. 1 of 2



LEGEND

- PROPOSED FACILITY
- PROPOSED FACILITY SHOWN ELSEWHERE
- LOCAL FACILITY
- WATERSHED BOUNDARY

N

SCALE: 1" = 1000'

BALDY MESA

MASTER PLAN OF DRAINAGE

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

REGIONAL FACILITY

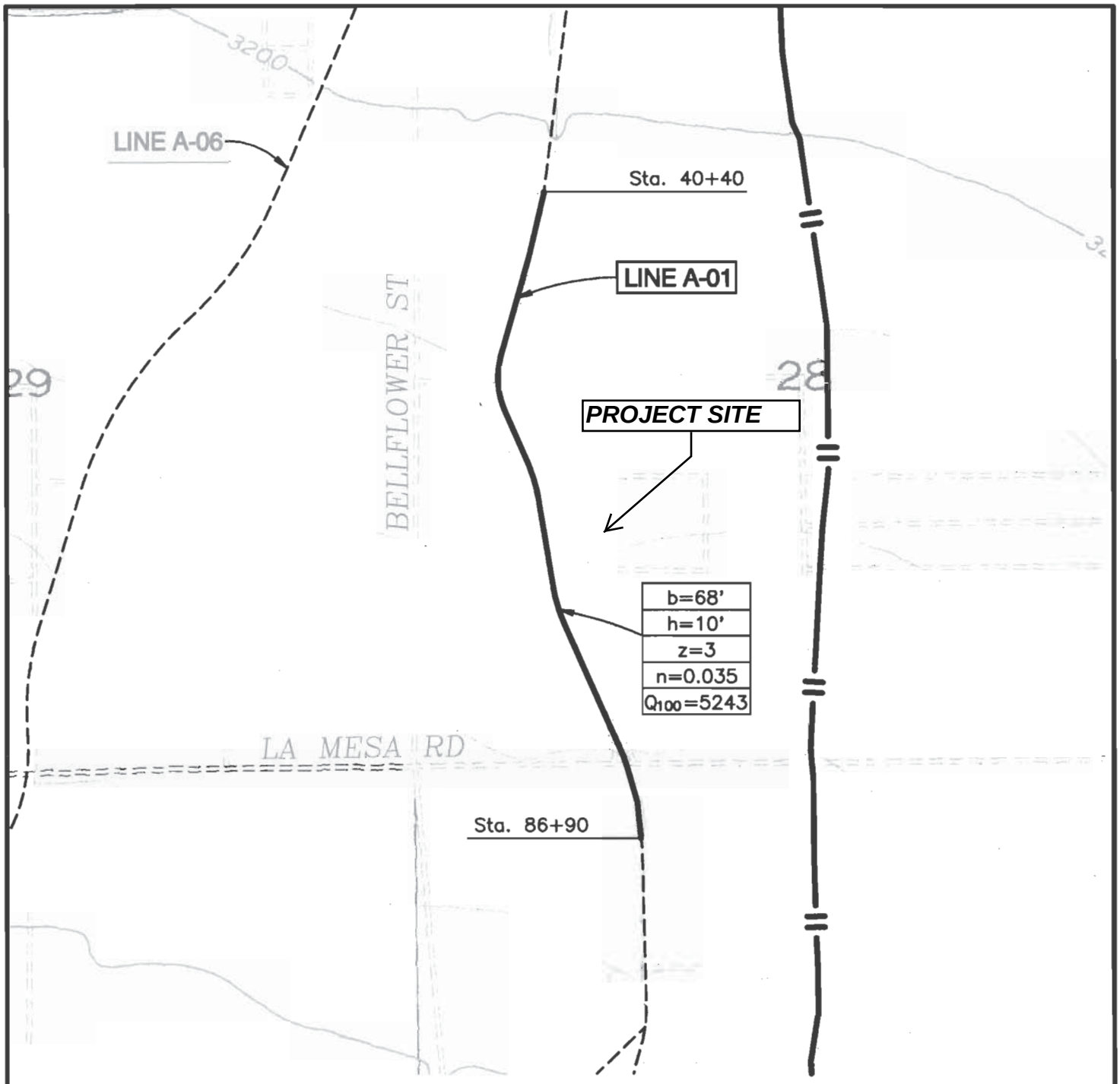
LINE A–01

DATE

F.B. REF.

FILE NO.

DWG. NO. 1 of 5



BALDY MESA

MASTER PLAN OF DRAINAGE

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

REGIONAL FACILITY

LINE A–01

DATE

F.B. REF.

FILE NO.

DWG. NO. 2 of 5

TT 20527

HYDROLOGY INPUT TABLES

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JOB SH-1156

CALCULATED BY _____ **DATE** 7/8/2022

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
FILE: 18345ONSITEPRE100.OUT					**ONSITE PRE-DEVELOPED**			**Q100**	NOAA ATLAS 14 1.13 IN
101 > 102	**AA1**	3242.00	3236.00	338.00	2.89	A	UNDEV FAIR GRASS	**5.90**	INITIAL SUBAREA
102 > 103	**AA2**	3236.00	3231.00	329.00	3.30	A	UNDEV FAIR GRASS	**10.70**	IRREGULAR CHANNEL + SUBAREAS
103 > 104	**AA3**	3231.00	3227.60	323.00	3.66	A	UNDEV FAIR GRASS	**14.40**	IRREGULAR CHANNEL + SUBAREAS
104 > 105	**AA4**	3227.60	3222.00	483.00	5.20	A	UNDEV FAIR GRASS	**18.10**	IRREGULAR CHANNEL + SUBAREAS
			TC=29.27MIN		AP=1	SCS=50			
FILE: 18345ONSITEPRE10.OUT					**ONSITE PRE-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
101 > 102	**AA1**	3242.00	3236.00	338.00	2.89	A	UNDEV FAIR GRASS	**3.00**	INITIAL SUBAREA
102 > 103	**AA2**	3236.00	3231.00	329.00	3.30	A	UNDEV FAIR GRASS	**4.97**	IRREGULAR CHANNEL + SUBAREAS
103 > 104	**AA3**	3231.00	3227.60	323.00	3.66	A	UNDEV FAIR GRASS	**6.20**	IRREGULAR CHANNEL + SUBAREAS
104 > 105	**AA4**	3227.60	3222.00	483.00	5.20	A	UNDEV FAIR GRASS	**6.90**	IRREGULAR CHANNEL + SUBAREAS
			TC=32.60MIN		AP=1	SCS=50			
FILE: 18345ONSITEPRE2.OUT					**ONSITE PRE-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
101 > 102	**AA1**	3242.00	3236.00	338.00	2.89	A	UNDEV FAIR GRASS	**1.20**	INITIAL SUBAREA
102 > 103	**AA2**	3236.00	3231.00	329.00	3.30	A	UNDEV FAIR GRASS	**1.30**	IRREGULAR CHANNEL + SUBAREAS
103 > 104	**AA3**	3231.00	3227.60	323.00	3.66	A	UNDEV FAIR GRASS	**1.30**	IRREGULAR CHANNEL + SUBAREAS
104 > 105	**AA4**	3227.60	3222.00	483.00	5.20	A	UNDEV FAIR GRASS	**1.30**	IRREGULAR CHANNEL + SUBAREAS
			TC=40.72MIN		AP=1	SCS=50			

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
FILE: 18345ONSITEPREAA1A9100.OUT					ONSITE PRE-DEVELOPED			Q100	NOAA ATLAS 14 1.13 IN
101 > 102	**AA1**	3242.00	3236.00	338.00	1.50	A	UNDEV FAIR GRASS	**2.90**	INITIAL SUBAREA
101 > 102			TC=16.75MIN		AP=1	SCS=50			
102 > 103	**AA2**	3236.00	3231.00	329.00	2.14	A	UNDEV FAIR GRASS	**6.30**	IRREGULAR CHANNEL + SUBAREA
102 > 103			TC=19.43MIN		AP=1	SCS=50			
103 > 104	**AA3**	3231.00	3227.60	323.00	3.08	A	UNDEV FAIR GRASS	**10.50**	IRREGULAR CHANNEL + SUBAREA
103 > 104			TC=22.03MIN		AP=1	SCS=50			
104 > 105	**AA4**	3227.60	3222.00	518.00	3.45	A	UNDEV FAIR GRASS	**14.20**	IRREGULAR CHANNEL + SUBAREA
104 > 105			TC=25.05MIN	A=10.17AC	AP=1	SCS=50			**MAIN STREAM CONFLUENCE 1 OF 2**
7 > 7		TC=31.54MIN	A=23.4 AC	AP=1	SCS=50		UNDEV FAIR GRASS	**26.10**	USER DEFINE
7 > 22		3239.80	3231.00	657.00	0.00	A	2-3 UPA	**26.10**	STREET FLOW
7 > 22								**26.10**	CONFLUENCE 1 OF 2
21 > 22	**A7**	3245.00	3231.00	975.00	9.00	A	UNDEV	**12.20**	INITIAL SUBAREA
21 > 22								**38.20**	CONFLUENCE 2 OF 2
22 > 9.1	**A8**	3231.00	3222.89	662.00	2.10	A	DEV. 3-4UPA.	**38.20**	**STREET FLOW**
22 > 9.1								**38.20**	CONFLUENCE 1 OF 2
23 > 9.1	**A9**	3229.90	3222.89	1000.00	5.80	A	DEV. 3-4UPA.	**11.40**	INITIAL SUBAREA
23 > 9.1								**48.10**	CONFLUENCE 2 OF 2
9.1 > 105		3222.89	3221.00	650.00		A	DEV. 3-4UPA.	**48.10**	**STREET FLOW + SUBAREA**
9.1 > 105		TC=22.02MIN		AP=0.937	SCS=47.2			**62.10**	**MAIN STREAM CONFLUENCE 2 OF 2**

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
FILE: 18345ONSITEPREAA1A9100.OUT					**ONSITE PRE-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
101 > 102	**AA1**	3242.00	3236.00	338.00	1.50	A	UNDEV FAIR GRASS	**1.50**	INITIAL SUBAREA
101 > 102			TC=16.75MIN		AP=1	SCS=50			
102 > 103	**AA2**	3236.00	3231.00	329.00	2.14	A	UNDEV FAIR GRASS	**3.00**	IRREGULAR CHANNEL + SUBAREA
102 > 103			TC=19.43MIN		AP=1	SCS=50			
103 > 104	**AA3**	3231.00	3227.60	323.00	3.08	A	UNDEV FAIR GRASS	**4.70**	IRREGULAR CHANNEL + SUBAREA
103 > 104			TC=22.03MIN		AP=1	SCS=50			
104 > 105	**AA4**	3227.60	3222.00	518.00	3.45	A	UNDEV FAIR GRASS	**6.00**	IRREGULAR CHANNEL + SUBAREA
104 > 105			TC=25.05MIN	A=10.17AC	AP=1	SCS=50			**MAIN STREAM CONFLUENCE 1 OF 2**
7 > 7		TC=31.54MIN	A=23.4 AC	AP=1	SCS=50		UNDEV FAIR GRASS	**10.30**	USER DEFINE
7 > 22		3239.80	3231.00	657.00	0.00	A	2-3 UPA	**10.30**	STREET FLOW
7 > 22								**10.30**	CONFLUENCE 1 OF 2
21 > 22	**A7**	3245.00	3231.00	975.00	9.00	A	UNDEV	**5.60**	INITIAL SUBAREA
21 > 22								**18.40**	CONFLUENCE 2 OF 2
22 > 9.1	**A8**	3231.00	3222.89	662.00	2.10	A	DEV. 3-4UPA.	**18.40**	**STREET FLOW**
22 > 9.1								**18.40**	CONFLUENCE 1 OF 2
23 > 9.1	**A9**	3229.90	3222.89	1000.00	5.80	A	DEV. 3-4UPA.	**5.90**	INITIAL SUBAREA
23 > 9.1								**25.90**	CONFLUENCE 2 OF 2
9.1 > 105		3222.89	3221.00	650.00		A	DEV. 3-4UPA.	**25.90**	**STREET FLOW + SUBAREA**
9.1 > 105		TC=22.79MIN		AP=0.937	SCS=47.2			**32.10**	**MAIN STREAM CONFLUENCE 2 OF 2**
FILE: 18345ONSITEPREAA1A4100.OUT					**ONSITE PRE-DEVELOPED**			**Q100**	NOAA ATLAS 14 1.13 IN
101 > 102	**AA1**	3242.00	3236.00	338.00	1.50	A	UNDEV FAIR GRASS	**2.90**	INITIAL SUBAREA
101 > 102			TC=16.75MIN		AP=1	SCS=50			
102 > 103	**AA2**	3236.00	3231.00	329.00	2.14	A	UNDEV FAIR GRASS	**6.30**	IRREGULAR CHANNEL + SUBAREA
102 > 103			TC=19.43MIN		AP=1	SCS=50			

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
103 > 104	**AA3**	3231.00	3227.60	323.00	3.08	A	UNDEV FAIR GRASS	**10.50**	IRREGULAR CHANNEL + SUBAREA
103 > 104			TC=22.03MIN		AP=1	SCS=50			
104 > 105	**AA4**	3227.60	3222.00	518.00	3.45	A	UNDEV FAIR GRASS	**14.20**	IRREGULAR CHANNEL + SUBAREA
104 > 105			TC=25.05MIN	A=10.17AC	AP=1	SCS=50			
FILE: 18345ONSITEPREAA1AA410.OUT					**ONSITE PRE-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
101 > 102	**AA1**	3242.00	3236.00	338.00	1.50	A	UNDEV FAIR GRASS	**1.70**	INITIAL SUBAREA
			TC=16.75MIN		AP=1	SCS=50			
102 > 103	**AA2**	3236.00	3231.00	329.00	2.14	A	UNDEV FAIR GRASS	**3.00**	IRREGULAR CHANNEL + SUBAREA
			TC=19.96MIN		AP=1	SCS=50			
103 > 104	**AA3**	3231.00	3227.60	323.00	3.08	A	UNDEV FAIR GRASS	**4.70**	IRREGULAR CHANNEL + SUBAREA
			TC=23.10MIN		AP=1	SCS=50			
104 > 105	**AA4**	3227.60	3222.00	518.00	3.45	A	UNDEV FAIR GRASS	**6.00**	IRREGULAR CHANNEL + SUBAREA
			TC=26.82MIN		AP=1	SCS=50			
FILE: 18345ONSITEPREAA1AA42.OUT					**ONSITE PRE-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
101 > 102	**AA1**	3242.00	3236.00	338.00	1.50	A	UNDEV FAIR GRASS	**0.60**	INITIAL SUBAREA
			TC=16.75MIN		AP=1	SCS=50			
102 > 103	**AA2**	3236.00	3231.00	329.00	2.14	A	UNDEV FAIR GRASS	**0.90**	IRREGULAR CHANNEL + SUBAREA
			TC=20.95MIN		AP=1	SCS=50			
103 > 104	**AA3**	3231.00	3227.60	323.00	3.08	A	UNDEV FAIR GRASS	**1.10**	IRREGULAR CHANNEL + SUBAREA
			TC=25.3MIN		AP=1	SCS=50			
104 > 105	**AA4**	3227.60	3222.00	518.00	3.45	A	UNDEV FAIR GRASS	**1.10**	IRREGULAR CHANNEL + SUBAREA
			TC=30.80MIN		AP=1	SCS=50			

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
FILE: 18345ONSITEPREAA5100.OUT					**ONSITE PRE-DEVELOPED**			**Q100**	NOAA ATLAS 14 1.13 IN
106 > 107	**AA5**	3241.00	3234.90	392.00	1.39	A	UNDEV FAIR GRASS	**2.60**	INITIAL SUBAREA
			TC=18.85MIN		AP=1	SCS=50			
FILE: 18345ONSITEPREAA6100.OUT					**ONSITE PRE-DEVELOPED**			**Q100**	NOAA ATLAS 14 1.13 IN
108 > 109	**AA6**	3238.20	3230.00	370.00	1.16	A	UNDEV FAIR GRASS	**2.50**	INITIAL SUBAREA
			TC=15.710MIN		AP=1	SCS=50			
FILE: 18345ONSITEPREAA7AA8100.OUT					**ONSITE PRE-DEVELOPED**			**Q100**	NOAA ATLAS 14 1.13 IN
110 > 111	**AA7**	3232.80	3229.50	321.00	0.57	A	UNDEV FAIR GRASS	**1.10**	INITIAL SUBAREA
			TC=16.89MIN		AP=1	SCS=50			
112 > 113	**AA8**	3229.50	3222.00	362.00	1.72	A	UNDEV FAIR GRASS	**3.80**	INITIAL SUBAREA
			TC=20.89MIN		AP=1	SCS=50			
FILE: 18345ONSITEPREAA510.OUT					**ONSITE PRE-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
106 > 107	**AA5**	3241.00	3234.90	392.00	1.39	A	UNDEV FAIR GRASS	**1.30**	INITIAL SUBAREA
			TC=18.85MIN		AP=1	SCS=50			
FILE: 18345ONSITEPREAA610.OUT					**ONSITE PRE-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
108 > 109	**AA6**	3238.20	3230.00	370.00	1.16	A	UNDEV FAIR GRASS	**1.20**	INITIAL SUBAREA
			TC=15.7MIN		AP=1	SCS=50			
FILE: 18345ONSITEPREAA7AA810.OUT					**ONSITE PRE-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
110 > 111	**AA7**	3232.80	3229.50	321.00	0.57	A	UNDEV FAIR GRASS	**0.60**	INITIAL SUBAREA
			TC=16.89MIN		AP=1	SCS=50			
112 > 113	**AA8**	3229.50	3222.00	362.00	1.72	A	UNDEV FAIR GRASS	**1.80**	INITIAL SUBAREA
			TC=21.21MIN		AP=1	SCS=50			
FILE: 18345ONSITEPREAA52.OUT					**ONSITE PRE-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
106 > 107	**AA5**	3241.00	3234.90	392.00	1.39	A	UNDEV FAIR GRASS	**0.50**	INITIAL SUBAREA
			TC=18.85IN		AP=1	SCS=50			

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
FILE: 18345ONSITEPREAA62.OUT					ONSITE PRE-DEVELOPED			Q2	NOAA ATLAS 14 0.392 IN
108 > 109	**AA6**	3238.20	3230.00	370.00	1.16	A	UNDEV FAIR GRASS	**0.50**	INITIAL SUBAREA
			TC=15.71MIN		AP=1	SCS=50			
FILE: 18345ONSITEPREAA7AA82.OUT					ONSITE PRE-DEVELOPED			Q2	NOAA ATLAS 14 0.392 IN
110 > 111	**AA7**	3232.80	3229.50	321.00	0.57	A	UNDEV FAIR GRASS	**0.20**	INITIAL SUBAREA
			TC=16.89MIN		AP=1	SCS=50			
112 > 113	**AA8**	3229.50	3222.00	362.00	1.72	A	UNDEV FAIR GRASS	**0.50**	INITIAL SUBAREA
			TC=22.56MIN		AP=1	SCS=50			
FILE: 18345ONSITEPOSTA1A100.OUT					ONSITE POST-DEVELOPED			Q100	NOAA ATLAS 14 1.13 IN
1 > 2	**A1-A**	3240.80	3237.50	261.00	1.97	A	2-3 UPA	**6.60**	INITIAL SUBAREA
			TC=9.14MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA1B100.OUT					ONSITE POST-DEVELOPED			Q100	NOAA ATLAS 14 1.13 IN
1 > 3	**A1-B**	3240.80	3236.65	231.00	0.92	A	2-3 UPA	**3.40**	INITIAL SUBAREA
			TC=8.12MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA2A100.OUT					ONSITE POST-DEVELOPED			Q100	NOAA ATLAS 14 1.13 IN
4 > 5	**A2-A**	3236.50	3232.50	279.00	2.10	A	2-3 UPA	**7.10**	INITIAL SUBAREA
			TC=9.16MIN		AP=0.6	SCS=32	.		
FILE: 18345ONSITEPOSTA2B100.OUT					ONSITE POST-DEVELOPED			Q100	NOAA ATLAS 14 1.13 IN
4 > 6	**A2-B**	3236.50	3232.22	292.00	1.19	A	2-3 UPA	**4.00**	INITIAL SUBAREA
			TC=9.29MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA3A100.OUT					ONSITE POST-DEVELOPED			Q100	NOAA ATLAS 14 1.13 IN
7 > 8	**A3-A**	3232.70	3228.60	346.00	2.32	A	2-3 UPA	**7.10**	
			TC=10.37MIN		AP=0.6	SCS=32			**100-YEAR**

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
FILE: 18345ONSITEPOSTA3B100.OUT					**ONSITE POST-DEVELOPED**			**Q100**	NOAA ATLAS 14 1.13 IN
7 > 9	**A3-B**	3232.70	3228.33	291.00	1.16	A	2-3 UPA	**3.90**	
			TC=9.23MIN		AP=0.6	SCS=32			**100-YEAR**
FILE: 18345ONSITEPOSTA4A100.OUT					**ONSITE POST-DEVELOPED**			**Q100**	NOAA ATLAS 14 1.13 IN
10 > 11	**A4-A**	3229.40	3225.50	406.00	2.87	A	2-3 UPA	**8.00**	INITIAL SUBAREA
			TC=11.53MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA4B100.OUT					**ONSITE POST-DEVELOPED**			**Q100**	NOAA ATLAS 14 1.13 IN
10 > 12	**A4-B**	3229.40	3223.00	1000.00	2.35	A	2-3 UPA	**4.60**	INITIAL SUBAREA
			TC=17.93MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA1A10.OUT					**ONSITE POST-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
1 > 2	**A1-A**	3240.80	3237.50	261.00	1.97	A	2-3 UPA	**3.60**	INITIAL SUBAREA
			TC=9.14MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA1B10.OUT					**ONSITE POST-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
1 > 3	**A1-B**	3240.80	3236.65	231.00	0.92	A	2-3 UPA	**1.90**	INITIAL SUBAREA
			TC=8.12MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA2A10.OUT					**ONSITE POST-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
4 > 5	**A2-A**	3236.50	3232.50	279.00	2.10	A	2-3 UPA	**3.90**	INITIAL SUBAREA
			TC=9.16MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA2B10.OUT					**ONSITE POST-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
4 > 6	**A2-B**	3236.50	3232.22	292.00	1.19	A	2-3 UPA	**2.20**	INITIAL SUBAREA
			TC=9.29MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA3A10.OUT					**ONSITE POST-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
7 > 8	**A3-A**	3232.70	3228.60	346.00	2.32	A	2-3 UPA	**3.80**	INITIAL SUBAREA
			TC=10.37MIN		AP=0.6	SCS=32			

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CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
FILE: 18345ONSITEPOSTA3B10.OUT					**ONSITE POST-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
7 > 9	**A3-B**	3232.70	3228.33	291.00	1.16	A	2-3 UPA	**2.10**	INITIAL SUBAREA
			TC=9.23MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA4A10.OUT					**ONSITE POST-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
10 > 11	**A4-A**	3229.40	3225.50	406.00	2.83	A	2-3 UPA	**4.30**	INITIAL SUBAREA
			TC=11.53MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA4B10.OUT					**ONSITE POST-DEVELOPED**			**Q10**	NOAA ATLAS 14 0.678 IN
10 > 12	**A4-B**	3229.40	3223.00	1000.00	1.87	A	2-3 UPA	**2.30**	INITIAL SUBAREA
			TC=17.93MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA1A2.OUT					**ONSITE POST-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
1 > 2	**A1-A**	3240.80	3237.50	261.00	1.97	A	2-3 UPA	**1.80**	INITIAL SUBAREA
			TC=9.14MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA1B2.OUT					**ONSITE POST-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
1 > 3	**A1-B**	3240.80	3236.65	231.00	0.92	A	2-3 UPA	**0.90**	INITIAL SUBAREA
			TC=8.12MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA2A2.OUT					**ONSITE POST-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
4 > 5	**A2-A**	3236.50	3232.50	279.00	2.10	A	2-3 UPA	**1.90**	INITIAL SUBAREA
			TC=9.16MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA2B2.OUT					**ONSITE POST-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
4 > 6	**A2-B**	3236.50	3232.22	292.00	1.19	A	2-3 UPA	**1.00**	INITIAL SUBAREA
			TC=9.29MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA3A2.OUT					**ONSITE POST-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
7 > 8	**A3-A**	3232.70	3228.60	346.00	2.32	A	2-3 UPA	**1.80**	INITIAL SUBAREA
			TC=10.37MIN		AP=0.6	SCS=32			

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DESCRIPTION TRACT NO. 20527
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1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q (CFS)	REMARKS
FILE: 18345ONSITEPOSTA3B2.OUT					**ONSITE POST-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
7 > 9	**A3-B**	3232.70	3228.33	291.00	1.16	A	2-3 UPA	**1.00**	INITIAL SUBAREA
			TC=9.23MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA4A2.OUT					**ONSITE POST-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
10 > 11	**A4-A**	3229.40	3225.50	406.00	2.83	A	2-3 UPA	**2.00**	INITIAL SUBAREA
			TC=11.53MIN		AP=0.6	SCS=32			
FILE: 18345ONSITEPOSTA4B2.OUT					**ONSITE POST-DEVELOPED**			**Q2**	NOAA ATLAS 14 0.392 IN
10 > 12	**A4-B**	3229.40	3223.00	1000.00	1.87	A	2-3 UPA	**0.90**	INITIAL SUBAREA
			TC=17.93MIN		AP=0.6	SCS=32			

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q100 (CFS)	REMARKS
FILE: 18345OFFSITE1TO5100YR.OUT					**OFFSITE-EXISTING CONDITON**			**Q100**	NOAA ATLAS 14 1.13 IN
1 > 2	A1	3340.00	3320.00	1000.00	5.80	A	UNDEV	**8.30**	INITIAL SUBAREA
2 > 3	A2	3320.00	3300.00	1217.00	18.40	A	UNDEV	**27.10**	IRREGULAR CHANNEL + SUBAREAS
3 > 4	A3	3300.00	3284.00	1342.00	27.70	A	UNDEV	**46.30**	IRREGULAR CHANNEL + SUBAREAS
4 > 5	A4	3284.00	3270.00	1261.00	22.80	A	UNDEV	**56.30**	IRREGULAR CHANNEL + SUBAREAS
5 > 13	A5	3270.00	3237.80	2222.00	16.50	A	UNDEV	**56.30**	IRREGULAR CHANNEL + SUBAREAS
TC=55.58MIN			AP=1	SCS=50					
FILE: 18345OFFSITE1TO510YR.OUT					**OFFSITE-EXISTING CONDITON**			**Q10**	NOAA ATLAS 14 0.678 IN
1 > 2	A1	3340.00	3320.00	1000.00	5.80	A	UNDEV	**3.80**	INITIAL SUBAREA
2 > 3	A2	3320.00	3300.00	1217.00	18.40	A	UNDEV	**10.70**	IRREGULAR CHANNEL + SUBAREAS
3 > 4	A3	3300.00	3284.00	1342.00	27.70	A	UNDEV	**15.00**	IRREGULAR CHANNEL + SUBAREAS
4 > 5	A4	3284.00	3270.00	1261.00	22.80	A	UNDEV	**15.00**	IRREGULAR CHANNEL + SUBAREAS
5 > 13	A5	3270.00	3237.80	2222.00	16.50	A	UNDEV	**15.00**	IRREGULAR CHANNEL + SUBAREAS
TC=65.82MIN			AP=1	SCS=50					
FILE: 18345OFFSITE1TO52YR.OUT					**OFFSITE-EXISTING CONDITON**			**Q2**	NOAA ATLAS 14 0.392 IN
1 > 2	A1	3340.00	3320.00	1000.00	5.80	A	UNDEV	**1.00**	INITIAL SUBAREA
2 > 3	A2	3320.00	3300.00	1217.00	18.40	A	UNDEV	**1.00**	IRREGULAR CHANNEL + SUBAREAS
3 > 4	A3	3300.00	3284.00	1342.00	27.70	A	UNDEV	**1.00**	IRREGULAR CHANNEL + SUBAREAS
4 > 5	A4	3284.00	3270.00	1261.00	22.80	A	UNDEV	**1.00**	IRREGULAR CHANNEL + SUBAREAS
5 > 13	A5	3270.00	3237.80	2222.00	16.50	A	UNDEV	**1.00**	IRREGULAR CHANNEL + SUBAREAS
TC=100.79MIN			AP=1	SCS=50					

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1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q100 (CFS)	REMARKS
FILE: 18345OFFSITE6100YR.OUT								**Q100**	NOAA ATLAS 14 1.13 IN
6 > 6.1	A6	3263.00	3252.00	767.00	10.00	B	UNDEV	**14.80**	INITIAL SUBAREA
6.1 > 7	A6.1	3252.00	3241.00	1212.00	13.40	B	UNDEV	**26.10**	IRREGULAR CHANNEL + SUBAREAS
TC=31.54MIN			AP=1	SCS=50					**NODE 7**
FILE: 18345OFFSITE610YR.OUT								**Q10**	NOAA ATLAS 14 0.678 IN
6 > 6.1	A6	3263.00	3252.00	767.00	10.00	B	UNDEV	**7.00**	INITIAL SUBAREA
6.1 > 7	A6.1	3252.00	3241.00	1212.00	13.40	B	UNDEV	**10.30**	IRREGULAR CHANNEL + SUBAREAS
TC=33.48MIN			AP=1	SCS=50					**NODE 7**
FILE: 18345OFFSITE62YR.OUT								**Q2**	NOAA ATLAS 14 0.392 IN
6 > 6.1	A6	3263.00	3252.00	767.00	10.00	B	UNDEV	**2.00**	INITIAL SUBAREA
6.1 > 7	A6.1	3252.00	3241.00	1212.00	13.40	B	UNDEV	**2.00**	IRREGULAR CHANNEL + SUBAREAS
TC=37.80MIN			AP=1	SCS=50					**NODE 7**
FILE: 18345FREMONTIA100YR.OUT								**Q100**	NOAA ATLAS 14 1.13 IN
6 > 6.1	A6	3263.00	3252.00	767.00	10.00	A	UNDEV	**14.80**	INITIAL SUBAREA
6.1 > 7	A6.1	3252.00	3241.00	1212.00	13.40	A	UNDEV	**26.10**	IRREGULAR CHANNEL + SUBAREAS
TC=31.54MIN			AP=1	SCS=50		A	UNDEV	**26.10**	**NODE 7**
7 > 3		3239.80	3236.65	213.00	0.00	A	DEV. 3-4UPA.	**26.11**	**STREET FLOW**
7 > 3						A	DEV. 3-4UPA.	**26.11**	CONFLUENCE 1 OF 2
3 > 3	**A1-B**	TC=8.12MIN	AP=0.6	SCS=32	0.52	A	DEV. 3-4UPA.	**2.84**	**USER DEFINE**
3 > 3								**27.00**	CONFLUENCE 2 OF 2
3 > 6		3236.65	3232.22	330.00	0.00	A	DEV. 3-4UPA.	**27.00**	**STREET FLOW**
3 > 6								**27.00**	CONFLUENCE 1 OF 3

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1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q100 (CFS)	REMARKS
21 > 22	**A7**	3245.00	3231.00	975.00	9.00	A	UNDEV	**12.20**	INITIAL SUBAREA
21 > 22								**12.20**	CONFLUENCE 2 OF 3
6 > 6	**A2-B**	TC=9.29MIN	AP=0.6	SCS=32	0.82	A	DEV. 3-4UPA.	**2.84**	**USER DEFINE**
6 > 6								**40.20**	CONFLUENCE 3 OF 3
6 > 9		3232.22	3228.33	320.00	0.00	A	DEV. 3-4UPA.	**40.20**	**STREET FLOW**
6 > 9								**40.20**	CONFLUENCE 1 OF 2
9 > 9	**A3-B**	TC=9.23MIN	AP=0.6	SCS=32	0.80	A	DEV. 3-4UPA.	**2.69**	**USER DEFINE**
9 > 9								**41.30**	CONFLUENCE 2 OF 2
9 > 9.1		3228.33	3222.89	441.00	2.10	A	DEV. 3-4UPA.	**41.30**	**STREET FLOW + SUBAREA**
9 > 9.1								**41.30**	**MAIN STREAM CONFLUENCE 1 OF 3**
9.1 > 9.1	**A4-B**	TC=17.93MIN	AP=0.6	SCS=32	1.29	A	DEV. 3-4UPA.	**2.52**	**USER DEFINE**
9.1 > 9.1								**2.52**	**MAIN STREAM CONFLUENCE 2 OF 3**
22 > 9.1	**A8**	3229.90	3222.89	1000.00	5.80	A	DEV. 3-4UPA.	**11.40**	INITIAL SUBAREA
22 > 9.1								**53.60**	**MAIN STREAM CONFLUENCE 3 OF 3**
9.1 > 12		3222.89	3223.00	650.00		A	DEV. 3-4UPA.	**53.60**	**STREET FLOW + SUBAREA**
		TC=21.28MIN	AP=0.896	SCS=45.3					
FILE: 18345FREMONTIA100YR.OUT								**Q10**	NOAA ATLAS 14 0.678 IN
6 > 6.1	A6	3263.00	3252.00	767.00	10.00	A	UNDEV	**7.00**	INITIAL SUBAREA
6.1 > 7	A6.1	3252.00	3241.00	1212.00	13.40	A	UNDEV	**10.30**	IRREGULAR CHANNEL + SUBAREAS
TC=31.54MIN			AP=1	SCS=50		A	UNDEV	**10.30**	**NODE 7**
7 > 3		3239.80	3236.65	213.00	0.00	A	DEV. 3-4UPA.	**10.30**	**STREET FLOW**
7 > 3						A	DEV. 3-4UPA.	**10.30**	CONFLUENCE 1 OF 2
3 > 3	**A1-B**	TC=8.12MIN	AP=0.6	SCS=32	0.52	A	DEV. 3-4UPA.	**12.00**	**USER DEFINE**
3 > 3								**0.00**	CONFLUENCE 2 OF 2
3 > 6		3236.65	3232.22	330.00	0.00	A	DEV. 3-4UPA.	**12.00**	**STREET FLOW**

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DESCRIPTION TRACT NO. 20527
CITY OF VICTORVIILLE

1-HR 100-YR=1.13IN,10-YR=0.678, 2-YR=0.392

NODE NO.	AREA NO.	HIGH EL. (FT)	ELEVATION (FT)	LENGTH (FT)	AREA (AC)	SOIL TYPE	COVER TYPE	Q100 (CFS)	REMARKS
3 > 6								**12.00**	CONFLUENCE 1 OF 3
21 > 22	**A7**	3245.00	3231.00	975.00	9.00	A	UNDEV	**5.60**	INITIAL SUBAREA
21 > 22								**5.60**	CONFLUENCE 2 OF 3
6 > 6	**A2-B**	TC=9.29MIN	AP=0.6	SCS=32	0.82	A	DEV. 3-4UPA.	**0.88**	**USER DEFINE**
6 > 6								**18.60**	CONFLUENCE 3 OF 3
6 > 9		3232.22	3228.33	320.00	0.00	A	DEV. 3-4UPA.	**18.60**	**STREET FLOW**
6 > 9								**18.60**	CONFLUENCE 1 OF 2
9 > 9	**A3-B**	TC=9.23MIN	AP=0.6	SCS=32	0.80	A	DEV. 3-4UPA.	**0.95**	**USER DEFINE**
9 > 9								**19.40**	CONFLUENCE 2 OF 2
9 > 9.1		3228.33	3222.89	441.00	2.10	A	DEV. 3-4UPA.	**19.40**	**STREET FLOW + SUBAREA**
9 > 9.1								**19.40**	**MAIN STREAM CONFLUENCE 1 OF 3**
9.1 > 9.1	**A4-B**	TC=17.93MIN	AP=0.6	SCS=32	1.29	A	DEV. 3-4UPA.	**1.65**	**USER DEFINE**
9.1 > 9.1								**1.65**	**MAIN STREAM CONFLUENCE 2 OF 3**
22 > 9.1	**A8**	3229.90	3222.89	1000.00	5.80	A	DEV. 3-4UPA.	**5.90**	INITIAL SUBAREA
22 > 9.1								**26.90**	**MAIN STREAM CONFLUENCE 3 OF 3**
9.1 > 12		3222.89	3223.00	650.00		A	DEV. 3-4UPA.		**STREET FLOW + SUBAREA**
		TC=18.11MIN	AP=0.896	SCS=45.3					

TT 20527

100-year, 1-Hours Storm Events

Rational Method Onsite Pre-Developed

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 07/07/22

100-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 18345, CITY OF VICTORVILLE
AREA AA1 THRU AA9 (FROM SOUTHERLY FLOW TO FREMONTIA RD & LUNA RD)
FILE: 18345ONSITEPREAA1AA9100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

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Process from Point/Station      101.000 to Point/Station      102.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   356.000(Ft.)
Top (of initial area) elevation =  3242.000(Ft.)
Bottom (of initial area) elevation =  3236.000(Ft.)
Difference in elevation =     6.000(Ft.)
Slope =    0.01685  s(%)=       1.69
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.751 min.
Rainfall intensity =      2.760(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.726
Subarea runoff =      2.947(CFS)
Total initial stream area =        1.470(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
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Process from Point/Station      102.000 to Point/Station      103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.480(Ft.), Average velocity =   2.025(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      4.670(CFS)
  '     '    flow top width =      9.606(Ft.)
  '     '     velocity=    2.025(Ft/s)
  '     '    area =      2.307(Sq.Ft)
  '     '    Froude number =     0.728

Upstream point elevation =  3236.000(Ft.)
Downstream point elevation =  3231.000(Ft.)
Flow length =   326.000(Ft.)
Travel time  =    2.68 min.
Time of concentration =   19.43 min.
Depth of flow =   0.480(Ft.)
Average velocity =   2.025(Ft/s)
Total irregular channel flow =     4.670(CFS)
Irregular channel normal depth above invert elev. =   0.480(Ft.)
Average velocity of channel(s) =   2.025(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      2.488(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.707
Subarea runoff =      3.387(CFS) for    2.130(Ac.)
Total runoff =      6.335(CFS)
Effective area this stream =        3.60(Ac.)
Total Study Area (Main Stream No. 1) =        3.60(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.538(Ft.), Average velocity =   2.185(Ft/s)
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Process from Point/Station      103.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.642(Ft.), Average velocity =   2.049(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      8.458(CFS)
  '     '    flow top width =     12.849(Ft.)
  '     '     velocity=    2.049(Ft/s)
  '     '    area =      4.128(Sq.Ft)
  '     '    Froude number =     0.637

Upstream point elevation =  3231.000(Ft.)
Downstream point elevation =  3227.600(Ft.)
Flow length =   319.000(Ft.)
Travel time  =    2.59 min.
Time of concentration =   22.03 min.
Depth of flow =   0.642(Ft.)
Average velocity =   2.049(Ft/s)
Total irregular channel flow =     8.458(CFS)
Irregular channel normal depth above invert elev. =   0.642(Ft.)
Average velocity of channel(s) =   2.049(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      2.279(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.690
Subarea runoff =      4.164(CFS) for    3.080(Ac.)
Total runoff =     10.498(CFS)
Effective area this stream =        6.68(Ac.)
Total Study Area (Main Stream No. 1) =        6.68(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.697(Ft.), Average velocity =   2.163(Ft/s)
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Process from Point/Station      104.000 to Point/Station      105.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.700(Ft.), Average velocity =   2.523(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =     12.365(CFS)
  '     '    flow top width =     14.001(Ft.)
  '     '     velocity=    2.523(Ft/s)
  '     '    area =      4.901(Sq.Ft)
  '     '    Froude number =     0.752

Upstream point elevation =  3227.600(Ft.)
Downstream point elevation =  3221.000(Ft.)
Flow length =   458.000(Ft.)
Travel time  =    3.03 min.
Time of concentration =   25.05 min.
Depth of flow =   0.700(Ft.)
Average velocity =   2.523(Ft/s)
Total irregular channel flow =    12.365(CFS)
Irregular channel normal depth above invert elev. =   0.700(Ft.)
Average velocity of channel(s) =   2.523(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      2.082(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.670
Subarea runoff =      3.674(CFS) for    3.480(Ac.)
Total runoff =     14.172(CFS)
Effective area this stream =       10.16(Ac.)
Total Study Area (Main Stream No. 1) =       10.16(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.737(Ft.), Average velocity =   2.611(Ft/s)
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Process from Point/Station      104.000 to Point/Station      105.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     10.160(Ac.)
Runoff from this stream =     14.172(CFS)
Time of concentration =   25.05 min.
Rainfall intensity =     2.082(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Program is now starting with Main Stream No. 2
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Process from Point/Station        7.000 to Point/Station        7.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      1.772(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =  31.54 min.  Rain intensity =       1.77(In/Hr)
Total area this stream =        23.40(Ac.)
Total Study Area (Main Stream No. 2) =       33.56(Ac.)
Total runoff =     26.10(CFS)
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Process from Point/Station        7.000 to Point/Station       22.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3239.800(Ft.)
End of street segment elevation =  3231.000(Ft.)
Length of street segment  =   657.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     26.100(CFS)
Depth of flow =   0.459(Ft.), Average velocity =   3.716(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  18.562(Ft.)
Flow velocity =   3.72(Ft/s)
Travel time =    2.95 min.     TC =   34.49  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      1.665(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.612
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     26.100(CFS)
Effective area this stream =       23.40(Ac.)
Total Study Area (Main Stream No. 2) =       33.56(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Street flow at end of street =     26.100(CFS)
Half street flow at end of street =     13.050(CFS)
Depth of flow =   0.459(Ft.), Average velocity =   3.716(Ft/s)
Flow width (from curb towards crown)=  18.562(Ft.)
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Process from Point/Station        7.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     23.400(Ac.)
Runoff from this stream =     26.100(CFS)
Time of concentration =   34.49 min.
Rainfall intensity =     1.665(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
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Process from Point/Station       21.000 to Point/Station       22.000
**** INITIAL AREA EVALUATION ****
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UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   975.000(Ft.)
Top (of initial area) elevation =  3245.000(Ft.)
Bottom (of initial area) elevation =  3231.000(Ft.)
Difference in elevation =    14.000(Ft.)
Slope =    0.01436  s(%)=       1.44
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   25.881 min.
Rainfall intensity =      2.036(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.665
Subarea runoff =     12.176(CFS)
Total initial stream area =        9.000(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
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Process from Point/Station       21.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      9.000(Ac.)
Runoff from this stream =     12.176(CFS)
Time of concentration =   25.88 min.
Rainfall intensity =     2.036(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     26.10    23.400     34.49    0.532      1.665
2     12.18     9.000     25.88    0.532      2.036
Qmax(1) =
         1.000 *    1.000 *    26.100) +
         0.753 *    1.000 *    12.176) + =      35.274
Qmax(2) =
         1.327 *    0.750 *    26.100) +
         1.000 *    1.000 *    12.176) + =      38.171

Total of 2 streams to confluence:
Flow rates before confluence point:
      26.100      12.176
Maximum flow rates at confluence using above data:
       35.274       38.171
Area of streams before confluence:
       23.400        9.000
Effective area values after confluence:
       32.400       26.561
Results of confluence:
Total flow rate =     38.171(CFS)
Time of concentration =    25.881 min.
Effective stream area after confluence =     26.561(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.532(In/Hr)
Study area total (this main stream) =      32.40(Ac.)
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Process from Point/Station       22.000 to Point/Station        9.100
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
Top of street segment elevation =  3231.000(Ft.)
End of street segment elevation =  3222.890(Ft.)
Length of street segment  =   662.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     38.266(CFS)
Depth of flow =   0.523(Ft.), Average velocity =   4.004(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =    1.15(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.000(Ft.)
Flow velocity =   4.00(Ft/s)
Travel time =    2.76 min.     TC =   28.64  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     35.299(CFS)
therefore the upstream flow rate of Q =     38.171(CFS) is being used
Rainfall intensity =      1.896(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.649
Subarea runoff =      0.000(CFS) for    2.100(Ac.)
Total runoff =     38.171(CFS)
Effective area this stream =       28.66(Ac.)
Total Study Area (Main Stream No. 2) =       44.66(Ac.)
Area averaged Fm value =    0.528(In/Hr)
Street flow at end of street =     38.171(CFS)
Half street flow at end of street =     19.086(CFS)
Depth of flow =   0.523(Ft.), Average velocity =   4.001(Ft/s)
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Warning: depth of flow exceeds top of curb
Note: depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =   1.13(Ft.)
Flow width (from curb towards crown)= 20.000(Ft.)

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Process from Point/Station       22.000 to Point/Station        9.100
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     28.661(Ac.)
Runoff from this stream =     38.171(CFS)
Time of concentration =   28.64 min.
Rainfall intensity =     1.896(In/Hr)
Area averaged loss rate (Fm) =    0.5280(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9707
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Process from Point/Station       23.000 to Point/Station        9.100
**** INITIAL AREA EVALUATION ****
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RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  3229.800(Ft.)
Bottom (of initial area) elevation =  3222.890(Ft.)
Difference in elevation =     6.910(Ft.)
Slope =    0.00691  s(%)=       0.69
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.660 min.
Rainfall intensity =      2.660(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.741
Subarea runoff =     11.426(CFS)
Total initial stream area =        5.800(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
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Process from Point/Station       23.000 to Point/Station        9.100
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      5.800(Ac.)
Runoff from this stream =     11.426(CFS)
Time of concentration =   17.66 min.
Rainfall intensity =     2.660(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     38.17    28.661     28.64    0.528      1.896
2     11.43     5.800     17.66    0.471      2.660
Qmax(1) =
         1.000 *    1.000 *    38.171) +
         0.651 *    1.000 *    11.426) + =      45.612
Qmax(2) =
         1.558 *    0.617 *    38.171) +
         1.000 *    1.000 *    11.426) + =      48.102

Total of 2 streams to confluence:
Flow rates before confluence point:
      38.171      11.426
Maximum flow rates at confluence using above data:
       45.612       48.102
Area of streams before confluence:
       28.661        5.800
Effective area values after confluence:
       34.461       23.475
Results of confluence:
Total flow rate =     48.102(CFS)
Time of concentration =    17.660 min.
Effective stream area after confluence =     23.475(Ac.)
Study area average Pervious fraction(Ap) =  0.908
Study area average soil loss rate(Fm) =    0.518(In/Hr)
Study area total (this main stream) =      34.46(Ac.)
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Process from Point/Station        9.100 to Point/Station      105.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3222.890(Ft.)
End of street segment elevation =  3221.000(Ft.)
Length of street segment  =   650.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     48.102(CFS)
Depth of flow =   0.712(Ft.), Average velocity =   2.485(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =   10.62(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.000(Ft.)
Flow velocity =   2.48(Ft/s)
Travel time =    4.36 min.     TC =   22.02  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      2.279(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.695
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     48.102(CFS)
Effective area this stream =       23.48(Ac.)
Total Study Area (Main Stream No. 2) =       50.46(Ac.)
Area averaged Fm value =    0.518(In/Hr)
Street flow at end of street =     48.102(CFS)
Half street flow at end of street =     24.051(CFS)
Depth of flow =   0.712(Ft.), Average velocity =   2.485(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =   10.62(Ft.)
```

Flow width (from curb towards crown)= 20.000(Ft.)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station      105.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =     23.475(Ac.)
Runoff from this stream =     48.102(CFS)
Time of concentration =   22.02 min.
Rainfall intensity =     2.279(In/Hr)
Area averaged loss rate (Fm) =    0.5184(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9083
Summary of stream data:

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


1     14.17    10.160     25.05    0.532      2.082
2     48.10    23.475     22.02    0.518      2.279
Qmax(1) =
         1.000 *    1.000 *    14.172) +
         0.888 *    1.000 *    48.102) + =      56.894
Qmax(2) =
         1.127 *    0.879 *    14.172) +
         1.000 *    1.000 *    48.102) + =      62.141

Total of 2 main streams to confluence:
Flow rates before confluence point:
      15.172      49.102
Maximum flow rates at confluence using above data:
       56.894       62.141
Area of streams before confluence:
       10.160       23.475
Effective area values after confluence:
       33.635       32.405


Results of confluence:
Total flow rate =     62.141(CFS)
Time of concentration =    22.020 min.
Effective stream area after confluence  =     32.405(Ac.)
Study area average Pervious fraction(Ap) =  0.936
Study area average soil loss rate(Fm) =    0.523(In/Hr)
Study area total =      33.64(Ac.)
End of computations, Total Study Area =           50.46 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.937
```

Area averaged SCS curve number = 47.2

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

100-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA5
FILE: 18345ONSITEPREAA5100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   369.000(Ft.)
Top (of initial area) elevation =  3238.600(Ft.)
Bottom (of initial area) elevation =  3234.900(Ft.)
Difference in elevation =     3.700(Ft.)
Slope =    0.01003  s(%)=       1.00
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   18.853 min.
Rainfall intensity =      2.541(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.711
Subarea runoff =      2.567(CFS)
Total initial stream area =        1.420(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
End of computations, Total Study Area =            1.42 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

100-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA6
FILE: 18345ONSITEPREAA6100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      109.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   355.000(Ft.)
Top (of initial area) elevation =  3238.200(Ft.)
Bottom (of initial area) elevation =  3230.000(Ft.)
Difference in elevation =     8.200(Ft.)
Slope =    0.02310  s(%)=       2.31
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.710 min.
Rainfall intensity =      2.887(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.734
Subarea runoff =      2.501(CFS)
Total initial stream area =        1.180(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
End of computations, Total Study Area =            1.18 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

100-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA7 & AA8
FILE: 18345ONSITEPREAA7AA8100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      111.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   323.000(Ft.)
Top (of initial area) elevation =  3232.800(Ft.)
Bottom (of initial area) elevation =  3228.500(Ft.)
Difference in elevation =     4.300(Ft.)
Slope =    0.01331  s(%)=       1.33
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.890 min.
Rainfall intensity =      2.744(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.725
Subarea runoff =      1.155(CFS)
Total initial stream area =        0.580(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      112.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.376(Ft.), Average velocity =   1.798(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      2.547(CFS)
  '     '    flow top width =      7.526(Ft.)
  '     '     velocity=    1.798(Ft/s)
  '     '    area =      1.416(Sq.Ft)
  '     '    Froude number =     0.731

Upstream point elevation =  3228.500(Ft.)
Downstream point elevation =  3222.000(Ft.)
Flow length =   388.000(Ft.)
Travel time  =    3.60 min.
Time of concentration =   20.49 min.
Depth of flow =   0.376(Ft.)
Average velocity =   1.798(Ft/s)
Total irregular channel flow =     2.547(CFS)
Irregular channel normal depth above invert elev. =   0.376(Ft.)
Average velocity of channel(s) =   1.798(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      2.398(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.700
Subarea runoff =      2.689(CFS) for    1.710(Ac.)
Total runoff =      3.844(CFS)
Effective area this stream =        2.29(Ac.)
Total Study Area (Main Stream No. 1) =        2.29(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.439(Ft.), Average velocity =   1.993(Ft/s)
End of computations, Total Study Area =            2.29 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
```

Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 50.0

TT 20527

10-year, 1-Hours Storm Events

Rational Method Onsite Pre-Developed

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 07/07/22

10-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 18345, CITY OF VICTORVILLE
AREA AA1 THRU AA9 (FROM SOUTHERLY FLOW TO FREMONTIA RD & LUNA RD)
FILE: 18345ONSITEPREAA1AA910.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   356.000(Ft.)
Top (of initial area) elevation =  3242.000(Ft.)
Bottom (of initial area) elevation =  3236.000(Ft.)
Difference in elevation =     6.000(Ft.)
Slope =    0.01685  s(%)=       1.69
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.751 min.
Rainfall intensity =      1.656(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.611
Subarea runoff =      1.487(CFS)
Total initial stream area =        1.470(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      4.591(CFS)
Depth of flow =   0.368(Ft.), Average velocity =   1.695(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      2.295(CFS)
  '     '    flow top width =      7.359(Ft.)
  '     '     velocity=    1.695(Ft/s)
  '     '    area =      1.354(Sq.Ft)
  '     '    Froude number =     0.696

Upstream point elevation =  3236.000(Ft.)
Downstream point elevation =  3231.000(Ft.)
Flow length =   326.000(Ft.)
Travel time  =    3.21 min.
Time of concentration =   19.96 min.
Depth of flow =   0.368(Ft.)
Average velocity =   1.695(Ft/s)
Total irregular channel flow =     2.295(CFS)
Irregular channel normal depth above invert elev. =   0.368(Ft.)
Average velocity of channel(s) =   1.695(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      1.465(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.573
Subarea runoff =      1.535(CFS) for    2.130(Ac.)
Total runoff =      3.022(CFS)
Effective area this stream =        3.60(Ac.)
Total Study Area (Main Stream No. 1) =        3.60(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.408(Ft.), Average velocity =   1.816(Ft/s)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      7.829(CFS)
Depth of flow =   0.481(Ft.), Average velocity =   1.690(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      3.914(CFS)
  '     '    flow top width =      9.625(Ft.)
  '     '     velocity=    1.690(Ft/s)
  '     '    area =      2.316(Sq.Ft)
  '     '    Froude number =     0.607

Upstream point elevation =  3231.000(Ft.)
Downstream point elevation =  3227.600(Ft.)
Flow length =   319.000(Ft.)
Travel time  =    3.15 min.
Time of concentration =   23.10 min.
Depth of flow =   0.481(Ft.)
Average velocity =   1.690(Ft/s)
Total irregular channel flow =     3.914(CFS)
Irregular channel normal depth above invert elev. =   0.481(Ft.)
Average velocity of channel(s) =   1.690(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      1.322(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.538
Subarea runoff =      1.728(CFS) for    3.080(Ac.)
Total runoff =      4.749(CFS)
Effective area this stream =        6.68(Ac.)
Total Study Area (Main Stream No. 1) =        6.68(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.517(Ft.), Average velocity =   1.774(Ft/s)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =     10.854(CFS)
Depth of flow =   0.514(Ft.), Average velocity =   2.054(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      5.427(CFS)
  '     '    flow top width =     10.282(Ft.)
  '     '     velocity=    2.054(Ft/s)
  '     '    area =      2.643(Sq.Ft)
  '     '    Froude number =     0.714

Upstream point elevation =  3227.600(Ft.)
Downstream point elevation =  3221.000(Ft.)
Flow length =   458.000(Ft.)
Travel time  =    3.72 min.
Time of concentration =   26.82 min.
Depth of flow =   0.514(Ft.)
Average velocity =   2.054(Ft/s)
Total irregular channel flow =     5.427(CFS)
Irregular channel normal depth above invert elev. =   0.514(Ft.)
Average velocity of channel(s) =   2.054(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      1.191(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.498
Subarea runoff =      1.275(CFS) for    3.480(Ac.)
Total runoff =      6.024(CFS)
Effective area this stream =       10.16(Ac.)
Total Study Area (Main Stream No. 1) =       10.16(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.535(Ft.), Average velocity =   2.108(Ft/s)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     10.160(Ac.)
Runoff from this stream =      6.024(CFS)
Time of concentration =   26.82 min.
Rainfall intensity =     1.191(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Program is now starting with Main Stream No. 2
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        7.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      1.063(In/Hr) for a    10.0 year storm
User specified values are as follows:
TC =  31.54 min.  Rain intensity =       1.06(In/Hr)
Total area this stream =        23.40(Ac.)
Total Study Area (Main Stream No. 2) =       33.56(Ac.)
Total runoff =     10.30(CFS)
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station       22.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3239.800(Ft.)
End of street segment elevation =  3231.000(Ft.)
Length of street segment  =   657.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     10.300(CFS)
Depth of flow =   0.347(Ft.), Average velocity =   2.957(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  12.945(Ft.)
Flow velocity =   2.96(Ft/s)
Travel time =    3.70 min.     TC =   35.24  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      0.984(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.413
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     10.300(CFS)
Effective area this stream =       23.40(Ac.)
Total Study Area (Main Stream No. 2) =       33.56(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Street flow at end of street =     10.300(CFS)
Half street flow at end of street =      5.150(CFS)
Depth of flow =   0.347(Ft.), Average velocity =   2.957(Ft/s)
Flow width (from curb towards crown)=  12.945(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     23.400(Ac.)
Runoff from this stream =     10.300(CFS)
Time of concentration =   35.24 min.
Rainfall intensity =     0.984(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       22.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   975.000(Ft.)
Top (of initial area) elevation =  3245.000(Ft.)
Bottom (of initial area) elevation =  3231.000(Ft.)
Difference in elevation =    14.000(Ft.)
Slope =    0.01436  s(%)=       1.44
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   25.881 min.
Rainfall intensity =      1.221(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.508
Subarea runoff =      5.580(CFS)
Total initial stream area =        9.000(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      9.000(Ac.)
Runoff from this stream =      5.580(CFS)
Time of concentration =   25.88 min.
Rainfall intensity =     1.221(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     10.30    23.400     35.24    0.532      0.984
2      5.58     9.000     25.88    0.532      1.221
Qmax(1) =
         1.000 *    1.000 *    10.300) +
         0.655 *    1.000 *     5.580) + =      13.957
Qmax(2) =
         1.526 *    0.734 *    10.300) +
         1.000 *    1.000 *     5.580) + =      17.121

Total of 2 streams to confluence:
Flow rates before confluence point:
      10.300       5.580
Maximum flow rates at confluence using above data:
       13.957       17.121
Area of streams before confluence:
       23.400        9.000
Effective area values after confluence:
       32.400       26.184
Results of confluence:
Total flow rate =     17.121(CFS)
Time of concentration =    25.881 min.
Effective stream area after confluence =     26.184(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.532(In/Hr)
Study area total (this main stream) =      32.40(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station        9.100
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3231.000(Ft.)
End of street segment elevation =  3222.890(Ft.)
Length of street segment  =   662.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     17.207(CFS)
Depth of flow =   0.410(Ft.), Average velocity =   3.242(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  16.086(Ft.)
Flow velocity =   3.24(Ft/s)
Travel time =    3.40 min.     TC =   29.28  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     15.077(CFS)
therefore the upstream flow rate of Q =     17.121(CFS) is being used
Rainfall intensity =      1.120(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.476
Subarea runoff =      0.000(CFS) for    2.100(Ac.)
Total runoff =     17.121(CFS)
Effective area this stream =       28.28(Ac.)
Total Study Area (Main Stream No. 2) =       44.66(Ac.)
Area averaged Fm value =    0.528(In/Hr)
Street flow at end of street =     17.121(CFS)
Half street flow at end of street =      8.561(CFS)
Depth of flow =   0.409(Ft.), Average velocity =   3.238(Ft/s)
Flow width (from curb towards crown)=  16.055(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station        9.100
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =     28.284(Ac.)
Runoff from this stream =     17.121(CFS)
Time of concentration =   29.28 min.
Rainfall intensity =     1.120(In/Hr)
Area averaged loss rate (Fm) =    0.5279(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9703
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station        9.100
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  3229.800(Ft.)
Bottom (of initial area) elevation =  3222.890(Ft.)
Difference in elevation =     6.910(Ft.)
Slope =    0.00691  s(%)=       0.69
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.660 min.
Rainfall intensity =      1.596(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.634
Subarea runoff =      5.872(CFS)
Total initial stream area =        5.800(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station        9.100
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      5.800(Ac.)
Runoff from this stream =      5.872(CFS)
Time of concentration =   17.66 min.
Rainfall intensity =     1.596(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     17.12    28.284     29.28    0.528      1.120
2      5.87     5.800     17.66    0.471      1.596
Qmax(1) =
         1.000 *    1.000 *    17.121) +
         0.577 *    1.000 *     5.872) + =      20.509
Qmax(2) =
         1.803 *    0.603 *    17.121) +
         1.000 *    1.000 *     5.872) + =      24.492

Total of 2 streams to confluence:
Flow rates before confluence point:
      17.121       5.872
Maximum flow rates at confluence using above data:
       20.509       24.492
Area of streams before confluence:
       28.284        5.800
Effective area values after confluence:
       34.084       22.857
Results of confluence:
Total flow rate =     24.492(CFS)
Time of concentration =    17.660 min.
Effective stream area after confluence =     22.857(Ac.)
Study area average Pervious fraction(Ap) =  0.907
Study area average soil loss rate(Fm) =    0.518(In/Hr)
Study area total (this main stream) =      34.08(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station      105.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3222.890(Ft.)
End of street segment elevation =  3221.000(Ft.)
Length of street segment  =   650.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     24.492(CFS)
Depth of flow =   0.572(Ft.), Average velocity =   2.084(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =    3.60(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.000(Ft.)
Flow velocity =   2.08(Ft/s)
Travel time =    5.20 min.     TC =   22.86  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      1.332(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.550
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     24.492(CFS)
Effective area this stream =       22.86(Ac.)
Total Study Area (Main Stream No. 2) =       50.46(Ac.)
Area averaged Fm value =    0.518(In/Hr)
Street flow at end of street =     24.492(CFS)
Half street flow at end of street =     12.246(CFS)
Depth of flow =   0.572(Ft.), Average velocity =   2.084(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =    3.60(Ft.)
```

Flow width (from curb towards crown)= 20.000(Ft.)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station      105.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =     22.857(Ac.)
Runoff from this stream =     24.492(CFS)
Time of concentration =   22.86 min.
Rainfall intensity =     1.332(In/Hr)
Area averaged loss rate (Fm) =    0.5182(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9073
Summary of stream data:

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


1      6.02    10.160     26.82    0.532      1.191
2     24.49    22.857     22.86    0.518      1.332
Qmax(1) =
         1.000 *    1.000 *     6.024) +
         0.827 *    1.000 *    24.492) + =      26.274
Qmax(2) =
         1.214 *    0.852 *     6.024) +
         1.000 *    1.000 *    24.492) + =      30.726

Total of 2 main streams to confluence:
Flow rates before confluence point:
       7.024      25.492
Maximum flow rates at confluence using above data:
       26.274       30.726
Area of streams before confluence:
       10.160       22.857
Effective area values after confluence:
       33.017       31.517


Results of confluence:
Total flow rate =     30.726(CFS)
Time of concentration =    22.858 min.
Effective stream area after confluence  =     31.517(Ac.)
Study area average Pervious fraction(Ap) =  0.936
Study area average soil loss rate(Fm) =    0.523(In/Hr)
Study area total =      33.02(Ac.)
End of computations, Total Study Area =           50.46 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.937
```

Area averaged SCS curve number = 47.2

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

10-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA5
FILE: 18345ONSITEPREAA510.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   369.000(Ft.)
Top (of initial area) elevation =  3238.600(Ft.)
Bottom (of initial area) elevation =  3234.900(Ft.)
Difference in elevation =     3.700(Ft.)
Slope =    0.01003  s(%)=       1.00
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   18.853 min.
Rainfall intensity =      1.525(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.586
Subarea runoff =      1.268(CFS)
Total initial stream area =        1.420(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
End of computations, Total Study Area =            1.42 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

10-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA6
FILE: 18345ONSITEPREAA610.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      109.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   355.000(Ft.)
Top (of initial area) elevation =  3238.200(Ft.)
Bottom (of initial area) elevation =  3230.000(Ft.)
Difference in elevation =     8.200(Ft.)
Slope =    0.02310  s(%)=       2.31
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.710 min.
Rainfall intensity =      1.732(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.623
Subarea runoff =      1.274(CFS)
Total initial stream area =        1.180(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
End of computations, Total Study Area =            1.18 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

10-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA7 & AA8
FILE: 18345ONSITEPREAA7AA810.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      111.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   323.000(Ft.)
Top (of initial area) elevation =  3232.800(Ft.)
Bottom (of initial area) elevation =  3228.500(Ft.)
Difference in elevation =     4.300(Ft.)
Slope =    0.01331  s(%)=       1.33
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.890 min.
Rainfall intensity =      1.647(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.609
Subarea runoff =      0.582(CFS)
Total initial stream area =        0.580(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      112.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.286(Ft.), Average velocity =   1.497(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      1.223(CFS)
  '     '    flow top width =      5.716(Ft.)
  '     '     velocity=    1.497(Ft/s)
  '     '    area =      0.817(Sq.Ft)
  '     '    Froude number =     0.698

Upstream point elevation =  3228.500(Ft.)
Downstream point elevation =  3222.000(Ft.)
Flow length =   388.000(Ft.)
Travel time  =    4.32 min.
Time of concentration =   21.21 min.
Depth of flow =   0.286(Ft.)
Average velocity =   1.497(Ft/s)
Total irregular channel flow =     1.223(CFS)
Irregular channel normal depth above invert elev. =   0.286(Ft.)
Average velocity of channel(s) =   1.497(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      1.404(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.559
Subarea runoff =      1.215(CFS) for    1.710(Ac.)
Total runoff =      1.796(CFS)
Effective area this stream =        2.29(Ac.)
Total Study Area (Main Stream No. 1) =        2.29(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.330(Ft.), Average velocity =   1.648(Ft/s)
End of computations, Total Study Area =            2.29 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
```

Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 50.0

TT 20527

2-year, 1-Hours Storm Events

Rational Method Onsite Pre-developed

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

2-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA1 TO AA4
FILE: 18345ONSITEPREAA1AA42.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   356.000(Ft.)
Top (of initial area) elevation =  3242.000(Ft.)
Bottom (of initial area) elevation =  3236.000(Ft.)
Difference in elevation =     6.000(Ft.)
Slope =    0.01685  s(%)=       1.69
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.751 min.
Rainfall intensity =      0.958(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.400
Subarea runoff =      0.562(CFS)
Total initial stream area =        1.470(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.245(Ft.), Average velocity =   1.293(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      0.776(CFS)
  '     '    flow top width =      4.901(Ft.)
  '     '     velocity=    1.293(Ft/s)
  '     '    area =      0.600(Sq.Ft)
  '     '    Froude number =     0.651

Upstream point elevation =  3236.000(Ft.)
Downstream point elevation =  3231.000(Ft.)
Flow length =   326.000(Ft.)
Travel time  =    4.20 min.
Time of concentration =   20.95 min.
Depth of flow =   0.245(Ft.)
Average velocity =   1.293(Ft/s)
Total irregular channel flow =     0.776(CFS)
Irregular channel normal depth above invert elev. =   0.245(Ft.)
Average velocity of channel(s) =   1.293(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      0.819(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.315
Subarea runoff =      0.365(CFS) for    2.130(Ac.)
Total runoff =      0.927(CFS)
Effective area this stream =        3.60(Ac.)
Total Study Area (Main Stream No. 1) =        3.60(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.262(Ft.), Average velocity =   1.352(Ft/s)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.295(Ft.), Average velocity =   1.220(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      1.062(CFS)
  '     '    flow top width =      5.901(Ft.)
  '     '     velocity=    1.220(Ft/s)
  '     '    area =      0.871(Sq.Ft)
  '     '    Froude number =     0.560

Upstream point elevation =  3231.000(Ft.)
Downstream point elevation =  3227.600(Ft.)
Flow length =   319.000(Ft.)
Travel time  =    4.36 min.
Time of concentration =   25.31 min.
Depth of flow =   0.295(Ft.)
Average velocity =   1.220(Ft/s)
Total irregular channel flow =     1.062(CFS)
Irregular channel normal depth above invert elev. =   0.295(Ft.)
Average velocity of channel(s) =   1.220(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      0.717(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.232
Subarea runoff =      0.183(CFS) for    3.080(Ac.)
Total runoff =      1.111(CFS)
Effective area this stream =        6.68(Ac.)
Total Study Area (Main Stream No. 1) =        6.68(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.300(Ft.), Average velocity =   1.234(Ft/s)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.287(Ft.), Average velocity =   1.392(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      1.147(CFS)
  '     '    flow top width =      5.740(Ft.)
  '     '     velocity=    1.392(Ft/s)
  '     '    area =      0.824(Sq.Ft)
  '     '    Froude number =     0.648

Upstream point elevation =  3227.600(Ft.)
Downstream point elevation =  3221.000(Ft.)
Flow length =   458.000(Ft.)
Travel time  =    5.48 min.
Time of concentration =   30.80 min.
Depth of flow =   0.287(Ft.)
Average velocity =   1.392(Ft/s)
Total irregular channel flow =     1.147(CFS)
Irregular channel normal depth above invert elev. =   0.287(Ft.)
Average velocity of channel(s) =   1.392(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =      0.848(CFS)
therefore the upstream flow rate of Q =      1.111(CFS) is being used
Rainfall intensity =      0.625(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.134
Subarea runoff =      0.000(CFS) for    3.480(Ac.)
Total runoff =      1.111(CFS)
Effective area this stream =       10.16(Ac.)
Total Study Area (Main Stream No. 1) =       10.16(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.284(Ft.), Average velocity =   1.381(Ft/s)
```

End of computations, Total Study Area = 10.16 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 50.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

2-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA5
FILE: 18345ONSITEPREAA52.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   369.000(Ft.)
Top (of initial area) elevation =  3238.600(Ft.)
Bottom (of initial area) elevation =  3234.900(Ft.)
Difference in elevation =     3.700(Ft.)
Slope =    0.01003  s(%)=       1.00
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   18.853 min.
Rainfall intensity =      0.882(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.356
Subarea runoff =      0.446(CFS)
Total initial stream area =        1.420(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
End of computations, Total Study Area =            1.42 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

2-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 18345, CITY OF VICTORVILLE
AREA AA6
FILE: 18345ONSITEPREAA62.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      109.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   355.000(Ft.)
Top (of initial area) elevation =  3238.200(Ft.)
Bottom (of initial area) elevation =  3230.000(Ft.)
Difference in elevation =     8.200(Ft.)
Slope =    0.02310  s(%)=       2.31
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.710 min.
Rainfall intensity =      1.002(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.422
Subarea runoff =      0.498(CFS)
Total initial stream area =        1.180(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
End of computations, Total Study Area =            1.18 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/30/22

2-YR, 1-HR RATIONAL METHOD ONSITE PRE-DEVELOPED CONDITION
TR. 20527, CITY OF VICTORVILLE
AREA AA7 & AA8
FILE: 18345ONSITEPREAA7AA82.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      111.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   323.000(Ft.)
Top (of initial area) elevation =  3232.800(Ft.)
Bottom (of initial area) elevation =  3228.500(Ft.)
Difference in elevation =     4.300(Ft.)
Slope =    0.01331  s(%)=       1.33
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.890 min.
Rainfall intensity =      0.952(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.397
Subarea runoff =      0.219(CFS)
Total initial stream area =        0.580(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      112.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.190(Ft.), Average velocity =   1.140(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2             10.00              0.00
      3             20.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      0.411(CFS)
  '     '    flow top width =      3.798(Ft.)
  '     '     velocity=    1.140(Ft/s)
  '     '    area =      0.361(Sq.Ft)
  '     '    Froude number =     0.652

Upstream point elevation =  3228.500(Ft.)
Downstream point elevation =  3222.000(Ft.)
Flow length =   388.000(Ft.)
Travel time  =    5.67 min.
Time of concentration =   22.56 min.
Depth of flow =   0.190(Ft.)
Average velocity =   1.140(Ft/s)
Total irregular channel flow =     0.411(CFS)
Irregular channel normal depth above invert elev. =   0.190(Ft.)
Average velocity of channel(s) =   1.140(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      0.777(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.284
Subarea runoff =      0.286(CFS) for    1.710(Ac.)
Total runoff =      0.505(CFS)
Effective area this stream =        2.29(Ac.)
Total Study Area (Main Stream No. 1) =        2.29(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.205(Ft.), Average velocity =   1.200(Ft/s)
End of computations, Total Study Area =            2.29 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
```

Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 50.0

TT 20527

100-year, 1-Hours Storm Events

Rational Method Onsite Post-Developed

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

100-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A1-A (WEST)
FILE: 18345ONSITEPOSTA1A100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   261.000(Ft.)
Top (of initial area) elevation =  3240.800(Ft.)
Bottom (of initial area) elevation =  3237.500(Ft.)
Difference in elevation =     3.300(Ft.)
Slope =    0.01264  s(%)=       1.26
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.145 min.
Rainfall intensity =      4.217(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.799
Subarea runoff =      6.641(CFS)
Total initial stream area =        1.970(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.97 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

100-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A1-B (EAST)
FILE: 18345ONSITEPOSTA1B100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        3.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   231.000(Ft.)
Top (of initial area) elevation =  3240.800(Ft.)
Bottom (of initial area) elevation =  3236.650(Ft.)
Difference in elevation =     4.150(Ft.)
Slope =    0.01797  s(%)=       1.80
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.118 min.
Rainfall intensity =      4.583(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.807
Subarea runoff =      3.405(CFS)
Total initial stream area =        0.920(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            0.92 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

100-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A2-A (WEST)
FILE: 18345ONSITEPOSTA2A100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   279.000(Ft.)
Top (of initial area) elevation =  3236.500(Ft.)
Bottom (of initial area) elevation =  3232.500(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.01434  s(%)=       1.43
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.159 min.
Rainfall intensity =      4.212(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.799
Subarea runoff =      7.070(CFS)
Total initial stream area =        2.100(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.10 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

100-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A2-B (EAST)
FILE: 18345ONSITEPOSTA2B100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        6.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   292.000(Ft.)
Top (of initial area) elevation =  3236.500(Ft.)
Bottom (of initial area) elevation =  3232.220(Ft.)
Difference in elevation =     4.280(Ft.)
Slope =    0.01466  s(%)=       1.47
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.286 min.
Rainfall intensity =      4.172(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.798
Subarea runoff =      3.963(CFS)
Total initial stream area =        1.190(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.19 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

100-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A3-A (WEST)
FILE: 18345ONSITEPOSTA3A100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        8.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   346.000(Ft.)
Top (of initial area) elevation =  3232.700(Ft.)
Bottom (of initial area) elevation =  3228.600(Ft.)
Difference in elevation =     4.100(Ft.)
Slope =    0.01185  s(%)=       1.18
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.370 min.
Rainfall intensity =      3.861(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.790
Subarea runoff =      7.079(CFS)
Total initial stream area =        2.320(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.32 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

100-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A3-B (EAST)
FILE: 18345ONSITEPOSTA3B100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        9.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   291.000(Ft.)
Top (of initial area) elevation =  3232.700(Ft.)
Bottom (of initial area) elevation =  3228.330(Ft.)
Difference in elevation =     4.370(Ft.)
Slope =    0.01502  s(%)=       1.50
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.229 min.
Rainfall intensity =      4.190(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.799
Subarea runoff =      3.882(CFS)
Total initial stream area =        1.160(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.16 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

100-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A4-A (WEST)
FILE: 18345ONSITEPOSTA4A100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   406.000(Ft.)
Top (of initial area) elevation =  3229.400(Ft.)
Bottom (of initial area) elevation =  3225.500(Ft.)
Difference in elevation =     3.900(Ft.)
Slope =    0.00961  s(%)=       0.96
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.529 min.
Rainfall intensity =      3.585(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.782
Subarea runoff =      8.044(CFS)
Total initial stream area =        2.870(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.87 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

100-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A4-B (EAST)
FILE: 18345ONSITEPOSTA4B100.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  3229.400(Ft.)
Bottom (of initial area) elevation =  3223.000(Ft.)
Difference in elevation =     6.400(Ft.)
Slope =    0.00640  s(%)=       0.64
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.933 min.
Rainfall intensity =      2.632(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.739
Subarea runoff =      4.570(CFS)
Total initial stream area =        2.350(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.35 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 07/05/22

100-YR, 1-HR STORM RATIONAL METHOD OFFSITE PRE-DEV/ONSITE POST DEV.
TR 20527, CITY OF VICTORVILLE
OFFSITE AREA A6 & A6.1 THRU FREMONTIA RD/LUNA RD.
FILE: 18345FREMONTIARD100YR.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.130 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        6.100
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   767.000(Ft.)
Top (of initial area) elevation =  3263.000(Ft.)
Bottom (of initial area) elevation =  3252.000(Ft.)
Difference in elevation =    11.000(Ft.)
Slope =    0.01434  s(%)=       1.43
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   23.518 min.
Rainfall intensity =      2.177(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.680
Subarea runoff =     14.798(CFS)
Total initial stream area =       10.000(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.100 to Point/Station        7.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     40.993(CFS)
Depth of flow =   0.989(Ft.), Average velocity =   2.517(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.20
      2             10.00              0.00
      3             20.00              1.20
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =     20.496(CFS)
  '     '    flow top width =     16.477(Ft.)
  '     '     velocity=    2.517(Ft/s)
  '     '    area =      8.144(Sq.Ft)
  '     '    Froude number =     0.631

Upstream point elevation =  3252.000(Ft.)
Downstream point elevation =  3241.000(Ft.)
Flow length =  1212.000(Ft.)
Travel time  =    8.03 min.
Time of concentration =   31.54 min.
Depth of flow =   0.989(Ft.)
Average velocity =   2.517(Ft/s)
Total irregular channel flow =    20.496(CFS)
Irregular channel normal depth above invert elev. =   0.989(Ft.)
Average velocity of channel(s) =   2.517(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      1.772(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.630
Subarea runoff =     11.312(CFS) for   13.400(Ac.)
Total runoff =     26.111(CFS)
Effective area this stream =       23.40(Ac.)
Total Study Area (Main Stream No. 1) =       23.40(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   1.083(Ft.), Average velocity =   2.674(Ft/s)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        3.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3239.800(Ft.)
End of street segment elevation =  3236.650(Ft.)
Length of street segment  =   213.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     26.111(CFS)
Depth of flow =   0.452(Ft.), Average velocity =   3.858(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  18.216(Ft.)
Flow velocity =   3.86(Ft/s)
Travel time =    0.92 min.     TC =   32.47  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      1.737(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.624
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     26.111(CFS)
Effective area this stream =       23.40(Ac.)
Total Study Area (Main Stream No. 1) =       23.40(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Street flow at end of street =     26.111(CFS)
Half street flow at end of street =     13.055(CFS)
Depth of flow =   0.452(Ft.), Average velocity =   3.858(Ft/s)
Flow width (from curb towards crown)=  18.216(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     23.400(Ac.)
Runoff from this stream =     26.111(CFS)
Time of concentration =   32.47 min.
Rainfall intensity =     1.737(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      4.582(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =   8.12 min.  Rain intensity =       4.58(In/Hr)
Total area this stream =         0.52(Ac.)
Total Study Area (Main Stream No. 1) =       23.92(Ac.)
Total runoff =      2.84(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.520(Ac.)
Runoff from this stream =      2.840(CFS)
Time of concentration =    8.12 min.
Rainfall intensity =     4.582(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     26.11    23.400     32.47    0.532      1.737
2      2.84     0.520      8.12    0.471      4.582
Qmax(1) =
         1.000 *    1.000 *    26.111) +
         0.308 *    1.000 *     2.840) + =      26.985
Qmax(2) =
         3.362 *    0.250 *    26.111) +
         1.000 *    1.000 *     2.840) + =      24.798

Total of 2 streams to confluence:
Flow rates before confluence point:
      26.111       2.840
Maximum flow rates at confluence using above data:
       26.985       24.798
Area of streams before confluence:
       23.400        0.520
Effective area values after confluence:
       23.920        6.373
Results of confluence:
Total flow rate =     26.985(CFS)
Time of concentration =    32.465 min.
Effective stream area after confluence =     23.920(Ac.)
Study area average Pervious fraction(Ap) =  0.991
Study area average soil loss rate(Fm) =    0.531(In/Hr)
Study area total (this main stream) =      23.92(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        6.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3236.650(Ft.)
End of street segment elevation =  3232.220(Ft.)
Length of street segment  =   330.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     26.985(CFS)
Depth of flow =   0.464(Ft.), Average velocity =   3.750(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  18.793(Ft.)
Flow velocity =   3.75(Ft/s)
Travel time =    1.47 min.     TC =   33.93  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      1.684(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.616
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     26.985(CFS)
Effective area this stream =       23.92(Ac.)
Total Study Area (Main Stream No. 1) =       23.92(Ac.)
Area averaged Fm value =    0.531(In/Hr)
Street flow at end of street =     26.985(CFS)
Half street flow at end of street =     13.493(CFS)
Depth of flow =   0.464(Ft.), Average velocity =   3.750(Ft/s)
Flow width (from curb towards crown)=  18.793(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        6.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     23.920(Ac.)
Runoff from this stream =     26.985(CFS)
Time of concentration =   33.93 min.
Rainfall intensity =     1.684(In/Hr)
Area averaged loss rate (Fm) =    0.5311(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9913
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       22.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   975.000(Ft.)
Top (of initial area) elevation =  3245.000(Ft.)
Bottom (of initial area) elevation =  3231.000(Ft.)
Difference in elevation =    14.000(Ft.)
Slope =    0.01436  s(%)=       1.44
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   25.881 min.
Rainfall intensity =      2.036(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.665
Subarea runoff =     12.176(CFS)
Total initial stream area =        9.000(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      9.000(Ac.)
Runoff from this stream =     12.176(CFS)
Time of concentration =   25.88 min.
Rainfall intensity =     2.036(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        6.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      4.170(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =   9.29 min.  Rain intensity =       4.17(In/Hr)
Total area this stream =         0.82(Ac.)
Total Study Area (Main Stream No. 1) =       33.74(Ac.)
Total runoff =      2.84(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        6.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      0.820(Ac.)
Runoff from this stream =      2.840(CFS)
Time of concentration =    9.29 min.
Rainfall intensity =     4.170(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     26.99    23.920     33.93    0.531      1.684
2     12.18     9.000     25.88    0.532      2.036
3      2.84     0.820      9.29    0.471      4.170
Qmax(1) =
         1.000 *    1.000 *    26.985) +
         0.766 *    1.000 *    12.176) +
         0.328 *    1.000 *     2.840) + =      37.244
Qmax(2) =
         1.305 *    0.763 *    26.985) +
         1.000 *    1.000 *    12.176) +
         0.423 *    1.000 *     2.840) + =      40.235
Qmax(3) =
         3.156 *    0.274 *    26.985) +
         2.420 *    0.359 *    12.176) +
         1.000 *    1.000 *     2.840) + =      36.738

Total of 3 streams to confluence:
Flow rates before confluence point:
      26.985      12.176       2.840
Maximum flow rates at confluence using above data:
       37.244       40.235       36.738
Area of streams before confluence:
       23.920        9.000        0.820
Effective area values after confluence:
       33.740       28.065       10.600
Results of confluence:
Total flow rate =     40.235(CFS)
Time of concentration =    25.881 min.
Effective stream area after confluence =     28.065(Ac.)
Study area average Pervious fraction(Ap) =  0.984
Study area average soil loss rate(Fm) =    0.530(In/Hr)
Study area total (this main stream) =      33.74(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        9.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3232.220(Ft.)
End of street segment elevation =  3228.330(Ft.)
Length of street segment  =   320.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.142(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     40.235(CFS)
Depth of flow =   0.505(Ft.), Average velocity =   4.144(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =    0.27(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.000(Ft.)
Flow velocity =   4.14(Ft/s)
Travel time =    1.29 min.     TC =   27.17  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      1.968(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.658
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     40.235(CFS)
Effective area this stream =       28.06(Ac.)
Total Study Area (Main Stream No. 1) =       33.74(Ac.)
Area averaged Fm value =    0.530(In/Hr)
Street flow at end of street =     40.235(CFS)
Half street flow at end of street =     20.118(CFS)
Depth of flow =   0.505(Ft.), Average velocity =   4.144(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =    0.27(Ft.)
```

Flow width (from curb towards crown)= 20.000(Ft.)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        9.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     28.065(Ac.)
Runoff from this stream =     40.235(CFS)
Time of concentration =   27.17 min.
Rainfall intensity =     1.968(In/Hr)
Area averaged loss rate (Fm) =    0.5300(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9841
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        9.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      4.189(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =   9.23 min.  Rain intensity =       4.19(In/Hr)
Total area this stream =         0.80(Ac.)
Total Study Area (Main Stream No. 1) =       34.54(Ac.)
Total runoff =      2.69(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        9.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.800(Ac.)
Runoff from this stream =      2.690(CFS)
Time of concentration =    9.23 min.
Rainfall intensity =     4.189(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     40.24    28.065     27.17    0.530      1.968
2      2.69     0.800      9.23    0.471      4.189
Qmax(1) =
         1.000 *    1.000 *    40.235) +
         0.402 *    1.000 *     2.690) + =      41.318
Qmax(2) =
         2.545 *    0.340 *    40.235) +
         1.000 *    1.000 *     2.690) + =      37.484

Total of 2 streams to confluence:
Flow rates before confluence point:
      40.235       2.690
Maximum flow rates at confluence using above data:
       41.318       37.484
Area of streams before confluence:
       28.065        0.800
Effective area values after confluence:
       28.865       10.335
Results of confluence:
Total flow rate =     41.318(CFS)
Time of concentration =    27.168 min.
Effective stream area after confluence =     28.865(Ac.)
Study area average Pervious fraction(Ap) =  0.973
Study area average soil loss rate(Fm) =    0.528(In/Hr)
Study area total (this main stream) =      28.86(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        9.100
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
Top of street segment elevation =  3228.330(Ft.)
End of street segment elevation =  3222.890(Ft.)
Length of street segment  =   441.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     41.412(CFS)
Depth of flow =   0.536(Ft.), Average velocity =   4.092(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =    1.80(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.000(Ft.)
Flow velocity =   4.09(Ft/s)
Travel time =    1.80 min.     TC =   28.96  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     37.814(CFS)
therefore the upstream flow rate of Q =     41.318(CFS) is being used
Rainfall intensity =      1.881(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.649
Subarea runoff =      0.000(CFS) for    2.100(Ac.)
Total runoff =     41.318(CFS)
Effective area this stream =       30.96(Ac.)
Total Study Area (Main Stream No. 1) =       36.64(Ac.)
Area averaged Fm value =    0.525(In/Hr)
Street flow at end of street =     41.318(CFS)
Half street flow at end of street =     20.659(CFS)
Depth of flow =   0.536(Ft.), Average velocity =   4.090(Ft/s)
```

Warning: depth of flow exceeds top of curb
Note: depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =   1.78(Ft.)
Flow width (from curb towards crown)= 20.000(Ft.)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        9.100
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     30.965(Ac.)
Runoff from this stream =     41.318(CFS)
Time of concentration =   28.96 min.
Rainfall intensity =     1.881(In/Hr)
Area averaged loss rate (Fm) =    0.5245(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9481
Program is now starting with Main Stream No. 2
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station        9.100
**** USER DEFINED FLOW INFORMATION AT A POINT ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      2.632(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =  17.93 min.  Rain intensity =       2.63(In/Hr)
Total area this stream =         1.29(Ac.)
Total Study Area (Main Stream No. 2) =       37.93(Ac.)
Total runoff =      2.52(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station        9.100
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      1.290(Ac.)
Runoff from this stream =      2.520(CFS)
Time of concentration =   17.93 min.
Rainfall intensity =     2.632(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Program is now starting with Main Stream No. 3
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station        9.100
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  3229.900(Ft.)
Bottom (of initial area) elevation =  3222.890(Ft.)
Difference in elevation =     7.010(Ft.)
Slope =    0.00701  s(%)=       0.70
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.610 min.
Rainfall intensity =      2.665(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.741
Subarea runoff =     11.454(CFS)
Total initial stream area =        5.800(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station        9.100
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 3
Stream flow area =      5.800(Ac.)
Runoff from this stream =     11.454(CFS)
Time of concentration =   17.61 min.
Rainfall intensity =     2.665(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     41.32    30.965     28.96    0.525      1.881
2      2.52     1.290     17.93    0.471      2.632
3     11.45     5.800     17.61    0.471      2.665
Qmax(1) =
         1.000 *    1.000 *    41.318) +
         0.653 *    1.000 *     2.520) +
         0.643 *    1.000 *    11.454) + =      50.324
Qmax(2) =
         1.553 *    0.619 *    41.318) +
         1.000 *    1.000 *     2.520) +
         0.985 *    1.000 *    11.454) + =      53.525
Qmax(3) =
         1.578 *    0.608 *    41.318) +
         1.015 *    0.982 *     2.520) +
         1.000 *    1.000 *    11.454) + =      53.602

Total of 3 main streams to confluence:
Flow rates before confluence point:
      42.318       3.520      12.454
Maximum flow rates at confluence using above data:
       50.324       53.525       53.602
Area of streams before confluence:
       30.965        1.290        5.800
Effective area values after confluence:
       38.055       26.258       25.893


Results of confluence:
Total flow rate =     53.602(CFS)
Time of concentration =    17.610 min.
Effective stream area after confluence  =     25.893(Ac.)
Study area average Pervious fraction(Ap) =  0.883
Study area average soil loss rate(Fm) =    0.515(In/Hr)
Study area total =      38.05(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station       12.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3222.890(Ft.)
End of street segment elevation =  3219.640(Ft.)
Length of street segment  =   650.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  24.000(Ft.)
Distance from crown to crossfall grade break  =  22.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     53.602(CFS)
Depth of flow =   0.672(Ft.), Average velocity =   2.954(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =    8.62(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  24.000(Ft.)
Flow velocity =   2.95(Ft/s)
Travel time =    3.67 min.     TC =   21.28  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      2.335(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.702
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     53.602(CFS)
Effective area this stream =       25.89(Ac.)
Total Study Area (Main Stream No. 1) =       43.73(Ac.)
Area averaged Fm value =    0.515(In/Hr)
Street flow at end of street =     53.602(CFS)
Half street flow at end of street =     26.801(CFS)
Depth of flow =   0.672(Ft.), Average velocity =   2.954(Ft/s)
Warning: depth of flow exceeds top of curb
Note:  depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =    8.62(Ft.)
```

```
Flow width (from curb towards crown)=  24.000(Ft.)
End of computations, Total Study Area =           43.73 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.896
Area averaged SCS curve number =  45.3
```

TT 20527

10-year, 1-Hours Storm Events

Rational Method Onsite Post-Developed

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

10-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A1-A (WEST)
FILE: 18345ONSITEPOSTA1A10.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   261.000(Ft.)
Top (of initial area) elevation =  3240.800(Ft.)
Bottom (of initial area) elevation =  3237.500(Ft.)
Difference in elevation =     3.300(Ft.)
Slope =    0.01264  s(%)=       1.26
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.145 min.
Rainfall intensity =      2.530(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.732
Subarea runoff =      3.650(CFS)
Total initial stream area =        1.970(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.97 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

10-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A1-B (EAST)
FILE: 18345ONSITEPOSTA1B10.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        3.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   231.000(Ft.)
Top (of initial area) elevation =  3240.800(Ft.)
Bottom (of initial area) elevation =  3236.650(Ft.)
Difference in elevation =     4.150(Ft.)
Slope =    0.01797  s(%)=       1.80
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.118 min.
Rainfall intensity =      2.750(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.746
Subarea runoff =      1.887(CFS)
Total initial stream area =        0.920(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            0.92 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

10-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A2-A (WEST)
FILE: 18345ONSITEPOSTA2A10.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   279.000(Ft.)
Top (of initial area) elevation =  3236.500(Ft.)
Bottom (of initial area) elevation =  3232.500(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.01434  s(%)=       1.43
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.159 min.
Rainfall intensity =      2.527(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.732
Subarea runoff =      3.886(CFS)
Total initial stream area =        2.100(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.10 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

10-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A2-B (EAST)
FILE: 18345ONSITEPOSTA2B10.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        6.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   292.000(Ft.)
Top (of initial area) elevation =  3236.500(Ft.)
Bottom (of initial area) elevation =  3232.220(Ft.)
Difference in elevation =     4.280(Ft.)
Slope =    0.01466  s(%)=       1.47
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.286 min.
Rainfall intensity =      2.503(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.731
Subarea runoff =      2.176(CFS)
Total initial stream area =        1.190(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.19 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

10-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A3-A (WEST)
FILE: 18345ONSITEPOSTA3A10.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        8.000
**** INITIAL AREA EVALUATION ****
_____________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   346.000(Ft.)
Top (of initial area) elevation =  3232.700(Ft.)
Bottom (of initial area) elevation =  3228.600(Ft.)
Difference in elevation =     4.100(Ft.)
Slope =    0.01185  s(%)=       1.18
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.370 min.
Rainfall intensity =      2.317(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.717
Subarea runoff =      3.854(CFS)
Total initial stream area =        2.320(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.32 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

10-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A3-B (EAST)
FILE: 18345ONSITEPOSTA3B10.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        9.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   291.000(Ft.)
Top (of initial area) elevation =  3232.700(Ft.)
Bottom (of initial area) elevation =  3228.330(Ft.)
Difference in elevation =     4.370(Ft.)
Slope =    0.01502  s(%)=       1.50
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.229 min.
Rainfall intensity =      2.514(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.731
Subarea runoff =      2.133(CFS)
Total initial stream area =        1.160(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.16 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

10-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A4-A (WEST)
FILE: 18345ONSITEPOSTA4A10.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   406.000(Ft.)
Top (of initial area) elevation =  3229.400(Ft.)
Bottom (of initial area) elevation =  3225.500(Ft.)
Difference in elevation =     3.900(Ft.)
Slope =    0.00961  s(%)=       0.96
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.529 min.
Rainfall intensity =      2.151(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.703
Subarea runoff =      4.340(CFS)
Total initial stream area =        2.870(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.87 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

10-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A4-B (EAST)
FILE: 18345ONSITEPOSTA4B10.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  3229.400(Ft.)
Bottom (of initial area) elevation =  3223.000(Ft.)
Difference in elevation =     6.400(Ft.)
Slope =    0.00640  s(%)=       0.64
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.933 min.
Rainfall intensity =      1.579(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.631
Subarea runoff =      2.343(CFS)
Total initial stream area =        2.350(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.35 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 07/05/22

10-YR, 1-HR STORM RATIONAL METHOD OFFSITE PRE-DEV/ONSITE POST DEV.
TR 20527, CITY OF VICTORVILLE
OFFSITE AREA A6, A6.1 & ONSITE FLOW THRU FREMONTIA RD AND LUNA RD.
FILE: 18345FREMONTIARD10YR.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.678 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        6.100
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   767.000(Ft.)
Top (of initial area) elevation =  3263.000(Ft.)
Bottom (of initial area) elevation =  3252.000(Ft.)
Difference in elevation =    11.000(Ft.)
Slope =    0.01434  s(%)=       1.43
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   23.518 min.
Rainfall intensity =      1.306(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.533
Subarea runoff =      6.962(CFS)
Total initial stream area =       10.000(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.100 to Point/Station        7.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.715(Ft.), Average velocity =   2.028(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.20
      2             10.00              0.00
      3             20.00              1.20
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      8.649(CFS)
  '     '    flow top width =     11.922(Ft.)
  '     '     velocity=    2.028(Ft/s)
  '     '    area =      4.264(Sq.Ft)
  '     '    Froude number =     0.598

Upstream point elevation =  3252.000(Ft.)
Downstream point elevation =  3241.000(Ft.)
Flow length =  1212.000(Ft.)
Travel time  =    9.96 min.
Time of concentration =   33.48 min.
Depth of flow =   0.715(Ft.)
Average velocity =   2.028(Ft/s)
Total irregular channel flow =     8.648(CFS)
Irregular channel normal depth above invert elev. =   0.715(Ft.)
Average velocity of channel(s) =   2.028(Ft/s)
 Adding area flow to channel
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Rainfall intensity =      1.020(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.430
Subarea runoff =      3.306(CFS) for   13.400(Ac.)
Total runoff =     10.268(CFS)
Effective area this stream =       23.40(Ac.)
Total Study Area (Main Stream No. 1) =       23.40(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Depth of flow =   0.763(Ft.), Average velocity =   2.117(Ft/s)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        3.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3239.800(Ft.)
End of street segment elevation =  3236.650(Ft.)
Length of street segment  =   213.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     10.268(CFS)
Depth of flow =   0.342(Ft.), Average velocity =   3.067(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  12.680(Ft.)
Flow velocity =   3.07(Ft/s)
Travel time =    1.16 min.     TC =   34.63  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      0.996(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.419
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     10.268(CFS)
Effective area this stream =       23.40(Ac.)
Total Study Area (Main Stream No. 1) =       23.40(Ac.)
Area averaged Fm value =    0.532(In/Hr)
Street flow at end of street =     10.268(CFS)
Half street flow at end of street =      5.134(CFS)
Depth of flow =   0.342(Ft.), Average velocity =   3.067(Ft/s)
Flow width (from curb towards crown)=  12.680(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     23.400(Ac.)
Runoff from this stream =     10.268(CFS)
Time of concentration =   34.63 min.
Rainfall intensity =     0.996(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      2.749(In/Hr) for a    10.0 year storm
User specified values are as follows:
TC =   8.12 min.  Rain intensity =       2.75(In/Hr)
Total area this stream =         0.52(Ac.)
Total Study Area (Main Stream No. 1) =       23.92(Ac.)
Total runoff =      0.53(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.520(Ac.)
Runoff from this stream =      0.530(CFS)
Time of concentration =    8.12 min.
Rainfall intensity =     2.749(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     10.27    23.400     34.63    0.532      0.996
2      0.53     0.520      8.12    0.471      2.749
Qmax(1) =
         1.000 *    1.000 *    10.268) +
         0.230 *    1.000 *     0.530) + =      10.390
Qmax(2) =
         4.782 *    0.234 *    10.268) +
         1.000 *    1.000 *     0.530) + =      12.043

Total of 2 streams to confluence:
Flow rates before confluence point:
      10.268       0.530
Maximum flow rates at confluence using above data:
       10.390       12.043
Area of streams before confluence:
       23.400        0.520
Effective area values after confluence:
       23.920        6.006
Results of confluence:
Total flow rate =     12.043(CFS)
Time of concentration =     8.120 min.
Effective stream area after confluence =      6.006(Ac.)
Study area average Pervious fraction(Ap) =  0.991
Study area average soil loss rate(Fm) =    0.531(In/Hr)
Study area total (this main stream) =      23.92(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        6.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3236.650(Ft.)
End of street segment elevation =  3232.220(Ft.)
Length of street segment  =   330.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     12.043(CFS)
Depth of flow =   0.363(Ft.), Average velocity =   3.075(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  13.757(Ft.)
Flow velocity =   3.07(Ft/s)
Travel time =    1.79 min.     TC =    9.91  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      2.392(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.700
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     12.043(CFS)
Effective area this stream =        6.01(Ac.)
Total Study Area (Main Stream No. 1) =       23.92(Ac.)
Area averaged Fm value =    0.531(In/Hr)
Street flow at end of street =     12.043(CFS)
Half street flow at end of street =      6.021(CFS)
Depth of flow =   0.363(Ft.), Average velocity =   3.075(Ft/s)
Flow width (from curb towards crown)=  13.757(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        6.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      6.006(Ac.)
Runoff from this stream =     12.043(CFS)
Time of concentration =    9.91 min.
Rainfall intensity =     2.392(In/Hr)
Area averaged loss rate (Fm) =    0.5311(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9913
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       22.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   975.000(Ft.)
Top (of initial area) elevation =  3245.000(Ft.)
Bottom (of initial area) elevation =  3231.000(Ft.)
Difference in elevation =    14.000(Ft.)
Slope =    0.01436  s(%)=       1.44
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   25.881 min.
Rainfall intensity =      1.221(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.508
Subarea runoff =      5.580(CFS)
Total initial stream area =        9.000(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       21.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      9.000(Ac.)
Runoff from this stream =      5.580(CFS)
Time of concentration =   25.88 min.
Rainfall intensity =     1.221(In/Hr)
Area averaged loss rate (Fm) =    0.5325(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        6.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      2.502(In/Hr) for a    10.0 year storm
User specified values are as follows:
TC =   9.29 min.  Rain intensity =       2.50(In/Hr)
Total area this stream =         0.82(Ac.)
Total Study Area (Main Stream No. 1) =       33.74(Ac.)
Total runoff =      0.88(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        6.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      0.820(Ac.)
Runoff from this stream =      0.880(CFS)
Time of concentration =    9.29 min.
Rainfall intensity =     2.502(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     12.04     6.006      9.91    0.531      2.392
2      5.58     9.000     25.88    0.532      1.221
3      0.88     0.820      9.29    0.471      2.502
Qmax(1) =
         1.000 *    1.000 *    12.043) +
         2.699 *    0.383 *     5.580) +
         0.946 *    1.000 *     0.880) + =      18.641
Qmax(2) =
         0.371 *    1.000 *    12.043) +
         1.000 *    1.000 *     5.580) +
         0.369 *    1.000 *     0.880) + =      10.373
Qmax(3) =
         1.059 *    0.938 *    12.043) +
         2.859 *    0.359 *     5.580) +
         1.000 *    1.000 *     0.880) + =      18.568

Total of 3 streams to confluence:
Flow rates before confluence point:
      12.043       5.580       0.880
Maximum flow rates at confluence using above data:
       18.641       10.373       18.568
Area of streams before confluence:
        6.006        9.000        0.820
Effective area values after confluence:
       10.272       15.826        9.682
Results of confluence:
Total flow rate =     18.641(CFS)
Time of concentration =     9.909 min.
Effective stream area after confluence =     10.272(Ac.)
Study area average Pervious fraction(Ap) =  0.976
Study area average soil loss rate(Fm) =    0.529(In/Hr)
Study area total (this main stream) =      15.83(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        9.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
_____________________________________________________________________________
Top of street segment elevation =  3232.220(Ft.)
End of street segment elevation =  3228.330(Ft.)
Length of street segment  =   320.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.142(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     18.641(CFS)
Depth of flow =   0.399(Ft.), Average velocity =   3.294(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  16.674(Ft.)
Flow velocity =   3.29(Ft/s)
Travel time =    1.62 min.     TC =   11.53  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      2.151(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.679
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     18.641(CFS)
Effective area this stream =       10.27(Ac.)
Total Study Area (Main Stream No. 1) =       33.74(Ac.)
Area averaged Fm value =    0.529(In/Hr)
Street flow at end of street =     18.641(CFS)
Half street flow at end of street =      9.320(CFS)
Depth of flow =   0.399(Ft.), Average velocity =   3.294(Ft/s)
Flow width (from curb towards crown)=  16.674(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        9.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     10.272(Ac.)
Runoff from this stream =     18.641(CFS)
Time of concentration =   11.53 min.
Rainfall intensity =     2.151(In/Hr)
Area averaged loss rate (Fm) =    0.5288(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9760
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        9.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
_____________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      2.514(In/Hr) for a    10.0 year storm
User specified values are as follows:
TC =   9.23 min.  Rain intensity =       2.51(In/Hr)
Total area this stream =         0.80(Ac.)
Total Study Area (Main Stream No. 1) =       34.54(Ac.)
Total runoff =      0.95(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        9.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.800(Ac.)
Runoff from this stream =      0.950(CFS)
Time of concentration =    9.23 min.
Rainfall intensity =     2.514(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     18.64    10.272     11.53    0.529      2.151
2      0.95     0.800      9.23    0.471      2.514
Qmax(1) =
         1.000 *    1.000 *    18.641) +
         0.823 *    1.000 *     0.950) + =      19.422
Qmax(2) =
         1.223 *    0.801 *    18.641) +
         1.000 *    1.000 *     0.950) + =      19.207

Total of 2 streams to confluence:
Flow rates before confluence point:
      18.641       0.950
Maximum flow rates at confluence using above data:
       19.422       19.207
Area of streams before confluence:
       10.272        0.800
Effective area values after confluence:
       11.072        9.024
Results of confluence:
Total flow rate =     19.422(CFS)
Time of concentration =    11.528 min.
Effective stream area after confluence =     11.072(Ac.)
Study area average Pervious fraction(Ap) =  0.949
Study area average soil loss rate(Fm) =    0.525(In/Hr)
Study area total (this main stream) =      11.07(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        9.100
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3228.330(Ft.)
End of street segment elevation =  3222.890(Ft.)
Length of street segment  =   441.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     19.480(CFS)
Depth of flow =   0.425(Ft.), Average velocity =   3.352(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  16.852(Ft.)
Flow velocity =   3.35(Ft/s)
Travel time =    2.19 min.     TC =   13.72  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     16.459(CFS)
therefore the upstream flow rate of Q =     19.422(CFS) is being used
Rainfall intensity =      1.904(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.656
Subarea runoff =      0.000(CFS) for    2.100(Ac.)
Total runoff =     19.422(CFS)
Effective area this stream =       13.17(Ac.)
Total Study Area (Main Stream No. 1) =       36.64(Ac.)
Area averaged Fm value =    0.516(In/Hr)
Street flow at end of street =     19.422(CFS)
Half street flow at end of street =      9.711(CFS)
Depth of flow =   0.425(Ft.), Average velocity =   3.349(Ft/s)
Flow width (from curb towards crown)=  16.833(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        9.100
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     13.172(Ac.)
Runoff from this stream =     19.422(CFS)
Time of concentration =   13.72 min.
Rainfall intensity =     1.904(In/Hr)
Area averaged loss rate (Fm) =    0.5161(In/Hr)
Area averaged Pervious ratio (Ap) = 0.8932
Program is now starting with Main Stream No. 2
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station        9.100
**** USER DEFINED FLOW INFORMATION AT A POINT ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      1.579(In/Hr) for a    10.0 year storm
User specified values are as follows:
TC =  17.93 min.  Rain intensity =       1.58(In/Hr)
Total area this stream =         1.29(Ac.)
Total Study Area (Main Stream No. 2) =       37.93(Ac.)
Total runoff =      1.65(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station        9.100
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      1.290(Ac.)
Runoff from this stream =      1.650(CFS)
Time of concentration =   17.93 min.
Rainfall intensity =     1.579(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Program is now starting with Main Stream No. 3
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station        9.100
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  3229.900(Ft.)
Bottom (of initial area) elevation =  3222.890(Ft.)
Difference in elevation =     7.010(Ft.)
Slope =    0.00701  s(%)=       0.70
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.610 min.
Rainfall intensity =      1.599(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.635
Subarea runoff =      5.889(CFS)
Total initial stream area =        5.800(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station        9.100
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 3
Stream flow area =      5.800(Ac.)
Runoff from this stream =      5.889(CFS)
Time of concentration =   17.61 min.
Rainfall intensity =     1.599(In/Hr)
Area averaged loss rate (Fm) =    0.4711(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

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


1     19.42    13.172     13.72    0.516      1.904
2      1.65     1.290     17.93    0.471      1.579
3      5.89     5.800     17.61    0.471      1.599
Qmax(1) =
         1.000 *    1.000 *    19.422) +
         1.294 *    0.765 *     1.650) +
         1.271 *    0.779 *     5.889) + =      26.885
Qmax(2) =
         0.766 *    1.000 *    19.422) +
         1.000 *    1.000 *     1.650) +
         0.982 *    1.000 *     5.889) + =      22.306
Qmax(3) =
         0.780 *    1.000 *    19.422) +
         1.018 *    0.982 *     1.650) +
         1.000 *    1.000 *     5.889) + =      22.691

Total of 3 main streams to confluence:
Flow rates before confluence point:
      20.422       2.650       6.889
Maximum flow rates at confluence using above data:
       26.885       22.306       22.691
Area of streams before confluence:
       13.172        1.290        5.800
Effective area values after confluence:
       18.678       20.262       20.239


Results of confluence:
Total flow rate =     26.885(CFS)
Time of concentration =    13.721 min.
Effective stream area after confluence  =     18.678(Ac.)
Study area average Pervious fraction(Ap) =  0.791
Study area average soil loss rate(Fm) =    0.500(In/Hr)
Study area total =      20.26(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.100 to Point/Station       12.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  3222.890(Ft.)
End of street segment elevation =  3219.640(Ft.)
Length of street segment  =   650.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  24.000(Ft.)
Distance from crown to crossfall grade break  =  22.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.416(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     26.885(CFS)
Depth of flow =   0.549(Ft.), Average velocity =   2.468(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    2.46(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  23.064(Ft.)
Flow velocity =   2.47(Ft/s)
Travel time =    4.39 min.     TC =   18.11  min.
 Adding area flow to street
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Rainfall intensity =      1.568(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.613
Subarea runoff =      0.000(CFS) for    0.000(Ac.)
Total runoff =     26.885(CFS)
Effective area this stream =       18.68(Ac.)
Total Study Area (Main Stream No. 1) =       43.73(Ac.)
Area averaged Fm value =    0.500(In/Hr)
Street flow at end of street =     26.885(CFS)
Half street flow at end of street =     13.443(CFS)
Depth of flow =   0.549(Ft.), Average velocity =   2.468(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    2.46(Ft.)
Flow width (from curb towards crown)=  23.064(Ft.)
End of computations, Total Study Area =          43.73 (Ac.)
```

The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.896
Area averaged SCS curve number = 45.3

TT 20527

2-year, 1-Hours Storm Events

Rational Method Onsite Post-Developed

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

2-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A1-A (WEST)
FILE: 18345ONSITEPOSTA1A2.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   261.000(Ft.)
Top (of initial area) elevation =  3240.800(Ft.)
Bottom (of initial area) elevation =  3237.500(Ft.)
Difference in elevation =     3.300(Ft.)
Slope =    0.01264  s(%)=       1.26
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.145 min.
Rainfall intensity =      1.463(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.610
Subarea runoff =      1.758(CFS)
Total initial stream area =        1.970(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.97 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

2-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A1-B (EAST)
FILE: 18345ONSITEPOSTA1B2.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        3.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   231.000(Ft.)
Top (of initial area) elevation =  3240.800(Ft.)
Bottom (of initial area) elevation =  3236.650(Ft.)
Difference in elevation =     4.150(Ft.)
Slope =    0.01797  s(%)=       1.80
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.118 min.
Rainfall intensity =      1.590(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.633
Subarea runoff =      0.926(CFS)
Total initial stream area =        0.920(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            0.92 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

2-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A2-A (WEST)
FILE: 18345ONSITEPOSTA2A2.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   279.000(Ft.)
Top (of initial area) elevation =  3236.500(Ft.)
Bottom (of initial area) elevation =  3232.500(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.01434  s(%)=       1.43
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.159 min.
Rainfall intensity =      1.461(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.610
Subarea runoff =      1.871(CFS)
Total initial stream area =        2.100(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.10 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

2-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A2-B (EAST)
FILE: 18345ONSITEPOSTA2B2.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        6.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   292.000(Ft.)
Top (of initial area) elevation =  3236.500(Ft.)
Bottom (of initial area) elevation =  3232.220(Ft.)
Difference in elevation =     4.280(Ft.)
Slope =    0.01466  s(%)=       1.47
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.286 min.
Rainfall intensity =      1.447(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.607
Subarea runoff =      1.045(CFS)
Total initial stream area =        1.190(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.19 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

2-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A3-A (WEST)
FILE: 18345ONSITEPOSTA3A2.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        8.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   346.000(Ft.)
Top (of initial area) elevation =  3232.700(Ft.)
Bottom (of initial area) elevation =  3228.600(Ft.)
Difference in elevation =     4.100(Ft.)
Slope =    0.01185  s(%)=       1.18
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.370 min.
Rainfall intensity =      1.339(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.583
Subarea runoff =      1.813(CFS)
Total initial stream area =        2.320(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.32 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

2-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A3-B (EAST)
FILE: 18345ONSITEPOSTA3B2.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        9.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   291.000(Ft.)
Top (of initial area) elevation =  3232.700(Ft.)
Bottom (of initial area) elevation =  3228.330(Ft.)
Difference in elevation =     4.370(Ft.)
Slope =    0.01502  s(%)=       1.50
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.229 min.
Rainfall intensity =      1.453(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.608
Subarea runoff =      1.026(CFS)
Total initial stream area =        1.160(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            1.16 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

2-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527, CITY OF VICTORVILLE
AREA A4-A (WEST)
FILE: 18345ONSITEPOSTA4A2.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =   406.000(Ft.)
Top (of initial area) elevation =  3229.400(Ft.)
Bottom (of initial area) elevation =  3225.500(Ft.)
Difference in elevation =     3.900(Ft.)
Slope =    0.00961  s(%)=       0.96
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.529 min.
Rainfall intensity =      1.244(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.559
Subarea runoff =      1.996(CFS)
Total initial stream area =        2.870(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.87 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

2-YR, 1-HR STORM RATIONAL METHOD ONSITE POST DEVELOPED
TR 20527 CITY OF VICTORVILLE
AREA A4-B (EAST)
FILE: 18345ONSITEPOSTA4B2.OUT

Program License Serial Number 4070

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.392 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.6000     Max loss rate(Fm)=     0.471(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  3229.400(Ft.)
Bottom (of initial area) elevation =  3223.000(Ft.)
Difference in elevation =     6.400(Ft.)
Slope =    0.00640  s(%)=       0.64
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.933 min.
Rainfall intensity =      0.913(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.436
Subarea runoff =      0.934(CFS)
Total initial stream area =       2.350(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.471(In/Hr)
End of computations, Total Study Area =            2.35 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.600
Area averaged SCS curve number =  32.0
```

TT 20527

100-year, 24-Hours Storm Events

Unit Hydrograph Pre–Developed

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

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Study date 06/30/22

++

San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM PRE-DEVELOPED CONDITION
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA AA1 TO AA4
FILE: 18345HYDROAA1AA4PRE100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
10.16	1	1.13
Rainfall data for year 100		
10.16	6	2.46
Rainfall data for year 100		
10.16	24	5.19

++

******** Area-averaged max loss rate, Fm ********

```
SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 50.0      70.0         10.16      1.000     0.532    1.000    0.532

Area-averaged adjusted loss rate Fm (In/Hr) =  0.532

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
    10.16   1.000         50.0      70.0       4.29     0.420

Area-averaged catchment yield fraction, Y =  0.420
Area-averaged low loss fraction, Yb =  0.580
User entry of time of concentration  =   0.417 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      10.16(Ac.)
Catchment Lag time =   0.334 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 24.9501
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.532(In/Hr)
Average low loss rate fraction (Yb) = 0.580 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.536(In)
Computed peak 30-minute rainfall =  0.918(In)
Specified peak 1-hour rainfall =  1.130(In)
Computed peak 3-hour rainfall =  1.821(In)
Specified peak 6-hour rainfall =  2.460(In)
Specified peak 24-hour rainfall =  5.190(In)


Rainfall depth area reduction factors:
Using a total area of      10.16(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.536(In)
30-minute factor = 1.000    Adjusted rainfall =  0.917(In)
1-hour factor = 1.000       Adjusted rainfall =  1.129(In)
3-hour factor = 1.000       Adjusted rainfall =  1.821(In)
6-hour factor = 1.000       Adjusted rainfall =  2.460(In)
24-hour factor = 1.000      Adjusted rainfall =  5.190(In)
----------------------------------------------------------------------

                U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
           (K =       122.87 (CFS))

  1                1.346                   1.654
  2                6.553                   6.397
  3               19.594                  16.024
  4               41.196                  26.542
```

5	55.974	18.159
6	64.971	11.055
7	71.304	7.781
8	76.111	5.906
9	79.894	4.649
10	82.899	3.692
11	85.450	3.134
12	87.654	2.709
13	89.412	2.161
14	90.862	1.781
15	92.165	1.601
16	93.316	1.414
17	94.297	1.205
18	95.145	1.042
19	95.901	0.928
20	96.550	0.797
21	97.106	0.684
22	97.556	0.552
23	97.914	0.440
24	98.163	0.307
25	98.435	0.334
26	98.735	0.368
27	99.034	0.368
28	99.334	0.368
29	99.569	0.289
30	99.725	0.192
31	99.881	0.192
32	100.000	0.146

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5359	0.5359
2	0.6598	0.1239
3	0.7452	0.0853
4	0.8123	0.0672
5	0.8686	0.0562
6	0.9174	0.0488
7	0.9608	0.0434
8	1.0001	0.0393
9	1.0361	0.0360
10	1.0693	0.0333
11	1.1004	0.0310
12	1.1295	0.0291
13	1.1694	0.0400
14	1.2077	0.0383
15	1.2445	0.0368
16	1.2799	0.0354
17	1.3140	0.0342
18	1.3471	0.0330
19	1.3791	0.0320
20	1.4102	0.0311
21	1.4404	0.0302
22	1.4698	0.0294
23	1.4985	0.0287

24	1.5265	0.0280
25	1.5538	0.0273
26	1.5805	0.0267
27	1.6066	0.0261
28	1.6322	0.0256
29	1.6573	0.0251
30	1.6819	0.0246
31	1.7060	0.0241
32	1.7297	0.0237
33	1.7530	0.0233
34	1.7759	0.0229
35	1.7984	0.0225
36	1.8206	0.0222
37	1.8424	0.0218
38	1.8638	0.0215
39	1.8850	0.0211
40	1.9058	0.0208
41	1.9263	0.0205
42	1.9466	0.0203
43	1.9666	0.0200
44	1.9863	0.0197
45	2.0058	0.0195
46	2.0250	0.0192
47	2.0440	0.0190
48	2.0628	0.0188
49	2.0814	0.0186
50	2.0997	0.0183
51	2.1178	0.0181
52	2.1358	0.0179
53	2.1535	0.0177
54	2.1711	0.0176
55	2.1884	0.0174
56	2.2056	0.0172
57	2.2226	0.0170
58	2.2395	0.0168
59	2.2562	0.0167
60	2.2727	0.0165
61	2.2891	0.0164
62	2.3053	0.0162
63	2.3213	0.0161
64	2.3373	0.0159
65	2.3531	0.0158
66	2.3687	0.0157
67	2.3842	0.0155
68	2.3996	0.0154
69	2.4149	0.0153
70	2.4300	0.0151
71	2.4450	0.0150
72	2.4599	0.0149
73	2.4783	0.0183
74	2.4965	0.0182
75	2.5146	0.0181
76	2.5326	0.0180
77	2.5505	0.0179

78	2.5683	0.0178
79	2.5860	0.0177
80	2.6035	0.0176
81	2.6210	0.0175
82	2.6384	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6899	0.0171
86	2.7069	0.0170
87	2.7238	0.0169
88	2.7407	0.0168
89	2.7574	0.0167
90	2.7740	0.0166
91	2.7906	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8560	0.0162
96	2.8722	0.0162
97	2.8882	0.0161
98	2.9042	0.0160
99	2.9201	0.0159
100	2.9360	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9831	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0296	0.0154
107	3.0449	0.0154
108	3.0602	0.0153
109	3.0755	0.0152
110	3.0906	0.0152
111	3.1057	0.0151
112	3.1208	0.0150
113	3.1357	0.0150
114	3.1507	0.0149
115	3.1655	0.0149
116	3.1803	0.0148
117	3.1950	0.0147
118	3.2097	0.0147
119	3.2243	0.0146
120	3.2389	0.0146
121	3.2534	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2966	0.0143
125	3.3109	0.0143
126	3.3251	0.0142
127	3.3393	0.0142
128	3.3535	0.0141
129	3.3675	0.0141
130	3.3816	0.0140
131	3.3956	0.0140

132	3.4095	0.0139
133	3.4234	0.0139
134	3.4372	0.0138
135	3.4510	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4921	0.0137
139	3.5057	0.0136
140	3.5193	0.0136
141	3.5328	0.0135
142	3.5463	0.0135
143	3.5597	0.0134
144	3.5731	0.0134
145	3.5864	0.0133
146	3.5997	0.0133
147	3.6130	0.0133
148	3.6262	0.0132
149	3.6394	0.0132
150	3.6525	0.0131
151	3.6656	0.0131
152	3.6786	0.0131
153	3.6917	0.0130
154	3.7046	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7433	0.0129
158	3.7561	0.0128
159	3.7689	0.0128
160	3.7817	0.0127
161	3.7944	0.0127
162	3.8071	0.0127
163	3.8197	0.0126
164	3.8323	0.0126
165	3.8449	0.0126
166	3.8574	0.0125
167	3.8699	0.0125
168	3.8824	0.0125
169	3.8948	0.0124
170	3.9072	0.0124
171	3.9195	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9564	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9930	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0293	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0773	0.0119
185	4.0892	0.0119

186	4.1011	0.0119
187	4.1130	0.0119
188	4.1248	0.0118
189	4.1366	0.0118
190	4.1484	0.0118
191	4.1601	0.0117
192	4.1718	0.0117
193	4.1835	0.0117
194	4.1952	0.0117
195	4.2068	0.0116
196	4.2184	0.0116
197	4.2300	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2760	0.0115
202	4.2875	0.0114
203	4.2989	0.0114
204	4.3103	0.0114
205	4.3217	0.0114
206	4.3330	0.0113
207	4.3443	0.0113
208	4.3556	0.0113
209	4.3669	0.0113
210	4.3781	0.0112
211	4.3893	0.0112
212	4.4005	0.0112
213	4.4117	0.0112
214	4.4228	0.0111
215	4.4339	0.0111
216	4.4450	0.0111
217	4.4561	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4892	0.0110
221	4.5002	0.0110
222	4.5111	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5438	0.0109
226	4.5547	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6087	0.0108
232	4.6194	0.0107
233	4.6302	0.0107
234	4.6408	0.0107
235	4.6515	0.0107
236	4.6622	0.0106
237	4.6728	0.0106
238	4.6834	0.0106
239	4.6940	0.0106

240	4.7046	0.0106
241	4.7151	0.0105
242	4.7256	0.0105
243	4.7361	0.0105
244	4.7466	0.0105
245	4.7571	0.0105
246	4.7675	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8091	0.0104
251	4.8195	0.0104
252	4.8298	0.0103
253	4.8401	0.0103
254	4.8504	0.0103
255	4.8607	0.0103
256	4.8709	0.0103
257	4.8812	0.0102
258	4.8914	0.0102
259	4.9016	0.0102
260	4.9118	0.0102
261	4.9220	0.0102
262	4.9321	0.0101
263	4.9422	0.0101
264	4.9523	0.0101
265	4.9624	0.0101
266	4.9725	0.0101
267	4.9826	0.0101
268	4.9926	0.0100
269	5.0026	0.0100
270	5.0126	0.0100
271	5.0226	0.0100
272	5.0326	0.0100
273	5.0426	0.0100
274	5.0525	0.0099
275	5.0624	0.0099
276	5.0723	0.0099
277	5.0822	0.0099
278	5.0921	0.0099
279	5.1019	0.0099
280	5.1118	0.0098
281	5.1216	0.0098
282	5.1314	0.0098
283	5.1412	0.0098
284	5.1510	0.0098
285	5.1607	0.0098
286	5.1705	0.0097
287	5.1802	0.0097
288	5.1899	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)

1	0.0097	0.0056	0.0041
2	0.0097	0.0056	0.0041
3	0.0098	0.0057	0.0041
4	0.0098	0.0057	0.0041
5	0.0098	0.0057	0.0041
6	0.0098	0.0057	0.0041
7	0.0099	0.0057	0.0041
8	0.0099	0.0057	0.0041
9	0.0099	0.0057	0.0042
10	0.0099	0.0058	0.0042
11	0.0100	0.0058	0.0042
12	0.0100	0.0058	0.0042
13	0.0100	0.0058	0.0042
14	0.0100	0.0058	0.0042
15	0.0101	0.0058	0.0042
16	0.0101	0.0058	0.0042
17	0.0101	0.0059	0.0042
18	0.0101	0.0059	0.0043
19	0.0102	0.0059	0.0043
20	0.0102	0.0059	0.0043
21	0.0102	0.0059	0.0043
22	0.0102	0.0059	0.0043
23	0.0103	0.0060	0.0043
24	0.0103	0.0060	0.0043
25	0.0103	0.0060	0.0043
26	0.0104	0.0060	0.0043
27	0.0104	0.0060	0.0044
28	0.0104	0.0060	0.0044
29	0.0104	0.0061	0.0044
30	0.0105	0.0061	0.0044
31	0.0105	0.0061	0.0044
32	0.0105	0.0061	0.0044
33	0.0106	0.0061	0.0044
34	0.0106	0.0061	0.0044
35	0.0106	0.0062	0.0045
36	0.0106	0.0062	0.0045
37	0.0107	0.0062	0.0045
38	0.0107	0.0062	0.0045
39	0.0108	0.0062	0.0045
40	0.0108	0.0063	0.0045
41	0.0108	0.0063	0.0045
42	0.0108	0.0063	0.0046
43	0.0109	0.0063	0.0046
44	0.0109	0.0063	0.0046
45	0.0110	0.0064	0.0046
46	0.0110	0.0064	0.0046
47	0.0110	0.0064	0.0046
48	0.0110	0.0064	0.0046
49	0.0111	0.0064	0.0047
50	0.0111	0.0065	0.0047
51	0.0112	0.0065	0.0047
52	0.0112	0.0065	0.0047
53	0.0112	0.0065	0.0047
54	0.0113	0.0065	0.0047

55	0.0113	0.0066	0.0047
56	0.0113	0.0066	0.0048
57	0.0114	0.0066	0.0048
58	0.0114	0.0066	0.0048
59	0.0115	0.0067	0.0048
60	0.0115	0.0067	0.0048
61	0.0116	0.0067	0.0048
62	0.0116	0.0067	0.0049
63	0.0116	0.0068	0.0049
64	0.0117	0.0068	0.0049
65	0.0117	0.0068	0.0049
66	0.0117	0.0068	0.0049
67	0.0118	0.0068	0.0050
68	0.0118	0.0069	0.0050
69	0.0119	0.0069	0.0050
70	0.0119	0.0069	0.0050
71	0.0120	0.0070	0.0050
72	0.0120	0.0070	0.0050
73	0.0121	0.0070	0.0051
74	0.0121	0.0070	0.0051
75	0.0122	0.0071	0.0051
76	0.0122	0.0071	0.0051
77	0.0123	0.0071	0.0051
78	0.0123	0.0071	0.0052
79	0.0124	0.0072	0.0052
80	0.0124	0.0072	0.0052
81	0.0125	0.0072	0.0052
82	0.0125	0.0073	0.0052
83	0.0126	0.0073	0.0053
84	0.0126	0.0073	0.0053
85	0.0127	0.0074	0.0053
86	0.0127	0.0074	0.0053
87	0.0128	0.0074	0.0054
88	0.0128	0.0074	0.0054
89	0.0129	0.0075	0.0054
90	0.0129	0.0075	0.0054
91	0.0130	0.0076	0.0055
92	0.0131	0.0076	0.0055
93	0.0131	0.0076	0.0055
94	0.0132	0.0076	0.0055
95	0.0133	0.0077	0.0056
96	0.0133	0.0077	0.0056
97	0.0134	0.0078	0.0056
98	0.0134	0.0078	0.0056
99	0.0135	0.0078	0.0057
100	0.0136	0.0079	0.0057
101	0.0137	0.0079	0.0057
102	0.0137	0.0079	0.0057
103	0.0138	0.0080	0.0058
104	0.0138	0.0080	0.0058
105	0.0139	0.0081	0.0058
106	0.0140	0.0081	0.0059
107	0.0141	0.0082	0.0059
108	0.0141	0.0082	0.0059

109	0.0142	0.0083	0.0060
110	0.0143	0.0083	0.0060
111	0.0144	0.0084	0.0060
112	0.0145	0.0084	0.0061
113	0.0146	0.0085	0.0061
114	0.0146	0.0085	0.0061
115	0.0147	0.0086	0.0062
116	0.0148	0.0086	0.0062
117	0.0149	0.0087	0.0063
118	0.0150	0.0087	0.0063
119	0.0151	0.0088	0.0063
120	0.0152	0.0088	0.0064
121	0.0153	0.0089	0.0064
122	0.0154	0.0089	0.0064
123	0.0155	0.0090	0.0065
124	0.0156	0.0090	0.0065
125	0.0157	0.0091	0.0066
126	0.0158	0.0092	0.0066
127	0.0159	0.0092	0.0067
128	0.0160	0.0093	0.0067
129	0.0162	0.0094	0.0068
130	0.0162	0.0094	0.0068
131	0.0164	0.0095	0.0069
132	0.0165	0.0096	0.0069
133	0.0166	0.0097	0.0070
134	0.0167	0.0097	0.0070
135	0.0169	0.0098	0.0071
136	0.0170	0.0099	0.0071
137	0.0172	0.0100	0.0072
138	0.0173	0.0100	0.0073
139	0.0175	0.0101	0.0073
140	0.0176	0.0102	0.0074
141	0.0178	0.0103	0.0075
142	0.0179	0.0104	0.0075
143	0.0181	0.0105	0.0076
144	0.0182	0.0106	0.0076
145	0.0149	0.0086	0.0063
146	0.0150	0.0087	0.0063
147	0.0153	0.0089	0.0064
148	0.0154	0.0089	0.0065
149	0.0157	0.0091	0.0066
150	0.0158	0.0092	0.0066
151	0.0161	0.0093	0.0067
152	0.0162	0.0094	0.0068
153	0.0165	0.0096	0.0069
154	0.0167	0.0097	0.0070
155	0.0170	0.0099	0.0071
156	0.0172	0.0100	0.0072
157	0.0176	0.0102	0.0074
158	0.0177	0.0103	0.0074
159	0.0181	0.0105	0.0076
160	0.0183	0.0106	0.0077
161	0.0188	0.0109	0.0079
162	0.0190	0.0110	0.0080

163	0.0195	0.0113	0.0082
164	0.0197	0.0114	0.0083
165	0.0203	0.0118	0.0085
166	0.0205	0.0119	0.0086
167	0.0211	0.0123	0.0089
168	0.0215	0.0125	0.0090
169	0.0222	0.0129	0.0093
170	0.0225	0.0131	0.0094
171	0.0233	0.0135	0.0098
172	0.0237	0.0138	0.0099
173	0.0246	0.0143	0.0103
174	0.0251	0.0146	0.0105
175	0.0261	0.0152	0.0110
176	0.0267	0.0155	0.0112
177	0.0280	0.0162	0.0117
178	0.0287	0.0166	0.0120
179	0.0302	0.0175	0.0127
180	0.0311	0.0180	0.0130
181	0.0330	0.0192	0.0139
182	0.0342	0.0198	0.0143
183	0.0368	0.0213	0.0154
184	0.0383	0.0222	0.0161
185	0.0291	0.0169	0.0122
186	0.0310	0.0180	0.0130
187	0.0360	0.0209	0.0151
188	0.0393	0.0228	0.0165
189	0.0488	0.0283	0.0205
190	0.0562	0.0326	0.0236
191	0.0853	0.0444	0.0410
192	0.1239	0.0444	0.0795
193	0.5359	0.0444	0.4916
194	0.0672	0.0390	0.0282
195	0.0434	0.0252	0.0182
196	0.0333	0.0193	0.0140
197	0.0400	0.0232	0.0168
198	0.0354	0.0205	0.0149
199	0.0320	0.0186	0.0134
200	0.0294	0.0171	0.0123
201	0.0273	0.0159	0.0115
202	0.0256	0.0149	0.0107
203	0.0241	0.0140	0.0101
204	0.0229	0.0133	0.0096
205	0.0218	0.0126	0.0091
206	0.0208	0.0121	0.0087
207	0.0200	0.0116	0.0084
208	0.0192	0.0112	0.0081
209	0.0186	0.0108	0.0078
210	0.0179	0.0104	0.0075
211	0.0174	0.0101	0.0073
212	0.0168	0.0098	0.0071
213	0.0164	0.0095	0.0069
214	0.0159	0.0092	0.0067
215	0.0155	0.0090	0.0065
216	0.0151	0.0088	0.0064

217	0.0183	0.0106	0.0077
218	0.0180	0.0104	0.0076
219	0.0177	0.0103	0.0074
220	0.0174	0.0101	0.0073
221	0.0171	0.0099	0.0072
222	0.0168	0.0098	0.0071
223	0.0166	0.0096	0.0069
224	0.0163	0.0095	0.0068
225	0.0161	0.0093	0.0067
226	0.0158	0.0092	0.0067
227	0.0156	0.0091	0.0066
228	0.0154	0.0090	0.0065
229	0.0152	0.0088	0.0064
230	0.0150	0.0087	0.0063
231	0.0149	0.0086	0.0062
232	0.0147	0.0085	0.0062
233	0.0145	0.0084	0.0061
234	0.0143	0.0083	0.0060
235	0.0142	0.0082	0.0060
236	0.0140	0.0081	0.0059
237	0.0139	0.0081	0.0058
238	0.0137	0.0080	0.0058
239	0.0136	0.0079	0.0057
240	0.0135	0.0078	0.0057
241	0.0133	0.0077	0.0056
242	0.0132	0.0077	0.0055
243	0.0131	0.0076	0.0055
244	0.0130	0.0075	0.0054
245	0.0129	0.0075	0.0054
246	0.0127	0.0074	0.0054
247	0.0126	0.0073	0.0053
248	0.0125	0.0073	0.0053
249	0.0124	0.0072	0.0052
250	0.0123	0.0072	0.0052
251	0.0122	0.0071	0.0051
252	0.0121	0.0070	0.0051
253	0.0120	0.0070	0.0051
254	0.0119	0.0069	0.0050
255	0.0119	0.0069	0.0050
256	0.0118	0.0068	0.0049
257	0.0117	0.0068	0.0049
258	0.0116	0.0067	0.0049
259	0.0115	0.0067	0.0048
260	0.0114	0.0066	0.0048
261	0.0114	0.0066	0.0048
262	0.0113	0.0066	0.0047
263	0.0112	0.0065	0.0047
264	0.0111	0.0065	0.0047
265	0.0111	0.0064	0.0046
266	0.0110	0.0064	0.0046
267	0.0109	0.0063	0.0046
268	0.0109	0.0063	0.0046
269	0.0108	0.0063	0.0045
270	0.0107	0.0062	0.0045

271	0.0107	0.0062	0.0045
272	0.0106	0.0062	0.0045
273	0.0105	0.0061	0.0044
274	0.0105	0.0061	0.0044
275	0.0104	0.0061	0.0044
276	0.0104	0.0060	0.0044
277	0.0103	0.0060	0.0043
278	0.0103	0.0060	0.0043
279	0.0102	0.0059	0.0043
280	0.0101	0.0059	0.0043
281	0.0101	0.0059	0.0042
282	0.0100	0.0058	0.0042
283	0.0100	0.0058	0.0042
284	0.0099	0.0058	0.0042
285	0.0099	0.0057	0.0042
286	0.0098	0.0057	0.0041
287	0.0098	0.0057	0.0041
288	0.0097	0.0057	0.0041

Total soil rain loss = 2.71(In)
Total effective rainfall = 2.48(In)
Peak flow rate in flood hydrograph = 16.24(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	5.0	10.0	15.0	20.0
0+ 5	0.0000	0.01	Q				
0+10	0.0003	0.03	Q				
0+15	0.0009	0.10	Q				
0+20	0.0024	0.21	Q				
0+25	0.0043	0.28	Q				
0+30	0.0066	0.33	Q				
0+35	0.0090	0.36	Q				
0+40	0.0117	0.38	Q				
0+45	0.0145	0.40	Q				
0+50	0.0174	0.42	Q				
0+55	0.0203	0.43	Q				
1+ 0	0.0234	0.45	Q				
1+ 5	0.0266	0.46	Q				
1+10	0.0298	0.46	Q				
1+15	0.0330	0.47	Q				
1+20	0.0363	0.48	Q				
1+25	0.0397	0.49	Q				
1+30	0.0430	0.49	Q				
1+35	0.0464	0.50	Q				
1+40	0.0499	0.50	VQ				
1+45	0.0534	0.50	|Q				

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1+50       0.0569      0.51  |Q        |          |          |          |
1+55       0.0604      0.51  |Q        |          |          |          |
2+ 0       0.0639      0.51  |Q        |          |          |          |
2+ 5       0.0675      0.52  |Q        |          |          |          |
2+10       0.0711      0.52  |Q        |          |          |          |
2+15       0.0747      0.52  |Q        |          |          |          |
2+20       0.0783      0.53  |Q        |          |          |          |
2+25       0.0819      0.53  |Q        |          |          |          |
2+30       0.0856      0.53  |Q        |          |          |          |
2+35       0.0892      0.53  |Q        |          |          |          |
2+40       0.0929      0.53  |Q        |          |          |          |
2+45       0.0966      0.54  |Q        |          |          |          |
2+50       0.1003      0.54  |Q        |          |          |          |
2+55       0.1040      0.54  |Q        |          |          |          |
3+ 0       0.1077      0.54  |QV       |          |          |          |
3+ 5       0.1115      0.54  |QV       |          |          |          |
3+10       0.1152      0.54  |QV       |          |          |          |
3+15       0.1189      0.54  |QV       |          |          |          |
3+20       0.1227      0.55  |QV       |          |          |          |
3+25       0.1265      0.55  |QV       |          |          |          |
3+30       0.1303      0.55  |QV       |          |          |          |
3+35       0.1341      0.55  |QV       |          |          |          |
3+40       0.1379      0.55  |QV       |          |          |          |
3+45       0.1417      0.55  |QV       |          |          |          |
3+50       0.1455      0.56  |QV       |          |          |          |
3+55       0.1494      0.56  |QV       |          |          |          |
4+ 0       0.1532      0.56  |QV       |          |          |          |
4+ 5       0.1571      0.56  |QV       |          |          |          |
4+10       0.1610      0.56  |Q V      |          |          |          |
4+15       0.1649      0.56  |Q V      |          |          |          |
4+20       0.1688      0.57  |Q V      |          |          |          |
4+25       0.1727      0.57  |Q V      |          |          |          |
4+30       0.1766      0.57  |Q V      |          |          |          |
4+35       0.1806      0.57  |Q V      |          |          |          |
4+40       0.1845      0.57  |Q V      |          |          |          |
4+45       0.1885      0.58  |Q V      |          |          |          |
4+50       0.1925      0.58  |Q V      |          |          |          |
4+55       0.1964      0.58  |Q V      |          |          |          |
5+ 0       0.2005      0.58  |Q V      |          |          |          |
5+ 5       0.2045      0.58  |Q V      |          |          |          |
5+10       0.2085      0.59  |Q V      |          |          |          |
5+15       0.2126      0.59  |Q  V     |          |          |          |
5+20       0.2166      0.59  |Q  V     |          |          |          |
5+25       0.2207      0.59  |Q  V     |          |          |          |
5+30       0.2248      0.59  |Q  V     |          |          |          |
5+35       0.2289      0.60  |Q  V     |          |          |          |
5+40       0.2330      0.60  |Q  V     |          |          |          |
5+45       0.2371      0.60  |Q  V     |          |          |          |
5+50       0.2413      0.60  |Q  V     |          |          |          |
5+55       0.2454      0.60  |Q  V     |          |          |          |
6+ 0       0.2496      0.61  |Q  V     |          |          |          |
6+ 5       0.2538      0.61  |Q  V     |          |          |          |
6+10       0.2580      0.61  |Q  V     |          |          |          |
6+15       0.2622      0.61  |Q   V    |          |          |          |
```

6+20	0.2665	0.62	|Q V |	|	|	|
6+25	0.2707	0.62	|Q V |	|	|	|
6+30	0.2750	0.62	|Q V |	|	|	|
6+35	0.2793	0.62	|Q V |	|	|	|
6+40	0.2836	0.63	|Q V |	|	|	|
6+45	0.2879	0.63	|Q V |	|	|	|
6+50	0.2923	0.63	|Q V |	|	|	|
6+55	0.2966	0.63	|Q V |	|	|	|
7+ 0	0.3010	0.64	|Q V |	|	|	|
7+ 5	0.3054	0.64	|Q V |	|	|	|
7+10	0.3098	0.64	|Q V |	|	|	|
7+15	0.3142	0.64	|Q V |	|	|	|
7+20	0.3187	0.65	|Q V |	|	|	|
7+25	0.3231	0.65	|Q V |	|	|	|
7+30	0.3276	0.65	|Q V |	|	|	|
7+35	0.3321	0.65	|Q V |	|	|	|
7+40	0.3366	0.66	|Q V |	|	|	|
7+45	0.3412	0.66	|Q V |	|	|	|
7+50	0.3457	0.66	|Q V |	|	|	|
7+55	0.3503	0.67	|Q V |	|	|	|
8+ 0	0.3549	0.67	|Q V |	|	|	|
8+ 5	0.3595	0.67	|Q V |	|	|	|
8+10	0.3642	0.67	|Q V |	|	|	|
8+15	0.3689	0.68	|Q V |	|	|	|
8+20	0.3735	0.68	|Q V |	|	|	|
8+25	0.3783	0.68	|Q V |	|	|	|
8+30	0.3830	0.69	|Q V |	|	|	|
8+35	0.3877	0.69	|Q V |	|	|	|
8+40	0.3925	0.69	|Q V |	|	|	|
8+45	0.3973	0.70	|Q V |	|	|	|
8+50	0.4021	0.70	|Q V |	|	|	|
8+55	0.4070	0.70	|Q V |	|	|	|
9+ 0	0.4119	0.71	|Q V |	|	|	|
9+ 5	0.4168	0.71	|Q V |	|	|	|
9+10	0.4217	0.72	|Q V |	|	|	|
9+15	0.4267	0.72	|Q V |	|	|	|
9+20	0.4316	0.72	|Q V |	|	|	|
9+25	0.4366	0.73	|Q V |	|	|	|
9+30	0.4417	0.73	|Q V |	|	|	|
9+35	0.4467	0.73	|Q V |	|	|	|
9+40	0.4518	0.74	|Q V |	|	|	|
9+45	0.4569	0.74	|Q V |	|	|	|
9+50	0.4621	0.75	|Q V |	|	|	|
9+55	0.4673	0.75	|Q V |	|	|	|
10+ 0	0.4725	0.76	|Q V|	|	|	|
10+ 5	0.4777	0.76	|Q V|	|	|	|
10+10	0.4830	0.77	|Q V|	|	|	|
10+15	0.4883	0.77	|Q V|	|	|	|
10+20	0.4936	0.77	|Q V|	|	|	|
10+25	0.4990	0.78	|Q V|	|	|	|
10+30	0.5044	0.78	|Q V|	|	|	|
10+35	0.5098	0.79	|Q V|	|	|	|
10+40	0.5153	0.79	|Q V|	|	|	|
10+45	0.5208	0.80	|Q V|	|	|	|

10+50	0.5263	0.81	Q	V			
10+55	0.5319	0.81	Q	V			
11+ 0	0.5375	0.82	Q	V			
11+ 5	0.5432	0.82	Q	V			
11+10	0.5489	0.83	Q	V			
11+15	0.5547	0.83	Q	V			
11+20	0.5604	0.84	Q	V			
11+25	0.5663	0.85	Q	V			
11+30	0.5721	0.85	Q	V			
11+35	0.5781	0.86	Q	V			
11+40	0.5840	0.87	Q	V			
11+45	0.5900	0.87	Q	V			
11+50	0.5961	0.88	Q	V			
11+55	0.6022	0.89	Q	V			
12+ 0	0.6084	0.90	Q	V			
12+ 5	0.6146	0.90	Q	V			
12+10	0.6208	0.90	Q	V			
12+15	0.6269	0.88	Q	V			
12+20	0.6327	0.85	Q	V			
12+25	0.6385	0.83	Q	V			
12+30	0.6441	0.83	Q	V			
12+35	0.6498	0.82	Q	V			
12+40	0.6555	0.82	Q	V			
12+45	0.6612	0.83	Q	V			
12+50	0.6669	0.83	Q	V			
12+55	0.6727	0.84	Q	V			
13+ 0	0.6785	0.84	Q	V			
13+ 5	0.6843	0.85	Q	V			
13+10	0.6903	0.86	Q	V			
13+15	0.6963	0.87	Q	V			
13+20	0.7023	0.88	Q	V			
13+25	0.7085	0.89	Q	V			
13+30	0.7147	0.91	Q	V			
13+35	0.7210	0.92	Q	V			
13+40	0.7275	0.93	Q	V			
13+45	0.7340	0.95	Q	V			
13+50	0.7406	0.96	Q	V			
13+55	0.7474	0.98	Q	V			
14+ 0	0.7542	1.00	Q	V			
14+ 5	0.7612	1.02	Q	V			
14+10	0.7684	1.04	Q	V			
14+15	0.7756	1.06	Q	V			
14+20	0.7831	1.08	Q	V			
14+25	0.7907	1.10	Q	V			
14+30	0.7985	1.13	Q	V			
14+35	0.8065	1.16	Q	V			
14+40	0.8146	1.19	Q	V			
14+45	0.8230	1.22	Q	V			
14+50	0.8317	1.26	Q	V			
14+55	0.8406	1.29	Q	V			
15+ 0	0.8498	1.34	Q	V			
15+ 5	0.8593	1.38	Q	V			
15+10	0.8692	1.43	Q	V			
15+15	0.8794	1.49	Q	V			

| | | |

```
  19+50       1.8645      0.76  |Q        |          |          |    V     |
  19+55       1.8696      0.75  |Q        |          |          |    V     |
  20+ 0       1.8748      0.74  |Q        |          |          |    V     |
  20+ 5       1.8798      0.73  |Q        |          |          |    V     |
  20+10       1.8848      0.73  |Q        |          |          |    V     |
  20+15       1.8897      0.72  |Q        |          |          |     V    |
  20+20       1.8946      0.71  |Q        |          |          |     V    |
  20+25       1.8995      0.70  |Q        |          |          |     V    |
  20+30       1.9043      0.70  |Q        |          |          |     V    |
  20+35       1.9091      0.69  |Q        |          |          |     V    |
  20+40       1.9138      0.68  |Q        |          |          |     V    |
  20+45       1.9184      0.68  |Q        |          |          |     V    |
  20+50       1.9231      0.67  |Q        |          |          |     V    |
  20+55       1.9276      0.67  |Q        |          |          |     V    |
  21+ 0       1.9322      0.66  |Q        |          |          |     V    |
  21+ 5       1.9367      0.65  |Q        |          |          |     V    |
  21+10       1.9412      0.65  |Q        |          |          |      V   |
  21+15       1.9456      0.64  |Q        |          |          |      V   |
  21+20       1.9500      0.64  |Q        |          |          |      V   |
  21+25       1.9543      0.63  |Q        |          |          |      V   |
  21+30       1.9587      0.63  |Q        |          |          |      V   |
  21+35       1.9629      0.62  |Q        |          |          |      V   |
  21+40       1.9672      0.62  |Q        |          |          |      V   |
  21+45       1.9714      0.61  |Q        |          |          |      V   |
  21+50       1.9756      0.61  |Q        |          |          |      V   |
  21+55       1.9798      0.60  |Q        |          |          |      V   |
  22+ 0       1.9839      0.60  |Q        |          |          |      V   |
  22+ 5       1.9880      0.60  |Q        |          |          |      V   |
  22+10       1.9921      0.59  |Q        |          |          |       V  |
  22+15       1.9961      0.59  |Q        |          |          |       V  |
  22+20       2.0001      0.58  |Q        |          |          |       V  |
  22+25       2.0041      0.58  |Q        |          |          |       V  |
  22+30       2.0081      0.58  |Q        |          |          |       V  |
  22+35       2.0120      0.57  |Q        |          |          |       V  |
  22+40       2.0159      0.57  |Q        |          |          |       V  |
  22+45       2.0198      0.56  |Q        |          |          |       V  |
  22+50       2.0237      0.56  |Q        |          |          |       V  |
  22+55       2.0275      0.56  |Q        |          |          |       V  |
  23+ 0       2.0314      0.55  |Q        |          |          |       V  |
  23+ 5       2.0351      0.55  |Q        |          |          |       V  |
  23+10       2.0389      0.55  |Q        |          |          |       V  |
  23+15       2.0427      0.54  |Q        |          |          |       V  |
  23+20       2.0464      0.54  |Q        |          |          |        V |
  23+25       2.0501      0.54  |Q        |          |          |        V |
  23+30       2.0538      0.54  |Q        |          |          |        V |
  23+35       2.0575      0.53  |Q        |          |          |        V |
  23+40       2.0611      0.53  |Q        |          |          |        V |
  23+45       2.0647      0.53  |Q        |          |          |        V |
  23+50       2.0683      0.52  |Q        |          |          |        V |
  23+55       2.0719      0.52  |Q        |          |          |        V |
  24+ 0       2.0755      0.52  |Q        |          |          |        V |
-------------------------------------------------------------------------
```

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

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Study date 06/30/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM PRE-DEVELOPED CONDITION
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA AA5
FILE: 18345HYDROAA5PRE100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
1.42	1	1.13
Rainfall data for year 100		
1.42	6	2.46
Rainfall data for year 100		
1.42	24	5.19

++

******** Area-averaged max loss rate, Fm ********

```
SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 50.0      70.0          1.42      1.000     0.532    1.000    0.532

Area-averaged adjusted loss rate Fm (In/Hr) =  0.532

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     1.42   1.000         50.0      70.0       4.29     0.420

Area-averaged catchment yield fraction, Y =  0.420
Area-averaged low loss fraction, Yb =  0.580
User entry of time of concentration  =   0.314 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       1.42(Ac.)
Catchment Lag time =   0.251 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 33.1530
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.532(In/Hr)
Average low loss rate fraction (Yb) = 0.580 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.536(In)
Computed peak 30-minute rainfall =  0.918(In)
Specified peak 1-hour rainfall =  1.130(In)
Computed peak 3-hour rainfall =  1.821(In)
Specified peak 6-hour rainfall =  2.460(In)
Specified peak 24-hour rainfall =  5.190(In)


Rainfall depth area reduction factors:
Using a total area of       1.42(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.536(In)
30-minute factor = 1.000    Adjusted rainfall =  0.918(In)
1-hour factor = 1.000       Adjusted rainfall =  1.130(In)
3-hour factor = 1.000       Adjusted rainfall =  1.821(In)
6-hour factor = 1.000       Adjusted rainfall =  2.460(In)
24-hour factor = 1.000      Adjusted rainfall =  5.190(In)
----------------------------------------------------------------------

                U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
           (K =        17.17 (CFS))

  1                2.054                   0.353
  2               11.737                   1.663
  3               37.390                   4.405
  4               57.445                   3.444
```

5	68.172	1.842
6	75.245	1.215
7	80.327	0.873
8	84.112	0.650
9	87.221	0.534
10	89.594	0.407
11	91.468	0.322
12	93.069	0.275
13	94.389	0.227
14	95.493	0.190
15	96.399	0.156
16	97.149	0.129
17	97.724	0.099
18	98.102	0.065
19	98.460	0.062
20	98.858	0.068
21	99.256	0.068
22	99.579	0.055
23	99.787	0.036
24	100.000	0.018

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5362	0.5362
2	0.6601	0.1239
3	0.7455	0.0854
4	0.8127	0.0672
5	0.8689	0.0563
6	0.9178	0.0489
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0698	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1699	0.0400
14	1.2081	0.0383
15	1.2449	0.0367
16	1.2803	0.0354
17	1.3144	0.0342
18	1.3475	0.0330
19	1.3795	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5267	0.0280
25	1.5540	0.0273
26	1.5807	0.0267
27	1.6069	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241

32	1.7299	0.0237
33	1.7532	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8425	0.0218
38	1.8639	0.0215
39	1.8851	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203
43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2396	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3054	0.0162
63	2.3214	0.0161
64	2.3373	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4149	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4966	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5683	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171

86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162
97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4235	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136

140	3.5193	0.0136
141	3.5329	0.0135
142	3.5463	0.0135
143	3.5598	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6263	0.0132
149	3.6394	0.0132
150	3.6526	0.0131
151	3.6657	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7945	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8949	0.0124
170	3.9073	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117

194	4.1953	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2876	0.0114
203	4.2990	0.0114
204	4.3104	0.0114
205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4118	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4892	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6729	0.0106
238	4.6835	0.0106
239	4.6941	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7572	0.0105
246	4.7676	0.0104
247	4.7780	0.0104

248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8608	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102
259	4.9017	0.0102
260	4.9119	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0922	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1705	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0056	0.0041
2	0.0097	0.0056	0.0041
3	0.0098	0.0057	0.0041
4	0.0098	0.0057	0.0041
5	0.0098	0.0057	0.0041
6	0.0098	0.0057	0.0041
7	0.0099	0.0057	0.0041
8	0.0099	0.0057	0.0041

9	0.0099	0.0057	0.0042
10	0.0099	0.0058	0.0042
11	0.0100	0.0058	0.0042
12	0.0100	0.0058	0.0042
13	0.0100	0.0058	0.0042
14	0.0100	0.0058	0.0042
15	0.0101	0.0058	0.0042
16	0.0101	0.0058	0.0042
17	0.0101	0.0059	0.0042
18	0.0101	0.0059	0.0043
19	0.0102	0.0059	0.0043
20	0.0102	0.0059	0.0043
21	0.0102	0.0059	0.0043
22	0.0102	0.0059	0.0043
23	0.0103	0.0060	0.0043
24	0.0103	0.0060	0.0043
25	0.0103	0.0060	0.0043
26	0.0104	0.0060	0.0043
27	0.0104	0.0060	0.0044
28	0.0104	0.0060	0.0044
29	0.0104	0.0061	0.0044
30	0.0105	0.0061	0.0044
31	0.0105	0.0061	0.0044
32	0.0105	0.0061	0.0044
33	0.0106	0.0061	0.0044
34	0.0106	0.0061	0.0044
35	0.0106	0.0062	0.0045
36	0.0106	0.0062	0.0045
37	0.0107	0.0062	0.0045
38	0.0107	0.0062	0.0045
39	0.0108	0.0062	0.0045
40	0.0108	0.0063	0.0045
41	0.0108	0.0063	0.0045
42	0.0108	0.0063	0.0046
43	0.0109	0.0063	0.0046
44	0.0109	0.0063	0.0046
45	0.0110	0.0064	0.0046
46	0.0110	0.0064	0.0046
47	0.0110	0.0064	0.0046
48	0.0110	0.0064	0.0046
49	0.0111	0.0064	0.0047
50	0.0111	0.0065	0.0047
51	0.0112	0.0065	0.0047
52	0.0112	0.0065	0.0047
53	0.0112	0.0065	0.0047
54	0.0113	0.0065	0.0047
55	0.0113	0.0066	0.0047
56	0.0113	0.0066	0.0048
57	0.0114	0.0066	0.0048
58	0.0114	0.0066	0.0048
59	0.0115	0.0067	0.0048
60	0.0115	0.0067	0.0048
61	0.0116	0.0067	0.0048
62	0.0116	0.0067	0.0049

63	0.0116	0.0068	0.0049
64	0.0117	0.0068	0.0049
65	0.0117	0.0068	0.0049
66	0.0117	0.0068	0.0049
67	0.0118	0.0068	0.0050
68	0.0118	0.0069	0.0050
69	0.0119	0.0069	0.0050
70	0.0119	0.0069	0.0050
71	0.0120	0.0070	0.0050
72	0.0120	0.0070	0.0050
73	0.0121	0.0070	0.0051
74	0.0121	0.0070	0.0051
75	0.0122	0.0071	0.0051
76	0.0122	0.0071	0.0051
77	0.0123	0.0071	0.0051
78	0.0123	0.0071	0.0052
79	0.0124	0.0072	0.0052
80	0.0124	0.0072	0.0052
81	0.0125	0.0072	0.0052
82	0.0125	0.0073	0.0052
83	0.0126	0.0073	0.0053
84	0.0126	0.0073	0.0053
85	0.0127	0.0074	0.0053
86	0.0127	0.0074	0.0053
87	0.0128	0.0074	0.0054
88	0.0128	0.0074	0.0054
89	0.0129	0.0075	0.0054
90	0.0129	0.0075	0.0054
91	0.0130	0.0076	0.0055
92	0.0131	0.0076	0.0055
93	0.0131	0.0076	0.0055
94	0.0132	0.0076	0.0055
95	0.0133	0.0077	0.0056
96	0.0133	0.0077	0.0056
97	0.0134	0.0078	0.0056
98	0.0134	0.0078	0.0056
99	0.0135	0.0078	0.0057
100	0.0136	0.0079	0.0057
101	0.0137	0.0079	0.0057
102	0.0137	0.0079	0.0057
103	0.0138	0.0080	0.0058
104	0.0138	0.0080	0.0058
105	0.0139	0.0081	0.0058
106	0.0140	0.0081	0.0059
107	0.0141	0.0082	0.0059
108	0.0141	0.0082	0.0059
109	0.0142	0.0083	0.0060
110	0.0143	0.0083	0.0060
111	0.0144	0.0084	0.0060
112	0.0145	0.0084	0.0061
113	0.0146	0.0085	0.0061
114	0.0146	0.0085	0.0061
115	0.0147	0.0086	0.0062
116	0.0148	0.0086	0.0062

117	0.0149	0.0087	0.0063
118	0.0150	0.0087	0.0063
119	0.0151	0.0088	0.0063
120	0.0152	0.0088	0.0064
121	0.0153	0.0089	0.0064
122	0.0154	0.0089	0.0064
123	0.0155	0.0090	0.0065
124	0.0156	0.0090	0.0065
125	0.0157	0.0091	0.0066
126	0.0158	0.0092	0.0066
127	0.0159	0.0092	0.0067
128	0.0160	0.0093	0.0067
129	0.0162	0.0094	0.0068
130	0.0162	0.0094	0.0068
131	0.0164	0.0095	0.0069
132	0.0165	0.0096	0.0069
133	0.0166	0.0097	0.0070
134	0.0167	0.0097	0.0070
135	0.0169	0.0098	0.0071
136	0.0170	0.0099	0.0071
137	0.0172	0.0100	0.0072
138	0.0173	0.0100	0.0073
139	0.0175	0.0101	0.0073
140	0.0176	0.0102	0.0074
141	0.0178	0.0103	0.0075
142	0.0179	0.0104	0.0075
143	0.0181	0.0105	0.0076
144	0.0182	0.0106	0.0076
145	0.0149	0.0086	0.0063
146	0.0150	0.0087	0.0063
147	0.0153	0.0089	0.0064
148	0.0154	0.0089	0.0065
149	0.0157	0.0091	0.0066
150	0.0158	0.0092	0.0066
151	0.0161	0.0093	0.0067
152	0.0162	0.0094	0.0068
153	0.0165	0.0096	0.0069
154	0.0167	0.0097	0.0070
155	0.0170	0.0099	0.0071
156	0.0172	0.0100	0.0072
157	0.0175	0.0102	0.0074
158	0.0177	0.0103	0.0074
159	0.0181	0.0105	0.0076
160	0.0183	0.0106	0.0077
161	0.0188	0.0109	0.0079
162	0.0190	0.0110	0.0080
163	0.0195	0.0113	0.0082
164	0.0197	0.0114	0.0083
165	0.0203	0.0118	0.0085
166	0.0205	0.0119	0.0086
167	0.0211	0.0123	0.0089
168	0.0215	0.0125	0.0090
169	0.0221	0.0128	0.0093
170	0.0225	0.0131	0.0094

171	0.0233	0.0135	0.0098
172	0.0237	0.0137	0.0099
173	0.0246	0.0143	0.0103
174	0.0251	0.0145	0.0105
175	0.0261	0.0152	0.0110
176	0.0267	0.0155	0.0112
177	0.0280	0.0162	0.0117
178	0.0287	0.0166	0.0120
179	0.0302	0.0175	0.0127
180	0.0311	0.0180	0.0130
181	0.0330	0.0192	0.0139
182	0.0342	0.0198	0.0143
183	0.0367	0.0213	0.0154
184	0.0383	0.0222	0.0161
185	0.0291	0.0169	0.0122
186	0.0310	0.0180	0.0130
187	0.0360	0.0209	0.0151
188	0.0393	0.0228	0.0165
189	0.0489	0.0283	0.0205
190	0.0563	0.0327	0.0236
191	0.0854	0.0444	0.0410
192	0.1239	0.0444	0.0796
193	0.5362	0.0444	0.4918
194	0.0672	0.0390	0.0282
195	0.0434	0.0252	0.0182
196	0.0333	0.0193	0.0140
197	0.0400	0.0232	0.0168
198	0.0354	0.0205	0.0148
199	0.0320	0.0186	0.0134
200	0.0294	0.0171	0.0123
201	0.0273	0.0158	0.0115
202	0.0256	0.0148	0.0107
203	0.0241	0.0140	0.0101
204	0.0229	0.0133	0.0096
205	0.0218	0.0126	0.0091
206	0.0208	0.0121	0.0087
207	0.0200	0.0116	0.0084
208	0.0192	0.0112	0.0081
209	0.0186	0.0108	0.0078
210	0.0179	0.0104	0.0075
211	0.0174	0.0101	0.0073
212	0.0168	0.0098	0.0071
213	0.0164	0.0095	0.0069
214	0.0159	0.0092	0.0067
215	0.0155	0.0090	0.0065
216	0.0151	0.0088	0.0064
217	0.0183	0.0106	0.0077
218	0.0180	0.0104	0.0076
219	0.0177	0.0103	0.0074
220	0.0174	0.0101	0.0073
221	0.0171	0.0099	0.0072
222	0.0168	0.0098	0.0071
223	0.0166	0.0096	0.0069
224	0.0163	0.0095	0.0068

225	0.0161	0.0093	0.0067
226	0.0158	0.0092	0.0067
227	0.0156	0.0091	0.0066
228	0.0154	0.0090	0.0065
229	0.0152	0.0088	0.0064
230	0.0150	0.0087	0.0063
231	0.0149	0.0086	0.0062
232	0.0147	0.0085	0.0062
233	0.0145	0.0084	0.0061
234	0.0143	0.0083	0.0060
235	0.0142	0.0082	0.0060
236	0.0140	0.0081	0.0059
237	0.0139	0.0081	0.0058
238	0.0137	0.0080	0.0058
239	0.0136	0.0079	0.0057
240	0.0135	0.0078	0.0057
241	0.0133	0.0077	0.0056
242	0.0132	0.0077	0.0055
243	0.0131	0.0076	0.0055
244	0.0130	0.0075	0.0054
245	0.0129	0.0075	0.0054
246	0.0127	0.0074	0.0054
247	0.0126	0.0073	0.0053
248	0.0125	0.0073	0.0053
249	0.0124	0.0072	0.0052
250	0.0123	0.0072	0.0052
251	0.0122	0.0071	0.0051
252	0.0121	0.0070	0.0051
253	0.0120	0.0070	0.0051
254	0.0119	0.0069	0.0050
255	0.0119	0.0069	0.0050
256	0.0118	0.0068	0.0049
257	0.0117	0.0068	0.0049
258	0.0116	0.0067	0.0049
259	0.0115	0.0067	0.0048
260	0.0114	0.0066	0.0048
261	0.0114	0.0066	0.0048
262	0.0113	0.0066	0.0047
263	0.0112	0.0065	0.0047
264	0.0111	0.0065	0.0047
265	0.0111	0.0064	0.0046
266	0.0110	0.0064	0.0046
267	0.0109	0.0063	0.0046
268	0.0109	0.0063	0.0046
269	0.0108	0.0063	0.0045
270	0.0107	0.0062	0.0045
271	0.0107	0.0062	0.0045
272	0.0106	0.0062	0.0045
273	0.0105	0.0061	0.0044
274	0.0105	0.0061	0.0044
275	0.0104	0.0061	0.0044
276	0.0104	0.0060	0.0044
277	0.0103	0.0060	0.0043
278	0.0103	0.0060	0.0043

279	0.0102	0.0059	0.0043
280	0.0101	0.0059	0.0043
281	0.0101	0.0059	0.0042
282	0.0100	0.0058	0.0042
283	0.0100	0.0058	0.0042
284	0.0099	0.0058	0.0042
285	0.0099	0.0057	0.0042
286	0.0098	0.0057	0.0041
287	0.0098	0.0057	0.0041
288	0.0097	0.0057	0.0041

Total soil rain loss = 2.71(In)
Total effective rainfall = 2.48(In)
Peak flow rate in flood hydrograph = 2.66(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

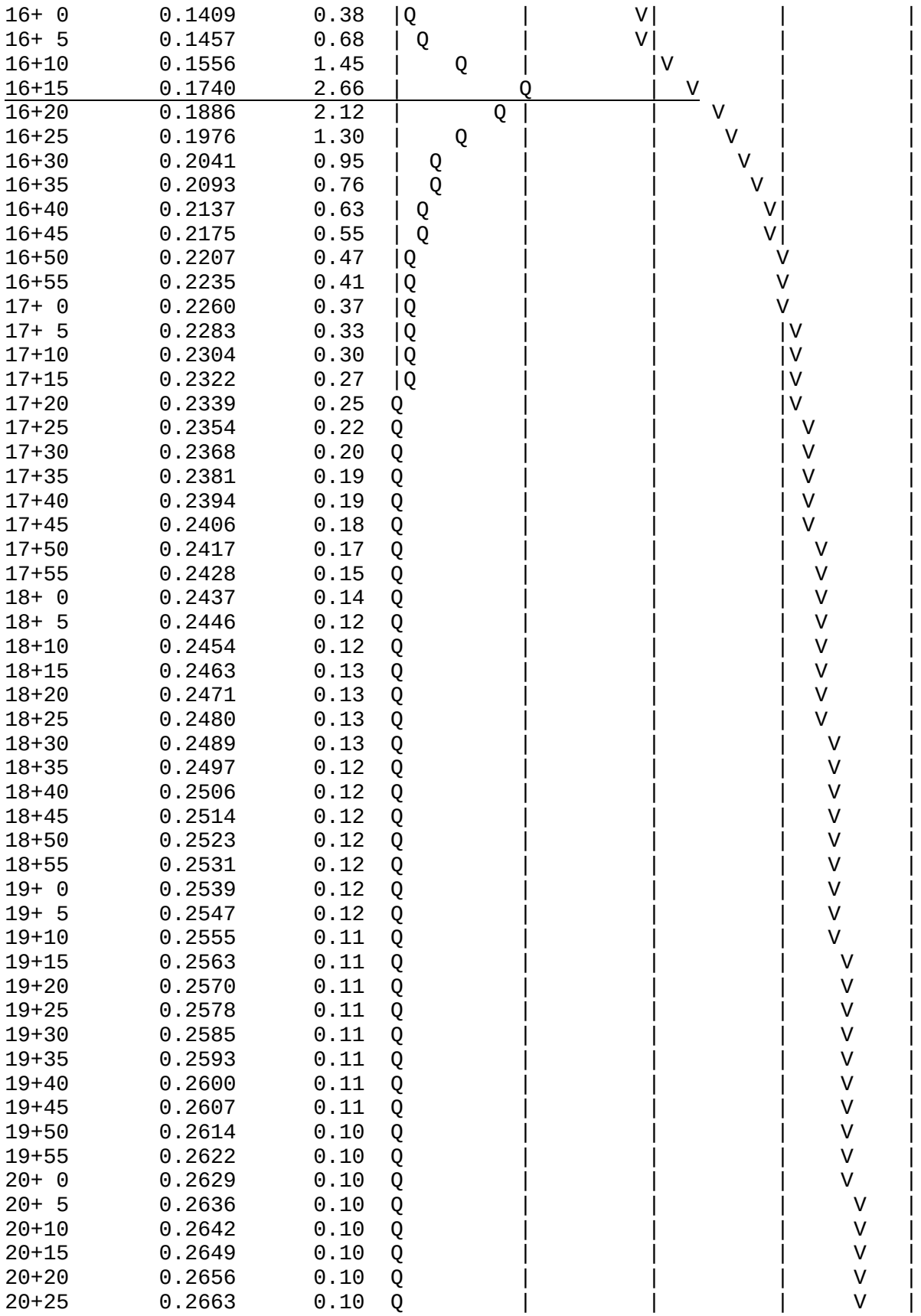
Hydrograph in 5 Minute intervals ((CFS))

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	0.03	Q				
0+20	0.0005	0.04	Q				
0+25	0.0009	0.05	Q				
0+30	0.0012	0.05	Q				
0+35	0.0016	0.06	Q				
0+40	0.0020	0.06	Q				
0+45	0.0024	0.06	Q				
0+50	0.0029	0.06	Q				
0+55	0.0033	0.07	Q				
1+ 0	0.0038	0.07	Q				
1+ 5	0.0043	0.07	Q				
1+10	0.0047	0.07	Q				
1+15	0.0052	0.07	Q				
1+20	0.0057	0.07	Q				
1+25	0.0062	0.07	Q				
1+30	0.0067	0.07	Q				
1+35	0.0071	0.07	Q				
1+40	0.0076	0.07	QV				
1+45	0.0081	0.07	QV				
1+50	0.0086	0.07	QV				
1+55	0.0091	0.07	QV				
2+ 0	0.0096	0.07	QV				
2+ 5	0.0101	0.07	QV				
2+10	0.0107	0.07	QV				
2+15	0.0112	0.07	QV				
2+20	0.0117	0.07	QV				
2+25	0.0122	0.07	QV				

2+30	0.0127	0.07	QV	|	|	|	|
2+35	0.0132	0.07	QV	|	|	|	|
2+40	0.0137	0.07	QV	|	|	|	|
2+45	0.0142	0.08	QV	|	|	|	|
2+50	0.0148	0.08	Q V	|	|	|	|
2+55	0.0153	0.08	Q V	|	|	|	|
3+ 0	0.0158	0.08	Q V	|	|	|	|
3+ 5	0.0163	0.08	Q V	|	|	|	|
3+10	0.0169	0.08	Q V	|	|	|	|
3+15	0.0174	0.08	Q V	|	|	|	|
3+20	0.0179	0.08	Q V	|	|	|	|
3+25	0.0184	0.08	Q V	|	|	|	|
3+30	0.0190	0.08	Q V	|	|	|	|
3+35	0.0195	0.08	Q V	|	|	|	|
3+40	0.0200	0.08	Q V	|	|	|	|
3+45	0.0206	0.08	Q V	|	|	|	|
3+50	0.0211	0.08	Q V	|	|	|	|
3+55	0.0216	0.08	Q V	|	|	|	|
4+ 0	0.0222	0.08	Q V	|	|	|	|
4+ 5	0.0227	0.08	Q V	|	|	|	|
4+10	0.0233	0.08	Q V	|	|	|	|
4+15	0.0238	0.08	Q V	|	|	|	|
4+20	0.0244	0.08	Q V	|	|	|	|
4+25	0.0249	0.08	Q V	|	|	|	|
4+30	0.0255	0.08	Q V	|	|	|	|
4+35	0.0260	0.08	Q V	|	|	|	|
4+40	0.0266	0.08	Q V	|	|	|	|
4+45	0.0271	0.08	Q V	|	|	|	|
4+50	0.0277	0.08	Q V	|	|	|	|
4+55	0.0282	0.08	Q V	|	|	|	|
5+ 0	0.0288	0.08	Q V	|	|	|	|
5+ 5	0.0294	0.08	Q V	|	|	|	|
5+10	0.0299	0.08	Q V	|	|	|	|
5+15	0.0305	0.08	Q V	|	|	|	|
5+20	0.0311	0.08	Q V	|	|	|	|
5+25	0.0316	0.08	Q V	|	|	|	|
5+30	0.0322	0.08	Q V	|	|	|	|
5+35	0.0328	0.08	Q V	|	|	|	|
5+40	0.0334	0.08	Q V	|	|	|	|
5+45	0.0340	0.08	Q V	|	|	|	|
5+50	0.0345	0.08	Q V	|	|	|	|
5+55	0.0351	0.08	Q V	|	|	|	|
6+ 0	0.0357	0.09	Q V	|	|	|	|
6+ 5	0.0363	0.09	Q V	|	|	|	|
6+10	0.0369	0.09	Q V	|	|	|	|
6+15	0.0375	0.09	Q V	|	|	|	|
6+20	0.0381	0.09	Q V	|	|	|	|
6+25	0.0387	0.09	Q V	|	|	|	|
6+30	0.0393	0.09	Q V	|	|	|	|
6+35	0.0399	0.09	Q V	|	|	|	|
6+40	0.0405	0.09	Q V	|	|	|	|
6+45	0.0411	0.09	Q V	|	|	|	|
6+50	0.0417	0.09	Q V	|	|	|	|
6+55	0.0423	0.09	Q V	|	|	|	|

7+ 0	0.0429	0.09	Q	V	|	|	|	|
7+ 5	0.0435	0.09	Q	V	|	|	|	|
7+10	0.0442	0.09	Q	V	|	|	|	|
7+15	0.0448	0.09	Q	V	|	|	|	|
7+20	0.0454	0.09	Q	V	|	|	|	|
7+25	0.0460	0.09	Q	V	|	|	|	|
7+30	0.0467	0.09	Q	V	|	|	|	|
7+35	0.0473	0.09	Q	V	|	|	|	|
7+40	0.0479	0.09	Q	V	|	|	|	|
7+45	0.0486	0.09	Q	V	|	|	|	|
7+50	0.0492	0.09	Q	V	|	|	|	|
7+55	0.0499	0.09	Q	V	|	|	|	|
8+ 0	0.0505	0.09	Q	V	|	|	|	|
8+ 5	0.0511	0.09	Q	V	|	|	|	|
8+10	0.0518	0.09	Q	V	|	|	|	|
8+15	0.0525	0.10	Q	V	|	|	|	|
8+20	0.0531	0.10	Q	V	|	|	|	|
8+25	0.0538	0.10	Q	V	|	|	|	|
8+30	0.0544	0.10	Q	V	|	|	|	|
8+35	0.0551	0.10	Q	V	|	|	|	|
8+40	0.0558	0.10	Q	V	|	|	|	|
8+45	0.0565	0.10	Q	V	|	|	|	|
8+50	0.0571	0.10	Q	V	|	|	|	|
8+55	0.0578	0.10	Q	V	|	|	|	|
9+ 0	0.0585	0.10	Q	V	|	|	|	|
9+ 5	0.0592	0.10	Q	V	|	|	|	|
9+10	0.0599	0.10	Q	V	|	|	|	|
9+15	0.0606	0.10	Q	V	|	|	|	|
9+20	0.0613	0.10	Q	V	|	|	|	|
9+25	0.0620	0.10	Q	V	|	|	|	|
9+30	0.0627	0.10	Q	V	|	|	|	|
9+35	0.0634	0.10	Q	V	|	|	|	|
9+40	0.0641	0.10	Q	V	|	|	|	|
9+45	0.0648	0.10	Q	V	|	|	|	|
9+50	0.0656	0.11	Q	V	|	|	|	|
9+55	0.0663	0.11	Q	V	|	|	|	|
10+ 0	0.0670	0.11	Q	V	|	|	|	|
10+ 5	0.0678	0.11	Q	V	|	|	|	|
10+10	0.0685	0.11	Q	V	|	|	|	|
10+15	0.0693	0.11	Q	V	|	|	|	|
10+20	0.0700	0.11	Q	V	|	|	|	|
10+25	0.0708	0.11	Q	V	|	|	|	|
10+30	0.0715	0.11	Q	V	|	|	|	|
10+35	0.0723	0.11	Q	V	|	|	|	|
10+40	0.0731	0.11	Q	V	|	|	|	|
10+45	0.0738	0.11	Q	V	|	|	|	|
10+50	0.0746	0.11	Q	V	|	|	|	|
10+55	0.0754	0.11	Q	V	|	|	|	|
11+ 0	0.0762	0.12	Q	V	|	|	|	|
11+ 5	0.0770	0.12	Q	V	|	|	|	|
11+10	0.0778	0.12	Q	V	|	|	|	|
11+15	0.0786	0.12	Q	V	|	|	|	|
11+20	0.0794	0.12	Q	V	|	|	|	|
11+25	0.0802	0.12	Q	V	|	|	|	|

```
11+30       0.0811      0.12  Q          |V         |          |          |
11+35       0.0819      0.12  Q          |V         |          |          |
11+40       0.0828      0.12  Q          |V         |          |          |
11+45       0.0836      0.12  Q          |V         |          |          |
11+50       0.0845      0.12  Q          |V         |          |          |
11+55       0.0853      0.13  Q          |V         |          |          |
12+ 0       0.0862      0.13  Q          |V         |          |          |
12+ 5       0.0871      0.13  Q          |V         |          |          |
12+10       0.0879      0.13  Q          | V        |          |          |
12+15       0.0888      0.12  Q          | V        |          |          |
12+20       0.0896      0.12  Q          | V        |          |          |
12+25       0.0904      0.11  Q          | V        |          |          |
12+30       0.0911      0.11  Q          | V        |          |          |
12+35       0.0919      0.11  Q          | V        |          |          |
12+40       0.0927      0.11  Q          | V        |          |          |
12+45       0.0935      0.12  Q          | V        |          |          |
12+50       0.0943      0.12  Q          | V        |          |          |
12+55       0.0951      0.12  Q          | V        |          |          |
13+ 0       0.0959      0.12  Q          |  V       |          |          |
13+ 5       0.0968      0.12  Q          |  V       |          |          |
13+10       0.0976      0.12  Q          |  V       |          |          |
13+15       0.0984      0.12  Q          |  V       |          |          |
13+20       0.0993      0.12  Q          |  V       |          |          |
13+25       0.1002      0.13  Q          |  V       |          |          |
13+30       0.1011      0.13  Q          |  V       |          |          |
13+35       0.1019      0.13  Q          |  V       |          |          |
13+40       0.1029      0.13  Q          |   V      |          |          |
13+45       0.1038      0.13  Q          |   V      |          |          |
13+50       0.1047      0.14  Q          |   V      |          |          |
13+55       0.1057      0.14  Q          |   V      |          |          |
14+ 0       0.1067      0.14  Q          |   V      |          |          |
14+ 5       0.1077      0.15  Q          |   V      |          |          |
14+10       0.1087      0.15  Q          |   V      |          |          |
14+15       0.1097      0.15  Q          |   V      |          |          |
14+20       0.1108      0.15  Q          |    V     |          |          |
14+25       0.1119      0.16  Q          |    V     |          |          |
14+30       0.1130      0.16  Q          |    V     |          |          |
14+35       0.1142      0.17  Q          |    V     |          |          |
14+40       0.1153      0.17  Q          |    V     |          |          |
14+45       0.1166      0.18  Q          |    V     |          |          |
14+50       0.1178      0.18  Q          |     V    |          |          |
14+55       0.1191      0.19  Q          |     V    |          |          |
15+ 0       0.1204      0.19  Q          |     V    |          |          |
15+ 5       0.1218      0.20  Q          |     V    |          |          |
15+10       0.1232      0.21  Q          |     V    |          |          |
15+15       0.1247      0.22  Q          |      V   |          |          |
15+20       0.1263      0.23  Q          |      V   |          |          |
15+25       0.1279      0.24  Q          |      V   |          |          |
15+30       0.1296      0.24  Q          |      V   |          |          |
15+35       0.1312      0.23  Q          |      V   |          |          |
15+40       0.1328      0.23  Q          |       V  |          |          |
15+45       0.1345      0.24  Q          |       V  |          |          |
15+50       0.1363      0.26  |Q         |       V  |          |          |
15+55       0.1384      0.30  |Q         |       V  |          |          |
```



16+ 0	0.1409	0.38	Q V
16+ 5	0.1457	0.68	Q V
16+10	0.1556	1.45	Q V
16+15	0.1740	2.66	Q V
16+20	0.1886	2.12	Q V
16+25	0.1976	1.30	Q V
16+30	0.2041	0.95	Q V
16+35	0.2093	0.76	Q V
16+40	0.2137	0.63	Q V
16+45	0.2175	0.55	Q V
16+50	0.2207	0.47	Q V
16+55	0.2235	0.41	Q V
17+ 0	0.2260	0.37	Q V
17+ 5	0.2283	0.33	Q V
17+10	0.2304	0.30	Q V
17+15	0.2322	0.27	Q V
17+20	0.2339	0.25	Q V
17+25	0.2354	0.22	Q V
17+30	0.2368	0.20	Q V
17+35	0.2381	0.19	Q V
17+40	0.2394	0.19	Q V
17+45	0.2406	0.18	Q V
17+50	0.2417	0.17	Q V
17+55	0.2428	0.15	Q V
18+ 0	0.2437	0.14	Q V
18+ 5	0.2446	0.12	Q V
18+10	0.2454	0.12	Q V
18+15	0.2463	0.13	Q V
18+20	0.2471	0.13	Q V
18+25	0.2480	0.13	Q V
18+30	0.2489	0.13	Q V
18+35	0.2497	0.12	Q V
18+40	0.2506	0.12	Q V
18+45	0.2514	0.12	Q V
18+50	0.2523	0.12	Q V
18+55	0.2531	0.12	Q V
19+ 0	0.2539	0.12	Q V
19+ 5	0.2547	0.12	Q V
19+10	0.2555	0.11	Q V
19+15	0.2563	0.11	Q V
19+20	0.2570	0.11	Q V
19+25	0.2578	0.11	Q V
19+30	0.2585	0.11	Q V
19+35	0.2593	0.11	Q V
19+40	0.2600	0.11	Q V
19+45	0.2607	0.11	Q V
19+50	0.2614	0.10	Q V
19+55	0.2622	0.10	Q V
20+ 0	0.2629	0.10	Q V
20+ 5	0.2636	0.10	Q V
20+10	0.2642	0.10	Q V
20+15	0.2649	0.10	Q V
20+20	0.2656	0.10	Q V
20+25	0.2663	0.10	Q V

```
  20+30       0.2669      0.10  Q          |          |          |      V   |
  20+35       0.2676      0.09  Q          |          |          |      V   |
  20+40       0.2682      0.09  Q          |          |          |      V   |
  20+45       0.2689      0.09  Q          |          |          |      V   |
  20+50       0.2695      0.09  Q          |          |          |      V   |
  20+55       0.2701      0.09  Q          |          |          |      V   |
  21+ 0       0.2708      0.09  Q          |          |          |      V   |
  21+ 5       0.2714      0.09  Q          |          |          |       V  |
  21+10       0.2720      0.09  Q          |          |          |       V  |
  21+15       0.2726      0.09  Q          |          |          |       V  |
  21+20       0.2732      0.09  Q          |          |          |       V  |
  21+25       0.2738      0.09  Q          |          |          |       V  |
  21+30       0.2744      0.09  Q          |          |          |       V  |
  21+35       0.2750      0.09  Q          |          |          |       V  |
  21+40       0.2756      0.09  Q          |          |          |       V  |
  21+45       0.2762      0.08  Q          |          |          |       V  |
  21+50       0.2767      0.08  Q          |          |          |       V  |
  21+55       0.2773      0.08  Q          |          |          |       V  |
  22+ 0       0.2779      0.08  Q          |          |          |       V  |
  22+ 5       0.2784      0.08  Q          |          |          |        V |
  22+10       0.2790      0.08  Q          |          |          |        V |
  22+15       0.2796      0.08  Q          |          |          |        V |
  22+20       0.2801      0.08  Q          |          |          |        V |
  22+25       0.2807      0.08  Q          |          |          |        V |
  22+30       0.2812      0.08  Q          |          |          |        V |
  22+35       0.2818      0.08  Q          |          |          |        V |
  22+40       0.2823      0.08  Q          |          |          |        V |
  22+45       0.2828      0.08  Q          |          |          |        V |
  22+50       0.2834      0.08  Q          |          |          |        V |
  22+55       0.2839      0.08  Q          |          |          |        V |
  23+ 0       0.2844      0.08  Q          |          |          |        V |
  23+ 5       0.2850      0.08  Q          |          |          |        V |
  23+10       0.2855      0.08  Q          |          |          |         V|
  23+15       0.2860      0.08  Q          |          |          |         V|
  23+20       0.2865      0.07  Q          |          |          |         V|
  23+25       0.2870      0.07  Q          |          |          |         V|
  23+30       0.2875      0.07  Q          |          |          |         V|
  23+35       0.2880      0.07  Q          |          |          |         V|
  23+40       0.2886      0.07  Q          |          |          |         V|
  23+45       0.2891      0.07  Q          |          |          |         V|
  23+50       0.2896      0.07  Q          |          |          |         V|
  23+55       0.2900      0.07  Q          |          |          |         V|
  24+ 0       0.2905      0.07  Q          |          |          |         V|
-------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 06/30/22

++

San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM PRE-DEVELOPED CONDITION
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA AA6
FILE: 18345HYDROAA6PRE100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
1.18	1	1.13
Rainfall data for year 100		
1.18	6	2.46
Rainfall data for year 100		
1.18	24	5.19

++

******** Area-averaged max loss rate, Fm ********

```
SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 50.0      70.0          1.18      1.000     0.532    1.000    0.532

Area-averaged adjusted loss rate Fm (In/Hr) =  0.532

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     1.18   1.000         50.0      70.0       4.29     0.420

Area-averaged catchment yield fraction, Y =  0.420
Area-averaged low loss fraction, Yb =  0.580
User entry of time of concentration  =   0.262 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       1.18(Ac.)
Catchment Lag time =   0.209 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 39.7886
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.532(In/Hr)
Average low loss rate fraction (Yb) = 0.580 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.536(In)
Computed peak 30-minute rainfall =  0.918(In)
Specified peak 1-hour rainfall =  1.130(In)
Computed peak 3-hour rainfall =  1.821(In)
Specified peak 6-hour rainfall =  2.460(In)
Specified peak 24-hour rainfall =  5.190(In)


Rainfall depth area reduction factors:
Using a total area of       1.18(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.536(In)
30-minute factor = 1.000    Adjusted rainfall =  0.918(In)
1-hour factor = 1.000       Adjusted rainfall =  1.130(In)
3-hour factor = 1.000       Adjusted rainfall =  1.821(In)
6-hour factor = 1.000       Adjusted rainfall =  2.460(In)
24-hour factor = 1.000      Adjusted rainfall =  5.190(In)
----------------------------------------------------------------------

                U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
           (K =        14.27 (CFS))

  1                2.725                    0.389
  2               18.458                    2.245
  3               48.845                    4.336
  4               65.412                    2.364
```

5	74.618	1.314
6	80.729	0.872
7	85.106	0.625
8	88.489	0.483
9	90.931	0.348
10	92.917	0.284
11	94.504	0.226
12	95.782	0.182
13	96.801	0.146
14	97.564	0.109
15	98.069	0.072
16	98.501	0.062
17	98.978	0.068
18	99.437	0.065
19	99.726	0.041
20	100.000	0.039

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5362	0.5362
2	0.6601	0.1239
3	0.7455	0.0854
4	0.8127	0.0672
5	0.8689	0.0563
6	0.9178	0.0489
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0698	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1699	0.0400
14	1.2082	0.0383
15	1.2449	0.0367
16	1.2803	0.0354
17	1.3144	0.0342
18	1.3475	0.0330
19	1.3795	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5268	0.0280
25	1.5541	0.0273
26	1.5807	0.0267
27	1.6069	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7532	0.0233
34	1.7760	0.0229
35	1.7985	0.0225

36	1.8207	0.0221
37	1.8425	0.0218
38	1.8639	0.0215
39	1.8851	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203
43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2396	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3054	0.0162
63	2.3214	0.0161
64	2.3374	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4150	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4966	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5684	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167

90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162
97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4235	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5329	0.0135
142	3.5463	0.0135
143	3.5598	0.0134

144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6263	0.0132
149	3.6394	0.0132
150	3.6526	0.0131
151	3.6657	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7945	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8949	0.0124
170	3.9073	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117
194	4.1953	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116

198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2876	0.0114
203	4.2990	0.0114
204	4.3104	0.0114
205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4118	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4893	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6729	0.0106
238	4.6835	0.0106
239	4.6941	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7572	0.0105
246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104

252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8608	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102
259	4.9017	0.0102
260	4.9119	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0922	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1706	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0056	0.0041
2	0.0097	0.0056	0.0041
3	0.0098	0.0057	0.0041
4	0.0098	0.0057	0.0041
5	0.0098	0.0057	0.0041
6	0.0098	0.0057	0.0041
7	0.0099	0.0057	0.0041
8	0.0099	0.0057	0.0041
9	0.0099	0.0057	0.0042
10	0.0099	0.0058	0.0042
11	0.0100	0.0058	0.0042
12	0.0100	0.0058	0.0042

13	0.0100	0.0058	0.0042
14	0.0100	0.0058	0.0042
15	0.0101	0.0058	0.0042
16	0.0101	0.0058	0.0042
17	0.0101	0.0059	0.0042
18	0.0101	0.0059	0.0043
19	0.0102	0.0059	0.0043
20	0.0102	0.0059	0.0043
21	0.0102	0.0059	0.0043
22	0.0102	0.0059	0.0043
23	0.0103	0.0060	0.0043
24	0.0103	0.0060	0.0043
25	0.0103	0.0060	0.0043
26	0.0104	0.0060	0.0043
27	0.0104	0.0060	0.0044
28	0.0104	0.0060	0.0044
29	0.0104	0.0061	0.0044
30	0.0105	0.0061	0.0044
31	0.0105	0.0061	0.0044
32	0.0105	0.0061	0.0044
33	0.0106	0.0061	0.0044
34	0.0106	0.0061	0.0044
35	0.0106	0.0062	0.0045
36	0.0106	0.0062	0.0045
37	0.0107	0.0062	0.0045
38	0.0107	0.0062	0.0045
39	0.0108	0.0062	0.0045
40	0.0108	0.0063	0.0045
41	0.0108	0.0063	0.0045
42	0.0108	0.0063	0.0046
43	0.0109	0.0063	0.0046
44	0.0109	0.0063	0.0046
45	0.0110	0.0064	0.0046
46	0.0110	0.0064	0.0046
47	0.0110	0.0064	0.0046
48	0.0110	0.0064	0.0046
49	0.0111	0.0064	0.0047
50	0.0111	0.0065	0.0047
51	0.0112	0.0065	0.0047
52	0.0112	0.0065	0.0047
53	0.0112	0.0065	0.0047
54	0.0113	0.0065	0.0047
55	0.0113	0.0066	0.0047
56	0.0113	0.0066	0.0048
57	0.0114	0.0066	0.0048
58	0.0114	0.0066	0.0048
59	0.0115	0.0067	0.0048
60	0.0115	0.0067	0.0048
61	0.0116	0.0067	0.0048
62	0.0116	0.0067	0.0049
63	0.0116	0.0068	0.0049
64	0.0117	0.0068	0.0049
65	0.0117	0.0068	0.0049
66	0.0117	0.0068	0.0049

67	0.0118	0.0068	0.0050
68	0.0118	0.0069	0.0050
69	0.0119	0.0069	0.0050
70	0.0119	0.0069	0.0050
71	0.0120	0.0070	0.0050
72	0.0120	0.0070	0.0050
73	0.0121	0.0070	0.0051
74	0.0121	0.0070	0.0051
75	0.0122	0.0071	0.0051
76	0.0122	0.0071	0.0051
77	0.0123	0.0071	0.0051
78	0.0123	0.0071	0.0052
79	0.0124	0.0072	0.0052
80	0.0124	0.0072	0.0052
81	0.0125	0.0072	0.0052
82	0.0125	0.0073	0.0052
83	0.0126	0.0073	0.0053
84	0.0126	0.0073	0.0053
85	0.0127	0.0074	0.0053
86	0.0127	0.0074	0.0053
87	0.0128	0.0074	0.0054
88	0.0128	0.0074	0.0054
89	0.0129	0.0075	0.0054
90	0.0129	0.0075	0.0054
91	0.0130	0.0076	0.0055
92	0.0131	0.0076	0.0055
93	0.0131	0.0076	0.0055
94	0.0132	0.0076	0.0055
95	0.0133	0.0077	0.0056
96	0.0133	0.0077	0.0056
97	0.0134	0.0078	0.0056
98	0.0134	0.0078	0.0056
99	0.0135	0.0078	0.0057
100	0.0136	0.0079	0.0057
101	0.0137	0.0079	0.0057
102	0.0137	0.0079	0.0057
103	0.0138	0.0080	0.0058
104	0.0138	0.0080	0.0058
105	0.0139	0.0081	0.0058
106	0.0140	0.0081	0.0059
107	0.0141	0.0082	0.0059
108	0.0141	0.0082	0.0059
109	0.0142	0.0083	0.0060
110	0.0143	0.0083	0.0060
111	0.0144	0.0084	0.0060
112	0.0145	0.0084	0.0061
113	0.0146	0.0085	0.0061
114	0.0146	0.0085	0.0061
115	0.0147	0.0086	0.0062
116	0.0148	0.0086	0.0062
117	0.0149	0.0087	0.0063
118	0.0150	0.0087	0.0063
119	0.0151	0.0088	0.0063
120	0.0152	0.0088	0.0064

121	0.0153	0.0089	0.0064
122	0.0154	0.0089	0.0064
123	0.0155	0.0090	0.0065
124	0.0156	0.0090	0.0065
125	0.0157	0.0091	0.0066
126	0.0158	0.0092	0.0066
127	0.0159	0.0092	0.0067
128	0.0160	0.0093	0.0067
129	0.0162	0.0094	0.0068
130	0.0162	0.0094	0.0068
131	0.0164	0.0095	0.0069
132	0.0165	0.0096	0.0069
133	0.0166	0.0097	0.0070
134	0.0167	0.0097	0.0070
135	0.0169	0.0098	0.0071
136	0.0170	0.0099	0.0071
137	0.0172	0.0100	0.0072
138	0.0173	0.0100	0.0073
139	0.0175	0.0101	0.0073
140	0.0176	0.0102	0.0074
141	0.0178	0.0103	0.0075
142	0.0179	0.0104	0.0075
143	0.0181	0.0105	0.0076
144	0.0182	0.0106	0.0076
145	0.0149	0.0086	0.0063
146	0.0150	0.0087	0.0063
147	0.0153	0.0089	0.0064
148	0.0154	0.0089	0.0065
149	0.0157	0.0091	0.0066
150	0.0158	0.0092	0.0066
151	0.0161	0.0093	0.0067
152	0.0162	0.0094	0.0068
153	0.0165	0.0096	0.0069
154	0.0167	0.0097	0.0070
155	0.0170	0.0099	0.0071
156	0.0172	0.0100	0.0072
157	0.0175	0.0102	0.0074
158	0.0177	0.0103	0.0074
159	0.0181	0.0105	0.0076
160	0.0183	0.0106	0.0077
161	0.0188	0.0109	0.0079
162	0.0190	0.0110	0.0080
163	0.0195	0.0113	0.0082
164	0.0197	0.0114	0.0083
165	0.0203	0.0118	0.0085
166	0.0205	0.0119	0.0086
167	0.0211	0.0123	0.0089
168	0.0215	0.0125	0.0090
169	0.0221	0.0128	0.0093
170	0.0225	0.0131	0.0094
171	0.0233	0.0135	0.0098
172	0.0237	0.0137	0.0099
173	0.0246	0.0143	0.0103
174	0.0251	0.0145	0.0105

175	0.0261	0.0152	0.0110
176	0.0267	0.0155	0.0112
177	0.0280	0.0162	0.0117
178	0.0287	0.0166	0.0120
179	0.0302	0.0175	0.0127
180	0.0311	0.0180	0.0130
181	0.0330	0.0192	0.0139
182	0.0342	0.0198	0.0143
183	0.0367	0.0213	0.0154
184	0.0383	0.0222	0.0161
185	0.0291	0.0169	0.0122
186	0.0310	0.0180	0.0130
187	0.0360	0.0209	0.0151
188	0.0393	0.0228	0.0165
189	0.0489	0.0283	0.0205
190	0.0563	0.0327	0.0236
191	0.0854	0.0444	0.0410
192	0.1239	0.0444	0.0796
193	0.5362	0.0444	0.4918
194	0.0672	0.0390	0.0282
195	0.0434	0.0252	0.0182
196	0.0333	0.0193	0.0140
197	0.0400	0.0232	0.0168
198	0.0354	0.0205	0.0148
199	0.0320	0.0186	0.0134
200	0.0294	0.0171	0.0123
201	0.0273	0.0158	0.0115
202	0.0256	0.0148	0.0107
203	0.0241	0.0140	0.0101
204	0.0229	0.0133	0.0096
205	0.0218	0.0126	0.0091
206	0.0208	0.0121	0.0087
207	0.0200	0.0116	0.0084
208	0.0192	0.0112	0.0081
209	0.0186	0.0108	0.0078
210	0.0179	0.0104	0.0075
211	0.0174	0.0101	0.0073
212	0.0168	0.0098	0.0071
213	0.0164	0.0095	0.0069
214	0.0159	0.0092	0.0067
215	0.0155	0.0090	0.0065
216	0.0151	0.0088	0.0064
217	0.0183	0.0106	0.0077
218	0.0180	0.0104	0.0076
219	0.0177	0.0103	0.0074
220	0.0174	0.0101	0.0073
221	0.0171	0.0099	0.0072
222	0.0168	0.0098	0.0071
223	0.0166	0.0096	0.0069
224	0.0163	0.0095	0.0068
225	0.0161	0.0093	0.0067
226	0.0158	0.0092	0.0067
227	0.0156	0.0091	0.0066
228	0.0154	0.0090	0.0065

229	0.0152	0.0088	0.0064
230	0.0150	0.0087	0.0063
231	0.0149	0.0086	0.0062
232	0.0147	0.0085	0.0062
233	0.0145	0.0084	0.0061
234	0.0143	0.0083	0.0060
235	0.0142	0.0082	0.0060
236	0.0140	0.0081	0.0059
237	0.0139	0.0081	0.0058
238	0.0137	0.0080	0.0058
239	0.0136	0.0079	0.0057
240	0.0135	0.0078	0.0057
241	0.0133	0.0077	0.0056
242	0.0132	0.0077	0.0055
243	0.0131	0.0076	0.0055
244	0.0130	0.0075	0.0054
245	0.0129	0.0075	0.0054
246	0.0127	0.0074	0.0054
247	0.0126	0.0073	0.0053
248	0.0125	0.0073	0.0053
249	0.0124	0.0072	0.0052
250	0.0123	0.0072	0.0052
251	0.0122	0.0071	0.0051
252	0.0121	0.0070	0.0051
253	0.0120	0.0070	0.0051
254	0.0119	0.0069	0.0050
255	0.0119	0.0069	0.0050
256	0.0118	0.0068	0.0049
257	0.0117	0.0068	0.0049
258	0.0116	0.0067	0.0049
259	0.0115	0.0067	0.0048
260	0.0114	0.0066	0.0048
261	0.0114	0.0066	0.0048
262	0.0113	0.0066	0.0047
263	0.0112	0.0065	0.0047
264	0.0111	0.0065	0.0047
265	0.0111	0.0064	0.0046
266	0.0110	0.0064	0.0046
267	0.0109	0.0063	0.0046
268	0.0109	0.0063	0.0046
269	0.0108	0.0063	0.0045
270	0.0107	0.0062	0.0045
271	0.0107	0.0062	0.0045
272	0.0106	0.0062	0.0045
273	0.0105	0.0061	0.0044
274	0.0105	0.0061	0.0044
275	0.0104	0.0061	0.0044
276	0.0104	0.0060	0.0044
277	0.0103	0.0060	0.0043
278	0.0103	0.0060	0.0043
279	0.0102	0.0059	0.0043
280	0.0101	0.0059	0.0043
281	0.0101	0.0059	0.0042
282	0.0100	0.0058	0.0042

283	0.0100	0.0058	0.0042
284	0.0099	0.0058	0.0042
285	0.0099	0.0057	0.0042
286	0.0098	0.0057	0.0041
287	0.0098	0.0057	0.0041
288	0.0097	0.0057	0.0041

Total soil rain loss = 2.71(In)
Total effective rainfall = 2.48(In)
Peak flow rate in flood hydrograph = 2.51(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	0.0003	0.03	Q				
0+20	0.0005	0.04	Q				
0+25	0.0008	0.04	Q				
0+30	0.0012	0.05	Q				
0+35	0.0015	0.05	Q				
0+40	0.0019	0.05	Q				
0+45	0.0022	0.05	Q				
0+50	0.0026	0.05	Q				
0+55	0.0030	0.06	Q				
1+ 0	0.0034	0.06	Q				
1+ 5	0.0038	0.06	Q				
1+10	0.0042	0.06	Q				
1+15	0.0046	0.06	Q				
1+20	0.0050	0.06	Q				
1+25	0.0054	0.06	Q				
1+30	0.0058	0.06	Q				
1+35	0.0062	0.06	QV				
1+40	0.0066	0.06	QV				
1+45	0.0071	0.06	QV				
1+50	0.0075	0.06	QV				
1+55	0.0079	0.06	QV				
2+ 0	0.0083	0.06	QV				
2+ 5	0.0087	0.06	QV				
2+10	0.0092	0.06	QV				
2+15	0.0096	0.06	QV				
2+20	0.0100	0.06	QV				
2+25	0.0104	0.06	QV				
2+30	0.0109	0.06	QV				
2+35	0.0113	0.06	QV				
2+40	0.0117	0.06	QV				
2+45	0.0122	0.06	QV				

2+50	0.0126	0.06	Q V	|	|	|	|
2+55	0.0130	0.06	Q V	|	|	|	|
3+ 0	0.0135	0.06	Q V	|	|	|	|
3+ 5	0.0139	0.06	Q V	|	|	|	|
3+10	0.0143	0.06	Q V	|	|	|	|
3+15	0.0148	0.06	Q V	|	|	|	|
3+20	0.0152	0.06	Q V	|	|	|	|
3+25	0.0157	0.06	Q V	|	|	|	|
3+30	0.0161	0.06	Q V	|	|	|	|
3+35	0.0165	0.06	Q V	|	|	|	|
3+40	0.0170	0.06	Q V	|	|	|	|
3+45	0.0174	0.06	Q V	|	|	|	|
3+50	0.0179	0.07	Q V	|	|	|	|
3+55	0.0183	0.07	Q V	|	|	|	|
4+ 0	0.0188	0.07	Q V	|	|	|	|
4+ 5	0.0192	0.07	Q V	|	|	|	|
4+10	0.0197	0.07	Q V	|	|	|	|
4+15	0.0201	0.07	Q V	|	|	|	|
4+20	0.0206	0.07	Q V	|	|	|	|
4+25	0.0211	0.07	Q V	|	|	|	|
4+30	0.0215	0.07	Q V	|	|	|	|
4+35	0.0220	0.07	Q V	|	|	|	|
4+40	0.0224	0.07	Q V	|	|	|	|
4+45	0.0229	0.07	Q V	|	|	|	|
4+50	0.0234	0.07	Q V	|	|	|	|
4+55	0.0238	0.07	Q V	|	|	|	|
5+ 0	0.0243	0.07	Q V	|	|	|	|
5+ 5	0.0248	0.07	Q V	|	|	|	|
5+10	0.0252	0.07	Q V	|	|	|	|
5+15	0.0257	0.07	Q V	|	|	|	|
5+20	0.0262	0.07	Q V	|	|	|	|
5+25	0.0267	0.07	Q V	|	|	|	|
5+30	0.0272	0.07	Q V	|	|	|	|
5+35	0.0276	0.07	Q V	|	|	|	|
5+40	0.0281	0.07	Q V	|	|	|	|
5+45	0.0286	0.07	Q V	|	|	|	|
5+50	0.0291	0.07	Q V	|	|	|	|
5+55	0.0296	0.07	Q V	|	|	|	|
6+ 0	0.0301	0.07	Q V	|	|	|	|
6+ 5	0.0305	0.07	Q V	|	|	|	|
6+10	0.0310	0.07	Q V	|	|	|	|
6+15	0.0315	0.07	Q V	|	|	|	|
6+20	0.0320	0.07	Q V	|	|	|	|
6+25	0.0325	0.07	Q V	|	|	|	|
6+30	0.0330	0.07	Q V	|	|	|	|
6+35	0.0335	0.07	Q V	|	|	|	|
6+40	0.0340	0.07	Q V	|	|	|	|
6+45	0.0345	0.07	Q V	|	|	|	|
6+50	0.0351	0.07	Q V	|	|	|	|
6+55	0.0356	0.07	Q V	|	|	|	|
7+ 0	0.0361	0.07	Q V	|	|	|	|
7+ 5	0.0366	0.07	Q V	|	|	|	|
7+10	0.0371	0.08	Q V	|	|	|	|
7+15	0.0376	0.08	Q V	|	|	|	|

```
 7+20       0.0381      0.08  Q     V   |           |           |           |
 7+25       0.0387      0.08  Q     V   |           |           |           |
 7+30       0.0392      0.08  Q     V   |           |           |           |
 7+35       0.0397      0.08  Q     V   |           |           |           |
 7+40       0.0403      0.08  Q     V   |           |           |           |
 7+45       0.0408      0.08  Q     V   |           |           |           |
 7+50       0.0413      0.08  Q     V   |           |           |           |
 7+55       0.0419      0.08  Q     V   |           |           |           |
 8+ 0       0.0424      0.08  Q     V   |           |           |           |
 8+ 5       0.0429      0.08  Q      V  |           |           |           |
 8+10       0.0435      0.08  Q      V  |           |           |           |
 8+15       0.0440      0.08  Q      V  |           |           |           |
 8+20       0.0446      0.08  Q      V  |           |           |           |
 8+25       0.0451      0.08  Q      V  |           |           |           |
 8+30       0.0457      0.08  Q      V  |           |           |           |
 8+35       0.0462      0.08  Q      V  |           |           |           |
 8+40       0.0468      0.08  Q      V  |           |           |           |
 8+45       0.0474      0.08  Q      V  |           |           |           |
 8+50       0.0479      0.08  Q      V  |           |           |           |
 8+55       0.0485      0.08  Q      V  |           |           |           |
 9+ 0       0.0491      0.08  Q       V |           |           |           |
 9+ 5       0.0497      0.08  Q       V |           |           |           |
 9+10       0.0502      0.08  Q       V |           |           |           |
 9+15       0.0508      0.08  Q       V |           |           |           |
 9+20       0.0514      0.08  Q       V |           |           |           |
 9+25       0.0520      0.09  Q       V |           |           |           |
 9+30       0.0526      0.09  Q       V |           |           |           |
 9+35       0.0532      0.09  Q       V |           |           |           |
 9+40       0.0538      0.09  Q       V |           |           |           |
 9+45       0.0544      0.09  Q       V |           |           |           |
 9+50       0.0550      0.09  Q        V|           |           |           |
 9+55       0.0556      0.09  Q        V|           |           |           |
10+ 0       0.0562      0.09  Q        V|           |           |           |
10+ 5       0.0568      0.09  Q        V|           |           |           |
10+10       0.0574      0.09  Q        V|           |           |           |
10+15       0.0581      0.09  Q        V|           |           |           |
10+20       0.0587      0.09  Q        V|           |           |           |
10+25       0.0593      0.09  Q        V|           |           |           |
10+30       0.0600      0.09  Q        V|           |           |           |
10+35       0.0606      0.09  Q        V|           |           |           |
10+40       0.0612      0.09  Q         V           |           |           |
10+45       0.0619      0.09  Q         V           |           |           |
10+50       0.0625      0.09  Q         V           |           |           |
10+55       0.0632      0.10  Q         V           |           |           |
11+ 0       0.0639      0.10  Q         V           |           |           |
11+ 5       0.0645      0.10  Q         V           |           |           |
11+10       0.0652      0.10  Q         V           |           |           |
11+15       0.0659      0.10  Q         V           |           |           |
11+20       0.0666      0.10  Q         V           |           |           |
11+25       0.0672      0.10  Q          |V          |           |           |
11+30       0.0679      0.10  Q          |V          |           |           |
11+35       0.0686      0.10  Q          |V          |           |           |
11+40       0.0693      0.10  Q          |V          |           |           |
11+45       0.0701      0.10  Q          |V          |           |           |
```

11+50	0.0708	0.10	Q	V			
11+55	0.0715	0.10	Q	V			
12+ 0	0.0722	0.11	Q	V			
12+ 5	0.0730	0.11	Q	V			
12+10	0.0737	0.10	Q	V			
12+15	0.0743	0.10	Q	V			
12+20	0.0750	0.10	Q	V			
12+25	0.0757	0.09	Q	V			
12+30	0.0763	0.09	Q	V			
12+35	0.0770	0.09	Q	V			
12+40	0.0776	0.10	Q	V			
12+45	0.0783	0.10	Q	V			
12+50	0.0789	0.10	Q	V			
12+55	0.0796	0.10	Q	V			
13+ 0	0.0803	0.10	Q	V			
13+ 5	0.0810	0.10	Q	V			
13+10	0.0817	0.10	Q	V			
13+15	0.0824	0.10	Q	V			
13+20	0.0831	0.10	Q	V			
13+25	0.0838	0.11	Q	V			
13+30	0.0846	0.11	Q	V			
13+35	0.0853	0.11	Q	V			
13+40	0.0861	0.11	Q	V			
13+45	0.0869	0.11	Q	V			
13+50	0.0877	0.12	Q	V			
13+55	0.0885	0.12	Q	V			
14+ 0	0.0893	0.12	Q	V			
14+ 5	0.0902	0.12	Q	V			
14+10	0.0910	0.12	Q	V			
14+15	0.0919	0.13	Q	V			
14+20	0.0928	0.13	Q	V			
14+25	0.0937	0.13	Q	V			
14+30	0.0947	0.14	Q	V			
14+35	0.0956	0.14	Q	V			
14+40	0.0966	0.14	Q	V			
14+45	0.0977	0.15	Q	V			
14+50	0.0987	0.15	Q	V			
14+55	0.0998	0.16	Q	V			
15+ 0	0.1009	0.16	Q	V			
15+ 5	0.1021	0.17	Q	V			
15+10	0.1033	0.18	Q	V			
15+15	0.1046	0.19	Q	V			
15+20	0.1060	0.19	Q	V			
15+25	0.1073	0.20	Q	V			
15+30	0.1087	0.20	Q	V			
15+35	0.1101	0.19	Q	V			
15+40	0.1114	0.20	Q	V			
15+45	0.1128	0.21	Q	V			
15+50	0.1144	0.23	Q	V			
15+55	0.1162	0.27	Q	V			
16+ 0	0.1186	0.35	Q	V			
16+ 5	0.1233	0.68	Q	V			
16+10	0.1347	1.65	Q	V			
16+15	**0.1519**	**2.51**	**Q**	**V**			

16+20	0.1624	1.52	| Q |	|	| V |	|
16+25	0.1690	0.96	| Q |	|	| V |	|
16+30	0.1739	0.71	| Q |	|	| V |	|
16+35	0.1779	0.58	| Q |	|	| V|	|
16+40	0.1812	0.49	|Q |	|	| V|	|
16+45	0.1840	0.40	|Q |	|	| V |	|
16+50	0.1864	0.35	|Q |	|	| V |	|
16+55	0.1886	0.31	|Q |	|	| V |	|
17+ 0	0.1905	0.27	|Q |	|	| |V |	|
17+ 5	0.1921	0.24	Q |	|	| |V |	|
17+10	0.1936	0.21	Q |	|	| |V |	|
17+15	0.1949	0.19	Q |	|	| | V |	|
17+20	0.1961	0.18	Q |	|	| | V |	|
17+25	0.1973	0.17	Q |	|	| | V |	|
17+30	0.1984	0.16	Q |	|	| | V |	|
17+35	0.1994	0.15	Q |	|	| | V |	|
17+40	0.2004	0.14	Q |	|	| | V |	|
17+45	0.2011	0.11	Q |	|	| | V |	|
17+50	0.2019	0.11	Q |	|	| | V |	|
17+55	0.2026	0.11	Q |	|	| | V |	|
18+ 0	0.2033	0.10	Q |	|	| | V |	|
18+ 5	0.2040	0.10	Q |	|	| | V |	|
18+10	0.2047	0.10	Q |	|	| | V |	|
18+15	0.2054	0.10	Q |	|	| | V |	|
18+20	0.2061	0.11	Q |	|	| | V |	|
18+25	0.2069	0.10	Q |	|	| | V |	|
18+30	0.2076	0.10	Q |	|	| | V |	|
18+35	0.2083	0.10	Q |	|	| | V |	|
18+40	0.2090	0.10	Q |	|	| | V |	|
18+45	0.2097	0.10	Q |	|	| | V |	|
18+50	0.2104	0.10	Q |	|	| | V |	|
18+55	0.2110	0.10	Q |	|	| | V |	|
19+ 0	0.2117	0.10	Q |	|	| | V |	|
19+ 5	0.2124	0.10	Q |	|	| | V |	|
19+10	0.2130	0.09	Q |	|	| | V |	|
19+15	0.2137	0.09	Q |	|	| | V |	|
19+20	0.2143	0.09	Q |	|	| | V |	|
19+25	0.2149	0.09	Q |	|	| | V |	|
19+30	0.2155	0.09	Q |	|	| | V |	|
19+35	0.2161	0.09	Q |	|	| | V |	|
19+40	0.2168	0.09	Q |	|	| | V |	|
19+45	0.2174	0.09	Q |	|	| | V |	|
19+50	0.2179	0.09	Q |	|	| | V |	|
19+55	0.2185	0.08	Q |	|	| | V |	|
20+ 0	0.2191	0.08	Q |	|	| | V |	|
20+ 5	0.2197	0.08	Q |	|	| | V |	|
20+10	0.2202	0.08	Q |	|	| | V |	|
20+15	0.2208	0.08	Q |	|	| | V |	|
20+20	0.2214	0.08	Q |	|	| | V |	|
20+25	0.2219	0.08	Q |	|	| | V |	|
20+30	0.2225	0.08	Q |	|	| | V |	|
20+35	0.2230	0.08	Q |	|	| | V |	|
20+40	0.2235	0.08	Q |	|	| | V |	|
20+45	0.2241	0.08	Q |	|	| | V |	|

```
  20+50       0.2246      0.08  Q          |          |          |     V    |
  20+55       0.2251      0.08  Q          |          |          |     V    |
  21+ 0       0.2256      0.07  Q          |          |          |      V   |
  21+ 5       0.2261      0.07  Q          |          |          |      V   |
  21+10       0.2266      0.07  Q          |          |          |      V   |
  21+15       0.2271      0.07  Q          |          |          |      V   |
  21+20       0.2276      0.07  Q          |          |          |      V   |
  21+25       0.2281      0.07  Q          |          |          |      V   |
  21+30       0.2286      0.07  Q          |          |          |      V   |
  21+35       0.2291      0.07  Q          |          |          |      V   |
  21+40       0.2296      0.07  Q          |          |          |      V   |
  21+45       0.2301      0.07  Q          |          |          |      V   |
  21+50       0.2306      0.07  Q          |          |          |      V   |
  21+55       0.2310      0.07  Q          |          |          |      V   |
  22+ 0       0.2315      0.07  Q          |          |          |       V  |
  22+ 5       0.2320      0.07  Q          |          |          |       V  |
  22+10       0.2324      0.07  Q          |          |          |       V  |
  22+15       0.2329      0.07  Q          |          |          |       V  |
  22+20       0.2334      0.07  Q          |          |          |       V  |
  22+25       0.2338      0.07  Q          |          |          |       V  |
  22+30       0.2343      0.07  Q          |          |          |       V  |
  22+35       0.2347      0.07  Q          |          |          |       V  |
  22+40       0.2352      0.07  Q          |          |          |       V  |
  22+45       0.2356      0.06  Q          |          |          |       V  |
  22+50       0.2361      0.06  Q          |          |          |       V  |
  22+55       0.2365      0.06  Q          |          |          |       V  |
  23+ 0       0.2369      0.06  Q          |          |          |       V  |
  23+ 5       0.2374      0.06  Q          |          |          |       V  |
  23+10       0.2378      0.06  Q          |          |          |        V |
  23+15       0.2382      0.06  Q          |          |          |        V |
  23+20       0.2387      0.06  Q          |          |          |        V |
  23+25       0.2391      0.06  Q          |          |          |        V |
  23+30       0.2395      0.06  Q          |          |          |        V |
  23+35       0.2399      0.06  Q          |          |          |        V |
  23+40       0.2404      0.06  Q          |          |          |        V |
  23+45       0.2408      0.06  Q          |          |          |        V |
  23+50       0.2412      0.06  Q          |          |          |        V |
  23+55       0.2416      0.06  Q          |          |          |        V |
  24+ 0       0.2420      0.06  Q          |          |          |        V |
-------------------------------------------------------------------------
```

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

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Study date 06/30/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM PRE-DEVELOPED CONDITION
TR 18345, CITY OF VICTORVILLE
TRIBUTARY AREA AA7 TO AA8
FILE: 18345HYDROAA7AA8PRE100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
2.29	1	1.13
Rainfall data for year 100		
2.29	6	2.46
Rainfall data for year 100		
2.29	24	5.19

++

******** Area-averaged max loss rate, Fm ********

```
SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 50.0      70.0          2.29      1.000     0.532    1.000    0.532

Area-averaged adjusted loss rate Fm (In/Hr) =  0.532

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     2.29   1.000         50.0      70.0       4.29     0.420

Area-averaged catchment yield fraction, Y =  0.420
Area-averaged low loss fraction, Yb =  0.580
User entry of time of concentration  =   0.342 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       2.29(Ac.)
Catchment Lag time =   0.273 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 30.5027
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.532(In/Hr)
Average low loss rate fraction (Yb) = 0.580 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.536(In)
Computed peak 30-minute rainfall =  0.918(In)
Specified peak 1-hour rainfall =  1.130(In)
Computed peak 3-hour rainfall =  1.821(In)
Specified peak 6-hour rainfall =  2.460(In)
Specified peak 24-hour rainfall =  5.190(In)


Rainfall depth area reduction factors:
Using a total area of       2.29(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.536(In)
30-minute factor = 1.000    Adjusted rainfall =  0.918(In)
1-hour factor = 1.000       Adjusted rainfall =  1.130(In)
3-hour factor = 1.000       Adjusted rainfall =  1.821(In)
6-hour factor = 1.000       Adjusted rainfall =  2.460(In)
24-hour factor = 1.000      Adjusted rainfall =  5.190(In)
----------------------------------------------------------------------

                U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
           (K =        27.69 (CFS))

  1                1.807                    0.500
  2                9.748                    2.199
  3               31.794                    6.106
  4               53.171                    5.921
```

5	64.935	3.258
6	72.462	2.085
7	77.898	1.506
8	81.955	1.124
9	85.183	0.894
10	87.874	0.745
11	89.909	0.564
12	91.610	0.471
13	93.071	0.405
14	94.299	0.340
15	95.330	0.286
16	96.193	0.239
17	96.941	0.207
18	97.508	0.157
19	97.943	0.120
20	98.251	0.085
21	98.604	0.098
22	98.970	0.101
23	99.335	0.101
24	99.605	0.075
25	99.796	0.053
26	100.000	0.026

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5361	0.5361
2	0.6601	0.1239
3	0.7454	0.0854
4	0.8126	0.0672
5	0.8689	0.0563
6	0.9177	0.0488
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0697	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1698	0.0400
14	1.2081	0.0383
15	1.2448	0.0367
16	1.2802	0.0354
17	1.3144	0.0342
18	1.3474	0.0330
19	1.3794	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5267	0.0280
25	1.5540	0.0273
26	1.5807	0.0267
27	1.6068	0.0261
28	1.6324	0.0256
29	1.6575	0.0251

30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7531	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8424	0.0218
38	1.8639	0.0215
39	1.8850	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203
43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2395	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3053	0.0162
63	2.3214	0.0161
64	2.3373	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4149	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4965	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5683	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173

84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162
97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4234	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137

138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5328	0.0135
142	3.5463	0.0135
143	3.5597	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6262	0.0132
149	3.6394	0.0132
150	3.6526	0.0131
151	3.6656	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7944	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8948	0.0124
170	3.9072	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117

192	4.1719	0.0117
193	4.1836	0.0117
194	4.1952	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2875	0.0114
203	4.2990	0.0114
204	4.3104	0.0114
205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4117	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4892	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6728	0.0106
238	4.6835	0.0106
239	4.6940	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7571	0.0105

246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8607	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102
259	4.9017	0.0102
260	4.9118	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0921	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1705	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0056	0.0041
2	0.0097	0.0056	0.0041
3	0.0098	0.0057	0.0041
4	0.0098	0.0057	0.0041
5	0.0098	0.0057	0.0041
6	0.0098	0.0057	0.0041

7	0.0099	0.0057	0.0041
8	0.0099	0.0057	0.0041
9	0.0099	0.0057	0.0042
10	0.0099	0.0058	0.0042
11	0.0100	0.0058	0.0042
12	0.0100	0.0058	0.0042
13	0.0100	0.0058	0.0042
14	0.0100	0.0058	0.0042
15	0.0101	0.0058	0.0042
16	0.0101	0.0058	0.0042
17	0.0101	0.0059	0.0042
18	0.0101	0.0059	0.0043
19	0.0102	0.0059	0.0043
20	0.0102	0.0059	0.0043
21	0.0102	0.0059	0.0043
22	0.0102	0.0059	0.0043
23	0.0103	0.0060	0.0043
24	0.0103	0.0060	0.0043
25	0.0103	0.0060	0.0043
26	0.0104	0.0060	0.0043
27	0.0104	0.0060	0.0044
28	0.0104	0.0060	0.0044
29	0.0104	0.0061	0.0044
30	0.0105	0.0061	0.0044
31	0.0105	0.0061	0.0044
32	0.0105	0.0061	0.0044
33	0.0106	0.0061	0.0044
34	0.0106	0.0061	0.0044
35	0.0106	0.0062	0.0045
36	0.0106	0.0062	0.0045
37	0.0107	0.0062	0.0045
38	0.0107	0.0062	0.0045
39	0.0108	0.0062	0.0045
40	0.0108	0.0063	0.0045
41	0.0108	0.0063	0.0045
42	0.0108	0.0063	0.0046
43	0.0109	0.0063	0.0046
44	0.0109	0.0063	0.0046
45	0.0110	0.0064	0.0046
46	0.0110	0.0064	0.0046
47	0.0110	0.0064	0.0046
48	0.0110	0.0064	0.0046
49	0.0111	0.0064	0.0047
50	0.0111	0.0065	0.0047
51	0.0112	0.0065	0.0047
52	0.0112	0.0065	0.0047
53	0.0112	0.0065	0.0047
54	0.0113	0.0065	0.0047
55	0.0113	0.0066	0.0047
56	0.0113	0.0066	0.0048
57	0.0114	0.0066	0.0048
58	0.0114	0.0066	0.0048
59	0.0115	0.0067	0.0048
60	0.0115	0.0067	0.0048

61	0.0116	0.0067	0.0048
62	0.0116	0.0067	0.0049
63	0.0116	0.0068	0.0049
64	0.0117	0.0068	0.0049
65	0.0117	0.0068	0.0049
66	0.0117	0.0068	0.0049
67	0.0118	0.0068	0.0050
68	0.0118	0.0069	0.0050
69	0.0119	0.0069	0.0050
70	0.0119	0.0069	0.0050
71	0.0120	0.0070	0.0050
72	0.0120	0.0070	0.0050
73	0.0121	0.0070	0.0051
74	0.0121	0.0070	0.0051
75	0.0122	0.0071	0.0051
76	0.0122	0.0071	0.0051
77	0.0123	0.0071	0.0051
78	0.0123	0.0071	0.0052
79	0.0124	0.0072	0.0052
80	0.0124	0.0072	0.0052
81	0.0125	0.0072	0.0052
82	0.0125	0.0073	0.0052
83	0.0126	0.0073	0.0053
84	0.0126	0.0073	0.0053
85	0.0127	0.0074	0.0053
86	0.0127	0.0074	0.0053
87	0.0128	0.0074	0.0054
88	0.0128	0.0074	0.0054
89	0.0129	0.0075	0.0054
90	0.0129	0.0075	0.0054
91	0.0130	0.0076	0.0055
92	0.0131	0.0076	0.0055
93	0.0131	0.0076	0.0055
94	0.0132	0.0076	0.0055
95	0.0133	0.0077	0.0056
96	0.0133	0.0077	0.0056
97	0.0134	0.0078	0.0056
98	0.0134	0.0078	0.0056
99	0.0135	0.0078	0.0057
100	0.0136	0.0079	0.0057
101	0.0137	0.0079	0.0057
102	0.0137	0.0079	0.0057
103	0.0138	0.0080	0.0058
104	0.0138	0.0080	0.0058
105	0.0139	0.0081	0.0058
106	0.0140	0.0081	0.0059
107	0.0141	0.0082	0.0059
108	0.0141	0.0082	0.0059
109	0.0142	0.0083	0.0060
110	0.0143	0.0083	0.0060
111	0.0144	0.0084	0.0060
112	0.0145	0.0084	0.0061
113	0.0146	0.0085	0.0061
114	0.0146	0.0085	0.0061

115	0.0147	0.0086	0.0062
116	0.0148	0.0086	0.0062
117	0.0149	0.0087	0.0063
118	0.0150	0.0087	0.0063
119	0.0151	0.0088	0.0063
120	0.0152	0.0088	0.0064
121	0.0153	0.0089	0.0064
122	0.0154	0.0089	0.0064
123	0.0155	0.0090	0.0065
124	0.0156	0.0090	0.0065
125	0.0157	0.0091	0.0066
126	0.0158	0.0092	0.0066
127	0.0159	0.0092	0.0067
128	0.0160	0.0093	0.0067
129	0.0162	0.0094	0.0068
130	0.0162	0.0094	0.0068
131	0.0164	0.0095	0.0069
132	0.0165	0.0096	0.0069
133	0.0166	0.0097	0.0070
134	0.0167	0.0097	0.0070
135	0.0169	0.0098	0.0071
136	0.0170	0.0099	0.0071
137	0.0172	0.0100	0.0072
138	0.0173	0.0100	0.0073
139	0.0175	0.0101	0.0073
140	0.0176	0.0102	0.0074
141	0.0178	0.0103	0.0075
142	0.0179	0.0104	0.0075
143	0.0181	0.0105	0.0076
144	0.0182	0.0106	0.0076
145	0.0149	0.0086	0.0063
146	0.0150	0.0087	0.0063
147	0.0153	0.0089	0.0064
148	0.0154	0.0089	0.0065
149	0.0157	0.0091	0.0066
150	0.0158	0.0092	0.0066
151	0.0161	0.0093	0.0067
152	0.0162	0.0094	0.0068
153	0.0165	0.0096	0.0069
154	0.0167	0.0097	0.0070
155	0.0170	0.0099	0.0071
156	0.0172	0.0100	0.0072
157	0.0175	0.0102	0.0074
158	0.0177	0.0103	0.0074
159	0.0181	0.0105	0.0076
160	0.0183	0.0106	0.0077
161	0.0188	0.0109	0.0079
162	0.0190	0.0110	0.0080
163	0.0195	0.0113	0.0082
164	0.0197	0.0114	0.0083
165	0.0203	0.0118	0.0085
166	0.0205	0.0119	0.0086
167	0.0211	0.0123	0.0089
168	0.0215	0.0125	0.0090

169	0.0221	0.0128	0.0093
170	0.0225	0.0131	0.0094
171	0.0233	0.0135	0.0098
172	0.0237	0.0137	0.0099
173	0.0246	0.0143	0.0103
174	0.0251	0.0145	0.0105
175	0.0261	0.0152	0.0110
176	0.0267	0.0155	0.0112
177	0.0280	0.0162	0.0117
178	0.0287	0.0166	0.0120
179	0.0302	0.0175	0.0127
180	0.0311	0.0180	0.0130
181	0.0330	0.0192	0.0139
182	0.0342	0.0198	0.0143
183	0.0367	0.0213	0.0154
184	0.0383	0.0222	0.0161
185	0.0291	0.0169	0.0122
186	0.0310	0.0180	0.0130
187	0.0360	0.0209	0.0151
188	0.0393	0.0228	0.0165
189	0.0488	0.0283	0.0205
190	0.0563	0.0326	0.0236
191	0.0854	0.0444	0.0410
192	0.1239	0.0444	0.0796
193	0.5361	0.0444	0.4918
194	0.0672	0.0390	0.0282
195	0.0434	0.0252	0.0182
196	0.0333	0.0193	0.0140
197	0.0400	0.0232	0.0168
198	0.0354	0.0205	0.0149
199	0.0320	0.0186	0.0134
200	0.0294	0.0171	0.0123
201	0.0273	0.0158	0.0115
202	0.0256	0.0148	0.0107
203	0.0241	0.0140	0.0101
204	0.0229	0.0133	0.0096
205	0.0218	0.0126	0.0091
206	0.0208	0.0121	0.0087
207	0.0200	0.0116	0.0084
208	0.0192	0.0112	0.0081
209	0.0186	0.0108	0.0078
210	0.0179	0.0104	0.0075
211	0.0174	0.0101	0.0073
212	0.0168	0.0098	0.0071
213	0.0164	0.0095	0.0069
214	0.0159	0.0092	0.0067
215	0.0155	0.0090	0.0065
216	0.0151	0.0088	0.0064
217	0.0183	0.0106	0.0077
218	0.0180	0.0104	0.0076
219	0.0177	0.0103	0.0074
220	0.0174	0.0101	0.0073
221	0.0171	0.0099	0.0072
222	0.0168	0.0098	0.0071

223	0.0166	0.0096	0.0069
224	0.0163	0.0095	0.0068
225	0.0161	0.0093	0.0067
226	0.0158	0.0092	0.0067
227	0.0156	0.0091	0.0066
228	0.0154	0.0090	0.0065
229	0.0152	0.0088	0.0064
230	0.0150	0.0087	0.0063
231	0.0149	0.0086	0.0062
232	0.0147	0.0085	0.0062
233	0.0145	0.0084	0.0061
234	0.0143	0.0083	0.0060
235	0.0142	0.0082	0.0060
236	0.0140	0.0081	0.0059
237	0.0139	0.0081	0.0058
238	0.0137	0.0080	0.0058
239	0.0136	0.0079	0.0057
240	0.0135	0.0078	0.0057
241	0.0133	0.0077	0.0056
242	0.0132	0.0077	0.0055
243	0.0131	0.0076	0.0055
244	0.0130	0.0075	0.0054
245	0.0129	0.0075	0.0054
246	0.0127	0.0074	0.0054
247	0.0126	0.0073	0.0053
248	0.0125	0.0073	0.0053
249	0.0124	0.0072	0.0052
250	0.0123	0.0072	0.0052
251	0.0122	0.0071	0.0051
252	0.0121	0.0070	0.0051
253	0.0120	0.0070	0.0051
254	0.0119	0.0069	0.0050
255	0.0119	0.0069	0.0050
256	0.0118	0.0068	0.0049
257	0.0117	0.0068	0.0049
258	0.0116	0.0067	0.0049
259	0.0115	0.0067	0.0048
260	0.0114	0.0066	0.0048
261	0.0114	0.0066	0.0048
262	0.0113	0.0066	0.0047
263	0.0112	0.0065	0.0047
264	0.0111	0.0065	0.0047
265	0.0111	0.0064	0.0046
266	0.0110	0.0064	0.0046
267	0.0109	0.0063	0.0046
268	0.0109	0.0063	0.0046
269	0.0108	0.0063	0.0045
270	0.0107	0.0062	0.0045
271	0.0107	0.0062	0.0045
272	0.0106	0.0062	0.0045
273	0.0105	0.0061	0.0044
274	0.0105	0.0061	0.0044
275	0.0104	0.0061	0.0044
276	0.0104	0.0060	0.0044

277	0.0103	0.0060	0.0043
278	0.0103	0.0060	0.0043
279	0.0102	0.0059	0.0043
280	0.0101	0.0059	0.0043
281	0.0101	0.0059	0.0042
282	0.0100	0.0058	0.0042
283	0.0100	0.0058	0.0042
284	0.0099	0.0058	0.0042
285	0.0099	0.0057	0.0042
286	0.0098	0.0057	0.0041
287	0.0098	0.0057	0.0041
288	0.0097	0.0057	0.0041

Total soil rain loss = 2.71(In)
Total effective rainfall = 2.48(In)
Peak flow rate in flood hydrograph = 3.84(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

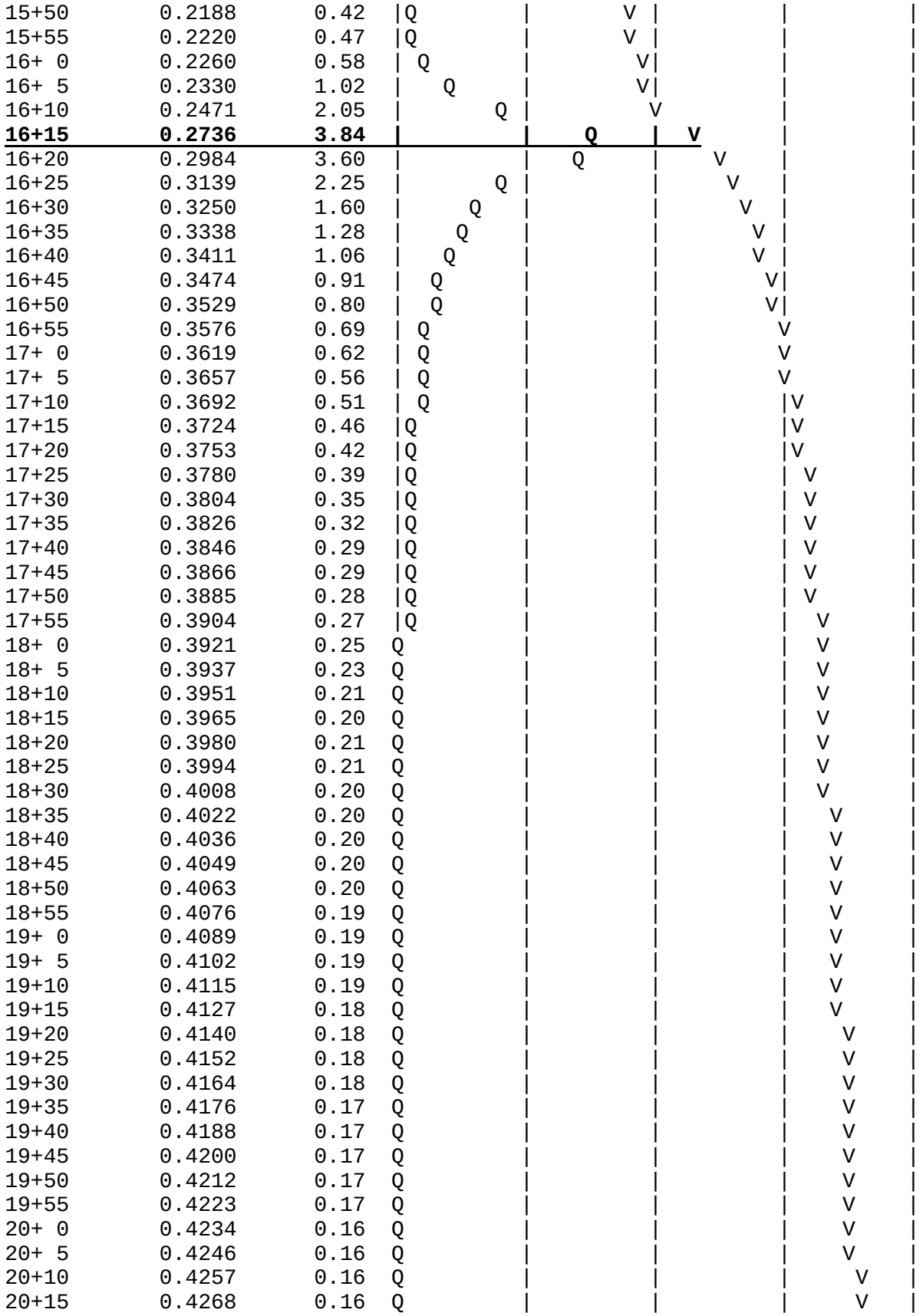
Hydrograph in 5 Minute intervals ((CFS))

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	0.0003	0.04	Q				
0+20	0.0008	0.06	Q				
0+25	0.0013	0.07	Q				
0+30	0.0018	0.08	Q				
0+35	0.0024	0.09	Q				
0+40	0.0031	0.09	Q				
0+45	0.0037	0.10	Q				
0+50	0.0044	0.10	Q				
0+55	0.0051	0.10	Q				
1+ 0	0.0059	0.11	Q				
1+ 5	0.0066	0.11	Q				
1+10	0.0074	0.11	Q				
1+15	0.0081	0.11	Q				
1+20	0.0089	0.11	Q				
1+25	0.0097	0.11	Q				
1+30	0.0104	0.11	Q				
1+35	0.0112	0.11	Q				
1+40	0.0120	0.11	QV				
1+45	0.0128	0.12	QV				
1+50	0.0136	0.12	QV				
1+55	0.0144	0.12	QV				
2+ 0	0.0152	0.12	QV				
2+ 5	0.0161	0.12	QV				
2+10	0.0169	0.12	QV				
2+15	0.0177	0.12	QV				

2+20	0.0185	0.12	QV	|	|	|	|
2+25	0.0193	0.12	QV	|	|	|	|
2+30	0.0202	0.12	QV	|	|	|	|
2+35	0.0210	0.12	QV	|	|	|	|
2+40	0.0218	0.12	QV	|	|	|	|
2+45	0.0227	0.12	QV	|	|	|	|
2+50	0.0235	0.12	QV	|	|	|	|
2+55	0.0243	0.12	Q V	|	|	|	|
3+ 0	0.0252	0.12	Q V	|	|	|	|
3+ 5	0.0260	0.12	Q V	|	|	|	|
3+10	0.0269	0.12	Q V	|	|	|	|
3+15	0.0277	0.12	Q V	|	|	|	|
3+20	0.0286	0.12	Q V	|	|	|	|
3+25	0.0294	0.12	Q V	|	|	|	|
3+30	0.0303	0.12	Q V	|	|	|	|
3+35	0.0311	0.12	Q V	|	|	|	|
3+40	0.0320	0.12	Q V	|	|	|	|
3+45	0.0328	0.13	Q V	|	|	|	|
3+50	0.0337	0.13	Q V	|	|	|	|
3+55	0.0346	0.13	Q V	|	|	|	|
4+ 0	0.0354	0.13	Q V	|	|	|	|
4+ 5	0.0363	0.13	Q V	|	|	|	|
4+10	0.0372	0.13	Q V	|	|	|	|
4+15	0.0381	0.13	Q V	|	|	|	|
4+20	0.0390	0.13	Q V	|	|	|	|
4+25	0.0398	0.13	Q V	|	|	|	|
4+30	0.0407	0.13	Q V	|	|	|	|
4+35	0.0416	0.13	Q V	|	|	|	|
4+40	0.0425	0.13	Q V	|	|	|	|
4+45	0.0434	0.13	Q V	|	|	|	|
4+50	0.0443	0.13	Q V	|	|	|	|
4+55	0.0452	0.13	Q V	|	|	|	|
5+ 0	0.0461	0.13	Q V	|	|	|	|
5+ 5	0.0470	0.13	Q V	|	|	|	|
5+10	0.0479	0.13	Q V	|	|	|	|
5+15	0.0489	0.13	Q V	|	|	|	|
5+20	0.0498	0.13	Q V	|	|	|	|
5+25	0.0507	0.13	Q V	|	|	|	|
5+30	0.0516	0.13	Q V	|	|	|	|
5+35	0.0525	0.13	Q V	|	|	|	|
5+40	0.0535	0.14	Q V	|	|	|	|
5+45	0.0544	0.14	Q V	|	|	|	|
5+50	0.0553	0.14	Q V	|	|	|	|
5+55	0.0563	0.14	Q V	|	|	|	|
6+ 0	0.0572	0.14	Q V	|	|	|	|
6+ 5	0.0582	0.14	Q V	|	|	|	|
6+10	0.0591	0.14	Q V	|	|	|	|
6+15	0.0601	0.14	Q V	|	|	|	|
6+20	0.0610	0.14	Q V	|	|	|	|
6+25	0.0620	0.14	Q V	|	|	|	|
6+30	0.0630	0.14	Q V	|	|	|	|
6+35	0.0639	0.14	Q V	|	|	|	|
6+40	0.0649	0.14	Q V	|	|	|	|
6+45	0.0659	0.14	Q V	|	|	|	|

6+50	0.0669	0.14	Q	V	|	|	|	|
6+55	0.0679	0.14	Q	V	|	|	|	|
7+ 0	0.0688	0.14	Q	V	|	|	|	|
7+ 5	0.0698	0.14	Q	V	|	|	|	|
7+10	0.0708	0.14	Q	V	|	|	|	|
7+15	0.0718	0.15	Q	V	|	|	|	|
7+20	0.0728	0.15	Q	V	|	|	|	|
7+25	0.0738	0.15	Q	V	|	|	|	|
7+30	0.0749	0.15	Q	V	|	|	|	|
7+35	0.0759	0.15	Q	V	|	|	|	|
7+40	0.0769	0.15	Q	V	|	|	|	|
7+45	0.0779	0.15	Q	V	|	|	|	|
7+50	0.0790	0.15	Q	V	|	|	|	|
7+55	0.0800	0.15	Q	V	|	|	|	|
8+ 0	0.0810	0.15	Q	V	|	|	|	|
8+ 5	0.0821	0.15	Q	V	|	|	|	|
8+10	0.0831	0.15	Q	V	|	|	|	|
8+15	0.0842	0.15	Q	V	|	|	|	|
8+20	0.0853	0.15	Q	V	|	|	|	|
8+25	0.0863	0.15	Q	V	|	|	|	|
8+30	0.0874	0.16	Q	V	|	|	|	|
8+35	0.0885	0.16	Q	V	|	|	|	|
8+40	0.0895	0.16	Q	V	|	|	|	|
8+45	0.0906	0.16	Q	V	|	|	|	|
8+50	0.0917	0.16	Q	V	|	|	|	|
8+55	0.0928	0.16	Q	V	|	|	|	|
9+ 0	0.0939	0.16	Q	V	|	|	|	|
9+ 5	0.0950	0.16	Q	V	|	|	|	|
9+10	0.0961	0.16	Q	V	|	|	|	|
9+15	0.0973	0.16	Q	V	|	|	|	|
9+20	0.0984	0.16	Q	V	|	|	|	|
9+25	0.0995	0.16	Q	V	|	|	|	|
9+30	0.1007	0.17	Q	V	|	|	|	|
9+35	0.1018	0.17	Q	V	|	|	|	|
9+40	0.1030	0.17	Q	V	|	|	|	|
9+45	0.1041	0.17	Q	V	|	|	|	|
9+50	0.1053	0.17	Q	V	|	|	|	|
9+55	0.1065	0.17	Q	V|		|	|	|
10+ 0	0.1076	0.17	Q	V|		|	|	|
10+ 5	0.1088	0.17	Q	V|		|	|	|
10+10	0.1100	0.17	Q	V|		|	|	|
10+15	0.1112	0.17	Q	V|		|	|	|
10+20	0.1124	0.18	Q	V|		|	|	|
10+25	0.1137	0.18	Q	V|		|	|	|
10+30	0.1149	0.18	Q	V|		|	|	|
10+35	0.1161	0.18	Q	V|		|	|	|
10+40	0.1173	0.18	Q	V|		|	|	|
10+45	0.1186	0.18	Q	V		|	|	|
10+50	0.1199	0.18	Q	V		|	|	|
10+55	0.1211	0.18	Q	V		|	|	|
11+ 0	0.1224	0.19	Q	V		|	|	|
11+ 5	0.1237	0.19	Q	V		|	|	|
11+10	0.1250	0.19	Q	V		|	|	|
11+15	0.1263	0.19	Q	V		|	|	|

```
11+20       0.1276      0.19  Q         V          |          |          |
11+25       0.1289      0.19  Q         V          |          |          |
11+30       0.1302      0.19  Q         |V         |          |          |
11+35       0.1316      0.20  Q         |V         |          |          |
11+40       0.1329      0.20  Q         |V         |          |          |
11+45       0.1343      0.20  Q         |V         |          |          |
11+50       0.1357      0.20  Q         |V         |          |          |
11+55       0.1371      0.20  Q         |V         |          |          |
12+ 0       0.1385      0.20  Q         |V         |          |          |
12+ 5       0.1399      0.20  Q         |V         |          |          |
12+10       0.1413      0.20  Q         |V         |          |          |
12+15       0.1426      0.20  Q         | V        |          |          |
12+20       0.1439      0.19  Q         | V        |          |          |
12+25       0.1452      0.19  Q         | V        |          |          |
12+30       0.1465      0.18  Q         | V        |          |          |
12+35       0.1477      0.18  Q         | V        |          |          |
12+40       0.1490      0.19  Q         | V        |          |          |
12+45       0.1503      0.19  Q         | V        |          |          |
12+50       0.1516      0.19  Q         | V        |          |          |
12+55       0.1529      0.19  Q         | V        |          |          |
13+ 0       0.1542      0.19  Q         |  V       |          |          |
13+ 5       0.1555      0.19  Q         |  V       |          |          |
13+10       0.1569      0.19  Q         |  V       |          |          |
13+15       0.1582      0.20  Q         |  V       |          |          |
13+20       0.1596      0.20  Q         |  V       |          |          |
13+25       0.1610      0.20  Q         |  V       |          |          |
13+30       0.1624      0.21  Q         |  V       |          |          |
13+35       0.1639      0.21  Q         |  V       |          |          |
13+40       0.1653      0.21  Q         |   V      |          |          |
13+45       0.1668      0.22  Q         |   V      |          |          |
13+50       0.1683      0.22  Q         |   V      |          |          |
13+55       0.1699      0.22  Q         |   V      |          |          |
14+ 0       0.1714      0.23  Q         |   V      |          |          |
14+ 5       0.1730      0.23  Q         |   V      |          |          |
14+10       0.1747      0.24  Q         |   V      |          |          |
14+15       0.1763      0.24  Q         |   V      |          |          |
14+20       0.1781      0.25  Q         |    V     |          |          |
14+25       0.1798      0.25  |Q        |    V     |          |          |
14+30       0.1816      0.26  |Q        |    V     |          |          |
14+35       0.1834      0.27  |Q        |    V     |          |          |
14+40       0.1853      0.27  |Q        |    V     |          |          |
14+45       0.1873      0.28  |Q        |    V     |          |          |
14+50       0.1893      0.29  |Q        |     V    |          |          |
14+55       0.1913      0.30  |Q        |     V    |          |          |
15+ 0       0.1934      0.31  |Q        |     V    |          |          |
15+ 5       0.1956      0.32  |Q        |     V    |          |          |
15+10       0.1979      0.33  |Q        |     V    |          |          |
15+15       0.2003      0.35  |Q        |     V    |          |          |
15+20       0.2028      0.36  |Q        |      V   |          |          |
15+25       0.2054      0.38  |Q        |      V   |          |          |
15+30       0.2081      0.39  |Q        |      V   |          |          |
15+35       0.2107      0.38  |Q        |      V   |          |          |
15+40       0.2132      0.37  |Q        |       V  |          |          |
15+45       0.2159      0.39  |Q        |       V  |          |          |
```



20+20	0.4279	0.16	Q	|	|	|	V |
20+25	0.4290	0.16	Q	|	|	|	V |
20+30	0.4300	0.16	Q	|	|	|	V |
20+35	0.4311	0.15	Q	|	|	|	V |
20+40	0.4321	0.15	Q	|	|	|	V |
20+45	0.4332	0.15	Q	|	|	|	V |
20+50	0.4342	0.15	Q	|	|	|	V |
20+55	0.4352	0.15	Q	|	|	|	V |
21+ 0	0.4362	0.15	Q	|	|	|	V |
21+ 5	0.4372	0.15	Q	|	|	|	V |
21+10	0.4382	0.14	Q	|	|	|	V |
21+15	0.4392	0.14	Q	|	|	|	V |
21+20	0.4402	0.14	Q	|	|	|	V |
21+25	0.4412	0.14	Q	|	|	|	V |
21+30	0.4421	0.14	Q	|	|	|	V |
21+35	0.4431	0.14	Q	|	|	|	V |
21+40	0.4440	0.14	Q	|	|	|	V |
21+45	0.4450	0.14	Q	|	|	|	V |
21+50	0.4459	0.14	Q	|	|	|	V |
21+55	0.4468	0.13	Q	|	|	|	V |
22+ 0	0.4478	0.13	Q	|	|	|	V |
22+ 5	0.4487	0.13	Q	|	|	|	V |
22+10	0.4496	0.13	Q	|	|	|	V |
22+15	0.4505	0.13	Q	|	|	|	V |
22+20	0.4514	0.13	Q	|	|	|	V |
22+25	0.4523	0.13	Q	|	|	|	V |
22+30	0.4532	0.13	Q	|	|	|	V |
22+35	0.4540	0.13	Q	|	|	|	V |
22+40	0.4549	0.13	Q	|	|	|	V |
22+45	0.4558	0.13	Q	|	|	|	V |
22+50	0.4566	0.13	Q	|	|	|	V |
22+55	0.4575	0.12	Q	|	|	|	V |
23+ 0	0.4584	0.12	Q	|	|	|	V |
23+ 5	0.4592	0.12	Q	|	|	|	V |
23+10	0.4601	0.12	Q	|	|	|	V |
23+15	0.4609	0.12	Q	|	|	|	V|
23+20	0.4617	0.12	Q	|	|	|	V|
23+25	0.4626	0.12	Q	|	|	|	V|
23+30	0.4634	0.12	Q	|	|	|	V|
23+35	0.4642	0.12	Q	|	|	|	V|
23+40	0.4650	0.12	Q	|	|	|	V|
23+45	0.4658	0.12	Q	|	|	|	V|
23+50	0.4666	0.12	Q	|	|	|	V|
23+55	0.4674	0.12	Q	|	|	|	V|
24+ 0	0.4682	0.12	Q	|	|	|	V|

TT 20527

100-year, 24-Hours Storm Events

Unit Hydrograph Post–Developed

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 06/29/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM POST-DEVELOPED CONDITION
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA A1-A
FILE: 18345HYDROA1APOST100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
1.97	1	1.13
Rainfall data for year 100		
1.97	6	2.46
Rainfall data for year 100		
1.97	24	5.19

++

******** Area-averaged max loss rate, Fm ********

SCS curve No.(AMCII)	SCS curve NO.(AMC 3)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
32.0	52.0	1.97	1.000	0.785	0.600	0.471

Area-averaged adjusted loss rate Fm (In/Hr) = 0.471

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
1.18	0.600	32.0	52.0	9.23	0.171
0.79	0.400	98.0	98.0	0.20	0.954

Area-averaged catchment yield fraction, Y = 0.485
Area-averaged low loss fraction, Yb = 0.515
User entry of time of concentration = 0.152 (hours)
++
Watershed area = 1.97(Ac.)
Catchment Lag time = 0.122 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 68.3822
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.471(In/Hr)
Average low loss rate fraction (Yb) = 0.515 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall = 0.536(In)
Computed peak 30-minute rainfall = 0.918(In)
Specified peak 1-hour rainfall = 1.130(In)
Computed peak 3-hour rainfall = 1.821(In)
Specified peak 6-hour rainfall = 2.460(In)
Specified peak 24-hour rainfall = 5.190(In)

Rainfall depth area reduction factors:
Using a total area of 1.97(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.536(In)
30-minute factor = 1.000 Adjusted rainfall = 0.918(In)
1-hour factor = 1.000 Adjusted rainfall = 1.130(In)
3-hour factor = 1.000 Adjusted rainfall = 1.821(In)
6-hour factor = 1.000 Adjusted rainfall = 2.460(In)
24-hour factor = 1.000 Adjusted rainfall = 5.190(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
(K = 23.82 (CFS))		
1	7.398	1.763
2	49.172	9.952
3	72.782	5.625

4	83.031	2.442
5	89.052	1.435
6	92.805	0.894
7	95.364	0.610
8	97.105	0.415
9	98.115	0.241
10	98.896	0.186
11	99.602	0.168
12	100.000	0.095

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5361	0.5361
2	0.6601	0.1239
3	0.7455	0.0854
4	0.8126	0.0672
5	0.8689	0.0563
6	0.9178	0.0489
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0698	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1699	0.0400
14	1.2081	0.0383
15	1.2449	0.0367
16	1.2802	0.0354
17	1.3144	0.0342
18	1.3474	0.0330
19	1.3794	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5267	0.0280
25	1.5540	0.0273
26	1.5807	0.0267
27	1.6068	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7532	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8425	0.0218
38	1.8639	0.0215
39	1.8850	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203

43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2395	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3053	0.0162
63	2.3214	0.0161
64	2.3373	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4149	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4966	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5683	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162

97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4234	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5329	0.0135
142	3.5463	0.0135
143	3.5597	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6262	0.0132
149	3.6394	0.0132
150	3.6526	0.0131

151	3.6657	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7945	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8949	0.0124
170	3.9072	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117
194	4.1952	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2875	0.0114
203	4.2990	0.0114
204	4.3104	0.0114

205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4117	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4892	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6729	0.0106
238	4.6835	0.0106
239	4.6940	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7571	0.0105
246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8607	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102

259	4.9017	0.0102
260	4.9118	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0921	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1705	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0050	0.0047
2	0.0097	0.0050	0.0047
3	0.0098	0.0050	0.0047
4	0.0098	0.0050	0.0047
5	0.0098	0.0051	0.0048
6	0.0098	0.0051	0.0048
7	0.0099	0.0051	0.0048
8	0.0099	0.0051	0.0048
9	0.0099	0.0051	0.0048
10	0.0099	0.0051	0.0048
11	0.0100	0.0051	0.0048
12	0.0100	0.0051	0.0048
13	0.0100	0.0052	0.0048
14	0.0100	0.0052	0.0049
15	0.0101	0.0052	0.0049
16	0.0101	0.0052	0.0049
17	0.0101	0.0052	0.0049
18	0.0101	0.0052	0.0049
19	0.0102	0.0052	0.0049

20	0.0102	0.0052	0.0049
21	0.0102	0.0053	0.0050
22	0.0102	0.0053	0.0050
23	0.0103	0.0053	0.0050
24	0.0103	0.0053	0.0050
25	0.0103	0.0053	0.0050
26	0.0104	0.0053	0.0050
27	0.0104	0.0054	0.0050
28	0.0104	0.0054	0.0050
29	0.0104	0.0054	0.0051
30	0.0105	0.0054	0.0051
31	0.0105	0.0054	0.0051
32	0.0105	0.0054	0.0051
33	0.0106	0.0054	0.0051
34	0.0106	0.0055	0.0051
35	0.0106	0.0055	0.0051
36	0.0106	0.0055	0.0052
37	0.0107	0.0055	0.0052
38	0.0107	0.0055	0.0052
39	0.0108	0.0055	0.0052
40	0.0108	0.0056	0.0052
41	0.0108	0.0056	0.0052
42	0.0108	0.0056	0.0053
43	0.0109	0.0056	0.0053
44	0.0109	0.0056	0.0053
45	0.0110	0.0056	0.0053
46	0.0110	0.0057	0.0053
47	0.0110	0.0057	0.0053
48	0.0110	0.0057	0.0054
49	0.0111	0.0057	0.0054
50	0.0111	0.0057	0.0054
51	0.0112	0.0058	0.0054
52	0.0112	0.0058	0.0054
53	0.0112	0.0058	0.0054
54	0.0113	0.0058	0.0055
55	0.0113	0.0058	0.0055
56	0.0113	0.0058	0.0055
57	0.0114	0.0059	0.0055
58	0.0114	0.0059	0.0055
59	0.0115	0.0059	0.0056
60	0.0115	0.0059	0.0056
61	0.0116	0.0060	0.0056
62	0.0116	0.0060	0.0056
63	0.0116	0.0060	0.0056
64	0.0117	0.0060	0.0056
65	0.0117	0.0060	0.0057
66	0.0117	0.0061	0.0057
67	0.0118	0.0061	0.0057
68	0.0118	0.0061	0.0057
69	0.0119	0.0061	0.0058
70	0.0119	0.0061	0.0058
71	0.0120	0.0062	0.0058
72	0.0120	0.0062	0.0058
73	0.0121	0.0062	0.0058

74	0.0121	0.0062	0.0059
75	0.0122	0.0063	0.0059
76	0.0122	0.0063	0.0059
77	0.0123	0.0063	0.0059
78	0.0123	0.0063	0.0060
79	0.0124	0.0064	0.0060
80	0.0124	0.0064	0.0060
81	0.0125	0.0064	0.0060
82	0.0125	0.0064	0.0061
83	0.0126	0.0065	0.0061
84	0.0126	0.0065	0.0061
85	0.0127	0.0065	0.0061
86	0.0127	0.0066	0.0062
87	0.0128	0.0066	0.0062
88	0.0128	0.0066	0.0062
89	0.0129	0.0066	0.0062
90	0.0129	0.0067	0.0063
91	0.0130	0.0067	0.0063
92	0.0131	0.0067	0.0063
93	0.0131	0.0068	0.0064
94	0.0132	0.0068	0.0064
95	0.0133	0.0068	0.0064
96	0.0133	0.0069	0.0064
97	0.0134	0.0069	0.0065
98	0.0134	0.0069	0.0065
99	0.0135	0.0070	0.0065
100	0.0136	0.0070	0.0066
101	0.0137	0.0070	0.0066
102	0.0137	0.0071	0.0066
103	0.0138	0.0071	0.0067
104	0.0138	0.0071	0.0067
105	0.0139	0.0072	0.0068
106	0.0140	0.0072	0.0068
107	0.0141	0.0073	0.0068
108	0.0141	0.0073	0.0068
109	0.0142	0.0073	0.0069
110	0.0143	0.0074	0.0069
111	0.0144	0.0074	0.0070
112	0.0145	0.0075	0.0070
113	0.0146	0.0075	0.0071
114	0.0146	0.0075	0.0071
115	0.0147	0.0076	0.0071
116	0.0148	0.0076	0.0072
117	0.0149	0.0077	0.0072
118	0.0150	0.0077	0.0073
119	0.0151	0.0078	0.0073
120	0.0152	0.0078	0.0073
121	0.0153	0.0079	0.0074
122	0.0154	0.0079	0.0074
123	0.0155	0.0080	0.0075
124	0.0156	0.0080	0.0075
125	0.0157	0.0081	0.0076
126	0.0158	0.0081	0.0076
127	0.0159	0.0082	0.0077

128	0.0160	0.0082	0.0078
129	0.0162	0.0083	0.0078
130	0.0162	0.0084	0.0079
131	0.0164	0.0084	0.0079
132	0.0165	0.0085	0.0080
133	0.0166	0.0086	0.0081
134	0.0167	0.0086	0.0081
135	0.0169	0.0087	0.0082
136	0.0170	0.0088	0.0082
137	0.0172	0.0089	0.0083
138	0.0173	0.0089	0.0084
139	0.0175	0.0090	0.0085
140	0.0176	0.0091	0.0085
141	0.0178	0.0092	0.0086
142	0.0179	0.0092	0.0087
143	0.0181	0.0093	0.0088
144	0.0182	0.0094	0.0088
145	0.0149	0.0077	0.0072
146	0.0150	0.0077	0.0073
147	0.0153	0.0079	0.0074
148	0.0154	0.0079	0.0075
149	0.0157	0.0081	0.0076
150	0.0158	0.0081	0.0076
151	0.0161	0.0083	0.0078
152	0.0162	0.0084	0.0079
153	0.0165	0.0085	0.0080
154	0.0167	0.0086	0.0081
155	0.0170	0.0088	0.0082
156	0.0172	0.0089	0.0083
157	0.0175	0.0090	0.0085
158	0.0177	0.0091	0.0086
159	0.0181	0.0093	0.0088
160	0.0183	0.0095	0.0089
161	0.0188	0.0097	0.0091
162	0.0190	0.0098	0.0092
163	0.0195	0.0100	0.0094
164	0.0197	0.0102	0.0096
165	0.0203	0.0104	0.0098
166	0.0205	0.0106	0.0100
167	0.0211	0.0109	0.0102
168	0.0215	0.0111	0.0104
169	0.0221	0.0114	0.0107
170	0.0225	0.0116	0.0109
171	0.0233	0.0120	0.0113
172	0.0237	0.0122	0.0115
173	0.0246	0.0127	0.0119
174	0.0251	0.0129	0.0121
175	0.0261	0.0135	0.0127
176	0.0267	0.0138	0.0129
177	0.0280	0.0144	0.0135
178	0.0287	0.0148	0.0139
179	0.0302	0.0156	0.0146
180	0.0311	0.0160	0.0151
181	0.0330	0.0170	0.0160

182	0.0342	0.0176	0.0165
183	0.0367	0.0189	0.0178
184	0.0383	0.0197	0.0185
185	0.0291	0.0150	0.0141
186	0.0310	0.0160	0.0150
187	0.0360	0.0185	0.0174
188	0.0393	0.0203	0.0190
189	0.0489	0.0252	0.0237
190	0.0563	0.0290	0.0273
191	0.0854	0.0393	0.0461
192	0.1239	0.0393	0.0847
193	0.5361	0.0393	0.4969
194	0.0672	0.0346	0.0326
195	0.0434	0.0224	0.0210
196	0.0333	0.0172	0.0161
197	0.0400	0.0206	0.0194
198	0.0354	0.0182	0.0171
199	0.0320	0.0165	0.0155
200	0.0294	0.0152	0.0142
201	0.0273	0.0141	0.0132
202	0.0256	0.0132	0.0124
203	0.0241	0.0124	0.0117
204	0.0229	0.0118	0.0111
205	0.0218	0.0112	0.0106
206	0.0208	0.0107	0.0101
207	0.0200	0.0103	0.0097
208	0.0192	0.0099	0.0093
209	0.0186	0.0096	0.0090
210	0.0179	0.0092	0.0087
211	0.0174	0.0090	0.0084
212	0.0168	0.0087	0.0082
213	0.0164	0.0084	0.0079
214	0.0159	0.0082	0.0077
215	0.0155	0.0080	0.0075
216	0.0151	0.0078	0.0073
217	0.0183	0.0095	0.0089
218	0.0180	0.0093	0.0087
219	0.0177	0.0091	0.0086
220	0.0174	0.0090	0.0084
221	0.0171	0.0088	0.0083
222	0.0168	0.0087	0.0081
223	0.0166	0.0085	0.0080
224	0.0163	0.0084	0.0079
225	0.0161	0.0083	0.0078
226	0.0158	0.0082	0.0077
227	0.0156	0.0081	0.0076
228	0.0154	0.0080	0.0075
229	0.0152	0.0078	0.0074
230	0.0150	0.0078	0.0073
231	0.0149	0.0077	0.0072
232	0.0147	0.0076	0.0071
233	0.0145	0.0075	0.0070
234	0.0143	0.0074	0.0070
235	0.0142	0.0073	0.0069

236	0.0140	0.0072	0.0068
237	0.0139	0.0072	0.0067
238	0.0137	0.0071	0.0067
239	0.0136	0.0070	0.0066
240	0.0135	0.0069	0.0065
241	0.0133	0.0069	0.0065
242	0.0132	0.0068	0.0064
243	0.0131	0.0067	0.0063
244	0.0130	0.0067	0.0063
245	0.0129	0.0066	0.0062
246	0.0127	0.0066	0.0062
247	0.0126	0.0065	0.0061
248	0.0125	0.0065	0.0061
249	0.0124	0.0064	0.0060
250	0.0123	0.0064	0.0060
251	0.0122	0.0063	0.0059
252	0.0121	0.0063	0.0059
253	0.0120	0.0062	0.0058
254	0.0119	0.0062	0.0058
255	0.0119	0.0061	0.0057
256	0.0118	0.0061	0.0057
257	0.0117	0.0060	0.0057
258	0.0116	0.0060	0.0056
259	0.0115	0.0059	0.0056
260	0.0114	0.0059	0.0055
261	0.0114	0.0059	0.0055
262	0.0113	0.0058	0.0055
263	0.0112	0.0058	0.0054
264	0.0111	0.0057	0.0054
265	0.0111	0.0057	0.0054
266	0.0110	0.0057	0.0053
267	0.0109	0.0056	0.0053
268	0.0109	0.0056	0.0053
269	0.0108	0.0056	0.0052
270	0.0107	0.0055	0.0052
271	0.0107	0.0055	0.0052
272	0.0106	0.0055	0.0051
273	0.0105	0.0054	0.0051
274	0.0105	0.0054	0.0051
275	0.0104	0.0054	0.0051
276	0.0104	0.0053	0.0050
277	0.0103	0.0053	0.0050
278	0.0103	0.0053	0.0050
279	0.0102	0.0053	0.0049
280	0.0101	0.0052	0.0049
281	0.0101	0.0052	0.0049
282	0.0100	0.0052	0.0049
283	0.0100	0.0051	0.0048
284	0.0099	0.0051	0.0048
285	0.0099	0.0051	0.0048
286	0.0098	0.0051	0.0048
287	0.0098	0.0050	0.0047
288	0.0097	0.0050	0.0047

Total soil rain loss = 2.41(In)
Total effective rainfall = 2.78(In)
Peak flow rate in flood hydrograph = 5.68(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	0.0004	0.06	Q				
0+15	0.0010	0.08	Q				
0+20	0.0016	0.09	Q				
0+25	0.0023	0.10	Q				
0+30	0.0031	0.10	Q				
0+35	0.0038	0.11	Q				
0+40	0.0046	0.11	Q				
0+45	0.0053	0.11	Q				
0+50	0.0061	0.11	Q				
0+55	0.0069	0.11	Q				
1+ 0	0.0077	0.11	Q				
1+ 5	0.0085	0.11	Q				
1+10	0.0093	0.12	Q				
1+15	0.0101	0.12	Q				
1+20	0.0109	0.12	Q				
1+25	0.0117	0.12	QV				
1+30	0.0125	0.12	QV				
1+35	0.0133	0.12	QV				
1+40	0.0141	0.12	QV				
1+45	0.0149	0.12	QV				
1+50	0.0157	0.12	QV				
1+55	0.0165	0.12	QV				
2+ 0	0.0173	0.12	QV				
2+ 5	0.0181	0.12	QV				
2+10	0.0189	0.12	QV				
2+15	0.0198	0.12	QV				
2+20	0.0206	0.12	QV				
2+25	0.0214	0.12	QV				
2+30	0.0222	0.12	QV				
2+35	0.0231	0.12	Q V				
2+40	0.0239	0.12	Q V				
2+45	0.0247	0.12	Q V				
2+50	0.0256	0.12	Q V				
2+55	0.0264	0.12	Q V				
3+ 0	0.0272	0.12	Q V				
3+ 5	0.0281	0.12	Q V				
3+10	0.0289	0.12	Q V				
3+15	0.0298	0.12	Q V				
3+20	0.0306	0.12	Q V				

3+25	0.0315	0.12	Q V	|	|	|	|
3+30	0.0324	0.12	Q V	|	|	|	|
3+35	0.0332	0.12	Q V	|	|	|	|
3+40	0.0341	0.13	Q V	|	|	|	|
3+45	0.0349	0.13	Q V	|	|	|	|
3+50	0.0358	0.13	Q V	|	|	|	|
3+55	0.0367	0.13	Q V	|	|	|	|
4+ 0	0.0375	0.13	Q V	|	|	|	|
4+ 5	0.0384	0.13	Q V	|	|	|	|
4+10	0.0393	0.13	Q V	|	|	|	|
4+15	0.0402	0.13	Q V	|	|	|	|
4+20	0.0411	0.13	Q V	|	|	|	|
4+25	0.0420	0.13	Q V	|	|	|	|
4+30	0.0428	0.13	Q V	|	|	|	|
4+35	0.0437	0.13	Q V	|	|	|	|
4+40	0.0446	0.13	Q V	|	|	|	|
4+45	0.0455	0.13	Q V	|	|	|	|
4+50	0.0464	0.13	Q V	|	|	|	|
4+55	0.0473	0.13	Q V	|	|	|	|
5+ 0	0.0482	0.13	Q V	|	|	|	|
5+ 5	0.0492	0.13	Q V	|	|	|	|
5+10	0.0501	0.13	Q V	|	|	|	|
5+15	0.0510	0.13	Q V	|	|	|	|
5+20	0.0519	0.13	Q V	|	|	|	|
5+25	0.0528	0.13	Q V	|	|	|	|
5+30	0.0538	0.13	Q V	|	|	|	|
5+35	0.0547	0.14	Q V	|	|	|	|
5+40	0.0556	0.14	Q V	|	|	|	|
5+45	0.0566	0.14	Q V	|	|	|	|
5+50	0.0575	0.14	Q V	|	|	|	|
5+55	0.0584	0.14	Q V	|	|	|	|
6+ 0	0.0594	0.14	Q V	|	|	|	|
6+ 5	0.0603	0.14	Q V	|	|	|	|
6+10	0.0613	0.14	Q V	|	|	|	|
6+15	0.0623	0.14	Q V	|	|	|	|
6+20	0.0632	0.14	Q V	|	|	|	|
6+25	0.0642	0.14	Q V	|	|	|	|
6+30	0.0652	0.14	Q V	|	|	|	|
6+35	0.0661	0.14	Q V	|	|	|	|
6+40	0.0671	0.14	Q V	|	|	|	|
6+45	0.0681	0.14	Q V	|	|	|	|
6+50	0.0691	0.14	Q V	|	|	|	|
6+55	0.0701	0.14	Q V	|	|	|	|
7+ 0	0.0711	0.14	Q V	|	|	|	|
7+ 5	0.0721	0.14	Q V	|	|	|	|
7+10	0.0731	0.15	Q V	|	|	|	|
7+15	0.0741	0.15	Q V	|	|	|	|
7+20	0.0751	0.15	Q V	|	|	|	|
7+25	0.0761	0.15	Q V	|	|	|	|
7+30	0.0771	0.15	Q V	|	|	|	|
7+35	0.0781	0.15	Q V	|	|	|	|
7+40	0.0792	0.15	Q V	|	|	|	|
7+45	0.0802	0.15	Q V	|	|	|	|
7+50	0.0812	0.15	Q V	|	|	|	|

```
 7+55       0.0823      0.15  Q      V  |          |          |          |
 8+ 0       0.0833      0.15  Q      V  |          |          |          |
 8+ 5       0.0844      0.15  Q      V  |          |          |          |
 8+10       0.0854      0.15  Q      V  |          |          |          |
 8+15       0.0865      0.15  Q      V  |          |          |          |
 8+20       0.0876      0.16  Q      V  |          |          |          |
 8+25       0.0886      0.16  Q      V  |          |          |          |
 8+30       0.0897      0.16  Q      V  |          |          |          |
 8+35       0.0908      0.16  Q      V  |          |          |          |
 8+40       0.0919      0.16  Q       V |          |          |          |
 8+45       0.0930      0.16  Q       V |          |          |          |
 8+50       0.0941      0.16  Q       V |          |          |          |
 8+55       0.0952      0.16  Q       V |          |          |          |
 9+ 0       0.0963      0.16  Q       V |          |          |          |
 9+ 5       0.0974      0.16  Q       V |          |          |          |
 9+10       0.0985      0.16  Q       V |          |          |          |
 9+15       0.0997      0.16  Q       V |          |          |          |
 9+20       0.1008      0.17  Q       V |          |          |          |
 9+25       0.1019      0.17  Q       V |          |          |          |
 9+30       0.1031      0.17  Q        V|          |          |          |
 9+35       0.1043      0.17  Q        V|          |          |          |
 9+40       0.1054      0.17  Q        V|          |          |          |
 9+45       0.1066      0.17  Q        V|          |          |          |
 9+50       0.1078      0.17  Q        V|          |          |          |
 9+55       0.1089      0.17  Q        V|          |          |          |
10+ 0       0.1101      0.17  Q        V|          |          |          |
10+ 5       0.1113      0.17  Q        V|          |          |          |
10+10       0.1125      0.18  Q        V|          |          |          |
10+15       0.1138      0.18  Q        V|          |          |          |
10+20       0.1150      0.18  Q         V          |          |          |
10+25       0.1162      0.18  Q         V          |          |          |
10+30       0.1174      0.18  Q         V          |          |          |
10+35       0.1187      0.18  Q         V          |          |          |
10+40       0.1199      0.18  Q         V          |          |          |
10+45       0.1212      0.18  Q         V          |          |          |
10+50       0.1225      0.18  Q         V          |          |          |
10+55       0.1238      0.19  Q         V          |          |          |
11+ 0       0.1251      0.19  Q         V          |          |          |
11+ 5       0.1264      0.19  Q          |V         |          |          |
11+10       0.1277      0.19  Q          |V         |          |          |
11+15       0.1290      0.19  Q          |V         |          |          |
11+20       0.1303      0.19  Q          |V         |          |          |
11+25       0.1317      0.19  Q          |V         |          |          |
11+30       0.1330      0.20  Q          |V         |          |          |
11+35       0.1344      0.20  Q          |V         |          |          |
11+40       0.1357      0.20  Q          |V         |          |          |
11+45       0.1371      0.20  Q          | V        |          |          |
11+50       0.1385      0.20  Q          | V        |          |          |
11+55       0.1399      0.20  Q          | V        |          |          |
12+ 0       0.1414      0.21  Q          | V        |          |          |
12+ 5       0.1428      0.21  Q          | V        |          |          |
12+10       0.1441      0.19  Q          | V        |          |          |
12+15       0.1453      0.18  Q          | V        |          |          |
12+20       0.1466      0.18  Q          | V        |          |          |
```

12+25	0.1478	0.18	Q	V				
12+30	0.1491	0.18	Q	V				
12+35	0.1503	0.18	Q	V				
12+40	0.1516	0.18	Q	V				
12+45	0.1529	0.19	Q	V				
12+50	0.1542	0.19	Q	V				
12+55	0.1555	0.19	Q	V				
13+ 0	0.1568	0.19	Q	V				
13+ 5	0.1581	0.20	Q	V				
13+10	0.1595	0.20	Q	V				
13+15	0.1609	0.20	Q	V				
13+20	0.1623	0.21	Q	V				
13+25	0.1637	0.21	Q	V				
13+30	0.1652	0.21	Q	V				
13+35	0.1667	0.22	Q	V				
13+40	0.1682	0.22	Q	V				
13+45	0.1697	0.22	Q	V				
13+50	0.1713	0.23	Q	V				
13+55	0.1729	0.23	Q	V				
14+ 0	0.1746	0.24	Q	V				
14+ 5	0.1762	0.24	Q	V				
14+10	0.1779	0.25	Q	V				
14+15	0.1797	0.25	Q	V				
14+20	0.1815	0.26	Q	V				
14+25	0.1833	0.27	Q	V				
14+30	0.1852	0.27	Q	V				
14+35	0.1872	0.28	Q	V				
14+40	0.1892	0.29	Q	V				
14+45	0.1912	0.30	Q	V				
14+50	0.1934	0.31	Q	V				
14+55	0.1956	0.32	Q	V				
15+ 0	0.1979	0.33	Q	V				
15+ 5	0.2002	0.35	Q	V				
15+10	0.2027	0.36	Q	V				
15+15	0.2053	0.38	Q	V				
15+20	0.2081	0.40	Q	V				
15+25	0.2109	0.41	Q	V				
15+30	0.2135	0.38	Q	V				
15+35	0.2161	0.37	Q	V				
15+40	0.2188	0.40	Q	V				
15+45	0.2218	0.43	Q	V				
15+50	0.2252	0.50	Q	V				
15+55	0.2293	0.60	Q	V				
16+ 0	0.2354	0.89	Q	V				
16+ 5	0.2501	2.12	Q	V				
16+10	**0.2892**	**5.68**	**Q**	**V**				
16+15	0.3132	3.49	Q	V				
16+20	0.3258	1.84	Q	V				
16+25	0.3343	1.23	Q	V				
16+30	0.3408	0.94	Q	V				
16+35	0.3461	0.77	Q	V				
16+40	0.3504	0.63	Q	V				
16+45	0.3539	0.51	Q	V				
16+50	0.3570	0.45	Q	V				

16+55	0.3599	0.41	|Q	|	|	|V	|
17+ 0	0.3623	0.35	|Q	|	|	|V	|
17+ 5	0.3643	0.29	|Q	|	|	|V	|
17+10	0.3661	0.27	|Q	|	|	| V	|
17+15	0.3679	0.26	|Q	|	|	| V	|
17+20	0.3696	0.25	Q	|	|	| V	|
17+25	0.3712	0.24	Q	|	|	| V	|
17+30	0.3728	0.23	Q	|	|	| V	|
17+35	0.3743	0.22	Q	|	|	| V	|
17+40	0.3757	0.21	Q	|	|	| V	|
17+45	0.3771	0.20	Q	|	|	| V	|
17+50	0.3785	0.20	Q	|	|	| V	|
17+55	0.3798	0.19	Q	|	|	| V	|
18+ 0	0.3810	0.19	Q	|	|	| V	|
18+ 5	0.3823	0.18	Q	|	|	| V	|
18+10	0.3837	0.20	Q	|	|	| V	|
18+15	0.3851	0.20	Q	|	|	| V	|
18+20	0.3864	0.20	Q	|	|	| V	|
18+25	0.3878	0.20	Q	|	|	| V	|
18+30	0.3892	0.20	Q	|	|	| V	|
18+35	0.3905	0.20	Q	|	|	| V	|
18+40	0.3919	0.19	Q	|	|	| V	|
18+45	0.3932	0.19	Q	|	|	| V	|
18+50	0.3945	0.19	Q	|	|	| V	|
18+55	0.3958	0.19	Q	|	|	| V	|
19+ 0	0.3970	0.18	Q	|	|	| V	|
19+ 5	0.3983	0.18	Q	|	|	| V	|
19+10	0.3995	0.18	Q	|	|	| V	|
19+15	0.4007	0.18	Q	|	|	| V	|
19+20	0.4019	0.17	Q	|	|	| V	|
19+25	0.4031	0.17	Q	|	|	| V	|
19+30	0.4043	0.17	Q	|	|	| V	|
19+35	0.4054	0.17	Q	|	|	| V	|
19+40	0.4066	0.17	Q	|	|	| V	|
19+45	0.4077	0.16	Q	|	|	| V	|
19+50	0.4088	0.16	Q	|	|	| V	|
19+55	0.4099	0.16	Q	|	|	| V	|
20+ 0	0.4110	0.16	Q	|	|	| V	|
20+ 5	0.4121	0.16	Q	|	|	| V	|
20+10	0.4132	0.16	Q	|	|	| V	|
20+15	0.4143	0.15	Q	|	|	| V	|
20+20	0.4153	0.15	Q	|	|	| V	|
20+25	0.4164	0.15	Q	|	|	| V	|
20+30	0.4174	0.15	Q	|	|	| V	|
20+35	0.4184	0.15	Q	|	|	| V	|
20+40	0.4194	0.15	Q	|	|	| V	|
20+45	0.4204	0.15	Q	|	|	| V	|
20+50	0.4214	0.14	Q	|	|	| V	|
20+55	0.4224	0.14	Q	|	|	| V	|
21+ 0	0.4234	0.14	Q	|	|	| V	|
21+ 5	0.4244	0.14	Q	|	|	| V	|
21+10	0.4253	0.14	Q	|	|	| V	|
21+15	0.4263	0.14	Q	|	|	| V	|
21+20	0.4273	0.14	Q	|	|	| V	|

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   21+25       0.4282      0.14  Q          |           |           |       V   |
   21+30       0.4291      0.14  Q          |           |           |       V   |
   21+35       0.4301      0.14  Q          |           |           |       V   |
   21+40       0.4310      0.13  Q          |           |           |       V   |
   21+45       0.4319      0.13  Q          |           |           |       V   |
   21+50       0.4328      0.13  Q          |           |           |       V   |
   21+55       0.4337      0.13  Q          |           |           |        V  |
   22+ 0       0.4346      0.13  Q          |           |           |        V  |
   22+ 5       0.4355      0.13  Q          |           |           |        V  |
   22+10       0.4364      0.13  Q          |           |           |        V  |
   22+15       0.4373      0.13  Q          |           |           |        V  |
   22+20       0.4382      0.13  Q          |           |           |        V  |
   22+25       0.4390      0.13  Q          |           |           |        V  |
   22+30       0.4399      0.13  Q          |           |           |        V  |
   22+35       0.4408      0.12  Q          |           |           |        V  |
   22+40       0.4416      0.12  Q          |           |           |        V  |
   22+45       0.4425      0.12  Q          |           |           |        V  |
   22+50       0.4433      0.12  Q          |           |           |        V  |
   22+55       0.4441      0.12  Q          |           |           |        V  |
   23+ 0       0.4450      0.12  Q          |           |           |         V |
   23+ 5       0.4458      0.12  Q          |           |           |         V |
   23+10       0.4466      0.12  Q          |           |           |         V |
   23+15       0.4475      0.12  Q          |           |           |         V |
   23+20       0.4483      0.12  Q          |           |           |         V |
   23+25       0.4491      0.12  Q          |           |           |         V |
   23+30       0.4499      0.12  Q          |           |           |         V |
   23+35       0.4507      0.12  Q          |           |           |         V |
   23+40       0.4515      0.12  Q          |           |           |         V |
   23+45       0.4523      0.12  Q          |           |           |         V |
   23+50       0.4531      0.11  Q          |           |           |         V |
   23+55       0.4539      0.11  Q          |           |           |         V |
   24+ 0       0.4546      0.11  Q          |           |           |         V |
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 06/29/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM POST-DEVELOPED CONDITION
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA A1-B
FILE: 18345HYDROA1BPOST100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
0.92	1	1.13
Rainfall data for year 100		
0.92	6	2.46
Rainfall data for year 100		
0.92	24	5.19

++

******** Area-averaged max loss rate, Fm ********

SCS curve No.(AMCII)	SCS curve NO.(AMC 3)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
32.0	52.0	0.92	1.000	0.785	0.600	0.471

Area-averaged adjusted loss rate Fm (In/Hr) = 0.471

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
0.55	0.600	32.0	52.0	9.23	0.171
0.37	0.400	98.0	98.0	0.20	0.954

Area-averaged catchment yield fraction, Y = 0.485
Area-averaged low loss fraction, Yb = 0.515
User entry of time of concentration = 0.135 (hours)
++
Watershed area = 0.92(Ac.)
Catchment Lag time = 0.108 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 76.9723
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.471(In/Hr)
Average low loss rate fraction (Yb) = 0.515 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall = 0.536(In)
Computed peak 30-minute rainfall = 0.918(In)
Specified peak 1-hour rainfall = 1.130(In)
Computed peak 3-hour rainfall = 1.821(In)
Specified peak 6-hour rainfall = 2.460(In)
Specified peak 24-hour rainfall = 5.190(In)

Rainfall depth area reduction factors:
Using a total area of 0.92(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.536(In)
30-minute factor = 1.000 Adjusted rainfall = 0.918(In)
1-hour factor = 1.000 Adjusted rainfall = 1.130(In)
3-hour factor = 1.000 Adjusted rainfall = 1.821(In)
6-hour factor = 1.000 Adjusted rainfall = 2.460(In)
24-hour factor = 1.000 Adjusted rainfall = 5.190(In)

U n i t H y d r o g r a p h
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Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
(K = 11.13 (CFS))		
1	9.796	1.090
2	55.474	5.082
3	76.653	2.356

4	86.014	1.042
5	91.324	0.591
6	94.672	0.372
7	96.830	0.240
8	98.070	0.138
9	98.951	0.098
10	99.693	0.083
11	100.000	0.034

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5362	0.5362
2	0.6601	0.1239
3	0.7455	0.0854
4	0.8127	0.0672
5	0.8690	0.0563
6	0.9178	0.0489
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0698	0.0333
11	1.1008	0.0310
12	1.1300	0.0291
13	1.1699	0.0400
14	1.2082	0.0383
15	1.2449	0.0367
16	1.2803	0.0354
17	1.3144	0.0341
18	1.3475	0.0330
19	1.3795	0.0320
20	1.4106	0.0311
21	1.4408	0.0302
22	1.4702	0.0294
23	1.4988	0.0287
24	1.5268	0.0280
25	1.5541	0.0273
26	1.5808	0.0267
27	1.6069	0.0261
28	1.6325	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7532	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8425	0.0218
38	1.8639	0.0215
39	1.8851	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203
43	1.9667	0.0200

44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0815	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1359	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2396	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3054	0.0162
63	2.3214	0.0161
64	2.3374	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4150	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4966	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5684	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162
97	2.8883	0.0161

98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3817	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4235	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5329	0.0135
142	3.5463	0.0135
143	3.5598	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6263	0.0132
149	3.6394	0.0132
150	3.6526	0.0131
151	3.6657	0.0131

152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7945	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8949	0.0124
170	3.9073	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117
194	4.1953	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2876	0.0114
203	4.2990	0.0114
204	4.3104	0.0114
205	4.3217	0.0114

206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4118	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4783	0.0110
220	4.4893	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6729	0.0106
238	4.6835	0.0106
239	4.6941	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7572	0.0105
246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8608	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102
259	4.9017	0.0102

260	4.9119	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0922	0.0099
279	5.1020	0.0099
280	5.1119	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1706	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0050	0.0047
2	0.0097	0.0050	0.0047
3	0.0098	0.0050	0.0047
4	0.0098	0.0050	0.0047
5	0.0098	0.0051	0.0048
6	0.0098	0.0051	0.0048
7	0.0099	0.0051	0.0048
8	0.0099	0.0051	0.0048
9	0.0099	0.0051	0.0048
10	0.0099	0.0051	0.0048
11	0.0100	0.0051	0.0048
12	0.0100	0.0051	0.0048
13	0.0100	0.0052	0.0048
14	0.0100	0.0052	0.0049
15	0.0101	0.0052	0.0049
16	0.0101	0.0052	0.0049
17	0.0101	0.0052	0.0049
18	0.0101	0.0052	0.0049
19	0.0102	0.0052	0.0049
20	0.0102	0.0052	0.0049

21	0.0102	0.0053	0.0050
22	0.0102	0.0053	0.0050
23	0.0103	0.0053	0.0050
24	0.0103	0.0053	0.0050
25	0.0103	0.0053	0.0050
26	0.0104	0.0053	0.0050
27	0.0104	0.0054	0.0050
28	0.0104	0.0054	0.0050
29	0.0104	0.0054	0.0051
30	0.0105	0.0054	0.0051
31	0.0105	0.0054	0.0051
32	0.0105	0.0054	0.0051
33	0.0106	0.0054	0.0051
34	0.0106	0.0055	0.0051
35	0.0106	0.0055	0.0051
36	0.0106	0.0055	0.0052
37	0.0107	0.0055	0.0052
38	0.0107	0.0055	0.0052
39	0.0108	0.0055	0.0052
40	0.0108	0.0056	0.0052
41	0.0108	0.0056	0.0052
42	0.0108	0.0056	0.0053
43	0.0109	0.0056	0.0053
44	0.0109	0.0056	0.0053
45	0.0110	0.0056	0.0053
46	0.0110	0.0057	0.0053
47	0.0110	0.0057	0.0053
48	0.0110	0.0057	0.0054
49	0.0111	0.0057	0.0054
50	0.0111	0.0057	0.0054
51	0.0112	0.0058	0.0054
52	0.0112	0.0058	0.0054
53	0.0112	0.0058	0.0054
54	0.0113	0.0058	0.0055
55	0.0113	0.0058	0.0055
56	0.0113	0.0058	0.0055
57	0.0114	0.0059	0.0055
58	0.0114	0.0059	0.0055
59	0.0115	0.0059	0.0056
60	0.0115	0.0059	0.0056
61	0.0116	0.0060	0.0056
62	0.0116	0.0060	0.0056
63	0.0116	0.0060	0.0056
64	0.0117	0.0060	0.0056
65	0.0117	0.0060	0.0057
66	0.0117	0.0061	0.0057
67	0.0118	0.0061	0.0057
68	0.0118	0.0061	0.0057
69	0.0119	0.0061	0.0058
70	0.0119	0.0061	0.0058
71	0.0120	0.0062	0.0058
72	0.0120	0.0062	0.0058
73	0.0121	0.0062	0.0058
74	0.0121	0.0062	0.0059

75	0.0122	0.0063	0.0059
76	0.0122	0.0063	0.0059
77	0.0123	0.0063	0.0059
78	0.0123	0.0063	0.0060
79	0.0124	0.0064	0.0060
80	0.0124	0.0064	0.0060
81	0.0125	0.0064	0.0060
82	0.0125	0.0064	0.0061
83	0.0126	0.0065	0.0061
84	0.0126	0.0065	0.0061
85	0.0127	0.0065	0.0061
86	0.0127	0.0066	0.0062
87	0.0128	0.0066	0.0062
88	0.0128	0.0066	0.0062
89	0.0129	0.0066	0.0062
90	0.0129	0.0067	0.0063
91	0.0130	0.0067	0.0063
92	0.0131	0.0067	0.0063
93	0.0131	0.0068	0.0064
94	0.0132	0.0068	0.0064
95	0.0133	0.0068	0.0064
96	0.0133	0.0069	0.0064
97	0.0134	0.0069	0.0065
98	0.0134	0.0069	0.0065
99	0.0135	0.0070	0.0065
100	0.0136	0.0070	0.0066
101	0.0137	0.0070	0.0066
102	0.0137	0.0071	0.0066
103	0.0138	0.0071	0.0067
104	0.0138	0.0071	0.0067
105	0.0139	0.0072	0.0068
106	0.0140	0.0072	0.0068
107	0.0141	0.0073	0.0068
108	0.0141	0.0073	0.0068
109	0.0142	0.0073	0.0069
110	0.0143	0.0074	0.0069
111	0.0144	0.0074	0.0070
112	0.0145	0.0075	0.0070
113	0.0146	0.0075	0.0071
114	0.0146	0.0075	0.0071
115	0.0147	0.0076	0.0071
116	0.0148	0.0076	0.0072
117	0.0149	0.0077	0.0072
118	0.0150	0.0077	0.0073
119	0.0151	0.0078	0.0073
120	0.0152	0.0078	0.0073
121	0.0153	0.0079	0.0074
122	0.0154	0.0079	0.0074
123	0.0155	0.0080	0.0075
124	0.0156	0.0080	0.0075
125	0.0157	0.0081	0.0076
126	0.0158	0.0081	0.0076
127	0.0159	0.0082	0.0077
128	0.0160	0.0082	0.0078

129	0.0162	0.0083	0.0078
130	0.0162	0.0084	0.0079
131	0.0164	0.0084	0.0079
132	0.0165	0.0085	0.0080
133	0.0166	0.0086	0.0081
134	0.0167	0.0086	0.0081
135	0.0169	0.0087	0.0082
136	0.0170	0.0088	0.0082
137	0.0172	0.0089	0.0083
138	0.0173	0.0089	0.0084
139	0.0175	0.0090	0.0085
140	0.0176	0.0091	0.0085
141	0.0178	0.0092	0.0086
142	0.0179	0.0092	0.0087
143	0.0181	0.0093	0.0088
144	0.0182	0.0094	0.0088
145	0.0149	0.0077	0.0072
146	0.0150	0.0077	0.0073
147	0.0153	0.0079	0.0074
148	0.0154	0.0079	0.0075
149	0.0157	0.0081	0.0076
150	0.0158	0.0081	0.0076
151	0.0161	0.0083	0.0078
152	0.0162	0.0084	0.0079
153	0.0165	0.0085	0.0080
154	0.0167	0.0086	0.0081
155	0.0170	0.0088	0.0082
156	0.0172	0.0089	0.0083
157	0.0175	0.0090	0.0085
158	0.0177	0.0091	0.0086
159	0.0181	0.0093	0.0088
160	0.0183	0.0095	0.0089
161	0.0188	0.0097	0.0091
162	0.0190	0.0098	0.0092
163	0.0195	0.0100	0.0094
164	0.0197	0.0102	0.0096
165	0.0203	0.0104	0.0098
166	0.0205	0.0106	0.0100
167	0.0211	0.0109	0.0102
168	0.0215	0.0111	0.0104
169	0.0221	0.0114	0.0107
170	0.0225	0.0116	0.0109
171	0.0233	0.0120	0.0113
172	0.0237	0.0122	0.0115
173	0.0246	0.0127	0.0119
174	0.0251	0.0129	0.0121
175	0.0261	0.0135	0.0127
176	0.0267	0.0138	0.0129
177	0.0280	0.0144	0.0135
178	0.0287	0.0148	0.0139
179	0.0302	0.0156	0.0146
180	0.0311	0.0160	0.0151
181	0.0330	0.0170	0.0160
182	0.0341	0.0176	0.0165

183	0.0367	0.0189	0.0178
184	0.0383	0.0197	0.0185
185	0.0291	0.0150	0.0141
186	0.0310	0.0160	0.0150
187	0.0360	0.0185	0.0174
188	0.0393	0.0203	0.0190
189	0.0489	0.0252	0.0237
190	0.0563	0.0290	0.0273
191	0.0854	0.0393	0.0461
192	0.1239	0.0393	0.0847
193	0.5362	0.0393	0.4969
194	0.0672	0.0346	0.0326
195	0.0434	0.0224	0.0210
196	0.0333	0.0172	0.0161
197	0.0400	0.0206	0.0194
198	0.0354	0.0182	0.0171
199	0.0320	0.0165	0.0155
200	0.0294	0.0152	0.0142
201	0.0273	0.0141	0.0132
202	0.0256	0.0132	0.0124
203	0.0241	0.0124	0.0117
204	0.0229	0.0118	0.0111
205	0.0218	0.0112	0.0106
206	0.0208	0.0107	0.0101
207	0.0200	0.0103	0.0097
208	0.0192	0.0099	0.0093
209	0.0186	0.0096	0.0090
210	0.0179	0.0092	0.0087
211	0.0174	0.0090	0.0084
212	0.0168	0.0087	0.0082
213	0.0164	0.0084	0.0079
214	0.0159	0.0082	0.0077
215	0.0155	0.0080	0.0075
216	0.0151	0.0078	0.0073
217	0.0183	0.0095	0.0089
218	0.0180	0.0093	0.0087
219	0.0177	0.0091	0.0086
220	0.0174	0.0090	0.0084
221	0.0171	0.0088	0.0083
222	0.0168	0.0087	0.0081
223	0.0166	0.0085	0.0080
224	0.0163	0.0084	0.0079
225	0.0161	0.0083	0.0078
226	0.0158	0.0082	0.0077
227	0.0156	0.0081	0.0076
228	0.0154	0.0080	0.0075
229	0.0152	0.0078	0.0074
230	0.0150	0.0078	0.0073
231	0.0149	0.0077	0.0072
232	0.0147	0.0076	0.0071
233	0.0145	0.0075	0.0070
234	0.0143	0.0074	0.0070
235	0.0142	0.0073	0.0069
236	0.0140	0.0072	0.0068

237	0.0139	0.0072	0.0067
238	0.0137	0.0071	0.0067
239	0.0136	0.0070	0.0066
240	0.0135	0.0069	0.0065
241	0.0133	0.0069	0.0065
242	0.0132	0.0068	0.0064
243	0.0131	0.0067	0.0063
244	0.0130	0.0067	0.0063
245	0.0129	0.0066	0.0062
246	0.0127	0.0066	0.0062
247	0.0126	0.0065	0.0061
248	0.0125	0.0065	0.0061
249	0.0124	0.0064	0.0060
250	0.0123	0.0064	0.0060
251	0.0122	0.0063	0.0059
252	0.0121	0.0063	0.0059
253	0.0120	0.0062	0.0058
254	0.0119	0.0062	0.0058
255	0.0119	0.0061	0.0057
256	0.0118	0.0061	0.0057
257	0.0117	0.0060	0.0057
258	0.0116	0.0060	0.0056
259	0.0115	0.0059	0.0056
260	0.0114	0.0059	0.0055
261	0.0114	0.0059	0.0055
262	0.0113	0.0058	0.0055
263	0.0112	0.0058	0.0054
264	0.0111	0.0057	0.0054
265	0.0111	0.0057	0.0054
266	0.0110	0.0057	0.0053
267	0.0109	0.0056	0.0053
268	0.0109	0.0056	0.0053
269	0.0108	0.0056	0.0052
270	0.0107	0.0055	0.0052
271	0.0107	0.0055	0.0052
272	0.0106	0.0055	0.0051
273	0.0105	0.0054	0.0051
274	0.0105	0.0054	0.0051
275	0.0104	0.0054	0.0051
276	0.0104	0.0053	0.0050
277	0.0103	0.0053	0.0050
278	0.0103	0.0053	0.0050
279	0.0102	0.0053	0.0049
280	0.0101	0.0052	0.0049
281	0.0101	0.0052	0.0049
282	0.0100	0.0052	0.0049
283	0.0100	0.0051	0.0048
284	0.0099	0.0051	0.0048
285	0.0099	0.0051	0.0048
286	0.0098	0.0051	0.0048
287	0.0098	0.0050	0.0047
288	0.0097	0.0050	0.0047

Total soil rain loss = 2.41(In)
Total effective rainfall = 2.78(In)
Peak flow rate in flood hydrograph = 2.84(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01	Q				
0+10	0.0002	0.03	Q				
0+15	0.0005	0.04	Q				
0+20	0.0008	0.05	Q				
0+25	0.0012	0.05	Q				
0+30	0.0015	0.05	Q				
0+35	0.0019	0.05	Q				
0+40	0.0022	0.05	Q				
0+45	0.0026	0.05	Q				
0+50	0.0029	0.05	Q				
0+55	0.0033	0.05	Q				
1+ 0	0.0037	0.05	Q				
1+ 5	0.0040	0.05	Q				
1+10	0.0044	0.05	Q				
1+15	0.0048	0.05	Q				
1+20	0.0052	0.05	Q				
1+25	0.0055	0.05	QV				
1+30	0.0059	0.05	QV				
1+35	0.0063	0.05	QV				
1+40	0.0067	0.05	QV				
1+45	0.0070	0.05	QV				
1+50	0.0074	0.05	QV				
1+55	0.0078	0.06	QV				
2+ 0	0.0082	0.06	QV				
2+ 5	0.0086	0.06	QV				
2+10	0.0089	0.06	QV				
2+15	0.0093	0.06	QV				
2+20	0.0097	0.06	QV				
2+25	0.0101	0.06	QV				
2+30	0.0105	0.06	QV				
2+35	0.0109	0.06	Q V				
2+40	0.0113	0.06	Q V				
2+45	0.0116	0.06	Q V				
2+50	0.0120	0.06	Q V				
2+55	0.0124	0.06	Q V				
3+ 0	0.0128	0.06	Q V				
3+ 5	0.0132	0.06	Q V				
3+10	0.0136	0.06	Q V				
3+15	0.0140	0.06	Q V				
3+20	0.0144	0.06	Q V				
3+25	0.0148	0.06	Q V				

3+30	0.0152	0.06	Q V	|	|	|	|
3+35	0.0156	0.06	Q V	|	|	|	|
3+40	0.0160	0.06	Q V	|	|	|	|
3+45	0.0164	0.06	Q V	|	|	|	|
3+50	0.0168	0.06	Q V	|	|	|	|
3+55	0.0172	0.06	Q V	|	|	|	|
4+ 0	0.0176	0.06	Q V	|	|	|	|
4+ 5	0.0180	0.06	Q V	|	|	|	|
4+10	0.0185	0.06	Q V	|	|	|	|
4+15	0.0189	0.06	Q V	|	|	|	|
4+20	0.0193	0.06	Q V	|	|	|	|
4+25	0.0197	0.06	Q V	|	|	|	|
4+30	0.0201	0.06	Q V	|	|	|	|
4+35	0.0205	0.06	Q V	|	|	|	|
4+40	0.0209	0.06	Q V	|	|	|	|
4+45	0.0214	0.06	Q V	|	|	|	|
4+50	0.0218	0.06	Q V	|	|	|	|
4+55	0.0222	0.06	Q V	|	|	|	|
5+ 0	0.0226	0.06	Q V	|	|	|	|
5+ 5	0.0231	0.06	Q V	|	|	|	|
5+10	0.0235	0.06	Q V	|	|	|	|
5+15	0.0239	0.06	Q V	|	|	|	|
5+20	0.0243	0.06	Q V	|	|	|	|
5+25	0.0248	0.06	Q V	|	|	|	|
5+30	0.0252	0.06	Q V	|	|	|	|
5+35	0.0256	0.06	Q V	|	|	|	|
5+40	0.0261	0.06	Q V	|	|	|	|
5+45	0.0265	0.06	Q V	|	|	|	|
5+50	0.0270	0.06	Q V	|	|	|	|
5+55	0.0274	0.06	Q V	|	|	|	|
6+ 0	0.0278	0.06	Q V	|	|	|	|
6+ 5	0.0283	0.06	Q V	|	|	|	|
6+10	0.0287	0.06	Q V	|	|	|	|
6+15	0.0292	0.07	Q V	|	|	|	|
6+20	0.0296	0.07	Q V	|	|	|	|
6+25	0.0301	0.07	Q V	|	|	|	|
6+30	0.0305	0.07	Q V	|	|	|	|
6+35	0.0310	0.07	Q V	|	|	|	|
6+40	0.0314	0.07	Q V	|	|	|	|
6+45	0.0319	0.07	Q V	|	|	|	|
6+50	0.0324	0.07	Q V	|	|	|	|
6+55	0.0328	0.07	Q V	|	|	|	|
7+ 0	0.0333	0.07	Q V	|	|	|	|
7+ 5	0.0338	0.07	Q V	|	|	|	|
7+10	0.0342	0.07	Q V	|	|	|	|
7+15	0.0347	0.07	Q V	|	|	|	|
7+20	0.0352	0.07	Q V	|	|	|	|
7+25	0.0356	0.07	Q V	|	|	|	|
7+30	0.0361	0.07	Q V	|	|	|	|
7+35	0.0366	0.07	Q V	|	|	|	|
7+40	0.0371	0.07	Q V	|	|	|	|
7+45	0.0376	0.07	Q V	|	|	|	|
7+50	0.0381	0.07	Q V	|	|	|	|
7+55	0.0385	0.07	Q V	|	|	|	|

```
 8+ 0       0.0390      0.07  Q      V  |          |          |          |
 8+ 5       0.0395      0.07  Q      V  |          |          |          |
 8+10       0.0400      0.07  Q      V  |          |          |          |
 8+15       0.0405      0.07  Q      V  |          |          |          |
 8+20       0.0410      0.07  Q      V  |          |          |          |
 8+25       0.0415      0.07  Q      V  |          |          |          |
 8+30       0.0420      0.07  Q      V  |          |          |          |
 8+35       0.0425      0.07  Q      V  |          |          |          |
 8+40       0.0430      0.07  Q       V |          |          |          |
 8+45       0.0435      0.07  Q       V |          |          |          |
 8+50       0.0441      0.07  Q       V |          |          |          |
 8+55       0.0446      0.08  Q       V |          |          |          |
 9+ 0       0.0451      0.08  Q       V |          |          |          |
 9+ 5       0.0456      0.08  Q       V |          |          |          |
 9+10       0.0461      0.08  Q       V |          |          |          |
 9+15       0.0467      0.08  Q       V |          |          |          |
 9+20       0.0472      0.08  Q       V |          |          |          |
 9+25       0.0477      0.08  Q       V |          |          |          |
 9+30       0.0483      0.08  Q        V|          |          |          |
 9+35       0.0488      0.08  Q        V|          |          |          |
 9+40       0.0494      0.08  Q        V|          |          |          |
 9+45       0.0499      0.08  Q        V|          |          |          |
 9+50       0.0505      0.08  Q        V|          |          |          |
 9+55       0.0510      0.08  Q        V|          |          |          |
10+ 0       0.0516      0.08  Q        V|          |          |          |
10+ 5       0.0521      0.08  Q        V|          |          |          |
10+10       0.0527      0.08  Q        V|          |          |          |
10+15       0.0533      0.08  Q        V|          |          |          |
10+20       0.0538      0.08  Q         V          |          |          |
10+25       0.0544      0.08  Q         V          |          |          |
10+30       0.0550      0.08  Q         V          |          |          |
10+35       0.0556      0.08  Q         V          |          |          |
10+40       0.0562      0.09  Q         V          |          |          |
10+45       0.0567      0.09  Q         V          |          |          |
10+50       0.0573      0.09  Q         V          |          |          |
10+55       0.0579      0.09  Q         V          |          |          |
11+ 0       0.0585      0.09  Q         V          |          |          |
11+ 5       0.0592      0.09  Q          |V         |          |          |
11+10       0.0598      0.09  Q          |V         |          |          |
11+15       0.0604      0.09  Q          |V         |          |          |
11+20       0.0610      0.09  Q          |V         |          |          |
11+25       0.0616      0.09  Q          |V         |          |          |
11+30       0.0623      0.09  Q          |V         |          |          |
11+35       0.0629      0.09  Q          |V         |          |          |
11+40       0.0635      0.09  Q          |V         |          |          |
11+45       0.0642      0.09  Q          | V        |          |          |
11+50       0.0648      0.10  Q          | V        |          |          |
11+55       0.0655      0.10  Q          | V        |          |          |
12+ 0       0.0662      0.10  Q          | V        |          |          |
12+ 5       0.0668      0.10  Q          | V        |          |          |
12+10       0.0674      0.09  Q          | V        |          |          |
12+15       0.0680      0.08  Q          | V        |          |          |
12+20       0.0686      0.08  Q          | V        |          |          |
12+25       0.0692      0.08  Q          | V        |          |          |
```

12+30	0.0698	0.08	Q	V			
12+35	0.0703	0.08	Q	V			
12+40	0.0709	0.09	Q	V			
12+45	0.0715	0.09	Q	V			
12+50	0.0721	0.09	Q	V			
12+55	0.0727	0.09	Q	V			
13+ 0	0.0734	0.09	Q	V			
13+ 5	0.0740	0.09	Q	V			
13+10	0.0746	0.09	Q	V			
13+15	0.0753	0.09	Q	V			
13+20	0.0760	0.10	Q	V			
13+25	0.0766	0.10	Q	V			
13+30	0.0773	0.10	Q	V			
13+35	0.0780	0.10	Q	V			
13+40	0.0787	0.10	Q	V			
13+45	0.0794	0.10	Q	V			
13+50	0.0802	0.11	Q	V			
13+55	0.0809	0.11	Q	V			
14+ 0	0.0817	0.11	Q	V			
14+ 5	0.0825	0.11	Q	V			
14+10	0.0833	0.12	Q	V			
14+15	0.0841	0.12	Q	V			
14+20	0.0850	0.12	Q	V			
14+25	0.0858	0.13	Q	V			
14+30	0.0867	0.13	Q	V			
14+35	0.0876	0.13	Q	V			
14+40	0.0886	0.14	Q	V			
14+45	0.0895	0.14	Q	V			
14+50	0.0905	0.15	Q	V			
14+55	0.0916	0.15	Q	V			
15+ 0	0.0927	0.16	Q	V			
15+ 5	0.0938	0.16	Q	V			
15+10	0.0949	0.17	Q	V			
15+15	0.0962	0.18	Q	V			
15+20	0.0975	0.19	Q	V			
15+25	0.0988	0.19	Q	V			
15+30	0.1000	0.17	Q	V			
15+35	0.1012	0.17	Q	V			
15+40	0.1025	0.19	Q	V			
15+45	0.1039	0.20	Q	V			
15+50	0.1055	0.24	Q	V			
15+55	0.1075	0.29	Q	V			
16+ 0	0.1106	0.44	Q	V			
16+ 5	0.1184	1.14	Q	V			
16+10	**0.1380**	**2.84**	**Q**	**V**			
16+15	0.1483	1.50	Q	V			
16+20	0.1538	0.80	Q	V			
16+25	0.1575	0.53	Q	V			
16+30	0.1603	0.41	Q	V			
16+35	0.1626	0.33	Q	V			
16+40	0.1644	0.26	Q	V			
16+45	0.1659	0.23	Q	V			
16+50	0.1673	0.20	Q	V			
16+55	0.1685	0.17	Q	V			

17+ 0	0.1694	0.14	Q	|	|	|	V |
17+ 5	0.1703	0.13	Q	|	|	|	V |
17+10	0.1712	0.12	Q	|	|	|	V |
17+15	0.1720	0.12	Q	|	|	|	V |
17+20	0.1728	0.11	Q	|	|	|	V |
17+25	0.1735	0.11	Q	|	|	|	V |
17+30	0.1743	0.10	Q	|	|	|	V |
17+35	0.1750	0.10	Q	|	|	|	V |
17+40	0.1756	0.10	Q	|	|	|	V |
17+45	0.1763	0.09	Q	|	|	|	V |
17+50	0.1769	0.09	Q	|	|	|	V |
17+55	0.1775	0.09	Q	|	|	|	V |
18+ 0	0.1781	0.09	Q	|	|	|	V |
18+ 5	0.1787	0.09	Q	|	|	|	V |
18+10	0.1793	0.09	Q	|	|	|	V |
18+15	0.1800	0.09	Q	|	|	|	V |
18+20	0.1806	0.09	Q	|	|	|	V |
18+25	0.1813	0.09	Q	|	|	|	V |
18+30	0.1819	0.09	Q	|	|	|	V |
18+35	0.1825	0.09	Q	|	|	|	V |
18+40	0.1832	0.09	Q	|	|	|	V |
18+45	0.1838	0.09	Q	|	|	|	V |
18+50	0.1844	0.09	Q	|	|	|	V |
18+55	0.1850	0.09	Q	|	|	|	V |
19+ 0	0.1856	0.09	Q	|	|	|	V |
19+ 5	0.1861	0.08	Q	|	|	|	V |
19+10	0.1867	0.08	Q	|	|	|	V |
19+15	0.1873	0.08	Q	|	|	|	V |
19+20	0.1878	0.08	Q	|	|	|	V |
19+25	0.1884	0.08	Q	|	|	|	V |
19+30	0.1889	0.08	Q	|	|	|	V |
19+35	0.1895	0.08	Q	|	|	|	V |
19+40	0.1900	0.08	Q	|	|	|	V |
19+45	0.1905	0.08	Q	|	|	|	V |
19+50	0.1911	0.08	Q	|	|	|	V |
19+55	0.1916	0.07	Q	|	|	|	V |
20+ 0	0.1921	0.07	Q	|	|	|	V |
20+ 5	0.1926	0.07	Q	|	|	|	V |
20+10	0.1931	0.07	Q	|	|	|	V |
20+15	0.1936	0.07	Q	|	|	|	V |
20+20	0.1941	0.07	Q	|	|	|	V |
20+25	0.1946	0.07	Q	|	|	|	V |
20+30	0.1950	0.07	Q	|	|	|	V |
20+35	0.1955	0.07	Q	|	|	|	V |
20+40	0.1960	0.07	Q	|	|	|	V |
20+45	0.1965	0.07	Q	|	|	|	V |
20+50	0.1969	0.07	Q	|	|	|	V |
20+55	0.1974	0.07	Q	|	|	|	V |
21+ 0	0.1978	0.07	Q	|	|	|	V |
21+ 5	0.1983	0.07	Q	|	|	|	V |
21+10	0.1987	0.07	Q	|	|	|	V |
21+15	0.1992	0.06	Q	|	|	|	V |
21+20	0.1996	0.06	Q	|	|	|	V |
21+25	0.2001	0.06	Q	|	|	|	V |

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  21+30       0.2005      0.06  Q          |           |           |       V  |
  21+35       0.2010      0.06  Q          |           |           |       V  |
  21+40       0.2014      0.06  Q          |           |           |       V  |
  21+45       0.2018      0.06  Q          |           |           |       V  |
  21+50       0.2022      0.06  Q          |           |           |       V  |
  21+55       0.2027      0.06  Q          |           |           |        V |
  22+ 0       0.2031      0.06  Q          |           |           |        V |
  22+ 5       0.2035      0.06  Q          |           |           |        V |
  22+10       0.2039      0.06  Q          |           |           |        V |
  22+15       0.2043      0.06  Q          |           |           |        V |
  22+20       0.2047      0.06  Q          |           |           |        V |
  22+25       0.2051      0.06  Q          |           |           |        V |
  22+30       0.2055      0.06  Q          |           |           |        V |
  22+35       0.2059      0.06  Q          |           |           |        V |
  22+40       0.2063      0.06  Q          |           |           |        V |
  22+45       0.2067      0.06  Q          |           |           |        V |
  22+50       0.2071      0.06  Q          |           |           |        V |
  22+55       0.2075      0.06  Q          |           |           |        V |
  23+ 0       0.2079      0.06  Q          |           |           |         V|
  23+ 5       0.2083      0.06  Q          |           |           |         V|
  23+10       0.2087      0.06  Q          |           |           |         V|
  23+15       0.2091      0.06  Q          |           |           |         V|
  23+20       0.2094      0.06  Q          |           |           |         V|
  23+25       0.2098      0.05  Q          |           |           |         V|
  23+30       0.2102      0.05  Q          |           |           |         V|
  23+35       0.2106      0.05  Q          |           |           |         V|
  23+40       0.2109      0.05  Q          |           |           |         V|
  23+45       0.2113      0.05  Q          |           |           |         V|
  23+50       0.2117      0.05  Q          |           |           |         V|
  23+55       0.2120      0.05  Q          |           |           |         V|
  24+ 0       0.2124      0.05  Q          |           |           |         V|
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 06/29/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM POST-DEVELOPED CONDITION – DA2
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA A2-A
FILE: 18345HYDROA2APOST100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
2.10	1	1.13
Rainfall data for year 100		
2.10	6	2.46
Rainfall data for year 100		
2.10	24	5.19

++

******** Area-averaged max loss rate, Fm ********

SCS curve No.(AMCII)	SCS curve NO.(AMC 3)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
32.0	52.0	2.10	1.000	0.785	0.600	0.471

Area-averaged adjusted loss rate Fm (In/Hr) = 0.471

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
1.26	0.600	32.0	52.0	9.23	0.171
0.84	0.400	98.0	98.0	0.20	0.954

Area-averaged catchment yield fraction, Y = 0.485
Area-averaged low loss fraction, Yb = 0.515
User entry of time of concentration = 0.153 (hours)
++
Watershed area = 2.10(Ac.)
Catchment Lag time = 0.122 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 68.2300
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.471(In/Hr)
Average low loss rate fraction (Yb) = 0.515 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall = 0.536(In)
Computed peak 30-minute rainfall = 0.918(In)
Specified peak 1-hour rainfall = 1.130(In)
Computed peak 3-hour rainfall = 1.821(In)
Specified peak 6-hour rainfall = 2.460(In)
Specified peak 24-hour rainfall = 5.190(In)

Rainfall depth area reduction factors:
Using a total area of 2.10(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.536(In)
30-minute factor = 1.000 Adjusted rainfall = 0.918(In)
1-hour factor = 1.000 Adjusted rainfall = 1.130(In)
3-hour factor = 1.000 Adjusted rainfall = 1.821(In)
6-hour factor = 1.000 Adjusted rainfall = 2.460(In)
24-hour factor = 1.000 Adjusted rainfall = 5.190(In)

U n i t H y d r o g r a p h
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Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 25.40 (CFS))	
1	7.360	1.869
2	49.046	10.587
3	72.705	6.009

4	82.972	2.607
5	89.006	1.533
6	92.767	0.955
7	95.334	0.652
8	97.082	0.444
9	98.101	0.259
10	98.878	0.197
11	99.589	0.181
12	100.000	0.104

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5361	0.5361
2	0.6601	0.1239
3	0.7454	0.0854
4	0.8126	0.0672
5	0.8689	0.0563
6	0.9178	0.0488
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0697	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1699	0.0400
14	1.2081	0.0383
15	1.2449	0.0367
16	1.2802	0.0354
17	1.3144	0.0342
18	1.3474	0.0330
19	1.3794	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5267	0.0280
25	1.5540	0.0273
26	1.5807	0.0267
27	1.6068	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7531	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8424	0.0218
38	1.8639	0.0215
39	1.8850	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203

43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2395	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3053	0.0162
63	2.3214	0.0161
64	2.3373	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4149	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4966	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5683	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162

97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4234	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5328	0.0135
142	3.5463	0.0135
143	3.5597	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6262	0.0132
149	3.6394	0.0132
150	3.6526	0.0131

151	3.6656	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7944	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8949	0.0124
170	3.9072	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117
194	4.1952	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2875	0.0114
203	4.2990	0.0114
204	4.3104	0.0114

205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4117	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4892	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6729	0.0106
238	4.6835	0.0106
239	4.6940	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7571	0.0105
246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8607	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102

259	4.9017	0.0102
260	4.9118	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0921	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1705	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0050	0.0047
2	0.0097	0.0050	0.0047
3	0.0098	0.0050	0.0047
4	0.0098	0.0050	0.0047
5	0.0098	0.0051	0.0048
6	0.0098	0.0051	0.0048
7	0.0099	0.0051	0.0048
8	0.0099	0.0051	0.0048
9	0.0099	0.0051	0.0048
10	0.0099	0.0051	0.0048
11	0.0100	0.0051	0.0048
12	0.0100	0.0051	0.0048
13	0.0100	0.0052	0.0048
14	0.0100	0.0052	0.0049
15	0.0101	0.0052	0.0049
16	0.0101	0.0052	0.0049
17	0.0101	0.0052	0.0049
18	0.0101	0.0052	0.0049
19	0.0102	0.0052	0.0049

20	0.0102	0.0052	0.0049
21	0.0102	0.0053	0.0050
22	0.0102	0.0053	0.0050
23	0.0103	0.0053	0.0050
24	0.0103	0.0053	0.0050
25	0.0103	0.0053	0.0050
26	0.0104	0.0053	0.0050
27	0.0104	0.0054	0.0050
28	0.0104	0.0054	0.0050
29	0.0104	0.0054	0.0051
30	0.0105	0.0054	0.0051
31	0.0105	0.0054	0.0051
32	0.0105	0.0054	0.0051
33	0.0106	0.0054	0.0051
34	0.0106	0.0055	0.0051
35	0.0106	0.0055	0.0051
36	0.0106	0.0055	0.0052
37	0.0107	0.0055	0.0052
38	0.0107	0.0055	0.0052
39	0.0108	0.0055	0.0052
40	0.0108	0.0056	0.0052
41	0.0108	0.0056	0.0052
42	0.0108	0.0056	0.0053
43	0.0109	0.0056	0.0053
44	0.0109	0.0056	0.0053
45	0.0110	0.0056	0.0053
46	0.0110	0.0057	0.0053
47	0.0110	0.0057	0.0053
48	0.0110	0.0057	0.0054
49	0.0111	0.0057	0.0054
50	0.0111	0.0057	0.0054
51	0.0112	0.0058	0.0054
52	0.0112	0.0058	0.0054
53	0.0112	0.0058	0.0054
54	0.0113	0.0058	0.0055
55	0.0113	0.0058	0.0055
56	0.0113	0.0058	0.0055
57	0.0114	0.0059	0.0055
58	0.0114	0.0059	0.0055
59	0.0115	0.0059	0.0056
60	0.0115	0.0059	0.0056
61	0.0116	0.0060	0.0056
62	0.0116	0.0060	0.0056
63	0.0116	0.0060	0.0056
64	0.0117	0.0060	0.0056
65	0.0117	0.0060	0.0057
66	0.0117	0.0061	0.0057
67	0.0118	0.0061	0.0057
68	0.0118	0.0061	0.0057
69	0.0119	0.0061	0.0058
70	0.0119	0.0061	0.0058
71	0.0120	0.0062	0.0058
72	0.0120	0.0062	0.0058
73	0.0121	0.0062	0.0058

74	0.0121	0.0062	0.0059
75	0.0122	0.0063	0.0059
76	0.0122	0.0063	0.0059
77	0.0123	0.0063	0.0059
78	0.0123	0.0063	0.0060
79	0.0124	0.0064	0.0060
80	0.0124	0.0064	0.0060
81	0.0125	0.0064	0.0060
82	0.0125	0.0064	0.0061
83	0.0126	0.0065	0.0061
84	0.0126	0.0065	0.0061
85	0.0127	0.0065	0.0061
86	0.0127	0.0066	0.0062
87	0.0128	0.0066	0.0062
88	0.0128	0.0066	0.0062
89	0.0129	0.0066	0.0062
90	0.0129	0.0067	0.0063
91	0.0130	0.0067	0.0063
92	0.0131	0.0067	0.0063
93	0.0131	0.0068	0.0064
94	0.0132	0.0068	0.0064
95	0.0133	0.0068	0.0064
96	0.0133	0.0069	0.0064
97	0.0134	0.0069	0.0065
98	0.0134	0.0069	0.0065
99	0.0135	0.0070	0.0065
100	0.0136	0.0070	0.0066
101	0.0137	0.0070	0.0066
102	0.0137	0.0071	0.0066
103	0.0138	0.0071	0.0067
104	0.0138	0.0071	0.0067
105	0.0139	0.0072	0.0068
106	0.0140	0.0072	0.0068
107	0.0141	0.0073	0.0068
108	0.0141	0.0073	0.0068
109	0.0142	0.0073	0.0069
110	0.0143	0.0074	0.0069
111	0.0144	0.0074	0.0070
112	0.0145	0.0075	0.0070
113	0.0146	0.0075	0.0071
114	0.0146	0.0075	0.0071
115	0.0147	0.0076	0.0071
116	0.0148	0.0076	0.0072
117	0.0149	0.0077	0.0072
118	0.0150	0.0077	0.0073
119	0.0151	0.0078	0.0073
120	0.0152	0.0078	0.0073
121	0.0153	0.0079	0.0074
122	0.0154	0.0079	0.0074
123	0.0155	0.0080	0.0075
124	0.0156	0.0080	0.0075
125	0.0157	0.0081	0.0076
126	0.0158	0.0081	0.0076
127	0.0159	0.0082	0.0077

128	0.0160	0.0082	0.0078
129	0.0162	0.0083	0.0078
130	0.0162	0.0084	0.0079
131	0.0164	0.0084	0.0079
132	0.0165	0.0085	0.0080
133	0.0166	0.0086	0.0081
134	0.0167	0.0086	0.0081
135	0.0169	0.0087	0.0082
136	0.0170	0.0088	0.0082
137	0.0172	0.0089	0.0083
138	0.0173	0.0089	0.0084
139	0.0175	0.0090	0.0085
140	0.0176	0.0091	0.0085
141	0.0178	0.0092	0.0086
142	0.0179	0.0092	0.0087
143	0.0181	0.0093	0.0088
144	0.0182	0.0094	0.0088
145	0.0149	0.0077	0.0072
146	0.0150	0.0077	0.0073
147	0.0153	0.0079	0.0074
148	0.0154	0.0079	0.0075
149	0.0157	0.0081	0.0076
150	0.0158	0.0081	0.0076
151	0.0161	0.0083	0.0078
152	0.0162	0.0084	0.0079
153	0.0165	0.0085	0.0080
154	0.0167	0.0086	0.0081
155	0.0170	0.0088	0.0082
156	0.0172	0.0089	0.0083
157	0.0175	0.0090	0.0085
158	0.0177	0.0091	0.0086
159	0.0181	0.0093	0.0088
160	0.0183	0.0095	0.0089
161	0.0188	0.0097	0.0091
162	0.0190	0.0098	0.0092
163	0.0195	0.0100	0.0094
164	0.0197	0.0102	0.0096
165	0.0203	0.0104	0.0098
166	0.0205	0.0106	0.0100
167	0.0211	0.0109	0.0102
168	0.0215	0.0111	0.0104
169	0.0221	0.0114	0.0107
170	0.0225	0.0116	0.0109
171	0.0233	0.0120	0.0113
172	0.0237	0.0122	0.0115
173	0.0246	0.0127	0.0119
174	0.0251	0.0129	0.0121
175	0.0261	0.0135	0.0127
176	0.0267	0.0138	0.0129
177	0.0280	0.0144	0.0135
178	0.0287	0.0148	0.0139
179	0.0302	0.0156	0.0146
180	0.0311	0.0160	0.0151
181	0.0330	0.0170	0.0160

182	0.0342	0.0176	0.0165
183	0.0367	0.0189	0.0178
184	0.0383	0.0197	0.0185
185	0.0291	0.0150	0.0141
186	0.0310	0.0160	0.0150
187	0.0360	0.0185	0.0174
188	0.0393	0.0203	0.0190
189	0.0488	0.0252	0.0237
190	0.0563	0.0290	0.0273
191	0.0854	0.0393	0.0461
192	0.1239	0.0393	0.0847
193	0.5361	0.0393	0.4969
194	0.0672	0.0346	0.0326
195	0.0434	0.0224	0.0210
196	0.0333	0.0172	0.0161
197	0.0400	0.0206	0.0194
198	0.0354	0.0182	0.0171
199	0.0320	0.0165	0.0155
200	0.0294	0.0152	0.0142
201	0.0273	0.0141	0.0132
202	0.0256	0.0132	0.0124
203	0.0241	0.0124	0.0117
204	0.0229	0.0118	0.0111
205	0.0218	0.0112	0.0106
206	0.0208	0.0107	0.0101
207	0.0200	0.0103	0.0097
208	0.0192	0.0099	0.0093
209	0.0186	0.0096	0.0090
210	0.0179	0.0092	0.0087
211	0.0174	0.0090	0.0084
212	0.0168	0.0087	0.0082
213	0.0164	0.0084	0.0079
214	0.0159	0.0082	0.0077
215	0.0155	0.0080	0.0075
216	0.0151	0.0078	0.0073
217	0.0183	0.0095	0.0089
218	0.0180	0.0093	0.0087
219	0.0177	0.0091	0.0086
220	0.0174	0.0090	0.0084
221	0.0171	0.0088	0.0083
222	0.0168	0.0087	0.0081
223	0.0166	0.0085	0.0080
224	0.0163	0.0084	0.0079
225	0.0161	0.0083	0.0078
226	0.0158	0.0082	0.0077
227	0.0156	0.0081	0.0076
228	0.0154	0.0080	0.0075
229	0.0152	0.0078	0.0074
230	0.0150	0.0078	0.0073
231	0.0149	0.0077	0.0072
232	0.0147	0.0076	0.0071
233	0.0145	0.0075	0.0070
234	0.0143	0.0074	0.0070
235	0.0142	0.0073	0.0069

236	0.0140	0.0072	0.0068
237	0.0139	0.0072	0.0067
238	0.0137	0.0071	0.0067
239	0.0136	0.0070	0.0066
240	0.0135	0.0069	0.0065
241	0.0133	0.0069	0.0065
242	0.0132	0.0068	0.0064
243	0.0131	0.0067	0.0063
244	0.0130	0.0067	0.0063
245	0.0129	0.0066	0.0062
246	0.0127	0.0066	0.0062
247	0.0126	0.0065	0.0061
248	0.0125	0.0065	0.0061
249	0.0124	0.0064	0.0060
250	0.0123	0.0064	0.0060
251	0.0122	0.0063	0.0059
252	0.0121	0.0063	0.0059
253	0.0120	0.0062	0.0058
254	0.0119	0.0062	0.0058
255	0.0119	0.0061	0.0057
256	0.0118	0.0061	0.0057
257	0.0117	0.0060	0.0057
258	0.0116	0.0060	0.0056
259	0.0115	0.0059	0.0056
260	0.0114	0.0059	0.0055
261	0.0114	0.0059	0.0055
262	0.0113	0.0058	0.0055
263	0.0112	0.0058	0.0054
264	0.0111	0.0057	0.0054
265	0.0111	0.0057	0.0054
266	0.0110	0.0057	0.0053
267	0.0109	0.0056	0.0053
268	0.0109	0.0056	0.0053
269	0.0108	0.0056	0.0052
270	0.0107	0.0055	0.0052
271	0.0107	0.0055	0.0052
272	0.0106	0.0055	0.0051
273	0.0105	0.0054	0.0051
274	0.0105	0.0054	0.0051
275	0.0104	0.0054	0.0051
276	0.0104	0.0053	0.0050
277	0.0103	0.0053	0.0050
278	0.0103	0.0053	0.0050
279	0.0102	0.0053	0.0049
280	0.0101	0.0052	0.0049
281	0.0101	0.0052	0.0049
282	0.0100	0.0052	0.0049
283	0.0100	0.0051	0.0048
284	0.0099	0.0051	0.0048
285	0.0099	0.0051	0.0048
286	0.0098	0.0051	0.0048
287	0.0098	0.0050	0.0047
288	0.0097	0.0050	0.0047

Total soil rain loss = 2.41(In)
Total effective rainfall = 2.78(In)
Peak flow rate in flood hydrograph = 6.05(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	0.0005	0.06	Q				
0+15	0.0011	0.09	Q				
0+20	0.0017	0.10	Q				
0+25	0.0025	0.11	Q				
0+30	0.0033	0.11	Q				
0+35	0.0040	0.12	Q				
0+40	0.0049	0.12	Q				
0+45	0.0057	0.12	Q				
0+50	0.0065	0.12	Q				
0+55	0.0073	0.12	Q				
1+ 0	0.0082	0.12	Q				
1+ 5	0.0090	0.12	Q				
1+10	0.0099	0.12	Q				
1+15	0.0107	0.12	Q				
1+20	0.0116	0.12	Q				
1+25	0.0124	0.12	QV				
1+30	0.0133	0.12	QV				
1+35	0.0141	0.12	QV				
1+40	0.0150	0.12	QV				
1+45	0.0158	0.12	QV				
1+50	0.0167	0.13	QV				
1+55	0.0176	0.13	QV				
2+ 0	0.0184	0.13	QV				
2+ 5	0.0193	0.13	QV				
2+10	0.0202	0.13	QV				
2+15	0.0211	0.13	QV				
2+20	0.0219	0.13	QV				
2+25	0.0228	0.13	QV				
2+30	0.0237	0.13	QV				
2+35	0.0246	0.13	Q V				
2+40	0.0255	0.13	Q V				
2+45	0.0264	0.13	Q V				
2+50	0.0273	0.13	Q V				
2+55	0.0281	0.13	Q V				
3+ 0	0.0290	0.13	Q V				
3+ 5	0.0299	0.13	Q V				
3+10	0.0308	0.13	Q V				
3+15	0.0318	0.13	Q V				
3+20	0.0327	0.13	Q V				

3+25	0.0336	0.13	Q V	|	|	|	|
3+30	0.0345	0.13	Q V	|	|	|	|
3+35	0.0354	0.13	Q V	|	|	|	|
3+40	0.0363	0.13	Q V	|	|	|	|
3+45	0.0372	0.13	Q V	|	|	|	|
3+50	0.0382	0.13	Q V	|	|	|	|
3+55	0.0391	0.13	Q V	|	|	|	|
4+ 0	0.0400	0.14	Q V	|	|	|	|
4+ 5	0.0410	0.14	Q V	|	|	|	|
4+10	0.0419	0.14	Q V	|	|	|	|
4+15	0.0428	0.14	Q V	|	|	|	|
4+20	0.0438	0.14	Q V	|	|	|	|
4+25	0.0447	0.14	Q V	|	|	|	|
4+30	0.0457	0.14	Q V	|	|	|	|
4+35	0.0466	0.14	Q V	|	|	|	|
4+40	0.0476	0.14	Q V	|	|	|	|
4+45	0.0485	0.14	Q V	|	|	|	|
4+50	0.0495	0.14	Q V	|	|	|	|
4+55	0.0505	0.14	Q V	|	|	|	|
5+ 0	0.0514	0.14	Q V	|	|	|	|
5+ 5	0.0524	0.14	Q V	|	|	|	|
5+10	0.0534	0.14	Q V	|	|	|	|
5+15	0.0543	0.14	Q V	|	|	|	|
5+20	0.0553	0.14	Q V	|	|	|	|
5+25	0.0563	0.14	Q V	|	|	|	|
5+30	0.0573	0.14	Q V	|	|	|	|
5+35	0.0583	0.14	Q V	|	|	|	|
5+40	0.0593	0.14	Q V	|	|	|	|
5+45	0.0603	0.15	Q V	|	|	|	|
5+50	0.0613	0.15	Q V	|	|	|	|
5+55	0.0623	0.15	Q V	|	|	|	|
6+ 0	0.0633	0.15	Q V	|	|	|	|
6+ 5	0.0643	0.15	Q V	|	|	|	|
6+10	0.0653	0.15	Q V	|	|	|	|
6+15	0.0664	0.15	Q V	|	|	|	|
6+20	0.0674	0.15	Q V	|	|	|	|
6+25	0.0684	0.15	Q V	|	|	|	|
6+30	0.0694	0.15	Q V	|	|	|	|
6+35	0.0705	0.15	Q V	|	|	|	|
6+40	0.0715	0.15	Q V	|	|	|	|
6+45	0.0726	0.15	Q V	|	|	|	|
6+50	0.0736	0.15	Q V	|	|	|	|
6+55	0.0747	0.15	Q V	|	|	|	|
7+ 0	0.0757	0.15	Q V	|	|	|	|
7+ 5	0.0768	0.15	Q V	|	|	|	|
7+10	0.0779	0.16	Q V	|	|	|	|
7+15	0.0789	0.16	Q V	|	|	|	|
7+20	0.0800	0.16	Q V	|	|	|	|
7+25	0.0811	0.16	Q V	|	|	|	|
7+30	0.0822	0.16	Q V	|	|	|	|
7+35	0.0833	0.16	Q V	|	|	|	|
7+40	0.0844	0.16	Q V	|	|	|	|
7+45	0.0855	0.16	Q V	|	|	|	|
7+50	0.0866	0.16	Q V	|	|	|	|

```
 7+55       0.0877      0.16  Q      V  |          |          |          |
 8+ 0       0.0888      0.16  Q      V  |          |          |          |
 8+ 5       0.0899      0.16  Q      V  |          |          |          |
 8+10       0.0911      0.16  Q      V  |          |          |          |
 8+15       0.0922      0.16  Q      V  |          |          |          |
 8+20       0.0933      0.17  Q      V  |          |          |          |
 8+25       0.0945      0.17  Q      V  |          |          |          |
 8+30       0.0956      0.17  Q      V  |          |          |          |
 8+35       0.0968      0.17  Q      V  |          |          |          |
 8+40       0.0979      0.17  Q       V |          |          |          |
 8+45       0.0991      0.17  Q       V |          |          |          |
 8+50       0.1003      0.17  Q       V |          |          |          |
 8+55       0.1015      0.17  Q       V |          |          |          |
 9+ 0       0.1026      0.17  Q       V |          |          |          |
 9+ 5       0.1038      0.17  Q       V |          |          |          |
 9+10       0.1050      0.17  Q       V |          |          |          |
 9+15       0.1062      0.17  Q       V |          |          |          |
 9+20       0.1075      0.18  Q       V |          |          |          |
 9+25       0.1087      0.18  Q       V |          |          |          |
 9+30       0.1099      0.18  Q        V|          |          |          |
 9+35       0.1111      0.18  Q        V|          |          |          |
 9+40       0.1124      0.18  Q        V|          |          |          |
 9+45       0.1136      0.18  Q        V|          |          |          |
 9+50       0.1149      0.18  Q        V|          |          |          |
 9+55       0.1161      0.18  Q        V|          |          |          |
10+ 0       0.1174      0.18  Q        V|          |          |          |
10+ 5       0.1187      0.19  Q        V|          |          |          |
10+10       0.1200      0.19  Q        V|          |          |          |
10+15       0.1213      0.19  Q        V|          |          |          |
10+20       0.1226      0.19  Q         V          |          |          |
10+25       0.1239      0.19  Q         V          |          |          |
10+30       0.1252      0.19  Q         V          |          |          |
10+35       0.1265      0.19  Q         V          |          |          |
10+40       0.1279      0.19  Q         V          |          |          |
10+45       0.1292      0.20  Q         V          |          |          |
10+50       0.1306      0.20  Q         V          |          |          |
10+55       0.1319      0.20  Q         V          |          |          |
11+ 0       0.1333      0.20  Q         V          |          |          |
11+ 5       0.1347      0.20  Q          |V         |          |          |
11+10       0.1361      0.20  Q          |V         |          |          |
11+15       0.1375      0.20  Q          |V         |          |          |
11+20       0.1389      0.21  Q          |V         |          |          |
11+25       0.1403      0.21  Q          |V         |          |          |
11+30       0.1418      0.21  Q          |V         |          |          |
11+35       0.1432      0.21  Q          |V         |          |          |
11+40       0.1447      0.21  Q          |V         |          |          |
11+45       0.1462      0.21  Q          | V        |          |          |
11+50       0.1477      0.22  Q          | V        |          |          |
11+55       0.1492      0.22  Q          | V        |          |          |
12+ 0       0.1507      0.22  Q          | V        |          |          |
12+ 5       0.1522      0.22  Q          | V        |          |          |
12+10       0.1536      0.20  Q          | V        |          |          |
12+15       0.1549      0.19  Q          | V        |          |          |
12+20       0.1563      0.19  Q          | V        |          |          |
```

12+25	0.1576	0.19	Q	V				
12+30	0.1589	0.19	Q	V				
12+35	0.1602	0.19	Q	V				
12+40	0.1616	0.20	Q	V				
12+45	0.1629	0.20	Q	V				
12+50	0.1643	0.20	Q	V				
12+55	0.1657	0.20	Q	V				
13+ 0	0.1671	0.21	Q	V				
13+ 5	0.1686	0.21	Q	V				
13+10	0.1700	0.21	Q	V				
13+15	0.1715	0.21	Q	V				
13+20	0.1730	0.22	Q	V				
13+25	0.1745	0.22	Q	V				
13+30	0.1761	0.23	Q	V				
13+35	0.1777	0.23	Q	V				
13+40	0.1793	0.23	Q	V				
13+45	0.1809	0.24	Q	V				
13+50	0.1826	0.24	Q	V				
13+55	0.1843	0.25	Q	V				
14+ 0	0.1861	0.25	Q	V				
14+ 5	0.1879	0.26	Q	V				
14+10	0.1897	0.26	Q	V				
14+15	0.1915	0.27	Q	V				
14+20	0.1935	0.28	Q	V				
14+25	0.1954	0.28	Q	V				
14+30	0.1974	0.29	Q	V				
14+35	0.1995	0.30	Q	V				
14+40	0.2016	0.31	Q	V				
14+45	0.2038	0.32	Q	V				
14+50	0.2061	0.33	Q	V				
14+55	0.2085	0.34	Q	V				
15+ 0	0.2109	0.36	Q	V				
15+ 5	0.2134	0.37	Q	V				
15+10	0.2161	0.39	Q	V				
15+15	0.2189	0.40	Q	V				
15+20	0.2218	0.43	Q	V				
15+25	0.2248	0.44	Q	V				
15+30	0.2276	0.40	Q	V				
15+35	0.2303	0.40	Q	V				
15+40	0.2332	0.42	Q	V				
15+45	0.2364	0.46	Q	V				
15+50	0.2400	0.53	Q	V				
15+55	0.2444	0.64	Q	V				
16+ 0	0.2509	0.95	Q	V				
16+ 5	0.2665	2.26	Q	V				
16+10	**0.3081**	**6.05**	**Q**	**V**				
16+15	0.3338	3.72	Q	V				
16+20	0.3473	1.96	Q	V				
16+25	0.3563	1.32	Q	V				
16+30	0.3633	1.01	Q	V				
16+35	0.3689	0.82	Q	V				
16+40	0.3735	0.67	Q	V				
16+45	0.3772	0.54	Q	V				
16+50	0.3806	0.48	Q	V				

```
16+55       0.3836      0.44  |Q        |         |         |V        |
17+ 0       0.3862      0.38  |Q        |         |         |V        |
17+ 5       0.3883      0.31  |Q        |         |         |V        |
17+10       0.3903      0.29  |Q        |         |         | V       |
17+15       0.3922      0.27  |Q        |         |         | V       |
17+20       0.3940      0.26  |Q        |         |         | V       |
17+25       0.3957      0.25  |Q        |         |         | V       |
17+30       0.3974      0.24  Q         |         |         | V       |
17+35       0.3989      0.23  Q         |         |         | V       |
17+40       0.4005      0.22  Q         |         |         | V       |
17+45       0.4020      0.22  Q         |         |         |  V      |
17+50       0.4034      0.21  Q         |         |         |  V      |
17+55       0.4048      0.20  Q         |         |         |  V      |
18+ 0       0.4062      0.20  Q         |         |         |  V      |
18+ 5       0.4075      0.20  Q         |         |         |  V      |
18+10       0.4090      0.21  Q         |         |         |  V      |
18+15       0.4105      0.22  Q         |         |         |  V      |
18+20       0.4119      0.22  Q         |         |         |  V      |
18+25       0.4134      0.21  Q         |         |         |  V      |
18+30       0.4149      0.21  Q         |         |         |   V     |
18+35       0.4163      0.21  Q         |         |         |   V     |
18+40       0.4177      0.21  Q         |         |         |   V     |
18+45       0.4191      0.20  Q         |         |         |   V     |
18+50       0.4205      0.20  Q         |         |         |   V     |
18+55       0.4219      0.20  Q         |         |         |   V     |
19+ 0       0.4232      0.20  Q         |         |         |   V     |
19+ 5       0.4246      0.19  Q         |         |         |   V     |
19+10       0.4259      0.19  Q         |         |         |    V    |
19+15       0.4272      0.19  Q         |         |         |    V    |
19+20       0.4284      0.19  Q         |         |         |    V    |
19+25       0.4297      0.18  Q         |         |         |    V    |
19+30       0.4310      0.18  Q         |         |         |    V    |
19+35       0.4322      0.18  Q         |         |         |    V    |
19+40       0.4334      0.18  Q         |         |         |    V    |
19+45       0.4346      0.18  Q         |         |         |    V    |
19+50       0.4358      0.17  Q         |         |         |    V    |
19+55       0.4370      0.17  Q         |         |         |    V    |
20+ 0       0.4382      0.17  Q         |         |         |     V   |
20+ 5       0.4393      0.17  Q         |         |         |     V   |
20+10       0.4405      0.17  Q         |         |         |     V   |
20+15       0.4416      0.16  Q         |         |         |     V   |
20+20       0.4427      0.16  Q         |         |         |     V   |
20+25       0.4438      0.16  Q         |         |         |     V   |
20+30       0.4449      0.16  Q         |         |         |     V   |
20+35       0.4460      0.16  Q         |         |         |     V   |
20+40       0.4471      0.16  Q         |         |         |     V   |
20+45       0.4482      0.16  Q         |         |         |     V   |
20+50       0.4492      0.15  Q         |         |         |     V   |
20+55       0.4503      0.15  Q         |         |         |      V  |
21+ 0       0.4513      0.15  Q         |         |         |      V  |
21+ 5       0.4524      0.15  Q         |         |         |      V  |
21+10       0.4534      0.15  Q         |         |         |      V  |
21+15       0.4544      0.15  Q         |         |         |      V  |
21+20       0.4554      0.15  Q         |         |         |      V  |
```

```
  21+25       0.4565      0.15  Q          |           |           |       V   |
  21+30       0.4574      0.15  Q          |           |           |       V   |
  21+35       0.4584      0.14  Q          |           |           |       V   |
  21+40       0.4594      0.14  Q          |           |           |       V   |
  21+45       0.4604      0.14  Q          |           |           |       V   |
  21+50       0.4614      0.14  Q          |           |           |       V   |
  21+55       0.4623      0.14  Q          |           |           |        V  |
  22+ 0       0.4633      0.14  Q          |           |           |        V  |
  22+ 5       0.4643      0.14  Q          |           |           |        V  |
  22+10       0.4652      0.14  Q          |           |           |        V  |
  22+15       0.4661      0.14  Q          |           |           |        V  |
  22+20       0.4671      0.14  Q          |           |           |        V  |
  22+25       0.4680      0.13  Q          |           |           |        V  |
  22+30       0.4689      0.13  Q          |           |           |        V  |
  22+35       0.4698      0.13  Q          |           |           |        V  |
  22+40       0.4707      0.13  Q          |           |           |        V  |
  22+45       0.4717      0.13  Q          |           |           |        V  |
  22+50       0.4726      0.13  Q          |           |           |        V  |
  22+55       0.4734      0.13  Q          |           |           |        V  |
  23+ 0       0.4743      0.13  Q          |           |           |         V|
  23+ 5       0.4752      0.13  Q          |           |           |         V|
  23+10       0.4761      0.13  Q          |           |           |         V|
  23+15       0.4770      0.13  Q          |           |           |         V|
  23+20       0.4778      0.13  Q          |           |           |         V|
  23+25       0.4787      0.13  Q          |           |           |         V|
  23+30       0.4796      0.12  Q          |           |           |         V|
  23+35       0.4804      0.12  Q          |           |           |         V|
  23+40       0.4813      0.12  Q          |           |           |         V|
  23+45       0.4821      0.12  Q          |           |           |         V|
  23+50       0.4830      0.12  Q          |           |           |         V|
  23+55       0.4838      0.12  Q          |           |           |         V|
  24+ 0       0.4846      0.12  Q          |           |           |         V|
-------------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 06/29/22

++

San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM POST-DEVELOPED CONDITION
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA A2-B
FILE: 18345HYDROA2BPOST100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
1.19	1	1.13
Rainfall data for year 100		
1.19	6	2.46
Rainfall data for year 100		
1.19	24	5.19

++

******** Area-averaged max loss rate, Fm ********

```
SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0          1.19      1.000     0.785    0.600    0.471

Area-averaged adjusted loss rate Fm (In/Hr) =  0.471

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     0.71   0.600         32.0      52.0       9.23     0.171
     0.48   0.400         98.0      98.0       0.20     0.954

Area-averaged catchment yield fraction, Y =  0.485
Area-averaged low loss fraction, Yb =  0.515
User entry of time of concentration  =   0.155 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       1.19(Ac.)
Catchment Lag time =   0.124 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 67.2781
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.471(In/Hr)
Average low loss rate fraction (Yb) = 0.515 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.536(In)
Computed peak 30-minute rainfall =  0.918(In)
Specified peak 1-hour rainfall =  1.130(In)
Computed peak 3-hour rainfall =  1.821(In)
Specified peak 6-hour rainfall =  2.460(In)
Specified peak 24-hour rainfall =  5.190(In)


Rainfall depth area reduction factors:
Using a total area of       1.19(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.536(In)
30-minute factor = 1.000    Adjusted rainfall =  0.918(In)
1-hour factor = 1.000       Adjusted rainfall =  1.130(In)
3-hour factor = 1.000       Adjusted rainfall =  1.821(In)
6-hour factor = 1.000       Adjusted rainfall =  2.460(In)
24-hour factor = 1.000      Adjusted rainfall =  5.190(In)
----------------------------------------------------------------------

                U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
           (K =        14.39 (CFS))

  1                7.127                   1.026
  2               48.251                   5.918
  3               72.220                   3.450
```

4	82.603	1.494
5	88.715	0.880
6	92.525	0.548
7	95.142	0.377
8	96.932	0.258
9	98.011	0.155
10	98.770	0.109
11	99.508	0.106
12	100.000	0.071

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5362	0.5362
2	0.6601	0.1239
3	0.7455	0.0854
4	0.8127	0.0672
5	0.8689	0.0563
6	0.9178	0.0489
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0698	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1699	0.0400
14	1.2082	0.0383
15	1.2449	0.0367
16	1.2803	0.0354
17	1.3144	0.0342
18	1.3475	0.0330
19	1.3795	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5268	0.0280
25	1.5541	0.0273
26	1.5807	0.0267
27	1.6069	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7532	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8425	0.0218
38	1.8639	0.0215
39	1.8851	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203

43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2396	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3054	0.0162
63	2.3214	0.0161
64	2.3374	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4150	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4966	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5684	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162

97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4235	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5329	0.0135
142	3.5463	0.0135
143	3.5598	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6263	0.0132
149	3.6394	0.0132
150	3.6526	0.0131

151	3.6657	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7945	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8949	0.0124
170	3.9073	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117
194	4.1953	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2876	0.0114
203	4.2990	0.0114
204	4.3104	0.0114

205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4118	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4893	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6729	0.0106
238	4.6835	0.0106
239	4.6941	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7572	0.0105
246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8608	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102

259	4.9017	0.0102
260	4.9119	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0922	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1706	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0050	0.0047
2	0.0097	0.0050	0.0047
3	0.0098	0.0050	0.0047
4	0.0098	0.0050	0.0047
5	0.0098	0.0051	0.0048
6	0.0098	0.0051	0.0048
7	0.0099	0.0051	0.0048
8	0.0099	0.0051	0.0048
9	0.0099	0.0051	0.0048
10	0.0099	0.0051	0.0048
11	0.0100	0.0051	0.0048
12	0.0100	0.0051	0.0048
13	0.0100	0.0052	0.0048
14	0.0100	0.0052	0.0049
15	0.0101	0.0052	0.0049
16	0.0101	0.0052	0.0049
17	0.0101	0.0052	0.0049
18	0.0101	0.0052	0.0049
19	0.0102	0.0052	0.0049

20	0.0102	0.0052	0.0049
21	0.0102	0.0053	0.0050
22	0.0102	0.0053	0.0050
23	0.0103	0.0053	0.0050
24	0.0103	0.0053	0.0050
25	0.0103	0.0053	0.0050
26	0.0104	0.0053	0.0050
27	0.0104	0.0054	0.0050
28	0.0104	0.0054	0.0050
29	0.0104	0.0054	0.0051
30	0.0105	0.0054	0.0051
31	0.0105	0.0054	0.0051
32	0.0105	0.0054	0.0051
33	0.0106	0.0054	0.0051
34	0.0106	0.0055	0.0051
35	0.0106	0.0055	0.0051
36	0.0106	0.0055	0.0052
37	0.0107	0.0055	0.0052
38	0.0107	0.0055	0.0052
39	0.0108	0.0055	0.0052
40	0.0108	0.0056	0.0052
41	0.0108	0.0056	0.0052
42	0.0108	0.0056	0.0053
43	0.0109	0.0056	0.0053
44	0.0109	0.0056	0.0053
45	0.0110	0.0056	0.0053
46	0.0110	0.0057	0.0053
47	0.0110	0.0057	0.0053
48	0.0110	0.0057	0.0054
49	0.0111	0.0057	0.0054
50	0.0111	0.0057	0.0054
51	0.0112	0.0058	0.0054
52	0.0112	0.0058	0.0054
53	0.0112	0.0058	0.0054
54	0.0113	0.0058	0.0055
55	0.0113	0.0058	0.0055
56	0.0113	0.0058	0.0055
57	0.0114	0.0059	0.0055
58	0.0114	0.0059	0.0055
59	0.0115	0.0059	0.0056
60	0.0115	0.0059	0.0056
61	0.0116	0.0060	0.0056
62	0.0116	0.0060	0.0056
63	0.0116	0.0060	0.0056
64	0.0117	0.0060	0.0056
65	0.0117	0.0060	0.0057
66	0.0117	0.0061	0.0057
67	0.0118	0.0061	0.0057
68	0.0118	0.0061	0.0057
69	0.0119	0.0061	0.0058
70	0.0119	0.0061	0.0058
71	0.0120	0.0062	0.0058
72	0.0120	0.0062	0.0058
73	0.0121	0.0062	0.0058

74	0.0121	0.0062	0.0059
75	0.0122	0.0063	0.0059
76	0.0122	0.0063	0.0059
77	0.0123	0.0063	0.0059
78	0.0123	0.0063	0.0060
79	0.0124	0.0064	0.0060
80	0.0124	0.0064	0.0060
81	0.0125	0.0064	0.0060
82	0.0125	0.0064	0.0061
83	0.0126	0.0065	0.0061
84	0.0126	0.0065	0.0061
85	0.0127	0.0065	0.0061
86	0.0127	0.0066	0.0062
87	0.0128	0.0066	0.0062
88	0.0128	0.0066	0.0062
89	0.0129	0.0066	0.0062
90	0.0129	0.0067	0.0063
91	0.0130	0.0067	0.0063
92	0.0131	0.0067	0.0063
93	0.0131	0.0068	0.0064
94	0.0132	0.0068	0.0064
95	0.0133	0.0068	0.0064
96	0.0133	0.0069	0.0064
97	0.0134	0.0069	0.0065
98	0.0134	0.0069	0.0065
99	0.0135	0.0070	0.0065
100	0.0136	0.0070	0.0066
101	0.0137	0.0070	0.0066
102	0.0137	0.0071	0.0066
103	0.0138	0.0071	0.0067
104	0.0138	0.0071	0.0067
105	0.0139	0.0072	0.0068
106	0.0140	0.0072	0.0068
107	0.0141	0.0073	0.0068
108	0.0141	0.0073	0.0068
109	0.0142	0.0073	0.0069
110	0.0143	0.0074	0.0069
111	0.0144	0.0074	0.0070
112	0.0145	0.0075	0.0070
113	0.0146	0.0075	0.0071
114	0.0146	0.0075	0.0071
115	0.0147	0.0076	0.0071
116	0.0148	0.0076	0.0072
117	0.0149	0.0077	0.0072
118	0.0150	0.0077	0.0073
119	0.0151	0.0078	0.0073
120	0.0152	0.0078	0.0073
121	0.0153	0.0079	0.0074
122	0.0154	0.0079	0.0074
123	0.0155	0.0080	0.0075
124	0.0156	0.0080	0.0075
125	0.0157	0.0081	0.0076
126	0.0158	0.0081	0.0076
127	0.0159	0.0082	0.0077

128	0.0160	0.0082	0.0078
129	0.0162	0.0083	0.0078
130	0.0162	0.0084	0.0079
131	0.0164	0.0084	0.0079
132	0.0165	0.0085	0.0080
133	0.0166	0.0086	0.0081
134	0.0167	0.0086	0.0081
135	0.0169	0.0087	0.0082
136	0.0170	0.0088	0.0082
137	0.0172	0.0089	0.0083
138	0.0173	0.0089	0.0084
139	0.0175	0.0090	0.0085
140	0.0176	0.0091	0.0085
141	0.0178	0.0092	0.0086
142	0.0179	0.0092	0.0087
143	0.0181	0.0093	0.0088
144	0.0182	0.0094	0.0088
145	0.0149	0.0077	0.0072
146	0.0150	0.0077	0.0073
147	0.0153	0.0079	0.0074
148	0.0154	0.0079	0.0075
149	0.0157	0.0081	0.0076
150	0.0158	0.0081	0.0076
151	0.0161	0.0083	0.0078
152	0.0162	0.0084	0.0079
153	0.0165	0.0085	0.0080
154	0.0167	0.0086	0.0081
155	0.0170	0.0088	0.0082
156	0.0172	0.0089	0.0083
157	0.0175	0.0090	0.0085
158	0.0177	0.0091	0.0086
159	0.0181	0.0093	0.0088
160	0.0183	0.0095	0.0089
161	0.0188	0.0097	0.0091
162	0.0190	0.0098	0.0092
163	0.0195	0.0100	0.0094
164	0.0197	0.0102	0.0096
165	0.0203	0.0104	0.0098
166	0.0205	0.0106	0.0100
167	0.0211	0.0109	0.0102
168	0.0215	0.0111	0.0104
169	0.0221	0.0114	0.0107
170	0.0225	0.0116	0.0109
171	0.0233	0.0120	0.0113
172	0.0237	0.0122	0.0115
173	0.0246	0.0127	0.0119
174	0.0251	0.0129	0.0121
175	0.0261	0.0135	0.0127
176	0.0267	0.0138	0.0129
177	0.0280	0.0144	0.0135
178	0.0287	0.0148	0.0139
179	0.0302	0.0156	0.0146
180	0.0311	0.0160	0.0151
181	0.0330	0.0170	0.0160

182	0.0342	0.0176	0.0165
183	0.0367	0.0189	0.0178
184	0.0383	0.0197	0.0185
185	0.0291	0.0150	0.0141
186	0.0310	0.0160	0.0150
187	0.0360	0.0185	0.0174
188	0.0393	0.0203	0.0190
189	0.0489	0.0252	0.0237
190	0.0563	0.0290	0.0273
191	0.0854	0.0393	0.0461
192	0.1239	0.0393	0.0847
193	0.5362	0.0393	0.4969
194	0.0672	0.0346	0.0326
195	0.0434	0.0224	0.0210
196	0.0333	0.0172	0.0161
197	0.0400	0.0206	0.0194
198	0.0354	0.0182	0.0171
199	0.0320	0.0165	0.0155
200	0.0294	0.0152	0.0142
201	0.0273	0.0141	0.0132
202	0.0256	0.0132	0.0124
203	0.0241	0.0124	0.0117
204	0.0229	0.0118	0.0111
205	0.0218	0.0112	0.0106
206	0.0208	0.0107	0.0101
207	0.0200	0.0103	0.0097
208	0.0192	0.0099	0.0093
209	0.0186	0.0096	0.0090
210	0.0179	0.0092	0.0087
211	0.0174	0.0090	0.0084
212	0.0168	0.0087	0.0082
213	0.0164	0.0084	0.0079
214	0.0159	0.0082	0.0077
215	0.0155	0.0080	0.0075
216	0.0151	0.0078	0.0073
217	0.0183	0.0095	0.0089
218	0.0180	0.0093	0.0087
219	0.0177	0.0091	0.0086
220	0.0174	0.0090	0.0084
221	0.0171	0.0088	0.0083
222	0.0168	0.0087	0.0081
223	0.0166	0.0085	0.0080
224	0.0163	0.0084	0.0079
225	0.0161	0.0083	0.0078
226	0.0158	0.0082	0.0077
227	0.0156	0.0081	0.0076
228	0.0154	0.0080	0.0075
229	0.0152	0.0078	0.0074
230	0.0150	0.0078	0.0073
231	0.0149	0.0077	0.0072
232	0.0147	0.0076	0.0071
233	0.0145	0.0075	0.0070
234	0.0143	0.0074	0.0070
235	0.0142	0.0073	0.0069

236	0.0140	0.0072	0.0068
237	0.0139	0.0072	0.0067
238	0.0137	0.0071	0.0067
239	0.0136	0.0070	0.0066
240	0.0135	0.0069	0.0065
241	0.0133	0.0069	0.0065
242	0.0132	0.0068	0.0064
243	0.0131	0.0067	0.0063
244	0.0130	0.0067	0.0063
245	0.0129	0.0066	0.0062
246	0.0127	0.0066	0.0062
247	0.0126	0.0065	0.0061
248	0.0125	0.0065	0.0061
249	0.0124	0.0064	0.0060
250	0.0123	0.0064	0.0060
251	0.0122	0.0063	0.0059
252	0.0121	0.0063	0.0059
253	0.0120	0.0062	0.0058
254	0.0119	0.0062	0.0058
255	0.0119	0.0061	0.0057
256	0.0118	0.0061	0.0057
257	0.0117	0.0060	0.0057
258	0.0116	0.0060	0.0056
259	0.0115	0.0059	0.0056
260	0.0114	0.0059	0.0055
261	0.0114	0.0059	0.0055
262	0.0113	0.0058	0.0055
263	0.0112	0.0058	0.0054
264	0.0111	0.0057	0.0054
265	0.0111	0.0057	0.0054
266	0.0110	0.0057	0.0053
267	0.0109	0.0056	0.0053
268	0.0109	0.0056	0.0053
269	0.0108	0.0056	0.0052
270	0.0107	0.0055	0.0052
271	0.0107	0.0055	0.0052
272	0.0106	0.0055	0.0051
273	0.0105	0.0054	0.0051
274	0.0105	0.0054	0.0051
275	0.0104	0.0054	0.0051
276	0.0104	0.0053	0.0050
277	0.0103	0.0053	0.0050
278	0.0103	0.0053	0.0050
279	0.0102	0.0053	0.0049
280	0.0101	0.0052	0.0049
281	0.0101	0.0052	0.0049
282	0.0100	0.0052	0.0049
283	0.0100	0.0051	0.0048
284	0.0099	0.0051	0.0048
285	0.0099	0.0051	0.0048
286	0.0098	0.0051	0.0048
287	0.0098	0.0050	0.0047
288	0.0097	0.0050	0.0047

Total soil rain loss = 2.41(In)
Total effective rainfall = 2.78(In)
Peak flow rate in flood hydrograph = 3.39(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0003	0.03	Q				
0+15	0.0006	0.05	Q				
0+20	0.0010	0.06	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	0.0041	0.07	Q				
1+ 0	0.0046	0.07	Q				
1+ 5	0.0051	0.07	Q				
1+10	0.0056	0.07	Q				
1+15	0.0061	0.07	Q				
1+20	0.0065	0.07	Q				
1+25	0.0070	0.07	QV				
1+30	0.0075	0.07	QV				
1+35	0.0080	0.07	QV				
1+40	0.0085	0.07	QV				
1+45	0.0090	0.07	QV				
1+50	0.0095	0.07	QV				
1+55	0.0099	0.07	QV				
2+ 0	0.0104	0.07	QV				
2+ 5	0.0109	0.07	QV				
2+10	0.0114	0.07	QV				
2+15	0.0119	0.07	QV				
2+20	0.0124	0.07	QV				
2+25	0.0129	0.07	QV				
2+30	0.0134	0.07	QV				
2+35	0.0139	0.07	Q V				
2+40	0.0144	0.07	Q V				
2+45	0.0149	0.07	Q V				
2+50	0.0154	0.07	Q V				
2+55	0.0159	0.07	Q V				
3+ 0	0.0164	0.07	Q V				
3+ 5	0.0170	0.07	Q V				
3+10	0.0175	0.07	Q V				
3+15	0.0180	0.07	Q V				
3+20	0.0185	0.07	Q V				

3+25	0.0190	0.07	Q V	|	|	|	|
3+30	0.0195	0.08	Q V	|	|	|	|
3+35	0.0200	0.08	Q V	|	|	|	|
3+40	0.0206	0.08	Q V	|	|	|	|
3+45	0.0211	0.08	Q V	|	|	|	|
3+50	0.0216	0.08	Q V	|	|	|	|
3+55	0.0221	0.08	Q V	|	|	|	|
4+ 0	0.0227	0.08	Q V	|	|	|	|
4+ 5	0.0232	0.08	Q V	|	|	|	|
4+10	0.0237	0.08	Q V	|	|	|	|
4+15	0.0243	0.08	Q V	|	|	|	|
4+20	0.0248	0.08	Q V	|	|	|	|
4+25	0.0253	0.08	Q V	|	|	|	|
4+30	0.0259	0.08	Q V	|	|	|	|
4+35	0.0264	0.08	Q V	|	|	|	|
4+40	0.0269	0.08	Q V	|	|	|	|
4+45	0.0275	0.08	Q V	|	|	|	|
4+50	0.0280	0.08	Q V	|	|	|	|
4+55	0.0286	0.08	Q V	|	|	|	|
5+ 0	0.0291	0.08	Q V	|	|	|	|
5+ 5	0.0297	0.08	Q V	|	|	|	|
5+10	0.0302	0.08	Q V	|	|	|	|
5+15	0.0308	0.08	Q V	|	|	|	|
5+20	0.0313	0.08	Q V	|	|	|	|
5+25	0.0319	0.08	Q V	|	|	|	|
5+30	0.0325	0.08	Q V	|	|	|	|
5+35	0.0330	0.08	Q V	|	|	|	|
5+40	0.0336	0.08	Q V	|	|	|	|
5+45	0.0341	0.08	Q V	|	|	|	|
5+50	0.0347	0.08	Q V	|	|	|	|
5+55	0.0353	0.08	Q V	|	|	|	|
6+ 0	0.0359	0.08	Q V	|	|	|	|
6+ 5	0.0364	0.08	Q V	|	|	|	|
6+10	0.0370	0.08	Q V	|	|	|	|
6+15	0.0376	0.08	Q V	|	|	|	|
6+20	0.0382	0.08	Q V	|	|	|	|
6+25	0.0388	0.08	Q V	|	|	|	|
6+30	0.0393	0.09	Q V	|	|	|	|
6+35	0.0399	0.09	Q V	|	|	|	|
6+40	0.0405	0.09	Q V	|	|	|	|
6+45	0.0411	0.09	Q V	|	|	|	|
6+50	0.0417	0.09	Q V	|	|	|	|
6+55	0.0423	0.09	Q V	|	|	|	|
7+ 0	0.0429	0.09	Q V	|	|	|	|
7+ 5	0.0435	0.09	Q V	|	|	|	|
7+10	0.0441	0.09	Q V	|	|	|	|
7+15	0.0447	0.09	Q V	|	|	|	|
7+20	0.0453	0.09	Q V	|	|	|	|
7+25	0.0459	0.09	Q V	|	|	|	|
7+30	0.0466	0.09	Q V	|	|	|	|
7+35	0.0472	0.09	Q V	|	|	|	|
7+40	0.0478	0.09	Q V	|	|	|	|
7+45	0.0484	0.09	Q V	|	|	|	|
7+50	0.0490	0.09	Q V	|	|	|	|

```
 7+55       0.0497      0.09  Q      V  |          |          |          |
 8+ 0       0.0503      0.09  Q      V  |          |          |          |
 8+ 5       0.0509      0.09  Q      V  |          |          |          |
 8+10       0.0516      0.09  Q      V  |          |          |          |
 8+15       0.0522      0.09  Q      V  |          |          |          |
 8+20       0.0529      0.09  Q      V  |          |          |          |
 8+25       0.0535      0.09  Q      V  |          |          |          |
 8+30       0.0542      0.09  Q      V  |          |          |          |
 8+35       0.0548      0.10  Q      V  |          |          |          |
 8+40       0.0555      0.10  Q       V |          |          |          |
 8+45       0.0561      0.10  Q       V |          |          |          |
 8+50       0.0568      0.10  Q       V |          |          |          |
 8+55       0.0575      0.10  Q       V |          |          |          |
 9+ 0       0.0581      0.10  Q       V |          |          |          |
 9+ 5       0.0588      0.10  Q       V |          |          |          |
 9+10       0.0595      0.10  Q       V |          |          |          |
 9+15       0.0602      0.10  Q       V |          |          |          |
 9+20       0.0609      0.10  Q       V |          |          |          |
 9+25       0.0616      0.10  Q       V |          |          |          |
 9+30       0.0623      0.10  Q        V|          |          |          |
 9+35       0.0630      0.10  Q        V|          |          |          |
 9+40       0.0637      0.10  Q        V|          |          |          |
 9+45       0.0644      0.10  Q        V|          |          |          |
 9+50       0.0651      0.10  Q        V|          |          |          |
 9+55       0.0658      0.10  Q        V|          |          |          |
10+ 0       0.0665      0.10  Q        V|          |          |          |
10+ 5       0.0672      0.11  Q        V|          |          |          |
10+10       0.0680      0.11  Q        V|          |          |          |
10+15       0.0687      0.11  Q        V|          |          |          |
10+20       0.0694      0.11  Q         V          |          |          |
10+25       0.0702      0.11  Q         V          |          |          |
10+30       0.0709      0.11  Q         V          |          |          |
10+35       0.0717      0.11  Q         V          |          |          |
10+40       0.0724      0.11  Q         V          |          |          |
10+45       0.0732      0.11  Q         V          |          |          |
10+50       0.0740      0.11  Q         V          |          |          |
10+55       0.0747      0.11  Q         V          |          |          |
11+ 0       0.0755      0.11  Q         V          |          |          |
11+ 5       0.0763      0.11  Q          |V         |          |          |
11+10       0.0771      0.11  Q          |V         |          |          |
11+15       0.0779      0.12  Q          |V         |          |          |
11+20       0.0787      0.12  Q          |V         |          |          |
11+25       0.0795      0.12  Q          |V         |          |          |
11+30       0.0803      0.12  Q          |V         |          |          |
11+35       0.0811      0.12  Q          |V         |          |          |
11+40       0.0820      0.12  Q          |V         |          |          |
11+45       0.0828      0.12  Q          | V        |          |          |
11+50       0.0836      0.12  Q          | V        |          |          |
11+55       0.0845      0.12  Q          | V        |          |          |
12+ 0       0.0854      0.12  Q          | V        |          |          |
12+ 5       0.0862      0.12  Q          | V        |          |          |
12+10       0.0870      0.12  Q          | V        |          |          |
12+15       0.0878      0.11  Q          | V        |          |          |
12+20       0.0885      0.11  Q          | V        |          |          |
```

12+25	0.0893	0.11	Q	V			
12+30	0.0900	0.11	Q	V			
12+35	0.0908	0.11	Q	V			
12+40	0.0915	0.11	Q	V			
12+45	0.0923	0.11	Q	V			
12+50	0.0931	0.11	Q	V			
12+55	0.0939	0.11	Q	V			
13+ 0	0.0947	0.12	Q	V			
13+ 5	0.0955	0.12	Q	V			
13+10	0.0963	0.12	Q	V			
13+15	0.0972	0.12	Q	V			
13+20	0.0980	0.12	Q	V			
13+25	0.0989	0.13	Q	V			
13+30	0.0998	0.13	Q	V			
13+35	0.1007	0.13	Q	V			
13+40	0.1016	0.13	Q	V			
13+45	0.1025	0.14	Q	V			
13+50	0.1035	0.14	Q	V			
13+55	0.1044	0.14	Q	V			
14+ 0	0.1054	0.14	Q	V			
14+ 5	0.1064	0.15	Q	V			
14+10	0.1075	0.15	Q	V			
14+15	0.1085	0.15	Q	V			
14+20	0.1096	0.16	Q	V			
14+25	0.1107	0.16	Q	V			
14+30	0.1118	0.17	Q	V			
14+35	0.1130	0.17	Q	V			
14+40	0.1142	0.18	Q	V			
14+45	0.1155	0.18	Q	V			
14+50	0.1168	0.19	Q	V			
14+55	0.1181	0.19	Q	V			
15+ 0	0.1195	0.20	Q	V			
15+ 5	0.1209	0.21	Q	V			
15+10	0.1224	0.22	Q	V			
15+15	0.1240	0.23	Q	V			
15+20	0.1256	0.24	Q	V			
15+25	0.1273	0.25	Q	V			
15+30	0.1289	0.23	Q	V			
15+35	0.1305	0.22	Q	V			
15+40	0.1321	0.24	Q	V			
15+45	0.1339	0.26	Q	V			
15+50	0.1360	0.30	Q	V			
15+55	0.1384	0.36	Q	V			
16+ 0	0.1421	0.53	Q	V			
16+ 5	0.1508	1.26	Q	V			
16+10	**0.1741**	**3.39**	**Q**	**V**			
16+15	0.1888	2.13	Q	V			
16+20	0.1965	1.12	Q	V			
16+25	0.2017	0.75	Q	V			
16+30	0.2057	0.57	Q	V			
16+35	0.2089	0.47	Q	V			
16+40	0.2115	0.38	Q	V			
16+45	0.2137	0.31	Q	V			
16+50	0.2155	0.27	Q	V			

```
16+55       0.2173      0.25  |Q        |          |          |V         |
17+ 0       0.2188      0.22  Q        |          |          |V         |
17+ 5       0.2200      0.17  Q        |          |          |V         |
17+10       0.2211      0.16  Q        |          |          | V        |
17+15       0.2222      0.16  Q        |          |          | V        |
17+20       0.2232      0.15  Q        |          |          | V        |
17+25       0.2242      0.14  Q        |          |          | V        |
17+30       0.2251      0.14  Q        |          |          | V        |
17+35       0.2260      0.13  Q        |          |          | V        |
17+40       0.2269      0.13  Q        |          |          | V        |
17+45       0.2278      0.12  Q        |          |          |  V       |
17+50       0.2286      0.12  Q        |          |          |  V       |
17+55       0.2294      0.12  Q        |          |          |  V       |
18+ 0       0.2301      0.11  Q        |          |          |  V       |
18+ 5       0.2309      0.11  Q        |          |          |  V       |
18+10       0.2317      0.12  Q        |          |          |  V       |
18+15       0.2326      0.12  Q        |          |          |  V       |
18+20       0.2334      0.12  Q        |          |          |  V       |
18+25       0.2342      0.12  Q        |          |          |  V       |
18+30       0.2351      0.12  Q        |          |          |   V      |
18+35       0.2359      0.12  Q        |          |          |   V      |
18+40       0.2367      0.12  Q        |          |          |   V      |
18+45       0.2375      0.12  Q        |          |          |   V      |
18+50       0.2383      0.11  Q        |          |          |   V      |
18+55       0.2390      0.11  Q        |          |          |   V      |
19+ 0       0.2398      0.11  Q        |          |          |   V      |
19+ 5       0.2406      0.11  Q        |          |          |   V      |
19+10       0.2413      0.11  Q        |          |          |    V     |
19+15       0.2420      0.11  Q        |          |          |    V     |
19+20       0.2428      0.11  Q        |          |          |    V     |
19+25       0.2435      0.10  Q        |          |          |    V     |
19+30       0.2442      0.10  Q        |          |          |    V     |
19+35       0.2449      0.10  Q        |          |          |    V     |
19+40       0.2456      0.10  Q        |          |          |    V     |
19+45       0.2463      0.10  Q        |          |          |    V     |
19+50       0.2469      0.10  Q        |          |          |    V     |
19+55       0.2476      0.10  Q        |          |          |    V     |
20+ 0       0.2483      0.10  Q        |          |          |     V    |
20+ 5       0.2489      0.10  Q        |          |          |     V    |
20+10       0.2496      0.09  Q        |          |          |     V    |
20+15       0.2502      0.09  Q        |          |          |     V    |
20+20       0.2509      0.09  Q        |          |          |     V    |
20+25       0.2515      0.09  Q        |          |          |     V    |
20+30       0.2521      0.09  Q        |          |          |     V    |
20+35       0.2527      0.09  Q        |          |          |     V    |
20+40       0.2533      0.09  Q        |          |          |     V    |
20+45       0.2539      0.09  Q        |          |          |     V    |
20+50       0.2546      0.09  Q        |          |          |     V    |
20+55       0.2551      0.09  Q        |          |          |      V   |
21+ 0       0.2557      0.09  Q        |          |          |      V   |
21+ 5       0.2563      0.09  Q        |          |          |      V   |
21+10       0.2569      0.08  Q        |          |          |      V   |
21+15       0.2575      0.08  Q        |          |          |      V   |
21+20       0.2581      0.08  Q        |          |          |      V   |
```

21+25	0.2586	0.08	Q	|	|	|	V |
21+30	0.2592	0.08	Q	|	|	|	V |
21+35	0.2598	0.08	Q	|	|	|	V |
21+40	0.2603	0.08	Q	|	|	|	V |
21+45	0.2609	0.08	Q	|	|	|	V |
21+50	0.2614	0.08	Q	|	|	|	V |
21+55	0.2620	0.08	Q	|	|	|	V |
22+ 0	0.2625	0.08	Q	|	|	|	V |
22+ 5	0.2631	0.08	Q	|	|	|	V |
22+10	0.2636	0.08	Q	|	|	|	V |
22+15	0.2641	0.08	Q	|	|	|	V |
22+20	0.2647	0.08	Q	|	|	|	V |
22+25	0.2652	0.08	Q	|	|	|	V |
22+30	0.2657	0.08	Q	|	|	|	V |
22+35	0.2662	0.08	Q	|	|	|	V |
22+40	0.2667	0.07	Q	|	|	|	V |
22+45	0.2673	0.07	Q	|	|	|	V |
22+50	0.2678	0.07	Q	|	|	|	V |
22+55	0.2683	0.07	Q	|	|	|	V |
23+ 0	0.2688	0.07	Q	|	|	|	V|
23+ 5	0.2693	0.07	Q	|	|	|	V|
23+10	0.2698	0.07	Q	|	|	|	V|
23+15	0.2703	0.07	Q	|	|	|	V|
23+20	0.2708	0.07	Q	|	|	|	V|
23+25	0.2713	0.07	Q	|	|	|	V|
23+30	0.2717	0.07	Q	|	|	|	V|
23+35	0.2722	0.07	Q	|	|	|	V|
23+40	0.2727	0.07	Q	|	|	|	V|
23+45	0.2732	0.07	Q	|	|	|	V|
23+50	0.2737	0.07	Q	|	|	|	V|
23+55	0.2741	0.07	Q	|	|	|	V|
24+ 0	0.2746	0.07	Q	|	|	|	V|

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

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Study date 06/29/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM POST-DEVELOPED CONDITION – DA3
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA A3-A
FILE: 18345HYDROA3APOST100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
2.32	1	1.13
Rainfall data for year 100		
2.32	6	2.46
Rainfall data for year 100		
2.32	24	5.19

++

******** Area-averaged max loss rate, Fm ********

```
SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 24.0      43.8          2.32      1.000     0.879    0.600    0.528

Area-averaged adjusted loss rate Fm (In/Hr) =  0.528

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     1.39   0.600         24.0      43.8      12.83     0.086
     0.93   0.400         98.0      98.0       0.20     0.954

Area-averaged catchment yield fraction, Y =  0.433
Area-averaged low loss fraction, Yb =  0.567
User entry of time of concentration  =   0.173 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       2.32(Ac.)
Catchment Lag time =   0.138 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 60.2712
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.528(In/Hr)
Average low loss rate fraction (Yb) = 0.567 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.536(In)
Computed peak 30-minute rainfall =  0.918(In)
Specified peak 1-hour rainfall =  1.130(In)
Computed peak 3-hour rainfall =  1.821(In)
Specified peak 6-hour rainfall =  2.460(In)
Specified peak 24-hour rainfall =  5.190(In)


Rainfall depth area reduction factors:
Using a total area of       2.32(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.536(In)
30-minute factor = 1.000    Adjusted rainfall =  0.918(In)
1-hour factor = 1.000       Adjusted rainfall =  1.130(In)
3-hour factor = 1.000       Adjusted rainfall =  1.821(In)
6-hour factor = 1.000       Adjusted rainfall =  2.460(In)
24-hour factor = 1.000      Adjusted rainfall =  5.190(In)
----------------------------------------------------------------------

                U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
           (K =        28.06 (CFS))

  1                5.637                   1.582
  2               41.752                  10.133
  3               68.246                   7.433
```

4	79.581	3.180
5	86.237	1.867
6	90.536	1.206
7	93.492	0.829
8	95.600	0.592
9	97.100	0.421
10	98.022	0.259
11	98.694	0.189
12	99.392	0.196
13	100.000	0.171

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5361	0.5361
2	0.6601	0.1239
3	0.7454	0.0854
4	0.8126	0.0672
5	0.8689	0.0563
6	0.9177	0.0488
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0697	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1698	0.0400
14	1.2081	0.0383
15	1.2448	0.0367
16	1.2802	0.0354
17	1.3144	0.0342
18	1.3474	0.0330
19	1.3794	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5267	0.0280
25	1.5540	0.0273
26	1.5807	0.0267
27	1.6068	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7531	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8424	0.0218
38	1.8639	0.0215
39	1.8850	0.0211
40	1.9059	0.0208
41	1.9264	0.0205

42	1.9467	0.0203
43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2395	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3053	0.0162
63	2.3214	0.0161
64	2.3373	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4149	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4965	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5683	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162

96	2.8722	0.0162
97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4234	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5328	0.0135
142	3.5463	0.0135
143	3.5597	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6262	0.0132
149	3.6394	0.0132

150	3.6526	0.0131
151	3.6656	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7944	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8948	0.0124
170	3.9072	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117
194	4.1952	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2875	0.0114
203	4.2990	0.0114

204	4.3104	0.0114
205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4117	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4892	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6728	0.0106
238	4.6835	0.0106
239	4.6940	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7571	0.0105
246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8607	0.0103
256	4.8710	0.0103
257	4.8812	0.0102

258	4.8915	0.0102
259	4.9017	0.0102
260	4.9118	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0921	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1705	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0055	0.0042
2	0.0097	0.0055	0.0042
3	0.0098	0.0055	0.0042
4	0.0098	0.0055	0.0042
5	0.0098	0.0056	0.0042
6	0.0098	0.0056	0.0043
7	0.0099	0.0056	0.0043
8	0.0099	0.0056	0.0043
9	0.0099	0.0056	0.0043
10	0.0099	0.0056	0.0043
11	0.0100	0.0056	0.0043
12	0.0100	0.0057	0.0043
13	0.0100	0.0057	0.0043
14	0.0100	0.0057	0.0043
15	0.0101	0.0057	0.0044
16	0.0101	0.0057	0.0044
17	0.0101	0.0057	0.0044
18	0.0101	0.0057	0.0044

19	0.0102	0.0058	0.0044
20	0.0102	0.0058	0.0044
21	0.0102	0.0058	0.0044
22	0.0102	0.0058	0.0044
23	0.0103	0.0058	0.0045
24	0.0103	0.0058	0.0045
25	0.0103	0.0059	0.0045
26	0.0104	0.0059	0.0045
27	0.0104	0.0059	0.0045
28	0.0104	0.0059	0.0045
29	0.0104	0.0059	0.0045
30	0.0105	0.0059	0.0045
31	0.0105	0.0060	0.0046
32	0.0105	0.0060	0.0046
33	0.0106	0.0060	0.0046
34	0.0106	0.0060	0.0046
35	0.0106	0.0060	0.0046
36	0.0106	0.0060	0.0046
37	0.0107	0.0061	0.0046
38	0.0107	0.0061	0.0046
39	0.0108	0.0061	0.0047
40	0.0108	0.0061	0.0047
41	0.0108	0.0061	0.0047
42	0.0108	0.0061	0.0047
43	0.0109	0.0062	0.0047
44	0.0109	0.0062	0.0047
45	0.0110	0.0062	0.0047
46	0.0110	0.0062	0.0048
47	0.0110	0.0062	0.0048
48	0.0110	0.0063	0.0048
49	0.0111	0.0063	0.0048
50	0.0111	0.0063	0.0048
51	0.0112	0.0063	0.0048
52	0.0112	0.0063	0.0048
53	0.0112	0.0064	0.0049
54	0.0113	0.0064	0.0049
55	0.0113	0.0064	0.0049
56	0.0113	0.0064	0.0049
57	0.0114	0.0065	0.0049
58	0.0114	0.0065	0.0049
59	0.0115	0.0065	0.0050
60	0.0115	0.0065	0.0050
61	0.0116	0.0065	0.0050
62	0.0116	0.0066	0.0050
63	0.0116	0.0066	0.0050
64	0.0117	0.0066	0.0051
65	0.0117	0.0066	0.0051
66	0.0117	0.0067	0.0051
67	0.0118	0.0067	0.0051
68	0.0118	0.0067	0.0051
69	0.0119	0.0067	0.0052
70	0.0119	0.0068	0.0052
71	0.0120	0.0068	0.0052
72	0.0120	0.0068	0.0052

73	0.0121	0.0068	0.0052
74	0.0121	0.0069	0.0052
75	0.0122	0.0069	0.0053
76	0.0122	0.0069	0.0053
77	0.0123	0.0069	0.0053
78	0.0123	0.0070	0.0053
79	0.0124	0.0070	0.0054
80	0.0124	0.0070	0.0054
81	0.0125	0.0071	0.0054
82	0.0125	0.0071	0.0054
83	0.0126	0.0071	0.0054
84	0.0126	0.0071	0.0055
85	0.0127	0.0072	0.0055
86	0.0127	0.0072	0.0055
87	0.0128	0.0072	0.0055
88	0.0128	0.0073	0.0056
89	0.0129	0.0073	0.0056
90	0.0129	0.0073	0.0056
91	0.0130	0.0074	0.0056
92	0.0131	0.0074	0.0057
93	0.0131	0.0074	0.0057
94	0.0132	0.0075	0.0057
95	0.0133	0.0075	0.0057
96	0.0133	0.0075	0.0058
97	0.0134	0.0076	0.0058
98	0.0134	0.0076	0.0058
99	0.0135	0.0077	0.0059
100	0.0136	0.0077	0.0059
101	0.0137	0.0077	0.0059
102	0.0137	0.0078	0.0059
103	0.0138	0.0078	0.0060
104	0.0138	0.0078	0.0060
105	0.0139	0.0079	0.0060
106	0.0140	0.0079	0.0061
107	0.0141	0.0080	0.0061
108	0.0141	0.0080	0.0061
109	0.0142	0.0081	0.0062
110	0.0143	0.0081	0.0062
111	0.0144	0.0082	0.0062
112	0.0145	0.0082	0.0063
113	0.0146	0.0083	0.0063
114	0.0146	0.0083	0.0063
115	0.0147	0.0084	0.0064
116	0.0148	0.0084	0.0064
117	0.0149	0.0085	0.0065
118	0.0150	0.0085	0.0065
119	0.0151	0.0086	0.0065
120	0.0152	0.0086	0.0066
121	0.0153	0.0087	0.0066
122	0.0154	0.0087	0.0067
123	0.0155	0.0088	0.0067
124	0.0156	0.0088	0.0067
125	0.0157	0.0089	0.0068
126	0.0158	0.0089	0.0068

127	0.0159	0.0090	0.0069
128	0.0160	0.0091	0.0069
129	0.0162	0.0092	0.0070
130	0.0162	0.0092	0.0070
131	0.0164	0.0093	0.0071
132	0.0165	0.0093	0.0071
133	0.0166	0.0094	0.0072
134	0.0167	0.0095	0.0072
135	0.0169	0.0096	0.0073
136	0.0170	0.0096	0.0074
137	0.0172	0.0097	0.0074
138	0.0173	0.0098	0.0075
139	0.0175	0.0099	0.0076
140	0.0176	0.0100	0.0076
141	0.0178	0.0101	0.0077
142	0.0179	0.0101	0.0078
143	0.0181	0.0103	0.0078
144	0.0182	0.0103	0.0079
145	0.0149	0.0084	0.0065
146	0.0150	0.0085	0.0065
147	0.0153	0.0086	0.0066
148	0.0154	0.0087	0.0067
149	0.0157	0.0089	0.0068
150	0.0158	0.0089	0.0068
151	0.0161	0.0091	0.0070
152	0.0162	0.0092	0.0070
153	0.0165	0.0094	0.0072
154	0.0167	0.0095	0.0072
155	0.0170	0.0096	0.0074
156	0.0172	0.0097	0.0074
157	0.0175	0.0099	0.0076
158	0.0177	0.0101	0.0077
159	0.0181	0.0103	0.0079
160	0.0183	0.0104	0.0079
161	0.0188	0.0106	0.0081
162	0.0190	0.0108	0.0082
163	0.0195	0.0110	0.0084
164	0.0197	0.0112	0.0085
165	0.0203	0.0115	0.0088
166	0.0205	0.0116	0.0089
167	0.0211	0.0120	0.0092
168	0.0215	0.0122	0.0093
169	0.0221	0.0125	0.0096
170	0.0225	0.0128	0.0097
171	0.0233	0.0132	0.0101
172	0.0237	0.0134	0.0103
173	0.0246	0.0139	0.0106
174	0.0251	0.0142	0.0109
175	0.0261	0.0148	0.0113
176	0.0267	0.0151	0.0116
177	0.0280	0.0158	0.0121
178	0.0287	0.0162	0.0124
179	0.0302	0.0171	0.0131
180	0.0311	0.0176	0.0135

181	0.0330	0.0187	0.0143
182	0.0342	0.0194	0.0148
183	0.0367	0.0208	0.0159
184	0.0383	0.0217	0.0166
185	0.0291	0.0165	0.0126
186	0.0310	0.0176	0.0134
187	0.0360	0.0204	0.0156
188	0.0393	0.0223	0.0170
189	0.0488	0.0277	0.0212
190	0.0563	0.0319	0.0244
191	0.0854	0.0440	0.0414
192	0.1239	0.0440	0.0800
193	0.5361	0.0440	0.4922
194	0.0672	0.0381	0.0291
195	0.0434	0.0246	0.0188
196	0.0333	0.0189	0.0144
197	0.0400	0.0227	0.0173
198	0.0354	0.0201	0.0153
199	0.0320	0.0181	0.0139
200	0.0294	0.0167	0.0127
201	0.0273	0.0155	0.0118
202	0.0256	0.0145	0.0111
203	0.0241	0.0137	0.0105
204	0.0229	0.0130	0.0099
205	0.0218	0.0123	0.0094
206	0.0208	0.0118	0.0090
207	0.0200	0.0113	0.0087
208	0.0192	0.0109	0.0083
209	0.0186	0.0105	0.0080
210	0.0179	0.0102	0.0078
211	0.0174	0.0098	0.0075
212	0.0168	0.0095	0.0073
213	0.0164	0.0093	0.0071
214	0.0159	0.0090	0.0069
215	0.0155	0.0088	0.0067
216	0.0151	0.0086	0.0066
217	0.0183	0.0104	0.0079
218	0.0180	0.0102	0.0078
219	0.0177	0.0100	0.0077
220	0.0174	0.0098	0.0075
221	0.0171	0.0097	0.0074
222	0.0168	0.0095	0.0073
223	0.0166	0.0094	0.0072
224	0.0163	0.0092	0.0071
225	0.0161	0.0091	0.0070
226	0.0158	0.0090	0.0069
227	0.0156	0.0089	0.0068
228	0.0154	0.0087	0.0067
229	0.0152	0.0086	0.0066
230	0.0150	0.0085	0.0065
231	0.0149	0.0084	0.0064
232	0.0147	0.0083	0.0064
233	0.0145	0.0082	0.0063
234	0.0143	0.0081	0.0062

235	0.0142	0.0080	0.0061
236	0.0140	0.0080	0.0061
237	0.0139	0.0079	0.0060
238	0.0137	0.0078	0.0060
239	0.0136	0.0077	0.0059
240	0.0135	0.0076	0.0058
241	0.0133	0.0076	0.0058
242	0.0132	0.0075	0.0057
243	0.0131	0.0074	0.0057
244	0.0130	0.0074	0.0056
245	0.0129	0.0073	0.0056
246	0.0127	0.0072	0.0055
247	0.0126	0.0072	0.0055
248	0.0125	0.0071	0.0054
249	0.0124	0.0070	0.0054
250	0.0123	0.0070	0.0053
251	0.0122	0.0069	0.0053
252	0.0121	0.0069	0.0053
253	0.0120	0.0068	0.0052
254	0.0119	0.0068	0.0052
255	0.0119	0.0067	0.0051
256	0.0118	0.0067	0.0051
257	0.0117	0.0066	0.0051
258	0.0116	0.0066	0.0050
259	0.0115	0.0065	0.0050
260	0.0114	0.0065	0.0050
261	0.0114	0.0064	0.0049
262	0.0113	0.0064	0.0049
263	0.0112	0.0064	0.0049
264	0.0111	0.0063	0.0048
265	0.0111	0.0063	0.0048
266	0.0110	0.0062	0.0048
267	0.0109	0.0062	0.0047
268	0.0109	0.0062	0.0047
269	0.0108	0.0061	0.0047
270	0.0107	0.0061	0.0047
271	0.0107	0.0060	0.0046
272	0.0106	0.0060	0.0046
273	0.0105	0.0060	0.0046
274	0.0105	0.0059	0.0045
275	0.0104	0.0059	0.0045
276	0.0104	0.0059	0.0045
277	0.0103	0.0058	0.0045
278	0.0103	0.0058	0.0044
279	0.0102	0.0058	0.0044
280	0.0101	0.0058	0.0044
281	0.0101	0.0057	0.0044
282	0.0100	0.0057	0.0044
283	0.0100	0.0057	0.0043
284	0.0099	0.0056	0.0043
285	0.0099	0.0056	0.0043
286	0.0098	0.0056	0.0043
287	0.0098	0.0055	0.0042
288	0.0097	0.0055	0.0042

```
    ------------------------------------------------------------------------
    ------------------------------------------------------------------------
    Total soil rain loss =      2.65(In)
    Total effective rainfall =      2.54(In)
    Peak flow rate in flood hydrograph =      5.87(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       0.0004      0.05  Q          |         |         |         |
  0+15       0.0009      0.08  Q          |         |         |         |
  0+20       0.0016      0.09  Q          |         |         |         |
  0+25       0.0023      0.10  Q          |         |         |         |
  0+30       0.0030      0.11  Q          |         |         |         |
  0+35       0.0038      0.11  Q          |         |         |         |
  0+40       0.0046      0.11  Q          |         |         |         |
  0+45       0.0054      0.12  Q          |         |         |         |
  0+50       0.0062      0.12  Q          |         |         |         |
  0+55       0.0070      0.12  Q          |         |         |         |
  1+ 0       0.0078      0.12  Q          |         |         |         |
  1+ 5       0.0087      0.12  Q          |         |         |         |
  1+10       0.0095      0.12  Q          |         |         |         |
  1+15       0.0103      0.12  Q          |         |         |         |
  1+20       0.0112      0.12  Q          |         |         |         |
  1+25       0.0120      0.12  Q          |         |         |         |
  1+30       0.0129      0.12  QV         |         |         |         |
  1+35       0.0137      0.12  QV         |         |         |         |
  1+40       0.0146      0.12  QV         |         |         |         |
  1+45       0.0154      0.12  QV         |         |         |         |
  1+50       0.0163      0.12  QV         |         |         |         |
  1+55       0.0171      0.12  QV         |         |         |         |
  2+ 0       0.0180      0.12  QV         |         |         |         |
  2+ 5       0.0188      0.12  QV         |         |         |         |
  2+10       0.0197      0.13  QV         |         |         |         |
  2+15       0.0206      0.13  QV         |         |         |         |
  2+20       0.0214      0.13  QV         |         |         |         |
  2+25       0.0223      0.13  QV         |         |         |         |
  2+30       0.0232      0.13  QV         |         |         |         |
  2+35       0.0240      0.13  QV         |         |         |         |
  2+40       0.0249      0.13  Q V        |         |         |         |
  2+45       0.0258      0.13  Q V        |         |         |         |
  2+50       0.0267      0.13  Q V        |         |         |         |
  2+55       0.0276      0.13  Q V        |         |         |         |
  3+ 0       0.0284      0.13  Q V        |         |         |         |
  3+ 5       0.0293      0.13  Q V        |         |         |         |
  3+10       0.0302      0.13  Q V        |         |         |         |
  3+15       0.0311      0.13  Q V        |         |         |         |
```

3+20	0.0320	0.13	Q V	|	|	|	|
3+25	0.0329	0.13	Q V	|	|	|	|
3+30	0.0338	0.13	Q V	|	|	|	|
3+35	0.0347	0.13	Q V	|	|	|	|
3+40	0.0356	0.13	Q V	|	|	|	|
3+45	0.0365	0.13	Q V	|	|	|	|
3+50	0.0374	0.13	Q V	|	|	|	|
3+55	0.0384	0.13	Q V	|	|	|	|
4+ 0	0.0393	0.13	Q V	|	|	|	|
4+ 5	0.0402	0.13	Q V	|	|	|	|
4+10	0.0411	0.13	Q V	|	|	|	|
4+15	0.0420	0.13	Q V	|	|	|	|
4+20	0.0430	0.14	Q V	|	|	|	|
4+25	0.0439	0.14	Q V	|	|	|	|
4+30	0.0448	0.14	Q V	|	|	|	|
4+35	0.0458	0.14	Q V	|	|	|	|
4+40	0.0467	0.14	Q V	|	|	|	|
4+45	0.0477	0.14	Q V	|	|	|	|
4+50	0.0486	0.14	Q V	|	|	|	|
4+55	0.0496	0.14	Q V	|	|	|	|
5+ 0	0.0505	0.14	Q V	|	|	|	|
5+ 5	0.0515	0.14	Q V	|	|	|	|
5+10	0.0524	0.14	Q V	|	|	|	|
5+15	0.0534	0.14	Q V	|	|	|	|
5+20	0.0544	0.14	Q V	|	|	|	|
5+25	0.0553	0.14	Q V	|	|	|	|
5+30	0.0563	0.14	Q V	|	|	|	|
5+35	0.0573	0.14	Q V	|	|	|	|
5+40	0.0583	0.14	Q V	|	|	|	|
5+45	0.0593	0.14	Q V	|	|	|	|
5+50	0.0603	0.14	Q V	|	|	|	|
5+55	0.0613	0.14	Q V	|	|	|	|
6+ 0	0.0622	0.14	Q V	|	|	|	|
6+ 5	0.0633	0.15	Q V	|	|	|	|
6+10	0.0643	0.15	Q V	|	|	|	|
6+15	0.0653	0.15	Q V	|	|	|	|
6+20	0.0663	0.15	Q V	|	|	|	|
6+25	0.0673	0.15	Q V	|	|	|	|
6+30	0.0683	0.15	Q V	|	|	|	|
6+35	0.0693	0.15	Q V	|	|	|	|
6+40	0.0704	0.15	Q V	|	|	|	|
6+45	0.0714	0.15	Q V	|	|	|	|
6+50	0.0724	0.15	Q V	|	|	|	|
6+55	0.0735	0.15	Q V	|	|	|	|
7+ 0	0.0745	0.15	Q V	|	|	|	|
7+ 5	0.0756	0.15	Q V	|	|	|	|
7+10	0.0766	0.15	Q V	|	|	|	|
7+15	0.0777	0.15	Q V	|	|	|	|
7+20	0.0787	0.15	Q V	|	|	|	|
7+25	0.0798	0.15	Q V	|	|	|	|
7+30	0.0809	0.16	Q V	|	|	|	|
7+35	0.0820	0.16	Q V	|	|	|	|
7+40	0.0830	0.16	Q V	|	|	|	|
7+45	0.0841	0.16	Q V	|	|	|	|

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 7+50       0.0852      0.16  Q     V   |           |           |           |
 7+55       0.0863      0.16  Q      V  |           |           |           |
 8+ 0       0.0874      0.16  Q      V  |           |           |           |
 8+ 5       0.0885      0.16  Q      V  |           |           |           |
 8+10       0.0896      0.16  Q      V  |           |           |           |
 8+15       0.0908      0.16  Q      V  |           |           |           |
 8+20       0.0919      0.16  Q      V  |           |           |           |
 8+25       0.0930      0.16  Q      V  |           |           |           |
 8+30       0.0941      0.16  Q      V  |           |           |           |
 8+35       0.0953      0.17  Q      V  |           |           |           |
 8+40       0.0964      0.17  Q      V  |           |           |           |
 8+45       0.0976      0.17  Q      V  |           |           |           |
 8+50       0.0987      0.17  Q       V |           |           |           |
 8+55       0.0999      0.17  Q       V |           |           |           |
 9+ 0       0.1011      0.17  Q       V |           |           |           |
 9+ 5       0.1022      0.17  Q       V |           |           |           |
 9+10       0.1034      0.17  Q       V |           |           |           |
 9+15       0.1046      0.17  Q       V |           |           |           |
 9+20       0.1058      0.17  Q       V |           |           |           |
 9+25       0.1070      0.17  Q       V |           |           |           |
 9+30       0.1082      0.18  Q       V |           |           |           |
 9+35       0.1094      0.18  Q       V |           |           |           |
 9+40       0.1106      0.18  Q        V|           |           |           |
 9+45       0.1119      0.18  Q        V|           |           |           |
 9+50       0.1131      0.18  Q        V|           |           |           |
 9+55       0.1144      0.18  Q        V|           |           |           |
10+ 0       0.1156      0.18  Q        V|           |           |           |
10+ 5       0.1169      0.18  Q        V|           |           |           |
10+10       0.1181      0.18  Q        V|           |           |           |
10+15       0.1194      0.19  Q        V|           |           |           |
10+20       0.1207      0.19  Q        V|           |           |           |
10+25       0.1220      0.19  Q        V|           |           |           |
10+30       0.1233      0.19  Q         V           |           |           |
10+35       0.1246      0.19  Q         V           |           |           |
10+40       0.1259      0.19  Q         V           |           |           |
10+45       0.1272      0.19  Q         V           |           |           |
10+50       0.1286      0.19  Q         V           |           |           |
10+55       0.1299      0.20  Q         V           |           |           |
11+ 0       0.1313      0.20  Q         V           |           |           |
11+ 5       0.1327      0.20  Q         V           |           |           |
11+10       0.1340      0.20  Q         V           |           |           |
11+15       0.1354      0.20  Q         |V          |           |           |
11+20       0.1368      0.20  Q         |V          |           |           |
11+25       0.1382      0.20  Q         |V          |           |           |
11+30       0.1396      0.21  Q         |V          |           |           |
11+35       0.1411      0.21  Q         |V          |           |           |
11+40       0.1425      0.21  Q         |V          |           |           |
11+45       0.1440      0.21  Q         |V          |           |           |
11+50       0.1454      0.21  Q         |V          |           |           |
11+55       0.1469      0.22  Q         |V          |           |           |
12+ 0       0.1484      0.22  Q         | V         |           |           |
12+ 5       0.1499      0.22  Q         | V         |           |           |
12+10       0.1513      0.20  Q         | V         |           |           |
12+15       0.1526      0.19  Q         | V         |           |           |
```

12+20	0.1540	0.19	Q	V			
12+25	0.1553	0.19	Q	V			
12+30	0.1566	0.19	Q	V			
12+35	0.1579	0.19	Q	V			
12+40	0.1592	0.19	Q	V			
12+45	0.1606	0.20	Q	V			
12+50	0.1619	0.20	Q	V			
12+55	0.1633	0.20	Q	V			
13+ 0	0.1647	0.20	Q	V			
13+ 5	0.1661	0.21	Q	V			
13+10	0.1676	0.21	Q	V			
13+15	0.1690	0.21	Q	V			
13+20	0.1705	0.22	Q	V			
13+25	0.1720	0.22	Q	V			
13+30	0.1735	0.22	Q	V			
13+35	0.1751	0.23	Q	V			
13+40	0.1767	0.23	Q	V			
13+45	0.1783	0.23	Q	V			
13+50	0.1799	0.24	Q	V			
13+55	0.1816	0.24	Q	V			
14+ 0	0.1833	0.25	Q	V			
14+ 5	0.1851	0.25	Q	V			
14+10	0.1869	0.26	Q	V			
14+15	0.1887	0.27	Q	V			
14+20	0.1906	0.27	Q	V			
14+25	0.1925	0.28	Q	V			
14+30	0.1945	0.29	Q	V			
14+35	0.1965	0.29	Q	V			
14+40	0.1986	0.30	Q	V			
14+45	0.2007	0.31	Q	V			
14+50	0.2030	0.32	Q	V			
14+55	0.2053	0.33	Q	V			
15+ 0	0.2077	0.35	Q	V			
15+ 5	0.2102	0.36	Q	V			
15+10	0.2127	0.38	Q	V			
15+15	0.2155	0.39	Q	V			
15+20	0.2183	0.42	Q	V			
15+25	0.2213	0.43	Q	V			
15+30	0.2240	0.40	Q	V			
15+35	0.2267	0.39	Q	V			
15+40	0.2296	0.41	Q	V			
15+45	0.2326	0.45	Q	V			
15+50	0.2361	0.51	Q	V			
15+55	0.2403	0.61	Q	V			
16+ 0	0.2464	0.88	Q	V			
16+ 5	0.2607	2.07	Q	V			
16+10	**0.3011**	**5.87**			**QV**		
16+15	0.3314	4.39		Q	V		
16+20	0.3468	2.25	Q		V		
16+25	0.3571	1.49	Q		V		
16+30	0.3649	1.13	Q		V		
16+35	0.3712	0.91	Q		V		
16+40	0.3763	0.75	Q		V		
16+45	0.3806	0.63	Q		V		

16+50	0.3842	0.52	| Q	|	|	|V	|
16+55	0.3873	0.46	|Q	|	|	|V	|
17+ 0	0.3903	0.43	|Q	|	|	|V	|
17+ 5	0.3930	0.39	|Q	|	|	| V	|
17+10	0.3950	0.29	|Q	|	|	| V	|
17+15	0.3969	0.28	|Q	|	|	| V	|
17+20	0.3987	0.26	|Q	|	|	| V	|
17+25	0.4005	0.25	|Q	|	|	| V	|
17+30	0.4021	0.24	Q	|	|	| V	|
17+35	0.4037	0.23	Q	|	|	| V	|
17+40	0.4053	0.22	Q	|	|	| V	|
17+45	0.4067	0.22	Q	|	|	| V	|
17+50	0.4082	0.21	Q	|	|	| V	|
17+55	0.4096	0.20	Q	|	|	| V	|
18+ 0	0.4109	0.20	Q	|	|	| V	|
18+ 5	0.4123	0.19	Q	|	|	| V	|
18+10	0.4137	0.21	Q	|	|	| V	|
18+15	0.4151	0.21	Q	|	|	| V	|
18+20	0.4166	0.21	Q	|	|	| V	|
18+25	0.4181	0.21	Q	|	|	| V	|
18+30	0.4195	0.21	Q	|	|	| V	|
18+35	0.4209	0.21	Q	|	|	| V	|
18+40	0.4223	0.20	Q	|	|	| V	|
18+45	0.4237	0.20	Q	|	|	| V	|
18+50	0.4251	0.20	Q	|	|	| V	|
18+55	0.4265	0.20	Q	|	|	| V	|
19+ 0	0.4278	0.19	Q	|	|	| V	|
19+ 5	0.4291	0.19	Q	|	|	| V	|
19+10	0.4304	0.19	Q	|	|	| V	|
19+15	0.4317	0.19	Q	|	|	| V	|
19+20	0.4330	0.18	Q	|	|	| V	|
19+25	0.4342	0.18	Q	|	|	| V	|
19+30	0.4355	0.18	Q	|	|	| V	|
19+35	0.4367	0.18	Q	|	|	| V	|
19+40	0.4379	0.18	Q	|	|	| V	|
19+45	0.4391	0.17	Q	|	|	| V	|
19+50	0.4403	0.17	Q	|	|	| V	|
19+55	0.4414	0.17	Q	|	|	| V	|
20+ 0	0.4426	0.17	Q	|	|	| V	|
20+ 5	0.4437	0.17	Q	|	|	| V	|
20+10	0.4449	0.16	Q	|	|	| V	|
20+15	0.4460	0.16	Q	|	|	| V	|
20+20	0.4471	0.16	Q	|	|	| V	|
20+25	0.4482	0.16	Q	|	|	| V	|
20+30	0.4493	0.16	Q	|	|	| V	|
20+35	0.4504	0.16	Q	|	|	| V	|
20+40	0.4514	0.16	Q	|	|	| V	|
20+45	0.4525	0.15	Q	|	|	| V	|
20+50	0.4536	0.15	Q	|	|	| V	|
20+55	0.4546	0.15	Q	|	|	| V	|
21+ 0	0.4556	0.15	Q	|	|	| V	|
21+ 5	0.4567	0.15	Q	|	|	| V	|
21+10	0.4577	0.15	Q	|	|	| V	|
21+15	0.4587	0.15	Q	|	|	| V	|

21+20	0.4597	0.15	Q	|	|	|	V |
21+25	0.4607	0.14	Q	|	|	|	V |
21+30	0.4617	0.14	Q	|	|	|	V |
21+35	0.4627	0.14	Q	|	|	|	V |
21+40	0.4637	0.14	Q	|	|	|	V |
21+45	0.4646	0.14	Q	|	|	|	V |
21+50	0.4656	0.14	Q	|	|	|	V |
21+55	0.4665	0.14	Q	|	|	|	V |
22+ 0	0.4675	0.14	Q	|	|	|	V |
22+ 5	0.4684	0.14	Q	|	|	|	V |
22+10	0.4694	0.14	Q	|	|	|	V |
22+15	0.4703	0.14	Q	|	|	|	V |
22+20	0.4712	0.13	Q	|	|	|	V |
22+25	0.4721	0.13	Q	|	|	|	V |
22+30	0.4730	0.13	Q	|	|	|	V |
22+35	0.4740	0.13	Q	|	|	|	V |
22+40	0.4749	0.13	Q	|	|	|	V |
22+45	0.4758	0.13	Q	|	|	|	V |
22+50	0.4766	0.13	Q	|	|	|	V |
22+55	0.4775	0.13	Q	|	|	|	V |
23+ 0	0.4784	0.13	Q	|	|	|	V|
23+ 5	0.4793	0.13	Q	|	|	|	V|
23+10	0.4802	0.13	Q	|	|	|	V|
23+15	0.4810	0.13	Q	|	|	|	V|
23+20	0.4819	0.13	Q	|	|	|	V|
23+25	0.4827	0.12	Q	|	|	|	V|
23+30	0.4836	0.12	Q	|	|	|	V|
23+35	0.4844	0.12	Q	|	|	|	V|
23+40	0.4853	0.12	Q	|	|	|	V|
23+45	0.4861	0.12	Q	|	|	|	V|
23+50	0.4869	0.12	Q	|	|	|	V|
23+55	0.4878	0.12	Q	|	|	|	V|
24+ 0	0.4886	0.12	Q	|	|	|	V|

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

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Study date 06/29/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM POST-DEVELOPED CONDITION
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA A3-B
FILE: 18345HYDROA3BPOST100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
1.16	1	1.13
Rainfall data for year 100		
1.16	6	2.46
Rainfall data for year 100		
1.16	24	5.19

++

******** Area-averaged max loss rate, Fm ********

SCS curve No.(AMCII)	SCS curve NO.(AMC 3)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
32.0	52.0	1.16	1.000	0.785	0.600	0.471

Area-averaged adjusted loss rate Fm (In/Hr) = 0.471

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
0.70	0.600	32.0	52.0	9.23	0.171
0.46	0.400	98.0	98.0	0.20	0.954

Area-averaged catchment yield fraction, Y = 0.485
Area-averaged low loss fraction, Yb = 0.515
User entry of time of concentration = 0.154 (hours)
++
Watershed area = 1.16(Ac.)
Catchment Lag time = 0.123 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 67.7287
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.471(In/Hr)
Average low loss rate fraction (Yb) = 0.515 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall = 0.536(In)
Computed peak 30-minute rainfall = 0.918(In)
Specified peak 1-hour rainfall = 1.130(In)
Computed peak 3-hour rainfall = 1.821(In)
Specified peak 6-hour rainfall = 2.460(In)
Specified peak 24-hour rainfall = 5.190(In)

Rainfall depth area reduction factors:
Using a total area of 1.16(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.536(In)
30-minute factor = 1.000 Adjusted rainfall = 0.918(In)
1-hour factor = 1.000 Adjusted rainfall = 1.130(In)
3-hour factor = 1.000 Adjusted rainfall = 1.821(In)
6-hour factor = 1.000 Adjusted rainfall = 2.460(In)
24-hour factor = 1.000 Adjusted rainfall = 5.190(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 14.03 (CFS))	
1	7.236	1.015
2	48.630	5.807
3	72.451	3.342

4	82.778	1.449
5	88.854	0.852
6	92.641	0.531
7	95.234	0.364
8	97.004	0.248
9	98.054	0.147
10	98.821	0.108
11	99.548	0.102
12	100.000	0.063

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5362	0.5362
2	0.6601	0.1239
3	0.7455	0.0854
4	0.8127	0.0672
5	0.8689	0.0563
6	0.9178	0.0489
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0698	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1699	0.0400
14	1.2082	0.0383
15	1.2449	0.0367
16	1.2803	0.0354
17	1.3144	0.0342
18	1.3475	0.0330
19	1.3795	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5268	0.0280
25	1.5541	0.0273
26	1.5807	0.0267
27	1.6069	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7532	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8425	0.0218
38	1.8639	0.0215
39	1.8851	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203

43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1359	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2396	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3054	0.0162
63	2.3214	0.0161
64	2.3374	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4150	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4966	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5684	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162

97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3817	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4235	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5329	0.0135
142	3.5463	0.0135
143	3.5598	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6263	0.0132
149	3.6394	0.0132
150	3.6526	0.0131

151	3.6657	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7945	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8949	0.0124
170	3.9073	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117
194	4.1953	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2876	0.0114
203	4.2990	0.0114
204	4.3104	0.0114

205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4118	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4893	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6729	0.0106
238	4.6835	0.0106
239	4.6941	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7572	0.0105
246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8608	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102

259	4.9017	0.0102
260	4.9119	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0922	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1706	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0050	0.0047
2	0.0097	0.0050	0.0047
3	0.0098	0.0050	0.0047
4	0.0098	0.0050	0.0047
5	0.0098	0.0051	0.0048
6	0.0098	0.0051	0.0048
7	0.0099	0.0051	0.0048
8	0.0099	0.0051	0.0048
9	0.0099	0.0051	0.0048
10	0.0099	0.0051	0.0048
11	0.0100	0.0051	0.0048
12	0.0100	0.0051	0.0048
13	0.0100	0.0052	0.0048
14	0.0100	0.0052	0.0049
15	0.0101	0.0052	0.0049
16	0.0101	0.0052	0.0049
17	0.0101	0.0052	0.0049
18	0.0101	0.0052	0.0049
19	0.0102	0.0052	0.0049

20	0.0102	0.0052	0.0049
21	0.0102	0.0053	0.0050
22	0.0102	0.0053	0.0050
23	0.0103	0.0053	0.0050
24	0.0103	0.0053	0.0050
25	0.0103	0.0053	0.0050
26	0.0104	0.0053	0.0050
27	0.0104	0.0054	0.0050
28	0.0104	0.0054	0.0050
29	0.0104	0.0054	0.0051
30	0.0105	0.0054	0.0051
31	0.0105	0.0054	0.0051
32	0.0105	0.0054	0.0051
33	0.0106	0.0054	0.0051
34	0.0106	0.0055	0.0051
35	0.0106	0.0055	0.0051
36	0.0106	0.0055	0.0052
37	0.0107	0.0055	0.0052
38	0.0107	0.0055	0.0052
39	0.0108	0.0055	0.0052
40	0.0108	0.0056	0.0052
41	0.0108	0.0056	0.0052
42	0.0108	0.0056	0.0053
43	0.0109	0.0056	0.0053
44	0.0109	0.0056	0.0053
45	0.0110	0.0056	0.0053
46	0.0110	0.0057	0.0053
47	0.0110	0.0057	0.0053
48	0.0110	0.0057	0.0054
49	0.0111	0.0057	0.0054
50	0.0111	0.0057	0.0054
51	0.0112	0.0058	0.0054
52	0.0112	0.0058	0.0054
53	0.0112	0.0058	0.0054
54	0.0113	0.0058	0.0055
55	0.0113	0.0058	0.0055
56	0.0113	0.0058	0.0055
57	0.0114	0.0059	0.0055
58	0.0114	0.0059	0.0055
59	0.0115	0.0059	0.0056
60	0.0115	0.0059	0.0056
61	0.0116	0.0060	0.0056
62	0.0116	0.0060	0.0056
63	0.0116	0.0060	0.0056
64	0.0117	0.0060	0.0056
65	0.0117	0.0060	0.0057
66	0.0117	0.0061	0.0057
67	0.0118	0.0061	0.0057
68	0.0118	0.0061	0.0057
69	0.0119	0.0061	0.0058
70	0.0119	0.0061	0.0058
71	0.0120	0.0062	0.0058
72	0.0120	0.0062	0.0058
73	0.0121	0.0062	0.0058

74	0.0121	0.0062	0.0059
75	0.0122	0.0063	0.0059
76	0.0122	0.0063	0.0059
77	0.0123	0.0063	0.0059
78	0.0123	0.0063	0.0060
79	0.0124	0.0064	0.0060
80	0.0124	0.0064	0.0060
81	0.0125	0.0064	0.0060
82	0.0125	0.0064	0.0061
83	0.0126	0.0065	0.0061
84	0.0126	0.0065	0.0061
85	0.0127	0.0065	0.0061
86	0.0127	0.0066	0.0062
87	0.0128	0.0066	0.0062
88	0.0128	0.0066	0.0062
89	0.0129	0.0066	0.0062
90	0.0129	0.0067	0.0063
91	0.0130	0.0067	0.0063
92	0.0131	0.0067	0.0063
93	0.0131	0.0068	0.0064
94	0.0132	0.0068	0.0064
95	0.0133	0.0068	0.0064
96	0.0133	0.0069	0.0064
97	0.0134	0.0069	0.0065
98	0.0134	0.0069	0.0065
99	0.0135	0.0070	0.0065
100	0.0136	0.0070	0.0066
101	0.0137	0.0070	0.0066
102	0.0137	0.0071	0.0066
103	0.0138	0.0071	0.0067
104	0.0138	0.0071	0.0067
105	0.0139	0.0072	0.0068
106	0.0140	0.0072	0.0068
107	0.0141	0.0073	0.0068
108	0.0141	0.0073	0.0068
109	0.0142	0.0073	0.0069
110	0.0143	0.0074	0.0069
111	0.0144	0.0074	0.0070
112	0.0145	0.0075	0.0070
113	0.0146	0.0075	0.0071
114	0.0146	0.0075	0.0071
115	0.0147	0.0076	0.0071
116	0.0148	0.0076	0.0072
117	0.0149	0.0077	0.0072
118	0.0150	0.0077	0.0073
119	0.0151	0.0078	0.0073
120	0.0152	0.0078	0.0073
121	0.0153	0.0079	0.0074
122	0.0154	0.0079	0.0074
123	0.0155	0.0080	0.0075
124	0.0156	0.0080	0.0075
125	0.0157	0.0081	0.0076
126	0.0158	0.0081	0.0076
127	0.0159	0.0082	0.0077

128	0.0160	0.0082	0.0078
129	0.0162	0.0083	0.0078
130	0.0162	0.0084	0.0079
131	0.0164	0.0084	0.0079
132	0.0165	0.0085	0.0080
133	0.0166	0.0086	0.0081
134	0.0167	0.0086	0.0081
135	0.0169	0.0087	0.0082
136	0.0170	0.0088	0.0082
137	0.0172	0.0089	0.0083
138	0.0173	0.0089	0.0084
139	0.0175	0.0090	0.0085
140	0.0176	0.0091	0.0085
141	0.0178	0.0092	0.0086
142	0.0179	0.0092	0.0087
143	0.0181	0.0093	0.0088
144	0.0182	0.0094	0.0088
145	0.0149	0.0077	0.0072
146	0.0150	0.0077	0.0073
147	0.0153	0.0079	0.0074
148	0.0154	0.0079	0.0075
149	0.0157	0.0081	0.0076
150	0.0158	0.0081	0.0076
151	0.0161	0.0083	0.0078
152	0.0162	0.0084	0.0079
153	0.0165	0.0085	0.0080
154	0.0167	0.0086	0.0081
155	0.0170	0.0088	0.0082
156	0.0172	0.0089	0.0083
157	0.0175	0.0090	0.0085
158	0.0177	0.0091	0.0086
159	0.0181	0.0093	0.0088
160	0.0183	0.0095	0.0089
161	0.0188	0.0097	0.0091
162	0.0190	0.0098	0.0092
163	0.0195	0.0100	0.0094
164	0.0197	0.0102	0.0096
165	0.0203	0.0104	0.0098
166	0.0205	0.0106	0.0100
167	0.0211	0.0109	0.0102
168	0.0215	0.0111	0.0104
169	0.0221	0.0114	0.0107
170	0.0225	0.0116	0.0109
171	0.0233	0.0120	0.0113
172	0.0237	0.0122	0.0115
173	0.0246	0.0127	0.0119
174	0.0251	0.0129	0.0121
175	0.0261	0.0135	0.0127
176	0.0267	0.0138	0.0129
177	0.0280	0.0144	0.0135
178	0.0287	0.0148	0.0139
179	0.0302	0.0156	0.0146
180	0.0311	0.0160	0.0151
181	0.0330	0.0170	0.0160

182	0.0342	0.0176	0.0165
183	0.0367	0.0189	0.0178
184	0.0383	0.0197	0.0185
185	0.0291	0.0150	0.0141
186	0.0310	0.0160	0.0150
187	0.0360	0.0185	0.0174
188	0.0393	0.0203	0.0190
189	0.0489	0.0252	0.0237
190	0.0563	0.0290	0.0273
191	0.0854	0.0393	0.0461
192	0.1239	0.0393	0.0847
193	0.5362	0.0393	0.4969
194	0.0672	0.0346	0.0326
195	0.0434	0.0224	0.0210
196	0.0333	0.0172	0.0161
197	0.0400	0.0206	0.0194
198	0.0354	0.0182	0.0171
199	0.0320	0.0165	0.0155
200	0.0294	0.0152	0.0142
201	0.0273	0.0141	0.0132
202	0.0256	0.0132	0.0124
203	0.0241	0.0124	0.0117
204	0.0229	0.0118	0.0111
205	0.0218	0.0112	0.0106
206	0.0208	0.0107	0.0101
207	0.0200	0.0103	0.0097
208	0.0192	0.0099	0.0093
209	0.0186	0.0096	0.0090
210	0.0179	0.0092	0.0087
211	0.0174	0.0090	0.0084
212	0.0168	0.0087	0.0082
213	0.0164	0.0084	0.0079
214	0.0159	0.0082	0.0077
215	0.0155	0.0080	0.0075
216	0.0151	0.0078	0.0073
217	0.0183	0.0095	0.0089
218	0.0180	0.0093	0.0087
219	0.0177	0.0091	0.0086
220	0.0174	0.0090	0.0084
221	0.0171	0.0088	0.0083
222	0.0168	0.0087	0.0081
223	0.0166	0.0085	0.0080
224	0.0163	0.0084	0.0079
225	0.0161	0.0083	0.0078
226	0.0158	0.0082	0.0077
227	0.0156	0.0081	0.0076
228	0.0154	0.0080	0.0075
229	0.0152	0.0078	0.0074
230	0.0150	0.0078	0.0073
231	0.0149	0.0077	0.0072
232	0.0147	0.0076	0.0071
233	0.0145	0.0075	0.0070
234	0.0143	0.0074	0.0070
235	0.0142	0.0073	0.0069

236	0.0140	0.0072	0.0068
237	0.0139	0.0072	0.0067
238	0.0137	0.0071	0.0067
239	0.0136	0.0070	0.0066
240	0.0135	0.0069	0.0065
241	0.0133	0.0069	0.0065
242	0.0132	0.0068	0.0064
243	0.0131	0.0067	0.0063
244	0.0130	0.0067	0.0063
245	0.0129	0.0066	0.0062
246	0.0127	0.0066	0.0062
247	0.0126	0.0065	0.0061
248	0.0125	0.0065	0.0061
249	0.0124	0.0064	0.0060
250	0.0123	0.0064	0.0060
251	0.0122	0.0063	0.0059
252	0.0121	0.0063	0.0059
253	0.0120	0.0062	0.0058
254	0.0119	0.0062	0.0058
255	0.0119	0.0061	0.0057
256	0.0118	0.0061	0.0057
257	0.0117	0.0060	0.0057
258	0.0116	0.0060	0.0056
259	0.0115	0.0059	0.0056
260	0.0114	0.0059	0.0055
261	0.0114	0.0059	0.0055
262	0.0113	0.0058	0.0055
263	0.0112	0.0058	0.0054
264	0.0111	0.0057	0.0054
265	0.0111	0.0057	0.0054
266	0.0110	0.0057	0.0053
267	0.0109	0.0056	0.0053
268	0.0109	0.0056	0.0053
269	0.0108	0.0056	0.0052
270	0.0107	0.0055	0.0052
271	0.0107	0.0055	0.0052
272	0.0106	0.0055	0.0051
273	0.0105	0.0054	0.0051
274	0.0105	0.0054	0.0051
275	0.0104	0.0054	0.0051
276	0.0104	0.0053	0.0050
277	0.0103	0.0053	0.0050
278	0.0103	0.0053	0.0050
279	0.0102	0.0053	0.0049
280	0.0101	0.0052	0.0049
281	0.0101	0.0052	0.0049
282	0.0100	0.0052	0.0049
283	0.0100	0.0051	0.0048
284	0.0099	0.0051	0.0048
285	0.0099	0.0051	0.0048
286	0.0098	0.0051	0.0048
287	0.0098	0.0050	0.0047
288	0.0097	0.0050	0.0047

Total soil rain loss = 2.41(In)
Total effective rainfall = 2.78(In)
Peak flow rate in flood hydrograph = 3.32(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0003	0.03	Q				
0+15	0.0006	0.05	Q				
0+20	0.0010	0.05	Q				
0+25	0.0014	0.06	Q				
0+30	0.0018	0.06	Q				
0+35	0.0022	0.06	Q				
0+40	0.0027	0.06	Q				
0+45	0.0031	0.07	Q				
0+50	0.0036	0.07	Q				
0+55	0.0040	0.07	Q				
1+ 0	0.0045	0.07	Q				
1+ 5	0.0050	0.07	Q				
1+10	0.0054	0.07	Q				
1+15	0.0059	0.07	Q				
1+20	0.0064	0.07	Q				
1+25	0.0069	0.07	QV				
1+30	0.0073	0.07	QV				
1+35	0.0078	0.07	QV				
1+40	0.0083	0.07	QV				
1+45	0.0087	0.07	QV				
1+50	0.0092	0.07	QV				
1+55	0.0097	0.07	QV				
2+ 0	0.0102	0.07	QV				
2+ 5	0.0107	0.07	QV				
2+10	0.0111	0.07	QV				
2+15	0.0116	0.07	QV				
2+20	0.0121	0.07	QV				
2+25	0.0126	0.07	QV				
2+30	0.0131	0.07	QV				
2+35	0.0136	0.07	Q V				
2+40	0.0141	0.07	Q V				
2+45	0.0146	0.07	Q V				
2+50	0.0150	0.07	Q V				
2+55	0.0155	0.07	Q V				
3+ 0	0.0160	0.07	Q V				
3+ 5	0.0165	0.07	Q V				
3+10	0.0170	0.07	Q V				
3+15	0.0175	0.07	Q V				
3+20	0.0180	0.07	Q V				

3+25	0.0185	0.07	Q V	|	|	|	|
3+30	0.0190	0.07	Q V	|	|	|	|
3+35	0.0195	0.07	Q V	|	|	|	|
3+40	0.0201	0.07	Q V	|	|	|	|
3+45	0.0206	0.07	Q V	|	|	|	|
3+50	0.0211	0.07	Q V	|	|	|	|
3+55	0.0216	0.07	Q V	|	|	|	|
4+ 0	0.0221	0.07	Q V	|	|	|	|
4+ 5	0.0226	0.07	Q V	|	|	|	|
4+10	0.0231	0.08	Q V	|	|	|	|
4+15	0.0237	0.08	Q V	|	|	|	|
4+20	0.0242	0.08	Q V	|	|	|	|
4+25	0.0247	0.08	Q V	|	|	|	|
4+30	0.0252	0.08	Q V	|	|	|	|
4+35	0.0257	0.08	Q V	|	|	|	|
4+40	0.0263	0.08	Q V	|	|	|	|
4+45	0.0268	0.08	Q V	|	|	|	|
4+50	0.0273	0.08	Q V	|	|	|	|
4+55	0.0279	0.08	Q V	|	|	|	|
5+ 0	0.0284	0.08	Q V	|	|	|	|
5+ 5	0.0289	0.08	Q V	|	|	|	|
5+10	0.0295	0.08	Q V	|	|	|	|
5+15	0.0300	0.08	Q V	|	|	|	|
5+20	0.0306	0.08	Q V	|	|	|	|
5+25	0.0311	0.08	Q V	|	|	|	|
5+30	0.0316	0.08	Q V	|	|	|	|
5+35	0.0322	0.08	Q V	|	|	|	|
5+40	0.0327	0.08	Q V	|	|	|	|
5+45	0.0333	0.08	Q V	|	|	|	|
5+50	0.0338	0.08	Q V	|	|	|	|
5+55	0.0344	0.08	Q V	|	|	|	|
6+ 0	0.0350	0.08	Q V	|	|	|	|
6+ 5	0.0355	0.08	Q V	|	|	|	|
6+10	0.0361	0.08	Q V	|	|	|	|
6+15	0.0366	0.08	Q V	|	|	|	|
6+20	0.0372	0.08	Q V	|	|	|	|
6+25	0.0378	0.08	Q V	|	|	|	|
6+30	0.0384	0.08	Q V	|	|	|	|
6+35	0.0389	0.08	Q V	|	|	|	|
6+40	0.0395	0.08	Q V	|	|	|	|
6+45	0.0401	0.08	Q V	|	|	|	|
6+50	0.0407	0.08	Q V	|	|	|	|
6+55	0.0412	0.08	Q V	|	|	|	|
7+ 0	0.0418	0.08	Q V	|	|	|	|
7+ 5	0.0424	0.09	Q V	|	|	|	|
7+10	0.0430	0.09	Q V	|	|	|	|
7+15	0.0436	0.09	Q V	|	|	|	|
7+20	0.0442	0.09	Q V	|	|	|	|
7+25	0.0448	0.09	Q V	|	|	|	|
7+30	0.0454	0.09	Q V	|	|	|	|
7+35	0.0460	0.09	Q V	|	|	|	|
7+40	0.0466	0.09	Q V	|	|	|	|
7+45	0.0472	0.09	Q V	|	|	|	|
7+50	0.0478	0.09	Q V	|	|	|	|

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 7+55       0.0484      0.09  Q      V  |          |          |          |
 8+ 0       0.0490      0.09  Q      V  |          |          |          |
 8+ 5       0.0497      0.09  Q      V  |          |          |          |
 8+10       0.0503      0.09  Q      V  |          |          |          |
 8+15       0.0509      0.09  Q      V  |          |          |          |
 8+20       0.0515      0.09  Q      V  |          |          |          |
 8+25       0.0522      0.09  Q      V  |          |          |          |
 8+30       0.0528      0.09  Q      V  |          |          |          |
 8+35       0.0535      0.09  Q      V  |          |          |          |
 8+40       0.0541      0.09  Q       V |          |          |          |
 8+45       0.0547      0.09  Q       V |          |          |          |
 8+50       0.0554      0.09  Q       V |          |          |          |
 8+55       0.0560      0.09  Q       V |          |          |          |
 9+ 0       0.0567      0.10  Q       V |          |          |          |
 9+ 5       0.0573      0.10  Q       V |          |          |          |
 9+10       0.0580      0.10  Q       V |          |          |          |
 9+15       0.0587      0.10  Q       V |          |          |          |
 9+20       0.0593      0.10  Q       V |          |          |          |
 9+25       0.0600      0.10  Q       V |          |          |          |
 9+30       0.0607      0.10  Q        V|          |          |          |
 9+35       0.0614      0.10  Q        V|          |          |          |
 9+40       0.0621      0.10  Q        V|          |          |          |
 9+45       0.0627      0.10  Q        V|          |          |          |
 9+50       0.0634      0.10  Q        V|          |          |          |
 9+55       0.0641      0.10  Q        V|          |          |          |
10+ 0       0.0648      0.10  Q        V|          |          |          |
10+ 5       0.0655      0.10  Q        V|          |          |          |
10+10       0.0663      0.10  Q        V|          |          |          |
10+15       0.0670      0.10  Q        V|          |          |          |
10+20       0.0677      0.10  Q         V          |          |          |
10+25       0.0684      0.11  Q         V          |          |          |
10+30       0.0691      0.11  Q         V          |          |          |
10+35       0.0699      0.11  Q         V          |          |          |
10+40       0.0706      0.11  Q         V          |          |          |
10+45       0.0714      0.11  Q         V          |          |          |
10+50       0.0721      0.11  Q         V          |          |          |
10+55       0.0729      0.11  Q         V          |          |          |
11+ 0       0.0736      0.11  Q         V          |          |          |
11+ 5       0.0744      0.11  Q          |V         |          |          |
11+10       0.0752      0.11  Q          |V         |          |          |
11+15       0.0759      0.11  Q          |V         |          |          |
11+20       0.0767      0.11  Q          |V         |          |          |
11+25       0.0775      0.11  Q          |V         |          |          |
11+30       0.0783      0.12  Q          |V         |          |          |
11+35       0.0791      0.12  Q          |V         |          |          |
11+40       0.0799      0.12  Q          |V         |          |          |
11+45       0.0807      0.12  Q          | V        |          |          |
11+50       0.0816      0.12  Q          | V        |          |          |
11+55       0.0824      0.12  Q          | V        |          |          |
12+ 0       0.0832      0.12  Q          | V        |          |          |
12+ 5       0.0841      0.12  Q          | V        |          |          |
12+10       0.0848      0.11  Q          | V        |          |          |
12+15       0.0856      0.11  Q          | V        |          |          |
12+20       0.0863      0.11  Q          | V        |          |          |
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12+25	0.0870	0.11	Q	V			
12+30	0.0878	0.11	Q	V			
12+35	0.0885	0.11	Q	V			
12+40	0.0892	0.11	Q	V			
12+45	0.0900	0.11	Q	V			
12+50	0.0908	0.11	Q	V			
12+55	0.0915	0.11	Q	V			
13+ 0	0.0923	0.11	Q	V			
13+ 5	0.0931	0.12	Q	V			
13+10	0.0939	0.12	Q	V			
13+15	0.0947	0.12	Q	V			
13+20	0.0956	0.12	Q	V			
13+25	0.0964	0.12	Q	V			
13+30	0.0973	0.12	Q	V			
13+35	0.0981	0.13	Q	V			
13+40	0.0990	0.13	Q	V			
13+45	0.0999	0.13	Q	V			
13+50	0.1009	0.13	Q	V			
13+55	0.1018	0.14	Q	V			
14+ 0	0.1028	0.14	Q	V			
14+ 5	0.1038	0.14	Q	V			
14+10	0.1048	0.15	Q	V			
14+15	0.1058	0.15	Q	V			
14+20	0.1068	0.15	Q	V			
14+25	0.1079	0.16	Q	V			
14+30	0.1090	0.16	Q	V			
14+35	0.1102	0.17	Q	V			
14+40	0.1114	0.17	Q	V			
14+45	0.1126	0.18	Q	V			
14+50	0.1138	0.18	Q	V			
14+55	0.1151	0.19	Q	V			
15+ 0	0.1165	0.20	Q	V			
15+ 5	0.1179	0.20	Q	V			
15+10	0.1193	0.21	Q	V			
15+15	0.1209	0.22	Q	V			
15+20	0.1225	0.23	Q	V			
15+25	0.1242	0.24	Q	V			
15+30	0.1257	0.22	Q	V			
15+35	0.1272	0.22	Q	V			
15+40	0.1288	0.23	Q	V			
15+45	0.1305	0.25	Q	V			
15+50	0.1326	0.29	Q	V			
15+55	0.1350	0.35	Q	V			
16+ 0	0.1386	0.52	Q	V			
16+ 5	0.1471	1.24	Q	V			
16+10	**0.1700**	**3.32**	**Q**	**V**			
16+15	0.1842	2.07	Q	V			
16+20	0.1917	1.09	Q	V			
16+25	0.1967	0.73	Q	V			
16+30	0.2006	0.56	Q	V			
16+35	0.2037	0.45	Q	V			
16+40	0.2062	0.37	Q	V			
16+45	0.2083	0.30	Q	V			
16+50	0.2102	0.27	Q	V			

16+55	0.2118	0.24	Q	|	|	|V	|
17+ 0	0.2133	0.21	Q	|	|	|V	|
17+ 5	0.2145	0.17	Q	|	|	|V	|
17+10	0.2156	0.16	Q	|	|	| V	|
17+15	0.2166	0.15	Q	|	|	| V	|
17+20	0.2176	0.14	Q	|	|	| V	|
17+25	0.2186	0.14	Q	|	|	| V	|
17+30	0.2195	0.13	Q	|	|	| V	|
17+35	0.2204	0.13	Q	|	|	| V	|
17+40	0.2212	0.12	Q	|	|	| V	|
17+45	0.2220	0.12	Q	|	|	| V	|
17+50	0.2228	0.12	Q	|	|	| V	|
17+55	0.2236	0.11	Q	|	|	| V	|
18+ 0	0.2244	0.11	Q	|	|	| V	|
18+ 5	0.2251	0.11	Q	|	|	| V	|
18+10	0.2259	0.12	Q	|	|	| V	|
18+15	0.2267	0.12	Q	|	|	| V	|
18+20	0.2275	0.12	Q	|	|	| V	|
18+25	0.2283	0.12	Q	|	|	| V	|
18+30	0.2292	0.12	Q	|	|	| V	|
18+35	0.2300	0.12	Q	|	|	| V	|
18+40	0.2307	0.11	Q	|	|	| V	|
18+45	0.2315	0.11	Q	|	|	| V	|
18+50	0.2323	0.11	Q	|	|	| V	|
18+55	0.2330	0.11	Q	|	|	| V	|
19+ 0	0.2338	0.11	Q	|	|	| V	|
19+ 5	0.2345	0.11	Q	|	|	| V	|
19+10	0.2352	0.11	Q	|	|	| V	|
19+15	0.2360	0.10	Q	|	|	| V	|
19+20	0.2367	0.10	Q	|	|	| V	|
19+25	0.2374	0.10	Q	|	|	| V	|
19+30	0.2380	0.10	Q	|	|	| V	|
19+35	0.2387	0.10	Q	|	|	| V	|
19+40	0.2394	0.10	Q	|	|	| V	|
19+45	0.2401	0.10	Q	|	|	| V	|
19+50	0.2407	0.10	Q	|	|	| V	|
19+55	0.2414	0.09	Q	|	|	| V	|
20+ 0	0.2420	0.09	Q	|	|	| V	|
20+ 5	0.2427	0.09	Q	|	|	| V	|
20+10	0.2433	0.09	Q	|	|	| V	|
20+15	0.2439	0.09	Q	|	|	| V	|
20+20	0.2445	0.09	Q	|	|	| V	|
20+25	0.2452	0.09	Q	|	|	| V	|
20+30	0.2458	0.09	Q	|	|	| V	|
20+35	0.2464	0.09	Q	|	|	| V	|
20+40	0.2470	0.09	Q	|	|	| V	|
20+45	0.2476	0.09	Q	|	|	| V	|
20+50	0.2481	0.09	Q	|	|	| V	|
20+55	0.2487	0.08	Q	|	|	| V	|
21+ 0	0.2493	0.08	Q	|	|	| V	|
21+ 5	0.2499	0.08	Q	|	|	| V	|
21+10	0.2504	0.08	Q	|	|	| V	|
21+15	0.2510	0.08	Q	|	|	| V	|
21+20	0.2516	0.08	Q	|	|	| V	|

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  21+25       0.2521      0.08  Q          |          |          |       V  |
  21+30       0.2527      0.08  Q          |          |          |       V  |
  21+35       0.2532      0.08  Q          |          |          |       V  |
  21+40       0.2538      0.08  Q          |          |          |       V  |
  21+45       0.2543      0.08  Q          |          |          |       V  |
  21+50       0.2548      0.08  Q          |          |          |       V  |
  21+55       0.2554      0.08  Q          |          |          |        V |
  22+ 0       0.2559      0.08  Q          |          |          |        V |
  22+ 5       0.2564      0.08  Q          |          |          |        V |
  22+10       0.2570      0.08  Q          |          |          |        V |
  22+15       0.2575      0.08  Q          |          |          |        V |
  22+20       0.2580      0.07  Q          |          |          |        V |
  22+25       0.2585      0.07  Q          |          |          |        V |
  22+30       0.2590      0.07  Q          |          |          |        V |
  22+35       0.2595      0.07  Q          |          |          |        V |
  22+40       0.2600      0.07  Q          |          |          |        V |
  22+45       0.2605      0.07  Q          |          |          |        V |
  22+50       0.2610      0.07  Q          |          |          |        V |
  22+55       0.2615      0.07  Q          |          |          |        V |
  23+ 0       0.2620      0.07  Q          |          |          |         V|
  23+ 5       0.2625      0.07  Q          |          |          |         V|
  23+10       0.2630      0.07  Q          |          |          |         V|
  23+15       0.2635      0.07  Q          |          |          |         V|
  23+20       0.2639      0.07  Q          |          |          |         V|
  23+25       0.2644      0.07  Q          |          |          |         V|
  23+30       0.2649      0.07  Q          |          |          |         V|
  23+35       0.2654      0.07  Q          |          |          |         V|
  23+40       0.2658      0.07  Q          |          |          |         V|
  23+45       0.2663      0.07  Q          |          |          |         V|
  23+50       0.2668      0.07  Q          |          |          |         V|
  23+55       0.2672      0.07  Q          |          |          |         V|
  24+ 0       0.2677      0.07  Q          |          |          |         V|
-------------------------------------------------------------------------
```

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

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Study date 06/29/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM POST-DEVELOPED CONDITION
TR 20527, CITY OF VICTORVILLE
TRIBUTARY AREA A4-A
FILE: 18345HYDROA4APOST100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
2.87	1	1.13
Rainfall data for year 100		
2.87	6	2.46
Rainfall data for year 100		
2.87	24	5.19

++

******** Area-averaged max loss rate, Fm ********

SCS curve No.(AMCII)	SCS curve NO.(AMC 3)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
32.0	52.0	2.87	1.000	0.785	0.600	0.471

Area-averaged adjusted loss rate Fm (In/Hr) = 0.471

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
1.72	0.600	32.0	52.0	9.23	0.171
1.15	0.400	98.0	98.0	0.20	0.954

Area-averaged catchment yield fraction, Y = 0.485
Area-averaged low loss fraction, Yb = 0.515
User entry of time of concentration = 0.192 (hours)
++
Watershed area = 2.87(Ac.)
Catchment Lag time = 0.154 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 54.1970
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.471(In/Hr)
Average low loss rate fraction (Yb) = 0.515 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall = 0.536(In)
Computed peak 30-minute rainfall = 0.918(In)
Specified peak 1-hour rainfall = 1.130(In)
Computed peak 3-hour rainfall = 1.821(In)
Specified peak 6-hour rainfall = 2.460(In)
Specified peak 24-hour rainfall = 5.190(In)

Rainfall depth area reduction factors:
Using a total area of 2.87(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.536(In)
30-minute factor = 1.000 Adjusted rainfall = 0.918(In)
1-hour factor = 1.000 Adjusted rainfall = 1.130(In)
3-hour factor = 1.000 Adjusted rainfall = 1.821(In)
6-hour factor = 1.000 Adjusted rainfall = 2.460(In)
24-hour factor = 1.000 Adjusted rainfall = 5.190(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
(K = 34.71 (CFS))		
1	4.573	1.587
2	35.315	10.670
3	64.055	9.976

4	76.394	4.283
5	83.576	2.493
6	88.427	1.684
7	91.663	1.123
8	94.081	0.839
9	95.858	0.617
10	97.157	0.451
11	97.986	0.288
12	98.579	0.206
13	99.228	0.225
14	99.698	0.163
15	100.000	0.105

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5361	0.5361
2	0.6600	0.1239
3	0.7454	0.0854
4	0.8126	0.0672
5	0.8689	0.0563
6	0.9177	0.0488
7	0.9612	0.0434
8	1.0004	0.0393
9	1.0364	0.0360
10	1.0697	0.0333
11	1.1007	0.0310
12	1.1298	0.0291
13	1.1698	0.0400
14	1.2081	0.0383
15	1.2448	0.0367
16	1.2802	0.0354
17	1.3144	0.0342
18	1.3474	0.0330
19	1.3794	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4987	0.0287
24	1.5267	0.0280
25	1.5540	0.0273
26	1.5807	0.0267
27	1.6068	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241
32	1.7299	0.0237
33	1.7531	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8424	0.0218
38	1.8639	0.0215
39	1.8850	0.0211

40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203
43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2395	0.0168
59	2.2562	0.0167
60	2.2727	0.0165
61	2.2891	0.0164
62	2.3053	0.0162
63	2.3214	0.0161
64	2.3373	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4149	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4965	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5683	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6384	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171
86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164

94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162
97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0296	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4234	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136
140	3.5193	0.0136
141	3.5328	0.0135
142	3.5463	0.0135
143	3.5597	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133

148	3.6262	0.0132
149	3.6394	0.0132
150	3.6526	0.0131
151	3.6656	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7944	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8948	0.0124
170	3.9072	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117
194	4.1952	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115

202	4.2875	0.0114
203	4.2990	0.0114
204	4.3103	0.0114
205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4117	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4892	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6728	0.0106
238	4.6835	0.0106
239	4.6940	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7571	0.0105
246	4.7676	0.0104
247	4.7780	0.0104
248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8607	0.0103

256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102
259	4.9017	0.0102
260	4.9118	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0921	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1705	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0050	0.0047
2	0.0097	0.0050	0.0047
3	0.0098	0.0050	0.0047
4	0.0098	0.0050	0.0047
5	0.0098	0.0051	0.0048
6	0.0098	0.0051	0.0048
7	0.0099	0.0051	0.0048
8	0.0099	0.0051	0.0048
9	0.0099	0.0051	0.0048
10	0.0099	0.0051	0.0048
11	0.0100	0.0051	0.0048
12	0.0100	0.0051	0.0048
13	0.0100	0.0052	0.0048
14	0.0100	0.0052	0.0049
15	0.0101	0.0052	0.0049
16	0.0101	0.0052	0.0049

17	0.0101	0.0052	0.0049
18	0.0101	0.0052	0.0049
19	0.0102	0.0052	0.0049
20	0.0102	0.0052	0.0049
21	0.0102	0.0053	0.0050
22	0.0102	0.0053	0.0050
23	0.0103	0.0053	0.0050
24	0.0103	0.0053	0.0050
25	0.0103	0.0053	0.0050
26	0.0104	0.0053	0.0050
27	0.0104	0.0054	0.0050
28	0.0104	0.0054	0.0050
29	0.0104	0.0054	0.0051
30	0.0105	0.0054	0.0051
31	0.0105	0.0054	0.0051
32	0.0105	0.0054	0.0051
33	0.0106	0.0054	0.0051
34	0.0106	0.0055	0.0051
35	0.0106	0.0055	0.0051
36	0.0106	0.0055	0.0052
37	0.0107	0.0055	0.0052
38	0.0107	0.0055	0.0052
39	0.0108	0.0055	0.0052
40	0.0108	0.0056	0.0052
41	0.0108	0.0056	0.0052
42	0.0108	0.0056	0.0053
43	0.0109	0.0056	0.0053
44	0.0109	0.0056	0.0053
45	0.0110	0.0056	0.0053
46	0.0110	0.0057	0.0053
47	0.0110	0.0057	0.0053
48	0.0110	0.0057	0.0054
49	0.0111	0.0057	0.0054
50	0.0111	0.0057	0.0054
51	0.0112	0.0058	0.0054
52	0.0112	0.0058	0.0054
53	0.0112	0.0058	0.0054
54	0.0113	0.0058	0.0055
55	0.0113	0.0058	0.0055
56	0.0113	0.0058	0.0055
57	0.0114	0.0059	0.0055
58	0.0114	0.0059	0.0055
59	0.0115	0.0059	0.0056
60	0.0115	0.0059	0.0056
61	0.0116	0.0060	0.0056
62	0.0116	0.0060	0.0056
63	0.0116	0.0060	0.0056
64	0.0117	0.0060	0.0056
65	0.0117	0.0060	0.0057
66	0.0117	0.0061	0.0057
67	0.0118	0.0061	0.0057
68	0.0118	0.0061	0.0057
69	0.0119	0.0061	0.0058
70	0.0119	0.0061	0.0058

71	0.0120	0.0062	0.0058
72	0.0120	0.0062	0.0058
73	0.0121	0.0062	0.0058
74	0.0121	0.0062	0.0059
75	0.0122	0.0063	0.0059
76	0.0122	0.0063	0.0059
77	0.0123	0.0063	0.0059
78	0.0123	0.0063	0.0060
79	0.0124	0.0064	0.0060
80	0.0124	0.0064	0.0060
81	0.0125	0.0064	0.0060
82	0.0125	0.0064	0.0061
83	0.0126	0.0065	0.0061
84	0.0126	0.0065	0.0061
85	0.0127	0.0065	0.0061
86	0.0127	0.0066	0.0062
87	0.0128	0.0066	0.0062
88	0.0128	0.0066	0.0062
89	0.0129	0.0066	0.0062
90	0.0129	0.0067	0.0063
91	0.0130	0.0067	0.0063
92	0.0131	0.0067	0.0063
93	0.0131	0.0068	0.0064
94	0.0132	0.0068	0.0064
95	0.0133	0.0068	0.0064
96	0.0133	0.0069	0.0064
97	0.0134	0.0069	0.0065
98	0.0134	0.0069	0.0065
99	0.0135	0.0070	0.0065
100	0.0136	0.0070	0.0066
101	0.0137	0.0070	0.0066
102	0.0137	0.0071	0.0066
103	0.0138	0.0071	0.0067
104	0.0138	0.0071	0.0067
105	0.0139	0.0072	0.0068
106	0.0140	0.0072	0.0068
107	0.0141	0.0073	0.0068
108	0.0141	0.0073	0.0068
109	0.0142	0.0073	0.0069
110	0.0143	0.0074	0.0069
111	0.0144	0.0074	0.0070
112	0.0145	0.0075	0.0070
113	0.0146	0.0075	0.0071
114	0.0146	0.0075	0.0071
115	0.0147	0.0076	0.0071
116	0.0148	0.0076	0.0072
117	0.0149	0.0077	0.0072
118	0.0150	0.0077	0.0073
119	0.0151	0.0078	0.0073
120	0.0152	0.0078	0.0073
121	0.0153	0.0079	0.0074
122	0.0154	0.0079	0.0074
123	0.0155	0.0080	0.0075
124	0.0156	0.0080	0.0075

125	0.0157	0.0081	0.0076
126	0.0158	0.0081	0.0076
127	0.0159	0.0082	0.0077
128	0.0160	0.0082	0.0078
129	0.0162	0.0083	0.0078
130	0.0162	0.0084	0.0079
131	0.0164	0.0084	0.0079
132	0.0165	0.0085	0.0080
133	0.0166	0.0086	0.0081
134	0.0167	0.0086	0.0081
135	0.0169	0.0087	0.0082
136	0.0170	0.0088	0.0082
137	0.0172	0.0089	0.0083
138	0.0173	0.0089	0.0084
139	0.0175	0.0090	0.0085
140	0.0176	0.0091	0.0085
141	0.0178	0.0092	0.0086
142	0.0179	0.0092	0.0087
143	0.0181	0.0093	0.0088
144	0.0182	0.0094	0.0088
145	0.0149	0.0077	0.0072
146	0.0150	0.0077	0.0073
147	0.0153	0.0079	0.0074
148	0.0154	0.0079	0.0075
149	0.0157	0.0081	0.0076
150	0.0158	0.0081	0.0076
151	0.0161	0.0083	0.0078
152	0.0162	0.0084	0.0079
153	0.0165	0.0085	0.0080
154	0.0167	0.0086	0.0081
155	0.0170	0.0088	0.0082
156	0.0172	0.0089	0.0083
157	0.0175	0.0090	0.0085
158	0.0177	0.0091	0.0086
159	0.0181	0.0093	0.0088
160	0.0183	0.0095	0.0089
161	0.0188	0.0097	0.0091
162	0.0190	0.0098	0.0092
163	0.0195	0.0100	0.0094
164	0.0197	0.0102	0.0096
165	0.0203	0.0104	0.0098
166	0.0205	0.0106	0.0100
167	0.0211	0.0109	0.0102
168	0.0215	0.0111	0.0104
169	0.0221	0.0114	0.0107
170	0.0225	0.0116	0.0109
171	0.0233	0.0120	0.0113
172	0.0237	0.0122	0.0115
173	0.0246	0.0127	0.0119
174	0.0251	0.0129	0.0121
175	0.0261	0.0135	0.0127
176	0.0267	0.0138	0.0129
177	0.0280	0.0144	0.0135
178	0.0287	0.0148	0.0139

179	0.0302	0.0156	0.0146
180	0.0311	0.0160	0.0151
181	0.0330	0.0170	0.0160
182	0.0342	0.0176	0.0165
183	0.0367	0.0189	0.0178
184	0.0383	0.0197	0.0185
185	0.0291	0.0150	0.0141
186	0.0310	0.0160	0.0150
187	0.0360	0.0185	0.0174
188	0.0393	0.0203	0.0190
189	0.0488	0.0252	0.0237
190	0.0563	0.0290	0.0273
191	0.0854	0.0393	0.0461
192	0.1239	0.0393	0.0847
193	0.5361	0.0393	0.4969
194	0.0672	0.0346	0.0326
195	0.0434	0.0224	0.0210
196	0.0333	0.0172	0.0161
197	0.0400	0.0206	0.0194
198	0.0354	0.0182	0.0171
199	0.0320	0.0165	0.0155
200	0.0294	0.0152	0.0142
201	0.0273	0.0141	0.0132
202	0.0256	0.0132	0.0124
203	0.0241	0.0124	0.0117
204	0.0229	0.0118	0.0111
205	0.0218	0.0112	0.0106
206	0.0208	0.0107	0.0101
207	0.0200	0.0103	0.0097
208	0.0192	0.0099	0.0093
209	0.0186	0.0096	0.0090
210	0.0179	0.0092	0.0087
211	0.0174	0.0090	0.0084
212	0.0168	0.0087	0.0082
213	0.0164	0.0084	0.0079
214	0.0159	0.0082	0.0077
215	0.0155	0.0080	0.0075
216	0.0151	0.0078	0.0073
217	0.0183	0.0095	0.0089
218	0.0180	0.0093	0.0087
219	0.0177	0.0091	0.0086
220	0.0174	0.0090	0.0084
221	0.0171	0.0088	0.0083
222	0.0168	0.0087	0.0081
223	0.0166	0.0085	0.0080
224	0.0163	0.0084	0.0079
225	0.0161	0.0083	0.0078
226	0.0158	0.0082	0.0077
227	0.0156	0.0081	0.0076
228	0.0154	0.0080	0.0075
229	0.0152	0.0078	0.0074
230	0.0150	0.0078	0.0073
231	0.0149	0.0077	0.0072
232	0.0147	0.0076	0.0071

233	0.0145	0.0075	0.0070
234	0.0143	0.0074	0.0070
235	0.0142	0.0073	0.0069
236	0.0140	0.0072	0.0068
237	0.0139	0.0072	0.0067
238	0.0137	0.0071	0.0067
239	0.0136	0.0070	0.0066
240	0.0135	0.0069	0.0065
241	0.0133	0.0069	0.0065
242	0.0132	0.0068	0.0064
243	0.0131	0.0067	0.0063
244	0.0130	0.0067	0.0063
245	0.0129	0.0066	0.0062
246	0.0127	0.0066	0.0062
247	0.0126	0.0065	0.0061
248	0.0125	0.0065	0.0061
249	0.0124	0.0064	0.0060
250	0.0123	0.0064	0.0060
251	0.0122	0.0063	0.0059
252	0.0121	0.0063	0.0059
253	0.0120	0.0062	0.0058
254	0.0119	0.0062	0.0058
255	0.0119	0.0061	0.0057
256	0.0118	0.0061	0.0057
257	0.0117	0.0060	0.0057
258	0.0116	0.0060	0.0056
259	0.0115	0.0059	0.0056
260	0.0114	0.0059	0.0055
261	0.0114	0.0059	0.0055
262	0.0113	0.0058	0.0055
263	0.0112	0.0058	0.0054
264	0.0111	0.0057	0.0054
265	0.0111	0.0057	0.0054
266	0.0110	0.0057	0.0053
267	0.0109	0.0056	0.0053
268	0.0109	0.0056	0.0053
269	0.0108	0.0056	0.0052
270	0.0107	0.0055	0.0052
271	0.0107	0.0055	0.0052
272	0.0106	0.0055	0.0051
273	0.0105	0.0054	0.0051
274	0.0105	0.0054	0.0051
275	0.0104	0.0054	0.0051
276	0.0104	0.0053	0.0050
277	0.0103	0.0053	0.0050
278	0.0103	0.0053	0.0050
279	0.0102	0.0053	0.0049
280	0.0101	0.0052	0.0049
281	0.0101	0.0052	0.0049
282	0.0100	0.0052	0.0049
283	0.0100	0.0051	0.0048
284	0.0099	0.0051	0.0048
285	0.0099	0.0051	0.0048
286	0.0098	0.0051	0.0048

287	0.0098	0.0050	0.0047
288	0.0097	0.0050	0.0047

Total soil rain loss = 2.41(In)
Total effective rainfall = 2.78(In)
Peak flow rate in flood hydrograph = 6.57(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	0.0004	0.06	Q				
0+15	0.0012	0.10	Q				
0+20	0.0020	0.13	Q				
0+25	0.0030	0.14	Q				
0+30	0.0040	0.15	Q				
0+35	0.0050	0.15	Q				
0+40	0.0061	0.16	Q				
0+45	0.0072	0.16	Q				
0+50	0.0083	0.16	Q				
0+55	0.0094	0.16	Q				
1+ 0	0.0105	0.16	Q				
1+ 5	0.0117	0.17	Q				
1+10	0.0128	0.17	Q				
1+15	0.0140	0.17	Q				
1+20	0.0152	0.17	Q				
1+25	0.0163	0.17	Q				
1+30	0.0175	0.17	QV				
1+35	0.0187	0.17	QV				
1+40	0.0198	0.17	QV				
1+45	0.0210	0.17	QV				
1+50	0.0222	0.17	QV				
1+55	0.0234	0.17	QV				
2+ 0	0.0245	0.17	QV				
2+ 5	0.0257	0.17	QV				
2+10	0.0269	0.17	QV				
2+15	0.0281	0.17	QV				
2+20	0.0293	0.17	QV				
2+25	0.0305	0.17	QV				
2+30	0.0317	0.17	QV				
2+35	0.0329	0.18	QV				
2+40	0.0341	0.18	Q V				
2+45	0.0353	0.18	Q V				
2+50	0.0366	0.18	Q V				
2+55	0.0378	0.18	Q V				
3+ 0	0.0390	0.18	Q V				
3+ 5	0.0402	0.18	Q V				

3+10	0.0415	0.18	Q V	|	|	|	|
3+15	0.0427	0.18	Q V	|	|	|	|
3+20	0.0439	0.18	Q V	|	|	|	|
3+25	0.0452	0.18	Q V	|	|	|	|
3+30	0.0464	0.18	Q V	|	|	|	|
3+35	0.0477	0.18	Q V	|	|	|	|
3+40	0.0489	0.18	Q V	|	|	|	|
3+45	0.0502	0.18	Q V	|	|	|	|
3+50	0.0514	0.18	Q V	|	|	|	|
3+55	0.0527	0.18	Q V	|	|	|	|
4+ 0	0.0540	0.18	Q V	|	|	|	|
4+ 5	0.0553	0.18	Q V	|	|	|	|
4+10	0.0565	0.19	Q V	|	|	|	|
4+15	0.0578	0.19	Q V	|	|	|	|
4+20	0.0591	0.19	Q V	|	|	|	|
4+25	0.0604	0.19	Q V	|	|	|	|
4+30	0.0617	0.19	Q V	|	|	|	|
4+35	0.0630	0.19	Q V	|	|	|	|
4+40	0.0643	0.19	Q V	|	|	|	|
4+45	0.0656	0.19	Q V	|	|	|	|
4+50	0.0669	0.19	Q V	|	|	|	|
4+55	0.0682	0.19	Q V	|	|	|	|
5+ 0	0.0695	0.19	Q V	|	|	|	|
5+ 5	0.0709	0.19	Q V	|	|	|	|
5+10	0.0722	0.19	Q V	|	|	|	|
5+15	0.0735	0.19	Q V	|	|	|	|
5+20	0.0749	0.19	Q V	|	|	|	|
5+25	0.0762	0.20	Q V	|	|	|	|
5+30	0.0776	0.20	Q V	|	|	|	|
5+35	0.0789	0.20	Q V	|	|	|	|
5+40	0.0803	0.20	Q V	|	|	|	|
5+45	0.0816	0.20	Q V	|	|	|	|
5+50	0.0830	0.20	Q V	|	|	|	|
5+55	0.0844	0.20	Q V	|	|	|	|
6+ 0	0.0857	0.20	Q V	|	|	|	|
6+ 5	0.0871	0.20	Q V	|	|	|	|
6+10	0.0885	0.20	Q V	|	|	|	|
6+15	0.0899	0.20	Q V	|	|	|	|
6+20	0.0913	0.20	Q V	|	|	|	|
6+25	0.0927	0.20	Q V	|	|	|	|
6+30	0.0941	0.20	Q V	|	|	|	|
6+35	0.0955	0.21	Q V	|	|	|	|
6+40	0.0970	0.21	Q V	|	|	|	|
6+45	0.0984	0.21	Q V	|	|	|	|
6+50	0.0998	0.21	Q V	|	|	|	|
6+55	0.1013	0.21	Q V	|	|	|	|
7+ 0	0.1027	0.21	Q V	|	|	|	|
7+ 5	0.1042	0.21	Q V	|	|	|	|
7+10	0.1056	0.21	Q V	|	|	|	|
7+15	0.1071	0.21	Q V	|	|	|	|
7+20	0.1085	0.21	Q V	|	|	|	|
7+25	0.1100	0.21	Q V	|	|	|	|
7+30	0.1115	0.22	Q V	|	|	|	|
7+35	0.1130	0.22	Q V	|	|	|	|

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 7+40       0.1145      0.22  Q     V   |          |          |          |
 7+45       0.1160      0.22  Q     V   |          |          |          |
 7+50       0.1175      0.22  Q      V  |          |          |          |
 7+55       0.1190      0.22  Q      V  |          |          |          |
 8+ 0       0.1205      0.22  Q      V  |          |          |          |
 8+ 5       0.1221      0.22  Q      V  |          |          |          |
 8+10       0.1236      0.22  Q      V  |          |          |          |
 8+15       0.1251      0.22  Q      V  |          |          |          |
 8+20       0.1267      0.23  Q      V  |          |          |          |
 8+25       0.1282      0.23  Q      V  |          |          |          |
 8+30       0.1298      0.23  Q      V  |          |          |          |
 8+35       0.1314      0.23  Q      V  |          |          |          |
 8+40       0.1330      0.23  Q       V |          |          |          |
 8+45       0.1346      0.23  Q       V |          |          |          |
 8+50       0.1362      0.23  Q       V |          |          |          |
 8+55       0.1378      0.23  Q       V |          |          |          |
 9+ 0       0.1394      0.23  Q       V |          |          |          |
 9+ 5       0.1410      0.24  Q       V |          |          |          |
 9+10       0.1426      0.24  Q       V |          |          |          |
 9+15       0.1443      0.24  Q       V |          |          |          |
 9+20       0.1459      0.24  Q       V |          |          |          |
 9+25       0.1476      0.24  Q       V |          |          |          |
 9+30       0.1493      0.24  Q       V |          |          |          |
 9+35       0.1509      0.24  Q        V|          |          |          |
 9+40       0.1526      0.25  Q        V|          |          |          |
 9+45       0.1543      0.25  Q        V|          |          |          |
 9+50       0.1560      0.25  Q        V|          |          |          |
 9+55       0.1577      0.25  Q        V|          |          |          |
10+ 0       0.1595      0.25  |Q       V|          |          |          |
10+ 5       0.1612      0.25  |Q       V|          |          |          |
10+10       0.1630      0.25  |Q       V|          |          |          |
10+15       0.1647      0.26  |Q       V|          |          |          |
10+20       0.1665      0.26  |Q        V          |          |          |
10+25       0.1683      0.26  |Q        V          |          |          |
10+30       0.1701      0.26  |Q        V          |          |          |
10+35       0.1719      0.26  |Q        V          |          |          |
10+40       0.1737      0.26  |Q        V          |          |          |
10+45       0.1755      0.27  |Q        V          |          |          |
10+50       0.1774      0.27  |Q        V          |          |          |
10+55       0.1793      0.27  |Q        V          |          |          |
11+ 0       0.1811      0.27  |Q        V          |          |          |
11+ 5       0.1830      0.27  |Q         |V         |          |          |
11+10       0.1849      0.28  |Q         |V         |          |          |
11+15       0.1868      0.28  |Q         |V         |          |          |
11+20       0.1888      0.28  |Q         |V         |          |          |
11+25       0.1907      0.28  |Q         |V         |          |          |
11+30       0.1927      0.28  |Q         |V         |          |          |
11+35       0.1946      0.29  |Q         |V         |          |          |
11+40       0.1966      0.29  |Q         |V         |          |          |
11+45       0.1986      0.29  |Q         |V         |          |          |
11+50       0.2007      0.29  |Q         | V        |          |          |
11+55       0.2027      0.30  |Q         | V        |          |          |
12+ 0       0.2048      0.30  |Q         | V        |          |          |
12+ 5       0.2068      0.30  |Q         | V        |          |          |
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12+10	0.2088	0.28	Q	V			
12+15	0.2107	0.27	Q	V			
12+20	0.2125	0.27	Q	V			
12+25	0.2143	0.26	Q	V			
12+30	0.2161	0.26	Q	V			
12+35	0.2179	0.27	Q	V			
12+40	0.2198	0.27	Q	V			
12+45	0.2216	0.27	Q	V			
12+50	0.2235	0.27	Q	V			
12+55	0.2254	0.28	Q	V			
13+ 0	0.2274	0.28	Q	V			
13+ 5	0.2293	0.28	Q	V			
13+10	0.2313	0.29	Q	V			
13+15	0.2333	0.29	Q	V			
13+20	0.2353	0.30	Q	V			
13+25	0.2374	0.30	Q	V			
13+30	0.2395	0.31	Q	V			
13+35	0.2417	0.31	Q	V			
13+40	0.2438	0.32	Q	V			
13+45	0.2461	0.32	Q	V			
13+50	0.2483	0.33	Q	V			
13+55	0.2506	0.34	Q	V			
14+ 0	0.2530	0.34	Q	V			
14+ 5	0.2554	0.35	Q	V			
14+10	0.2579	0.36	Q	V			
14+15	0.2604	0.37	Q	V			
14+20	0.2630	0.37	Q	V			
14+25	0.2656	0.38	Q	V			
14+30	0.2683	0.39	Q	V			
14+35	0.2711	0.41	Q	V			
14+40	0.2740	0.42	Q	V			
14+45	0.2770	0.43	Q	V			
14+50	0.2800	0.44	Q	V			
14+55	0.2832	0.46	Q	V			
15+ 0	0.2865	0.48	Q	V			
15+ 5	0.2899	0.49	Q	V			
15+10	0.2934	0.52	Q	V			
15+15	0.2971	0.54	Q	V			
15+20	0.3010	0.57	Q	V			
15+25	0.3051	0.59	Q	V			
15+30	0.3089	0.56	Q	V			
15+35	0.3127	0.54	Q	V			
15+40	0.3165	0.56	Q	V			
15+45	0.3207	0.61	Q	V			
15+50	0.3255	0.69	Q	V			
15+55	0.3311	0.81	Q	V			
16+ 0	0.3389	1.14	Q	V			
16+ 5	0.3556	2.43	Q	V			
16+10	**0.4009**	**6.57**	**V Q**				
16+15	0.4418	5.94	Q V				
16+20	0.4630	3.08	Q V				
16+25	0.4771	2.05	Q V				
16+30	0.4880	1.58	Q V				
16+35	0.4967	1.27	Q V				

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16+40       0.5040      1.07  |   Q     |          |          V          |
16+45       0.5102      0.90  |  Q      |          |          V          |
16+50       0.5155      0.77  |  Q      |          |          |V         |
16+55       0.5200      0.65  | Q       |          |          |V         |
17+ 0       0.5240      0.58  | Q       |          |          |V         |
17+ 5       0.5279      0.56  | Q       |          |          |V         |
17+10       0.5313      0.50  |Q        |          |          |V         |
17+15       0.5343      0.44  |Q        |          |          | V        |
17+20       0.5369      0.37  |Q        |          |          | V        |
17+25       0.5393      0.35  |Q        |          |          | V        |
17+30       0.5417      0.34  |Q        |          |          | V        |
17+35       0.5439      0.33  |Q        |          |          | V        |
17+40       0.5461      0.31  |Q        |          |          | V        |
17+45       0.5481      0.30  |Q        |          |          | V        |
17+50       0.5502      0.29  |Q        |          |          |  V       |
17+55       0.5521      0.28  |Q        |          |          |  V       |
18+ 0       0.5540      0.28  |Q        |          |          |  V       |
18+ 5       0.5559      0.27  |Q        |          |          |  V       |
18+10       0.5578      0.28  |Q        |          |          |  V       |
18+15       0.5598      0.29  |Q        |          |          |  V       |
18+20       0.5619      0.29  |Q        |          |          |  V       |
18+25       0.5639      0.29  |Q        |          |          |  V       |
18+30       0.5659      0.29  |Q        |          |          |   V      |
18+35       0.5678      0.29  |Q        |          |          |   V      |
18+40       0.5698      0.28  |Q        |          |          |   V      |
18+45       0.5717      0.28  |Q        |          |          |   V      |
18+50       0.5736      0.28  |Q        |          |          |   V      |
18+55       0.5755      0.27  |Q        |          |          |   V      |
19+ 0       0.5774      0.27  |Q        |          |          |   V      |
19+ 5       0.5792      0.27  |Q        |          |          |   V      |
19+10       0.5810      0.26  |Q        |          |          |   V      |
19+15       0.5828      0.26  |Q        |          |          |    V     |
19+20       0.5845      0.26  |Q        |          |          |    V     |
19+25       0.5863      0.25  |Q        |          |          |    V     |
19+30       0.5880      0.25  Q         |          |          |    V     |
19+35       0.5897      0.25  Q         |          |          |    V     |
19+40       0.5914      0.24  Q         |          |          |    V     |
19+45       0.5930      0.24  Q         |          |          |    V     |
19+50       0.5947      0.24  Q         |          |          |    V     |
19+55       0.5963      0.24  Q         |          |          |    V     |
20+ 0       0.5979      0.23  Q         |          |          |    V     |
20+ 5       0.5995      0.23  Q         |          |          |     V    |
20+10       0.6011      0.23  Q         |          |          |     V    |
20+15       0.6026      0.23  Q         |          |          |     V    |
20+20       0.6042      0.22  Q         |          |          |     V    |
20+25       0.6057      0.22  Q         |          |          |     V    |
20+30       0.6072      0.22  Q         |          |          |     V    |
20+35       0.6087      0.22  Q         |          |          |     V    |
20+40       0.6102      0.22  Q         |          |          |     V    |
20+45       0.6117      0.21  Q         |          |          |     V    |
20+50       0.6131      0.21  Q         |          |          |     V    |
20+55       0.6146      0.21  Q         |          |          |     V    |
21+ 0       0.6160      0.21  Q         |          |          |      V   |
21+ 5       0.6174      0.21  Q         |          |          |      V   |
```

21+10	0.6188	0.21	Q	|	|	|	V |
21+15	0.6203	0.20	Q	|	|	|	V |
21+20	0.6216	0.20	Q	|	|	|	V |
21+25	0.6230	0.20	Q	|	|	|	V |
21+30	0.6244	0.20	Q	|	|	|	V |
21+35	0.6258	0.20	Q	|	|	|	V |
21+40	0.6271	0.20	Q	|	|	|	V |
21+45	0.6285	0.19	Q	|	|	|	V |
21+50	0.6298	0.19	Q	|	|	|	V |
21+55	0.6311	0.19	Q	|	|	|	V |
22+ 0	0.6324	0.19	Q	|	|	|	V |
22+ 5	0.6337	0.19	Q	|	|	|	V |
22+10	0.6350	0.19	Q	|	|	|	V |
22+15	0.6363	0.19	Q	|	|	|	V |
22+20	0.6376	0.19	Q	|	|	|	V |
22+25	0.6389	0.18	Q	|	|	|	V |
22+30	0.6401	0.18	Q	|	|	|	V |
22+35	0.6414	0.18	Q	|	|	|	V |
22+40	0.6426	0.18	Q	|	|	|	V |
22+45	0.6439	0.18	Q	|	|	|	V |
22+50	0.6451	0.18	Q	|	|	|	V |
22+55	0.6463	0.18	Q	|	|	|	V |
23+ 0	0.6476	0.18	Q	|	|	|	V |
23+ 5	0.6488	0.18	Q	|	|	|	V|
23+10	0.6500	0.18	Q	|	|	|	V|
23+15	0.6512	0.17	Q	|	|	|	V|
23+20	0.6524	0.17	Q	|	|	|	V|
23+25	0.6536	0.17	Q	|	|	|	V|
23+30	0.6547	0.17	Q	|	|	|	V|
23+35	0.6559	0.17	Q	|	|	|	V|
23+40	0.6571	0.17	Q	|	|	|	V|
23+45	0.6582	0.17	Q	|	|	|	V|
23+50	0.6594	0.17	Q	|	|	|	V|
23+55	0.6606	0.17	Q	|	|	|	V|
24+ 0	0.6617	0.17	Q	|	|	|	V|

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

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Study date 06/29/22

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 4070

100-YR, 24-HR STORM POST-DEVELOPED CONDITION – DA8
TR 18345, CITY OF VICTORVILLE
TRIBUTARY AREA A4-B
FILE: 18345HYDROA4BPOST100.OUT

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
2.35	1	1.13
Rainfall data for year 100		
2.35	6	2.46
Rainfall data for year 100		
2.35	24	5.19

++

******** Area-averaged max loss rate, Fm ********

```
SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0          2.35      1.000     0.785    0.600    0.471

Area-averaged adjusted loss rate Fm (In/Hr) =  0.471

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     1.41   0.600         32.0      52.0       9.23     0.171
     0.94   0.400         98.0      98.0       0.20     0.954

Area-averaged catchment yield fraction, Y =  0.485
Area-averaged low loss fraction, Yb =  0.515
User entry of time of concentration  =   0.299 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       2.35(Ac.)
Catchment Lag time =   0.239 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 34.8617
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.471(In/Hr)
Average low loss rate fraction (Yb) = 0.515 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.536(In)
Computed peak 30-minute rainfall =  0.918(In)
Specified peak 1-hour rainfall =  1.130(In)
Computed peak 3-hour rainfall =  1.821(In)
Specified peak 6-hour rainfall =  2.460(In)
Specified peak 24-hour rainfall =  5.190(In)


Rainfall depth area reduction factors:
Using a total area of       2.35(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.536(In)
30-minute factor = 1.000    Adjusted rainfall =  0.918(In)
1-hour factor = 1.000       Adjusted rainfall =  1.130(In)
3-hour factor = 1.000       Adjusted rainfall =  1.821(In)
6-hour factor = 1.000       Adjusted rainfall =  2.460(In)
24-hour factor = 1.000      Adjusted rainfall =  5.190(In)
----------------------------------------------------------------------

                U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
           (K =        28.42 (CFS))

  1                2.219                    0.631
  2               13.263                    3.139
  3               40.696                    7.797
```

4	59.814	5.433
5	70.032	2.904
6	76.849	1.937
7	81.687	1.375
8	85.391	1.053
9	88.352	0.841
10	90.539	0.622
11	92.366	0.519
12	93.892	0.434
13	95.115	0.348
14	96.136	0.290
15	96.983	0.240
16	97.619	0.181
17	98.052	0.123
18	98.423	0.105
19	98.839	0.118
20	99.258	0.119
21	99.591	0.095
22	99.810	0.062
23	100.000	0.054

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.5361	0.5361
2	0.6601	0.1239
3	0.7454	0.0854
4	0.8126	0.0672
5	0.8689	0.0563
6	0.9177	0.0488
7	0.9612	0.0434
8	1.0005	0.0393
9	1.0365	0.0360
10	1.0697	0.0333
11	1.1008	0.0310
12	1.1299	0.0291
13	1.1698	0.0400
14	1.2081	0.0383
15	1.2448	0.0367
16	1.2802	0.0354
17	1.3144	0.0342
18	1.3474	0.0330
19	1.3794	0.0320
20	1.4105	0.0311
21	1.4407	0.0302
22	1.4701	0.0294
23	1.4988	0.0287
24	1.5267	0.0280
25	1.5540	0.0273
26	1.5807	0.0267
27	1.6068	0.0261
28	1.6324	0.0256
29	1.6575	0.0251
30	1.6821	0.0246
31	1.7062	0.0241

32	1.7299	0.0237
33	1.7531	0.0233
34	1.7760	0.0229
35	1.7985	0.0225
36	1.8207	0.0221
37	1.8424	0.0218
38	1.8639	0.0215
39	1.8850	0.0211
40	1.9059	0.0208
41	1.9264	0.0205
42	1.9467	0.0203
43	1.9667	0.0200
44	1.9864	0.0197
45	2.0059	0.0195
46	2.0251	0.0192
47	2.0441	0.0190
48	2.0629	0.0188
49	2.0814	0.0186
50	2.0998	0.0183
51	2.1179	0.0181
52	2.1358	0.0179
53	2.1536	0.0177
54	2.1711	0.0175
55	2.1885	0.0174
56	2.2057	0.0172
57	2.2227	0.0170
58	2.2395	0.0168
59	2.2562	0.0167
60	2.2728	0.0165
61	2.2891	0.0164
62	2.3053	0.0162
63	2.3214	0.0161
64	2.3373	0.0159
65	2.3531	0.0158
66	2.3688	0.0157
67	2.3843	0.0155
68	2.3997	0.0154
69	2.4149	0.0153
70	2.4301	0.0151
71	2.4451	0.0150
72	2.4600	0.0149
73	2.4783	0.0183
74	2.4965	0.0182
75	2.5147	0.0181
76	2.5327	0.0180
77	2.5506	0.0179
78	2.5683	0.0178
79	2.5860	0.0177
80	2.6036	0.0176
81	2.6211	0.0175
82	2.6385	0.0174
83	2.6557	0.0173
84	2.6729	0.0172
85	2.6900	0.0171

86	2.7070	0.0170
87	2.7239	0.0169
88	2.7407	0.0168
89	2.7575	0.0167
90	2.7741	0.0166
91	2.7907	0.0166
92	2.8071	0.0165
93	2.8235	0.0164
94	2.8398	0.0163
95	2.8561	0.0162
96	2.8722	0.0162
97	2.8883	0.0161
98	2.9043	0.0160
99	2.9202	0.0159
100	2.9361	0.0158
101	2.9518	0.0158
102	2.9675	0.0157
103	2.9832	0.0156
104	2.9987	0.0156
105	3.0142	0.0155
106	3.0297	0.0154
107	3.0450	0.0154
108	3.0603	0.0153
109	3.0755	0.0152
110	3.0907	0.0152
111	3.1058	0.0151
112	3.1208	0.0150
113	3.1358	0.0150
114	3.1507	0.0149
115	3.1656	0.0149
116	3.1804	0.0148
117	3.1951	0.0147
118	3.2098	0.0147
119	3.2244	0.0146
120	3.2390	0.0146
121	3.2535	0.0145
122	3.2679	0.0145
123	3.2823	0.0144
124	3.2967	0.0143
125	3.3110	0.0143
126	3.3252	0.0142
127	3.3394	0.0142
128	3.3535	0.0141
129	3.3676	0.0141
130	3.3816	0.0140
131	3.3956	0.0140
132	3.4096	0.0139
133	3.4234	0.0139
134	3.4373	0.0138
135	3.4511	0.0138
136	3.4648	0.0137
137	3.4785	0.0137
138	3.4922	0.0137
139	3.5058	0.0136

140	3.5193	0.0136
141	3.5328	0.0135
142	3.5463	0.0135
143	3.5597	0.0134
144	3.5731	0.0134
145	3.5865	0.0133
146	3.5998	0.0133
147	3.6130	0.0133
148	3.6262	0.0132
149	3.6394	0.0132
150	3.6526	0.0131
151	3.6656	0.0131
152	3.6787	0.0131
153	3.6917	0.0130
154	3.7047	0.0130
155	3.7176	0.0129
156	3.7305	0.0129
157	3.7434	0.0129
158	3.7562	0.0128
159	3.7690	0.0128
160	3.7817	0.0127
161	3.7944	0.0127
162	3.8071	0.0127
163	3.8198	0.0126
164	3.8324	0.0126
165	3.8449	0.0126
166	3.8575	0.0125
167	3.8700	0.0125
168	3.8824	0.0125
169	3.8948	0.0124
170	3.9072	0.0124
171	3.9196	0.0124
172	3.9319	0.0123
173	3.9442	0.0123
174	3.9565	0.0123
175	3.9687	0.0122
176	3.9809	0.0122
177	3.9931	0.0122
178	4.0052	0.0121
179	4.0173	0.0121
180	4.0294	0.0121
181	4.0414	0.0120
182	4.0534	0.0120
183	4.0654	0.0120
184	4.0774	0.0119
185	4.0893	0.0119
186	4.1012	0.0119
187	4.1130	0.0119
188	4.1249	0.0118
189	4.1367	0.0118
190	4.1484	0.0118
191	4.1602	0.0117
192	4.1719	0.0117
193	4.1836	0.0117

194	4.1952	0.0117
195	4.2069	0.0116
196	4.2185	0.0116
197	4.2301	0.0116
198	4.2416	0.0116
199	4.2531	0.0115
200	4.2646	0.0115
201	4.2761	0.0115
202	4.2875	0.0114
203	4.2990	0.0114
204	4.3104	0.0114
205	4.3217	0.0114
206	4.3331	0.0113
207	4.3444	0.0113
208	4.3557	0.0113
209	4.3669	0.0113
210	4.3782	0.0112
211	4.3894	0.0112
212	4.4006	0.0112
213	4.4117	0.0112
214	4.4229	0.0111
215	4.4340	0.0111
216	4.4451	0.0111
217	4.4562	0.0111
218	4.4672	0.0110
219	4.4782	0.0110
220	4.4892	0.0110
221	4.5002	0.0110
222	4.5112	0.0110
223	4.5221	0.0109
224	4.5330	0.0109
225	4.5439	0.0109
226	4.5548	0.0109
227	4.5656	0.0108
228	4.5764	0.0108
229	4.5872	0.0108
230	4.5980	0.0108
231	4.6088	0.0108
232	4.6195	0.0107
233	4.6302	0.0107
234	4.6409	0.0107
235	4.6516	0.0107
236	4.6622	0.0106
237	4.6728	0.0106
238	4.6835	0.0106
239	4.6940	0.0106
240	4.7046	0.0106
241	4.7152	0.0105
242	4.7257	0.0105
243	4.7362	0.0105
244	4.7467	0.0105
245	4.7571	0.0105
246	4.7676	0.0104
247	4.7780	0.0104

248	4.7884	0.0104
249	4.7988	0.0104
250	4.8092	0.0104
251	4.8195	0.0104
252	4.8299	0.0103
253	4.8402	0.0103
254	4.8505	0.0103
255	4.8607	0.0103
256	4.8710	0.0103
257	4.8812	0.0102
258	4.8915	0.0102
259	4.9017	0.0102
260	4.9118	0.0102
261	4.9220	0.0102
262	4.9322	0.0101
263	4.9423	0.0101
264	4.9524	0.0101
265	4.9625	0.0101
266	4.9726	0.0101
267	4.9826	0.0101
268	4.9927	0.0100
269	5.0027	0.0100
270	5.0127	0.0100
271	5.0227	0.0100
272	5.0327	0.0100
273	5.0426	0.0100
274	5.0526	0.0099
275	5.0625	0.0099
276	5.0724	0.0099
277	5.0823	0.0099
278	5.0921	0.0099
279	5.1020	0.0099
280	5.1118	0.0098
281	5.1217	0.0098
282	5.1315	0.0098
283	5.1413	0.0098
284	5.1510	0.0098
285	5.1608	0.0098
286	5.1705	0.0097
287	5.1803	0.0097
288	5.1900	0.0097

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0097	0.0050	0.0047
2	0.0097	0.0050	0.0047
3	0.0098	0.0050	0.0047
4	0.0098	0.0050	0.0047
5	0.0098	0.0051	0.0048
6	0.0098	0.0051	0.0048
7	0.0099	0.0051	0.0048
8	0.0099	0.0051	0.0048

9	0.0099	0.0051	0.0048
10	0.0099	0.0051	0.0048
11	0.0100	0.0051	0.0048
12	0.0100	0.0051	0.0048
13	0.0100	0.0052	0.0048
14	0.0100	0.0052	0.0049
15	0.0101	0.0052	0.0049
16	0.0101	0.0052	0.0049
17	0.0101	0.0052	0.0049
18	0.0101	0.0052	0.0049
19	0.0102	0.0052	0.0049
20	0.0102	0.0052	0.0049
21	0.0102	0.0053	0.0050
22	0.0102	0.0053	0.0050
23	0.0103	0.0053	0.0050
24	0.0103	0.0053	0.0050
25	0.0103	0.0053	0.0050
26	0.0104	0.0053	0.0050
27	0.0104	0.0054	0.0050
28	0.0104	0.0054	0.0050
29	0.0104	0.0054	0.0051
30	0.0105	0.0054	0.0051
31	0.0105	0.0054	0.0051
32	0.0105	0.0054	0.0051
33	0.0106	0.0054	0.0051
34	0.0106	0.0055	0.0051
35	0.0106	0.0055	0.0051
36	0.0106	0.0055	0.0052
37	0.0107	0.0055	0.0052
38	0.0107	0.0055	0.0052
39	0.0108	0.0055	0.0052
40	0.0108	0.0056	0.0052
41	0.0108	0.0056	0.0052
42	0.0108	0.0056	0.0053
43	0.0109	0.0056	0.0053
44	0.0109	0.0056	0.0053
45	0.0110	0.0056	0.0053
46	0.0110	0.0057	0.0053
47	0.0110	0.0057	0.0053
48	0.0110	0.0057	0.0054
49	0.0111	0.0057	0.0054
50	0.0111	0.0057	0.0054
51	0.0112	0.0058	0.0054
52	0.0112	0.0058	0.0054
53	0.0112	0.0058	0.0054
54	0.0113	0.0058	0.0055
55	0.0113	0.0058	0.0055
56	0.0113	0.0058	0.0055
57	0.0114	0.0059	0.0055
58	0.0114	0.0059	0.0055
59	0.0115	0.0059	0.0056
60	0.0115	0.0059	0.0056
61	0.0116	0.0060	0.0056
62	0.0116	0.0060	0.0056

63	0.0116	0.0060	0.0056
64	0.0117	0.0060	0.0056
65	0.0117	0.0060	0.0057
66	0.0117	0.0061	0.0057
67	0.0118	0.0061	0.0057
68	0.0118	0.0061	0.0057
69	0.0119	0.0061	0.0058
70	0.0119	0.0061	0.0058
71	0.0120	0.0062	0.0058
72	0.0120	0.0062	0.0058
73	0.0121	0.0062	0.0058
74	0.0121	0.0062	0.0059
75	0.0122	0.0063	0.0059
76	0.0122	0.0063	0.0059
77	0.0123	0.0063	0.0059
78	0.0123	0.0063	0.0060
79	0.0124	0.0064	0.0060
80	0.0124	0.0064	0.0060
81	0.0125	0.0064	0.0060
82	0.0125	0.0064	0.0061
83	0.0126	0.0065	0.0061
84	0.0126	0.0065	0.0061
85	0.0127	0.0065	0.0061
86	0.0127	0.0066	0.0062
87	0.0128	0.0066	0.0062
88	0.0128	0.0066	0.0062
89	0.0129	0.0066	0.0062
90	0.0129	0.0067	0.0063
91	0.0130	0.0067	0.0063
92	0.0131	0.0067	0.0063
93	0.0131	0.0068	0.0064
94	0.0132	0.0068	0.0064
95	0.0133	0.0068	0.0064
96	0.0133	0.0069	0.0064
97	0.0134	0.0069	0.0065
98	0.0134	0.0069	0.0065
99	0.0135	0.0070	0.0065
100	0.0136	0.0070	0.0066
101	0.0137	0.0070	0.0066
102	0.0137	0.0071	0.0066
103	0.0138	0.0071	0.0067
104	0.0138	0.0071	0.0067
105	0.0139	0.0072	0.0068
106	0.0140	0.0072	0.0068
107	0.0141	0.0073	0.0068
108	0.0141	0.0073	0.0068
109	0.0142	0.0073	0.0069
110	0.0143	0.0074	0.0069
111	0.0144	0.0074	0.0070
112	0.0145	0.0075	0.0070
113	0.0146	0.0075	0.0071
114	0.0146	0.0075	0.0071
115	0.0147	0.0076	0.0071
116	0.0148	0.0076	0.0072

117	0.0149	0.0077	0.0072
118	0.0150	0.0077	0.0073
119	0.0151	0.0078	0.0073
120	0.0152	0.0078	0.0073
121	0.0153	0.0079	0.0074
122	0.0154	0.0079	0.0074
123	0.0155	0.0080	0.0075
124	0.0156	0.0080	0.0075
125	0.0157	0.0081	0.0076
126	0.0158	0.0081	0.0076
127	0.0159	0.0082	0.0077
128	0.0160	0.0082	0.0078
129	0.0162	0.0083	0.0078
130	0.0162	0.0084	0.0079
131	0.0164	0.0084	0.0079
132	0.0165	0.0085	0.0080
133	0.0166	0.0086	0.0081
134	0.0167	0.0086	0.0081
135	0.0169	0.0087	0.0082
136	0.0170	0.0088	0.0082
137	0.0172	0.0089	0.0083
138	0.0173	0.0089	0.0084
139	0.0175	0.0090	0.0085
140	0.0176	0.0091	0.0085
141	0.0178	0.0092	0.0086
142	0.0179	0.0092	0.0087
143	0.0181	0.0093	0.0088
144	0.0182	0.0094	0.0088
145	0.0149	0.0077	0.0072
146	0.0150	0.0077	0.0073
147	0.0153	0.0079	0.0074
148	0.0154	0.0079	0.0075
149	0.0157	0.0081	0.0076
150	0.0158	0.0081	0.0076
151	0.0161	0.0083	0.0078
152	0.0162	0.0084	0.0079
153	0.0165	0.0085	0.0080
154	0.0167	0.0086	0.0081
155	0.0170	0.0088	0.0082
156	0.0172	0.0089	0.0083
157	0.0175	0.0090	0.0085
158	0.0177	0.0091	0.0086
159	0.0181	0.0093	0.0088
160	0.0183	0.0095	0.0089
161	0.0188	0.0097	0.0091
162	0.0190	0.0098	0.0092
163	0.0195	0.0100	0.0094
164	0.0197	0.0102	0.0096
165	0.0203	0.0104	0.0098
166	0.0205	0.0106	0.0100
167	0.0211	0.0109	0.0102
168	0.0215	0.0111	0.0104
169	0.0221	0.0114	0.0107
170	0.0225	0.0116	0.0109

171	0.0233	0.0120	0.0113
172	0.0237	0.0122	0.0115
173	0.0246	0.0127	0.0119
174	0.0251	0.0129	0.0121
175	0.0261	0.0135	0.0127
176	0.0267	0.0138	0.0129
177	0.0280	0.0144	0.0135
178	0.0287	0.0148	0.0139
179	0.0302	0.0156	0.0146
180	0.0311	0.0160	0.0151
181	0.0330	0.0170	0.0160
182	0.0342	0.0176	0.0165
183	0.0367	0.0189	0.0178
184	0.0383	0.0197	0.0185
185	0.0291	0.0150	0.0141
186	0.0310	0.0160	0.0150
187	0.0360	0.0185	0.0174
188	0.0393	0.0203	0.0190
189	0.0488	0.0252	0.0237
190	0.0563	0.0290	0.0273
191	0.0854	0.0393	0.0461
192	0.1239	0.0393	0.0847
193	0.5361	0.0393	0.4969
194	0.0672	0.0346	0.0326
195	0.0434	0.0224	0.0210
196	0.0333	0.0172	0.0161
197	0.0400	0.0206	0.0194
198	0.0354	0.0182	0.0171
199	0.0320	0.0165	0.0155
200	0.0294	0.0152	0.0142
201	0.0273	0.0141	0.0132
202	0.0256	0.0132	0.0124
203	0.0241	0.0124	0.0117
204	0.0229	0.0118	0.0111
205	0.0218	0.0112	0.0106
206	0.0208	0.0107	0.0101
207	0.0200	0.0103	0.0097
208	0.0192	0.0099	0.0093
209	0.0186	0.0096	0.0090
210	0.0179	0.0092	0.0087
211	0.0174	0.0090	0.0084
212	0.0168	0.0087	0.0082
213	0.0164	0.0084	0.0079
214	0.0159	0.0082	0.0077
215	0.0155	0.0080	0.0075
216	0.0151	0.0078	0.0073
217	0.0183	0.0095	0.0089
218	0.0180	0.0093	0.0087
219	0.0177	0.0091	0.0086
220	0.0174	0.0090	0.0084
221	0.0171	0.0088	0.0083
222	0.0168	0.0087	0.0081
223	0.0166	0.0085	0.0080
224	0.0163	0.0084	0.0079

225	0.0161	0.0083	0.0078
226	0.0158	0.0082	0.0077
227	0.0156	0.0081	0.0076
228	0.0154	0.0080	0.0075
229	0.0152	0.0078	0.0074
230	0.0150	0.0078	0.0073
231	0.0149	0.0077	0.0072
232	0.0147	0.0076	0.0071
233	0.0145	0.0075	0.0070
234	0.0143	0.0074	0.0070
235	0.0142	0.0073	0.0069
236	0.0140	0.0072	0.0068
237	0.0139	0.0072	0.0067
238	0.0137	0.0071	0.0067
239	0.0136	0.0070	0.0066
240	0.0135	0.0069	0.0065
241	0.0133	0.0069	0.0065
242	0.0132	0.0068	0.0064
243	0.0131	0.0067	0.0063
244	0.0130	0.0067	0.0063
245	0.0129	0.0066	0.0062
246	0.0127	0.0066	0.0062
247	0.0126	0.0065	0.0061
248	0.0125	0.0065	0.0061
249	0.0124	0.0064	0.0060
250	0.0123	0.0064	0.0060
251	0.0122	0.0063	0.0059
252	0.0121	0.0063	0.0059
253	0.0120	0.0062	0.0058
254	0.0119	0.0062	0.0058
255	0.0119	0.0061	0.0057
256	0.0118	0.0061	0.0057
257	0.0117	0.0060	0.0057
258	0.0116	0.0060	0.0056
259	0.0115	0.0059	0.0056
260	0.0114	0.0059	0.0055
261	0.0114	0.0059	0.0055
262	0.0113	0.0058	0.0055
263	0.0112	0.0058	0.0054
264	0.0111	0.0057	0.0054
265	0.0111	0.0057	0.0054
266	0.0110	0.0057	0.0053
267	0.0109	0.0056	0.0053
268	0.0109	0.0056	0.0053
269	0.0108	0.0056	0.0052
270	0.0107	0.0055	0.0052
271	0.0107	0.0055	0.0052
272	0.0106	0.0055	0.0051
273	0.0105	0.0054	0.0051
274	0.0105	0.0054	0.0051
275	0.0104	0.0054	0.0051
276	0.0104	0.0053	0.0050
277	0.0103	0.0053	0.0050
278	0.0103	0.0053	0.0050

279	0.0102	0.0053	0.0049
280	0.0101	0.0052	0.0049
281	0.0101	0.0052	0.0049
282	0.0100	0.0052	0.0049
283	0.0100	0.0051	0.0048
284	0.0099	0.0051	0.0048
285	0.0099	0.0051	0.0048
286	0.0098	0.0051	0.0048
287	0.0098	0.0050	0.0047
288	0.0097	0.0050	0.0047

Total soil rain loss = 2.41(In)
Total effective rainfall = 2.78(In)
Peak flow rate in flood hydrograph = 4.75(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.02	Q				
0+15	0.0005	0.05	Q				
0+20	0.0011	0.08	Q				
0+25	0.0017	0.09	Q				
0+30	0.0024	0.10	Q				
0+35	0.0032	0.11	Q				
0+40	0.0040	0.12	Q				
0+45	0.0048	0.12	Q				
0+50	0.0056	0.12	Q				
0+55	0.0065	0.13	Q				
1+ 0	0.0074	0.13	Q				
1+ 5	0.0083	0.13	Q				
1+10	0.0092	0.13	Q				
1+15	0.0101	0.13	Q				
1+20	0.0110	0.13	Q				
1+25	0.0120	0.14	Q				
1+30	0.0129	0.14	Q				
1+35	0.0138	0.14	QV				
1+40	0.0148	0.14	QV				
1+45	0.0157	0.14	QV				
1+50	0.0167	0.14	QV				
1+55	0.0177	0.14	QV				
2+ 0	0.0186	0.14	QV				
2+ 5	0.0196	0.14	QV				
2+10	0.0206	0.14	QV				
2+15	0.0215	0.14	QV				
2+20	0.0225	0.14	QV				
2+25	0.0235	0.14	QV				

2+30	0.0245	0.14	QV	|	|	|	|
2+35	0.0255	0.14	QV	|	|	|	|
2+40	0.0265	0.14	QV	|	|	|	|
2+45	0.0274	0.14	Q V	|	|	|	|
2+50	0.0284	0.14	Q V	|	|	|	|
2+55	0.0294	0.14	Q V	|	|	|	|
3+ 0	0.0304	0.14	Q V	|	|	|	|
3+ 5	0.0314	0.15	Q V	|	|	|	|
3+10	0.0324	0.15	Q V	|	|	|	|
3+15	0.0334	0.15	Q V	|	|	|	|
3+20	0.0345	0.15	Q V	|	|	|	|
3+25	0.0355	0.15	Q V	|	|	|	|
3+30	0.0365	0.15	Q V	|	|	|	|
3+35	0.0375	0.15	Q V	|	|	|	|
3+40	0.0385	0.15	Q V	|	|	|	|
3+45	0.0395	0.15	Q V	|	|	|	|
3+50	0.0406	0.15	Q V	|	|	|	|
3+55	0.0416	0.15	Q V	|	|	|	|
4+ 0	0.0426	0.15	Q V	|	|	|	|
4+ 5	0.0437	0.15	Q V	|	|	|	|
4+10	0.0447	0.15	Q V	|	|	|	|
4+15	0.0458	0.15	Q V	|	|	|	|
4+20	0.0468	0.15	Q V	|	|	|	|
4+25	0.0479	0.15	Q V	|	|	|	|
4+30	0.0489	0.15	Q V	|	|	|	|
4+35	0.0500	0.15	Q V	|	|	|	|
4+40	0.0510	0.15	Q V	|	|	|	|
4+45	0.0521	0.15	Q V	|	|	|	|
4+50	0.0532	0.16	Q V	|	|	|	|
4+55	0.0542	0.16	Q V	|	|	|	|
5+ 0	0.0553	0.16	Q V	|	|	|	|
5+ 5	0.0564	0.16	Q V	|	|	|	|
5+10	0.0575	0.16	Q V	|	|	|	|
5+15	0.0586	0.16	Q V	|	|	|	|
5+20	0.0597	0.16	Q V	|	|	|	|
5+25	0.0607	0.16	Q V	|	|	|	|
5+30	0.0618	0.16	Q V	|	|	|	|
5+35	0.0629	0.16	Q V	|	|	|	|
5+40	0.0641	0.16	Q V	|	|	|	|
5+45	0.0652	0.16	Q V	|	|	|	|
5+50	0.0663	0.16	Q V	|	|	|	|
5+55	0.0674	0.16	Q V	|	|	|	|
6+ 0	0.0685	0.16	Q V	|	|	|	|
6+ 5	0.0696	0.16	Q V	|	|	|	|
6+10	0.0708	0.16	Q V	|	|	|	|
6+15	0.0719	0.16	Q V	|	|	|	|
6+20	0.0730	0.17	Q V	|	|	|	|
6+25	0.0742	0.17	Q V	|	|	|	|
6+30	0.0753	0.17	Q V	|	|	|	|
6+35	0.0765	0.17	Q V	|	|	|	|
6+40	0.0776	0.17	Q V	|	|	|	|
6+45	0.0788	0.17	Q V	|	|	|	|
6+50	0.0800	0.17	Q V	|	|	|	|
6+55	0.0811	0.17	Q V	|	|	|	|

7+ 0	0.0823	0.17	Q	V	|	|	|	|
7+ 5	0.0835	0.17	Q	V	|	|	|	|
7+10	0.0847	0.17	Q	V	|	|	|	|
7+15	0.0859	0.17	Q	V	|	|	|	|
7+20	0.0871	0.17	Q	V	|	|	|	|
7+25	0.0883	0.17	Q	V	|	|	|	|
7+30	0.0895	0.18	Q	V	|	|	|	|
7+35	0.0907	0.18	Q	V	|	|	|	|
7+40	0.0919	0.18	Q	V	|	|	|	|
7+45	0.0931	0.18	Q	V	|	|	|	|
7+50	0.0944	0.18	Q	V	|	|	|	|
7+55	0.0956	0.18	Q	V	|	|	|	|
8+ 0	0.0968	0.18	Q	V	|	|	|	|
8+ 5	0.0981	0.18	Q	V	|	|	|	|
8+10	0.0993	0.18	Q	V	|	|	|	|
8+15	0.1006	0.18	Q	V	|	|	|	|
8+20	0.1018	0.18	Q	V	|	|	|	|
8+25	0.1031	0.18	Q	V	|	|	|	|
8+30	0.1044	0.18	Q	V	|	|	|	|
8+35	0.1057	0.19	Q	V	|	|	|	|
8+40	0.1069	0.19	Q	V	|	|	|	|
8+45	0.1082	0.19	Q	V	|	|	|	|
8+50	0.1095	0.19	Q	V	|	|	|	|
8+55	0.1108	0.19	Q	V	|	|	|	|
9+ 0	0.1121	0.19	Q	V	|	|	|	|
9+ 5	0.1135	0.19	Q	V	|	|	|	|
9+10	0.1148	0.19	Q	V	|	|	|	|
9+15	0.1161	0.19	Q	V	|	|	|	|
9+20	0.1175	0.19	Q	V	|	|	|	|
9+25	0.1188	0.20	Q	V	|	|	|	|
9+30	0.1202	0.20	Q	V	|	|	|	|
9+35	0.1215	0.20	Q	V	|	|	|	|
9+40	0.1229	0.20	Q	V|		|	|	|
9+45	0.1243	0.20	Q	V|		|	|	|
9+50	0.1257	0.20	Q	V|		|	|	|
9+55	0.1271	0.20	Q	V|		|	|	|
10+ 0	0.1285	0.20	Q	V|		|	|	|
10+ 5	0.1299	0.21	Q	V|		|	|	|
10+10	0.1313	0.21	Q	V|		|	|	|
10+15	0.1327	0.21	Q	V|		|	|	|
10+20	0.1342	0.21	Q	V|		|	|	|
10+25	0.1356	0.21	Q	V|		|	|	|
10+30	0.1371	0.21	Q	V		|	|	|
10+35	0.1385	0.21	Q	V		|	|	|
10+40	0.1400	0.21	Q	V		|	|	|
10+45	0.1415	0.22	Q	V		|	|	|
10+50	0.1430	0.22	Q	V		|	|	|
10+55	0.1445	0.22	Q	V		|	|	|
11+ 0	0.1460	0.22	Q	V		|	|	|
11+ 5	0.1476	0.22	Q	V		|	|	|
11+10	0.1491	0.22	Q	V		|	|	|
11+15	0.1506	0.23	Q	|V		|	|	|
11+20	0.1522	0.23	Q	|V		|	|	|
11+25	0.1538	0.23	Q	|V		|	|	|

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11+30       0.1554      0.23  Q          |V         |          |          |
11+35       0.1570      0.23  Q          |V         |          |          |
11+40       0.1586      0.23  Q          |V         |          |          |
11+45       0.1602      0.24  Q          |V         |          |          |
11+50       0.1619      0.24  Q          |V         |          |          |
11+55       0.1635      0.24  Q          | V        |          |          |
12+ 0       0.1652      0.24  Q          | V        |          |          |
12+ 5       0.1669      0.24  Q          | V        |          |          |
12+10       0.1685      0.24  Q          | V        |          |          |
12+15       0.1701      0.23  Q          | V        |          |          |
12+20       0.1716      0.22  Q          | V        |          |          |
12+25       0.1731      0.22  Q          | V        |          |          |
12+30       0.1746      0.22  Q          | V        |          |          |
12+35       0.1761      0.22  Q          | V        |          |          |
12+40       0.1776      0.22  Q          |  V       |          |          |
12+45       0.1792      0.22  Q          |  V       |          |          |
12+50       0.1807      0.22  Q          |  V       |          |          |
12+55       0.1822      0.22  Q          |  V       |          |          |
13+ 0       0.1838      0.23  Q          |  V       |          |          |
13+ 5       0.1854      0.23  Q          |  V       |          |          |
13+10       0.1870      0.23  Q          |  V       |          |          |
13+15       0.1886      0.24  Q          |  V       |          |          |
13+20       0.1902      0.24  Q          |  V       |          |          |
13+25       0.1919      0.24  Q          |   V      |          |          |
13+30       0.1936      0.25  Q          |   V      |          |          |
13+35       0.1953      0.25  Q          |   V      |          |          |
13+40       0.1971      0.25  |Q         |   V      |          |          |
13+45       0.1988      0.26  |Q         |   V      |          |          |
13+50       0.2007      0.26  |Q         |   V      |          |          |
13+55       0.2025      0.27  |Q         |   V      |          |          |
14+ 0       0.2044      0.27  |Q         |    V     |          |          |
14+ 5       0.2063      0.28  |Q         |    V     |          |          |
14+10       0.2083      0.28  |Q         |    V     |          |          |
14+15       0.2103      0.29  |Q         |    V     |          |          |
14+20       0.2123      0.30  |Q         |    V     |          |          |
14+25       0.2144      0.30  |Q         |    V     |          |          |
14+30       0.2165      0.31  |Q         |    V     |          |          |
14+35       0.2188      0.32  |Q         |     V    |          |          |
14+40       0.2210      0.33  |Q         |     V    |          |          |
14+45       0.2234      0.34  |Q         |     V    |          |          |
14+50       0.2258      0.35  |Q         |     V    |          |          |
14+55       0.2282      0.36  |Q         |     V    |          |          |
15+ 0       0.2308      0.37  |Q         |     V    |          |          |
15+ 5       0.2335      0.39  |Q         |      V   |          |          |
15+10       0.2362      0.40  |Q         |      V   |          |          |
15+15       0.2391      0.42  |Q         |      V   |          |          |
15+20       0.2421      0.44  |Q         |      V   |          |          |
15+25       0.2453      0.46  |Q         |       V  |          |          |
15+30       0.2485      0.46  |Q         |       V  |          |          |
15+35       0.2515      0.44  |Q         |       V  |          |          |
15+40       0.2546      0.44  |Q         |       V  |          |          |
15+45       0.2578      0.47  |Q         |       V  |          |          |
15+50       0.2613      0.51  | Q        |        V |          |          |
15+55       0.2653      0.58  | Q        |        V |          |          |
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16+ 0	0.2704	0.73	Q			V			
16+ 5	0.2793	1.30		Q		V			
16+10	0.2980	2.72			Q	V			
16+15	**0.3308**	**4.75**				**Q**	**V**		
16+20	0.3549	3.50			Q		V		
16+25	0.3699	2.18			Q		V		
16+30	0.3810	1.62			Q		V		
16+35	0.3900	1.30			Q		V		
16+40	0.3976	1.11			Q		V		
16+45	0.4042	0.96			Q		V		
16+50	0.4098	0.81			Q		V		
16+55	0.4148	0.73			Q		V		
17+ 0	0.4192	0.65			Q		V		
17+ 5	0.4232	0.58			Q		V		
17+10	0.4269	0.53			Q		V		
17+15	0.4302	0.48			Q		V		
17+20	0.4332	0.43			Q		V		
17+25	0.4358	0.39			Q		V		
17+30	0.4384	0.37			Q		V		
17+35	0.4408	0.36			Q		V		
17+40	0.4432	0.34			Q		V		
17+45	0.4454	0.32			Q		V		
17+50	0.4474	0.29			Q		V		
17+55	0.4493	0.28			Q		V		
18+ 0	0.4510	0.24			Q		V		
18+ 5	0.4526	0.23			Q		V		
18+10	0.4542	0.23			Q		V		
18+15	0.4558	0.24			Q		V		
18+20	0.4575	0.24			Q		V		
18+25	0.4592	0.24			Q		V		
18+30	0.4608	0.24			Q		V		
18+35	0.4625	0.24			Q		V		
18+40	0.4641	0.24			Q		V		
18+45	0.4657	0.23			Q		V		
18+50	0.4673	0.23			Q		V		
18+55	0.4688	0.23			Q		V		
19+ 0	0.4704	0.22			Q		V		
19+ 5	0.4719	0.22			Q		V		
19+10	0.4734	0.22			Q		V		
19+15	0.4749	0.22			Q		V		
19+20	0.4764	0.21			Q		V		
19+25	0.4778	0.21			Q		V		
19+30	0.4792	0.21			Q		V		
19+35	0.4807	0.21			Q		V		
19+40	0.4821	0.20			Q		V		
19+45	0.4834	0.20			Q		V		
19+50	0.4848	0.20			Q		V		
19+55	0.4862	0.20			Q		V		
20+ 0	0.4875	0.19			Q		V		
20+ 5	0.4888	0.19			Q		V		
20+10	0.4901	0.19			Q		V		
20+15	0.4914	0.19			Q		V		
20+20	0.4927	0.19			Q		V		
20+25	0.4940	0.18			Q		V		

```
  20+30       0.4952      0.18  Q          |          |          |      V   |
  20+35       0.4965      0.18  Q          |          |          |      V   |
  20+40       0.4977      0.18  Q          |          |          |      V   |
  20+45       0.4990      0.18  Q          |          |          |      V   |
  20+50       0.5002      0.18  Q          |          |          |      V   |
  20+55       0.5014      0.17  Q          |          |          |      V   |
  21+ 0       0.5026      0.17  Q          |          |          |      V   |
  21+ 5       0.5038      0.17  Q          |          |          |       V  |
  21+10       0.5049      0.17  Q          |          |          |       V  |
  21+15       0.5061      0.17  Q          |          |          |       V  |
  21+20       0.5072      0.17  Q          |          |          |       V  |
  21+25       0.5084      0.17  Q          |          |          |       V  |
  21+30       0.5095      0.17  Q          |          |          |       V  |
  21+35       0.5107      0.16  Q          |          |          |       V  |
  21+40       0.5118      0.16  Q          |          |          |       V  |
  21+45       0.5129      0.16  Q          |          |          |       V  |
  21+50       0.5140      0.16  Q          |          |          |       V  |
  21+55       0.5151      0.16  Q          |          |          |       V  |
  22+ 0       0.5162      0.16  Q          |          |          |       V  |
  22+ 5       0.5173      0.16  Q          |          |          |        V |
  22+10       0.5183      0.16  Q          |          |          |        V |
  22+15       0.5194      0.15  Q          |          |          |        V |
  22+20       0.5205      0.15  Q          |          |          |        V |
  22+25       0.5215      0.15  Q          |          |          |        V |
  22+30       0.5226      0.15  Q          |          |          |        V |
  22+35       0.5236      0.15  Q          |          |          |        V |
  22+40       0.5246      0.15  Q          |          |          |        V |
  22+45       0.5257      0.15  Q          |          |          |        V |
  22+50       0.5267      0.15  Q          |          |          |        V |
  22+55       0.5277      0.15  Q          |          |          |        V |
  23+ 0       0.5287      0.15  Q          |          |          |        V |
  23+ 5       0.5297      0.15  Q          |          |          |        V |
  23+10       0.5307      0.14  Q          |          |          |        V |
  23+15       0.5317      0.14  Q          |          |          |         V|
  23+20       0.5327      0.14  Q          |          |          |         V|
  23+25       0.5337      0.14  Q          |          |          |         V|
  23+30       0.5346      0.14  Q          |          |          |         V|
  23+35       0.5356      0.14  Q          |          |          |         V|
  23+40       0.5366      0.14  Q          |          |          |         V|
  23+45       0.5375      0.14  Q          |          |          |         V|
  23+50       0.5385      0.14  Q          |          |          |         V|
  23+55       0.5394      0.14  Q          |          |          |         V|
  24+ 0       0.5404      0.14  Q          |          |          |         V|
-------------------------------------------------------------------------
```

TT 20527

AREA A1-A:
DA1 - BMP 1

ROUTING

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004
Study date: 07/07/22

ROUTING TO INFILTRATION BASIN
TR 20527, CITY OF VICTORVILLE
AREA A1A
FILE: 18345ROUTINGA1A.OUT

Program License Serial Number 4070

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

From study/file name: 18345HYDROA1APOST100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 299
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 5.682 (CFS)
Total volume = 0.456 (Ac.Ft)

Status of hydrographs being held in storage

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

****

++
Process from Point/Station 1.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****
_____

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.))
Total outflow at this depth = 0.00(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.))
Pipe length = 25.00(Ft.) Elevation difference = 0.13(Ft.)
Manning's N = 0.022 No. of pipes = 1
Given pipe size = 12.00(In.)

```
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      1.125(Ft.)
Pipe friction loss =      0.673(Ft.)
Minor friction loss =      0.451(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      3.455(CFS)

Total outflow at this depth =      3.46(CFS)


CALCULATED OUTFLOW DATA AT DEPTH =    6.00(Ft.))
Pipe length  =    25.00(Ft.)   Elevation difference =   0.13(Ft.)
Manning's N = 0.022   No. of pipes = 1
Given pipe size =     12.00(In.)
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      2.125(Ft.)
Pipe friction loss =      1.272(Ft.)
Minor friction loss =      0.852(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      4.749(CFS)

Total outflow at this depth =      4.75(CFS)

------------------------------------------------------------------------
Total number of inflow hydrograph intervals = 299
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------------
    0.000      0.000      0.000      0.000        0.000
    2.000      0.020      0.000      0.020        0.020
    5.000      0.069      3.455      0.057        0.081
    6.000      0.080      4.749      0.064        0.096
------------------------------------------------------------------------
            Hydrograph Detention Basin Routing
------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                        Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       1.4    2.84    4.26    5.68 (Ft.)
 0.083    0.01    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.06    0.00      0.000  O       |       |       |       |     0.02
 0.250    0.08    0.00      0.001  O       |       |       |       |     0.07
 0.333    0.09    0.00      0.001  O       |       |       |       |     0.13
```

0.417	0.10	0.00	0.002	O	|	|	|	0.20
0.500	0.10	0.00	0.003	O	|	|	|	0.27
0.583	0.11	0.00	0.003	O	|	|	|	0.34
0.667	0.11	0.00	0.004	O	|	|	|	0.42
0.750	0.11	0.00	0.005	O	|	|	|	0.49
0.833	0.11	0.00	0.006	O	|	|	|	0.57
0.917	0.11	0.00	0.006	O	|	|	|	0.65
1.000	0.11	0.00	0.007	O	|	|	|	0.73
1.083	0.11	0.00	0.008	O	|	|	|	0.81
1.167	0.12	0.00	0.009	O	|	|	|	0.89
1.250	0.12	0.00	0.010	O	|	|	|	0.97
1.333	0.12	0.00	0.010	O	|	|	|	1.05
1.417	0.12	0.00	0.011	O	|	|	|	1.13
1.500	0.12	0.00	0.012	O	|	|	|	1.21
1.583	0.12	0.00	0.013	O	|	|	|	1.29
1.667	0.12	0.00	0.014	O	|	|	|	1.37
1.750	0.12	0.00	0.014	O	|	|	|	1.45
1.833	0.12	0.00	0.015	O	|	|	|	1.53
1.917	0.12	0.00	0.016	O	|	|	|	1.61
2.000	0.12	0.00	0.017	O	|	|	|	1.69
2.083	0.12	0.00	0.018	O	|	|	|	1.77
2.167	0.12	0.00	0.019	O	|	|	|	1.85
2.250	0.12	0.00	0.019	O	|	|	|	1.93
2.333	0.12	0.01	0.020	O	|	|	|	2.01
2.417	0.12	0.05	0.021	O	|	|	|	2.05
2.500	0.12	0.08	0.021	O	|	|	|	2.07
2.583	0.12	0.10	0.021	O	|	|	|	2.08
2.667	0.12	0.11	0.021	O	|	|	|	2.09
2.750	0.12	0.11	0.022	O	|	|	|	2.10
2.833	0.12	0.12	0.022	O	|	|	|	2.10
2.917	0.12	0.12	0.022	O	|	|	|	2.10
3.000	0.12	0.12	0.022	O	|	|	|	2.10
3.083	0.12	0.12	0.022	O	|	|	|	2.10
3.167	0.12	0.12	0.022	O	|	|	|	2.11
3.250	0.12	0.12	0.022	O	|	|	|	2.11
3.333	0.12	0.12	0.022	O	|	|	|	2.11
3.417	0.12	0.12	0.022	O	|	|	|	2.11
3.500	0.12	0.12	0.022	O	|	|	|	2.11
3.583	0.12	0.12	0.022	O	|	|	|	2.11
3.667	0.13	0.12	0.022	O	|	|	|	2.11
3.750	0.13	0.12	0.022	O	|	|	|	2.11
3.833	0.13	0.13	0.022	O	|	|	|	2.11
3.917	0.13	0.13	0.022	O	|	|	|	2.11
4.000	0.13	0.13	0.022	O	|	|	|	2.11
4.083	0.13	0.13	0.022	O	|	|	|	2.11
4.167	0.13	0.13	0.022	O	|	|	|	2.11
4.250	0.13	0.13	0.022	O	|	|	|	2.11
4.333	0.13	0.13	0.022	O	|	|	|	2.11
4.417	0.13	0.13	0.022	O	|	|	|	2.11
4.500	0.13	0.13	0.022	O	|	|	|	2.11
4.583	0.13	0.13	0.022	O	|	|	|	2.11
4.667	0.13	0.13	0.022	O	|	|	|	2.11
4.750	0.13	0.13	0.022	O	|	|	|	2.11
4.833	0.13	0.13	0.022	O	|	|	|	2.11

4.917	0.13	0.13	0.022	O	|	|	|	| 2.11
5.000	0.13	0.13	0.022	O	|	|	|	| 2.11
5.083	0.13	0.13	0.022	O	|	|	|	| 2.11
5.167	0.13	0.13	0.022	O	|	|	|	| 2.11
5.250	0.13	0.13	0.022	O	|	|	|	| 2.11
5.333	0.13	0.13	0.022	O	|	|	|	| 2.12
5.417	0.13	0.13	0.022	O	|	|	|	| 2.12
5.500	0.13	0.13	0.022	O	|	|	|	| 2.12
5.583	0.14	0.13	0.022	O	|	|	|	| 2.12
5.667	0.14	0.13	0.022	O	|	|	|	| 2.12
5.750	0.14	0.14	0.022	O	|	|	|	| 2.12
5.833	0.14	0.14	0.022	O	|	|	|	| 2.12
5.917	0.14	0.14	0.022	O	|	|	|	| 2.12
6.000	0.14	0.14	0.022	O	|	|	|	| 2.12
6.083	0.14	0.14	0.022	O	|	|	|	| 2.12
6.167	0.14	0.14	0.022	O	|	|	|	| 2.12
6.250	0.14	0.14	0.022	O	|	|	|	| 2.12
6.333	0.14	0.14	0.022	O	|	|	|	| 2.12
6.417	0.14	0.14	0.022	O	|	|	|	| 2.12
6.500	0.14	0.14	0.022	O	|	|	|	| 2.12
6.583	0.14	0.14	0.022	O	|	|	|	| 2.12
6.667	0.14	0.14	0.022	O	|	|	|	| 2.12
6.750	0.14	0.14	0.022	O	|	|	|	| 2.12
6.833	0.14	0.14	0.022	O	|	|	|	| 2.12
6.917	0.14	0.14	0.022	O	|	|	|	| 2.12
7.000	0.14	0.14	0.022	O	|	|	|	| 2.12
7.083	0.14	0.14	0.022	O	|	|	|	| 2.12
7.167	0.15	0.14	0.022	O	|	|	|	| 2.13
7.250	0.15	0.14	0.022	O	|	|	|	| 2.13
7.333	0.15	0.15	0.022	O	|	|	|	| 2.13
7.417	0.15	0.15	0.022	O	|	|	|	| 2.13
7.500	0.15	0.15	0.022	O	|	|	|	| 2.13
7.583	0.15	0.15	0.022	O	|	|	|	| 2.13
7.667	0.15	0.15	0.022	O	|	|	|	| 2.13
7.750	0.15	0.15	0.022	O	|	|	|	| 2.13
7.833	0.15	0.15	0.022	O	|	|	|	| 2.13
7.917	0.15	0.15	0.022	O	|	|	|	| 2.13
8.000	0.15	0.15	0.022	O	|	|	|	| 2.13
8.083	0.15	0.15	0.022	O	|	|	|	| 2.13
8.167	0.15	0.15	0.022	O	|	|	|	| 2.13
8.250	0.15	0.15	0.022	O	|	|	|	| 2.13
8.333	0.16	0.15	0.022	O	|	|	|	| 2.13
8.417	0.16	0.15	0.022	O	|	|	|	| 2.13
8.500	0.16	0.16	0.022	O	|	|	|	| 2.13
8.583	0.16	0.16	0.022	O	|	|	|	| 2.14
8.667	0.16	0.16	0.022	O	|	|	|	| 2.14
8.750	0.16	0.16	0.022	O	|	|	|	| 2.14
8.833	0.16	0.16	0.022	O	|	|	|	| 2.14
8.917	0.16	0.16	0.022	O	|	|	|	| 2.14
9.000	0.16	0.16	0.022	O	|	|	|	| 2.14
9.083	0.16	0.16	0.022	O	|	|	|	| 2.14
9.167	0.16	0.16	0.022	O	|	|	|	| 2.14
9.250	0.16	0.16	0.022	O	|	|	|	| 2.14
9.333	0.17	0.16	0.022	O	|	|	|	| 2.14

9.417	0.17	0.16	0.022	O				2.14
9.500	0.17	0.16	0.022	O				2.14
9.583	0.17	0.17	0.022	O				2.14
9.667	0.17	0.17	0.022	O				2.14
9.750	0.17	0.17	0.022	O				2.15
9.833	0.17	0.17	0.022	O				2.15
9.917	0.17	0.17	0.022	O				2.15
10.000	0.17	0.17	0.022	O				2.15
10.083	0.17	0.17	0.022	O				2.15
10.167	0.18	0.17	0.022	O				2.15
10.250	0.18	0.17	0.022	O				2.15
10.333	0.18	0.18	0.022	O				2.15
10.417	0.18	0.18	0.022	OI				2.15
10.500	0.18	0.18	0.023	OI				2.15
10.583	0.18	0.18	0.023	|O				2.15
10.667	0.18	0.18	0.023	|O				2.16
10.750	0.18	0.18	0.023	|O				2.16
10.833	0.18	0.18	0.023	|O				2.16
10.917	0.19	0.18	0.023	|O				2.16
11.000	0.19	0.18	0.023	|O				2.16
11.083	0.19	0.19	0.023	|O				2.16
11.167	0.19	0.19	0.023	|O				2.16
11.250	0.19	0.19	0.023	|O				2.16
11.333	0.19	0.19	0.023	|O				2.17
11.417	0.19	0.19	0.023	|O				2.17
11.500	0.20	0.19	0.023	|O				2.17
11.583	0.20	0.19	0.023	|O				2.17
11.667	0.20	0.20	0.023	|O				2.17
11.750	0.20	0.20	0.023	|O				2.17
11.833	0.20	0.20	0.023	|O				2.17
11.917	0.20	0.20	0.023	|O				2.17
12.000	0.21	0.20	0.023	|O				2.18
12.083	0.21	0.20	0.023	|O				2.18
12.167	0.19	0.20	0.023	|O				2.18
12.250	0.18	0.20	0.023	|O				2.17
12.333	0.18	0.19	0.023	|O				2.17
12.417	0.18	0.19	0.023	|O				2.16
12.500	0.18	0.18	0.023	|O				2.16
12.583	0.18	0.18	0.023	|O				2.16
12.667	0.18	0.18	0.023	|O				2.16
12.750	0.19	0.18	0.023	|O				2.16
12.833	0.19	0.18	0.023	|O				2.16
12.917	0.19	0.19	0.023	|O				2.16
13.000	0.19	0.19	0.023	|O				2.16
13.083	0.20	0.19	0.023	|O				2.17
13.167	0.20	0.19	0.023	|O				2.17
13.250	0.20	0.20	0.023	|O				2.17
13.333	0.21	0.20	0.023	|O				2.17
13.417	0.21	0.20	0.023	|O				2.18
13.500	0.21	0.21	0.023	|O				2.18
13.583	0.22	0.21	0.023	|O				2.18
13.667	0.22	0.21	0.023	|O				2.18
13.750	0.22	0.22	0.023	|O				2.19
13.833	0.23	0.22	0.023	|O				2.19

13.917	0.23	0.22	0.023	O				2.19
14.000	0.24	0.23	0.023	O				2.20
14.083	0.24	0.23	0.023	O				2.20
14.167	0.25	0.24	0.023	O				2.21
14.250	0.25	0.24	0.023	O				2.21
14.333	0.26	0.25	0.024	O				2.22
14.417	0.27	0.25	0.024	O				2.22
14.500	0.27	0.26	0.024	O				2.23
14.583	0.28	0.27	0.024	O				2.23
14.667	0.29	0.27	0.024	O				2.24
14.750	0.30	0.28	0.024	O				2.25
14.833	0.31	0.29	0.024	O				2.25
14.917	0.32	0.30	0.024	O				2.26
15.000	0.33	0.31	0.024	O				2.27
15.083	0.35	0.32	0.025	O				2.28
15.167	0.36	0.33	0.025	OI				2.29
15.250	0.38	0.35	0.025	OI				2.30
15.333	0.40	0.36	0.025	O				2.32
15.417	0.41	0.38	0.025	O				2.33
15.500	0.38	0.39	0.025	O				2.33
15.583	0.37	0.38	0.025	O				2.33
15.667	0.40	0.38	0.025	O				2.33
15.750	0.43	0.39	0.026	O				2.34
15.833	0.50	0.42	0.026	O				2.37
15.917	0.60	0.47	0.027	OI				2.41
16.000	0.89	0.58	0.028	O I				2.50
16.083	2.12	0.94	0.033	O	I			2.82
16.167	**5.68**	2.10	0.050		O		I	3.82
16.250	3.49	3.07	0.064			O I		4.67
16.333	1.84	**2.91**	**0.061**		**I**	**O**		**4.53**
16.417	1.23	2.37	**0.054**	**I**	**O**			**4.06**
16.500	0.94	1.87	0.047	I	O			3.62
16.583	0.77	1.47	0.041	I O				3.28
16.667	0.63	1.17	0.037	I O				3.02
16.750	0.51	0.93	0.033	I O				2.81
16.833	0.45	0.76	0.031	I O				2.66
16.917	0.41	0.63	0.029	IO				2.55
17.000	0.35	0.53	0.028	IO				2.46
17.083	0.29	0.45	0.026	IO				2.39
17.167	0.27	0.38	0.025	IO				2.33
17.250	0.26	0.34	0.025	O				2.29
17.333	0.25	0.30	0.024	O				2.26
17.417	0.24	0.28	0.024	O				2.24
17.500	0.23	0.26	0.024	O				2.23
17.583	0.22	0.24	0.023	O				2.21
17.667	0.21	0.23	0.023	O				2.20
17.750	0.20	0.22	0.023	O				2.19
17.833	0.20	0.21	0.023	O				2.19
17.917	0.19	0.21	0.023	O				2.18
18.000	0.19	0.20	0.023	O				2.17
18.083	0.18	0.19	0.023	O				2.17
18.167	0.20	0.19	0.023	O				2.17
18.250	0.20	0.19	0.023	O				2.17
18.333	0.20	0.20	0.023	O				2.17

18.417	0.20	0.20	0.023	|O	|	|	|	2.17
18.500	0.20	0.20	0.023	|O	|	|	|	2.17
18.583	0.20	0.20	0.023	|O	|	|	|	2.17
18.667	0.19	0.20	0.023	|O	|	|	|	2.17
18.750	0.19	0.20	0.023	|O	|	|	|	2.17
18.833	0.19	0.19	0.023	|O	|	|	|	2.17
18.917	0.19	0.19	0.023	|O	|	|	|	2.17
19.000	0.18	0.19	0.023	|O	|	|	|	2.16
19.083	0.18	0.19	0.023	|O	|	|	|	2.16
19.167	0.18	0.18	0.023	|O	|	|	|	2.16
19.250	0.18	0.18	0.023	IO	|	|	|	2.16
19.333	0.17	0.18	0.023	IO	|	|	|	2.16
19.417	0.17	0.18	0.023	O	|	|	|	2.15
19.500	0.17	0.17	0.022	O	|	|	|	2.15
19.583	0.17	0.17	0.022	O	|	|	|	2.15
19.667	0.17	0.17	0.022	O	|	|	|	2.15
19.750	0.16	0.17	0.022	O	|	|	|	2.15
19.833	0.16	0.17	0.022	O	|	|	|	2.14
19.917	0.16	0.16	0.022	O	|	|	|	2.14
20.000	0.16	0.16	0.022	O	|	|	|	2.14
20.083	0.16	0.16	0.022	O	|	|	|	2.14
20.167	0.16	0.16	0.022	O	|	|	|	2.14
20.250	0.15	0.16	0.022	O	|	|	|	2.14
20.333	0.15	0.16	0.022	O	|	|	|	2.14
20.417	0.15	0.15	0.022	O	|	|	|	2.13
20.500	0.15	0.15	0.022	O	|	|	|	2.13
20.583	0.15	0.15	0.022	O	|	|	|	2.13
20.667	0.15	0.15	0.022	O	|	|	|	2.13
20.750	0.15	0.15	0.022	O	|	|	|	2.13
20.833	0.14	0.15	0.022	O	|	|	|	2.13
20.917	0.14	0.15	0.022	O	|	|	|	2.13
21.000	0.14	0.15	0.022	O	|	|	|	2.13
21.083	0.14	0.14	0.022	O	|	|	|	2.12
21.167	0.14	0.14	0.022	O	|	|	|	2.12
21.250	0.14	0.14	0.022	O	|	|	|	2.12
21.333	0.14	0.14	0.022	O	|	|	|	2.12
21.417	0.14	0.14	0.022	O	|	|	|	2.12
21.500	0.14	0.14	0.022	O	|	|	|	2.12
21.583	0.14	0.14	0.022	O	|	|	|	2.12
21.667	0.13	0.14	0.022	O	|	|	|	2.12
21.750	0.13	0.14	0.022	O	|	|	|	2.12
21.833	0.13	0.13	0.022	O	|	|	|	2.12
21.917	0.13	0.13	0.022	O	|	|	|	2.12
22.000	0.13	0.13	0.022	O	|	|	|	2.11
22.083	0.13	0.13	0.022	O	|	|	|	2.11
22.167	0.13	0.13	0.022	O	|	|	|	2.11
22.250	0.13	0.13	0.022	O	|	|	|	2.11
22.333	0.13	0.13	0.022	O	|	|	|	2.11
22.417	0.13	0.13	0.022	O	|	|	|	2.11
22.500	0.13	0.13	0.022	O	|	|	|	2.11
22.583	0.12	0.13	0.022	O	|	|	|	2.11
22.667	0.12	0.13	0.022	O	|	|	|	2.11
22.750	0.12	0.12	0.022	O	|	|	|	2.11
22.833	0.12	0.12	0.022	O	|	|	|	2.11

22.917	0.12	0.12	0.022	O	|	|	|	|	2.11
23.000	0.12	0.12	0.022	O	|	|	|	|	2.11
23.083	0.12	0.12	0.022	O	|	|	|	|	2.11
23.167	0.12	0.12	0.022	O	|	|	|	|	2.11
23.250	0.12	0.12	0.022	O	|	|	|	|	2.10
23.333	0.12	0.12	0.022	O	|	|	|	|	2.10
23.417	0.12	0.12	0.022	O	|	|	|	|	2.10
23.500	0.12	0.12	0.022	O	|	|	|	|	2.10
23.583	0.12	0.12	0.022	O	|	|	|	|	2.10
23.667	0.12	0.12	0.022	O	|	|	|	|	2.10
23.750	0.12	0.12	0.022	O	|	|	|	|	2.10
23.833	0.11	0.12	0.022	O	|	|	|	|	2.10
23.917	0.11	0.12	0.022	O	|	|	|	|	2.10
24.000	0.11	0.11	0.022	O	|	|	|	|	2.10
24.083	0.10	0.11	0.022	O	|	|	|	|	2.10
24.167	0.06	0.10	0.021	O	|	|	|	|	2.09
24.250	0.03	0.08	0.021	O	|	|	|	|	2.07
24.333	0.02	0.06	0.021	O	|	|	|	|	2.05
24.417	0.01	0.04	0.021	O	|	|	|	|	2.04
24.500	0.01	0.03	0.020	O	|	|	|	|	2.03
24.583	0.01	0.02	0.020	O	|	|	|	|	2.02
24.667	0.00	0.01	0.020	O	|	|	|	|	2.01
24.750	0.00	0.01	0.020	O	|	|	|	|	2.01
24.833	0.00	0.01	0.020	O	|	|	|	|	2.01
24.917	0.00	0.00	0.020	O	|	|	|	|	2.00
25.000	0.00	0.00	0.020	O	|	|	|	|	2.00

Remaining water in basin = 0.02 (Ac.Ft)

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

Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 3.070 (CFS)
Total volume = 0.436 (Ac.Ft)

Status of hydrographs being held in storage

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

****

TT 20527

AREA A1-B:
DA5 - BMP 5

ROUTING

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004
Study date: 06/30/22

ROUTING TO INFILTRATION BASIN
TR 20527**, CITY OF VICTORVILLE**
AREA A1B (EAST)
FILE: 18345ROUTINGA1B.OUT

Program License Serial Number 4070

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

From study/file name: 18345HYDROA1BPOST100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 298
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.844 (CFS)
Total volume = 0.213 (Ac.Ft)

Status of hydrographs being held in storage

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

****

++
Process from Point/Station 1.000 to Point/Station 3.000
**** RETARDING BASIN ROUTING ****
_____

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.))
Total outflow at this depth = 0.00(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 2.50(Ft.))
Pipe length = 15.00(Ft.) Elevation difference = 0.30(Ft.)
Manning's N = 0.012 No. of pipes = 2
Given pipe size = 6.00(In.)

```
Calculated individual pipe flow  =     0.118(CFS)
Normal flow depth in pipe =    1.50(In.)
Flow top width inside pipe =    5.20(In.)
Critical Depth =    0.17(Ft.)
Calculated flow rate through pipe(s) =      0.236(CFS)

Total outflow at this depth =      0.24(CFS)


CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.))
Pipe length  =    15.00(Ft.)   Elevation difference =   0.30(Ft.)
Manning's N = 0.012   No. of pipes = 2
Given pipe size =      6.00(In.)
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      0.970(Ft.)
Pipe friction loss =      0.390(Ft.)
Minor friction loss =      0.580(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      1.960(CFS)

Total outflow at this depth =      1.96(CFS)

---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 298
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
    0.000      0.000      0.000      0.000        0.000
    1.000      0.009      0.000      0.009        0.009
    2.500      0.031      0.236      0.030        0.032
    3.000      0.042      1.960      0.035        0.049
---------------------------------------------------------------------
            Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       0.7    1.42    2.13    2.84 (Ft.)
 0.083    0.01    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.03    0.00      0.000  O       |       |       |       |     0.02
 0.250    0.04    0.00      0.000  O       |       |       |       |     0.04
 0.333    0.05    0.00      0.001  O       |       |       |       |     0.07
 0.417    0.05    0.00      0.001  O       |       |       |       |     0.11
```

0.500	0.05	0.00	0.001	O	|	|	|	0.15
0.583	0.05	0.00	0.002	O	|	|	|	0.19
0.667	0.05	0.00	0.002	O	|	|	|	0.23
0.750	0.05	0.00	0.002	O	|	|	|	0.27
0.833	0.05	0.00	0.003	O	|	|	|	0.31
0.917	0.05	0.00	0.003	O	|	|	|	0.35
1.000	0.05	0.00	0.003	O	|	|	|	0.39
1.083	0.05	0.00	0.004	O	|	|	|	0.43
1.167	0.05	0.00	0.004	O	|	|	|	0.47
1.250	0.05	0.00	0.005	O	|	|	|	0.51
1.333	0.05	0.00	0.005	O	|	|	|	0.55
1.417	0.05	0.00	0.005	O	|	|	|	0.59
1.500	0.05	0.00	0.006	O	|	|	|	0.64
1.583	0.05	0.00	0.006	O	|	|	|	0.68
1.667	0.05	0.00	0.006	O	|	|	|	0.72
1.750	0.05	0.00	0.007	O	|	|	|	0.76
1.833	0.05	0.00	0.007	O	|	|	|	0.80
1.917	0.06	0.00	0.008	O	|	|	|	0.84
2.000	0.06	0.00	0.008	O	|	|	|	0.89
2.083	0.06	0.00	0.008	O	|	|	|	0.93
2.167	0.06	0.00	0.009	O	|	|	|	0.97
2.250	0.06	0.00	0.009	O	|	|	|	1.01
2.333	0.06	0.01	0.009	O	|	|	|	1.03
2.417	0.06	0.01	0.010	O	|	|	|	1.06
2.500	0.06	0.01	0.010	O	|	|	|	1.08
2.583	0.06	0.02	0.010	O	|	|	|	1.10
2.667	0.06	0.02	0.011	O	|	|	|	1.12
2.750	0.06	0.02	0.011	O	|	|	|	1.13
2.833	0.06	0.02	0.011	O	|	|	|	1.15
2.917	0.06	0.03	0.011	O	|	|	|	1.16
3.000	0.06	0.03	0.012	O	|	|	|	1.18
3.083	0.06	0.03	0.012	O	|	|	|	1.19
3.167	0.06	0.03	0.012	O	|	|	|	1.20
3.250	0.06	0.03	0.012	O	|	|	|	1.22
3.333	0.06	0.04	0.012	O	|	|	|	1.23
3.417	0.06	0.04	0.012	O	|	|	|	1.24
3.500	0.06	0.04	0.013	O	|	|	|	1.25
3.583	0.06	0.04	0.013	O	|	|	|	1.25
3.667	0.06	0.04	0.013	O	|	|	|	1.26
3.750	0.06	0.04	0.013	O	|	|	|	1.27
3.833	0.06	0.04	0.013	O	|	|	|	1.28
3.917	0.06	0.04	0.013	O	|	|	|	1.29
4.000	0.06	0.05	0.013	O	|	|	|	1.29
4.083	0.06	0.05	0.013	O	|	|	|	1.30
4.167	0.06	0.05	0.013	O	|	|	|	1.30
4.250	0.06	0.05	0.014	O	|	|	|	1.31
4.333	0.06	0.05	0.014	O	|	|	|	1.31
4.417	0.06	0.05	0.014	O	|	|	|	1.32
4.500	0.06	0.05	0.014	O	|	|	|	1.32
4.583	0.06	0.05	0.014	O	|	|	|	1.33
4.667	0.06	0.05	0.014	O	|	|	|	1.33
4.750	0.06	0.05	0.014	O	|	|	|	1.34
4.833	0.06	0.05	0.014	O	|	|	|	1.34
4.917	0.06	0.05	0.014	O	|	|	|	1.34

5.000	0.06	0.05	0.014	O	|	|	|	| 1.35
5.083	0.06	0.06	0.014	O	|	|	|	| 1.35
5.167	0.06	0.06	0.014	O	|	|	|	| 1.35
5.250	0.06	0.06	0.014	O	|	|	|	| 1.36
5.333	0.06	0.06	0.014	O	|	|	|	| 1.36
5.417	0.06	0.06	0.014	O	|	|	|	| 1.36
5.500	0.06	0.06	0.014	O	|	|	|	| 1.36
5.583	0.06	0.06	0.014	O	|	|	|	| 1.37
5.667	0.06	0.06	0.014	O	|	|	|	| 1.37
5.750	0.06	0.06	0.014	O	|	|	|	| 1.37
5.833	0.06	0.06	0.014	O	|	|	|	| 1.37
5.917	0.06	0.06	0.015	O	|	|	|	| 1.38
6.000	0.06	0.06	0.015	O	|	|	|	| 1.38
6.083	0.06	0.06	0.015	O	|	|	|	| 1.38
6.167	0.06	0.06	0.015	O	|	|	|	| 1.38
6.250	0.07	0.06	0.015	O	|	|	|	| 1.39
6.333	0.07	0.06	0.015	O	|	|	|	| 1.39
6.417	0.07	0.06	0.015	O	|	|	|	| 1.39
6.500	0.07	0.06	0.015	O	|	|	|	| 1.39
6.583	0.07	0.06	0.015	O	|	|	|	| 1.39
6.667	0.07	0.06	0.015	O	|	|	|	| 1.40
6.750	0.07	0.06	0.015	O	|	|	|	| 1.40
6.833	0.07	0.06	0.015	O	|	|	|	| 1.40
6.917	0.07	0.06	0.015	O	|	|	|	| 1.40
7.000	0.07	0.06	0.015	O	|	|	|	| 1.40
7.083	0.07	0.06	0.015	O	|	|	|	| 1.41
7.167	0.07	0.06	0.015	O	|	|	|	| 1.41
7.250	0.07	0.06	0.015	O	|	|	|	| 1.41
7.333	0.07	0.06	0.015	O	|	|	|	| 1.41
7.417	0.07	0.06	0.015	O	|	|	|	| 1.41
7.500	0.07	0.07	0.015	O	|	|	|	| 1.41
7.583	0.07	0.07	0.015	O	|	|	|	| 1.42
7.667	0.07	0.07	0.015	O	|	|	|	| 1.42
7.750	0.07	0.07	0.015	O	|	|	|	| 1.42
7.833	0.07	0.07	0.015	O	|	|	|	| 1.42
7.917	0.07	0.07	0.015	O	|	|	|	| 1.42
8.000	0.07	0.07	0.015	O	|	|	|	| 1.43
8.083	0.07	0.07	0.015	O	|	|	|	| 1.43
8.167	0.07	0.07	0.015	O	|	|	|	| 1.43
8.250	0.07	0.07	0.015	O	|	|	|	| 1.43
8.333	0.07	0.07	0.015	O	|	|	|	| 1.43
8.417	0.07	0.07	0.015	O	|	|	|	| 1.44
8.500	0.07	0.07	0.015	O	|	|	|	| 1.44
8.583	0.07	0.07	0.015	O	|	|	|	| 1.44
8.667	0.07	0.07	0.015	O	|	|	|	| 1.44
8.750	0.07	0.07	0.016	O	|	|	|	| 1.44
8.833	0.07	0.07	0.016	O	|	|	|	| 1.45
8.917	0.08	0.07	0.016	O	|	|	|	| 1.45
9.000	0.08	0.07	0.016	O	|	|	|	| 1.45
9.083	0.08	0.07	0.016	O	|	|	|	| 1.45
9.167	0.08	0.07	0.016	O	|	|	|	| 1.46
9.250	0.08	0.07	0.016	O	|	|	|	| 1.46
9.333	0.08	0.07	0.016	O	|	|	|	| 1.46
9.417	0.08	0.07	0.016	O	|	|	|	| 1.46

9.500	0.08	0.07	0.016	O	|	|	|	1.46
9.583	0.08	0.07	0.016	O	|	|	|	1.47
9.667	0.08	0.07	0.016	O	|	|	|	1.47
9.750	0.08	0.07	0.016	O	|	|	|	1.47
9.833	0.08	0.07	0.016	O	|	|	|	1.47
9.917	0.08	0.07	0.016	O	|	|	|	1.48
10.000	0.08	0.08	0.016	O	|	|	|	1.48
10.083	0.08	0.08	0.016	O	|	|	|	1.48
10.167	0.08	0.08	0.016	O	|	|	|	1.48
10.250	0.08	0.08	0.016	O	|	|	|	1.49
10.333	0.08	0.08	0.016	O	|	|	|	1.49
10.417	0.08	0.08	0.016	O	|	|	|	1.49
10.500	0.08	0.08	0.016	O	|	|	|	1.50
10.583	0.08	0.08	0.016	O	|	|	|	1.50
10.667	0.09	0.08	0.016	O	|	|	|	1.50
10.750	0.09	0.08	0.016	O	|	|	|	1.50
10.833	0.09	0.08	0.016	O	|	|	|	1.51
10.917	0.09	0.08	0.016	O	|	|	|	1.51
11.000	0.09	0.08	0.017	O	|	|	|	1.51
11.083	0.09	0.08	0.017	O	|	|	|	1.52
11.167	0.09	0.08	0.017	OI	|	|	|	1.52
11.250	0.09	0.08	0.017	OI	|	|	|	1.52
11.333	0.09	0.08	0.017	OI	|	|	|	1.53
11.417	0.09	0.08	0.017	OI	|	|	|	1.53
11.500	0.09	0.08	0.017	OI	|	|	|	1.53
11.583	0.09	0.08	0.017	OI	|	|	|	1.54
11.667	0.09	0.09	0.017	OI	|	|	|	1.54
11.750	0.09	0.09	0.017	OI	|	|	|	1.55
11.833	0.10	0.09	0.017	OI	|	|	|	1.55
11.917	0.10	0.09	0.017	OI	|	|	|	1.55
12.000	0.10	0.09	0.017	OI	|	|	|	1.56
12.083	0.10	0.09	0.017	OI	|	|	|	1.56
12.167	0.09	0.09	0.017	O	|	|	|	1.56
12.250	0.08	0.09	0.017	O	|	|	|	1.56
12.333	0.08	0.09	0.017	O	|	|	|	1.56
12.417	0.08	0.09	0.017	O	|	|	|	1.56
12.500	0.08	0.09	0.017	O	|	|	|	1.56
12.583	0.08	0.09	0.017	O	|	|	|	1.56
12.667	0.09	0.09	0.017	O	|	|	|	1.55
12.750	0.09	0.09	0.017	O	|	|	|	1.55
12.833	0.09	0.09	0.017	O	|	|	|	1.55
12.917	0.09	0.09	0.017	OI	|	|	|	1.56
13.000	0.09	0.09	0.017	OI	|	|	|	1.56
13.083	0.09	0.09	0.017	OI	|	|	|	1.56
13.167	0.09	0.09	0.017	OI	|	|	|	1.56
13.250	0.09	0.09	0.017	OI	|	|	|	1.56
13.333	0.10	0.09	0.017	|O	|	|	|	1.57
13.417	0.10	0.09	0.017	|O	|	|	|	1.57
13.500	0.10	0.09	0.017	|O	|	|	|	1.57
13.583	0.10	0.09	0.017	|O	|	|	|	1.58
13.667	0.10	0.09	0.018	|O	|	|	|	1.58
13.750	0.10	0.09	0.018	|O	|	|	|	1.59
13.833	0.11	0.09	0.018	|O	|	|	|	1.59
13.917	0.11	0.09	0.018	|O	|	|	|	1.60

14.000	0.11	0.10	0.018	O				1.61
14.083	0.11	0.10	0.018	O				1.62
14.167	0.12	0.10	0.018	O				1.62
14.250	0.12	0.10	0.018	O				1.63
14.333	0.12	0.10	0.018	O				1.64
14.417	0.13	0.10	0.019	O				1.65
14.500	0.13	0.10	0.019	O				1.66
14.583	0.13	0.11	0.019	O				1.68
14.667	0.14	0.11	0.019	O				1.69
14.750	0.14	0.11	0.019	O				1.70
14.833	0.15	0.11	0.020	O				1.72
14.917	0.15	0.12	0.020	O				1.73
15.000	0.16	0.12	0.020	O				1.75
15.083	0.16	0.12	0.020	O				1.77
15.167	0.17	0.12	0.021	O				1.79
15.250	0.18	0.13	0.021	OI				1.81
15.333	0.19	0.13	0.021	OI				1.84
15.417	0.19	0.14	0.022	OI				1.87
15.500	0.17	0.14	0.022	O				1.89
15.583	0.17	0.14	0.022	O				1.90
15.667	0.19	0.14	0.022	OI				1.92
15.750	0.20	0.15	0.023	OI				1.94
15.833	0.24	0.15	0.023	OI				1.98
15.917	0.29	0.16	0.024	O I				2.03
16.000	0.44	0.18	0.025	O I				2.12
16.083	1.14	0.22	0.029	O	I			2.40
16.167	**2.84**	1.32	0.038		O		I	2.81
16.250	1.50	**1.92**	**0.042**		**I O**			**2.99**
16.333	0.80	1.38	0.038	I O				2.83
16.417	0.53	0.88	0.035	I O				2.69
16.500	0.41	0.59	0.033	I O				2.60
16.583	0.33	0.44	0.032	IO				2.56
16.667	0.26	0.34	0.032	IO				2.53
16.750	0.23	0.27	0.031	IO				2.51
16.833	0.20	0.24	0.031	O				2.50
16.917	0.17	0.23	0.031	IO				2.47
17.000	0.14	0.23	0.030	IO				2.44
17.083	0.13	0.22	0.029	IO				2.40
17.167	0.12	0.21	**0.029**	**IO**				**2.36**
17.250	0.12	0.21	0.028	IO				2.31
17.333	0.11	0.20	0.028	IO				2.27
17.417	0.11	0.19	0.027	IO				2.23
17.500	0.10	0.19	0.026	IO				2.19
17.583	0.10	0.18	0.026	IO				2.15
17.667	0.10	0.18	0.025	O				2.12
17.750	0.09	0.17	0.025	O				2.08
17.833	0.09	0.16	0.024	O				2.05
17.917	0.09	0.16	0.024	IO				2.01
18.000	0.09	0.15	0.023	IO				1.98
18.083	0.09	0.15	0.023	IO				1.95
18.167	0.09	0.14	0.023	O				1.92
18.250	0.09	0.14	0.022	O				1.90
18.333	0.09	0.14	0.022	O				1.88
18.417	0.09	0.13	0.022	O				1.86

18.500	0.09	0.13	0.021	|O	|	|	|	1.84
18.583	0.09	0.13	0.021	|O	|	|	|	1.82
18.667	0.09	0.13	0.021	|O	|	|	|	1.80
18.750	0.09	0.12	0.021	|O	|	|	|	1.79
18.833	0.09	0.12	0.020	IO	|	|	|	1.77
18.917	0.09	0.12	0.020	IO	|	|	|	1.76
19.000	0.09	0.12	0.020	IO	|	|	|	1.74
19.083	0.08	0.11	0.020	IO	|	|	|	1.73
19.167	0.08	0.11	0.019	IO	|	|	|	1.71
19.250	0.08	0.11	0.019	IO	|	|	|	1.70
19.333	0.08	0.11	0.019	IO	|	|	|	1.69
19.417	0.08	0.11	0.019	IO	|	|	|	1.67
19.500	0.08	0.10	0.019	IO	|	|	|	1.66
19.583	0.08	0.10	0.019	IO	|	|	|	1.65
19.667	0.08	0.10	0.018	IO	|	|	|	1.64
19.750	0.08	0.10	0.018	IO	|	|	|	1.63
19.833	0.08	0.10	0.018	IO	|	|	|	1.62
19.917	0.07	0.10	0.018	IO	|	|	|	1.61
20.000	0.07	0.09	0.018	IO	|	|	|	1.60
20.083	0.07	0.09	0.018	IO	|	|	|	1.59
20.167	0.07	0.09	0.018	IO	|	|	|	1.58
20.250	0.07	0.09	0.017	IO	|	|	|	1.57
20.333	0.07	0.09	0.017	O	|	|	|	1.56
20.417	0.07	0.09	0.017	O	|	|	|	1.56
20.500	0.07	0.09	0.017	O	|	|	|	1.55
20.583	0.07	0.08	0.017	O	|	|	|	1.54
20.667	0.07	0.08	0.017	O	|	|	|	1.53
20.750	0.07	0.08	0.017	O	|	|	|	1.53
20.833	0.07	0.08	0.017	O	|	|	|	1.52
20.917	0.07	0.08	0.017	O	|	|	|	1.51
21.000	0.07	0.08	0.016	O	|	|	|	1.51
21.083	0.07	0.08	0.016	O	|	|	|	1.50
21.167	0.07	0.08	0.016	O	|	|	|	1.49
21.250	0.06	0.08	0.016	O	|	|	|	1.49
21.333	0.06	0.08	0.016	O	|	|	|	1.48
21.417	0.06	0.08	0.016	O	|	|	|	1.48
21.500	0.06	0.07	0.016	O	|	|	|	1.47
21.583	0.06	0.07	0.016	O	|	|	|	1.47
21.667	0.06	0.07	0.016	O	|	|	|	1.46
21.750	0.06	0.07	0.016	O	|	|	|	1.46
21.833	0.06	0.07	0.016	O	|	|	|	1.45
21.917	0.06	0.07	0.016	O	|	|	|	1.45
22.000	0.06	0.07	0.016	O	|	|	|	1.44
22.083	0.06	0.07	0.015	O	|	|	|	1.44
22.167	0.06	0.07	0.015	O	|	|	|	1.44
22.250	0.06	0.07	0.015	O	|	|	|	1.43
22.333	0.06	0.07	0.015	O	|	|	|	1.43
22.417	0.06	0.07	0.015	O	|	|	|	1.43
22.500	0.06	0.07	0.015	O	|	|	|	1.42
22.583	0.06	0.07	0.015	O	|	|	|	1.42
22.667	0.06	0.07	0.015	O	|	|	|	1.41
22.750	0.06	0.06	0.015	O	|	|	|	1.41
22.833	0.06	0.06	0.015	O	|	|	|	1.41
22.917	0.06	0.06	0.015	O	|	|	|	1.40

23.000	0.06	0.06	0.015	O	|	|	|	| 1.40
23.083	0.06	0.06	0.015	O	|	|	|	| 1.40
23.167	0.06	0.06	0.015	O	|	|	|	| 1.40
23.250	0.06	0.06	0.015	O	|	|	|	| 1.39
23.333	0.06	0.06	0.015	O	|	|	|	| 1.39
23.417	0.05	0.06	0.015	O	|	|	|	| 1.39
23.500	0.05	0.06	0.015	O	|	|	|	| 1.38
23.583	0.05	0.06	0.015	O	|	|	|	| 1.38
23.667	0.05	0.06	0.015	O	|	|	|	| 1.38
23.750	0.05	0.06	0.015	O	|	|	|	| 1.38
23.833	0.05	0.06	0.014	O	|	|	|	| 1.37
23.917	0.05	0.06	0.014	O	|	|	|	| 1.37
24.000	0.05	0.06	0.014	O	|	|	|	| 1.37
24.083	0.05	0.06	0.014	O	|	|	|	| 1.37
24.167	0.02	0.06	0.014	O	|	|	|	| 1.36
24.250	0.01	0.05	0.014	O	|	|	|	| 1.34
24.333	0.01	0.05	0.014	O	|	|	|	| 1.32
24.417	0.00	0.05	0.013	O	|	|	|	| 1.30
24.500	0.00	0.04	0.013	O	|	|	|	| 1.28
24.583	0.00	0.04	0.013	O	|	|	|	| 1.26
24.667	0.00	0.04	0.013	O	|	|	|	| 1.24
24.750	0.00	0.04	0.012	O	|	|	|	| 1.23
24.833	0.00	0.03	0.012	O	|	|	|	| 1.21
24.917	0.00	0.03	0.012	O	|	|	|	| 1.19

Remaining water in basin = 0.01 (Ac.Ft)

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

Number of intervals = 299
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 1.916 (CFS)
Total volume = 0.201 (Ac.Ft)

Status of hydrographs being held in storage

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

****

TT 20527

AREA A2-A:
DA2 - BMP 2

ROUTING

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004
Study date: 07/07/22

ROUTING TO INFILTRATION BASIN
TR 18345, CITY OF VICTORVILLE
AREA A2A
FILE: 18345ROUTINGA2A.OUT

Program License Serial Number 4070

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

From study/file name: 18345HYDROA2APOST100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 299
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.047 (CFS)
Total volume = 0.486 (Ac.Ft)

Status of hydrographs being held in storage

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

****

++
Process from Point/Station 3.000 to Point/Station 4.000
**** RETARDING BASIN ROUTING ****

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.))
Total outflow at this depth = 0.00(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.))
Pipe length = 25.00(Ft.) Elevation difference = 0.25(Ft.)
Manning's N = 0.022 No. of pipes = 1
Given pipe size = 12.00(In.)

```
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      1.050(Ft.)
Pipe friction loss =      0.629(Ft.)
Minor friction loss =      0.421(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      3.338(CFS)

Total outflow at this depth =      3.34(CFS)


CALCULATED OUTFLOW DATA AT DEPTH =    6.00(Ft.))
Pipe length  =    25.00(Ft.)   Elevation difference =   0.25(Ft.)
Manning's N = 0.022   No. of pipes = 1
Given pipe size =     12.00(In.)
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      2.050(Ft.)
Pipe friction loss =      1.227(Ft.)
Minor friction loss =      0.822(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      4.664(CFS)

Total outflow at this depth =      4.66(CFS)

---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 299
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
    0.000      0.000      0.000      0.000        0.000
    2.000      0.021      0.000      0.021        0.021
    5.000      0.073      3.338      0.062        0.084
    6.000      0.084      4.664      0.068        0.100
---------------------------------------------------------------------
            Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                        Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       1.5    3.02    4.54    6.05 (Ft.)
 0.083    0.01    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.06    0.00      0.000  O       |       |       |       |     0.02
 0.250    0.09    0.00      0.001  O       |       |       |       |     0.07
 0.333    0.10    0.00      0.001  O       |       |       |       |     0.13
```

0.417	0.11	0.00	0.002	O	|	|	|	0.20
0.500	0.11	0.00	0.003	O	|	|	|	0.27
0.583	0.12	0.00	0.004	O	|	|	|	0.35
0.667	0.12	0.00	0.004	O	|	|	|	0.42
0.750	0.12	0.00	0.005	O	|	|	|	0.50
0.833	0.12	0.00	0.006	O	|	|	|	0.58
0.917	0.12	0.00	0.007	O	|	|	|	0.66
1.000	0.12	0.00	0.008	O	|	|	|	0.74
1.083	0.12	0.00	0.009	O	|	|	|	0.82
1.167	0.12	0.00	0.009	O	|	|	|	0.90
1.250	0.12	0.00	0.010	O	|	|	|	0.98
1.333	0.12	0.00	0.011	O	|	|	|	1.06
1.417	0.12	0.00	0.012	O	|	|	|	1.14
1.500	0.12	0.00	0.013	O	|	|	|	1.22
1.583	0.12	0.00	0.014	O	|	|	|	1.30
1.667	0.12	0.00	0.015	O	|	|	|	1.39
1.750	0.12	0.00	0.015	O	|	|	|	1.47
1.833	0.13	0.00	0.016	O	|	|	|	1.55
1.917	0.13	0.00	0.017	O	|	|	|	1.63
2.000	0.13	0.00	0.018	O	|	|	|	1.71
2.083	0.13	0.00	0.019	O	|	|	|	1.80
2.167	0.13	0.00	0.020	O	|	|	|	1.88
2.250	0.13	0.00	0.021	O	|	|	|	1.96
2.333	0.13	0.03	0.021	O	|	|	|	2.02
2.417	0.13	0.06	0.022	O	|	|	|	2.06
2.500	0.13	0.09	0.022	O	|	|	|	2.08
2.583	0.13	0.10	0.023	O	|	|	|	2.09
2.667	0.13	0.11	0.023	O	|	|	|	2.10
2.750	0.13	0.12	0.023	O	|	|	|	2.11
2.833	0.13	0.12	0.023	O	|	|	|	2.11
2.917	0.13	0.12	0.023	O	|	|	|	2.11
3.000	0.13	0.13	0.023	O	|	|	|	2.11
3.083	0.13	0.13	0.023	O	|	|	|	2.12
3.167	0.13	0.13	0.023	O	|	|	|	2.12
3.250	0.13	0.13	0.023	O	|	|	|	2.12
3.333	0.13	0.13	0.023	O	|	|	|	2.12
3.417	0.13	0.13	0.023	O	|	|	|	2.12
3.500	0.13	0.13	0.023	O	|	|	|	2.12
3.583	0.13	0.13	0.023	O	|	|	|	2.12
3.667	0.13	0.13	0.023	O	|	|	|	2.12
3.750	0.13	0.13	0.023	O	|	|	|	2.12
3.833	0.13	0.13	0.023	O	|	|	|	2.12
3.917	0.13	0.13	0.023	O	|	|	|	2.12
4.000	0.14	0.13	0.023	O	|	|	|	2.12
4.083	0.14	0.13	0.023	O	|	|	|	2.12
4.167	0.14	0.13	0.023	O	|	|	|	2.12
4.250	0.14	0.14	0.023	O	|	|	|	2.12
4.333	0.14	0.14	0.023	O	|	|	|	2.12
4.417	0.14	0.14	0.023	O	|	|	|	2.12
4.500	0.14	0.14	0.023	O	|	|	|	2.12
4.583	0.14	0.14	0.023	O	|	|	|	2.12
4.667	0.14	0.14	0.023	O	|	|	|	2.12
4.750	0.14	0.14	0.023	O	|	|	|	2.12
4.833	0.14	0.14	0.023	O	|	|	|	2.12

4.917	0.14	0.14	0.023	O				2.12
5.000	0.14	0.14	0.023	O				2.13
5.083	0.14	0.14	0.023	O				2.13
5.167	0.14	0.14	0.023	O				2.13
5.250	0.14	0.14	0.023	O				2.13
5.333	0.14	0.14	0.023	O				2.13
5.417	0.14	0.14	0.023	O				2.13
5.500	0.14	0.14	0.023	O				2.13
5.583	0.14	0.14	0.023	O				2.13
5.667	0.14	0.14	0.023	O				2.13
5.750	0.15	0.14	0.023	O				2.13
5.833	0.15	0.14	0.023	O				2.13
5.917	0.15	0.14	0.023	O				2.13
6.000	0.15	0.15	0.023	O				2.13
6.083	0.15	0.15	0.023	O				2.13
6.167	0.15	0.15	0.023	O				2.13
6.250	0.15	0.15	0.023	O				2.13
6.333	0.15	0.15	0.023	O				2.13
6.417	0.15	0.15	0.023	O				2.13
6.500	0.15	0.15	0.023	O				2.13
6.583	0.15	0.15	0.023	O				2.13
6.667	0.15	0.15	0.023	O				2.13
6.750	0.15	0.15	0.023	O				2.14
6.833	0.15	0.15	0.023	O				2.14
6.917	0.15	0.15	0.023	O				2.14
7.000	0.15	0.15	0.023	O				2.14
7.083	0.15	0.15	0.023	O				2.14
7.167	0.16	0.15	0.023	O				2.14
7.250	0.16	0.15	0.023	O				2.14
7.333	0.16	0.15	0.023	O				2.14
7.417	0.16	0.16	0.023	O				2.14
7.500	0.16	0.16	0.023	O				2.14
7.583	0.16	0.16	0.023	O				2.14
7.667	0.16	0.16	0.023	O				2.14
7.750	0.16	0.16	0.023	O				2.14
7.833	0.16	0.16	0.023	O				2.14
7.917	0.16	0.16	0.023	O				2.14
8.000	0.16	0.16	0.023	O				2.14
8.083	0.16	0.16	0.024	O				2.14
8.167	0.16	0.16	0.024	O				2.15
8.250	0.16	0.16	0.024	O				2.15
8.333	0.17	0.16	0.024	O				2.15
8.417	0.17	0.16	0.024	O				2.15
8.500	0.17	0.17	0.024	O				2.15
8.583	0.17	0.17	0.024	O				2.15
8.667	0.17	0.17	0.024	O				2.15
8.750	0.17	0.17	0.024	O				2.15
8.833	0.17	0.17	0.024	O				2.15
8.917	0.17	0.17	0.024	O				2.15
9.000	0.17	0.17	0.024	O				2.15
9.083	0.17	0.17	0.024	O				2.15
9.167	0.17	0.17	0.024	O				2.15
9.250	0.17	0.17	0.024	O				2.16
9.333	0.18	0.17	0.024	O				2.16

9.417	0.18	0.17	0.024	O				2.16
9.500	0.18	0.18	0.024	O				2.16
9.583	0.18	0.18	0.024	O				2.16
9.667	0.18	0.18	0.024	O				2.16
9.750	0.18	0.18	0.024	O				2.16
9.833	0.18	0.18	0.024	O				2.16
9.917	0.18	0.18	0.024	O				2.16
10.000	0.18	0.18	0.024	O				2.16
10.083	0.19	0.18	0.024	O				2.16
10.167	0.19	0.18	0.024	O				2.17
10.250	0.19	0.19	0.024	O				2.17
10.333	0.19	0.19	0.024	OI				2.17
10.417	0.19	0.19	0.024	OI				2.17
10.500	0.19	0.19	0.024	OI				2.17
10.583	0.19	0.19	0.024	|O				2.17
10.667	0.19	0.19	0.024	|O				2.17
10.750	0.20	0.19	0.024	|O				2.17
10.833	0.20	0.19	0.024	|O				2.17
10.917	0.20	0.20	0.024	|O				2.18
11.000	0.20	0.20	0.024	|O				2.18
11.083	0.20	0.20	0.024	|O				2.18
11.167	0.20	0.20	0.024	|O				2.18
11.250	0.20	0.20	0.024	|O				2.18
11.333	0.21	0.20	0.024	|O				2.18
11.417	0.21	0.20	0.024	|O				2.18
11.500	0.21	0.21	0.024	|O				2.18
11.583	0.21	0.21	0.024	|O				2.19
11.667	0.21	0.21	0.024	|O				2.19
11.750	0.21	0.21	0.024	|O				2.19
11.833	0.22	0.21	0.024	|O				2.19
11.917	0.22	0.21	0.024	|O				2.19
12.000	0.22	0.22	0.024	|O				2.19
12.083	0.22	0.22	0.024	|O				2.20
12.167	0.20	0.22	0.024	|O				2.19
12.250	0.19	0.21	0.024	|O				2.19
12.333	0.19	0.20	0.024	|O				2.18
12.417	0.19	0.20	0.024	|O				2.18
12.500	0.19	0.20	0.024	|O				2.18
12.583	0.19	0.20	0.024	|O				2.18
12.667	0.20	0.20	0.024	|O				2.18
12.750	0.20	0.20	0.024	|O				2.18
12.833	0.20	0.20	0.024	|O				2.18
12.917	0.20	0.20	0.024	|O				2.18
13.000	0.21	0.20	0.024	|O				2.18
13.083	0.21	0.20	0.024	|O				2.18
13.167	0.21	0.21	0.024	|O				2.18
13.250	0.21	0.21	0.024	|O				2.19
13.333	0.22	0.21	0.024	|O				2.19
13.417	0.22	0.21	0.024	|O				2.19
13.500	0.23	0.22	0.024	|O				2.20
13.583	0.23	0.22	0.024	|O				2.20
13.667	0.23	0.23	0.025	|O				2.20
13.750	0.24	0.23	0.025	|O				2.21
13.833	0.24	0.23	0.025	|O				2.21

13.917	0.25	0.24	0.025	O				2.21
14.000	0.25	0.24	0.025	O				2.22
14.083	0.26	0.25	0.025	O				2.22
14.167	0.26	0.25	0.025	O				2.23
14.250	0.27	0.26	0.025	O				2.23
14.333	0.28	0.26	0.025	O				2.24
14.417	0.28	0.27	0.025	O				2.24
14.500	0.29	0.28	0.025	O				2.25
14.583	0.30	0.28	0.025	O				2.26
14.667	0.31	0.29	0.026	O				2.26
14.750	0.32	0.30	0.026	O				2.27
14.833	0.33	0.31	0.026	O				2.28
14.917	0.34	0.32	0.026	O				2.29
15.000	0.36	0.33	0.026	O				2.30
15.083	0.37	0.34	0.026	O				2.31
15.167	0.39	0.35	0.027	OI				2.32
15.250	0.40	0.37	0.027	OI				2.33
15.333	0.43	0.39	0.027	O				2.35
15.417	0.44	0.40	0.027	O				2.36
15.500	0.40	0.41	0.027	O				2.37
15.583	0.40	0.40	0.027	O				2.36
15.667	0.42	0.41	0.027	O				2.36
15.750	0.46	0.42	0.028	O				2.38
15.833	0.53	0.45	0.028	O				2.40
15.917	0.64	0.50	0.029	OI				2.45
16.000	0.95	0.60	0.030	O I				2.54
16.083	2.26	0.96	0.036	O	I			2.87
16.167	**6.05**	2.12	0.054		O		I	3.90
16.250	3.72	**3.12**	**0.070**		**O I**			**4.80**
16.333	1.96	3.02	0.068		I O			4.71
16.417	1.32	2.52	**0.060**	**I**	**O**			**4.26**
16.500	1.01	2.03	0.053	I	O			3.82
16.583	0.82	1.62	0.046	I O				3.46
16.667	0.67	1.30	0.041	I O				3.17
16.750	0.54	1.05	0.037	I O				2.95
16.833	0.48	0.86	0.034	I O				2.77
16.917	0.44	0.71	0.032	IO				2.64
17.000	0.38	0.60	0.030	I O				2.54
17.083	0.31	0.51	0.029	IO				2.46
17.167	0.29	0.43	0.028	IO				2.39
17.250	0.27	0.38	0.027	O				2.34
17.333	0.26	0.34	0.026	O				2.30
17.417	0.25	0.31	0.026	O				2.28
17.500	0.24	0.29	0.025	O				2.26
17.583	0.23	0.27	0.025	O				2.24
17.667	0.22	0.25	0.025	O				2.23
17.750	0.22	0.24	0.025	O				2.22
17.833	0.21	0.23	0.025	O				2.21
17.917	0.20	0.22	0.024	O				2.20
18.000	0.20	0.21	0.024	O				2.19
18.083	0.20	0.21	0.024	O				2.19
18.167	0.21	0.21	0.024	O				2.19
18.250	0.22	0.21	0.024	O				2.19
18.333	0.22	0.21	0.024	O				2.19

18.417	0.21	0.21	0.024	|O	|	|	|	2.19
18.500	0.21	0.21	0.024	|O	|	|	|	2.19
18.583	0.21	0.21	0.024	|O	|	|	|	2.19
18.667	0.21	0.21	0.024	|O	|	|	|	2.19
18.750	0.20	0.21	0.024	|O	|	|	|	2.19
18.833	0.20	0.21	0.024	|O	|	|	|	2.19
18.917	0.20	0.20	0.024	|O	|	|	|	2.18
19.000	0.20	0.20	0.024	|O	|	|	|	2.18
19.083	0.19	0.20	0.024	|O	|	|	|	2.18
19.167	0.19	0.20	0.024	|O	|	|	|	2.18
19.250	0.19	0.19	0.024	IO	|	|	|	2.17
19.333	0.19	0.19	0.024	IO	|	|	|	2.17
19.417	0.18	0.19	0.024	O	|	|	|	2.17
19.500	0.18	0.19	0.024	O	|	|	|	2.17
19.583	0.18	0.18	0.024	O	|	|	|	2.17
19.667	0.18	0.18	0.024	O	|	|	|	2.16
19.750	0.18	0.18	0.024	O	|	|	|	2.16
19.833	0.17	0.18	0.024	O	|	|	|	2.16
19.917	0.17	0.18	0.024	O	|	|	|	2.16
20.000	0.17	0.17	0.024	O	|	|	|	2.16
20.083	0.17	0.17	0.024	O	|	|	|	2.15
20.167	0.17	0.17	0.024	O	|	|	|	2.15
20.250	0.16	0.17	0.024	O	|	|	|	2.15
20.333	0.16	0.17	0.024	O	|	|	|	2.15
20.417	0.16	0.17	0.024	O	|	|	|	2.15
20.500	0.16	0.16	0.024	O	|	|	|	2.15
20.583	0.16	0.16	0.024	O	|	|	|	2.15
20.667	0.16	0.16	0.023	O	|	|	|	2.14
20.750	0.16	0.16	0.023	O	|	|	|	2.14
20.833	0.15	0.16	0.023	O	|	|	|	2.14
20.917	0.15	0.16	0.023	O	|	|	|	2.14
21.000	0.15	0.15	0.023	O	|	|	|	2.14
21.083	0.15	0.15	0.023	O	|	|	|	2.14
21.167	0.15	0.15	0.023	O	|	|	|	2.14
21.250	0.15	0.15	0.023	O	|	|	|	2.14
21.333	0.15	0.15	0.023	O	|	|	|	2.13
21.417	0.15	0.15	0.023	O	|	|	|	2.13
21.500	0.15	0.15	0.023	O	|	|	|	2.13
21.583	0.14	0.15	0.023	O	|	|	|	2.13
21.667	0.14	0.15	0.023	O	|	|	|	2.13
21.750	0.14	0.14	0.023	O	|	|	|	2.13
21.833	0.14	0.14	0.023	O	|	|	|	2.13
21.917	0.14	0.14	0.023	O	|	|	|	2.13
22.000	0.14	0.14	0.023	O	|	|	|	2.13
22.083	0.14	0.14	0.023	O	|	|	|	2.13
22.167	0.14	0.14	0.023	O	|	|	|	2.13
22.250	0.14	0.14	0.023	O	|	|	|	2.12
22.333	0.14	0.14	0.023	O	|	|	|	2.12
22.417	0.13	0.14	0.023	O	|	|	|	2.12
22.500	0.13	0.14	0.023	O	|	|	|	2.12
22.583	0.13	0.13	0.023	O	|	|	|	2.12
22.667	0.13	0.13	0.023	O	|	|	|	2.12
22.750	0.13	0.13	0.023	O	|	|	|	2.12
22.833	0.13	0.13	0.023	O	|	|	|	2.12

22.917	0.13	0.13	0.023	O	|	|	|	| 2.12
23.000	0.13	0.13	0.023	O	|	|	|	| 2.12
23.083	0.13	0.13	0.023	O	|	|	|	| 2.12
23.167	0.13	0.13	0.023	O	|	|	|	| 2.12
23.250	0.13	0.13	0.023	O	|	|	|	| 2.12
23.333	0.13	0.13	0.023	O	|	|	|	| 2.11
23.417	0.13	0.13	0.023	O	|	|	|	| 2.11
23.500	0.12	0.13	0.023	O	|	|	|	| 2.11
23.583	0.12	0.13	0.023	O	|	|	|	| 2.11
23.667	0.12	0.13	0.023	O	|	|	|	| 2.11
23.750	0.12	0.12	0.023	O	|	|	|	| 2.11
23.833	0.12	0.12	0.023	O	|	|	|	| 2.11
23.917	0.12	0.12	0.023	O	|	|	|	| 2.11
24.000	0.12	0.12	0.023	O	|	|	|	| 2.11
24.083	0.11	0.12	0.023	O	|	|	|	| 2.11
24.167	0.06	0.11	0.023	O	|	|	|	| 2.10
24.250	0.03	0.09	0.022	O	|	|	|	| 2.08
24.333	0.02	0.06	0.022	O	|	|	|	| 2.06
24.417	0.01	0.05	0.022	O	|	|	|	| 2.04
24.500	0.01	0.03	0.022	O	|	|	|	| 2.03
24.583	0.01	0.02	0.021	O	|	|	|	| 2.02
24.667	0.00	0.02	0.021	O	|	|	|	| 2.02
24.750	0.00	0.01	0.021	O	|	|	|	| 2.01
24.833	0.00	0.01	0.021	O	|	|	|	| 2.01
24.917	0.00	0.01	0.021	O	|	|	|	| 2.01
25.000	0.00	0.00	0.021	O	|	|	|	| 2.00

Remaining water in basin = 0.02 (Ac.Ft)

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

Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 3.121 (CFS)
Total volume = 0.465 (Ac.Ft)

Status of hydrographs being held in storage

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

****

TT 20527

AREA A2-B:
DA6 - BMP 6

ROUTING

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004
Study date: 06/30/22

ROUTING TO INFILTRATION BASIN
TR 20527**, CITY OF VICTORVILLE**
AREA A2B (EAST)
FILE: 18345ROUTINGA2B.OUT

Program License Serial Number 4070

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

From study/file name: 18345HYDROA2BPOST100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 299
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 3.391 (CFS)
Total volume = 0.276 (Ac.Ft)

Status of hydrographs being held in storage

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

****

++
Process from Point/Station 4.000 to Point/Station 6.000
**** RETARDING BASIN ROUTING ****
_____

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.))
Total outflow at this depth = 0.00(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 2.50(Ft.))
Pipe length = 15.00(Ft.) Elevation difference = 0.30(Ft.)
Manning's N = 0.012 No. of pipes = 3
Given pipe size = 6.00(In.)

```
Calculated individual pipe flow  =     0.118(CFS)
Normal flow depth in pipe =    1.50(In.)
Flow top width inside pipe =    5.20(In.)
Critical Depth =    0.17(Ft.)
Calculated flow rate through pipe(s) =      0.354(CFS)

Total outflow at this depth =      0.35(CFS)


CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.))
Pipe length  =    15.00(Ft.)   Elevation difference =   0.30(Ft.)
Manning's N = 0.012   No. of pipes = 3
Given pipe size =      6.00(In.)
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      0.970(Ft.)
Pipe friction loss =      0.390(Ft.)
Minor friction loss =      0.580(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      2.940(CFS)

Total outflow at this depth =      2.94(CFS)

---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 299
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
    0.000      0.000      0.000      0.000        0.000
    1.000      0.009      0.000      0.009        0.009
    2.500      0.030      0.354      0.029        0.031
    3.000      0.040      2.940      0.030        0.050
---------------------------------------------------------------------
            Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       0.8    1.70    2.54    3.39 (Ft.)
 0.083    0.00    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.03    0.00      0.000  O       |       |       |       |     0.02
 0.250    0.05    0.00      0.000  O       |       |       |       |     0.05
 0.333    0.06    0.00      0.001  O       |       |       |       |     0.09
 0.417    0.06    0.00      0.001  O       |       |       |       |     0.13
```

0.500	0.06	0.00	0.002	O	|	|	|	0.18
0.583	0.07	0.00	0.002	O	|	|	|	0.23
0.667	0.07	0.00	0.003	O	|	|	|	0.28
0.750	0.07	0.00	0.003	O	|	|	|	0.33
0.833	0.07	0.00	0.003	O	|	|	|	0.38
0.917	0.07	0.00	0.004	O	|	|	|	0.43
1.000	0.07	0.00	0.004	O	|	|	|	0.49
1.083	0.07	0.00	0.005	O	|	|	|	0.54
1.167	0.07	0.00	0.005	O	|	|	|	0.59
1.250	0.07	0.00	0.006	O	|	|	|	0.65
1.333	0.07	0.00	0.006	O	|	|	|	0.70
1.417	0.07	0.00	0.007	O	|	|	|	0.75
1.500	0.07	0.00	0.007	O	|	|	|	0.81
1.583	0.07	0.00	0.008	O	|	|	|	0.86
1.667	0.07	0.00	0.008	O	|	|	|	0.91
1.750	0.07	0.00	0.009	O	|	|	|	0.97
1.833	0.07	0.00	0.009	O	|	|	|	1.01
1.917	0.07	0.01	0.010	O	|	|	|	1.05
2.000	0.07	0.02	0.010	O	|	|	|	1.07
2.083	0.07	0.02	0.010	O	|	|	|	1.10
2.167	0.07	0.03	0.011	O	|	|	|	1.12
2.250	0.07	0.03	0.011	O	|	|	|	1.14
2.333	0.07	0.04	0.011	O	|	|	|	1.16
2.417	0.07	0.04	0.011	O	|	|	|	1.18
2.500	0.07	0.04	0.012	O	|	|	|	1.19
2.583	0.07	0.05	0.012	O	|	|	|	1.20
2.667	0.07	0.05	0.012	O	|	|	|	1.21
2.750	0.07	0.05	0.012	O	|	|	|	1.23
2.833	0.07	0.06	0.012	O	|	|	|	1.23
2.917	0.07	0.06	0.012	O	|	|	|	1.24
3.000	0.07	0.06	0.013	O	|	|	|	1.25
3.083	0.07	0.06	0.013	O	|	|	|	1.26
3.167	0.07	0.06	0.013	O	|	|	|	1.26
3.250	0.07	0.06	0.013	O	|	|	|	1.27
3.333	0.07	0.06	0.013	O	|	|	|	1.27
3.417	0.07	0.07	0.013	O	|	|	|	1.28
3.500	0.08	0.07	0.013	O	|	|	|	1.28
3.583	0.08	0.07	0.013	O	|	|	|	1.29
3.667	0.08	0.07	0.013	O	|	|	|	1.29
3.750	0.08	0.07	0.013	O	|	|	|	1.29
3.833	0.08	0.07	0.013	O	|	|	|	1.30
3.917	0.08	0.07	0.013	O	|	|	|	1.30
4.000	0.08	0.07	0.013	O	|	|	|	1.30
4.083	0.08	0.07	0.013	O	|	|	|	1.31
4.167	0.08	0.07	0.013	O	|	|	|	1.31
4.250	0.08	0.07	0.013	O	|	|	|	1.31
4.333	0.08	0.07	0.013	O	|	|	|	1.31
4.417	0.08	0.07	0.013	O	|	|	|	1.31
4.500	0.08	0.07	0.013	O	|	|	|	1.32
4.583	0.08	0.07	0.013	O	|	|	|	1.32
4.667	0.08	0.08	0.013	O	|	|	|	1.32
4.750	0.08	0.08	0.013	O	|	|	|	1.32
4.833	0.08	0.08	0.014	O	|	|	|	1.32
4.917	0.08	0.08	0.014	O	|	|	|	1.32

5.000	0.08	0.08	0.014	O				1.33
5.083	0.08	0.08	0.014	O				1.33
5.167	0.08	0.08	0.014	O				1.33
5.250	0.08	0.08	0.014	O				1.33
5.333	0.08	0.08	0.014	O				1.33
5.417	0.08	0.08	0.014	O				1.33
5.500	0.08	0.08	0.014	O				1.33
5.583	0.08	0.08	0.014	O				1.33
5.667	0.08	0.08	0.014	O				1.34
5.750	0.08	0.08	0.014	O				1.34
5.833	0.08	0.08	0.014	O				1.34
5.917	0.08	0.08	0.014	O				1.34
6.000	0.08	0.08	0.014	O				1.34
6.083	0.08	0.08	0.014	O				1.34
6.167	0.08	0.08	0.014	O				1.34
6.250	0.08	0.08	0.014	O				1.35
6.333	0.08	0.08	0.014	O				1.35
6.417	0.08	0.08	0.014	O				1.35
6.500	0.09	0.08	0.014	O				1.35
6.583	0.09	0.08	0.014	O				1.35
6.667	0.09	0.08	0.014	O				1.35
6.750	0.09	0.08	0.014	O				1.35
6.833	0.09	0.08	0.014	O				1.35
6.917	0.09	0.08	0.014	O				1.36
7.000	0.09	0.08	0.014	O				1.36
7.083	0.09	0.08	0.014	O				1.36
7.167	0.09	0.08	0.014	O				1.36
7.250	0.09	0.09	0.014	O				1.36
7.333	0.09	0.09	0.014	O				1.36
7.417	0.09	0.09	0.014	O				1.36
7.500	0.09	0.09	0.014	O				1.37
7.583	0.09	0.09	0.014	O				1.37
7.667	0.09	0.09	0.014	O				1.37
7.750	0.09	0.09	0.014	O				1.37
7.833	0.09	0.09	0.014	O				1.37
7.917	0.09	0.09	0.014	O				1.37
8.000	0.09	0.09	0.014	O				1.38
8.083	0.09	0.09	0.014	O				1.38
8.167	0.09	0.09	0.014	O				1.38
8.250	0.09	0.09	0.014	O				1.38
8.333	0.09	0.09	0.014	O				1.38
8.417	0.09	0.09	0.014	O				1.38
8.500	0.09	0.09	0.014	O				1.39
8.583	0.10	0.09	0.014	O				1.39
8.667	0.10	0.09	0.014	O				1.39
8.750	0.10	0.09	0.014	O				1.39
8.833	0.10	0.09	0.015	O				1.39
8.917	0.10	0.09	0.015	O				1.40
9.000	0.10	0.09	0.015	O				1.40
9.083	0.10	0.09	0.015	O				1.40
9.167	0.10	0.09	0.015	O				1.40
9.250	0.10	0.09	0.015	O				1.40
9.333	0.10	0.10	0.015	O				1.40
9.417	0.10	0.10	0.015	O				1.41

9.500	0.10	0.10	0.015	O				1.41
9.583	0.10	0.10	0.015	O				1.41
9.667	0.10	0.10	0.015	O				1.41
9.750	0.10	0.10	0.015	O				1.42
9.833	0.10	0.10	0.015	O				1.42
9.917	0.10	0.10	0.015	O				1.42
10.000	0.10	0.10	0.015	O				1.42
10.083	0.11	0.10	0.015	O				1.42
10.167	0.11	0.10	0.015	O				1.43
10.250	0.11	0.10	0.015	OI				1.43
10.333	0.11	0.10	0.015	OI				1.43
10.417	0.11	0.10	0.015	OI				1.43
10.500	0.11	0.10	0.015	OI				1.44
10.583	0.11	0.10	0.015	OI				1.44
10.667	0.11	0.10	0.015	OI				1.44
10.750	0.11	0.11	0.015	OI				1.45
10.833	0.11	0.11	0.015	OI				1.45
10.917	0.11	0.11	0.015	|O				1.45
11.000	0.11	0.11	0.015	|O				1.45
11.083	0.11	0.11	0.015	|O				1.46
11.167	0.11	0.11	0.015	|O				1.46
11.250	0.12	0.11	0.015	|O				1.46
11.333	0.12	0.11	0.016	|O				1.47
11.417	0.12	0.11	0.016	|O				1.47
11.500	0.12	0.11	0.016	|O				1.47
11.583	0.12	0.11	0.016	|O				1.48
11.667	0.12	0.11	0.016	|O				1.48
11.750	0.12	0.11	0.016	|O				1.48
11.833	0.12	0.11	0.016	|O				1.49
11.917	0.12	0.12	0.016	|O				1.49
12.000	0.12	0.12	0.016	|O				1.50
12.083	0.12	0.12	0.016	|O				1.50
12.167	0.12	0.12	0.016	|O				1.50
12.250	0.11	0.12	0.016	|O				1.50
12.333	0.11	0.12	0.016	|O				1.49
12.417	0.11	0.12	0.016	|O				1.49
12.500	0.11	0.11	0.016	|O				1.49
12.583	0.11	0.11	0.016	|O				1.48
12.667	0.11	0.11	0.016	|O				1.48
12.750	0.11	0.11	0.016	|O				1.48
12.833	0.11	0.11	0.016	|O				1.48
12.917	0.11	0.11	0.016	|O				1.48
13.000	0.12	0.11	0.016	|O				1.48
13.083	0.12	0.11	0.016	|O				1.48
13.167	0.12	0.11	0.016	|O				1.49
13.250	0.12	0.12	0.016	|O				1.49
13.333	0.12	0.12	0.016	|O				1.49
13.417	0.13	0.12	0.016	|O				1.50
13.500	0.13	0.12	0.016	|O				1.50
13.583	0.13	0.12	0.016	|O				1.51
13.667	0.13	0.12	0.016	|O				1.51
13.750	0.14	0.12	0.016	|O				1.52
13.833	0.14	0.12	0.016	|O				1.52
13.917	0.14	0.13	0.016	|O				1.53

14.000	0.14	0.13	0.017	O				1.54
14.083	0.15	0.13	0.017	O				1.55
14.167	0.15	0.13	0.017	O				1.56
14.250	0.15	0.13	0.017	O				1.57
14.333	0.16	0.14	0.017	O				1.58
14.417	0.16	0.14	0.017	O				1.59
14.500	0.17	0.14	0.017	O				1.60
14.583	0.17	0.14	0.018	O				1.61
14.667	0.18	0.15	0.018	O				1.62
14.750	0.18	0.15	0.018	O				1.64
14.833	0.19	0.15	0.018	O				1.65
14.917	0.19	0.16	0.018	O				1.67
15.000	0.20	0.16	0.019	O				1.69
15.083	0.21	0.17	0.019	O				1.71
15.167	0.22	0.17	0.019	OI				1.73
15.250	0.23	0.18	0.020	OI				1.75
15.333	0.24	0.18	0.020	OI				1.78
15.417	0.25	0.19	0.020	OI				1.81
15.500	0.23	0.20	0.021	OI				1.83
15.583	0.22	0.20	0.021	OI				1.84
15.667	0.24	0.20	0.021	OI				1.86
15.750	0.26	0.21	0.021	OI				1.88
15.833	0.30	0.22	0.022	O				1.91
15.917	0.36	0.23	0.023	OI				1.97
16.000	0.53	0.25	0.024	O I				2.07
16.083	1.26	0.32	0.028	O	I			2.37
16.167	**3.39**	1.97	0.036			O	I	2.81
16.250	2.13	**2.72**	**0.039**			**I**	**O**	**2.96**
16.333	1.12	1.69	0.035		I O			2.76
16.417	0.75	0.98	0.032	I	O			2.62
16.500	0.57	0.68	0.031	IO				2.56
16.583	0.47	0.53	0.031	IO				2.53
16.667	0.38	0.43	0.030	IO				2.52
16.750	0.31	0.35	0.030	IO				2.50
16.833	0.27	0.35	0.030	IO				2.47
16.917	0.25	0.34	0.029	IO				2.43
17.000	0.22	0.33	0.028	IO				2.38
17.083	0.17	0.31	**0.028**	**IO**				**2.32**
17.167	0.16	0.30	0.027	IO				2.26
17.250	0.16	0.28	0.026	IO				2.19
17.333	0.15	0.27	0.025	IO				2.13
17.417	0.14	0.25	0.024	IO				2.08
17.500	0.14	0.24	0.023	IO				2.02
17.583	0.13	0.23	0.023	IO				1.97
17.667	0.13	0.22	0.022	IO				1.93
17.750	0.12	0.21	0.021	O				1.88
17.833	0.12	0.20	0.021	O				1.84
17.917	0.12	0.19	0.020	O				1.81
18.000	0.11	0.18	0.020	O				1.77
18.083	0.11	0.17	0.019	O				1.74
18.167	0.12	0.17	0.019	O				1.71
18.250	0.12	0.16	0.019	O				1.69
18.333	0.12	0.16	0.018	O				1.67
18.417	0.12	0.15	0.018	O				1.65

18.500	0.12	0.15	0.018	|O	|	|	|	1.64
18.583	0.12	0.15	0.018	|O	|	|	|	1.62
18.667	0.12	0.14	0.018	|O	|	|	|	1.61
18.750	0.12	0.14	0.017	|O	|	|	|	1.60
18.833	0.11	0.14	0.017	|O	|	|	|	1.58
18.917	0.11	0.14	0.017	|O	|	|	|	1.57
19.000	0.11	0.13	0.017	|O	|	|	|	1.56
19.083	0.11	0.13	0.017	|O	|	|	|	1.55
19.167	0.11	0.13	0.017	|O	|	|	|	1.54
19.250	0.11	0.13	0.016	|O	|	|	|	1.53
19.333	0.11	0.12	0.016	IO	|	|	|	1.52
19.417	0.10	0.12	0.016	IO	|	|	|	1.51
19.500	0.10	0.12	0.016	IO	|	|	|	1.51
19.583	0.10	0.12	0.016	IO	|	|	|	1.50
19.667	0.10	0.12	0.016	IO	|	|	|	1.49
19.750	0.10	0.11	0.016	IO	|	|	|	1.48
19.833	0.10	0.11	0.016	IO	|	|	|	1.48
19.917	0.10	0.11	0.016	IO	|	|	|	1.47
20.000	0.10	0.11	0.015	IO	|	|	|	1.46
20.083	0.10	0.11	0.015	IO	|	|	|	1.46
20.167	0.09	0.11	0.015	IO	|	|	|	1.45
20.250	0.09	0.10	0.015	O	|	|	|	1.44
20.333	0.09	0.10	0.015	O	|	|	|	1.44
20.417	0.09	0.10	0.015	O	|	|	|	1.43
20.500	0.09	0.10	0.015	O	|	|	|	1.43
20.583	0.09	0.10	0.015	O	|	|	|	1.42
20.667	0.09	0.10	0.015	O	|	|	|	1.42
20.750	0.09	0.10	0.015	O	|	|	|	1.41
20.833	0.09	0.10	0.015	O	|	|	|	1.41
20.917	0.09	0.10	0.015	O	|	|	|	1.41
21.000	0.09	0.09	0.015	O	|	|	|	1.40
21.083	0.09	0.09	0.015	O	|	|	|	1.40
21.167	0.08	0.09	0.015	O	|	|	|	1.39
21.250	0.08	0.09	0.014	O	|	|	|	1.39
21.333	0.08	0.09	0.014	O	|	|	|	1.39
21.417	0.08	0.09	0.014	O	|	|	|	1.38
21.500	0.08	0.09	0.014	O	|	|	|	1.38
21.583	0.08	0.09	0.014	O	|	|	|	1.38
21.667	0.08	0.09	0.014	O	|	|	|	1.37
21.750	0.08	0.09	0.014	O	|	|	|	1.37
21.833	0.08	0.09	0.014	O	|	|	|	1.37
21.917	0.08	0.09	0.014	O	|	|	|	1.36
22.000	0.08	0.08	0.014	O	|	|	|	1.36
22.083	0.08	0.08	0.014	O	|	|	|	1.36
22.167	0.08	0.08	0.014	O	|	|	|	1.35
22.250	0.08	0.08	0.014	O	|	|	|	1.35
22.333	0.08	0.08	0.014	O	|	|	|	1.35
22.417	0.08	0.08	0.014	O	|	|	|	1.35
22.500	0.08	0.08	0.014	O	|	|	|	1.34
22.583	0.08	0.08	0.014	O	|	|	|	1.34
22.667	0.07	0.08	0.014	O	|	|	|	1.34
22.750	0.07	0.08	0.014	O	|	|	|	1.34
22.833	0.07	0.08	0.014	O	|	|	|	1.33
22.917	0.07	0.08	0.014	O	|	|	|	1.33

23.000	0.07	0.08	0.014	O	|	|	|	| 1.33
23.083	0.07	0.08	0.014	O	|	|	|	| 1.33
23.167	0.07	0.08	0.014	O	|	|	|	| 1.33
23.250	0.07	0.08	0.014	O	|	|	|	| 1.32
23.333	0.07	0.08	0.013	O	|	|	|	| 1.32
23.417	0.07	0.08	0.013	O	|	|	|	| 1.32
23.500	0.07	0.07	0.013	O	|	|	|	| 1.32
23.583	0.07	0.07	0.013	O	|	|	|	| 1.32
23.667	0.07	0.07	0.013	O	|	|	|	| 1.31
23.750	0.07	0.07	0.013	O	|	|	|	| 1.31
23.833	0.07	0.07	0.013	O	|	|	|	| 1.31
23.917	0.07	0.07	0.013	O	|	|	|	| 1.31
24.000	0.07	0.07	0.013	O	|	|	|	| 1.31
24.083	0.06	0.07	0.013	O	|	|	|	| 1.30
24.167	0.04	0.07	0.013	O	|	|	|	| 1.29
24.250	0.02	0.06	0.013	O	|	|	|	| 1.27
24.333	0.01	0.06	0.013	O	|	|	|	| 1.25
24.417	0.01	0.05	0.012	O	|	|	|	| 1.23
24.500	0.01	0.05	0.012	O	|	|	|	| 1.21
24.583	0.00	0.04	0.012	O	|	|	|	| 1.19
24.667	0.00	0.04	0.011	O	|	|	|	| 1.17
24.750	0.00	0.04	0.011	O	|	|	|	| 1.15
24.833	0.00	0.03	0.011	O	|	|	|	| 1.13
24.917	0.00	0.03	0.011	O	|	|	|	| 1.12
25.000	0.00	0.02	0.010	O	|	|	|	| 1.11

Remaining water in basin = 0.01 (Ac.Ft)

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

Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.716 (CFS)
Total volume = 0.265 (Ac.Ft)

Status of hydrographs being held in storage

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

****

TT 20527

AREA A3-A:
DA3 - BMP 3

ROUTING

FLOOD HYDROGRAPH ROUTING PROGRAM
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Study date: 07/07/22

ROUTING TO INFILTRATION BASIN
TR 18345, CITY OF VICTORVILLE
AREA A3A
FILE: 18345ROUTINGA3A.OUT

Program License Serial Number 4070

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

From study/file name: 18345HYDROA3APOST100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 5.872 (CFS)
Total volume = 0.491 (Ac.Ft)

Status of hydrographs being held in storage

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

****

++
Process from Point/Station 7.000 to Point/Station 8.000
**** RETARDING BASIN ROUTING ****

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.))
Total outflow at this depth = 0.00(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.))
Pipe length = 25.00(Ft.) Elevation difference = 0.25(Ft.)
Manning's N = 0.022 No. of pipes = 1
Given pipe size = 12.00(In.)

```
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      1.050(Ft.)
Pipe friction loss =      0.629(Ft.)
Minor friction loss =      0.421(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      3.338(CFS)

Total outflow at this depth =      3.34(CFS)


CALCULATED OUTFLOW DATA AT DEPTH =    6.00(Ft.))
Pipe length  =    25.00(Ft.)   Elevation difference =   0.25(Ft.)
Manning's N = 0.022   No. of pipes = 1
Given pipe size =     12.00(In.)
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      2.050(Ft.)
Pipe friction loss =      1.227(Ft.)
Minor friction loss =      0.822(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      4.664(CFS)

Total outflow at this depth =      4.66(CFS)

---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 300
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
    0.000      0.000      0.000      0.000        0.000
    2.000      0.022      0.000      0.022        0.022
    5.000      0.074      3.338      0.063        0.085
    6.000      0.085      4.664      0.069        0.101
---------------------------------------------------------------------
            Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                        Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       1.5    2.94    4.40    5.87 (Ft.)
 0.083    0.01    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.05    0.00      0.000  O       |       |       |       |     0.02
 0.250    0.08    0.00      0.001  O       |       |       |       |     0.06
 0.333    0.09    0.00      0.001  O       |       |       |       |     0.12
```

0.417	0.10	0.00	0.002	O	|	|	|	0.18
0.500	0.11	0.00	0.003	O	|	|	|	0.24
0.583	0.11	0.00	0.003	O	|	|	|	0.31
0.667	0.11	0.00	0.004	O	|	|	|	0.38
0.750	0.12	0.00	0.005	O	|	|	|	0.45
0.833	0.12	0.00	0.006	O	|	|	|	0.53
0.917	0.12	0.00	0.007	O	|	|	|	0.60
1.000	0.12	0.00	0.007	O	|	|	|	0.68
1.083	0.12	0.00	0.008	O	|	|	|	0.75
1.167	0.12	0.00	0.009	O	|	|	|	0.83
1.250	0.12	0.00	0.010	O	|	|	|	0.90
1.333	0.12	0.00	0.011	O	|	|	|	0.98
1.417	0.12	0.00	0.012	O	|	|	|	1.05
1.500	0.12	0.00	0.012	O	|	|	|	1.13
1.583	0.12	0.00	0.013	O	|	|	|	1.21
1.667	0.12	0.00	0.014	O	|	|	|	1.29
1.750	0.12	0.00	0.015	O	|	|	|	1.36
1.833	0.12	0.00	0.016	O	|	|	|	1.44
1.917	0.12	0.00	0.017	O	|	|	|	1.52
2.000	0.12	0.00	0.018	O	|	|	|	1.59
2.083	0.12	0.00	0.018	O	|	|	|	1.67
2.167	0.13	0.00	0.019	O	|	|	|	1.75
2.250	0.13	0.00	0.020	O	|	|	|	1.83
2.333	0.13	0.00	0.021	O	|	|	|	1.91
2.417	0.13	0.00	0.022	O	|	|	|	1.99
2.500	0.13	0.04	0.023	O	|	|	|	2.03
2.583	0.13	0.07	0.023	O	|	|	|	2.06
2.667	0.13	0.09	0.023	O	|	|	|	2.08
2.750	0.13	0.10	0.024	O	|	|	|	2.09
2.833	0.13	0.11	0.024	O	|	|	|	2.10
2.917	0.13	0.12	0.024	O	|	|	|	2.11
3.000	0.13	0.12	0.024	O	|	|	|	2.11
3.083	0.13	0.12	0.024	O	|	|	|	2.11
3.167	0.13	0.13	0.024	O	|	|	|	2.11
3.250	0.13	0.13	0.024	O	|	|	|	2.11
3.333	0.13	0.13	0.024	O	|	|	|	2.12
3.417	0.13	0.13	0.024	O	|	|	|	2.12
3.500	0.13	0.13	0.024	O	|	|	|	2.12
3.583	0.13	0.13	0.024	O	|	|	|	2.12
3.667	0.13	0.13	0.024	O	|	|	|	2.12
3.750	0.13	0.13	0.024	O	|	|	|	2.12
3.833	0.13	0.13	0.024	O	|	|	|	2.12
3.917	0.13	0.13	0.024	O	|	|	|	2.12
4.000	0.13	0.13	0.024	O	|	|	|	2.12
4.083	0.13	0.13	0.024	O	|	|	|	2.12
4.167	0.13	0.13	0.024	O	|	|	|	2.12
4.250	0.13	0.13	0.024	O	|	|	|	2.12
4.333	0.14	0.13	0.024	O	|	|	|	2.12
4.417	0.14	0.13	0.024	O	|	|	|	2.12
4.500	0.14	0.13	0.024	O	|	|	|	2.12
4.583	0.14	0.14	0.024	O	|	|	|	2.12
4.667	0.14	0.14	0.024	O	|	|	|	2.12
4.750	0.14	0.14	0.024	O	|	|	|	2.12
4.833	0.14	0.14	0.024	O	|	|	|	2.12

4.917	0.14	0.14	0.024	O				2.12
5.000	0.14	0.14	0.024	O				2.12
5.083	0.14	0.14	0.024	O				2.12
5.167	0.14	0.14	0.024	O				2.12
5.250	0.14	0.14	0.024	O				2.12
5.333	0.14	0.14	0.024	O				2.13
5.417	0.14	0.14	0.024	O				2.13
5.500	0.14	0.14	0.024	O				2.13
5.583	0.14	0.14	0.024	O				2.13
5.667	0.14	0.14	0.024	O				2.13
5.750	0.14	0.14	0.024	O				2.13
5.833	0.14	0.14	0.024	O				2.13
5.917	0.14	0.14	0.024	O				2.13
6.000	0.14	0.14	0.024	O				2.13
6.083	0.15	0.14	0.024	O				2.13
6.167	0.15	0.14	0.024	O				2.13
6.250	0.15	0.15	0.024	O				2.13
6.333	0.15	0.15	0.024	O				2.13
6.417	0.15	0.15	0.024	O				2.13
6.500	0.15	0.15	0.024	O				2.13
6.583	0.15	0.15	0.024	O				2.13
6.667	0.15	0.15	0.024	O				2.13
6.750	0.15	0.15	0.024	O				2.13
6.833	0.15	0.15	0.024	O				2.13
6.917	0.15	0.15	0.024	O				2.13
7.000	0.15	0.15	0.024	O				2.14
7.083	0.15	0.15	0.024	O				2.14
7.167	0.15	0.15	0.024	O				2.14
7.250	0.15	0.15	0.024	O				2.14
7.333	0.15	0.15	0.024	O				2.14
7.417	0.15	0.15	0.024	O				2.14
7.500	0.16	0.15	0.024	O				2.14
7.583	0.16	0.15	0.024	O				2.14
7.667	0.16	0.16	0.024	O				2.14
7.750	0.16	0.16	0.024	O				2.14
7.833	0.16	0.16	0.024	O				2.14
7.917	0.16	0.16	0.024	O				2.14
8.000	0.16	0.16	0.024	O				2.14
8.083	0.16	0.16	0.024	O				2.14
8.167	0.16	0.16	0.024	O				2.14
8.250	0.16	0.16	0.025	O				2.14
8.333	0.16	0.16	0.025	O				2.14
8.417	0.16	0.16	0.025	O				2.15
8.500	0.16	0.16	0.025	O				2.15
8.583	0.17	0.16	0.025	O				2.15
8.667	0.17	0.16	0.025	O				2.15
8.750	0.17	0.17	0.025	O				2.15
8.833	0.17	0.17	0.025	O				2.15
8.917	0.17	0.17	0.025	O				2.15
9.000	0.17	0.17	0.025	O				2.15
9.083	0.17	0.17	0.025	O				2.15
9.167	0.17	0.17	0.025	O				2.15
9.250	0.17	0.17	0.025	O				2.15
9.333	0.17	0.17	0.025	O				2.15

9.417	0.17	0.17	0.025	O				2.15
9.500	0.18	0.17	0.025	O				2.16
9.583	0.18	0.17	0.025	O				2.16
9.667	0.18	0.18	0.025	O				2.16
9.750	0.18	0.18	0.025	O				2.16
9.833	0.18	0.18	0.025	O				2.16
9.917	0.18	0.18	0.025	O				2.16
10.000	0.18	0.18	0.025	O				2.16
10.083	0.18	0.18	0.025	O				2.16
10.167	0.18	0.18	0.025	OI				2.16
10.250	0.19	0.18	0.025	OI				2.16
10.333	0.19	0.18	0.025	|O				2.17
10.417	0.19	0.18	0.025	|O				2.17
10.500	0.19	0.19	0.025	|O				2.17
10.583	0.19	0.19	0.025	|O				2.17
10.667	0.19	0.19	0.025	|O				2.17
10.750	0.19	0.19	0.025	|O				2.17
10.833	0.19	0.19	0.025	|O				2.17
10.917	0.20	0.19	0.025	|O				2.17
11.000	0.20	0.19	0.025	|O				2.17
11.083	0.20	0.20	0.025	|O				2.18
11.167	0.20	0.20	0.025	|O				2.18
11.250	0.20	0.20	0.025	|O				2.18
11.333	0.20	0.20	0.025	|O				2.18
11.417	0.20	0.20	0.025	|O				2.18
11.500	0.21	0.20	0.025	|O				2.18
11.583	0.21	0.20	0.025	|O				2.18
11.667	0.21	0.21	0.025	|O				2.19
11.750	0.21	0.21	0.025	|O				2.19
11.833	0.21	0.21	0.025	|O				2.19
11.917	0.22	0.21	0.025	|O				2.19
12.000	0.22	0.21	0.025	|O				2.19
12.083	0.22	0.21	0.025	|O				2.19
12.167	0.20	0.21	0.025	|O				2.19
12.250	0.19	0.21	0.025	|O				2.19
12.333	0.19	0.20	0.025	|O				2.18
12.417	0.19	0.20	0.025	|O				2.18
12.500	0.19	0.20	0.025	|O				2.18
12.583	0.19	0.19	0.025	|O				2.17
12.667	0.19	0.19	0.025	|O				2.17
12.750	0.20	0.19	0.025	|O				2.17
12.833	0.20	0.19	0.025	|O				2.17
12.917	0.20	0.20	0.025	|O				2.18
13.000	0.20	0.20	0.025	|O				2.18
13.083	0.21	0.20	0.025	|O				2.18
13.167	0.21	0.20	0.025	|O				2.18
13.250	0.21	0.21	0.025	|O				2.18
13.333	0.22	0.21	0.025	|O				2.19
13.417	0.22	0.21	0.025	|O				2.19
13.500	0.22	0.21	0.025	|O				2.19
13.583	0.23	0.22	0.025	|O				2.20
13.667	0.23	0.22	0.025	|O				2.20
13.750	0.23	0.23	0.026	|O				2.20
13.833	0.24	0.23	0.026	|O				2.21

13.917	0.24	0.23	0.026	O				2.21
14.000	0.25	0.24	0.026	O				2.21
14.083	0.25	0.24	0.026	O				2.22
14.167	0.26	0.25	0.026	O				2.22
14.250	0.27	0.25	0.026	O				2.23
14.333	0.27	0.26	0.026	O				2.23
14.417	0.28	0.27	0.026	O				2.24
14.500	0.29	0.27	0.026	O				2.24
14.583	0.29	0.28	0.026	O				2.25
14.667	0.30	0.29	0.026	O				2.26
14.750	0.31	0.29	0.027	O				2.26
14.833	0.32	0.30	0.027	O				2.27
14.917	0.33	0.31	0.027	O				2.28
15.000	0.35	0.32	0.027	O				2.29
15.083	0.36	0.33	0.027	O				2.30
15.167	0.38	0.35	0.027	OI				2.31
15.250	0.39	0.36	0.028	OI				2.32
15.333	0.42	0.38	0.028	O				2.34
15.417	0.43	0.39	0.028	O				2.35
15.500	0.40	0.40	0.028	O				2.36
15.583	0.39	0.40	0.028	O				2.36
15.667	0.41	0.40	0.028	O				2.36
15.750	0.45	0.41	0.028	O				2.37
15.833	0.51	0.43	0.029	O				2.39
15.917	0.61	0.48	0.029	OI				2.43
16.000	0.88	0.58	0.031	OI				2.52
16.083	2.07	0.90	0.036	O	I			2.81
16.167	**5.87**	2.01	0.053		O		I	3.81
16.250	4.39	3.14	0.071			O I		4.82
16.333	2.25	**3.21**	**0.072**		**I**	**O**		**4.88**
16.417	1.49	2.72	0.064		I O			4.45
16.500	1.13	2.21	**0.056**		**I**	**O**		**3.99**
16.583	0.91	1.78	0.050	I	O			3.60
16.667	0.75	1.44	0.044	I O				3.29
16.750	0.63	1.17	0.040	I O				3.05
16.833	0.52	0.95	0.037	I O				2.85
16.917	0.46	0.78	0.034	I O				2.70
17.000	0.43	0.66	0.032	IO				2.59
17.083	0.39	0.57	0.031	IO				2.51
17.167	0.29	0.49	0.030	IO				2.44
17.250	0.28	0.41	0.028	IO				2.37
17.333	0.26	0.36	0.028	O				2.32
17.417	0.25	0.32	0.027	O				2.29
17.500	0.24	0.30	0.027	O				2.27
17.583	0.23	0.27	0.026	O				2.25
17.667	0.22	0.26	0.026	O				2.23
17.750	0.22	0.24	0.026	O				2.22
17.833	0.21	0.23	0.026	O				2.21
17.917	0.20	0.22	0.025	O				2.20
18.000	0.20	0.21	0.025	O				2.19
18.083	0.19	0.21	0.025	O				2.19
18.167	0.21	0.20	0.025	O				2.18
18.250	0.21	0.21	0.025	O				2.19
18.333	0.21	0.21	0.025	O				2.19

18.417	0.21	0.21	0.025	|O	|	|	|	2.19
18.500	0.21	0.21	0.025	|O	|	|	|	2.19
18.583	0.21	0.21	0.025	|O	|	|	|	2.19
18.667	0.20	0.21	0.025	|O	|	|	|	2.19
18.750	0.20	0.21	0.025	|O	|	|	|	2.19
18.833	0.20	0.20	0.025	|O	|	|	|	2.18
18.917	0.20	0.20	0.025	|O	|	|	|	2.18
19.000	0.19	0.20	0.025	|O	|	|	|	2.18
19.083	0.19	0.20	0.025	|O	|	|	|	2.18
19.167	0.19	0.19	0.025	|O	|	|	|	2.17
19.250	0.19	0.19	0.025	|O	|	|	|	2.17
19.333	0.18	0.19	0.025	|O	|	|	|	2.17
19.417	0.18	0.19	0.025	IO	|	|	|	2.17
19.500	0.18	0.18	0.025	IO	|	|	|	2.17
19.583	0.18	0.18	0.025	O	|	|	|	2.16
19.667	0.18	0.18	0.025	O	|	|	|	2.16
19.750	0.17	0.18	0.025	O	|	|	|	2.16
19.833	0.17	0.18	0.025	O	|	|	|	2.16
19.917	0.17	0.17	0.025	O	|	|	|	2.16
20.000	0.17	0.17	0.025	O	|	|	|	2.15
20.083	0.17	0.17	0.025	O	|	|	|	2.15
20.167	0.16	0.17	0.025	O	|	|	|	2.15
20.250	0.16	0.17	0.025	O	|	|	|	2.15
20.333	0.16	0.17	0.025	O	|	|	|	2.15
20.417	0.16	0.16	0.025	O	|	|	|	2.15
20.500	0.16	0.16	0.025	O	|	|	|	2.15
20.583	0.16	0.16	0.024	O	|	|	|	2.14
20.667	0.16	0.16	0.024	O	|	|	|	2.14
20.750	0.15	0.16	0.024	O	|	|	|	2.14
20.833	0.15	0.16	0.024	O	|	|	|	2.14
20.917	0.15	0.15	0.024	O	|	|	|	2.14
21.000	0.15	0.15	0.024	O	|	|	|	2.14
21.083	0.15	0.15	0.024	O	|	|	|	2.14
21.167	0.15	0.15	0.024	O	|	|	|	2.14
21.250	0.15	0.15	0.024	O	|	|	|	2.13
21.333	0.15	0.15	0.024	O	|	|	|	2.13
21.417	0.14	0.15	0.024	O	|	|	|	2.13
21.500	0.14	0.15	0.024	O	|	|	|	2.13
21.583	0.14	0.15	0.024	O	|	|	|	2.13
21.667	0.14	0.14	0.024	O	|	|	|	2.13
21.750	0.14	0.14	0.024	O	|	|	|	2.13
21.833	0.14	0.14	0.024	O	|	|	|	2.13
21.917	0.14	0.14	0.024	O	|	|	|	2.13
22.000	0.14	0.14	0.024	O	|	|	|	2.13
22.083	0.14	0.14	0.024	O	|	|	|	2.12
22.167	0.14	0.14	0.024	O	|	|	|	2.12
22.250	0.14	0.14	0.024	O	|	|	|	2.12
22.333	0.13	0.14	0.024	O	|	|	|	2.12
22.417	0.13	0.14	0.024	O	|	|	|	2.12
22.500	0.13	0.13	0.024	O	|	|	|	2.12
22.583	0.13	0.13	0.024	O	|	|	|	2.12
22.667	0.13	0.13	0.024	O	|	|	|	2.12
22.750	0.13	0.13	0.024	O	|	|	|	2.12
22.833	0.13	0.13	0.024	O	|	|	|	2.12

22.917	0.13	0.13	0.024	O	|	|	|	| 2.12
23.000	0.13	0.13	0.024	O	|	|	|	| 2.12
23.083	0.13	0.13	0.024	O	|	|	|	| 2.12
23.167	0.13	0.13	0.024	O	|	|	|	| 2.12
23.250	0.13	0.13	0.024	O	|	|	|	| 2.11
23.333	0.13	0.13	0.024	O	|	|	|	| 2.11
23.417	0.12	0.13	0.024	O	|	|	|	| 2.11
23.500	0.12	0.13	0.024	O	|	|	|	| 2.11
23.583	0.12	0.12	0.024	O	|	|	|	| 2.11
23.667	0.12	0.12	0.024	O	|	|	|	| 2.11
23.750	0.12	0.12	0.024	O	|	|	|	| 2.11
23.833	0.12	0.12	0.024	O	|	|	|	| 2.11
23.917	0.12	0.12	0.024	O	|	|	|	| 2.11
24.000	0.12	0.12	0.024	O	|	|	|	| 2.11
24.083	0.11	0.12	0.024	O	|	|	|	| 2.11
24.167	0.07	0.11	0.024	O	|	|	|	| 2.10
24.250	0.04	0.09	0.023	O	|	|	|	| 2.08
24.333	0.02	0.07	0.023	O	|	|	|	| 2.06
24.417	0.02	0.05	0.023	O	|	|	|	| 2.05
24.500	0.01	0.04	0.023	O	|	|	|	| 2.03
24.583	0.01	0.03	0.022	O	|	|	|	| 2.02
24.667	0.01	0.02	0.022	O	|	|	|	| 2.02
24.750	0.00	0.01	0.022	O	|	|	|	| 2.01
24.833	0.00	0.01	0.022	O	|	|	|	| 2.01
24.917	0.00	0.01	0.022	O	|	|	|	| 2.01
25.000	0.00	0.00	0.022	O	|	|	|	| 2.00
25.083	0.00	0.00	0.022	O	|	|	|	| 2.00

Remaining water in basin = 0.02 (Ac.Ft)

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

Number of intervals = 301
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 3.206 (CFS)
Total volume = 0.469 (Ac.Ft)

Status of hydrographs being held in storage

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

****

TT 20527

AREA A3-B:
DA7 - BMP 7

ROUTING

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004
Study date: 06/30/22

ROUTING TO INFILTRATION BASIN
TR 20527**, CITY OF VICTORVILLE**
AREA A3B (EAST)
FILE: 18345ROUTINGA3B.OUT

Program License Serial Number 4070

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

From study/file name: 18345HYDROA3BPOST100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 299
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 3.322 (CFS)
Total volume = 0.269 (Ac.Ft)

Status of hydrographs being held in storage

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

****

++
Process from Point/Station 7.000 to Point/Station 9.000
**** RETARDING BASIN ROUTING ****
_____

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.))
Total outflow at this depth = 0.00(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 2.50(Ft.))
Pipe length = 15.00(Ft.) Elevation difference = 0.30(Ft.)
Manning's N = 0.012 No. of pipes = 3
Given pipe size = 6.00(In.)

```
Calculated individual pipe flow  =     0.118(CFS)
Normal flow depth in pipe =    1.50(In.)
Flow top width inside pipe =    5.20(In.)
Critical Depth =    0.17(Ft.)
Calculated flow rate through pipe(s) =      0.354(CFS)

Total outflow at this depth =      0.35(CFS)


CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.))
Pipe length  =    15.00(Ft.)   Elevation difference =   0.30(Ft.)
Manning's N = 0.012   No. of pipes = 3
Given pipe size =      6.00(In.)
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      0.970(Ft.)
Pipe friction loss =      0.390(Ft.)
Minor friction loss =      0.580(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      2.940(CFS)

Total outflow at this depth =      2.94(CFS)

---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 299
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
    0.000      0.000      0.000      0.000        0.000
    1.000      0.008      0.000      0.008        0.008
    2.500      0.027      0.354      0.026        0.028
    3.000      0.036      2.940      0.026        0.046
---------------------------------------------------------------------
            Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       0.8    1.66    2.49    3.32 (Ft.)
 0.083    0.00    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.03    0.00      0.000  O       |       |       |       |     0.02
 0.250    0.05    0.00      0.000  O       |       |       |       |     0.05
 0.333    0.05    0.00      0.001  O       |       |       |       |     0.10
 0.417    0.06    0.00      0.001  O       |       |       |       |     0.15
```

0.500	0.06	0.00	0.002	O				0.20
0.583	0.06	0.00	0.002	O				0.25
0.667	0.06	0.00	0.002	O				0.31
0.750	0.07	0.00	0.003	O				0.36
0.833	0.07	0.00	0.003	O				0.42
0.917	0.07	0.00	0.004	O				0.48
1.000	0.07	0.00	0.004	O				0.53
1.083	0.07	0.00	0.005	O				0.59
1.167	0.07	0.00	0.005	O				0.65
1.250	0.07	0.00	0.006	O				0.71
1.333	0.07	0.00	0.006	O				0.77
1.417	0.07	0.00	0.007	O				0.83
1.500	0.07	0.00	0.007	O				0.89
1.583	0.07	0.00	0.008	O				0.94
1.667	0.07	0.00	0.008	O				1.00
1.750	0.07	0.01	0.008	O				1.04
1.833	0.07	0.02	0.009	O				1.07
1.917	0.07	0.02	0.009	O				1.10
2.000	0.07	0.03	0.010	O				1.12
2.083	0.07	0.03	0.010	O				1.14
2.167	0.07	0.04	0.010	O				1.16
2.250	0.07	0.04	0.010	O				1.18
2.333	0.07	0.04	0.010	O				1.19
2.417	0.07	0.05	0.011	O				1.20
2.500	0.07	0.05	0.011	O				1.22
2.583	0.07	0.05	0.011	O				1.23
2.667	0.07	0.06	0.011	O				1.23
2.750	0.07	0.06	0.011	O				1.24
2.833	0.07	0.06	0.011	O				1.25
2.917	0.07	0.06	0.011	O				1.26
3.000	0.07	0.06	0.011	O				1.26
3.083	0.07	0.06	0.011	O				1.27
3.167	0.07	0.06	0.011	O				1.27
3.250	0.07	0.07	0.012	O				1.28
3.333	0.07	0.07	0.012	O				1.28
3.417	0.07	0.07	0.012	O				1.28
3.500	0.07	0.07	0.012	O				1.29
3.583	0.07	0.07	0.012	O				1.29
3.667	0.07	0.07	0.012	O				1.29
3.750	0.07	0.07	0.012	O				1.30
3.833	0.07	0.07	0.012	O				1.30
3.917	0.07	0.07	0.012	O				1.30
4.000	0.07	0.07	0.012	O				1.30
4.083	0.07	0.07	0.012	O				1.30
4.167	0.08	0.07	0.012	O				1.31
4.250	0.08	0.07	0.012	O				1.31
4.333	0.08	0.07	0.012	O				1.31
4.417	0.08	0.07	0.012	O				1.31
4.500	0.08	0.07	0.012	O				1.31
4.583	0.08	0.07	0.012	O				1.31
4.667	0.08	0.07	0.012	O				1.31
4.750	0.08	0.07	0.012	O				1.32
4.833	0.08	0.07	0.012	O				1.32
4.917	0.08	0.07	0.012	O				1.32

5.000	0.08	0.08	0.012	O	|	|	|	| 1.32
5.083	0.08	0.08	0.012	O	|	|	|	| 1.32
5.167	0.08	0.08	0.012	O	|	|	|	| 1.32
5.250	0.08	0.08	0.012	O	|	|	|	| 1.32
5.333	0.08	0.08	0.012	O	|	|	|	| 1.32
5.417	0.08	0.08	0.012	O	|	|	|	| 1.33
5.500	0.08	0.08	0.012	O	|	|	|	| 1.33
5.583	0.08	0.08	0.012	O	|	|	|	| 1.33
5.667	0.08	0.08	0.012	O	|	|	|	| 1.33
5.750	0.08	0.08	0.012	O	|	|	|	| 1.33
5.833	0.08	0.08	0.012	O	|	|	|	| 1.33
5.917	0.08	0.08	0.012	O	|	|	|	| 1.33
6.000	0.08	0.08	0.012	O	|	|	|	| 1.33
6.083	0.08	0.08	0.012	O	|	|	|	| 1.34
6.167	0.08	0.08	0.012	O	|	|	|	| 1.34
6.250	0.08	0.08	0.012	O	|	|	|	| 1.34
6.333	0.08	0.08	0.012	O	|	|	|	| 1.34
6.417	0.08	0.08	0.012	O	|	|	|	| 1.34
6.500	0.08	0.08	0.012	O	|	|	|	| 1.34
6.583	0.08	0.08	0.012	O	|	|	|	| 1.34
6.667	0.08	0.08	0.012	O	|	|	|	| 1.34
6.750	0.08	0.08	0.012	O	|	|	|	| 1.35
6.833	0.08	0.08	0.012	O	|	|	|	| 1.35
6.917	0.08	0.08	0.012	O	|	|	|	| 1.35
7.000	0.08	0.08	0.012	O	|	|	|	| 1.35
7.083	0.09	0.08	0.012	O	|	|	|	| 1.35
7.167	0.09	0.08	0.012	O	|	|	|	| 1.35
7.250	0.09	0.08	0.012	O	|	|	|	| 1.35
7.333	0.09	0.08	0.013	O	|	|	|	| 1.36
7.417	0.09	0.08	0.013	O	|	|	|	| 1.36
7.500	0.09	0.08	0.013	O	|	|	|	| 1.36
7.583	0.09	0.08	0.013	O	|	|	|	| 1.36
7.667	0.09	0.09	0.013	O	|	|	|	| 1.36
7.750	0.09	0.09	0.013	O	|	|	|	| 1.36
7.833	0.09	0.09	0.013	O	|	|	|	| 1.36
7.917	0.09	0.09	0.013	O	|	|	|	| 1.37
8.000	0.09	0.09	0.013	O	|	|	|	| 1.37
8.083	0.09	0.09	0.013	O	|	|	|	| 1.37
8.167	0.09	0.09	0.013	O	|	|	|	| 1.37
8.250	0.09	0.09	0.013	O	|	|	|	| 1.37
8.333	0.09	0.09	0.013	O	|	|	|	| 1.37
8.417	0.09	0.09	0.013	O	|	|	|	| 1.38
8.500	0.09	0.09	0.013	O	|	|	|	| 1.38
8.583	0.09	0.09	0.013	O	|	|	|	| 1.38
8.667	0.09	0.09	0.013	O	|	|	|	| 1.38
8.750	0.09	0.09	0.013	O	|	|	|	| 1.38
8.833	0.09	0.09	0.013	O	|	|	|	| 1.38
8.917	0.09	0.09	0.013	O	|	|	|	| 1.39
9.000	0.10	0.09	0.013	O	|	|	|	| 1.39
9.083	0.10	0.09	0.013	O	|	|	|	| 1.39
9.167	0.10	0.09	0.013	O	|	|	|	| 1.39
9.250	0.10	0.09	0.013	O	|	|	|	| 1.39
9.333	0.10	0.09	0.013	O	|	|	|	| 1.40
9.417	0.10	0.09	0.013	O	|	|	|	| 1.40

9.500	0.10	0.09	0.013	O				1.40
9.583	0.10	0.09	0.013	O				1.40
9.667	0.10	0.10	0.013	O				1.40
9.750	0.10	0.10	0.013	O				1.41
9.833	0.10	0.10	0.013	O				1.41
9.917	0.10	0.10	0.013	O				1.41
10.000	0.10	0.10	0.013	O				1.41
10.083	0.10	0.10	0.013	O				1.42
10.167	0.10	0.10	0.013	O				1.42
10.250	0.10	0.10	0.013	O				1.42
10.333	0.10	0.10	0.013	OI				1.42
10.417	0.11	0.10	0.013	OI				1.43
10.500	0.11	0.10	0.013	OI				1.43
10.583	0.11	0.10	0.013	OI				1.43
10.667	0.11	0.10	0.013	OI				1.43
10.750	0.11	0.10	0.014	OI				1.44
10.833	0.11	0.10	0.014	OI				1.44
10.917	0.11	0.10	0.014	|O				1.44
11.000	0.11	0.10	0.014	|O				1.45
11.083	0.11	0.11	0.014	|O				1.45
11.167	0.11	0.11	0.014	|O				1.45
11.250	0.11	0.11	0.014	|O				1.45
11.333	0.11	0.11	0.014	|O				1.46
11.417	0.11	0.11	0.014	|O				1.46
11.500	0.12	0.11	0.014	|O				1.46
11.583	0.12	0.11	0.014	|O				1.47
11.667	0.12	0.11	0.014	|O				1.47
11.750	0.12	0.11	0.014	|O				1.47
11.833	0.12	0.11	0.014	|O				1.48
11.917	0.12	0.11	0.014	|O				1.48
12.000	0.12	0.11	0.014	|O				1.49
12.083	0.12	0.12	0.014	|O				1.49
12.167	0.11	0.12	0.014	|O				1.49
12.250	0.11	0.11	0.014	|O				1.49
12.333	0.11	0.11	0.014	|O				1.48
12.417	0.11	0.11	0.014	|O				1.48
12.500	0.11	0.11	0.014	|O				1.48
12.583	0.11	0.11	0.014	|O				1.47
12.667	0.11	0.11	0.014	|O				1.47
12.750	0.11	0.11	0.014	|O				1.47
12.833	0.11	0.11	0.014	|O				1.47
12.917	0.11	0.11	0.014	|O				1.47
13.000	0.11	0.11	0.014	|O				1.47
13.083	0.12	0.11	0.014	|O				1.47
13.167	0.12	0.11	0.014	|O				1.47
13.250	0.12	0.11	0.014	|O				1.48
13.333	0.12	0.11	0.014	|O				1.48
13.417	0.12	0.11	0.014	|O				1.49
13.500	0.12	0.12	0.014	|O				1.49
13.583	0.13	0.12	0.014	|O				1.50
13.667	0.13	0.12	0.014	|O				1.50
13.750	0.13	0.12	0.014	|O				1.51
13.833	0.13	0.12	0.015	|O				1.51
13.917	0.14	0.12	0.015	|O				1.52

14.000	0.14	0.12	0.015	O				1.53
14.083	0.14	0.13	0.015	O				1.54
14.167	0.15	0.13	0.015	O				1.55
14.250	0.15	0.13	0.015	O				1.56
14.333	0.15	0.13	0.015	O				1.57
14.417	0.16	0.14	0.015	O				1.58
14.500	0.16	0.14	0.015	O				1.59
14.583	0.17	0.14	0.016	O				1.60
14.667	0.17	0.15	0.016	O				1.62
14.750	0.18	0.15	0.016	O				1.63
14.833	0.18	0.15	0.016	O				1.65
14.917	0.19	0.16	0.016	O				1.66
15.000	0.20	0.16	0.017	O				1.68
15.083	0.20	0.17	0.017	O				1.70
15.167	0.21	0.17	0.017	OI				1.72
15.250	0.22	0.18	0.017	OI				1.75
15.333	0.23	0.18	0.018	OI				1.77
15.417	0.24	0.19	0.018	OI				1.80
15.500	0.22	0.19	0.018	OI				1.82
15.583	0.22	0.20	0.019	OI				1.84
15.667	0.23	0.20	0.019	OI				1.85
15.750	0.25	0.21	0.019	OI				1.87
15.833	0.29	0.21	0.019	O				1.91
15.917	0.35	0.23	0.020	OI				1.96
16.000	0.52	0.25	0.022	O I				2.07
16.083	1.24	0.33	0.026	O	I			2.39
16.167	**3.32**	2.08	0.033			O	I	2.83
16.250	2.07	**2.69**	**0.035**			**I**	**O**	**2.95**
16.333	1.09	1.58	0.031		I O			2.74
16.417	0.73	0.91	0.029	IO				2.61
16.500	0.56	0.65	0.028	IO				2.56
16.583	0.45	0.51	0.028	O				2.53
16.667	0.37	0.41	0.027	O				2.51
16.750	0.30	0.35	0.027	IO				2.49
16.833	0.27	0.34	0.026	IO				2.46
16.917	0.24	0.33	0.026	IO				2.41
17.000	0.21	0.32	0.025	IO				2.36
17.083	0.17	0.30	**0.024**	**IO**				**2.29**
17.167	0.16	0.29	0.023	IO				2.22
17.250	0.15	0.27	0.023	IO				2.15
17.333	0.14	0.26	0.022	IO				2.09
17.417	0.14	0.24	0.021	IO				2.03
17.500	0.13	0.23	0.020	IO				1.98
17.583	0.13	0.22	0.020	IO				1.93
17.667	0.12	0.21	0.019	O				1.88
17.750	0.12	0.20	0.019	O				1.83
17.833	0.12	0.19	0.018	O				1.79
17.917	0.11	0.18	0.018	O				1.76
18.000	0.11	0.17	0.017	O				1.72
18.083	0.11	0.16	0.017	O				1.69
18.167	0.12	0.16	0.016	O				1.66
18.250	0.12	0.15	0.016	O				1.64
18.333	0.12	0.15	0.016	O				1.63
18.417	0.12	0.14	0.016	O				1.61

18.500	0.12	0.14	0.016	|O	|	|	|	1.60
18.583	0.12	0.14	0.015	|O	|	|	|	1.59
18.667	0.11	0.14	0.015	|O	|	|	|	1.57
18.750	0.11	0.13	0.015	|O	|	|	|	1.56
18.833	0.11	0.13	0.015	|O	|	|	|	1.55
18.917	0.11	0.13	0.015	|O	|	|	|	1.54
19.000	0.11	0.13	0.015	|O	|	|	|	1.53
19.083	0.11	0.12	0.015	|O	|	|	|	1.52
19.167	0.11	0.12	0.015	|O	|	|	|	1.51
19.250	0.10	0.12	0.014	|O	|	|	|	1.51
19.333	0.10	0.12	0.014	IO	|	|	|	1.50
19.417	0.10	0.12	0.014	IO	|	|	|	1.49
19.500	0.10	0.11	0.014	IO	|	|	|	1.48
19.583	0.10	0.11	0.014	IO	|	|	|	1.47
19.667	0.10	0.11	0.014	IO	|	|	|	1.47
19.750	0.10	0.11	0.014	IO	|	|	|	1.46
19.833	0.10	0.11	0.014	IO	|	|	|	1.45
19.917	0.09	0.11	0.014	IO	|	|	|	1.45
20.000	0.09	0.10	0.014	IO	|	|	|	1.44
20.083	0.09	0.10	0.014	O	|	|	|	1.44
20.167	0.09	0.10	0.013	O	|	|	|	1.43
20.250	0.09	0.10	0.013	O	|	|	|	1.43
20.333	0.09	0.10	0.013	O	|	|	|	1.42
20.417	0.09	0.10	0.013	O	|	|	|	1.42
20.500	0.09	0.10	0.013	O	|	|	|	1.41
20.583	0.09	0.10	0.013	O	|	|	|	1.41
20.667	0.09	0.09	0.013	O	|	|	|	1.40
20.750	0.09	0.09	0.013	O	|	|	|	1.40
20.833	0.09	0.09	0.013	O	|	|	|	1.39
20.917	0.08	0.09	0.013	O	|	|	|	1.39
21.000	0.08	0.09	0.013	O	|	|	|	1.39
21.083	0.08	0.09	0.013	O	|	|	|	1.38
21.167	0.08	0.09	0.013	O	|	|	|	1.38
21.250	0.08	0.09	0.013	O	|	|	|	1.38
21.333	0.08	0.09	0.013	O	|	|	|	1.37
21.417	0.08	0.09	0.013	O	|	|	|	1.37
21.500	0.08	0.09	0.013	O	|	|	|	1.37
21.583	0.08	0.09	0.013	O	|	|	|	1.36
21.667	0.08	0.08	0.013	O	|	|	|	1.36
21.750	0.08	0.08	0.013	O	|	|	|	1.36
21.833	0.08	0.08	0.012	O	|	|	|	1.35
21.917	0.08	0.08	0.012	O	|	|	|	1.35
22.000	0.08	0.08	0.012	O	|	|	|	1.35
22.083	0.08	0.08	0.012	O	|	|	|	1.34
22.167	0.08	0.08	0.012	O	|	|	|	1.34
22.250	0.08	0.08	0.012	O	|	|	|	1.34
22.333	0.07	0.08	0.012	O	|	|	|	1.34
22.417	0.07	0.08	0.012	O	|	|	|	1.33
22.500	0.07	0.08	0.012	O	|	|	|	1.33
22.583	0.07	0.08	0.012	O	|	|	|	1.33
22.667	0.07	0.08	0.012	O	|	|	|	1.33
22.750	0.07	0.08	0.012	O	|	|	|	1.33
22.833	0.07	0.08	0.012	O	|	|	|	1.32
22.917	0.07	0.08	0.012	O	|	|	|	1.32

23.000	0.07	0.08	0.012	O	|	|	|	|	1.32
23.083	0.07	0.07	0.012	O	|	|	|	|	1.32
23.167	0.07	0.07	0.012	O	|	|	|	|	1.31
23.250	0.07	0.07	0.012	O	|	|	|	|	1.31
23.333	0.07	0.07	0.012	O	|	|	|	|	1.31
23.417	0.07	0.07	0.012	O	|	|	|	|	1.31
23.500	0.07	0.07	0.012	O	|	|	|	|	1.31
23.583	0.07	0.07	0.012	O	|	|	|	|	1.31
23.667	0.07	0.07	0.012	O	|	|	|	|	1.30
23.750	0.07	0.07	0.012	O	|	|	|	|	1.30
23.833	0.07	0.07	0.012	O	|	|	|	|	1.30
23.917	0.07	0.07	0.012	O	|	|	|	|	1.30
24.000	0.07	0.07	0.012	O	|	|	|	|	1.30
24.083	0.06	0.07	0.012	O	|	|	|	|	1.29
24.167	0.03	0.07	0.012	O	|	|	|	|	1.28
24.250	0.02	0.06	0.011	O	|	|	|	|	1.26
24.333	0.01	0.06	0.011	O	|	|	|	|	1.24
24.417	0.01	0.05	0.011	O	|	|	|	|	1.21
24.500	0.00	0.05	0.010	O	|	|	|	|	1.19
24.583	0.00	0.04	0.010	O	|	|	|	|	1.17
24.667	0.00	0.04	0.010	O	|	|	|	|	1.15
24.750	0.00	0.03	0.010	O	|	|	|	|	1.13
24.833	0.00	0.03	0.010	O	|	|	|	|	1.12
24.917	0.00	0.02	0.009	O	|	|	|	|	1.10
25.000	0.00	0.02	0.009	O	|	|	|	|	1.09

Remaining water in basin = 0.01 (Ac.Ft)

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

Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.692 (CFS)
Total volume = 0.260 (Ac.Ft)

Status of hydrographs being held in storage

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

****

TT 20527

AREA A4-A:
DA4 - BMP 4

ROUTING

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004
Study date: 07/07/22

ROUTING TO INFILTRATION BASIN
TR 18345, CITY OF VICTORVILLE
AREA A4A
FILE: 18345ROUTINGA4A.OUT

Program License Serial Number 4070

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

From study/file name: 18345HYDROA4APOST100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 302
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.572 (CFS)
Total volume = 0.665 (Ac.Ft)

Status of hydrographs being held in storage

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

****

++
Process from Point/Station 10.000 to Point/Station 11.000
**** RETARDING BASIN ROUTING ****
_____

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.))
Total outflow at this depth = 0.00(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.))
Pipe length = 25.00(Ft.) Elevation difference = 0.25(Ft.)
Manning's N = 0.022 No. of pipes = 1
Given pipe size = 12.00(In.)

```
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      1.250(Ft.)
Pipe friction loss =      0.748(Ft.)
Minor friction loss =      0.501(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      3.642(CFS)

Total outflow at this depth =      3.64(CFS)


CALCULATED OUTFLOW DATA AT DEPTH =    6.00(Ft.))
Pipe length  =    25.00(Ft.)   Elevation difference =   0.25(Ft.)
Manning's N = 0.022   No. of pipes = 1
Given pipe size =     12.00(In.)
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      2.250(Ft.)
Pipe friction loss =      1.347(Ft.)
Minor friction loss =      0.902(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      4.887(CFS)

Total outflow at this depth =      4.89(CFS)

---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 302
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
    0.000      0.000      0.000      0.000        0.000
    2.000      0.022      0.000      0.022        0.022
    5.000      0.074      3.642      0.061        0.087
    6.000      0.085      4.887      0.068        0.102
---------------------------------------------------------------------
            Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                        Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       1.6    3.29    4.93    6.57 (Ft.)
 0.083    0.01    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.06    0.00      0.000  O       |       |       |       |     0.02
 0.250    0.10    0.00      0.001  O       |       |       |       |     0.07
 0.333    0.13    0.00      0.002  O       |       |       |       |     0.15
```

0.417	0.14	0.00	0.003	O	|	|	|	0.23
0.500	0.15	0.00	0.003	O	|	|	|	0.32
0.583	0.15	0.00	0.004	O	|	|	|	0.41
0.667	0.16	0.00	0.006	O	|	|	|	0.50
0.750	0.16	0.00	0.007	O	|	|	|	0.60
0.833	0.16	0.00	0.008	O	|	|	|	0.70
0.917	0.16	0.00	0.009	O	|	|	|	0.80
1.000	0.16	0.00	0.010	O	|	|	|	0.91
1.083	0.17	0.00	0.011	O	|	|	|	1.01
1.167	0.17	0.00	0.012	O	|	|	|	1.11
1.250	0.17	0.00	0.013	O	|	|	|	1.22
1.333	0.17	0.00	0.015	O	|	|	|	1.32
1.417	0.17	0.00	0.016	O	|	|	|	1.43
1.500	0.17	0.00	0.017	O	|	|	|	1.54
1.583	0.17	0.00	0.018	O	|	|	|	1.64
1.667	0.17	0.00	0.019	O	|	|	|	1.75
1.750	0.17	0.00	0.020	O	|	|	|	1.86
1.833	0.17	0.00	0.022	O	|	|	|	1.96
1.917	0.17	0.04	0.023	O	|	|	|	2.04
2.000	0.17	0.09	0.023	O	|	|	|	2.08
2.083	0.17	0.12	0.024	O	|	|	|	2.10
2.167	0.17	0.14	0.024	O	|	|	|	2.12
2.250	0.17	0.15	0.024	O	|	|	|	2.13
2.333	0.17	0.16	0.024	O	|	|	|	2.13
2.417	0.17	0.17	0.024	O	|	|	|	2.14
2.500	0.17	0.17	0.024	O	|	|	|	2.14
2.583	0.18	0.17	0.024	O	|	|	|	2.14
2.667	0.18	0.17	0.024	O	|	|	|	2.14
2.750	0.18	0.17	0.024	O	|	|	|	2.14
2.833	0.18	0.18	0.025	O	|	|	|	2.14
2.917	0.18	0.18	0.025	O	|	|	|	2.14
3.000	0.18	0.18	0.025	O	|	|	|	2.15
3.083	0.18	0.18	0.025	O	|	|	|	2.15
3.167	0.18	0.18	0.025	O	|	|	|	2.15
3.250	0.18	0.18	0.025	O	|	|	|	2.15
3.333	0.18	0.18	0.025	O	|	|	|	2.15
3.417	0.18	0.18	0.025	O	|	|	|	2.15
3.500	0.18	0.18	0.025	O	|	|	|	2.15
3.583	0.18	0.18	0.025	O	|	|	|	2.15
3.667	0.18	0.18	0.025	O	|	|	|	2.15
3.750	0.18	0.18	0.025	O	|	|	|	2.15
3.833	0.18	0.18	0.025	O	|	|	|	2.15
3.917	0.18	0.18	0.025	O	|	|	|	2.15
4.000	0.18	0.18	0.025	O	|	|	|	2.15
4.083	0.18	0.18	0.025	O	|	|	|	2.15
4.167	0.19	0.18	0.025	O	|	|	|	2.15
4.250	0.19	0.18	0.025	O	|	|	|	2.15
4.333	0.19	0.19	0.025	O	|	|	|	2.15
4.417	0.19	0.19	0.025	O	|	|	|	2.15
4.500	0.19	0.19	0.025	O	|	|	|	2.15
4.583	0.19	0.19	0.025	O	|	|	|	2.15
4.667	0.19	0.19	0.025	O	|	|	|	2.15
4.750	0.19	0.19	0.025	O	|	|	|	2.16
4.833	0.19	0.19	0.025	O	|	|	|	2.16

4.917	0.19	0.19	0.025	O	|	|	|	|	2.16
5.000	0.19	0.19	0.025	O	|	|	|	|	2.16
5.083	0.19	0.19	0.025	O	|	|	|	|	2.16
5.167	0.19	0.19	0.025	O	|	|	|	|	2.16
5.250	0.19	0.19	0.025	O	|	|	|	|	2.16
5.333	0.19	0.19	0.025	O	|	|	|	|	2.16
5.417	0.20	0.19	0.025	O	|	|	|	|	2.16
5.500	0.20	0.19	0.025	O	|	|	|	|	2.16
5.583	0.20	0.19	0.025	O	|	|	|	|	2.16
5.667	0.20	0.20	0.025	O	|	|	|	|	2.16
5.750	0.20	0.20	0.025	O	|	|	|	|	2.16
5.833	0.20	0.20	0.025	O	|	|	|	|	2.16
5.917	0.20	0.20	0.025	O	|	|	|	|	2.16
6.000	0.20	0.20	0.025	O	|	|	|	|	2.16
6.083	0.20	0.20	0.025	O	|	|	|	|	2.16
6.167	0.20	0.20	0.025	O	|	|	|	|	2.16
6.250	0.20	0.20	0.025	O	|	|	|	|	2.17
6.333	0.20	0.20	0.025	O	|	|	|	|	2.17
6.417	0.20	0.20	0.025	O	|	|	|	|	2.17
6.500	0.20	0.20	0.025	O	|	|	|	|	2.17
6.583	0.21	0.20	0.025	OI	|	|	|	|	2.17
6.667	0.21	0.20	0.025	OI	|	|	|	|	2.17
6.750	0.21	0.21	0.025	|O	|	|	|	|	2.17
6.833	0.21	0.21	0.025	|O	|	|	|	|	2.17
6.917	0.21	0.21	0.025	|O	|	|	|	|	2.17
7.000	0.21	0.21	0.025	|O	|	|	|	|	2.17
7.083	0.21	0.21	0.025	|O	|	|	|	|	2.17
7.167	0.21	0.21	0.025	|O	|	|	|	|	2.17
7.250	0.21	0.21	0.025	|O	|	|	|	|	2.17
7.333	0.21	0.21	0.025	|O	|	|	|	|	2.17
7.417	0.21	0.21	0.025	|O	|	|	|	|	2.17
7.500	0.22	0.21	0.025	|O	|	|	|	|	2.18
7.583	0.22	0.21	0.025	|O	|	|	|	|	2.18
7.667	0.22	0.22	0.025	|O	|	|	|	|	2.18
7.750	0.22	0.22	0.025	|O	|	|	|	|	2.18
7.833	0.22	0.22	0.025	|O	|	|	|	|	2.18
7.917	0.22	0.22	0.025	|O	|	|	|	|	2.18
8.000	0.22	0.22	0.025	|O	|	|	|	|	2.18
8.083	0.22	0.22	0.025	|O	|	|	|	|	2.18
8.167	0.22	0.22	0.025	|O	|	|	|	|	2.18
8.250	0.22	0.22	0.025	|O	|	|	|	|	2.18
8.333	0.23	0.22	0.025	|O	|	|	|	|	2.18
8.417	0.23	0.22	0.025	|O	|	|	|	|	2.18
8.500	0.23	0.23	0.025	|O	|	|	|	|	2.19
8.583	0.23	0.23	0.025	|O	|	|	|	|	2.19
8.667	0.23	0.23	0.025	|O	|	|	|	|	2.19
8.750	0.23	0.23	0.025	|O	|	|	|	|	2.19
8.833	0.23	0.23	0.025	|O	|	|	|	|	2.19
8.917	0.23	0.23	0.025	|O	|	|	|	|	2.19
9.000	0.23	0.23	0.025	|O	|	|	|	|	2.19
9.083	0.24	0.23	0.025	|O	|	|	|	|	2.19
9.167	0.24	0.23	0.025	|O	|	|	|	|	2.19
9.250	0.24	0.24	0.025	|O	|	|	|	|	2.19
9.333	0.24	0.24	0.025	|O	|	|	|	|	2.20

9.417	0.24	0.24	0.025	O				2.20
9.500	0.24	0.24	0.025	O				2.20
9.583	0.24	0.24	0.025	O				2.20
9.667	0.25	0.24	0.025	O				2.20
9.750	0.25	0.24	0.025	O				2.20
9.833	0.25	0.25	0.025	O				2.20
9.917	0.25	0.25	0.026	O				2.20
10.000	0.25	0.25	0.026	O				2.20
10.083	0.25	0.25	0.026	O				2.21
10.167	0.25	0.25	0.026	O				2.21
10.250	0.26	0.25	0.026	O				2.21
10.333	0.26	0.25	0.026	O				2.21
10.417	0.26	0.26	0.026	O				2.21
10.500	0.26	0.26	0.026	O				2.21
10.583	0.26	0.26	0.026	O				2.21
10.667	0.26	0.26	0.026	O				2.21
10.750	0.27	0.26	0.026	O				2.22
10.833	0.27	0.26	0.026	O				2.22
10.917	0.27	0.27	0.026	O				2.22
11.000	0.27	0.27	0.026	O				2.22
11.083	0.27	0.27	0.026	O				2.22
11.167	0.28	0.27	0.026	O				2.22
11.250	0.28	0.27	0.026	O				2.23
11.333	0.28	0.28	0.026	O				2.23
11.417	0.28	0.28	0.026	O				2.23
11.500	0.28	0.28	0.026	O				2.23
11.583	0.29	0.28	0.026	O				2.23
11.667	0.29	0.28	0.026	O				2.23
11.750	0.29	0.29	0.026	O				2.24
11.833	0.29	0.29	0.026	O				2.24
11.917	0.30	0.29	0.026	O				2.24
12.000	0.30	0.29	0.026	O				2.24
12.083	0.30	0.30	0.026	O				2.24
12.167	0.28	0.29	0.026	O				2.24
12.250	0.27	0.29	0.026	O				2.24
12.333	0.27	0.28	0.026	O				2.23
12.417	0.26	0.27	0.026	O				2.23
12.500	0.26	0.27	0.026	O				2.22
12.583	0.27	0.27	0.026	O				2.22
12.667	0.27	0.27	0.026	O				2.22
12.750	0.27	0.27	0.026	O				2.22
12.833	0.27	0.27	0.026	O				2.22
12.917	0.28	0.27	0.026	O				2.22
13.000	0.28	0.27	0.026	O				2.23
13.083	0.28	0.28	0.026	O				2.23
13.167	0.29	0.28	0.026	O				2.23
13.250	0.29	0.28	0.026	O				2.23
13.333	0.30	0.29	0.026	O				2.24
13.417	0.30	0.29	0.026	O				2.24
13.500	0.31	0.30	0.026	O				2.24
13.583	0.31	0.30	0.026	O				2.25
13.667	0.32	0.31	0.026	O				2.25
13.750	0.32	0.31	0.026	O				2.26
13.833	0.33	0.32	0.027	O				2.26

13.917	0.34	0.32	0.027	O				2.27
14.000	0.34	0.33	0.027	O				2.27
14.083	0.35	0.34	0.027	O				2.28
14.167	0.36	0.34	0.027	O				2.28
14.250	0.37	0.35	0.027	O				2.29
14.333	0.37	0.36	0.027	O				2.29
14.417	0.38	0.37	0.027	O				2.30
14.500	0.39	0.38	0.027	O				2.31
14.583	0.41	0.38	0.027	O				2.32
14.667	0.42	0.39	0.028	OI				2.33
14.750	0.43	0.41	0.028	OI				2.33
14.833	0.44	0.42	0.028	O				2.34
14.917	0.46	0.43	0.028	O				2.36
15.000	0.48	0.45	0.028	O				2.37
15.083	0.49	0.46	0.029	O				2.38
15.167	0.52	0.48	0.029	O				2.39
15.250	0.54	0.50	0.029	O				2.41
15.333	0.57	0.52	0.029	O				2.43
15.417	0.59	0.54	0.030	O				2.45
15.500	0.56	0.55	0.030	O				2.46
15.583	0.54	0.55	0.030	O				2.46
15.667	0.56	0.55	0.030	O				2.45
15.750	0.61	0.57	0.030	O				2.47
15.833	0.69	0.60	0.031	OI				2.49
15.917	0.81	0.66	0.031	O				2.54
16.000	1.14	0.78	0.033	O I				2.64
16.083	2.43	1.17	0.039	O	I			2.96
16.167	**6.57**	2.46	0.057		O		I	4.03
16.250	5.94	4.07	0.078			O	I	5.34
16.333	3.08	**4.31**	**0.080**		**I**	**O**		**5.54**
16.417	2.05	3.43	0.071		I O			4.82
16.500	1.58	2.80	**0.062**		**I O**			**4.31**
16.583	1.27	2.26	0.054		I O			3.87
16.667	1.07	1.84	0.048		I O			3.51
16.750	0.90	1.51	0.043		I O			3.24
16.833	0.77	1.25	0.040	I O				3.03
16.917	0.65	1.04	0.037	I O				2.85
17.000	0.58	0.87	0.034	I O				2.72
17.083	0.56	0.76	0.033	IO				2.62
17.167	0.50	0.67	0.032	IO				2.55
17.250	0.44	0.59	0.030	O				2.49
17.333	0.37	0.52	0.029	IO				2.43
17.417	0.35	0.46	0.029	IO				2.38
17.500	0.34	0.41	0.028	IO				2.34
17.583	0.33	0.38	0.027	O				2.32
17.667	0.31	0.36	0.027	O				2.29
17.750	0.30	0.34	0.027	O				2.28
17.833	0.29	0.32	0.027	O				2.27
17.917	0.28	0.31	0.026	O				2.25
18.000	0.28	0.30	0.026	O				2.25
18.083	0.27	0.29	0.026	O				2.24
18.167	0.28	0.28	0.026	O				2.23
18.250	0.29	0.29	0.026	O				2.23
18.333	0.29	0.29	0.026	O				2.24

18.417	0.29	0.29	0.026	|O	|	|	|	2.24
18.500	0.29	0.29	0.026	|O	|	|	|	2.24
18.583	0.29	0.29	0.026	|O	|	|	|	2.24
18.667	0.28	0.29	0.026	|O	|	|	|	2.24
18.750	0.28	0.29	0.026	|O	|	|	|	2.24
18.833	0.28	0.28	0.026	|O	|	|	|	2.23
18.917	0.27	0.28	0.026	|O	|	|	|	2.23
19.000	0.27	0.28	0.026	|O	|	|	|	2.23
19.083	0.27	0.27	0.026	|O	|	|	|	2.22
19.167	0.26	0.27	0.026	|O	|	|	|	2.22
19.250	0.26	0.27	0.026	|O	|	|	|	2.22
19.333	0.26	0.26	0.026	|O	|	|	|	2.22
19.417	0.25	0.26	0.026	|O	|	|	|	2.21
19.500	0.25	0.26	0.026	|O	|	|	|	2.21
19.583	0.25	0.25	0.026	|O	|	|	|	2.21
19.667	0.24	0.25	0.026	|O	|	|	|	2.21
19.750	0.24	0.25	0.026	|O	|	|	|	2.20
19.833	0.24	0.24	0.025	|O	|	|	|	2.20
19.917	0.24	0.24	0.025	|O	|	|	|	2.20
20.000	0.23	0.24	0.025	|O	|	|	|	2.20
20.083	0.23	0.24	0.025	|O	|	|	|	2.19
20.167	0.23	0.23	0.025	|O	|	|	|	2.19
20.250	0.23	0.23	0.025	|O	|	|	|	2.19
20.333	0.22	0.23	0.025	|O	|	|	|	2.19
20.417	0.22	0.23	0.025	|O	|	|	|	2.19
20.500	0.22	0.22	0.025	|O	|	|	|	2.18
20.583	0.22	0.22	0.025	|O	|	|	|	2.18
20.667	0.22	0.22	0.025	|O	|	|	|	2.18
20.750	0.21	0.22	0.025	|O	|	|	|	2.18
20.833	0.21	0.22	0.025	|O	|	|	|	2.18
20.917	0.21	0.21	0.025	|O	|	|	|	2.18
21.000	0.21	0.21	0.025	|O	|	|	|	2.17
21.083	0.21	0.21	0.025	|O	|	|	|	2.17
21.167	0.21	0.21	0.025	IO	|	|	|	2.17
21.250	0.20	0.21	0.025	IO	|	|	|	2.17
21.333	0.20	0.21	0.025	IO	|	|	|	2.17
21.417	0.20	0.20	0.025	O	|	|	|	2.17
21.500	0.20	0.20	0.025	O	|	|	|	2.17
21.583	0.20	0.20	0.025	O	|	|	|	2.17
21.667	0.20	0.20	0.025	O	|	|	|	2.16
21.750	0.19	0.20	0.025	O	|	|	|	2.16
21.833	0.19	0.20	0.025	O	|	|	|	2.16
21.917	0.19	0.20	0.025	O	|	|	|	2.16
22.000	0.19	0.19	0.025	O	|	|	|	2.16
22.083	0.19	0.19	0.025	O	|	|	|	2.16
22.167	0.19	0.19	0.025	O	|	|	|	2.16
22.250	0.19	0.19	0.025	O	|	|	|	2.16
22.333	0.19	0.19	0.025	O	|	|	|	2.16
22.417	0.18	0.19	0.025	O	|	|	|	2.15
22.500	0.18	0.19	0.025	O	|	|	|	2.15
22.583	0.18	0.18	0.025	O	|	|	|	2.15
22.667	0.18	0.18	0.025	O	|	|	|	2.15
22.750	0.18	0.18	0.025	O	|	|	|	2.15
22.833	0.18	0.18	0.025	O	|	|	|	2.15

22.917	0.18	0.18	0.025	O	|	|	|	| 2.15
23.000	0.18	0.18	0.025	O	|	|	|	| 2.15
23.083	0.18	0.18	0.025	O	|	|	|	| 2.15
23.167	0.18	0.18	0.025	O	|	|	|	| 2.15
23.250	0.17	0.18	0.025	O	|	|	|	| 2.15
23.333	0.17	0.18	0.025	O	|	|	|	| 2.14
23.417	0.17	0.17	0.024	O	|	|	|	| 2.14
23.500	0.17	0.17	0.024	O	|	|	|	| 2.14
23.583	0.17	0.17	0.024	O	|	|	|	| 2.14
23.667	0.17	0.17	0.024	O	|	|	|	| 2.14
23.750	0.17	0.17	0.024	O	|	|	|	| 2.14
23.833	0.17	0.17	0.024	O	|	|	|	| 2.14
23.917	0.17	0.17	0.024	O	|	|	|	| 2.14
24.000	0.17	0.17	0.024	O	|	|	|	| 2.14
24.083	0.16	0.17	0.024	O	|	|	|	| 2.14
24.167	0.11	0.15	0.024	O	|	|	|	| 2.13
24.250	0.06	0.13	0.024	O	|	|	|	| 2.10
24.333	0.04	0.10	0.023	O	|	|	|	| 2.08
24.417	0.03	0.07	0.023	O	|	|	|	| 2.06
24.500	0.02	0.05	0.023	O	|	|	|	| 2.04
24.583	0.01	0.04	0.023	O	|	|	|	| 2.03
24.667	0.01	0.03	0.022	O	|	|	|	| 2.02
24.750	0.01	0.02	0.022	O	|	|	|	| 2.02
24.833	0.00	0.01	0.022	O	|	|	|	| 2.01
24.917	0.00	0.01	0.022	O	|	|	|	| 2.01
25.000	0.00	0.01	0.022	O	|	|	|	| 2.01
25.083	0.00	0.01	0.022	O	|	|	|	| 2.00
25.167	0.00	0.00	0.022	O	|	|	|	| 2.00
25.250	0.00	0.00	0.022	O	|	|	|	| 2.00

Remaining water in basin = 0.02 (Ac.Ft)

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

Number of intervals = 303
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 4.314 (CFS)
Total volume = 0.643 (Ac.Ft)

Status of hydrographs being held in storage

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

****

TT 20527

AREA A4-B:
DA4 - BMP 4

ROUTING

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004
Study date: 07/07/22

ROUTING TO INFILTRATION BASIN
TR 18345, CITY OF VICTORVILLE
AREA A4B (EAST)
FILE: 18345ROUTINGA4B.OUT

Program License Serial Number 4070

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

From study/file name: 20527HYDROA4BPOST100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 310
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 4.812 (CFS)
Total volume = 0.544 (Ac.Ft)
Status of hydrographs being held in storage

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

****

++
Process from Point/Station 10.000 to Point/Station 12.000
**** RETARDING BASIN ROUTING ****

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.))
Total outflow at this depth = 0.00(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 2.50(Ft.))
Pipe length = 15.00(Ft.) Elevation difference = 0.15(Ft.)
Manning's N = 0.012 No. of pipes = 2
Given pipe size = 6.00(In.)

```
Calculated individual pipe flow  =     0.621(CFS)
Normal flow depth in pipe =    6.00(In.)
Flow top width inside pipe =    0.00(In.)
Critical Depth =    0.40(Ft.)
Calculated flow rate through pipe(s) =      1.241(CFS)

Total outflow at this depth =      1.24(CFS)


CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.))
Pipe length  =    15.00(Ft.)   Elevation difference =   0.15(Ft.)
Manning's N = 0.012   No. of pipes = 2
Given pipe size =      6.00(In.)
 NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is      1.050(Ft.)
Pipe friction loss =      0.422(Ft.)
Minor friction loss =      0.628(Ft.)     K-factor =   1.50
Calculated flow rate through pipe(s) =      2.039(CFS)

Total outflow at this depth =      2.04(CFS)

---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 310
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
    0.000      0.000      0.000      0.000        0.000
    1.000      0.023      0.000      0.023        0.023
    2.500      0.074      1.241      0.070        0.078
    3.000      0.099      2.039      0.092        0.106
---------------------------------------------------------------------
            Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                      Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       1.2    2.41    3.61    4.81 (Ft.)
 0.083    0.00    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.02    0.00      0.000  O       |       |       |       |     0.00
 0.250    0.06    0.00      0.000  O       |       |       |       |     0.01
 0.333    0.08    0.00      0.001  O       |       |       |       |     0.04
 0.417    0.09    0.00      0.001  O       |       |       |       |     0.06
```

0.500	0.10	0.00	0.002	O	|	|	|	0.09
0.583	0.11	0.00	0.003	O	|	|	|	0.12
0.667	0.12	0.00	0.004	O	|	|	|	0.16
0.750	0.12	0.00	0.004	O	|	|	|	0.19
0.833	0.12	0.00	0.005	O	|	|	|	0.23
0.917	0.13	0.00	0.006	O	|	|	|	0.27
1.000	0.13	0.00	0.007	O	|	|	|	0.30
1.083	0.13	0.00	0.008	O	|	|	|	0.34
1.167	0.13	0.00	0.009	O	|	|	|	0.38
1.250	0.13	0.00	0.010	O	|	|	|	0.42
1.333	0.13	0.00	0.011	O	|	|	|	0.46
1.417	0.14	0.00	0.012	O	|	|	|	0.50
1.500	0.14	0.00	0.012	O	|	|	|	0.54
1.583	0.14	0.00	0.013	O	|	|	|	0.58
1.667	0.14	0.00	0.014	O	|	|	|	0.62
1.750	0.14	0.00	0.015	O	|	|	|	0.67
1.833	0.14	0.00	0.016	O	|	|	|	0.71
1.917	0.14	0.00	0.017	O	|	|	|	0.75
2.000	0.14	0.00	0.018	O	|	|	|	0.79
2.083	0.14	0.00	0.019	O	|	|	|	0.83
2.167	0.14	0.00	0.020	O	|	|	|	0.88
2.250	0.14	0.00	0.021	O	|	|	|	0.92
2.333	0.14	0.00	0.022	O	|	|	|	0.96
2.417	0.14	0.00	0.023	O	|	|	|	1.00
2.500	0.14	0.02	0.024	O	|	|	|	1.03
2.583	0.14	0.04	0.025	O	|	|	|	1.05
2.667	0.14	0.06	0.025	O	|	|	|	1.07
2.750	0.14	0.07	0.026	O	|	|	|	1.09
2.833	0.14	0.08	0.026	O	|	|	|	1.10
2.917	0.14	0.09	0.027	O	|	|	|	1.11
3.000	0.14	0.10	0.027	O	|	|	|	1.12
3.083	0.15	0.11	0.027	O	|	|	|	1.13
3.167	0.15	0.11	0.028	O	|	|	|	1.14
3.250	0.15	0.12	0.028	O	|	|	|	1.14
3.333	0.15	0.12	0.028	O	|	|	|	1.15
3.417	0.15	0.13	0.028	O	|	|	|	1.15
3.500	0.15	0.13	0.028	O	|	|	|	1.16
3.583	0.15	0.13	0.028	O	|	|	|	1.16
3.667	0.15	0.13	0.029	O	|	|	|	1.16
3.750	0.15	0.14	0.029	O	|	|	|	1.17
3.833	0.15	0.14	0.029	O	|	|	|	1.17
3.917	0.15	0.14	0.029	O	|	|	|	1.17
4.000	0.15	0.14	0.029	O	|	|	|	1.17
4.083	0.15	0.14	0.029	OI	|	|	|	1.17
4.167	0.15	0.14	0.029	OI	|	|	|	1.17
4.250	0.15	0.15	0.029	OI	|	|	|	1.18
4.333	0.15	0.15	0.029	OI	|	|	|	1.18
4.417	0.15	0.15	0.029	OI	|	|	|	1.18
4.500	0.15	0.15	0.029	OI	|	|	|	1.18
4.583	0.15	0.15	0.029	OI	|	|	|	1.18
4.667	0.15	0.15	0.029	OI	|	|	|	1.18
4.750	0.15	0.15	0.029	|O	|	|	|	1.18
4.833	0.16	0.15	0.029	|O	|	|	|	1.18
4.917	0.16	0.15	0.029	|O	|	|	|	1.18

5.000	0.16	0.15	0.029	O				1.18
5.083	0.16	0.15	0.029	O				1.19
5.167	0.16	0.15	0.029	O				1.19
5.250	0.16	0.15	0.029	O				1.19
5.333	0.16	0.15	0.029	O				1.19
5.417	0.16	0.16	0.029	O				1.19
5.500	0.16	0.16	0.029	O				1.19
5.583	0.16	0.16	0.029	O				1.19
5.667	0.16	0.16	0.029	O				1.19
5.750	0.16	0.16	0.029	O				1.19
5.833	0.16	0.16	0.030	O				1.19
5.917	0.16	0.16	0.030	O				1.19
6.000	0.16	0.16	0.030	O				1.19
6.083	0.16	0.16	0.030	O				1.19
6.167	0.16	0.16	0.030	O				1.19
6.250	0.16	0.16	0.030	O				1.19
6.333	0.17	0.16	0.030	O				1.20
6.417	0.17	0.16	0.030	O				1.20
6.500	0.17	0.16	0.030	O				1.20
6.583	0.17	0.16	0.030	O				1.20
6.667	0.17	0.16	0.030	O				1.20
6.750	0.17	0.16	0.030	O				1.20
6.833	0.17	0.17	0.030	O				1.20
6.917	0.17	0.17	0.030	O				1.20
7.000	0.17	0.17	0.030	O				1.20
7.083	0.17	0.17	0.030	O				1.20
7.167	0.17	0.17	0.030	O				1.20
7.250	0.17	0.17	0.030	O				1.20
7.333	0.17	0.17	0.030	O				1.20
7.417	0.17	0.17	0.030	O				1.21
7.500	0.18	0.17	0.030	O				1.21
7.583	0.18	0.17	0.030	O				1.21
7.667	0.18	0.17	0.030	O				1.21
7.750	0.18	0.17	0.030	O				1.21
7.833	0.18	0.17	0.030	O				1.21
7.917	0.18	0.17	0.030	O				1.21
8.000	0.18	0.18	0.030	O				1.21
8.083	0.18	0.18	0.030	O				1.21
8.167	0.18	0.18	0.030	O				1.21
8.250	0.18	0.18	0.030	O				1.21
8.333	0.18	0.18	0.030	O				1.22
8.417	0.18	0.18	0.030	O				1.22
8.500	0.18	0.18	0.030	O				1.22
8.583	0.19	0.18	0.030	O				1.22
8.667	0.19	0.18	0.030	O				1.22
8.750	0.19	0.18	0.031	O				1.22
8.833	0.19	0.18	0.031	O				1.22
8.917	0.19	0.18	0.031	O				1.22
9.000	0.19	0.19	0.031	O				1.22
9.083	0.19	0.19	0.031	O				1.22
9.167	0.19	0.19	0.031	O				1.23
9.250	0.19	0.19	0.031	O				1.23
9.333	0.19	0.19	0.031	O				1.23
9.417	0.20	0.19	0.031	O				1.23

9.500	0.20	0.19	0.031	O				1.23
9.583	0.20	0.19	0.031	O				1.23
9.667	0.20	0.19	0.031	O				1.23
9.750	0.20	0.19	0.031	O				1.23
9.833	0.20	0.20	0.031	O				1.24
9.917	0.20	0.20	0.031	O				1.24
10.000	0.20	0.20	0.031	O				1.24
10.083	0.21	0.20	0.031	O				1.24
10.167	0.21	0.20	0.031	O				1.24
10.250	0.21	0.20	0.031	O				1.24
10.333	0.21	0.20	0.031	O				1.24
10.417	0.21	0.20	0.031	O				1.25
10.500	0.21	0.20	0.031	O				1.25
10.583	0.21	0.21	0.031	O				1.25
10.667	0.21	0.21	0.031	O				1.25
10.750	0.22	0.21	0.032	O				1.25
10.833	0.22	0.21	0.032	O				1.25
10.917	0.22	0.21	0.032	O				1.25
11.000	0.22	0.21	0.032	O				1.26
11.083	0.22	0.21	0.032	O				1.26
11.167	0.22	0.22	0.032	O				1.26
11.250	0.23	0.22	0.032	O				1.26
11.333	0.23	0.22	0.032	O				1.26
11.417	0.23	0.22	0.032	O				1.27
11.500	0.23	0.22	0.032	O				1.27
11.583	0.23	0.22	0.032	O				1.27
11.667	0.23	0.22	0.032	O				1.27
11.750	0.24	0.23	0.032	O				1.27
11.833	0.24	0.23	0.032	O				1.28
11.917	0.24	0.23	0.032	O				1.28
12.000	0.24	0.23	0.033	O				1.28
12.083	0.24	0.23	0.033	O				1.28
12.167	0.24	0.23	0.033	O				1.28
12.250	0.23	0.23	0.033	O				1.28
12.333	0.22	0.23	0.033	O				1.28
12.417	0.22	0.23	0.032	O				1.28
12.500	0.22	0.23	0.032	O				1.28
12.583	0.22	0.23	0.032	O				1.27
12.667	0.22	0.23	0.032	O				1.27
12.750	0.22	0.23	0.032	O				1.27
12.833	0.22	0.22	0.032	O				1.27
12.917	0.22	0.22	0.032	O				1.27
13.000	0.23	0.22	0.032	O				1.27
13.083	0.23	0.23	0.032	O				1.27
13.167	0.23	0.23	0.032	O				1.27
13.250	0.24	0.23	0.032	O				1.27
13.333	0.24	0.23	0.032	O				1.28
13.417	0.24	0.23	0.032	O				1.28
13.500	0.25	0.23	0.033	O				1.28
13.583	0.25	0.24	0.033	O				1.28
13.667	0.25	0.24	0.033	O				1.29
13.750	0.26	0.24	0.033	O				1.29
13.833	0.26	0.24	0.033	O				1.29
13.917	0.27	0.25	0.033	O				1.30

14.000	0.27	0.25	0.033	O				1.30
14.083	0.28	0.25	0.033	O				1.31
14.167	0.28	0.26	0.034	O				1.31
14.250	0.29	0.26	0.034	O				1.32
14.333	0.30	0.27	0.034	O				1.32
14.417	0.30	0.27	0.034	OI				1.33
14.500	0.31	0.28	0.034	OI				1.34
14.583	0.32	0.28	0.035	OI				1.34
14.667	0.33	0.29	0.035	OI				1.35
14.750	0.34	0.30	0.035	OI				1.36
14.833	0.35	0.30	0.036	O				1.37
14.917	0.36	0.31	0.036	O				1.38
15.000	0.37	0.32	0.036	O				1.39
15.083	0.39	0.33	0.037	O				1.40
15.167	0.40	0.34	0.037	O				1.41
15.250	0.42	0.35	0.037	O				1.42
15.333	0.44	0.36	0.038	O				1.44
15.417	0.46	0.38	0.038	OI				1.45
15.500	0.46	0.39	0.039	OI				1.47
15.583	0.44	0.40	0.039	O				1.48
15.667	0.44	0.41	0.040	O				1.49
15.750	0.47	0.41	0.040	OI				1.50
15.833	0.51	0.43	0.040	OI				1.51
15.917	0.59	0.44	0.041	OI				1.54
16.000	0.74	0.48	0.043	OI				1.58
16.083	1.31	0.56	0.046	O I				1.68
16.167	2.79	0.79	0.056	O	I			1.96
16.250	**4.81**	1.26	0.075	O			I	2.51
16.333	3.46	1.83	0.093	O	I			2.87
16.417	2.16	**2.03**	**0.099**	**OI**				**2.99**
16.500	1.60	2.00	0.098	I O				2.97
16.583	1.29	1.89	0.094	I O				2.91
16.667	1.10	1.75	0.090	I O				2.82
16.750	0.95	1.61	0.085	I O				2.73
16.833	0.81	1.46	0.081	I O				2.64
16.917	0.72	1.32	0.077	I O				2.55
17.000	0.65	1.21	0.073	I O				2.46
17.083	0.58	1.11	0.069	I O				2.35
17.167	0.52	1.03	0.065	I O				2.24
17.250	0.47	0.95	0.062	I O				2.14
17.333	0.43	0.87	**0.059**	**I O**				**2.05**
17.417	0.38	0.80	0.056	I O				1.96
17.500	0.37	0.73	0.053	I O				1.88
17.583	0.36	0.67	0.051	I O				1.82
17.667	0.34	0.62	0.049	I O				1.75
17.750	0.31	0.58	0.047	IO				1.70
17.833	0.29	0.54	0.045	I O				1.65
17.917	0.27	0.50	0.043	I O				1.60
18.000	0.24	0.46	0.042	I O				1.55
18.083	0.23	0.42	0.040	IO				1.51
18.167	0.23	0.39	0.039	IO				1.48
18.250	0.24	0.37	0.038	IO				1.45
18.333	0.24	0.35	0.037	IO				1.42
18.417	0.24	0.33	0.037	IO				1.40

18.500	0.24	0.32	0.036	IO				1.39
18.583	0.24	0.31	0.036	IO				1.37
18.667	0.24	0.30	0.035	O				1.36
18.750	0.23	0.29	0.035	O				1.35
18.833	0.23	0.28	0.034	O				1.34
18.917	0.23	0.27	0.034	O				1.33
19.000	0.22	0.26	0.034	O				1.32
19.083	0.22	0.26	0.034	O				1.31
19.167	0.22	0.25	0.033	O				1.30
19.250	0.22	0.25	0.033	O				1.30
19.333	0.21	0.24	0.033	O				1.29
19.417	0.21	0.24	0.033	O				1.29
19.500	0.21	0.23	0.033	O				1.28
19.583	0.21	0.23	0.032	O				1.28
19.667	0.20	0.22	0.032	O				1.27
19.750	0.20	0.22	0.032	O				1.27
19.833	0.20	0.22	0.032	O				1.26
19.917	0.20	0.21	0.032	O				1.26
20.000	0.19	0.21	0.032	O				1.26
20.083	0.19	0.21	0.032	O				1.25
20.167	0.19	0.21	0.031	O				1.25
20.250	0.19	0.20	0.031	O				1.25
20.333	0.19	0.20	0.031	O				1.24
20.417	0.18	0.20	0.031	O				1.24
20.500	0.18	0.20	0.031	O				1.24
20.583	0.18	0.19	0.031	O				1.23
20.667	0.18	0.19	0.031	O				1.23
20.750	0.18	0.19	0.031	O				1.23
20.833	0.18	0.19	0.031	O				1.23
20.917	0.17	0.19	0.031	O				1.22
21.000	0.17	0.18	0.031	O				1.22
21.083	0.17	0.18	0.030	O				1.22
21.167	0.17	0.18	0.030	O				1.22
21.250	0.17	0.18	0.030	O				1.22
21.333	0.17	0.18	0.030	O				1.21
21.417	0.17	0.18	0.030	O				1.21
21.500	0.17	0.17	0.030	O				1.21
21.583	0.16	0.17	0.030	O				1.21
21.667	0.16	0.17	0.030	O				1.21
21.750	0.16	0.17	0.030	O				1.21
21.833	0.16	0.17	0.030	O				1.20
21.917	0.16	0.17	0.030	O				1.20
22.000	0.16	0.17	0.030	O				1.20
22.083	0.16	0.16	0.030	O				1.20
22.167	0.16	0.16	0.030	O				1.20
22.250	0.15	0.16	0.030	O				1.20
22.333	0.15	0.16	0.030	O				1.19
22.417	0.15	0.16	0.030	O				1.19
22.500	0.15	0.16	0.030	O				1.19
22.583	0.15	0.16	0.029	O				1.19
22.667	0.15	0.16	0.029	IO				1.19
22.750	0.15	0.16	0.029	IO				1.19
22.833	0.15	0.15	0.029	IO				1.19
22.917	0.15	0.15	0.029	IO				1.19

23.000	0.15	0.15	0.029	IO	|	|	|	| 1.18
23.083	0.15	0.15	0.029	IO	|	|	|	| 1.18
23.167	0.14	0.15	0.029	O	|	|	|	| 1.18
23.250	0.14	0.15	0.029	O	|	|	|	| 1.18
23.333	0.14	0.15	0.029	O	|	|	|	| 1.18
23.417	0.14	0.15	0.029	O	|	|	|	| 1.18
23.500	0.14	0.15	0.029	O	|	|	|	| 1.18
23.583	0.14	0.15	0.029	O	|	|	|	| 1.18
23.667	0.14	0.14	0.029	O	|	|	|	| 1.18
23.750	0.14	0.14	0.029	O	|	|	|	| 1.17
23.833	0.14	0.14	0.029	O	|	|	|	| 1.17
23.917	0.14	0.14	0.029	O	|	|	|	| 1.17
24.000	0.14	0.14	0.029	O	|	|	|	| 1.17
24.083	0.13	0.14	0.029	O	|	|	|	| 1.17
24.167	0.12	0.14	0.029	O	|	|	|	| 1.17
24.250	0.08	0.13	0.028	O	|	|	|	| 1.16
24.333	0.05	0.12	0.028	O	|	|	|	| 1.15
24.417	0.04	0.11	0.028	O	|	|	|	| 1.13
24.500	0.03	0.10	0.027	O	|	|	|	| 1.12
24.583	0.02	0.09	0.027	O	|	|	|	| 1.11
24.667	0.02	0.08	0.026	O	|	|	|	| 1.09
24.750	0.02	0.07	0.026	O	|	|	|	| 1.08
24.833	0.01	0.06	0.025	O	|	|	|	| 1.07
24.917	0.01	0.05	0.025	O	|	|	|	| 1.06
25.000	0.01	0.05	0.025	O	|	|	|	| 1.06
25.083	0.01	0.04	0.025	O	|	|	|	| 1.05
25.167	0.01	0.03	0.024	O	|	|	|	| 1.04
25.250	0.00	0.03	0.024	O	|	|	|	| 1.04
25.333	0.00	0.03	0.024	O	|	|	|	| 1.03
25.417	0.00	0.02	0.024	O	|	|	|	| 1.03
25.500	0.00	0.02	0.024	O	|	|	|	| 1.02
25.583	0.00	0.02	0.024	O	|	|	|	| 1.02
25.667	0.00	0.01	0.024	O	|	|	|	| 1.02
25.750	0.00	0.01	0.023	O	|	|	|	| 1.01
25.833	0.00	0.01	0.023	O	|	|	|	| 1.01
25.917	0.00	0.01	0.023	O	|	|	|	| 1.01

Remaining water in basin = 0.02 (Ac.Ft)

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

Number of intervals = 311
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.025 (CFS)
Total volume = 0.521 (Ac.Ft)

Status of hydrographs being held in storage

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

****

HYDRAULIC & STREET CAPACITY

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527**

Designer:

Project Date: Thursday, January 20, 2022

Project Units: U.S. Customary Units

Notes: **INTERIOR STREET CAPACITY @ 0.5%**

Channel Analysis: Channel Analysis

Notes: **TOP OF CURB CAPACITY**

Input Parameters

Channel Type: Custom Cross Section

Cross Section Data

Elevation (ft)	Elevation (ft)	Manning's n
0.00	0.70	0.0170
10.00	0.50	0.0150
10.08	0.00	0.0150
11.50	0.12	0.0150
30.00	0.49	0.0150
48.50	0.12	0.0150
49.92	0.00	0.0150
50.00	0.50	0.0170
60.00	0.70	-----

Longitudinal Slope: 0.0050 ft/ft

Depth: 0.5000 ft

Result Parameters

Flow: 21.2347 cfs

Area of Flow: 8.5809 ft^2

Wetted Perimeter: 40.8674 ft

Hydraulic Radius: 0.2100 ft

Average Velocity: 2.4747 ft/s

Top Width: 40.0000 ft

Froude Number: 0.9416

Critical Depth: 0.4916 ft

Critical Velocity: 2.5761 ft/s

Critical Slope: 0.0057 ft/ft

Critical Top Width: 40.00 ft

Calculated Max Shear Stress: 0.1560 lb/ft^2

Calculated Avg Shear Stress: 0.0655 lb/ft^2

Composite Manning's n Equation: Lotter method

Manning's n: 0.0150

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527**

Designer:

Project Date: Thursday, January 20, 2022

Project Units: U.S. Customary Units

Notes: **INTERIOR STREET CAPACITY @ 1.5%**

Channel Analysis: Channel Analysis

Notes: **TOP OF CURB CAPACITY**

Input Parameters

Channel Type: Custom Cross Section

Cross Section Data

Elevation (ft)	Elevation (ft)	Manning's n
0.00	0.70	0.0170
10.00	0.50	0.0150
10.08	0.00	0.0150
11.50	0.12	0.0150
30.00	0.49	0.0150
48.50	0.12	0.0150
49.92	0.00	0.0150
50.00	0.50	0.0170
60.00	0.70	-----

Longitudinal Slope: 0.0150 ft/ft

Depth: 0.5000 ft

Result Parameters

Flow: 36.9934 cfs

Area of Flow: 8.6107 ft^2

Wetted Perimeter: 40.8672 ft

Hydraulic Radius: 0.2107 ft

Average Velocity: 4.2962 ft/s

Top Width: 40.0000 ft

Froude Number: 1.6318

Critical Depth: 0.5938 ft

Critical Velocity: 2.8894 ft/s

Critical Slope: 0.0044 ft/ft

Critical Top Width: 49.38 ft

Calculated Max Shear Stress: 0.4680 lb/ft^2

Calculated Avg Shear Stress: 0.1972 lb/ft^2

Composite Manning's n Equation: Lotter method

Manning's n: 0.0150

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527 CITY OF VICTORVILLE**

Designer:

Project Date: July 5, 2022

Project Units: U.S. Customary Units

Notes: **FREMONTIA RD. (NORTH) STREET CAPACITY @ 1.23%**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Custom Cross Section

Cross Section Data

Elevation (ft)	Elevation (ft)	Manning's n
0.00	0.70	0.0170
10.00	0.50	0.0150
10.08	0.00	0.0150
11.50	0.12	0.0150
30.00	0.49	0.0150
48.50	0.12	0.0150
49.92	0.00	0.0150
50.00	0.50	0.0170
60.00	0.70	-----

Longitudinal Slope: 0.0123 ft/ft

Depth: 0.6800 ft

Result Parameters

Flow: 95.3861 cfs

Area of Flow: 17.4307 ft^2

Wetted Perimeter: 58.8708 ft

Hydraulic Radius: 0.2961 ft

Average Velocity: 5.4723 ft/s

Top Width: 58.0000 ft

Froude Number: 1.7591

Critical Depth: 0.8180 ft

Critical Velocity: 3.7130 ft/s

Critical Slope: 0.0040 ft/ft

Critical Top Width: 60.00 ft

Calculated Max Shear Stress: 0.5219 lb/ft^2

Calculated Avg Shear Stress: 0.2273 lb/ft^2

Composite Manning's n Equation: Lotter method

Manning's n: 0.0134

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527 CITY OF VICTORVILLE**

Designer:

Project Date: Tuesday, July 5, 2022

Project Units: U.S. Customary Units

Notes: **FREMONTIA RD STREET CAPACITY @ 1.34%**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Custom Cross Section

Cross Section Data

Elevation (ft)	Elevation (ft)	Manning's n
0.00	0.70	0.0170
10.00	0.50	0.0150
10.08	0.00	0.0150
11.50	0.12	0.0150
30.00	0.49	0.0150
48.50	0.12	0.0150
49.92	0.00	0.0150
50.00	0.50	0.0170
60.00	0.70	-----

Longitudinal Slope: 0.0134 ft/ft

Depth: 0.6800 ft

Result Parameters

Flow: 99.2548 cfs

Area of Flow: 17.4003 ft^2

Wetted Perimeter: 58.8685 ft

Hydraulic Radius: 0.2956 ft

Average Velocity: 5.7042 ft/s

Top Width: 58.0000 ft

Froude Number: 1.8353

Critical Depth: 0.8300 ft

Critical Velocity: 3.7626 ft/s

Critical Slope: 0.0040 ft/ft

Critical Top Width: 60.00 ft

Calculated Max Shear Stress: 0.5686 lb/ft^2

Calculated Avg Shear Stress: 0.2472 lb/ft^2

Composite Manning's n Equation: Lotter method

Manning's n: 0.0134

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527 CITY OF VICTORVILLE**

Designer:

Project Date: July 5, 2022

Project Units: U.S. Customary Units

Notes: **LUNA RD STREET CAPACITY @ 0.5%**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Custom Cross Section

Cross Section Data

Elevation (ft)	Elevation (ft)	Manning's n
0.00	0.87	0.0170
10.00	0.67	0.0150
10.08	0.00	0.0150
11.50	0.12	0.0150
30.00	0.49	0.0150
48.50	0.12	0.0150
49.92	0.00	0.0150
50.00	0.67	0.0170
60.00	0.87	-----

Longitudinal Slope: 0.0050 ft/ft

Depth: 0.8500 ft

Result Parameters

Flow: 108.0666 cfs

Area of Flow: 24.2169 ft^2

Wetted Perimeter: 59.2075 ft

Hydraulic Radius: 0.4090 ft

Average Velocity: 4.4624 ft/s

Top Width: 58.0000 ft

Froude Number: 1.2170

Critical Depth: 0.9120 ft

Critical Velocity: 3.8708 ft/s

Critical Slope: 0.0034 ft/ft

Critical Top Width: 60.00 ft

Calculated Max Shear Stress: 0.2652 lb/ft^2

Calculated Avg Shear Stress: 0.1276 lb/ft^2

Composite Manning's n Equation: Lotter method

Manning's n: 0.0130

Hydraulic Analysis Report

Project Data

Project Title:**TR 20527**

Designer:

Project Date: Wednesday, March 16, 2022

Project Units: U.S. Customary Units

Notes: **(DA5) - 2' x 4" REVERSE PARKWAY DRAIN @ FREMONTIA RD**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Rectangular

Channel Width: 2.0000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0150

Flow: 2.8000 cfs

Result Parameters

Depth: 0.3484 ft

Area of Flow: 0.6968 ft^2

Wetted Perimeter: 2.6968 ft

Hydraulic Radius: 0.2584 ft

Average Velocity: 4.0183 ft/s

Top Width: 2.0000 ft

Froude Number: 1.1997

Critical Depth: 0.3934 ft

Critical Velocity: 3.5590 ft/s

Critical Slope: 0.0070 ft/ft

Critical Top Width: 2.00 ft

Calculated Max Shear Stress: 0.2174 lb/ft^2

Calculated Avg Shear Stress: 0.1612 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527**

Designer:

Project Date: Wednesday, March 16, 2022

Project Units: U.S. Customary Units

Notes: **(DA6) - 2.5' x 4" REVERSE PARKWAY DRAIN @ FREMONTI A RD.**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Rectangular

Channel Width: 2.5000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0150

Flow: 3.5000 cfs

Result Parameters

Depth: 0.3403 ft

Area of Flow: 0.8508 ft^2

Wetted Perimeter: 3.1806 ft

Hydraulic Radius: 0.2675 ft

Average Velocity: 4.1137 ft/s

Top Width: 2.5000 ft

Froude Number: 1.2427

Critical Depth: 0.3934 ft

Critical Velocity: 3.5590 ft/s

Critical Slope: 0.0064 ft/ft

Critical Top Width: 2.50 ft

Calculated Max Shear Stress: 0.2124 lb/ft^2

Calculated Avg Shear Stress: 0.1669 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527**

Designer:

Project Date: Wednesday, March 16, 2022

Project Units: U.S. Customary Units

Notes: **(DA7) - 2.5' x 4" REVERSE PARKWAY DRAIN @ FREMONTIA RD.**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Rectangular

Channel Width: 2.5000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0150

Flow: 3.8000 cfs

Result Parameters

Depth: 0.3592 ft

Area of Flow: 0.8980 ft^2

Wetted Perimeter: 3.2184 ft

Hydraulic Radius: 0.2790 ft

Average Velocity: 4.2314 ft/s

Top Width: 2.5000 ft

Froude Number: 1.2442

Critical Depth: 0.4155 ft

Critical Velocity: 3.6579 ft/s

Critical Slope: 0.0064 ft/ft

Critical Top Width: 2.50 ft

Calculated Max Shear Stress: 0.2242 lb/ft^2

Calculated Avg Shear Stress: 0.1741 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527**

Designer:

Project Date: Wednesday, March 16, 2022

Project Units: U.S. Customary Units

Notes: **(DA8) - 3.5' x 4" REVERSE PARKWAY DRAIN @ FREMONTIA RD.**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Rectangular

Channel Width: 3.5000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0150

Flow: 5.1000 cfs

Result Parameters

Depth: 0.3399 ft

Area of Flow: 1.1896 ft^2

Wetted Perimeter: 4.1798 ft

Hydraulic Radius: 0.2846 ft

Average Velocity: 4.2871 ft/s

Top Width: 3.5000 ft

Froude Number: 1.2959

Critical Depth: 0.4040 ft

Critical Velocity: 3.6068 ft/s

Critical Slope: 0.0059 ft/ft

Critical Top Width: 3.50 ft

Calculated Max Shear Stress: 0.2121 lb/ft^2

Calculated Avg Shear Stress: 0.1776 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527**

Designer:

Project Date: Thursday, January 20, 2022

Project Units: U.S. Customary Units

Notes: **OUTLET 6" DIA. RCP STORM DRAIN PIPE**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.5000 ft

Longitudinal Slope: 0.0200 ft/ft

Manning's n: 0.0120

Depth: 0.4900 ft

Result Parameters

Flow: 0.9084 cfs

Area of Flow: 0.1954 ft^2

Wetted Perimeter: 1.4289 ft

Hydraulic Radius: 0.1368 ft

Average Velocity: 4.6486 ft/s

Top Width: 0.1400 ft

Froude Number: 0.6934

Critical Depth: 0.4619 ft

Critical Velocity: 4.7935 ft/s

Critical Slope: 0.0194 ft/ft

Critical Top Width: 0.27 ft

Calculated Max Shear Stress: 0.6115 lb/ft^2

Calculated Avg Shear Stress: 0.1707 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527**

Designer:

Project Date: Thursday, January 20, 2022

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Channel Analysis

Notes: **OUTLET 6" DIA. RCP STORM DRAIN PIPE**

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.6700 ft

Longitudinal Slope: 0.0200 ft/ft

Manning's n: 0.0120

Depth: 0.6600 ft

Result Parameters

Flow: 1.9703 cfs

Area of Flow: 0.3515 ft^2

Wetted Perimeter: 1.9408 ft

Hydraulic Radius: 0.1811 ft

Average Velocity: 5.6058 ft/s

Top Width: 0.1625 ft

Froude Number: 0.6717

Critical Depth: 0.6255 ft

Critical Velocity: 5.7523 ft/s

Critical Slope: 0.0191 ft/ft

Critical Top Width: 0.33 ft

Calculated Max Shear Stress: 0.8237 lb/ft^2

Calculated Avg Shear Stress: 0.2260 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527 CITY OF VICTORVILLE**

Designer:

Project Date: Wednesday, July 6, 2022

Project Units: U.S. Customary Units

Notes: **36in RCP STORM DRAIN OUTLET @ LUNA RD.**

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 3.0000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 54.0000 cfs

Result Parameters

Depth: 1.9337 ft

Area of Flow: 4.8169 ft^2

Wetted Perimeter: 5.5922 ft

Hydraulic Radius: 0.8614 ft

Average Velocity: 11.2106 ft/s

Top Width: 2.8719 ft

Froude Number: 1.5255

Critical Depth: 2.3862 ft

Critical Velocity: 8.9567 ft/s

Critical Slope: 0.0059 ft/ft

Critical Top Width: 2.42 ft

Calculated Max Shear Stress: 1.2066 lb/ft^2

Calculated Avg Shear Stress: 0.5375 lb/ft^2

TR 20527

AREA A1-A - UNDERGROUND STORAGE TABLE

2 - 36IN DIA. Perforated Pipe @ 3/4 - 2" Angular Washed Stone Around Pipe

Elev. ft.	Depth ft.	Area s.f.	Length ft.	Volume cu.ft.	Gravel 40% Voids	Final Vol. cu-ft	Final Vol. ac-ft	Cuml. Vol. ac.ft
3231.38	0	22	100	2200.00				
	(GRAVEL)							
3233.38	2	22	100	2200.00	0.40	880.00	0.0202	0.0202
	(GRAVEL)							
3236.38	(PIPE)	14.14	96	1357.44	0.00	1357.44		
3236.38	5	33	100	3300.00				
		-14.14	96	-1357.44				
	(GRAVEL-PIPE)			1942.56	0.40	777.02		
						2134.46	0.0490	0.0692
3237.28	6	11	100	1100.00	0.40	440.00	0.0101	0.0793
	(GRAVEL)							

Total Volume (ac.ft.)
0.0793
3,454

Max. Net cum. Storage =	**3,454**	W.S.E.=	**3237.28**

Length of pipe = **96** **LF**
Length of gravel = **100** **LF**

Design Capture Volume = **1,656.00 CU.FT.**
HCOC= **680 CU.FT.**
TOTAL= **2,336.00 CU.FT.**
PROVIDED:
Underground Storage Detention = **3,454 CU.FT.**

TR 20527

AREA A2-A - UNDERGROUND STORAGE TABLE

2 - 36IN DIA. Perforated Pipe @ 3/4 - 2" Angular Washed Stone Around Pipe

Elev. ft.	Depth ft.	Area s.f.	Length ft.	Volume cu.ft.	Gravel 40% Voids	Final Vol. cu-ft	Final Vol. ac-ft	Cuml. Vol. ac.ft
3226.37	**0**	**22**	**105**	**2310.00**				
	(GRAVEL)							
3228.37	**2**	**22**	**105**	**2310.00**	**0.40**	**924.00**	**0.0212**	**0.0212**
	(GRAVEL)							
3231.37	(PIPE)	**14.14**	**101**	**1428.14**		**1428.14**		
3231.37	**5**	**33**	**105**	**3465.00**				
		-14.14	**101**	**-1428.14**				
	(GRAVEL-PIPE)			**2036.86**	**0.40**	**814.74**		
						2242.88	**0.0515**	**0.0727**
3232.37	**6**	**11**	**107**	**1177.00**	**0.40**	**470.80**	**0.0108**	**0.0835**
	(GRAVEL)							

Total Volume (ac.ft.)
0.0835
3,638

Max. Net cum. Storage =	**3,638**	W.S.E.=	**3232.37**

Length of pipe = **101** **LF**
Length of gravel = **105** **LF**

Design Capture Volume = **1,864 CU.FT.**
HCOC= **1,050 CU.FT.**
TOTAL= **2,914 CU.FT.**
PROVIDED:
Underground Storage Detention = **3,638 CU.FT.**

TR 20527

AREA A3-A - UNDERGROUND STORAGE TABLE

2 - 36IN DIA. Perforated Pipe @ 3/4 - 2" Angular Washed Stone Around Pipe

Elev. ft.	Depth ft.	Area s.f.	Length ft.	Volume cu.ft.	Gravel 40% Voids	Final Vol. cu-ft	Final Vol. ac-ft	Cuml. Vol. ac.ft
3222.47	0	22	107	2354.00				
	(GRAVEL)							
3224.47	2	22	107	2354.00	0.40	941.60	0.0216	0.0216
	(GRAVEL)							
3227.47	(PIPE)	14.14	105	1484.70		1484.70		
3227.47	5	33	107	3531.00				
		-14.14	105	-1484.70				
	(GRAVEL-PIPE)			2046.30	0.40	818.52		
						2303.22	0.0529	0.0745
3228.47	6	11	107	1177.00	0.40	470.80	0.0108	0.0853
	(GRAVEL)							

Total Volume (ac.ft.)
0.0853
3,716

Max. Net cum. Storage =	**3,716**	W.S.E.=	**3228.47**

Length of pipe = **105** **LF**
Length of gravel = **107** **LF**

Design Capture Volume = **2,130 CU.FT.**
HCOC= **3,541 CU.FT.**
TOTAL= **5,671 CU.FT.**
PROVIDED:
Underground Storage Detention = **3,716 CU.FT.**

TR 20527

AREA A4-A - UNDERGROUND STORAGE TABLE

2 - 36IN DIA. Perforated Pipe @ 3/4 - 2" Angular Washed Stone Around Pipe

Elev. ft.	Depth ft.	Area s.f.	Length ft.	Volume cu.ft.	Gravel 40% Voids	Final Vol. cu-ft	Final Vol. ac-ft	Cuml. Vol. ac.ft
3219.37	**0**	**22**	**107**	**2354.00**				
	(GRAVEL)							
3221.37	**2**	**22**	**107**	**2354.00**	**0.40**	**941.60**	**0.0216**	**0.0216**
	(GRAVEL)							
3224.37	(PIPE)	**14.14**	**105**	**1484.70**		**1484.70**		
3224.37	**5**	**33**	**107**	**3531.00**				
		-14.14	**105**	**-1484.70**				
	(GRAVEL-PIPE)			**2046.30**	**0.40**	**818.52**		
						2303.22	**0.0529**	**0.0745**
3225.37	**6**	**11**	**107**	**1177.00**	**0.40**	**470.80**	**0.0108**	**0.0853**
	(GRAVEL)							

Total Volume (ac.ft.)
0.0853
3,716

Max. Net cum. Storage =	**3,716**	W.S.E.=	**3225.37**

Length of pipe = **105** **LF**
Length of gravel = **107** **LF**

Design Capture Volume = **2,570 CU.FT.**
HCOC= **601 CU.FT.**
TOTAL= **3,171 CU.FT.**
PROVIDED:
Underground Storage Detention = **3,716 CU.FT.**

TR 20527

AREA A1-B - INFILTRATION TRENCH STORAGE TABLE (4.5 ft.wide x 2.5ft. depth)

2'wide bottom Channel+12"(D)small gravel+6"(D) 1"TO3"gravel+ 6"(D)sand

Elev. ft.	Depth ft.	Area s.f.	Length ft.	Volume cu.ft.	Gravel 40% Voids	Final Vol. cu-ft	Final Vol. ac-ft	Cuml. Vol. ac.ft
3232.48	**1**	**4.5**	**230**	**1035.00**	**0.40**	**414.00**	**0.0095**	**0.0095**
	(GRAVEL)							
3233.48								
3234.98	**1.5**	**5.28**	**230**	**1214.40**	**0.40**	**485.76**	**0.0112**	
	(GRAVEL)							
3234.98	**0.5**	**2**	**230**	**460.00**		**460.00**	**0.0106**	
	(CHANNEL)						**0.0217**	**0.0312**
3235.48	**0.5**	**1.97**	**230**	**453.10**		**453.10**	**0.0104**	**0.0416**
	(CHANNEL)							

Total Volume (ac.ft.) **0.0416**

TOTAL VOLUME(cu.ft.) **1,813**

Max. Net cum. Storage =	**1,813**	W.S.E.=	**3234.98**

Length of gravel = **230** **LF**

Design Capture Volume = 1,024.90 CU.FT.

TR 20527

AREA A2-B - INFILTRATION TRENCH STORAGE TABLE(4.5 ft.wide x 2.5ft. depth)

2'wide bottom Channel+12"(D)small gravel+6"(D) 1"TO3"gravel+ 6"(D)sand

Elev. ft.	Depth ft.	Area s.f.	Length ft.	Volume cu.ft.	Gravel 40% Voids	Final Vol. cu-ft	Final Vol. ac-ft	Cuml. Vol. ac.ft
3227.90	**1**	**4.5**	**220**	**990.00**	**0.40**	**396.00**	**0.0091**	**0.0091**
	(GRAVEL)							
3228.90								
3230.40	**1.5**	**5.28**	**220**	**1161.60**	**0.40**	**464.64**	**0.0107**	
	(GRAVEL)							
3230.40	**0.5**	**2**	**220**	**440.00**		**440.00**	**0.0101**	
	(CHANNEL)						**0.0208**	**0.0299**
3230.90	**0.5**	**1.97**	**220**	**433.40**		**433.40**	**0.0099**	**0.0398**
	(CHANNEL)							

Total Volume (ac.ft.) **0.0398**

TOTAL VOLUME(cu.ft.) **1,734**

Max. Net cum. Storage =	**1,734**	W.S.E.=	**3230.4**

Length of gravel = **220** **LF**

Design Capture Volume = 1,395.00 CU.FT.

TR 20527

AREA A3-B - INFILTRATION TRENCH STORAGE TABLE(4.5 ft.wide x 2.5ft. depth)

2'wide bottom Channel+12"(D)small gravel+6"(D) 1"TO3"gravel+ 6"(D)sand

Elev. ft.	Depth ft.	Area s.f.	Length ft.	Volume cu.ft.	Gravel 40% Voids	Final Vol. cu-ft	Final Vol. ac-ft	Cuml. Vol. ac.ft
3224.37	**1**	**4.5**	**200**	**900.00**	**0.40**	**360.00**	**0.0083**	**0.0083**
	(GRAVEL)							
3225.37								
3226.87	**1.5**	**5.28**	**200**	**1056.00**	**0.40**	**422.40**	**0.0097**	
	(GRAVEL)							
3226.87	**0.5**	**2**	**200**	**400.00**		**400.00**	**0.0092**	
	(CHANNEL)						**0.0189**	**0.0271**
3227.37	**0.5**	**1.97**	**200**	**394.00**		**394.00**	**0.0090**	**0.0362**
	(CHANNEL)							

Total Volume (ac.ft.) **0.0362**

TOTAL VOLUME(cu.ft.) **1,576**

Max. Net cum. Storage =	**1,576**	W.S.E.=	**3226.87**

Length of gravel = **200** **LF**

Design Capture Volume = 1,366.27 CU.FT.

TR 20527

AREA A4-B - INFILTRATION TRENCH STORAGE TABLE(4.5 ft.wide x 2.5ft. depth)

2'wide bottom Channel+12"(D)small gravel+6"(D) 1"TO3"gravel+ 6"(D)sand

Elev. ft.	Depth ft.	Area s.f.	Length ft.	Volume cu.ft.	Gravel 40% Voids	Final Vol. cu-ft	Final Vol. ac-ft	Cuml. Vol. ac.ft
3223.00	**1**	**4.5**	**546**	**2457.00**	**0.40**	**982.80**	**0.0226**	**0.0226**
	(GRAVEL)							
3224.00								
3225.50	**1.5**	**5.28**	**546**	**2882.88**	**0.40**	**1153.15**	**0.0265**	
	(GRAVEL)							
3225.50	**0.5**	**2**	**546**	**1092.00**		**1092.00**	**0.0251**	
	(CHANNEL)						**0.0515**	**0.0741**
3226.00	**0.5**	**1.97**	**546**	**1075.62**		**1075.62**	**0.0247**	**0.0988**
	(CHANNEL)							

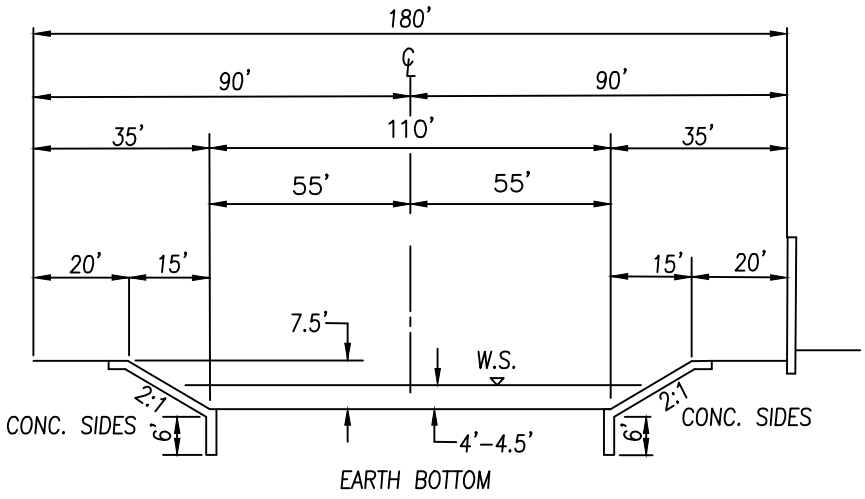
Total Volume (ac.ft.)
0.0988

TOTAL VOLUME(cu.ft.) **4,304**

Max. Net cum. Storage =	**4,304**	W.S.E.=	**3225.5**

Length of gravel = **546** **LF**

Design Capture Volume = 1,025.00 CU.FT.



TYPICAL SECTION A–A PROPOSED CHANNEL

NTS

BALDY MESA MASTER PLAN OF DRAINAGE
LINE A–01

PREPARED BY:

Ludwig Engineering
ASSOCIATES, INC.

Civil Engineering • Surveying • Planning
California
Corporate
109 East Third Street, San Bernardino, CA 92410
Phone: 909-884-8217 Fax: 909-341-7447

Hydraulic Analysis Report

Project Data

Project Title:**TR 20527, CITY OF VICTORVILLE**

Designer:

Project Date: Wednesday, July 13, 2022

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Channel A-01_S=5.5%

Notes:

Input Parameters

Channel Type: Trapezoidal

Side Slope 1 (Z1): 2.0000 ft/ft

Side Slope 2 (Z2): 2.0000 ft/ft

Channel Width: 110.0000 ft

Longitudinal Slope: 0.0550 ft/ft

Manning's n: 0.0220

Flow: 5243.0000 cfs

Result Parameters

Depth: 1.9283 ft

Area of Flow: 219.5539 ft^2

Wetted Perimeter: 118.6238 ft

Hydraulic Radius: 1.8508 ft

Average Velocity: 23.8802 ft/s

Top Width: 117.7133 ft

Froude Number: 3.0814

Critical Depth: 4.0298 ft

Critical Velocity: 11.0203 ft/s

Critical Slope: 0.0046 ft/ft

Critical Top Width: 126.12 ft

Calculated Max Shear Stress: 6.6180 lb/ft^2

Calculated Avg Shear Stress: 6.3521 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title: **TR 20527, CITY OF VICTORVILLE**

Designer:

Project Date: Wednesday, July 13, 2022

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Channel A-01_S=1.2%

Notes:

Input Parameters

Channel Type: Trapezoidal

Side Slope 1 (Z1): 2.0000 ft/ft

Side Slope 2 (Z2): 2.0000 ft/ft

Channel Width: 110.0000 ft

Longitudinal Slope: 0.0120 ft/ft

Manning's n: 0.0220

Flow: 5243.0000 cfs

Result Parameters

Depth: 3.0359 ft

Area of Flow: 352.3794 ft^2

Wetted Perimeter: 123.5768 ft

Hydraulic Radius: 2.8515 ft

Average Velocity: 14.8789 ft/s

Top Width: 122.1435 ft

Froude Number: 1.5437

Critical Depth: 4.0297 ft

Critical Velocity: 11.0205 ft/s

Critical Slope: 0.0046 ft/ft

Critical Top Width: 126.12 ft

Calculated Max Shear Stress: 2.2733 lb/ft^2

Calculated Avg Shear Stress: 2.1352 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title:**TR 20527, CITY OF VICTORVILLE**

Designer:

Project Date: Wednesday, July 13, 2022

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Channel A-01_S=0.3%

Notes:

Input Parameters

Channel Type: Trapezoidal

Side Slope 1 (Z1): 2.0000 ft/ft

Side Slope 2 (Z2): 2.0000 ft/ft

Channel Width: 110.0000 ft

Longitudinal Slope: 0.0030 ft/ft

Manning's n: 0.0220

Flow: 5243.0000 cfs

Result Parameters

Depth: 4.5808 ft

Area of Flow: 545.8500 ft^2

Wetted Perimeter: 130.4858 ft

Hydraulic Radius: 4.1832 ft

Average Velocity: 9.6052 ft/s

Top Width: 128.3230 ft

Froude Number: 0.8207

Critical Depth: 4.0297 ft

Critical Velocity: 11.0207 ft/s

Critical Slope: 0.0046 ft/ft

Critical Top Width: 126.12 ft

Calculated Max Shear Stress: 0.8575 lb/ft^2

Calculated Avg Shear Stress: 0.7831 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title:**TR 20527, CITY OF VICTORVILLE**

Designer:

Project Date: Wednesday, July 13, 2022

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Channel A-01_S=0.2%

Notes:

Input Parameters

Channel Type: Trapezoidal

Side Slope 1 (Z1): 2.0000 ft/ft

Side Slope 2 (Z2): 2.0000 ft/ft

Channel Width: 110.0000 ft

Longitudinal Slope: 0.0020 ft/ft

Manning's n: 0.0220

Flow: 5243.0000 cfs

Result Parameters

Depth: 5.1639 ft

Area of Flow: 621.3667 ft^2

Wetted Perimeter: 133.0939 ft

Hydraulic Radius: 4.6686 ft

Average Velocity: 8.4379 ft/s

Top Width: 130.6558 ft

Froude Number: 0.6819

Critical Depth: 4.0297 ft

Critical Velocity: 11.0206 ft/s

Critical Slope: 0.0046 ft/ft

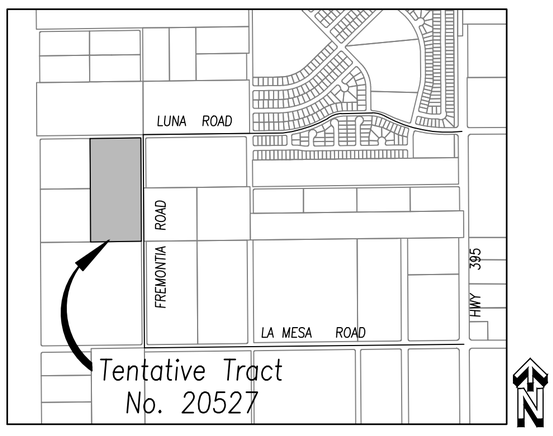
Critical Top Width: 126.12 ft

Calculated Max Shear Stress: 0.6445 lb/ft^2

Calculated Avg Shear Stress: 0.5826 lb/ft^2

EXHIBIT:

-PRE-DEVELOPED DRAINAGE MAP
-POST DEVELOPED DRAINAGE MAP
-OVERALL OFFSITE MAP
-GRADING PLAN



VICINITY MAP
NOT TO SCALE

SOIL GROUP A

LEGEND

AX | XX.X AC — INDICATES SUBAREA, INDICATES ACREAGE
XXX L.F. — INDICATES RUN-OFF TRAVEL LENGHT

DRAINAGE AREA BOUNDARY

SUBAREA BOUNDARY

FLOW LINE

X — NODE NUMBER AND ELEVATION
EL.=XXX.X

INDICATES DIRECTION OF FLOW

IN THE CITY OF VICTORVILLE,
COUNTY OF SAN BERNARDINO, CALIFORNIA

TENTATIVE TRACT MAP No. 20527

PARCEL 1 OF PARCEL MAP No. 8362, PER PLAT RECORDED IN BOOK 203 OF PARCEL MAPS, PAGES 59 AND 60, AND PARCEL A OF LLA, PER RECORDED INSTRUMENT No. 15-12789 IN THE CITY OF VICTORVILLE, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, RECORDS OF SAID COUNTY.

LUDWIG ENGINEERING JUNE 2022

ONSITE PRE-DEVELOPED DRAINAGE MAP

RATIONAL METHOD
Q100=3.8 CFS
Q10=1.8 CFS
Q2=0.5 CFS
FOR AA8:
100-YR, 24-HR
UNIT HYDROGRAPH
Q100= 3.62 CFS
Q10= 1.92 CFS

EL.=3222
112

105
EL.=3221
L.P.

APN 3096-321-01

RATIONAL METHOD
CONFLUENCE FLOW
Q100= 62.1 CFS
Q10= 32.1CFS

LUNA ROAD

SEE POST DEVELOPED DRAINAGE MAP
Q100= 11.4 CFS
Q10=5.9 CFS

9.1
EL.=3222.89

EL.=3225.88
HP
23.2

RATIONAL METHOD
Q100=14.2 CFS
Q10=6.0 CFS
Q2=1.1 CFS
FOR AA4:
100-YR, 24-HR
UNIT HYDROGRAPH
Q100= 16.24 CFS
Q10= 2.88 CFS

RATIONAL METHOD
Q100=48.1 CFS
Q10= 25.9CFS

AA8 | 1.71 AC
388 L.F.

RATIONAL METHOD
Q100=3.3 CFS

SOIL "A"

AA4 | 3.48 AC
458 L.F.

RATIONAL METHOD
Q100=6.2 CFS

RATIONAL METHOD
Q100=1.1 CFS
Q10=0.6 CFS
Q2=0.2 CFS
FOR AA7:
100-YR, 24-HR
UNIT HYDROGRAPH
Q100= 1.13 CFS
Q10= 0.60 CFS

111
EL.=3228.5

104
EL.=3227.6

TRACT 16507

AA8 | 2.1 AC
975 L.F.

A9 | 5.8 AC
1000 L.F.

EL.=3228.28
HP
23.1

APN 3096-341-05

RATIONAL METHOD
Q100=10.5 CFS
Q10=4.7 CFS
Q2=1.1 CFS
FOR AA3:

AA7 | 0.58 AC
323 L.F.

RATIONAL METHOD
Q100=1.1 CFS

SOIL "A"

FREMONTIA ROAD

AA3 | 3.08 AC
319 L.F.

RATIONAL METHOD
Q100=5.9 CFS

EL.=3229.90
HP
23

RATIONAL METHOD
Q100=2.5 CFS
Q10=1.2 CFS
Q2=0.5 CFS
FOR AA6:
100-YR, 24-HR
UNIT HYDROGRAPH
Q100= 2.51 CFS
Q10= 1.30 CFS

110
EL.=3232.8

103
EL.=3231

22
EL.=3231

RATIONAL METHOD
Q100=6.3 CFS
Q10=3.0 CFS
Q2=0.9 CFS
FOR AA2:

109
EL.=3230

BALDY MESA MASTER PLAN OF DRAINAGE LINE A-01

Q100= 12.2 CFS
Q10=5.6 CFS
SEE POST DEVELOPED DRAINAGE MAP

APN 3096-341-01

RATIONAL METHOD
Q100= 38.2 CFS
Q10= 18.4CFS

SOIL "A"

AA6 | 1.18 AC
355 L.F.

RATIONAL METHOD
Q100=2.5 CFS

AA2 | 2.13 AC
326 L.F.

RATIONAL METHOD
Q100=4.3 CFS

102
EL.=3236

107
EL.=3234.9

108
EL.=3238

RATIONAL METHOD
Q100=2.9 CFS
Q10=1.7 CFS
Q2=0.6 CFS
FOR AA1:

A7 | 9.0 AC
975 L.F.

APN 3096-341-01

APN 3096-341-10

RATIONAL METHOD
Q100=2.6 CFS
Q10=1.3 CFS
Q2=0.5 CFS
FOR AA5:
100-YR, 24-HR
UNIT HYDROGRAPH
Q100= 2.66 CFS
Q10= 1.46 CFS

SOIL "A"

AA5 | 1.42 AC
369 L.F.

RATIONAL METHOD
Q100=2.6 CFS

AA1 | 1.47 AC
356 L.F.

RATIONAL METHOD
Q100=2.9 CFS

101
EL.=3242
H.P.

106
EL.=3238.6
H.P.

APN 3096-351-01

13

SEE OVERALL OFFSITE DRAINAGE MAP
AREA A1, A2, A3, A4 & A5

SEE OFFSITE DRAINAGE MAP
Q100=56.3CFS
Q10= 15.0CFS

7
EL.=3239.8

SEE OFFSITE DRAINAGE MAP
AREA A6 & A6.1

SEE OFFSITE DRAINAGE MAP
Q100=26.1 CFS
Q10= 10.3 CFS

6.1
6
5
4
3
2
1

SEE OVERALL OFFSITE DRAINAGE MAP
LINE A-01

BALDY MESA MASTER PLAN OF DRAINAGE REGIONAL FACILITY
LINE A-01
Q100= 5243 CFS ; b=68' ; h= 10' ; Z= 0.035
SEE OFFSITE OVERALL DRAINAGE MAP

N

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

RATIONAL METHOD ONSITE PER INDIVIDUAL AREA TIME OF CONCENTRATION			
FLOW PATH (NODE)	Q2 (MIN)	Q10 (MIN)	Q100 (MIN)
101 -> 102	16.7	16.7	16.7
102 -> 103	20.9	19.7	19.4
103 -> 104	25.3	23.1	22.0
104 -> 105	30.8	26.8	25.0

RATIONAL METHOD ONSITE PER INDIVIDUAL AREA TIME OF CONCENTRATION			
FLOW PATH (NODE)	Q2 (MIN)	Q10 (MIN)	Q100 (MIN)
106 -> 107	18.8	18.8	18.8
108 -> 109	15.7	15.7	15.7
110 -> 111	16.9	16.9	16.9
112 -> 113	22.6	21.2	20.9

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LUNA ROAD AND FREMONTIA ROAD

PRE-DEVELOPED DRAINAGE MAP
TTM NO. 20527

DATE: JUNE 2022

SHEET 1 OF 3

PROJECT NUMBER
CA-_____

IN THE CITY OF VICTORVILLE,
COUNTY OF SAN BERNARDINO, CALIFORNIA

TENTATIVE TRACT MAP No.20527

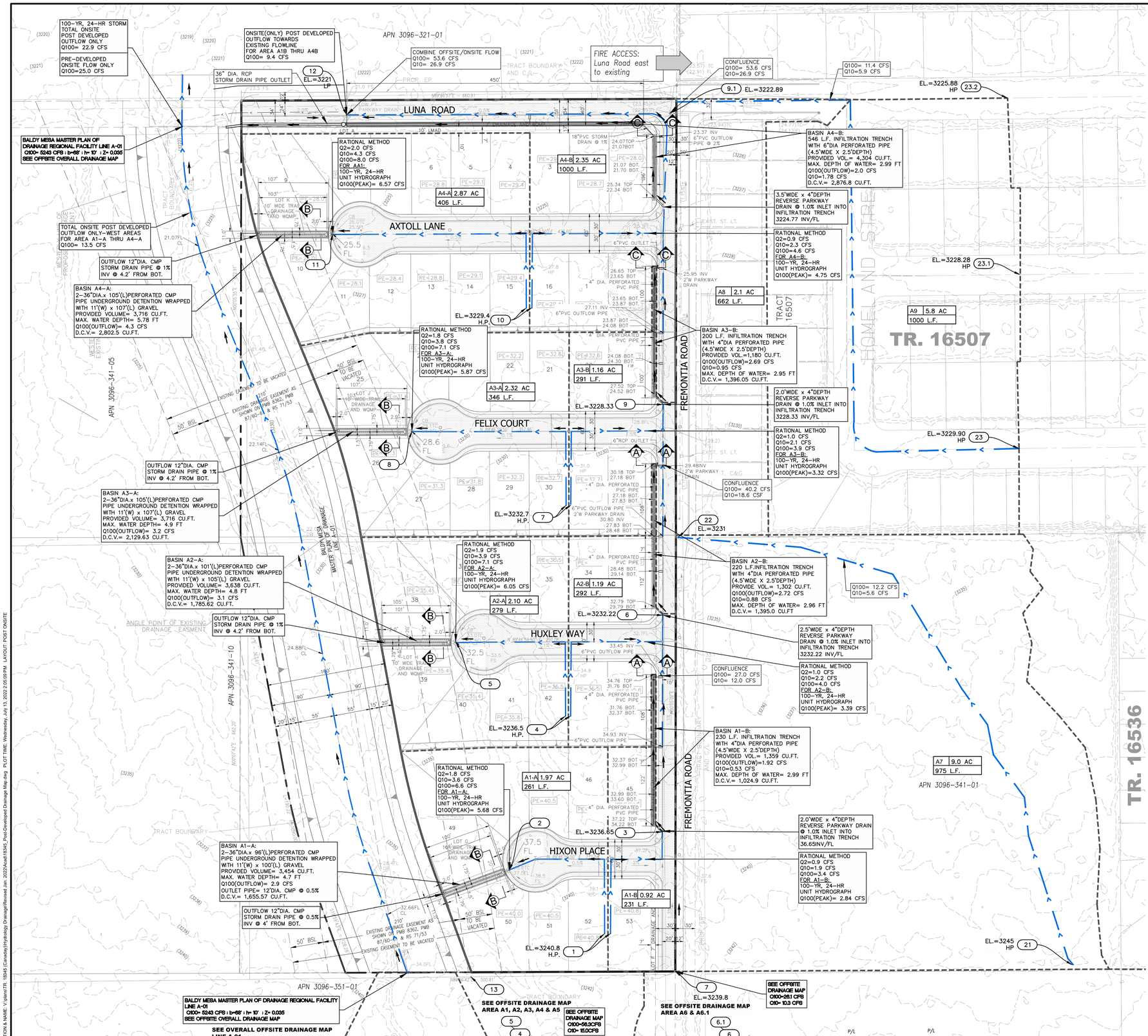
PARCEL 1 OF PARCEL MAP No. 8362, PER PLAT RECORDED IN BOOK 203 OF PARCEL MAPS, PAGES 59 AND 60, AND PARCEL A OF LLA, PER RECORDED INSTRUMENT No. 15-12789 IN THE CITY OF VICTORVILLE, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, RECORDS OF SAID COUNTY.

SCALE: 1" = 60'

LUDWIG ENGINEERING

JUNE 2022

POST DEVELOPED DRAINAGE MAP



SOIL GROUP A

LEGEND

AX XX.X AC
XXX L.F. Q
INDICATES SUBAREA
INDICATES ACREAGE
INDICATES RUN-OFF
TRAVEL LENGHT
DRAINAGE AREA BOUNDARY
SUBAREA BOUNDARY
INDICATES FLOW LINE
X EL.=XXX.X
NODE NUMBER AND ELEVATION
INDICATES DIRECTION OF FLOW



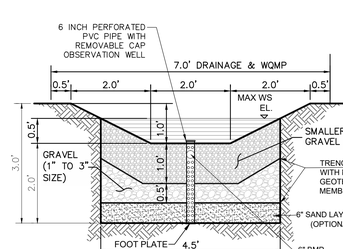
VICINITY MAP
NOT TO SCALE

NOTES

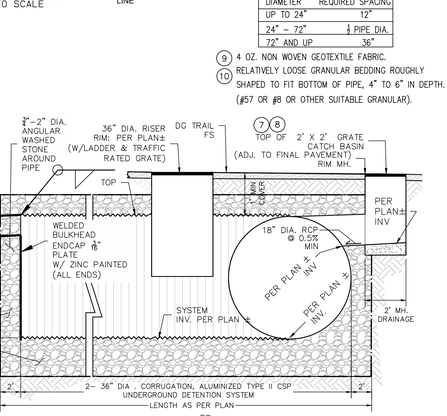
1. RIGID OR FLEXIBLE PAVEMENT
2. GRANULAR ROAD BASE.
3. NORMAL ROADWAY EMBANKMENT FILL PLACED 8" LIFTS AND COMPACTED TO MIN. 90% STANDARD DENSITY
4. PER AASHTO T-99. 12" MIN. FOR DIAMETERS THROUGH 96". 18" MIN. FROM DIA. 102" AND UP. MEASURE FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF PIPE TO TOP OF RIGID PAVEMENT.
5. FREE DRAINING ANGULAR WASHED STONE ¾"-2" AROUND PIPE ENVELOPED AS SHOWN OR OTHERWISE NOTED.
6. CSP GAGE PER AASHTO SECTION 12.
7. MATERIAL PERFORATION TO COMPLY WITH "CLASS II" PERFORATIONS PER AASTO M-36 SECTION 8.3.2.2 & ASTM A760 SECTION 8.3.2.2
8. ALL PERFORATION SHALL BE ⅜" DIAMETER
9. LISTED SPACING CHART IS FOR MULTIPLE PIPE INSTALLATION. FOR SINGLE RUN, THE TRENCH REQUIRES ONLY THE BOTTOM WIDTH OF THE PIPE'S SPAN, PLUS ROOM FOR COMPACTION EQUIPMENT.

SPACING CHART PER AIS AND NCSPA GUIDLINES	
DIAMETER	REQUIRED SPACING
UP TO 24"	12"
24" – 72"	½ PIPE DIA.
72" AND UP	36"

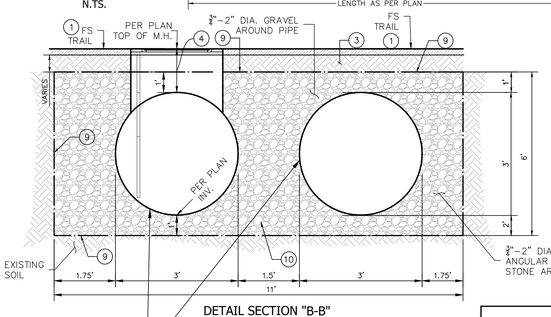
9. 4 OZ. NON WOVEN GEOTEXTILE FABRIC.
10. RELATIVELY LOOSE GRANULAR BEDDING ROUGHLY SHAPED TO FIT BOTTOM OF PIPE, 4" TO 6" IN DEPTH. (#57 OR #8 OR OTHER SUITABLE GRANULAR).



TYP. INFILTRATION TRENCH SECTION "A-A" & "C-C" 1
NOT TO SCALE



PROFILE VIEW SECTION B-B
UNDER GROUND CHAMBER
2- 36" DIA. PERFORATED CMP PIPE
N.TS.



DETAIL SECTION "B-B"
N.T.S.

2 – 36" DIA . CORRUGATION, ALUMINIZED TYPE II CSP UNDERGROUND DETENTION SYSTEM WRAP WITH NON-WOVEN GEOTEXTILE MEMBRANE FULL PERFORATION SEE NOTE #7

DESIGN INFORMATION:

MATERIAL FINISH = ALZD. TYPE II
PIPE GAUGE = 16GA.
PERFORATED = YES
DIAMETER = 36"
LOADING = H20/H25

BASIN A1-A THRU BASIN A4-A:
2- 36" DIA. ALUMINIZED TYPE II UNDERGROUND DETENTION SYSTEM WRAP WITH 4 OZ. NON-WOVEN GEOTEXTILE FABRIC WITH FREE DRAINING ANGULAR WASHED STONE ¾" - 2" AROUND PIPE ENVELOPED . CSP CAGE PER AASHTO SECTION 12. MATERIAL PERFORATION TO COMPLY WITH "CLASS II" & ASTM A760 SECTION 8.3.2.2. ALL PERFORATION SHALL BE ⅜" DIAMETER

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PLOT STYLE: NCS US Standard.stb PROJECT LOCATION & NAME: V:\Admin\TR. 16545 (Cranedy)\Hydrology Drainage\Revised Jan. 2022\Asd\16545_Post-Developed Drainage Map.dwg PLOT TIME: Wednesday, July 13, 2022 2:05:09 PM LAYOUT: POST ONSITE

IN THE CITY OF VICTORVILLE,
COUNTY OF SAN BERNARDINO, CALIFORNIA

TENTATIVE TRACT MAP No. 20527

PARCEL 1 OF PARCEL MAP No. 8362, PER PLAT RECORDED IN BOOK 203 OF PARCEL MAPS, PAGES 59 AND 60, AND PARCEL A OF LLA, PER RECORDED INSTRUMENT No. 15-12789 IN THE CITY OF VICTORVILLE, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, RECORDS OF SAID COUNTY.

LUDWIG ENGINEERING JUNE 2022

OFFSITE OVERALL PRE-DEVELOPED DRAINAGE MAP

SOIL GROUP A

LEGEND

AX | XX.X AC — INDICATES SUBAREA, INDICATES ACREAGE
XXX L.F. — INDICATES RUN-OFF TRAVEL LENGHT

DRAINAGE AREA BOUNDARY

SUBAREA BOUNDARY

INDICATES FLOW LINE

X — NODE NUMBER AND ELEVATION
EL.=XXX.X

INDICATES DIRECTION OF FLOW

CHANNEL FLOWS Q100= 5243.0 CFS (FACILITY A-01) BALDY MESA MASTER PLAN OF DRAINAGE

CHANNEL FLOWS Q100= 5243.0 CFS (FACILITY A-01) BALDY MESA MASTER PLAN OF DRAINAGE

180' WIDE CHANNEL FLOW
Q_{100}= 5497.0 CFS
Q_{10} = 3180.0 CFS

CHANNEL FLOWS Q100= 2632 CFS (FACILITY A-03) BALDY MESA MASTER PLAN OF DRAINAGE

CHANNEL FLOWS Q100= 2067CFS (FACILITY A-03) BALDY MESA MASTER PLAN OF DRAINAGE

CHANNEL FLOWS Q100= 3624 CFS (FACILITY A-01) BALDY MESA MASTER PLAN OF DRAINAGE

SOIL TYPE "B"
5 DU/AC
MANNINGS = 0.025
AP = 0.6

SOIL TYPE "B"
1 DU/AC
MANNINGS = 0.025
AP = 0.6

SOIL TYPE "B"
0.05-0.4 DU/AC
MANNINGS = 0.04
AP = 0.9

SOIL TYPE "C"
0.05-0.4 DU/AC
MANNINGS = 0.045
AP = 1.0

LUNA RD — BELLFLOWER ST — HWY 395 — LA MESA RD — FREMONTIA RD — BEAR VALLEY RD — MESA VIEW DR — CALIFORNIA AQUEDUCT — UNION PACIFIC RAILROAD — PHELAN RD — INTERSTATE 15

TR 20527

LINE A-01

A9	5.6 AC, 1000 LF.
A7	9.0 AC, 975 LF.
A6.1	13.4 AC, 1212 LF.
A6	10 AC, 767 LF.
A5	16.7 AC, 2222 LF.
A4	22.8 AC, 1261 LF.
A3	27.7 AC, 1342 LF.
A2	18.4 AC, 1217 LF.
A1	5.8AC, 1000 LF.

Q_{100}=11.4CFS Q_{10}=8.9CFS
Q_{100}=12.2CFS Q_{10}=5.6CFS
OFFSITE EXISTING Q_{100}= 26.1 CFS Q_{10}= 10.3 CFS
Q_{100}=26.1CFS Q_{10}=10.3CFS
Q_{100}=14.8CFS Q_{10}=7.0CFS
Q_{100}=56.3CFS Q_{10}=15.0CFS
Q_{100}=56.3CFS Q_{10}=15.0CFS
Q_{100}=46.3CFS Q_{10}=15.0CFS
Q_{100}=27.1CFS Q_{10}=10.7CFS
Q_{100}=8.3CFS Q_{10}=3.8CFS

Q_{100}= 1710.0 CFS, Q_{10} = 894.0 CFS
Q_{100}= 3787.0 CFS, Q_{10} = 2286.0 CFS
Q_{100}= 1818.54 CFS, Q_{10} = 942.0 CFS
Q_{100}= 3432.4 CFS, Q_{10} = 2108.0 CFS

TOTAL AREAS = 603 AC.
TOTAL LENGHT = 11494 FT
UPSTREAM LENGHT = 4758 FT

TOTAL LENGHT = 11940 FT
TOTAL AREAS = 643 AC.
UPSTREAM LENGHT = 4270 FT

TOTAL AREAS = 1286 AC.
TOTAL LENGHT = 15337 FT
UPSTREAM LENGHT = 6095 FT

UPSTREAM LENGHT = 7160 FT
TOTAL LENGHT = 17155 FT
TOTAL AREAS = 2390 AC.

CULVERT NO.11
4nos. - 8' WIDE X 7' HIGH RCB MIN.

CULVERT NO.10 WITH DISSIPATOR
2nos. - 12'WIDE X 7'HIGH OPENING
MIN. 2 - 12'WIDE X 6'HIGH CHANNEL

CULVERT NO.9
2nos. - 12'WIDE X 7'HIGH OPENING
MIN. 2 - 12'WIDE X 6'HIGH CHANNEL

CULVERT NO.12 WITH DISSIPATOR
10'WIDE X 7' HIGH RCB OPENING
MIN. 6'X10' CHANNEL WITH STANDARD OUTLET

CULVERT NO.13
4nos. - 6'WIDE X 10.5' HIGH RCB

CULVERT NO.14
10'WIDE X 7'HIGH

FILE: 18345CULVERT1.OUT
CULVERT NO.1
36" CMP
H=20FT
Q_{100}= 118 CFS

24" CMP
H=11FT

Q_{100}= 177 CFS BASE FLOW

CULVERT NO.3
24" CMP H=5FT
FILE: 18345CULVERT3.OUT
Q_{100}= 29 CFS

Q_{100}= 882.6 CFS BASE FLOW

FILE: 18345CULVERT5.OUT
CULVERT NO.5
48" CMP
H=31.4FT
Q_{100}= 277.5CFS

FILE: 18346CULVERT6.OUT
CULVERT NO.6
36" CMP
H=9.5FT
Q_{100}= 99.4 CFS

36" CMP
H=13.7FT
CULVERT NO.7
FILE: 18345CULVERT7.OUT
Q_{100}= 111.6 CFS

FILE: 18345CULVERT8.OUT
CULVERT NO.8
36" CMP
H=19.4FT
Q_{100}= 123.4 CFS

CULVERT NO.2
1'9" HIGH X2'4"WIDE
ARCH CMP
H=5FT
FILE: 18345CULVERT2.OUT
Q_{100}= 30 CFS

48" CMP
H=26.6FT
CULVERT NO.4
FILE: 18345CULVERT4.OUT
Q_{100}= 270.7 CFS

DITCH H = 3'
W= 15'-20'

Q_{100}= 25.28 CFS
Q_{100}= 30.19 CFS

AVE. DEPTH = 15.0'
EXISTING DETENTION BASIN= 121.5 AC.FT.

EXISTING DETENTION BASIN= 175 AC.FT.

DEPTH = 26.0'
DEPTH = 31.0'
EXISTING DETENTION BASIN= 261.6 AC.FT.

DEPTH = 9.5'
EXISTING DETENTION BASIN= 22 AC.FT.

DEPTH = 13.7'
EXISTING DETENTION BASIN= 51 AC.FT.

EXISTING DETENTION BASIN= 81.85 AC.FT.
DEPTH = 19.4'

NODE② EXISTING DETENTION BASIN

ELEV. (FT)	AREA (SQ.FT.)	AREA (AC.)	VOLUME (AC.FT.)
3740	52272	1.200	0.000
3755	1396486	32.06	121.50

NODE⑥ AND ⑨ EXISTING DETENTION BASIN

ELEV. (FT)	AREA (SQ.FT.)	AREA (AC.)	VOLUME (AC.FT.)
3708	20688	0.500	0.000
3728	357656	8.200	87.00
3746	600386	13.80	175.00

NODE⑫ EXISTING DETENTION BASIN

ELEV. (FT)	AREA (SQ.FT.)	AREA (AC.)	VOLUME (AC.FT.)
3724	11782	0.810	0.000
3740.55	914743	21.00	180.40

0 1600' 3200'
SCALE: 1" = 1600'

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LUNA ROAD AND FREMONTIA ROAD

DATE: JUNE 2022

SHEET 3 OF 3

OFFSITE DRAINAGE MAP
TR NO. 20527

PROJECT NUMBER
CA-_____

IN THE CITY OF VICTORVILLE,
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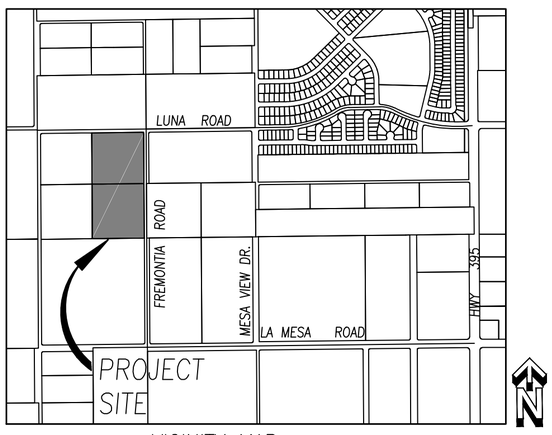
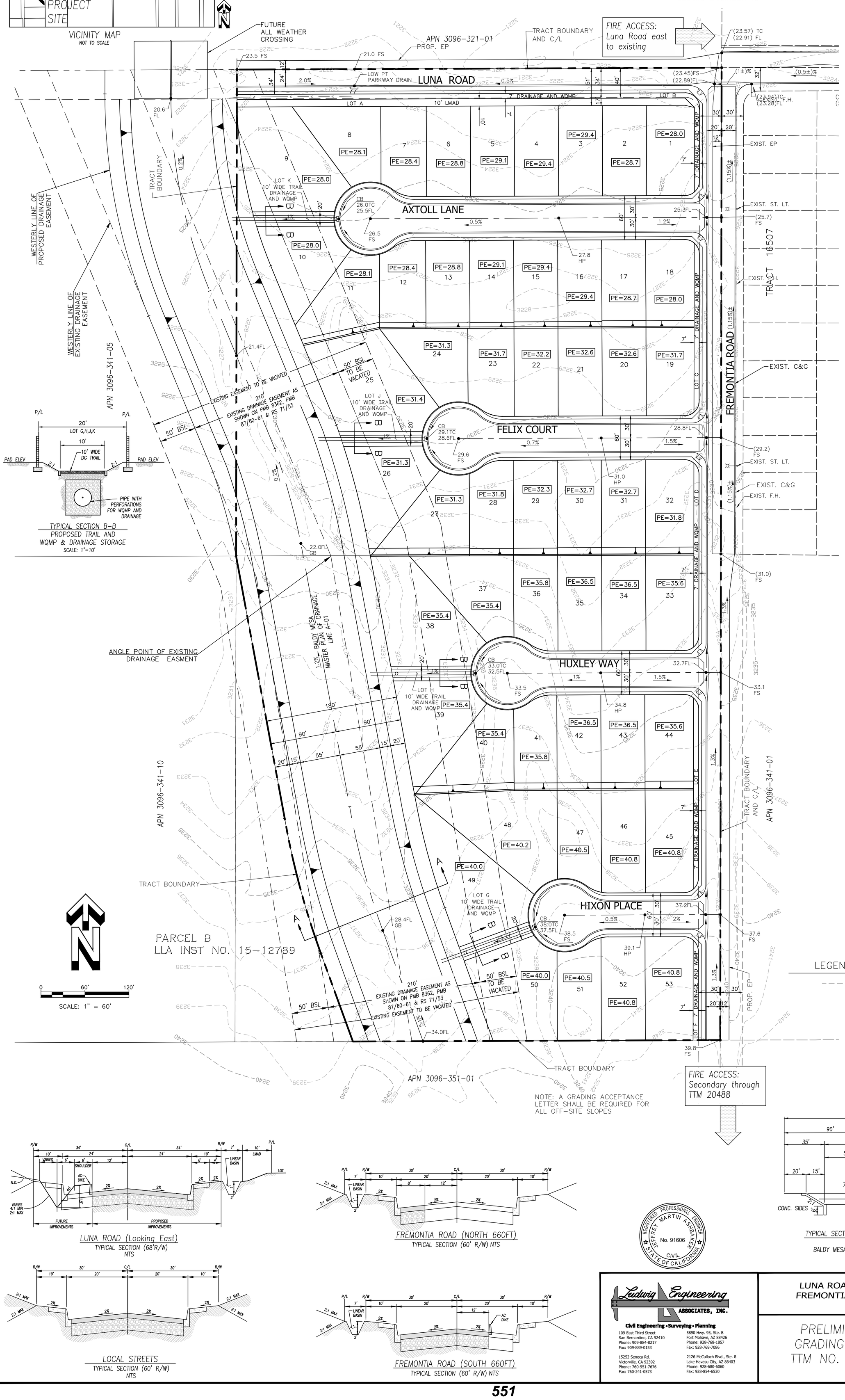
LUDWIG ENGINEERING — JUNE 2022



VICINITY MAP
NOT TO SCALE



TYPICAL SECTION B–B
PROPOSED TRAIL AND WQMP & DRAINAGE STORAGE
SCALE: 1"=10'

SCALE: 1" = 60'

LEGEND

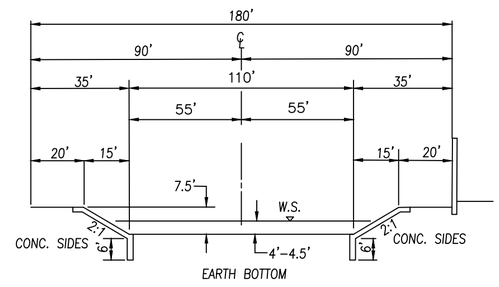
3200	EXIST. CONTOURS
FS	FINISH SURFACE
FL	FLOW LINE
GB	GRADE BREAK
EP	EDGE OF PAVEMENT
PE	PAD ELEVATION
HP	HIGH POINT

LUNA ROAD (Looking East)
TYPICAL SECTION (68'R/W)
NTS

FREMONTIA ROAD (NORTH 66OFT)
TYPICAL SECTION (60' R/W) NTS

LOCAL STREETS
TYPICAL SECTION (60' R/W)
NTS

FREMONTIA ROAD (SOUTH 66OFT)
TYPICAL SECTION (60' R/W) NTS



TYPICAL SECTION A–A PROPOSED CHANNEL
NTS
BALDY MESA MASTER PLAN OF DRAINAGE
LINE A-01

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LUNA ROAD AND FREMONTIA ROAD

PRELIMINARY GRADING PLAN TTM NO. 20527

DATE: JUNE 2022

SHEET 2 OF 3

PROJECT NUMBER