

Preliminary Hydrology Study & Drainage Analysis

Kuri Mini Storage

City of Phelan, CA 92371
APN(s): 3065-481-10 & -11

Prepared For:

Leon Ramona Trust
1850 Leon Ave
San Diego, CA 92154

Prepared By:



Joseph E. Bonadiman & Associates, Inc.
234 North Arrowhead Avenue
San Bernardino, CA 92408
Telephone: (909) 885-3806
Fax: (909) 381-1721

www.bonadiman.com

November 2019



Table of Contents

Table of Contents	No.
Table of Contents	ii
Exhibits	iii
Attachments	iv
A. Introduction	1
1.1 Purpose & Scope	1
1.2 Project Overview	1
1.3 Existing Conditions Off-Site Areas	2
1.4 Existing Conditions On-Site Areas	2
1.5 References	2
B. Methodology	3
1.1 General Methodology	3
1.2 Sources of Topography	3
1.3 FEMA Floodplain Identification & Considerations	3
1.4 Watershed Precipitation	3
1.5 Watershed Losses	4
1.6 Rational Hydrology Method & Unit Hydrograph Hydrology Method Calculations	4
C. Existing Conditions Hydrology Calculations & Summary	5
1.1. Existing Conditions Rational Method Calculations	5
1.2. Existing Conditions Unit Hydrograph Method Calculations	6
D. Developed Conditions Hydrology Calculations	7
1.1 Developed Conditions Rational Method Calculations	7
E. Detention Basin Calculations	9
1.1 Detention Basin Analysis	9
Summary & Conclusion	11
1.1 Summary	11

Exhibits

Exhibit	No.
Project Watershed – Aerial Photo	A
Project Watershed – USGS Quadrangle	B
FEMA Floodplain Maps	C
Precipitation Frequency Data Server	D
San Bernardino County Hydrology Manual Soils Information & NRCS Data	E
Existing Hydrologic Conditions Study Map	F
Developed Hydrologic Conditions Study Map	G

Attachments

Attachments	No.
Existing Conditions Rational Method Calculations	1
25-Year, 1-Hour	
100-Year, 1-Hour	
Existing Conditions Hydrograph Calculations	2
2-Year, 24-Hour	
5-Year, 24-Hour	
10-Year, 24-Hour	
25-Year, 24-Hour	
100-Year, 24-Hour	
Developed Conditions Rational Method Calculations	3
25-Year, 1-Hour	
100-Year, 1-Hour	
Developed Conditions Hydrograph Calculations	4
2-Year, 24-Hour	
10-Year, 24-Hour	
25-Year, 24-Hour	
100-Year, 24-Hour	
Basin Routing	5
2-Year, 24-Hour	
10-Year, 24-Hour	
25-Year, 24-Hour	
100-Year, 24-Hour	
Hydraulics	6
Spillway	
Weir Outlet Pipe	
6' Parkway Culvert	

A. Introduction

1.1 Purpose & Scope

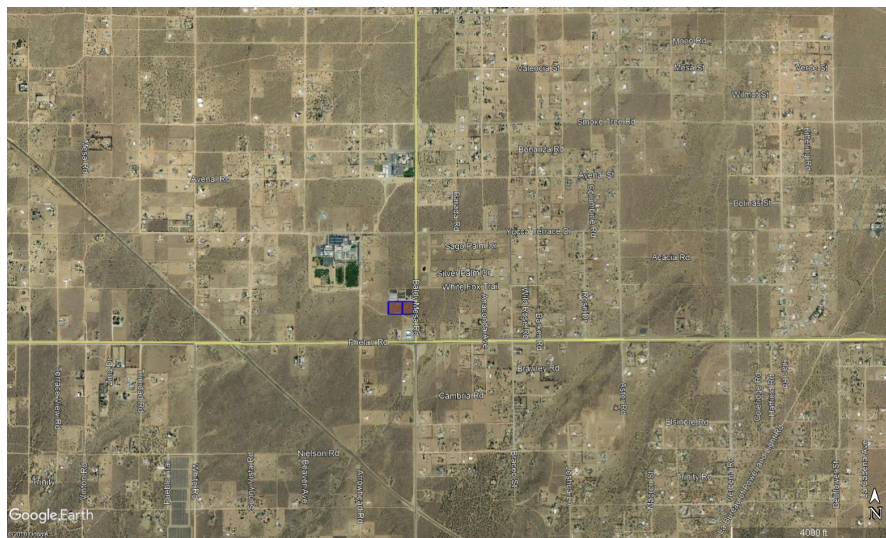
The following Hydrology & Hydraulics Study has been prepared for the development of the Kuri Mini Storage project located along Baldy Mesa Road on approximately 4.20-acres in the City of Phelan, CA. This report has been prepared to satisfy the City of Phelan Hydrology requirements per San Bernardino County Department of Public Works Hydrology/Hydraulics requirements for developments of this type.

The scope of this Study is as follows:

- Identification of floodplain(s) impacting the site.
- Identification of existing conditions off-site tributary drainage.
- Identification of existing conditions on-site drainage areas and calculation of peak flow rates and runoff volumes for these areas.
- Identification of proposed on-site drainage areas and calculation of peak flow rates and runoff volumes for these areas.
- Identification of required storm water mitigation due to development.
- Sizing of on-site storm drain improvements.
- Summary of Findings & Conclusion

1.2 Project Overview

The project site is located approximately 3.48 miles northwest of Interstate 10 and 1.95 miles southwest of the California Aqueduct. The proposed project entails the construction and development of a storage facility totaling approximately 4.20-acres in the City of Phelan, CA on a currently vacant lot. The site will consist of 5 buildings, a parking lot, sidewalk, and landscape per City requirements.



Site Location

1.3 Existing Conditions Off-Site Areas

The project site is located in a "Private Unincorporated" zone area of Phelan. The subject property is north of the intersection of Baldy Mesa Road and Phelan Road. To the north is a single-family residence and to the west and south are vacant lots. To east is Baldy Mesa Road.

Drainage in the area generally sheet flows to the northeast. The flows from the southwest drain to the northeast. There are no significant offsite tributary or concerns that would affect site hydrology.

1.4 Existing Conditions On-Site Areas

The existing on-site project area is generally flat, sloping to the northeast and is covered with chaparral, narrowleaf. The onsite flows drain from the southwest to northeast to Baldy Mesa Road.

1.5 References

The following documents have been made part of this study by reference:

- 1.) San Bernardino County Department of Public Works Hydrology Manual, August 1986.
- 2.) Site plans by Joseph E. Bonadiman & Associates, Inc., August 2019.
- 3.) County of San Bernardino Hydrology Manual Addendum for Arid Regions, April 6, 2010.
- 4.) The National Oceanic and Atmospheric Administration Atlas 14, Volume 6, Version 2, January 2014.

B. Methodology

1.1 General Methodology

The requirements and recommendations found in the San Bernardino County Hydrology Manual (August 1986) provided by the San Bernardino County Department of Public Works was used as the basis for the methodology and calculations found in this Study. On-site calculations were performed using the Rational and Unit Hydrograph methods per County requirements for the Santa Ana River watershed.

For the 2 & 5-Year storm event, Antecedent Moisture Condition (AMC) I was used. For the 10, & 25-Year storm event, Antecedent Moisture Condition (AMC) II was used. For the 100-Year storm event, Antecedent Moisture Condition (AMC) III was used. The San Bernardino County-approved software applications provided by Civil Design ® Corporation were used for all study calculations.

1.2 Sources of Topography

Mapping of existing condition on-site and off-site area and topographic contours were provided by Joseph E. Bonadiman & Associates, Inc., dated May 2019.

1.3 FEMA Floodplain Identification & Considerations

This site is located in a shaded Zone D, “Areas in which flood hazards are undetermined, but possible”.

Refer to Exhibit “C” for FEMA Map No. 06071C6475H (not printed).

1.4 Watershed Precipitation

Precipitation values used in this report were obtained from The National Oceanic and Atmospheric Administration Atlas 14, Volume 6, Version 2 and are tabulate below. The slope of intensity duration curve value of 0.70 (desert areas) was used per the County Hydrology Manual.

Table 1 – Precipitation Values (Rational Method Calculations)

STORM	PRECIPITATION
10-YEAR, 1-HOUR	0.78
100-YEAR, 1-HOUR	1.30

Table 2 – Precipitation Values (Unit Hydrograph Calculations)

STORM	PRECIPITATION
10-YEAR, 1-HOUR	0.78
100-YEAR, 1-HOUR	1.30
2-YEAR, 6-HOUR	1.13
100-YEAR, 6-HOUR	3.06
2-YEAR, 24-HOUR	2.13
100-YEAR, 24-HOUR	6.35

Refer to Exhibit “D” for the San Bernardino County Hydrology Manual isohyetal maps used in this report.

1.5 Watershed Losses

Soil types and SCS Curve Number (AMC II) used in this report were obtained from the Soils Group maps and Figures C-2 & 3, included in the San Bernardino County Hydrology Manual, and are tabulated below.

Type “A” is shown for the entire area of study per Custom Soil Resource Report Soil Map of United States Department of Agriculture Natural Resources Conservation Service. The existing conditions study site is currently 100% undeveloped, consisting of a dirt lot, poorly covered with chaparral. Per the San Bernardino County Hydrology Manual Figure C-2 & 3, the SCS Curve Number (AMC II) used for existing conditions areas is 71 (“Chaparral, Narrowleaf/ poor Condition”). The SCS Curve Number (AMC II) used for developed conditions pervious areas is 63 (“Desert Landscape”) per US Department of Agriculture and 98 (“Impervious Areas”) for the parking lots, roofs, driveways, etc., per the San Bernardino County Hydrology Manual Figure C-2 & 3.

Table 3 – Developed Condition Soil Loss Rates

COVER TYPE	SOIL TYPE	QUALITY OF COVER	SCS CURVE NO. (AMC II)
CHAPARRAL	A	POOR	71
Desert Landscaping	A	GOOD	63
Impervious Area	A	~	98

Refer to Exhibit “E” for the San Bernardino County Hydrology Manual soils maps and SCS Curve Number per Figure C-2 & 3 and C-6 used in this report.

1.6 Rational Hydrology Method & Unit Hydrograph Hydrology Method Calculations

The San Bernardino County Rational Method (RSBC) & Unit Hydrograph Method (UNSBC) software applications provided by CivilDesign® Corporation was used for the rational & unit hydrograph method calculations included in this report.

C. Existing Conditions Hydrology Calculations & Summary

1.1. Existing Conditions Rational Method Calculations

Input values for the existing conditions rational method calculations prepared for this report are tabulated below:

Table 4 – Existing Conditions Rational Method Input Values

DRAINAGE AREA	SIZE (AC)	TYPE	COVER	SOIL	SCS (AMC II)	PERVIOUS FRACTION	U.S. ELEV. (FT)	D.S. ELEV. (FT)	LENGTH (FT)
A1 NODE 0-1	4.20	CHAPARRAL	POOR	A	71	1.00	3680.8	3667.3	644

Output for the existing conditions rational method calculations are tabulated as follows:

Table 5 – Existing Conditions Rational Method Output Calculations

AREA	NODE	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)
A	0-1	5.94	8.44
TC ₁₀₀ (MIN)		20.58	

Refer to Attachment No. 1 for printouts of the existing conditions rational method calculations.
 Refer to Exhibit “F” for the Existing Conditions Hydrology Study Map.

1.2. Existing Conditions Unit Hydrograph Method Calculations

Based on the output data from the Rational Method above the 100-year TC value was used. Input values for the developed conditions unit hydrograph method calculations prepared for this report are tabulated as follows:

Table 6 – Existing Conditions Unit Hydrograph Method Input Values

DRAINAGE AREA	SIZE (AC)	SCS	PERVIOUS FRACTION	TC ₁₀₀ (HR)
A	4.20	71	1.00	0.34

Output for the existing conditions unit hydrograph method calculations are tabulated as follows:

Table 7 – Existing Conditions Unit Hydrograph Method Output Calculations

DRAINAGE AREA	SIZE (AC)	Q ₂ (CFS)	Q ₅ (CFS)	Q ₁₀ (CFS)	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)	LAG ₁₀₀ (HR)
A	4.20	1.50	2.69	4.52	6.08	8.50	0.27

DRAINAGE AREA	SIZE (AC)	VOL ₂ (AF)	VOL ₅ (AF)	VOL ₁₀ (AF)	VOL ₂₅ (AF)	Q ₁₀₀ (AF)	LAG ₁₀₀ (HR)
A	4.20	0.05	0.13	0.53	0.79	1.22	0.27

Refer to Attachment No. 2 for printouts of the existing conditions unit hydrograph calculations.
 Refer to Exhibit “F” for the Existing Conditions Hydrology Study Map.

D. Developed Conditions Hydrology Calculations

1.1 Developed Conditions Rational Method Calculations

Input values for the final conditions rational method calculations were adjusted accordingly and are tabulated below:

Table 8 – Developed Conditions Rational Method Input Values

DRAINAGE AREA	SIZE (AC) (IN)	TYPE	COVER	SOIL	SCS (AMC II)	PERVIOUS FRACTION	U.S. ELEV. (FT)	D.S. ELEV. (FT)	LENGTH (FT)
A1 NODE 0-1	4.20	LANDSCAPING	GOOD	A	63	0.18	3680.0	3673.00	666
PIPE NODE 1-2	12"	~	~	~	~	~	3669.16	3668.30	84

Output for the developed conditions rational method calculations are tabulated as follows:

Table 9 – Developed Conditions Rational Method Output Calculations

AREA	NODE	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)
A	0-1	12.05	16.01
TC ₁₀₀ (MIN)		10.86	

Refer to Attachment No. 3 for printouts of the final conditions rational method calculations.

Refer to Exhibit "G" for the Final Conditions Hydrology Study Map.

1.2 Developed Conditions Unit Hydrograph Method Calculations

Based on the output data from the Rational Method above the 100-year TC value was used. Input values for the existing conditions unit hydrograph method calculations prepared for this report are tabulated as follows:

Table 10 – Developed Conditions Unit Hydrograph Method Input Values

DRAINAGE AREA	SIZE (AC)	SCS	PERVIOUS FRACTION	TC ₁₀₀ (HR)
A	4.20	63	0.18	0.17

Output for the developed conditions unit hydrograph method calculations are tabulated as follows:

Table 11 Developed Conditions Unit Hydrograph Method Output Calculations

DRAINAGE AREA	SIZE (AC)	Q ₂ (CFS)	Q ₁₀ (CFS)	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)	LAG ₁₀₀ (HR)
A	4.20	4.21	8.42	10.76	14.31	0.14

DRAINAGE AREA	SIZE (AC)	VOL ₂ (AF)	VOL ₁₀ (AF)	VOL ₂₅ (AF)	VOL ₁₀₀ (AF)	LAG ₁₀₀ (HR)
A	4.20	0.56	1.12	1.44	1.94	0.14

Refer to Attachment No. 4 for printouts of the existing conditions unit hydrograph calculations. Refer to Exhibit “F” for the Existing Conditions Hydrology Study Map.

E. Detention Basin Calculations

1.1 Detention Basin Analysis

A detention/retention basin is proposed to attenuation storm flows and for WQMP volume retention and infiltration. Input values of the depth vs. volume for detention basin routing calculations prepared for this report are tabulated as follows:

Table 12 – Detention Basins A, System Depth vs. Volume

ELEVATION (FT)	DEPTH (FT)	TOTAL VOLUME (CF)	DETENTION VOLUME (AF)
3668.3 OUTLET	0.00	0	0.000
3669.3	1.00	3,729	0.085
3670.3	2.00	8,481	0.195
3671.3 MAX WS	3.00	14,600	0.335

Output for the detention basin routing calculations are tabulated as follows:

Table 13 – Detention Basins Output Calculations

BASIN AREA	STORM EVENT	OUTLET (IN)	SPILLWAY WIDTH (FT)	SPILLWAY ELEVATION (FT)	OUTFLOW PEAK Q (CFS)	BASIN WATER DEPTH (FT)
A	2	5" WEIR	10.00	3670.85	1.28	1.02
	10				2.92	1.74
	25				3.83	2.10
	100				5.16	2.55

Table 14 – Detention Basins Spillway Calculations

BASIN AREA	Q ₁₀₀ (CFS)	SCALE FACTOR	Q ₁₀₀₀ (CFS)	SPILLWAY SLOPE (%)	SIDE SLOPE	BASE WIDTH (FT)	Q ₁₀₀₀ DEPTH (FT)
A	16.32	1.35	22.03	2.00	2:1	10.00	0.37

All detention basins shall be design based on the “Detention Basin Design Criteria for San Bernardino County”, as follows:

- When feasible no more than 50% of the basins volume shall be above natural grade.
- 3:1 maximum slope on wet side and 2:1 maximum slope on dry side.
- Maximum water depth should not exceed 6’.
- A spillway shall be design to pass the fully developed 1000 year peak flow rate ($Q_{1000} = 1.35 Q_{100}$).
- A minimum of 1-foot of freeboard above the 1000-year HWL or 2-feet of freeboard above the 100 –year HWL, whichever is more stringent.
- Access to the basin shall be gated and locked.

Refer to Attachment No. 5 for a printout of the 2-year, 10-year, 25-year and 100-year hydrograph routing calculations for the proposed basins system.

Summary & Conclusion

1.1 Summary

A summary of the results of the Rational Method calculations are tabulated below:

Table 15–Rational Method Calculations Summary

AREA	STORM EVENT	EXISTING CONDITIONS PEAK Q (CFS)	DEVELOPED CONDITIONS PEAK Q (CFS)	INCREASE (CFS)*
A	25	5.94	12.29	6.35
	100	8.44	16.32	7.88

* Above listed values are results prior to basin routing & WQMP storage and not reflective of actual site discharge.

A summary of the results of the unit hydrograph calculations are tabulated below:

Table 16–Unit Hydrograph Calculations Summary

AREA	STORM EVENT	EXISTING CONDITIONS PEAK Q (CFS)	DEVELOPED CONDITIONS PEAK Q (CFS)	INCREASE (CFS)*	EXISTING CONDITIONS VOLUME (AF)	FINAL CONDITIONS VOLUME (AF)	INCREASE (AF)*
A	2	1.50	4.21	2.71	0.05	0.56	0.51
	10	4.52	8.42	3.90	0.53	1.12	0.59
	25	6.08	10.76	4.68	0.79	1.44	0.65
	100	8.50	14.31	5.81	1.22	1.94	0.72

* Above listed values are results prior to basin routing & WQMP storage and not reflective of actual site discharge.

As indicated above, an increase in peak flow and runoff volume as a result of the proposed development. The increase in flow rates shall be mitigated onsite as to reduce the total site discharge to 90% of the pre-development conditions per the San Bernardino County Hydrology Manual.

Per “San Bernardino County Detention Basin Design Criteria” post-development peak flow rates generated by the site shall be less than or equal to 90% of the pre-development peak flow rate based on shifting the rainfall values for the 10-year, 25-year and 100-years storms, providing a least a 50% confidence level that the detention basin outflow will not adversely impact downstream properties. A summary of the maximum allowable peak flow rates are tabulated below:

Table 17 – Area “A” Outlet Requirements

EXISTING AREA	STORM EVENT	EXISTING CONDITIONS PEAK Q (CFS)	ADJUSTED PEAK Q (CFS)	MAXIMUM ALLOWABLE DISCHARGE 90% OF ADJUSTED PEAK Q (CFS)
A	2	1.50	Q ₂ =1.50	1.35
	10	4.52	Q ₅ =2.69	2.42
	25	6.08	Q ₁₀ =4.52	4.07
	100	8.50	Q ₂₅ =6.08	5.47

A summary of the results of the detention basin routing calculations are tabulated below:

Table 18 – Detention Basins Routing Summary

AREA	STORM EVENT	MAXIMUM BASIN DISCHARGE 90% OF ADJUSTED PEAK Q (CFS)	OUTFLOW PEAK Q (CFS)	TOTAL BASIN DEPTH (ft)	INCREASED DISCHARGE VOLUME (AF)*
A	2	1.35	1.29	1.02	0.51
	10	2.42	2.92	1.73	0.59
	25	4.07	3.82	2.10	0.65
	100	5.47	5.15	2.55	0.72

* Above listed values do not reflect WQMP storage volume.

Refer to Attachment No. 5 for a printout of the spillway width calculation calculations for the proposed basins system.

1.2 Conclusion

As indicated in Table 13, development of the site results in an increase in peak flow and runoff volume as a result of the proposed development and therefore requires mitigation.

Per the San Bernardino County Hydrology Manual, developed sites shall not increase existing condition flow rate. In order to meet mitigation requirements per “San Bernardino County Detention Basin Design Criteria” post-development peak flow rates generated by the site shall be less than or equal to 90% of the pre-development peak flow rate based on shifting the rainfall values for the 10-year, 25-year and 100-years storms, providing a least a 50% confidence level that the detention basin outflow will not adversely impact downstream properties.

This can be achieved with the use of a storm water detention basin with a minimum capacity of 0.272 AF, 3:1 side slopes and a maximum water depth of 2.55 ft., to bottom of basin. The basin shall have an outlet weir box with a 5” wide weir slot. The crest of the weir box shall be a minimum of 2.55 ft from the bottom of the basin. The basin shall also be equipped with a spillway with the crest 2.55 ft from the bottom of the basin and shall have a base width of 10 FT with 2:1 side slopes. The bottom shall slope away from the basin at no less than 1.0%. This will provide a minimum of 2-foot of freeboard above the 100-year HWL from the top of slope elevation and shall prevent the water surface from breaching the rim. The outlet weir box shall be connected to a 6’ wide parkway culvert with a 18” outlet pipe. Discharge to the public right-of-way for shall be conveyed through the 6 ft wide parkway culvert constructed in accordance with the County standard. For steady state capacity calculation for the parkway culvert, refer to Attachment No 5. The basin shall also be equipped with a spillway structure

With the above mitigation measure the development of the Kuri Mini Storage project will not have a negative impact on downstream properties or facilities. Refer to project specific WQMP for additional requirements.

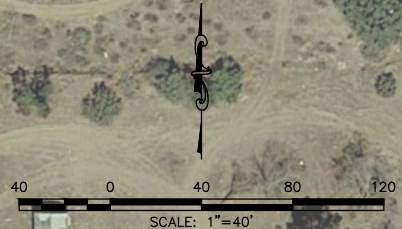
(END)

EXHIBIT “A”

Project Watershed
Aerial Photo



REDUCED



AERIAL PHOTO EXHIBIT
BALDY MESA ROAD
IN THE CITY OF PHELAN, CA

PREPARED BY:



TEL. (951) 940-3000
WWW.BONADIMAN.COM



CIVILDESIGN
CONSULTANTS & ENGINEERS

PREPARED FOR:

BY	MARK	REVISION DESCRIPTION	DATE

PREPARED FOR: MARK KURI
JOB NO: 194647
PREPARED BY: VB
CHECKED BY: JTS

NOTE: JOSEPH E. BONADIMAN & ASSOCIATES, INC. DOES NOT WARRANT THE ACCURACY OF THE G.I.S. DATA PRESENTED IN THIS EXHIBIT. THIS EXHIBIT MAY CONTAIN INFORMATION COPYRIGHTED TO THE COUNTY OF SAN BERNARDINO, CA.

AERIAL PHOTO EXHIBIT
BALDY MESA ROAD
IN THE CITY OF PHELAN, CA

A

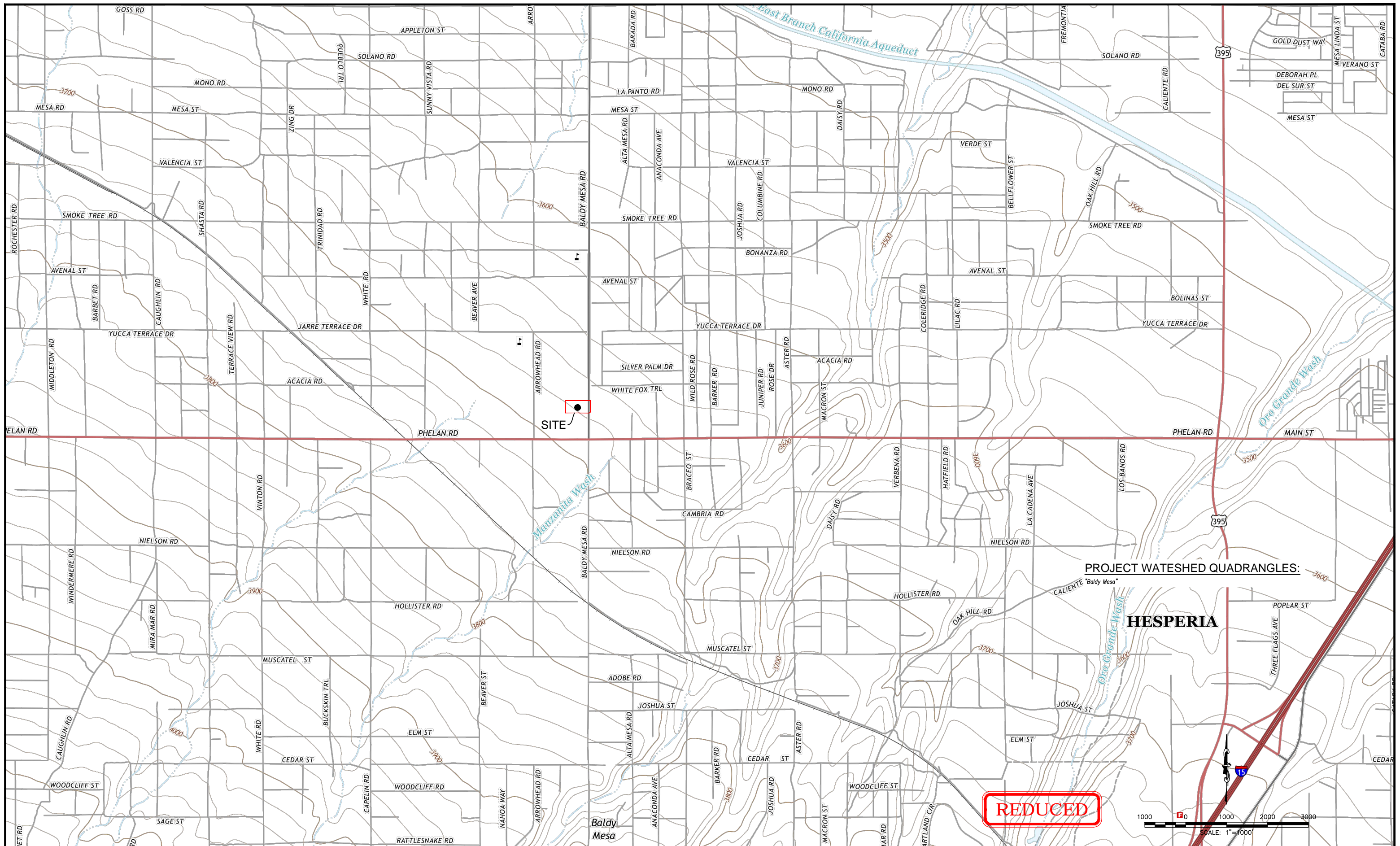
DISREGARD PRINTS BEARING EARLIER REVISION DATES

11-11-19

SHEET 1 OF 1

EXHIBIT “B”

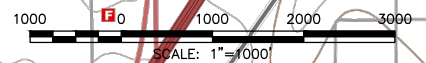
Project Watershed
USGS Quadrangle



PROJECT WATSHED QUADRANGLES:

HESPERIA

REDUCED



USGS QUADRANGLE EXHIBIT
BALDY MESA ROAD
 IN THE CITY OF PHELAN, CA

PREPARED BY:

BONADIMAN TEL: (909) 888-3888
 11111 N. GATEWAY BLVD., SUITE 100, PHELAN, CA 92371



PREPARED FOR:

BY	MARK	REVISION DESCRIPTION	DATE

PREPARED FOR: MARK KURI
 JOB NO: 194647
 PREPARED BY: VB
 CHECKED BY: JTS
 NOTE: JOSEPH E. BONADIMAN & ASSOCIATES, INC. DOES NOT WARRANT THE ACCURACY OF THE G.I.S. DATA PRESENTED IN THIS EXHIBIT. THIS EXHIBIT MAY CONTAIN INFORMATION COPYRIGHTED TO THE COUNTY OF SAN BERNARDINO, CA.

USGS QUADRANGLE EXHIBIT
BALDY MESA ROAD
 IN THE CITY OF PHELAN, CA

B
 DISREGARD PRINTS BEARING EARLIER REVISION DATES
 11-11-19
 SHEET 1 OF 1

EXHIBIT “C”

FEMA Floodplain Maps



FEMA Flood Map Service Center: Search By Address

Navigation

Search

Languages

MSC Home (/portal/)

MSC Search by Address (/portal/search)

MSC Search All Products (/portal/advanceSearch)

MSC Products and Tools (/portal/resources/productsandtools)

Hazus (/portal/resources/hazus)

LOMC Batch Files (/portal/resources/lomc)

Product Availability (/portal/productAvailability)

MSC Frequently Asked Questions (FAQs) (/portal/resources/faq)

MSC Email Subscriptions (/portal/subscriptionHome)

Contact MSC Help (/portal/resources/contact)

Enter an address, place, or coordinates: ?

baldymesa and lindero raod, san bernardino county

Search

Whether you are in a high risk zone or not, you may need flood insurance... Learn more about steps you can take to reduce flood risk damage.

Search Results—Products for SAN BERNARDINO COUNTY UNINCORPORATED AREAS

Show ALL Products » (https://msc.fema.gov/portal/availabilitySearch?addcommunity=060270&communityName=SAN)

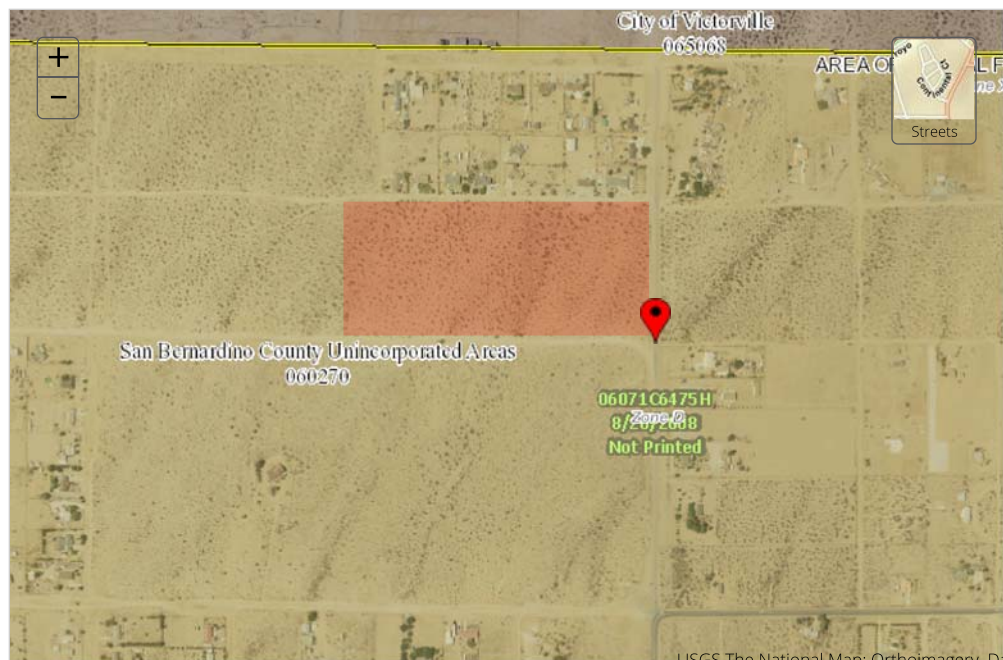
The flood map for the selected area is number 06071C6475H. The flood map for this location has a status of "not printed". This means that the entire area of the panel is in a single flood zone, so FEMA chose to economize and not create a printable image for this location.

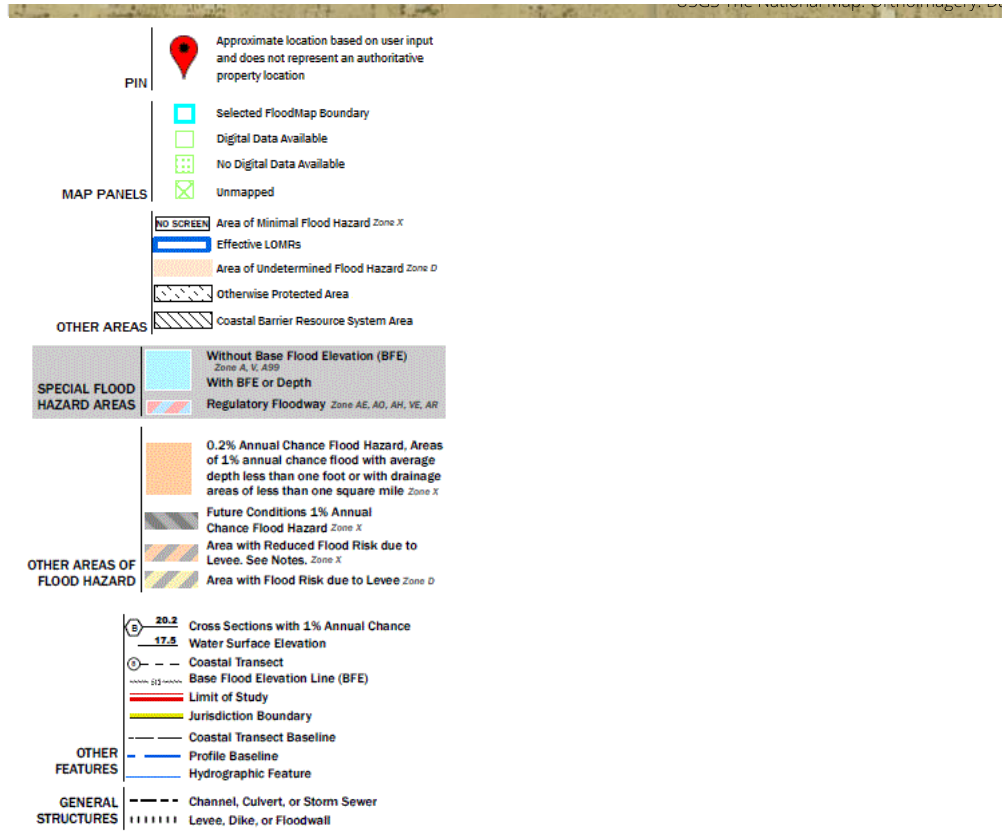
DYNAMIC MAP



You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above.

Go To NFHL Viewer » (https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d)





Share This Page.

[Home](http://www.fema.gov/) (<http://www.fema.gov/>) [Download Plug-ins](http://www.fema.gov/download-plug-ins) (<http://www.fema.gov/download-plug-ins>) [About Us](http://www.fema.gov/about-agency) (<http://www.fema.gov/about-agency>) [Privacy Policy](http://www.fema.gov/privacy-policy) (<http://www.fema.gov/privacy-policy>) [FOIA](http://www.fema.gov/foia) (<http://www.fema.gov/foia>) [Office of the Inspector General](http://www.oig.dhs.gov/) (<http://www.oig.dhs.gov/>) [Strategic Plan](http://www.fema.gov/fema-strategic-plan) (<http://www.fema.gov/fema-strategic-plan>) [Whitehouse.gov](http://www.whitehouse.gov/) (<http://www.whitehouse.gov/>) [DHS.gov](http://www.dhs.gov) (<http://www.dhs.gov>) [Ready.gov](http://www.ready.gov) (<http://www.ready.gov>) [USA.gov](http://www.usa.gov) (<http://www.usa.gov>) [DisasterAssistance.gov](http://www.disasterassistance.gov/) (<http://www.disasterassistance.gov/>)



Official website of the Department of Homeland Security

EXHIBIT “D”

Precipitation Frequency Data Server



NOAA Atlas 14, Volume 6, Version 2
Location name: Phelan, California, USA*
Latitude: 34.4297°, Longitude: -117.4522°
Elevation: 3671.62 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

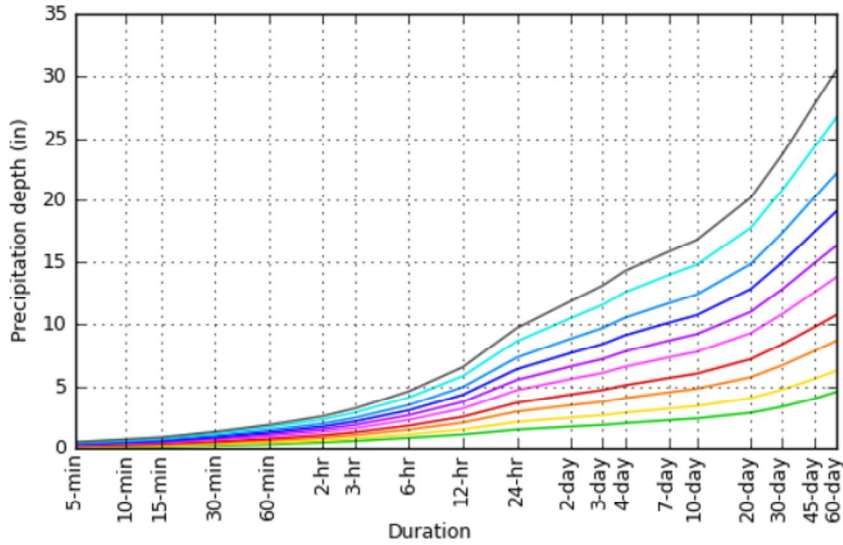
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.088 (0.073-0.108)	0.124 (0.103-0.152)	0.173 (0.142-0.211)	0.212 (0.174-0.262)	0.268 (0.212-0.342)	0.311 (0.241-0.405)	0.355 (0.268-0.475)	0.402 (0.295-0.553)	0.466 (0.328-0.668)	0.517 (0.352-0.767)
10-min	0.126 (0.105-0.154)	0.178 (0.147-0.218)	0.247 (0.204-0.303)	0.304 (0.249-0.376)	0.383 (0.303-0.490)	0.445 (0.345-0.581)	0.509 (0.385-0.681)	0.576 (0.423-0.792)	0.668 (0.471-0.958)	0.741 (0.504-1.10)
15-min	0.153 (0.127-0.187)	0.215 (0.178-0.263)	0.299 (0.247-0.366)	0.368 (0.301-0.455)	0.464 (0.367-0.592)	0.539 (0.417-0.703)	0.616 (0.465-0.824)	0.697 (0.512-0.958)	0.808 (0.569-1.16)	0.896 (0.609-1.33)
30-min	0.229 (0.189-0.279)	0.322 (0.267-0.394)	0.447 (0.369-0.548)	0.551 (0.450-0.680)	0.694 (0.549-0.886)	0.806 (0.624-1.05)	0.922 (0.696-1.23)	1.04 (0.766-1.43)	1.21 (0.852-1.73)	1.34 (0.912-1.99)
60-min	0.323 (0.267-0.394)	0.455 (0.376-0.556)	0.631 (0.520-0.773)	0.777 (0.635-0.960)	0.979 (0.774-1.25)	1.14 (0.880-1.48)	1.30 (0.982-1.74)	1.47 (1.08-2.02)	1.71 (1.20-2.45)	1.89 (1.29-2.81)
2-hr	0.473 (0.392-0.577)	0.641 (0.530-0.783)	0.869 (0.716-1.07)	1.06 (0.867-1.31)	1.33 (1.05-1.70)	1.54 (1.19-2.01)	1.76 (1.33-2.36)	2.00 (1.47-2.75)	2.33 (1.64-3.34)	2.59 (1.76-3.85)
3-hr	0.596 (0.494-0.728)	0.797 (0.659-0.974)	1.07 (0.883-1.31)	1.30 (1.06-1.61)	1.63 (1.29-2.08)	1.89 (1.46-2.47)	2.17 (1.64-2.90)	2.46 (1.81-3.38)	2.87 (2.02-4.12)	3.21 (2.18-4.76)
6-hr	0.852 (0.705-1.04)	1.13 (0.934-1.38)	1.51 (1.25-1.85)	1.83 (1.50-2.26)	2.29 (1.81-2.93)	2.67 (2.06-3.48)	3.06 (2.31-4.09)	3.49 (2.56-4.79)	4.09 (2.88-5.87)	4.59 (3.12-6.81)
12-hr	1.12 (0.928-1.37)	1.52 (1.26-1.86)	2.08 (1.71-2.54)	2.54 (2.08-3.14)	3.21 (2.54-4.10)	3.75 (2.90-4.89)	4.31 (3.26-5.77)	4.93 (3.62-6.77)	5.80 (4.08-8.31)	6.51 (4.43-9.66)
24-hr	1.52 (1.34-1.74)	2.13 (1.88-2.45)	2.97 (2.62-3.43)	3.67 (3.22-4.28)	4.68 (3.97-5.64)	5.49 (4.56-6.75)	6.35 (5.14-8.00)	7.27 (5.72-9.41)	8.57 (6.48-11.6)	9.64 (7.04-13.5)
2-day	1.76 (1.56-2.03)	2.48 (2.20-2.86)	3.48 (3.07-4.02)	4.34 (3.80-5.05)	5.56 (4.71-6.70)	6.56 (5.45-8.07)	7.63 (6.18-9.61)	8.79 (6.92-11.4)	10.4 (7.90-14.1)	11.8 (8.63-16.5)
3-day	1.89 (1.68-2.17)	2.67 (2.36-3.07)	3.75 (3.31-4.34)	4.69 (4.11-5.46)	6.04 (5.12-7.28)	7.15 (5.94-8.79)	8.34 (6.76-10.5)	9.64 (7.60-12.5)	11.5 (8.71-15.6)	13.1 (9.56-18.3)
4-day	2.03 (1.80-2.34)	2.87 (2.54-3.31)	4.05 (3.58-4.68)	5.07 (4.44-5.90)	6.54 (5.54-7.88)	7.75 (6.44-9.53)	9.06 (7.34-11.4)	10.5 (8.26-13.6)	12.5 (9.48-16.9)	14.3 (10.4-19.9)
7-day	2.27 (2.01-2.61)	3.20 (2.84-3.69)	4.51 (3.98-5.21)	5.64 (4.94-6.57)	7.28 (6.17-8.76)	8.62 (7.16-10.6)	10.1 (8.15-12.7)	11.6 (9.17-15.1)	13.9 (10.5-18.8)	15.8 (11.6-22.1)
10-day	2.41 (2.14-2.78)	3.40 (3.01-3.92)	4.79 (4.23-5.53)	5.99 (5.24-6.97)	7.72 (6.54-9.30)	9.15 (7.59-11.2)	10.7 (8.65-13.5)	12.3 (9.73-16.0)	14.8 (11.2-19.9)	16.8 (12.3-23.4)
20-day	2.86 (2.54-3.29)	4.04 (3.58-4.66)	5.70 (5.03-6.59)	7.14 (6.25-8.32)	9.23 (7.82-11.1)	10.9 (9.09-13.5)	12.8 (10.4-16.1)	14.8 (11.7-19.2)	17.8 (13.4-24.0)	20.2 (14.7-28.2)
30-day	3.36 (2.98-3.87)	4.73 (4.19-5.45)	6.66 (5.88-7.69)	8.33 (7.30-9.71)	10.8 (9.13-13.0)	12.8 (10.6-15.7)	15.0 (12.1-18.9)	17.3 (13.7-22.5)	20.8 (15.7-28.1)	23.7 (17.3-33.1)
45-day	4.00 (3.54-4.60)	5.56 (4.92-6.41)	7.77 (6.86-8.98)	9.70 (8.49-11.3)	12.5 (10.6-15.1)	14.9 (12.3-18.3)	17.4 (14.1-21.9)	20.2 (15.9-26.1)	24.2 (18.3-32.7)	27.6 (20.2-38.6)
60-day	4.55 (4.03-5.23)	6.23 (5.51-7.18)	8.61 (7.60-9.95)	10.7 (9.37-12.5)	13.8 (11.7-16.6)	16.3 (13.5-20.1)	19.1 (15.5-24.0)	22.1 (17.4-28.7)	26.6 (20.1-36.0)	30.4 (22.2-42.5)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

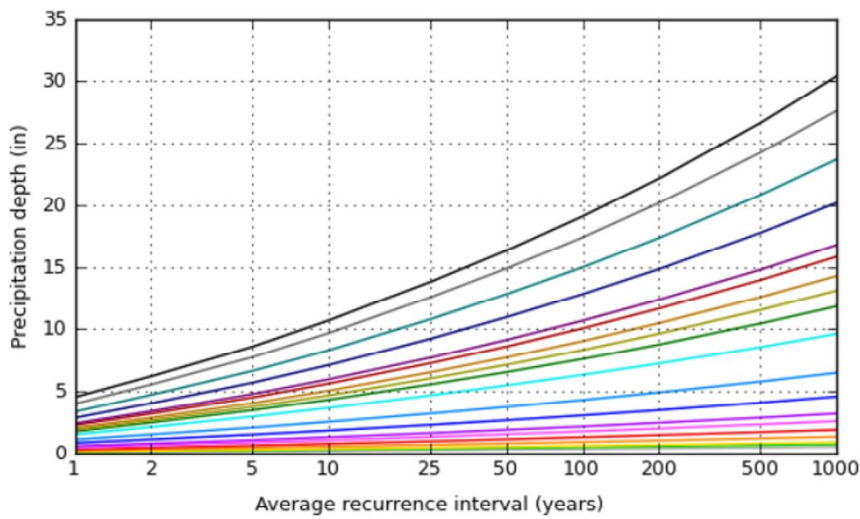
[Back to Top](#)

PF graphical

PDS-based depth-duration-frequency (DDF) curves
 Latitude: 34.4297°, Longitude: -117.4522°



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



Duration
5-min
10-min
15-min
30-min
60-min
2-hr
3-hr
6-hr
12-hr
24-hr
2-day
3-day
4-day
7-day
10-day
20-day
30-day
45-day
60-day

Maps & aerals

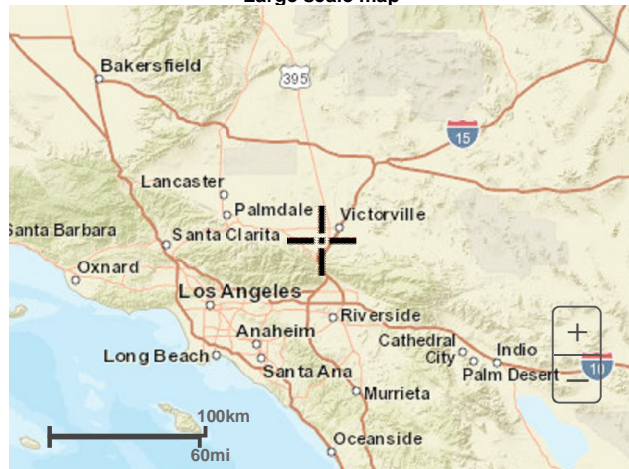
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



[Back to Top](#)

[US Department of Commerce](#)
[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](#)

EXHIBIT “E”

San Bernardino County
Hydrology Manual
Soils Maps

Residential Landscaping (Lawn, Shrubs, etc.) - The pervious portions of commercial establishments, single and multiple family dwellings, trailer parks and schools where the predominant land cover is lawn, shrubbery and trees.

Row Crops - Lettuce, tomatoes, beets, tulips or any field crop planted in rows far enough apart that most of the soil surface is exposed to rainfall impact throughout the growing season. At plowing, planting and harvest times it is equivalent to fallow.

Small Grain - Wheat, oats, barley, flax, etc. planted in rows close enough that the soil surface is not exposed except during planting and shortly thereafter.

Legumes - Alfalfa, sweetclover, timothy, etc. and combinations are either planted in close rows or broadcast.

Fallow - Fallow land is land plowed but not yet seeded or tilled.

Woodland - grass - Areas with an open cover of broadleaf or coniferous trees usually live oak and pines, with the intervening ground space occupied by annual grasses or weeds. The trees may occur singly or in small clumps. Canopy density, the amount of ground surface shaded at high noon, is from 20 to 50 percent.

Woodland - Areas on which coniferous or broadleaf trees predominate. The canopy density is at least 50 percent. Open areas may have a cover of annual or perennial grasses or of brush. Herbaceous plant cover under the trees is usually sparse because of leaf or needle litter accumulation.

Chaparral - Land on which the principal vegetation consists of evergreen shrubs with broad, hard, stiff leaves such as manzonita, ceanothus and scrub oak. The brush cover is usually dense or moderately dense. Diffusely branched evergreen shrubs with fine needle-like leaves, such as chamise and redchank, with dense high growth are also included in this soil cover.

Annual Grass - Land on which the principal vegetation consists of annual grasses and weeds such as annual bromes, wild barley, soft chess, ryegrass and filaree.

Irrigated Pasture - Irrigated land planted to perennial grasses and legumes for production of forage and which is cultivated only to establish or renew the stand of plants. Dry land pasture is considered as annual grass.

Meadow - Land areas with seasonally high water table, locally called cienegas. Principal vegetation consists of sod-forming grasses interspersed with other plants.

Orchard (Deciduous) - Land planted to such deciduous trees as apples, apricots, pears, walnuts, and almonds.

Orchard (Evergreen) - Land planted to evergreen trees which include citrus and avocados and coniferous plantings.

Turf - Golf courses, parks and similar lands where the predominant cover is irrigated mowed close-grown turf grass. Parks in which trees are dense may be classified as woodland.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

SCS
COVER TYPE
DESCRIPTIONS

POOR: Heavily grazed or regularly burned areas. 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 by vegetation.

GOOD: Heavy or dense cover with more than 75 percent of the ground surface protected by vegetation.

In most cases, watershed existing conditions cover type and quality can be readily determined by a field review of a watershed. In ultimate planned open spaces, the soil cover condition shall be considered as "good." Figure C-3 provides the CN values for various types and quality of ground cover. Impervious areas shall be assigned a CN of 98. It is noted that for ultimately developed conditions, the CN for urban landscaping (turf) is provided in Figure C-3.

C.4. WATERSHED DEVELOPMENT CONDITIONS

Ultimate development of the watershed should normally be assumed since watershed urbanization is reasonably likely within the expected life of most hydraulic facilities. Long range master plans for the County and incorporated cities should be reviewed to insure that reasonable land use assumptions are made for the ultimate development of the watershed. A field review shall also be made to confirm existing use and drainage patterns. Particular attention shall be paid to existing and proposed landscape practices, as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. Appropriate actual impervious percentages can then be selected from Figure C-4. It should be noted that the recommended values from these figures are for average conditions and, therefore, some adjustment for particular applications may be required.

Runoff Index Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<u>NATURAL COVERS -</u>					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	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
<u>URBAN COVERS -</u>					
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
<u>AGRICULTURAL COVERS -</u>					
Fallow (Land plowed but not tilled or seeded)		77	86	91	94

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

CURVE

**NUMBERS
FOR
PERVIOUS AREAS**

Runoff Index Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
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:

- All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.
- Quality of cover definitions:
 Poor-Heavily grazed or regularly burned areas. 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.
- See Figure C-2 for definition of cover types.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

NUMBERS
FOR
PERVIOUS AREAS

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent (2)
Natural or Agriculture	0 - 0	0
Public Park	10 - 25	15
School	30 - 50	40
Single Family Residential: (3)		
2.5 acre lots	5 - 15	10
1 acre lots	10 - 25	20
2 dwellings/acre	20 - 40	30
3-4 dwellings/acre	30 - 50	40
5-7 dwellings/acre	35 - 55	50
8-10 dwellings/acre	50 - 70	60
More than 10 dwellings/acre	65 - 90	80
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 - 100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.
2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area shall always be made, and a review of aerial photos, where available, may assist in estimating the percentage of impervious cover in developed areas.
3. For typical equestrian subdivisions increase impervious area 5 percent over the values recommended in the table above.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

ACTUAL IMPERVIOUS COVER
FOR
DEVELOPED AREAS

Custom Soil Resource Report for San Bernardino County, California, Mojave River Area



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
Soil Map	5
Soil Map.....	6
Legend.....	7
Map Unit Legend.....	9
Map Unit Descriptions.....	9
San Bernardino County, California, Mojave River Area.....	11
112—CAJON SAND, 0 TO 2 PERCENT SLOPES.....	11

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:2,090 if printed on A landscape (11" x 8.5") sheet.


0 30 60 120 180 Meters

0 100 200 400 600 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


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 10, Sep 13, 2018

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

Date(s) aerial images were photographed: Jul 19, 2018—Apr 19, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
112	CAJON SAND, 0 TO 2 PERCENT SLOPES	8.6	100.0%
Totals for Area of Interest		8.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Bernardino County, California, Mojave River Area

112—CAJON SAND, 0 TO 2 PERCENT SLOPES

Map Unit Setting

National map unit symbol: hkrj
Elevation: 1,800 to 3,200 feet
Mean annual precipitation: 3 to 6 inches
Mean annual air temperature: 59 to 66 degrees F
Frost-free period: 180 to 290 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Cajon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cajon

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite sources

Typical profile

H1 - 0 to 7 inches: sand
H2 - 7 to 25 inches: sand
H3 - 25 to 45 inches: gravelly sand
H4 - 45 to 60 inches: stratified sand to loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 7e
***Hydrologic Soil Group:* A**
Ecological site: Sandy (R030XF012CA)
Hydric soil rating: No

Minor Components

Manet

Percent of map unit: 5 percent

Custom Soil Resource Report

Landform: Playas
Hydric soil rating: Yes

Kimberlina

Percent of map unit: 5 percent

Helendale

Percent of map unit: 5 percent

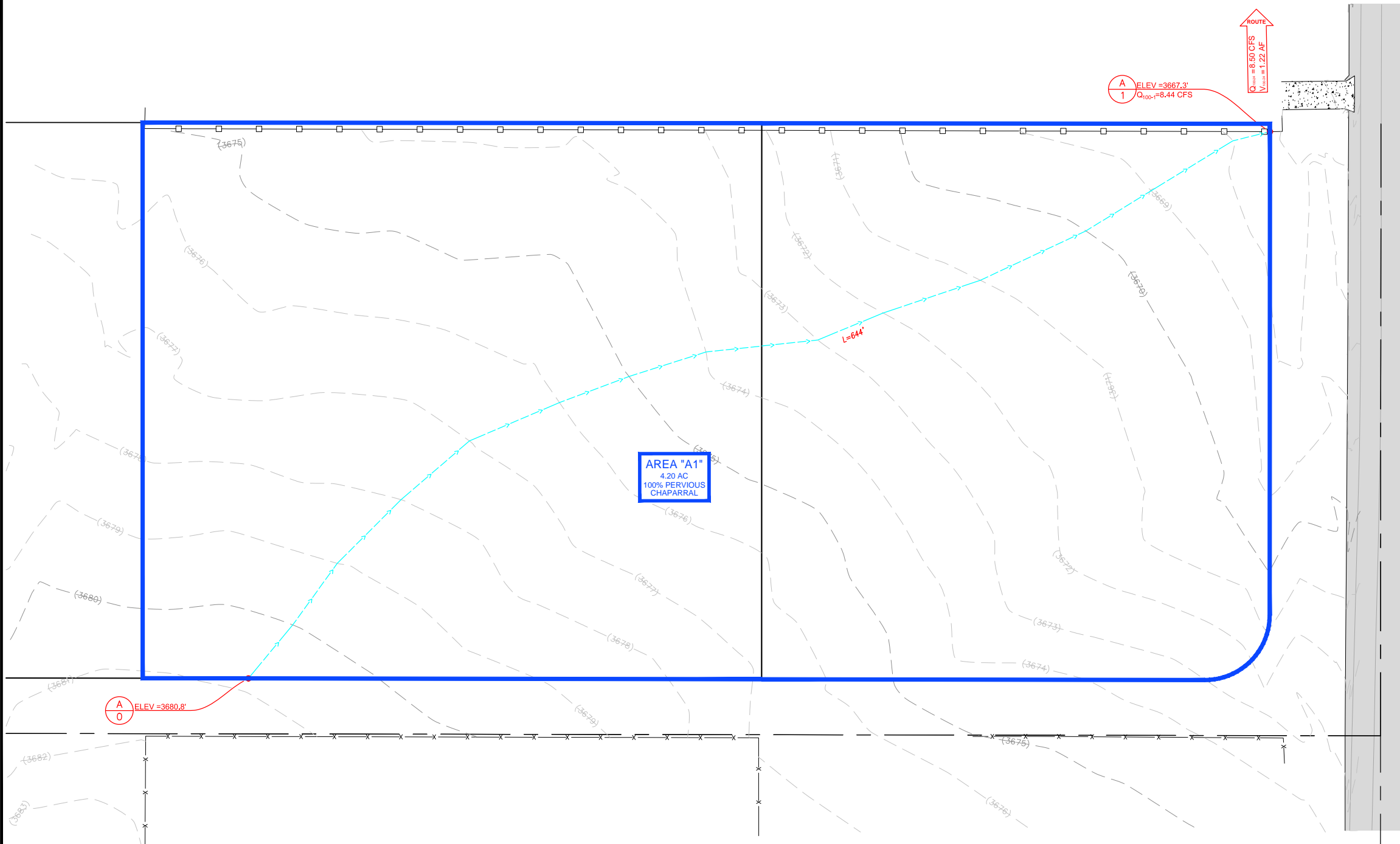
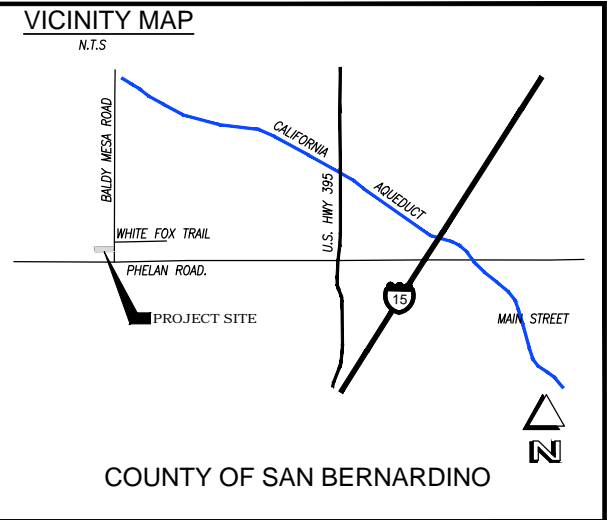
EXHIBIT “F”

Existing Hydrologic Conditions Study Map

EXHIBIT "F"

EXISTING CONDITION EXHIBIT

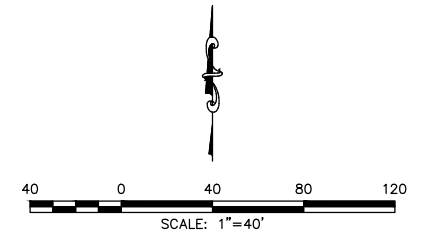
BALDY MESA ROAD IN THE CITY OF PHELAN, CA



MAP LEGEND

- DRAINAGE AREA LIMITS
- - - - - FLOW PATHS
- AREA "A"
DRAINAGE AREA, SIZE, % IMPERVIOUS, & CLOSEST APPROXIMATED CLASSIFICATION
1.00 AC
20% PERVIOUS
1 AC LOTS
- A
1.1 ELEV = 100.00
RATIONAL METHOD NODE LOCATION, ELEVATION, & TOTAL PEAK Q₁₀₀
- Q₁₀₀ = 1 CFS
V₁₀₀ = 1 AF
UNIT HYDROGRAPH METHOD TOTAL PEAK Q₁₀₀₋₂₄

REDUCED



EXISTING OFF-SITE TRIBUTARY
BALDY MESA ROAD
IN THE CITY OF PHELAN, CA

PREPARED BY:
 BONADIMAN TEL: (909) 888-3888
CIVIL DESIGN ENGINEERS, ARCHITECTS & PLANNERS

PREPARED FOR: MARK KURI

JOB NO:	194647
PREPARED BY:	VB
CHECKED BY:	JTS

BY	MARK	REVISION DESCRIPTION	DATE

NOTE: JOSEPH E. BONADIMAN & ASSOCIATES, INC. DOES NOT WARRANT THE ACCURACY OF THE G.I.S. DATA PRESENTED IN THIS EXHIBIT. THIS EXHIBIT MAY CONTAIN INFORMATION COPYRIGHTED TO THE COUNTY OF SAN BERNARDINO, CA.

EXISTING OFF-SITE TRIBUTARY
BALDY MESA ROAD
IN THE CITY OF PHELAN, CA

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 11-13-19

F

SHEET 1 OF 1

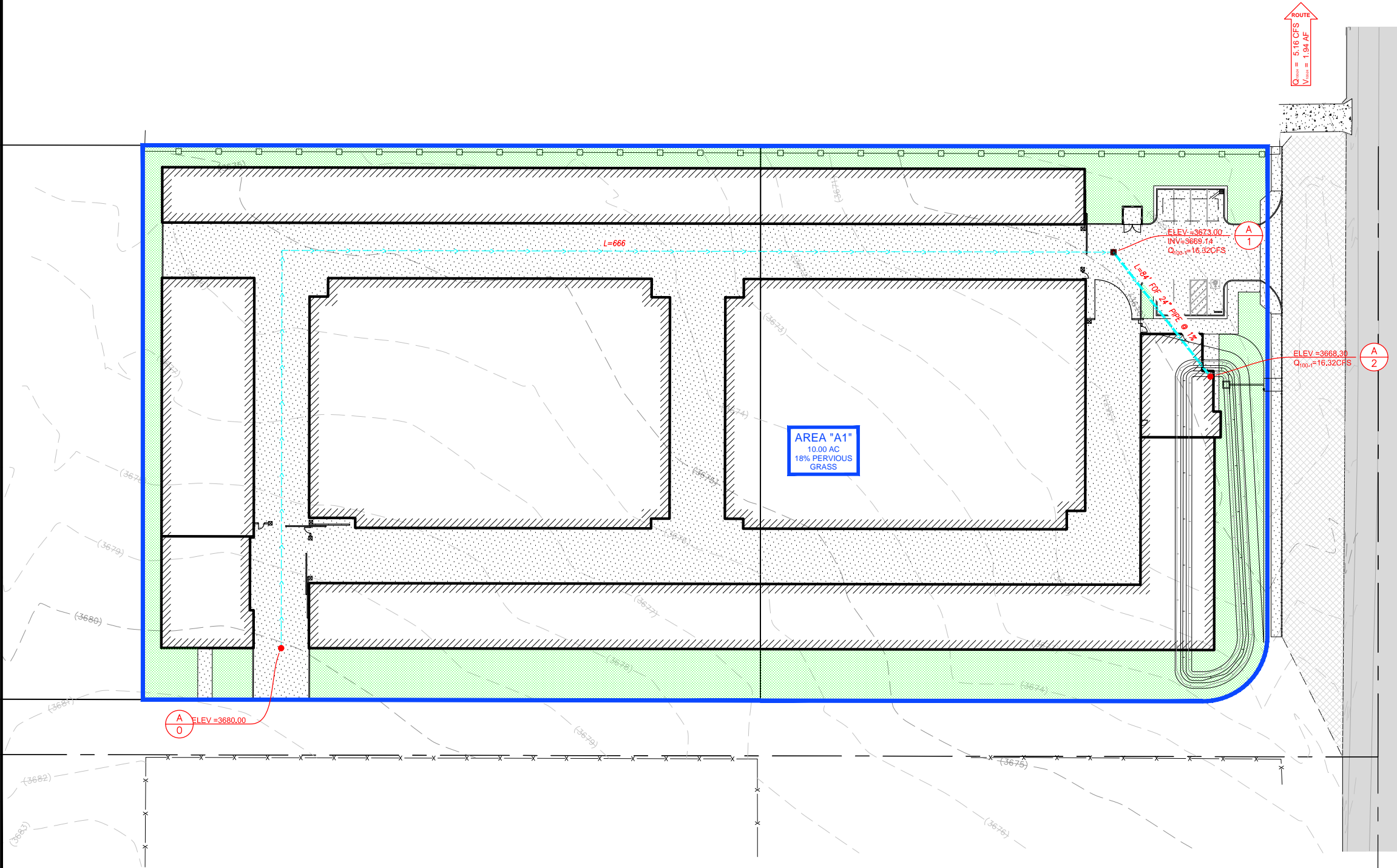
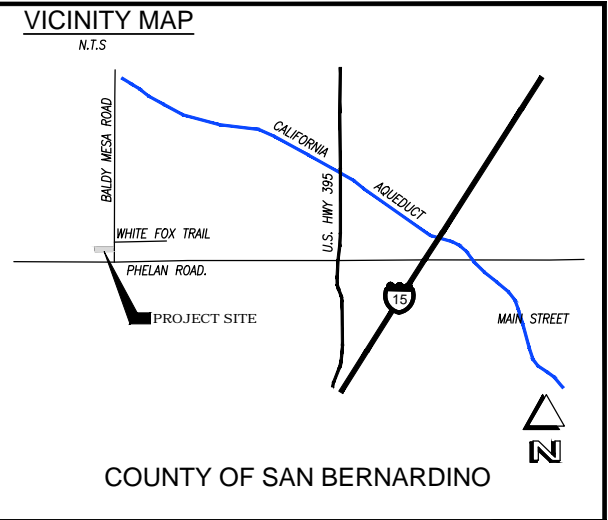
EXHIBIT “G”

Developed Hydrologic Conditions
Study Map (On-Site)

EXHIBIT "G"

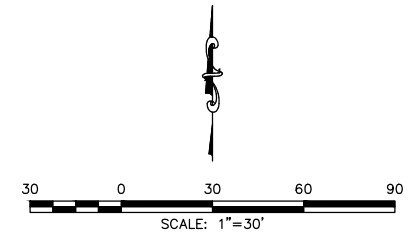
PROPOSED CONDITION EXHIBIT

BALDY MESA ROAD IN THE CITY OF PHELAN, CA



MAP LEGEND

- DRAINAGE AREA LIMITS**
- FLOW PATHS**
- DRAINAGE AREA, SIZE, % IMPERVIOUS, & CLOSEST APPROXIMATED CLASSIFICATION**
 - AREA "A"
 - 1.00 AC
 - 20% PERVIOUS
 - 1 AC LOTS
- RATIONAL METHOD NODE LOCATION, ELEVATION, & TOTAL PEAK Q₁₀₀**
 - A ELEV = 100.00
 - 1.1 Q₁₀₀ = 1.0CFS
- UNIT HYDROGRAPH METHOD TOTAL PEAK Q₁₀₀₋₂₄**
 - Q₁₀₀₋₂₄ = 1 CFS
 - V₁₀₀₋₂₄ = 1 AF



PROPOSED CONDITION EXHIBIT
BALDY MESA ROAD
IN THE CITY OF PHELAN, CA

PREPARED BY: **BONADIMAN** TEL: (909) 888-3888
 PREPARED FOR: **CIVILDESIGN** CONSULTING ENGINEERS & ARCHITECTS

BY	MARK	REVISION DESCRIPTION	DATE

PREPARED FOR: MARK KURI
 JOB NO: 194647
 PREPARED BY: VB
 CHECKED BY: JTS
 NOTE: JOSEPH E. BONADIMAN & ASSOCIATES, INC. DOES NOT WARRANT THE ACCURACY OF THE G.I.S. DATA PRESENTED IN THIS EXHIBIT. THIS EXHIBIT MAY CONTAIN INFORMATION COPYRIGHTED TO THE COUNTY OF SAN BERNARDINO, CA.

PROPOSED CONDITION EXHIBIT
BALDY MESA ROAD
IN THE CITY OF PHELAN, CA

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 11-13-19

G

SHEET 1 OF 1

ATTACHMENT 1

Existing Conditions
Rational Method Calculations

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2019 Version 9.1
Rational Hydrology Study Date: 11/11/19

194647 - BALDY MESA ROAD PHELAN
EXISTING CONDITIONS - AREA A
25-YEAR, 1- HOUR STORM
BY: JTS DATE: 11-11-19

Program License Serial Number 6320

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

Rational hydrology study storm event year is 25.0
10 Year storm 1 hour rainfall = 0.780(In.)
100 Year storm 1 hour rainfall = 1.300(In.)
Computed rainfall intensity:
Storm year = 25.00 1 hour rainfall = 0.987 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

+++++
Process from Point/Station 0.000 to Point/Station 1.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 71.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm) = 0.517(In/Hr)
Initial subarea data:
Initial area flow distance = 644.000(Ft.)
Top (of initial area) elevation = 3680.800(Ft.)
Bottom (of initial area) elevation = 3667.300(Ft.)
Difference in elevation = 13.500(Ft.)
Slope = 0.02096 s(%) = 2.10
TC = $k(0.715)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 20.583 min.
Rainfall intensity = 2.087(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.677
Subarea runoff = 5.935(CFS)
Total initial stream area = 4.200(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.517(In/Hr)
End of computations, Total Study Area = 4.20 (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 = 71.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2019 Version 9.1
Rational Hydrology Study Date: 11/11/19

194647 - BALDY MESA ROAD PHELAN
EXISTING CONDITIONS - AREA A
100-YEAR, 1- HOUR STORM
BY: JTS DATE: 11-11-19

Program License Serial Number 6320

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

Rational hydrology study storm event year is 100.0
10 Year storm 1 hour rainfall = 0.780(In.)
100 Year storm 1 hour rainfall = 1.300(In.)
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.300 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

+++++
Process from Point/Station 0.000 to Point/Station 1.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 71.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm) = 0.517(In/Hr)
Initial subarea data:
Initial area flow distance = 644.000(Ft.)
Top (of initial area) elevation = 3680.800(Ft.)
Bottom (of initial area) elevation = 3667.300(Ft.)
Difference in elevation = 13.500(Ft.)
Slope = 0.02096 s(%) = 2.10
TC = $k(0.715)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 20.583 min.
Rainfall intensity = 2.749(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.731
Subarea runoff = 8.438(CFS)
Total initial stream area = 4.200(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.517(In/Hr)
End of computations, Total Study Area = 4.20 (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 = 71.0

ATTACHMENT 2

Existing Conditions
Hydrograph Calculations

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

+++++

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
EXISTING CONDITIONS - AREA "A"
2-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 2

Antecedent Moisture Condition = 1

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 10		
4.20	1	0.78

Rainfall data for year 2
4.20 6 1.13

Rainfall data for year 2
0.00 24 2.13
4.20 24 2.13

Rainfall data for year 100
4.20 1 1.30

Rainfall data for year 100
4.20 6 3.06

Rainfall data for year 100
4.20 24 6.35

+++++

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 1)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
71.0	52.2	4.20	1.000	0.783	1.000	0.783

Area-averaged adjusted loss rate Fm (In/Hr) = 0.783

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

Area	Area	SCS CN	SCS CN	S	Pervious
(Ac.)	Fract	(AMC2)	(AMC1)		Yield Fr
4.20	1.000	71.0	52.2	9.16	0.004

Area-averaged catchment yield fraction, Y = 0.004
 Area-averaged low loss fraction, Yb = 0.996
 User entry of time of concentration = 0.340 (hours)
 +-----+
 Watershed area = 4.20(Ac.)
 Catchment Lag time = 0.272 hours
 Unit interval = 5.000 minutes
 Unit interval percentage of lag time = 30.6373
 Hydrograph baseflow = 0.00(CFS)
 Average maximum watershed loss rate(Fm) = 0.783(In/Hr)
 Average low loss rate fraction (Yb) = 0.996 (decimal)
 DESERT S-Graph Selected
 Computed peak 5-minute rainfall = 0.198(In)
 Computed peak 30-minute rainfall = 0.338(In)
 Specified peak 1-hour rainfall = 0.417(In)
 Computed peak 3-hour rainfall = 0.768(In)
 Specified peak 6-hour rainfall = 1.130(In)
 Specified peak 24-hour rainfall = 2.130(In)

Rainfall depth area reduction factors:
 Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000	Adjusted rainfall = 0.198(In)
30-minute factor = 1.000	Adjusted rainfall = 0.338(In)
1-hour factor = 1.000	Adjusted rainfall = 0.416(In)
3-hour factor = 1.000	Adjusted rainfall = 0.768(In)
6-hour factor = 1.000	Adjusted rainfall = 1.130(In)
24-hour factor = 1.000	Adjusted rainfall = 2.130(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 = 50.79 (CFS))

1	1.819	0.924
2	9.839	4.074
3	32.088	11.301
4	53.408	10.829
5	65.111	5.945
6	72.614	3.811
7	78.031	2.752
8	82.073	2.053
9	85.295	1.637
10	87.971	1.359
11	89.992	1.027
12	91.690	0.862
13	93.147	0.740
14	94.362	0.617
15	95.392	0.523
16	96.247	0.434
17	96.987	0.376
18	97.550	0.286
19	97.968	0.212
20	98.280	0.158
21	98.637	0.181
22	99.004	0.187
23	99.370	0.186
24	99.625	0.129

25	99.816	0.097
26	100.000	0.093

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.1976	0.1976
2	0.2433	0.0457
3	0.2748	0.0315
4	0.2995	0.0248
5	0.3203	0.0207
6	0.3383	0.0180
7	0.3543	0.0160
8	0.3688	0.0145
9	0.3820	0.0133
10	0.3943	0.0123
11	0.4057	0.0114
12	0.4165	0.0107
13	0.4354	0.0190
14	0.4538	0.0184
15	0.4716	0.0178
16	0.4889	0.0173
17	0.5056	0.0168
18	0.5220	0.0164
19	0.5380	0.0160
20	0.5536	0.0156
21	0.5688	0.0153
22	0.5838	0.0149
23	0.5984	0.0146
24	0.6128	0.0144
25	0.6268	0.0141
26	0.6407	0.0138
27	0.6543	0.0136
28	0.6677	0.0134
29	0.6809	0.0132
30	0.6939	0.0130
31	0.7067	0.0128
32	0.7193	0.0126
33	0.7317	0.0124
34	0.7440	0.0123
35	0.7561	0.0121
36	0.7681	0.0120
37	0.7799	0.0118
38	0.7915	0.0117
39	0.8031	0.0115
40	0.8145	0.0114
41	0.8258	0.0113
42	0.8369	0.0112
43	0.8480	0.0110
44	0.8589	0.0109
45	0.8697	0.0108
46	0.8804	0.0107
47	0.8910	0.0106
48	0.9015	0.0105
49	0.9120	0.0104
50	0.9223	0.0103
51	0.9325	0.0102
52	0.9427	0.0101
53	0.9527	0.0101
54	0.9627	0.0100
55	0.9726	0.0099
56	0.9824	0.0098
57	0.9921	0.0097
58	1.0018	0.0097
59	1.0114	0.0096
60	1.0209	0.0095
61	1.0303	0.0094
62	1.0397	0.0094
63	1.0490	0.0093
64	1.0582	0.0092

65	1.0674	0.0092
66	1.0765	0.0091
67	1.0856	0.0091
68	1.0946	0.0090
69	1.1035	0.0089
70	1.1124	0.0089
71	1.1212	0.0088
72	1.1300	0.0088
73	1.1371	0.0071
74	1.1442	0.0071
75	1.1513	0.0070
76	1.1583	0.0070
77	1.1652	0.0069
78	1.1721	0.0069
79	1.1790	0.0068
80	1.1858	0.0068
81	1.1925	0.0068
82	1.1992	0.0067
83	1.2059	0.0067
84	1.2125	0.0066
85	1.2191	0.0066
86	1.2256	0.0065
87	1.2321	0.0065
88	1.2386	0.0065
89	1.2450	0.0064
90	1.2514	0.0064
91	1.2577	0.0063
92	1.2640	0.0063
93	1.2703	0.0063
94	1.2765	0.0062
95	1.2827	0.0062
96	1.2889	0.0062
97	1.2950	0.0061
98	1.3011	0.0061
99	1.3071	0.0061
100	1.3131	0.0060
101	1.3191	0.0060
102	1.3251	0.0060
103	1.3310	0.0059
104	1.3369	0.0059
105	1.3428	0.0059
106	1.3486	0.0058
107	1.3544	0.0058
108	1.3602	0.0058
109	1.3659	0.0057
110	1.3716	0.0057
111	1.3773	0.0057
112	1.3830	0.0057
113	1.3886	0.0056
114	1.3942	0.0056
115	1.3998	0.0056
116	1.4054	0.0056
117	1.4109	0.0055
118	1.4164	0.0055
119	1.4219	0.0055
120	1.4273	0.0055
121	1.4327	0.0054
122	1.4381	0.0054
123	1.4435	0.0054
124	1.4489	0.0054
125	1.4542	0.0053
126	1.4595	0.0053
127	1.4648	0.0053
128	1.4701	0.0053
129	1.4753	0.0052
130	1.4805	0.0052
131	1.4857	0.0052
132	1.4909	0.0052
133	1.4960	0.0052

134	1.5012	0.0051
135	1.5063	0.0051
136	1.5114	0.0051
137	1.5165	0.0051
138	1.5215	0.0051
139	1.5265	0.0050
140	1.5315	0.0050
141	1.5365	0.0050
142	1.5415	0.0050
143	1.5465	0.0050
144	1.5514	0.0049
145	1.5563	0.0049
146	1.5612	0.0049
147	1.5661	0.0049
148	1.5710	0.0049
149	1.5758	0.0048
150	1.5806	0.0048
151	1.5854	0.0048
152	1.5902	0.0048
153	1.5950	0.0048
154	1.5998	0.0048
155	1.6045	0.0047
156	1.6092	0.0047
157	1.6139	0.0047
158	1.6186	0.0047
159	1.6233	0.0047
160	1.6280	0.0047
161	1.6326	0.0046
162	1.6373	0.0046
163	1.6419	0.0046
164	1.6465	0.0046
165	1.6510	0.0046
166	1.6556	0.0046
167	1.6602	0.0046
168	1.6647	0.0045
169	1.6692	0.0045
170	1.6737	0.0045
171	1.6782	0.0045
172	1.6827	0.0045
173	1.6872	0.0045
174	1.6916	0.0045
175	1.6961	0.0044
176	1.7005	0.0044
177	1.7049	0.0044
178	1.7093	0.0044
179	1.7137	0.0044
180	1.7181	0.0044
181	1.7224	0.0044
182	1.7268	0.0043
183	1.7311	0.0043
184	1.7354	0.0043
185	1.7397	0.0043
186	1.7440	0.0043
187	1.7483	0.0043
188	1.7526	0.0043
189	1.7568	0.0043
190	1.7611	0.0042
191	1.7653	0.0042
192	1.7695	0.0042
193	1.7737	0.0042
194	1.7779	0.0042
195	1.7821	0.0042
196	1.7863	0.0042
197	1.7904	0.0042
198	1.7946	0.0042
199	1.7987	0.0041
200	1.8029	0.0041
201	1.8070	0.0041
202	1.8111	0.0041

203	1.8152	0.0041
204	1.8193	0.0041
205	1.8233	0.0041
206	1.8274	0.0041
207	1.8314	0.0041
208	1.8355	0.0040
209	1.8395	0.0040
210	1.8435	0.0040
211	1.8475	0.0040
212	1.8515	0.0040
213	1.8555	0.0040
214	1.8595	0.0040
215	1.8635	0.0040
216	1.8674	0.0040
217	1.8714	0.0039
218	1.8753	0.0039
219	1.8793	0.0039
220	1.8832	0.0039
221	1.8871	0.0039
222	1.8910	0.0039
223	1.8949	0.0039
224	1.8988	0.0039
225	1.9026	0.0039
226	1.9065	0.0039
227	1.9103	0.0039
228	1.9142	0.0038
229	1.9180	0.0038
230	1.9218	0.0038
231	1.9257	0.0038
232	1.9295	0.0038
233	1.9333	0.0038
234	1.9371	0.0038
235	1.9408	0.0038
236	1.9446	0.0038
237	1.9484	0.0038
238	1.9521	0.0038
239	1.9559	0.0037
240	1.9596	0.0037
241	1.9633	0.0037
242	1.9671	0.0037
243	1.9708	0.0037
244	1.9745	0.0037
245	1.9782	0.0037
246	1.9819	0.0037
247	1.9855	0.0037
248	1.9892	0.0037
249	1.9929	0.0037
250	1.9965	0.0037
251	2.0002	0.0036
252	2.0038	0.0036
253	2.0075	0.0036
254	2.0111	0.0036
255	2.0147	0.0036
256	2.0183	0.0036
257	2.0219	0.0036
258	2.0255	0.0036
259	2.0291	0.0036
260	2.0327	0.0036
261	2.0362	0.0036
262	2.0398	0.0036
263	2.0434	0.0036
264	2.0469	0.0035
265	2.0504	0.0035
266	2.0540	0.0035
267	2.0575	0.0035
268	2.0610	0.0035
269	2.0645	0.0035
270	2.0680	0.0035
271	2.0715	0.0035

272	2.0750	0.0035
273	2.0785	0.0035
274	2.0820	0.0035
275	2.0855	0.0035
276	2.0889	0.0035
277	2.0924	0.0035
278	2.0958	0.0035
279	2.0993	0.0034
280	2.1027	0.0034
281	2.1062	0.0034
282	2.1096	0.0034
283	2.1130	0.0034
284	2.1164	0.0034
285	2.1198	0.0034
286	2.1232	0.0034
287	2.1266	0.0034
288	2.1300	0.0034

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0034	0.0034	0.0000
2	0.0034	0.0034	0.0000
3	0.0034	0.0034	0.0000
4	0.0034	0.0034	0.0000
5	0.0034	0.0034	0.0000
6	0.0034	0.0034	0.0000
7	0.0034	0.0034	0.0000
8	0.0035	0.0034	0.0000
9	0.0035	0.0034	0.0000
10	0.0035	0.0035	0.0000
11	0.0035	0.0035	0.0000
12	0.0035	0.0035	0.0000
13	0.0035	0.0035	0.0000
14	0.0035	0.0035	0.0000
15	0.0035	0.0035	0.0000
16	0.0035	0.0035	0.0000
17	0.0035	0.0035	0.0000
18	0.0036	0.0035	0.0000
19	0.0036	0.0036	0.0000
20	0.0036	0.0036	0.0000
21	0.0036	0.0036	0.0000
22	0.0036	0.0036	0.0000
23	0.0036	0.0036	0.0000
24	0.0036	0.0036	0.0000
25	0.0036	0.0036	0.0000
26	0.0036	0.0036	0.0000
27	0.0037	0.0036	0.0000
28	0.0037	0.0037	0.0000
29	0.0037	0.0037	0.0000
30	0.0037	0.0037	0.0000
31	0.0037	0.0037	0.0000
32	0.0037	0.0037	0.0000
33	0.0037	0.0037	0.0000
34	0.0037	0.0037	0.0000
35	0.0038	0.0037	0.0000
36	0.0038	0.0038	0.0000
37	0.0038	0.0038	0.0000
38	0.0038	0.0038	0.0000
39	0.0038	0.0038	0.0000
40	0.0038	0.0038	0.0000
41	0.0038	0.0038	0.0000
42	0.0039	0.0038	0.0000
43	0.0039	0.0039	0.0000
44	0.0039	0.0039	0.0000
45	0.0039	0.0039	0.0000
46	0.0039	0.0039	0.0000
47	0.0039	0.0039	0.0000

48	0.0039	0.0039	0.0000
49	0.0040	0.0039	0.0000
50	0.0040	0.0040	0.0000
51	0.0040	0.0040	0.0000
52	0.0040	0.0040	0.0000
53	0.0040	0.0040	0.0000
54	0.0040	0.0040	0.0000
55	0.0041	0.0040	0.0000
56	0.0041	0.0040	0.0000
57	0.0041	0.0041	0.0000
58	0.0041	0.0041	0.0000
59	0.0041	0.0041	0.0000
60	0.0041	0.0041	0.0000
61	0.0042	0.0041	0.0000
62	0.0042	0.0041	0.0000
63	0.0042	0.0042	0.0000
64	0.0042	0.0042	0.0000
65	0.0042	0.0042	0.0000
66	0.0042	0.0042	0.0000
67	0.0043	0.0042	0.0000
68	0.0043	0.0043	0.0000
69	0.0043	0.0043	0.0000
70	0.0043	0.0043	0.0000
71	0.0043	0.0043	0.0000
72	0.0043	0.0043	0.0000
73	0.0044	0.0044	0.0000
74	0.0044	0.0044	0.0000
75	0.0044	0.0044	0.0000
76	0.0044	0.0044	0.0000
77	0.0045	0.0044	0.0000
78	0.0045	0.0044	0.0000
79	0.0045	0.0045	0.0000
80	0.0045	0.0045	0.0000
81	0.0045	0.0045	0.0000
82	0.0046	0.0045	0.0000
83	0.0046	0.0046	0.0000
84	0.0046	0.0046	0.0000
85	0.0046	0.0046	0.0000
86	0.0046	0.0046	0.0000
87	0.0047	0.0047	0.0000
88	0.0047	0.0047	0.0000
89	0.0047	0.0047	0.0000
90	0.0047	0.0047	0.0000
91	0.0048	0.0048	0.0000
92	0.0048	0.0048	0.0000
93	0.0048	0.0048	0.0000
94	0.0048	0.0048	0.0000
95	0.0049	0.0049	0.0000
96	0.0049	0.0049	0.0000
97	0.0049	0.0049	0.0000
98	0.0050	0.0049	0.0000
99	0.0050	0.0050	0.0000
100	0.0050	0.0050	0.0000
101	0.0051	0.0050	0.0000
102	0.0051	0.0050	0.0000
103	0.0051	0.0051	0.0000
104	0.0051	0.0051	0.0000
105	0.0052	0.0052	0.0000
106	0.0052	0.0052	0.0000
107	0.0052	0.0052	0.0000
108	0.0053	0.0052	0.0000
109	0.0053	0.0053	0.0000
110	0.0053	0.0053	0.0000
111	0.0054	0.0054	0.0000
112	0.0054	0.0054	0.0000
113	0.0055	0.0054	0.0000
114	0.0055	0.0055	0.0000
115	0.0055	0.0055	0.0000
116	0.0056	0.0055	0.0000

117	0.0056	0.0056	0.0000
118	0.0056	0.0056	0.0000
119	0.0057	0.0057	0.0000
120	0.0057	0.0057	0.0000
121	0.0058	0.0057	0.0000
122	0.0058	0.0058	0.0000
123	0.0059	0.0058	0.0000
124	0.0059	0.0059	0.0000
125	0.0060	0.0059	0.0000
126	0.0060	0.0060	0.0000
127	0.0061	0.0060	0.0000
128	0.0061	0.0061	0.0000
129	0.0062	0.0061	0.0000
130	0.0062	0.0062	0.0000
131	0.0063	0.0062	0.0000
132	0.0063	0.0063	0.0000
133	0.0064	0.0063	0.0000
134	0.0064	0.0064	0.0000
135	0.0065	0.0065	0.0000
136	0.0065	0.0065	0.0000
137	0.0066	0.0066	0.0000
138	0.0067	0.0066	0.0000
139	0.0068	0.0067	0.0000
140	0.0068	0.0068	0.0000
141	0.0069	0.0069	0.0000
142	0.0069	0.0069	0.0000
143	0.0070	0.0070	0.0000
144	0.0071	0.0071	0.0000
145	0.0088	0.0087	0.0000
146	0.0088	0.0088	0.0000
147	0.0089	0.0089	0.0000
148	0.0090	0.0090	0.0000
149	0.0091	0.0091	0.0000
150	0.0092	0.0091	0.0000
151	0.0093	0.0093	0.0000
152	0.0094	0.0093	0.0000
153	0.0095	0.0095	0.0000
154	0.0096	0.0095	0.0000
155	0.0097	0.0097	0.0000
156	0.0098	0.0098	0.0000
157	0.0100	0.0099	0.0000
158	0.0101	0.0100	0.0000
159	0.0102	0.0102	0.0000
160	0.0103	0.0103	0.0000
161	0.0105	0.0105	0.0000
162	0.0106	0.0106	0.0000
163	0.0108	0.0108	0.0000
164	0.0109	0.0109	0.0000
165	0.0112	0.0111	0.0000
166	0.0113	0.0112	0.0000
167	0.0115	0.0115	0.0001
168	0.0117	0.0116	0.0001
169	0.0120	0.0119	0.0001
170	0.0121	0.0121	0.0001
171	0.0124	0.0124	0.0001
172	0.0126	0.0126	0.0001
173	0.0130	0.0129	0.0001
174	0.0132	0.0131	0.0001
175	0.0136	0.0136	0.0001
176	0.0138	0.0138	0.0001
177	0.0144	0.0143	0.0001
178	0.0146	0.0146	0.0001
179	0.0153	0.0152	0.0001
180	0.0156	0.0155	0.0001
181	0.0164	0.0163	0.0001
182	0.0168	0.0167	0.0001
183	0.0178	0.0177	0.0001
184	0.0184	0.0183	0.0001
185	0.0107	0.0107	0.0000

186	0.0114	0.0114	0.0001
187	0.0133	0.0132	0.0001
188	0.0145	0.0144	0.0001
189	0.0180	0.0179	0.0001
190	0.0207	0.0206	0.0001
191	0.0315	0.0313	0.0001
192	0.0457	0.0455	0.0002
193	0.1976	0.0652	0.1324
194	0.0248	0.0247	0.0001
195	0.0160	0.0159	0.0001
196	0.0123	0.0122	0.0001
197	0.0190	0.0189	0.0001
198	0.0173	0.0172	0.0001
199	0.0160	0.0159	0.0001
200	0.0149	0.0149	0.0001
201	0.0141	0.0140	0.0001
202	0.0134	0.0133	0.0001
203	0.0128	0.0127	0.0001
204	0.0123	0.0122	0.0001
205	0.0118	0.0118	0.0001
206	0.0114	0.0114	0.0001
207	0.0110	0.0110	0.0000
208	0.0107	0.0107	0.0000
209	0.0104	0.0104	0.0000
210	0.0101	0.0101	0.0000
211	0.0099	0.0098	0.0000
212	0.0097	0.0096	0.0000
213	0.0094	0.0094	0.0000
214	0.0092	0.0092	0.0000
215	0.0091	0.0090	0.0000
216	0.0089	0.0088	0.0000
217	0.0071	0.0071	0.0000
218	0.0070	0.0070	0.0000
219	0.0068	0.0068	0.0000
220	0.0067	0.0067	0.0000
221	0.0066	0.0066	0.0000
222	0.0065	0.0064	0.0000
223	0.0063	0.0063	0.0000
224	0.0062	0.0062	0.0000
225	0.0061	0.0061	0.0000
226	0.0060	0.0060	0.0000
227	0.0059	0.0059	0.0000
228	0.0058	0.0058	0.0000
229	0.0057	0.0057	0.0000
230	0.0057	0.0056	0.0000
231	0.0056	0.0056	0.0000
232	0.0055	0.0055	0.0000
233	0.0054	0.0054	0.0000
234	0.0054	0.0053	0.0000
235	0.0053	0.0053	0.0000
236	0.0052	0.0052	0.0000
237	0.0052	0.0051	0.0000
238	0.0051	0.0051	0.0000
239	0.0050	0.0050	0.0000
240	0.0050	0.0050	0.0000
241	0.0049	0.0049	0.0000
242	0.0049	0.0048	0.0000
243	0.0048	0.0048	0.0000
244	0.0048	0.0047	0.0000
245	0.0047	0.0047	0.0000
246	0.0047	0.0046	0.0000
247	0.0046	0.0046	0.0000
248	0.0046	0.0045	0.0000
249	0.0045	0.0045	0.0000
250	0.0045	0.0045	0.0000
251	0.0044	0.0044	0.0000
252	0.0044	0.0044	0.0000
253	0.0044	0.0043	0.0000
254	0.0043	0.0043	0.0000

255	0.0043	0.0043	0.0000
256	0.0042	0.0042	0.0000
257	0.0042	0.0042	0.0000
258	0.0042	0.0042	0.0000
259	0.0041	0.0041	0.0000
260	0.0041	0.0041	0.0000
261	0.0041	0.0041	0.0000
262	0.0040	0.0040	0.0000
263	0.0040	0.0040	0.0000
264	0.0040	0.0040	0.0000
265	0.0039	0.0039	0.0000
266	0.0039	0.0039	0.0000
267	0.0039	0.0039	0.0000
268	0.0039	0.0038	0.0000
269	0.0038	0.0038	0.0000
270	0.0038	0.0038	0.0000
271	0.0038	0.0038	0.0000
272	0.0038	0.0037	0.0000
273	0.0037	0.0037	0.0000
274	0.0037	0.0037	0.0000
275	0.0037	0.0037	0.0000
276	0.0037	0.0036	0.0000
277	0.0036	0.0036	0.0000
278	0.0036	0.0036	0.0000
279	0.0036	0.0036	0.0000
280	0.0036	0.0035	0.0000
281	0.0035	0.0035	0.0000
282	0.0035	0.0035	0.0000
283	0.0035	0.0035	0.0000
284	0.0035	0.0035	0.0000
285	0.0035	0.0034	0.0000
286	0.0034	0.0034	0.0000
287	0.0034	0.0034	0.0000
288	0.0034	0.0034	0.0000

Total soil rain loss = 1.99(In)
Total effective rainfall = 0.14(In)
Peak flow rate in flood hydrograph = 1.50(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	0.0000	0.00	Q					
0+15	0.0000	0.00	Q					
0+20	0.0000	0.00	Q					
0+25	0.0000	0.00	Q					
0+30	0.0000	0.00	Q					
0+35	0.0000	0.00	Q					
0+40	0.0000	0.00	Q					
0+45	0.0000	0.00	Q					
0+50	0.0000	0.00	Q					
0+55	0.0000	0.00	Q					
1+ 0	0.0000	0.00	Q					
1+ 5	0.0000	0.00	Q					
1+10	0.0000	0.00	Q					
1+15	0.0001	0.00	Q					
1+20	0.0001	0.00	Q					
1+25	0.0001	0.00	Q					
1+30	0.0001	0.00	Q					
1+35	0.0001	0.00	Q					
1+40	0.0001	0.00	Q					

1+45	0.0001	0.00	Q
1+50	0.0001	0.00	Q
1+55	0.0001	0.00	Q
2+ 0	0.0001	0.00	Q
2+ 5	0.0001	0.00	Q
2+10	0.0001	0.00	Q
2+15	0.0001	0.00	Q
2+20	0.0001	0.00	Q
2+25	0.0001	0.00	Q
2+30	0.0001	0.00	Q
2+35	0.0001	0.00	Q
2+40	0.0001	0.00	Q
2+45	0.0002	0.00	Q
2+50	0.0002	0.00	Q
2+55	0.0002	0.00	Q
3+ 0	0.0002	0.00	Q
3+ 5	0.0002	0.00	Q
3+10	0.0002	0.00	Q
3+15	0.0002	0.00	Q
3+20	0.0002	0.00	Q
3+25	0.0002	0.00	Q
3+30	0.0002	0.00	Q
3+35	0.0002	0.00	Q
3+40	0.0002	0.00	Q
3+45	0.0002	0.00	Q
3+50	0.0002	0.00	Q
3+55	0.0002	0.00	Q
4+ 0	0.0002	0.00	Q
4+ 5	0.0002	0.00	Q
4+10	0.0003	0.00	Q
4+15	0.0003	0.00	Q
4+20	0.0003	0.00	Q
4+25	0.0003	0.00	Q
4+30	0.0003	0.00	Q
4+35	0.0003	0.00	Q
4+40	0.0003	0.00	Q
4+45	0.0003	0.00	Q
4+50	0.0003	0.00	Q
4+55	0.0003	0.00	Q
5+ 0	0.0003	0.00	Q
5+ 5	0.0003	0.00	Q
5+10	0.0003	0.00	Q
5+15	0.0003	0.00	Q
5+20	0.0003	0.00	Q
5+25	0.0003	0.00	Q
5+30	0.0004	0.00	Q
5+35	0.0004	0.00	Q
5+40	0.0004	0.00	Q
5+45	0.0004	0.00	Q
5+50	0.0004	0.00	Q
5+55	0.0004	0.00	Q
6+ 0	0.0004	0.00	Q
6+ 5	0.0004	0.00	Q
6+10	0.0004	0.00	Q
6+15	0.0004	0.00	Q
6+20	0.0004	0.00	Q
6+25	0.0004	0.00	Q
6+30	0.0004	0.00	Q
6+35	0.0004	0.00	Q
6+40	0.0004	0.00	Q
6+45	0.0005	0.00	Q
6+50	0.0005	0.00	Q
6+55	0.0005	0.00	Q
7+ 0	0.0005	0.00	Q
7+ 5	0.0005	0.00	Q
7+10	0.0005	0.00	Q
7+15	0.0005	0.00	Q
7+20	0.0005	0.00	Q
7+25	0.0005	0.00	Q

7+30	0.0005	0.00	Q
7+35	0.0005	0.00	Q
7+40	0.0005	0.00	Q
7+45	0.0005	0.00	Q
7+50	0.0005	0.00	Q
7+55	0.0006	0.00	Q
8+ 0	0.0006	0.00	Q
8+ 5	0.0006	0.00	Q
8+10	0.0006	0.00	Q
8+15	0.0006	0.00	Q
8+20	0.0006	0.00	Q
8+25	0.0006	0.00	Q
8+30	0.0006	0.00	Q
8+35	0.0006	0.00	Q
8+40	0.0006	0.00	Q
8+45	0.0006	0.00	Q
8+50	0.0006	0.00	Q
8+55	0.0006	0.00	Q
9+ 0	0.0007	0.00	Q
9+ 5	0.0007	0.00	Q
9+10	0.0007	0.00	Q
9+15	0.0007	0.00	Q
9+20	0.0007	0.00	Q
9+25	0.0007	0.00	Q
9+30	0.0007	0.00	Q
9+35	0.0007	0.00	Q
9+40	0.0007	0.00	Q
9+45	0.0007	0.00	Q
9+50	0.0007	0.00	Q
9+55	0.0007	0.00	Q
10+ 0	0.0008	0.00	Q
10+ 5	0.0008	0.00	Q
10+10	0.0008	0.00	Q
10+15	0.0008	0.00	Q
10+20	0.0008	0.00	Q
10+25	0.0008	0.00	Q
10+30	0.0008	0.00	Q
10+35	0.0008	0.00	Q
10+40	0.0008	0.00	Q
10+45	0.0008	0.00	Q
10+50	0.0008	0.00	Q
10+55	0.0009	0.00	Q
11+ 0	0.0009	0.00	Q
11+ 5	0.0009	0.00	Q
11+10	0.0009	0.00	Q
11+15	0.0009	0.00	Q
11+20	0.0009	0.00	Q
11+25	0.0009	0.00	Q
11+30	0.0009	0.00	Q
11+35	0.0009	0.00	Q
11+40	0.0009	0.00	Q
11+45	0.0009	0.00	Q
11+50	0.0010	0.00	Q
11+55	0.0010	0.00	Q
12+ 0	0.0010	0.00	Q
12+ 5	0.0010	0.00	Q
12+10	0.0010	0.00	Q
12+15	0.0010	0.00	Q
12+20	0.0010	0.00	Q
12+25	0.0010	0.00	Q
12+30	0.0011	0.00	Q
12+35	0.0011	0.00	Q
12+40	0.0011	0.00	Q
12+45	0.0011	0.00	Q
12+50	0.0011	0.00	Q
12+55	0.0011	0.00	Q
13+ 0	0.0011	0.00	Q
13+ 5	0.0011	0.00	Q
13+10	0.0012	0.00	Q

13+15	0.0012	0.00	Q				
13+20	0.0012	0.00	Q				
13+25	0.0012	0.00	Q				
13+30	0.0012	0.00	Q				
13+35	0.0012	0.00	QV				
13+40	0.0013	0.00	QV				
13+45	0.0013	0.00	QV				
13+50	0.0013	0.00	QV				
13+55	0.0013	0.00	QV				
14+ 0	0.0013	0.00	QV				
14+ 5	0.0013	0.00	QV				
14+10	0.0014	0.00	QV				
14+15	0.0014	0.00	QV				
14+20	0.0014	0.00	QV				
14+25	0.0014	0.00	QV				
14+30	0.0014	0.00	QV				
14+35	0.0014	0.00	QV				
14+40	0.0015	0.00	QV				
14+45	0.0015	0.00	QV				
14+50	0.0015	0.00	QV				
14+55	0.0015	0.00	QV				
15+ 0	0.0015	0.00	QV				
15+ 5	0.0016	0.00	QV				
15+10	0.0016	0.00	QV				
15+15	0.0016	0.00	QV				
15+20	0.0016	0.00	QV				
15+25	0.0017	0.00	QV				
15+30	0.0017	0.00	QV				
15+35	0.0017	0.00	QV				
15+40	0.0017	0.00	QV				
15+45	0.0018	0.00	QV				
15+50	0.0018	0.00	QV				
15+55	0.0018	0.00	QV				
16+ 0	0.0018	0.00	QV				
16+ 5	0.0027	0.13	Q V				
16+10	0.0065	0.54	Q V				
16+15	0.0168	1.50	Q Q	V			
16+20	0.0267	1.44	Q		V		
16+25	0.0321	0.79	Q			V	
16+30	0.0357	0.51	Q				V
16+35	0.0382	0.37	Q				
16+40	0.0401	0.28	Q				
16+45	0.0416	0.22	Q				
16+50	0.0429	0.18	Q				
16+55	0.0438	0.14	Q				
17+ 0	0.0446	0.12	Q				
17+ 5	0.0453	0.10	Q				
17+10	0.0459	0.08	Q				
17+15	0.0464	0.07	Q				
17+20	0.0468	0.06	Q				
17+25	0.0472	0.05	Q				
17+30	0.0475	0.04	Q				
17+35	0.0477	0.03	Q				
17+40	0.0479	0.02	Q				
17+45	0.0480	0.03	Q				
17+50	0.0482	0.03	Q				
17+55	0.0484	0.03	Q				
18+ 0	0.0485	0.02	Q				
18+ 5	0.0486	0.02	Q				
18+10	0.0487	0.01	Q				
18+15	0.0488	0.00	Q				
18+20	0.0488	0.00	Q				
18+25	0.0488	0.00	Q				
18+30	0.0488	0.00	Q				
18+35	0.0488	0.00	Q				
18+40	0.0488	0.00	Q				
18+45	0.0488	0.00	Q				
18+50	0.0488	0.00	Q				
18+55	0.0488	0.00	Q				

19+ 0	0.0489	0.00	Q				V
19+ 5	0.0489	0.00	Q				V
19+10	0.0489	0.00	Q				V
19+15	0.0489	0.00	Q				V
19+20	0.0489	0.00	Q				V
19+25	0.0489	0.00	Q				V
19+30	0.0489	0.00	Q				V
19+35	0.0489	0.00	Q				V
19+40	0.0489	0.00	Q				V
19+45	0.0489	0.00	Q				V
19+50	0.0489	0.00	Q				V
19+55	0.0490	0.00	Q				V
20+ 0	0.0490	0.00	Q				V
20+ 5	0.0490	0.00	Q				V
20+10	0.0490	0.00	Q				V
20+15	0.0490	0.00	Q				V
20+20	0.0490	0.00	Q				V
20+25	0.0490	0.00	Q				V
20+30	0.0490	0.00	Q				V
20+35	0.0490	0.00	Q				V
20+40	0.0490	0.00	Q				V
20+45	0.0490	0.00	Q				V
20+50	0.0490	0.00	Q				V
20+55	0.0491	0.00	Q				V
21+ 0	0.0491	0.00	Q				V
21+ 5	0.0491	0.00	Q				V
21+10	0.0491	0.00	Q				V
21+15	0.0491	0.00	Q				V
21+20	0.0491	0.00	Q				V
21+25	0.0491	0.00	Q				V
21+30	0.0491	0.00	Q				V
21+35	0.0491	0.00	Q				V
21+40	0.0491	0.00	Q				V
21+45	0.0491	0.00	Q				V
21+50	0.0491	0.00	Q				V
21+55	0.0491	0.00	Q				V
22+ 0	0.0491	0.00	Q				V
22+ 5	0.0491	0.00	Q				V
22+10	0.0492	0.00	Q				V
22+15	0.0492	0.00	Q				V
22+20	0.0492	0.00	Q				V
22+25	0.0492	0.00	Q				V
22+30	0.0492	0.00	Q				V
22+35	0.0492	0.00	Q				V
22+40	0.0492	0.00	Q				V
22+45	0.0492	0.00	Q				V
22+50	0.0492	0.00	Q				V
22+55	0.0492	0.00	Q				V
23+ 0	0.0492	0.00	Q				V
23+ 5	0.0492	0.00	Q				V
23+10	0.0492	0.00	Q				V
23+15	0.0492	0.00	Q				V
23+20	0.0492	0.00	Q				V
23+25	0.0492	0.00	Q				V
23+30	0.0492	0.00	Q				V
23+35	0.0493	0.00	Q				V
23+40	0.0493	0.00	Q				V
23+45	0.0493	0.00	Q				V
23+50	0.0493	0.00	Q				V
23+55	0.0493	0.00	Q				V
24+ 0	0.0493	0.00	Q				V
24+ 5	0.0493	0.00	Q				V
24+10	0.0493	0.00	Q				V
24+15	0.0493	0.00	Q				V
24+20	0.0493	0.00	Q				V
24+25	0.0493	0.00	Q				V
24+30	0.0493	0.00	Q				V
24+35	0.0493	0.00	Q				V
24+40	0.0493	0.00	Q				V

24+45	0.0493	0.00	Q				V
24+50	0.0493	0.00	Q				V
24+55	0.0493	0.00	Q				V
25+ 0	0.0493	0.00	Q				V
25+ 5	0.0493	0.00	Q				V
25+10	0.0493	0.00	Q				V
25+15	0.0493	0.00	Q				V
25+20	0.0493	0.00	Q				V
25+25	0.0493	0.00	Q				V
25+30	0.0493	0.00	Q				V
25+35	0.0493	0.00	Q				V
25+40	0.0493	0.00	Q				V
25+45	0.0493	0.00	Q				V
25+50	0.0493	0.00	Q				V
25+55	0.0493	0.00	Q				V
26+ 0	0.0493	0.00	Q				V
26+ 5	0.0493	0.00	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

+++++

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
EXISTING CONDITIONS - AREA "A"
5-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 5

Antecedent Moisture Condition = 1

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 10		
4.20	1	0.78

Rainfall data for year 2		
4.20	6	1.13

Rainfall data for year 2		
0.00	24	2.13
4.20	24	2.13

Rainfall data for year 100		
4.20	1	1.30

Rainfall data for year 100		
4.20	6	3.06

Rainfall data for year 100		
4.20	24	6.35

+++++

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 1)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
71.0	52.2	4.20	1.000	0.783	1.000	0.783

Area-averaged adjusted loss rate Fm (In/Hr) = 0.783

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC1)	S	Pervious Yield Fr
4.20	1.000	71.0	52.2	9.16	0.051

Area-averaged catchment yield fraction, Y = 0.051

Area-averaged low loss fraction, Yb = 0.949

User entry of time of concentration = 0.340 (hours)

+++++

Watershed area = 4.20(Ac.)

Catchment Lag time = 0.272 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 30.6373

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.783(In/Hr)

Average low loss rate fraction (Yb) = 0.949 (decimal)

DESERT S-Graph Selected

Computed peak 5-minute rainfall = 0.296(In)

Computed peak 30-minute rainfall = 0.506(In)

Specified peak 1-hour rainfall = 0.623(In)

Computed peak 3-hour rainfall = 1.104(In)

Specified peak 6-hour rainfall = 1.582(In)

Specified peak 24-hour rainfall = 3.118(In)

Rainfall depth area reduction factors:

Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.296(In)

30-minute factor = 1.000 Adjusted rainfall = 0.506(In)

1-hour factor = 1.000 Adjusted rainfall = 0.623(In)

3-hour factor = 1.000 Adjusted rainfall = 1.103(In)

6-hour factor = 1.000 Adjusted rainfall = 1.582(In)

24-hour factor = 1.000 Adjusted rainfall = 3.118(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 = 50.79 (CFS))

1	1.819	0.924
2	9.839	4.074
3	32.088	11.301
4	53.408	10.829
5	65.111	5.945
6	72.614	3.811
7	78.031	2.752
8	82.073	2.053
9	85.295	1.637
10	87.971	1.359
11	89.992	1.027
12	91.690	0.862
13	93.147	0.740
14	94.362	0.617
15	95.392	0.523
16	96.247	0.434
17	96.987	0.376
18	97.550	0.286
19	97.968	0.212
20	98.280	0.158
21	98.637	0.181
22	99.004	0.187
23	99.370	0.186
24	99.625	0.129

25	99.816	0.097
26	100.000	0.093

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.2958	0.2958
2	0.3642	0.0684
3	0.4113	0.0471
4	0.4483	0.0371
5	0.4794	0.0310
6	0.5063	0.0269
7	0.5303	0.0240
8	0.5519	0.0217
9	0.5718	0.0199
10	0.5902	0.0184
11	0.6073	0.0171
12	0.6233	0.0161
13	0.6498	0.0265
14	0.6754	0.0255
15	0.7000	0.0247
16	0.7239	0.0239
17	0.7471	0.0232
18	0.7696	0.0225
19	0.7915	0.0219
20	0.8129	0.0214
21	0.8338	0.0209
22	0.8542	0.0204
23	0.8742	0.0200
24	0.8938	0.0196
25	0.9129	0.0192
26	0.9317	0.0188
27	0.9502	0.0185
28	0.9683	0.0181
29	0.9862	0.0178
30	1.0037	0.0175
31	1.0209	0.0173
32	1.0379	0.0170
33	1.0547	0.0167
34	1.0712	0.0165
35	1.0874	0.0163
36	1.1035	0.0160
37	1.1193	0.0158
38	1.1349	0.0156
39	1.1503	0.0154
40	1.1656	0.0152
41	1.1806	0.0151
42	1.1955	0.0149
43	1.2102	0.0147
44	1.2248	0.0145
45	1.2392	0.0144
46	1.2534	0.0142
47	1.2675	0.0141
48	1.2814	0.0139
49	1.2952	0.0138
50	1.3089	0.0137
51	1.3225	0.0135
52	1.3359	0.0134
53	1.3492	0.0133
54	1.3623	0.0132
55	1.3754	0.0131
56	1.3883	0.0129
57	1.4012	0.0128
58	1.4139	0.0127
59	1.4265	0.0126
60	1.4390	0.0125
61	1.4514	0.0124
62	1.4637	0.0123
63	1.4760	0.0122
64	1.4881	0.0121

65	1.5001	0.0120
66	1.5121	0.0120
67	1.5239	0.0119
68	1.5357	0.0118
69	1.5474	0.0117
70	1.5590	0.0116
71	1.5706	0.0115
72	1.5820	0.0115
73	1.5928	0.0107
74	1.6034	0.0106
75	1.6140	0.0106
76	1.6245	0.0105
77	1.6349	0.0104
78	1.6452	0.0104
79	1.6555	0.0103
80	1.6658	0.0102
81	1.6759	0.0102
82	1.6860	0.0101
83	1.6961	0.0100
84	1.7060	0.0100
85	1.7159	0.0099
86	1.7258	0.0099
87	1.7356	0.0098
88	1.7453	0.0097
89	1.7550	0.0097
90	1.7646	0.0096
91	1.7742	0.0096
92	1.7837	0.0095
93	1.7932	0.0095
94	1.8026	0.0094
95	1.8120	0.0094
96	1.8213	0.0093
97	1.8305	0.0093
98	1.8397	0.0092
99	1.8489	0.0092
100	1.8580	0.0091
101	1.8671	0.0091
102	1.8761	0.0090
103	1.8851	0.0090
104	1.8940	0.0089
105	1.9029	0.0089
106	1.9118	0.0089
107	1.9206	0.0088
108	1.9294	0.0088
109	1.9381	0.0087
110	1.9468	0.0087
111	1.9554	0.0086
112	1.9640	0.0086
113	1.9726	0.0086
114	1.9811	0.0085
115	1.9896	0.0085
116	1.9981	0.0085
117	2.0065	0.0084
118	2.0148	0.0084
119	2.0232	0.0083
120	2.0315	0.0083
121	2.0398	0.0083
122	2.0480	0.0082
123	2.0562	0.0082
124	2.0644	0.0082
125	2.0725	0.0081
126	2.0806	0.0081
127	2.0887	0.0081
128	2.0967	0.0080
129	2.1047	0.0080
130	2.1127	0.0080
131	2.1206	0.0079
132	2.1285	0.0079
133	2.1364	0.0079

134	2.1442	0.0078
135	2.1521	0.0078
136	2.1598	0.0078
137	2.1676	0.0078
138	2.1753	0.0077
139	2.1830	0.0077
140	2.1907	0.0077
141	2.1984	0.0076
142	2.2060	0.0076
143	2.2136	0.0076
144	2.2211	0.0076
145	2.2287	0.0075
146	2.2362	0.0075
147	2.2437	0.0075
148	2.2511	0.0075
149	2.2586	0.0074
150	2.2660	0.0074
151	2.2733	0.0074
152	2.2807	0.0074
153	2.2880	0.0073
154	2.2953	0.0073
155	2.3026	0.0073
156	2.3099	0.0073
157	2.3171	0.0072
158	2.3243	0.0072
159	2.3315	0.0072
160	2.3387	0.0072
161	2.3458	0.0071
162	2.3530	0.0071
163	2.3601	0.0071
164	2.3671	0.0071
165	2.3742	0.0071
166	2.3812	0.0070
167	2.3882	0.0070
168	2.3952	0.0070
169	2.4022	0.0070
170	2.4091	0.0069
171	2.4161	0.0069
172	2.4230	0.0069
173	2.4299	0.0069
174	2.4367	0.0069
175	2.4436	0.0068
176	2.4504	0.0068
177	2.4572	0.0068
178	2.4640	0.0068
179	2.4708	0.0068
180	2.4775	0.0067
181	2.4842	0.0067
182	2.4909	0.0067
183	2.4976	0.0067
184	2.5043	0.0067
185	2.5110	0.0067
186	2.5176	0.0066
187	2.5242	0.0066
188	2.5308	0.0066
189	2.5374	0.0066
190	2.5439	0.0066
191	2.5505	0.0065
192	2.5570	0.0065
193	2.5635	0.0065
194	2.5700	0.0065
195	2.5765	0.0065
196	2.5830	0.0065
197	2.5894	0.0064
198	2.5958	0.0064
199	2.6022	0.0064
200	2.6086	0.0064
201	2.6150	0.0064
202	2.6214	0.0064

203	2.6277	0.0063
204	2.6340	0.0063
205	2.6404	0.0063
206	2.6466	0.0063
207	2.6529	0.0063
208	2.6592	0.0063
209	2.6654	0.0063
210	2.6717	0.0062
211	2.6779	0.0062
212	2.6841	0.0062
213	2.6903	0.0062
214	2.6965	0.0062
215	2.7026	0.0062
216	2.7088	0.0061
217	2.7149	0.0061
218	2.7210	0.0061
219	2.7271	0.0061
220	2.7332	0.0061
221	2.7393	0.0061
222	2.7454	0.0061
223	2.7514	0.0060
224	2.7574	0.0060
225	2.7635	0.0060
226	2.7695	0.0060
227	2.7755	0.0060
228	2.7814	0.0060
229	2.7874	0.0060
230	2.7933	0.0060
231	2.7993	0.0059
232	2.8052	0.0059
233	2.8111	0.0059
234	2.8170	0.0059
235	2.8229	0.0059
236	2.8288	0.0059
237	2.8346	0.0059
238	2.8405	0.0058
239	2.8463	0.0058
240	2.8522	0.0058
241	2.8580	0.0058
242	2.8638	0.0058
243	2.8695	0.0058
244	2.8753	0.0058
245	2.8811	0.0058
246	2.8868	0.0058
247	2.8926	0.0057
248	2.8983	0.0057
249	2.9040	0.0057
250	2.9097	0.0057
251	2.9154	0.0057
252	2.9211	0.0057
253	2.9268	0.0057
254	2.9324	0.0057
255	2.9381	0.0056
256	2.9437	0.0056
257	2.9493	0.0056
258	2.9549	0.0056
259	2.9605	0.0056
260	2.9661	0.0056
261	2.9717	0.0056
262	2.9773	0.0056
263	2.9828	0.0056
264	2.9884	0.0055
265	2.9939	0.0055
266	2.9994	0.0055
267	3.0050	0.0055
268	3.0105	0.0055
269	3.0159	0.0055
270	3.0214	0.0055
271	3.0269	0.0055

272	3.0324	0.0055
273	3.0378	0.0055
274	3.0433	0.0054
275	3.0487	0.0054
276	3.0541	0.0054
277	3.0595	0.0054
278	3.0649	0.0054
279	3.0703	0.0054
280	3.0757	0.0054
281	3.0811	0.0054
282	3.0864	0.0054
283	3.0918	0.0054
284	3.0971	0.0053
285	3.1025	0.0053
286	3.1078	0.0053
287	3.1131	0.0053
288	3.1184	0.0053

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0053	0.0050	0.0003
2	0.0053	0.0050	0.0003
3	0.0053	0.0051	0.0003
4	0.0053	0.0051	0.0003
5	0.0054	0.0051	0.0003
6	0.0054	0.0051	0.0003
7	0.0054	0.0051	0.0003
8	0.0054	0.0051	0.0003
9	0.0054	0.0051	0.0003
10	0.0054	0.0052	0.0003
11	0.0055	0.0052	0.0003
12	0.0055	0.0052	0.0003
13	0.0055	0.0052	0.0003
14	0.0055	0.0052	0.0003
15	0.0055	0.0052	0.0003
16	0.0055	0.0052	0.0003
17	0.0055	0.0053	0.0003
18	0.0056	0.0053	0.0003
19	0.0056	0.0053	0.0003
20	0.0056	0.0053	0.0003
21	0.0056	0.0053	0.0003
22	0.0056	0.0053	0.0003
23	0.0056	0.0054	0.0003
24	0.0057	0.0054	0.0003
25	0.0057	0.0054	0.0003
26	0.0057	0.0054	0.0003
27	0.0057	0.0054	0.0003
28	0.0057	0.0054	0.0003
29	0.0058	0.0055	0.0003
30	0.0058	0.0055	0.0003
31	0.0058	0.0055	0.0003
32	0.0058	0.0055	0.0003
33	0.0058	0.0055	0.0003
34	0.0058	0.0055	0.0003
35	0.0059	0.0056	0.0003
36	0.0059	0.0056	0.0003
37	0.0059	0.0056	0.0003
38	0.0059	0.0056	0.0003
39	0.0059	0.0056	0.0003
40	0.0060	0.0056	0.0003
41	0.0060	0.0057	0.0003
42	0.0060	0.0057	0.0003
43	0.0060	0.0057	0.0003
44	0.0060	0.0057	0.0003
45	0.0061	0.0058	0.0003
46	0.0061	0.0058	0.0003
47	0.0061	0.0058	0.0003

48	0.0061	0.0058	0.0003
49	0.0061	0.0058	0.0003
50	0.0062	0.0058	0.0003
51	0.0062	0.0059	0.0003
52	0.0062	0.0059	0.0003
53	0.0062	0.0059	0.0003
54	0.0063	0.0059	0.0003
55	0.0063	0.0060	0.0003
56	0.0063	0.0060	0.0003
57	0.0063	0.0060	0.0003
58	0.0063	0.0060	0.0003
59	0.0064	0.0061	0.0003
60	0.0064	0.0061	0.0003
61	0.0064	0.0061	0.0003
62	0.0064	0.0061	0.0003
63	0.0065	0.0061	0.0003
64	0.0065	0.0062	0.0003
65	0.0065	0.0062	0.0003
66	0.0065	0.0062	0.0003
67	0.0066	0.0062	0.0003
68	0.0066	0.0063	0.0003
69	0.0066	0.0063	0.0003
70	0.0067	0.0063	0.0003
71	0.0067	0.0064	0.0003
72	0.0067	0.0064	0.0003
73	0.0067	0.0064	0.0003
74	0.0068	0.0064	0.0003
75	0.0068	0.0065	0.0003
76	0.0068	0.0065	0.0003
77	0.0069	0.0065	0.0003
78	0.0069	0.0065	0.0004
79	0.0069	0.0066	0.0004
80	0.0069	0.0066	0.0004
81	0.0070	0.0066	0.0004
82	0.0070	0.0067	0.0004
83	0.0071	0.0067	0.0004
84	0.0071	0.0067	0.0004
85	0.0071	0.0068	0.0004
86	0.0071	0.0068	0.0004
87	0.0072	0.0068	0.0004
88	0.0072	0.0068	0.0004
89	0.0073	0.0069	0.0004
90	0.0073	0.0069	0.0004
91	0.0073	0.0070	0.0004
92	0.0074	0.0070	0.0004
93	0.0074	0.0070	0.0004
94	0.0074	0.0071	0.0004
95	0.0075	0.0071	0.0004
96	0.0075	0.0071	0.0004
97	0.0076	0.0072	0.0004
98	0.0076	0.0072	0.0004
99	0.0076	0.0073	0.0004
100	0.0077	0.0073	0.0004
101	0.0077	0.0073	0.0004
102	0.0078	0.0074	0.0004
103	0.0078	0.0074	0.0004
104	0.0078	0.0074	0.0004
105	0.0079	0.0075	0.0004
106	0.0079	0.0075	0.0004
107	0.0080	0.0076	0.0004
108	0.0080	0.0076	0.0004
109	0.0081	0.0077	0.0004
110	0.0081	0.0077	0.0004
111	0.0082	0.0078	0.0004
112	0.0082	0.0078	0.0004
113	0.0083	0.0079	0.0004
114	0.0083	0.0079	0.0004
115	0.0084	0.0080	0.0004
116	0.0085	0.0080	0.0004

117	0.0085	0.0081	0.0004
118	0.0086	0.0081	0.0004
119	0.0086	0.0082	0.0004
120	0.0087	0.0082	0.0004
121	0.0088	0.0083	0.0004
122	0.0088	0.0084	0.0004
123	0.0089	0.0084	0.0005
124	0.0089	0.0085	0.0005
125	0.0090	0.0086	0.0005
126	0.0091	0.0086	0.0005
127	0.0092	0.0087	0.0005
128	0.0092	0.0087	0.0005
129	0.0093	0.0088	0.0005
130	0.0094	0.0089	0.0005
131	0.0095	0.0090	0.0005
132	0.0095	0.0090	0.0005
133	0.0096	0.0091	0.0005
134	0.0097	0.0092	0.0005
135	0.0098	0.0093	0.0005
136	0.0099	0.0094	0.0005
137	0.0100	0.0095	0.0005
138	0.0100	0.0095	0.0005
139	0.0102	0.0096	0.0005
140	0.0102	0.0097	0.0005
141	0.0104	0.0098	0.0005
142	0.0104	0.0099	0.0005
143	0.0106	0.0100	0.0005
144	0.0106	0.0101	0.0005
145	0.0115	0.0109	0.0006
146	0.0115	0.0109	0.0006
147	0.0117	0.0111	0.0006
148	0.0118	0.0112	0.0006
149	0.0120	0.0113	0.0006
150	0.0120	0.0114	0.0006
151	0.0122	0.0116	0.0006
152	0.0123	0.0117	0.0006
153	0.0125	0.0119	0.0006
154	0.0126	0.0120	0.0006
155	0.0128	0.0122	0.0007
156	0.0129	0.0123	0.0007
157	0.0132	0.0125	0.0007
158	0.0133	0.0126	0.0007
159	0.0135	0.0129	0.0007
160	0.0137	0.0130	0.0007
161	0.0139	0.0132	0.0007
162	0.0141	0.0134	0.0007
163	0.0144	0.0137	0.0007
164	0.0145	0.0138	0.0007
165	0.0149	0.0141	0.0008
166	0.0151	0.0143	0.0008
167	0.0154	0.0146	0.0008
168	0.0156	0.0148	0.0008
169	0.0160	0.0152	0.0008
170	0.0163	0.0154	0.0008
171	0.0167	0.0159	0.0009
172	0.0170	0.0161	0.0009
173	0.0175	0.0166	0.0009
174	0.0178	0.0169	0.0009
175	0.0185	0.0175	0.0009
176	0.0188	0.0178	0.0010
177	0.0196	0.0186	0.0010
178	0.0200	0.0190	0.0010
179	0.0209	0.0198	0.0011
180	0.0214	0.0203	0.0011
181	0.0225	0.0214	0.0011
182	0.0232	0.0220	0.0012
183	0.0247	0.0234	0.0013
184	0.0255	0.0242	0.0013
185	0.0161	0.0152	0.0008

186	0.0171	0.0162	0.0009
187	0.0199	0.0188	0.0010
188	0.0217	0.0206	0.0011
189	0.0269	0.0256	0.0014
190	0.0310	0.0295	0.0016
191	0.0471	0.0447	0.0024
192	0.0684	0.0649	0.0035
193	0.2958	0.0652	0.2306
194	0.0371	0.0352	0.0019
195	0.0240	0.0227	0.0012
196	0.0184	0.0174	0.0009
197	0.0265	0.0251	0.0013
198	0.0239	0.0227	0.0012
199	0.0219	0.0208	0.0011
200	0.0204	0.0194	0.0010
201	0.0192	0.0182	0.0010
202	0.0181	0.0172	0.0009
203	0.0173	0.0164	0.0009
204	0.0165	0.0157	0.0008
205	0.0158	0.0150	0.0008
206	0.0152	0.0145	0.0008
207	0.0147	0.0140	0.0007
208	0.0142	0.0135	0.0007
209	0.0138	0.0131	0.0007
210	0.0134	0.0127	0.0007
211	0.0131	0.0124	0.0007
212	0.0127	0.0121	0.0006
213	0.0124	0.0118	0.0006
214	0.0121	0.0115	0.0006
215	0.0119	0.0113	0.0006
216	0.0116	0.0110	0.0006
217	0.0107	0.0102	0.0005
218	0.0105	0.0100	0.0005
219	0.0103	0.0098	0.0005
220	0.0101	0.0096	0.0005
221	0.0099	0.0094	0.0005
222	0.0097	0.0092	0.0005
223	0.0096	0.0091	0.0005
224	0.0094	0.0089	0.0005
225	0.0093	0.0088	0.0005
226	0.0091	0.0087	0.0005
227	0.0090	0.0085	0.0005
228	0.0089	0.0084	0.0005
229	0.0087	0.0083	0.0004
230	0.0086	0.0082	0.0004
231	0.0085	0.0081	0.0004
232	0.0084	0.0080	0.0004
233	0.0083	0.0078	0.0004
234	0.0082	0.0078	0.0004
235	0.0081	0.0077	0.0004
236	0.0080	0.0076	0.0004
237	0.0079	0.0075	0.0004
238	0.0078	0.0074	0.0004
239	0.0077	0.0073	0.0004
240	0.0076	0.0072	0.0004
241	0.0075	0.0072	0.0004
242	0.0075	0.0071	0.0004
243	0.0074	0.0070	0.0004
244	0.0073	0.0069	0.0004
245	0.0072	0.0069	0.0004
246	0.0072	0.0068	0.0004
247	0.0071	0.0067	0.0004
248	0.0070	0.0067	0.0004
249	0.0070	0.0066	0.0004
250	0.0069	0.0066	0.0004
251	0.0068	0.0065	0.0003
252	0.0068	0.0064	0.0003
253	0.0067	0.0064	0.0003
254	0.0067	0.0063	0.0003

255	0.0066	0.0063	0.0003
256	0.0066	0.0062	0.0003
257	0.0065	0.0062	0.0003
258	0.0065	0.0061	0.0003
259	0.0064	0.0061	0.0003
260	0.0064	0.0060	0.0003
261	0.0063	0.0060	0.0003
262	0.0063	0.0059	0.0003
263	0.0062	0.0059	0.0003
264	0.0062	0.0059	0.0003
265	0.0061	0.0058	0.0003
266	0.0061	0.0058	0.0003
267	0.0060	0.0057	0.0003
268	0.0060	0.0057	0.0003
269	0.0060	0.0057	0.0003
270	0.0059	0.0056	0.0003
271	0.0059	0.0056	0.0003
272	0.0058	0.0056	0.0003
273	0.0058	0.0055	0.0003
274	0.0058	0.0055	0.0003
275	0.0057	0.0054	0.0003
276	0.0057	0.0054	0.0003
277	0.0057	0.0054	0.0003
278	0.0056	0.0053	0.0003
279	0.0056	0.0053	0.0003
280	0.0056	0.0053	0.0003
281	0.0055	0.0053	0.0003
282	0.0055	0.0052	0.0003
283	0.0055	0.0052	0.0003
284	0.0054	0.0052	0.0003
285	0.0054	0.0051	0.0003
286	0.0054	0.0051	0.0003
287	0.0054	0.0051	0.0003
288	0.0053	0.0051	0.0003

Total soil rain loss = 2.74(In)
Total effective rainfall = 0.37(In)
Peak flow rate in flood hydrograph = 2.69(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	0.0000	0.00	Q					
0+15	0.0000	0.00	Q					
0+20	0.0001	0.01	Q					
0+25	0.0002	0.01	Q					
0+30	0.0002	0.01	Q					
0+35	0.0003	0.01	Q					
0+40	0.0004	0.01	Q					
0+45	0.0005	0.01	Q					
0+50	0.0005	0.01	Q					
0+55	0.0006	0.01	Q					
1+ 0	0.0007	0.01	Q					
1+ 5	0.0008	0.01	Q					
1+10	0.0009	0.01	Q					
1+15	0.0010	0.01	Q					
1+20	0.0011	0.01	Q					
1+25	0.0012	0.01	Q					
1+30	0.0013	0.01	Q					
1+35	0.0014	0.01	Q					
1+40	0.0015	0.01	Q					

1+45	0.0016	0.01	Q
1+50	0.0017	0.01	Q
1+55	0.0018	0.01	Q
2+ 0	0.0019	0.01	Q
2+ 5	0.0020	0.01	Q
2+10	0.0021	0.01	Q
2+15	0.0022	0.01	Q
2+20	0.0023	0.01	Q
2+25	0.0024	0.01	Q
2+30	0.0025	0.01	Q
2+35	0.0026	0.01	Q
2+40	0.0027	0.01	Q
2+45	0.0028	0.01	Q
2+50	0.0029	0.01	Q
2+55	0.0030	0.01	Q
3+ 0	0.0031	0.01	Q
3+ 5	0.0032	0.01	Q
3+10	0.0033	0.02	QV
3+15	0.0034	0.02	QV
3+20	0.0035	0.02	QV
3+25	0.0036	0.02	QV
3+30	0.0037	0.02	QV
3+35	0.0038	0.02	QV
3+40	0.0039	0.02	QV
3+45	0.0040	0.02	QV
3+50	0.0041	0.02	QV
3+55	0.0042	0.02	QV
4+ 0	0.0043	0.02	QV
4+ 5	0.0044	0.02	QV
4+10	0.0045	0.02	QV
4+15	0.0047	0.02	QV
4+20	0.0048	0.02	QV
4+25	0.0049	0.02	QV
4+30	0.0050	0.02	QV
4+35	0.0051	0.02	QV
4+40	0.0052	0.02	QV
4+45	0.0053	0.02	QV
4+50	0.0054	0.02	QV
4+55	0.0055	0.02	QV
5+ 0	0.0056	0.02	QV
5+ 5	0.0058	0.02	QV
5+10	0.0059	0.02	QV
5+15	0.0060	0.02	QV
5+20	0.0061	0.02	QV
5+25	0.0062	0.02	QV
5+30	0.0063	0.02	QV
5+35	0.0064	0.02	QV
5+40	0.0066	0.02	Q V
5+45	0.0067	0.02	Q V
5+50	0.0068	0.02	Q V
5+55	0.0069	0.02	Q V
6+ 0	0.0070	0.02	Q V
6+ 5	0.0071	0.02	Q V
6+10	0.0073	0.02	Q V
6+15	0.0074	0.02	Q V
6+20	0.0075	0.02	Q V
6+25	0.0076	0.02	Q V
6+30	0.0077	0.02	Q V
6+35	0.0079	0.02	Q V
6+40	0.0080	0.02	Q V
6+45	0.0081	0.02	Q V
6+50	0.0082	0.02	Q V
6+55	0.0083	0.02	Q V
7+ 0	0.0085	0.02	Q V
7+ 5	0.0086	0.02	Q V
7+10	0.0087	0.02	Q V
7+15	0.0088	0.02	Q V
7+20	0.0090	0.02	Q V
7+25	0.0091	0.02	Q V

7+30	0.0092	0.02	Q	V
7+35	0.0093	0.02	Q	V
7+40	0.0095	0.02	Q	V
7+45	0.0096	0.02	Q	V
7+50	0.0097	0.02	Q	V
7+55	0.0099	0.02	Q	V
8+ 0	0.0100	0.02	Q	V
8+ 5	0.0101	0.02	Q	V
8+10	0.0103	0.02	Q	V
8+15	0.0104	0.02	Q	V
8+20	0.0105	0.02	Q	V
8+25	0.0107	0.02	Q	V
8+30	0.0108	0.02	Q	V
8+35	0.0109	0.02	Q	V
8+40	0.0111	0.02	Q	V
8+45	0.0112	0.02	Q	V
8+50	0.0113	0.02	Q	V
8+55	0.0115	0.02	Q	V
9+ 0	0.0116	0.02	Q	V
9+ 5	0.0118	0.02	Q	V
9+10	0.0119	0.02	Q	V
9+15	0.0120	0.02	Q	V
9+20	0.0122	0.02	Q	V
9+25	0.0123	0.02	Q	V
9+30	0.0125	0.02	Q	V
9+35	0.0126	0.02	Q	V
9+40	0.0128	0.02	Q	V
9+45	0.0129	0.02	Q	V
9+50	0.0131	0.02	Q	V
9+55	0.0132	0.02	Q	V
10+ 0	0.0134	0.02	Q	V
10+ 5	0.0135	0.02	Q	V
10+10	0.0137	0.02	Q	V
10+15	0.0138	0.02	Q	V
10+20	0.0140	0.02	Q	V
10+25	0.0141	0.02	Q	V
10+30	0.0143	0.02	Q	V
10+35	0.0144	0.02	Q	V
10+40	0.0146	0.02	Q	V
10+45	0.0147	0.02	Q	V
10+50	0.0149	0.02	Q	V
10+55	0.0151	0.02	Q	V
11+ 0	0.0152	0.02	Q	V
11+ 5	0.0154	0.02	Q	V
11+10	0.0156	0.02	Q	V
11+15	0.0157	0.02	Q	V
11+20	0.0159	0.02	Q	V
11+25	0.0161	0.02	Q	V
11+30	0.0162	0.02	Q	V
11+35	0.0164	0.03	Q	V
11+40	0.0166	0.03	Q	V
11+45	0.0168	0.03	Q	V
11+50	0.0169	0.03	Q	V
11+55	0.0171	0.03	Q	V
12+ 0	0.0173	0.03	Q	V
12+ 5	0.0175	0.03	Q	V
12+10	0.0177	0.03	Q	V
12+15	0.0179	0.03	Q	V
12+20	0.0181	0.03	Q	V
12+25	0.0183	0.03	Q	V
12+30	0.0185	0.03	Q	V
12+35	0.0187	0.03	Q	V
12+40	0.0189	0.03	Q	V
12+45	0.0191	0.03	Q	V
12+50	0.0193	0.03	Q	V
12+55	0.0195	0.03	Q	V
13+ 0	0.0197	0.03	Q	V
13+ 5	0.0199	0.03	Q	V
13+10	0.0202	0.03	Q	V

19+ 0	0.1230	0.03	Q	V
19+ 5	0.1232	0.02	Q	V
19+10	0.1233	0.02	Q	V
19+15	0.1235	0.02	Q	V
19+20	0.1236	0.02	Q	V
19+25	0.1238	0.02	Q	V
19+30	0.1240	0.02	Q	V
19+35	0.1241	0.02	Q	V
19+40	0.1243	0.02	Q	V
19+45	0.1244	0.02	Q	V
19+50	0.1246	0.02	Q	V
19+55	0.1247	0.02	Q	V
20+ 0	0.1249	0.02	Q	V
20+ 5	0.1250	0.02	Q	V
20+10	0.1251	0.02	Q	V
20+15	0.1253	0.02	Q	V
20+20	0.1254	0.02	Q	V
20+25	0.1255	0.02	Q	V
20+30	0.1257	0.02	Q	V
20+35	0.1258	0.02	Q	V
20+40	0.1259	0.02	Q	V
20+45	0.1261	0.02	Q	V
20+50	0.1262	0.02	Q	V
20+55	0.1263	0.02	Q	V
21+ 0	0.1265	0.02	Q	V
21+ 5	0.1266	0.02	Q	V
21+10	0.1267	0.02	Q	V
21+15	0.1268	0.02	Q	V
21+20	0.1270	0.02	Q	V
21+25	0.1271	0.02	Q	V
21+30	0.1272	0.02	Q	V
21+35	0.1273	0.02	Q	V
21+40	0.1274	0.02	Q	V
21+45	0.1275	0.02	Q	V
21+50	0.1277	0.02	Q	V
21+55	0.1278	0.02	Q	V
22+ 0	0.1279	0.02	Q	V
22+ 5	0.1280	0.02	Q	V
22+10	0.1281	0.02	Q	V
22+15	0.1282	0.02	Q	V
22+20	0.1283	0.02	Q	V
22+25	0.1284	0.02	Q	V
22+30	0.1286	0.02	Q	V
22+35	0.1287	0.02	Q	V
22+40	0.1288	0.02	Q	V
22+45	0.1289	0.02	Q	V
22+50	0.1290	0.02	Q	V
22+55	0.1291	0.02	Q	V
23+ 0	0.1292	0.02	Q	V
23+ 5	0.1293	0.02	Q	V
23+10	0.1294	0.02	Q	V
23+15	0.1295	0.01	Q	V
23+20	0.1296	0.01	Q	V
23+25	0.1297	0.01	Q	V
23+30	0.1298	0.01	Q	V
23+35	0.1299	0.01	Q	V
23+40	0.1300	0.01	Q	V
23+45	0.1301	0.01	Q	V
23+50	0.1302	0.01	Q	V
23+55	0.1303	0.01	Q	V
24+ 0	0.1304	0.01	Q	V
24+ 5	0.1305	0.01	Q	V
24+10	0.1306	0.01	Q	V
24+15	0.1307	0.01	Q	V
24+20	0.1307	0.01	Q	V
24+25	0.1307	0.00	Q	V
24+30	0.1308	0.00	Q	V
24+35	0.1308	0.00	Q	V
24+40	0.1308	0.00	Q	V

24+45	0.1308	0.00	Q				V
24+50	0.1308	0.00	Q				V
24+55	0.1308	0.00	Q				V
25+ 0	0.1308	0.00	Q				V
25+ 5	0.1308	0.00	Q				V
25+10	0.1309	0.00	Q				V
25+15	0.1309	0.00	Q				V
25+20	0.1309	0.00	Q				V
25+25	0.1309	0.00	Q				V
25+30	0.1309	0.00	Q				V
25+35	0.1309	0.00	Q				V
25+40	0.1309	0.00	Q				V
25+45	0.1309	0.00	Q				V
25+50	0.1309	0.00	Q				V
25+55	0.1309	0.00	Q				V
26+ 0	0.1309	0.00	Q				V
26+ 5	0.1309	0.00	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
EXISTING CONDITIONS - AREA "A"
10-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 10

Antecedent Moisture Condition = 2

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 10		
4.20	1	0.78

Rainfall data for year 2		
4.20	6	1.13

Rainfall data for year 2		
0.00	24	2.13
4.20	24	2.13

Rainfall data for year 100		
4.20	1	1.30

Rainfall data for year 100		
4.20	6	3.06

Rainfall data for year 100		
4.20	24	6.35

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 2)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
71.0	71.0	4.20	1.000	0.517	1.000	0.517

Area-averaged adjusted loss rate Fm (In/Hr) = 0.517

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

Area	Area	SCS CN	SCS CN	S	Pervious
(Ac.)	Fract	(AMC2)	(AMC2)		Yield Fr
4.20	1.000	71.0	71.0	4.08	0.337

Area-averaged catchment yield fraction, Y = 0.337
 Area-averaged low loss fraction, Yb = 0.663
 User entry of time of concentration = 0.340 (hours)
 +-----+
 Watershed area = 4.20(Ac.)
 Catchment Lag time = 0.272 hours
 Unit interval = 5.000 minutes
 Unit interval percentage of lag time = 30.6373
 Hydrograph baseflow = 0.00(CFS)
 Average maximum watershed loss rate(Fm) = 0.517(In/Hr)
 Average low loss rate fraction (Yb) = 0.663 (decimal)
 DESERT S-Graph Selected
 Computed peak 5-minute rainfall = 0.370(In)
 Computed peak 30-minute rainfall = 0.634(In)
 Specified peak 1-hour rainfall = 0.780(In)
 Computed peak 3-hour rainfall = 1.357(In)
 Specified peak 6-hour rainfall = 1.924(In)
 Specified peak 24-hour rainfall = 3.866(In)

Rainfall depth area reduction factors:
 Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000	Adjusted rainfall = 0.370(In)
30-minute factor = 1.000	Adjusted rainfall = 0.633(In)
1-hour factor = 1.000	Adjusted rainfall = 0.780(In)
3-hour factor = 1.000	Adjusted rainfall = 1.357(In)
6-hour factor = 1.000	Adjusted rainfall = 1.924(In)
24-hour factor = 1.000	Adjusted rainfall = 3.866(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 = 50.79 (CFS))

1	1.819	0.924
2	9.839	4.074
3	32.088	11.301
4	53.408	10.829
5	65.111	5.945
6	72.614	3.811
7	78.031	2.752
8	82.073	2.053
9	85.295	1.637
10	87.971	1.359
11	89.992	1.027
12	91.690	0.862
13	93.147	0.740
14	94.362	0.617
15	95.392	0.523
16	96.247	0.434
17	96.987	0.376
18	97.550	0.286
19	97.968	0.212
20	98.280	0.158
21	98.637	0.181
22	99.004	0.187
23	99.370	0.186
24	99.625	0.129

25	99.816	0.097
26	100.000	0.093

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3700	0.3700
2	0.4556	0.0855
3	0.5145	0.0589
4	0.5609	0.0464
5	0.5997	0.0388
6	0.6334	0.0337
7	0.6634	0.0300
8	0.6905	0.0271
9	0.7154	0.0248
10	0.7383	0.0230
11	0.7598	0.0214
12	0.7798	0.0201
13	0.8120	0.0321
14	0.8429	0.0309
15	0.8727	0.0298
16	0.9015	0.0289
17	0.9295	0.0280
18	0.9567	0.0272
19	0.9831	0.0264
20	1.0089	0.0257
21	1.0340	0.0251
22	1.0585	0.0245
23	1.0825	0.0240
24	1.1060	0.0235
25	1.1290	0.0230
26	1.1515	0.0225
27	1.1736	0.0221
28	1.1953	0.0217
29	1.2167	0.0213
30	1.2376	0.0210
31	1.2583	0.0206
32	1.2786	0.0203
33	1.2986	0.0200
34	1.3182	0.0197
35	1.3376	0.0194
36	1.3568	0.0191
37	1.3756	0.0189
38	1.3942	0.0186
39	1.4126	0.0184
40	1.4308	0.0181
41	1.4487	0.0179
42	1.4664	0.0177
43	1.4839	0.0175
44	1.5012	0.0173
45	1.5182	0.0171
46	1.5352	0.0169
47	1.5519	0.0167
48	1.5684	0.0166
49	1.5848	0.0164
50	1.6010	0.0162
51	1.6171	0.0161
52	1.6330	0.0159
53	1.6487	0.0158
54	1.6643	0.0156
55	1.6798	0.0155
56	1.6951	0.0153
57	1.7103	0.0152
58	1.7254	0.0151
59	1.7403	0.0149
60	1.7551	0.0148
61	1.7698	0.0147
62	1.7843	0.0146
63	1.7988	0.0144
64	1.8131	0.0143

65	1.8273	0.0142
66	1.8415	0.0141
67	1.8555	0.0140
68	1.8694	0.0139
69	1.8832	0.0138
70	1.8969	0.0137
71	1.9105	0.0136
72	1.9240	0.0135
73	1.9374	0.0134
74	1.9507	0.0133
75	1.9639	0.0132
76	1.9771	0.0131
77	1.9901	0.0131
78	2.0031	0.0130
79	2.0160	0.0129
80	2.0288	0.0128
81	2.0415	0.0127
82	2.0542	0.0126
83	2.0667	0.0126
84	2.0792	0.0125
85	2.0917	0.0124
86	2.1040	0.0124
87	2.1163	0.0123
88	2.1285	0.0122
89	2.1406	0.0121
90	2.1527	0.0121
91	2.1647	0.0120
92	2.1767	0.0119
93	2.1885	0.0119
94	2.2004	0.0118
95	2.2121	0.0118
96	2.2238	0.0117
97	2.2354	0.0116
98	2.2470	0.0116
99	2.2585	0.0115
100	2.2700	0.0115
101	2.2814	0.0114
102	2.2927	0.0113
103	2.3040	0.0113
104	2.3152	0.0112
105	2.3264	0.0112
106	2.3375	0.0111
107	2.3486	0.0111
108	2.3596	0.0110
109	2.3706	0.0110
110	2.3815	0.0109
111	2.3924	0.0109
112	2.4032	0.0108
113	2.4140	0.0108
114	2.4247	0.0107
115	2.4354	0.0107
116	2.4461	0.0106
117	2.4567	0.0106
118	2.4672	0.0105
119	2.4777	0.0105
120	2.4882	0.0105
121	2.4986	0.0104
122	2.5090	0.0104
123	2.5193	0.0103
124	2.5296	0.0103
125	2.5398	0.0102
126	2.5500	0.0102
127	2.5602	0.0102
128	2.5703	0.0101
129	2.5804	0.0101
130	2.5905	0.0101
131	2.6005	0.0100
132	2.6105	0.0100
133	2.6204	0.0099

134	2.6303	0.0099
135	2.6402	0.0099
136	2.6500	0.0098
137	2.6598	0.0098
138	2.6695	0.0098
139	2.6793	0.0097
140	2.6889	0.0097
141	2.6986	0.0097
142	2.7082	0.0096
143	2.7178	0.0096
144	2.7273	0.0096
145	2.7369	0.0095
146	2.7463	0.0095
147	2.7558	0.0095
148	2.7652	0.0094
149	2.7746	0.0094
150	2.7840	0.0094
151	2.7933	0.0093
152	2.8026	0.0093
153	2.8119	0.0093
154	2.8211	0.0092
155	2.8303	0.0092
156	2.8395	0.0092
157	2.8486	0.0091
158	2.8577	0.0091
159	2.8668	0.0091
160	2.8759	0.0091
161	2.8849	0.0090
162	2.8939	0.0090
163	2.9029	0.0090
164	2.9119	0.0090
165	2.9208	0.0089
166	2.9297	0.0089
167	2.9386	0.0089
168	2.9474	0.0088
169	2.9562	0.0088
170	2.9650	0.0088
171	2.9738	0.0088
172	2.9825	0.0087
173	2.9912	0.0087
174	2.9999	0.0087
175	3.0086	0.0087
176	3.0172	0.0086
177	3.0259	0.0086
178	3.0345	0.0086
179	3.0430	0.0086
180	3.0516	0.0085
181	3.0601	0.0085
182	3.0686	0.0085
183	3.0771	0.0085
184	3.0855	0.0085
185	3.0939	0.0084
186	3.1024	0.0084
187	3.1107	0.0084
188	3.1191	0.0084
189	3.1274	0.0083
190	3.1358	0.0083
191	3.1441	0.0083
192	3.1523	0.0083
193	3.1606	0.0083
194	3.1688	0.0082
195	3.1770	0.0082
196	3.1852	0.0082
197	3.1934	0.0082
198	3.2015	0.0081
199	3.2097	0.0081
200	3.2178	0.0081
201	3.2259	0.0081
202	3.2339	0.0081

203	3.2420	0.0080
204	3.2500	0.0080
205	3.2580	0.0080
206	3.2660	0.0080
207	3.2740	0.0080
208	3.2819	0.0080
209	3.2899	0.0079
210	3.2978	0.0079
211	3.3057	0.0079
212	3.3136	0.0079
213	3.3214	0.0079
214	3.3293	0.0078
215	3.3371	0.0078
216	3.3449	0.0078
217	3.3527	0.0078
218	3.3604	0.0078
219	3.3682	0.0078
220	3.3759	0.0077
221	3.3836	0.0077
222	3.3913	0.0077
223	3.3990	0.0077
224	3.4067	0.0077
225	3.4143	0.0076
226	3.4220	0.0076
227	3.4296	0.0076
228	3.4372	0.0076
229	3.4448	0.0076
230	3.4523	0.0076
231	3.4599	0.0075
232	3.4674	0.0075
233	3.4749	0.0075
234	3.4824	0.0075
235	3.4899	0.0075
236	3.4974	0.0075
237	3.5048	0.0075
238	3.5123	0.0074
239	3.5197	0.0074
240	3.5271	0.0074
241	3.5345	0.0074
242	3.5419	0.0074
243	3.5492	0.0074
244	3.5566	0.0073
245	3.5639	0.0073
246	3.5712	0.0073
247	3.5785	0.0073
248	3.5858	0.0073
249	3.5931	0.0073
250	3.6003	0.0073
251	3.6076	0.0072
252	3.6148	0.0072
253	3.6220	0.0072
254	3.6292	0.0072
255	3.6364	0.0072
256	3.6436	0.0072
257	3.6507	0.0072
258	3.6579	0.0071
259	3.6650	0.0071
260	3.6721	0.0071
261	3.6792	0.0071
262	3.6863	0.0071
263	3.6934	0.0071
264	3.7004	0.0071
265	3.7075	0.0070
266	3.7145	0.0070
267	3.7215	0.0070
268	3.7286	0.0070
269	3.7356	0.0070
270	3.7425	0.0070
271	3.7495	0.0070

272	3.7565	0.0070
273	3.7634	0.0069
274	3.7703	0.0069
275	3.7773	0.0069
276	3.7842	0.0069
277	3.7911	0.0069
278	3.7980	0.0069
279	3.8048	0.0069
280	3.8117	0.0069
281	3.8185	0.0068
282	3.8254	0.0068
283	3.8322	0.0068
284	3.8390	0.0068
285	3.8458	0.0068
286	3.8526	0.0068
287	3.8594	0.0068
288	3.8661	0.0068

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0068	0.0045	0.0023
2	0.0068	0.0045	0.0023
3	0.0068	0.0045	0.0023
4	0.0068	0.0045	0.0023
5	0.0068	0.0045	0.0023
6	0.0068	0.0045	0.0023
7	0.0069	0.0046	0.0023
8	0.0069	0.0046	0.0023
9	0.0069	0.0046	0.0023
10	0.0069	0.0046	0.0023
11	0.0069	0.0046	0.0023
12	0.0070	0.0046	0.0023
13	0.0070	0.0046	0.0024
14	0.0070	0.0046	0.0024
15	0.0070	0.0047	0.0024
16	0.0070	0.0047	0.0024
17	0.0071	0.0047	0.0024
18	0.0071	0.0047	0.0024
19	0.0071	0.0047	0.0024
20	0.0071	0.0047	0.0024
21	0.0071	0.0047	0.0024
22	0.0072	0.0047	0.0024
23	0.0072	0.0048	0.0024
24	0.0072	0.0048	0.0024
25	0.0072	0.0048	0.0024
26	0.0072	0.0048	0.0024
27	0.0073	0.0048	0.0025
28	0.0073	0.0048	0.0025
29	0.0073	0.0048	0.0025
30	0.0073	0.0049	0.0025
31	0.0074	0.0049	0.0025
32	0.0074	0.0049	0.0025
33	0.0074	0.0049	0.0025
34	0.0074	0.0049	0.0025
35	0.0075	0.0049	0.0025
36	0.0075	0.0050	0.0025
37	0.0075	0.0050	0.0025
38	0.0075	0.0050	0.0025
39	0.0075	0.0050	0.0025
40	0.0076	0.0050	0.0026
41	0.0076	0.0050	0.0026
42	0.0076	0.0050	0.0026
43	0.0076	0.0051	0.0026
44	0.0077	0.0051	0.0026
45	0.0077	0.0051	0.0026
46	0.0077	0.0051	0.0026
47	0.0078	0.0051	0.0026

48	0.0078	0.0051	0.0026
49	0.0078	0.0052	0.0026
50	0.0078	0.0052	0.0026
51	0.0079	0.0052	0.0026
52	0.0079	0.0052	0.0027
53	0.0079	0.0052	0.0027
54	0.0079	0.0053	0.0027
55	0.0080	0.0053	0.0027
56	0.0080	0.0053	0.0027
57	0.0080	0.0053	0.0027
58	0.0080	0.0053	0.0027
59	0.0081	0.0054	0.0027
60	0.0081	0.0054	0.0027
61	0.0081	0.0054	0.0027
62	0.0082	0.0054	0.0028
63	0.0082	0.0054	0.0028
64	0.0082	0.0055	0.0028
65	0.0083	0.0055	0.0028
66	0.0083	0.0055	0.0028
67	0.0083	0.0055	0.0028
68	0.0084	0.0055	0.0028
69	0.0084	0.0056	0.0028
70	0.0084	0.0056	0.0028
71	0.0085	0.0056	0.0029
72	0.0085	0.0056	0.0029
73	0.0085	0.0057	0.0029
74	0.0086	0.0057	0.0029
75	0.0086	0.0057	0.0029
76	0.0086	0.0057	0.0029
77	0.0087	0.0058	0.0029
78	0.0087	0.0058	0.0029
79	0.0088	0.0058	0.0030
80	0.0088	0.0058	0.0030
81	0.0088	0.0059	0.0030
82	0.0089	0.0059	0.0030
83	0.0089	0.0059	0.0030
84	0.0090	0.0059	0.0030
85	0.0090	0.0060	0.0030
86	0.0090	0.0060	0.0030
87	0.0091	0.0060	0.0031
88	0.0091	0.0060	0.0031
89	0.0092	0.0061	0.0031
90	0.0092	0.0061	0.0031
91	0.0093	0.0061	0.0031
92	0.0093	0.0062	0.0031
93	0.0094	0.0062	0.0032
94	0.0094	0.0062	0.0032
95	0.0095	0.0063	0.0032
96	0.0095	0.0063	0.0032
97	0.0096	0.0063	0.0032
98	0.0096	0.0064	0.0032
99	0.0097	0.0064	0.0033
100	0.0097	0.0064	0.0033
101	0.0098	0.0065	0.0033
102	0.0098	0.0065	0.0033
103	0.0099	0.0065	0.0033
104	0.0099	0.0066	0.0033
105	0.0100	0.0066	0.0034
106	0.0100	0.0066	0.0034
107	0.0101	0.0067	0.0034
108	0.0101	0.0067	0.0034
109	0.0102	0.0068	0.0034
110	0.0102	0.0068	0.0035
111	0.0103	0.0068	0.0035
112	0.0104	0.0069	0.0035
113	0.0105	0.0069	0.0035
114	0.0105	0.0070	0.0035
115	0.0106	0.0070	0.0036
116	0.0106	0.0071	0.0036

117	0.0107	0.0071	0.0036
118	0.0108	0.0071	0.0036
119	0.0109	0.0072	0.0037
120	0.0109	0.0072	0.0037
121	0.0110	0.0073	0.0037
122	0.0111	0.0073	0.0037
123	0.0112	0.0074	0.0038
124	0.0112	0.0074	0.0038
125	0.0113	0.0075	0.0038
126	0.0114	0.0076	0.0038
127	0.0115	0.0076	0.0039
128	0.0116	0.0077	0.0039
129	0.0117	0.0077	0.0039
130	0.0118	0.0078	0.0040
131	0.0119	0.0079	0.0040
132	0.0119	0.0079	0.0040
133	0.0121	0.0080	0.0041
134	0.0121	0.0080	0.0041
135	0.0123	0.0081	0.0041
136	0.0124	0.0082	0.0042
137	0.0125	0.0083	0.0042
138	0.0126	0.0083	0.0042
139	0.0127	0.0084	0.0043
140	0.0128	0.0085	0.0043
141	0.0130	0.0086	0.0044
142	0.0131	0.0087	0.0044
143	0.0132	0.0088	0.0045
144	0.0133	0.0088	0.0045
145	0.0135	0.0090	0.0046
146	0.0136	0.0090	0.0046
147	0.0138	0.0091	0.0047
148	0.0139	0.0092	0.0047
149	0.0141	0.0094	0.0048
150	0.0142	0.0094	0.0048
151	0.0144	0.0096	0.0049
152	0.0146	0.0097	0.0049
153	0.0148	0.0098	0.0050
154	0.0149	0.0099	0.0050
155	0.0152	0.0101	0.0051
156	0.0153	0.0102	0.0052
157	0.0156	0.0103	0.0053
158	0.0158	0.0104	0.0053
159	0.0161	0.0106	0.0054
160	0.0162	0.0107	0.0055
161	0.0166	0.0110	0.0056
162	0.0167	0.0111	0.0056
163	0.0171	0.0113	0.0058
164	0.0173	0.0115	0.0058
165	0.0177	0.0117	0.0060
166	0.0179	0.0119	0.0060
167	0.0184	0.0122	0.0062
168	0.0186	0.0123	0.0063
169	0.0191	0.0127	0.0064
170	0.0194	0.0129	0.0065
171	0.0200	0.0132	0.0067
172	0.0203	0.0135	0.0068
173	0.0210	0.0139	0.0071
174	0.0213	0.0141	0.0072
175	0.0221	0.0147	0.0075
176	0.0225	0.0149	0.0076
177	0.0235	0.0156	0.0079
178	0.0240	0.0159	0.0081
179	0.0251	0.0167	0.0085
180	0.0257	0.0171	0.0087
181	0.0272	0.0180	0.0092
182	0.0280	0.0185	0.0094
183	0.0298	0.0198	0.0101
184	0.0309	0.0205	0.0104
185	0.0201	0.0133	0.0068

186	0.0214	0.0142	0.0072
187	0.0248	0.0165	0.0084
188	0.0271	0.0180	0.0091
189	0.0337	0.0223	0.0114
190	0.0388	0.0257	0.0131
191	0.0589	0.0391	0.0199
192	0.0855	0.0431	0.0425
193	0.3700	0.0431	0.3270
194	0.0464	0.0307	0.0156
195	0.0300	0.0199	0.0101
196	0.0230	0.0152	0.0077
197	0.0321	0.0213	0.0108
198	0.0289	0.0191	0.0097
199	0.0264	0.0175	0.0089
200	0.0245	0.0163	0.0083
201	0.0230	0.0152	0.0078
202	0.0217	0.0144	0.0073
203	0.0206	0.0137	0.0070
204	0.0197	0.0131	0.0066
205	0.0189	0.0125	0.0064
206	0.0181	0.0120	0.0061
207	0.0175	0.0116	0.0059
208	0.0169	0.0112	0.0057
209	0.0164	0.0109	0.0055
210	0.0159	0.0105	0.0054
211	0.0155	0.0102	0.0052
212	0.0151	0.0100	0.0051
213	0.0147	0.0097	0.0049
214	0.0143	0.0095	0.0048
215	0.0140	0.0093	0.0047
216	0.0137	0.0091	0.0046
217	0.0134	0.0089	0.0045
218	0.0131	0.0087	0.0044
219	0.0129	0.0085	0.0043
220	0.0126	0.0084	0.0043
221	0.0124	0.0082	0.0042
222	0.0122	0.0081	0.0041
223	0.0120	0.0080	0.0040
224	0.0118	0.0078	0.0040
225	0.0116	0.0077	0.0039
226	0.0115	0.0076	0.0039
227	0.0113	0.0075	0.0038
228	0.0111	0.0074	0.0038
229	0.0110	0.0073	0.0037
230	0.0108	0.0072	0.0036
231	0.0107	0.0071	0.0036
232	0.0105	0.0070	0.0036
233	0.0104	0.0069	0.0035
234	0.0103	0.0068	0.0035
235	0.0102	0.0067	0.0034
236	0.0101	0.0067	0.0034
237	0.0099	0.0066	0.0033
238	0.0098	0.0065	0.0033
239	0.0097	0.0064	0.0033
240	0.0096	0.0064	0.0032
241	0.0095	0.0063	0.0032
242	0.0094	0.0062	0.0032
243	0.0093	0.0062	0.0031
244	0.0092	0.0061	0.0031
245	0.0091	0.0061	0.0031
246	0.0091	0.0060	0.0031
247	0.0090	0.0060	0.0030
248	0.0089	0.0059	0.0030
249	0.0088	0.0058	0.0030
250	0.0087	0.0058	0.0029
251	0.0087	0.0057	0.0029
252	0.0086	0.0057	0.0029
253	0.0085	0.0056	0.0029
254	0.0085	0.0056	0.0028

255	0.0084	0.0056	0.0028
256	0.0083	0.0055	0.0028
257	0.0083	0.0055	0.0028
258	0.0082	0.0054	0.0028
259	0.0081	0.0054	0.0027
260	0.0081	0.0053	0.0027
261	0.0080	0.0053	0.0027
262	0.0080	0.0053	0.0027
263	0.0079	0.0052	0.0027
264	0.0078	0.0052	0.0026
265	0.0078	0.0052	0.0026
266	0.0077	0.0051	0.0026
267	0.0077	0.0051	0.0026
268	0.0076	0.0051	0.0026
269	0.0076	0.0050	0.0026
270	0.0075	0.0050	0.0025
271	0.0075	0.0050	0.0025
272	0.0074	0.0049	0.0025
273	0.0074	0.0049	0.0025
274	0.0073	0.0049	0.0025
275	0.0073	0.0048	0.0025
276	0.0073	0.0048	0.0024
277	0.0072	0.0048	0.0024
278	0.0072	0.0048	0.0024
279	0.0071	0.0047	0.0024
280	0.0071	0.0047	0.0024
281	0.0070	0.0047	0.0024
282	0.0070	0.0046	0.0024
283	0.0070	0.0046	0.0024
284	0.0069	0.0046	0.0023
285	0.0069	0.0046	0.0023
286	0.0069	0.0045	0.0023
287	0.0068	0.0045	0.0023
288	0.0068	0.0045	0.0023

Total soil rain loss = 2.35(In)
Total effective rainfall = 1.52(In)
Peak flow rate in flood hydrograph = 4.52(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q					
0+10	0.0001	0.01	Q					
0+15	0.0003	0.04	Q					
0+20	0.0008	0.06	Q					
0+25	0.0013	0.08	Q					
0+30	0.0019	0.08	Q					
0+35	0.0025	0.09	Q					
0+40	0.0032	0.10	Q					
0+45	0.0039	0.10	Q					
0+50	0.0046	0.10	Q					
0+55	0.0053	0.11	Q					
1+ 0	0.0060	0.11	Q					
1+ 5	0.0068	0.11	Q					
1+10	0.0076	0.11	Q					
1+15	0.0084	0.11	Q					
1+20	0.0091	0.11	Q					
1+25	0.0099	0.12	Q					
1+30	0.0107	0.12	Q					
1+35	0.0116	0.12	Q					
1+40	0.0124	0.12	Q					

1+45	0.0132	0.12	Q
1+50	0.0140	0.12	QV
1+55	0.0148	0.12	QV
2+ 0	0.0157	0.12	QV
2+ 5	0.0165	0.12	QV
2+10	0.0174	0.12	QV
2+15	0.0182	0.12	QV
2+20	0.0191	0.12	QV
2+25	0.0199	0.12	QV
2+30	0.0208	0.12	QV
2+35	0.0216	0.12	QV
2+40	0.0225	0.12	QV
2+45	0.0233	0.12	QV
2+50	0.0242	0.13	QV
2+55	0.0251	0.13	QV
3+ 0	0.0259	0.13	QV
3+ 5	0.0268	0.13	Q V
3+10	0.0277	0.13	Q V
3+15	0.0285	0.13	Q V
3+20	0.0294	0.13	Q V
3+25	0.0303	0.13	Q V
3+30	0.0312	0.13	Q V
3+35	0.0321	0.13	Q V
3+40	0.0330	0.13	Q V
3+45	0.0339	0.13	Q V
3+50	0.0348	0.13	Q V
3+55	0.0357	0.13	Q V
4+ 0	0.0366	0.13	Q V
4+ 5	0.0375	0.13	Q V
4+10	0.0384	0.13	Q V
4+15	0.0393	0.13	Q V
4+20	0.0402	0.13	Q V
4+25	0.0411	0.13	Q V
4+30	0.0420	0.13	Q V
4+35	0.0430	0.13	Q V
4+40	0.0439	0.13	Q V
4+45	0.0448	0.14	Q V
4+50	0.0458	0.14	Q V
4+55	0.0467	0.14	Q V
5+ 0	0.0476	0.14	Q V
5+ 5	0.0486	0.14	Q V
5+10	0.0495	0.14	Q V
5+15	0.0505	0.14	Q V
5+20	0.0514	0.14	Q V
5+25	0.0524	0.14	Q V
5+30	0.0533	0.14	Q V
5+35	0.0543	0.14	Q V
5+40	0.0553	0.14	Q V
5+45	0.0563	0.14	Q V
5+50	0.0572	0.14	Q V
5+55	0.0582	0.14	Q V
6+ 0	0.0592	0.14	Q V
6+ 5	0.0602	0.14	Q V
6+10	0.0612	0.14	Q V
6+15	0.0622	0.14	Q V
6+20	0.0632	0.15	Q V
6+25	0.0642	0.15	Q V
6+30	0.0652	0.15	Q V
6+35	0.0662	0.15	Q V
6+40	0.0672	0.15	Q V
6+45	0.0682	0.15	Q V
6+50	0.0693	0.15	Q V
6+55	0.0703	0.15	Q V
7+ 0	0.0713	0.15	Q V
7+ 5	0.0724	0.15	Q V
7+10	0.0734	0.15	Q V
7+15	0.0745	0.15	Q V
7+20	0.0755	0.15	Q V
7+25	0.0766	0.15	Q V

7+30	0.0776	0.15	Q	V				
7+35	0.0787	0.16	Q	V				
7+40	0.0798	0.16	Q	V				
7+45	0.0808	0.16	Q	V				
7+50	0.0819	0.16	Q	V				
7+55	0.0830	0.16	Q	V				
8+ 0	0.0841	0.16	Q	V				
8+ 5	0.0852	0.16	Q	V				
8+10	0.0863	0.16	Q	V				
8+15	0.0874	0.16	Q	V				
8+20	0.0885	0.16	Q	V				
8+25	0.0897	0.16	Q	V				
8+30	0.0908	0.16	Q	V				
8+35	0.0919	0.16	Q	V				
8+40	0.0931	0.17	Q	V				
8+45	0.0942	0.17	Q	V				
8+50	0.0954	0.17	Q	V				
8+55	0.0965	0.17	Q	V				
9+ 0	0.0977	0.17	Q	V				
9+ 5	0.0988	0.17	Q	V				
9+10	0.1000	0.17	Q	V				
9+15	0.1012	0.17	Q	V				
9+20	0.1024	0.17	Q	V				
9+25	0.1036	0.17	Q	V				
9+30	0.1048	0.17	Q	V				
9+35	0.1060	0.18	Q	V				
9+40	0.1072	0.18	Q	V				
9+45	0.1085	0.18	Q	V				
9+50	0.1097	0.18	Q	V				
9+55	0.1109	0.18	Q	V				
10+ 0	0.1122	0.18	Q	V				
10+ 5	0.1134	0.18	Q	V				
10+10	0.1147	0.18	Q	V				
10+15	0.1160	0.19	Q	V				
10+20	0.1173	0.19	Q	V				
10+25	0.1186	0.19	Q	V				
10+30	0.1199	0.19	Q	V				
10+35	0.1212	0.19	Q	V				
10+40	0.1225	0.19	Q	V				
10+45	0.1238	0.19	Q	V				
10+50	0.1252	0.19	Q	V				
10+55	0.1265	0.20	Q	V				
11+ 0	0.1279	0.20	Q	V				
11+ 5	0.1292	0.20	Q	V				
11+10	0.1306	0.20	Q	V				
11+15	0.1320	0.20	Q	V				
11+20	0.1334	0.20	Q	V				
11+25	0.1348	0.21	Q	V				
11+30	0.1363	0.21	Q	V				
11+35	0.1377	0.21	Q	V				
11+40	0.1391	0.21	Q	V				
11+45	0.1406	0.21	Q	V				
11+50	0.1421	0.21	Q	V				
11+55	0.1436	0.22	Q	V				
12+ 0	0.1451	0.22	Q	V				
12+ 5	0.1466	0.22	Q	V				
12+10	0.1481	0.22	Q	V				
12+15	0.1497	0.22	Q	V				
12+20	0.1512	0.23	Q	V				
12+25	0.1528	0.23	Q	V				
12+30	0.1544	0.23	Q	V				
12+35	0.1560	0.23	Q	V				
12+40	0.1577	0.24	Q	V				
12+45	0.1593	0.24	Q	V				
12+50	0.1610	0.24	Q	V				
12+55	0.1627	0.25	Q	V				
13+ 0	0.1644	0.25	Q	V				
13+ 5	0.1661	0.25	Q	V				
13+10	0.1679	0.25	Q	V				

13+15	0.1696	0.26	Q		V			
13+20	0.1714	0.26	Q		V			
13+25	0.1733	0.26	Q		V			
13+30	0.1751	0.27	Q		V			
13+35	0.1770	0.27	Q		V			
13+40	0.1789	0.28	Q		V			
13+45	0.1808	0.28	Q		V			
13+50	0.1828	0.28	Q		V			
13+55	0.1848	0.29	Q		V			
14+ 0	0.1868	0.29	Q		V			
14+ 5	0.1889	0.30	Q		V			
14+10	0.1910	0.31	Q		V			
14+15	0.1931	0.31	Q		V			
14+20	0.1953	0.32	Q		V			
14+25	0.1975	0.32	Q		V			
14+30	0.1998	0.33	Q		V			
14+35	0.2021	0.34	Q		V			
14+40	0.2045	0.35	Q		V			
14+45	0.2070	0.35	Q		V			
14+50	0.2095	0.36	Q		V			
14+55	0.2120	0.37	Q		V			
15+ 0	0.2147	0.38	Q		V			
15+ 5	0.2174	0.40	Q		V			
15+10	0.2203	0.41	Q		V			
15+15	0.2232	0.43	Q		V			
15+20	0.2262	0.44	Q		V			
15+25	0.2294	0.46	Q		V			
15+30	0.2325	0.46	Q		V			
15+35	0.2355	0.43	Q		V			
15+40	0.2384	0.41	Q		V			
15+45	0.2413	0.42	Q		V			
15+50	0.2443	0.45	Q		V			
15+55	0.2477	0.49	Q		V			
16+ 0	0.2518	0.59	Q		V			
16+ 5	0.2591	1.06	Q		V			
16+10	0.2748	2.28	Q		V			
16+15	0.3059	4.52	Q		V			
16+20	0.3351	4.23	Q		V			
16+25	0.3529	2.59	Q		V			
16+30	0.3656	1.84	Q		V			
16+35	0.3757	1.47	Q		V			
16+40	0.3841	1.23	Q		V			
16+45	0.3915	1.06	Q		V			
16+50	0.3979	0.94	Q		V			
16+55	0.4035	0.81	Q		V			
17+ 0	0.4085	0.73	Q		V			
17+ 5	0.4131	0.67	Q		V			
17+10	0.4173	0.61	Q		V			
17+15	0.4211	0.56	Q		V			
17+20	0.4246	0.51	Q		V			
17+25	0.4279	0.47	Q		V			
17+30	0.4309	0.43	Q		V			
17+35	0.4336	0.39	Q		V			
17+40	0.4361	0.37	Q		V			
17+45	0.4386	0.36	Q		V			
17+50	0.4411	0.36	Q		V			
17+55	0.4434	0.34	Q		V			
18+ 0	0.4456	0.32	Q		V			
18+ 5	0.4477	0.30	Q		V			
18+10	0.4496	0.29	Q		V			
18+15	0.4514	0.25	Q		V			
18+20	0.4531	0.24	Q		V			
18+25	0.4547	0.24	Q		V			
18+30	0.4563	0.23	Q		V			
18+35	0.4579	0.23	Q		V			
18+40	0.4594	0.22	Q		V			
18+45	0.4609	0.22	Q		V			
18+50	0.4624	0.21	Q		V			
18+55	0.4639	0.21	Q		V			

19+ 0	0.4653	0.21	Q	V
19+ 5	0.4667	0.20	Q	V
19+10	0.4681	0.20	Q	V
19+15	0.4694	0.20	Q	V
19+20	0.4708	0.19	Q	V
19+25	0.4721	0.19	Q	V
19+30	0.4734	0.19	Q	V
19+35	0.4747	0.19	Q	V
19+40	0.4759	0.18	Q	V
19+45	0.4772	0.18	Q	V
19+50	0.4784	0.18	Q	V
19+55	0.4796	0.18	Q	V
20+ 0	0.4808	0.17	Q	V
20+ 5	0.4820	0.17	Q	V
20+10	0.4832	0.17	Q	V
20+15	0.4844	0.17	Q	V
20+20	0.4855	0.17	Q	V
20+25	0.4866	0.17	Q	V
20+30	0.4878	0.16	Q	V
20+35	0.4889	0.16	Q	V
20+40	0.4900	0.16	Q	V
20+45	0.4911	0.16	Q	V
20+50	0.4921	0.16	Q	V
20+55	0.4932	0.16	Q	V
21+ 0	0.4943	0.15	Q	V
21+ 5	0.4953	0.15	Q	V
21+10	0.4964	0.15	Q	V
21+15	0.4974	0.15	Q	V
21+20	0.4984	0.15	Q	V
21+25	0.4994	0.15	Q	V
21+30	0.5004	0.15	Q	V
21+35	0.5014	0.14	Q	V
21+40	0.5024	0.14	Q	V
21+45	0.5034	0.14	Q	V
21+50	0.5044	0.14	Q	V
21+55	0.5054	0.14	Q	V
22+ 0	0.5063	0.14	Q	V
22+ 5	0.5073	0.14	Q	V
22+10	0.5082	0.14	Q	V
22+15	0.5091	0.14	Q	V
22+20	0.5101	0.14	Q	V
22+25	0.5110	0.13	Q	V
22+30	0.5119	0.13	Q	V
22+35	0.5128	0.13	Q	V
22+40	0.5137	0.13	Q	V
22+45	0.5146	0.13	Q	V
22+50	0.5155	0.13	Q	V
22+55	0.5164	0.13	Q	V
23+ 0	0.5173	0.13	Q	V
23+ 5	0.5182	0.13	Q	V
23+10	0.5191	0.13	Q	V
23+15	0.5199	0.13	Q	V
23+20	0.5208	0.13	Q	V
23+25	0.5216	0.12	Q	V
23+30	0.5225	0.12	Q	V
23+35	0.5233	0.12	Q	V
23+40	0.5242	0.12	Q	V
23+45	0.5250	0.12	Q	V
23+50	0.5258	0.12	Q	V
23+55	0.5267	0.12	Q	V
24+ 0	0.5275	0.12	Q	V
24+ 5	0.5283	0.12	Q	V
24+10	0.5290	0.11	Q	V
24+15	0.5296	0.08	Q	V
24+20	0.5300	0.06	Q	V
24+25	0.5303	0.04	Q	V
24+30	0.5305	0.03	Q	V
24+35	0.5307	0.03	Q	V
24+40	0.5308	0.02	Q	V

24+45	0.5309	0.02	Q				V
24+50	0.5310	0.01	Q				V
24+55	0.5311	0.01	Q				V
25+ 0	0.5312	0.01	Q				V
25+ 5	0.5312	0.01	Q				V
25+10	0.5313	0.01	Q				V
25+15	0.5313	0.01	Q				V
25+20	0.5313	0.00	Q				V
25+25	0.5314	0.00	Q				V
25+30	0.5314	0.00	Q				V
25+35	0.5314	0.00	Q				V
25+40	0.5314	0.00	Q				V
25+45	0.5314	0.00	Q				V
25+50	0.5314	0.00	Q				V
25+55	0.5314	0.00	Q				V
26+ 0	0.5314	0.00	Q				V
26+ 5	0.5314	0.00	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

+++++

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
EXISTING CONDITIONS - AREA "A"
25-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 25

Antecedent Moisture Condition = 2

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 10		
4.20	1	0.78

Rainfall data for year 2		
4.20	6	1.13

Rainfall data for year 2		
0.00	24	2.13
4.20	24	2.13

Rainfall data for year 100		
4.20	1	1.30

Rainfall data for year 100		
4.20	6	3.06

Rainfall data for year 100		
4.20	24	6.35

+++++

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 2)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
71.0	71.0	4.20	1.000	0.517	1.000	0.517

Area-averaged adjusted loss rate Fm (In/Hr) = 0.517

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
4.20	1.000	71.0	71.0	4.08	0.413

Area-averaged catchment yield fraction, Y = 0.413

Area-averaged low loss fraction, Yb = 0.587

User entry of time of concentration = 0.340 (hours)

+++++

Watershed area = 4.20(Ac.)

Catchment Lag time = 0.272 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 30.6373

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.517(In/Hr)

Average low loss rate fraction (Yb) = 0.587 (decimal)

DESERT S-Graph Selected

Computed peak 5-minute rainfall = 0.468(In)

Computed peak 30-minute rainfall = 0.802(In)

Specified peak 1-hour rainfall = 0.987(In)

Computed peak 3-hour rainfall = 1.691(In)

Specified peak 6-hour rainfall = 2.376(In)

Specified peak 24-hour rainfall = 4.855(In)

Rainfall depth area reduction factors:

Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.468(In)

30-minute factor = 1.000 Adjusted rainfall = 0.801(In)

1-hour factor = 1.000 Adjusted rainfall = 0.987(In)

3-hour factor = 1.000 Adjusted rainfall = 1.691(In)

6-hour factor = 1.000 Adjusted rainfall = 2.376(In)

24-hour factor = 1.000 Adjusted rainfall = 4.855(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 = 50.79 (CFS))

1	1.819	0.924
2	9.839	4.074
3	32.088	11.301
4	53.408	10.829
5	65.111	5.945
6	72.614	3.811
7	78.031	2.752
8	82.073	2.053
9	85.295	1.637
10	87.971	1.359
11	89.992	1.027
12	91.690	0.862
13	93.147	0.740
14	94.362	0.617
15	95.392	0.523
16	96.247	0.434
17	96.987	0.376
18	97.550	0.286
19	97.968	0.212
20	98.280	0.158
21	98.637	0.181
22	99.004	0.187
23	99.370	0.186
24	99.625	0.129

25	99.816	0.097
26	100.000	0.093

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.4682	0.4682
2	0.5764	0.1082
3	0.6510	0.0746
4	0.7097	0.0587
5	0.7588	0.0491
6	0.8015	0.0427
7	0.8394	0.0379
8	0.8737	0.0343
9	0.9051	0.0314
10	0.9342	0.0291
11	0.9613	0.0271
12	0.9867	0.0254
13	1.0262	0.0395
14	1.0642	0.0380
15	1.1009	0.0366
16	1.1363	0.0354
17	1.1706	0.0343
18	1.2039	0.0333
19	1.2362	0.0324
20	1.2677	0.0315
21	1.2984	0.0307
22	1.3284	0.0300
23	1.3577	0.0293
24	1.3863	0.0286
25	1.4143	0.0280
26	1.4418	0.0275
27	1.4688	0.0269
28	1.4952	0.0264
29	1.5212	0.0260
30	1.5467	0.0255
31	1.5717	0.0251
32	1.5964	0.0247
33	1.6207	0.0243
34	1.6446	0.0239
35	1.6681	0.0236
36	1.6914	0.0232
37	1.7142	0.0229
38	1.7368	0.0226
39	1.7591	0.0223
40	1.7810	0.0220
41	1.8027	0.0217
42	1.8242	0.0214
43	1.8453	0.0212
44	1.8663	0.0209
45	1.8869	0.0207
46	1.9074	0.0204
47	1.9276	0.0202
48	1.9476	0.0200
49	1.9674	0.0198
50	1.9870	0.0196
51	2.0064	0.0194
52	2.0256	0.0192
53	2.0446	0.0190
54	2.0634	0.0188
55	2.0821	0.0187
56	2.1005	0.0185
57	2.1189	0.0183
58	2.1370	0.0181
59	2.1550	0.0180
60	2.1728	0.0178
61	2.1905	0.0177
62	2.2080	0.0175
63	2.2254	0.0174
64	2.2427	0.0173

65	2.2598	0.0171
66	2.2768	0.0170
67	2.2936	0.0169
68	2.3104	0.0167
69	2.3270	0.0166
70	2.3434	0.0165
71	2.3598	0.0164
72	2.3760	0.0162
73	2.3930	0.0170
74	2.4098	0.0168
75	2.4266	0.0167
76	2.4432	0.0166
77	2.4597	0.0165
78	2.4761	0.0164
79	2.4924	0.0163
80	2.5086	0.0162
81	2.5247	0.0161
82	2.5408	0.0160
83	2.5567	0.0159
84	2.5725	0.0158
85	2.5882	0.0157
86	2.6039	0.0156
87	2.6195	0.0156
88	2.6349	0.0155
89	2.6503	0.0154
90	2.6656	0.0153
91	2.6809	0.0152
92	2.6960	0.0151
93	2.7111	0.0151
94	2.7260	0.0150
95	2.7410	0.0149
96	2.7558	0.0148
97	2.7705	0.0148
98	2.7852	0.0147
99	2.7998	0.0146
100	2.8144	0.0145
101	2.8289	0.0145
102	2.8433	0.0144
103	2.8576	0.0143
104	2.8718	0.0143
105	2.8860	0.0142
106	2.9002	0.0141
107	2.9143	0.0141
108	2.9283	0.0140
109	2.9422	0.0139
110	2.9561	0.0139
111	2.9699	0.0138
112	2.9837	0.0138
113	2.9974	0.0137
114	3.0110	0.0136
115	3.0246	0.0136
116	3.0381	0.0135
117	3.0516	0.0135
118	3.0650	0.0134
119	3.0784	0.0134
120	3.0917	0.0133
121	3.1049	0.0133
122	3.1181	0.0132
123	3.1313	0.0131
124	3.1444	0.0131
125	3.1574	0.0130
126	3.1704	0.0130
127	3.1833	0.0129
128	3.1962	0.0129
129	3.2091	0.0128
130	3.2219	0.0128
131	3.2346	0.0127
132	3.2473	0.0127
133	3.2600	0.0127

134	3.2726	0.0126
135	3.2852	0.0126
136	3.2977	0.0125
137	3.3101	0.0125
138	3.3226	0.0124
139	3.3350	0.0124
140	3.3473	0.0123
141	3.3596	0.0123
142	3.3719	0.0123
143	3.3841	0.0122
144	3.3963	0.0122
145	3.4084	0.0121
146	3.4205	0.0121
147	3.4325	0.0121
148	3.4446	0.0120
149	3.4565	0.0120
150	3.4685	0.0119
151	3.4804	0.0119
152	3.4922	0.0119
153	3.5041	0.0118
154	3.5158	0.0118
155	3.5276	0.0117
156	3.5393	0.0117
157	3.5510	0.0117
158	3.5626	0.0116
159	3.5742	0.0116
160	3.5858	0.0116
161	3.5973	0.0115
162	3.6088	0.0115
163	3.6203	0.0115
164	3.6317	0.0114
165	3.6431	0.0114
166	3.6545	0.0114
167	3.6658	0.0113
168	3.6771	0.0113
169	3.6884	0.0113
170	3.6996	0.0112
171	3.7108	0.0112
172	3.7220	0.0112
173	3.7331	0.0111
174	3.7442	0.0111
175	3.7553	0.0111
176	3.7663	0.0110
177	3.7773	0.0110
178	3.7883	0.0110
179	3.7993	0.0110
180	3.8102	0.0109
181	3.8211	0.0109
182	3.8320	0.0109
183	3.8428	0.0108
184	3.8536	0.0108
185	3.8644	0.0108
186	3.8751	0.0108
187	3.8859	0.0107
188	3.8966	0.0107
189	3.9072	0.0107
190	3.9179	0.0106
191	3.9285	0.0106
192	3.9391	0.0106
193	3.9496	0.0106
194	3.9602	0.0105
195	3.9707	0.0105
196	3.9811	0.0105
197	3.9916	0.0105
198	4.0020	0.0104
199	4.0124	0.0104
200	4.0228	0.0104
201	4.0332	0.0104
202	4.0435	0.0103

203	4.0538	0.0103
204	4.0641	0.0103
205	4.0743	0.0103
206	4.0846	0.0102
207	4.0948	0.0102
208	4.1050	0.0102
209	4.1151	0.0102
210	4.1253	0.0101
211	4.1354	0.0101
212	4.1455	0.0101
213	4.1555	0.0101
214	4.1656	0.0100
215	4.1756	0.0100
216	4.1856	0.0100
217	4.1956	0.0100
218	4.2055	0.0100
219	4.2154	0.0099
220	4.2254	0.0099
221	4.2352	0.0099
222	4.2451	0.0099
223	4.2550	0.0098
224	4.2648	0.0098
225	4.2746	0.0098
226	4.2844	0.0098
227	4.2941	0.0098
228	4.3039	0.0097
229	4.3136	0.0097
230	4.3233	0.0097
231	4.3330	0.0097
232	4.3426	0.0097
233	4.3522	0.0096
234	4.3619	0.0096
235	4.3715	0.0096
236	4.3810	0.0096
237	4.3906	0.0096
238	4.4001	0.0095
239	4.4097	0.0095
240	4.4192	0.0095
241	4.4286	0.0095
242	4.4381	0.0095
243	4.4475	0.0094
244	4.4570	0.0094
245	4.4664	0.0094
246	4.4758	0.0094
247	4.4851	0.0094
248	4.4945	0.0093
249	4.5038	0.0093
250	4.5131	0.0093
251	4.5224	0.0093
252	4.5317	0.0093
253	4.5409	0.0093
254	4.5502	0.0092
255	4.5594	0.0092
256	4.5686	0.0092
257	4.5778	0.0092
258	4.5870	0.0092
259	4.5961	0.0092
260	4.6053	0.0091
261	4.6144	0.0091
262	4.6235	0.0091
263	4.6326	0.0091
264	4.6417	0.0091
265	4.6507	0.0091
266	4.6597	0.0090
267	4.6688	0.0090
268	4.6778	0.0090
269	4.6868	0.0090
270	4.6957	0.0090
271	4.7047	0.0090

272	4.7136	0.0089
273	4.7225	0.0089
274	4.7315	0.0089
275	4.7403	0.0089
276	4.7492	0.0089
277	4.7581	0.0089
278	4.7669	0.0088
279	4.7758	0.0088
280	4.7846	0.0088
281	4.7934	0.0088
282	4.8022	0.0088
283	4.8109	0.0088
284	4.8197	0.0088
285	4.8284	0.0087
286	4.8371	0.0087
287	4.8458	0.0087
288	4.8545	0.0087

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0087	0.0051	0.0036
2	0.0087	0.0051	0.0036
3	0.0087	0.0051	0.0036
4	0.0088	0.0051	0.0036
5	0.0088	0.0052	0.0036
6	0.0088	0.0052	0.0036
7	0.0088	0.0052	0.0037
8	0.0088	0.0052	0.0037
9	0.0089	0.0052	0.0037
10	0.0089	0.0052	0.0037
11	0.0089	0.0052	0.0037
12	0.0089	0.0052	0.0037
13	0.0090	0.0053	0.0037
14	0.0090	0.0053	0.0037
15	0.0090	0.0053	0.0037
16	0.0090	0.0053	0.0037
17	0.0091	0.0053	0.0038
18	0.0091	0.0053	0.0038
19	0.0091	0.0053	0.0038
20	0.0091	0.0054	0.0038
21	0.0092	0.0054	0.0038
22	0.0092	0.0054	0.0038
23	0.0092	0.0054	0.0038
24	0.0092	0.0054	0.0038
25	0.0093	0.0054	0.0038
26	0.0093	0.0055	0.0038
27	0.0093	0.0055	0.0039
28	0.0093	0.0055	0.0039
29	0.0094	0.0055	0.0039
30	0.0094	0.0055	0.0039
31	0.0094	0.0055	0.0039
32	0.0095	0.0055	0.0039
33	0.0095	0.0056	0.0039
34	0.0095	0.0056	0.0039
35	0.0096	0.0056	0.0040
36	0.0096	0.0056	0.0040
37	0.0096	0.0056	0.0040
38	0.0096	0.0057	0.0040
39	0.0097	0.0057	0.0040
40	0.0097	0.0057	0.0040
41	0.0097	0.0057	0.0040
42	0.0098	0.0057	0.0040
43	0.0098	0.0057	0.0041
44	0.0098	0.0058	0.0041
45	0.0099	0.0058	0.0041
46	0.0099	0.0058	0.0041
47	0.0099	0.0058	0.0041

48	0.0100	0.0058	0.0041
49	0.0100	0.0059	0.0041
50	0.0100	0.0059	0.0041
51	0.0101	0.0059	0.0042
52	0.0101	0.0059	0.0042
53	0.0101	0.0059	0.0042
54	0.0102	0.0060	0.0042
55	0.0102	0.0060	0.0042
56	0.0102	0.0060	0.0042
57	0.0103	0.0060	0.0043
58	0.0103	0.0060	0.0043
59	0.0104	0.0061	0.0043
60	0.0104	0.0061	0.0043
61	0.0104	0.0061	0.0043
62	0.0105	0.0061	0.0043
63	0.0105	0.0062	0.0043
64	0.0105	0.0062	0.0044
65	0.0106	0.0062	0.0044
66	0.0106	0.0062	0.0044
67	0.0107	0.0063	0.0044
68	0.0107	0.0063	0.0044
69	0.0108	0.0063	0.0044
70	0.0108	0.0063	0.0045
71	0.0108	0.0064	0.0045
72	0.0109	0.0064	0.0045
73	0.0109	0.0064	0.0045
74	0.0110	0.0064	0.0045
75	0.0110	0.0065	0.0046
76	0.0110	0.0065	0.0046
77	0.0111	0.0065	0.0046
78	0.0111	0.0065	0.0046
79	0.0112	0.0066	0.0046
80	0.0112	0.0066	0.0046
81	0.0113	0.0066	0.0047
82	0.0113	0.0066	0.0047
83	0.0114	0.0067	0.0047
84	0.0114	0.0067	0.0047
85	0.0115	0.0067	0.0048
86	0.0115	0.0068	0.0048
87	0.0116	0.0068	0.0048
88	0.0116	0.0068	0.0048
89	0.0117	0.0069	0.0048
90	0.0117	0.0069	0.0049
91	0.0118	0.0069	0.0049
92	0.0119	0.0070	0.0049
93	0.0119	0.0070	0.0049
94	0.0120	0.0070	0.0050
95	0.0121	0.0071	0.0050
96	0.0121	0.0071	0.0050
97	0.0122	0.0071	0.0050
98	0.0122	0.0072	0.0051
99	0.0123	0.0072	0.0051
100	0.0123	0.0072	0.0051
101	0.0124	0.0073	0.0051
102	0.0125	0.0073	0.0052
103	0.0126	0.0074	0.0052
104	0.0126	0.0074	0.0052
105	0.0127	0.0075	0.0053
106	0.0127	0.0075	0.0053
107	0.0128	0.0075	0.0053
108	0.0129	0.0076	0.0053
109	0.0130	0.0076	0.0054
110	0.0130	0.0077	0.0054
111	0.0131	0.0077	0.0054
112	0.0132	0.0077	0.0055
113	0.0133	0.0078	0.0055
114	0.0134	0.0078	0.0055
115	0.0135	0.0079	0.0056
116	0.0135	0.0079	0.0056

117	0.0136	0.0080	0.0056
118	0.0137	0.0080	0.0057
119	0.0138	0.0081	0.0057
120	0.0139	0.0081	0.0057
121	0.0140	0.0082	0.0058
122	0.0141	0.0083	0.0058
123	0.0142	0.0083	0.0059
124	0.0143	0.0084	0.0059
125	0.0144	0.0084	0.0060
126	0.0145	0.0085	0.0060
127	0.0146	0.0086	0.0060
128	0.0147	0.0086	0.0061
129	0.0148	0.0087	0.0061
130	0.0149	0.0087	0.0062
131	0.0151	0.0088	0.0062
132	0.0151	0.0089	0.0063
133	0.0153	0.0090	0.0063
134	0.0154	0.0090	0.0064
135	0.0156	0.0091	0.0064
136	0.0156	0.0092	0.0065
137	0.0158	0.0093	0.0065
138	0.0159	0.0093	0.0066
139	0.0161	0.0095	0.0067
140	0.0162	0.0095	0.0067
141	0.0164	0.0096	0.0068
142	0.0165	0.0097	0.0068
143	0.0167	0.0098	0.0069
144	0.0168	0.0099	0.0070
145	0.0162	0.0095	0.0067
146	0.0164	0.0096	0.0068
147	0.0166	0.0097	0.0069
148	0.0167	0.0098	0.0069
149	0.0170	0.0100	0.0070
150	0.0171	0.0100	0.0071
151	0.0174	0.0102	0.0072
152	0.0175	0.0103	0.0073
153	0.0178	0.0105	0.0074
154	0.0180	0.0106	0.0074
155	0.0183	0.0107	0.0076
156	0.0185	0.0108	0.0076
157	0.0188	0.0110	0.0078
158	0.0190	0.0111	0.0079
159	0.0194	0.0114	0.0080
160	0.0196	0.0115	0.0081
161	0.0200	0.0117	0.0083
162	0.0202	0.0119	0.0084
163	0.0207	0.0121	0.0086
164	0.0209	0.0123	0.0087
165	0.0214	0.0126	0.0089
166	0.0217	0.0127	0.0090
167	0.0223	0.0131	0.0092
168	0.0226	0.0132	0.0093
169	0.0232	0.0136	0.0096
170	0.0236	0.0138	0.0097
171	0.0243	0.0142	0.0100
172	0.0247	0.0145	0.0102
173	0.0255	0.0150	0.0105
174	0.0260	0.0152	0.0107
175	0.0269	0.0158	0.0111
176	0.0275	0.0161	0.0114
177	0.0286	0.0168	0.0118
178	0.0293	0.0172	0.0121
179	0.0307	0.0180	0.0127
180	0.0315	0.0185	0.0130
181	0.0333	0.0195	0.0138
182	0.0343	0.0201	0.0142
183	0.0366	0.0215	0.0151
184	0.0380	0.0223	0.0157
185	0.0254	0.0149	0.0105

186	0.0271	0.0159	0.0112
187	0.0314	0.0184	0.0130
188	0.0343	0.0201	0.0142
189	0.0427	0.0250	0.0176
190	0.0491	0.0288	0.0203
191	0.0746	0.0431	0.0315
192	0.1082	0.0431	0.0652
193	0.4682	0.0431	0.4251
194	0.0587	0.0344	0.0243
195	0.0379	0.0223	0.0157
196	0.0291	0.0170	0.0120
197	0.0395	0.0232	0.0163
198	0.0354	0.0208	0.0146
199	0.0324	0.0190	0.0134
200	0.0300	0.0176	0.0124
201	0.0280	0.0164	0.0116
202	0.0264	0.0155	0.0109
203	0.0251	0.0147	0.0104
204	0.0239	0.0140	0.0099
205	0.0229	0.0134	0.0095
206	0.0220	0.0129	0.0091
207	0.0212	0.0124	0.0088
208	0.0204	0.0120	0.0085
209	0.0198	0.0116	0.0082
210	0.0192	0.0113	0.0079
211	0.0187	0.0109	0.0077
212	0.0181	0.0106	0.0075
213	0.0177	0.0104	0.0073
214	0.0173	0.0101	0.0071
215	0.0169	0.0099	0.0070
216	0.0165	0.0097	0.0068
217	0.0170	0.0099	0.0070
218	0.0166	0.0097	0.0069
219	0.0163	0.0096	0.0067
220	0.0160	0.0094	0.0066
221	0.0157	0.0092	0.0065
222	0.0155	0.0091	0.0064
223	0.0152	0.0089	0.0063
224	0.0150	0.0088	0.0062
225	0.0148	0.0087	0.0061
226	0.0145	0.0085	0.0060
227	0.0143	0.0084	0.0059
228	0.0141	0.0083	0.0058
229	0.0139	0.0082	0.0058
230	0.0138	0.0081	0.0057
231	0.0136	0.0080	0.0056
232	0.0134	0.0079	0.0055
233	0.0133	0.0078	0.0055
234	0.0131	0.0077	0.0054
235	0.0129	0.0076	0.0054
236	0.0128	0.0075	0.0053
237	0.0127	0.0074	0.0052
238	0.0125	0.0073	0.0052
239	0.0124	0.0073	0.0051
240	0.0123	0.0072	0.0051
241	0.0121	0.0071	0.0050
242	0.0120	0.0070	0.0050
243	0.0119	0.0070	0.0049
244	0.0118	0.0069	0.0049
245	0.0117	0.0068	0.0048
246	0.0116	0.0068	0.0048
247	0.0115	0.0067	0.0047
248	0.0114	0.0067	0.0047
249	0.0113	0.0066	0.0047
250	0.0112	0.0066	0.0046
251	0.0111	0.0065	0.0046
252	0.0110	0.0064	0.0045
253	0.0109	0.0064	0.0045
254	0.0108	0.0063	0.0045

255	0.0107	0.0063	0.0044
256	0.0106	0.0062	0.0044
257	0.0106	0.0062	0.0044
258	0.0105	0.0061	0.0043
259	0.0104	0.0061	0.0043
260	0.0103	0.0061	0.0043
261	0.0103	0.0060	0.0042
262	0.0102	0.0060	0.0042
263	0.0101	0.0059	0.0042
264	0.0100	0.0059	0.0042
265	0.0100	0.0059	0.0041
266	0.0099	0.0058	0.0041
267	0.0098	0.0058	0.0041
268	0.0098	0.0057	0.0040
269	0.0097	0.0057	0.0040
270	0.0097	0.0057	0.0040
271	0.0096	0.0056	0.0040
272	0.0095	0.0056	0.0039
273	0.0095	0.0056	0.0039
274	0.0094	0.0055	0.0039
275	0.0094	0.0055	0.0039
276	0.0093	0.0055	0.0039
277	0.0093	0.0054	0.0038
278	0.0092	0.0054	0.0038
279	0.0092	0.0054	0.0038
280	0.0091	0.0053	0.0038
281	0.0091	0.0053	0.0037
282	0.0090	0.0053	0.0037
283	0.0090	0.0053	0.0037
284	0.0089	0.0052	0.0037
285	0.0089	0.0052	0.0037
286	0.0088	0.0052	0.0036
287	0.0088	0.0051	0.0036
288	0.0087	0.0051	0.0036

Total soil rain loss = 2.59(In)
Total effective rainfall = 2.26(In)
Peak flow rate in flood hydrograph = 6.08(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	0.0006	0.06	Q					
0+20	0.0012	0.10	Q					
0+25	0.0020	0.12	Q					
0+30	0.0030	0.13	Q					
0+35	0.0040	0.14	Q					
0+40	0.0050	0.15	Q					
0+45	0.0061	0.16	Q					
0+50	0.0072	0.16	Q					
0+55	0.0083	0.17	Q					
1+ 0	0.0095	0.17	Q					
1+ 5	0.0107	0.17	Q					
1+10	0.0119	0.18	Q					
1+15	0.0132	0.18	Q					
1+20	0.0144	0.18	Q					
1+25	0.0157	0.18	Q					
1+30	0.0169	0.18	Q					
1+35	0.0182	0.19	Q					
1+40	0.0195	0.19	Q					

1+45	0.0208	0.19	QV				
1+50	0.0221	0.19	QV				
1+55	0.0234	0.19	QV				
2+ 0	0.0247	0.19	QV				
2+ 5	0.0260	0.19	QV				
2+10	0.0274	0.19	QV				
2+15	0.0287	0.19	QV				
2+20	0.0300	0.19	QV				
2+25	0.0314	0.19	QV				
2+30	0.0327	0.19	QV				
2+35	0.0340	0.20	QV				
2+40	0.0354	0.20	QV				
2+45	0.0367	0.20	QV				
2+50	0.0381	0.20	QV				
2+55	0.0395	0.20	QV				
3+ 0	0.0408	0.20	Q V				
3+ 5	0.0422	0.20	Q V				
3+10	0.0436	0.20	Q V				
3+15	0.0450	0.20	Q V				
3+20	0.0463	0.20	Q V				
3+25	0.0477	0.20	Q V				
3+30	0.0491	0.20	Q V				
3+35	0.0505	0.20	Q V				
3+40	0.0519	0.20	Q V				
3+45	0.0533	0.20	Q V				
3+50	0.0547	0.20	Q V				
3+55	0.0561	0.21	Q V				
4+ 0	0.0576	0.21	Q V				
4+ 5	0.0590	0.21	Q V				
4+10	0.0604	0.21	Q V				
4+15	0.0618	0.21	Q V				
4+20	0.0633	0.21	Q V				
4+25	0.0647	0.21	Q V				
4+30	0.0662	0.21	Q V				
4+35	0.0676	0.21	Q V				
4+40	0.0691	0.21	Q V				
4+45	0.0705	0.21	Q V				
4+50	0.0720	0.21	Q V				
4+55	0.0735	0.21	Q V				
5+ 0	0.0750	0.21	Q V				
5+ 5	0.0764	0.22	Q V				
5+10	0.0779	0.22	Q V				
5+15	0.0794	0.22	Q V				
5+20	0.0809	0.22	Q V				
5+25	0.0824	0.22	Q V				
5+30	0.0839	0.22	Q V				
5+35	0.0854	0.22	Q V				
5+40	0.0870	0.22	Q V				
5+45	0.0885	0.22	Q V				
5+50	0.0900	0.22	Q V				
5+55	0.0916	0.22	Q V				
6+ 0	0.0931	0.22	Q V				
6+ 5	0.0946	0.23	Q V				
6+10	0.0962	0.23	Q V				
6+15	0.0978	0.23	Q V				
6+20	0.0993	0.23	Q V				
6+25	0.1009	0.23	Q V				
6+30	0.1025	0.23	Q V				
6+35	0.1041	0.23	Q V				
6+40	0.1057	0.23	Q V				
6+45	0.1073	0.23	Q V				
6+50	0.1089	0.23	Q V				
6+55	0.1105	0.23	Q V				
7+ 0	0.1121	0.24	Q V				
7+ 5	0.1137	0.24	Q V				
7+10	0.1154	0.24	Q V				
7+15	0.1170	0.24	Q V				
7+20	0.1187	0.24	Q V				
7+25	0.1203	0.24	Q V				

7+30	0.1220	0.24	Q	V				
7+35	0.1237	0.24	Q	V				
7+40	0.1253	0.24	Q	V				
7+45	0.1270	0.24	Q	V				
7+50	0.1287	0.25	Q	V				
7+55	0.1304	0.25	Q	V				
8+ 0	0.1321	0.25	Q	V				
8+ 5	0.1338	0.25	Q	V				
8+10	0.1356	0.25	Q	V				
8+15	0.1373	0.25	Q	V				
8+20	0.1391	0.25	Q	V				
8+25	0.1408	0.25	Q	V				
8+30	0.1426	0.26	Q	V				
8+35	0.1443	0.26	Q	V				
8+40	0.1461	0.26	Q	V				
8+45	0.1479	0.26	Q	V				
8+50	0.1497	0.26	Q	V				
8+55	0.1515	0.26	Q	V				
9+ 0	0.1533	0.26	Q	V				
9+ 5	0.1552	0.27	Q	V				
9+10	0.1570	0.27	Q	V				
9+15	0.1589	0.27	Q	V				
9+20	0.1607	0.27	Q	V				
9+25	0.1626	0.27	Q	V				
9+30	0.1645	0.27	Q	V				
9+35	0.1664	0.27	Q	V				
9+40	0.1683	0.28	Q	V				
9+45	0.1702	0.28	Q	V				
9+50	0.1721	0.28	Q	V				
9+55	0.1740	0.28	Q	V				
10+ 0	0.1760	0.28	Q	V				
10+ 5	0.1780	0.28	Q	V				
10+10	0.1799	0.29	Q	V				
10+15	0.1819	0.29	Q	V				
10+20	0.1839	0.29	Q	V				
10+25	0.1859	0.29	Q	V				
10+30	0.1880	0.29	Q	V				
10+35	0.1900	0.30	Q	V				
10+40	0.1921	0.30	Q	V				
10+45	0.1941	0.30	Q	V				
10+50	0.1962	0.30	Q	V				
10+55	0.1983	0.31	Q	V				
11+ 0	0.2004	0.31	Q	V				
11+ 5	0.2026	0.31	Q	V				
11+10	0.2047	0.31	Q	V				
11+15	0.2069	0.31	Q	V				
11+20	0.2091	0.32	Q	V				
11+25	0.2113	0.32	Q	V				
11+30	0.2135	0.32	Q	V				
11+35	0.2157	0.32	Q	V				
11+40	0.2180	0.33	Q	V				
11+45	0.2202	0.33	Q	V				
11+50	0.2225	0.33	Q	V				
11+55	0.2248	0.34	Q	V				
12+ 0	0.2272	0.34	Q	V				
12+ 5	0.2295	0.34	Q	V				
12+10	0.2319	0.34	Q	V				
12+15	0.2343	0.34	Q	V				
12+20	0.2366	0.34	Q	V				
12+25	0.2390	0.34	Q	V				
12+30	0.2414	0.35	Q	V				
12+35	0.2438	0.35	Q	V				
12+40	0.2462	0.35	Q	V				
12+45	0.2487	0.36	Q	V				
12+50	0.2512	0.36	Q	V				
12+55	0.2537	0.36	Q	V				
13+ 0	0.2562	0.37	Q	V				
13+ 5	0.2588	0.37	Q	V				
13+10	0.2614	0.38	Q	V				

13+15	0.2640	0.38	Q		V				
13+20	0.2667	0.39	Q		V				
13+25	0.2694	0.39	Q		V				
13+30	0.2721	0.40	Q		V				
13+35	0.2749	0.40	Q		V				
13+40	0.2777	0.41	Q		V				
13+45	0.2806	0.42	Q		V				
13+50	0.2835	0.42	Q		V				
13+55	0.2864	0.43	Q		V				
14+ 0	0.2894	0.44	Q		V				
14+ 5	0.2925	0.45	Q		V				
14+10	0.2956	0.45	Q		V				
14+15	0.2988	0.46	Q		V				
14+20	0.3021	0.47	Q		V				
14+25	0.3054	0.48	Q		V				
14+30	0.3088	0.49	Q		V				
14+35	0.3122	0.50	Q		V				
14+40	0.3158	0.52	Q		V				
14+45	0.3194	0.53	Q		V				
14+50	0.3232	0.54	Q		V				
14+55	0.3270	0.56	Q		V				
15+ 0	0.3310	0.58	Q		V				
15+ 5	0.3351	0.59	Q		V				
15+10	0.3393	0.61	Q		V				
15+15	0.3437	0.64	Q		V				
15+20	0.3483	0.66	Q		V				
15+25	0.3530	0.69	Q		V				
15+30	0.3577	0.69	Q		V				
15+35	0.3623	0.66	Q		V				
15+40	0.3666	0.63	Q		V				
15+45	0.3710	0.64	Q		V				
15+50	0.3758	0.68	Q		V				
15+55	0.3810	0.76	Q		V				
16+ 0	0.3873	0.92	Q		V				
16+ 5	0.3981	1.57	Q	Q	V				
16+10	0.4202	3.20		Q	V				
16+15	0.4620	6.08			VQ				
16+20	0.5011	5.67			Q	V			
16+25	0.5254	3.53		Q	V	V			
16+30	0.5429	2.53		Q	V	V			
16+35	0.5569	2.04		Q	V	V			
16+40	0.5688	1.72		Q	V	V			
16+45	0.5791	1.50		Q	V	V			
16+50	0.5883	1.33		Q	V	V			
16+55	0.5962	1.15		Q	V	V			
17+ 0	0.6034	1.04		Q	V	V			
17+ 5	0.6099	0.96		Q	V	V			
17+10	0.6159	0.87		Q	V	V			
17+15	0.6215	0.80		Q	V	V			
17+20	0.6265	0.74		Q	V	V			
17+25	0.6312	0.69		Q	V	V			
17+30	0.6355	0.62		Q	V	V			
17+35	0.6395	0.57		Q	V	V			
17+40	0.6432	0.54		Q	V	V			
17+45	0.6468	0.53		Q	V	V			
17+50	0.6504	0.52		Q	V	V			
17+55	0.6539	0.50		Q	V	V			
18+ 0	0.6570	0.46		Q	V	V			
18+ 5	0.6600	0.44		Q	V	V			
18+10	0.6629	0.42		Q	V	V			
18+15	0.6655	0.38		Q	V	V			
18+20	0.6681	0.37		Q	V	V			
18+25	0.6706	0.36		Q	V	V			
18+30	0.6731	0.36		Q	V	V			
18+35	0.6755	0.35		Q	V	V			
18+40	0.6778	0.34		Q	V	V			
18+45	0.6802	0.34		Q	V	V			
18+50	0.6824	0.33		Q	V	V			
18+55	0.6847	0.33		Q	V	V			

19+ 0	0.6869	0.32	Q	V
19+ 5	0.6891	0.32	Q	V
19+10	0.6912	0.31	Q	V
19+15	0.6933	0.31	Q	V
19+20	0.6954	0.30	Q	V
19+25	0.6974	0.30	Q	V
19+30	0.6995	0.29	Q	V
19+35	0.7015	0.29	Q	V
19+40	0.7034	0.29	Q	V
19+45	0.7054	0.28	Q	V
19+50	0.7073	0.28	Q	V
19+55	0.7092	0.28	Q	V
20+ 0	0.7111	0.27	Q	V
20+ 5	0.7129	0.27	Q	V
20+10	0.7148	0.27	Q	V
20+15	0.7166	0.26	Q	V
20+20	0.7184	0.26	Q	V
20+25	0.7202	0.26	Q	V
20+30	0.7219	0.26	Q	V
20+35	0.7237	0.25	Q	V
20+40	0.7254	0.25	Q	V
20+45	0.7271	0.25	Q	V
20+50	0.7288	0.25	Q	V
20+55	0.7304	0.24	Q	V
21+ 0	0.7321	0.24	Q	V
21+ 5	0.7338	0.24	Q	V
21+10	0.7354	0.24	Q	V
21+15	0.7370	0.23	Q	V
21+20	0.7386	0.23	Q	V
21+25	0.7402	0.23	Q	V
21+30	0.7418	0.23	Q	V
21+35	0.7433	0.23	Q	V
21+40	0.7449	0.23	Q	V
21+45	0.7464	0.22	Q	V
21+50	0.7480	0.22	Q	V
21+55	0.7495	0.22	Q	V
22+ 0	0.7510	0.22	Q	V
22+ 5	0.7525	0.22	Q	V
22+10	0.7540	0.22	Q	V
22+15	0.7554	0.21	Q	V
22+20	0.7569	0.21	Q	V
22+25	0.7583	0.21	Q	V
22+30	0.7598	0.21	Q	V
22+35	0.7612	0.21	Q	V
22+40	0.7626	0.21	Q	V
22+45	0.7641	0.21	Q	V
22+50	0.7655	0.20	Q	V
22+55	0.7669	0.20	Q	V
23+ 0	0.7683	0.20	Q	V
23+ 5	0.7696	0.20	Q	V
23+10	0.7710	0.20	Q	V
23+15	0.7724	0.20	Q	V
23+20	0.7737	0.20	Q	V
23+25	0.7751	0.20	Q	V
23+30	0.7764	0.19	Q	V
23+35	0.7777	0.19	Q	V
23+40	0.7791	0.19	Q	V
23+45	0.7804	0.19	Q	V
23+50	0.7817	0.19	Q	V
23+55	0.7830	0.19	Q	V
24+ 0	0.7843	0.19	Q	V
24+ 5	0.7856	0.18	Q	V
24+10	0.7867	0.17	Q	V
24+15	0.7876	0.13	Q	V
24+20	0.7882	0.09	Q	V
24+25	0.7886	0.07	Q	V
24+30	0.7890	0.05	Q	V
24+35	0.7893	0.04	Q	V
24+40	0.7895	0.03	Q	V

24+45	0.7897	0.03	Q				V
24+50	0.7899	0.02	Q				V
24+55	0.7900	0.02	Q				V
25+ 0	0.7901	0.02	Q				V
25+ 5	0.7902	0.01	Q				V
25+10	0.7903	0.01	Q				V
25+15	0.7903	0.01	Q				V
25+20	0.7904	0.01	Q				V
25+25	0.7904	0.01	Q				V
25+30	0.7904	0.00	Q				V
25+35	0.7905	0.00	Q				V
25+40	0.7905	0.00	Q				V
25+45	0.7905	0.00	Q				V
25+50	0.7905	0.00	Q				V
25+55	0.7905	0.00	Q				V
26+ 0	0.7905	0.00	Q				V
26+ 5	0.7905	0.00	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
EXISTING CONDITIONS - AREA "A"
100-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 100

Antecedent Moisture Condition = 2

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 10		
4.20	1	0.78

Rainfall data for year 2		
4.20	6	1.13

Rainfall data for year 2		
0.00	24	2.13
4.20	24	2.13

Rainfall data for year 100		
4.20	1	1.30

Rainfall data for year 100		
4.20	6	3.06

Rainfall data for year 100		
4.20	24	6.35

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 2)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
71.0	71.0	4.20	1.000	0.517	1.000	0.517

Area-averaged adjusted loss rate Fm (In/Hr) = 0.517

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
4.20	1.000	71.0	71.0	4.08	0.501

Area-averaged catchment yield fraction, Y = 0.501

Area-averaged low loss fraction, Yb = 0.499

User entry of time of concentration = 0.340 (hours)

+++++

Watershed area = 4.20(Ac.)

Catchment Lag time = 0.272 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 30.6373

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.517(In/Hr)

Average low loss rate fraction (Yb) = 0.499 (decimal)

DESERT S-Graph Selected

Computed peak 5-minute rainfall = 0.617(In)

Computed peak 30-minute rainfall = 1.056(In)

Specified peak 1-hour rainfall = 1.300(In)

Computed peak 3-hour rainfall = 2.197(In)

Specified peak 6-hour rainfall = 3.060(In)

Specified peak 24-hour rainfall = 6.350(In)

Rainfall depth area reduction factors:

Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.617(In)

30-minute factor = 1.000 Adjusted rainfall = 1.056(In)

1-hour factor = 1.000 Adjusted rainfall = 1.300(In)

3-hour factor = 1.000 Adjusted rainfall = 2.197(In)

6-hour factor = 1.000 Adjusted rainfall = 3.060(In)

24-hour factor = 1.000 Adjusted rainfall = 6.350(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 = 50.79 (CFS))

1	1.819	0.924
2	9.839	4.074
3	32.088	11.301
4	53.408	10.829
5	65.111	5.945
6	72.614	3.811
7	78.031	2.752
8	82.073	2.053
9	85.295	1.637
10	87.971	1.359
11	89.992	1.027
12	91.690	0.862
13	93.147	0.740
14	94.362	0.617
15	95.392	0.523
16	96.247	0.434
17	96.987	0.376
18	97.550	0.286
19	97.968	0.212
20	98.280	0.158
21	98.637	0.181
22	99.004	0.187
23	99.370	0.186
24	99.625	0.129

25	99.816	0.097
26	100.000	0.093

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6167	0.6167
2	0.7593	0.1426
3	0.8575	0.0982
4	0.9348	0.0773
5	0.9995	0.0647
6	1.0557	0.0562
7	1.1057	0.0500
8	1.1509	0.0452
9	1.1923	0.0414
10	1.2306	0.0383
11	1.2663	0.0357
12	1.2997	0.0335
13	1.3504	0.0507
14	1.3991	0.0487
15	1.4460	0.0469
16	1.4913	0.0453
17	1.5352	0.0438
18	1.5777	0.0425
19	1.6190	0.0413
20	1.6591	0.0402
21	1.6983	0.0391
22	1.7365	0.0382
23	1.7738	0.0373
24	1.8102	0.0364
25	1.8459	0.0357
26	1.8808	0.0349
27	1.9150	0.0342
28	1.9486	0.0336
29	1.9816	0.0330
30	2.0139	0.0324
31	2.0457	0.0318
32	2.0770	0.0313
33	2.1078	0.0308
34	2.1381	0.0303
35	2.1679	0.0298
36	2.1973	0.0294
37	2.2262	0.0290
38	2.2548	0.0285
39	2.2829	0.0282
40	2.3107	0.0278
41	2.3382	0.0274
42	2.3652	0.0271
43	2.3920	0.0267
44	2.4184	0.0264
45	2.4445	0.0261
46	2.4703	0.0258
47	2.4958	0.0255
48	2.5210	0.0252
49	2.5460	0.0250
50	2.5707	0.0247
51	2.5951	0.0244
52	2.6193	0.0242
53	2.6433	0.0239
54	2.6670	0.0237
55	2.6905	0.0235
56	2.7137	0.0233
57	2.7368	0.0230
58	2.7596	0.0228
59	2.7823	0.0226
60	2.8047	0.0224
61	2.8269	0.0222
62	2.8490	0.0220
63	2.8708	0.0219
64	2.8925	0.0217

65	2.9140	0.0215
66	2.9354	0.0213
67	2.9565	0.0212
68	2.9775	0.0210
69	2.9984	0.0208
70	3.0190	0.0207
71	3.0396	0.0205
72	3.0600	0.0204
73	3.0823	0.0223
74	3.1044	0.0222
75	3.1265	0.0220
76	3.1483	0.0219
77	3.1701	0.0217
78	3.1917	0.0216
79	3.2132	0.0215
80	3.2345	0.0214
81	3.2558	0.0212
82	3.2769	0.0211
83	3.2979	0.0210
84	3.3187	0.0209
85	3.3395	0.0207
86	3.3601	0.0206
87	3.3806	0.0205
88	3.4010	0.0204
89	3.4213	0.0203
90	3.4415	0.0202
91	3.4616	0.0201
92	3.4816	0.0200
93	3.5015	0.0199
94	3.5212	0.0198
95	3.5409	0.0197
96	3.5605	0.0196
97	3.5800	0.0195
98	3.5994	0.0194
99	3.6187	0.0193
100	3.6379	0.0192
101	3.6570	0.0191
102	3.6760	0.0190
103	3.6949	0.0189
104	3.7138	0.0188
105	3.7326	0.0188
106	3.7512	0.0187
107	3.7698	0.0186
108	3.7883	0.0185
109	3.8068	0.0184
110	3.8251	0.0184
111	3.8434	0.0183
112	3.8616	0.0182
113	3.8797	0.0181
114	3.8978	0.0180
115	3.9157	0.0180
116	3.9336	0.0179
117	3.9514	0.0178
118	3.9692	0.0177
119	3.9869	0.0177
120	4.0045	0.0176
121	4.0220	0.0175
122	4.0395	0.0175
123	4.0569	0.0174
124	4.0742	0.0173
125	4.0915	0.0173
126	4.1087	0.0172
127	4.1258	0.0171
128	4.1429	0.0171
129	4.1599	0.0170
130	4.1769	0.0170
131	4.1938	0.0169
132	4.2106	0.0168
133	4.2274	0.0168

134	4.2441	0.0167
135	4.2607	0.0166
136	4.2773	0.0166
137	4.2938	0.0165
138	4.3103	0.0165
139	4.3267	0.0164
140	4.3431	0.0164
141	4.3594	0.0163
142	4.3757	0.0163
143	4.3919	0.0162
144	4.4080	0.0161
145	4.4241	0.0161
146	4.4402	0.0160
147	4.4561	0.0160
148	4.4721	0.0159
149	4.4880	0.0159
150	4.5038	0.0158
151	4.5196	0.0158
152	4.5353	0.0157
153	4.5510	0.0157
154	4.5667	0.0156
155	4.5823	0.0156
156	4.5978	0.0155
157	4.6133	0.0155
158	4.6287	0.0155
159	4.6442	0.0154
160	4.6595	0.0154
161	4.6748	0.0153
162	4.6901	0.0153
163	4.7053	0.0152
164	4.7205	0.0152
165	4.7356	0.0151
166	4.7507	0.0151
167	4.7658	0.0150
168	4.7808	0.0150
169	4.7957	0.0150
170	4.8107	0.0149
171	4.8256	0.0149
172	4.8404	0.0148
173	4.8552	0.0148
174	4.8700	0.0148
175	4.8847	0.0147
176	4.8993	0.0147
177	4.9140	0.0146
178	4.9286	0.0146
179	4.9432	0.0146
180	4.9577	0.0145
181	4.9722	0.0145
182	4.9866	0.0144
183	5.0010	0.0144
184	5.0154	0.0144
185	5.0297	0.0143
186	5.0440	0.0143
187	5.0583	0.0143
188	5.0725	0.0142
189	5.0867	0.0142
190	5.1009	0.0142
191	5.1150	0.0141
192	5.1291	0.0141
193	5.1431	0.0141
194	5.1571	0.0140
195	5.1711	0.0140
196	5.1851	0.0139
197	5.1990	0.0139
198	5.2129	0.0139
199	5.2267	0.0138
200	5.2405	0.0138
201	5.2543	0.0138
202	5.2681	0.0138

203	5.2818	0.0137
204	5.2955	0.0137
205	5.3091	0.0137
206	5.3227	0.0136
207	5.3363	0.0136
208	5.3499	0.0136
209	5.3634	0.0135
210	5.3769	0.0135
211	5.3904	0.0135
212	5.4038	0.0134
213	5.4172	0.0134
214	5.4306	0.0134
215	5.4440	0.0133
216	5.4573	0.0133
217	5.4706	0.0133
218	5.4838	0.0133
219	5.4971	0.0132
220	5.5103	0.0132
221	5.5234	0.0132
222	5.5366	0.0131
223	5.5497	0.0131
224	5.5628	0.0131
225	5.5759	0.0131
226	5.5889	0.0130
227	5.6019	0.0130
228	5.6149	0.0130
229	5.6279	0.0130
230	5.6408	0.0129
231	5.6537	0.0129
232	5.6666	0.0129
233	5.6794	0.0128
234	5.6922	0.0128
235	5.7050	0.0128
236	5.7178	0.0128
237	5.7305	0.0127
238	5.7433	0.0127
239	5.7560	0.0127
240	5.7686	0.0127
241	5.7813	0.0126
242	5.7939	0.0126
243	5.8065	0.0126
244	5.8191	0.0126
245	5.8316	0.0125
246	5.8441	0.0125
247	5.8566	0.0125
248	5.8691	0.0125
249	5.8816	0.0125
250	5.8940	0.0124
251	5.9064	0.0124
252	5.9188	0.0124
253	5.9311	0.0124
254	5.9435	0.0123
255	5.9558	0.0123
256	5.9681	0.0123
257	5.9803	0.0123
258	5.9926	0.0122
259	6.0048	0.0122
260	6.0170	0.0122
261	6.0292	0.0122
262	6.0413	0.0122
263	6.0535	0.0121
264	6.0656	0.0121
265	6.0777	0.0121
266	6.0897	0.0121
267	6.1018	0.0120
268	6.1138	0.0120
269	6.1258	0.0120
270	6.1378	0.0120
271	6.1497	0.0120

272	6.1617	0.0119
273	6.1736	0.0119
274	6.1855	0.0119
275	6.1974	0.0119
276	6.2092	0.0119
277	6.2211	0.0118
278	6.2329	0.0118
279	6.2447	0.0118
280	6.2565	0.0118
281	6.2682	0.0118
282	6.2800	0.0117
283	6.2917	0.0117
284	6.3034	0.0117
285	6.3150	0.0117
286	6.3267	0.0117
287	6.3383	0.0116
288	6.3500	0.0116

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0116	0.0058	0.0058
2	0.0116	0.0058	0.0058
3	0.0117	0.0058	0.0059
4	0.0117	0.0058	0.0059
5	0.0117	0.0059	0.0059
6	0.0118	0.0059	0.0059
7	0.0118	0.0059	0.0059
8	0.0118	0.0059	0.0059
9	0.0119	0.0059	0.0059
10	0.0119	0.0059	0.0060
11	0.0119	0.0059	0.0060
12	0.0119	0.0060	0.0060
13	0.0120	0.0060	0.0060
14	0.0120	0.0060	0.0060
15	0.0120	0.0060	0.0060
16	0.0121	0.0060	0.0060
17	0.0121	0.0060	0.0061
18	0.0121	0.0061	0.0061
19	0.0122	0.0061	0.0061
20	0.0122	0.0061	0.0061
21	0.0122	0.0061	0.0061
22	0.0123	0.0061	0.0061
23	0.0123	0.0061	0.0062
24	0.0123	0.0062	0.0062
25	0.0124	0.0062	0.0062
26	0.0124	0.0062	0.0062
27	0.0125	0.0062	0.0062
28	0.0125	0.0062	0.0063
29	0.0125	0.0062	0.0063
30	0.0125	0.0063	0.0063
31	0.0126	0.0063	0.0063
32	0.0126	0.0063	0.0063
33	0.0127	0.0063	0.0064
34	0.0127	0.0063	0.0064
35	0.0127	0.0064	0.0064
36	0.0128	0.0064	0.0064
37	0.0128	0.0064	0.0064
38	0.0128	0.0064	0.0064
39	0.0129	0.0064	0.0065
40	0.0129	0.0064	0.0065
41	0.0130	0.0065	0.0065
42	0.0130	0.0065	0.0065
43	0.0131	0.0065	0.0065
44	0.0131	0.0065	0.0066
45	0.0131	0.0066	0.0066
46	0.0132	0.0066	0.0066
47	0.0132	0.0066	0.0066

48	0.0133	0.0066	0.0066
49	0.0133	0.0066	0.0067
50	0.0133	0.0067	0.0067
51	0.0134	0.0067	0.0067
52	0.0134	0.0067	0.0067
53	0.0135	0.0067	0.0068
54	0.0135	0.0067	0.0068
55	0.0136	0.0068	0.0068
56	0.0136	0.0068	0.0068
57	0.0137	0.0068	0.0069
58	0.0137	0.0068	0.0069
59	0.0138	0.0069	0.0069
60	0.0138	0.0069	0.0069
61	0.0139	0.0069	0.0070
62	0.0139	0.0069	0.0070
63	0.0140	0.0070	0.0070
64	0.0140	0.0070	0.0070
65	0.0141	0.0070	0.0071
66	0.0141	0.0070	0.0071
67	0.0142	0.0071	0.0071
68	0.0142	0.0071	0.0071
69	0.0143	0.0071	0.0072
70	0.0143	0.0071	0.0072
71	0.0144	0.0072	0.0072
72	0.0144	0.0072	0.0072
73	0.0145	0.0072	0.0073
74	0.0146	0.0073	0.0073
75	0.0146	0.0073	0.0073
76	0.0147	0.0073	0.0074
77	0.0148	0.0074	0.0074
78	0.0148	0.0074	0.0074
79	0.0149	0.0074	0.0075
80	0.0149	0.0074	0.0075
81	0.0150	0.0075	0.0075
82	0.0150	0.0075	0.0075
83	0.0151	0.0075	0.0076
84	0.0152	0.0076	0.0076
85	0.0153	0.0076	0.0077
86	0.0153	0.0076	0.0077
87	0.0154	0.0077	0.0077
88	0.0155	0.0077	0.0077
89	0.0155	0.0078	0.0078
90	0.0156	0.0078	0.0078
91	0.0157	0.0078	0.0079
92	0.0157	0.0078	0.0079
93	0.0158	0.0079	0.0079
94	0.0159	0.0079	0.0080
95	0.0160	0.0080	0.0080
96	0.0160	0.0080	0.0080
97	0.0161	0.0081	0.0081
98	0.0162	0.0081	0.0081
99	0.0163	0.0081	0.0082
100	0.0164	0.0082	0.0082
101	0.0165	0.0082	0.0083
102	0.0165	0.0082	0.0083
103	0.0166	0.0083	0.0083
104	0.0167	0.0083	0.0084
105	0.0168	0.0084	0.0084
106	0.0169	0.0084	0.0085
107	0.0170	0.0085	0.0085
108	0.0171	0.0085	0.0086
109	0.0172	0.0086	0.0086
110	0.0173	0.0086	0.0087
111	0.0174	0.0087	0.0087
112	0.0175	0.0087	0.0088
113	0.0176	0.0088	0.0088
114	0.0177	0.0088	0.0089
115	0.0178	0.0089	0.0089
116	0.0179	0.0089	0.0090

117	0.0180	0.0090	0.0090
118	0.0181	0.0090	0.0091
119	0.0183	0.0091	0.0092
120	0.0184	0.0092	0.0092
121	0.0185	0.0092	0.0093
122	0.0186	0.0093	0.0093
123	0.0188	0.0094	0.0094
124	0.0188	0.0094	0.0094
125	0.0190	0.0095	0.0095
126	0.0191	0.0095	0.0096
127	0.0193	0.0096	0.0097
128	0.0194	0.0097	0.0097
129	0.0196	0.0098	0.0098
130	0.0197	0.0098	0.0099
131	0.0199	0.0099	0.0100
132	0.0200	0.0100	0.0100
133	0.0202	0.0101	0.0101
134	0.0203	0.0101	0.0102
135	0.0205	0.0102	0.0103
136	0.0206	0.0103	0.0103
137	0.0209	0.0104	0.0105
138	0.0210	0.0105	0.0105
139	0.0212	0.0106	0.0106
140	0.0214	0.0107	0.0107
141	0.0216	0.0108	0.0108
142	0.0217	0.0108	0.0109
143	0.0220	0.0110	0.0110
144	0.0222	0.0111	0.0111
145	0.0204	0.0102	0.0102
146	0.0205	0.0102	0.0103
147	0.0208	0.0104	0.0104
148	0.0210	0.0105	0.0105
149	0.0213	0.0106	0.0107
150	0.0215	0.0107	0.0108
151	0.0219	0.0109	0.0110
152	0.0220	0.0110	0.0111
153	0.0224	0.0112	0.0112
154	0.0226	0.0113	0.0113
155	0.0230	0.0115	0.0116
156	0.0233	0.0116	0.0117
157	0.0237	0.0118	0.0119
158	0.0239	0.0119	0.0120
159	0.0244	0.0122	0.0123
160	0.0247	0.0123	0.0124
161	0.0252	0.0126	0.0126
162	0.0255	0.0127	0.0128
163	0.0261	0.0130	0.0131
164	0.0264	0.0132	0.0132
165	0.0271	0.0135	0.0136
166	0.0274	0.0137	0.0137
167	0.0282	0.0140	0.0141
168	0.0285	0.0142	0.0143
169	0.0294	0.0147	0.0147
170	0.0298	0.0149	0.0150
171	0.0308	0.0153	0.0154
172	0.0313	0.0156	0.0157
173	0.0324	0.0161	0.0162
174	0.0330	0.0164	0.0165
175	0.0342	0.0171	0.0172
176	0.0349	0.0174	0.0175
177	0.0364	0.0182	0.0183
178	0.0373	0.0186	0.0187
179	0.0391	0.0195	0.0196
180	0.0402	0.0200	0.0201
181	0.0425	0.0212	0.0213
182	0.0438	0.0219	0.0220
183	0.0469	0.0234	0.0235
184	0.0487	0.0243	0.0244
185	0.0335	0.0167	0.0168

186	0.0357	0.0178	0.0179
187	0.0414	0.0206	0.0208
188	0.0452	0.0225	0.0227
189	0.0562	0.0280	0.0282
190	0.0647	0.0323	0.0324
191	0.0982	0.0431	0.0551
192	0.1426	0.0431	0.0995
193	0.6167	0.0431	0.5737
194	0.0773	0.0385	0.0387
195	0.0500	0.0249	0.0250
196	0.0383	0.0191	0.0192
197	0.0507	0.0253	0.0254
198	0.0453	0.0226	0.0227
199	0.0413	0.0206	0.0207
200	0.0382	0.0190	0.0191
201	0.0357	0.0178	0.0179
202	0.0336	0.0167	0.0168
203	0.0318	0.0159	0.0159
204	0.0303	0.0151	0.0152
205	0.0290	0.0144	0.0145
206	0.0278	0.0139	0.0139
207	0.0267	0.0133	0.0134
208	0.0258	0.0129	0.0129
209	0.0250	0.0124	0.0125
210	0.0242	0.0121	0.0121
211	0.0235	0.0117	0.0118
212	0.0228	0.0114	0.0114
213	0.0222	0.0111	0.0111
214	0.0217	0.0108	0.0109
215	0.0212	0.0106	0.0106
216	0.0207	0.0103	0.0104
217	0.0223	0.0111	0.0112
218	0.0219	0.0109	0.0110
219	0.0215	0.0107	0.0108
220	0.0211	0.0105	0.0106
221	0.0207	0.0103	0.0104
222	0.0204	0.0102	0.0102
223	0.0201	0.0100	0.0101
224	0.0198	0.0099	0.0099
225	0.0195	0.0097	0.0098
226	0.0192	0.0096	0.0096
227	0.0189	0.0094	0.0095
228	0.0187	0.0093	0.0094
229	0.0184	0.0092	0.0092
230	0.0182	0.0091	0.0091
231	0.0180	0.0090	0.0090
232	0.0177	0.0089	0.0089
233	0.0175	0.0087	0.0088
234	0.0173	0.0086	0.0087
235	0.0171	0.0085	0.0086
236	0.0170	0.0085	0.0085
237	0.0168	0.0084	0.0084
238	0.0166	0.0083	0.0083
239	0.0164	0.0082	0.0082
240	0.0163	0.0081	0.0081
241	0.0161	0.0080	0.0081
242	0.0159	0.0079	0.0080
243	0.0158	0.0079	0.0079
244	0.0156	0.0078	0.0078
245	0.0155	0.0077	0.0078
246	0.0154	0.0077	0.0077
247	0.0152	0.0076	0.0076
248	0.0151	0.0075	0.0076
249	0.0150	0.0075	0.0075
250	0.0148	0.0074	0.0074
251	0.0147	0.0073	0.0074
252	0.0146	0.0073	0.0073
253	0.0145	0.0072	0.0073
254	0.0144	0.0072	0.0072

255	0.0143	0.0071	0.0071
256	0.0142	0.0071	0.0071
257	0.0141	0.0070	0.0070
258	0.0139	0.0070	0.0070
259	0.0138	0.0069	0.0069
260	0.0138	0.0069	0.0069
261	0.0137	0.0068	0.0068
262	0.0136	0.0068	0.0068
263	0.0135	0.0067	0.0068
264	0.0134	0.0067	0.0067
265	0.0133	0.0066	0.0067
266	0.0132	0.0066	0.0066
267	0.0131	0.0065	0.0066
268	0.0130	0.0065	0.0065
269	0.0130	0.0065	0.0065
270	0.0129	0.0064	0.0065
271	0.0128	0.0064	0.0064
272	0.0127	0.0063	0.0064
273	0.0126	0.0063	0.0063
274	0.0126	0.0063	0.0063
275	0.0125	0.0062	0.0063
276	0.0124	0.0062	0.0062
277	0.0124	0.0062	0.0062
278	0.0123	0.0061	0.0062
279	0.0122	0.0061	0.0061
280	0.0122	0.0061	0.0061
281	0.0121	0.0060	0.0061
282	0.0120	0.0060	0.0060
283	0.0120	0.0060	0.0060
284	0.0119	0.0059	0.0060
285	0.0118	0.0059	0.0059
286	0.0118	0.0059	0.0059
287	0.0117	0.0058	0.0059
288	0.0117	0.0058	0.0058

Total soil rain loss = 2.87(In)
Total effective rainfall = 3.48(In)
Peak flow rate in flood hydrograph = 8.50(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	0.0002	0.03	Q					
0+15	0.0009	0.10	Q					
0+20	0.0020	0.16	Q					
0+25	0.0033	0.19	Q					
0+30	0.0048	0.22	Q					
0+35	0.0064	0.23	Q					
0+40	0.0081	0.25	Q					
0+45	0.0098	0.26	VQ					
0+50	0.0117	0.26	VQ					
0+55	0.0135	0.27	VQ					
1+ 0	0.0154	0.28	VQ					
1+ 5	0.0174	0.28	VQ					
1+10	0.0193	0.29	VQ					
1+15	0.0213	0.29	VQ					
1+20	0.0233	0.29	VQ					
1+25	0.0254	0.30	VQ					
1+30	0.0274	0.30	VQ					
1+35	0.0295	0.30	VQ					
1+40	0.0316	0.30	Q					

1+45	0.0337	0.30	Q				
1+50	0.0358	0.31	Q				
1+55	0.0379	0.31	Q				
2+ 0	0.0400	0.31	Q				
2+ 5	0.0421	0.31	Q				
2+10	0.0443	0.31	Q				
2+15	0.0464	0.31	Q				
2+20	0.0486	0.31	Q				
2+25	0.0508	0.31	Q				
2+30	0.0529	0.32	Q				
2+35	0.0551	0.32	Q				
2+40	0.0573	0.32	Q				
2+45	0.0595	0.32	Q				
2+50	0.0617	0.32	QV				
2+55	0.0639	0.32	QV				
3+ 0	0.0661	0.32	QV				
3+ 5	0.0683	0.32	QV				
3+10	0.0705	0.32	QV				
3+15	0.0728	0.32	QV				
3+20	0.0750	0.32	QV				
3+25	0.0773	0.33	QV				
3+30	0.0795	0.33	QV				
3+35	0.0818	0.33	QV				
3+40	0.0840	0.33	QV				
3+45	0.0863	0.33	QV				
3+50	0.0886	0.33	QV				
3+55	0.0909	0.33	QV				
4+ 0	0.0931	0.33	Q V				
4+ 5	0.0954	0.33	Q V				
4+10	0.0977	0.33	Q V				
4+15	0.1001	0.34	Q V				
4+20	0.1024	0.34	Q V				
4+25	0.1047	0.34	Q V				
4+30	0.1070	0.34	Q V				
4+35	0.1094	0.34	Q V				
4+40	0.1117	0.34	Q V				
4+45	0.1141	0.34	Q V				
4+50	0.1165	0.34	Q V				
4+55	0.1188	0.35	Q V				
5+ 0	0.1212	0.35	Q V				
5+ 5	0.1236	0.35	Q V				
5+10	0.1260	0.35	Q V				
5+15	0.1284	0.35	Q V				
5+20	0.1309	0.35	Q V				
5+25	0.1333	0.35	Q V				
5+30	0.1357	0.35	Q V				
5+35	0.1382	0.35	Q V				
5+40	0.1406	0.36	Q V				
5+45	0.1431	0.36	Q V				
5+50	0.1455	0.36	Q V				
5+55	0.1480	0.36	Q V				
6+ 0	0.1505	0.36	Q V				
6+ 5	0.1530	0.36	Q V				
6+10	0.1555	0.36	Q V				
6+15	0.1580	0.37	Q V				
6+20	0.1606	0.37	Q V				
6+25	0.1631	0.37	Q V				
6+30	0.1657	0.37	Q V				
6+35	0.1682	0.37	Q V				
6+40	0.1708	0.37	Q V				
6+45	0.1734	0.37	Q V				
6+50	0.1759	0.38	Q V				
6+55	0.1785	0.38	Q V				
7+ 0	0.1812	0.38	Q V				
7+ 5	0.1838	0.38	Q V				
7+10	0.1864	0.38	Q V				
7+15	0.1891	0.38	Q V				
7+20	0.1917	0.39	Q V				
7+25	0.1944	0.39	Q V				

7+30	0.1971	0.39	Q	V				
7+35	0.1997	0.39	Q	V				
7+40	0.2025	0.39	Q	V				
7+45	0.2052	0.39	Q	V				
7+50	0.2079	0.40	Q	V				
7+55	0.2106	0.40	Q	V				
8+ 0	0.2134	0.40	Q	V				
8+ 5	0.2162	0.40	Q	V				
8+10	0.2189	0.40	Q	V				
8+15	0.2217	0.41	Q	V				
8+20	0.2245	0.41	Q	V				
8+25	0.2273	0.41	Q	V				
8+30	0.2302	0.41	Q	V				
8+35	0.2330	0.41	Q	V				
8+40	0.2359	0.42	Q	V				
8+45	0.2388	0.42	Q	V				
8+50	0.2417	0.42	Q	V				
8+55	0.2446	0.42	Q	V				
9+ 0	0.2475	0.42	Q	V				
9+ 5	0.2504	0.43	Q	V				
9+10	0.2534	0.43	Q	V				
9+15	0.2563	0.43	Q	V				
9+20	0.2593	0.43	Q	V				
9+25	0.2623	0.44	Q	V				
9+30	0.2654	0.44	Q	V				
9+35	0.2684	0.44	Q	V				
9+40	0.2714	0.44	Q	V				
9+45	0.2745	0.45	Q	V				
9+50	0.2776	0.45	Q	V				
9+55	0.2807	0.45	Q	V				
10+ 0	0.2838	0.45	Q	V				
10+ 5	0.2870	0.46	Q	V				
10+10	0.2902	0.46	Q	V				
10+15	0.2934	0.46	Q	V				
10+20	0.2966	0.47	Q	V				
10+25	0.2998	0.47	Q	V				
10+30	0.3030	0.47	Q	V				
10+35	0.3063	0.48	Q	V				
10+40	0.3096	0.48	Q	V				
10+45	0.3129	0.48	Q	V				
10+50	0.3163	0.48	Q	V				
10+55	0.3196	0.49	Q	V				
11+ 0	0.3230	0.49	Q	V				
11+ 5	0.3264	0.50	Q	V				
11+10	0.3299	0.50	Q	V				
11+15	0.3333	0.50	Q	V				
11+20	0.3368	0.51	Q	V				
11+25	0.3403	0.51	Q	V				
11+30	0.3439	0.51	Q	V				
11+35	0.3475	0.52	Q	V				
11+40	0.3511	0.52	Q	V				
11+45	0.3547	0.53	Q	V				
11+50	0.3584	0.53	Q	V				
11+55	0.3621	0.54	Q	V				
12+ 0	0.3658	0.54	Q	V				
12+ 5	0.3695	0.55	Q	V				
12+10	0.3733	0.55	Q	V				
12+15	0.3770	0.54	Q	V				
12+20	0.3807	0.53	Q	V				
12+25	0.3844	0.53	Q	V				
12+30	0.3881	0.53	Q	V				
12+35	0.3918	0.54	Q	V				
12+40	0.3955	0.54	Q	V				
12+45	0.3993	0.55	Q	V				
12+50	0.4031	0.55	Q	V				
12+55	0.4069	0.56	Q	V				
13+ 0	0.4108	0.56	Q	V				
13+ 5	0.4147	0.57	Q	V				
13+10	0.4187	0.58	Q	V				

13+15	0.4227	0.58	Q		V			
13+20	0.4267	0.59	Q		V			
13+25	0.4309	0.60	Q		V			
13+30	0.4351	0.61	Q		V			
13+35	0.4393	0.62	Q		V			
13+40	0.4436	0.63	Q		V			
13+45	0.4480	0.64	Q		V			
13+50	0.4525	0.65	Q		V			
13+55	0.4570	0.66	Q		V			
14+ 0	0.4616	0.67	Q		V			
14+ 5	0.4663	0.68	Q		V			
14+10	0.4711	0.69	Q		V			
14+15	0.4760	0.71	Q		V			
14+20	0.4809	0.72	Q		V			
14+25	0.4860	0.74	Q		V			
14+30	0.4912	0.76	Q		V			
14+35	0.4966	0.77	Q		V			
14+40	0.5020	0.79	Q		V			
14+45	0.5076	0.81	Q		V			
14+50	0.5134	0.84	Q		V			
14+55	0.5193	0.86	Q		V			
15+ 0	0.5254	0.89	Q		V			
15+ 5	0.5317	0.92	Q		V			
15+10	0.5383	0.95	Q		V			
15+15	0.5451	0.98	Q		V			
15+20	0.5521	1.02	Q		V			
15+25	0.5594	1.06	Q		V			
15+30	0.5668	1.07	Q		V			
15+35	0.5739	1.03	Q		V			
15+40	0.5807	0.99	Q		V			
15+45	0.5877	1.02	Q		V			
15+50	0.5952	1.08	Q		V			
15+55	0.6036	1.22	Q		V			
16+ 0	0.6137	1.47	Q		V			
16+ 5	0.6305	2.44	Q	Q	V			
16+10	0.6627	4.68	Q		V			
16+15	0.7213	8.50			V			Q
16+20	0.7757	7.90			V			Q
16+25	0.8102	5.01			V			
16+30	0.8352	3.63		Q	V			
16+35	0.8556	2.95		Q	V			
16+40	0.8728	2.51		Q	V			
16+45	0.8880	2.20		Q	V			
16+50	0.9015	1.96		Q	V			
16+55	0.9132	1.70		Q	V			
17+ 0	0.9239	1.55		Q	V			
17+ 5	0.9336	1.42		Q	V			
17+10	0.9426	1.30		Q	V			
17+15	0.9508	1.20		Q	V			
17+20	0.9584	1.10		Q	V			
17+25	0.9655	1.03		Q	V			
17+30	0.9719	0.94		Q	V			
17+35	0.9779	0.87		Q	V			
17+40	0.9835	0.81		Q	V			
17+45	0.9890	0.80		Q	V			
17+50	0.9944	0.78		Q	V			
17+55	0.9995	0.75		Q	V			
18+ 0	1.0044	0.70		Q	V			
18+ 5	1.0089	0.66		Q	V			
18+10	1.0133	0.64		Q	V			
18+15	1.0173	0.58		Q	V			
18+20	1.0213	0.58		Q	V			
18+25	1.0252	0.57		Q	V			
18+30	1.0291	0.56		Q	V			
18+35	1.0329	0.55		Q	V			
18+40	1.0367	0.54		Q	V			
18+45	1.0404	0.54		Q	V			
18+50	1.0440	0.53		Q	V			
18+55	1.0476	0.52		Q	V			

19+ 0	1.0511	0.51	Q				V
19+ 5	1.0545	0.50	Q				V
19+10	1.0580	0.50	Q				V
19+15	1.0613	0.49	Q				V
19+20	1.0646	0.48	Q				V
19+25	1.0679	0.48	Q				V
19+30	1.0712	0.47	Q				V
19+35	1.0744	0.46	Q				V
19+40	1.0775	0.46	Q				V
19+45	1.0806	0.45	Q				V
19+50	1.0837	0.45	Q				V
19+55	1.0868	0.44	Q				V
20+ 0	1.0898	0.44	Q				V
20+ 5	1.0927	0.43	Q				V
20+10	1.0957	0.43	Q				V
20+15	1.0986	0.42	Q				V
20+20	1.1015	0.42	Q				V
20+25	1.1044	0.41	Q				V
20+30	1.1072	0.41	Q				V
20+35	1.1100	0.41	Q				V
20+40	1.1127	0.40	Q				V
20+45	1.1155	0.40	Q				V
20+50	1.1182	0.40	Q				V
20+55	1.1209	0.39	Q				V
21+ 0	1.1236	0.39	Q				V
21+ 5	1.1262	0.38	Q				V
21+10	1.1289	0.38	Q				V
21+15	1.1315	0.38	Q				V
21+20	1.1341	0.38	Q				V
21+25	1.1366	0.37	Q				V
21+30	1.1392	0.37	Q				V
21+35	1.1417	0.37	Q				V
21+40	1.1442	0.36	Q				V
21+45	1.1467	0.36	Q				V
21+50	1.1491	0.36	Q				V
21+55	1.1516	0.36	Q				V
22+ 0	1.1540	0.35	Q				V
22+ 5	1.1564	0.35	Q				V
22+10	1.1588	0.35	Q				V
22+15	1.1612	0.35	Q				V
22+20	1.1636	0.34	Q				V
22+25	1.1659	0.34	Q				V
22+30	1.1682	0.34	Q				V
22+35	1.1705	0.34	Q				V
22+40	1.1728	0.33	Q				V
22+45	1.1751	0.33	Q				V
22+50	1.1774	0.33	Q				V
22+55	1.1797	0.33	Q				V
23+ 0	1.1819	0.33	Q				V
23+ 5	1.1841	0.32	Q				V
23+10	1.1864	0.32	Q				V
23+15	1.1886	0.32	Q				V
23+20	1.1908	0.32	Q				V
23+25	1.1929	0.32	Q				V
23+30	1.1951	0.31	Q				V
23+35	1.1973	0.31	Q				V
23+40	1.1994	0.31	Q				V
23+45	1.2015	0.31	Q				V
23+50	1.2037	0.31	Q				V
23+55	1.2058	0.31	Q				V
24+ 0	1.2079	0.30	Q				V
24+ 5	1.2099	0.30	Q				V
24+10	1.2118	0.27	Q				V
24+15	1.2132	0.21	Q				V
24+20	1.2142	0.14	Q				V
24+25	1.2149	0.11	Q				V
24+30	1.2155	0.08	Q				V
24+35	1.2159	0.07	Q				V
24+40	1.2163	0.05	Q				V

24+45	1.2166	0.04	Q				V
24+50	1.2169	0.04	Q				V
24+55	1.2171	0.03	Q				V
25+ 0	1.2172	0.03	Q				V
25+ 5	1.2174	0.02	Q				V
25+10	1.2175	0.02	Q				V
25+15	1.2176	0.01	Q				V
25+20	1.2177	0.01	Q				V
25+25	1.2177	0.01	Q				V
25+30	1.2178	0.01	Q				V
25+35	1.2178	0.01	Q				V
25+40	1.2179	0.01	Q				V
25+45	1.2179	0.00	Q				V
25+50	1.2179	0.00	Q				V
25+55	1.2179	0.00	Q				V
26+ 0	1.2179	0.00	Q				V
26+ 5	1.2179	0.00	Q				V

ATTACHMENT 3

Developed Conditions
Rational Method Calculations

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2019 Version 9.1
Rational Hydrology Study Date: 11/13/19

194647 - BALDY MESA ROAD PHELAN
DEVELOPED CONDITIONS - AREA "A"
25-YEAR, 1-HOUR STORM
BY: JTS DATE: 11-13-19

Program License Serial Number 6320

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

Rational hydrology study storm event year is 25.0
10 Year storm 1 hour rainfall = 0.780(In.)
100 Year storm 1 hour rainfall = 1.300(In.)
Computed rainfall intensity:
Storm year = 25.00 1 hour rainfall = 0.987 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

+++++
Process from Point/Station 0.000 to Point/Station 1.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 63.00
Pervious ratio(Ap) = 0.1800 Max loss rate(Fm)= 0.115(In/Hr)
Initial subarea data:
Initial area flow distance = 666.000(Ft.)
Top (of initial area) elevation = 3680.000(Ft.)
Bottom (of initial area) elevation = 3673.000(Ft.)
Difference in elevation = 7.000(Ft.)
Slope = 0.01051 s(%)= 1.05
TC = $k(0.319)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 10.683 min.
Rainfall intensity = 3.303(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.869
Subarea runoff = 12.051(CFS)
Total initial stream area = 4.200(Ac.)
Pervious area fraction = 0.180
Initial area Fm value = 0.115(In/Hr)

+++++
Process from Point/Station 1.000 to Point/Station 2.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

Upstream point/station elevation = 3669.160(Ft.)
Downstream point/station elevation = 3668.300(Ft.)
Pipe length = 84.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 12.051(CFS)
Given pipe size = 24.00(In.)
Calculated individual pipe flow = 12.051(CFS)
Normal flow depth in pipe = 12.38(In.)
Flow top width inside pipe = 23.99(In.)
Critical Depth = 14.96(In.)
Pipe flow velocity = 7.38(Ft/s)

Travel time through pipe = 0.19 min.
Time of concentration (TC) = 10.87 min.
End of computations, Total Study Area = 4.20 (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(A_p) = 0.180
Area averaged SCS curve number = 63.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2019 Version 9.1
Rational Hydrology Study Date: 11/13/19

194647 - BALDY MESA ROAD PHELAN
DEVELOPED CONDITIONS - AREA "A"
100-YEAR, 1-HOUR STORM
BY: JTS DATE: 11-13-19

Program License Serial Number 6320

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

Rational hydrology study storm event year is 100.0
10 Year storm 1 hour rainfall = 0.780(In.)
100 Year storm 1 hour rainfall = 1.300(In.)
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.300 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

+++++
Process from Point/Station 0.000 to Point/Station 1.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 63.00
Pervious ratio(Ap) = 0.1800 Max loss rate(Fm)= 0.115(In/Hr)
Initial subarea data:
Initial area flow distance = 666.000(Ft.)
Top (of initial area) elevation = 3680.000(Ft.)
Bottom (of initial area) elevation = 3673.000(Ft.)
Difference in elevation = 7.000(Ft.)
Slope = 0.01051 s(%)= 1.05
TC = $k(0.319)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 10.683 min.
Rainfall intensity = 4.351(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.876
Subarea runoff = 16.012(CFS)
Total initial stream area = 4.200(Ac.)
Pervious area fraction = 0.180
Initial area Fm value = 0.115(In/Hr)

+++++
Process from Point/Station 1.000 to Point/Station 2.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

Upstream point/station elevation = 3669.160(Ft.)
Downstream point/station elevation = 3668.300(Ft.)
Pipe length = 84.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 16.012(CFS)
Given pipe size = 24.00(In.)
Calculated individual pipe flow = 16.012(CFS)
Normal flow depth in pipe = 14.79(In.)
Flow top width inside pipe = 23.34(In.)
Critical Depth = 17.31(In.)
Pipe flow velocity = 7.88(Ft/s)

Travel time through pipe = 0.18 min.
Time of concentration (TC) = 10.86 min.
End of computations, Total Study Area = 4.20 (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(A_p) = 0.180
Area averaged SCS curve number = 63.0

ATTACHMENT 4

Developed Conditions
Hydrograph Calculations

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

+++++

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
DEVELOPED CONDITIONS - AREA "A"
2-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 2

Antecedent Moisture Condition = 1

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 10		
4.20	1	0.78

Rainfall data for year 2		
4.20	6	1.13

Rainfall data for year 2		
4.20	24	2.13

Rainfall data for year 100		
4.20	1	1.30

Rainfall data for year 100		
4.20	6	3.06

Rainfall data for year 100		
4.20	24	6.35

+++++

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 1)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
63.0	43.0	4.20	1.000	0.887	0.180	0.160

Area-averaged adjusted loss rate Fm (In/Hr) = 0.160

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC1)	S	Pervious Yield Fr
0.76	0.180	63.0	43.0	10.65	0.000
3.44	0.820	98.0	98.0	0.20	0.894

Area-averaged catchment yield fraction, Y = 0.733
 Area-averaged low loss fraction, Yb = 0.267
 User entry of time of concentration = 0.170 (hours)
 +-----+
 Watershed area = 4.20(Ac.)
 Catchment Lag time = 0.136 hours
 Unit interval = 5.000 minutes
 Unit interval percentage of lag time = 61.2745
 Hydrograph baseflow = 0.00(CFS)
 Average maximum watershed loss rate(Fm) = 0.160(In/Hr)
 Average low loss rate fraction (Yb) = 0.267 (decimal)
 DESERT S-Graph Selected
 Computed peak 5-minute rainfall = 0.198(In)
 Computed peak 30-minute rainfall = 0.338(In)
 Specified peak 1-hour rainfall = 0.417(In)
 Computed peak 3-hour rainfall = 0.768(In)
 Specified peak 6-hour rainfall = 1.130(In)
 Specified peak 24-hour rainfall = 2.130(In)

Rainfall depth area reduction factors:
 Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000	Adjusted rainfall = 0.198(In)
30-minute factor = 1.000	Adjusted rainfall = 0.338(In)
1-hour factor = 1.000	Adjusted rainfall = 0.416(In)
3-hour factor = 1.000	Adjusted rainfall = 0.768(In)
6-hour factor = 1.000	Adjusted rainfall = 1.130(In)
24-hour factor = 1.000	Adjusted rainfall = 2.130(In)

Unit Hydrograph

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
(K = 50.79 (CFS))		
1	5.829	2.961
2	42.748	18.752
3	68.862	13.265
4	80.052	5.684
5	86.633	3.343
6	90.841	2.137
7	93.754	1.480
8	95.820	1.049
9	97.269	0.736
10	98.124	0.434
11	98.821	0.354
12	99.497	0.344
13	100.000	0.255

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.1976	0.1976
2	0.2433	0.0457
3	0.2748	0.0315
4	0.2995	0.0248
5	0.3203	0.0207
6	0.3383	0.0180
7	0.3543	0.0160
8	0.3688	0.0145

9	0.3820	0.0133
10	0.3943	0.0123
11	0.4057	0.0114
12	0.4165	0.0107
13	0.4354	0.0190
14	0.4538	0.0184
15	0.4716	0.0178
16	0.4889	0.0173
17	0.5056	0.0168
18	0.5220	0.0164
19	0.5380	0.0160
20	0.5536	0.0156
21	0.5688	0.0153
22	0.5838	0.0149
23	0.5984	0.0146
24	0.6128	0.0144
25	0.6268	0.0141
26	0.6407	0.0138
27	0.6543	0.0136
28	0.6677	0.0134
29	0.6809	0.0132
30	0.6939	0.0130
31	0.7067	0.0128
32	0.7193	0.0126
33	0.7317	0.0124
34	0.7440	0.0123
35	0.7561	0.0121
36	0.7681	0.0120
37	0.7799	0.0118
38	0.7915	0.0117
39	0.8031	0.0115
40	0.8145	0.0114
41	0.8258	0.0113
42	0.8369	0.0112
43	0.8480	0.0110
44	0.8589	0.0109
45	0.8697	0.0108
46	0.8804	0.0107
47	0.8910	0.0106
48	0.9015	0.0105
49	0.9120	0.0104
50	0.9223	0.0103
51	0.9325	0.0102
52	0.9427	0.0101
53	0.9527	0.0101
54	0.9627	0.0100
55	0.9726	0.0099
56	0.9824	0.0098
57	0.9921	0.0097
58	1.0018	0.0097
59	1.0114	0.0096
60	1.0209	0.0095
61	1.0303	0.0094
62	1.0397	0.0094
63	1.0490	0.0093
64	1.0582	0.0092
65	1.0674	0.0092
66	1.0765	0.0091
67	1.0856	0.0091
68	1.0946	0.0090
69	1.1035	0.0089
70	1.1124	0.0089
71	1.1212	0.0088
72	1.1300	0.0088
73	1.1371	0.0071
74	1.1442	0.0071
75	1.1513	0.0070
76	1.1583	0.0070
77	1.1652	0.0069

78	1.1721	0.0069
79	1.1790	0.0068
80	1.1858	0.0068
81	1.1925	0.0068
82	1.1992	0.0067
83	1.2059	0.0067
84	1.2125	0.0066
85	1.2191	0.0066
86	1.2256	0.0065
87	1.2321	0.0065
88	1.2386	0.0065
89	1.2450	0.0064
90	1.2514	0.0064
91	1.2577	0.0063
92	1.2640	0.0063
93	1.2703	0.0063
94	1.2765	0.0062
95	1.2827	0.0062
96	1.2889	0.0062
97	1.2950	0.0061
98	1.3011	0.0061
99	1.3071	0.0061
100	1.3131	0.0060
101	1.3191	0.0060
102	1.3251	0.0060
103	1.3310	0.0059
104	1.3369	0.0059
105	1.3428	0.0059
106	1.3486	0.0058
107	1.3544	0.0058
108	1.3602	0.0058
109	1.3659	0.0057
110	1.3716	0.0057
111	1.3773	0.0057
112	1.3830	0.0057
113	1.3886	0.0056
114	1.3942	0.0056
115	1.3998	0.0056
116	1.4054	0.0056
117	1.4109	0.0055
118	1.4164	0.0055
119	1.4219	0.0055
120	1.4273	0.0055
121	1.4327	0.0054
122	1.4381	0.0054
123	1.4435	0.0054
124	1.4489	0.0054
125	1.4542	0.0053
126	1.4595	0.0053
127	1.4648	0.0053
128	1.4701	0.0053
129	1.4753	0.0052
130	1.4805	0.0052
131	1.4857	0.0052
132	1.4909	0.0052
133	1.4960	0.0052
134	1.5012	0.0051
135	1.5063	0.0051
136	1.5114	0.0051
137	1.5165	0.0051
138	1.5215	0.0051
139	1.5265	0.0050
140	1.5315	0.0050
141	1.5365	0.0050
142	1.5415	0.0050
143	1.5465	0.0050
144	1.5514	0.0049
145	1.5563	0.0049
146	1.5612	0.0049

147	1.5661	0.0049
148	1.5710	0.0049
149	1.5758	0.0048
150	1.5806	0.0048
151	1.5854	0.0048
152	1.5902	0.0048
153	1.5950	0.0048
154	1.5998	0.0048
155	1.6045	0.0047
156	1.6092	0.0047
157	1.6139	0.0047
158	1.6186	0.0047
159	1.6233	0.0047
160	1.6280	0.0047
161	1.6326	0.0046
162	1.6373	0.0046
163	1.6419	0.0046
164	1.6465	0.0046
165	1.6510	0.0046
166	1.6556	0.0046
167	1.6602	0.0046
168	1.6647	0.0045
169	1.6692	0.0045
170	1.6737	0.0045
171	1.6782	0.0045
172	1.6827	0.0045
173	1.6872	0.0045
174	1.6916	0.0045
175	1.6961	0.0044
176	1.7005	0.0044
177	1.7049	0.0044
178	1.7093	0.0044
179	1.7137	0.0044
180	1.7181	0.0044
181	1.7224	0.0044
182	1.7268	0.0043
183	1.7311	0.0043
184	1.7354	0.0043
185	1.7397	0.0043
186	1.7440	0.0043
187	1.7483	0.0043
188	1.7526	0.0043
189	1.7568	0.0043
190	1.7611	0.0042
191	1.7653	0.0042
192	1.7695	0.0042
193	1.7737	0.0042
194	1.7779	0.0042
195	1.7821	0.0042
196	1.7863	0.0042
197	1.7904	0.0042
198	1.7946	0.0042
199	1.7987	0.0041
200	1.8029	0.0041
201	1.8070	0.0041
202	1.8111	0.0041
203	1.8152	0.0041
204	1.8193	0.0041
205	1.8233	0.0041
206	1.8274	0.0041
207	1.8314	0.0041
208	1.8355	0.0040
209	1.8395	0.0040
210	1.8435	0.0040
211	1.8475	0.0040
212	1.8515	0.0040
213	1.8555	0.0040
214	1.8595	0.0040
215	1.8635	0.0040

216	1.8674	0.0040
217	1.8714	0.0039
218	1.8753	0.0039
219	1.8793	0.0039
220	1.8832	0.0039
221	1.8871	0.0039
222	1.8910	0.0039
223	1.8949	0.0039
224	1.8988	0.0039
225	1.9026	0.0039
226	1.9065	0.0039
227	1.9103	0.0039
228	1.9142	0.0038
229	1.9180	0.0038
230	1.9218	0.0038
231	1.9257	0.0038
232	1.9295	0.0038
233	1.9333	0.0038
234	1.9371	0.0038
235	1.9408	0.0038
236	1.9446	0.0038
237	1.9484	0.0038
238	1.9521	0.0038
239	1.9559	0.0037
240	1.9596	0.0037
241	1.9633	0.0037
242	1.9671	0.0037
243	1.9708	0.0037
244	1.9745	0.0037
245	1.9782	0.0037
246	1.9819	0.0037
247	1.9855	0.0037
248	1.9892	0.0037
249	1.9929	0.0037
250	1.9965	0.0037
251	2.0002	0.0036
252	2.0038	0.0036
253	2.0075	0.0036
254	2.0111	0.0036
255	2.0147	0.0036
256	2.0183	0.0036
257	2.0219	0.0036
258	2.0255	0.0036
259	2.0291	0.0036
260	2.0327	0.0036
261	2.0362	0.0036
262	2.0398	0.0036
263	2.0434	0.0036
264	2.0469	0.0035
265	2.0504	0.0035
266	2.0540	0.0035
267	2.0575	0.0035
268	2.0610	0.0035
269	2.0645	0.0035
270	2.0680	0.0035
271	2.0715	0.0035
272	2.0750	0.0035
273	2.0785	0.0035
274	2.0820	0.0035
275	2.0855	0.0035
276	2.0889	0.0035
277	2.0924	0.0035
278	2.0958	0.0035
279	2.0993	0.0034
280	2.1027	0.0034
281	2.1062	0.0034
282	2.1096	0.0034
283	2.1130	0.0034
284	2.1164	0.0034

285	2.1198	0.0034
286	2.1232	0.0034
287	2.1266	0.0034
288	2.1300	0.0034

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0034	0.0009	0.0025
2	0.0034	0.0009	0.0025
3	0.0034	0.0009	0.0025
4	0.0034	0.0009	0.0025
5	0.0034	0.0009	0.0025
6	0.0034	0.0009	0.0025
7	0.0034	0.0009	0.0025
8	0.0035	0.0009	0.0025
9	0.0035	0.0009	0.0025
10	0.0035	0.0009	0.0025
11	0.0035	0.0009	0.0026
12	0.0035	0.0009	0.0026
13	0.0035	0.0009	0.0026
14	0.0035	0.0009	0.0026
15	0.0035	0.0009	0.0026
16	0.0035	0.0009	0.0026
17	0.0035	0.0009	0.0026
18	0.0036	0.0010	0.0026
19	0.0036	0.0010	0.0026
20	0.0036	0.0010	0.0026
21	0.0036	0.0010	0.0026
22	0.0036	0.0010	0.0026
23	0.0036	0.0010	0.0026
24	0.0036	0.0010	0.0027
25	0.0036	0.0010	0.0027
26	0.0036	0.0010	0.0027
27	0.0037	0.0010	0.0027
28	0.0037	0.0010	0.0027
29	0.0037	0.0010	0.0027
30	0.0037	0.0010	0.0027
31	0.0037	0.0010	0.0027
32	0.0037	0.0010	0.0027
33	0.0037	0.0010	0.0027
34	0.0037	0.0010	0.0027
35	0.0038	0.0010	0.0028
36	0.0038	0.0010	0.0028
37	0.0038	0.0010	0.0028
38	0.0038	0.0010	0.0028
39	0.0038	0.0010	0.0028
40	0.0038	0.0010	0.0028
41	0.0038	0.0010	0.0028
42	0.0039	0.0010	0.0028
43	0.0039	0.0010	0.0028
44	0.0039	0.0010	0.0028
45	0.0039	0.0010	0.0029
46	0.0039	0.0010	0.0029
47	0.0039	0.0011	0.0029
48	0.0039	0.0011	0.0029
49	0.0040	0.0011	0.0029
50	0.0040	0.0011	0.0029
51	0.0040	0.0011	0.0029
52	0.0040	0.0011	0.0029
53	0.0040	0.0011	0.0029
54	0.0040	0.0011	0.0030
55	0.0041	0.0011	0.0030
56	0.0041	0.0011	0.0030
57	0.0041	0.0011	0.0030
58	0.0041	0.0011	0.0030
59	0.0041	0.0011	0.0030
60	0.0041	0.0011	0.0030

61	0.0042	0.0011	0.0030
62	0.0042	0.0011	0.0030
63	0.0042	0.0011	0.0031
64	0.0042	0.0011	0.0031
65	0.0042	0.0011	0.0031
66	0.0042	0.0011	0.0031
67	0.0043	0.0011	0.0031
68	0.0043	0.0011	0.0031
69	0.0043	0.0011	0.0031
70	0.0043	0.0012	0.0032
71	0.0043	0.0012	0.0032
72	0.0043	0.0012	0.0032
73	0.0044	0.0012	0.0032
74	0.0044	0.0012	0.0032
75	0.0044	0.0012	0.0032
76	0.0044	0.0012	0.0032
77	0.0045	0.0012	0.0033
78	0.0045	0.0012	0.0033
79	0.0045	0.0012	0.0033
80	0.0045	0.0012	0.0033
81	0.0045	0.0012	0.0033
82	0.0046	0.0012	0.0033
83	0.0046	0.0012	0.0034
84	0.0046	0.0012	0.0034
85	0.0046	0.0012	0.0034
86	0.0046	0.0012	0.0034
87	0.0047	0.0012	0.0034
88	0.0047	0.0013	0.0034
89	0.0047	0.0013	0.0035
90	0.0047	0.0013	0.0035
91	0.0048	0.0013	0.0035
92	0.0048	0.0013	0.0035
93	0.0048	0.0013	0.0035
94	0.0048	0.0013	0.0035
95	0.0049	0.0013	0.0036
96	0.0049	0.0013	0.0036
97	0.0049	0.0013	0.0036
98	0.0050	0.0013	0.0036
99	0.0050	0.0013	0.0037
100	0.0050	0.0013	0.0037
101	0.0051	0.0014	0.0037
102	0.0051	0.0014	0.0037
103	0.0051	0.0014	0.0037
104	0.0051	0.0014	0.0038
105	0.0052	0.0014	0.0038
106	0.0052	0.0014	0.0038
107	0.0052	0.0014	0.0038
108	0.0053	0.0014	0.0039
109	0.0053	0.0014	0.0039
110	0.0053	0.0014	0.0039
111	0.0054	0.0014	0.0039
112	0.0054	0.0014	0.0040
113	0.0055	0.0015	0.0040
114	0.0055	0.0015	0.0040
115	0.0055	0.0015	0.0040
116	0.0056	0.0015	0.0041
117	0.0056	0.0015	0.0041
118	0.0056	0.0015	0.0041
119	0.0057	0.0015	0.0042
120	0.0057	0.0015	0.0042
121	0.0058	0.0015	0.0042
122	0.0058	0.0016	0.0043
123	0.0059	0.0016	0.0043
124	0.0059	0.0016	0.0043
125	0.0060	0.0016	0.0044
126	0.0060	0.0016	0.0044
127	0.0061	0.0016	0.0044
128	0.0061	0.0016	0.0045
129	0.0062	0.0016	0.0045

130	0.0062	0.0017	0.0045
131	0.0063	0.0017	0.0046
132	0.0063	0.0017	0.0046
133	0.0064	0.0017	0.0047
134	0.0064	0.0017	0.0047
135	0.0065	0.0017	0.0048
136	0.0065	0.0017	0.0048
137	0.0066	0.0018	0.0049
138	0.0067	0.0018	0.0049
139	0.0068	0.0018	0.0049
140	0.0068	0.0018	0.0050
141	0.0069	0.0018	0.0051
142	0.0069	0.0019	0.0051
143	0.0070	0.0019	0.0052
144	0.0071	0.0019	0.0052
145	0.0088	0.0023	0.0064
146	0.0088	0.0024	0.0065
147	0.0089	0.0024	0.0065
148	0.0090	0.0024	0.0066
149	0.0091	0.0024	0.0067
150	0.0092	0.0025	0.0067
151	0.0093	0.0025	0.0068
152	0.0094	0.0025	0.0069
153	0.0095	0.0025	0.0070
154	0.0096	0.0026	0.0070
155	0.0097	0.0026	0.0071
156	0.0098	0.0026	0.0072
157	0.0100	0.0027	0.0073
158	0.0101	0.0027	0.0074
159	0.0102	0.0027	0.0075
160	0.0103	0.0028	0.0076
161	0.0105	0.0028	0.0077
162	0.0106	0.0028	0.0078
163	0.0108	0.0029	0.0079
164	0.0109	0.0029	0.0080
165	0.0112	0.0030	0.0082
166	0.0113	0.0030	0.0083
167	0.0115	0.0031	0.0085
168	0.0117	0.0031	0.0086
169	0.0120	0.0032	0.0088
170	0.0121	0.0032	0.0089
171	0.0124	0.0033	0.0091
172	0.0126	0.0034	0.0092
173	0.0130	0.0035	0.0095
174	0.0132	0.0035	0.0097
175	0.0136	0.0036	0.0100
176	0.0138	0.0037	0.0101
177	0.0144	0.0038	0.0105
178	0.0146	0.0039	0.0107
179	0.0153	0.0041	0.0112
180	0.0156	0.0042	0.0114
181	0.0164	0.0044	0.0120
182	0.0168	0.0045	0.0123
183	0.0178	0.0048	0.0130
184	0.0184	0.0049	0.0134
185	0.0107	0.0029	0.0079
186	0.0114	0.0031	0.0084
187	0.0133	0.0035	0.0097
188	0.0145	0.0039	0.0106
189	0.0180	0.0048	0.0132
190	0.0207	0.0055	0.0152
191	0.0315	0.0084	0.0231
192	0.0457	0.0122	0.0335
193	0.1976	0.0133	0.1843
194	0.0248	0.0066	0.0181
195	0.0160	0.0043	0.0117
196	0.0123	0.0033	0.0090
197	0.0190	0.0051	0.0139
198	0.0173	0.0046	0.0127

199	0.0160	0.0043	0.0117
200	0.0149	0.0040	0.0109
201	0.0141	0.0038	0.0103
202	0.0134	0.0036	0.0098
203	0.0128	0.0034	0.0094
204	0.0123	0.0033	0.0090
205	0.0118	0.0032	0.0087
206	0.0114	0.0030	0.0084
207	0.0110	0.0030	0.0081
208	0.0107	0.0029	0.0078
209	0.0104	0.0028	0.0076
210	0.0101	0.0027	0.0074
211	0.0099	0.0026	0.0072
212	0.0097	0.0026	0.0071
213	0.0094	0.0025	0.0069
214	0.0092	0.0025	0.0068
215	0.0091	0.0024	0.0066
216	0.0089	0.0024	0.0065
217	0.0071	0.0019	0.0052
218	0.0070	0.0019	0.0051
219	0.0068	0.0018	0.0050
220	0.0067	0.0018	0.0049
221	0.0066	0.0018	0.0048
222	0.0065	0.0017	0.0047
223	0.0063	0.0017	0.0046
224	0.0062	0.0017	0.0046
225	0.0061	0.0016	0.0045
226	0.0060	0.0016	0.0044
227	0.0059	0.0016	0.0043
228	0.0058	0.0016	0.0043
229	0.0057	0.0015	0.0042
230	0.0057	0.0015	0.0041
231	0.0056	0.0015	0.0041
232	0.0055	0.0015	0.0040
233	0.0054	0.0015	0.0040
234	0.0054	0.0014	0.0039
235	0.0053	0.0014	0.0039
236	0.0052	0.0014	0.0038
237	0.0052	0.0014	0.0038
238	0.0051	0.0014	0.0037
239	0.0050	0.0013	0.0037
240	0.0050	0.0013	0.0036
241	0.0049	0.0013	0.0036
242	0.0049	0.0013	0.0036
243	0.0048	0.0013	0.0035
244	0.0048	0.0013	0.0035
245	0.0047	0.0013	0.0035
246	0.0047	0.0012	0.0034
247	0.0046	0.0012	0.0034
248	0.0046	0.0012	0.0033
249	0.0045	0.0012	0.0033
250	0.0045	0.0012	0.0033
251	0.0044	0.0012	0.0033
252	0.0044	0.0012	0.0032
253	0.0044	0.0012	0.0032
254	0.0043	0.0012	0.0032
255	0.0043	0.0011	0.0031
256	0.0042	0.0011	0.0031
257	0.0042	0.0011	0.0031
258	0.0042	0.0011	0.0031
259	0.0041	0.0011	0.0030
260	0.0041	0.0011	0.0030
261	0.0041	0.0011	0.0030
262	0.0040	0.0011	0.0030
263	0.0040	0.0011	0.0029
264	0.0040	0.0011	0.0029
265	0.0039	0.0011	0.0029
266	0.0039	0.0010	0.0029
267	0.0039	0.0010	0.0029

268	0.0039	0.0010	0.0028
269	0.0038	0.0010	0.0028
270	0.0038	0.0010	0.0028
271	0.0038	0.0010	0.0028
272	0.0038	0.0010	0.0028
273	0.0037	0.0010	0.0027
274	0.0037	0.0010	0.0027
275	0.0037	0.0010	0.0027
276	0.0037	0.0010	0.0027
277	0.0036	0.0010	0.0027
278	0.0036	0.0010	0.0026
279	0.0036	0.0010	0.0026
280	0.0036	0.0010	0.0026
281	0.0035	0.0009	0.0026
282	0.0035	0.0009	0.0026
283	0.0035	0.0009	0.0026
284	0.0035	0.0009	0.0025
285	0.0035	0.0009	0.0025
286	0.0034	0.0009	0.0025
287	0.0034	0.0009	0.0025
288	0.0034	0.0009	0.0025

Total soil rain loss = 0.53(In)
Total effective rainfall = 1.60(In)
Peak flow rate in flood hydrograph = 4.21(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	0.05	Q				
0+15	0.0010	0.09	Q				
0+20	0.0017	0.10	Q				
0+25	0.0025	0.11	Q				
0+30	0.0033	0.12	Q				
0+35	0.0041	0.12	Q				
0+40	0.0049	0.12	Q				
0+45	0.0058	0.12	Q				
0+50	0.0067	0.13	Q				
0+55	0.0075	0.13	Q				
1+ 0	0.0084	0.13	Q				
1+ 5	0.0093	0.13	Q				
1+10	0.0102	0.13	Q				
1+15	0.0111	0.13	Q				
1+20	0.0120	0.13	Q				
1+25	0.0129	0.13	Q				
1+30	0.0138	0.13	Q				
1+35	0.0147	0.13	QV				
1+40	0.0156	0.13	QV				
1+45	0.0165	0.13	QV				
1+50	0.0175	0.13	QV				
1+55	0.0184	0.13	QV				
2+ 0	0.0193	0.13	QV				
2+ 5	0.0202	0.13	QV				
2+10	0.0212	0.13	QV				
2+15	0.0221	0.14	QV				
2+20	0.0230	0.14	QV				
2+25	0.0240	0.14	QV				
2+30	0.0249	0.14	QV				
2+35	0.0258	0.14	QV				
2+40	0.0268	0.14	QV				
2+45	0.0277	0.14	QV				

2+50	0.0287	0.14	Q	V
2+55	0.0296	0.14	Q	V
3+ 0	0.0306	0.14	Q	V
3+ 5	0.0316	0.14	Q	V
3+10	0.0325	0.14	Q	V
3+15	0.0335	0.14	Q	V
3+20	0.0345	0.14	Q	V
3+25	0.0355	0.14	Q	V
3+30	0.0364	0.14	Q	V
3+35	0.0374	0.14	Q	V
3+40	0.0384	0.14	Q	V
3+45	0.0394	0.14	Q	V
3+50	0.0404	0.14	Q	V
3+55	0.0414	0.14	Q	V
4+ 0	0.0424	0.15	Q	V
4+ 5	0.0434	0.15	Q	V
4+10	0.0444	0.15	Q	V
4+15	0.0454	0.15	Q	V
4+20	0.0464	0.15	Q	V
4+25	0.0475	0.15	Q	V
4+30	0.0485	0.15	Q	V
4+35	0.0495	0.15	Q	V
4+40	0.0505	0.15	Q	V
4+45	0.0516	0.15	Q	V
4+50	0.0526	0.15	Q	V
4+55	0.0537	0.15	Q	V
5+ 0	0.0547	0.15	Q	V
5+ 5	0.0558	0.15	Q	V
5+10	0.0568	0.15	Q	V
5+15	0.0579	0.15	Q	V
5+20	0.0589	0.15	Q	V
5+25	0.0600	0.16	Q	V
5+30	0.0611	0.16	Q	V
5+35	0.0622	0.16	Q	V
5+40	0.0632	0.16	Q	V
5+45	0.0643	0.16	Q	V
5+50	0.0654	0.16	Q	V
5+55	0.0665	0.16	Q	V
6+ 0	0.0676	0.16	Q	V
6+ 5	0.0687	0.16	Q	V
6+10	0.0699	0.16	Q	V
6+15	0.0710	0.16	Q	V
6+20	0.0721	0.16	Q	V
6+25	0.0732	0.16	Q	V
6+30	0.0744	0.16	Q	V
6+35	0.0755	0.17	Q	V
6+40	0.0766	0.17	Q	V
6+45	0.0778	0.17	Q	V
6+50	0.0789	0.17	Q	V
6+55	0.0801	0.17	Q	V
7+ 0	0.0813	0.17	Q	V
7+ 5	0.0824	0.17	Q	V
7+10	0.0836	0.17	Q	V
7+15	0.0848	0.17	Q	V
7+20	0.0860	0.17	Q	V
7+25	0.0872	0.17	Q	V
7+30	0.0884	0.17	Q	V
7+35	0.0896	0.18	Q	V
7+40	0.0908	0.18	Q	V
7+45	0.0920	0.18	Q	V
7+50	0.0933	0.18	Q	V
7+55	0.0945	0.18	Q	V
8+ 0	0.0957	0.18	Q	V
8+ 5	0.0970	0.18	Q	V
8+10	0.0982	0.18	Q	V
8+15	0.0995	0.18	Q	V
8+20	0.1008	0.18	Q	V
8+25	0.1020	0.19	Q	V
8+30	0.1033	0.19	Q	V

8+35	0.1046	0.19	Q	V				
8+40	0.1059	0.19	Q	V				
8+45	0.1072	0.19	Q	V				
8+50	0.1085	0.19	Q	V				
8+55	0.1098	0.19	Q	V				
9+ 0	0.1112	0.19	Q	V				
9+ 5	0.1125	0.19	Q	V				
9+10	0.1139	0.20	Q	V				
9+15	0.1152	0.20	Q	V				
9+20	0.1166	0.20	Q	V				
9+25	0.1180	0.20	Q	V				
9+30	0.1193	0.20	Q	V				
9+35	0.1207	0.20	Q	V				
9+40	0.1221	0.20	Q	V				
9+45	0.1235	0.20	Q	V				
9+50	0.1250	0.21	Q	V				
9+55	0.1264	0.21	Q	V				
10+ 0	0.1278	0.21	Q	V				
10+ 5	0.1293	0.21	Q	V				
10+10	0.1308	0.21	Q	V				
10+15	0.1322	0.21	Q	V				
10+20	0.1337	0.22	Q	V				
10+25	0.1352	0.22	Q	V				
10+30	0.1367	0.22	Q	V				
10+35	0.1382	0.22	Q	V				
10+40	0.1398	0.22	Q	V				
10+45	0.1413	0.22	Q	V				
10+50	0.1429	0.23	Q	V				
10+55	0.1444	0.23	Q	V				
11+ 0	0.1460	0.23	Q	V				
11+ 5	0.1476	0.23	Q	V				
11+10	0.1492	0.23	Q	V				
11+15	0.1509	0.24	Q	V				
11+20	0.1525	0.24	Q	V				
11+25	0.1542	0.24	Q	V				
11+30	0.1558	0.24	Q	V				
11+35	0.1575	0.25	Q	V				
11+40	0.1592	0.25	Q	V				
11+45	0.1610	0.25	Q	V				
11+50	0.1627	0.25	Q	V				
11+55	0.1644	0.26	Q	V				
12+ 0	0.1662	0.26	Q	V				
12+ 5	0.1680	0.26	Q	V				
12+10	0.1700	0.29	Q	V				
12+15	0.1721	0.31	Q	V				
12+20	0.1743	0.32	Q	V				
12+25	0.1765	0.32	Q	V				
12+30	0.1788	0.33	Q	V				
12+35	0.1811	0.33	Q	V				
12+40	0.1834	0.34	Q	V				
12+45	0.1858	0.34	Q	V				
12+50	0.1882	0.35	Q	V				
12+55	0.1906	0.35	Q	V				
13+ 0	0.1931	0.36	Q	V				
13+ 5	0.1955	0.36	Q	V				
13+10	0.1981	0.36	Q	V				
13+15	0.2006	0.37	Q	V				
13+20	0.2032	0.37	Q	V				
13+25	0.2058	0.38	Q	V				
13+30	0.2084	0.38	Q	V				
13+35	0.2111	0.39	Q	V				
13+40	0.2138	0.39	Q	V				
13+45	0.2166	0.40	Q	V				
13+50	0.2193	0.41	Q	V				
13+55	0.2222	0.41	Q	V				
14+ 0	0.2251	0.42	Q	V				
14+ 5	0.2280	0.43	Q	V				
14+10	0.2310	0.43	Q	V				
14+15	0.2340	0.44	Q	V				

14+20	0.2371	0.45	Q			V			
14+25	0.2403	0.46	Q			V			
14+30	0.2435	0.47	Q			V			
14+35	0.2468	0.48	Q			V			
14+40	0.2502	0.49	Q			V			
14+45	0.2536	0.50	Q			V			
14+50	0.2572	0.51	Q			V			
14+55	0.2608	0.53	Q			V			
15+ 0	0.2646	0.54	Q			V			
15+ 5	0.2684	0.56	Q			V			
15+10	0.2724	0.58	Q			V			
15+15	0.2765	0.60	Q			V			
15+20	0.2809	0.63	Q			V			
15+25	0.2852	0.63	Q			V			
15+30	0.2889	0.54	Q			V			
15+35	0.2923	0.49	Q			V			
15+40	0.2957	0.50	Q			V			
15+45	0.2993	0.53	Q			V			
15+50	0.3034	0.59	Q			V			
15+55	0.3082	0.69	Q			V			
16+ 0	0.3145	0.91	Q			V			
16+ 5	0.3260	1.68	Q			V			
16+10	0.3550	4.21	Q		Q	V			
16+15	0.3769	3.17		Q		V			
16+20	0.3889	1.75		Q		V			
16+25	0.3974	1.23	Q			V			
16+30	0.4046	1.04	Q			V			
16+35	0.4109	0.93	Q			V			
16+40	0.4166	0.82	Q			V			
16+45	0.4216	0.73	Q			V			
16+50	0.4261	0.65	Q			V			
16+55	0.4303	0.61	Q			V			
17+ 0	0.4343	0.58	Q			V			
17+ 5	0.4379	0.53	Q			V			
17+10	0.4412	0.47	Q			V			
17+15	0.4443	0.45	Q			V			
17+20	0.4473	0.44	Q			V			
17+25	0.4502	0.42	Q			V			
17+30	0.4530	0.41	Q			V			
17+35	0.4557	0.40	Q			V			
17+40	0.4584	0.38	Q			V			
17+45	0.4609	0.37	Q			V			
17+50	0.4634	0.36	Q			V			
17+55	0.4659	0.36	Q			V			
18+ 0	0.4683	0.35	Q			V			
18+ 5	0.4706	0.34	Q			V			
18+10	0.4728	0.31	Q			V			
18+15	0.4747	0.29	Q			V			
18+20	0.4766	0.28	Q			V			
18+25	0.4785	0.27	Q			V			
18+30	0.4802	0.26	Q			V			
18+35	0.4820	0.25	Q			V			
18+40	0.4837	0.25	Q			V			
18+45	0.4853	0.24	Q			V			
18+50	0.4869	0.24	Q			V			
18+55	0.4885	0.23	Q			V			
19+ 0	0.4901	0.23	Q			V			
19+ 5	0.4916	0.22	Q			V			
19+10	0.4931	0.22	Q			V			
19+15	0.4946	0.22	Q			V			
19+20	0.4961	0.21	Q			V			
19+25	0.4975	0.21	Q			V			
19+30	0.4989	0.21	Q			V			
19+35	0.5003	0.20	Q			V			
19+40	0.5017	0.20	Q			V			
19+45	0.5031	0.20	Q			V			
19+50	0.5044	0.20	Q			V			
19+55	0.5057	0.19	Q			V			
20+ 0	0.5071	0.19	Q			V			

20+ 5	0.5084	0.19	Q			V
20+10	0.5096	0.19	Q			V
20+15	0.5109	0.18	Q			V
20+20	0.5122	0.18	Q			V
20+25	0.5134	0.18	Q			V
20+30	0.5146	0.18	Q			V
20+35	0.5158	0.18	Q			V
20+40	0.5170	0.17	Q			V
20+45	0.5182	0.17	Q			V
20+50	0.5194	0.17	Q			V
20+55	0.5206	0.17	Q			V
21+ 0	0.5217	0.17	Q			V
21+ 5	0.5229	0.17	Q			V
21+10	0.5240	0.16	Q			V
21+15	0.5251	0.16	Q			V
21+20	0.5262	0.16	Q			V
21+25	0.5273	0.16	Q			V
21+30	0.5284	0.16	Q			V
21+35	0.5295	0.16	Q			V
21+40	0.5306	0.16	Q			V
21+45	0.5316	0.15	Q			V
21+50	0.5327	0.15	Q			V
21+55	0.5338	0.15	Q			V
22+ 0	0.5348	0.15	Q			V
22+ 5	0.5358	0.15	Q			V
22+10	0.5368	0.15	Q			V
22+15	0.5379	0.15	Q			V
22+20	0.5389	0.15	Q			V
22+25	0.5399	0.15	Q			V
22+30	0.5409	0.14	Q			V
22+35	0.5419	0.14	Q			V
22+40	0.5428	0.14	Q			V
22+45	0.5438	0.14	Q			V
22+50	0.5448	0.14	Q			V
22+55	0.5457	0.14	Q			V
23+ 0	0.5467	0.14	Q			V
23+ 5	0.5476	0.14	Q			V
23+10	0.5486	0.14	Q			V
23+15	0.5495	0.14	Q			V
23+20	0.5504	0.13	Q			V
23+25	0.5513	0.13	Q			V
23+30	0.5523	0.13	Q			V
23+35	0.5532	0.13	Q			V
23+40	0.5541	0.13	Q			V
23+45	0.5550	0.13	Q			V
23+50	0.5559	0.13	Q			V
23+55	0.5568	0.13	Q			V
24+ 0	0.5576	0.13	Q			V
24+ 5	0.5585	0.12	Q			V
24+10	0.5590	0.07	Q			V
24+15	0.5593	0.04	Q			V
24+20	0.5594	0.03	Q			V
24+25	0.5595	0.02	Q			V
24+30	0.5596	0.01	Q			V
24+35	0.5597	0.01	Q			V
24+40	0.5597	0.01	Q			V
24+45	0.5597	0.00	Q			V
24+50	0.5598	0.00	Q			V
24+55	0.5598	0.00	Q			V
25+ 0	0.5598	0.00	Q			V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

+++++

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
DEVELOPED CONDITIONS - AREA "A"
10-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 10

Antecedent Moisture Condition = 2

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 10		
4.20	1	0.78

Rainfall data for year 2		
4.20	6	1.13

Rainfall data for year 2		
4.20	24	2.13

Rainfall data for year 100		
4.20	1	1.30

Rainfall data for year 100		
4.20	6	3.06

Rainfall data for year 100		
4.20	24	6.35

+++++

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 2)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
63.0	63.0	4.20	1.000	0.637	0.180	0.115

Area-averaged adjusted loss rate Fm (In/Hr) = 0.115

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.76	0.180	63.0	63.0	5.87	0.219
3.44	0.820	98.0	98.0	0.20	0.939

Area-averaged catchment yield fraction, Y = 0.810

Area-averaged low loss fraction, Yb = 0.190

User entry of time of concentration = 0.170 (hours)

+++++

Watershed area = 4.20(Ac.)

Catchment Lag time = 0.136 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 61.2745

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.115(In/Hr)

Average low loss rate fraction (Yb) = 0.190 (decimal)

DESERT S-Graph Selected

Computed peak 5-minute rainfall = 0.370(In)

Computed peak 30-minute rainfall = 0.634(In)

Specified peak 1-hour rainfall = 0.780(In)

Computed peak 3-hour rainfall = 1.357(In)

Specified peak 6-hour rainfall = 1.924(In)

Specified peak 24-hour rainfall = 3.866(In)

Rainfall depth area reduction factors:

Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.370(In)

30-minute factor = 1.000 Adjusted rainfall = 0.633(In)

1-hour factor = 1.000 Adjusted rainfall = 0.780(In)

3-hour factor = 1.000 Adjusted rainfall = 1.357(In)

6-hour factor = 1.000 Adjusted rainfall = 1.924(In)

24-hour factor = 1.000 Adjusted rainfall = 3.866(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 = 50.79 (CFS))

1	5.829	2.961
2	42.748	18.752
3	68.862	13.265
4	80.052	5.684
5	86.633	3.343
6	90.841	2.137
7	93.754	1.480
8	95.820	1.049
9	97.269	0.736
10	98.124	0.434
11	98.821	0.354
12	99.497	0.344
13	100.000	0.255

Peak Unit Adjusted mass rainfall Unit rainfall

Number	(In)	(In)
1	0.3700	0.3700
2	0.4556	0.0855
3	0.5145	0.0589
4	0.5609	0.0464
5	0.5997	0.0388
6	0.6334	0.0337
7	0.6634	0.0300
8	0.6905	0.0271

9	0.7154	0.0248
10	0.7383	0.0230
11	0.7598	0.0214
12	0.7798	0.0201
13	0.8120	0.0321
14	0.8429	0.0309
15	0.8727	0.0298
16	0.9015	0.0289
17	0.9295	0.0280
18	0.9567	0.0272
19	0.9831	0.0264
20	1.0089	0.0257
21	1.0340	0.0251
22	1.0585	0.0245
23	1.0825	0.0240
24	1.1060	0.0235
25	1.1290	0.0230
26	1.1515	0.0225
27	1.1736	0.0221
28	1.1953	0.0217
29	1.2167	0.0213
30	1.2376	0.0210
31	1.2583	0.0206
32	1.2786	0.0203
33	1.2986	0.0200
34	1.3182	0.0197
35	1.3376	0.0194
36	1.3568	0.0191
37	1.3756	0.0189
38	1.3942	0.0186
39	1.4126	0.0184
40	1.4308	0.0181
41	1.4487	0.0179
42	1.4664	0.0177
43	1.4839	0.0175
44	1.5012	0.0173
45	1.5182	0.0171
46	1.5352	0.0169
47	1.5519	0.0167
48	1.5684	0.0166
49	1.5848	0.0164
50	1.6010	0.0162
51	1.6171	0.0161
52	1.6330	0.0159
53	1.6487	0.0158
54	1.6643	0.0156
55	1.6798	0.0155
56	1.6951	0.0153
57	1.7103	0.0152
58	1.7254	0.0151
59	1.7403	0.0149
60	1.7551	0.0148
61	1.7698	0.0147
62	1.7843	0.0146
63	1.7988	0.0144
64	1.8131	0.0143
65	1.8273	0.0142
66	1.8415	0.0141
67	1.8555	0.0140
68	1.8694	0.0139
69	1.8832	0.0138
70	1.8969	0.0137
71	1.9105	0.0136
72	1.9240	0.0135
73	1.9374	0.0134
74	1.9507	0.0133
75	1.9639	0.0132
76	1.9771	0.0131
77	1.9901	0.0131

78	2.0031	0.0130
79	2.0160	0.0129
80	2.0288	0.0128
81	2.0415	0.0127
82	2.0542	0.0126
83	2.0667	0.0126
84	2.0792	0.0125
85	2.0917	0.0124
86	2.1040	0.0124
87	2.1163	0.0123
88	2.1285	0.0122
89	2.1406	0.0121
90	2.1527	0.0121
91	2.1647	0.0120
92	2.1767	0.0119
93	2.1885	0.0119
94	2.2004	0.0118
95	2.2121	0.0118
96	2.2238	0.0117
97	2.2354	0.0116
98	2.2470	0.0116
99	2.2585	0.0115
100	2.2700	0.0115
101	2.2814	0.0114
102	2.2927	0.0113
103	2.3040	0.0113
104	2.3152	0.0112
105	2.3264	0.0112
106	2.3375	0.0111
107	2.3486	0.0111
108	2.3596	0.0110
109	2.3706	0.0110
110	2.3815	0.0109
111	2.3924	0.0109
112	2.4032	0.0108
113	2.4140	0.0108
114	2.4247	0.0107
115	2.4354	0.0107
116	2.4461	0.0106
117	2.4567	0.0106
118	2.4672	0.0105
119	2.4777	0.0105
120	2.4882	0.0105
121	2.4986	0.0104
122	2.5090	0.0104
123	2.5193	0.0103
124	2.5296	0.0103
125	2.5398	0.0102
126	2.5500	0.0102
127	2.5602	0.0102
128	2.5703	0.0101
129	2.5804	0.0101
130	2.5905	0.0101
131	2.6005	0.0100
132	2.6105	0.0100
133	2.6204	0.0099
134	2.6303	0.0099
135	2.6402	0.0099
136	2.6500	0.0098
137	2.6598	0.0098
138	2.6695	0.0098
139	2.6793	0.0097
140	2.6889	0.0097
141	2.6986	0.0097
142	2.7082	0.0096
143	2.7178	0.0096
144	2.7273	0.0096
145	2.7369	0.0095
146	2.7463	0.0095

147	2.7558	0.0095
148	2.7652	0.0094
149	2.7746	0.0094
150	2.7840	0.0094
151	2.7933	0.0093
152	2.8026	0.0093
153	2.8119	0.0093
154	2.8211	0.0092
155	2.8303	0.0092
156	2.8395	0.0092
157	2.8486	0.0091
158	2.8577	0.0091
159	2.8668	0.0091
160	2.8759	0.0091
161	2.8849	0.0090
162	2.8939	0.0090
163	2.9029	0.0090
164	2.9119	0.0090
165	2.9208	0.0089
166	2.9297	0.0089
167	2.9386	0.0089
168	2.9474	0.0088
169	2.9562	0.0088
170	2.9650	0.0088
171	2.9738	0.0088
172	2.9825	0.0087
173	2.9912	0.0087
174	2.9999	0.0087
175	3.0086	0.0087
176	3.0172	0.0086
177	3.0259	0.0086
178	3.0345	0.0086
179	3.0430	0.0086
180	3.0516	0.0085
181	3.0601	0.0085
182	3.0686	0.0085
183	3.0771	0.0085
184	3.0855	0.0085
185	3.0939	0.0084
186	3.1024	0.0084
187	3.1107	0.0084
188	3.1191	0.0084
189	3.1274	0.0083
190	3.1358	0.0083
191	3.1441	0.0083
192	3.1523	0.0083
193	3.1606	0.0083
194	3.1688	0.0082
195	3.1770	0.0082
196	3.1852	0.0082
197	3.1934	0.0082
198	3.2015	0.0081
199	3.2097	0.0081
200	3.2178	0.0081
201	3.2259	0.0081
202	3.2339	0.0081
203	3.2420	0.0080
204	3.2500	0.0080
205	3.2580	0.0080
206	3.2660	0.0080
207	3.2740	0.0080
208	3.2819	0.0080
209	3.2899	0.0079
210	3.2978	0.0079
211	3.3057	0.0079
212	3.3136	0.0079
213	3.3214	0.0079
214	3.3293	0.0078
215	3.3371	0.0078

216	3.3449	0.0078
217	3.3527	0.0078
218	3.3604	0.0078
219	3.3682	0.0078
220	3.3759	0.0077
221	3.3836	0.0077
222	3.3913	0.0077
223	3.3990	0.0077
224	3.4067	0.0077
225	3.4143	0.0076
226	3.4220	0.0076
227	3.4296	0.0076
228	3.4372	0.0076
229	3.4448	0.0076
230	3.4523	0.0076
231	3.4599	0.0075
232	3.4674	0.0075
233	3.4749	0.0075
234	3.4824	0.0075
235	3.4899	0.0075
236	3.4974	0.0075
237	3.5048	0.0075
238	3.5123	0.0074
239	3.5197	0.0074
240	3.5271	0.0074
241	3.5345	0.0074
242	3.5419	0.0074
243	3.5492	0.0074
244	3.5566	0.0073
245	3.5639	0.0073
246	3.5712	0.0073
247	3.5785	0.0073
248	3.5858	0.0073
249	3.5931	0.0073
250	3.6003	0.0073
251	3.6076	0.0072
252	3.6148	0.0072
253	3.6220	0.0072
254	3.6292	0.0072
255	3.6364	0.0072
256	3.6436	0.0072
257	3.6507	0.0072
258	3.6579	0.0071
259	3.6650	0.0071
260	3.6721	0.0071
261	3.6792	0.0071
262	3.6863	0.0071
263	3.6934	0.0071
264	3.7004	0.0071
265	3.7075	0.0070
266	3.7145	0.0070
267	3.7215	0.0070
268	3.7286	0.0070
269	3.7356	0.0070
270	3.7425	0.0070
271	3.7495	0.0070
272	3.7565	0.0070
273	3.7634	0.0069
274	3.7703	0.0069
275	3.7773	0.0069
276	3.7842	0.0069
277	3.7911	0.0069
278	3.7980	0.0069
279	3.8048	0.0069
280	3.8117	0.0069
281	3.8185	0.0068
282	3.8254	0.0068
283	3.8322	0.0068
284	3.8390	0.0068

285	3.8458	0.0068
286	3.8526	0.0068
287	3.8594	0.0068
288	3.8661	0.0068

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0068	0.0013	0.0055
2	0.0068	0.0013	0.0055
3	0.0068	0.0013	0.0055
4	0.0068	0.0013	0.0055
5	0.0068	0.0013	0.0055
6	0.0068	0.0013	0.0055
7	0.0069	0.0013	0.0056
8	0.0069	0.0013	0.0056
9	0.0069	0.0013	0.0056
10	0.0069	0.0013	0.0056
11	0.0069	0.0013	0.0056
12	0.0070	0.0013	0.0056
13	0.0070	0.0013	0.0057
14	0.0070	0.0013	0.0057
15	0.0070	0.0013	0.0057
16	0.0070	0.0013	0.0057
17	0.0071	0.0013	0.0057
18	0.0071	0.0013	0.0057
19	0.0071	0.0014	0.0058
20	0.0071	0.0014	0.0058
21	0.0071	0.0014	0.0058
22	0.0072	0.0014	0.0058
23	0.0072	0.0014	0.0058
24	0.0072	0.0014	0.0058
25	0.0072	0.0014	0.0059
26	0.0072	0.0014	0.0059
27	0.0073	0.0014	0.0059
28	0.0073	0.0014	0.0059
29	0.0073	0.0014	0.0059
30	0.0073	0.0014	0.0059
31	0.0074	0.0014	0.0060
32	0.0074	0.0014	0.0060
33	0.0074	0.0014	0.0060
34	0.0074	0.0014	0.0060
35	0.0075	0.0014	0.0060
36	0.0075	0.0014	0.0060
37	0.0075	0.0014	0.0061
38	0.0075	0.0014	0.0061
39	0.0075	0.0014	0.0061
40	0.0076	0.0014	0.0061
41	0.0076	0.0014	0.0062
42	0.0076	0.0014	0.0062
43	0.0076	0.0015	0.0062
44	0.0077	0.0015	0.0062
45	0.0077	0.0015	0.0062
46	0.0077	0.0015	0.0062
47	0.0078	0.0015	0.0063
48	0.0078	0.0015	0.0063
49	0.0078	0.0015	0.0063
50	0.0078	0.0015	0.0063
51	0.0079	0.0015	0.0064
52	0.0079	0.0015	0.0064
53	0.0079	0.0015	0.0064
54	0.0079	0.0015	0.0064
55	0.0080	0.0015	0.0065
56	0.0080	0.0015	0.0065
57	0.0080	0.0015	0.0065
58	0.0080	0.0015	0.0065
59	0.0081	0.0015	0.0065
60	0.0081	0.0015	0.0066

61	0.0081	0.0016	0.0066
62	0.0082	0.0016	0.0066
63	0.0082	0.0016	0.0066
64	0.0082	0.0016	0.0067
65	0.0083	0.0016	0.0067
66	0.0083	0.0016	0.0067
67	0.0083	0.0016	0.0068
68	0.0084	0.0016	0.0068
69	0.0084	0.0016	0.0068
70	0.0084	0.0016	0.0068
71	0.0085	0.0016	0.0069
72	0.0085	0.0016	0.0069
73	0.0085	0.0016	0.0069
74	0.0086	0.0016	0.0069
75	0.0086	0.0016	0.0070
76	0.0086	0.0016	0.0070
77	0.0087	0.0017	0.0070
78	0.0087	0.0017	0.0071
79	0.0088	0.0017	0.0071
80	0.0088	0.0017	0.0071
81	0.0088	0.0017	0.0072
82	0.0089	0.0017	0.0072
83	0.0089	0.0017	0.0072
84	0.0090	0.0017	0.0072
85	0.0090	0.0017	0.0073
86	0.0090	0.0017	0.0073
87	0.0091	0.0017	0.0074
88	0.0091	0.0017	0.0074
89	0.0092	0.0017	0.0074
90	0.0092	0.0018	0.0075
91	0.0093	0.0018	0.0075
92	0.0093	0.0018	0.0075
93	0.0094	0.0018	0.0076
94	0.0094	0.0018	0.0076
95	0.0095	0.0018	0.0077
96	0.0095	0.0018	0.0077
97	0.0096	0.0018	0.0077
98	0.0096	0.0018	0.0078
99	0.0097	0.0018	0.0078
100	0.0097	0.0018	0.0078
101	0.0098	0.0019	0.0079
102	0.0098	0.0019	0.0079
103	0.0099	0.0019	0.0080
104	0.0099	0.0019	0.0080
105	0.0100	0.0019	0.0081
106	0.0100	0.0019	0.0081
107	0.0101	0.0019	0.0082
108	0.0101	0.0019	0.0082
109	0.0102	0.0019	0.0083
110	0.0102	0.0020	0.0083
111	0.0103	0.0020	0.0084
112	0.0104	0.0020	0.0084
113	0.0105	0.0020	0.0085
114	0.0105	0.0020	0.0085
115	0.0106	0.0020	0.0086
116	0.0106	0.0020	0.0086
117	0.0107	0.0020	0.0087
118	0.0108	0.0021	0.0087
119	0.0109	0.0021	0.0088
120	0.0109	0.0021	0.0088
121	0.0110	0.0021	0.0089
122	0.0111	0.0021	0.0090
123	0.0112	0.0021	0.0091
124	0.0112	0.0021	0.0091
125	0.0113	0.0022	0.0092
126	0.0114	0.0022	0.0092
127	0.0115	0.0022	0.0093
128	0.0116	0.0022	0.0094
129	0.0117	0.0022	0.0095

130	0.0118	0.0022	0.0095
131	0.0119	0.0023	0.0096
132	0.0119	0.0023	0.0097
133	0.0121	0.0023	0.0098
134	0.0121	0.0023	0.0098
135	0.0123	0.0023	0.0099
136	0.0124	0.0024	0.0100
137	0.0125	0.0024	0.0101
138	0.0126	0.0024	0.0102
139	0.0127	0.0024	0.0103
140	0.0128	0.0024	0.0104
141	0.0130	0.0025	0.0105
142	0.0131	0.0025	0.0106
143	0.0132	0.0025	0.0107
144	0.0133	0.0025	0.0108
145	0.0135	0.0026	0.0109
146	0.0136	0.0026	0.0110
147	0.0138	0.0026	0.0112
148	0.0139	0.0026	0.0113
149	0.0141	0.0027	0.0114
150	0.0142	0.0027	0.0115
151	0.0144	0.0027	0.0117
152	0.0146	0.0028	0.0118
153	0.0148	0.0028	0.0120
154	0.0149	0.0028	0.0121
155	0.0152	0.0029	0.0123
156	0.0153	0.0029	0.0124
157	0.0156	0.0030	0.0126
158	0.0158	0.0030	0.0128
159	0.0161	0.0031	0.0130
160	0.0162	0.0031	0.0131
161	0.0166	0.0032	0.0134
162	0.0167	0.0032	0.0135
163	0.0171	0.0033	0.0138
164	0.0173	0.0033	0.0140
165	0.0177	0.0034	0.0143
166	0.0179	0.0034	0.0145
167	0.0184	0.0035	0.0149
168	0.0186	0.0035	0.0151
169	0.0191	0.0036	0.0155
170	0.0194	0.0037	0.0157
171	0.0200	0.0038	0.0162
172	0.0203	0.0039	0.0164
173	0.0210	0.0040	0.0170
174	0.0213	0.0041	0.0173
175	0.0221	0.0042	0.0179
176	0.0225	0.0043	0.0183
177	0.0235	0.0045	0.0190
178	0.0240	0.0046	0.0194
179	0.0251	0.0048	0.0203
180	0.0257	0.0049	0.0208
181	0.0272	0.0052	0.0220
182	0.0280	0.0053	0.0226
183	0.0298	0.0057	0.0241
184	0.0309	0.0059	0.0250
185	0.0201	0.0038	0.0163
186	0.0214	0.0041	0.0173
187	0.0248	0.0047	0.0201
188	0.0271	0.0052	0.0220
189	0.0337	0.0064	0.0273
190	0.0388	0.0074	0.0314
191	0.0589	0.0096	0.0494
192	0.0855	0.0096	0.0760
193	0.3700	0.0096	0.3605
194	0.0464	0.0088	0.0375
195	0.0300	0.0057	0.0243
196	0.0230	0.0044	0.0186
197	0.0321	0.0061	0.0260
198	0.0289	0.0055	0.0234

199	0.0264	0.0050	0.0214
200	0.0245	0.0047	0.0199
201	0.0230	0.0044	0.0186
202	0.0217	0.0041	0.0176
203	0.0206	0.0039	0.0167
204	0.0197	0.0037	0.0159
205	0.0189	0.0036	0.0153
206	0.0181	0.0035	0.0147
207	0.0175	0.0033	0.0142
208	0.0169	0.0032	0.0137
209	0.0164	0.0031	0.0133
210	0.0159	0.0030	0.0129
211	0.0155	0.0029	0.0125
212	0.0151	0.0029	0.0122
213	0.0147	0.0028	0.0119
214	0.0143	0.0027	0.0116
215	0.0140	0.0027	0.0113
216	0.0137	0.0026	0.0111
217	0.0134	0.0026	0.0109
218	0.0131	0.0025	0.0106
219	0.0129	0.0025	0.0104
220	0.0126	0.0024	0.0102
221	0.0124	0.0024	0.0101
222	0.0122	0.0023	0.0099
223	0.0120	0.0023	0.0097
224	0.0118	0.0022	0.0096
225	0.0116	0.0022	0.0094
226	0.0115	0.0022	0.0093
227	0.0113	0.0021	0.0091
228	0.0111	0.0021	0.0090
229	0.0110	0.0021	0.0089
230	0.0108	0.0021	0.0088
231	0.0107	0.0020	0.0086
232	0.0105	0.0020	0.0085
233	0.0104	0.0020	0.0084
234	0.0103	0.0020	0.0083
235	0.0102	0.0019	0.0082
236	0.0101	0.0019	0.0081
237	0.0099	0.0019	0.0080
238	0.0098	0.0019	0.0080
239	0.0097	0.0019	0.0079
240	0.0096	0.0018	0.0078
241	0.0095	0.0018	0.0077
242	0.0094	0.0018	0.0076
243	0.0093	0.0018	0.0076
244	0.0092	0.0018	0.0075
245	0.0091	0.0017	0.0074
246	0.0091	0.0017	0.0073
247	0.0090	0.0017	0.0073
248	0.0089	0.0017	0.0072
249	0.0088	0.0017	0.0071
250	0.0087	0.0017	0.0071
251	0.0087	0.0016	0.0070
252	0.0086	0.0016	0.0070
253	0.0085	0.0016	0.0069
254	0.0085	0.0016	0.0068
255	0.0084	0.0016	0.0068
256	0.0083	0.0016	0.0067
257	0.0083	0.0016	0.0067
258	0.0082	0.0016	0.0066
259	0.0081	0.0015	0.0066
260	0.0081	0.0015	0.0065
261	0.0080	0.0015	0.0065
262	0.0080	0.0015	0.0064
263	0.0079	0.0015	0.0064
264	0.0078	0.0015	0.0063
265	0.0078	0.0015	0.0063
266	0.0077	0.0015	0.0063
267	0.0077	0.0015	0.0062

268	0.0076	0.0015	0.0062
269	0.0076	0.0014	0.0061
270	0.0075	0.0014	0.0061
271	0.0075	0.0014	0.0061
272	0.0074	0.0014	0.0060
273	0.0074	0.0014	0.0060
274	0.0073	0.0014	0.0059
275	0.0073	0.0014	0.0059
276	0.0073	0.0014	0.0059
277	0.0072	0.0014	0.0058
278	0.0072	0.0014	0.0058
279	0.0071	0.0014	0.0058
280	0.0071	0.0013	0.0057
281	0.0070	0.0013	0.0057
282	0.0070	0.0013	0.0057
283	0.0070	0.0013	0.0056
284	0.0069	0.0013	0.0056
285	0.0069	0.0013	0.0056
286	0.0069	0.0013	0.0056
287	0.0068	0.0013	0.0055
288	0.0068	0.0013	0.0055

Total soil rain loss = 0.67(In)
Total effective rainfall = 3.20(In)
Peak flow rate in flood hydrograph = 8.42(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0009	0.12	Q				
0+15	0.0023	0.19	Q				
0+20	0.0038	0.22	Q				
0+25	0.0055	0.24	Q				
0+30	0.0072	0.25	VQ				
0+35	0.0090	0.26	VQ				
0+40	0.0109	0.27	VQ				
0+45	0.0128	0.27	VQ				
0+50	0.0147	0.28	VQ				
0+55	0.0166	0.28	VQ				
1+ 0	0.0186	0.28	VQ				
1+ 5	0.0205	0.29	VQ				
1+10	0.0225	0.29	VQ				
1+15	0.0245	0.29	VQ				
1+20	0.0265	0.29	VQ				
1+25	0.0284	0.29	Q				
1+30	0.0304	0.29	Q				
1+35	0.0324	0.29	Q				
1+40	0.0344	0.29	Q				
1+45	0.0364	0.29	Q				
1+50	0.0385	0.29	Q				
1+55	0.0405	0.29	Q				
2+ 0	0.0425	0.29	Q				
2+ 5	0.0445	0.29	Q				
2+10	0.0466	0.30	Q				
2+15	0.0486	0.30	Q				
2+20	0.0507	0.30	Q				
2+25	0.0527	0.30	Q				
2+30	0.0548	0.30	Q				
2+35	0.0569	0.30	QV				
2+40	0.0589	0.30	QV				
2+45	0.0610	0.30	QV				

2+50	0.0631	0.30	QV				
2+55	0.0652	0.30	QV				
3+ 0	0.0673	0.30	QV				
3+ 5	0.0694	0.31	QV				
3+10	0.0715	0.31	QV				
3+15	0.0736	0.31	QV				
3+20	0.0758	0.31	QV				
3+25	0.0779	0.31	QV				
3+30	0.0800	0.31	QV				
3+35	0.0822	0.31	QV				
3+40	0.0843	0.31	Q V				
3+45	0.0865	0.31	Q V				
3+50	0.0887	0.31	Q V				
3+55	0.0908	0.32	Q V				
4+ 0	0.0930	0.32	Q V				
4+ 5	0.0952	0.32	Q V				
4+10	0.0974	0.32	Q V				
4+15	0.0996	0.32	Q V				
4+20	0.1018	0.32	Q V				
4+25	0.1041	0.32	Q V				
4+30	0.1063	0.32	Q V				
4+35	0.1085	0.32	Q V				
4+40	0.1108	0.33	Q V				
4+45	0.1130	0.33	Q V				
4+50	0.1153	0.33	Q V				
4+55	0.1176	0.33	Q V				
5+ 0	0.1198	0.33	Q V				
5+ 5	0.1221	0.33	Q V				
5+10	0.1244	0.33	Q V				
5+15	0.1267	0.33	Q V				
5+20	0.1290	0.34	Q V				
5+25	0.1313	0.34	Q V				
5+30	0.1337	0.34	Q V				
5+35	0.1360	0.34	Q V				
5+40	0.1384	0.34	Q V				
5+45	0.1407	0.34	Q V				
5+50	0.1431	0.34	Q V				
5+55	0.1455	0.34	Q V				
6+ 0	0.1478	0.35	Q V				
6+ 5	0.1502	0.35	Q V				
6+10	0.1526	0.35	Q V				
6+15	0.1551	0.35	Q V				
6+20	0.1575	0.35	Q V				
6+25	0.1599	0.35	Q V				
6+30	0.1624	0.36	Q V				
6+35	0.1648	0.36	Q V				
6+40	0.1673	0.36	Q V				
6+45	0.1698	0.36	Q V				
6+50	0.1723	0.36	Q V				
6+55	0.1748	0.36	Q V				
7+ 0	0.1773	0.36	Q V				
7+ 5	0.1798	0.37	Q V				
7+10	0.1823	0.37	Q V				
7+15	0.1849	0.37	Q V				
7+20	0.1874	0.37	Q V				
7+25	0.1900	0.37	Q V				
7+30	0.1926	0.37	Q V				
7+35	0.1952	0.38	Q V				
7+40	0.1978	0.38	Q V				
7+45	0.2004	0.38	Q V				
7+50	0.2030	0.38	Q V				
7+55	0.2057	0.38	Q V				
8+ 0	0.2083	0.39	Q V				
8+ 5	0.2110	0.39	Q V				
8+10	0.2137	0.39	Q V				
8+15	0.2164	0.39	Q V				
8+20	0.2191	0.39	Q V				
8+25	0.2218	0.40	Q V				
8+30	0.2245	0.40	Q V				

8+35	0.2273	0.40	Q	V				
8+40	0.2301	0.40	Q	V				
8+45	0.2328	0.40	Q	V				
8+50	0.2357	0.41	Q	V				
8+55	0.2385	0.41	Q	V				
9+ 0	0.2413	0.41	Q	V				
9+ 5	0.2441	0.41	Q	V				
9+10	0.2470	0.42	Q	V				
9+15	0.2499	0.42	Q	V				
9+20	0.2528	0.42	Q	V				
9+25	0.2557	0.42	Q	V				
9+30	0.2586	0.43	Q	V				
9+35	0.2616	0.43	Q	V				
9+40	0.2646	0.43	Q	V				
9+45	0.2676	0.43	Q	V				
9+50	0.2706	0.44	Q	V				
9+55	0.2736	0.44	Q	V				
10+ 0	0.2766	0.44	Q	V				
10+ 5	0.2797	0.45	Q	V				
10+10	0.2828	0.45	Q	V				
10+15	0.2859	0.45	Q	V				
10+20	0.2890	0.45	Q	V				
10+25	0.2922	0.46	Q	V				
10+30	0.2954	0.46	Q	V				
10+35	0.2986	0.46	Q	V				
10+40	0.3018	0.47	Q	V				
10+45	0.3050	0.47	Q	V				
10+50	0.3083	0.48	Q	V				
10+55	0.3116	0.48	Q	V				
11+ 0	0.3149	0.48	Q	V				
11+ 5	0.3183	0.49	Q	V				
11+10	0.3217	0.49	Q	V				
11+15	0.3251	0.49	Q	V				
11+20	0.3285	0.50	Q	V				
11+25	0.3320	0.50	Q	V				
11+30	0.3355	0.51	Q	V				
11+35	0.3390	0.51	Q	V				
11+40	0.3425	0.52	Q	V				
11+45	0.3461	0.52	Q	V				
11+50	0.3497	0.53	Q	V				
11+55	0.3534	0.53	Q	V				
12+ 0	0.3571	0.54	Q	V				
12+ 5	0.3608	0.54	Q	V				
12+10	0.3646	0.55	Q	V				
12+15	0.3684	0.55	Q	V				
12+20	0.3722	0.56	Q	V				
12+25	0.3761	0.56	Q	V				
12+30	0.3800	0.57	Q	V				
12+35	0.3840	0.58	Q	V				
12+40	0.3880	0.58	Q	V				
12+45	0.3921	0.59	Q	V				
12+50	0.3962	0.60	Q	V				
12+55	0.4004	0.60	Q	V				
13+ 0	0.4046	0.61	Q	V				
13+ 5	0.4089	0.62	Q	V				
13+10	0.4132	0.63	Q	V				
13+15	0.4176	0.64	Q	V				
13+20	0.4221	0.65	Q	V				
13+25	0.4266	0.66	Q	V				
13+30	0.4312	0.67	Q	V				
13+35	0.4358	0.68	Q	V				
13+40	0.4405	0.69	Q	V				
13+45	0.4453	0.70	Q	V				
13+50	0.4502	0.71	Q	V				
13+55	0.4552	0.72	Q	V				
14+ 0	0.4603	0.74	Q	V				
14+ 5	0.4654	0.75	Q	V				
14+10	0.4707	0.76	Q	V				
14+15	0.4760	0.78	Q	V				

14+20	0.4815	0.80	Q		V		
14+25	0.4871	0.81	Q		V		
14+30	0.4929	0.83	Q		V		
14+35	0.4987	0.85	Q		V		
14+40	0.5048	0.88	Q		V		
14+45	0.5109	0.90	Q		V		
14+50	0.5173	0.93	Q		V		
14+55	0.5239	0.95	Q		V		
15+ 0	0.5307	0.99	Q		V		
15+ 5	0.5377	1.02	Q		V		
15+10	0.5450	1.06	Q		V		
15+15	0.5525	1.10	Q		V		
15+20	0.5605	1.15	Q		V		
15+25	0.5685	1.17	Q		V		
15+30	0.5757	1.04	Q		V		
15+35	0.5824	0.97	Q		V		
15+40	0.5892	1.00	Q		V		
15+45	0.5966	1.07	Q		V		
15+50	0.6050	1.21	Q		V		
15+55	0.6148	1.42	Q		V		
16+ 0	0.6281	1.93	Q	Q	V		
16+ 5	0.6526	3.56			V		
16+10	0.7105	8.42			V		Q
16+15	0.7541	6.33			QV		
16+20	0.7785	3.53			V		Q
16+25	0.7956	2.48			V		
16+30	0.8097	2.06		Q	V		
16+35	0.8221	1.80		Q	V		
16+40	0.8329	1.57		Q	V		
16+45	0.8424	1.38		Q	V		
16+50	0.8507	1.21		Q	V		
16+55	0.8585	1.12		Q	V		
17+ 0	0.8657	1.05		Q	V		
17+ 5	0.8724	0.97	Q		V		
17+10	0.8782	0.84	Q		V		
17+15	0.8837	0.80	Q		V		
17+20	0.8890	0.77	Q		V		
17+25	0.8941	0.74	Q		V		
17+30	0.8990	0.71	Q		V		
17+35	0.9037	0.69	Q		V		
17+40	0.9083	0.67	Q		V		
17+45	0.9128	0.65	Q		V		
17+50	0.9171	0.63	Q		V		
17+55	0.9213	0.61	Q		V		
18+ 0	0.9254	0.60	Q		V		
18+ 5	0.9295	0.58	Q		V		
18+10	0.9334	0.57	Q		V		
18+15	0.9372	0.56	Q		V		
18+20	0.9410	0.55	Q		V		
18+25	0.9447	0.54	Q		V		
18+30	0.9483	0.53	Q		V		
18+35	0.9519	0.52	Q		V		
18+40	0.9554	0.51	Q		V		
18+45	0.9588	0.50	Q		V		
18+50	0.9622	0.49	Q		V		
18+55	0.9655	0.48	Q		V		
19+ 0	0.9688	0.47	Q		V		
19+ 5	0.9720	0.47	Q		V		
19+10	0.9752	0.46	Q		V		
19+15	0.9783	0.45	Q		V		
19+20	0.9814	0.45	Q		V		
19+25	0.9844	0.44	Q		V		
19+30	0.9874	0.44	Q		V		
19+35	0.9904	0.43	Q		V		
19+40	0.9933	0.43	Q		V		
19+45	0.9962	0.42	Q		V		
19+50	0.9991	0.42	Q		V		
19+55	1.0019	0.41	Q		V		
20+ 0	1.0047	0.41	Q		V		

20+ 5	1.0075	0.40	Q				V
20+10	1.0102	0.40	Q				V
20+15	1.0129	0.39	Q				V
20+20	1.0156	0.39	Q				V
20+25	1.0183	0.39	Q				V
20+30	1.0209	0.38	Q				V
20+35	1.0235	0.38	Q				V
20+40	1.0261	0.37	Q				V
20+45	1.0286	0.37	Q				V
20+50	1.0312	0.37	Q				V
20+55	1.0337	0.36	Q				V
21+ 0	1.0362	0.36	Q				V
21+ 5	1.0386	0.36	Q				V
21+10	1.0411	0.35	Q				V
21+15	1.0435	0.35	Q				V
21+20	1.0459	0.35	Q				V
21+25	1.0483	0.35	Q				V
21+30	1.0507	0.34	Q				V
21+35	1.0530	0.34	Q				V
21+40	1.0553	0.34	Q				V
21+45	1.0576	0.34	Q				V
21+50	1.0599	0.33	Q				V
21+55	1.0622	0.33	Q				V
22+ 0	1.0645	0.33	Q				V
22+ 5	1.0667	0.33	Q				V
22+10	1.0689	0.32	Q				V
22+15	1.0712	0.32	Q				V
22+20	1.0734	0.32	Q				V
22+25	1.0755	0.32	Q				V
22+30	1.0777	0.31	Q				V
22+35	1.0799	0.31	Q				V
22+40	1.0820	0.31	Q				V
22+45	1.0841	0.31	Q				V
22+50	1.0862	0.31	Q				V
22+55	1.0883	0.30	Q				V
23+ 0	1.0904	0.30	Q				V
23+ 5	1.0925	0.30	Q				V
23+10	1.0946	0.30	Q				V
23+15	1.0966	0.30	Q				V
23+20	1.0986	0.30	Q				V
23+25	1.1007	0.29	Q				V
23+30	1.1027	0.29	Q				V
23+35	1.1047	0.29	Q				V
23+40	1.1067	0.29	Q				V
23+45	1.1087	0.29	Q				V
23+50	1.1106	0.29	Q				V
23+55	1.1126	0.28	Q				V
24+ 0	1.1145	0.28	Q				V
24+ 5	1.1163	0.27	Q				V
24+10	1.1175	0.16	Q				V
24+15	1.1181	0.09	Q				V
24+20	1.1185	0.06	Q				V
24+25	1.1187	0.04	Q				V
24+30	1.1189	0.03	Q				V
24+35	1.1190	0.02	Q				V
24+40	1.1191	0.01	Q				V
24+45	1.1191	0.01	Q				V
24+50	1.1192	0.01	Q				V
24+55	1.1192	0.00	Q				V
25+ 0	1.1192	0.00	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

+++++

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
DEVELOPED CONDITIONS - AREA "A"
25-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 25

Antecedent Moisture Condition = 2

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 10		
4.20	1	0.78

Rainfall data for year 2		
4.20	6	1.13

Rainfall data for year 2		
4.20	24	2.13

Rainfall data for year 100		
4.20	1	1.30

Rainfall data for year 100		
4.20	6	3.06

Rainfall data for year 100		
4.20	24	6.35

+++++

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 2)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
63.0	63.0	4.20	1.000	0.637	0.180	0.115

Area-averaged adjusted loss rate Fm (In/Hr) = 0.115

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.76	0.180	63.0	63.0	5.87	0.292
3.44	0.820	98.0	98.0	0.20	0.951

Area-averaged catchment yield fraction, Y = 0.833

Area-averaged low loss fraction, Yb = 0.167

User entry of time of concentration = 0.170 (hours)

+++++

Watershed area = 4.20(Ac.)

Catchment Lag time = 0.136 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 61.2745

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.115(In/Hr)

Average low loss rate fraction (Yb) = 0.167 (decimal)

DESERT S-Graph Selected

Computed peak 5-minute rainfall = 0.468(In)

Computed peak 30-minute rainfall = 0.802(In)

Specified peak 1-hour rainfall = 0.987(In)

Computed peak 3-hour rainfall = 1.691(In)

Specified peak 6-hour rainfall = 2.376(In)

Specified peak 24-hour rainfall = 4.855(In)

Rainfall depth area reduction factors:

Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.468(In)

30-minute factor = 1.000 Adjusted rainfall = 0.801(In)

1-hour factor = 1.000 Adjusted rainfall = 0.987(In)

3-hour factor = 1.000 Adjusted rainfall = 1.691(In)

6-hour factor = 1.000 Adjusted rainfall = 2.376(In)

24-hour factor = 1.000 Adjusted rainfall = 4.855(In)

Unit Hydrograph

+++++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
-----------------	-----------------------	-------------------------

(K = 50.79 (CFS))

1	5.829	2.961
2	42.748	18.752
3	68.862	13.265
4	80.052	5.684
5	86.633	3.343
6	90.841	2.137
7	93.754	1.480
8	95.820	1.049
9	97.269	0.736
10	98.124	0.434
11	98.821	0.354
12	99.497	0.344
13	100.000	0.255

Peak Unit Adjusted mass rainfall Unit rainfall

Number	(In)	(In)
1	0.4682	0.4682
2	0.5764	0.1082
3	0.6510	0.0746
4	0.7097	0.0587
5	0.7588	0.0491
6	0.8015	0.0427
7	0.8394	0.0379
8	0.8737	0.0343

9	0.9051	0.0314
10	0.9342	0.0291
11	0.9613	0.0271
12	0.9867	0.0254
13	1.0262	0.0395
14	1.0642	0.0380
15	1.1009	0.0366
16	1.1363	0.0354
17	1.1706	0.0343
18	1.2039	0.0333
19	1.2362	0.0324
20	1.2677	0.0315
21	1.2984	0.0307
22	1.3284	0.0300
23	1.3577	0.0293
24	1.3863	0.0286
25	1.4143	0.0280
26	1.4418	0.0275
27	1.4688	0.0269
28	1.4952	0.0264
29	1.5212	0.0260
30	1.5467	0.0255
31	1.5717	0.0251
32	1.5964	0.0247
33	1.6207	0.0243
34	1.6446	0.0239
35	1.6681	0.0236
36	1.6914	0.0232
37	1.7142	0.0229
38	1.7368	0.0226
39	1.7591	0.0223
40	1.7810	0.0220
41	1.8027	0.0217
42	1.8242	0.0214
43	1.8453	0.0212
44	1.8663	0.0209
45	1.8869	0.0207
46	1.9074	0.0204
47	1.9276	0.0202
48	1.9476	0.0200
49	1.9674	0.0198
50	1.9870	0.0196
51	2.0064	0.0194
52	2.0256	0.0192
53	2.0446	0.0190
54	2.0634	0.0188
55	2.0821	0.0187
56	2.1005	0.0185
57	2.1189	0.0183
58	2.1370	0.0181
59	2.1550	0.0180
60	2.1728	0.0178
61	2.1905	0.0177
62	2.2080	0.0175
63	2.2254	0.0174
64	2.2427	0.0173
65	2.2598	0.0171
66	2.2768	0.0170
67	2.2936	0.0169
68	2.3104	0.0167
69	2.3270	0.0166
70	2.3434	0.0165
71	2.3598	0.0164
72	2.3760	0.0162
73	2.3930	0.0170
74	2.4098	0.0168
75	2.4266	0.0167
76	2.4432	0.0166
77	2.4597	0.0165

78	2.4761	0.0164
79	2.4924	0.0163
80	2.5086	0.0162
81	2.5247	0.0161
82	2.5408	0.0160
83	2.5567	0.0159
84	2.5725	0.0158
85	2.5882	0.0157
86	2.6039	0.0156
87	2.6195	0.0156
88	2.6349	0.0155
89	2.6503	0.0154
90	2.6656	0.0153
91	2.6809	0.0152
92	2.6960	0.0151
93	2.7111	0.0151
94	2.7260	0.0150
95	2.7410	0.0149
96	2.7558	0.0148
97	2.7705	0.0148
98	2.7852	0.0147
99	2.7998	0.0146
100	2.8144	0.0145
101	2.8289	0.0145
102	2.8433	0.0144
103	2.8576	0.0143
104	2.8718	0.0143
105	2.8860	0.0142
106	2.9002	0.0141
107	2.9143	0.0141
108	2.9283	0.0140
109	2.9422	0.0139
110	2.9561	0.0139
111	2.9699	0.0138
112	2.9837	0.0138
113	2.9974	0.0137
114	3.0110	0.0136
115	3.0246	0.0136
116	3.0381	0.0135
117	3.0516	0.0135
118	3.0650	0.0134
119	3.0784	0.0134
120	3.0917	0.0133
121	3.1049	0.0133
122	3.1181	0.0132
123	3.1313	0.0131
124	3.1444	0.0131
125	3.1574	0.0130
126	3.1704	0.0130
127	3.1833	0.0129
128	3.1962	0.0129
129	3.2091	0.0128
130	3.2219	0.0128
131	3.2346	0.0127
132	3.2473	0.0127
133	3.2600	0.0127
134	3.2726	0.0126
135	3.2852	0.0126
136	3.2977	0.0125
137	3.3101	0.0125
138	3.3226	0.0124
139	3.3350	0.0124
140	3.3473	0.0123
141	3.3596	0.0123
142	3.3719	0.0123
143	3.3841	0.0122
144	3.3963	0.0122
145	3.4084	0.0121
146	3.4205	0.0121

147	3.4325	0.0121
148	3.4446	0.0120
149	3.4565	0.0120
150	3.4685	0.0119
151	3.4804	0.0119
152	3.4922	0.0119
153	3.5041	0.0118
154	3.5158	0.0118
155	3.5276	0.0117
156	3.5393	0.0117
157	3.5510	0.0117
158	3.5626	0.0116
159	3.5742	0.0116
160	3.5858	0.0116
161	3.5973	0.0115
162	3.6088	0.0115
163	3.6203	0.0115
164	3.6317	0.0114
165	3.6431	0.0114
166	3.6545	0.0114
167	3.6658	0.0113
168	3.6771	0.0113
169	3.6884	0.0113
170	3.6996	0.0112
171	3.7108	0.0112
172	3.7220	0.0112
173	3.7331	0.0111
174	3.7442	0.0111
175	3.7553	0.0111
176	3.7663	0.0110
177	3.7773	0.0110
178	3.7883	0.0110
179	3.7993	0.0110
180	3.8102	0.0109
181	3.8211	0.0109
182	3.8320	0.0109
183	3.8428	0.0108
184	3.8536	0.0108
185	3.8644	0.0108
186	3.8751	0.0108
187	3.8859	0.0107
188	3.8966	0.0107
189	3.9072	0.0107
190	3.9179	0.0106
191	3.9285	0.0106
192	3.9391	0.0106
193	3.9496	0.0106
194	3.9602	0.0105
195	3.9707	0.0105
196	3.9811	0.0105
197	3.9916	0.0105
198	4.0020	0.0104
199	4.0124	0.0104
200	4.0228	0.0104
201	4.0332	0.0104
202	4.0435	0.0103
203	4.0538	0.0103
204	4.0641	0.0103
205	4.0743	0.0103
206	4.0846	0.0102
207	4.0948	0.0102
208	4.1050	0.0102
209	4.1151	0.0102
210	4.1253	0.0101
211	4.1354	0.0101
212	4.1455	0.0101
213	4.1555	0.0101
214	4.1656	0.0100
215	4.1756	0.0100

216	4.1856	0.0100
217	4.1956	0.0100
218	4.2055	0.0100
219	4.2154	0.0099
220	4.2254	0.0099
221	4.2352	0.0099
222	4.2451	0.0099
223	4.2550	0.0098
224	4.2648	0.0098
225	4.2746	0.0098
226	4.2844	0.0098
227	4.2941	0.0098
228	4.3039	0.0097
229	4.3136	0.0097
230	4.3233	0.0097
231	4.3330	0.0097
232	4.3426	0.0097
233	4.3522	0.0096
234	4.3619	0.0096
235	4.3715	0.0096
236	4.3810	0.0096
237	4.3906	0.0096
238	4.4001	0.0095
239	4.4097	0.0095
240	4.4192	0.0095
241	4.4286	0.0095
242	4.4381	0.0095
243	4.4475	0.0094
244	4.4570	0.0094
245	4.4664	0.0094
246	4.4758	0.0094
247	4.4851	0.0094
248	4.4945	0.0093
249	4.5038	0.0093
250	4.5131	0.0093
251	4.5224	0.0093
252	4.5317	0.0093
253	4.5409	0.0093
254	4.5502	0.0092
255	4.5594	0.0092
256	4.5686	0.0092
257	4.5778	0.0092
258	4.5870	0.0092
259	4.5961	0.0092
260	4.6053	0.0091
261	4.6144	0.0091
262	4.6235	0.0091
263	4.6326	0.0091
264	4.6417	0.0091
265	4.6507	0.0091
266	4.6597	0.0090
267	4.6688	0.0090
268	4.6778	0.0090
269	4.6868	0.0090
270	4.6957	0.0090
271	4.7047	0.0090
272	4.7136	0.0089
273	4.7225	0.0089
274	4.7315	0.0089
275	4.7403	0.0089
276	4.7492	0.0089
277	4.7581	0.0089
278	4.7669	0.0088
279	4.7758	0.0088
280	4.7846	0.0088
281	4.7934	0.0088
282	4.8022	0.0088
283	4.8109	0.0088
284	4.8197	0.0088

285	4.8284	0.0087
286	4.8371	0.0087
287	4.8458	0.0087
288	4.8545	0.0087

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0087	0.0015	0.0072
2	0.0087	0.0015	0.0073
3	0.0087	0.0015	0.0073
4	0.0088	0.0015	0.0073
5	0.0088	0.0015	0.0073
6	0.0088	0.0015	0.0073
7	0.0088	0.0015	0.0074
8	0.0088	0.0015	0.0074
9	0.0089	0.0015	0.0074
10	0.0089	0.0015	0.0074
11	0.0089	0.0015	0.0074
12	0.0089	0.0015	0.0074
13	0.0090	0.0015	0.0075
14	0.0090	0.0015	0.0075
15	0.0090	0.0015	0.0075
16	0.0090	0.0015	0.0075
17	0.0091	0.0015	0.0076
18	0.0091	0.0015	0.0076
19	0.0091	0.0015	0.0076
20	0.0091	0.0015	0.0076
21	0.0092	0.0015	0.0076
22	0.0092	0.0015	0.0077
23	0.0092	0.0015	0.0077
24	0.0092	0.0015	0.0077
25	0.0093	0.0016	0.0077
26	0.0093	0.0016	0.0077
27	0.0093	0.0016	0.0078
28	0.0093	0.0016	0.0078
29	0.0094	0.0016	0.0078
30	0.0094	0.0016	0.0078
31	0.0094	0.0016	0.0079
32	0.0095	0.0016	0.0079
33	0.0095	0.0016	0.0079
34	0.0095	0.0016	0.0079
35	0.0096	0.0016	0.0080
36	0.0096	0.0016	0.0080
37	0.0096	0.0016	0.0080
38	0.0096	0.0016	0.0080
39	0.0097	0.0016	0.0081
40	0.0097	0.0016	0.0081
41	0.0097	0.0016	0.0081
42	0.0098	0.0016	0.0081
43	0.0098	0.0016	0.0082
44	0.0098	0.0016	0.0082
45	0.0099	0.0017	0.0082
46	0.0099	0.0017	0.0082
47	0.0099	0.0017	0.0083
48	0.0100	0.0017	0.0083
49	0.0100	0.0017	0.0083
50	0.0100	0.0017	0.0083
51	0.0101	0.0017	0.0084
52	0.0101	0.0017	0.0084
53	0.0101	0.0017	0.0084
54	0.0102	0.0017	0.0085
55	0.0102	0.0017	0.0085
56	0.0102	0.0017	0.0085
57	0.0103	0.0017	0.0086
58	0.0103	0.0017	0.0086
59	0.0104	0.0017	0.0086
60	0.0104	0.0017	0.0086

61	0.0104	0.0017	0.0087
62	0.0105	0.0018	0.0087
63	0.0105	0.0018	0.0087
64	0.0105	0.0018	0.0088
65	0.0106	0.0018	0.0088
66	0.0106	0.0018	0.0088
67	0.0107	0.0018	0.0089
68	0.0107	0.0018	0.0089
69	0.0108	0.0018	0.0090
70	0.0108	0.0018	0.0090
71	0.0108	0.0018	0.0090
72	0.0109	0.0018	0.0090
73	0.0109	0.0018	0.0091
74	0.0110	0.0018	0.0091
75	0.0110	0.0018	0.0092
76	0.0110	0.0018	0.0092
77	0.0111	0.0019	0.0092
78	0.0111	0.0019	0.0093
79	0.0112	0.0019	0.0093
80	0.0112	0.0019	0.0094
81	0.0113	0.0019	0.0094
82	0.0113	0.0019	0.0094
83	0.0114	0.0019	0.0095
84	0.0114	0.0019	0.0095
85	0.0115	0.0019	0.0096
86	0.0115	0.0019	0.0096
87	0.0116	0.0019	0.0097
88	0.0116	0.0019	0.0097
89	0.0117	0.0020	0.0098
90	0.0117	0.0020	0.0098
91	0.0118	0.0020	0.0098
92	0.0119	0.0020	0.0099
93	0.0119	0.0020	0.0099
94	0.0120	0.0020	0.0100
95	0.0121	0.0020	0.0100
96	0.0121	0.0020	0.0101
97	0.0122	0.0020	0.0101
98	0.0122	0.0020	0.0102
99	0.0123	0.0021	0.0102
100	0.0123	0.0021	0.0103
101	0.0124	0.0021	0.0103
102	0.0125	0.0021	0.0104
103	0.0126	0.0021	0.0105
104	0.0126	0.0021	0.0105
105	0.0127	0.0021	0.0106
106	0.0127	0.0021	0.0106
107	0.0128	0.0022	0.0107
108	0.0129	0.0022	0.0107
109	0.0130	0.0022	0.0108
110	0.0130	0.0022	0.0109
111	0.0131	0.0022	0.0109
112	0.0132	0.0022	0.0110
113	0.0133	0.0022	0.0111
114	0.0134	0.0022	0.0111
115	0.0135	0.0023	0.0112
116	0.0135	0.0023	0.0113
117	0.0136	0.0023	0.0114
118	0.0137	0.0023	0.0114
119	0.0138	0.0023	0.0115
120	0.0139	0.0023	0.0116
121	0.0140	0.0023	0.0117
122	0.0141	0.0024	0.0117
123	0.0142	0.0024	0.0118
124	0.0143	0.0024	0.0119
125	0.0144	0.0024	0.0120
126	0.0145	0.0024	0.0120
127	0.0146	0.0024	0.0122
128	0.0147	0.0025	0.0122
129	0.0148	0.0025	0.0123

130	0.0149	0.0025	0.0124
131	0.0151	0.0025	0.0125
132	0.0151	0.0025	0.0126
133	0.0153	0.0026	0.0127
134	0.0154	0.0026	0.0128
135	0.0156	0.0026	0.0130
136	0.0156	0.0026	0.0130
137	0.0158	0.0026	0.0132
138	0.0159	0.0027	0.0133
139	0.0161	0.0027	0.0134
140	0.0162	0.0027	0.0135
141	0.0164	0.0027	0.0137
142	0.0165	0.0028	0.0138
143	0.0167	0.0028	0.0139
144	0.0168	0.0028	0.0140
145	0.0162	0.0027	0.0135
146	0.0164	0.0027	0.0136
147	0.0166	0.0028	0.0138
148	0.0167	0.0028	0.0139
149	0.0170	0.0028	0.0141
150	0.0171	0.0029	0.0143
151	0.0174	0.0029	0.0145
152	0.0175	0.0029	0.0146
153	0.0178	0.0030	0.0148
154	0.0180	0.0030	0.0150
155	0.0183	0.0031	0.0152
156	0.0185	0.0031	0.0154
157	0.0188	0.0032	0.0157
158	0.0190	0.0032	0.0158
159	0.0194	0.0032	0.0161
160	0.0196	0.0033	0.0163
161	0.0200	0.0033	0.0167
162	0.0202	0.0034	0.0168
163	0.0207	0.0035	0.0172
164	0.0209	0.0035	0.0174
165	0.0214	0.0036	0.0178
166	0.0217	0.0036	0.0181
167	0.0223	0.0037	0.0185
168	0.0226	0.0038	0.0188
169	0.0232	0.0039	0.0193
170	0.0236	0.0039	0.0196
171	0.0243	0.0041	0.0202
172	0.0247	0.0041	0.0205
173	0.0255	0.0043	0.0212
174	0.0260	0.0043	0.0216
175	0.0269	0.0045	0.0224
176	0.0275	0.0046	0.0229
177	0.0286	0.0048	0.0238
178	0.0293	0.0049	0.0244
179	0.0307	0.0051	0.0256
180	0.0315	0.0053	0.0262
181	0.0333	0.0056	0.0277
182	0.0343	0.0057	0.0286
183	0.0366	0.0061	0.0305
184	0.0380	0.0064	0.0316
185	0.0254	0.0043	0.0212
186	0.0271	0.0045	0.0226
187	0.0314	0.0053	0.0262
188	0.0343	0.0057	0.0286
189	0.0427	0.0071	0.0355
190	0.0491	0.0082	0.0409
191	0.0746	0.0096	0.0650
192	0.1082	0.0096	0.0987
193	0.4682	0.0096	0.4587
194	0.0587	0.0096	0.0491
195	0.0379	0.0064	0.0316
196	0.0291	0.0049	0.0242
197	0.0395	0.0066	0.0329
198	0.0354	0.0059	0.0295

199	0.0324	0.0054	0.0269
200	0.0300	0.0050	0.0250
201	0.0280	0.0047	0.0233
202	0.0264	0.0044	0.0220
203	0.0251	0.0042	0.0209
204	0.0239	0.0040	0.0199
205	0.0229	0.0038	0.0190
206	0.0220	0.0037	0.0183
207	0.0212	0.0035	0.0176
208	0.0204	0.0034	0.0170
209	0.0198	0.0033	0.0165
210	0.0192	0.0032	0.0160
211	0.0187	0.0031	0.0155
212	0.0181	0.0030	0.0151
213	0.0177	0.0030	0.0147
214	0.0173	0.0029	0.0144
215	0.0169	0.0028	0.0140
216	0.0165	0.0028	0.0137
217	0.0170	0.0028	0.0141
218	0.0166	0.0028	0.0138
219	0.0163	0.0027	0.0136
220	0.0160	0.0027	0.0133
221	0.0157	0.0026	0.0131
222	0.0155	0.0026	0.0129
223	0.0152	0.0025	0.0127
224	0.0150	0.0025	0.0125
225	0.0148	0.0025	0.0123
226	0.0145	0.0024	0.0121
227	0.0143	0.0024	0.0119
228	0.0141	0.0024	0.0118
229	0.0139	0.0023	0.0116
230	0.0138	0.0023	0.0115
231	0.0136	0.0023	0.0113
232	0.0134	0.0022	0.0112
233	0.0133	0.0022	0.0110
234	0.0131	0.0022	0.0109
235	0.0129	0.0022	0.0108
236	0.0128	0.0021	0.0107
237	0.0127	0.0021	0.0105
238	0.0125	0.0021	0.0104
239	0.0124	0.0021	0.0103
240	0.0123	0.0021	0.0102
241	0.0121	0.0020	0.0101
242	0.0120	0.0020	0.0100
243	0.0119	0.0020	0.0099
244	0.0118	0.0020	0.0098
245	0.0117	0.0020	0.0097
246	0.0116	0.0019	0.0096
247	0.0115	0.0019	0.0095
248	0.0114	0.0019	0.0095
249	0.0113	0.0019	0.0094
250	0.0112	0.0019	0.0093
251	0.0111	0.0019	0.0092
252	0.0110	0.0018	0.0091
253	0.0109	0.0018	0.0091
254	0.0108	0.0018	0.0090
255	0.0107	0.0018	0.0089
256	0.0106	0.0018	0.0089
257	0.0106	0.0018	0.0088
258	0.0105	0.0018	0.0087
259	0.0104	0.0017	0.0087
260	0.0103	0.0017	0.0086
261	0.0103	0.0017	0.0085
262	0.0102	0.0017	0.0085
263	0.0101	0.0017	0.0084
264	0.0100	0.0017	0.0084
265	0.0100	0.0017	0.0083
266	0.0099	0.0017	0.0083
267	0.0098	0.0016	0.0082

268	0.0098	0.0016	0.0081
269	0.0097	0.0016	0.0081
270	0.0097	0.0016	0.0080
271	0.0096	0.0016	0.0080
272	0.0095	0.0016	0.0079
273	0.0095	0.0016	0.0079
274	0.0094	0.0016	0.0078
275	0.0094	0.0016	0.0078
276	0.0093	0.0016	0.0078
277	0.0093	0.0016	0.0077
278	0.0092	0.0015	0.0077
279	0.0092	0.0015	0.0076
280	0.0091	0.0015	0.0076
281	0.0091	0.0015	0.0075
282	0.0090	0.0015	0.0075
283	0.0090	0.0015	0.0075
284	0.0089	0.0015	0.0074
285	0.0089	0.0015	0.0074
286	0.0088	0.0015	0.0073
287	0.0088	0.0015	0.0073
288	0.0087	0.0015	0.0073

Total soil rain loss = 0.73(In)
Total effective rainfall = 4.12(In)
Peak flow rate in flood hydrograph = 10.76(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	5.0	10.0	15.0	20.0
0+ 5	0.0001	0.02	Q				
0+10	0.0012	0.16	Q				
0+15	0.0030	0.25	Q				
0+20	0.0050	0.30	Q				
0+25	0.0072	0.32	Q				
0+30	0.0095	0.34	Q				
0+35	0.0119	0.35	Q				
0+40	0.0144	0.36	Q				
0+45	0.0169	0.36	Q				
0+50	0.0194	0.37	Q				
0+55	0.0220	0.37	Q				
1+ 0	0.0245	0.37	Q				
1+ 5	0.0271	0.38	Q				
1+10	0.0297	0.38	Q				
1+15	0.0323	0.38	Q				
1+20	0.0350	0.38	Q				
1+25	0.0376	0.38	QV				
1+30	0.0402	0.38	QV				
1+35	0.0429	0.38	QV				
1+40	0.0455	0.38	QV				
1+45	0.0482	0.39	QV				
1+50	0.0508	0.39	QV				
1+55	0.0535	0.39	QV				
2+ 0	0.0562	0.39	QV				
2+ 5	0.0588	0.39	QV				
2+10	0.0615	0.39	QV				
2+15	0.0642	0.39	QV				
2+20	0.0669	0.39	QV				
2+25	0.0696	0.39	QV				
2+30	0.0724	0.40	Q V				
2+35	0.0751	0.40	Q V				
2+40	0.0778	0.40	Q V				
2+45	0.0806	0.40	Q V				

2+50	0.0833	0.40	Q	V				
2+55	0.0861	0.40	Q	V				
3+ 0	0.0889	0.40	Q	V				
3+ 5	0.0916	0.40	Q	V				
3+10	0.0944	0.40	Q	V				
3+15	0.0972	0.41	Q	V				
3+20	0.1000	0.41	Q	V				
3+25	0.1028	0.41	Q	V				
3+30	0.1057	0.41	Q	V				
3+35	0.1085	0.41	Q	V				
3+40	0.1113	0.41	Q	V				
3+45	0.1142	0.41	Q	V				
3+50	0.1170	0.42	Q	V				
3+55	0.1199	0.42	Q	V				
4+ 0	0.1228	0.42	Q	V				
4+ 5	0.1257	0.42	Q	V				
4+10	0.1286	0.42	Q	V				
4+15	0.1315	0.42	Q	V				
4+20	0.1344	0.42	Q	V				
4+25	0.1373	0.42	Q	V				
4+30	0.1403	0.43	Q	V				
4+35	0.1432	0.43	Q	V				
4+40	0.1462	0.43	Q	V				
4+45	0.1491	0.43	Q	V				
4+50	0.1521	0.43	Q	V				
4+55	0.1551	0.43	Q	V				
5+ 0	0.1581	0.44	Q	V				
5+ 5	0.1611	0.44	Q	V				
5+10	0.1641	0.44	Q	V				
5+15	0.1672	0.44	Q	V				
5+20	0.1702	0.44	Q	V				
5+25	0.1733	0.44	Q	V				
5+30	0.1763	0.45	Q	V				
5+35	0.1794	0.45	Q	V				
5+40	0.1825	0.45	Q	V				
5+45	0.1856	0.45	Q	V				
5+50	0.1887	0.45	Q	V				
5+55	0.1918	0.45	Q	V				
6+ 0	0.1950	0.46	Q	V				
6+ 5	0.1981	0.46	Q	V				
6+10	0.2013	0.46	Q	V				
6+15	0.2044	0.46	Q	V				
6+20	0.2076	0.46	Q	V				
6+25	0.2108	0.46	Q	V				
6+30	0.2141	0.47	Q	V				
6+35	0.2173	0.47	Q	V				
6+40	0.2205	0.47	Q	V				
6+45	0.2238	0.47	Q	V				
6+50	0.2270	0.47	Q	V				
6+55	0.2303	0.48	Q	V				
7+ 0	0.2336	0.48	Q	V				
7+ 5	0.2369	0.48	Q	V				
7+10	0.2403	0.48	Q	V				
7+15	0.2436	0.49	Q	V				
7+20	0.2470	0.49	Q	V				
7+25	0.2503	0.49	Q	V				
7+30	0.2537	0.49	Q	V				
7+35	0.2571	0.49	Q	V				
7+40	0.2605	0.50	Q	V				
7+45	0.2640	0.50	Q	V				
7+50	0.2674	0.50	Q	V				
7+55	0.2709	0.50	Q	V				
8+ 0	0.2744	0.51	Q	V				
8+ 5	0.2779	0.51	Q	V				
8+10	0.2814	0.51	Q	V				
8+15	0.2849	0.51	Q	V				
8+20	0.2885	0.52	Q	V				
8+25	0.2921	0.52	Q	V				
8+30	0.2956	0.52	Q	V				

8+35	0.2993	0.52	Q	V				
8+40	0.3029	0.53	Q	V				
8+45	0.3065	0.53	Q	V				
8+50	0.3102	0.53	Q	V				
8+55	0.3139	0.54	Q	V				
9+ 0	0.3176	0.54	Q	V				
9+ 5	0.3213	0.54	Q	V				
9+10	0.3251	0.54	Q	V				
9+15	0.3289	0.55	Q	V				
9+20	0.3326	0.55	Q	V				
9+25	0.3365	0.55	Q	V				
9+30	0.3403	0.56	Q	V				
9+35	0.3442	0.56	Q	V				
9+40	0.3480	0.56	Q	V				
9+45	0.3520	0.57	Q	V				
9+50	0.3559	0.57	Q	V				
9+55	0.3599	0.57	Q	V				
10+ 0	0.3638	0.58	Q	V				
10+ 5	0.3678	0.58	Q	V				
10+10	0.3719	0.59	Q	V				
10+15	0.3760	0.59	Q	V				
10+20	0.3800	0.59	Q	V				
10+25	0.3842	0.60	Q	V				
10+30	0.3883	0.60	Q	V				
10+35	0.3925	0.61	Q	V				
10+40	0.3967	0.61	Q	V				
10+45	0.4009	0.62	Q	V				
10+50	0.4052	0.62	Q	V				
10+55	0.4095	0.62	Q	V				
11+ 0	0.4138	0.63	Q	V				
11+ 5	0.4182	0.63	Q	V				
11+10	0.4226	0.64	Q	V				
11+15	0.4271	0.64	Q	V				
11+20	0.4315	0.65	Q	V				
11+25	0.4360	0.66	Q	V				
11+30	0.4406	0.66	Q	V				
11+35	0.4452	0.67	Q	V				
11+40	0.4498	0.67	Q	V				
11+45	0.4545	0.68	Q	V				
11+50	0.4592	0.68	Q	V				
11+55	0.4640	0.69	Q	V				
12+ 0	0.4688	0.70	Q	V				
12+ 5	0.4736	0.70	Q	V				
12+10	0.4784	0.70	Q	V				
12+15	0.4832	0.69	Q	V				
12+20	0.4880	0.70	Q	V				
12+25	0.4928	0.70	Q	V				
12+30	0.4977	0.71	Q	V				
12+35	0.5026	0.72	Q	V				
12+40	0.5076	0.72	Q	V				
12+45	0.5126	0.73	Q	V				
12+50	0.5178	0.74	Q	V				
12+55	0.5229	0.75	Q	V				
13+ 0	0.5281	0.76	Q	V				
13+ 5	0.5334	0.77	Q	V				
13+10	0.5388	0.78	Q	V				
13+15	0.5443	0.79	Q	V				
13+20	0.5498	0.80	Q	V				
13+25	0.5554	0.81	Q	V				
13+30	0.5611	0.83	Q	V				
13+35	0.5669	0.84	Q	V				
13+40	0.5727	0.85	Q	V				
13+45	0.5787	0.87	Q	V				
13+50	0.5848	0.88	Q	V				
13+55	0.5910	0.90	Q	V				
14+ 0	0.5973	0.92	Q	V				
14+ 5	0.6037	0.93	Q	V				
14+10	0.6103	0.95	Q	V				
14+15	0.6170	0.97	Q	V				

14+20	0.6238	0.99	Q		V		
14+25	0.6308	1.02	Q		V		
14+30	0.6380	1.04	Q		V		
14+35	0.6453	1.07	Q		V		
14+40	0.6528	1.10	Q		V		
14+45	0.6606	1.13	Q		V		
14+50	0.6686	1.16	Q		V		
14+55	0.6768	1.19	Q		V		
15+ 0	0.6853	1.24	Q		V		
15+ 5	0.6941	1.28	Q		V		
15+10	0.7033	1.33	Q		V		
15+15	0.7129	1.38	Q		V		
15+20	0.7229	1.45	Q		V		
15+25	0.7331	1.48	Q		V		
15+30	0.7422	1.33	Q		V		
15+35	0.7508	1.24	Q		V		
15+40	0.7597	1.29	Q		V		
15+45	0.7692	1.38	Q		V		
15+50	0.7800	1.57	Q	Q	V		
15+55	0.7928	1.85	Q	Q	V		
16+ 0	0.8102	2.53		Q	V		
16+ 5	0.8419	4.60		Q	V		
16+10	0.9160	10.76		Q	V		
16+15	0.9718	8.10		Q	V		
16+20	1.0031	4.54		Q	V		
16+25	1.0251	3.19		Q	V		
16+30	1.0432	2.63	Q	Q	V		
16+35	1.0590	2.29	Q	Q	V		
16+40	1.0728	1.99	Q	Q	V		
16+45	1.0848	1.75	Q	Q	V		
16+50	1.0953	1.53	Q	Q	V		
16+55	1.1050	1.41	Q	Q	V		
17+ 0	1.1142	1.33	Q	Q	V		
17+ 5	1.1225	1.21	Q	Q	V		
17+10	1.1298	1.05	Q	Q	V		
17+15	1.1366	1.00	Q	Q	V		
17+20	1.1432	0.96	Q	Q	V		
17+25	1.1496	0.92	Q	Q	V		
17+30	1.1557	0.89	Q	Q	V		
17+35	1.1616	0.86	Q	Q	V		
17+40	1.1673	0.83	Q	Q	V		
17+45	1.1729	0.80	Q	Q	V		
17+50	1.1782	0.78	Q	Q	V		
17+55	1.1835	0.76	Q	Q	V		
18+ 0	1.1886	0.74	Q	Q	V		
18+ 5	1.1936	0.72	Q	Q	V		
18+10	1.1985	0.72	Q	Q	V		
18+15	1.2035	0.71	Q	Q	V		
18+20	1.2083	0.70	Q	Q	V		
18+25	1.2131	0.69	Q	Q	V		
18+30	1.2178	0.68	Q	Q	V		
18+35	1.2224	0.67	Q	Q	V		
18+40	1.2269	0.66	Q	Q	V		
18+45	1.2314	0.65	Q	Q	V		
18+50	1.2358	0.64	Q	Q	V		
18+55	1.2401	0.63	Q	Q	V		
19+ 0	1.2444	0.62	Q	Q	V		
19+ 5	1.2486	0.61	Q	Q	V		
19+10	1.2527	0.60	Q	Q	V		
19+15	1.2568	0.59	Q	Q	V		
19+20	1.2609	0.59	Q	Q	V		
19+25	1.2648	0.58	Q	Q	V		
19+30	1.2688	0.57	Q	Q	V		
19+35	1.2727	0.56	Q	Q	V		
19+40	1.2765	0.56	Q	Q	V		
19+45	1.2803	0.55	Q	Q	V		
19+50	1.2840	0.54	Q	Q	V		
19+55	1.2877	0.54	Q	Q	V		
20+ 0	1.2914	0.53	Q	Q	V		

20+ 5	1.2950	0.53	Q				V
20+10	1.2986	0.52	Q				V
20+15	1.3022	0.52	Q				V
20+20	1.3057	0.51	Q				V
20+25	1.3092	0.51	Q				V
20+30	1.3126	0.50	Q				V
20+35	1.3160	0.50	Q				V
20+40	1.3194	0.49	Q				V
20+45	1.3228	0.49	Q				V
20+50	1.3261	0.48	Q				V
20+55	1.3294	0.48	Q				V
21+ 0	1.3327	0.47	Q				V
21+ 5	1.3359	0.47	Q				V
21+10	1.3391	0.47	Q				V
21+15	1.3423	0.46	Q				V
21+20	1.3455	0.46	Q				V
21+25	1.3486	0.46	Q				V
21+30	1.3517	0.45	Q				V
21+35	1.3548	0.45	Q				V
21+40	1.3579	0.44	Q				V
21+45	1.3609	0.44	Q				V
21+50	1.3639	0.44	Q				V
21+55	1.3669	0.44	Q				V
22+ 0	1.3699	0.43	Q				V
22+ 5	1.3728	0.43	Q				V
22+10	1.3758	0.43	Q				V
22+15	1.3787	0.42	Q				V
22+20	1.3816	0.42	Q				V
22+25	1.3845	0.42	Q				V
22+30	1.3873	0.41	Q				V
22+35	1.3902	0.41	Q				V
22+40	1.3930	0.41	Q				V
22+45	1.3958	0.41	Q				V
22+50	1.3986	0.40	Q				V
22+55	1.4013	0.40	Q				V
23+ 0	1.4041	0.40	Q				V
23+ 5	1.4068	0.40	Q				V
23+10	1.4095	0.39	Q				V
23+15	1.4122	0.39	Q				V
23+20	1.4149	0.39	Q				V
23+25	1.4176	0.39	Q				V
23+30	1.4203	0.39	Q				V
23+35	1.4229	0.38	Q				V
23+40	1.4255	0.38	Q				V
23+45	1.4282	0.38	Q				V
23+50	1.4308	0.38	Q				V
23+55	1.4333	0.38	Q				V
24+ 0	1.4359	0.37	Q				V
24+ 5	1.4383	0.35	Q				V
24+10	1.4398	0.21	Q				V
24+15	1.4406	0.12	Q				V
24+20	1.4411	0.07	Q				V
24+25	1.4414	0.05	Q				V
24+30	1.4417	0.03	Q				V
24+35	1.4418	0.02	Q				V
24+40	1.4420	0.02	Q				V
24+45	1.4420	0.01	Q				V
24+50	1.4421	0.01	Q				V
24+55	1.4421	0.00	Q				V
25+ 0	1.4421	0.00	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 11/11/19

+++++

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

Program License Serial Number 6320

194647 - BALDY MESA ROAD PHELAN
DEVELOPED CONDITIONS - AREA "A"
100-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-11-19

Storm Event Year = 100

Antecedent Moisture Condition = 2

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 10		
4.20	1	0.78

Rainfall data for year 2		
4.20	6	1.13

Rainfall data for year 2		
4.20	24	2.13

Rainfall data for year 100		
4.20	1	1.30

Rainfall data for year 100		
4.20	6	3.06

Rainfall data for year 100		
4.20	24	6.35

+++++

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

SCS curve No.(AMCII)	SCS curve NO.(AMC 2)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
63.0	63.0	4.20	1.000	0.637	0.180	0.115

Area-averaged adjusted loss rate Fm (In/Hr) = 0.115

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.76	0.180	63.0	63.0	5.87	0.382
3.44	0.820	98.0	98.0	0.20	0.962

Area-averaged catchment yield fraction, Y = 0.858

Area-averaged low loss fraction, Yb = 0.142

User entry of time of concentration = 0.170 (hours)

+++++

Watershed area = 4.20(Ac.)

Catchment Lag time = 0.136 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 61.2745

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.115(In/Hr)

Average low loss rate fraction (Yb) = 0.142 (decimal)

DESERT S-Graph Selected

Computed peak 5-minute rainfall = 0.617(In)

Computed peak 30-minute rainfall = 1.056(In)

Specified peak 1-hour rainfall = 1.300(In)

Computed peak 3-hour rainfall = 2.197(In)

Specified peak 6-hour rainfall = 3.060(In)

Specified peak 24-hour rainfall = 6.350(In)

Rainfall depth area reduction factors:

Using a total area of 4.20(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.617(In)

30-minute factor = 1.000 Adjusted rainfall = 1.056(In)

1-hour factor = 1.000 Adjusted rainfall = 1.300(In)

3-hour factor = 1.000 Adjusted rainfall = 2.197(In)

6-hour factor = 1.000 Adjusted rainfall = 3.060(In)

24-hour factor = 1.000 Adjusted rainfall = 6.350(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 = 50.79 (CFS))

1	5.829	2.961
2	42.748	18.752
3	68.862	13.265
4	80.052	5.684
5	86.633	3.343
6	90.841	2.137
7	93.754	1.480
8	95.820	1.049
9	97.269	0.736
10	98.124	0.434
11	98.821	0.354
12	99.497	0.344
13	100.000	0.255

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
------------------	-----------------------------	--------------------

1	0.6167	0.6167
2	0.7593	0.1426
3	0.8575	0.0982
4	0.9348	0.0773
5	0.9995	0.0647
6	1.0557	0.0562
7	1.1057	0.0500
8	1.1509	0.0452

9	1.1923	0.0414
10	1.2306	0.0383
11	1.2663	0.0357
12	1.2997	0.0335
13	1.3504	0.0507
14	1.3991	0.0487
15	1.4460	0.0469
16	1.4913	0.0453
17	1.5352	0.0438
18	1.5777	0.0425
19	1.6190	0.0413
20	1.6591	0.0402
21	1.6983	0.0391
22	1.7365	0.0382
23	1.7738	0.0373
24	1.8102	0.0364
25	1.8459	0.0357
26	1.8808	0.0349
27	1.9150	0.0342
28	1.9486	0.0336
29	1.9816	0.0330
30	2.0139	0.0324
31	2.0457	0.0318
32	2.0770	0.0313
33	2.1078	0.0308
34	2.1381	0.0303
35	2.1679	0.0298
36	2.1973	0.0294
37	2.2262	0.0290
38	2.2548	0.0285
39	2.2829	0.0282
40	2.3107	0.0278
41	2.3382	0.0274
42	2.3652	0.0271
43	2.3920	0.0267
44	2.4184	0.0264
45	2.4445	0.0261
46	2.4703	0.0258
47	2.4958	0.0255
48	2.5210	0.0252
49	2.5460	0.0250
50	2.5707	0.0247
51	2.5951	0.0244
52	2.6193	0.0242
53	2.6433	0.0239
54	2.6670	0.0237
55	2.6905	0.0235
56	2.7137	0.0233
57	2.7368	0.0230
58	2.7596	0.0228
59	2.7823	0.0226
60	2.8047	0.0224
61	2.8269	0.0222
62	2.8490	0.0220
63	2.8708	0.0219
64	2.8925	0.0217
65	2.9140	0.0215
66	2.9354	0.0213
67	2.9565	0.0212
68	2.9775	0.0210
69	2.9984	0.0208
70	3.0190	0.0207
71	3.0396	0.0205
72	3.0600	0.0204
73	3.0823	0.0223
74	3.1044	0.0222
75	3.1265	0.0220
76	3.1483	0.0219
77	3.1701	0.0217

78	3.1917	0.0216
79	3.2132	0.0215
80	3.2345	0.0214
81	3.2558	0.0212
82	3.2769	0.0211
83	3.2979	0.0210
84	3.3187	0.0209
85	3.3395	0.0207
86	3.3601	0.0206
87	3.3806	0.0205
88	3.4010	0.0204
89	3.4213	0.0203
90	3.4415	0.0202
91	3.4616	0.0201
92	3.4816	0.0200
93	3.5015	0.0199
94	3.5212	0.0198
95	3.5409	0.0197
96	3.5605	0.0196
97	3.5800	0.0195
98	3.5994	0.0194
99	3.6187	0.0193
100	3.6379	0.0192
101	3.6570	0.0191
102	3.6760	0.0190
103	3.6949	0.0189
104	3.7138	0.0188
105	3.7326	0.0188
106	3.7512	0.0187
107	3.7698	0.0186
108	3.7883	0.0185
109	3.8068	0.0184
110	3.8251	0.0184
111	3.8434	0.0183
112	3.8616	0.0182
113	3.8797	0.0181
114	3.8978	0.0180
115	3.9157	0.0180
116	3.9336	0.0179
117	3.9514	0.0178
118	3.9692	0.0177
119	3.9869	0.0177
120	4.0045	0.0176
121	4.0220	0.0175
122	4.0395	0.0175
123	4.0569	0.0174
124	4.0742	0.0173
125	4.0915	0.0173
126	4.1087	0.0172
127	4.1258	0.0171
128	4.1429	0.0171
129	4.1599	0.0170
130	4.1769	0.0170
131	4.1938	0.0169
132	4.2106	0.0168
133	4.2274	0.0168
134	4.2441	0.0167
135	4.2607	0.0166
136	4.2773	0.0166
137	4.2938	0.0165
138	4.3103	0.0165
139	4.3267	0.0164
140	4.3431	0.0164
141	4.3594	0.0163
142	4.3757	0.0163
143	4.3919	0.0162
144	4.4080	0.0161
145	4.4241	0.0161
146	4.4402	0.0160

147	4.4561	0.0160
148	4.4721	0.0159
149	4.4880	0.0159
150	4.5038	0.0158
151	4.5196	0.0158
152	4.5353	0.0157
153	4.5510	0.0157
154	4.5667	0.0156
155	4.5823	0.0156
156	4.5978	0.0155
157	4.6133	0.0155
158	4.6287	0.0155
159	4.6442	0.0154
160	4.6595	0.0154
161	4.6748	0.0153
162	4.6901	0.0153
163	4.7053	0.0152
164	4.7205	0.0152
165	4.7356	0.0151
166	4.7507	0.0151
167	4.7658	0.0150
168	4.7808	0.0150
169	4.7957	0.0150
170	4.8107	0.0149
171	4.8256	0.0149
172	4.8404	0.0148
173	4.8552	0.0148
174	4.8700	0.0148
175	4.8847	0.0147
176	4.8993	0.0147
177	4.9140	0.0146
178	4.9286	0.0146
179	4.9432	0.0146
180	4.9577	0.0145
181	4.9722	0.0145
182	4.9866	0.0144
183	5.0010	0.0144
184	5.0154	0.0144
185	5.0297	0.0143
186	5.0440	0.0143
187	5.0583	0.0143
188	5.0725	0.0142
189	5.0867	0.0142
190	5.1009	0.0142
191	5.1150	0.0141
192	5.1291	0.0141
193	5.1431	0.0141
194	5.1571	0.0140
195	5.1711	0.0140
196	5.1851	0.0139
197	5.1990	0.0139
198	5.2129	0.0139
199	5.2267	0.0138
200	5.2405	0.0138
201	5.2543	0.0138
202	5.2681	0.0138
203	5.2818	0.0137
204	5.2955	0.0137
205	5.3091	0.0137
206	5.3227	0.0136
207	5.3363	0.0136
208	5.3499	0.0136
209	5.3634	0.0135
210	5.3769	0.0135
211	5.3904	0.0135
212	5.4038	0.0134
213	5.4172	0.0134
214	5.4306	0.0134
215	5.4440	0.0133

216	5.4573	0.0133
217	5.4706	0.0133
218	5.4838	0.0133
219	5.4971	0.0132
220	5.5103	0.0132
221	5.5234	0.0132
222	5.5366	0.0131
223	5.5497	0.0131
224	5.5628	0.0131
225	5.5759	0.0131
226	5.5889	0.0130
227	5.6019	0.0130
228	5.6149	0.0130
229	5.6279	0.0130
230	5.6408	0.0129
231	5.6537	0.0129
232	5.6666	0.0129
233	5.6794	0.0128
234	5.6922	0.0128
235	5.7050	0.0128
236	5.7178	0.0128
237	5.7305	0.0127
238	5.7433	0.0127
239	5.7560	0.0127
240	5.7686	0.0127
241	5.7813	0.0126
242	5.7939	0.0126
243	5.8065	0.0126
244	5.8191	0.0126
245	5.8316	0.0125
246	5.8441	0.0125
247	5.8566	0.0125
248	5.8691	0.0125
249	5.8816	0.0125
250	5.8940	0.0124
251	5.9064	0.0124
252	5.9188	0.0124
253	5.9311	0.0124
254	5.9435	0.0123
255	5.9558	0.0123
256	5.9681	0.0123
257	5.9803	0.0123
258	5.9926	0.0122
259	6.0048	0.0122
260	6.0170	0.0122
261	6.0292	0.0122
262	6.0413	0.0122
263	6.0535	0.0121
264	6.0656	0.0121
265	6.0777	0.0121
266	6.0897	0.0121
267	6.1018	0.0120
268	6.1138	0.0120
269	6.1258	0.0120
270	6.1378	0.0120
271	6.1497	0.0120
272	6.1617	0.0119
273	6.1736	0.0119
274	6.1855	0.0119
275	6.1974	0.0119
276	6.2092	0.0119
277	6.2211	0.0118
278	6.2329	0.0118
279	6.2447	0.0118
280	6.2565	0.0118
281	6.2682	0.0118
282	6.2800	0.0117
283	6.2917	0.0117
284	6.3034	0.0117

285	6.3150	0.0117
286	6.3267	0.0117
287	6.3383	0.0116
288	6.3500	0.0116

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0116	0.0017	0.0100
2	0.0116	0.0017	0.0100
3	0.0117	0.0017	0.0100
4	0.0117	0.0017	0.0100
5	0.0117	0.0017	0.0101
6	0.0118	0.0017	0.0101
7	0.0118	0.0017	0.0101
8	0.0118	0.0017	0.0101
9	0.0119	0.0017	0.0102
10	0.0119	0.0017	0.0102
11	0.0119	0.0017	0.0102
12	0.0119	0.0017	0.0102
13	0.0120	0.0017	0.0103
14	0.0120	0.0017	0.0103
15	0.0120	0.0017	0.0103
16	0.0121	0.0017	0.0104
17	0.0121	0.0017	0.0104
18	0.0121	0.0017	0.0104
19	0.0122	0.0017	0.0104
20	0.0122	0.0017	0.0105
21	0.0122	0.0017	0.0105
22	0.0123	0.0017	0.0105
23	0.0123	0.0017	0.0106
24	0.0123	0.0018	0.0106
25	0.0124	0.0018	0.0106
26	0.0124	0.0018	0.0106
27	0.0125	0.0018	0.0107
28	0.0125	0.0018	0.0107
29	0.0125	0.0018	0.0107
30	0.0125	0.0018	0.0108
31	0.0126	0.0018	0.0108
32	0.0126	0.0018	0.0108
33	0.0127	0.0018	0.0109
34	0.0127	0.0018	0.0109
35	0.0127	0.0018	0.0109
36	0.0128	0.0018	0.0110
37	0.0128	0.0018	0.0110
38	0.0128	0.0018	0.0110
39	0.0129	0.0018	0.0111
40	0.0129	0.0018	0.0111
41	0.0130	0.0018	0.0111
42	0.0130	0.0018	0.0112
43	0.0131	0.0019	0.0112
44	0.0131	0.0019	0.0112
45	0.0131	0.0019	0.0113
46	0.0132	0.0019	0.0113
47	0.0132	0.0019	0.0114
48	0.0133	0.0019	0.0114
49	0.0133	0.0019	0.0114
50	0.0133	0.0019	0.0115
51	0.0134	0.0019	0.0115
52	0.0134	0.0019	0.0115
53	0.0135	0.0019	0.0116
54	0.0135	0.0019	0.0116
55	0.0136	0.0019	0.0117
56	0.0136	0.0019	0.0117
57	0.0137	0.0019	0.0117
58	0.0137	0.0019	0.0118
59	0.0138	0.0020	0.0118
60	0.0138	0.0020	0.0119

61	0.0139	0.0020	0.0119
62	0.0139	0.0020	0.0119
63	0.0140	0.0020	0.0120
64	0.0140	0.0020	0.0120
65	0.0141	0.0020	0.0121
66	0.0141	0.0020	0.0121
67	0.0142	0.0020	0.0122
68	0.0142	0.0020	0.0122
69	0.0143	0.0020	0.0123
70	0.0143	0.0020	0.0123
71	0.0144	0.0020	0.0124
72	0.0144	0.0021	0.0124
73	0.0145	0.0021	0.0125
74	0.0146	0.0021	0.0125
75	0.0146	0.0021	0.0126
76	0.0147	0.0021	0.0126
77	0.0148	0.0021	0.0127
78	0.0148	0.0021	0.0127
79	0.0149	0.0021	0.0128
80	0.0149	0.0021	0.0128
81	0.0150	0.0021	0.0129
82	0.0150	0.0021	0.0129
83	0.0151	0.0022	0.0130
84	0.0152	0.0022	0.0130
85	0.0153	0.0022	0.0131
86	0.0153	0.0022	0.0131
87	0.0154	0.0022	0.0132
88	0.0155	0.0022	0.0133
89	0.0155	0.0022	0.0133
90	0.0156	0.0022	0.0134
91	0.0157	0.0022	0.0135
92	0.0157	0.0022	0.0135
93	0.0158	0.0023	0.0136
94	0.0159	0.0023	0.0136
95	0.0160	0.0023	0.0137
96	0.0160	0.0023	0.0138
97	0.0161	0.0023	0.0139
98	0.0162	0.0023	0.0139
99	0.0163	0.0023	0.0140
100	0.0164	0.0023	0.0140
101	0.0165	0.0023	0.0141
102	0.0165	0.0023	0.0142
103	0.0166	0.0024	0.0143
104	0.0167	0.0024	0.0143
105	0.0168	0.0024	0.0144
106	0.0169	0.0024	0.0145
107	0.0170	0.0024	0.0146
108	0.0171	0.0024	0.0147
109	0.0172	0.0024	0.0148
110	0.0173	0.0025	0.0148
111	0.0174	0.0025	0.0149
112	0.0175	0.0025	0.0150
113	0.0176	0.0025	0.0151
114	0.0177	0.0025	0.0152
115	0.0178	0.0025	0.0153
116	0.0179	0.0025	0.0154
117	0.0180	0.0026	0.0155
118	0.0181	0.0026	0.0155
119	0.0183	0.0026	0.0157
120	0.0184	0.0026	0.0157
121	0.0185	0.0026	0.0159
122	0.0186	0.0026	0.0160
123	0.0188	0.0027	0.0161
124	0.0188	0.0027	0.0162
125	0.0190	0.0027	0.0163
126	0.0191	0.0027	0.0164
127	0.0193	0.0027	0.0166
128	0.0194	0.0028	0.0166
129	0.0196	0.0028	0.0168

130	0.0197	0.0028	0.0169
131	0.0199	0.0028	0.0171
132	0.0200	0.0028	0.0171
133	0.0202	0.0029	0.0173
134	0.0203	0.0029	0.0174
135	0.0205	0.0029	0.0176
136	0.0206	0.0029	0.0177
137	0.0209	0.0030	0.0179
138	0.0210	0.0030	0.0180
139	0.0212	0.0030	0.0182
140	0.0214	0.0030	0.0183
141	0.0216	0.0031	0.0185
142	0.0217	0.0031	0.0187
143	0.0220	0.0031	0.0189
144	0.0222	0.0031	0.0190
145	0.0204	0.0029	0.0175
146	0.0205	0.0029	0.0176
147	0.0208	0.0030	0.0179
148	0.0210	0.0030	0.0180
149	0.0213	0.0030	0.0183
150	0.0215	0.0031	0.0185
151	0.0219	0.0031	0.0188
152	0.0220	0.0031	0.0189
153	0.0224	0.0032	0.0192
154	0.0226	0.0032	0.0194
155	0.0230	0.0033	0.0198
156	0.0233	0.0033	0.0200
157	0.0237	0.0034	0.0203
158	0.0239	0.0034	0.0205
159	0.0244	0.0035	0.0210
160	0.0247	0.0035	0.0212
161	0.0252	0.0036	0.0216
162	0.0255	0.0036	0.0219
163	0.0261	0.0037	0.0224
164	0.0264	0.0038	0.0227
165	0.0271	0.0038	0.0232
166	0.0274	0.0039	0.0235
167	0.0282	0.0040	0.0242
168	0.0285	0.0041	0.0245
169	0.0294	0.0042	0.0252
170	0.0298	0.0042	0.0256
171	0.0308	0.0044	0.0264
172	0.0313	0.0044	0.0268
173	0.0324	0.0046	0.0278
174	0.0330	0.0047	0.0283
175	0.0342	0.0049	0.0294
176	0.0349	0.0050	0.0300
177	0.0364	0.0052	0.0313
178	0.0373	0.0053	0.0320
179	0.0391	0.0056	0.0336
180	0.0402	0.0057	0.0345
181	0.0425	0.0060	0.0365
182	0.0438	0.0062	0.0376
183	0.0469	0.0067	0.0402
184	0.0487	0.0069	0.0418
185	0.0335	0.0048	0.0287
186	0.0357	0.0051	0.0306
187	0.0414	0.0059	0.0355
188	0.0452	0.0064	0.0388
189	0.0562	0.0080	0.0482
190	0.0647	0.0092	0.0555
191	0.0982	0.0096	0.0887
192	0.1426	0.0096	0.1330
193	0.6167	0.0096	0.6072
194	0.0773	0.0096	0.0677
195	0.0500	0.0071	0.0429
196	0.0383	0.0054	0.0328
197	0.0507	0.0072	0.0435
198	0.0453	0.0064	0.0389

199	0.0413	0.0059	0.0354
200	0.0382	0.0054	0.0328
201	0.0357	0.0051	0.0306
202	0.0336	0.0048	0.0288
203	0.0318	0.0045	0.0273
204	0.0303	0.0043	0.0260
205	0.0290	0.0041	0.0248
206	0.0278	0.0039	0.0238
207	0.0267	0.0038	0.0229
208	0.0258	0.0037	0.0221
209	0.0250	0.0035	0.0214
210	0.0242	0.0034	0.0208
211	0.0235	0.0033	0.0201
212	0.0228	0.0032	0.0196
213	0.0222	0.0032	0.0191
214	0.0217	0.0031	0.0186
215	0.0212	0.0030	0.0182
216	0.0207	0.0029	0.0177
217	0.0223	0.0032	0.0191
218	0.0219	0.0031	0.0188
219	0.0215	0.0031	0.0184
220	0.0211	0.0030	0.0181
221	0.0207	0.0029	0.0178
222	0.0204	0.0029	0.0175
223	0.0201	0.0029	0.0172
224	0.0198	0.0028	0.0170
225	0.0195	0.0028	0.0167
226	0.0192	0.0027	0.0165
227	0.0189	0.0027	0.0162
228	0.0187	0.0027	0.0160
229	0.0184	0.0026	0.0158
230	0.0182	0.0026	0.0156
231	0.0180	0.0026	0.0154
232	0.0177	0.0025	0.0152
233	0.0175	0.0025	0.0150
234	0.0173	0.0025	0.0149
235	0.0171	0.0024	0.0147
236	0.0170	0.0024	0.0145
237	0.0168	0.0024	0.0144
238	0.0166	0.0024	0.0142
239	0.0164	0.0023	0.0141
240	0.0163	0.0023	0.0139
241	0.0161	0.0023	0.0138
242	0.0159	0.0023	0.0137
243	0.0158	0.0022	0.0135
244	0.0156	0.0022	0.0134
245	0.0155	0.0022	0.0133
246	0.0154	0.0022	0.0132
247	0.0152	0.0022	0.0131
248	0.0151	0.0021	0.0129
249	0.0150	0.0021	0.0128
250	0.0148	0.0021	0.0127
251	0.0147	0.0021	0.0126
252	0.0146	0.0021	0.0125
253	0.0145	0.0021	0.0124
254	0.0144	0.0020	0.0123
255	0.0143	0.0020	0.0122
256	0.0142	0.0020	0.0121
257	0.0141	0.0020	0.0121
258	0.0139	0.0020	0.0120
259	0.0138	0.0020	0.0119
260	0.0138	0.0020	0.0118
261	0.0137	0.0019	0.0117
262	0.0136	0.0019	0.0116
263	0.0135	0.0019	0.0116
264	0.0134	0.0019	0.0115
265	0.0133	0.0019	0.0114
266	0.0132	0.0019	0.0113
267	0.0131	0.0019	0.0113

268	0.0130	0.0019	0.0112
269	0.0130	0.0018	0.0111
270	0.0129	0.0018	0.0110
271	0.0128	0.0018	0.0110
272	0.0127	0.0018	0.0109
273	0.0126	0.0018	0.0108
274	0.0126	0.0018	0.0108
275	0.0125	0.0018	0.0107
276	0.0124	0.0018	0.0107
277	0.0124	0.0018	0.0106
278	0.0123	0.0017	0.0105
279	0.0122	0.0017	0.0105
280	0.0122	0.0017	0.0104
281	0.0121	0.0017	0.0104
282	0.0120	0.0017	0.0103
283	0.0120	0.0017	0.0103
284	0.0119	0.0017	0.0102
285	0.0118	0.0017	0.0102
286	0.0118	0.0017	0.0101
287	0.0117	0.0017	0.0101
288	0.0117	0.0017	0.0100

Total soil rain loss = 0.81(In)
Total effective rainfall = 5.54(In)
Peak flow rate in flood hydrograph = 14.31(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	5.0	10.0	15.0	20.0
0+ 5	0.0002	0.03	Q				
0+10	0.0017	0.22	Q				
0+15	0.0041	0.35	Q				
0+20	0.0069	0.41	Q				
0+25	0.0099	0.44	Q				
0+30	0.0131	0.46	Q				
0+35	0.0164	0.48	Q				
0+40	0.0198	0.49	Q				
0+45	0.0233	0.50	Q				
0+50	0.0267	0.51	VQ				
0+55	0.0302	0.51	VQ				
1+ 0	0.0338	0.51	VQ				
1+ 5	0.0374	0.52	VQ				
1+10	0.0409	0.52	VQ				
1+15	0.0445	0.52	VQ				
1+20	0.0481	0.52	VQ				
1+25	0.0517	0.52	Q				
1+30	0.0554	0.53	Q				
1+35	0.0590	0.53	Q				
1+40	0.0626	0.53	Q				
1+45	0.0663	0.53	Q				
1+50	0.0699	0.53	Q				
1+55	0.0736	0.53	Q				
2+ 0	0.0773	0.53	Q				
2+ 5	0.0810	0.54	Q				
2+10	0.0847	0.54	Q				
2+15	0.0884	0.54	Q				
2+20	0.0921	0.54	Q				
2+25	0.0958	0.54	Q				
2+30	0.0996	0.54	QV				
2+35	0.1033	0.54	QV				
2+40	0.1071	0.55	QV				
2+45	0.1109	0.55	QV				

2+50	0.1146	0.55	QV				
2+55	0.1184	0.55	QV				
3+ 0	0.1223	0.55	QV				
3+ 5	0.1261	0.55	QV				
3+10	0.1299	0.56	QV				
3+15	0.1337	0.56	QV				
3+20	0.1376	0.56	QV				
3+25	0.1415	0.56	QV				
3+30	0.1453	0.56	QV				
3+35	0.1492	0.56	Q V				
3+40	0.1531	0.57	Q V				
3+45	0.1570	0.57	Q V				
3+50	0.1610	0.57	Q V				
3+55	0.1649	0.57	Q V				
4+ 0	0.1689	0.57	Q V				
4+ 5	0.1728	0.58	Q V				
4+10	0.1768	0.58	Q V				
4+15	0.1808	0.58	Q V				
4+20	0.1848	0.58	Q V				
4+25	0.1888	0.58	Q V				
4+30	0.1928	0.59	Q V				
4+35	0.1969	0.59	Q V				
4+40	0.2009	0.59	Q V				
4+45	0.2050	0.59	Q V				
4+50	0.2091	0.59	Q V				
4+55	0.2132	0.60	Q V				
5+ 0	0.2173	0.60	Q V				
5+ 5	0.2214	0.60	Q V				
5+10	0.2256	0.60	Q V				
5+15	0.2297	0.60	Q V				
5+20	0.2339	0.61	Q V				
5+25	0.2381	0.61	Q V				
5+30	0.2423	0.61	Q V				
5+35	0.2465	0.61	Q V				
5+40	0.2508	0.61	Q V				
5+45	0.2550	0.62	Q V				
5+50	0.2593	0.62	Q V				
5+55	0.2636	0.62	Q V				
6+ 0	0.2679	0.62	Q V				
6+ 5	0.2722	0.63	Q V				
6+10	0.2765	0.63	Q V				
6+15	0.2809	0.63	Q V				
6+20	0.2852	0.63	Q V				
6+25	0.2896	0.64	Q V				
6+30	0.2940	0.64	Q V				
6+35	0.2984	0.64	Q V				
6+40	0.3029	0.64	Q V				
6+45	0.3073	0.65	Q V				
6+50	0.3118	0.65	Q V				
6+55	0.3163	0.65	Q V				
7+ 0	0.3208	0.66	Q V				
7+ 5	0.3253	0.66	Q V				
7+10	0.3299	0.66	Q V				
7+15	0.3345	0.66	Q V				
7+20	0.3390	0.67	Q V				
7+25	0.3437	0.67	Q V				
7+30	0.3483	0.67	Q V				
7+35	0.3529	0.68	Q V				
7+40	0.3576	0.68	Q V				
7+45	0.3623	0.68	Q V				
7+50	0.3670	0.69	Q V				
7+55	0.3718	0.69	Q V				
8+ 0	0.3765	0.69	Q V				
8+ 5	0.3813	0.69	Q V				
8+10	0.3861	0.70	Q V				
8+15	0.3910	0.70	Q V				
8+20	0.3958	0.71	Q V				
8+25	0.4007	0.71	Q V				
8+30	0.4056	0.71	Q V				

8+35	0.4105	0.72	Q	V				
8+40	0.4155	0.72	Q	V				
8+45	0.4205	0.72	Q	V				
8+50	0.4255	0.73	Q	V				
8+55	0.4305	0.73	Q	V				
9+ 0	0.4356	0.74	Q	V				
9+ 5	0.4407	0.74	Q	V				
9+10	0.4458	0.74	Q	V				
9+15	0.4509	0.75	Q	V				
9+20	0.4561	0.75	Q	V				
9+25	0.4613	0.76	Q	V				
9+30	0.4666	0.76	Q	V				
9+35	0.4718	0.76	Q	V				
9+40	0.4771	0.77	Q	V				
9+45	0.4825	0.77	Q	V				
9+50	0.4878	0.78	Q	V				
9+55	0.4932	0.78	Q	V				
10+ 0	0.4987	0.79	Q	V				
10+ 5	0.5041	0.79	Q	V				
10+10	0.5096	0.80	Q	V				
10+15	0.5152	0.80	Q	V				
10+20	0.5207	0.81	Q	V				
10+25	0.5263	0.81	Q	V				
10+30	0.5320	0.82	Q	V				
10+35	0.5377	0.83	Q	V				
10+40	0.5434	0.83	Q	V				
10+45	0.5492	0.84	Q	V				
10+50	0.5550	0.84	Q	V				
10+55	0.5608	0.85	Q	V				
11+ 0	0.5667	0.86	Q	V				
11+ 5	0.5727	0.86	Q	V				
11+10	0.5787	0.87	Q	V				
11+15	0.5847	0.88	Q	V				
11+20	0.5908	0.88	Q	V				
11+25	0.5969	0.89	Q	V				
11+30	0.6031	0.90	Q	V				
11+35	0.6093	0.91	Q	V				
11+40	0.6156	0.91	Q	V				
11+45	0.6220	0.92	Q	V				
11+50	0.6284	0.93	Q	V				
11+55	0.6348	0.94	Q	V				
12+ 0	0.6413	0.95	Q	V				
12+ 5	0.6479	0.95	Q	V				
12+10	0.6542	0.93	Q	V				
12+15	0.6605	0.91	Q	V				
12+20	0.6668	0.91	Q	V				
12+25	0.6731	0.91	Q	V				
12+30	0.6794	0.92	Q	V				
12+35	0.6858	0.93	Q	V				
12+40	0.6923	0.94	Q	V				
12+45	0.6988	0.95	Q	V				
12+50	0.7055	0.96	Q	V				
12+55	0.7122	0.97	Q	V				
13+ 0	0.7189	0.98	Q	V				
13+ 5	0.7258	1.00	Q	V				
13+10	0.7328	1.01	Q	V				
13+15	0.7398	1.03	Q	V				
13+20	0.7470	1.04	Q	V				
13+25	0.7543	1.06	Q	V				
13+30	0.7617	1.07	Q	V				
13+35	0.7692	1.09	Q	V				
13+40	0.7768	1.11	Q	V				
13+45	0.7846	1.13	Q	V				
13+50	0.7925	1.15	Q	V				
13+55	0.8006	1.17	Q	V				
14+ 0	0.8088	1.19	Q	V				
14+ 5	0.8171	1.22	Q	V				
14+10	0.8257	1.24	Q	V				
14+15	0.8344	1.27	Q	V				

14+20	0.8433	1.30	Q		V		
14+25	0.8525	1.33	Q		V		
14+30	0.8618	1.36	Q		V		
14+35	0.8714	1.39	Q		V		
14+40	0.8813	1.43	Q		V		
14+45	0.8915	1.47	Q		V		
14+50	0.9019	1.52	Q		V		
14+55	0.9127	1.57	Q		V		
15+ 0	0.9239	1.62	Q		V		
15+ 5	0.9355	1.68	Q		V		
15+10	0.9475	1.75	Q		V		
15+15	0.9601	1.82	Q		V		
15+20	0.9732	1.91	Q		V		
15+25	0.9867	1.96	Q		V		
15+30	0.9989	1.77	Q		V		
15+35	1.0104	1.67	Q		V		
15+40	1.0224	1.74	Q		V		
15+45	1.0353	1.87	Q		V		
15+50	1.0499	2.13	Q	Q	V		
15+55	1.0672	2.51	Q	Q	V		
16+ 0	1.0909	3.43	Q		V		
16+ 5	1.1335	6.19		Q	V		
16+10	1.2320	14.31			V	Q	
16+15	1.3065	10.81			Q	V	
16+20	1.3484	6.09		Q		V	
16+25	1.3779	4.28		Q		V	
16+30	1.4022	3.52		Q		V	
16+35	1.4232	3.05		Q		V	
16+40	1.4414	2.65		Q		V	
16+45	1.4573	2.31		Q		V	
16+50	1.4712	2.02		Q		V	
16+55	1.4840	1.86		Q		V	
17+ 0	1.4960	1.74		Q		V	
17+ 5	1.5070	1.59		Q		V	
17+10	1.5165	1.37		Q		V	
17+15	1.5254	1.31		Q		V	
17+20	1.5341	1.25		Q		V	
17+25	1.5423	1.20		Q		V	
17+30	1.5503	1.16		Q		V	
17+35	1.5580	1.11		Q		V	
17+40	1.5654	1.08		Q		V	
17+45	1.5726	1.04		Q		V	
17+50	1.5795	1.01		Q		V	
17+55	1.5863	0.99		Q		V	
18+ 0	1.5929	0.96		Q		V	
18+ 5	1.5994	0.94		Q		V	
18+10	1.6060	0.95		Q		V	
18+15	1.6126	0.96		Q		V	
18+20	1.6191	0.95		Q		V	
18+25	1.6255	0.93		Q		V	
18+30	1.6319	0.92		Q		V	
18+35	1.6381	0.91		Q		V	
18+40	1.6443	0.89		Q		V	
18+45	1.6503	0.88		Q		V	
18+50	1.6563	0.87		Q		V	
18+55	1.6622	0.85		Q		V	
19+ 0	1.6680	0.84		Q		V	
19+ 5	1.6737	0.83		Q		V	
19+10	1.6794	0.82		Q		V	
19+15	1.6849	0.81		Q		V	
19+20	1.6904	0.80		Q		V	
19+25	1.6959	0.79		Q		V	
19+30	1.7012	0.78		Q		V	
19+35	1.7065	0.77		Q		V	
19+40	1.7117	0.76		Q		V	
19+45	1.7169	0.75		Q		V	
19+50	1.7220	0.74		Q		V	
19+55	1.7271	0.73		Q		V	
20+ 0	1.7321	0.73		Q		V	

20+ 5	1.7370	0.72	Q				V
20+10	1.7420	0.71	Q				V
20+15	1.7468	0.70	Q				V
20+20	1.7516	0.70	Q				V
20+25	1.7564	0.69	Q				V
20+30	1.7611	0.68	Q				V
20+35	1.7658	0.68	Q				V
20+40	1.7704	0.67	Q				V
20+45	1.7750	0.67	Q				V
20+50	1.7795	0.66	Q				V
20+55	1.7840	0.65	Q				V
21+ 0	1.7885	0.65	Q				V
21+ 5	1.7929	0.64	Q				V
21+10	1.7973	0.64	Q				V
21+15	1.8017	0.63	Q				V
21+20	1.8060	0.63	Q				V
21+25	1.8103	0.62	Q				V
21+30	1.8146	0.62	Q				V
21+35	1.8188	0.61	Q				V
21+40	1.8230	0.61	Q				V
21+45	1.8272	0.61	Q				V
21+50	1.8313	0.60	Q				V
21+55	1.8354	0.60	Q				V
22+ 0	1.8395	0.59	Q				V
22+ 5	1.8436	0.59	Q				V
22+10	1.8476	0.58	Q				V
22+15	1.8516	0.58	Q				V
22+20	1.8556	0.58	Q				V
22+25	1.8595	0.57	Q				V
22+30	1.8635	0.57	Q				V
22+35	1.8674	0.57	Q				V
22+40	1.8712	0.56	Q				V
22+45	1.8751	0.56	Q				V
22+50	1.8789	0.56	Q				V
22+55	1.8827	0.55	Q				V
23+ 0	1.8865	0.55	Q				V
23+ 5	1.8903	0.55	Q				V
23+10	1.8940	0.54	Q				V
23+15	1.8977	0.54	Q				V
23+20	1.9014	0.54	Q				V
23+25	1.9051	0.53	Q				V
23+30	1.9088	0.53	Q				V
23+35	1.9124	0.53	Q				V
23+40	1.9160	0.53	Q				V
23+45	1.9196	0.52	Q				V
23+50	1.9232	0.52	Q				V
23+55	1.9267	0.52	Q				V
24+ 0	1.9303	0.51	Q				V
24+ 5	1.9336	0.48	Q				V
24+10	1.9356	0.29	Q				V
24+15	1.9367	0.16	Q				V
24+20	1.9374	0.10	Q				V
24+25	1.9379	0.07	Q				V
24+30	1.9382	0.05	Q				V
24+35	1.9385	0.03	Q				V
24+40	1.9386	0.02	Q				V
24+45	1.9387	0.01	Q				V
24+50	1.9388	0.01	Q				V
24+55	1.9388	0.01	Q				V
25+ 0	1.9388	0.00	Q				V

ATTACHMENT 5

Basin Routing

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
Study date: 11/13/19

194647 - BALDY MESA ROAD PHELAN
BASIN ROUTING
2-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-12-19

Program License Serial Number 6320

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

From study/file name: DEVHYD2.rte
*****HYDROGRAPH DATA*****
Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 4.212 (CFS)
Total volume = 0.560 (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 2.000 to Point/Station 3.000
**** RETARDING BASIN ROUTING ****

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 1.00(Ft.) Flow = 1.25 (CFS)

Total outflow at this depth = 1.25(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 2.00(Ft.) Flow = 3.54 (CFS)

Total outflow at this depth = 3.54(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 3.00(Ft.) Flow = 6.50 (CFS)

Total outflow at this depth = 6.50(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
 1.000 0.085 1.251 0.081 0.089
 2.000 0.195 3.538 0.183 0.207
 3.000 0.335 6.500 0.313 0.357

 Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	1.1	2.11	3.16	4.21	Depth (Ft.)
0.083	0.01	0.00	0.000	0					0.00
0.167	0.05	0.00	0.000	0					0.00
0.250	0.09	0.01	0.001	0					0.01
0.333	0.10	0.02	0.001	0					0.01
0.417	0.11	0.03	0.002	0					0.02
0.500	0.12	0.03	0.002	0					0.03
0.583	0.12	0.04	0.003	0					0.03
0.667	0.12	0.05	0.003	0					0.04
0.750	0.12	0.06	0.004	0					0.05
0.833	0.13	0.06	0.004	0					0.05
0.917	0.13	0.07	0.005	0					0.06
1.000	0.13	0.08	0.005	0					0.06
1.083	0.13	0.08	0.005	0					0.06
1.167	0.13	0.09	0.006	0					0.07
1.250	0.13	0.09	0.006	0					0.07
1.333	0.13	0.09	0.006	0					0.07
1.417	0.13	0.10	0.007	0					0.08
1.500	0.13	0.10	0.007	0					0.08
1.583	0.13	0.10	0.007	OI					0.08
1.667	0.13	0.11	0.007	OI					0.08
1.750	0.13	0.11	0.007	OI					0.09
1.833	0.13	0.11	0.008	OI					0.09
1.917	0.13	0.11	0.008	OI					0.09
2.000	0.13	0.12	0.008	OI					0.09
2.083	0.13	0.12	0.008	OI					0.09
2.167	0.13	0.12	0.008	OI					0.09
2.250	0.14	0.12	0.008	OI					0.10
2.333	0.14	0.12	0.008	OI					0.10
2.417	0.14	0.12	0.008	OI					0.10
2.500	0.14	0.12	0.008	OI					0.10
2.583	0.14	0.13	0.009	OI					0.10
2.667	0.14	0.13	0.009	OI					0.10
2.750	0.14	0.13	0.009	OI					0.10
2.833	0.14	0.13	0.009	OI					0.10
2.917	0.14	0.13	0.009	OI					0.10
3.000	0.14	0.13	0.009	OI					0.10
3.083	0.14	0.13	0.009	OI					0.11
3.167	0.14	0.13	0.009	O					0.11
3.250	0.14	0.13	0.009	O					0.11

3.333	0.14	0.13	0.009	0					0.11
3.417	0.14	0.13	0.009	0					0.11
3.500	0.14	0.14	0.009	0					0.11
3.583	0.14	0.14	0.009	0					0.11
3.667	0.14	0.14	0.009	0					0.11
3.750	0.14	0.14	0.009	0					0.11
3.833	0.14	0.14	0.009	0					0.11
3.917	0.14	0.14	0.009	0					0.11
4.000	0.15	0.14	0.009	0					0.11
4.083	0.15	0.14	0.010	0					0.11
4.167	0.15	0.14	0.010	0					0.11
4.250	0.15	0.14	0.010	0					0.11
4.333	0.15	0.14	0.010	0					0.11
4.417	0.15	0.14	0.010	0					0.11
4.500	0.15	0.14	0.010	0					0.11
4.583	0.15	0.14	0.010	0					0.11
4.667	0.15	0.14	0.010	0					0.12
4.750	0.15	0.14	0.010	0					0.12
4.833	0.15	0.15	0.010	0					0.12
4.917	0.15	0.15	0.010	0					0.12
5.000	0.15	0.15	0.010	0					0.12
5.083	0.15	0.15	0.010	0					0.12
5.167	0.15	0.15	0.010	0					0.12
5.250	0.15	0.15	0.010	0					0.12
5.333	0.15	0.15	0.010	0					0.12
5.417	0.16	0.15	0.010	0					0.12
5.500	0.16	0.15	0.010	0					0.12
5.583	0.16	0.15	0.010	0					0.12
5.667	0.16	0.15	0.010	0					0.12
5.750	0.16	0.15	0.010	0					0.12
5.833	0.16	0.15	0.010	0					0.12
5.917	0.16	0.15	0.010	0					0.12
6.000	0.16	0.15	0.010	0					0.12
6.083	0.16	0.15	0.010	0					0.12
6.167	0.16	0.16	0.011	0					0.12
6.250	0.16	0.16	0.011	0					0.12
6.333	0.16	0.16	0.011	0					0.13
6.417	0.16	0.16	0.011	0					0.13
6.500	0.16	0.16	0.011	0					0.13
6.583	0.17	0.16	0.011	0					0.13
6.667	0.17	0.16	0.011	0					0.13
6.750	0.17	0.16	0.011	0					0.13
6.833	0.17	0.16	0.011	0					0.13
6.917	0.17	0.16	0.011	0					0.13
7.000	0.17	0.16	0.011	0					0.13
7.083	0.17	0.16	0.011	0					0.13
7.167	0.17	0.16	0.011	0					0.13
7.250	0.17	0.16	0.011	0					0.13
7.333	0.17	0.17	0.011	0					0.13
7.417	0.17	0.17	0.011	0					0.13
7.500	0.17	0.17	0.011	0					0.13
7.583	0.18	0.17	0.011	0					0.13
7.667	0.18	0.17	0.011	0					0.13
7.750	0.18	0.17	0.011	0					0.14
7.833	0.18	0.17	0.012	0					0.14
7.917	0.18	0.17	0.012	0					0.14
8.000	0.18	0.17	0.012	0					0.14
8.083	0.18	0.17	0.012	0					0.14
8.167	0.18	0.17	0.012	0					0.14
8.250	0.18	0.17	0.012	0					0.14
8.333	0.18	0.18	0.012	0					0.14
8.417	0.19	0.18	0.012	0					0.14
8.500	0.19	0.18	0.012	0					0.14
8.583	0.19	0.18	0.012	0					0.14
8.667	0.19	0.18	0.012	0					0.14
8.750	0.19	0.18	0.012	0					0.14
8.833	0.19	0.18	0.012	0					0.14
8.917	0.19	0.18	0.012	0					0.15
9.000	0.19	0.18	0.012	0					0.15

9.083	0.19	0.18	0.013	0					0.15
9.167	0.20	0.19	0.013	0					0.15
9.250	0.20	0.19	0.013	0					0.15
9.333	0.20	0.19	0.013	0					0.15
9.417	0.20	0.19	0.013	0					0.15
9.500	0.20	0.19	0.013	0					0.15
9.583	0.20	0.19	0.013	0					0.15
9.667	0.20	0.19	0.013	0					0.15
9.750	0.20	0.19	0.013	0					0.15
9.833	0.21	0.19	0.013	0					0.16
9.917	0.21	0.20	0.013	0					0.16
10.000	0.21	0.20	0.013	0					0.16
10.083	0.21	0.20	0.013	0					0.16
10.167	0.21	0.20	0.014	0					0.16
10.250	0.21	0.20	0.014	0					0.16
10.333	0.22	0.20	0.014	0					0.16
10.417	0.22	0.20	0.014	0					0.16
10.500	0.22	0.20	0.014	0					0.16
10.583	0.22	0.21	0.014	0					0.16
10.667	0.22	0.21	0.014	0					0.17
10.750	0.22	0.21	0.014	0					0.17
10.833	0.23	0.21	0.014	0					0.17
10.917	0.23	0.21	0.014	0					0.17
11.000	0.23	0.21	0.015	0					0.17
11.083	0.23	0.22	0.015	0					0.17
11.167	0.23	0.22	0.015	0					0.17
11.250	0.24	0.22	0.015	0					0.18
11.333	0.24	0.22	0.015	0					0.18
11.417	0.24	0.22	0.015	0					0.18
11.500	0.24	0.22	0.015	0					0.18
11.583	0.25	0.23	0.015	0					0.18
11.667	0.25	0.23	0.016	0					0.18
11.750	0.25	0.23	0.016	0					0.18
11.833	0.25	0.23	0.016	0					0.19
11.917	0.26	0.23	0.016	0					0.19
12.000	0.26	0.24	0.016	0					0.19
12.083	0.26	0.24	0.016	OI					0.19
12.167	0.29	0.24	0.016	OI					0.19
12.250	0.31	0.25	0.017	OI					0.20
12.333	0.32	0.25	0.017	OI					0.20
12.417	0.32	0.26	0.018	OI					0.21
12.500	0.33	0.27	0.018	0					0.21
12.583	0.33	0.27	0.019	0					0.22
12.667	0.34	0.28	0.019	0					0.22
12.750	0.34	0.28	0.019	0					0.23
12.833	0.35	0.29	0.020	0					0.23
12.917	0.35	0.30	0.020	0					0.24
13.000	0.36	0.30	0.021	0					0.24
13.083	0.36	0.31	0.021	0					0.25
13.167	0.36	0.31	0.021	0					0.25
13.250	0.37	0.32	0.022	0					0.25
13.333	0.37	0.32	0.022	0					0.26
13.417	0.38	0.33	0.022	0					0.26
13.500	0.38	0.33	0.023	0					0.27
13.583	0.39	0.34	0.023	0					0.27
13.667	0.39	0.34	0.023	0					0.27
13.750	0.40	0.35	0.024	OI					0.28
13.833	0.41	0.35	0.024	OI					0.28
13.917	0.41	0.36	0.024	OI					0.29
14.000	0.42	0.36	0.025	OI					0.29
14.083	0.43	0.37	0.025	OI					0.30
14.167	0.43	0.38	0.026	OI					0.30
14.250	0.44	0.38	0.026	OI					0.31
14.333	0.45	0.39	0.026	OI					0.31
14.417	0.46	0.39	0.027	OI					0.32
14.500	0.47	0.40	0.027	0					0.32
14.583	0.48	0.41	0.028	0					0.33
14.667	0.49	0.42	0.028	0					0.33
14.750	0.50	0.42	0.029	0					0.34

14.833	0.51	0.43	0.029	0					0.34
14.917	0.53	0.44	0.030	OI					0.35
15.000	0.54	0.45	0.031	OI					0.36
15.083	0.56	0.46	0.031	OI					0.37
15.167	0.58	0.47	0.032	OI					0.38
15.250	0.60	0.48	0.033	OI					0.38
15.333	0.63	0.49	0.034	OI					0.39
15.417	0.63	0.51	0.034	OI					0.41
15.500	0.54	0.51	0.035	OI					0.41
15.583	0.49	0.51	0.035	0					0.41
15.667	0.50	0.51	0.035	0					0.41
15.750	0.53	0.51	0.035	0					0.41
15.833	0.59	0.52	0.035	OI					0.41
15.917	0.69	0.53	0.036	OI					0.42
16.000	0.91	0.56	0.038	0 I					0.44
16.083	1.68	0.63	0.043	0	I				0.50
16.167	4.21	0.85	0.058	0				I	0.68
16.250	3.17	1.12	0.076	0			I		0.90
16.333	1.75	1.25	0.085		0	I			1.00
16.417	1.23	1.29	0.087		0				1.02
16.500	1.04	1.27	0.086		I	0			1.01
16.583	0.93	1.23	0.084		I	0			0.99
16.667	0.82	1.20	0.082		I	0			0.96
16.750	0.73	1.16	0.079		I	0			0.93
16.833	0.65	1.11	0.076		I	0			0.89
16.917	0.61	1.07	0.072		I	0			0.85
17.000	0.58	1.02	0.069		I	0			0.82
17.083	0.53	0.98	0.066		I	0			0.78
17.167	0.47	0.93	0.063		I	0			0.74
17.250	0.45	0.88	0.060		I	0			0.71
17.333	0.44	0.84	0.057		I	0			0.67
17.417	0.42	0.80	0.055		I	0			0.64
17.500	0.41	0.76	0.052		I	0			0.61
17.583	0.40	0.73	0.050		I	0			0.58
17.667	0.38	0.70	0.047		I	0			0.56
17.750	0.37	0.67	0.045		I	0			0.53
17.833	0.36	0.64	0.043		I	0			0.51
17.917	0.36	0.61	0.042		I	0			0.49
18.000	0.35	0.59	0.040		I	0			0.47
18.083	0.34	0.56	0.038		I	0			0.45
18.167	0.31	0.54	0.037		I	0			0.43
18.250	0.29	0.52	0.035		IO				0.41
18.333	0.28	0.49	0.034		IO				0.39
18.417	0.27	0.47	0.032		IO				0.38
18.500	0.26	0.45	0.031		I	0			0.36
18.583	0.25	0.43	0.029		I	0			0.35
18.667	0.25	0.42	0.028		I	0			0.33
18.750	0.24	0.40	0.027		I	0			0.32
18.833	0.24	0.38	0.026		IO				0.31
18.917	0.23	0.37	0.025		IO				0.29
19.000	0.23	0.35	0.024		IO				0.28
19.083	0.22	0.34	0.023		IO				0.27
19.167	0.22	0.33	0.022		IO				0.26
19.250	0.22	0.32	0.022		IO				0.26
19.333	0.21	0.31	0.021		IO				0.25
19.417	0.21	0.30	0.020		IO				0.24
19.500	0.21	0.29	0.020		IO				0.23
19.583	0.20	0.28	0.019		IO				0.23
19.667	0.20	0.27	0.019		IO				0.22
19.750	0.20	0.27	0.018		IO				0.21
19.833	0.20	0.26	0.018		0				0.21
19.917	0.19	0.25	0.017		0				0.20
20.000	0.19	0.25	0.017		0				0.20
20.083	0.19	0.24	0.016		0				0.19
20.167	0.19	0.24	0.016		0				0.19
20.250	0.18	0.23	0.016		0				0.19
20.333	0.18	0.23	0.015		0				0.18
20.417	0.18	0.22	0.015		0				0.18
20.500	0.18	0.22	0.015		0				0.17

20.583	0.18	0.21	0.015	0					0.17
20.667	0.17	0.21	0.014	0					0.17
20.750	0.17	0.21	0.014	0					0.17
20.833	0.17	0.20	0.014	0					0.16
20.917	0.17	0.20	0.014	0					0.16
21.000	0.17	0.20	0.013	0					0.16
21.083	0.17	0.19	0.013	0					0.16
21.167	0.16	0.19	0.013	0					0.15
21.250	0.16	0.19	0.013	0					0.15
21.333	0.16	0.19	0.013	0					0.15
21.417	0.16	0.18	0.012	0					0.15
21.500	0.16	0.18	0.012	0					0.15
21.583	0.16	0.18	0.012	0					0.14
21.667	0.16	0.18	0.012	0					0.14
21.750	0.15	0.17	0.012	0					0.14
21.833	0.15	0.17	0.012	0					0.14
21.917	0.15	0.17	0.012	0					0.14
22.000	0.15	0.17	0.011	0					0.14
22.083	0.15	0.17	0.011	0					0.13
22.167	0.15	0.17	0.011	0					0.13
22.250	0.15	0.16	0.011	0					0.13
22.333	0.15	0.16	0.011	0					0.13
22.417	0.15	0.16	0.011	0					0.13
22.500	0.14	0.16	0.011	0					0.13
22.583	0.14	0.16	0.011	0					0.13
22.667	0.14	0.16	0.011	0					0.12
22.750	0.14	0.15	0.011	0					0.12
22.833	0.14	0.15	0.010	0					0.12
22.917	0.14	0.15	0.010	0					0.12
23.000	0.14	0.15	0.010	0					0.12
23.083	0.14	0.15	0.010	0					0.12
23.167	0.14	0.15	0.010	0					0.12
23.250	0.14	0.15	0.010	0					0.12
23.333	0.13	0.15	0.010	0					0.12
23.417	0.13	0.14	0.010	0					0.12
23.500	0.13	0.14	0.010	0					0.11
23.583	0.13	0.14	0.010	0					0.11
23.667	0.13	0.14	0.010	IO					0.11
23.750	0.13	0.14	0.010	IO					0.11
23.833	0.13	0.14	0.009	IO					0.11
23.917	0.13	0.14	0.009	IO					0.11
24.000	0.13	0.14	0.009	IO					0.11
24.083	0.12	0.14	0.009	IO					0.11
24.167	0.07	0.13	0.009	IO					0.11
24.250	0.04	0.13	0.009	0					0.10
24.333	0.03	0.12	0.008	0					0.09
24.417	0.02	0.11	0.007	0					0.09
24.500	0.01	0.10	0.007	0					0.08
24.583	0.01	0.09	0.006	0					0.07
24.667	0.01	0.08	0.006	0					0.07
24.750	0.00	0.07	0.005	0					0.06
24.833	0.00	0.07	0.005	0					0.05
24.917	0.00	0.06	0.004	0					0.05
25.000	0.00	0.06	0.004	0					0.04
25.083	0.00	0.05	0.003	0					0.04
25.167	0.00	0.05	0.003	0					0.04
25.250	0.00	0.04	0.003	0					0.03
25.333	0.00	0.04	0.003	0					0.03
25.417	0.00	0.03	0.002	0					0.03
25.500	0.00	0.03	0.002	0					0.02
25.583	0.00	0.03	0.002	0					0.02
25.667	0.00	0.02	0.002	0					0.02
25.750	0.00	0.02	0.002	0					0.02
25.833	0.00	0.02	0.001	0					0.02
25.917	0.00	0.02	0.001	0					0.01
26.000	0.00	0.02	0.001	0					0.01
26.083	0.00	0.01	0.001	0					0.01
26.167	0.00	0.01	0.001	0					0.01
26.250	0.00	0.01	0.001	0					0.01

26.333	0.00	0.01	0.001	0					0.01
26.417	0.00	0.01	0.001	0					0.01
26.500	0.00	0.01	0.001	0					0.01
26.583	0.00	0.01	0.001	0					0.01
26.667	0.00	0.01	0.000	0					0.01
26.750	0.00	0.01	0.000	0					0.01
26.833	0.00	0.01	0.000	0					0.00
26.917	0.00	0.01	0.000	0					0.00
27.000	0.00	0.00	0.000	0					0.00
27.083	0.00	0.00	0.000	0					0.00
27.167	0.00	0.00	0.000	0					0.00
27.250	0.00	0.00	0.000	0					0.00
27.333	0.00	0.00	0.000	0					0.00
27.417	0.00	0.00	0.000	0					0.00
27.500	0.00	0.00	0.000	0					0.00
27.583	0.00	0.00	0.000	0					0.00
27.667	0.00	0.00	0.000	0					0.00
27.750	0.00	0.00	0.000	0					0.00
27.833	0.00	0.00	0.000	0					0.00
27.917	0.00	0.00	0.000	0					0.00
28.000	0.00	0.00	0.000	0					0.00
28.083	0.00	0.00	0.000	0					0.00
28.167	0.00	0.00	0.000	0					0.00

*****HYDROGRAPH DATA*****
Number of intervals = 338
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 1.286 (CFS)
Total volume = 0.560 (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

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
Study date: 11/13/19

194647 - BALDY MESA ROAD PHELAN
BASIN ROUTING
100-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-12-19

Program License Serial Number 6320

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

From study/file name: DEVHYD10.rte
*****HYDROGRAPH DATA*****
Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 8.419 (CFS)
Total volume = 1.119 (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 2.000 to Point/Station 3.000
**** RETARDING BASIN ROUTING ****

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 1.00(Ft.) Flow = 1.25 (CFS)

Total outflow at this depth = 1.25(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 2.00(Ft.) Flow = 3.54 (CFS)

Total outflow at this depth = 3.54(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 3.00(Ft.) Flow = 6.50 (CFS)

Total outflow at this depth = 6.50(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 (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.085	1.251	0.081	0.089
2.000	0.195	3.538	0.183	0.207
3.000	0.335	6.500	0.313	0.357

 Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	2.1	4.21	6.31	8.42	Depth (Ft.)
0.083	0.02	0.00	0.000	0					0.00
0.167	0.12	0.01	0.000	0					0.01
0.250	0.19	0.02	0.001	0					0.02
0.333	0.22	0.04	0.003	0					0.03
0.417	0.24	0.06	0.004	0					0.05
0.500	0.25	0.08	0.005	0					0.06
0.583	0.26	0.09	0.006	OI					0.08
0.667	0.27	0.11	0.008	OI					0.09
0.750	0.27	0.13	0.009	OI					0.10
0.833	0.28	0.14	0.010	OI					0.11
0.917	0.28	0.15	0.010	OI					0.12
1.000	0.28	0.17	0.011	OI					0.13
1.083	0.29	0.18	0.012	OI					0.14
1.167	0.29	0.19	0.013	OI					0.15
1.250	0.29	0.20	0.013	OI					0.16
1.333	0.29	0.21	0.014	OI					0.16
1.417	0.29	0.21	0.015	OI					0.17
1.500	0.29	0.22	0.015	OI					0.18
1.583	0.29	0.23	0.015	OI					0.18
1.667	0.29	0.23	0.016	OI					0.19
1.750	0.29	0.24	0.016	OI					0.19
1.833	0.29	0.24	0.017	OI					0.20
1.917	0.29	0.25	0.017	OI					0.20
2.000	0.29	0.25	0.017	OI					0.20
2.083	0.29	0.26	0.017	OI					0.21
2.167	0.30	0.26	0.018	OI					0.21
2.250	0.30	0.26	0.018	O					0.21
2.333	0.30	0.27	0.018	O					0.21
2.417	0.30	0.27	0.018	O					0.22
2.500	0.30	0.27	0.019	O					0.22
2.583	0.30	0.28	0.019	O					0.22
2.667	0.30	0.28	0.019	O					0.22
2.750	0.30	0.28	0.019	O					0.22
2.833	0.30	0.28	0.019	O					0.23
2.917	0.30	0.28	0.019	O					0.23
3.000	0.30	0.29	0.019	O					0.23
3.083	0.31	0.29	0.020	O					0.23
3.167	0.31	0.29	0.020	O					0.23
3.250	0.31	0.29	0.020	O					0.23

3.333	0.31	0.29	0.020	0					0.23
3.417	0.31	0.29	0.020	0					0.24
3.500	0.31	0.30	0.020	0					0.24
3.583	0.31	0.30	0.020	0					0.24
3.667	0.31	0.30	0.020	0					0.24
3.750	0.31	0.30	0.020	0					0.24
3.833	0.31	0.30	0.021	0					0.24
3.917	0.32	0.30	0.021	0					0.24
4.000	0.32	0.30	0.021	0					0.24
4.083	0.32	0.31	0.021	0					0.24
4.167	0.32	0.31	0.021	0					0.25
4.250	0.32	0.31	0.021	0					0.25
4.333	0.32	0.31	0.021	0					0.25
4.417	0.32	0.31	0.021	0					0.25
4.500	0.32	0.31	0.021	0					0.25
4.583	0.32	0.31	0.021	0					0.25
4.667	0.33	0.31	0.021	0					0.25
4.750	0.33	0.32	0.021	0					0.25
4.833	0.33	0.32	0.022	0					0.25
4.917	0.33	0.32	0.022	0					0.25
5.000	0.33	0.32	0.022	0					0.26
5.083	0.33	0.32	0.022	0					0.26
5.167	0.33	0.32	0.022	0					0.26
5.250	0.33	0.32	0.022	0					0.26
5.333	0.34	0.32	0.022	0					0.26
5.417	0.34	0.33	0.022	0					0.26
5.500	0.34	0.33	0.022	0					0.26
5.583	0.34	0.33	0.022	0					0.26
5.667	0.34	0.33	0.022	0					0.26
5.750	0.34	0.33	0.022	0					0.26
5.833	0.34	0.33	0.023	0					0.26
5.917	0.34	0.33	0.023	0					0.27
6.000	0.35	0.33	0.023	0					0.27
6.083	0.35	0.34	0.023	0					0.27
6.167	0.35	0.34	0.023	0					0.27
6.250	0.35	0.34	0.023	0					0.27
6.333	0.35	0.34	0.023	0					0.27
6.417	0.35	0.34	0.023	0					0.27
6.500	0.36	0.34	0.023	0					0.27
6.583	0.36	0.34	0.023	0					0.27
6.667	0.36	0.34	0.023	0					0.28
6.750	0.36	0.35	0.023	0					0.28
6.833	0.36	0.35	0.024	0					0.28
6.917	0.36	0.35	0.024	0					0.28
7.000	0.36	0.35	0.024	0					0.28
7.083	0.37	0.35	0.024	0					0.28
7.167	0.37	0.35	0.024	0					0.28
7.250	0.37	0.35	0.024	0					0.28
7.333	0.37	0.36	0.024	0					0.28
7.417	0.37	0.36	0.024	0					0.29
7.500	0.37	0.36	0.024	0					0.29
7.583	0.38	0.36	0.025	0					0.29
7.667	0.38	0.36	0.025	0					0.29
7.750	0.38	0.36	0.025	0					0.29
7.833	0.38	0.37	0.025	0					0.29
7.917	0.38	0.37	0.025	0					0.29
8.000	0.39	0.37	0.025	0					0.29
8.083	0.39	0.37	0.025	0					0.30
8.167	0.39	0.37	0.025	0					0.30
8.250	0.39	0.37	0.025	0					0.30
8.333	0.39	0.38	0.026	0					0.30
8.417	0.40	0.38	0.026	0					0.30
8.500	0.40	0.38	0.026	0					0.30
8.583	0.40	0.38	0.026	0					0.30
8.667	0.40	0.38	0.026	0					0.31
8.750	0.40	0.39	0.026	0					0.31
8.833	0.41	0.39	0.026	0					0.31
8.917	0.41	0.39	0.026	0					0.31
9.000	0.41	0.39	0.027	0					0.31

9.083	0.41	0.39	0.027	0					0.31
9.167	0.42	0.40	0.027	0					0.32
9.250	0.42	0.40	0.027	0					0.32
9.333	0.42	0.40	0.027	0					0.32
9.417	0.42	0.40	0.027	0					0.32
9.500	0.43	0.40	0.027	0					0.32
9.583	0.43	0.41	0.028	0					0.32
9.667	0.43	0.41	0.028	0					0.33
9.750	0.43	0.41	0.028	0					0.33
9.833	0.44	0.41	0.028	0					0.33
9.917	0.44	0.42	0.028	0					0.33
10.000	0.44	0.42	0.028	0					0.33
10.083	0.45	0.42	0.029	0					0.34
10.167	0.45	0.42	0.029	0					0.34
10.250	0.45	0.43	0.029	0					0.34
10.333	0.45	0.43	0.029	0					0.34
10.417	0.46	0.43	0.029	0					0.34
10.500	0.46	0.43	0.029	0					0.35
10.583	0.46	0.44	0.030	0					0.35
10.667	0.47	0.44	0.030	0					0.35
10.750	0.47	0.44	0.030	0					0.35
10.833	0.48	0.45	0.030	0					0.36
10.917	0.48	0.45	0.030	0					0.36
11.000	0.48	0.45	0.031	0					0.36
11.083	0.49	0.45	0.031	0					0.36
11.167	0.49	0.46	0.031	0					0.37
11.250	0.49	0.46	0.031	0					0.37
11.333	0.50	0.46	0.032	0					0.37
11.417	0.50	0.47	0.032	0					0.37
11.500	0.51	0.47	0.032	0					0.38
11.583	0.51	0.48	0.032	0					0.38
11.667	0.52	0.48	0.033	0					0.38
11.750	0.52	0.48	0.033	0					0.39
11.833	0.53	0.49	0.033	0					0.39
11.917	0.53	0.49	0.033	OI					0.39
12.000	0.54	0.49	0.034	OI					0.40
12.083	0.54	0.50	0.034	OI					0.40
12.167	0.55	0.50	0.034	OI					0.40
12.250	0.55	0.51	0.035	OI					0.41
12.333	0.56	0.51	0.035	OI					0.41
12.417	0.56	0.52	0.035	OI					0.41
12.500	0.57	0.52	0.035	OI					0.42
12.583	0.58	0.53	0.036	0					0.42
12.667	0.58	0.53	0.036	0					0.43
12.750	0.59	0.54	0.037	0					0.43
12.833	0.60	0.54	0.037	0					0.43
12.917	0.60	0.55	0.037	0					0.44
13.000	0.61	0.55	0.038	0					0.44
13.083	0.62	0.56	0.038	0					0.45
13.167	0.63	0.57	0.038	0					0.45
13.250	0.64	0.57	0.039	0					0.46
13.333	0.65	0.58	0.039	0					0.46
13.417	0.66	0.59	0.040	0					0.47
13.500	0.67	0.59	0.040	0					0.47
13.583	0.68	0.60	0.041	0					0.48
13.667	0.69	0.61	0.041	0					0.49
13.750	0.70	0.62	0.042	0					0.49
13.833	0.71	0.63	0.042	0					0.50
13.917	0.72	0.63	0.043	0					0.51
14.000	0.74	0.64	0.044	0					0.51
14.083	0.75	0.65	0.044	0					0.52
14.167	0.76	0.66	0.045	0					0.53
14.250	0.78	0.67	0.046	0					0.54
14.333	0.80	0.68	0.046	OI					0.55
14.417	0.81	0.70	0.047	OI					0.56
14.500	0.83	0.71	0.048	OI					0.57
14.583	0.85	0.72	0.049	OI					0.58
14.667	0.88	0.73	0.050	OI					0.59
14.750	0.90	0.75	0.051	OI					0.60

14.833	0.93	0.77	0.052	OI				0.61
14.917	0.95	0.78	0.053	OI				0.63
15.000	0.99	0.80	0.054	O				0.64
15.083	1.02	0.82	0.056	O				0.65
15.167	1.06	0.84	0.057	OI				0.67
15.250	1.10	0.86	0.059	OI				0.69
15.333	1.15	0.89	0.060	OI				0.71
15.417	1.17	0.92	0.062	OI				0.73
15.500	1.04	0.93	0.063	O				0.75
15.583	0.97	0.94	0.064	O				0.75
15.667	1.00	0.94	0.064	O				0.76
15.750	1.07	0.95	0.065	OI				0.76
15.833	1.21	0.97	0.066	OI				0.78
15.917	1.42	1.00	0.068	O I				0.80
16.000	1.93	1.07	0.073	O I				0.86
16.083	3.56	1.23	0.084	O	I			0.98
16.167	8.42	1.86	0.114	O	O		I	1.27
16.250	6.33	2.60	0.150		O	I		1.59
16.333	3.53	2.91	0.165		O I			1.72
16.417	2.48	2.92	0.165		I O			1.73
16.500	2.06	2.83	0.161		I O			1.69
16.583	1.80	2.71	0.155	I	O			1.64
16.667	1.57	2.58	0.149	I	O			1.58
16.750	1.38	2.43	0.142	I	O			1.51
16.833	1.21	2.28	0.134	I	O			1.45
16.917	1.12	2.13	0.127	I	O			1.38
17.000	1.05	1.99	0.120	I	O			1.32
17.083	0.97	1.86	0.114	I	O			1.27
17.167	0.84	1.73	0.108	I	O			1.21
17.250	0.80	1.61	0.102	I	O			1.16
17.333	0.77	1.50	0.097	I	O			1.11
17.417	0.74	1.40	0.092	I	O			1.06
17.500	0.71	1.31	0.088	I	O			1.03
17.583	0.69	1.23	0.084	I	O			0.99
17.667	0.67	1.18	0.080	I	O			0.94
17.750	0.65	1.13	0.077	I	O			0.90
17.833	0.63	1.08	0.074	I	O			0.87
17.917	0.61	1.04	0.071	IO				0.83
18.000	0.60	1.00	0.068	IO				0.80
18.083	0.58	0.96	0.065	IO				0.77
18.167	0.57	0.92	0.063	IO				0.74
18.250	0.56	0.89	0.060	IO				0.71
18.333	0.55	0.85	0.058	IO				0.68
18.417	0.54	0.82	0.056	IO				0.66
18.500	0.53	0.80	0.054	I O				0.64
18.583	0.52	0.77	0.052	IO				0.61
18.667	0.51	0.74	0.051	IO				0.60
18.750	0.50	0.72	0.049	IO				0.58
18.833	0.49	0.70	0.048	IO				0.56
18.917	0.48	0.68	0.046	IO				0.54
19.000	0.47	0.66	0.045	IO				0.53
19.083	0.47	0.64	0.044	IO				0.51
19.167	0.46	0.62	0.042	IO				0.50
19.250	0.45	0.61	0.041	IO				0.49
19.333	0.45	0.59	0.040	IO				0.47
19.417	0.44	0.58	0.039	IO				0.46
19.500	0.44	0.57	0.038	IO				0.45
19.583	0.43	0.55	0.038	IO				0.44
19.667	0.43	0.54	0.037	IO				0.43
19.750	0.42	0.53	0.036	IO				0.42
19.833	0.42	0.52	0.035	O				0.41
19.917	0.41	0.51	0.035	O				0.41
20.000	0.41	0.50	0.034	O				0.40
20.083	0.40	0.49	0.033	O				0.39
20.167	0.40	0.48	0.033	O				0.38
20.250	0.39	0.47	0.032	O				0.38
20.333	0.39	0.46	0.032	O				0.37
20.417	0.39	0.46	0.031	O				0.37
20.500	0.38	0.45	0.031	O				0.36

20.583	0.38	0.44	0.030	0					0.35
20.667	0.37	0.44	0.030	0					0.35
20.750	0.37	0.43	0.029	0					0.34
20.833	0.37	0.42	0.029	0					0.34
20.917	0.36	0.42	0.028	0					0.34
21.000	0.36	0.41	0.028	0					0.33
21.083	0.36	0.41	0.028	0					0.33
21.167	0.35	0.40	0.027	0					0.32
21.250	0.35	0.40	0.027	0					0.32
21.333	0.35	0.39	0.027	0					0.31
21.417	0.35	0.39	0.026	0					0.31
21.500	0.34	0.39	0.026	0					0.31
21.583	0.34	0.38	0.026	0					0.30
21.667	0.34	0.38	0.026	0					0.30
21.750	0.34	0.37	0.025	0					0.30
21.833	0.33	0.37	0.025	0					0.30
21.917	0.33	0.37	0.025	0					0.29
22.000	0.33	0.36	0.025	0					0.29
22.083	0.33	0.36	0.024	0					0.29
22.167	0.32	0.36	0.024	0					0.28
22.250	0.32	0.35	0.024	0					0.28
22.333	0.32	0.35	0.024	0					0.28
22.417	0.32	0.35	0.024	0					0.28
22.500	0.31	0.34	0.023	0					0.27
22.583	0.31	0.34	0.023	0					0.27
22.667	0.31	0.34	0.023	0					0.27
22.750	0.31	0.33	0.023	0					0.27
22.833	0.31	0.33	0.023	0					0.27
22.917	0.30	0.33	0.022	0					0.26
23.000	0.30	0.33	0.022	0					0.26
23.083	0.30	0.32	0.022	0					0.26
23.167	0.30	0.32	0.022	0					0.26
23.250	0.30	0.32	0.022	0					0.26
23.333	0.30	0.32	0.022	0					0.25
23.417	0.29	0.32	0.021	0					0.25
23.500	0.29	0.31	0.021	0					0.25
23.583	0.29	0.31	0.021	0					0.25
23.667	0.29	0.31	0.021	0					0.25
23.750	0.29	0.31	0.021	0					0.25
23.833	0.29	0.31	0.021	0					0.24
23.917	0.28	0.30	0.021	0					0.24
24.000	0.28	0.30	0.020	0					0.24
24.083	0.27	0.30	0.020	0					0.24
24.167	0.16	0.29	0.020	IO					0.23
24.250	0.09	0.27	0.019	IO					0.22
24.333	0.06	0.25	0.017	0					0.20
24.417	0.04	0.23	0.016	0					0.19
24.500	0.03	0.22	0.015	0					0.17
24.583	0.02	0.20	0.013	0					0.16
24.667	0.01	0.18	0.012	0					0.14
24.750	0.01	0.16	0.011	0					0.13
24.833	0.01	0.15	0.010	0					0.12
24.917	0.00	0.13	0.009	0					0.11
25.000	0.00	0.12	0.008	0					0.10
25.083	0.00	0.11	0.007	0					0.09
25.167	0.00	0.10	0.007	0					0.08
25.250	0.00	0.09	0.006	0					0.07
25.333	0.00	0.08	0.005	0					0.06
25.417	0.00	0.07	0.005	0					0.06
25.500	0.00	0.07	0.004	0					0.05
25.583	0.00	0.06	0.004	0					0.05
25.667	0.00	0.05	0.004	0					0.04
25.750	0.00	0.05	0.003	0					0.04
25.833	0.00	0.04	0.003	0					0.04
25.917	0.00	0.04	0.003	0					0.03
26.000	0.00	0.04	0.002	0					0.03
26.083	0.00	0.03	0.002	0					0.03
26.167	0.00	0.03	0.002	0					0.02
26.250	0.00	0.03	0.002	0					0.02

26.333	0.00	0.02	0.002	0					0.02
26.417	0.00	0.02	0.001	0					0.02
26.500	0.00	0.02	0.001	0					0.02
26.583	0.00	0.02	0.001	0					0.01
26.667	0.00	0.02	0.001	0					0.01
26.750	0.00	0.01	0.001	0					0.01
26.833	0.00	0.01	0.001	0					0.01
26.917	0.00	0.01	0.001	0					0.01
27.000	0.00	0.01	0.001	0					0.01
27.083	0.00	0.01	0.001	0					0.01
27.167	0.00	0.01	0.001	0					0.01
27.250	0.00	0.01	0.001	0					0.01
27.333	0.00	0.01	0.000	0					0.01
27.417	0.00	0.01	0.000	0					0.01
27.500	0.00	0.01	0.000	0					0.00
27.583	0.00	0.01	0.000	0					0.00
27.667	0.00	0.00	0.000	0					0.00
27.750	0.00	0.00	0.000	0					0.00
27.833	0.00	0.00	0.000	0					0.00
27.917	0.00	0.00	0.000	0					0.00
28.000	0.00	0.00	0.000	0					0.00
28.083	0.00	0.00	0.000	0					0.00
28.167	0.00	0.00	0.000	0					0.00
28.250	0.00	0.00	0.000	0					0.00
28.333	0.00	0.00	0.000	0					0.00
28.417	0.00	0.00	0.000	0					0.00
28.500	0.00	0.00	0.000	0					0.00
28.583	0.00	0.00	0.000	0					0.00
28.667	0.00	0.00	0.000	0					0.00
28.750	0.00	0.00	0.000	0					0.00
28.833	0.00	0.00	0.000	0					0.00

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

Number of intervals = 346
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.922 (CFS)
Total volume = 1.119 (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

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
Study date: 11/13/19

194647 - BALDY MESA ROAD PHELAN
BASIN ROUTING
100-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-12-19

Program License Serial Number 6320

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

From study/file name: DEVHYD25.rte
*****HYDROGRAPH DATA*****
Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 10.762 (CFS)
Total volume = 1.442 (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 2.000 to Point/Station 3.000
**** RETARDING BASIN ROUTING ****

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 1.00(Ft.) Flow = 1.25 (CFS)

Total outflow at this depth = 1.25(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 2.00(Ft.) Flow = 3.54 (CFS)

Total outflow at this depth = 3.54(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 3.00(Ft.) Flow = 6.50 (CFS)

Total outflow at this depth = 6.50(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
 1.000 0.085 1.251 0.081 0.089
 2.000 0.195 3.538 0.183 0.207
 3.000 0.335 6.500 0.313 0.357

 Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	0	2.7	5.38	8.07	10.76	Depth (Ft.)
0.083	0.02	0.00	0.000	0					0.00
0.167	0.16	0.01	0.001	0					0.01
0.250	0.25	0.03	0.002	0					0.02
0.333	0.30	0.05	0.004	0					0.04
0.417	0.32	0.08	0.005	0					0.06
0.500	0.34	0.10	0.007	OI					0.08
0.583	0.35	0.12	0.008	OI					0.10
0.667	0.36	0.15	0.010	OI					0.12
0.750	0.36	0.17	0.011	OI					0.13
0.833	0.37	0.19	0.013	OI					0.15
0.917	0.37	0.20	0.014	OI					0.16
1.000	0.37	0.22	0.015	OI					0.18
1.083	0.38	0.23	0.016	OI					0.19
1.167	0.38	0.25	0.017	OI					0.20
1.250	0.38	0.26	0.018	OI					0.21
1.333	0.38	0.27	0.019	OI					0.22
1.417	0.38	0.28	0.019	OI					0.23
1.500	0.38	0.29	0.020	OI					0.23
1.583	0.38	0.30	0.020	OI					0.24
1.667	0.38	0.31	0.021	OI					0.25
1.750	0.39	0.32	0.021	OI					0.25
1.833	0.39	0.32	0.022	OI					0.26
1.917	0.39	0.33	0.022	OI					0.26
2.000	0.39	0.33	0.023	OI					0.27
2.083	0.39	0.34	0.023	O					0.27
2.167	0.39	0.34	0.023	O					0.28
2.250	0.39	0.35	0.024	O					0.28
2.333	0.39	0.35	0.024	O					0.28
2.417	0.39	0.36	0.024	O					0.29
2.500	0.40	0.36	0.025	O					0.29
2.583	0.40	0.36	0.025	O					0.29
2.667	0.40	0.37	0.025	O					0.29
2.750	0.40	0.37	0.025	O					0.30
2.833	0.40	0.37	0.025	O					0.30
2.917	0.40	0.38	0.026	O					0.30
3.000	0.40	0.38	0.026	O					0.30
3.083	0.40	0.38	0.026	O					0.30
3.167	0.40	0.38	0.026	O					0.31
3.250	0.41	0.39	0.026	O					0.31

3.333	0.41	0.39	0.026	0					0.31
3.417	0.41	0.39	0.026	0					0.31
3.500	0.41	0.39	0.027	0					0.31
3.583	0.41	0.39	0.027	0					0.31
3.667	0.41	0.39	0.027	0					0.32
3.750	0.41	0.40	0.027	0					0.32
3.833	0.42	0.40	0.027	0					0.32
3.917	0.42	0.40	0.027	0					0.32
4.000	0.42	0.40	0.027	0					0.32
4.083	0.42	0.40	0.027	0					0.32
4.167	0.42	0.40	0.028	0					0.32
4.250	0.42	0.41	0.028	0					0.32
4.333	0.42	0.41	0.028	0					0.33
4.417	0.42	0.41	0.028	0					0.33
4.500	0.43	0.41	0.028	0					0.33
4.583	0.43	0.41	0.028	0					0.33
4.667	0.43	0.41	0.028	0					0.33
4.750	0.43	0.42	0.028	0					0.33
4.833	0.43	0.42	0.028	0					0.33
4.917	0.43	0.42	0.028	0					0.33
5.000	0.44	0.42	0.029	0					0.34
5.083	0.44	0.42	0.029	0					0.34
5.167	0.44	0.42	0.029	0					0.34
5.250	0.44	0.42	0.029	0					0.34
5.333	0.44	0.43	0.029	0					0.34
5.417	0.44	0.43	0.029	0					0.34
5.500	0.45	0.43	0.029	0					0.34
5.583	0.45	0.43	0.029	0					0.34
5.667	0.45	0.43	0.029	0					0.35
5.750	0.45	0.43	0.030	0					0.35
5.833	0.45	0.44	0.030	0					0.35
5.917	0.45	0.44	0.030	0					0.35
6.000	0.46	0.44	0.030	0					0.35
6.083	0.46	0.44	0.030	0					0.35
6.167	0.46	0.44	0.030	0					0.35
6.250	0.46	0.44	0.030	0					0.36
6.333	0.46	0.45	0.030	0					0.36
6.417	0.46	0.45	0.030	0					0.36
6.500	0.47	0.45	0.031	0					0.36
6.583	0.47	0.45	0.031	0					0.36
6.667	0.47	0.45	0.031	0					0.36
6.750	0.47	0.45	0.031	0					0.36
6.833	0.47	0.46	0.031	0					0.36
6.917	0.48	0.46	0.031	0					0.37
7.000	0.48	0.46	0.031	0					0.37
7.083	0.48	0.46	0.031	0					0.37
7.167	0.48	0.46	0.032	0					0.37
7.250	0.49	0.47	0.032	0					0.37
7.333	0.49	0.47	0.032	0					0.37
7.417	0.49	0.47	0.032	0					0.38
7.500	0.49	0.47	0.032	0					0.38
7.583	0.49	0.47	0.032	0					0.38
7.667	0.50	0.48	0.032	0					0.38
7.750	0.50	0.48	0.032	0					0.38
7.833	0.50	0.48	0.033	0					0.38
7.917	0.50	0.48	0.033	0					0.39
8.000	0.51	0.48	0.033	0					0.39
8.083	0.51	0.49	0.033	0					0.39
8.167	0.51	0.49	0.033	0					0.39
8.250	0.51	0.49	0.033	0					0.39
8.333	0.52	0.49	0.034	0					0.39
8.417	0.52	0.50	0.034	0					0.40
8.500	0.52	0.50	0.034	0					0.40
8.583	0.52	0.50	0.034	0					0.40
8.667	0.53	0.50	0.034	0					0.40
8.750	0.53	0.51	0.034	0					0.40
8.833	0.53	0.51	0.035	0					0.41
8.917	0.54	0.51	0.035	0					0.41
9.000	0.54	0.51	0.035	0					0.41

9.083	0.54	0.52	0.035	0					0.41
9.167	0.54	0.52	0.035	0					0.41
9.250	0.55	0.52	0.035	0					0.42
9.333	0.55	0.52	0.036	0					0.42
9.417	0.55	0.53	0.036	0					0.42
9.500	0.56	0.53	0.036	0					0.42
9.583	0.56	0.53	0.036	0					0.43
9.667	0.56	0.54	0.036	0					0.43
9.750	0.57	0.54	0.037	0					0.43
9.833	0.57	0.54	0.037	0					0.43
9.917	0.57	0.54	0.037	0					0.44
10.000	0.58	0.55	0.037	0					0.44
10.083	0.58	0.55	0.037	0					0.44
10.167	0.59	0.55	0.038	0					0.44
10.250	0.59	0.56	0.038	0					0.45
10.333	0.59	0.56	0.038	0					0.45
10.417	0.60	0.56	0.038	0					0.45
10.500	0.60	0.57	0.039	0					0.45
10.583	0.61	0.57	0.039	0					0.46
10.667	0.61	0.57	0.039	0					0.46
10.750	0.62	0.58	0.039	0					0.46
10.833	0.62	0.58	0.040	0					0.47
10.917	0.62	0.59	0.040	0					0.47
11.000	0.63	0.59	0.040	0					0.47
11.083	0.63	0.59	0.040	0					0.47
11.167	0.64	0.60	0.041	0					0.48
11.250	0.64	0.60	0.041	0					0.48
11.333	0.65	0.61	0.041	0					0.49
11.417	0.66	0.61	0.042	0					0.49
11.500	0.66	0.62	0.042	0					0.49
11.583	0.67	0.62	0.042	0					0.50
11.667	0.67	0.63	0.042	0					0.50
11.750	0.68	0.63	0.043	OI					0.50
11.833	0.68	0.63	0.043	OI					0.51
11.917	0.69	0.64	0.043	OI					0.51
12.000	0.70	0.65	0.044	OI					0.52
12.083	0.70	0.65	0.044	OI					0.52
12.167	0.70	0.66	0.045	OI					0.52
12.250	0.69	0.66	0.045	OI					0.53
12.333	0.70	0.66	0.045	OI					0.53
12.417	0.70	0.67	0.045	OI					0.53
12.500	0.71	0.67	0.046	OI					0.54
12.583	0.72	0.67	0.046	0					0.54
12.667	0.72	0.68	0.046	0					0.54
12.750	0.73	0.68	0.046	0					0.55
12.833	0.74	0.69	0.047	0					0.55
12.917	0.75	0.69	0.047	0					0.55
13.000	0.76	0.70	0.048	0					0.56
13.083	0.77	0.71	0.048	0					0.56
13.167	0.78	0.71	0.048	0					0.57
13.250	0.79	0.72	0.049	0					0.58
13.333	0.80	0.73	0.049	0					0.58
13.417	0.81	0.73	0.050	0					0.59
13.500	0.83	0.74	0.050	0					0.59
13.583	0.84	0.75	0.051	0					0.60
13.667	0.85	0.76	0.052	0					0.61
13.750	0.87	0.77	0.052	0					0.62
13.833	0.88	0.78	0.053	0					0.62
13.917	0.90	0.79	0.054	0					0.63
14.000	0.92	0.80	0.055	0					0.64
14.083	0.93	0.81	0.055	0					0.65
14.167	0.95	0.83	0.056	0					0.66
14.250	0.97	0.84	0.057	0					0.67
14.333	0.99	0.85	0.058	0					0.68
14.417	1.02	0.87	0.059	OI					0.69
14.500	1.04	0.88	0.060	OI					0.71
14.583	1.07	0.90	0.061	OI					0.72
14.667	1.10	0.92	0.062	OI					0.73
14.750	1.13	0.94	0.064	OI					0.75

14.833	1.16	0.96	0.065	OI					0.76
14.917	1.19	0.98	0.066	OI					0.78
15.000	1.24	1.00	0.068	OI					0.80
15.083	1.28	1.03	0.070	O					0.82
15.167	1.33	1.05	0.071	O					0.84
15.250	1.38	1.08	0.073	OI					0.86
15.333	1.45	1.11	0.076	OI					0.89
15.417	1.48	1.15	0.078	OI					0.92
15.500	1.33	1.17	0.080	O					0.94
15.583	1.24	1.18	0.080	O					0.95
15.667	1.29	1.19	0.081	O					0.95
15.750	1.38	1.21	0.082	OI					0.96
15.833	1.57	1.23	0.084	OI					0.98
15.917	1.85	1.29	0.087	O I					1.02
16.000	2.53	1.41	0.093	O I					1.07
16.083	4.60	1.70	0.106	O	I				1.20
16.167	10.76	2.50	0.145	O				I	1.54
16.250	8.10	3.42	0.189		O		I		1.95
16.333	4.54	3.82	0.208		O I				2.09
16.417	3.19	3.82	0.208		I O				2.10
16.500	2.63	3.70	0.203		I O				2.05
16.583	2.29	3.53	0.195	I	O				2.00
16.667	1.99	3.35	0.186	I	O				1.92
16.750	1.75	3.15	0.176	I	O				1.83
16.833	1.53	2.95	0.167	I	O				1.74
16.917	1.41	2.75	0.157	I	O				1.66
17.000	1.33	2.57	0.148	I	O				1.57
17.083	1.21	2.39	0.140	I	O				1.50
17.167	1.05	2.22	0.132	I	O				1.43
17.250	1.00	2.06	0.124	I	O				1.36
17.333	0.96	1.92	0.117	I	O				1.29
17.417	0.92	1.79	0.111	I	O				1.23
17.500	0.89	1.67	0.105	I	O				1.18
17.583	0.86	1.56	0.100	I	O				1.14
17.667	0.83	1.47	0.095	I	O				1.09
17.750	0.80	1.38	0.091	I	O				1.06
17.833	0.78	1.30	0.087	IO					1.02
17.917	0.76	1.24	0.084	IO					0.99
18.000	0.74	1.19	0.081	IO					0.95
18.083	0.72	1.15	0.078	IO					0.92
18.167	0.72	1.10	0.075	IO					0.88
18.250	0.71	1.07	0.073	IO					0.85
18.333	0.70	1.03	0.070	IO					0.83
18.417	0.69	1.00	0.068	O					0.80
18.500	0.68	0.97	0.066	O					0.78
18.583	0.67	0.94	0.064	IO					0.75
18.667	0.66	0.92	0.062	IO					0.73
18.750	0.65	0.89	0.060	IO					0.71
18.833	0.64	0.87	0.059	IO					0.69
18.917	0.63	0.84	0.057	IO					0.67
19.000	0.62	0.82	0.056	IO					0.66
19.083	0.61	0.80	0.055	IO					0.64
19.167	0.60	0.78	0.053	IO					0.63
19.250	0.59	0.77	0.052	IO					0.61
19.333	0.59	0.75	0.051	IO					0.60
19.417	0.58	0.73	0.050	IO					0.59
19.500	0.57	0.72	0.049	IO					0.57
19.583	0.56	0.70	0.048	IO					0.56
19.667	0.56	0.69	0.047	IO					0.55
19.750	0.55	0.68	0.046	IO					0.54
19.833	0.54	0.66	0.045	O					0.53
19.917	0.54	0.65	0.044	O					0.52
20.000	0.53	0.64	0.044	O					0.51
20.083	0.53	0.63	0.043	O					0.50
20.167	0.52	0.62	0.042	O					0.50
20.250	0.52	0.61	0.041	O					0.49
20.333	0.51	0.60	0.041	O					0.48
20.417	0.51	0.59	0.040	O					0.47
20.500	0.50	0.58	0.040	O					0.47

20.583	0.50	0.57	0.039	0					0.46
20.667	0.49	0.57	0.039	0					0.45
20.750	0.49	0.56	0.038	0					0.45
20.833	0.48	0.55	0.038	0					0.44
20.917	0.48	0.55	0.037	0					0.44
21.000	0.47	0.54	0.037	0					0.43
21.083	0.47	0.53	0.036	0					0.43
21.167	0.47	0.53	0.036	0					0.42
21.250	0.46	0.52	0.035	0					0.42
21.333	0.46	0.51	0.035	0					0.41
21.417	0.46	0.51	0.035	0					0.41
21.500	0.45	0.50	0.034	0					0.40
21.583	0.45	0.50	0.034	0					0.40
21.667	0.44	0.49	0.034	0					0.39
21.750	0.44	0.49	0.033	0					0.39
21.833	0.44	0.48	0.033	0					0.39
21.917	0.44	0.48	0.033	0					0.38
22.000	0.43	0.47	0.032	0					0.38
22.083	0.43	0.47	0.032	0					0.38
22.167	0.43	0.47	0.032	0					0.37
22.250	0.42	0.46	0.031	0					0.37
22.333	0.42	0.46	0.031	0					0.37
22.417	0.42	0.45	0.031	0					0.36
22.500	0.41	0.45	0.031	0					0.36
22.583	0.41	0.45	0.030	0					0.36
22.667	0.41	0.44	0.030	0					0.35
22.750	0.41	0.44	0.030	0					0.35
22.833	0.40	0.44	0.030	0					0.35
22.917	0.40	0.43	0.029	0					0.35
23.000	0.40	0.43	0.029	0					0.34
23.083	0.40	0.43	0.029	0					0.34
23.167	0.39	0.42	0.029	0					0.34
23.250	0.39	0.42	0.029	0					0.34
23.333	0.39	0.42	0.028	0					0.33
23.417	0.39	0.42	0.028	0					0.33
23.500	0.39	0.41	0.028	0					0.33
23.583	0.38	0.41	0.028	0					0.33
23.667	0.38	0.41	0.028	0					0.33
23.750	0.38	0.41	0.028	0					0.32
23.833	0.38	0.40	0.027	0					0.32
23.917	0.38	0.40	0.027	0					0.32
24.000	0.37	0.40	0.027	0					0.32
24.083	0.35	0.39	0.027	0					0.32
24.167	0.21	0.38	0.026	IO					0.31
24.250	0.12	0.36	0.025	IO					0.29
24.333	0.07	0.34	0.023	IO					0.27
24.417	0.05	0.31	0.021	0					0.25
24.500	0.03	0.28	0.019	0					0.23
24.583	0.02	0.26	0.018	0					0.21
24.667	0.02	0.24	0.016	0					0.19
24.750	0.01	0.21	0.015	0					0.17
24.833	0.01	0.19	0.013	0					0.16
24.917	0.00	0.18	0.012	0					0.14
25.000	0.00	0.16	0.011	0					0.13
25.083	0.00	0.14	0.010	0					0.12
25.167	0.00	0.13	0.009	0					0.10
25.250	0.00	0.12	0.008	0					0.09
25.333	0.00	0.11	0.007	0					0.09
25.417	0.00	0.10	0.007	0					0.08
25.500	0.00	0.09	0.006	0					0.07
25.583	0.00	0.08	0.005	0					0.06
25.667	0.00	0.07	0.005	0					0.06
25.750	0.00	0.06	0.004	0					0.05
25.833	0.00	0.06	0.004	0					0.05
25.917	0.00	0.05	0.004	0					0.04
26.000	0.00	0.05	0.003	0					0.04
26.083	0.00	0.04	0.003	0					0.03
26.167	0.00	0.04	0.003	0					0.03
26.250	0.00	0.03	0.002	0					0.03

26.333	0.00	0.03	0.002	0					0.03
26.417	0.00	0.03	0.002	0					0.02
26.500	0.00	0.03	0.002	0					0.02
26.583	0.00	0.02	0.002	0					0.02
26.667	0.00	0.02	0.001	0					0.02
26.750	0.00	0.02	0.001	0					0.02
26.833	0.00	0.02	0.001	0					0.01
26.917	0.00	0.02	0.001	0					0.01
27.000	0.00	0.01	0.001	0					0.01
27.083	0.00	0.01	0.001	0					0.01
27.167	0.00	0.01	0.001	0					0.01
27.250	0.00	0.01	0.001	0					0.01
27.333	0.00	0.01	0.001	0					0.01
27.417	0.00	0.01	0.001	0					0.01
27.500	0.00	0.01	0.001	0					0.01
27.583	0.00	0.01	0.000	0					0.01
27.667	0.00	0.01	0.000	0					0.00
27.750	0.00	0.01	0.000	0					0.00
27.833	0.00	0.01	0.000	0					0.00
27.917	0.00	0.00	0.000	0					0.00
28.000	0.00	0.00	0.000	0					0.00
28.083	0.00	0.00	0.000	0					0.00
28.167	0.00	0.00	0.000	0					0.00
28.250	0.00	0.00	0.000	0					0.00
28.333	0.00	0.00	0.000	0					0.00
28.417	0.00	0.00	0.000	0					0.00
28.500	0.00	0.00	0.000	0					0.00
28.583	0.00	0.00	0.000	0					0.00
28.667	0.00	0.00	0.000	0					0.00
28.750	0.00	0.00	0.000	0					0.00
28.833	0.00	0.00	0.000	0					0.00
28.917	0.00	0.00	0.000	0					0.00
29.000	0.00	0.00	0.000	0					0.00

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

Number of intervals = 348
 Time interval = 5.0 (Min.)
 Maximum/Peak flow rate = 3.823 (CFS)
 Total volume = 1.442 (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

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
Study date: 11/13/19

194647 - BALDY MESA ROAD PHELAN
BASIN ROUTING
100-YEAR, 24-HOUR STORM
BY: JTS DATE: 11-12-19

Program License Serial Number 6320

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

From study/file name: devhyd100.rte
*****HYDROGRAPH DATA*****
Number of intervals = 300
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 14.311 (CFS)
Total volume = 1.939 (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 2.000 to Point/Station 3.000
**** RETARDING BASIN ROUTING ****

Program computation of outflow v. depth

CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 1.00(Ft.) Flow = 1.25 (CFS)

Total outflow at this depth = 1.25(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 2.00(Ft.) Flow = 3.54 (CFS)

Total outflow at this depth = 3.54(CFS)

CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.))

Weir capacity using equation $Q = CLH^{Exp}$ (Using Feet as units)
Weir Length = 0.42(Ft.) C value = 3.00 Exp = 1.50
Weir flow: Depth = H = 3.00(Ft.) Flow = 6.50 (CFS)

Total outflow at this depth = 6.50(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 (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.085	1.251	0.081	0.089
2.000	0.195	3.538	0.183	0.207
3.000	0.335	6.500	0.313	0.357

 Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	3.6	7.16	10.73	14.31	Depth (Ft.)
0.083	0.03	0.00	0.000	0					0.00
0.167	0.22	0.01	0.001	0					0.01
0.250	0.35	0.04	0.003	0					0.03
0.333	0.41	0.07	0.005	0					0.06
0.417	0.44	0.11	0.007	0					0.08
0.500	0.46	0.14	0.009	OI					0.11
0.583	0.48	0.17	0.012	OI					0.14
0.667	0.49	0.20	0.014	OI					0.16
0.750	0.50	0.23	0.016	OI					0.18
0.833	0.51	0.26	0.017	OI					0.20
0.917	0.51	0.28	0.019	OI					0.22
1.000	0.51	0.30	0.021	OI					0.24
1.083	0.52	0.32	0.022	OI					0.26
1.167	0.52	0.34	0.023	OI					0.27
1.250	0.52	0.36	0.024	OI					0.29
1.333	0.52	0.38	0.025	OI					0.30
1.417	0.52	0.39	0.026	OI					0.31
1.500	0.53	0.40	0.027	OI					0.32
1.583	0.53	0.41	0.028	OI					0.33
1.667	0.53	0.43	0.029	OI					0.34
1.750	0.53	0.44	0.030	OI					0.35
1.833	0.53	0.44	0.030	OI					0.36
1.917	0.53	0.45	0.031	O					0.36
2.000	0.53	0.46	0.031	O					0.37
2.083	0.54	0.47	0.032	O					0.37
2.167	0.54	0.47	0.032	O					0.38
2.250	0.54	0.48	0.033	O					0.38
2.333	0.54	0.49	0.033	O					0.39
2.417	0.54	0.49	0.033	O					0.39
2.500	0.54	0.50	0.034	O					0.40
2.583	0.54	0.50	0.034	O					0.40
2.667	0.55	0.51	0.034	O					0.40
2.750	0.55	0.51	0.035	O					0.41
2.833	0.55	0.51	0.035	O					0.41
2.917	0.55	0.52	0.035	O					0.41
3.000	0.55	0.52	0.035	O					0.42
3.083	0.55	0.52	0.036	O					0.42
3.167	0.56	0.53	0.036	O					0.42
3.250	0.56	0.53	0.036	O					0.42

3.333	0.56	0.53	0.036	0					0.43
3.417	0.56	0.53	0.036	0					0.43
3.500	0.56	0.54	0.037	0					0.43
3.583	0.56	0.54	0.037	0					0.43
3.667	0.57	0.54	0.037	0					0.43
3.750	0.57	0.54	0.037	0					0.44
3.833	0.57	0.55	0.037	0					0.44
3.917	0.57	0.55	0.037	0					0.44
4.000	0.57	0.55	0.037	0					0.44
4.083	0.58	0.55	0.038	0					0.44
4.167	0.58	0.56	0.038	0					0.44
4.250	0.58	0.56	0.038	0					0.45
4.333	0.58	0.56	0.038	0					0.45
4.417	0.58	0.56	0.038	0					0.45
4.500	0.59	0.56	0.038	0					0.45
4.583	0.59	0.57	0.039	0					0.45
4.667	0.59	0.57	0.039	0					0.45
4.750	0.59	0.57	0.039	0					0.46
4.833	0.59	0.57	0.039	0					0.46
4.917	0.60	0.57	0.039	0					0.46
5.000	0.60	0.58	0.039	0					0.46
5.083	0.60	0.58	0.039	0					0.46
5.167	0.60	0.58	0.039	0					0.46
5.250	0.60	0.58	0.040	0					0.47
5.333	0.61	0.59	0.040	0					0.47
5.417	0.61	0.59	0.040	0					0.47
5.500	0.61	0.59	0.040	0					0.47
5.583	0.61	0.59	0.040	0					0.47
5.667	0.61	0.59	0.040	0					0.47
5.750	0.62	0.60	0.040	0					0.48
5.833	0.62	0.60	0.041	0					0.48
5.917	0.62	0.60	0.041	0					0.48
6.000	0.62	0.60	0.041	0					0.48
6.083	0.63	0.60	0.041	0					0.48
6.167	0.63	0.61	0.041	0					0.49
6.250	0.63	0.61	0.041	0					0.49
6.333	0.63	0.61	0.042	0					0.49
6.417	0.64	0.61	0.042	0					0.49
6.500	0.64	0.62	0.042	0					0.49
6.583	0.64	0.62	0.042	0					0.49
6.667	0.64	0.62	0.042	0					0.50
6.750	0.65	0.62	0.042	0					0.50
6.833	0.65	0.63	0.043	0					0.50
6.917	0.65	0.63	0.043	0					0.50
7.000	0.66	0.63	0.043	0					0.50
7.083	0.66	0.63	0.043	0					0.51
7.167	0.66	0.64	0.043	0					0.51
7.250	0.66	0.64	0.043	0					0.51
7.333	0.67	0.64	0.044	0					0.51
7.417	0.67	0.64	0.044	0					0.51
7.500	0.67	0.65	0.044	0					0.52
7.583	0.68	0.65	0.044	0					0.52
7.667	0.68	0.65	0.044	0					0.52
7.750	0.68	0.65	0.044	0					0.52
7.833	0.69	0.66	0.045	0					0.53
7.917	0.69	0.66	0.045	0					0.53
8.000	0.69	0.66	0.045	0					0.53
8.083	0.69	0.67	0.045	0					0.53
8.167	0.70	0.67	0.045	0					0.53
8.250	0.70	0.67	0.046	0					0.54
8.333	0.71	0.67	0.046	0					0.54
8.417	0.71	0.68	0.046	0					0.54
8.500	0.71	0.68	0.046	0					0.54
8.583	0.72	0.68	0.046	0					0.55
8.667	0.72	0.69	0.047	0					0.55
8.750	0.72	0.69	0.047	0					0.55
8.833	0.73	0.69	0.047	0					0.55
8.917	0.73	0.70	0.047	0					0.56
9.000	0.74	0.70	0.048	0					0.56

9.083	0.74	0.70	0.048	0					0.56
9.167	0.74	0.71	0.048	0					0.57
9.250	0.75	0.71	0.048	0					0.57
9.333	0.75	0.72	0.049	0					0.57
9.417	0.76	0.72	0.049	0					0.57
9.500	0.76	0.72	0.049	0					0.58
9.583	0.76	0.73	0.049	0					0.58
9.667	0.77	0.73	0.050	0					0.58
9.750	0.77	0.73	0.050	0					0.59
9.833	0.78	0.74	0.050	0					0.59
9.917	0.78	0.74	0.050	0					0.59
10.000	0.79	0.75	0.051	0					0.60
10.083	0.79	0.75	0.051	0					0.60
10.167	0.80	0.76	0.051	0					0.60
10.250	0.80	0.76	0.052	0					0.61
10.333	0.81	0.76	0.052	0					0.61
10.417	0.81	0.77	0.052	0					0.61
10.500	0.82	0.77	0.053	0					0.62
10.583	0.83	0.78	0.053	0					0.62
10.667	0.83	0.78	0.053	0					0.63
10.750	0.84	0.79	0.054	0					0.63
10.833	0.84	0.79	0.054	0					0.63
10.917	0.85	0.80	0.054	0					0.64
11.000	0.86	0.80	0.055	0					0.64
11.083	0.86	0.81	0.055	0					0.65
11.167	0.87	0.81	0.055	0					0.65
11.250	0.88	0.82	0.056	0					0.66
11.333	0.88	0.83	0.056	0					0.66
11.417	0.89	0.83	0.057	0					0.66
11.500	0.90	0.84	0.057	OI					0.67
11.583	0.91	0.84	0.057	OI					0.67
11.667	0.91	0.85	0.058	OI					0.68
11.750	0.92	0.86	0.058	OI					0.68
11.833	0.93	0.86	0.059	OI					0.69
11.917	0.94	0.87	0.059	OI					0.70
12.000	0.95	0.88	0.060	OI					0.70
12.083	0.95	0.88	0.060	OI					0.71
12.167	0.93	0.89	0.060	OI					0.71
12.250	0.91	0.89	0.061	OI					0.71
12.333	0.91	0.89	0.061	OI					0.71
12.417	0.91	0.90	0.061	0					0.72
12.500	0.92	0.90	0.061	0					0.72
12.583	0.93	0.90	0.061	0					0.72
12.667	0.94	0.90	0.061	0					0.72
12.750	0.95	0.91	0.062	0					0.73
12.833	0.96	0.91	0.062	0					0.73
12.917	0.97	0.92	0.062	0					0.73
13.000	0.98	0.92	0.063	0					0.74
13.083	1.00	0.93	0.063	0					0.74
13.167	1.01	0.94	0.064	0					0.75
13.250	1.03	0.94	0.064	0					0.76
13.333	1.04	0.95	0.065	0					0.76
13.417	1.06	0.96	0.065	0					0.77
13.500	1.07	0.97	0.066	0					0.78
13.583	1.09	0.98	0.067	0					0.79
13.667	1.11	0.99	0.068	0					0.79
13.750	1.13	1.01	0.068	0					0.80
13.833	1.15	1.02	0.069	0					0.81
13.917	1.17	1.03	0.070	0					0.83
14.000	1.19	1.05	0.071	0					0.84
14.083	1.22	1.06	0.072	0					0.85
14.167	1.24	1.08	0.073	0					0.86
14.250	1.27	1.10	0.074	0					0.88
14.333	1.30	1.11	0.076	0					0.89
14.417	1.33	1.13	0.077	0					0.91
14.500	1.36	1.15	0.078	OI					0.92
14.583	1.39	1.17	0.080	OI					0.94
14.667	1.43	1.20	0.081	OI					0.96
14.750	1.47	1.22	0.083	OI					0.98

14.833	1.52	1.25	0.085	OI					1.00
14.917	1.57	1.29	0.087	OI					1.02
15.000	1.62	1.33	0.089	OI					1.03
15.083	1.68	1.37	0.091	O					1.05
15.167	1.75	1.42	0.093	O					1.07
15.250	1.82	1.47	0.095	OI					1.09
15.333	1.91	1.52	0.098	OI					1.12
15.417	1.96	1.58	0.101	OI					1.14
15.500	1.77	1.61	0.102	O					1.16
15.583	1.67	1.63	0.103	O					1.16
15.667	1.74	1.64	0.104	O					1.17
15.750	1.87	1.66	0.105	OI					1.18
15.833	2.13	1.71	0.107	OI					1.20
15.917	2.51	1.79	0.111	O I					1.23
16.000	3.43	1.95	0.118	O I					1.30
16.083	6.19	2.33	0.137	O	I				1.47
16.167	14.31	3.39	0.188	O				I	1.93
16.250	10.81	4.63	0.247		O		I		2.37
16.333	6.09	5.15	0.271		O I				2.54
16.417	4.28	5.15	0.271		I O				2.55
16.500	3.52	4.98	0.263		I O				2.49
16.583	3.05	4.75	0.252	I	O				2.41
16.667	2.65	4.50	0.240	I	O				2.32
16.750	2.31	4.22	0.227	I	O				2.23
16.833	2.02	3.94	0.214	I	O				2.14
16.917	1.86	3.67	0.201	I	O				2.04
17.000	1.74	3.42	0.189	I	O				1.95
17.083	1.59	3.18	0.178	I	O				1.84
17.167	1.37	2.96	0.167	I	O				1.75
17.250	1.31	2.74	0.157	I	O				1.65
17.333	1.25	2.54	0.147	I	O				1.57
17.417	1.20	2.37	0.139	I	O				1.49
17.500	1.16	2.21	0.131	I	O				1.42
17.583	1.11	2.07	0.124	I	O				1.36
17.667	1.08	1.94	0.118	I	O				1.30
17.750	1.04	1.82	0.112	I	O				1.25
17.833	1.01	1.71	0.107	IO					1.20
17.917	0.99	1.62	0.103	IO					1.16
18.000	0.96	1.53	0.099	IO					1.12
18.083	0.94	1.45	0.095	IO					1.09
18.167	0.95	1.39	0.092	IO					1.06
18.250	0.96	1.33	0.089	O					1.03
18.333	0.95	1.28	0.086	O					1.01
18.417	0.93	1.24	0.084	O					0.99
18.500	0.92	1.21	0.082	O					0.97
18.583	0.91	1.18	0.080	O					0.94
18.667	0.89	1.15	0.078	IO					0.92
18.750	0.88	1.13	0.077	IO					0.90
18.833	0.87	1.10	0.075	IO					0.88
18.917	0.85	1.08	0.073	IO					0.86
19.000	0.84	1.06	0.072	IO					0.84
19.083	0.83	1.04	0.070	IO					0.83
19.167	0.82	1.02	0.069	IO					0.81
19.250	0.81	1.00	0.068	IO					0.80
19.333	0.80	0.98	0.066	IO					0.78
19.417	0.79	0.96	0.065	IO					0.77
19.500	0.78	0.94	0.064	IO					0.75
19.583	0.77	0.93	0.063	IO					0.74
19.667	0.76	0.91	0.062	IO					0.73
19.750	0.75	0.90	0.061	IO					0.72
19.833	0.74	0.88	0.060	O					0.70
19.917	0.73	0.87	0.059	O					0.69
20.000	0.73	0.85	0.058	O					0.68
20.083	0.72	0.84	0.057	O					0.67
20.167	0.71	0.83	0.056	O					0.66
20.250	0.70	0.82	0.056	O					0.65
20.333	0.70	0.81	0.055	O					0.64
20.417	0.69	0.80	0.054	O					0.64
20.500	0.68	0.79	0.053	O					0.63

20.583	0.68	0.78	0.053	0					0.62
20.667	0.67	0.77	0.052	0					0.61
20.750	0.67	0.76	0.051	0					0.60
20.833	0.66	0.75	0.051	0					0.60
20.917	0.65	0.74	0.050	0					0.59
21.000	0.65	0.73	0.050	0					0.58
21.083	0.64	0.72	0.049	0					0.58
21.167	0.64	0.71	0.049	0					0.57
21.250	0.63	0.71	0.048	0					0.57
21.333	0.63	0.70	0.048	0					0.56
21.417	0.62	0.69	0.047	0					0.55
21.500	0.62	0.69	0.047	0					0.55
21.583	0.61	0.68	0.046	0					0.54
21.667	0.61	0.67	0.046	0					0.54
21.750	0.61	0.67	0.045	0					0.53
21.833	0.60	0.66	0.045	0					0.53
21.917	0.60	0.65	0.044	0					0.52
22.000	0.59	0.65	0.044	0					0.52
22.083	0.59	0.64	0.044	0					0.51
22.167	0.58	0.64	0.043	0					0.51
22.250	0.58	0.63	0.043	0					0.51
22.333	0.58	0.63	0.043	0					0.50
22.417	0.57	0.62	0.042	0					0.50
22.500	0.57	0.62	0.042	0					0.49
22.583	0.57	0.61	0.042	0					0.49
22.667	0.56	0.61	0.041	0					0.49
22.750	0.56	0.60	0.041	0					0.48
22.833	0.56	0.60	0.041	0					0.48
22.917	0.55	0.59	0.040	0					0.48
23.000	0.55	0.59	0.040	0					0.47
23.083	0.55	0.59	0.040	0					0.47
23.167	0.54	0.58	0.040	0					0.47
23.250	0.54	0.58	0.039	0					0.46
23.333	0.54	0.57	0.039	0					0.46
23.417	0.53	0.57	0.039	0					0.46
23.500	0.53	0.57	0.039	0					0.45
23.583	0.53	0.56	0.038	0					0.45
23.667	0.53	0.56	0.038	0					0.45
23.750	0.52	0.56	0.038	0					0.44
23.833	0.52	0.55	0.038	0					0.44
23.917	0.52	0.55	0.037	0					0.44
24.000	0.51	0.55	0.037	0					0.44
24.083	0.48	0.54	0.037	0					0.43
24.167	0.29	0.53	0.036	IO					0.42
24.250	0.16	0.50	0.034	IO					0.40
24.333	0.10	0.46	0.031	IO					0.37
24.417	0.07	0.43	0.029	0					0.34
24.500	0.05	0.39	0.027	0					0.31
24.583	0.03	0.36	0.024	0					0.29
24.667	0.02	0.32	0.022	0					0.26
24.750	0.01	0.30	0.020	0					0.24
24.833	0.01	0.27	0.018	0					0.21
24.917	0.01	0.24	0.016	0					0.19
25.000	0.00	0.22	0.015	0					0.18
25.083	0.00	0.20	0.014	0					0.16
25.167	0.00	0.18	0.012	0					0.14
25.250	0.00	0.16	0.011	0					0.13
25.333	0.00	0.15	0.010	0					0.12
25.417	0.00	0.13	0.009	0					0.11
25.500	0.00	0.12	0.008	0					0.10
25.583	0.00	0.11	0.007	0					0.09
25.667	0.00	0.10	0.007	0					0.08
25.750	0.00	0.09	0.006	0					0.07
25.833	0.00	0.08	0.005	0					0.06
25.917	0.00	0.07	0.005	0					0.06
26.000	0.00	0.07	0.004	0					0.05
26.083	0.00	0.06	0.004	0					0.05
26.167	0.00	0.05	0.004	0					0.04
26.250	0.00	0.05	0.003	0					0.04

26.333	0.00	0.04	0.003	0					0.03
26.417	0.00	0.04	0.003	0					0.03
26.500	0.00	0.04	0.002	0					0.03
26.583	0.00	0.03	0.002	0					0.03
26.667	0.00	0.03	0.002	0					0.02
26.750	0.00	0.03	0.002	0					0.02
26.833	0.00	0.02	0.002	0					0.02
26.917	0.00	0.02	0.001	0					0.02
27.000	0.00	0.02	0.001	0					0.02
27.083	0.00	0.02	0.001	0					0.01
27.167	0.00	0.02	0.001	0					0.01
27.250	0.00	0.01	0.001	0					0.01
27.333	0.00	0.01	0.001	0					0.01
27.417	0.00	0.01	0.001	0					0.01
27.500	0.00	0.01	0.001	0					0.01
27.583	0.00	0.01	0.001	0					0.01
27.667	0.00	0.01	0.001	0					0.01
27.750	0.00	0.01	0.001	0					0.01
27.833	0.00	0.01	0.000	0					0.01
27.917	0.00	0.01	0.000	0					0.01
28.000	0.00	0.01	0.000	0					0.00
28.083	0.00	0.01	0.000	0					0.00
28.167	0.00	0.00	0.000	0					0.00
28.250	0.00	0.00	0.000	0					0.00
28.333	0.00	0.00	0.000	0					0.00
28.417	0.00	0.00	0.000	0					0.00
28.500	0.00	0.00	0.000	0					0.00
28.583	0.00	0.00	0.000	0					0.00
28.667	0.00	0.00	0.000	0					0.00
28.750	0.00	0.00	0.000	0					0.00
28.833	0.00	0.00	0.000	0					0.00
28.917	0.00	0.00	0.000	0					0.00
29.000	0.00	0.00	0.000	0					0.00
29.083	0.00	0.00	0.000	0					0.00
29.167	0.00	0.00	0.000	0					0.00
29.250	0.00	0.00	0.000	0					0.00

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

Number of intervals = 351
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 5.155 (CFS)
Total volume = 1.939 (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

ATTACHMENT 6

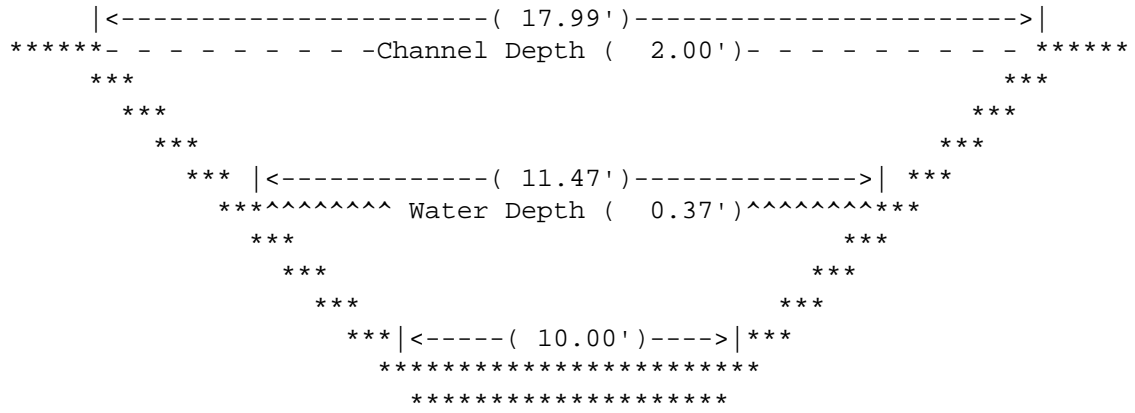
Hydraulics

Spillway

Weir Outlet Pipe

6' Parkway Culvert

Joseph E. Bonadiman & Assoc., Inc.
 Consulting Engineers
 234 N. Arrowhead Ave.
 San Bernardino, California 92408
 (909)885-3806

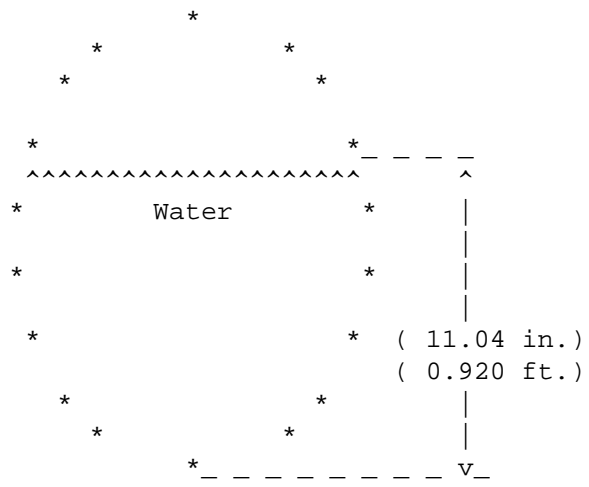


Trapezoidal Channel

Flowrate	22.030	CFS
Velocity	5.566	fps
Depth of Flow	0.369	feet
Critical Depth	0.511	feet
Freeboard	1.630	feet
Total Depth	1.999	feet
Width at Water Surface	11.474	feet
Top Width	17.994	feet
Slope of Channel	1.000	%
Left Side Slope	2.000	: 1
Right Side Slope	2.000	: 1
Base Width	10.000	feet
X-Sectional Area	3.958	sq. ft.
Wetted Perimeter	11.648	feet
AR^(2/3)	1.927	
Mannings 'n'	0.013	

Joseph E. Bonadiman & Assoc., Inc.
 Consulting Engineers
 234 N. Arrowhead Ave.
 San Bernardino, California 92408
 (909)885-3806

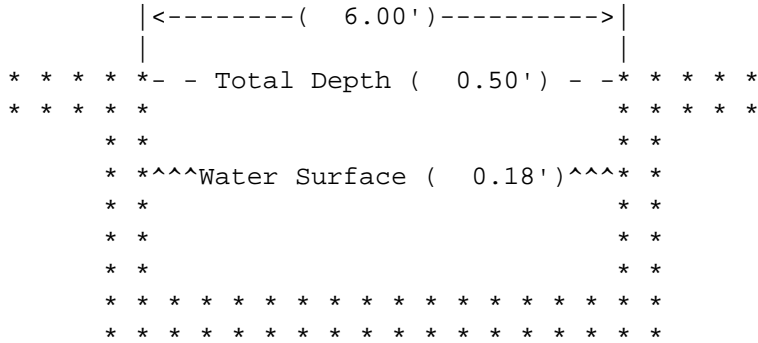
Inside Diameter
 (18.00 in.)



Circular Channel Section

Flowrate	5.160	CFS
Velocity	4.540	fps
Pipe Diameter	18.000	inches
Depth of Flow	11.040	inches
Depth of Flow	0.920	feet
Critical Depth	0.870	feet
Depth/Diameter (D/d)	0.613	
Slope of Pipe	0.500	%
X-Sectional Area	1.136	sq. ft.
Wetted Perimeter	2.699	feet
AR^(2/3)	0.638	
Mannings 'n'	0.013	
Min. Fric. Slope, 18 inch Pipe Flowing Full	0.241	%

Joseph E. Bonadiman & Assoc., Inc.
 Consulting Engineers
 234 N. Arrowhead Ave.
 San Bernardino, California 92408
 (909)885-3806



Rectangular Open Channel

Flowrate	5.160	CFS
Velocity	4.886	fps
Depth of Flow	0.176	feet
Critical Depth	0.284	feet
Total Depth	0.500	feet
Base Width	6.000	feet
Slope of Channel	2.000	%
X-Sectional Area	1.056	sq. ft.
Wetted Perimeter	6.352	feet
AR^(2/3)	0.319	
Mannings 'n'	0.013	