Appendix J

Preliminary Water Quality Management Plan, Hunsaker & Associates Irvine, Inc., June 26, 2019

HUNSAKER
& ASSOCIATES
IRVINE, INC.

PLANNING
ENGINEERING
SURVEYING
GOVERNMENT RELATIONS

IRVINE
LOS ANGELES
PALM DESERT
RIVERSIDE
SAN DIEGO

July 1, 2019

Mr. Moe Ahmadi
ENGINEERING RESOURCES OF
SOUTHERN CALIFORNIA, INC.
1861 W. Redlands Blvd.
Redlands, CA 92373

Subject: **Lake Street RV Storage – PWQMP-2018-00009-PC1 – Memo**
ERSC Job No.: 16007002/116
Response to Comments

Dear Moe:

PRINCIPALS:
FRED GRAYLEE
BRADLEY HAY
PAUL HUDDLESTON
KAMAL KARAM
DOUGLAS STALEY
KRIS WEBER
JOSEPH E. WIGHTMAN

We have received your comments on the above referenced project, dated October 5, 2018. We have listed the comments in the order received, followed by our response in bold text.

1. Provide notarized signature on owner's certification.

   To be provided prior to approval.

2. The preparer's certification to be signed and dated.

   To be provided prior to approval.

3. The information on Table A.1 to be verified.

   Beneficial uses are consistent with table 3-1 from the Santa Ana Region Basin Plan.

4. The existing storm drain to be shown on the Site Plan as indicated in Section B.

   Per Riverside County Stormwater and Water Conservation Tracking Tool and Santa Ana Rivershed Exhibit SA-2, there are no existing storm drain facilities located in Lake Street, adjacent to the project site.

5. Provide details no all appropriate data for the proposed infiltration BMPs on the Site Plan.

   See Appendix 6 for typical Stormtrap Detail and BMP Design Volume worksheets. Proposed DCV calculations are provided on the Site Plan.

6. Revise Table G.1 as redlined to include slope protection.

   Revised Table G.1.

FOUNDING PARTNERS:
RICHARD HUNSAKER
TOM R. McGANNON
JOHN A. MICHLER
DOUGLAS G. SNYDER

Three Hughes
Irvine, California
92618-2021
(949) 583-1010 PH
(949) 583-0759 FX
www.hunsaker.com

7. Operation and Maintenance Mechanism are not included in Appendix 9.

   Maintenance of Stormtrap BMP or approved equal is provided in Appendix 10.

8. Include information for maintenance.

   O&M Plan included in Appendix 9.

9. The rainfall intensities used in the hydrology calculations are not consistent with NOAA Atlas 14.

   The rainfall intensities are consistent with NOAA Atlas 14.

10. The unit hydrograph hydrology calculations to be revised as redlined.

    The hydrology calculations have been updated.

Should you have any questions, please do not hesitate to call.

Sincerely,

HUNSAKER & ASSOCIATES IRVINE, INC.

Kris Weber, LEED AP
Principal

KW:tl
W.O. 4195-1
(f\c\wo\4195-1 L01-kw.docx)

PRELIMINARY WATER QUALITY MANAGEMENT PLAN PWQMP2018-00009 "WYROC" TENTATIVE PARCEL MAP NO. 37550

Project Address:
Southeast of Interstate 15 and Lake Street
City of Lake Elsinore, CA

Prepared for:
LAKE STREET PROPERTIES, LP
2279 Eagle Glen Parkway, Suite 112-470
Corona, CA 92883
(909) 260-9951

Prepared by:
Hunsaker & Associates Irvine, Inc.
3 Hughes
Irvine, CA 92618
(949) 583-1010

Preparation Date:
August 17, 2018
Revised: June 26, 2019

W.O. 4195-1

PRELIMINARY WATER QUALITY MANAGEMENT PLAN

"WYROC" – TENTATIVE PARCEL MAP NO. 37550

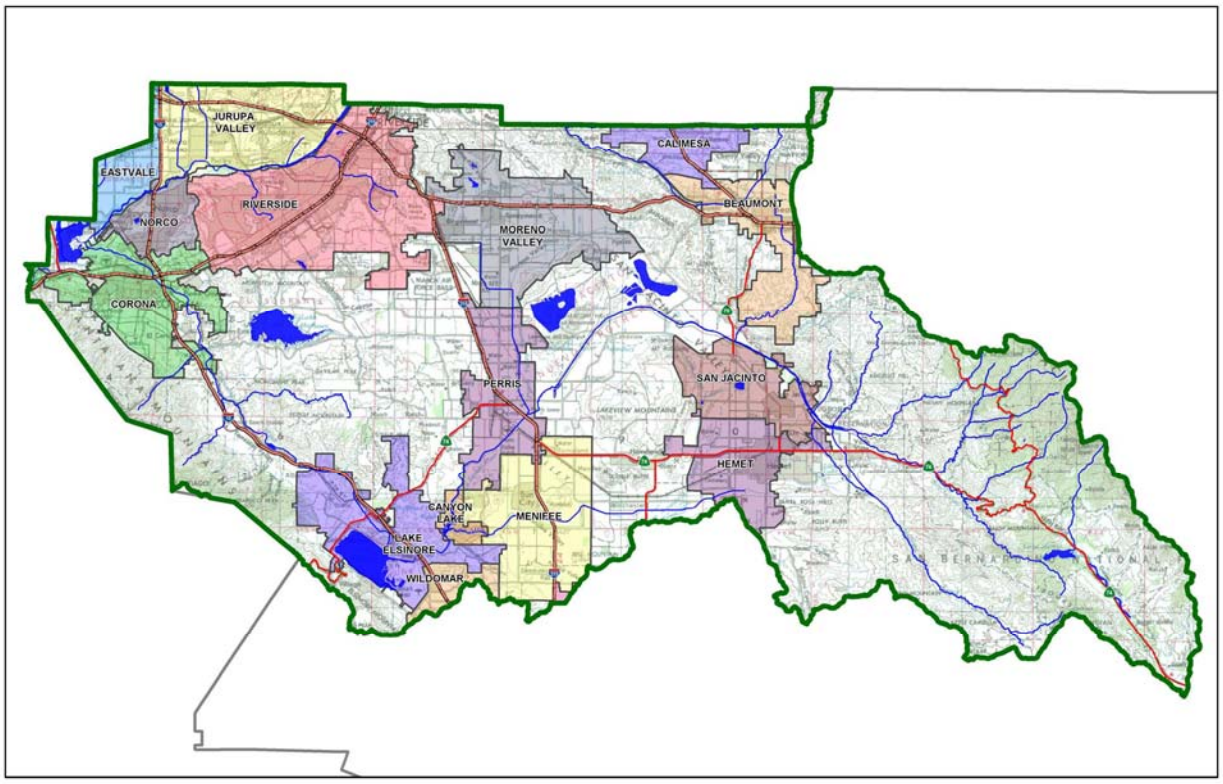
City of Lake Elsinore, CA

Project Specific Water Quality Management Plan

Project Title: "Wyroc" - Tentative Parcel Map No. 37550

Public Works No: N/A

Design Review/Case No: 2018-00009



☒ Preliminary
☐ Final

Original Date Prepared: August 17, 2018

Revision Date(s): June 26, 2019

Prepared for Compliance with
Regional Board Order No. R8-2010-0033

Contact Information:

Prepared for:
Lake Street Properties, LP.
22479 Eagle Glen Pkwy, Ste. 112-470
Corona, CA 92883
(909) 2620-9951

Prepared by:
Hunsaker & Associates Irvine, Inc.
3 Hughes,
Irvine, CA 92618
(949) 583-1010

OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Lake Street Properties, LP. by Hunsaker & Associates Irvine, Inc. for the Tentative Parcel Map No. 37550 Project.

This WQMP is intended to comply with the requirements of The City of Lake Elsinore requirements for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under the City of Lake Elsinore Water Quality Ordinance.

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0033 and any subsequent amendments thereto."

Preparer's Signature	Date
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

Table of Contents

Section A: Project and Site Information 5
A.1 Maps and Site Plans 6
A.2 Identify Receiving Waters 7
A.3 Additional Permits/Approvals required for the Project: 8
Section B: Optimize Site Utilization (LID Principles) 9
Section C: Delineate Drainage Management Areas (DMAs) 10
Section D: Implement LID BMPs 12
D.1 Infiltration Applicability 12
D.2 Harvest and Use Assessment 12
D.3 Bioretention and Biotreatment Assessment 15
D.4 Feasibility Assessment Summaries 15
D.5 LID BMP Sizing 15
Section E: Alternative Compliance (LID Waiver Program) 17
Section F: Hydromodification 18
F.1 Hydrologic Conditions of Concern (HCOC) Analysis 18
F.2 HCOC Mitigation 19
Section G: Source Control BMPs 20
Section H: Construction Plan Checklist 23
Section I: Operation, Maintenance and Funding 24

List of Tables

Table A.1 Identification of Receiving Waters 7
Table A.2 Other Applicable Permits 8
Table C.1 DMA Classifications 10
Table C.2 Type 'A', Self-Treating Areas 10
Table C.3 Type 'B', Self-Retaining Areas 10
Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas 11
Table C.5 Type 'D', Areas Draining to BMPs 11
Table D.1 Infiltration Feasibility 12
Table D.2 LID Prioritization Summary Matrix 14
Table D.3 DCV Calculations for LID BMPs 14
Table F.1 Hydrologic Conditions of Concern Summary 19
Table H.1 Construction Plan Cross-reference 24

List of Appendices

Appendix 1: Maps and Site Plans 25
Appendix 2: Construction Plans 30
Appendix 3: Soils Information 31
Appendix 4: Historical Site Conditions 32
Appendix 5: LID Infeasibility 33
Appendix 6: BMP Design Details 34
Appendix 7: Hydromodification 35
Appendix 8: Source Control ..... Error! Bookmark not defined.
Appendix 9: O&M 36
Appendix 10: Educational Materials 39
Appendix 11: Operation and Maintenance Responsibility Plan 40

Section A: Project and Site Information

Lake Street Properties, LP. proposes the development of Parcel Map 37550 , located just southeast of the intersection of Interstate 15 (I-15) and Lake Street, in the City of Lake Elsinore, California. Specifically, the project site is bound to the north by I-15 right of way and I-15 beyond; to the east by open space/vacant land; to the south by Temescal Creek; and to the west by Lake Street.

The site (the "Project") consists of approximately 14.4 acres (629,222 SF) and will be developed to accommodate a gas service facility, parking lot and a 3,062 sf market area in the northwestern portion of the project site; a 50,000 sf, centrally located, indoor recreational vehicle (RV) and boat storage facility; outdoor (semi-covered with shade structures) RV parking and storage areas located in the northern, southern and eastern portions of the project site; RV service area with wash, waste and water fill areas in the north-central site; wet and dry utility improvements; and related drive aisles, walkways, open space and landscaping improvements. Entrance to the site will be obtained from Lake Street to the west.

Impervious and paved areas for the site include each building coverage area, open parking areas, paved walkways. Total impervious area is anticipated to consist of approximately 11.6 acres (505,296 sf), or 80.5% of the gross project area.

Pervious areas of the project include planter landscaping, open space areas, perimeter and central site landscaping areas and natural areas (southeastern site). Project landscaping and revegetation areas will consist of native and/or drought tolerant plant species. Total pervious area is anticipated to consist of approximately 2.8 acres (123,926 sf), or 19.5% of the gross project area.

An outdoor loading area is anticipated adjacent to the gas service facility. No RV loading areas are anticipated for the RV storage area.

Normal gas and food service related trash can be anticipated to be produced daily from the gas service facility. These include food wastes (wrappers, bottles, etc.) plastics and paper wastes. Such trash will be disposed of by staff and facility users in trash and recycle receptacles and emptied daily by staff to a trash enclosure located northwest of the gas mart, which will be transported for disposal by the contracting waste hauler on a weekly or as needed basis.

Trash and waste anticipated from the RV and boat storage facility include food, paper, plastic and septic wastes. These wastes shall be disposed in the trash enclosure and RV service area located just north/northwest of the indoor RV facility, and emptied on a weekly or as needed by the contracting waste hauler.

PROJECT INFORMATION	
Type of Project:	Commercial
Planning Area:	Alberhill Ranch Specific Plan
Community Name:	N/A
Development Name:	Wyroc

PROJECT LOCATION	
Latitude & Longitude (DMS): 33°43'44.58"N, -117°23'29.81"W	
Project Watershed and Sub-Watershed: Santa Ana River Watershed and Temescal Creek Sub-Watershed.	
APN(s): 390-130-018 (also 390-130-050)	
Map Book and Page No.: Thomas Brothers (Riverside) Page 835	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Commercial
Proposed or Potential SIC Code(s)	5541 (gas station) & 4425 (storage)
Area of Impervious Project Footprint (SF)	505,296 SF
Total Area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement	505,296 SF
Does the project consist of offsite road improvements?	☐ Y ☒ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N
EXISTING SITE CHARACTERISTICS	
Total area of Existing Impervious Surfaces within the project limits (SF)	0 SF
Is the project located within any MSHCP Criteria Cell?	☒ Y ☐ N
If so, identify the Cell number:	3751, 3752
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☒ Y ☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	Geotechnical Report attached.
What is the Water Quality Design Storm Depth for the project?	0.738"

A.1 Maps and Site Plans

The project's Vicinity Map and Site Plan is provided in Appendix 1 of this WQMP. The maps show the following elements, as required by the WQMP Guidance Document.

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling

A.2 Receiving Waters

The project's receiving waters are as follows:

Table A.1 Identification of Receiving Waters

Receiving Waters	303(d) List Impairments[1]	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Temescal Creek Channel (Reach 1) 801.25	pH	REC2, WARM, WILD	No RARE designation
Prado Basin Management Zone Hydrologic Unit 801.21	Nutrients, Pathogens *(Pathogens)*	REC1, REC2, WARM, WILD, RARE	18 Miles
Santa Ana River (Reach 3) Hydrologic Unit 801.21	Copper, Lead, Pathogens *(Pathogens, Nitrate)*	AGR, GWR, REC1, REC2, WARM, WILD, RARE	18 Miles
Santa Ana River (Reach 2) Hydrologic Unit 801.11	Indicator Bacteria	AGR, GWR, REC1, REC2, WARM, WILD, RARE	21.5 Miles
Santa Ana River (Reach 1) Hydrologic Unit 801.11	None	REC1, REC2, WARM, WILD	No RARE designation
Tidal Prism of Santa Ana River and Newport Slough Hydrologic Unit 801.11	None	REC1, REC2, COMM, WILD, RARE, MAR	50.1 Miles
Pacific Ocean Offshore Zone Hydrologic Unit 801.11	None	IND, NAV, REC1, REC2, COMM, WILD, RARE, SPWN, MAR	51.8 Miles

[1] TMDLs denoted in italics and parenthesis.

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☒ Y	☐ N
Other *(please list in the space below as required)* City of Lake Elsinore Grading and Building Permits	☒ Y	☐ N

Section B: Optimize Site Utilization (LID Principles)

Site Optimization

Does the project identify and preserve existing drainage patterns? If so, how? If not, why?

Yes. Pre-project site drains southerly to Temescal Creek (eastern project area – DMA2) and also westerly to Lake Street. There will be no impact to Temescal Creek in the proposed condition, as the site will infiltrate via a subsurface infiltration/detention facility. Proposed condition will preserve flow patterns of project site.

Does the project identify and protect existing vegetation? If so, how? If not, why?

Yes. Some existing vegetation will be preserved during site improvements. However, due to the site's past usage as a quarry, minimal vegetation exist onsite.

Does the project identify and preserve natural infiltration capacity? If so, how? If not, why?

Yes. Project will employ infiltration BMPs to retain the project's BMP volume and also retain the difference in pre- and developed condition project runoff, up to the 100-year event.

Does the project identify and minimize impervious area? If so, how? If not, why?

Yes. Wherever feasible, open space and landscaping areas have been proposed to minimize the amount of directly connected impervious area.

Does the project identify and disperse runoff to adjacent pervious areas? If so, how? If not, why? Yes. Where feasible, impervious areas adjacent to landscaping will drain to landscape areas. These areas will be identified in the project's Final WQMP.

Section C: Delineate Drainage Management Areas (DMAs)

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1]	Area (Sq. Ft.)	DMA Type
DMA 1	Mixed Surface Type (landscaping, concrete/asphalt, roof)	425,469	Type D
DMA 2	Mixed Surface Type (landscaping, concrete/asphalt, roof)	157,296	Type D

[1] *Reference Table 2-1 in the WQMP Guidance Document to populate this column*

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
None			

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet)	Storm Depth (inches)	DMA Name / ID	[C] from Table C.4 =	Required Retention Depth (inches)
		[A]	[B]		[C]	[D]

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Runoff factor	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]		[D]	[C]/[D]

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA 1	Subsurface Infiltration BMP 1
DMA 2	Subsurface Infiltration BMP 2

Note: More than one drainage management area can drain to a single LID BMP; however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (Reference Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

Geotechnical Report

A Geotechnical Report is required by the City of Lake Elsinore to confirm present and past site characteristics that may affect the use of Infiltration BMPs, see Appendix 3.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?		X
If Yes, list affected DMAs:		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identifies other site-specific factors that would preclude effective and safe infiltration?		X
Describe here: *Based on preliminary infiltration testing conducted onsite, infiltration of the site is feasible.*		

D.2 Harvest and Use Assessment

The following conditions apply*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐ Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☒ The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but are not required as the Design Capture Volume will be infiltrated or evapotranspired.

Irrigation Use Feasibility

Step 1: *Total Area of Irrigated Landscape*: *N/A*

Type of Landscaping (Conservation Design or Active Turf): *N/A*

Step 2: *Total Area of Impervious Surfaces:* N/A

Step 3: *The project EIATIA factor*: N/A

Step 4: *Minimum required irrigated area*:

Step 5:

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
N/A	N/A

Toilet Use Feasibility

Step 1: *Projected Number of Daily Toilet Users:* N/A

Project Type: N/A

Step 2: *Total Area of Impervious Surfaces:* N/A

Step 3: *Enter your TUTIA factor:* N/A

Step 4: *Minimum number of toilet users:* N/A

Step 5:

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
N/A	N/A

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? There are no other non-potable uses for stormwater runoff of site.

Step 1: *Average Daily Demand:* N/A

Step 2: *Total Area of Impervious Surfaces:* N/A

Step 3: *Enter the factor from Table 2-3:* N/A

Step 4: *Minimum required use:* N/A

Step 5:

Minimum required non-potable use (Step 4)	Projected average daily use (Step 1)
N/A	N/A

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

For the projects of the following applies:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5.

D.4 Feasibility Assessment Summaries

Table D.2 LID Prioritization Summary Matrix

DMA* Name/ ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA1	☒	☐	☐	☐	☐
DMA 2	☒	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

Runoff from each of the project's DMA will be conveyed to a subsurface infiltration facility for retention of runoff.

D.5 LID BMP Sizing

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*DMA 1-A* *DMA 1-B* *DMA 2*		
	[A]		[B]	[C]	[A] x [C]			
DMA 1	425,649	Mixed Surface Type	0.82	0.62	265,299.3	*Design Storm Depth (In)*	*Design Capture Volume, Vbmp (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
DMA 2	157,269	Mixed Surface Type	0.98	0.86	137,794.9			
Total	582,918				403,064.2	0.74	DMA1 = 16,315.9 DMA2 = 8,289.9	DMA1 = 193,842 DMA2 = 113,256

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Regional Board). For the project, the following applies:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- Or -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Regional Board and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P[2]
☒ Commercial/Industrial Development	P[3]	P	P[1]	P[1]	P[5]	P[1]	P	P
☐ Automotive Repair Shops	N	P	N	N	P[4, 5]	N	P	P
☐ Restaurants (>5,000 ft²)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft²)	P	N	P	P	N	P	P	P
☒ Parking Lots (>5,000 ft²)	P[6]	P	P[1]	P[1]	P[4]	P[1]	P	P
☒ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☒	☐	☐	☒	☐	☒	☒

P = Potential
N = Not Potential
[1] A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected
[2] A potential Pollutant if the project includes uncovered parking areas; otherwise not expected
[3] A potential Pollutant is land use involving animal waste
[4] Specifically petroleum hydrocarbons
[5] Specifically solvents
[6] Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
Not applicable to project. Site will infiltrate runoff.	
Total Credit Percentage[1]	

[1] *Cannot Exceed 50%*
[2] *Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information. ***This section is not applicable to project. Site will infiltrate runoff.***

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Area x Runoff Factor		*Enter BMP Name / Identifier Here*		
	[A]		[B]	[C]	[A] x [C]				
						Design Storm Depth (in)	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T = Σ[A]				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1. ***This section is not applicable to project. Site will infiltrate runoff.***

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The City of Lake Elsinore has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

The project does not qualify.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the City of Lake Elsinore

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

The project does not qualify.

Table E.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
DMA1 Time of Concentration	26.62 min	13.74 min	51.6% difference in Tc value.
DMA 1 Volume	0.21 acre-ft	1.50 acre-ft	714% increase in volume
DMA2 Time of Concentration	19.69 min	9.29 min	47.2% difference in Tc value.
DMA 2 Volume	0.08 acre-ft	0.87 acre-ft	1087% increase in volume

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (, Prado Dam, Santa Ana River) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

The project does not qualify.

F.2 HCOC Mitigation

As an alternative to the HCOC Exemption Criteria above, HCOC criteria is considered mitigated if the project meets one of the following conditions, as indicated:

☐ Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

☐ The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

☒ Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

☐ None of the above.

The project's BMPs have been designed with excess capacity to retain the difference in project runoff, up to the 100-year event.

Section G: Source Control BMPs

Table G.1 Permanent and Operational Source Control Measures

BMP Name	Check One		If not applicable, state brief reason
	Included	Not Applicable	
Non-Structural Source Control BMPs			
Education for Property Owner, Operators, Tenants, Occupants, or Employees	☒	☐	
Activity Restrictions	☒	☐	
Irrigation System and Landscape Maintenance	☒	☐	
Common Area Litter Control	☒	☐	
Street Sweeping Private Streets and Parking Lots	☒	☐	
Drainage Facility Inspection and Maintenance	☒	☐	
Structural Source Control BMPs			
Storm Drain System Stenciling and Signage	☒	☐	
Landscape and Irrigation System Design	☒	☐	
Protect Slopes and Channels	☒	☐	
Properly Design:			
Fueling Areas	☒	☐	
Air/Water Supply Area Drainage	☒	☐	
Trash Storage Areas	☒	☐	
Loading Docks	☐	☒	None proposed for project.
Maintenance Bays	☐	☒	None proposed for project
Vehicle and Equipment Wash Areas	☒	☐	
Outdoor Material Storage Areas	☐	☒	None proposed for project
Outdoor Work Areas or Processing Areas	☐	☒	None proposed for project
Provide Wash Water Controls for Food Preparation Areas	☒	☐	

Non-Structural Source Control BMPs

Education for Property Owners, Operators, Tenants, Occupants, or Employees

Lake Street Properties, LP. will insure that all staff/employees and contractors be given a copy of the latest environmental awareness education materials provided by the County of Riverside to inform them of the impacts of dumping oil, paints, solvents or other potentially harmful chemicals into the storm drain; the proper use and management of fertilizers, pesticides and herbicides in landscaping and gardening practices; the impacts of littering and improper watering. Environmental awareness education

materials, including, but not limited to those included in Appendix 10 of this WQMP, shall be provided to employees and contractors by the owner.

Activity Restrictions

Within the storage facility's lease agreement, language shall be included to identify surface water quality protection required of the tenants. Surface water quality activities shall also be conducted in conformance with the Water Quality Management Plan as it relates to operation of the gas facility and the storage facility.

Irrigation System and Landscape Maintenance

Management programs will be designed and established by owner. These programs will include how to mitigate the potential dangers of fertilizer and pesticide usage. Ongoing maintenance will be consistent with City of Lake Elsinore Water Conservation Ordinance. Fertilizer and Pesticide usage shall be consistent with County and City Management Guidelines for use of Fertilizers and Pesticides.

The Owner shall be responsible for all private landscaping located within the project site.

Landscape maintenance shall include all maintenance, repair or replacement of dead vegetation, eroded rills, proper disposal of green wastes, etc. Irrigation systems shall be tested regularly to ensure that all systems are functioning optimally.

Common Area Litter Control

The Owner will be required to provide trash pick-up within the project site. Daily inspection will be made of trash receptacles to ensure lids are closed and pick-up of any excess trash on the ground has occurred. Pursuant to Appendix 9, responsibilities shall include the emptying of trash receptacles, noting of disposal violations by facility users, and following up on the violations.

Street Sweeping Private Streets and Parking Lots

All project drive aisles and exposed parking and travel areas shall be swept on a weekly basis to minimize the potential for offsite transport of pollutants.

Drainage Facility Inspection and Maintenance

Post construction, all drainage improvements located within the project site shall be private improvements, to be maintained by the owner. Drainage facility inspection and maintenance activities will be done on a regular basis, and prior to the storm season, no later than October 1st of each year. Maintenance schedule for drain inspection and maintenance can be found in the O&M Matrix in Appendix 9.

Structural Source Control BMPs

Storm Drain System Stenciling and Signage (CASQA SD-13)

Storm drain stencils or signage prohibiting dumping and discharge of materials ("No Dumping – Drains to Ocean") shall be provided adjacent to each of the project's proposed inlets. The stencils shall be inspected and restenciled as needed to maintain legibility.

Landscape and Irrigation System Design (CASQA SD-10 & SD-12)

As a part of the design of all common area landscape irrigation, implementation of the City of Lake Elsinore Water Conservation Ordinance including, but not limited to, such provisions as water sensors, programmable irrigation times (for short cycles), rain shutoff devices, flow reducers or shut off valves, etc., will be used.

As a part of the design of all private area landscape areas, similar planting material with similar water requirements will be used in order to reduce excess irrigation runoff and promote surface filtration. Such landscape areas will be maintained by the owner (See O&M Table located in Appendix 9).

Fueling Areas (CASQA SD-30)

The project's fueling area located at northwest portion of the site shall be paved with Portland cement concrete (or equivalent smooth impervious surface), precluded from run-on, covered with an overhanging roof structure that is, at minimum, equal in size to the fueling dispensing area. The cover must not drain onto the dispensing area and any downspouts must be routed to prevent drainage across the fueling pad. Spilled fuel and leaks shall be cleaned up immediately.

Air/Water Supply Area Drainage

Runoff from the air/water supply area located just northwest of the RV storage facility shall be kept clean and runoff controlled, to minimize the discharge of non-storm water.

Trash Storage Areas (CASQA SD-32)

Trash enclosure areas shall be paved, covered and precluded from rain, run-on and runoff. Drainage from any adjoining roofs and pavements shall be diverted around facility. Perimeter walls shall be installed and dumpster lid provided to prevent offsite transport of trash. Surrounding area shall be kept clean, with all leaks and over-spilled materials clean up as soon as possible. Trash shall be emptied on a weekly basis (at minimum) and as needed.

Vehicle and Equipment Wash Areas (CASQA SD-33)

Wash areas shall be self-contained or covered with roof/overhang. All drainage from wash areas may be directed to the sanitary sewer system with prior approval from the sewer agency. Area shall be equipped with clarifier or other pre-treatment device.

Wash Water for Food Preparation Areas

Wash water from food preparation areas (anticipated for service mart facility) shall be prohibited from discharging to the storm drain system All wash water shall be disposed to the sanitary sewer system.

Additional guidance on the project's source control/operational control BMPs is provided in Appendix 8 of this WQMP.

Slope Protection

During landscape design, the following will be employed for the protection of project slopes; convey runoff safely from the tops of slopes, avoid disturbing steep or unstable slopes, stabilize disturbed slopes as quickly as possible, vegetate slopes with naïve or drought tolerant vegetation.

Section H: Construction Plan Checklist

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)
DMA 1	Subsurface Infiltration 1 – Southwestern subsurface infiltration facility with approved pre-treatment device.	WQMP Site Plan
DMA 2	Subsurface Infiltration 2 – southeastern subsurface infiltration facility with approved pre-treatment device.	WQMP Site Plan

Section I: Operation, Maintenance and Funding

As required by the City of Lake Elsinore, the following Operation, Maintenance and Funding details are provided as summarized:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred.
3. An outline of general maintenance requirements for the Stormwater BMPs selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility..
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance.

See Appendix 9 for a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on site, and an agreement assigning responsibility for maintenance and providing for inspections and certification.

Maintenance Mechanism: Property Owner (Lake Street Properties, LP.), Tenant agreement

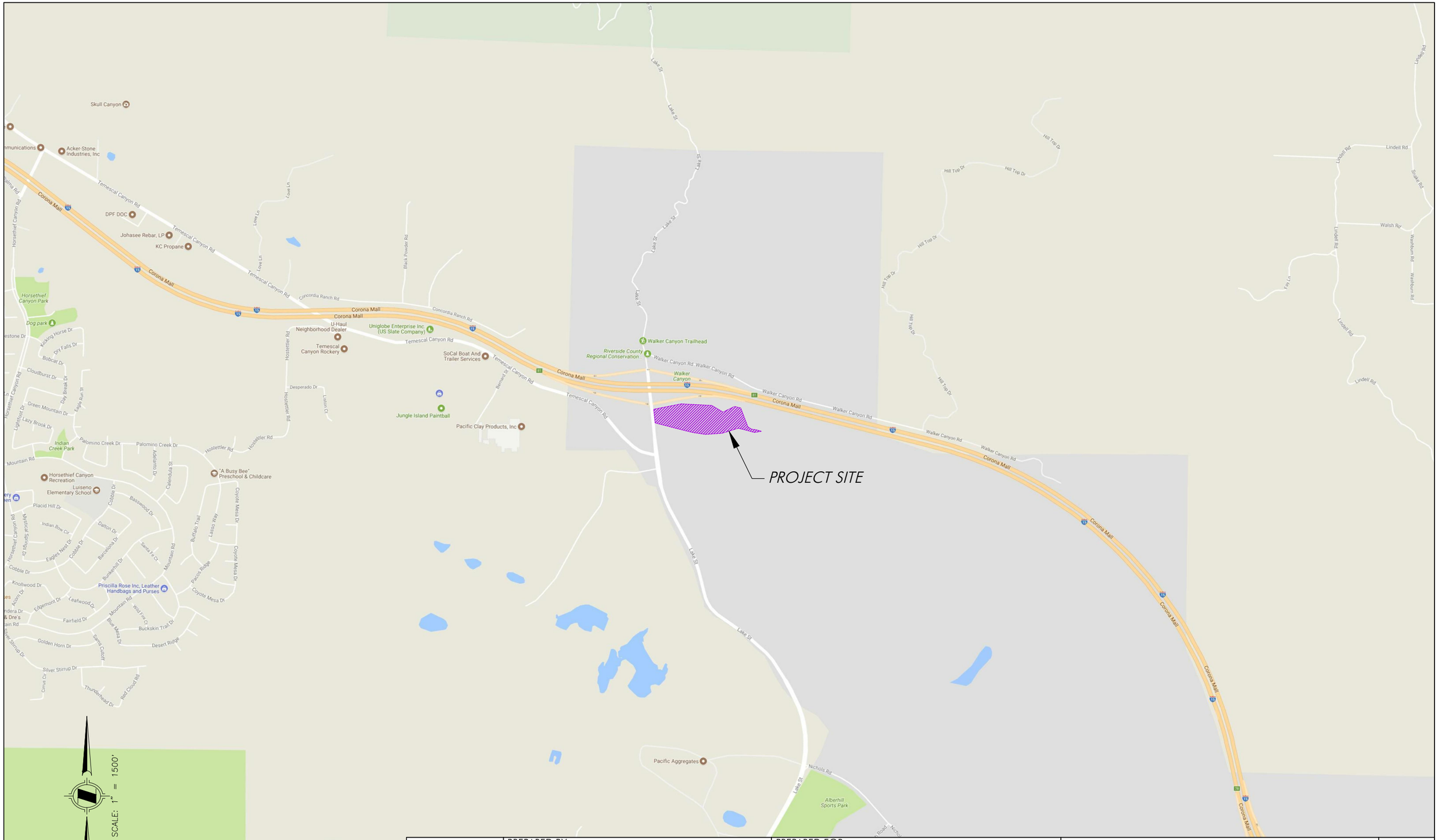
Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☐ Y ☒ N

Operation and Maintenance Plan and Maintenance Mechanism are included in Appendix 9. Educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP are included in Appendix 10.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Exhibit



DRAWN BY: TIH	PREPARED BY: HUNSAKER & ASSOCIATES IRVINE, INC. PLANNING ▪ ENGINEERING ▪ SURVEYING Three Hughes, Irvine, CA 92618 ▪ PH: (949) 583-1010 ▪ FX: (949) 583-0759	PREPARED FOR: LAKE STREET PROPERTIES, LP 2279 EAGLE GLEN PARKWAY, SUITE 112-470 CORONA, CA 92883 (909) 260-9951	"WYROC" TENTATIVE PARCEL MAP NO. 37550 SOUTHEAST OF LAKE STREET AND I-15 CITY OF LAKE ELSINORE, CA
DATE: 07/03/18			
W.O.: 4195-1			PWQMP VICINITY MAP

DATE: Jul. 03, 2018 09:23:16 AM FILE: F:\0980\Planning\SY_WQ\SA_TPM_37550\WQMP\Exhibits\PWQMP_VIC SA_TMP_37550.dwg

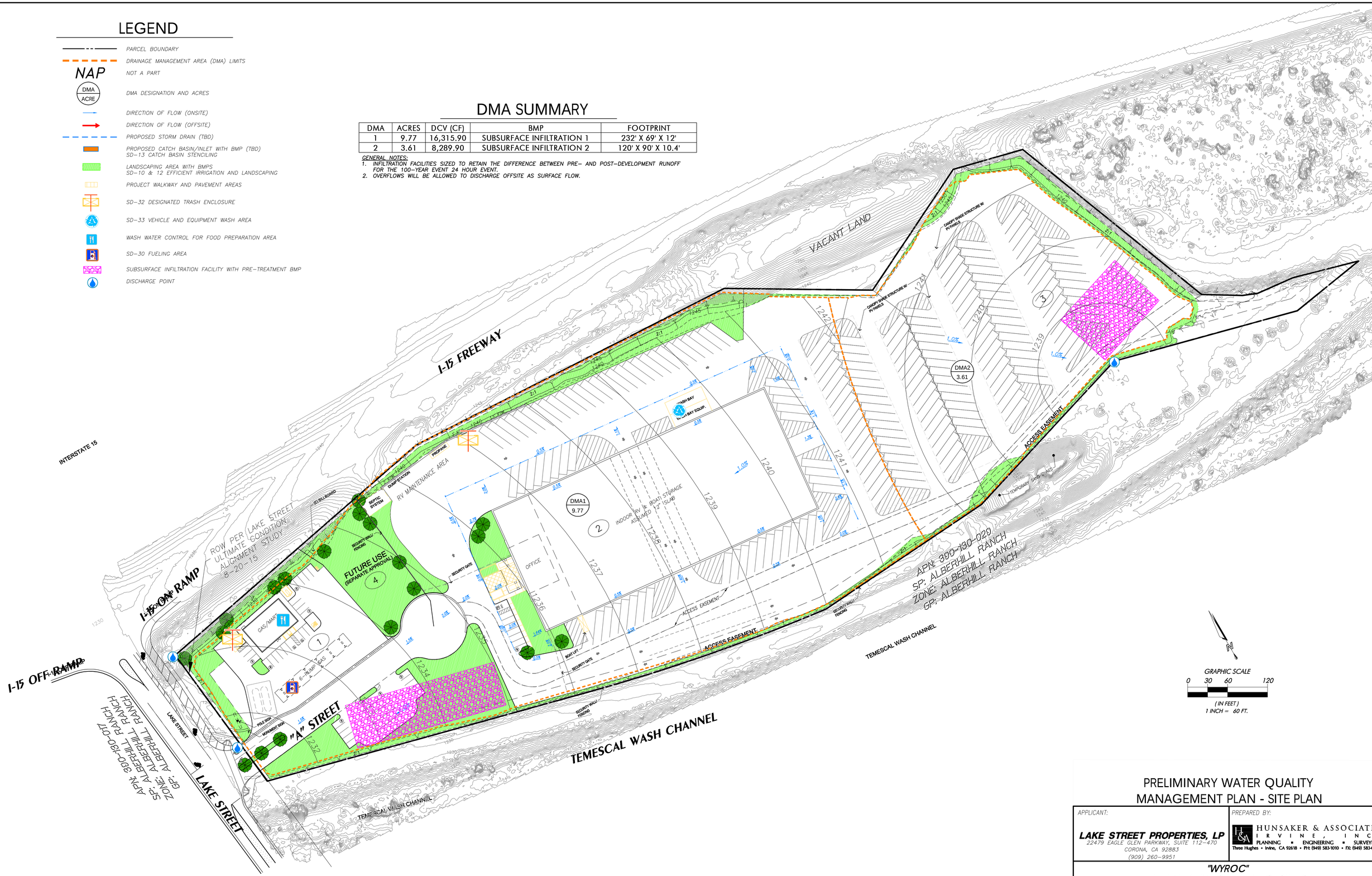
LEGEND

- PARCEL BOUNDARY
- DRAINAGE MANAGEMENT AREA (DMA) LIMITS
- NAP — NOT A PART
- DMA / ACRE — DMA DESIGNATION AND ACRES
- DIRECTION OF FLOW (ONSITE)
- DIRECTION OF FLOW (OFFSITE)
- PROPOSED STORM DRAIN (TBD)
- PROPOSED CATCH BASIN/INLET WITH BMP (TBD) SD-13 CATCH BASIN STENCILING
- LANDSCAPING AREA WITH BMPS SD-10 & 12 EFFICIENT IRRIGATION AND LANDSCAPING
- PROJECT WALKWAY AND PAVEMENT AREAS
- SD-32 DESIGNATED TRASH ENCLOSURE
- SD-33 VEHICLE AND EQUIPMENT WASH AREA
- WASH WATER CONTROL FOR FOOD PREPARATION AREA
- SD-30 FUELING AREA
- SUBSURFACE INFILTRATION FACILITY WITH PRE-TREATMENT BMP
- DISCHARGE POINT

DMA SUMMARY

DMA	ACRES	DCV (CF)	BMP	FOOTPRINT
1	9.77	16,315.90	SUBSURFACE INFILTRATION 1	232' X 69' X 12'
2	3.61	8,289.90	SUBSURFACE INFILTRATION 2	120' X 90' X 10.4'

GENERAL NOTES:
1. INFILTRATION FACILITIES SIZED TO RETAIN THE DIFFERENCE BETWEEN PRE- AND POST-DEVELOPMENT RUNOFF FOR THE 100-YEAR EVENT 24 HOUR EVENT.
2. OVERFLOWS WILL BE ALLOWED TO DISCHARGE OFFSITE AS SURFACE FLOW.



PRELIMINARY WATER QUALITY MANAGEMENT PLAN - SITE PLAN

APPLICANT:
LAKE STREET PROPERTIES, LP
22479 EAGLE GLEN PARKWAY, SUITE 112-470
CORONA, CA 92883
(909) 260-9951

PREPARED BY:
HUNSAKER & ASSOCIATES IRVINE, INC.
PLANNING ▪ ENGINEERING ▪ SURVEYING
Three Hughes ▪ Irvine, CA 92618 ▪ PH: (949) 583-1010 ▪ FX: (949) 583-0759

"WYROC"
TENTATIVE PARCEL MAP NO. 37550
SOUTHEAST OF LAKE STREET AND I-15
CITY OF LAKE ELSINORE, CA

DRAFTED BY:	DATE:	W.O. NO:	SHEET NO:
TIH	08/17/2018	4195-1	1 OF 1

DATE: Aug. 20, 2018 02:32:49 PM FILE: F:\0980\Planning\SY_WQ\SA_TPM_37550\WQMP\Exhibits\PWQMP_SP SA_TPM_37550.dwg



Receiving Waters Exhibit

Appendix 2: Construction Plans

Grading and Drainage Plans

- Project Site Plan

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

South Shore Testing & Environmental

23811 Washington Ave, Suite C110, #112, Murrieta, CA 92562 E-mail: ss.testing@aol.com
Phone: (951) 239-3008 FAX: (951) 239-3122

April 18, 2018

Mr. Ron Clark
Avocado Groves, LLC
2279 Eagle Glenn Parkway, Suite 112-470
Corona, California 92883

SUBJECT: **ONSITE STORMWATER INFILTRATION SYSTEM INVESTIGATION**
Former Wyroc Quarry
Proposed Commercial Development
31000 Lake Street
City of Lake Elsinore, Riverside County, California
Work Order No. 3411701.01

Dear Mr. Clark:

In accordance with your authorization, we have conducted percolation testing for the infiltration system proposed for the proposed commercial development. The purpose of our investigation was to provide infiltration rates for the proposed infiltration systems at locations and depths chosen by your civil engineer. The test locations were surveyed and presented on **Plate 1**.

Site Description

The proposed systems will be located on the westerly and easterly portions of the subject site (refer to **Plate 1**). The subject site is located on the southeast corner of Lake Street and (I-15) in the Lake Elsinore Area, Riverside County, California.

At the time of our investigation, owing to recent rough grading operations, vegetation on the subject site was non-existent. Man-made development at the subject site is generally limited to the mass graded pad and associated slopes, an existing water well, construction trailers, soil and rock stockpiles, dirt access roads, and partial fencing along westerly portion of site adjacent to Lake Street. Drainage is accomplished by sheetflow to the west and east with high in central portion of mass graded pad. Overall relief across the mass graded pad is approximately 11-ft, from above mean sea elevations 1229 to 1240.

Percolation Investigation

Percolation testing was conducted on March 26, 2018. Two tests were performed within the existing native soils, below the existing fill soils, in the areas of the proposed systems as determined by the project civil engineer (please refer to **Plate 1**). Two separate exploratory trenches were excavated, and two percolation tests were performed at depths corresponding to the depth of the proposed infiltration system. Soils were visually classified according to the Unified Soil Classification System as silty Sand (Unified Soil Classification - SM). That can be described as medium brown, fine to coarse grained, minor coarse, moderately sorted, dry, and medium dense to dense.

A CAT excavator equipped with an 36-inch bucket was used to excavate the exploratory trenches. Our field personnel logged the exploratory trenches and copies of our Exploratory Trench Logs are presented in **Appendix B**.

GROUNDWATER

Groundwater was not encountered within our exploratory trenches, which were advanced to a maximum depth of 11.0-ft bgs on the lower elevations of the subject site. Historic high groundwater within the existing water well on northwest corner of the subject site is reported as approximately 60-ft below the original ground surface (elevation 1190) or approximately 70-ft below current mass graded surface. Minor fluctuations can and will likely occur in moisture or free water content of the soil owing to rainfall and irrigation over time

SUMMARY OF TEST PROCEDURES

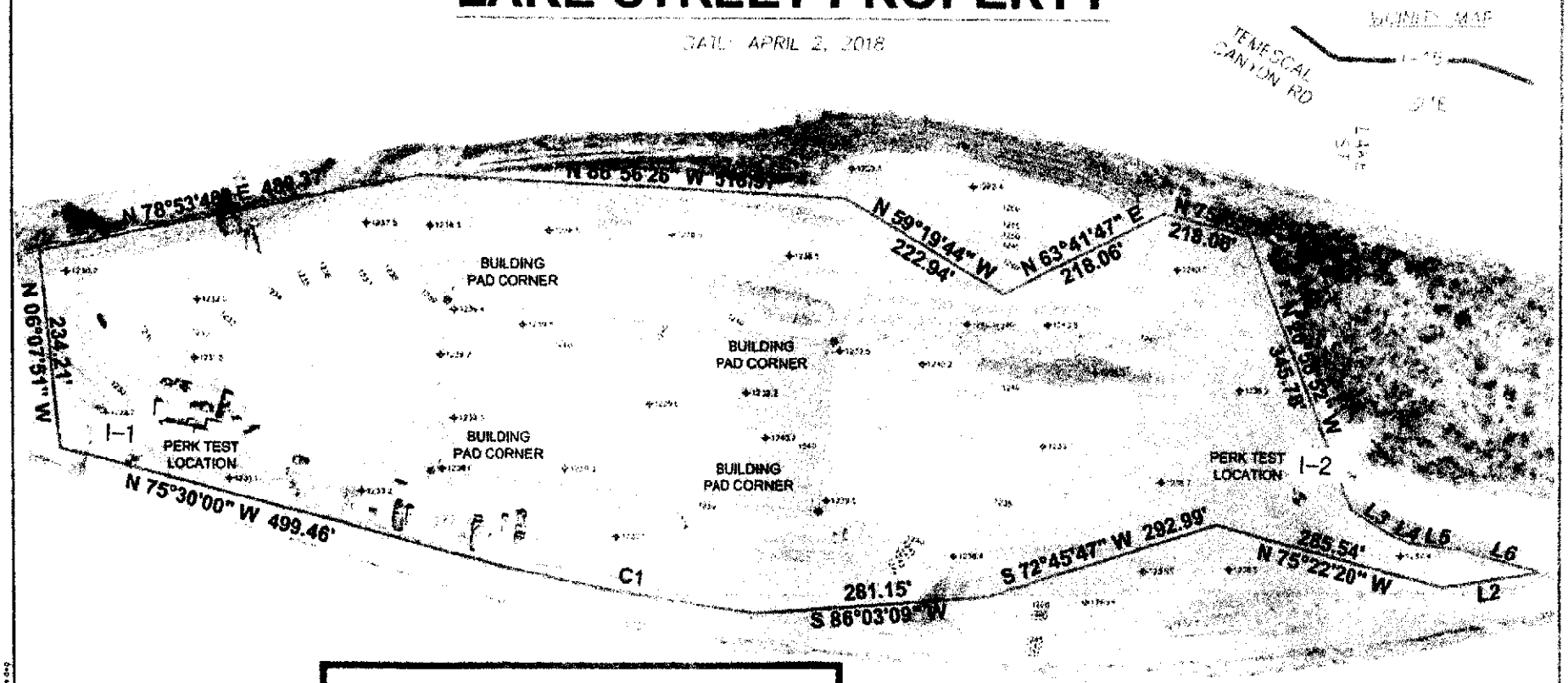
The testing procedure was performed in accordance with Riverside County Department of Environmental Health's "Local Management Program for Onsite Wastewater Treatment Systems", which became effective October 5, 2016 and the resulting perc rates were converted to infiltration rates utilizing the Porchet Method as outlined in the Riverside County Flood Control and Water Conservation District, "Design Handbook for Low Impact Development Best Management Practices" dated September 2011. The percolation tests were performed at depths within the underlying soils corresponding to the proposed system.

Conclusion

Testing indicated infiltration rates at test elevations of 1136 (I-1) and 1140 (I-2) within the native soils obtained fairly consistent infiltration rates of 2.5 and 3.2 minutes-per-inch. The percolation rate was converted to infiltration rate utilizing the Porchet Method. The slowest of the converted infiltration rates was Test No 1 at 2.5 minutes/inch. The rate provided does not include a safety factor. The test locations are presented on our Infiltration Test Location Map, **Plate 1**.

LAKE STREET PROPERTY

DATE: APRIL 2, 2018



SOUTH SHORE TESTING & ENVIRONMENTAL
INFILTRATION TEST LOCATION MAP PROPOSED COMMERCIAL DEVELOPMENT – FORMER WYROC QUARRY 31000 LAKE STREET CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA
WORK ORDER: 3411701.01 DATE: APRIL 2018 PLATE: 1 OF 1
I-2 APPROXIMATE LOCATION OF INFILTRATION TESTS

C1 CURVE INFO
Δ= 7°30'29"
R= 2900
L= 380.02
CH= 379.75
CB= S79°15'15"E

LINE TABLE

L#	BEARING	DISTANCE
1	N10°58'15"W	136.59'
2	S80°51'15"W	119.41'
3	S58°27'45"E	61.73'
4	S68°30'46"E	21.46'
5	S84°53'03"E	57.73'
6	S74°31'10"E	10.48'
7	N80°53'37"E	260.09'

Scale: 1" = 60'

EMPOWER UAV

AERIAL IMAGERY DATE OF FLIGHT APRIL 9, 2018

Lake Elsinore, California

PERCOLATION TEST NO.	TEST ELEVATION (above mean sea level)	PERCOLATION RATE (Min/Inch	INFILTRATION RATE (In/Hr)
1	1219	2.30	6.4*
2	1228	2.12	7.0

*Slowest rate

CLOSURE

It should be noted that infiltration rates determined by testing are ultimate rates based on short-duration field test results utilizing clear water. Infiltration rates can be affected by silt build-up, debris, degree of soil saturation, and other factors. An appropriate safety factor should be applied prior to use in design to account for subsoil inconsistencies, possible compaction related to site grading, and potential silting of the percolating soils. The safety factor should also be determined with consideration to other factors in the system design, particularly storm water volume estimates and the safety factors associated with those design components.

LIMITATIONS

The tested rates are representative for the areas and soil types tested. Should the systems be moved, or the exposed soil types are found to different within the proposed systems, the approved infiltration rates may not apply. Our investigation was performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable Geotechnical Engineers and Geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

The report is issued with the understanding that it is used only by the owner and it is the sole responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the architect, engineer, and appropriate jurisdictional agency for the project and incorporated into the plans; and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations contained herein during construction and in the field.

The samples taken and used for testing and the observations made are believed representative; however, soil and geologic conditions can vary significantly between test locations. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by **South Shore Testing & Environmental**, or its assigns.

The findings of this report are valid as of the present date. However, changes in the condition of a property can occur with the passage of time, whether due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control.

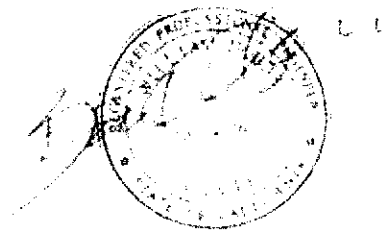
Therefore, this report is subject to review and revision as changed conditions are identified. The firm that performed the geotechnical investigation for this project should be retained to provide testing observation services during construction to maintain continuity of geotechnical interpretation and to check that the recommendations presented herein are implemented during construction of improvements.

If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. Selection of another firm to perform any of the recommended activities or failure to retain the undersigned to perform the recommended activities wholly absolves **South Shore Testing & Environmental**, the undersigned, and its assigns from any and all liability arising directly or indirectly from any aspects of this project.

We appreciate the opportunity to be of service. Limitations and conditions contained in reference documents are considered in full force and applicable. If you have any questions, please do not hesitate to call our office.

Respectfully Submitted,

South Shore Testing & Environmental



John P. Frey
Project Manager

William C. Hobbs, RCE 42265
Civil Engineer

ATTACHMENTS
Plate 1 – Infiltration Test Location Map
Appendix A –References
Appendix B – Exploratory Trench Logs

APPENDIX A

References

REFERENCES

CDM Smith, Inc. 2013, "Technical Guidance Document for Water Quality Management Plans" dated June 7, 2013.

Department of Water Resources Website, 2018, "Groundwater Data Section".

Department of Water Resources, August 1971, "Water Wells and Springs in the Western Part of the Upper Santa Margarita River Watershed, Riverside and San Diego Counties, California", Bulletin No. 91-20.

Riverside County Department of Environmental Health, 2016, "Local Management Program for Onsite Wastewater Treatment Systems", effective October 5, 2016.

Riverside County Flood Control and Water Conservation District, 2011, "Design Handbook for Low Impact Development Best Management Practices" dated 9, 2011.

Southern California Geotechnical, 2017, "Feasibility Study, Proposed RV Storage Facility, 31000 Lake Street, Lake Elsinore, California", Project No. 16G227-1R, Dated January 5, 2017.

South Shore Testing & Environmental, 2018, "Mass Grading Update Report, Former Wyroc Quarry, Proposed Commercial Development, 31000 Lake Street, City of Lake Elsinore, Riverside County, California", Work Order No. 3411701.22A, Dated March 16, 2018.

APPENDIX B

Exploratory Trench Logs

LOGGED BY: JPF

METHOD OF EXCAVATION: EXCAVATOR WITH 36" BUCKET

ELEVATION: + 1230

DATE OBSERVED: 3/26/18

LOCATION: SEE PLOT PLAN

DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT(%)	INPLACE DRY DENSITY (PCF)	TEST PIT NO.__1__ DESCRIPTION	SOIL TEST
5							**FILL SOILS** SANDY SILT (ML): DARK GRAY, ABUNDANT SAND Y GRAINS, MEDIUM DENSE, MINOR COBBLES TO 6" IN DIAMENTER	
10							**NATURAL GROUND** SILTY SAND (SM): MEDIUM BROWN, FINE TO COARSE GRAINED, MEDIUM DENSE, MINOR CLAY	INFILTRATION TEST
15							**TOTAL DEPTH 11.0'** **NO GROUNDWATER**	
20								
25								
30								
35								
40								

JOB NO: 3411701.01

LOG OF TEST PIT

FIGURE: T-1

LOGGED BY: JPF

METHOD OF EXCAVATION: EXCAVATOR WITH 36" BUCKET

ELEVATION: + 1238

DATE OBSERVED: 3/26/18

LOCATION: SEE PLOT PLAN

DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT(%)	INPLACE DRY DENSITY (PCF)	TEST PIT NO. 2 DESCRIPTION	SOIL TEST
5							**FILL SOILS** GRAVELY SANDY SILT (ML): DARK GRAY, ABUNDANT SAND GRAINS, MEDIUM DENSE TO DENSE, MOIST, OCCASIONAL ROCK TO 6"	
10							**NATIVE SOILS** SILTY SAND (SM): MEDIUM BROWN, FINE TO COARSE GRAINED, MEDIUM DENSE	INFILTRATION TEST
15							**TOTAL DEPTH 10.5'** **NO GROUNDWATER**	
20								
25								
30								
35								
40								

JOB NO: 3411701.01

LOG OF TEST PIT

FIGURE: T-2

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

N/A

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

N/A

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: Hunsaker & Associates Irvine, Inc. Date: 8/17/2018
Designed by: Tommy Hsu Case No: TBD
Company Project Number/Name: Wyroc

BMP Identification

BMP NAME / ID: DMA 1

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.74 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume,* V_{BMP} *(cubic feet)*	*Proposed Volume on Plans (cubic feet)*
1	*425649*	*Mixed Surface Types*	*0.82*	*0.62*	*265299.3*			
	425649	***Total***			**265299.3**	**0.74**	***16315.9***	***192,096***

Notes:

<u>Santa Ana Watershed</u> - BMP Design Volume, V_{BMP} (Rev. 10-2011)	Legend:	Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: Hunsaker & Associates Irvine, Inc. — Date: 8/17/2018
Designed by: Tommy Hsu — Case No: TBD
Company Project Number/Name: Wyroc

BMP Identification

BMP NAME / ID: DMA 2

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.74 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
1	*157296*	*Mixed Surface Types*	*0.98*	*0.86*	*134794.9*			
	157296	***Total***			**134794.9**	**0.74**	***8289.9***	***112320***

Notes:

StormTrap®

MODULAR CONCRETE
STORMWATER MANAGEMENT

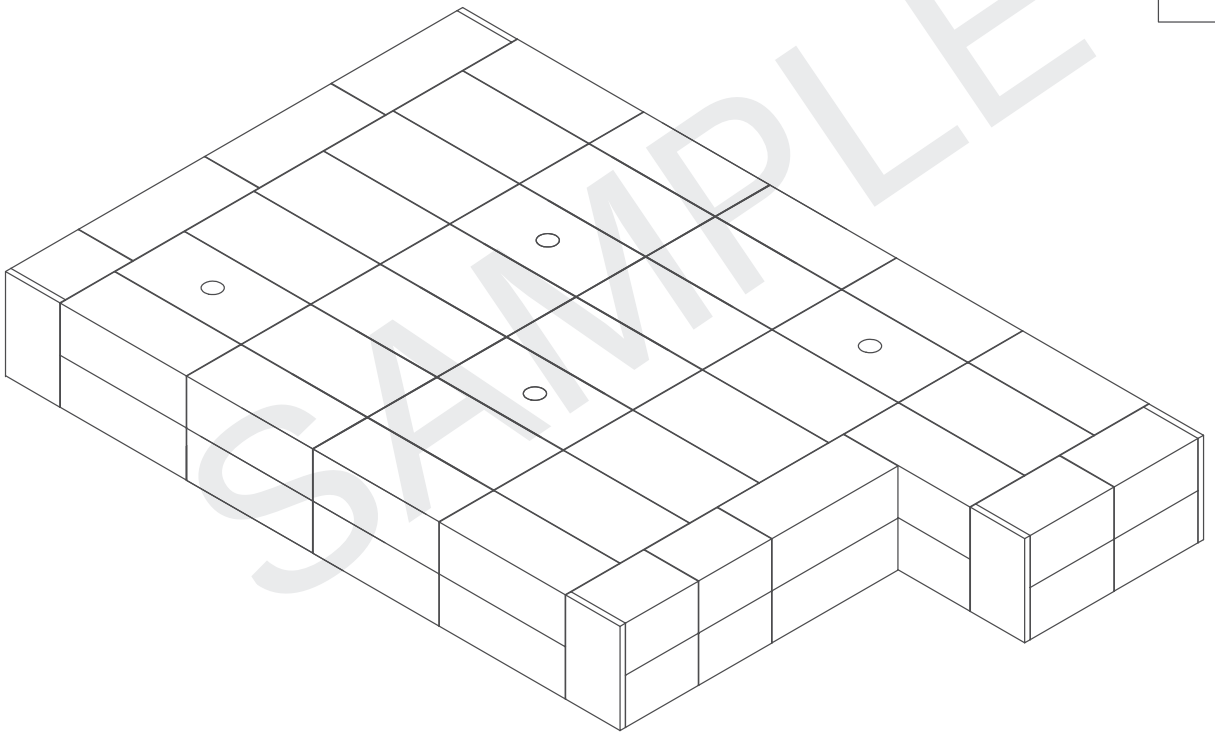
CONTACT STORMTRAP TO REQUEST A DESIGN AND BUDGET FOR YOUR SPECIFIC PROJECT NEEDS.

SHEET INDEX

PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	DOUBLETRAP DESIGN CRITERIA
2.0	DOUBLETRAP SYSTEM LAYOUT
3.0	DOUBLETRAP INSTALLATION SPECIFICATIONS
3.1	DOUBLETRAP INSTALLATION SPECIFICATIONS
4.0	DOUBLETRAP BACKFILL SPECIFICATIONS
5.0	RECOMMENDED PIPE / ACCESS OPENING SPECIFICATIONS
6.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION

STORM TRAP SUPPLIER: STORMTRAP
CONTACT NAME: STORMTRAP
CELL PHONE: STORMTRAP
SALES EMAIL: STORMTRAP



SAMPLE

DOUBLETRAP® - INFILTRATION

SAMPLE PROJECT

StormTrap®

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]

1-877-867-6872

ENGINEER INFORMATION:

PROJECT INFORMATION:

DOUBLETRAP

INFILTRATION

CURRENT ISSUE DATE:

ISSUED FOR:

SAMPLE PROJECT

REV.	DATE:	ISSUED FOR:	DWN BY:

SCALE:

NTS

SHEET TITLE:

COVER SHEET

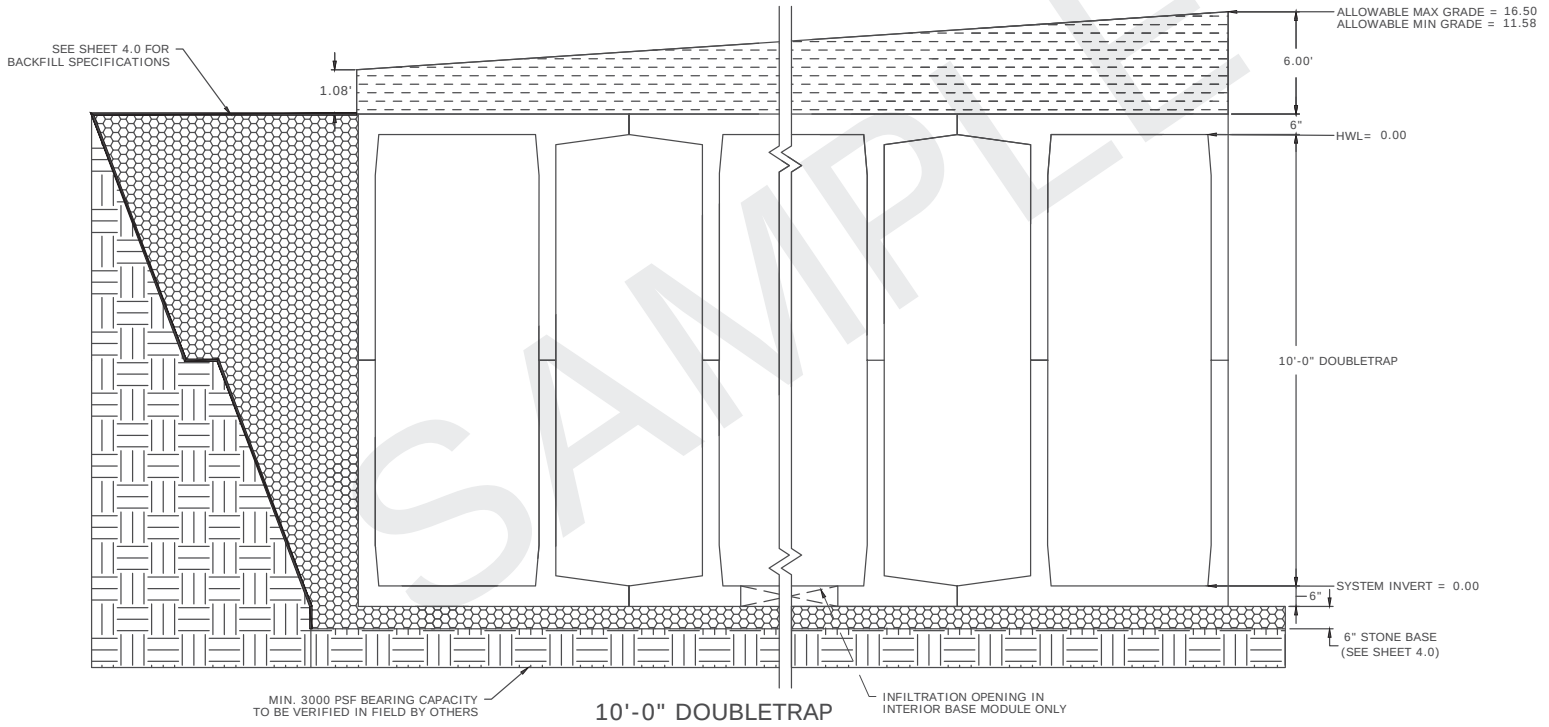
SHEET NUMBER:

0.0

STORMTRAP SYSTEM INFORMATION		
WATER STORAGE REQ'D:	40000	CUBIC FEET
WATER STORAGE PROV:	42750.76	CUBIC FEET
UNIT HEADROOM:	10'-0" DOUBLETRAP	
UNIT QUANTITY:	84	TOTAL PIECES

STORMTRAP STRUCTURAL DESIGN CRITERIA

1. STORMTRAP MODULES SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 1.08' MAX. 6.00' (CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS).
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.



10'-0" DOUBLETRAP

SAMPLE

StormTrap®

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]

1-877-867-6872

ENGINEER INFORMATION:

PROJECT INFORMATION:

DOUBLETRAP

INFILTRATION

CURRENT ISSUE DATE:

ISSUED FOR:

SAMPLE PROJECT

REV.	DATE:	ISSUED FOR:	DWN BY:

SCALE:

NTS

SHEET TITLE:

DOUBLETRAP DESIGN CRITERIA

SHEET NUMBER:

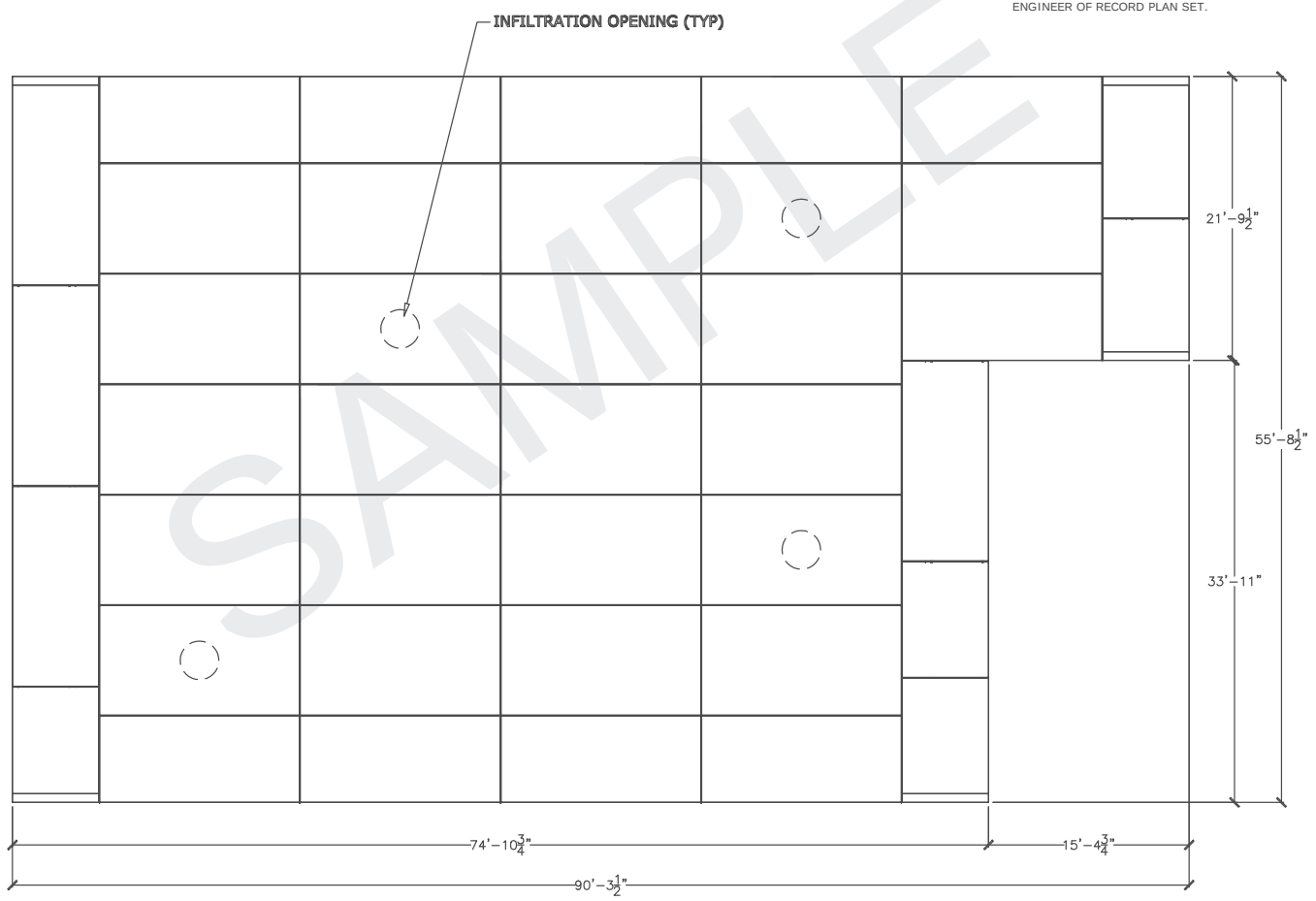
1.0

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	TOP WEIGHT	BASE WEIGHT
21	I	10'-0" DOUBLETRAP		
0	II	10'-0" DOUBLETRAP		
13	III	10'-0" DOUBLETRAP		
3	IV	10'-0" DOUBLETRAP		
0	VII	10'-0" DOUBLETRAP		
5	SPIV	10'-0" DOUBLETRAP		
5	PANEL	8" THICK PANELS		
9	JOINTWRAP	150' PER ROLL		
56	JOINTTAPE	14.5' PER ROLL		

DESIGN CRITERIA
ALLOWABLE MAX GRADE=16.50
ALLOWABLE MIN GRADE =11.58
INSIDE HEIGHT ELEVATION =0.00
SYSTEM INVERT = 0.00
STORMTRAP VOLUME =42750.76 C.F.

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.



SAMPLE

StormTrap®
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1-877-867-6872

ENGINEER INFORMATION:

PROJECT INFORMATION:
DOUBLETRAP
INFILTRATION

CURRENT ISSUE DATE:

ISSUED FOR:
SAMPLE PROJECT

REV.	DATE:	ISSUED FOR:	DWN BY:

SCALE:
NTS

SHEET TITLE:
DOUBLETRAP SYSTEM LAYOUT

SHEET NUMBER:
2.0

STORMTRAP INSTALLATION SPECIFICATIONS

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891, STANDARD FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES, THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS SHALL APPLY:

2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.

3. STORMTRAP MODULES CAN BE PLACED ON A LEVEL, 6" FOUNDATION OF ¾" AGGREGATE EXTENDING 2'-0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1) AND SHALL BE PLACED ON PROPERLY COMPACTED SOILS (SEE SHEET 1.0 FOR SOIL BEARING CAPACITY REQUIREMENTS), AND IN ACCORDANCE WITH ASTM C891 STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES.

4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED ¾" (SEE DETAIL 2). IF THE SPACE EXCEEDS ¾", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.

5. STORMTRAP MODULES ARE NOT WATERTIGHT. IF A WATERTIGHT SOLUTION IS REQUIRED, CONTACT STORMTRAP FOR RECOMMENDATIONS. THE WATERTIGHT APPLICATION IS TO BE PROVIDED AND IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SELECTED WATERTIGHT SOLUTION PERFORMS AS SPECIFIED BY THE MANUFACTURER. CONTACT STORMTRAP IF A WATERTIGHT APPLICATION IS REQUIRED.

6. THE HORIZONTAL JOINT BETWEEN THE TOP AND BASE LEG CONNECTION OF THE STORMTRAP MODULES SHALL BE SEALED WITH PREFORMED MASTIC JOINT TAPE ACCORDING TO ASTM C891, 8.8 AND 8.12. (SEE DETAIL 3). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT TAPE IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM.

7. ALL EXTERIOR JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN , HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 3 & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:

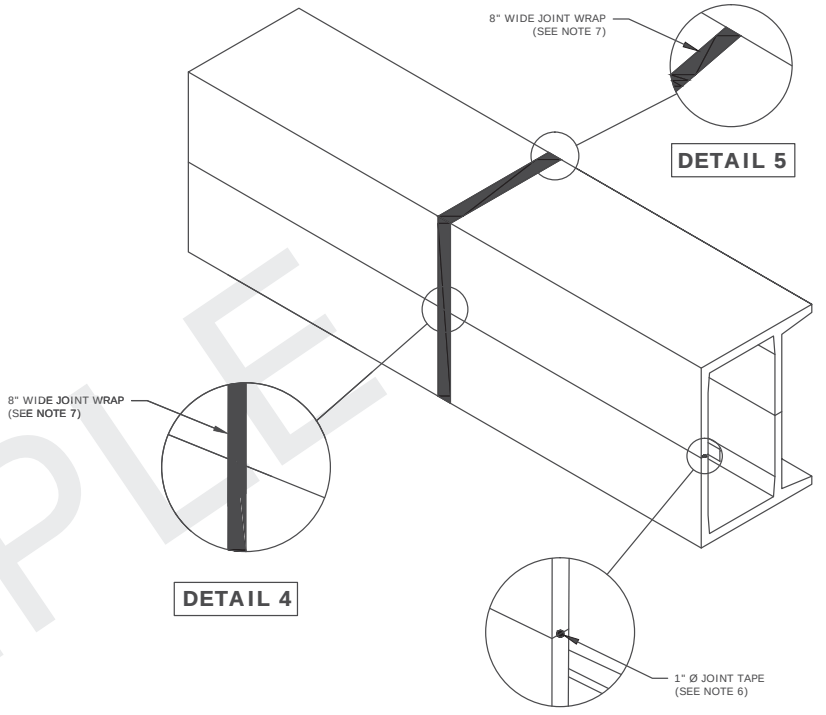
   7.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.

   7.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.

8. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.

9. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND TO DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.

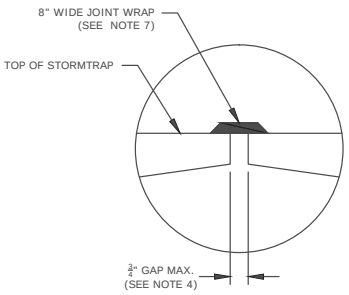
10. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.



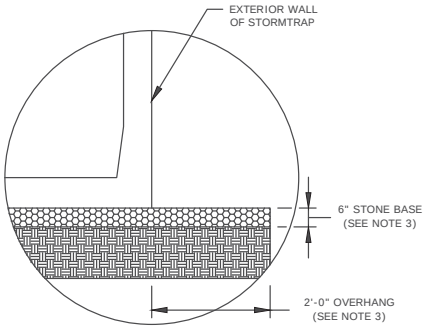
DETAIL 5

DETAIL 4

DETAIL 3



DETAIL 2



DETAIL 1

SAMPLE

StormTrap®

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]

1-877-867-6872

ENGINEER INFORMATION:

PROJECT INFORMATION:

DOUBLETRAP

INFILTRATION

CURRENT ISSUE DATE:

ISSUED FOR:

SAMPLE PROJECT

REV.	DATE:	ISSUED FOR:	DWN BY:

SCALE:

NTS

SHEET TITLE:

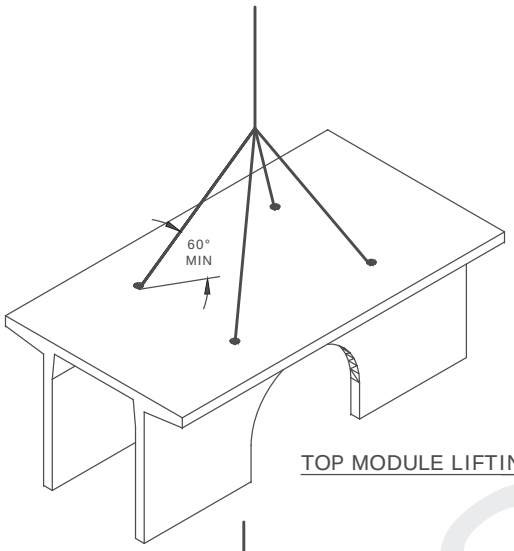
DOUBLETRAP INSTALLATION SPECIFICATIONS

SHEET NUMBER:

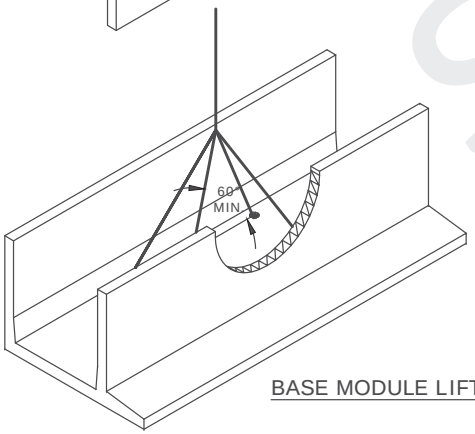
3.0

END PANEL ERECTION/INSTALLATION NOTES

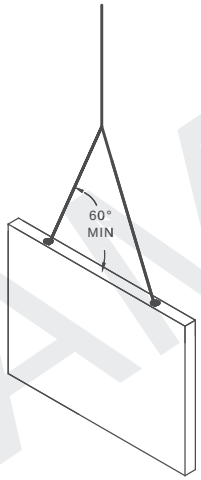
1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS).
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



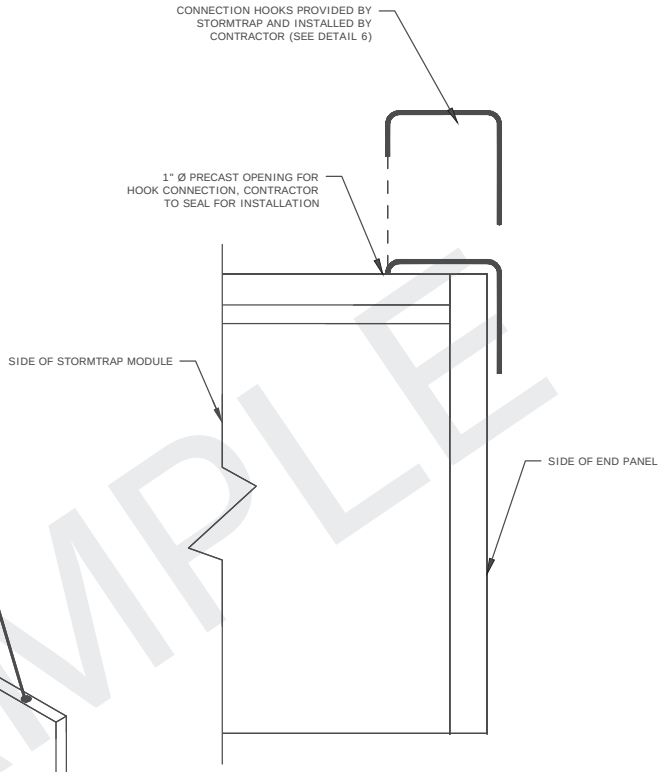
TOP MODULE LIFTING DETAIL



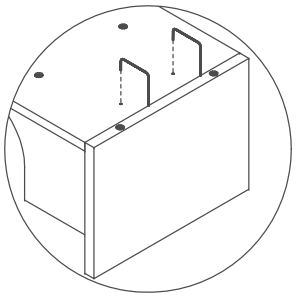
BASE MODULE LIFTING DETAIL



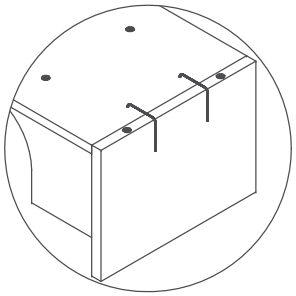
END PANEL LIFTING DETAIL



PANEL CONNECTION ELEVATION VIEW



STEP 1



STEP 2

DETAIL 6

SAMPLE

StormTrap®

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]

1-877-867-6872

ENGINEER INFORMATION:

PROJECT INFORMATION:

DOUBLETRAP

INFILTRATION

CURRENT ISSUE DATE:

ISSUED FOR:

SAMPLE PROJECT

REV.	DATE:	ISSUED FOR:	DWN BY:

SCALE:

NTS

SHEET TITLE:

DOUBLETRAP INSTALLATION SPECIFICATIONS

SHEET NUMBER:

3.1

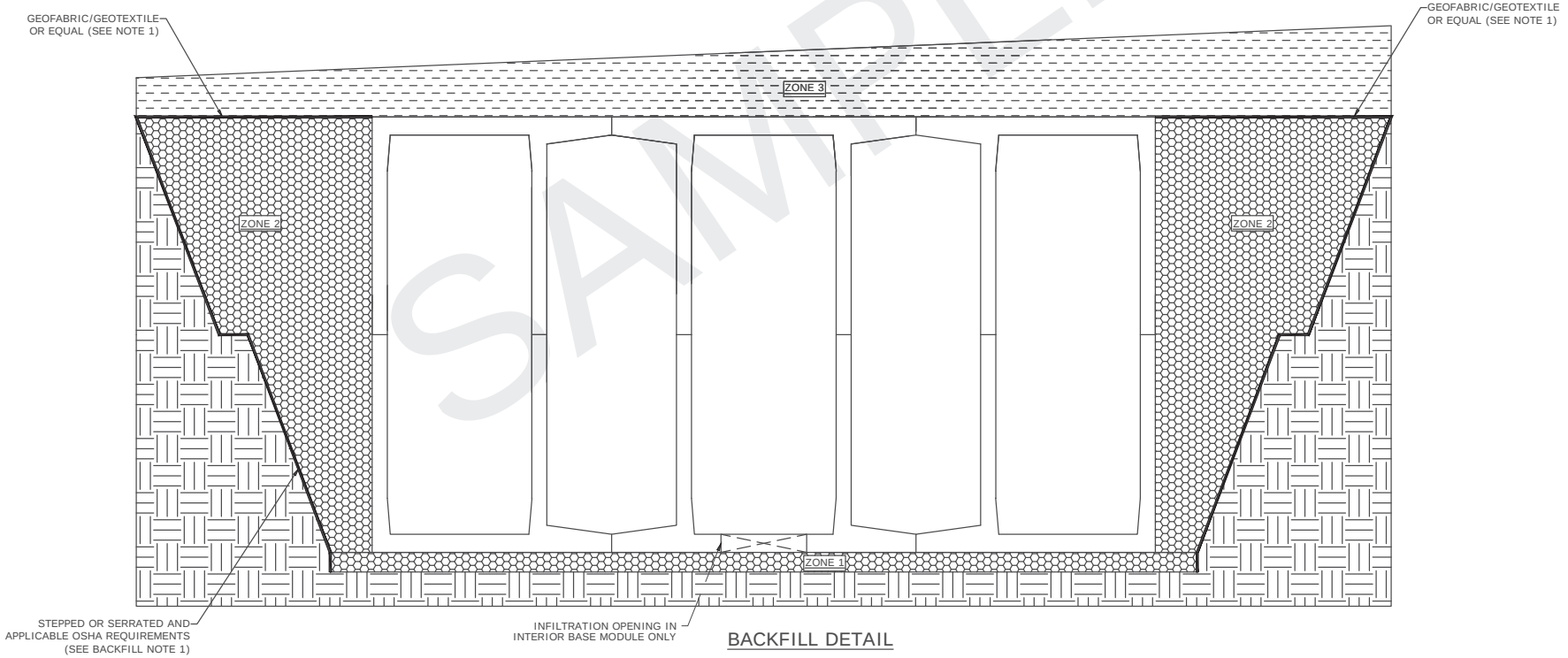
ZONE CHART		
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1	FOUNDATION AGGREGATE	
ZONE 2	BACKFILL	
ZONE 3	FINAL COVER OVERTOP	

STORMTRAP ZONE INSTALLATION SPECIFICATIONS/PROCEDURES

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MATERIAL SHALL BE CLEAN, CRUSHED, ANGULAR No. 5 (AASHTO M43) AGGREGATE. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED.

2. DURING PLACEMENT OF MATERIAL OVERTOP THE SYSTEM, AT NO TIME SHALL MACHINERY BE USED OVERTOP THAT EXCEEDS THE DESIGN LIMITATIONS OF THE SYSTEM. WHEN PLACEMENT OF MATERIAL OVERTOP, MATERIAL SHALL BE PLACED SUCH THAT THE DIRECTION OF PLACEMENT IS PARALLEL WITH THE OVERALL LONGITUDINAL DIRECTION OF THE SYSTEM WHENEVER POSSIBLE.

3. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED AT A MINIMUM OF 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN HS-20 LOADING CRITERIA TRAVEL OVERTOP THE SYSTEM WITHOUT THE MINIMUM DESIGN COVERAGE. IF TRAVEL IS NECESSARY OVERTOP THE SYSTEM PRIOR TO ACHIEVING THE MINIMUM DESIGN COVER, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. IN SOME CASES, IN ORDER TO ACHIEVE REQUIRED COMPACTION, HAND COMPACTION MAY BE NECESSARY IN ORDER NOT TO EXCEED THE ALLOTTED DESIGN LOADING.



BACKFILL DETAIL

SAMPLE

StormTrap®

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]

1-877-867-6872

ENGINEER INFORMATION:

PROJECT INFORMATION:

DOUBLETRAP

INFILTRATION

CURRENT ISSUE DATE:

ISSUED FOR:

SAMPLE PROJECT

REV.	DATE:	ISSUED FOR:	DWN BY:

SCALE:

NTS

SHEET TITLE:

DOUBLETRAP BACKFILL SPECIFICATIONS

SHEET NUMBER:

4.0

RECOMMENDED ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 3'-0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 1'-0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED.

2. PLASTIC COATED STEEL STEPS PRODUCED BY M.A. INDUSTRIES PART #PS3-PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED WITH A MAXIMUM DISTANCE OF 1'-4" BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.

3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.

4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.

5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.

6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE INSPECTIONS. (PROVIDED BY OTHERS)

RECOMMENDED PIPE OPENING SPECIFICATION

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".

2. MAXIMUM OPENING SIZE TO BE DETERMINED BY THE MODULE HEIGHT. PREFERRED OPENING SIZE Ø 36" OR LESS. ANY OPENING NEEDED THAT DOES NOT FIT THIS CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF STORMTRAP FOR REVIEW.

3. CONNECTING PIPES SHALL BE INSTALLED WITH A 1'-0" CONCRETE COLLAR, AND AN AGGREGATE CRADLE FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI SHALL BE USED.

4. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

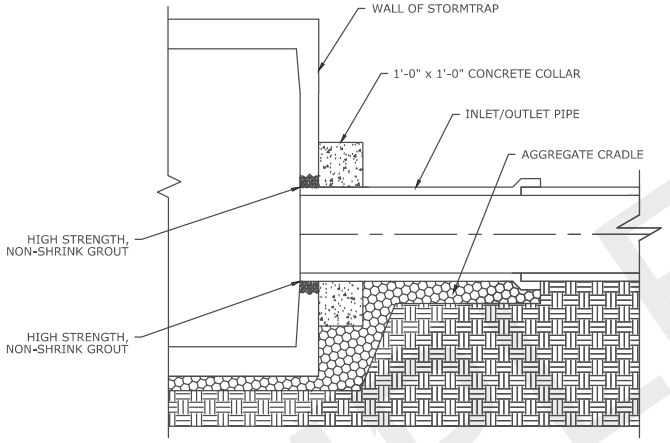
RECOMMENDED PIPE INSTALLATION INSTRUCTIONS

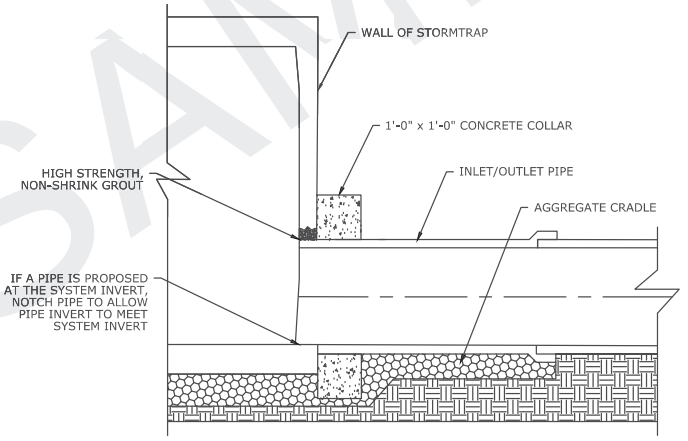
1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.

2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.

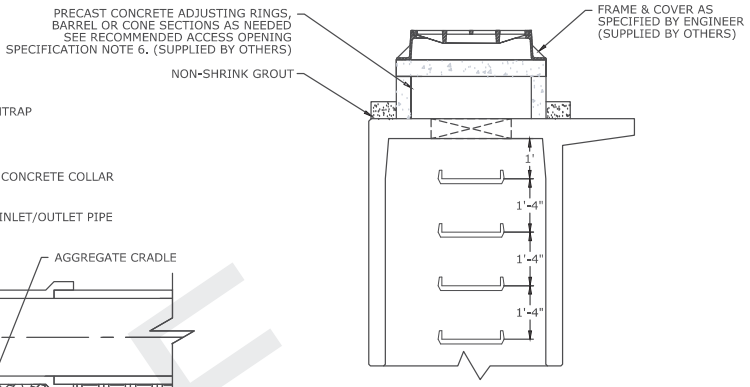
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS RECOMMENDED AND SHOWN ON THIS SHEET ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR.

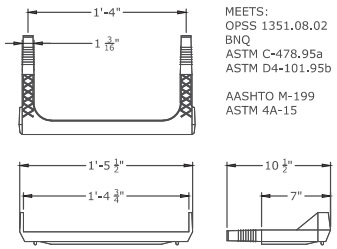




PIPE CONNECTION DETAIL



RISER / STAIR DETAIL



MEETS:
OPSS 1351.08.02
BNQ
ASTM C-478.95a
ASTM D4-101.95b

AASHTO M-199
ASTM 4A-15

STEP DETAIL

SAMPLE

StormTrap®

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]

1-877-867-6872

ENGINEER INFORMATION:

PROJECT INFORMATION:

DOUBLETRAP

INFILTRATION

CURRENT ISSUE DATE:

ISSUED FOR:

SAMPLE PROJECT

REV.	DATE:	ISSUED FOR:	DWN BY:

SCALE:

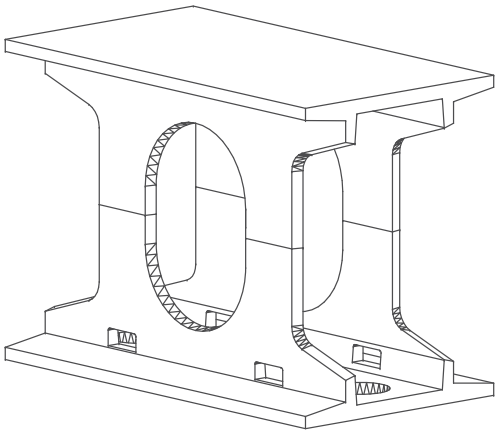
NTS

SHEET TITLE:

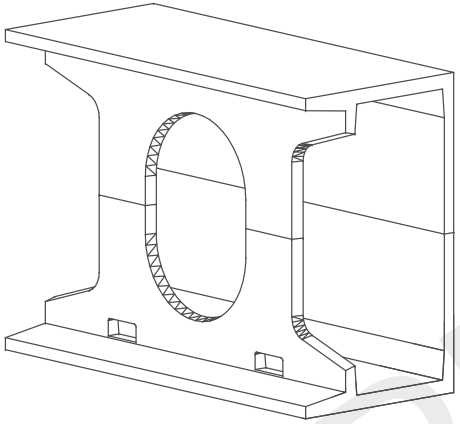
RECOMMENDED PIPE / ACCESS OPENING SPECIFICATIONS

SHEET NUMBER:

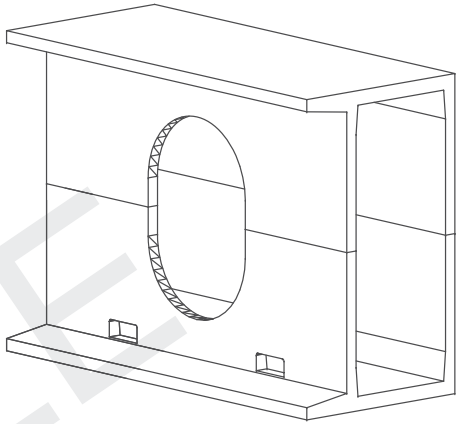
5.0



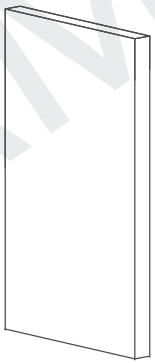
TYPE I



TYPE III



TYPE IV



TYPE IV
END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP - INDICATES A MODULE WITH MODIFICATIONS.
3. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

SAMPLE

StormTrap®

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]

1-877-867-6872

ENGINEER INFORMATION:

PROJECT INFORMATION:

DOUBLETRAP

INFILTRATION

CURRENT ISSUE DATE:

ISSUED FOR:

SAMPLE PROJECT

REV.	DATE:	ISSUED FOR:	DWN BY:

SCALE:

NTS

SHEET TITLE:

SINGLETRAP
MODULE TYPES

SHEET NUMBER:

6.0

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

TENTATIVE PARCEL MAP 37550
AREAS "A & B"
SUMMARY OF HYDROLOGY ANALYSIS
EXISTING CONDITION VS. PROPOSED CONDITION

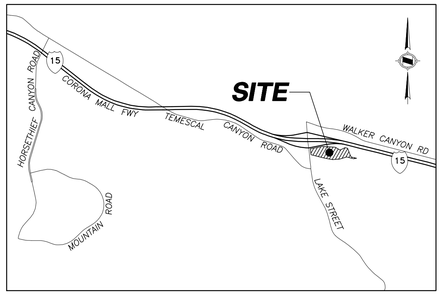
	EXISTING CONDITION @ AREA "A" NODE 2														
	2-YEAR STORM					10-YEAR STORM					100-YEAR STORM				
Area	**Rational Method**	**1-HR U.H.**	**3-HR U.H.**	**6-HR U.H.**	**24-HR U.H.**	**Rational Method**	**1-HR U.H.**	**3-HR U.H.**	**6-HR U.H.**	**24-HR U.H.**	**Rational Method**	**1-HR U.H.**	**3-HR U.H.**	**6-HR U.H.**	**24-HR U.H.**
(ac)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
4.06	2.7	2.7	1.6	1.4	0.1	6.1	6.8	4.4	4.0	1.4	10.0	11.4	7.4	6.7	2.6
		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
		0.06	0.06	0.07	0.08		0.22	0.27	0.30	0.41		0.40	0.54	0.62	0.93
	EXISTING CONDITION @ AREA "B" NODE 12														
(ac)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.09	5.1	5.1	3.4	3.0	0.3	11.5	11.3	9.5	8.8	3.4	18.6	22.9	16.0	14.6	6.3
		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
		0.15	0.16	0.18	0.19		0.56	0.72	0.78	1.08		1.01	1.38	1.61	2.42

PROPOSED CONDITION @ AREA "A" NODE 2															
	2-YEAR STORM					10-YEAR STORM					100-YEAR STORM				
Area	**Rational Method**	**1-HR U.H.**	**3-HR U.H.**	**6-HR U.H.**	**24-HR U.H.**	**Rational Method**	**1-HR U.H.**	**3-HR U.H.**	**6-HR U.H.**	**24-HR U.H.**	**Rational Method**	**1-HR U.H.**	**3-HR U.H.**	**6-HR U.H.**	**24-HR U.H.**
(ac)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.23	6.3	6.3	3.4	3.2	1.2	10.7	12.0	6.6	6.1	2.1	16.7	19.9	10.6	9.8	3.7
		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
		0.17	0.28	0.39	0.71		0.32	0.49	0.67	1.20		0.55	0.81	1.08	1.99
	PROPOSED CONDITION @ AREA "B" NODE 12														
(ac)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.79	10.0	10.0	6.3	5.9	2.4	16.4	18.2	11.3	10.5	4.0	25.2	30.3	17.9	16.5	6.6
		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
		0.31	0.53	0.74	1.35		0.56	0.91	1.25	2.30		0.97	1.48	1.98	3.74
	2.26.3(EXISTING VERSUS PROPOSED) INCREASE/DECREASE ± VOLUME CHANGE @ AREA "A" NODE 2														
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	
	0.11	0.22	0.32	0.64		0.10	0.22	0.37	0.80		0.15	0.27	0.46	1.06	
	(EXISTING VERSUS PROPOSED) INCREASE/DECREASE ± VOLUME CHANGE @ AREA "B" NODE 12														
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	
	0.16	0.37	0.56	1.16		0.00	0.20	0.47	1.21		-0.04	0.10	0.38	1.32	

LEGEND

- MAJOR DRAINAGE BOUNDARY
- MINOR DRAINAGE BOUNDARY
- PROJECT BOUNDARY
- 10 — NODE NUMBER
- A / 1.2 — AREA DESIGNATION / AREA ACREAGE
- Q_{100}=8.0cfs, T_{100}=15.0, EL=1232.0, AREA=7.2AC — PEAK FLOW RATE / TIME OF CONCENTRATION
- ΣQ_{100}=10.0cfs, T_{100}=16.0, EL=1231.0, ΣAREA=9.8AC — PEAK CONFLUENCE FLOW RATE / TIME OF CONCENTRATION
- PROPOSED STORM DRAIN
- L=715' — FLOW PATH LENGTH
- B / A — SOIL BOUNDARY

VICINITY MAP



I-15 FREEWAY
I-15 ON RAMP
I-15 OFF RAMP
LAKE STREET
TEMESCAL WASH CHANNEL
PROPERTY BOUNDARY
CENTROID
GRAPHIC SCALE
0 30 60 120
(IN FEET)
1 INCH = 60 FT.

EL=1260.0
1
L=312'
10
EL=1241.0
A 0.99
1.1
Q_2 =0.8cfs
Q_{10} =1.8cfs
Q_{100} =2.9cfs
t=9.0, EL=1239.0
AREA=0.99AC
L=807'
Lca=371.4'
A 3.07
L=495'
Q_2 = 2.7cfs
Q_{10} = 6.1cfs
Q_{100}= 10.0cfs
t=16.9, EL=1238.0
AREA=4.06AC
2
B 4.20
Q_2 =2.1cfs
Q_{10} =4.9cfs
Q_{100}=7.8cfs
t=24.2, EL=1236.0
AREA=4.20AC
11
B 0.92
L=337'
B 4.97
Q_2 =2.6cfs
Q_{10} =5.9cfs
Q_{100} =9.5cfs
t=25.9, EL=1229.0
AREA=5.12AC
12
ΣQ_2 = 5.1cfs
ΣQ_{10} =11.5cfs
ΣQ_{100}=18.6cfs
t=25.9, EL=1229.0
ΣAREA=10.09AC
L=1000'
L=1337', Lca=700'
APN: 390-130-029
SP: ALBERHILL RANCH
ZONE: ALBERHILL RANCH
GP: ALBERHILL RANCH
APN: 390-130-017
SP: ALBERHILL RANCH
ZONE: ALBERHILL RANCH
GP: ALBERHILL RANCH

PRELIMINARY HYDROLOGY
EXISTING CONDITION

APPLICANT:	PREPARED BY:
LAKE STREET PROPERTIES, LP 22479 EAGLE GLEN PARKWAY, SUITE 112-470 CORONA, CA 92883 (909) 260-9951	HUNSAKER & ASSOCIATES IRVINE, INC. PLANNING ▪ ENGINEERING ▪ SURVEYING Three Hughes ▪ Irvine, CA 92618 ▪ PH: (949) 583-1010 ▪ FX: (949) 583-0759

"WYROC"
TENTATIVE PARCEL MAP NO. 37550
SOUTHEAST OF LAKE STREET AND I-15
CITY OF LAKE ELSINORE, CA

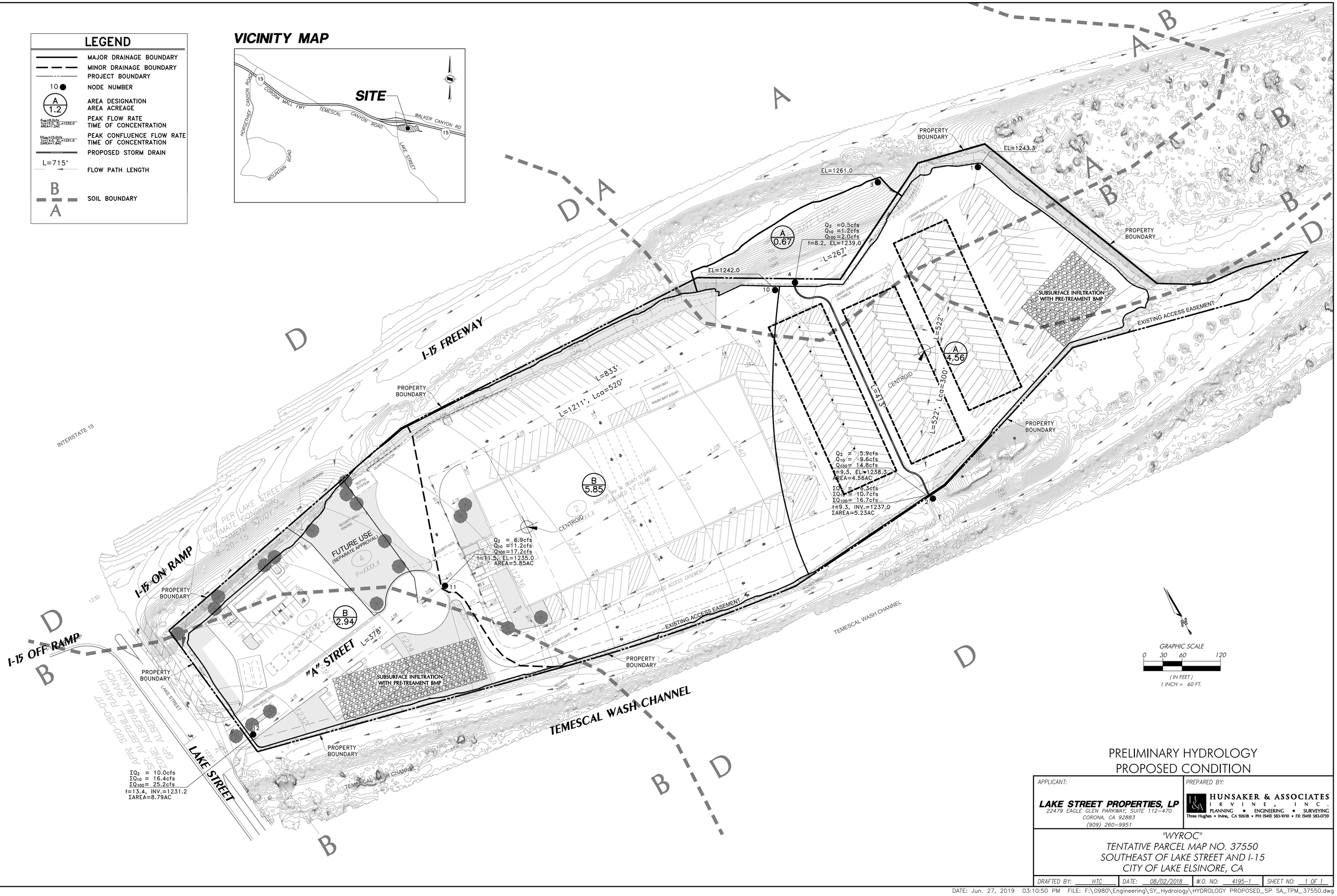
DRAFTED BY: HTC	DATE: 08/02/2018	W.O. NO: 4195-1	SHEET NO: 1 OF 1

DATE: Jun. 27, 2019 02:56:21 PM FILE: F:\0980\Engineering\SY_Hydrology\HYDROLOGY EXISTING_SP SA_TPM_37550.dwg

LEGEND

- MAJOR DRAINAGE BOUNDARY
- MINOR DRAINAGE BOUNDARY
- PROJECT BOUNDARY
- 10 — NODE NUMBER
- A / 1.2 — AREA DESIGNATION / AREA ACREAGE
- Q_{100}=8.0cfs, Tc=15.0, EL=1232.0, AREA=17.2AC — PEAK FLOW RATE / TIME OF CONCENTRATION
- ΣQ_{100}=10.0cfs, Tc=17.6, EL=1231.0, ΣAREA=?.?AC — PEAK CONFLUENCE FLOW RATE / TIME OF CONCENTRATION
- PROPOSED STORM DRAIN
- L=715' — FLOW PATH LENGTH
- B / A — SOIL BOUNDARY

VICINITY MAP



PRELIMINARY HYDROLOGY PROPOSED CONDITION

APPLICANT:	PREPARED BY:
LAKE STREET PROPERTIES, LP 22479 EAGLE GLEN PARKWAY, SUITE 112-470 CORONA, CA 92883 (909) 260-9951	HUNSAKER & ASSOCIATES IRVINE, INC. PLANNING ▪ ENGINEERING ▪ SURVEYING Three Hughes ▪ Irvine, CA 92618 ▪ PH: (949) 583-1010 ▪ FX: (949) 583-0759

"WYROC"
TENTATIVE PARCEL MAP NO. 37550
SOUTHEAST OF LAKE STREET AND I-15
CITY OF LAKE ELSINORE, CA

DRAFTED BY: HTC	DATE: 08/02/2018	W.O. NO: 4195-1	SHEET NO: 1 OF 1

DATE: Jun. 27, 2019 03:10:50 PM FILE: F:\0980\Engineering\SY_Hydrology\HYDROLOGY PROPOSED_SP SA_TPM_37550.dwg

NOAA Atlas 14, Volume 6, Version 2
Location name: Lake Elsinore, California, USA*
Latitude: 33.7292°, Longitude: -117.3931°
Elevation: 1235.12 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	0.091 (0.076-0.110)	0.126 (0.105-0.152)	0.173 (0.144-0.209)	0.212 (0.175-0.259)	0.267 (0.213-0.338)	0.311 (0.243-0.402)	0.356 (0.271-0.473)	0.404 (0.298-0.552)	0.471 (0.333-0.672)	0.524 (0.357-0.776)
10-min	0.131 (0.109-0.157)	0.181 (0.151-0.218)	0.248 (0.207-0.300)	0.304 (0.252-0.371)	0.383 (0.306-0.484)	0.445 (0.348-0.576)	0.510 (0.388-0.677)	0.579 (0.428-0.791)	0.675 (0.477-0.964)	0.751 (0.512-1.11)
15-min	0.158 (0.132-0.190)	0.218 (0.183-0.264)	0.300 (0.250-0.363)	0.368 (0.304-0.449)	0.463 (0.370-0.586)	0.538 (0.420-0.696)	0.617 (0.469-0.819)	0.700 (0.517-0.957)	0.816 (0.577-1.17)	0.909 (0.620-1.35)
30-min	0.240 (0.201-0.290)	0.332 (0.278-0.401)	0.456 (0.381-0.553)	0.560 (0.463-0.684)	0.705 (0.563-0.892)	0.819 (0.640-1.06)	0.939 (0.715-1.25)	1.07 (0.787-1.46)	1.24 (0.878-1.77)	1.38 (0.943-2.05)
60-min	0.358 (0.300-0.431)	0.494 (0.414-0.597)	0.679 (0.566-0.822)	0.833 (0.689-1.02)	1.05 (0.837-1.33)	1.22 (0.952-1.58)	1.40 (1.06-1.85)	1.59 (1.17-2.17)	1.85 (1.31-2.64)	2.06 (1.40-3.05)
2-hr	0.540 (0.452-0.651)	0.710 (0.594-0.858)	0.942 (0.786-1.14)	1.14 (0.941-1.39)	1.41 (1.13-1.79)	1.63 (1.27-2.11)	1.86 (1.42-2.47)	2.11 (1.56-2.88)	2.44 (1.73-3.49)	2.72 (1.85-4.03)
3-hr	0.671 (0.562-0.809)	0.870 (0.728-1.05)	1.14 (0.952-1.38)	1.37 (1.13-1.67)	1.69 (1.35-2.14)	1.95 (1.52-2.52)	2.22 (1.69-2.95)	2.51 (1.85-3.43)	2.91 (2.05-4.15)	3.23 (2.20-4.78)
6-hr	0.955 (0.800-1.15)	1.23 (1.03-1.48)	1.60 (1.33-1.94)	1.91 (1.58-2.33)	2.35 (1.88-2.97)	2.70 (2.11-3.49)	3.06 (2.33-4.06)	3.45 (2.55-4.71)	3.99 (2.82-5.69)	4.42 (3.01-6.54)
12-hr	1.25 (1.05-1.51)	1.65 (1.38-1.99)	2.17 (1.81-2.63)	2.61 (2.16-3.19)	3.21 (2.56-4.06)	3.68 (2.88-4.76)	4.17 (3.17-5.53)	4.68 (3.45-6.39)	5.38 (3.80-7.68)	5.93 (4.04-8.78)
24-hr	1.65 (1.45-1.90)	2.25 (1.99-2.60)	3.04 (2.68-3.52)	3.69 (3.22-4.31)	4.57 (3.86-5.51)	5.25 (4.35-6.45)	5.94 (4.81-7.48)	6.65 (5.25-8.61)	7.63 (5.78-10.3)	8.39 (6.14-11.7)
2-day	1.97 (1.74-2.27)	2.76 (2.44-3.19)	3.81 (3.36-4.42)	4.67 (4.08-5.45)	5.84 (4.95-7.05)	6.75 (5.60-8.31)	7.68 (6.22-9.67)	8.64 (6.81-11.2)	9.96 (7.54-13.4)	11.0 (8.05-15.3)
3-day	2.12 (1.87-2.45)	3.02 (2.67-3.49)	4.21 (3.71-4.88)	5.20 (4.54-6.07)	6.55 (5.54-7.90)	7.60 (6.31-9.35)	8.69 (7.04-10.9)	9.82 (7.74-12.7)	11.4 (8.62-15.3)	12.6 (9.24-17.6)
4-day	2.29 (2.02-2.64)	3.28 (2.90-3.79)	4.61 (4.06-5.35)	5.72 (5.00-6.68)	7.24 (6.13-8.73)	8.44 (7.00-10.4)	9.68 (7.84-12.2)	11.0 (8.65-14.2)	12.8 (9.68-17.2)	14.2 (10.4-19.8)
7-day	2.59 (2.29-2.99)	3.74 (3.30-4.32)	5.30 (4.67-6.14)	6.62 (5.78-7.73)	8.47 (7.17-10.2)	9.94 (8.25-12.2)	11.5 (9.31-14.5)	13.1 (10.4-17.0)	15.4 (11.7-20.8)	17.3 (12.7-24.1)
10-day	2.75 (2.43-3.17)	3.98 (3.52-4.60)	5.68 (5.00-6.58)	7.12 (6.22-8.32)	9.18 (7.77-11.1)	10.8 (8.98-13.3)	12.6 (10.2-15.8)	14.4 (11.4-18.7)	17.1 (13.0-23.0)	19.3 (14.1-26.8)
20-day	3.26 (2.88-3.76)	4.75 (4.20-5.49)	6.86 (6.04-7.95)	8.68 (7.59-10.1)	11.3 (9.59-13.7)	13.5 (11.2-16.6)	15.8 (12.8-19.9)	18.4 (14.5-23.8)	22.0 (16.7-29.6)	25.0 (18.3-34.8)
30-day	3.84 (3.40-4.43)	5.59 (4.94-6.46)	8.08 (7.12-9.36)	10.3 (8.97-12.0)	13.5 (11.4-16.2)	16.1 (13.4-19.8)	19.0 (15.4-23.9)	22.1 (17.4-28.6)	26.6 (20.2-35.9)	30.4 (22.3-42.4)
45-day	4.51 (3.99-5.21)	6.51 (5.75-7.52)	9.38 (8.26-10.9)	11.9 (10.4-13.9)	15.7 (13.3-18.9)	18.8 (15.6-23.2)	22.2 (18.0-28.0)	26.0 (20.5-33.7)	31.5 (23.9-42.5)	36.2 (26.5-50.4)
60-day	5.21 (4.61-6.02)	7.42 (6.55-8.57)	10.6 (9.34-12.3)	13.4 (11.7-15.7)	17.7 (14.9-21.3)	21.2 (17.6-26.1)	25.1 (20.3-31.6)	29.4 (23.2-38.1)	35.8 (27.1-48.2)	41.2 (30.2-57.4)

[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

PER RCFC PRECIPITATION MAPS

F:\ 0980
TPM 37550 - W.O. #4195-1

LAKE STREET & I-15 K FACTOR

Write a description for your map.

Legend

- 0.02
- 0.05
- 0.1
- 0.15
- 0.17
- 0.2
- 0.37
- 0.43
- 0.49
- Feature 1

HYDROLOGIC SOILS GROUP MAP FOR ALBERHILL

PLATE C-1.40

HYDROLOGIC SOILS GROUP MAP FOR ELSINORE

PLATE C-1.41

LEGEND
SOILS GROUP BOUNDARY
A SOILS GROUP DESIGNATION
RCFC&WCD HYDROLOGY MANUAL

0 FEET 5000

N

4 mi

Google Earth

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 08/07/18
File:NODE2TPM37550EX2YR.out

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR STORM - EXISTING CONDITION @ NODE 2
W.O. #4195-1

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

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

Program License Serial Number 6406

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

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

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

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.617(In/Hr)
Slope of intensity duration curve = 0.4800

++

Process from Point/Station 1.000 to Point/Station 1.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 312.000(Ft.)
Top (of initial area) elevation = 1260.000(Ft.)
Bottom (of initial area) elevation = 1239.000(Ft.)
Difference in elevation = 21.000(Ft.)
Slope = 0.06731 s(percent)= 6.73
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.043 min.
Rainfall intensity = 1.529(In/Hr) for a 2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.521
Decimal fraction soil group A = 0.574
Decimal fraction soil group B = 0.310
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.116
RI index for soil(AMC 1) = 54.55

```
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      0.789(CFS)
Total initial stream area =        0.990(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.100 to Point/Station        2.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of natural channel elevation =   1239.000(Ft.)
End of natural channel elevation =   1238.000(Ft.)
Length of natural channel  =   495.000(Ft.)
Estimated mean flow rate at midpoint of channel =      2.013(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   0.77(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.0020
Corrected/adjusted channel slope =  0.0020
Travel time =   10.65 min.     TC =   19.69  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.603
Decimal fraction soil group A = 0.031
Decimal fraction soil group B = 0.190
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.779
RI index for soil(AMC 1)  =  71.96
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.052(In/Hr) for a     2.0 year storm
Subarea runoff =      1.947(CFS) for      3.070(Ac.)
Total runoff =      2.736(CFS)   Total area =       4.060(Ac.)
End of computations, total study area =            4.06 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  83.0
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
       Rational Hydrology Study        Date: 08/07/18
File:NODE2TPM37550EX10YR.out
--------------------------------------------------------------------------
TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR STORM - EXISTING CONDITION @ NODE 2
W.O. #4195-1
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

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


Program License Serial Number 6406

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

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

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

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




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        1.100
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   312.000(Ft.)
Top (of initial area) elevation =  1260.000(Ft.)
Bottom (of initial area) elevation =  1239.000(Ft.)
Difference in elevation =    21.000(Ft.)
Slope =    0.06731  s(percent)=       6.73
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.043 min.
Rainfall intensity =      2.431(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.748
Decimal fraction soil group A = 0.574
Decimal fraction soil group B = 0.310
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.116
RI index for soil(AMC 2)  =  72.96
```

```
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      1.800(CFS)
Total initial stream area =        0.990(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.100 to Point/Station        2.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of natural channel elevation =   1239.000(Ft.)
End of natural channel elevation =   1238.000(Ft.)
Length of natural channel  =   495.000(Ft.)
Estimated mean flow rate at midpoint of channel =      4.590(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   0.93(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.0020
Corrected/adjusted channel slope =  0.0020
Travel time =    8.88 min.     TC =   17.92  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.802
Decimal fraction soil group A = 0.031
Decimal fraction soil group B = 0.190
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.779
RI index for soil(AMC 2)  =  86.23
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.750(In/Hr) for a    10.0 year storm
Subarea runoff =      4.312(CFS) for      3.070(Ac.)
Total runoff =      6.112(CFS)   Total area =       4.060(Ac.)
End of computations, total study area =            4.06 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  83.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 08/07/18
File:NODE2TPM37550EX100YR.out

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR STORM - EXISTING CONDITION @ NODE 2
W.O. #4195-1

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

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

Program License Serial Number 6406

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

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

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

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

++

Process from Point/Station 1.000 to Point/Station 1.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 312.000(Ft.)
Top (of initial area) elevation = 1260.000(Ft.)
Bottom (of initial area) elevation = 1239.000(Ft.)
Difference in elevation = 21.000(Ft.)
Slope = 0.06731 s(percent)= 6.73
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.043 min.
Rainfall intensity = 3.720(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.794
Decimal fraction soil group A = 0.574
Decimal fraction soil group B = 0.310
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.116
RI index for soil(AMC 2) = 72.96

```
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      2.926(CFS)
Total initial stream area =        0.990(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.100 to Point/Station        2.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of natural channel elevation =   1239.000(Ft.)
End of natural channel elevation =   1238.000(Ft.)
Length of natural channel  =   495.000(Ft.)
Estimated mean flow rate at midpoint of channel =      7.463(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   1.04(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.0020
Corrected/adjusted channel slope =  0.0020
Travel time =    7.90 min.     TC =   16.94  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.835
Decimal fraction soil group A = 0.031
Decimal fraction soil group B = 0.190
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.779
RI index for soil(AMC 2)  =  86.23
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.752(In/Hr) for a   100.0 year storm
Subarea runoff =      7.058(CFS) for      3.070(Ac.)
Total runoff =      9.984(CFS)   Total area =       4.060(Ac.)
End of computations, total study area =            4.06 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  83.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 08/07/18
File:NODE12TPM37550EX2YR.out

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR STORM - EXISTING CONDITION @ NODE 12
W.O. #4195-1

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

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

Program License Serial Number 6406

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

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

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

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.617(In/Hr)
Slope of intensity duration curve = 0.4800

++

Process from Point/Station 10.000 to Point/Station 11.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 1000.000(Ft.)
Top (of initial area) elevation = 1241.000(Ft.)
Bottom (of initial area) elevation = 1236.000(Ft.)
Difference in elevation = 5.000(Ft.)
Slope = 0.00500 s(percent)= 0.50
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 24.237 min.
Rainfall intensity = 0.953(In/Hr) for a 2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.536
Decimal fraction soil group A = 0.268
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.732
RI index for soil(AMC 1) = 67.35

```
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      2.145(CFS)
Total initial stream area =        4.200(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of natural channel elevation =   1236.000(Ft.)
End of natural channel elevation =   1229.000(Ft.)
Length of natural channel  =   337.000(Ft.)
Estimated mean flow rate at midpoint of channel =      2.380(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   2.57(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.0208
Corrected/adjusted channel slope =  0.0208
Travel time =    2.18 min.     TC =   26.42  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.569
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.277
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.723
RI index for soil(AMC 1)  =  71.52
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      0.914(In/Hr) for a     2.0 year storm
Subarea runoff =      0.479(CFS) for      0.920(Ac.)
Total runoff =      2.624(CFS)   Total area =       5.120(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       12.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.554
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.361
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.639
RI index for soil(AMC 1)  =  70.05
Pervious area fraction =  1.000; Impervious fraction =  0.000
Time of concentration =    26.42 min.
Rainfall intensity =      0.914(In/Hr) for a     2.0 year storm
Subarea runoff =      2.518(CFS) for      4.970(Ac.)
Total runoff =      5.142(CFS)   Total area =      10.090(Ac.)
End of computations, total study area =           10.09 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  84.3
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 08/07/18
File:NODE12TPM37550EX10YR.out

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR STORM - EXISTING CONDITION @ NODE 12
W.O. #4195-1

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

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

Program License Serial Number 6406

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

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

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

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

++

Process from Point/Station 10.000 to Point/Station 11.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 1000.000(Ft.)
Top (of initial area) elevation = 1241.000(Ft.)
Bottom (of initial area) elevation = 1236.000(Ft.)
Difference in elevation = 5.000(Ft.)
Slope = 0.00500 s(percent)= 0.50
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 24.237 min.
Rainfall intensity = 1.514(In/Hr) for a 10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.763
Decimal fraction soil group A = 0.268
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.732
RI index for soil(AMC 2) = 83.10

```
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      4.855(CFS)
Total initial stream area =        4.200(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of natural channel elevation =   1236.000(Ft.)
End of natural channel elevation =   1229.000(Ft.)
Length of natural channel  =   337.000(Ft.)
Estimated mean flow rate at midpoint of channel =      5.386(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   3.09(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.0208
Corrected/adjusted channel slope =  0.0208
Travel time =    1.82 min.     TC =   26.05  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.783
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.277
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.723
RI index for soil(AMC 2)  =  85.95
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.463(In/Hr) for a    10.0 year storm
Subarea runoff =      1.054(CFS) for      0.920(Ac.)
Total runoff =      5.909(CFS)   Total area =       5.120(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       12.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.776
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.361
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.639
RI index for soil(AMC 2)  =  85.03
Pervious area fraction =  1.000; Impervious fraction =  0.000
Time of concentration =    26.05 min.
Rainfall intensity =      1.463(In/Hr) for a    10.0 year storm
Subarea runoff =      5.637(CFS) for      4.970(Ac.)
Total runoff =     11.546(CFS)   Total area =      10.090(Ac.)
End of computations, total study area =           10.09 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  84.3
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
       Rational Hydrology Study        Date: 08/07/18
File:NODE12TPM37550EX100YR.out
--------------------------------------------------------------------------
TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR STORM - EXISTING CONDITION @ NODE 12
W.O. #4195-1
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

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


Program License Serial Number 6406

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

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

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

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




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  1241.000(Ft.)
Bottom (of initial area) elevation =  1236.000(Ft.)
Difference in elevation =     5.000(Ft.)
Slope =    0.00500  s(percent)=       0.50
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   24.237 min.
Rainfall intensity =      2.318(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.806
Decimal fraction soil group A = 0.268
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.732
RI index for soil(AMC 2)  =  83.10
```

```
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      7.843(CFS)
Total initial stream area =        4.200(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of natural channel elevation =   1236.000(Ft.)
End of natural channel elevation =   1229.000(Ft.)
Length of natural channel  =   337.000(Ft.)
Estimated mean flow rate at midpoint of channel =      8.702(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   3.48(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
       Normal channel slope =  0.0208
Corrected/adjusted channel slope =  0.0208
Travel time =    1.61 min.     TC =   25.85  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.820
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.277
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.723
RI index for soil(AMC 2)  =  85.95
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.247(In/Hr) for a   100.0 year storm
Subarea runoff =      1.696(CFS) for      0.920(Ac.)
Total runoff =      9.539(CFS)   Total area =       5.120(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       12.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.815
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.361
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.639
RI index for soil(AMC 2)  =  85.03
Pervious area fraction =  1.000; Impervious fraction =  0.000
Time of concentration =    25.85 min.
Rainfall intensity =      2.247(In/Hr) for a   100.0 year storm
Subarea runoff =      9.100(CFS) for      4.970(Ac.)
Total runoff =     18.640(CFS)   Total area =      10.090(Ac.)
End of computations, total study area =           10.09 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  84.3
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
       Rational Hydrology Study        Date: 08/07/18
File:NODE2TPM37550PROP2YR.out
------------------------------------------------------------------------
TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR STORM - PROPOSED CONDITION @ NODE 2
W.O. #4195-1
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

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


Program License Serial Number 6406

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

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

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

Storm event year =   2.0
Calculated rainfall intensity data:
1 hour intensity =  0.617(In/Hr)
Slope of intensity duration curve = 0.4800




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   522.000(Ft.)
Top (of initial area) elevation =  1243.300(Ft.)
Bottom (of initial area) elevation =  1238.300(Ft.)
Difference in elevation =     5.000(Ft.)
Slope =    0.00958  s(percent)=       0.96
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.288 min.
Rainfall intensity =      1.510(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.851
Decimal fraction soil group A = 0.195
Decimal fraction soil group B = 0.189
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.616
RI index for soil(AMC 1)  =  43.02
```

```
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      5.861(CFS)
Total initial stream area =        4.560(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        2.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      4.560(Ac.)
Runoff from this stream =      5.861(CFS)
Time of concentration =    9.29 min.
Rainfall intensity =     1.510(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   267.000(Ft.)
Top (of initial area) elevation =  1261.000(Ft.)
Bottom (of initial area) elevation =  1239.000(Ft.)
Difference in elevation =    22.000(Ft.)
Slope =    0.08240  s(percent)=       8.24
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.160 min.
Rainfall intensity =      1.606(In/Hr) for a     2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.468
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 1)  =  47.40
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      0.504(CFS)
Total initial stream area =        0.670(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        2.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1239.000(Ft.)
Downstream point/station elevation =  1237.000(Ft.)
Pipe length  =   413.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     0.504(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     0.504(CFS)
Normal flow depth in pipe =    3.20(In.)
Flow top width inside pipe =   13.76(In.)
Critical depth could not be calculated.
Pipe flow velocity =      2.37(Ft/s)
Travel time through pipe =    2.90 min.
Time of concentration (TC) =    11.06 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        2.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.670(Ac.)
Runoff from this stream =      0.504(CFS)
Time of concentration =   11.06 min.
Rainfall intensity =     1.388(In/Hr)
Summary of stream data:

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


1        5.861      9.29                1.510
2        0.504     11.06                1.388
Largest stream flow has longer or shorter time of concentration
Qp =      5.861 + sum of
         Qa          Tb/Ta
          0.504 *    0.840 =      0.423
Qp =      6.285

Total of 2 streams to confluence:
Flow rates before confluence point:
       5.861       0.504
Area of streams before confluence:
        4.560        0.670
Results of confluence:
Total flow rate =      6.285(CFS)
Time of concentration =     9.288 min.
Effective stream area after confluence =      5.230(Ac.)
End of computations, total study area =            5.23 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.215
Area averaged RI index number =  63.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
       Rational Hydrology Study        Date: 08/07/18
File:NODE2TPM37550PROP10YR.out
--------------------------------------------------------------------------
TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR STORM - PROPOSED CONDITION @NODE 2
W.O. #4195-1
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

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


Program License Serial Number 6406

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

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

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

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




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
__________________________________________________________________________
Initial area flow distance =   522.000(Ft.)
Top (of initial area) elevation =  1243.300(Ft.)
Bottom (of initial area) elevation =  1238.300(Ft.)
Difference in elevation =     5.000(Ft.)
Slope =    0.00958  s(percent)=       0.96
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.288 min.
Rainfall intensity =      2.400(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.195
Decimal fraction soil group B = 0.189
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.616
RI index for soil(AMC 2)  =  63.02
```

```
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      9.606(CFS)
Total initial stream area =        4.560(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        2.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      4.560(Ac.)
Runoff from this stream =      9.606(CFS)
Time of concentration =    9.29 min.
Rainfall intensity =     2.400(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   267.000(Ft.)
Top (of initial area) elevation =  1261.000(Ft.)
Bottom (of initial area) elevation =  1239.000(Ft.)
Difference in elevation =    22.000(Ft.)
Slope =    0.08240  s(percent)=       8.24
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.160 min.
Rainfall intensity =      2.553(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.716
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  67.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      1.225(CFS)
Total initial stream area =        0.670(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        2.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1239.000(Ft.)
Downstream point/station elevation =  1237.000(Ft.)
Pipe length  =   413.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.225(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     1.225(CFS)
Normal flow depth in pipe =    4.99(In.)
Flow top width inside pipe =   16.11(In.)
Critical Depth =    4.96(In.)
Pipe flow velocity =      3.07(Ft/s)
Travel time through pipe =    2.24 min.
Time of concentration (TC) =    10.40 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        2.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.670(Ac.)
Runoff from this stream =      1.225(CFS)
Time of concentration =   10.40 min.
Rainfall intensity =     2.273(In/Hr)
Summary of stream data:

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


1        9.606      9.29                2.400
2        1.225     10.40                2.273
Largest stream flow has longer or shorter time of concentration
Qp =      9.606 + sum of
         Qa          Tb/Ta
          1.225 *    0.893 =      1.094
Qp =     10.699

Total of 2 streams to confluence:
Flow rates before confluence point:
       9.606       1.225
Area of streams before confluence:
        4.560        0.670
Results of confluence:
Total flow rate =     10.699(CFS)
Time of concentration =     9.288 min.
Effective stream area after confluence =      5.230(Ac.)
End of computations, total study area =           5.23 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.215
Area averaged RI index number =  63.5
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 08/08/18
File:NODE2TPM37550PROP100YR.out

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR STORM - PROPOSED CONDITION @ NODE 2
W.O. #4195-1

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

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

Program License Serial Number 6406

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

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

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

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

++

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

Initial area flow distance = 522.000(Ft.)
Top (of initial area) elevation = 1243.300(Ft.)
Bottom (of initial area) elevation = 1238.300(Ft.)
Difference in elevation = 5.000(Ft.)
Slope = 0.00958 s(percent)= 0.96
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.288 min.
Rainfall intensity = 3.673(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.884
Decimal fraction soil group A = 0.195
Decimal fraction soil group B = 0.189
Decimal fraction soil group C = 0.000

```
Decimal fraction soil group D = 0.616
RI index for soil(AMC 2)  =  63.02
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =     14.809(CFS)
Total initial stream area =        4.560(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        2.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      4.560(Ac.)
Runoff from this stream =     14.809(CFS)
Time of concentration =    9.29 min.
Rainfall intensity =     3.673(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   267.000(Ft.)
Top (of initial area) elevation =  1261.000(Ft.)
Bottom (of initial area) elevation =  1239.000(Ft.)
Difference in elevation =    22.000(Ft.)
Slope =    0.08240  s(percent)=       8.24
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.160 min.
Rainfall intensity =      3.908(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.771
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  67.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      2.018(CFS)
Total initial stream area =        0.670(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        2.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =  1239.000(Ft.)
Downstream point/station elevation =  1237.000(Ft.)
Pipe length  =   413.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.018(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     2.018(CFS)
Normal flow depth in pipe =    6.46(In.)
Flow top width inside pipe =   17.27(In.)
Critical Depth =    6.43(In.)
Pipe flow velocity =      3.53(Ft/s)
Travel time through pipe =    1.95 min.
Time of concentration (TC) =    10.11 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        2.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.670(Ac.)
Runoff from this stream =      2.018(CFS)
Time of concentration =   10.11 min.
Rainfall intensity =     3.527(In/Hr)
Summary of stream data:

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


1       14.809      9.29                3.673
2        2.018     10.11                3.527
Largest stream flow has longer or shorter time of concentration
Qp =     14.809 + sum of
         Qa          Tb/Ta
          2.018 *    0.919 =      1.854
Qp =     16.663

Total of 2 streams to confluence:
Flow rates before confluence point:
      14.809       2.018
Area of streams before confluence:
        4.560        0.670
Results of confluence:
Total flow rate =     16.663(CFS)
Time of concentration =     9.288 min.
Effective stream area after confluence =      5.230(Ac.)
End of computations, total study area =           5.23 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.215
Area averaged RI index number =  63.5
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 08/07/18
File:NODE12TPM37550PROP2YR.out

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR STORM - PROPOSED CONDITION @ NODE 12
W.O. #4195-1

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

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

Program License Serial Number 6406

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

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

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

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.617(In/Hr)
Slope of intensity duration curve = 0.4800

++

Process from Point/Station 10.000 to Point/Station 11.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 833.000(Ft.)
Top (of initial area) elevation = 1242.000(Ft.)
Bottom (of initial area) elevation = 1235.000(Ft.)
Difference in elevation = 7.000(Ft.)
Slope = 0.00840 s(percent)= 0.84
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.494 min.
Rainfall intensity = 1.363(In/Hr) for a 2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.860
Decimal fraction soil group A = 0.033
Decimal fraction soil group B = 0.020
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.947
RI index for soil(AMC 1) = 54.84

```
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      6.855(CFS)
Total initial stream area =        5.850(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  1235.000(Ft.)
End of street segment elevation =  1231.200(Ft.)
Length of street segment  =   378.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  42.000(Ft.)
Distance from crown to crossfall grade break  =  40.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.015
Slope from grade break to crown (v/hz)  =   0.015
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.015
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      8.454(CFS)
Depth of flow =   0.430(Ft.), Average velocity =   2.809(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  19.572(Ft.)
Flow velocity =   2.81(Ft/s)
Travel time =    2.24 min.     TC =   13.74  min.
 Adding area flow to street
COMMERCIAL subarea type
Runoff Coefficient = 0.847
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.643
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.357
RI index for soil(AMC 1)  =  42.78
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      1.251(In/Hr) for a     2.0 year storm
Subarea runoff =      3.116(CFS) for      2.940(Ac.)
Total runoff =      9.971(CFS)    Total area =       8.790(Ac.)
Street flow at end of street =      9.971(CFS)
Half street flow at end of street =      9.971(CFS)
Depth of flow =   0.450(Ft.), Average velocity =   2.924(Ft/s)
Flow width (from curb towards crown)=  20.891(Ft.)
End of computations, total study area =            8.79 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  69.7
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 08/07/18
File:NODE12TPM37550PROP10YR.out

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR STORM - PROPOSED CONDITION @ NODE 12
W.O. #4195-1

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

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

Program License Serial Number 6406

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

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

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

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

++

Process from Point/Station 10.000 to Point/Station 11.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 833.000(Ft.)
Top (of initial area) elevation = 1242.000(Ft.)
Bottom (of initial area) elevation = 1235.000(Ft.)
Difference in elevation = 7.000(Ft.)
Slope = 0.00840 s(percent)= 0.84
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.494 min.
Rainfall intensity = 2.166(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.883
Decimal fraction soil group A = 0.033
Decimal fraction soil group B = 0.020
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.947

```
RI index for soil(AMC 2)  =  73.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =     11.195(CFS)
Total initial stream area =        5.850(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  1235.000(Ft.)
End of street segment elevation =  1231.200(Ft.)
Length of street segment  =   378.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  42.000(Ft.)
Distance from crown to crossfall grade break  =  40.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.015
Slope from grade break to crown (v/hz)  =   0.015
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.015
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     13.804(CFS)
Depth of flow =   0.493(Ft.), Average velocity =   3.166(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  23.731(Ft.)
Flow velocity =   3.17(Ft/s)
Travel time =    1.99 min.     TC =   13.48  min.
 Adding area flow to street
COMMERCIAL subarea type
Runoff Coefficient = 0.875
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.643
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.357
RI index for soil(AMC 2)  =  62.78
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      2.006(In/Hr) for a    10.0 year storm
Subarea runoff =      5.159(CFS) for      2.940(Ac.)
Total runoff =     16.354(CFS)   Total area =       8.790(Ac.)
Street flow at end of street =     16.354(CFS)
Half street flow at end of street =     16.354(CFS)
Depth of flow =   0.521(Ft.), Average velocity =   3.217(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    1.42(Ft.)
Flow width (from curb towards crown)=  25.642(Ft.)
End of computations, total study area =            8.79 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  69.7
```

```
                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
       Rational Hydrology Study        Date: 08/09/18
File:NODE12TPM37550PROP100YR.out
--------------------------------------------------------------------------
TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR STORM - PROPOSED CONDITION @ NODE 12
W.O. #4195-1
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

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


Program License Serial Number 6406

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

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

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

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




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   833.000(Ft.)
Top (of initial area) elevation =  1242.000(Ft.)
Bottom (of initial area) elevation =  1235.000(Ft.)
Difference in elevation =     7.000(Ft.)
Slope =    0.00840  s(percent)=       0.84
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.494 min.
Rainfall intensity =      3.316(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.033
Decimal fraction soil group B = 0.020
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.947
```

```
RI index for soil(AMC 2)  =  73.20
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =     17.233(CFS)
Total initial stream area =        5.850(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  1235.000(Ft.)
End of street segment elevation =  1231.200(Ft.)
Length of street segment  =   378.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  42.000(Ft.)
Distance from crown to crossfall grade break  =  40.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.015
Slope from grade break to crown (v/hz)  =   0.015
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.015
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     21.267(CFS)
Depth of flow =   0.566(Ft.), Average velocity =   3.303(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    4.43(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  28.649(Ft.)
Flow velocity =   3.30(Ft/s)
Travel time =    1.91 min.     TC =   13.40  min.
 Adding area flow to street
COMMERCIAL subarea type
Runoff Coefficient = 0.882
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.643
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.357
RI index for soil(AMC 2)  =  62.78
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      3.080(In/Hr) for a   100.0 year storm
Subarea runoff =      7.983(CFS) for      2.940(Ac.)
Total runoff =     25.216(CFS)    Total area =       8.790(Ac.)
Street flow at end of street =     25.216(CFS)
Half street flow at end of street =     25.216(CFS)
Depth of flow =   0.592(Ft.), Average velocity =   3.444(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    6.14(Ft.)
Flow width (from curb towards crown)=  30.360(Ft.)
End of computations, total study area =            8.79 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  69.7
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/20/19 File: NODE2EXIST2YR1HR12.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 1-HOUR STORM - EXISTING CONDITION @ NODE 2

Drainage Area = 4.06(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.06(Ac.) = 0.006 Sq. Mi.
Length along longest watercourse = 807.00(Ft.)
Length along longest watercourse measured to centroid = 374.00(Ft.)
Length along longest watercourse = 0.153 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 22.00(Ft.)
Slope along watercourse = 143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time = 0.040 Hr.
Lag time = 2.42 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.97 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	0.49	2.01

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	1.40	5.68

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.494(In)
Area Averaged 100-Year Rainfall = 1.400(In)

Point rain (area averaged) = 0.494(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.494(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.060	83.00	0.000

```
 Total Area Entered =      4.06(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
83.0  67.2      0.392     0.000        0.392       1.000      0.392
                                                 Sum (F) =    0.392
Area averaged mean soil loss (F) (In/Hr) =  0.392
Minimum soil loss rate ((In/Hr)) =  0.196
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                       DESERT S-Curve
------------------------------------------------------------------------
                Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                           Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        206.797         43.404             1.776
    2   0.167        413.594         45.061             1.844
    3   0.250        620.390          8.477             0.347
    4   0.333        827.187          3.058             0.125
                              Sum = 100.000   Sum=       4.092
------------------------------------------------------------------------

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

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
      (Hr.)  Percent   (In/Hr)         Max   |   Low         (In/Hr)
  1   0.08     4.40      0.261       (  0.392)       0.235        0.026
  2   0.17     4.50      0.267       (  0.392)       0.240        0.027
  3   0.25     5.40      0.320       (  0.392)       0.288        0.032
  4   0.33     5.40      0.320       (  0.392)       0.288        0.032
  5   0.42     5.70      0.338       (  0.392)       0.304        0.034
  6   0.50     6.40      0.379       (  0.392)       0.341        0.038
  7   0.58     7.90      0.468          0.392    (  0.421)        0.076
  8   0.67     9.10      0.539          0.392    (  0.485)        0.147
  9   0.75    12.80      0.759          0.392    (  0.683)        0.367
 10   0.83    25.60      1.518          0.392    (  1.366)        1.125
 11   0.92     7.90      0.468          0.392    (  0.421)        0.076
 12   1.00     4.90      0.290       (  0.392)       0.261        0.029
               (Loss Rate Not Used)
    Sum =     100.0                                 Sum =     2.0
      Flood volume = Effective rainfall      0.17(In)
       times area       4.1(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
      Total soil loss =      0.33(In)
      Total soil loss =     0.110(Ac.Ft)
      Total rainfall =      0.49(In)
      Flood volume =        2466.9 Cubic Feet
      Total soil loss =        4813.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      2.736(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------
   0+ 5       0.0003      0.05  Q         |         |         |         |
```

```
    0+10       0.0010      0.10  Q          |          |          |          |
    0+15       0.0018      0.12  QV         |          |          |          |
    0+20       0.0027      0.13  QV         |          |          |          |
    0+25       0.0036      0.13  Q V        |          |          |          |
    0+30       0.0046      0.14  Q  V       |          |          |          |
    0+35       0.0061      0.22  Q   V      |          |          |          |
    0+40       0.0090      0.42  |Q    V    |          |          |          |
    0+45       0.0155      0.95  |  Q      V          |          |          |
    0+50       0.0344      2.74  |         Q          |   V      |          |
    0+55       0.0506      2.36  |        Q|          |          |    V     |
    1+ 0       0.0550      0.63  | Q       |          |          |       V  |
    1+ 5       0.0565      0.22  Q         |          |          |        V |
    1+10       0.0566      0.02  Q         |          |          |        V |
    1+15       0.0566      0.00  Q         |          |          |         V
--------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/20/19 File: NODE2EXIST2YR3HR32.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 3-HOUR STORM - EXISTING CONDITION @ NODE 2
----------------------------------------------------------------------
Drainage Area =       4.06(Ac.)  =      0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       4.06(Ac.)  =      0.006 Sq. Mi.
Length along longest watercourse =     807.00(Ft.)
Length along longest watercourse measured to centroid =     374.00(Ft.)
Length along longest watercourse =      0.153 Mi.
Length along longest watercourse measured to centroid =      0.071 Mi.
Difference in elevation =      22.00(Ft.)
Slope along watercourse =    143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time =    0.040 Hr.
Lag time =     2.42 Min.
25% of lag time =     0.60 Min.
40% of lag time =     0.97 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           0.87                 3.53

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           2.22                 9.01

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    0.870(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    0.870(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     4.060           83.00         0.000
```

Total Area Entered = 4.06(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	67.2	0.392	0.000	0.392	1.000	0.392
					Sum (F) =	0.392

Area averaged mean soil loss (F) (In/Hr) = 0.392
Minimum soil loss rate ((In/Hr)) = 0.196
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
			Sum = 100.000	Sum= 4.092

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.136	(0.392)	0.122	0.014
2	0.17	1.30	0.136	(0.392)	0.122	0.014
3	0.25	1.10	0.115	(0.392)	0.103	0.011
4	0.33	1.50	0.157	(0.392)	0.141	0.016
5	0.42	1.50	0.157	(0.392)	0.141	0.016
6	0.50	1.80	0.188	(0.392)	0.169	0.019
7	0.58	1.50	0.157	(0.392)	0.141	0.016
8	0.67	1.80	0.188	(0.392)	0.169	0.019
9	0.75	1.80	0.188	(0.392)	0.169	0.019
10	0.83	1.50	0.157	(0.392)	0.141	0.016
11	0.92	1.60	0.167	(0.392)	0.150	0.017
12	1.00	1.80	0.188	(0.392)	0.169	0.019
13	1.08	2.20	0.230	(0.392)	0.207	0.023
14	1.17	2.20	0.230	(0.392)	0.207	0.023
15	1.25	2.20	0.230	(0.392)	0.207	0.023
16	1.33	2.00	0.209	(0.392)	0.188	0.021
17	1.42	2.60	0.271	(0.392)	0.244	0.027
18	1.50	2.70	0.282	(0.392)	0.254	0.028
19	1.58	2.40	0.251	(0.392)	0.225	0.025
20	1.67	2.70	0.282	(0.392)	0.254	0.028
21	1.75	3.30	0.345	(0.392)	0.310	0.034
22	1.83	3.10	0.324	(0.392)	0.291	0.032
23	1.92	2.90	0.303	(0.392)	0.272	0.030
24	2.00	3.00	0.313	(0.392)	0.282	0.031
25	2.08	3.10	0.324	(0.392)	0.291	0.032
26	2.17	4.20	0.438	0.392	(0.395)	0.046
27	2.25	5.00	0.522	0.392	(0.470)	0.130
28	2.33	3.50	0.365	(0.392)	0.329	0.037
29	2.42	6.80	0.710	0.392	(0.639)	0.318
30	2.50	7.30	0.762	0.392	(0.686)	0.370
31	2.58	8.20	0.856	0.392	(0.770)	0.464
32	2.67	5.90	0.616	0.392	(0.554)	0.224
33	2.75	2.00	0.209	(0.392)	0.188	0.021
34	2.83	1.80	0.188	(0.392)	0.169	0.019
35	2.92	1.80	0.188	(0.392)	0.169	0.019
36	3.00	0.60	0.063	(0.392)	0.056	0.006

```
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =     2.2
       Flood volume = Effective rainfall      0.18(In)
        times area       4.1(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
       Total soil loss =      0.69(In)
       Total soil loss =     0.232(Ac.Ft)
       Total rainfall =      0.87(In)
       Flood volume =        2707.6 Cubic Feet
       Total soil loss =       10114.1 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      1.621(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0002      0.02  Q         |         |         |         |
   0+10       0.0005      0.05  Q         |         |         |         |
   0+15       0.0008      0.05  Q         |         |         |         |
   0+20       0.0012      0.06  Q         |         |         |         |
   0+25       0.0017      0.06  QV        |         |         |         |
   0+30       0.0021      0.07  QV        |         |         |         |
   0+35       0.0026      0.07  QV        |         |         |         |
   0+40       0.0031      0.07  QV        |         |         |         |
   0+45       0.0036      0.08  Q V       |         |         |         |
   0+50       0.0041      0.07  Q V       |         |         |         |
   0+55       0.0046      0.07  Q V       |         |         |         |
   1+ 0       0.0051      0.07  Q  V      |         |         |         |
   1+ 5       0.0057      0.08  Q  V      |         |         |         |
   1+10       0.0063      0.09  Q   V     |         |         |         |
   1+15       0.0069      0.09  Q   V     |         |         |         |
   1+20       0.0075      0.09  Q   V     |         |         |         |
   1+25       0.0082      0.10  Q    V    |         |         |         |
   1+30       0.0090      0.11  Q    V    |         |         |         |
   1+35       0.0097      0.11  Q     V   |         |         |         |
   1+40       0.0105      0.11  Q     V   |         |         |         |
   1+45       0.0113      0.13  Q      V  |         |         |         |
   1+50       0.0123      0.13  Q      V  |         |         |         |
   1+55       0.0132      0.13  Q       V |         |         |         |
   2+ 0       0.0140      0.13  Q        V|         |         |         |
   2+ 5       0.0149      0.13  Q        V|         |         |         |
   2+10       0.0160      0.16  Q         V         |         |         |
   2+15       0.0183      0.33  |Q        |V        |         |         |
   2+20       0.0205      0.32  |Q        |  V      |         |         |
   2+25       0.0252      0.68  | Q       |     V   |         |         |
   2+30       0.0340      1.27  |    Q    |         |V        |         |
   2+35       0.0451      1.62  |     Q   |         |        V|         |
   2+40       0.0549      1.42  |    Q    |         |         |    V    |
   2+45       0.0595      0.66  | Q       |         |         |       V |
   2+50       0.0609      0.21  Q         |         |         |        V|
   2+55       0.0616      0.10  Q         |         |         |        V|
   3+ 0       0.0620      0.05  Q         |         |         |        V|
   3+ 5       0.0621      0.02  Q         |         |         |        V|
   3+10       0.0622      0.00  Q         |         |         |        V|
   3+15       0.0622      0.00  Q         |         |         |         V
------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/20/19 File: NODE2EXIST2YR6HR62.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 6-HOUR STORM - EXISTING CONDITION @ NODE 2
------------------------------------------------------------------------
Drainage Area =       4.06(Ac.)  =      0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       4.06(Ac.)  =      0.006 Sq. Mi.
Length along longest watercourse =     807.00(Ft.)
Length along longest watercourse measured to centroid =     374.00(Ft.)
Length along longest watercourse =      0.153 Mi.
Length along longest watercourse measured to centroid =      0.071 Mi.
Difference in elevation =      22.00(Ft.)
Slope along watercourse =    143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time =    0.040 Hr.
Lag time =     2.42 Min.
25% of lag time =     0.60 Min.
40% of lag time =     0.97 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           1.23                 4.99

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           3.06                12.42

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.230(In)
Area Averaged 100-Year Rainfall =    3.060(In)

Point rain (area averaged) =    1.230(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.230(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     4.060           83.00         0.000
```

Total Area Entered = 4.06(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	67.2	0.392	0.000	0.392	1.000	0.392
					Sum (F) =	0.392

Area averaged mean soil loss (F) (In/Hr) = 0.392
Minimum soil loss rate ((In/Hr)) = 0.196
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
			Sum = 100.000 Sum=	4.092

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.074	(0.392)	0.066	0.007
2	0.17	0.60	0.089	(0.392)	0.080	0.009
3	0.25	0.60	0.089	(0.392)	0.080	0.009
4	0.33	0.60	0.089	(0.392)	0.080	0.009
5	0.42	0.60	0.089	(0.392)	0.080	0.009
6	0.50	0.70	0.103	(0.392)	0.093	0.010
7	0.58	0.70	0.103	(0.392)	0.093	0.010
8	0.67	0.70	0.103	(0.392)	0.093	0.010
9	0.75	0.70	0.103	(0.392)	0.093	0.010
10	0.83	0.70	0.103	(0.392)	0.093	0.010
11	0.92	0.70	0.103	(0.392)	0.093	0.010
12	1.00	0.80	0.118	(0.392)	0.106	0.012
13	1.08	0.80	0.118	(0.392)	0.106	0.012
14	1.17	0.80	0.118	(0.392)	0.106	0.012
15	1.25	0.80	0.118	(0.392)	0.106	0.012
16	1.33	0.80	0.118	(0.392)	0.106	0.012
17	1.42	0.80	0.118	(0.392)	0.106	0.012
18	1.50	0.80	0.118	(0.392)	0.106	0.012
19	1.58	0.80	0.118	(0.392)	0.106	0.012
20	1.67	0.80	0.118	(0.392)	0.106	0.012
21	1.75	0.80	0.118	(0.392)	0.106	0.012
22	1.83	0.80	0.118	(0.392)	0.106	0.012
23	1.92	0.80	0.118	(0.392)	0.106	0.012
24	2.00	0.90	0.133	(0.392)	0.120	0.013
25	2.08	0.80	0.118	(0.392)	0.106	0.012
26	2.17	0.90	0.133	(0.392)	0.120	0.013
27	2.25	0.90	0.133	(0.392)	0.120	0.013
28	2.33	0.90	0.133	(0.392)	0.120	0.013
29	2.42	0.90	0.133	(0.392)	0.120	0.013
30	2.50	0.90	0.133	(0.392)	0.120	0.013
31	2.58	0.90	0.133	(0.392)	0.120	0.013
32	2.67	0.90	0.133	(0.392)	0.120	0.013
33	2.75	1.00	0.148	(0.392)	0.133	0.015
34	2.83	1.00	0.148	(0.392)	0.133	0.015
35	2.92	1.00	0.148	(0.392)	0.133	0.015
36	3.00	1.00	0.148	(0.392)	0.133	0.015

```
37   3.08     1.00      0.148       (  0.392)       0.133        0.015
38   3.17     1.10      0.162       (  0.392)       0.146        0.016
39   3.25     1.10      0.162       (  0.392)       0.146        0.016
40   3.33     1.10      0.162       (  0.392)       0.146        0.016
41   3.42     1.20      0.177       (  0.392)       0.159        0.018
42   3.50     1.30      0.192       (  0.392)       0.173        0.019
43   3.58     1.40      0.207       (  0.392)       0.186        0.021
44   3.67     1.40      0.207       (  0.392)       0.186        0.021
45   3.75     1.50      0.221       (  0.392)       0.199        0.022
46   3.83     1.50      0.221       (  0.392)       0.199        0.022
47   3.92     1.60      0.236       (  0.392)       0.213        0.024
48   4.00     1.60      0.236       (  0.392)       0.213        0.024
49   4.08     1.70      0.251       (  0.392)       0.226        0.025
50   4.17     1.80      0.266       (  0.392)       0.239        0.027
51   4.25     1.90      0.280       (  0.392)       0.252        0.028
52   4.33     2.00      0.295       (  0.392)       0.266        0.030
53   4.42     2.10      0.310       (  0.392)       0.279        0.031
54   4.50     2.10      0.310       (  0.392)       0.279        0.031
55   4.58     2.20      0.325       (  0.392)       0.292        0.032
56   4.67     2.30      0.339       (  0.392)       0.306        0.034
57   4.75     2.40      0.354       (  0.392)       0.319        0.035
58   4.83     2.40      0.354       (  0.392)       0.319        0.035
59   4.92     2.50      0.369       (  0.392)       0.332        0.037
60   5.00     2.60      0.384       (  0.392)       0.345        0.038
61   5.08     3.10      0.458          0.392    (  0.412)        0.065
62   5.17     3.60      0.531          0.392    (  0.478)        0.139
63   5.25     3.90      0.576          0.392    (  0.518)        0.183
64   5.33     4.20      0.620          0.392    (  0.558)        0.228
65   5.42     4.70      0.694          0.392    (  0.624)        0.301
66   5.50     5.60      0.827          0.392    (  0.744)        0.434
67   5.58     1.90      0.280       (  0.392)       0.252        0.028
68   5.67     0.90      0.133       (  0.392)       0.120        0.013
69   5.75     0.60      0.089       (  0.392)       0.080        0.009
70   5.83     0.50      0.074       (  0.392)       0.066        0.007
71   5.92     0.30      0.044       (  0.392)       0.040        0.004
72   6.00     0.20      0.030       (  0.392)       0.027        0.003
               (Loss Rate Not Used)
   Sum =     100.0                                    Sum =     2.5
      Flood volume = Effective rainfall      0.20(In)
       times area       4.1(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
      Total soil loss =      1.03(In)
      Total soil loss =     0.347(Ac.Ft)
      Total rainfall =      1.23(In)
      Flood volume =        3017.3 Cubic Feet
      Total soil loss =       15110.0 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      1.430(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-------------------------------------------------------------------------
  0+ 5       0.0001      0.01  Q         |         |         |         |
  0+10       0.0003      0.03  Q         |         |         |         |
  0+15       0.0005      0.03  Q         |         |         |         |
  0+20       0.0008      0.04  Q         |         |         |         |
  0+25       0.0010      0.04  Q         |         |         |         |
  0+30       0.0013      0.04  Q         |         |         |         |
  0+35       0.0016      0.04  Q         |         |         |         |
  0+40       0.0019      0.04  QV        |         |         |         |
  0+45       0.0022      0.04  QV        |         |         |         |
  0+50       0.0025      0.04  QV        |         |         |         |
  0+55       0.0027      0.04  QV        |         |         |         |
  1+ 0       0.0031      0.04  QV        |         |         |         |
  1+ 5       0.0034      0.05  QV        |         |         |         |
```

```
    1+10       0.0037      0.05  Q V       |         |         |         |
    1+15       0.0040      0.05  Q V       |         |         |         |
    1+20       0.0044      0.05  Q V       |         |         |         |
    1+25       0.0047      0.05  Q V       |         |         |         |
    1+30       0.0050      0.05  Q V       |         |         |         |
    1+35       0.0054      0.05  Q  V      |         |         |         |
    1+40       0.0057      0.05  Q  V      |         |         |         |
    1+45       0.0060      0.05  Q  V      |         |         |         |
    1+50       0.0064      0.05  Q  V      |         |         |         |
    1+55       0.0067      0.05  Q  V      |         |         |         |
    2+ 0       0.0071      0.05  Q   V     |         |         |         |
    2+ 5       0.0074      0.05  Q   V     |         |         |         |
    2+10       0.0078      0.05  Q   V     |         |         |         |
    2+15       0.0081      0.05  Q   V     |         |         |         |
    2+20       0.0085      0.05  Q   V     |         |         |         |
    2+25       0.0089      0.05  Q    V    |         |         |         |
    2+30       0.0093      0.05  Q    V    |         |         |         |
    2+35       0.0096      0.05  Q    V    |         |         |         |
    2+40       0.0100      0.05  Q    V    |         |         |         |
    2+45       0.0104      0.06  Q     V   |         |         |         |
    2+50       0.0108      0.06  Q     V   |         |         |         |
    2+55       0.0112      0.06  Q     V   |         |         |         |
    3+ 0       0.0116      0.06  Q     V   |         |         |         |
    3+ 5       0.0121      0.06  Q     V   |         |         |         |
    3+10       0.0125      0.06  Q      V  |         |         |         |
    3+15       0.0130      0.07  Q      V  |         |         |         |
    3+20       0.0134      0.07  Q      V  |         |         |         |
    3+25       0.0139      0.07  Q       V |         |         |         |
    3+30       0.0144      0.07  Q       V |         |         |         |
    3+35       0.0149      0.08  Q       V |         |         |         |
    3+40       0.0155      0.08  Q       V |         |         |         |
    3+45       0.0161      0.09  Q        V|         |         |         |
    3+50       0.0167      0.09  Q        V|         |         |         |
    3+55       0.0174      0.09  Q         V         |         |         |
    4+ 0       0.0180      0.10  Q         V         |         |         |
    4+ 5       0.0187      0.10  Q         V         |         |         |
    4+10       0.0194      0.10  Q         |V        |         |         |
    4+15       0.0202      0.11  Q         |V        |         |         |
    4+20       0.0210      0.12  Q         | V       |         |         |
    4+25       0.0219      0.12  Q         | V       |         |         |
    4+30       0.0227      0.13  Q         |  V      |         |         |
    4+35       0.0236      0.13  Q         |  V      |         |         |
    4+40       0.0245      0.13  Q         |   V     |         |         |
    4+45       0.0255      0.14  Q         |   V     |         |         |
    4+50       0.0265      0.14  Q         |    V    |         |         |
    4+55       0.0275      0.15  Q         |    V    |         |         |
    5+ 0       0.0286      0.15  Q         |     V   |         |         |
    5+ 5       0.0300      0.20  Q         |      V  |         |         |
    5+10       0.0326      0.39  |Q        |       V |         |         |
    5+15       0.0368      0.61  | Q       |         |V        |         |
    5+20       0.0423      0.80  |  Q      |         |   V     |         |
    5+25       0.0495      1.04  |   Q     |         |       V |         |
    5+30       0.0593      1.43  |    Q    |         |         |   V     |
    5+35       0.0661      0.98  |  Q      |         |         |      V  |
    5+40       0.0679      0.26  |Q        |         |         |       V |
    5+45       0.0686      0.10  Q         |         |         |       V |
    5+50       0.0689      0.04  Q         |         |         |       V |
    5+55       0.0691      0.03  Q         |         |         |       V |
    6+ 0       0.0692      0.02  Q         |         |         |       V |
    6+ 5       0.0693      0.01  Q         |         |         |       V |
    6+10       0.0693      0.00  Q         |         |         |       V |
    6+15       0.0693      0.00  Q         |         |         |        V
------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/20/19 File: NODE2EXIST2YR24HR242.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 24-HOUR STORM - EXISTING CONDITION @ NODE 2
------------------------------------------------------------------------
Drainage Area =       4.06(Ac.)  =      0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       4.06(Ac.)  =      0.006 Sq. Mi.
Length along longest watercourse =     807.00(Ft.)
Length along longest watercourse measured to centroid =     374.00(Ft.)
Length along longest watercourse =      0.153 Mi.
Length along longest watercourse measured to centroid =      0.071 Mi.
Difference in elevation =      22.00(Ft.)
Slope along watercourse =    143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time =    0.040 Hr.
Lag time =     2.42 Min.
25% of lag time =     0.60 Min.
40% of lag time =     0.97 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           2.25                 9.13

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           5.94                24.12

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    2.250(In)
Area Averaged 100-Year Rainfall =    5.940(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     4.060           83.00          0.000
 Total Area Entered =      4.06(Ac.)
```

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	67.2	0.392	0.000	0.392	1.000	0.392
					Sum (F) =	0.392

Area averaged mean soil loss (F) (In/Hr) = 0.392
Minimum soil loss rate ((In/Hr)) = 0.196
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
			Sum = 100.000	Sum= 4.092

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.018	(0.695)	0.016	0.002
2	0.17	0.07	0.018	(0.693)	0.016	0.002
3	0.25	0.07	0.018	(0.690)	0.016	0.002
4	0.33	0.10	0.027	(0.687)	0.024	0.003
5	0.42	0.10	0.027	(0.685)	0.024	0.003
6	0.50	0.10	0.027	(0.682)	0.024	0.003
7	0.58	0.10	0.027	(0.679)	0.024	0.003
8	0.67	0.10	0.027	(0.677)	0.024	0.003
9	0.75	0.10	0.027	(0.674)	0.024	0.003
10	0.83	0.13	0.036	(0.671)	0.032	0.004
11	0.92	0.13	0.036	(0.669)	0.032	0.004
12	1.00	0.13	0.036	(0.666)	0.032	0.004
13	1.08	0.10	0.027	(0.663)	0.024	0.003
14	1.17	0.10	0.027	(0.661)	0.024	0.003
15	1.25	0.10	0.027	(0.658)	0.024	0.003
16	1.33	0.10	0.027	(0.656)	0.024	0.003
17	1.42	0.10	0.027	(0.653)	0.024	0.003
18	1.50	0.10	0.027	(0.650)	0.024	0.003
19	1.58	0.10	0.027	(0.648)	0.024	0.003
20	1.67	0.10	0.027	(0.645)	0.024	0.003
21	1.75	0.10	0.027	(0.643)	0.024	0.003
22	1.83	0.13	0.036	(0.640)	0.032	0.004
23	1.92	0.13	0.036	(0.637)	0.032	0.004
24	2.00	0.13	0.036	(0.635)	0.032	0.004
25	2.08	0.13	0.036	(0.632)	0.032	0.004
26	2.17	0.13	0.036	(0.630)	0.032	0.004
27	2.25	0.13	0.036	(0.627)	0.032	0.004
28	2.33	0.13	0.036	(0.625)	0.032	0.004
29	2.42	0.13	0.036	(0.622)	0.032	0.004
30	2.50	0.13	0.036	(0.619)	0.032	0.004
31	2.58	0.17	0.045	(0.617)	0.040	0.004
32	2.67	0.17	0.045	(0.614)	0.040	0.004
33	2.75	0.17	0.045	(0.612)	0.040	0.004
34	2.83	0.17	0.045	(0.609)	0.040	0.004
35	2.92	0.17	0.045	(0.607)	0.040	0.004
36	3.00	0.17	0.045	(0.604)	0.040	0.004
37	3.08	0.17	0.045	(0.602)	0.040	0.004
38	3.17	0.17	0.045	(0.599)	0.040	0.004

39	3.25	0.17	0.045	(0.597)	0.040	0.004
40	3.33	0.17	0.045	(0.594)	0.040	0.004
41	3.42	0.17	0.045	(0.592)	0.040	0.004
42	3.50	0.17	0.045	(0.589)	0.040	0.004
43	3.58	0.17	0.045	(0.587)	0.040	0.004
44	3.67	0.17	0.045	(0.584)	0.040	0.004
45	3.75	0.17	0.045	(0.582)	0.040	0.004
46	3.83	0.20	0.054	(0.580)	0.049	0.005
47	3.92	0.20	0.054	(0.577)	0.049	0.005
48	4.00	0.20	0.054	(0.575)	0.049	0.005
49	4.08	0.20	0.054	(0.572)	0.049	0.005
50	4.17	0.20	0.054	(0.570)	0.049	0.005
51	4.25	0.20	0.054	(0.567)	0.049	0.005
52	4.33	0.23	0.063	(0.565)	0.057	0.006
53	4.42	0.23	0.063	(0.563)	0.057	0.006
54	4.50	0.23	0.063	(0.560)	0.057	0.006
55	4.58	0.23	0.063	(0.558)	0.057	0.006
56	4.67	0.23	0.063	(0.555)	0.057	0.006
57	4.75	0.23	0.063	(0.553)	0.057	0.006
58	4.83	0.27	0.072	(0.551)	0.065	0.007
59	4.92	0.27	0.072	(0.548)	0.065	0.007
60	5.00	0.27	0.072	(0.546)	0.065	0.007
61	5.08	0.20	0.054	(0.543)	0.049	0.005
62	5.17	0.20	0.054	(0.541)	0.049	0.005
63	5.25	0.20	0.054	(0.539)	0.049	0.005
64	5.33	0.23	0.063	(0.536)	0.057	0.006
65	5.42	0.23	0.063	(0.534)	0.057	0.006
66	5.50	0.23	0.063	(0.532)	0.057	0.006
67	5.58	0.27	0.072	(0.529)	0.065	0.007
68	5.67	0.27	0.072	(0.527)	0.065	0.007
69	5.75	0.27	0.072	(0.525)	0.065	0.007
70	5.83	0.27	0.072	(0.522)	0.065	0.007
71	5.92	0.27	0.072	(0.520)	0.065	0.007
72	6.00	0.27	0.072	(0.518)	0.065	0.007
73	6.08	0.30	0.081	(0.515)	0.073	0.008
74	6.17	0.30	0.081	(0.513)	0.073	0.008
75	6.25	0.30	0.081	(0.511)	0.073	0.008
76	6.33	0.30	0.081	(0.509)	0.073	0.008
77	6.42	0.30	0.081	(0.506)	0.073	0.008
78	6.50	0.30	0.081	(0.504)	0.073	0.008
79	6.58	0.33	0.090	(0.502)	0.081	0.009
80	6.67	0.33	0.090	(0.500)	0.081	0.009
81	6.75	0.33	0.090	(0.497)	0.081	0.009
82	6.83	0.33	0.090	(0.495)	0.081	0.009
83	6.92	0.33	0.090	(0.493)	0.081	0.009
84	7.00	0.33	0.090	(0.491)	0.081	0.009
85	7.08	0.33	0.090	(0.488)	0.081	0.009
86	7.17	0.33	0.090	(0.486)	0.081	0.009
87	7.25	0.33	0.090	(0.484)	0.081	0.009
88	7.33	0.37	0.099	(0.482)	0.089	0.010
89	7.42	0.37	0.099	(0.479)	0.089	0.010
90	7.50	0.37	0.099	(0.477)	0.089	0.010
91	7.58	0.40	0.108	(0.475)	0.097	0.011
92	7.67	0.40	0.108	(0.473)	0.097	0.011
93	7.75	0.40	0.108	(0.471)	0.097	0.011
94	7.83	0.43	0.117	(0.469)	0.105	0.012
95	7.92	0.43	0.117	(0.466)	0.105	0.012
96	8.00	0.43	0.117	(0.464)	0.105	0.012
97	8.08	0.50	0.135	(0.462)	0.121	0.013
98	8.17	0.50	0.135	(0.460)	0.121	0.013
99	8.25	0.50	0.135	(0.458)	0.121	0.013
100	8.33	0.50	0.135	(0.456)	0.121	0.013
101	8.42	0.50	0.135	(0.453)	0.121	0.013
102	8.50	0.50	0.135	(0.451)	0.121	0.013
103	8.58	0.53	0.144	(0.449)	0.130	0.014
104	8.67	0.53	0.144	(0.447)	0.130	0.014
105	8.75	0.53	0.144	(0.445)	0.130	0.014
106	8.83	0.57	0.153	(0.443)	0.138	0.015
107	8.92	0.57	0.153	(0.441)	0.138	0.015
108	9.00	0.57	0.153	(0.439)	0.138	0.015
109	9.08	0.63	0.171	(0.437)	0.154	0.017

110	9.17	0.63	0.171	(0.435)	0.154	0.017
111	9.25	0.63	0.171	(0.433)	0.154	0.017
112	9.33	0.67	0.180	(0.430)	0.162	0.018
113	9.42	0.67	0.180	(0.428)	0.162	0.018
114	9.50	0.67	0.180	(0.426)	0.162	0.018
115	9.58	0.70	0.189	(0.424)	0.170	0.019
116	9.67	0.70	0.189	(0.422)	0.170	0.019
117	9.75	0.70	0.189	(0.420)	0.170	0.019
118	9.83	0.73	0.198	(0.418)	0.178	0.020
119	9.92	0.73	0.198	(0.416)	0.178	0.020
120	10.00	0.73	0.198	(0.414)	0.178	0.020
121	10.08	0.50	0.135	(0.412)	0.121	0.013
122	10.17	0.50	0.135	(0.410)	0.121	0.013
123	10.25	0.50	0.135	(0.408)	0.121	0.013
124	10.33	0.50	0.135	(0.406)	0.121	0.013
125	10.42	0.50	0.135	(0.404)	0.121	0.013
126	10.50	0.50	0.135	(0.402)	0.121	0.013
127	10.58	0.67	0.180	(0.400)	0.162	0.018
128	10.67	0.67	0.180	(0.398)	0.162	0.018
129	10.75	0.67	0.180	(0.396)	0.162	0.018
130	10.83	0.67	0.180	(0.394)	0.162	0.018
131	10.92	0.67	0.180	(0.393)	0.162	0.018
132	11.00	0.67	0.180	(0.391)	0.162	0.018
133	11.08	0.63	0.171	(0.389)	0.154	0.017
134	11.17	0.63	0.171	(0.387)	0.154	0.017
135	11.25	0.63	0.171	(0.385)	0.154	0.017
136	11.33	0.63	0.171	(0.383)	0.154	0.017
137	11.42	0.63	0.171	(0.381)	0.154	0.017
138	11.50	0.63	0.171	(0.379)	0.154	0.017
139	11.58	0.57	0.153	(0.377)	0.138	0.015
140	11.67	0.57	0.153	(0.375)	0.138	0.015
141	11.75	0.57	0.153	(0.374)	0.138	0.015
142	11.83	0.60	0.162	(0.372)	0.146	0.016
143	11.92	0.60	0.162	(0.370)	0.146	0.016
144	12.00	0.60	0.162	(0.368)	0.146	0.016
145	12.08	0.83	0.225	(0.366)	0.202	0.022
146	12.17	0.83	0.225	(0.364)	0.202	0.022
147	12.25	0.83	0.225	(0.362)	0.202	0.022
148	12.33	0.87	0.234	(0.361)	0.211	0.023
149	12.42	0.87	0.234	(0.359)	0.211	0.023
150	12.50	0.87	0.234	(0.357)	0.211	0.023
151	12.58	0.93	0.252	(0.355)	0.227	0.025
152	12.67	0.93	0.252	(0.353)	0.227	0.025
153	12.75	0.93	0.252	(0.352)	0.227	0.025
154	12.83	0.97	0.261	(0.350)	0.235	0.026
155	12.92	0.97	0.261	(0.348)	0.235	0.026
156	13.00	0.97	0.261	(0.346)	0.235	0.026
157	13.08	1.13	0.306	(0.345)	0.275	0.031
158	13.17	1.13	0.306	(0.343)	0.275	0.031
159	13.25	1.13	0.306	(0.341)	0.275	0.031
160	13.33	1.13	0.306	(0.339)	0.275	0.031
161	13.42	1.13	0.306	(0.338)	0.275	0.031
162	13.50	1.13	0.306	(0.336)	0.275	0.031
163	13.58	0.77	0.207	(0.334)	0.186	0.021
164	13.67	0.77	0.207	(0.333)	0.186	0.021
165	13.75	0.77	0.207	(0.331)	0.186	0.021
166	13.83	0.77	0.207	(0.329)	0.186	0.021
167	13.92	0.77	0.207	(0.327)	0.186	0.021
168	14.00	0.77	0.207	(0.326)	0.186	0.021
169	14.08	0.90	0.243	(0.324)	0.219	0.024
170	14.17	0.90	0.243	(0.322)	0.219	0.024
171	14.25	0.90	0.243	(0.321)	0.219	0.024
172	14.33	0.87	0.234	(0.319)	0.211	0.023
173	14.42	0.87	0.234	(0.318)	0.211	0.023
174	14.50	0.87	0.234	(0.316)	0.211	0.023
175	14.58	0.87	0.234	(0.314)	0.211	0.023
176	14.67	0.87	0.234	(0.313)	0.211	0.023
177	14.75	0.87	0.234	(0.311)	0.211	0.023
178	14.83	0.83	0.225	(0.310)	0.202	0.022
179	14.92	0.83	0.225	(0.308)	0.202	0.022
180	15.00	0.83	0.225	(0.306)	0.202	0.022

181	15.08	0.80	0.216	(0.305)	0.194	0.022
182	15.17	0.80	0.216	(0.303)	0.194	0.022
183	15.25	0.80	0.216	(0.302)	0.194	0.022
184	15.33	0.77	0.207	(0.300)	0.186	0.021
185	15.42	0.77	0.207	(0.299)	0.186	0.021
186	15.50	0.77	0.207	(0.297)	0.186	0.021
187	15.58	0.63	0.171	(0.296)	0.154	0.017
188	15.67	0.63	0.171	(0.294)	0.154	0.017
189	15.75	0.63	0.171	(0.293)	0.154	0.017
190	15.83	0.63	0.171	(0.291)	0.154	0.017
191	15.92	0.63	0.171	(0.290)	0.154	0.017
192	16.00	0.63	0.171	(0.288)	0.154	0.017
193	16.08	0.13	0.036	(0.287)	0.032	0.004
194	16.17	0.13	0.036	(0.285)	0.032	0.004
195	16.25	0.13	0.036	(0.284)	0.032	0.004
196	16.33	0.13	0.036	(0.282)	0.032	0.004
197	16.42	0.13	0.036	(0.281)	0.032	0.004
198	16.50	0.13	0.036	(0.279)	0.032	0.004
199	16.58	0.10	0.027	(0.278)	0.024	0.003
200	16.67	0.10	0.027	(0.277)	0.024	0.003
201	16.75	0.10	0.027	(0.275)	0.024	0.003
202	16.83	0.10	0.027	(0.274)	0.024	0.003
203	16.92	0.10	0.027	(0.272)	0.024	0.003
204	17.00	0.10	0.027	(0.271)	0.024	0.003
205	17.08	0.17	0.045	(0.270)	0.040	0.004
206	17.17	0.17	0.045	(0.268)	0.040	0.004
207	17.25	0.17	0.045	(0.267)	0.040	0.004
208	17.33	0.17	0.045	(0.266)	0.040	0.004
209	17.42	0.17	0.045	(0.264)	0.040	0.004
210	17.50	0.17	0.045	(0.263)	0.040	0.004
211	17.58	0.17	0.045	(0.262)	0.040	0.004
212	17.67	0.17	0.045	(0.260)	0.040	0.004
213	17.75	0.17	0.045	(0.259)	0.040	0.004
214	17.83	0.13	0.036	(0.258)	0.032	0.004
215	17.92	0.13	0.036	(0.256)	0.032	0.004
216	18.00	0.13	0.036	(0.255)	0.032	0.004
217	18.08	0.13	0.036	(0.254)	0.032	0.004
218	18.17	0.13	0.036	(0.253)	0.032	0.004
219	18.25	0.13	0.036	(0.251)	0.032	0.004
220	18.33	0.13	0.036	(0.250)	0.032	0.004
221	18.42	0.13	0.036	(0.249)	0.032	0.004
222	18.50	0.13	0.036	(0.248)	0.032	0.004
223	18.58	0.10	0.027	(0.247)	0.024	0.003
224	18.67	0.10	0.027	(0.245)	0.024	0.003
225	18.75	0.10	0.027	(0.244)	0.024	0.003
226	18.83	0.07	0.018	(0.243)	0.016	0.002
227	18.92	0.07	0.018	(0.242)	0.016	0.002
228	19.00	0.07	0.018	(0.241)	0.016	0.002
229	19.08	0.10	0.027	(0.240)	0.024	0.003
230	19.17	0.10	0.027	(0.238)	0.024	0.003
231	19.25	0.10	0.027	(0.237)	0.024	0.003
232	19.33	0.13	0.036	(0.236)	0.032	0.004
233	19.42	0.13	0.036	(0.235)	0.032	0.004
234	19.50	0.13	0.036	(0.234)	0.032	0.004
235	19.58	0.10	0.027	(0.233)	0.024	0.003
236	19.67	0.10	0.027	(0.232)	0.024	0.003
237	19.75	0.10	0.027	(0.231)	0.024	0.003
238	19.83	0.07	0.018	(0.230)	0.016	0.002
239	19.92	0.07	0.018	(0.229)	0.016	0.002
240	20.00	0.07	0.018	(0.228)	0.016	0.002
241	20.08	0.10	0.027	(0.227)	0.024	0.003
242	20.17	0.10	0.027	(0.226)	0.024	0.003
243	20.25	0.10	0.027	(0.225)	0.024	0.003
244	20.33	0.10	0.027	(0.224)	0.024	0.003
245	20.42	0.10	0.027	(0.223)	0.024	0.003
246	20.50	0.10	0.027	(0.222)	0.024	0.003
247	20.58	0.10	0.027	(0.221)	0.024	0.003
248	20.67	0.10	0.027	(0.220)	0.024	0.003
249	20.75	0.10	0.027	(0.219)	0.024	0.003
250	20.83	0.07	0.018	(0.218)	0.016	0.002
251	20.92	0.07	0.018	(0.217)	0.016	0.002

```
252  21.00     0.07      0.018       (  0.216)       0.016        0.002
253  21.08     0.10      0.027       (  0.216)       0.024        0.003
254  21.17     0.10      0.027       (  0.215)       0.024        0.003
255  21.25     0.10      0.027       (  0.214)       0.024        0.003
256  21.33     0.07      0.018       (  0.213)       0.016        0.002
257  21.42     0.07      0.018       (  0.212)       0.016        0.002
258  21.50     0.07      0.018       (  0.212)       0.016        0.002
259  21.58     0.10      0.027       (  0.211)       0.024        0.003
260  21.67     0.10      0.027       (  0.210)       0.024        0.003
261  21.75     0.10      0.027       (  0.209)       0.024        0.003
262  21.83     0.07      0.018       (  0.209)       0.016        0.002
263  21.92     0.07      0.018       (  0.208)       0.016        0.002
264  22.00     0.07      0.018       (  0.207)       0.016        0.002
265  22.08     0.10      0.027       (  0.206)       0.024        0.003
266  22.17     0.10      0.027       (  0.206)       0.024        0.003
267  22.25     0.10      0.027       (  0.205)       0.024        0.003
268  22.33     0.07      0.018       (  0.204)       0.016        0.002
269  22.42     0.07      0.018       (  0.204)       0.016        0.002
270  22.50     0.07      0.018       (  0.203)       0.016        0.002
271  22.58     0.07      0.018       (  0.203)       0.016        0.002
272  22.67     0.07      0.018       (  0.202)       0.016        0.002
273  22.75     0.07      0.018       (  0.202)       0.016        0.002
274  22.83     0.07      0.018       (  0.201)       0.016        0.002
275  22.92     0.07      0.018       (  0.200)       0.016        0.002
276  23.00     0.07      0.018       (  0.200)       0.016        0.002
277  23.08     0.07      0.018       (  0.200)       0.016        0.002
278  23.17     0.07      0.018       (  0.199)       0.016        0.002
279  23.25     0.07      0.018       (  0.199)       0.016        0.002
280  23.33     0.07      0.018       (  0.198)       0.016        0.002
281  23.42     0.07      0.018       (  0.198)       0.016        0.002
282  23.50     0.07      0.018       (  0.198)       0.016        0.002
283  23.58     0.07      0.018       (  0.197)       0.016        0.002
284  23.67     0.07      0.018       (  0.197)       0.016        0.002
285  23.75     0.07      0.018       (  0.197)       0.016        0.002
286  23.83     0.07      0.018       (  0.196)       0.016        0.002
287  23.92     0.07      0.018       (  0.196)       0.016        0.002
288  24.00     0.07      0.018       (  0.196)       0.016        0.002
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     2.7
      Flood volume = Effective rainfall      0.22(In)
       times area       4.1(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
      Total soil loss =      2.02(In)
      Total soil loss =     0.685(Ac.Ft)
      Total rainfall =      2.25(In)
      Flood volume =        3316.0 Cubic Feet
      Total soil loss =       29843.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      0.125(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       0.0001      0.01  Q         |         |         |         |
   0+20       0.0002      0.01  Q         |         |         |         |
   0+25       0.0003      0.01  Q         |         |         |         |
   0+30       0.0003      0.01  Q         |         |         |         |
   0+35       0.0004      0.01  Q         |         |         |         |
   0+40       0.0005      0.01  Q         |         |         |         |
   0+45       0.0006      0.01  Q         |         |         |         |
   0+50       0.0006      0.01  Q         |         |         |         |
   0+55       0.0007      0.01  Q         |         |         |         |
   1+ 0       0.0008      0.01  Q         |         |         |         |
   1+ 5       0.0009      0.01  Q         |         |         |         |
```

1+10	0.0010	0.01	Q	|	|	|	|
1+15	0.0011	0.01	Q	|	|	|	|
1+20	0.0012	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	0.0015	0.01	Q	|	|	|	|
1+50	0.0016	0.01	Q	|	|	|	|
1+55	0.0017	0.01	Q	|	|	|	|
2+ 0	0.0018	0.01	Q	|	|	|	|
2+ 5	0.0019	0.01	QV	|	|	|	|
2+10	0.0020	0.01	QV	|	|	|	|
2+15	0.0021	0.01	QV	|	|	|	|
2+20	0.0022	0.01	QV	|	|	|	|
2+25	0.0023	0.01	QV	|	|	|	|
2+30	0.0024	0.01	QV	|	|	|	|
2+35	0.0026	0.02	QV	|	|	|	|
2+40	0.0027	0.02	QV	|	|	|	|
2+45	0.0028	0.02	QV	|	|	|	|
2+50	0.0029	0.02	QV	|	|	|	|
2+55	0.0031	0.02	QV	|	|	|	|
3+ 0	0.0032	0.02	QV	|	|	|	|
3+ 5	0.0033	0.02	QV	|	|	|	|
3+10	0.0034	0.02	QV	|	|	|	|
3+15	0.0036	0.02	QV	|	|	|	|
3+20	0.0037	0.02	QV	|	|	|	|
3+25	0.0038	0.02	Q V	|	|	|	|
3+30	0.0039	0.02	Q V	|	|	|	|
3+35	0.0041	0.02	Q V	|	|	|	|
3+40	0.0042	0.02	Q V	|	|	|	|
3+45	0.0043	0.02	Q V	|	|	|	|
3+50	0.0045	0.02	Q V	|	|	|	|
3+55	0.0046	0.02	Q V	|	|	|	|
4+ 0	0.0048	0.02	Q V	|	|	|	|
4+ 5	0.0049	0.02	Q V	|	|	|	|
4+10	0.0051	0.02	Q V	|	|	|	|
4+15	0.0052	0.02	Q V	|	|	|	|
4+20	0.0054	0.02	Q V	|	|	|	|
4+25	0.0056	0.03	Q V	|	|	|	|
4+30	0.0057	0.03	Q V	|	|	|	|
4+35	0.0059	0.03	Q V	|	|	|	|
4+40	0.0061	0.03	Q V	|	|	|	|
4+45	0.0063	0.03	Q V	|	|	|	|
4+50	0.0065	0.03	Q V	|	|	|	|
4+55	0.0067	0.03	Q V	|	|	|	|
5+ 0	0.0069	0.03	Q V	|	|	|	|
5+ 5	0.0070	0.03	Q V	|	|	|	|
5+10	0.0072	0.02	Q V	|	|	|	|
5+15	0.0074	0.02	Q V	|	|	|	|
5+20	0.0075	0.02	Q V	|	|	|	|
5+25	0.0077	0.03	Q V	|	|	|	|
5+30	0.0079	0.03	Q V	|	|	|	|
5+35	0.0081	0.03	Q V	|	|	|	|
5+40	0.0083	0.03	Q V	|	|	|	|
5+45	0.0085	0.03	Q V	|	|	|	|
5+50	0.0087	0.03	Q V	|	|	|	|
5+55	0.0089	0.03	Q V	|	|	|	|
6+ 0	0.0091	0.03	Q V	|	|	|	|
6+ 5	0.0093	0.03	Q V	|	|	|	|
6+10	0.0095	0.03	Q V	|	|	|	|
6+15	0.0097	0.03	Q V	|	|	|	|
6+20	0.0100	0.03	Q V	|	|	|	|
6+25	0.0102	0.03	Q V	|	|	|	|
6+30	0.0104	0.03	Q V	|	|	|	|
6+35	0.0107	0.03	Q V	|	|	|	|
6+40	0.0109	0.04	Q V	|	|	|	|
6+45	0.0112	0.04	Q V	|	|	|	|
6+50	0.0114	0.04	Q V	|	|	|	|
6+55	0.0117	0.04	Q V	|	|	|	|
7+ 0	0.0119	0.04	Q V	|	|	|	|

```
 7+ 5       0.0122      0.04  Q     V   |          |          |          |
 7+10       0.0124      0.04  Q     V   |          |          |          |
 7+15       0.0127      0.04  Q     V   |          |          |          |
 7+20       0.0129      0.04  Q     V   |          |          |          |
 7+25       0.0132      0.04  Q     V   |          |          |          |
 7+30       0.0135      0.04  Q      V  |          |          |          |
 7+35       0.0138      0.04  Q      V  |          |          |          |
 7+40       0.0141      0.04  Q      V  |          |          |          |
 7+45       0.0144      0.04  Q      V  |          |          |          |
 7+50       0.0147      0.05  Q      V  |          |          |          |
 7+55       0.0150      0.05  Q      V  |          |          |          |
 8+ 0       0.0154      0.05  Q       V |          |          |          |
 8+ 5       0.0157      0.05  Q       V |          |          |          |
 8+10       0.0161      0.05  Q       V |          |          |          |
 8+15       0.0165      0.06  Q       V |          |          |          |
 8+20       0.0169      0.06  Q       V |          |          |          |
 8+25       0.0172      0.06  Q        V|          |          |          |
 8+30       0.0176      0.06  Q        V|          |          |          |
 8+35       0.0180      0.06  Q        V|          |          |          |
 8+40       0.0184      0.06  Q        V|          |          |          |
 8+45       0.0188      0.06  Q        V|          |          |          |
 8+50       0.0192      0.06  Q         V          |          |          |
 8+55       0.0197      0.06  Q         V          |          |          |
 9+ 0       0.0201      0.06  Q         V          |          |          |
 9+ 5       0.0205      0.07  Q         V          |          |          |
 9+10       0.0210      0.07  Q         |V         |          |          |
 9+15       0.0215      0.07  Q         |V         |          |          |
 9+20       0.0220      0.07  Q         |V         |          |          |
 9+25       0.0225      0.07  Q         |V         |          |          |
 9+30       0.0230      0.07  Q         | V        |          |          |
 9+35       0.0235      0.08  Q         | V        |          |          |
 9+40       0.0241      0.08  Q         | V        |          |          |
 9+45       0.0246      0.08  Q         | V        |          |          |
 9+50       0.0251      0.08  Q         |  V       |          |          |
 9+55       0.0257      0.08  Q         |  V       |          |          |
10+ 0       0.0262      0.08  Q         |  V       |          |          |
10+ 5       0.0267      0.07  Q         |   V      |          |          |
10+10       0.0271      0.06  Q         |   V      |          |          |
10+15       0.0275      0.06  Q         |   V      |          |          |
10+20       0.0279      0.06  Q         |   V      |          |          |
10+25       0.0283      0.06  Q         |   V      |          |          |
10+30       0.0287      0.06  Q         |    V     |          |          |
10+35       0.0291      0.06  Q         |    V     |          |          |
10+40       0.0296      0.07  Q         |    V     |          |          |
10+45       0.0301      0.07  Q         |    V     |          |          |
10+50       0.0306      0.07  Q         |     V    |          |          |
10+55       0.0311      0.07  Q         |     V    |          |          |
11+ 0       0.0316      0.07  Q         |     V    |          |          |
11+ 5       0.0321      0.07  Q         |     V    |          |          |
11+10       0.0326      0.07  Q         |      V   |          |          |
11+15       0.0331      0.07  Q         |      V   |          |          |
11+20       0.0336      0.07  Q         |      V   |          |          |
11+25       0.0340      0.07  Q         |      V   |          |          |
11+30       0.0345      0.07  Q         |       V  |          |          |
11+35       0.0350      0.07  Q         |       V  |          |          |
11+40       0.0354      0.06  Q         |       V  |          |          |
11+45       0.0359      0.06  Q         |       V  |          |          |
11+50       0.0363      0.06  Q         |        V |          |          |
11+55       0.0367      0.07  Q         |        V |          |          |
12+ 0       0.0372      0.07  Q         |        V |          |          |
12+ 5       0.0377      0.08  Q         |        V |          |          |
12+10       0.0384      0.09  Q         |         V          |          |
12+15       0.0390      0.09  Q         |         V          |          |
12+20       0.0396      0.09  Q         |         V          |          |
12+25       0.0403      0.10  Q         |         |V         |          |
12+30       0.0409      0.10  Q         |         |V         |          |
12+35       0.0416      0.10  Q         |         |V         |          |
12+40       0.0423      0.10  Q         |         | V        |          |
12+45       0.0430      0.10  Q         |         | V        |          |
12+50       0.0438      0.10  Q         |         | V        |          |
12+55       0.0445      0.11  Q         |         |  V       |          |
```

```
13+ 0       0.0452      0.11  Q         |          |  V       |          |
13+ 5       0.0460      0.11  Q         |          |   V      |          |
13+10       0.0469      0.12  Q         |          |   V      |          |
13+15       0.0477      0.12  Q         |          |    V     |          |
13+20       0.0486      0.13  Q         |          |    V     |          |
13+25       0.0495      0.13  Q         |          |    V     |          |
13+30       0.0503      0.13  Q         |          |     V    |          |
13+35       0.0511      0.11  Q         |          |     V    |          |
13+40       0.0517      0.09  Q         |          |      V   |          |
13+45       0.0523      0.09  Q         |          |      V   |          |
13+50       0.0528      0.08  Q         |          |      V   |          |
13+55       0.0534      0.08  Q         |          |       V  |          |
14+ 0       0.0540      0.08  Q         |          |       V  |          |
14+ 5       0.0546      0.09  Q         |          |       V  |          |
14+10       0.0553      0.10  Q         |          |        V |          |
14+15       0.0560      0.10  Q         |          |        V |          |
14+20       0.0567      0.10  Q         |          |        V |          |
14+25       0.0573      0.10  Q         |          |         V          |
14+30       0.0580      0.10  Q         |          |         V          |
14+35       0.0587      0.10  Q         |          |         V          |
14+40       0.0593      0.10  Q         |          |          |V        |
14+45       0.0600      0.10  Q         |          |          |V        |
14+50       0.0606      0.09  Q         |          |          |V        |
14+55       0.0613      0.09  Q         |          |          | V       |
15+ 0       0.0619      0.09  Q         |          |          | V       |
15+ 5       0.0625      0.09  Q         |          |          | V       |
15+10       0.0631      0.09  Q         |          |          |  V      |
15+15       0.0637      0.09  Q         |          |          |  V      |
15+20       0.0643      0.09  Q         |          |          |  V      |
15+25       0.0649      0.09  Q         |          |          |   V     |
15+30       0.0655      0.08  Q         |          |          |   V     |
15+35       0.0660      0.08  Q         |          |          |   V     |
15+40       0.0665      0.07  Q         |          |          |   V     |
15+45       0.0670      0.07  Q         |          |          |    V    |
15+50       0.0675      0.07  Q         |          |          |    V    |
15+55       0.0680      0.07  Q         |          |          |    V    |
16+ 0       0.0685      0.07  Q         |          |          |    V    |
16+ 5       0.0688      0.05  Q         |          |          |     V   |
16+10       0.0689      0.02  Q         |          |          |     V   |
16+15       0.0690      0.02  Q         |          |          |     V   |
16+20       0.0692      0.01  Q         |          |          |     V   |
16+25       0.0693      0.01  Q         |          |          |     V   |
16+30       0.0694      0.01  Q         |          |          |     V   |
16+35       0.0694      0.01  Q         |          |          |     V   |
16+40       0.0695      0.01  Q         |          |          |     V   |
16+45       0.0696      0.01  Q         |          |          |     V   |
16+50       0.0697      0.01  Q         |          |          |     V   |
16+55       0.0698      0.01  Q         |          |          |     V   |
17+ 0       0.0698      0.01  Q         |          |          |     V   |
17+ 5       0.0699      0.01  Q         |          |          |     V   |
17+10       0.0700      0.02  Q         |          |          |     V   |
17+15       0.0702      0.02  Q         |          |          |     V   |
17+20       0.0703      0.02  Q         |          |          |     V   |
17+25       0.0704      0.02  Q         |          |          |      V  |
17+30       0.0706      0.02  Q         |          |          |      V  |
17+35       0.0707      0.02  Q         |          |          |      V  |
17+40       0.0708      0.02  Q         |          |          |      V  |
17+45       0.0709      0.02  Q         |          |          |      V  |
17+50       0.0710      0.02  Q         |          |          |      V  |
17+55       0.0712      0.02  Q         |          |          |      V  |
18+ 0       0.0713      0.01  Q         |          |          |      V  |
18+ 5       0.0714      0.01  Q         |          |          |      V  |
18+10       0.0715      0.01  Q         |          |          |      V  |
18+15       0.0716      0.01  Q         |          |          |      V  |
18+20       0.0717      0.01  Q         |          |          |      V  |
18+25       0.0718      0.01  Q         |          |          |      V  |
18+30       0.0719      0.01  Q         |          |          |      V  |
18+35       0.0720      0.01  Q         |          |          |      V  |
18+40       0.0720      0.01  Q         |          |          |      V  |
18+45       0.0721      0.01  Q         |          |          |      V  |
18+50       0.0722      0.01  Q         |          |          |      V  |
```

```
   18+55       0.0722      0.01  Q         |          |          |      V  |
   19+ 0       0.0723      0.01  Q         |          |          |      V  |
   19+ 5       0.0723      0.01  Q         |          |          |       V |
   19+10       0.0724      0.01  Q         |          |          |       V |
   19+15       0.0725      0.01  Q         |          |          |       V |
   19+20       0.0726      0.01  Q         |          |          |       V |
   19+25       0.0727      0.01  Q         |          |          |       V |
   19+30       0.0728      0.01  Q         |          |          |       V |
   19+35       0.0729      0.01  Q         |          |          |       V |
   19+40       0.0729      0.01  Q         |          |          |       V |
   19+45       0.0730      0.01  Q         |          |          |       V |
   19+50       0.0731      0.01  Q         |          |          |       V |
   19+55       0.0731      0.01  Q         |          |          |       V |
   20+ 0       0.0732      0.01  Q         |          |          |       V |
   20+ 5       0.0733      0.01  Q         |          |          |       V |
   20+10       0.0733      0.01  Q         |          |          |       V |
   20+15       0.0734      0.01  Q         |          |          |       V |
   20+20       0.0735      0.01  Q         |          |          |       V |
   20+25       0.0736      0.01  Q         |          |          |       V |
   20+30       0.0736      0.01  Q         |          |          |       V |
   20+35       0.0737      0.01  Q         |          |          |       V |
   20+40       0.0738      0.01  Q         |          |          |       V |
   20+45       0.0739      0.01  Q         |          |          |       V |
   20+50       0.0739      0.01  Q         |          |          |       V |
   20+55       0.0740      0.01  Q         |          |          |       V |
   21+ 0       0.0740      0.01  Q         |          |          |       V |
   21+ 5       0.0741      0.01  Q         |          |          |       V |
   21+10       0.0742      0.01  Q         |          |          |       V |
   21+15       0.0742      0.01  Q         |          |          |        V|
   21+20       0.0743      0.01  Q         |          |          |        V|
   21+25       0.0744      0.01  Q         |          |          |        V|
   21+30       0.0744      0.01  Q         |          |          |        V|
   21+35       0.0745      0.01  Q         |          |          |        V|
   21+40       0.0745      0.01  Q         |          |          |        V|
   21+45       0.0746      0.01  Q         |          |          |        V|
   21+50       0.0747      0.01  Q         |          |          |        V|
   21+55       0.0747      0.01  Q         |          |          |        V|
   22+ 0       0.0748      0.01  Q         |          |          |        V|
   22+ 5       0.0749      0.01  Q         |          |          |        V|
   22+10       0.0749      0.01  Q         |          |          |        V|
   22+15       0.0750      0.01  Q         |          |          |        V|
   22+20       0.0751      0.01  Q         |          |          |        V|
   22+25       0.0751      0.01  Q         |          |          |        V|
   22+30       0.0752      0.01  Q         |          |          |        V|
   22+35       0.0752      0.01  Q         |          |          |        V|
   22+40       0.0753      0.01  Q         |          |          |        V|
   22+45       0.0753      0.01  Q         |          |          |        V|
   22+50       0.0754      0.01  Q         |          |          |        V|
   22+55       0.0754      0.01  Q         |          |          |        V|
   23+ 0       0.0755      0.01  Q         |          |          |        V|
   23+ 5       0.0755      0.01  Q         |          |          |        V|
   23+10       0.0756      0.01  Q         |          |          |        V|
   23+15       0.0756      0.01  Q         |          |          |        V|
   23+20       0.0757      0.01  Q         |          |          |        V|
   23+25       0.0757      0.01  Q         |          |          |        V|
   23+30       0.0758      0.01  Q         |          |          |        V|
   23+35       0.0758      0.01  Q         |          |          |        V|
   23+40       0.0759      0.01  Q         |          |          |        V|
   23+45       0.0759      0.01  Q         |          |          |        V|
   23+50       0.0760      0.01  Q         |          |          |        V|
   23+55       0.0760      0.01  Q         |          |          |        V|
   24+ 0       0.0761      0.01  Q         |          |          |        V|
   24+ 5       0.0761      0.00  Q         |          |          |        V|
   24+10       0.0761      0.00  Q         |          |          |        V|
   24+15       0.0761      0.00  Q         |          |          |         V
-------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/20/19 File: NODE2EXIST10YR1HR110.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 1-HOUR STORM - EXISTING CONDITION @ NODE 2

Drainage Area = 4.06(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.06(Ac.) = 0.006 Sq. Mi.
Length along longest watercourse = 807.00(Ft.)
Length along longest watercourse measured to centroid = 374.00(Ft.)
Length along longest watercourse = 0.153 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 22.00(Ft.)
Slope along watercourse = 143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time = 0.040 Hr.
Lag time = 2.42 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.97 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	0.49	2.01

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	1.40	5.68

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.494(In)
Area Averaged 100-Year Rainfall = 1.400(In)

Point rain (area averaged) = 0.867(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.867(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.060	83.00	0.000

```
 Total Area Entered =      4.06(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
83.0  83.0      0.210     0.000        0.210       1.000      0.210
                                                 Sum (F) =    0.210
Area averaged mean soil loss (F) (In/Hr) =  0.210
Minimum soil loss rate ((In/Hr)) =  0.105
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                       DESERT S-Curve
------------------------------------------------------------------------
                Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        206.797         43.404             1.776
    2   0.167        413.594         45.061             1.844
    3   0.250        620.390          8.477             0.347
    4   0.333        827.187          3.058             0.125
                              Sum = 100.000   Sum=       4.092
------------------------------------------------------------------------

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

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
      (Hr.)  Percent   (In/Hr)         Max   |   Low         (In/Hr)
  1   0.08     4.40      0.458          0.210    (  0.412)        0.248
  2   0.17     4.50      0.468          0.210    (  0.421)        0.258
  3   0.25     5.40      0.562          0.210    (  0.505)        0.352
  4   0.33     5.40      0.562          0.210    (  0.505)        0.352
  5   0.42     5.70      0.593          0.210    (  0.534)        0.383
  6   0.50     6.40      0.666          0.210    (  0.599)        0.456
  7   0.58     7.90      0.822          0.210    (  0.739)        0.612
  8   0.67     9.10      0.946          0.210    (  0.852)        0.737
  9   0.75    12.80      1.331          0.210    (  1.198)        1.121
 10   0.83    25.60      2.663          0.210    (  2.396)        2.453
 11   0.92     7.90      0.822          0.210    (  0.739)        0.612
 12   1.00     4.90      0.510          0.210    (  0.459)        0.300
               (Loss Rate Not Used)
    Sum =     100.0                                 Sum =     7.9
      Flood volume = Effective rainfall      0.66(In)
       times area       4.1(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
      Total soil loss =      0.21(In)
      Total soil loss =     0.071(Ac.Ft)
      Total rainfall =      0.87(In)
      Flood volume =        9681.3 Cubic Feet
      Total soil loss =        3092.0 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      6.759(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0030      0.44  VQ        |         |         |         |
```

```
    0+10       0.0093      0.92  |V Q       |          |          |          |
    0+15       0.0175      1.19  |  VQ      |          |          |          |
    0+20       0.0271      1.39  |   VQ     |          |          |          |
    0+25       0.0373      1.48  |    QV    |          |          |          |
    0+30       0.0489      1.68  |     Q V  |          |          |          |
    0+35       0.0634      2.11  |       Q  |V         |          |          |
    0+40       0.0816      2.64  |          Q   V      |          |          |
    0+45       0.1066      3.62  |          |   Q    V|          |          |
    0+50       0.1531      6.76  |          |          |       Q  |          |
    0+55       0.1951      6.09  |          |          |   Q      |    V     |
    1+ 0       0.2134      2.65  |          Q          |          |       V  |
    1+ 5       0.2207      1.07  |   Q      |          |          |        V |
    1+10       0.2220      0.18  Q          |          |          |        V |
    1+15       0.2223      0.04  Q          |          |          |         V
-------------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/20/19 File: NODE2EXIST10YR3HR310.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 3-HOUR STORM - EXISTING CONDITION @ NODE 2
----------------------------------------------------------------------
Drainage Area =       4.06(Ac.)  =      0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       4.06(Ac.)  =      0.006 Sq. Mi.
Length along longest watercourse =     807.00(Ft.)
Length along longest watercourse measured to centroid =     374.00(Ft.)
Length along longest watercourse =      0.153 Mi.
Length along longest watercourse measured to centroid =      0.071 Mi.
Difference in elevation =      22.00(Ft.)
Slope along watercourse =    143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time =    0.040 Hr.
Lag time =     2.42 Min.
25% of lag time =     0.60 Min.
40% of lag time =     0.97 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           0.87                 3.53

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           2.22                 9.01

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    1.425(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.425(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     4.060           83.00         0.000
```

Total Area Entered = 4.06(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.000	0.210	1.000	0.210
					Sum (F) =	0.210

Area averaged mean soil loss (F) (In/Hr) = 0.210
Minimum soil loss rate ((In/Hr)) = 0.105
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
		Sum = 100.000	Sum=	4.092

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.222	(0.210)	0.200	0.022
2	0.17	1.30	0.222	(0.210)	0.200	0.022
3	0.25	1.10	0.188	(0.210)	0.169	0.019
4	0.33	1.50	0.257	0.210	(0.231)	0.047
5	0.42	1.50	0.257	0.210	(0.231)	0.047
6	0.50	1.80	0.308	0.210	(0.277)	0.098
7	0.58	1.50	0.257	0.210	(0.231)	0.047
8	0.67	1.80	0.308	0.210	(0.277)	0.098
9	0.75	1.80	0.308	0.210	(0.277)	0.098
10	0.83	1.50	0.257	0.210	(0.231)	0.047
11	0.92	1.60	0.274	0.210	(0.246)	0.064
12	1.00	1.80	0.308	0.210	(0.277)	0.098
13	1.08	2.20	0.376	0.210	(0.339)	0.166
14	1.17	2.20	0.376	0.210	(0.339)	0.166
15	1.25	2.20	0.376	0.210	(0.339)	0.166
16	1.33	2.00	0.342	0.210	(0.308)	0.132
17	1.42	2.60	0.445	0.210	(0.400)	0.235
18	1.50	2.70	0.462	0.210	(0.416)	0.252
19	1.58	2.40	0.411	0.210	(0.369)	0.201
20	1.67	2.70	0.462	0.210	(0.416)	0.252
21	1.75	3.30	0.564	0.210	(0.508)	0.355
22	1.83	3.10	0.530	0.210	(0.477)	0.320
23	1.92	2.90	0.496	0.210	(0.446)	0.286
24	2.00	3.00	0.513	0.210	(0.462)	0.303
25	2.08	3.10	0.530	0.210	(0.477)	0.320
26	2.17	4.20	0.718	0.210	(0.647)	0.509
27	2.25	5.00	0.855	0.210	(0.770)	0.645
28	2.33	3.50	0.599	0.210	(0.539)	0.389
29	2.42	6.80	1.163	0.210	(1.047)	0.953
30	2.50	7.30	1.249	0.210	(1.124)	1.039
31	2.58	8.20	1.403	0.210	(1.262)	1.193
32	2.67	5.90	1.009	0.210	(0.908)	0.799
33	2.75	2.00	0.342	0.210	(0.308)	0.132
34	2.83	1.80	0.308	0.210	(0.277)	0.098
35	2.92	1.80	0.308	0.210	(0.277)	0.098
36	3.00	0.60	0.103	(0.210)	0.092	0.010

```
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =     9.7
       Flood volume = Effective rainfall      0.81(In)
        times area       4.1(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
       Total soil loss =      0.61(In)
       Total soil loss =     0.208(Ac.Ft)
       Total rainfall =      1.43(In)
       Flood volume =       11948.6 Cubic Feet
       Total soil loss =        9058.3 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      4.415(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0003      0.04  Q         |         |         |         |
   0+10       0.0008      0.08  Q         |         |         |         |
   0+15       0.0014      0.08  Q         |         |         |         |
   0+20       0.0023      0.13  Q         |         |         |         |
   0+25       0.0035      0.18  Q         |         |         |         |
   0+30       0.0054      0.28  VQ        |         |         |         |
   0+35       0.0074      0.29  |Q        |         |         |         |
   0+40       0.0095      0.30  |Q        |         |         |         |
   0+45       0.0121      0.38  |Q        |         |         |         |
   0+50       0.0142      0.30  |QV       |         |         |         |
   0+55       0.0159      0.25  Q V       |         |         |         |
   1+ 0       0.0181      0.32  |QV       |         |         |         |
   1+ 5       0.0216      0.50  | QV      |         |         |         |
   1+10       0.0260      0.65  | QV      |         |         |         |
   1+15       0.0307      0.67  | Q V     |         |         |         |
   1+20       0.0349      0.62  | Q  V    |         |         |         |
   1+25       0.0400      0.74  | Q  V    |         |         |         |
   1+30       0.0466      0.95  |  Q  V   |         |         |         |
   1+35       0.0529      0.92  |  Q   V  |         |         |         |
   1+40       0.0593      0.93  |  Q    V |         |         |         |
   1+45       0.0676      1.20  |   Q    V|         |         |         |
   1+50       0.0768      1.34  |    Q    |V        |         |         |
   1+55       0.0854      1.25  |    Q    | V       |         |         |
   2+ 0       0.0938      1.22  |   Q     |  V      |         |         |
   2+ 5       0.1026      1.27  |    Q    |   V     |         |         |
   2+10       0.1138      1.64  |     Q   |     V   |         |         |
   2+15       0.1292      2.23  |       Q |       V |         |         |
   2+20       0.1437      2.10  |       Q |         V         |         |
   2+25       0.1623      2.70  |         Q         |  V      |         |
   2+30       0.1886      3.82  |         |    Q    |      V  |         |
   2+35       0.2190      4.42  |         |      Q  |         |V        |
   2+40       0.2472      4.10  |         |     Q   |         |     V   |
   2+45       0.2627      2.25  |        Q|         |         |       V |
   2+50       0.2686      0.85  |  Q      |         |         |        V|
   2+55       0.2720      0.50  | Q       |         |         |        V|
   3+ 0       0.2737      0.25  Q         |         |         |        V|
   3+ 5       0.2742      0.07  Q         |         |         |        V|
   3+10       0.2743      0.02  Q         |         |         |        V|
   3+15       0.2743      0.00  Q         |         |         |         V
------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/20/19 File: NODE2EXIST10YR6HR610.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 6-HOUR STORM - EXISTING CONDITION @ NODE 2

Drainage Area = 4.06(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.06(Ac.) = 0.006 Sq. Mi.
Length along longest watercourse = 807.00(Ft.)
Length along longest watercourse measured to centroid = 374.00(Ft.)
Length along longest watercourse = 0.153 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 22.00(Ft.)
Slope along watercourse = 143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time = 0.040 Hr.
Lag time = 2.42 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.97 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	1.23	4.99

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	3.06	12.42

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.230(In)
Area Averaged 100-Year Rainfall = 3.060(In)

Point rain (area averaged) = 1.983(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.983(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.060	83.00	0.000

Total Area Entered = 4.06(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.000	0.210	1.000	0.210
					Sum (F) =	0.210

Area averaged mean soil loss (F) (In/Hr) = 0.210
Minimum soil loss rate ((In/Hr)) = 0.105
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
		Sum = 100.000	Sum=	4.092

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.119	(0.210)	0.107	0.012
2	0.17	0.60	0.143	(0.210)	0.128	0.014
3	0.25	0.60	0.143	(0.210)	0.128	0.014
4	0.33	0.60	0.143	(0.210)	0.128	0.014
5	0.42	0.60	0.143	(0.210)	0.128	0.014
6	0.50	0.70	0.167	(0.210)	0.150	0.017
7	0.58	0.70	0.167	(0.210)	0.150	0.017
8	0.67	0.70	0.167	(0.210)	0.150	0.017
9	0.75	0.70	0.167	(0.210)	0.150	0.017
10	0.83	0.70	0.167	(0.210)	0.150	0.017
11	0.92	0.70	0.167	(0.210)	0.150	0.017
12	1.00	0.80	0.190	(0.210)	0.171	0.019
13	1.08	0.80	0.190	(0.210)	0.171	0.019
14	1.17	0.80	0.190	(0.210)	0.171	0.019
15	1.25	0.80	0.190	(0.210)	0.171	0.019
16	1.33	0.80	0.190	(0.210)	0.171	0.019
17	1.42	0.80	0.190	(0.210)	0.171	0.019
18	1.50	0.80	0.190	(0.210)	0.171	0.019
19	1.58	0.80	0.190	(0.210)	0.171	0.019
20	1.67	0.80	0.190	(0.210)	0.171	0.019
21	1.75	0.80	0.190	(0.210)	0.171	0.019
22	1.83	0.80	0.190	(0.210)	0.171	0.019
23	1.92	0.80	0.190	(0.210)	0.171	0.019
24	2.00	0.90	0.214	(0.210)	0.193	0.021
25	2.08	0.80	0.190	(0.210)	0.171	0.019
26	2.17	0.90	0.214	(0.210)	0.193	0.021
27	2.25	0.90	0.214	(0.210)	0.193	0.021
28	2.33	0.90	0.214	(0.210)	0.193	0.021
29	2.42	0.90	0.214	(0.210)	0.193	0.021
30	2.50	0.90	0.214	(0.210)	0.193	0.021
31	2.58	0.90	0.214	(0.210)	0.193	0.021
32	2.67	0.90	0.214	(0.210)	0.193	0.021
33	2.75	1.00	0.238	0.210	(0.214)	0.028
34	2.83	1.00	0.238	0.210	(0.214)	0.028
35	2.92	1.00	0.238	0.210	(0.214)	0.028
36	3.00	1.00	0.238	0.210	(0.214)	0.028

37	3.08	1.00	0.238	0.210	(0.214)	0.028
38	3.17	1.10	0.262	0.210	(0.236)	0.052
39	3.25	1.10	0.262	0.210	(0.236)	0.052
40	3.33	1.10	0.262	0.210	(0.236)	0.052
41	3.42	1.20	0.286	0.210	(0.257)	0.076
42	3.50	1.30	0.309	0.210	(0.278)	0.100
43	3.58	1.40	0.333	0.210	(0.300)	0.123
44	3.67	1.40	0.333	0.210	(0.300)	0.123
45	3.75	1.50	0.357	0.210	(0.321)	0.147
46	3.83	1.50	0.357	0.210	(0.321)	0.147
47	3.92	1.60	0.381	0.210	(0.343)	0.171
48	4.00	1.60	0.381	0.210	(0.343)	0.171
49	4.08	1.70	0.405	0.210	(0.364)	0.195
50	4.17	1.80	0.428	0.210	(0.385)	0.218
51	4.25	1.90	0.452	0.210	(0.407)	0.242
52	4.33	2.00	0.476	0.210	(0.428)	0.266
53	4.42	2.10	0.500	0.210	(0.450)	0.290
54	4.50	2.10	0.500	0.210	(0.450)	0.290
55	4.58	2.20	0.523	0.210	(0.471)	0.314
56	4.67	2.30	0.547	0.210	(0.493)	0.337
57	4.75	2.40	0.571	0.210	(0.514)	0.361
58	4.83	2.40	0.571	0.210	(0.514)	0.361
59	4.92	2.50	0.595	0.210	(0.535)	0.385
60	5.00	2.60	0.619	0.210	(0.557)	0.409
61	5.08	3.10	0.738	0.210	(0.664)	0.528
62	5.17	3.60	0.857	0.210	(0.771)	0.647
63	5.25	3.90	0.928	0.210	(0.835)	0.718
64	5.33	4.20	0.999	0.210	(0.899)	0.790
65	5.42	4.70	1.118	0.210	(1.006)	0.909
66	5.50	5.60	1.332	0.210	(1.199)	1.123
67	5.58	1.90	0.452	0.210	(0.407)	0.242
68	5.67	0.90	0.214	(0.210)	0.193	0.021
69	5.75	0.60	0.143	(0.210)	0.128	0.014
70	5.83	0.50	0.119	(0.210)	0.107	0.012
71	5.92	0.30	0.071	(0.210)	0.064	0.007
72	6.00	0.20	0.048	(0.210)	0.043	0.005

(Loss Rate Not Used)

Sum = 100.0 Sum = 10.6

Flood volume = Effective rainfall 0.89(In)
times area 4.1(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
Total soil loss = 1.10(In)
Total soil loss = 0.371(Ac.Ft)
Total rainfall = 1.98(In)
Flood volume = 13050.8 Cubic Feet
Total soil loss = 16172.1 Cubic Feet

Peak flow rate of this hydrograph = 4.035(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q	|	|	|	|
0+10	0.0005	0.05	Q	|	|	|	|
0+15	0.0009	0.06	Q	|	|	|	|
0+20	0.0013	0.06	Q	|	|	|	|
0+25	0.0017	0.06	Q	|	|	|	|
0+30	0.0021	0.06	Q	|	|	|	|
0+35	0.0026	0.07	Q	|	|	|	|
0+40	0.0030	0.07	Q	|	|	|	|
0+45	0.0035	0.07	Q	|	|	|	|
0+50	0.0040	0.07	Q	|	|	|	|
0+55	0.0044	0.07	Q	|	|	|	|
1+ 0	0.0049	0.07	Q	|	|	|	|
1+ 5	0.0055	0.08	Q	|	|	|	|

```
    1+10       0.0060      0.08  Q          |          |          |          |
    1+15       0.0065      0.08  Q          |          |          |          |
    1+20       0.0071      0.08  Q          |          |          |          |
    1+25       0.0076      0.08  QV         |          |          |          |
    1+30       0.0081      0.08  QV         |          |          |          |
    1+35       0.0087      0.08  QV         |          |          |          |
    1+40       0.0092      0.08  QV         |          |          |          |
    1+45       0.0097      0.08  QV         |          |          |          |
    1+50       0.0103      0.08  QV         |          |          |          |
    1+55       0.0108      0.08  QV         |          |          |          |
    2+ 0       0.0114      0.08  QV         |          |          |          |
    2+ 5       0.0120      0.08  QV         |          |          |          |
    2+10       0.0125      0.08  QV         |          |          |          |
    2+15       0.0131      0.09  QV         |          |          |          |
    2+20       0.0137      0.09  QV         |          |          |          |
    2+25       0.0143      0.09  QV         |          |          |          |
    2+30       0.0149      0.09  QV         |          |          |          |
    2+35       0.0155      0.09  Q V        |          |          |          |
    2+40       0.0161      0.09  Q V        |          |          |          |
    2+45       0.0168      0.10  Q V        |          |          |          |
    2+50       0.0176      0.11  Q V        |          |          |          |
    2+55       0.0184      0.11  Q V        |          |          |          |
    3+ 0       0.0192      0.12  Q V        |          |          |          |
    3+ 5       0.0200      0.12  Q V        |          |          |          |
    3+10       0.0211      0.16  Q V        |          |          |          |
    3+15       0.0224      0.20  Q V        |          |          |          |
    3+20       0.0239      0.21  Q  V       |          |          |          |
    3+25       0.0256      0.25  |Q V       |          |          |          |
    3+30       0.0280      0.34  |Q V       |          |          |          |
    3+35       0.0310      0.44  |Q  V      |          |          |          |
    3+40       0.0344      0.49  |Q  V      |          |          |          |
    3+45       0.0381      0.54  | Q  V     |          |          |          |
    3+50       0.0422      0.59  | Q  V     |          |          |          |
    3+55       0.0466      0.64  | Q   V    |          |          |          |
    4+ 0       0.0513      0.69  | Q   V    |          |          |          |
    4+ 5       0.0564      0.74  | Q    V   |          |          |          |
    4+10       0.0621      0.83  |  Q    V  |          |          |          |
    4+15       0.0685      0.92  |  Q     V|          |          |          |
    4+20       0.0755      1.02  |   Q     V          |          |          |
    4+25       0.0832      1.12  |   Q     |V         |          |          |
    4+30       0.0913      1.17  |   Q     | V        |          |          |
    4+35       0.0997      1.23  |   Q     |  V       |          |          |
    4+40       0.1088      1.32  |    Q    |   V      |          |          |
    4+45       0.1185      1.41  |    Q    |    V     |          |          |
    4+50       0.1286      1.46  |    Q    |      V   |          |          |
    4+55       0.1390      1.52  |     Q   |       V  |          |          |
    5+ 0       0.1501      1.61  |     Q   |         V          |          |
    5+ 5       0.1630      1.87  |      Q  |          |V         |          |
    5+10       0.1789      2.31  |        Q|          |  V       |          |
    5+15       0.1975      2.70  |         Q          |     V    |          |
    5+20       0.2183      3.02  |         | Q        |        V|          |
    5+25       0.2418      3.40  |         |  Q       |         | V        |
    5+30       0.2695      4.03  |         |     Q    |         |    V     |
    5+35       0.2896      2.92  |         |Q         |         |       V  |
    5+40       0.2964      0.99  |  Q      |          |         |        V|
    5+45       0.2984      0.29  |Q        |          |         |        V|
    5+50       0.2990      0.09  Q         |          |         |        V|
    5+55       0.2993      0.04  Q         |          |         |        V|
    6+ 0       0.2995      0.03  Q         |          |         |        V|
    6+ 5       0.2996      0.01  Q         |          |         |        V|
    6+10       0.2996      0.00  Q         |          |         |        V|
    6+15       0.2996      0.00  Q         |          |         |         V
------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/20/19 File: NODE2EXIST10YR24HR2410.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 24-HOUR STORM - EXISTING CONDITION @ NODE 2

Drainage Area = 4.06(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.06(Ac.) = 0.006 Sq. Mi.
Length along longest watercourse = 807.00(Ft.)
Length along longest watercourse measured to centroid = 374.00(Ft.)
Length along longest watercourse = 0.153 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 22.00(Ft.)
Slope along watercourse = 143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time = 0.040 Hr.
Lag time = 2.42 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.97 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	2.25	9.13

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	5.94	24.12

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 5.940(In)

Point rain (area averaged) = 3.768(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.768(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.060	83.00	0.000

Total Area Entered = 4.06(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.000	0.210	1.000	0.210
					Sum (F) =	0.210

Area averaged mean soil loss (F) (In/Hr) = 0.210
Minimum soil loss rate ((In/Hr)) = 0.105
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
			Sum = 100.000	Sum= 4.092

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.030	(0.372)	0.027	0.003
2	0.17	0.07	0.030	(0.370)	0.027	0.003
3	0.25	0.07	0.030	(0.369)	0.027	0.003
4	0.33	0.10	0.045	(0.368)	0.041	0.005
5	0.42	0.10	0.045	(0.366)	0.041	0.005
6	0.50	0.10	0.045	(0.365)	0.041	0.005
7	0.58	0.10	0.045	(0.363)	0.041	0.005
8	0.67	0.10	0.045	(0.362)	0.041	0.005
9	0.75	0.10	0.045	(0.360)	0.041	0.005
10	0.83	0.13	0.060	(0.359)	0.054	0.006
11	0.92	0.13	0.060	(0.358)	0.054	0.006
12	1.00	0.13	0.060	(0.356)	0.054	0.006
13	1.08	0.10	0.045	(0.355)	0.041	0.005
14	1.17	0.10	0.045	(0.353)	0.041	0.005
15	1.25	0.10	0.045	(0.352)	0.041	0.005
16	1.33	0.10	0.045	(0.351)	0.041	0.005
17	1.42	0.10	0.045	(0.349)	0.041	0.005
18	1.50	0.10	0.045	(0.348)	0.041	0.005
19	1.58	0.10	0.045	(0.346)	0.041	0.005
20	1.67	0.10	0.045	(0.345)	0.041	0.005
21	1.75	0.10	0.045	(0.344)	0.041	0.005
22	1.83	0.13	0.060	(0.342)	0.054	0.006
23	1.92	0.13	0.060	(0.341)	0.054	0.006
24	2.00	0.13	0.060	(0.340)	0.054	0.006
25	2.08	0.13	0.060	(0.338)	0.054	0.006
26	2.17	0.13	0.060	(0.337)	0.054	0.006
27	2.25	0.13	0.060	(0.335)	0.054	0.006
28	2.33	0.13	0.060	(0.334)	0.054	0.006
29	2.42	0.13	0.060	(0.333)	0.054	0.006
30	2.50	0.13	0.060	(0.331)	0.054	0.006
31	2.58	0.17	0.075	(0.330)	0.068	0.008
32	2.67	0.17	0.075	(0.329)	0.068	0.008
33	2.75	0.17	0.075	(0.327)	0.068	0.008
34	2.83	0.17	0.075	(0.326)	0.068	0.008
35	2.92	0.17	0.075	(0.325)	0.068	0.008
36	3.00	0.17	0.075	(0.323)	0.068	0.008
37	3.08	0.17	0.075	(0.322)	0.068	0.008
38	3.17	0.17	0.075	(0.321)	0.068	0.008

39	3.25	0.17	0.075	(0.319)	0.068	0.008
40	3.33	0.17	0.075	(0.318)	0.068	0.008
41	3.42	0.17	0.075	(0.317)	0.068	0.008
42	3.50	0.17	0.075	(0.315)	0.068	0.008
43	3.58	0.17	0.075	(0.314)	0.068	0.008
44	3.67	0.17	0.075	(0.313)	0.068	0.008
45	3.75	0.17	0.075	(0.311)	0.068	0.008
46	3.83	0.20	0.090	(0.310)	0.081	0.009
47	3.92	0.20	0.090	(0.309)	0.081	0.009
48	4.00	0.20	0.090	(0.307)	0.081	0.009
49	4.08	0.20	0.090	(0.306)	0.081	0.009
50	4.17	0.20	0.090	(0.305)	0.081	0.009
51	4.25	0.20	0.090	(0.303)	0.081	0.009
52	4.33	0.23	0.106	(0.302)	0.095	0.011
53	4.42	0.23	0.106	(0.301)	0.095	0.011
54	4.50	0.23	0.106	(0.300)	0.095	0.011
55	4.58	0.23	0.106	(0.298)	0.095	0.011
56	4.67	0.23	0.106	(0.297)	0.095	0.011
57	4.75	0.23	0.106	(0.296)	0.095	0.011
58	4.83	0.27	0.121	(0.294)	0.109	0.012
59	4.92	0.27	0.121	(0.293)	0.109	0.012
60	5.00	0.27	0.121	(0.292)	0.109	0.012
61	5.08	0.20	0.090	(0.291)	0.081	0.009
62	5.17	0.20	0.090	(0.289)	0.081	0.009
63	5.25	0.20	0.090	(0.288)	0.081	0.009
64	5.33	0.23	0.106	(0.287)	0.095	0.011
65	5.42	0.23	0.106	(0.286)	0.095	0.011
66	5.50	0.23	0.106	(0.284)	0.095	0.011
67	5.58	0.27	0.121	(0.283)	0.109	0.012
68	5.67	0.27	0.121	(0.282)	0.109	0.012
69	5.75	0.27	0.121	(0.281)	0.109	0.012
70	5.83	0.27	0.121	(0.279)	0.109	0.012
71	5.92	0.27	0.121	(0.278)	0.109	0.012
72	6.00	0.27	0.121	(0.277)	0.109	0.012
73	6.08	0.30	0.136	(0.276)	0.122	0.014
74	6.17	0.30	0.136	(0.274)	0.122	0.014
75	6.25	0.30	0.136	(0.273)	0.122	0.014
76	6.33	0.30	0.136	(0.272)	0.122	0.014
77	6.42	0.30	0.136	(0.271)	0.122	0.014
78	6.50	0.30	0.136	(0.270)	0.122	0.014
79	6.58	0.33	0.151	(0.268)	0.136	0.015
80	6.67	0.33	0.151	(0.267)	0.136	0.015
81	6.75	0.33	0.151	(0.266)	0.136	0.015
82	6.83	0.33	0.151	(0.265)	0.136	0.015
83	6.92	0.33	0.151	(0.264)	0.136	0.015
84	7.00	0.33	0.151	(0.262)	0.136	0.015
85	7.08	0.33	0.151	(0.261)	0.136	0.015
86	7.17	0.33	0.151	(0.260)	0.136	0.015
87	7.25	0.33	0.151	(0.259)	0.136	0.015
88	7.33	0.37	0.166	(0.258)	0.149	0.017
89	7.42	0.37	0.166	(0.256)	0.149	0.017
90	7.50	0.37	0.166	(0.255)	0.149	0.017
91	7.58	0.40	0.181	(0.254)	0.163	0.018
92	7.67	0.40	0.181	(0.253)	0.163	0.018
93	7.75	0.40	0.181	(0.252)	0.163	0.018
94	7.83	0.43	0.196	(0.251)	0.176	0.020
95	7.92	0.43	0.196	(0.249)	0.176	0.020
96	8.00	0.43	0.196	(0.248)	0.176	0.020
97	8.08	0.50	0.226	(0.247)	0.203	0.023
98	8.17	0.50	0.226	(0.246)	0.203	0.023
99	8.25	0.50	0.226	(0.245)	0.203	0.023
100	8.33	0.50	0.226	(0.244)	0.203	0.023
101	8.42	0.50	0.226	(0.243)	0.203	0.023
102	8.50	0.50	0.226	(0.241)	0.203	0.023
103	8.58	0.53	0.241	(0.240)	0.217	0.024
104	8.67	0.53	0.241	(0.239)	0.217	0.024
105	8.75	0.53	0.241	(0.238)	0.217	0.024
106	8.83	0.57	0.256	(0.237)	0.231	0.026
107	8.92	0.57	0.256	(0.236)	0.231	0.026
108	9.00	0.57	0.256	(0.235)	0.231	0.026
109	9.08	0.63	0.286	0.234	(0.258)	0.053

110	9.17	0.63	0.286	0.232	(0.258)	0.054
111	9.25	0.63	0.286	0.231	(0.258)	0.055
112	9.33	0.67	0.301	0.230	(0.271)	0.071
113	9.42	0.67	0.301	0.229	(0.271)	0.072
114	9.50	0.67	0.301	0.228	(0.271)	0.073
115	9.58	0.70	0.317	0.227	(0.285)	0.090
116	9.67	0.70	0.317	0.226	(0.285)	0.091
117	9.75	0.70	0.317	0.225	(0.285)	0.092
118	9.83	0.73	0.332	0.224	(0.298)	0.108
119	9.92	0.73	0.332	0.223	(0.298)	0.109
120	10.00	0.73	0.332	0.222	(0.298)	0.110
121	10.08	0.50	0.226	(0.220)	0.203	0.023
122	10.17	0.50	0.226	(0.219)	0.203	0.023
123	10.25	0.50	0.226	(0.218)	0.203	0.023
124	10.33	0.50	0.226	(0.217)	0.203	0.023
125	10.42	0.50	0.226	(0.216)	0.203	0.023
126	10.50	0.50	0.226	(0.215)	0.203	0.023
127	10.58	0.67	0.301	0.214	(0.271)	0.087
128	10.67	0.67	0.301	0.213	(0.271)	0.088
129	10.75	0.67	0.301	0.212	(0.271)	0.089
130	10.83	0.67	0.301	0.211	(0.271)	0.090
131	10.92	0.67	0.301	0.210	(0.271)	0.091
132	11.00	0.67	0.301	0.209	(0.271)	0.093
133	11.08	0.63	0.286	0.208	(0.258)	0.078
134	11.17	0.63	0.286	0.207	(0.258)	0.079
135	11.25	0.63	0.286	0.206	(0.258)	0.081
136	11.33	0.63	0.286	0.205	(0.258)	0.082
137	11.42	0.63	0.286	0.204	(0.258)	0.083
138	11.50	0.63	0.286	0.203	(0.258)	0.084
139	11.58	0.57	0.256	0.202	(0.231)	0.054
140	11.67	0.57	0.256	0.201	(0.231)	0.055
141	11.75	0.57	0.256	0.200	(0.231)	0.056
142	11.83	0.60	0.271	0.199	(0.244)	0.072
143	11.92	0.60	0.271	0.198	(0.244)	0.073
144	12.00	0.60	0.271	0.197	(0.244)	0.074
145	12.08	0.83	0.377	0.196	(0.339)	0.181
146	12.17	0.83	0.377	0.195	(0.339)	0.182
147	12.25	0.83	0.377	0.194	(0.339)	0.183
148	12.33	0.87	0.392	0.193	(0.353)	0.199
149	12.42	0.87	0.392	0.192	(0.353)	0.200
150	12.50	0.87	0.392	0.191	(0.353)	0.201
151	12.58	0.93	0.422	0.190	(0.380)	0.232
152	12.67	0.93	0.422	0.189	(0.380)	0.233
153	12.75	0.93	0.422	0.188	(0.380)	0.234
154	12.83	0.97	0.437	0.187	(0.393)	0.250
155	12.92	0.97	0.437	0.186	(0.393)	0.251
156	13.00	0.97	0.437	0.185	(0.393)	0.252
157	13.08	1.13	0.512	0.184	(0.461)	0.328
158	13.17	1.13	0.512	0.183	(0.461)	0.329
159	13.25	1.13	0.512	0.182	(0.461)	0.330
160	13.33	1.13	0.512	0.182	(0.461)	0.331
161	13.42	1.13	0.512	0.181	(0.461)	0.332
162	13.50	1.13	0.512	0.180	(0.461)	0.333
163	13.58	0.77	0.347	0.179	(0.312)	0.168
164	13.67	0.77	0.347	0.178	(0.312)	0.169
165	13.75	0.77	0.347	0.177	(0.312)	0.170
166	13.83	0.77	0.347	0.176	(0.312)	0.171
167	13.92	0.77	0.347	0.175	(0.312)	0.171
168	14.00	0.77	0.347	0.174	(0.312)	0.172
169	14.08	0.90	0.407	0.173	(0.366)	0.234
170	14.17	0.90	0.407	0.172	(0.366)	0.234
171	14.25	0.90	0.407	0.172	(0.366)	0.235
172	14.33	0.87	0.392	0.171	(0.353)	0.221
173	14.42	0.87	0.392	0.170	(0.353)	0.222
174	14.50	0.87	0.392	0.169	(0.353)	0.223
175	14.58	0.87	0.392	0.168	(0.353)	0.224
176	14.67	0.87	0.392	0.167	(0.353)	0.225
177	14.75	0.87	0.392	0.166	(0.353)	0.225
178	14.83	0.83	0.377	0.166	(0.339)	0.211
179	14.92	0.83	0.377	0.165	(0.339)	0.212
180	15.00	0.83	0.377	0.164	(0.339)	0.213

181	15.08	0.80	0.362	0.163	(0.326)	0.199
182	15.17	0.80	0.362	0.162	(0.326)	0.200
183	15.25	0.80	0.362	0.161	(0.326)	0.200
184	15.33	0.77	0.347	0.161	(0.312)	0.186
185	15.42	0.77	0.347	0.160	(0.312)	0.187
186	15.50	0.77	0.347	0.159	(0.312)	0.188
187	15.58	0.63	0.286	0.158	(0.258)	0.128
188	15.67	0.63	0.286	0.157	(0.258)	0.129
189	15.75	0.63	0.286	0.156	(0.258)	0.130
190	15.83	0.63	0.286	0.156	(0.258)	0.131
191	15.92	0.63	0.286	0.155	(0.258)	0.132
192	16.00	0.63	0.286	0.154	(0.258)	0.132
193	16.08	0.13	0.060	(0.153)	0.054	0.006
194	16.17	0.13	0.060	(0.152)	0.054	0.006
195	16.25	0.13	0.060	(0.152)	0.054	0.006
196	16.33	0.13	0.060	(0.151)	0.054	0.006
197	16.42	0.13	0.060	(0.150)	0.054	0.006
198	16.50	0.13	0.060	(0.149)	0.054	0.006
199	16.58	0.10	0.045	(0.149)	0.041	0.005
200	16.67	0.10	0.045	(0.148)	0.041	0.005
201	16.75	0.10	0.045	(0.147)	0.041	0.005
202	16.83	0.10	0.045	(0.146)	0.041	0.005
203	16.92	0.10	0.045	(0.146)	0.041	0.005
204	17.00	0.10	0.045	(0.145)	0.041	0.005
205	17.08	0.17	0.075	(0.144)	0.068	0.008
206	17.17	0.17	0.075	(0.143)	0.068	0.008
207	17.25	0.17	0.075	(0.143)	0.068	0.008
208	17.33	0.17	0.075	(0.142)	0.068	0.008
209	17.42	0.17	0.075	(0.141)	0.068	0.008
210	17.50	0.17	0.075	(0.141)	0.068	0.008
211	17.58	0.17	0.075	(0.140)	0.068	0.008
212	17.67	0.17	0.075	(0.139)	0.068	0.008
213	17.75	0.17	0.075	(0.139)	0.068	0.008
214	17.83	0.13	0.060	(0.138)	0.054	0.006
215	17.92	0.13	0.060	(0.137)	0.054	0.006
216	18.00	0.13	0.060	(0.136)	0.054	0.006
217	18.08	0.13	0.060	(0.136)	0.054	0.006
218	18.17	0.13	0.060	(0.135)	0.054	0.006
219	18.25	0.13	0.060	(0.134)	0.054	0.006
220	18.33	0.13	0.060	(0.134)	0.054	0.006
221	18.42	0.13	0.060	(0.133)	0.054	0.006
222	18.50	0.13	0.060	(0.133)	0.054	0.006
223	18.58	0.10	0.045	(0.132)	0.041	0.005
224	18.67	0.10	0.045	(0.131)	0.041	0.005
225	18.75	0.10	0.045	(0.131)	0.041	0.005
226	18.83	0.07	0.030	(0.130)	0.027	0.003
227	18.92	0.07	0.030	(0.129)	0.027	0.003
228	19.00	0.07	0.030	(0.129)	0.027	0.003
229	19.08	0.10	0.045	(0.128)	0.041	0.005
230	19.17	0.10	0.045	(0.128)	0.041	0.005
231	19.25	0.10	0.045	(0.127)	0.041	0.005
232	19.33	0.13	0.060	(0.126)	0.054	0.006
233	19.42	0.13	0.060	(0.126)	0.054	0.006
234	19.50	0.13	0.060	(0.125)	0.054	0.006
235	19.58	0.10	0.045	(0.125)	0.041	0.005
236	19.67	0.10	0.045	(0.124)	0.041	0.005
237	19.75	0.10	0.045	(0.123)	0.041	0.005
238	19.83	0.07	0.030	(0.123)	0.027	0.003
239	19.92	0.07	0.030	(0.122)	0.027	0.003
240	20.00	0.07	0.030	(0.122)	0.027	0.003
241	20.08	0.10	0.045	(0.121)	0.041	0.005
242	20.17	0.10	0.045	(0.121)	0.041	0.005
243	20.25	0.10	0.045	(0.120)	0.041	0.005
244	20.33	0.10	0.045	(0.120)	0.041	0.005
245	20.42	0.10	0.045	(0.119)	0.041	0.005
246	20.50	0.10	0.045	(0.119)	0.041	0.005
247	20.58	0.10	0.045	(0.118)	0.041	0.005
248	20.67	0.10	0.045	(0.118)	0.041	0.005
249	20.75	0.10	0.045	(0.117)	0.041	0.005
250	20.83	0.07	0.030	(0.117)	0.027	0.003
251	20.92	0.07	0.030	(0.116)	0.027	0.003

```
252  21.00     0.07      0.030       (  0.116)       0.027        0.003
253  21.08     0.10      0.045       (  0.115)       0.041        0.005
254  21.17     0.10      0.045       (  0.115)       0.041        0.005
255  21.25     0.10      0.045       (  0.114)       0.041        0.005
256  21.33     0.07      0.030       (  0.114)       0.027        0.003
257  21.42     0.07      0.030       (  0.114)       0.027        0.003
258  21.50     0.07      0.030       (  0.113)       0.027        0.003
259  21.58     0.10      0.045       (  0.113)       0.041        0.005
260  21.67     0.10      0.045       (  0.112)       0.041        0.005
261  21.75     0.10      0.045       (  0.112)       0.041        0.005
262  21.83     0.07      0.030       (  0.112)       0.027        0.003
263  21.92     0.07      0.030       (  0.111)       0.027        0.003
264  22.00     0.07      0.030       (  0.111)       0.027        0.003
265  22.08     0.10      0.045       (  0.110)       0.041        0.005
266  22.17     0.10      0.045       (  0.110)       0.041        0.005
267  22.25     0.10      0.045       (  0.110)       0.041        0.005
268  22.33     0.07      0.030       (  0.109)       0.027        0.003
269  22.42     0.07      0.030       (  0.109)       0.027        0.003
270  22.50     0.07      0.030       (  0.109)       0.027        0.003
271  22.58     0.07      0.030       (  0.108)       0.027        0.003
272  22.67     0.07      0.030       (  0.108)       0.027        0.003
273  22.75     0.07      0.030       (  0.108)       0.027        0.003
274  22.83     0.07      0.030       (  0.108)       0.027        0.003
275  22.92     0.07      0.030       (  0.107)       0.027        0.003
276  23.00     0.07      0.030       (  0.107)       0.027        0.003
277  23.08     0.07      0.030       (  0.107)       0.027        0.003
278  23.17     0.07      0.030       (  0.106)       0.027        0.003
279  23.25     0.07      0.030       (  0.106)       0.027        0.003
280  23.33     0.07      0.030       (  0.106)       0.027        0.003
281  23.42     0.07      0.030       (  0.106)       0.027        0.003
282  23.50     0.07      0.030       (  0.106)       0.027        0.003
283  23.58     0.07      0.030       (  0.105)       0.027        0.003
284  23.67     0.07      0.030       (  0.105)       0.027        0.003
285  23.75     0.07      0.030       (  0.105)       0.027        0.003
286  23.83     0.07      0.030       (  0.105)       0.027        0.003
287  23.92     0.07      0.030       (  0.105)       0.027        0.003
288  24.00     0.07      0.030       (  0.105)       0.027        0.003
               (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    14.4
      Flood volume = Effective rainfall      1.20(In)
       times area       4.1(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
      Total soil loss =      2.57(In)
      Total soil loss =     0.869(Ac.Ft)
      Total rainfall =      3.77(In)
      Flood volume =       17676.9 Cubic Feet
      Total soil loss =       37856.1 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      1.360(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        24 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------------
   0+ 5       0.0000      0.01  Q          |         |         |         |
   0+10       0.0001      0.01  Q          |         |         |         |
   0+15       0.0002      0.01  Q          |         |         |         |
   0+20       0.0003      0.02  Q          |         |         |         |
   0+25       0.0004      0.02  Q          |         |         |         |
   0+30       0.0005      0.02  Q          |         |         |         |
   0+35       0.0007      0.02  Q          |         |         |         |
   0+40       0.0008      0.02  Q          |         |         |         |
   0+45       0.0009      0.02  Q          |         |         |         |
   0+50       0.0011      0.02  Q          |         |         |         |
   0+55       0.0012      0.02  Q          |         |         |         |
   1+ 0       0.0014      0.02  Q          |         |         |         |
   1+ 5       0.0016      0.02  Q          |         |         |         |
```

1+10	0.0017	0.02	Q				
1+15	0.0018	0.02	Q				
1+20	0.0019	0.02	Q				
1+25	0.0021	0.02	Q				
1+30	0.0022	0.02	Q				
1+35	0.0023	0.02	Q				
1+40	0.0025	0.02	Q				
1+45	0.0026	0.02	Q				
1+50	0.0027	0.02	Q				
1+55	0.0029	0.02	Q				
2+ 0	0.0031	0.02	Q				
2+ 5	0.0032	0.02	Q				
2+10	0.0034	0.02	Q				
2+15	0.0036	0.02	Q				
2+20	0.0037	0.02	Q				
2+25	0.0039	0.02	Q				
2+30	0.0041	0.02	Q				
2+35	0.0043	0.03	Q				
2+40	0.0045	0.03	Q				
2+45	0.0047	0.03	Q				
2+50	0.0049	0.03	Q				
2+55	0.0051	0.03	Q				
3+ 0	0.0053	0.03	Q				
3+ 5	0.0055	0.03	Q				
3+10	0.0058	0.03	Q				
3+15	0.0060	0.03	Q				
3+20	0.0062	0.03	Q				
3+25	0.0064	0.03	Q				
3+30	0.0066	0.03	Q				
3+35	0.0068	0.03	Q				
3+40	0.0070	0.03	Q				
3+45	0.0072	0.03	Q				
3+50	0.0075	0.03	Q				
3+55	0.0077	0.04	Q				
4+ 0	0.0080	0.04	Q				
4+ 5	0.0082	0.04	Q				
4+10	0.0085	0.04	Q				
4+15	0.0087	0.04	Q				
4+20	0.0090	0.04	Q				
4+25	0.0093	0.04	Q				
4+30	0.0096	0.04	Q				
4+35	0.0099	0.04	Q				
4+40	0.0102	0.04	QV				
4+45	0.0105	0.04	QV				
4+50	0.0108	0.05	QV				
4+55	0.0111	0.05	QV				
5+ 0	0.0115	0.05	QV				
5+ 5	0.0118	0.04	QV				
5+10	0.0121	0.04	QV				
5+15	0.0123	0.04	QV				
5+20	0.0126	0.04	QV				
5+25	0.0129	0.04	QV				
5+30	0.0132	0.04	QV				
5+35	0.0135	0.05	QV				
5+40	0.0138	0.05	QV				
5+45	0.0142	0.05	QV				
5+50	0.0145	0.05	QV				
5+55	0.0148	0.05	QV				
6+ 0	0.0152	0.05	QV				
6+ 5	0.0155	0.05	QV				
6+10	0.0159	0.05	QV				
6+15	0.0163	0.06	QV				
6+20	0.0167	0.06	QV				
6+25	0.0171	0.06	QV				
6+30	0.0174	0.06	QV				
6+35	0.0178	0.06	QV				
6+40	0.0183	0.06	QV				
6+45	0.0187	0.06	QV				
6+50	0.0191	0.06	QV				
6+55	0.0195	0.06	QV				
7+ 0	0.0200	0.06	QV				

```
 7+ 5       0.0204      0.06  Q V       |          |          |          |
 7+10       0.0208      0.06  Q V       |          |          |          |
 7+15       0.0212      0.06  Q V       |          |          |          |
 7+20       0.0217      0.06  Q V       |          |          |          |
 7+25       0.0221      0.07  Q V       |          |          |          |
 7+30       0.0226      0.07  Q V       |          |          |          |
 7+35       0.0231      0.07  Q V       |          |          |          |
 7+40       0.0236      0.07  Q V       |          |          |          |
 7+45       0.0241      0.07  Q V       |          |          |          |
 7+50       0.0246      0.08  Q V       |          |          |          |
 7+55       0.0252      0.08  Q V       |          |          |          |
 8+ 0       0.0257      0.08  Q V       |          |          |          |
 8+ 5       0.0263      0.09  Q V       |          |          |          |
 8+10       0.0270      0.09  Q V       |          |          |          |
 8+15       0.0276      0.09  Q V       |          |          |          |
 8+20       0.0282      0.09  Q V       |          |          |          |
 8+25       0.0289      0.09  Q V       |          |          |          |
 8+30       0.0295      0.09  Q V       |          |          |          |
 8+35       0.0302      0.10  Q V       |          |          |          |
 8+40       0.0308      0.10  Q  V      |          |          |          |
 8+45       0.0315      0.10  Q  V      |          |          |          |
 8+50       0.0322      0.10  Q  V      |          |          |          |
 8+55       0.0329      0.10  Q  V      |          |          |          |
 9+ 0       0.0337      0.10  Q  V      |          |          |          |
 9+ 5       0.0347      0.15  Q  V      |          |          |          |
 9+10       0.0361      0.21  Q  V      |          |          |          |
 9+15       0.0376      0.22  Q  V      |          |          |          |
 9+20       0.0394      0.25  |Q V      |          |          |          |
 9+25       0.0413      0.29  |Q  V     |          |          |          |
 9+30       0.0434      0.30  |Q  V     |          |          |          |
 9+35       0.0456      0.33  |Q  V     |          |          |          |
 9+40       0.0481      0.36  |Q  V     |          |          |          |
 9+45       0.0507      0.37  |Q  V     |          |          |          |
 9+50       0.0535      0.40  |Q   V    |          |          |          |
 9+55       0.0565      0.44  |Q   V    |          |          |          |
10+ 0       0.0595      0.45  |Q   V    |          |          |          |
10+ 5       0.0616      0.29  |Q    V   |          |          |          |
10+10       0.0625      0.13  Q     V   |          |          |          |
10+15       0.0632      0.10  Q     V   |          |          |          |
10+20       0.0638      0.09  Q     V   |          |          |          |
10+25       0.0645      0.09  Q     V   |          |          |          |
10+30       0.0651      0.09  Q     V   |          |          |          |
10+35       0.0665      0.21  Q     V   |          |          |          |
10+40       0.0688      0.33  |Q    V   |          |          |          |
10+45       0.0712      0.36  |Q     V  |          |          |          |
10+50       0.0738      0.37  |Q     V  |          |          |          |
10+55       0.0763      0.37  |Q     V  |          |          |          |
11+ 0       0.0789      0.38  |Q     V  |          |          |          |
11+ 5       0.0813      0.35  |Q      V |          |          |          |
11+10       0.0836      0.33  |Q      V |          |          |          |
11+15       0.0859      0.33  |Q      V |          |          |          |
11+20       0.0882      0.33  |Q      V |          |          |          |
11+25       0.0905      0.33  |Q      V |          |          |          |
11+30       0.0928      0.34  |Q       V|          |          |          |
11+35       0.0948      0.29  |Q       V|          |          |          |
11+40       0.0964      0.24  Q        V|          |          |          |
11+45       0.0980      0.23  Q        V|          |          |          |
11+50       0.0998      0.26  |Q       V|          |          |          |
11+55       0.1018      0.29  |Q        V          |          |          |
12+ 0       0.1039      0.30  |Q        V          |          |          |
12+ 5       0.1073      0.49  |Q        V          |          |          |
12+10       0.1120      0.69  | Q       |V         |          |          |
12+15       0.1171      0.73  | Q       |V         |          |          |
12+20       0.1224      0.78  |  Q      | V        |          |          |
12+25       0.1280      0.81  |  Q      | V        |          |          |
12+30       0.1336      0.82  |  Q      |  V       |          |          |
12+35       0.1397      0.88  |  Q      |  V       |          |          |
12+40       0.1461      0.94  |  Q      |   V      |          |          |
12+45       0.1527      0.95  |  Q      |    V     |          |          |
12+50       0.1595      0.99  |  Q      |    V     |          |          |
12+55       0.1665      1.02  |   Q     |     V    |          |          |
```

```
13+ 0       0.1735      1.03  |   Q     |      V  |         |         |
13+ 5       0.1816      1.17  |   Q     |      V  |         |         |
13+10       0.1906      1.31  |    Q    |       V |         |         |
13+15       0.1998      1.34  |    Q    |        V|         |         |
13+20       0.2091      1.35  |    Q    |         V         |         |
13+25       0.2185      1.36  |    Q    |         |V        |         |
13+30       0.2278      1.36  |    Q    |         | V       |         |
13+35       0.2352      1.07  |   Q     |         |  V      |         |
13+40       0.2405      0.77  |  Q      |         |  V      |         |
13+45       0.2454      0.71  | Q       |         |   V     |         |
13+50       0.2502      0.70  | Q       |         |   V     |         |
13+55       0.2550      0.70  | Q       |         |    V    |         |
14+ 0       0.2598      0.70  | Q       |         |    V    |         |
14+ 5       0.2654      0.81  |  Q      |         |     V   |         |
14+10       0.2718      0.93  |  Q      |         |     V   |         |
14+15       0.2784      0.95  |  Q      |         |      V  |         |
14+20       0.2849      0.94  |  Q      |         |       V |         |
14+25       0.2911      0.91  |  Q      |         |       V |         |
14+30       0.2974      0.91  |  Q      |         |        V|         |
14+35       0.3037      0.91  |  Q      |         |        V|         |
14+40       0.3100      0.92  |  Q      |         |         V         |
14+45       0.3164      0.92  |  Q      |         |         |V        |
14+50       0.3225      0.90  |  Q      |         |         |V        |
14+55       0.3286      0.87  |  Q      |         |         | V       |
15+ 0       0.3346      0.87  |  Q      |         |         | V       |
15+ 5       0.3404      0.85  |  Q      |         |         |  V      |
15+10       0.3460      0.82  |  Q      |         |         |   V     |
15+15       0.3517      0.82  |  Q      |         |         |   V     |
15+20       0.3572      0.79  |  Q      |         |         |    V    |
15+25       0.3625      0.77  |  Q      |         |         |    V    |
15+30       0.3678      0.77  |  Q      |         |         |     V   |
15+35       0.3723      0.66  | Q       |         |         |     V   |
15+40       0.3761      0.55  | Q       |         |         |      V  |
15+45       0.3798      0.54  | Q       |         |         |      V  |
15+50       0.3835      0.53  | Q       |         |         |      V  |
15+55       0.3872      0.54  | Q       |         |         |       V |
16+ 0       0.3909      0.54  | Q       |         |         |       V |
16+ 5       0.3931      0.32  |Q        |         |         |       V |
16+10       0.3937      0.08  Q         |         |         |       V |
16+15       0.3940      0.04  Q         |         |         |       V |
16+20       0.3941      0.02  Q         |         |         |       V |
16+25       0.3943      0.02  Q         |         |         |       V |
16+30       0.3945      0.02  Q         |         |         |       V |
16+35       0.3946      0.02  Q         |         |         |       V |
16+40       0.3947      0.02  Q         |         |         |       V |
16+45       0.3949      0.02  Q         |         |         |       V |
16+50       0.3950      0.02  Q         |         |         |       V |
16+55       0.3951      0.02  Q         |         |         |       V |
17+ 0       0.3953      0.02  Q         |         |         |       V |
17+ 5       0.3954      0.02  Q         |         |         |       V |
17+10       0.3956      0.03  Q         |         |         |       V |
17+15       0.3958      0.03  Q         |         |         |        V|
17+20       0.3961      0.03  Q         |         |         |        V|
17+25       0.3963      0.03  Q         |         |         |        V|
17+30       0.3965      0.03  Q         |         |         |        V|
17+35       0.3967      0.03  Q         |         |         |        V|
17+40       0.3969      0.03  Q         |         |         |        V|
17+45       0.3971      0.03  Q         |         |         |        V|
17+50       0.3973      0.03  Q         |         |         |        V|
17+55       0.3975      0.03  Q         |         |         |        V|
18+ 0       0.3977      0.02  Q         |         |         |        V|
18+ 5       0.3978      0.02  Q         |         |         |        V|
18+10       0.3980      0.02  Q         |         |         |        V|
18+15       0.3982      0.02  Q         |         |         |        V|
18+20       0.3983      0.02  Q         |         |         |        V|
18+25       0.3985      0.02  Q         |         |         |        V|
18+30       0.3987      0.02  Q         |         |         |        V|
18+35       0.3988      0.02  Q         |         |         |        V|
18+40       0.3990      0.02  Q         |         |         |        V|
18+45       0.3991      0.02  Q         |         |         |        V|
18+50       0.3992      0.02  Q         |         |         |        V|
```

18+55	0.3993	0.01	Q	|	|	|	V|
19+ 0	0.3994	0.01	Q	|	|	|	V|
19+ 5	0.3995	0.02	Q	|	|	|	V|
19+10	0.3996	0.02	Q	|	|	|	V|
19+15	0.3997	0.02	Q	|	|	|	V|
19+20	0.3999	0.02	Q	|	|	|	V|
19+25	0.4000	0.02	Q	|	|	|	V|
19+30	0.4002	0.02	Q	|	|	|	V|
19+35	0.4004	0.02	Q	|	|	|	V|
19+40	0.4005	0.02	Q	|	|	|	V|
19+45	0.4006	0.02	Q	|	|	|	V|
19+50	0.4007	0.02	Q	|	|	|	V|
19+55	0.4008	0.01	Q	|	|	|	V|
20+ 0	0.4009	0.01	Q	|	|	|	V|
20+ 5	0.4010	0.02	Q	|	|	|	V|
20+10	0.4011	0.02	Q	|	|	|	V|
20+15	0.4013	0.02	Q	|	|	|	V|
20+20	0.4014	0.02	Q	|	|	|	V|
20+25	0.4015	0.02	Q	|	|	|	V|
20+30	0.4016	0.02	Q	|	|	|	V|
20+35	0.4018	0.02	Q	|	|	|	V|
20+40	0.4019	0.02	Q	|	|	|	V|
20+45	0.4020	0.02	Q	|	|	|	V|
20+50	0.4021	0.02	Q	|	|	|	V|
20+55	0.4022	0.01	Q	|	|	|	V|
21+ 0	0.4023	0.01	Q	|	|	|	V|
21+ 5	0.4024	0.02	Q	|	|	|	V|
21+10	0.4025	0.02	Q	|	|	|	V|
21+15	0.4027	0.02	Q	|	|	|	V|
21+20	0.4028	0.02	Q	|	|	|	V|
21+25	0.4029	0.01	Q	|	|	|	V|
21+30	0.4029	0.01	Q	|	|	|	V|
21+35	0.4030	0.02	Q	|	|	|	V|
21+40	0.4032	0.02	Q	|	|	|	V|
21+45	0.4033	0.02	Q	|	|	|	V|
21+50	0.4034	0.02	Q	|	|	|	V|
21+55	0.4035	0.01	Q	|	|	|	V|
22+ 0	0.4036	0.01	Q	|	|	|	V|
22+ 5	0.4037	0.02	Q	|	|	|	V|
22+10	0.4038	0.02	Q	|	|	|	V|
22+15	0.4039	0.02	Q	|	|	|	V|
22+20	0.4040	0.02	Q	|	|	|	V|
22+25	0.4041	0.01	Q	|	|	|	V|
22+30	0.4042	0.01	Q	|	|	|	V|
22+35	0.4043	0.01	Q	|	|	|	V|
22+40	0.4044	0.01	Q	|	|	|	V|
22+45	0.4045	0.01	Q	|	|	|	V|
22+50	0.4046	0.01	Q	|	|	|	V|
22+55	0.4046	0.01	Q	|	|	|	V|
23+ 0	0.4047	0.01	Q	|	|	|	V|
23+ 5	0.4048	0.01	Q	|	|	|	V|
23+10	0.4049	0.01	Q	|	|	|	V|
23+15	0.4050	0.01	Q	|	|	|	V|
23+20	0.4051	0.01	Q	|	|	|	V|
23+25	0.4052	0.01	Q	|	|	|	V|
23+30	0.4052	0.01	Q	|	|	|	V|
23+35	0.4053	0.01	Q	|	|	|	V|
23+40	0.4054	0.01	Q	|	|	|	V|
23+45	0.4055	0.01	Q	|	|	|	V|
23+50	0.4056	0.01	Q	|	|	|	V|
23+55	0.4057	0.01	Q	|	|	|	V|
24+ 0	0.4057	0.01	Q	|	|	|	V|
24+ 5	0.4058	0.01	Q	|	|	|	V|
24+10	0.4058	0.00	Q	|	|	|	V|
24+15	0.4058	0.00	Q	|	|	|	V|

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/20/19 File: NODE2EXIST100YR1HR1100.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 1-HOUR STORM - EXISTING CONDITION @ NODE 2

Drainage Area = 4.06(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.06(Ac.) = 0.006 Sq. Mi.
Length along longest watercourse = 807.00(Ft.)
Length along longest watercourse measured to centroid = 374.00(Ft.)
Length along longest watercourse = 0.153 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 22.00(Ft.)
Slope along watercourse = 143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time = 0.040 Hr.
Lag time = 2.42 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.97 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	0.49	2.01

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	1.40	5.68

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.494(In)
Area Averaged 100-Year Rainfall = 1.400(In)

Point rain (area averaged) = 1.400(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.400(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.060	83.00	0.000

```
 Total Area Entered =      4.06(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
83.0  83.0      0.210     0.000        0.210       1.000      0.210
                                                 Sum (F) =   0.210
Area averaged mean soil loss (F) (In/Hr) =  0.210
Minimum soil loss rate ((In/Hr)) =  0.105
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                       DESERT S-Curve
------------------------------------------------------------------------
                Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        206.797         43.404             1.776
    2   0.167        413.594         45.061             1.844
    3   0.250        620.390          8.477             0.347
    4   0.333        827.187          3.058             0.125
                              Sum = 100.000   Sum=       4.092
------------------------------------------------------------------------

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

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
      (Hr.)  Percent   (In/Hr)         Max   |   Low         (In/Hr)
  1   0.08     4.40      0.739          0.210    (  0.665)        0.529
  2   0.17     4.50      0.756          0.210    (  0.680)        0.546
  3   0.25     5.40      0.907          0.210    (  0.816)        0.697
  4   0.33     5.40      0.907          0.210    (  0.816)        0.697
  5   0.42     5.70      0.958          0.210    (  0.862)        0.748
  6   0.50     6.40      1.075          0.210    (  0.968)        0.865
  7   0.58     7.90      1.327          0.210    (  1.194)        1.117
  8   0.67     9.10      1.529          0.210    (  1.376)        1.319
  9   0.75    12.80      2.150          0.210    (  1.935)        1.941
 10   0.83    25.60      4.301          0.210    (  3.871)        4.091
 11   0.92     7.90      1.327          0.210    (  1.194)        1.117
 12   1.00     4.90      0.823          0.210    (  0.741)        0.613
               (Loss Rate Not Used)
    Sum =     100.0                                 Sum =    14.3
      Flood volume = Effective rainfall      1.19(In)
       times area       4.1(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
      Total soil loss =      0.21(In)
      Total soil loss =     0.071(Ac.Ft)
      Total rainfall =      1.40(In)
      Flood volume =       17540.2 Cubic Feet
      Total soil loss =        3092.0 Cubic Feet
      ------------------------------------------------------------------
       Peak flow rate of this hydrograph =     11.446(CFS)
      ------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        1 - H O U R    S T O R M
                   R u n o f f     H y d r o g r a p h
      ------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))

      ------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
----------------------------------------------------------------------
  0+ 5       0.0065      0.94  VQ        |         |         |         |
```

```
    0+10       0.0199      1.95  |V Q      |         |         |         |
    0+15       0.0366      2.43  |  VQ     |         |         |         |
    0+20       0.0558      2.78  |    Q    |         |         |         |
    0+25       0.0759      2.93  |    Q V  |         |         |         |
    0+30       0.0983      3.25  |     Q  V|         |         |         |
    0+35       0.1253      3.93  |      Q  | V       |         |         |
    0+40       0.1584      4.80  |        Q|    V    |         |         |
    0+45       0.2023      6.38  |         | Q       V         |         |
    0+50       0.2811     11.45  |         |         | Q    V  |         |
    0+55       0.3526     10.37  |         |         Q         |    V    |
    1+ 0       0.3857      4.81  |        Q|         |         |       V |
    1+ 5       0.3997      2.03  |   Q     |         |         |        V|
    1+10       0.4021      0.35  Q         |         |         |        V|
    1+15       0.4027      0.08  Q         |         |         |         V
---------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/20/19 File: NODE2EXIST100YR3HR3100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 3-HOUR STORM - EXISTING CONDITION @ NODE 2
----------------------------------------------------------------------
Drainage Area =       4.06(Ac.)  =      0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       4.06(Ac.)  =      0.006 Sq. Mi.
Length along longest watercourse =     807.00(Ft.)
Length along longest watercourse measured to centroid =     374.00(Ft.)
Length along longest watercourse =      0.153 Mi.
Length along longest watercourse measured to centroid =      0.071 Mi.
Difference in elevation =      22.00(Ft.)
Slope along watercourse =    143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time =    0.040 Hr.
Lag time =     2.42 Min.
25% of lag time =     0.60 Min.
40% of lag time =     0.97 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           0.87                 3.53

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           2.22                 9.01

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    2.220(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.220(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     4.060           83.00         0.000
```

Total Area Entered = 4.06(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.000	0.210	1.000	0.210
					Sum (F) =	0.210

Area averaged mean soil loss (F) (In/Hr) = 0.210
Minimum soil loss rate ((In/Hr)) = 0.105
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
		Sum = 100.000	Sum=	4.092

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.346	0.210	(0.312)	0.137
2	0.17	1.30	0.346	0.210	(0.312)	0.137
3	0.25	1.10	0.293	0.210	(0.264)	0.083
4	0.33	1.50	0.400	0.210	(0.360)	0.190
5	0.42	1.50	0.400	0.210	(0.360)	0.190
6	0.50	1.80	0.480	0.210	(0.432)	0.270
7	0.58	1.50	0.400	0.210	(0.360)	0.190
8	0.67	1.80	0.480	0.210	(0.432)	0.270
9	0.75	1.80	0.480	0.210	(0.432)	0.270
10	0.83	1.50	0.400	0.210	(0.360)	0.190
11	0.92	1.60	0.426	0.210	(0.384)	0.216
12	1.00	1.80	0.480	0.210	(0.432)	0.270
13	1.08	2.20	0.586	0.210	(0.527)	0.376
14	1.17	2.20	0.586	0.210	(0.527)	0.376
15	1.25	2.20	0.586	0.210	(0.527)	0.376
16	1.33	2.00	0.533	0.210	(0.480)	0.323
17	1.42	2.60	0.693	0.210	(0.623)	0.483
18	1.50	2.70	0.719	0.210	(0.647)	0.509
19	1.58	2.40	0.639	0.210	(0.575)	0.430
20	1.67	2.70	0.719	0.210	(0.647)	0.509
21	1.75	3.30	0.879	0.210	(0.791)	0.669
22	1.83	3.10	0.826	0.210	(0.743)	0.616
23	1.92	2.90	0.773	0.210	(0.695)	0.563
24	2.00	3.00	0.799	0.210	(0.719)	0.589
25	2.08	3.10	0.826	0.210	(0.743)	0.616
26	2.17	4.20	1.119	0.210	(1.007)	0.909
27	2.25	5.00	1.332	0.210	(1.199)	1.122
28	2.33	3.50	0.932	0.210	(0.839)	0.723
29	2.42	6.80	1.811	0.210	(1.630)	1.602
30	2.50	7.30	1.945	0.210	(1.750)	1.735
31	2.58	8.20	2.184	0.210	(1.966)	1.975
32	2.67	5.90	1.572	0.210	(1.415)	1.362
33	2.75	2.00	0.533	0.210	(0.480)	0.323
34	2.83	1.80	0.480	0.210	(0.432)	0.270
35	2.92	1.80	0.480	0.210	(0.432)	0.270
36	3.00	0.60	0.160	(0.210)	0.144	0.016

```
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    19.2
       Flood volume = Effective rainfall      1.60(In)
        times area       4.1(Ac.)/[(In)/(Ft.)] =       0.5(Ac.Ft)
       Total soil loss =      0.62(In)
       Total soil loss =     0.211(Ac.Ft)
       Total rainfall =      2.22(In)
       Flood volume =       23522.4 Cubic Feet
       Total soil loss =        9195.0 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      7.355(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------
   0+ 5       0.0017      0.24  Q         |         |         |         |
   0+10       0.0051      0.49  VQ        |         |         |         |
   0+15       0.0082      0.45  VQ        |         |         |         |
   0+20       0.0120      0.56  V Q       |         |         |         |
   0+25       0.0170      0.73  |VQ       |         |         |         |
   0+30       0.0233      0.91  |V Q      |         |         |         |
   0+35       0.0296      0.92  | VQ      |         |         |         |
   0+40       0.0362      0.95  | VQ      |         |         |         |
   0+45       0.0436      1.08  |  VQ     |         |         |         |
   0+50       0.0501      0.95  |  Q      |         |         |         |
   0+55       0.0561      0.86  |  QV     |         |         |         |
   1+ 0       0.0628      0.98  |  QV     |         |         |         |
   1+ 5       0.0715      1.27  |    Q    |         |         |         |
   1+10       0.0817      1.48  |    QV   |         |         |         |
   1+15       0.0922      1.53  |     Q   |         |         |         |
   1+20       0.1022      1.45  |    Q V  |         |         |         |
   1+25       0.1134      1.63  |     Q V |         |         |         |
   1+30       0.1269      1.96  |      Q V|         |         |         |
   1+35       0.1401      1.91  |      Q  V         |         |         |
   1+40       0.1534      1.93  |      Q  |V        |         |         |
   1+45       0.1695      2.34  |        Q| V       |         |         |
   1+50       0.1871      2.56  |         Q  V      |         |         |
   1+55       0.2039      2.43  |        Q|    V    |         |         |
   2+ 0       0.2203      2.38  |        Q|     V   |         |         |
   2+ 5       0.2372      2.45  |        Q|      V  |         |         |
   2+10       0.2581      3.03  |         | Q      V|         |         |
   2+15       0.2853      3.96  |         |    Q    |V        |         |
   2+20       0.3111      3.75  |         |   Q     |  V      |         |
   2+25       0.3434      4.68  |         |       Q |    V    |         |
   2+30       0.3876      6.43  |         |         |    Q  V |         |
   2+35       0.4383      7.36  |         |         |       Q| V        |
   2+40       0.4856      6.87  |         |         |      Q  |    V    |
   2+45       0.5131      3.99  |         |    Q    |         |       V |
   2+50       0.5254      1.79  |      Q  |         |         |       V |
   2+55       0.5341      1.26  |    Q    |         |         |        V|
   3+ 0       0.5386      0.66  | Q       |         |         |        V|
   3+ 5       0.5397      0.16  Q         |         |         |        V|
   3+10       0.5400      0.04  Q         |         |         |        V|
   3+15       0.5400      0.00  Q         |         |         |         V
----------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/20/19 File: NODE2EXIST100YR6HR6100.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 6-HOUR STORM - EXISTING CONDITION @ NODE 2

Drainage Area = 4.06(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.06(Ac.) = 0.006 Sq. Mi.
Length along longest watercourse = 807.00(Ft.)
Length along longest watercourse measured to centroid = 374.00(Ft.)
Length along longest watercourse = 0.153 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 22.00(Ft.)
Slope along watercourse = 143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time = 0.040 Hr.
Lag time = 2.42 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.97 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	1.23	4.99

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.06	3.06	12.42

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.230(In)
Area Averaged 100-Year Rainfall = 3.060(In)

Point rain (area averaged) = 3.060(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.060(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.060	83.00	0.000

Total Area Entered = 4.06(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.000	0.210	1.000	0.210
					Sum (F) =	0.210

Area averaged mean soil loss (F) (In/Hr) = 0.210
Minimum soil loss rate ((In/Hr)) = 0.105
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
		Sum = 100.000	Sum=	4.092

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.184	(0.210)	0.165	0.018
2	0.17	0.60	0.220	(0.210)	0.198	0.022
3	0.25	0.60	0.220	(0.210)	0.198	0.022
4	0.33	0.60	0.220	(0.210)	0.198	0.022
5	0.42	0.60	0.220	(0.210)	0.198	0.022
6	0.50	0.70	0.257	0.210	(0.231)	0.047
7	0.58	0.70	0.257	0.210	(0.231)	0.047
8	0.67	0.70	0.257	0.210	(0.231)	0.047
9	0.75	0.70	0.257	0.210	(0.231)	0.047
10	0.83	0.70	0.257	0.210	(0.231)	0.047
11	0.92	0.70	0.257	0.210	(0.231)	0.047
12	1.00	0.80	0.294	0.210	(0.264)	0.084
13	1.08	0.80	0.294	0.210	(0.264)	0.084
14	1.17	0.80	0.294	0.210	(0.264)	0.084
15	1.25	0.80	0.294	0.210	(0.264)	0.084
16	1.33	0.80	0.294	0.210	(0.264)	0.084
17	1.42	0.80	0.294	0.210	(0.264)	0.084
18	1.50	0.80	0.294	0.210	(0.264)	0.084
19	1.58	0.80	0.294	0.210	(0.264)	0.084
20	1.67	0.80	0.294	0.210	(0.264)	0.084
21	1.75	0.80	0.294	0.210	(0.264)	0.084
22	1.83	0.80	0.294	0.210	(0.264)	0.084
23	1.92	0.80	0.294	0.210	(0.264)	0.084
24	2.00	0.90	0.330	0.210	(0.297)	0.121
25	2.08	0.80	0.294	0.210	(0.264)	0.084
26	2.17	0.90	0.330	0.210	(0.297)	0.121
27	2.25	0.90	0.330	0.210	(0.297)	0.121
28	2.33	0.90	0.330	0.210	(0.297)	0.121
29	2.42	0.90	0.330	0.210	(0.297)	0.121
30	2.50	0.90	0.330	0.210	(0.297)	0.121
31	2.58	0.90	0.330	0.210	(0.297)	0.121
32	2.67	0.90	0.330	0.210	(0.297)	0.121
33	2.75	1.00	0.367	0.210	(0.330)	0.157
34	2.83	1.00	0.367	0.210	(0.330)	0.157
35	2.92	1.00	0.367	0.210	(0.330)	0.157
36	3.00	1.00	0.367	0.210	(0.330)	0.157

37	3.08	1.00	0.367	0.210	(0.330)	0.157
38	3.17	1.10	0.404	0.210	(0.364)	0.194
39	3.25	1.10	0.404	0.210	(0.364)	0.194
40	3.33	1.10	0.404	0.210	(0.364)	0.194
41	3.42	1.20	0.441	0.210	(0.397)	0.231
42	3.50	1.30	0.477	0.210	(0.430)	0.268
43	3.58	1.40	0.514	0.210	(0.463)	0.304
44	3.67	1.40	0.514	0.210	(0.463)	0.304
45	3.75	1.50	0.551	0.210	(0.496)	0.341
46	3.83	1.50	0.551	0.210	(0.496)	0.341
47	3.92	1.60	0.588	0.210	(0.529)	0.378
48	4.00	1.60	0.588	0.210	(0.529)	0.378
49	4.08	1.70	0.624	0.210	(0.562)	0.414
50	4.17	1.80	0.661	0.210	(0.595)	0.451
51	4.25	1.90	0.698	0.210	(0.628)	0.488
52	4.33	2.00	0.734	0.210	(0.661)	0.525
53	4.42	2.10	0.771	0.210	(0.694)	0.561
54	4.50	2.10	0.771	0.210	(0.694)	0.561
55	4.58	2.20	0.808	0.210	(0.727)	0.598
56	4.67	2.30	0.845	0.210	(0.760)	0.635
57	4.75	2.40	0.881	0.210	(0.793)	0.671
58	4.83	2.40	0.881	0.210	(0.793)	0.671
59	4.92	2.50	0.918	0.210	(0.826)	0.708
60	5.00	2.60	0.955	0.210	(0.859)	0.745
61	5.08	3.10	1.138	0.210	(1.024)	0.929
62	5.17	3.60	1.322	0.210	(1.190)	1.112
63	5.25	3.90	1.432	0.210	(1.289)	1.222
64	5.33	4.20	1.542	0.210	(1.388)	1.332
65	5.42	4.70	1.726	0.210	(1.553)	1.516
66	5.50	5.60	2.056	0.210	(1.851)	1.846
67	5.58	1.90	0.698	0.210	(0.628)	0.488
68	5.67	0.90	0.330	0.210	(0.297)	0.121
69	5.75	0.60	0.220	(0.210)	0.198	0.022
70	5.83	0.50	0.184	(0.210)	0.165	0.018
71	5.92	0.30	0.110	(0.210)	0.099	0.011
72	6.00	0.20	0.073	(0.210)	0.066	0.007

(Loss Rate Not Used)

Sum = 100.0 Sum = 22.0

Flood volume = Effective rainfall 1.83(In)
times area 4.1(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
Total soil loss = 1.23(In)
Total soil loss = 0.415(Ac.Ft)
Total rainfall = 3.06(In)
Flood volume = 27037.7 Cubic Feet
Total soil loss = 18059.4 Cubic Feet

Peak flow rate of this hydrograph = 6.693(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.03	Q				
0+10	0.0007	0.07	Q				
0+15	0.0013	0.09	Q				
0+20	0.0019	0.09	Q				
0+25	0.0026	0.09	Q				
0+30	0.0035	0.13	Q				
0+35	0.0047	0.18	Q				
0+40	0.0060	0.19	Q				
0+45	0.0074	0.19	Q				
0+50	0.0087	0.19	Q				
0+55	0.0100	0.19	Q				
1+ 0	0.0118	0.26	VQ				
1+ 5	0.0141	0.33	VQ				

```
    1+10       0.0164      0.34  |Q         |          |          |          |
    1+15       0.0188      0.34  |Q         |          |          |          |
    1+20       0.0211      0.34  |Q         |          |          |          |
    1+25       0.0235      0.34  |Q         |          |          |          |
    1+30       0.0259      0.34  |Q         |          |          |          |
    1+35       0.0282      0.34  |Q         |          |          |          |
    1+40       0.0306      0.34  |Q         |          |          |          |
    1+45       0.0330      0.34  |QV        |          |          |          |
    1+50       0.0353      0.34  |QV        |          |          |          |
    1+55       0.0377      0.34  |QV        |          |          |          |
    2+ 0       0.0405      0.41  |QV        |          |          |          |
    2+ 5       0.0434      0.41  |QV        |          |          |          |
    2+10       0.0463      0.42  |QV        |          |          |          |
    2+15       0.0496      0.48  |Q V       |          |          |          |
    2+20       0.0530      0.49  |Q V       |          |          |          |
    2+25       0.0564      0.49  |Q V       |          |          |          |
    2+30       0.0598      0.49  |Q V       |          |          |          |
    2+35       0.0632      0.49  |Q  V      |          |          |          |
    2+40       0.0666      0.49  |Q  V      |          |          |          |
    2+45       0.0704      0.56  | Q V      |          |          |          |
    2+50       0.0747      0.63  | Q V      |          |          |          |
    2+55       0.0791      0.64  | Q  V     |          |          |          |
    3+ 0       0.0836      0.64  | Q  V     |          |          |          |
    3+ 5       0.0880      0.64  | Q  V     |          |          |          |
    3+10       0.0929      0.71  | Q  V     |          |          |          |
    3+15       0.0983      0.78  |  Q  V    |          |          |          |
    3+20       0.1037      0.79  |  Q  V    |          |          |          |
    3+25       0.1096      0.86  |  Q   V   |          |          |          |
    3+30       0.1165      0.99  |  Q   V   |          |          |          |
    3+35       0.1243      1.14  |   Q   V  |          |          |          |
    3+40       0.1327      1.22  |   Q   V  |          |          |          |
    3+45       0.1417      1.31  |    Q   V |          |          |          |
    3+50       0.1512      1.38  |    Q   V |          |          |          |
    3+55       0.1612      1.46  |    Q    V|          |          |          |
    4+ 0       0.1718      1.53  |     Q   |V          |          |          |
    4+ 5       0.1828      1.61  |     Q   |V          |          |          |
    4+10       0.1949      1.74  |     Q   | V         |          |          |
    4+15       0.2079      1.89  |      Q  |  V        |          |          |
    4+20       0.2219      2.04  |       Q |   V       |          |          |
    4+25       0.2370      2.19  |       Q |    V      |          |          |
    4+30       0.2527      2.28  |        Q|     V     |          |          |
    4+35       0.2689      2.36  |        Q|      V    |          |          |
    4+40       0.2861      2.50  |        Q|       V   |          |          |
    4+45       0.3043      2.64  |         Q        V|           |          |
    4+50       0.3231      2.73  |         Q         V           |          |
    4+55       0.3425      2.81  |          |Q        | V         |          |
    5+ 0       0.3628      2.95  |          |Q        |  V        |          |
    5+ 5       0.3858      3.35  |          |  Q      |   V       |          |
    5+10       0.4136      4.04  |          |     Q   |     V     |          |
    5+15       0.4456      4.64  |          |       Q |       V   |          |
    5+20       0.4809      5.12  |          |         Q         V          |
    5+25       0.5202      5.72  |          |          | Q       |  V       |
    5+30       0.5663      6.69  |          |          |    Q    |    V     |
    5+35       0.6005      4.97  |          |         Q|         |       V  |
    5+40       0.6139      1.94  |      Q   |          |         |        V |
    5+45       0.6185      0.66  | Q        |          |         |        V |
    5+50       0.6197      0.18  Q          |          |         |        V |
    5+55       0.6202      0.08  Q          |          |         |        V |
    6+ 0       0.6205      0.04  Q          |          |         |        V |
    6+ 5       0.6207      0.02  Q          |          |         |        V |
    6+10       0.6207      0.00  Q          |          |         |        V |
    6+15       0.6207      0.00  Q          |          |         |         V
-------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/20/19 File: NODE2EXIST100YR24HR24100.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 24-HOUR STORM - EXISTING CONDITION @ NODE 2
----------------------------------------------------------------------
Drainage Area =       4.06(Ac.)  =      0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       4.06(Ac.)  =      0.006 Sq. Mi.
Length along longest watercourse =     807.00(Ft.)
Length along longest watercourse measured to centroid =     374.00(Ft.)
Length along longest watercourse =      0.153 Mi.
Length along longest watercourse measured to centroid =      0.071 Mi.
Difference in elevation =      22.00(Ft.)
Slope along watercourse =    143.9405 Ft./Mi.
Average Manning's 'N' = 0.024
Lag time =    0.040 Hr.
Lag time =     2.42 Min.
25% of lag time =     0.60 Min.
40% of lag time =     0.97 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           2.25                 9.13

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        4.06           5.94                24.12

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.250(In)
Area Averaged 100-Year Rainfall =    5.940(In)

Point rain (area averaged) =    5.940(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.940(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     4.060           83.00          0.000
 Total Area Entered =      4.06(Ac.)
```

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.000	0.210	1.000	0.210
					Sum (F) =	0.210

Area averaged mean soil loss (F) (In/Hr) = 0.210
Minimum soil loss rate ((In/Hr)) = 0.105
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	206.797	43.404	1.776
2	0.167	413.594	45.061	1.844
3	0.250	620.390	8.477	0.347
4	0.333	827.187	3.058	0.125
			Sum = 100.000 Sum=	4.092

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.372)	0.043	0.005
2	0.17	0.07	0.048	(0.370)	0.043	0.005
3	0.25	0.07	0.048	(0.369)	0.043	0.005
4	0.33	0.10	0.071	(0.368)	0.064	0.007
5	0.42	0.10	0.071	(0.366)	0.064	0.007
6	0.50	0.10	0.071	(0.365)	0.064	0.007
7	0.58	0.10	0.071	(0.363)	0.064	0.007
8	0.67	0.10	0.071	(0.362)	0.064	0.007
9	0.75	0.10	0.071	(0.360)	0.064	0.007
10	0.83	0.13	0.095	(0.359)	0.086	0.010
11	0.92	0.13	0.095	(0.358)	0.086	0.010
12	1.00	0.13	0.095	(0.356)	0.086	0.010
13	1.08	0.10	0.071	(0.355)	0.064	0.007
14	1.17	0.10	0.071	(0.353)	0.064	0.007
15	1.25	0.10	0.071	(0.352)	0.064	0.007
16	1.33	0.10	0.071	(0.351)	0.064	0.007
17	1.42	0.10	0.071	(0.349)	0.064	0.007
18	1.50	0.10	0.071	(0.348)	0.064	0.007
19	1.58	0.10	0.071	(0.346)	0.064	0.007
20	1.67	0.10	0.071	(0.345)	0.064	0.007
21	1.75	0.10	0.071	(0.344)	0.064	0.007
22	1.83	0.13	0.095	(0.342)	0.086	0.010
23	1.92	0.13	0.095	(0.341)	0.086	0.010
24	2.00	0.13	0.095	(0.340)	0.086	0.010
25	2.08	0.13	0.095	(0.338)	0.086	0.010
26	2.17	0.13	0.095	(0.337)	0.086	0.010
27	2.25	0.13	0.095	(0.335)	0.086	0.010
28	2.33	0.13	0.095	(0.334)	0.086	0.010
29	2.42	0.13	0.095	(0.333)	0.086	0.010
30	2.50	0.13	0.095	(0.331)	0.086	0.010
31	2.58	0.17	0.119	(0.330)	0.107	0.012
32	2.67	0.17	0.119	(0.329)	0.107	0.012
33	2.75	0.17	0.119	(0.327)	0.107	0.012
34	2.83	0.17	0.119	(0.326)	0.107	0.012
35	2.92	0.17	0.119	(0.325)	0.107	0.012
36	3.00	0.17	0.119	(0.323)	0.107	0.012
37	3.08	0.17	0.119	(0.322)	0.107	0.012
38	3.17	0.17	0.119	(0.321)	0.107	0.012

39	3.25	0.17	0.119	(0.319)	0.107	0.012
40	3.33	0.17	0.119	(0.318)	0.107	0.012
41	3.42	0.17	0.119	(0.317)	0.107	0.012
42	3.50	0.17	0.119	(0.315)	0.107	0.012
43	3.58	0.17	0.119	(0.314)	0.107	0.012
44	3.67	0.17	0.119	(0.313)	0.107	0.012
45	3.75	0.17	0.119	(0.311)	0.107	0.012
46	3.83	0.20	0.143	(0.310)	0.128	0.014
47	3.92	0.20	0.143	(0.309)	0.128	0.014
48	4.00	0.20	0.143	(0.307)	0.128	0.014
49	4.08	0.20	0.143	(0.306)	0.128	0.014
50	4.17	0.20	0.143	(0.305)	0.128	0.014
51	4.25	0.20	0.143	(0.303)	0.128	0.014
52	4.33	0.23	0.166	(0.302)	0.150	0.017
53	4.42	0.23	0.166	(0.301)	0.150	0.017
54	4.50	0.23	0.166	(0.300)	0.150	0.017
55	4.58	0.23	0.166	(0.298)	0.150	0.017
56	4.67	0.23	0.166	(0.297)	0.150	0.017
57	4.75	0.23	0.166	(0.296)	0.150	0.017
58	4.83	0.27	0.190	(0.294)	0.171	0.019
59	4.92	0.27	0.190	(0.293)	0.171	0.019
60	5.00	0.27	0.190	(0.292)	0.171	0.019
61	5.08	0.20	0.143	(0.291)	0.128	0.014
62	5.17	0.20	0.143	(0.289)	0.128	0.014
63	5.25	0.20	0.143	(0.288)	0.128	0.014
64	5.33	0.23	0.166	(0.287)	0.150	0.017
65	5.42	0.23	0.166	(0.286)	0.150	0.017
66	5.50	0.23	0.166	(0.284)	0.150	0.017
67	5.58	0.27	0.190	(0.283)	0.171	0.019
68	5.67	0.27	0.190	(0.282)	0.171	0.019
69	5.75	0.27	0.190	(0.281)	0.171	0.019
70	5.83	0.27	0.190	(0.279)	0.171	0.019
71	5.92	0.27	0.190	(0.278)	0.171	0.019
72	6.00	0.27	0.190	(0.277)	0.171	0.019
73	6.08	0.30	0.214	(0.276)	0.192	0.021
74	6.17	0.30	0.214	(0.274)	0.192	0.021
75	6.25	0.30	0.214	(0.273)	0.192	0.021
76	6.33	0.30	0.214	(0.272)	0.192	0.021
77	6.42	0.30	0.214	(0.271)	0.192	0.021
78	6.50	0.30	0.214	(0.270)	0.192	0.021
79	6.58	0.33	0.238	(0.268)	0.214	0.024
80	6.67	0.33	0.238	(0.267)	0.214	0.024
81	6.75	0.33	0.238	(0.266)	0.214	0.024
82	6.83	0.33	0.238	(0.265)	0.214	0.024
83	6.92	0.33	0.238	(0.264)	0.214	0.024
84	7.00	0.33	0.238	(0.262)	0.214	0.024
85	7.08	0.33	0.238	(0.261)	0.214	0.024
86	7.17	0.33	0.238	(0.260)	0.214	0.024
87	7.25	0.33	0.238	(0.259)	0.214	0.024
88	7.33	0.37	0.261	(0.258)	0.235	0.026
89	7.42	0.37	0.261	(0.256)	0.235	0.026
90	7.50	0.37	0.261	(0.255)	0.235	0.026
91	7.58	0.40	0.285	0.254	(0.257)	0.031
92	7.67	0.40	0.285	0.253	(0.257)	0.032
93	7.75	0.40	0.285	0.252	(0.257)	0.033
94	7.83	0.43	0.309	0.251	(0.278)	0.058
95	7.92	0.43	0.309	0.249	(0.278)	0.059
96	8.00	0.43	0.309	0.248	(0.278)	0.061
97	8.08	0.50	0.356	0.247	(0.321)	0.109
98	8.17	0.50	0.356	0.246	(0.321)	0.110
99	8.25	0.50	0.356	0.245	(0.321)	0.112
100	8.33	0.50	0.356	0.244	(0.321)	0.113
101	8.42	0.50	0.356	0.243	(0.321)	0.114
102	8.50	0.50	0.356	0.241	(0.321)	0.115
103	8.58	0.53	0.380	0.240	(0.342)	0.140
104	8.67	0.53	0.380	0.239	(0.342)	0.141
105	8.75	0.53	0.380	0.238	(0.342)	0.142
106	8.83	0.57	0.404	0.237	(0.364)	0.167
107	8.92	0.57	0.404	0.236	(0.364)	0.168
108	9.00	0.57	0.404	0.235	(0.364)	0.169
109	9.08	0.63	0.451	0.234	(0.406)	0.218

110	9.17	0.63	0.451	0.232	(0.406)	0.219
111	9.25	0.63	0.451	0.231	(0.406)	0.220
112	9.33	0.67	0.475	0.230	(0.428)	0.245
113	9.42	0.67	0.475	0.229	(0.428)	0.246
114	9.50	0.67	0.475	0.228	(0.428)	0.247
115	9.58	0.70	0.499	0.227	(0.449)	0.272
116	9.67	0.70	0.499	0.226	(0.449)	0.273
117	9.75	0.70	0.499	0.225	(0.449)	0.274
118	9.83	0.73	0.523	0.224	(0.470)	0.299
119	9.92	0.73	0.523	0.223	(0.470)	0.300
120	10.00	0.73	0.523	0.222	(0.470)	0.301
121	10.08	0.50	0.356	0.220	(0.321)	0.136
122	10.17	0.50	0.356	0.219	(0.321)	0.137
123	10.25	0.50	0.356	0.218	(0.321)	0.138
124	10.33	0.50	0.356	0.217	(0.321)	0.139
125	10.42	0.50	0.356	0.216	(0.321)	0.140
126	10.50	0.50	0.356	0.215	(0.321)	0.141
127	10.58	0.67	0.475	0.214	(0.428)	0.261
128	10.67	0.67	0.475	0.213	(0.428)	0.262
129	10.75	0.67	0.475	0.212	(0.428)	0.263
130	10.83	0.67	0.475	0.211	(0.428)	0.264
131	10.92	0.67	0.475	0.210	(0.428)	0.265
132	11.00	0.67	0.475	0.209	(0.428)	0.266
133	11.08	0.63	0.451	0.208	(0.406)	0.244
134	11.17	0.63	0.451	0.207	(0.406)	0.245
135	11.25	0.63	0.451	0.206	(0.406)	0.246
136	11.33	0.63	0.451	0.205	(0.406)	0.247
137	11.42	0.63	0.451	0.204	(0.406)	0.248
138	11.50	0.63	0.451	0.203	(0.406)	0.249
139	11.58	0.57	0.404	0.202	(0.364)	0.202
140	11.67	0.57	0.404	0.201	(0.364)	0.203
141	11.75	0.57	0.404	0.200	(0.364)	0.204
142	11.83	0.60	0.428	0.199	(0.385)	0.229
143	11.92	0.60	0.428	0.198	(0.385)	0.230
144	12.00	0.60	0.428	0.197	(0.385)	0.231
145	12.08	0.83	0.594	0.196	(0.535)	0.398
146	12.17	0.83	0.594	0.195	(0.535)	0.399
147	12.25	0.83	0.594	0.194	(0.535)	0.400
148	12.33	0.87	0.618	0.193	(0.556)	0.425
149	12.42	0.87	0.618	0.192	(0.556)	0.426
150	12.50	0.87	0.618	0.191	(0.556)	0.427
151	12.58	0.93	0.665	0.190	(0.599)	0.475
152	12.67	0.93	0.665	0.189	(0.599)	0.476
153	12.75	0.93	0.665	0.188	(0.599)	0.477
154	12.83	0.97	0.689	0.187	(0.620)	0.502
155	12.92	0.97	0.689	0.186	(0.620)	0.503
156	13.00	0.97	0.689	0.185	(0.620)	0.504
157	13.08	1.13	0.808	0.184	(0.727)	0.624
158	13.17	1.13	0.808	0.183	(0.727)	0.624
159	13.25	1.13	0.808	0.182	(0.727)	0.625
160	13.33	1.13	0.808	0.182	(0.727)	0.626
161	13.42	1.13	0.808	0.181	(0.727)	0.627
162	13.50	1.13	0.808	0.180	(0.727)	0.628
163	13.58	0.77	0.546	0.179	(0.492)	0.368
164	13.67	0.77	0.546	0.178	(0.492)	0.369
165	13.75	0.77	0.546	0.177	(0.492)	0.370
166	13.83	0.77	0.546	0.176	(0.492)	0.370
167	13.92	0.77	0.546	0.175	(0.492)	0.371
168	14.00	0.77	0.546	0.174	(0.492)	0.372
169	14.08	0.90	0.642	0.173	(0.577)	0.468
170	14.17	0.90	0.642	0.172	(0.577)	0.469
171	14.25	0.90	0.642	0.172	(0.577)	0.470
172	14.33	0.87	0.618	0.171	(0.556)	0.447
173	14.42	0.87	0.618	0.170	(0.556)	0.448
174	14.50	0.87	0.618	0.169	(0.556)	0.449
175	14.58	0.87	0.618	0.168	(0.556)	0.450
176	14.67	0.87	0.618	0.167	(0.556)	0.450
177	14.75	0.87	0.618	0.166	(0.556)	0.451
178	14.83	0.83	0.594	0.166	(0.535)	0.428
179	14.92	0.83	0.594	0.165	(0.535)	0.429
180	15.00	0.83	0.594	0.164	(0.535)	0.430

181	15.08	0.80	0.570	0.163	(0.513)	0.407
182	15.17	0.80	0.570	0.162	(0.513)	0.408
183	15.25	0.80	0.570	0.161	(0.513)	0.409
184	15.33	0.77	0.546	0.161	(0.492)	0.386
185	15.42	0.77	0.546	0.160	(0.492)	0.387
186	15.50	0.77	0.546	0.159	(0.492)	0.388
187	15.58	0.63	0.451	0.158	(0.406)	0.293
188	15.67	0.63	0.451	0.157	(0.406)	0.294
189	15.75	0.63	0.451	0.156	(0.406)	0.295
190	15.83	0.63	0.451	0.156	(0.406)	0.296
191	15.92	0.63	0.451	0.155	(0.406)	0.297
192	16.00	0.63	0.451	0.154	(0.406)	0.297
193	16.08	0.13	0.095	(0.153)	0.086	0.010
194	16.17	0.13	0.095	(0.152)	0.086	0.010
195	16.25	0.13	0.095	(0.152)	0.086	0.010
196	16.33	0.13	0.095	(0.151)	0.086	0.010
197	16.42	0.13	0.095	(0.150)	0.086	0.010
198	16.50	0.13	0.095	(0.149)	0.086	0.010
199	16.58	0.10	0.071	(0.149)	0.064	0.007
200	16.67	0.10	0.071	(0.148)	0.064	0.007
201	16.75	0.10	0.071	(0.147)	0.064	0.007
202	16.83	0.10	0.071	(0.146)	0.064	0.007
203	16.92	0.10	0.071	(0.146)	0.064	0.007
204	17.00	0.10	0.071	(0.145)	0.064	0.007
205	17.08	0.17	0.119	(0.144)	0.107	0.012
206	17.17	0.17	0.119	(0.143)	0.107	0.012
207	17.25	0.17	0.119	(0.143)	0.107	0.012
208	17.33	0.17	0.119	(0.142)	0.107	0.012
209	17.42	0.17	0.119	(0.141)	0.107	0.012
210	17.50	0.17	0.119	(0.141)	0.107	0.012
211	17.58	0.17	0.119	(0.140)	0.107	0.012
212	17.67	0.17	0.119	(0.139)	0.107	0.012
213	17.75	0.17	0.119	(0.139)	0.107	0.012
214	17.83	0.13	0.095	(0.138)	0.086	0.010
215	17.92	0.13	0.095	(0.137)	0.086	0.010
216	18.00	0.13	0.095	(0.136)	0.086	0.010
217	18.08	0.13	0.095	(0.136)	0.086	0.010
218	18.17	0.13	0.095	(0.135)	0.086	0.010
219	18.25	0.13	0.095	(0.134)	0.086	0.010
220	18.33	0.13	0.095	(0.134)	0.086	0.010
221	18.42	0.13	0.095	(0.133)	0.086	0.010
222	18.50	0.13	0.095	(0.133)	0.086	0.010
223	18.58	0.10	0.071	(0.132)	0.064	0.007
224	18.67	0.10	0.071	(0.131)	0.064	0.007
225	18.75	0.10	0.071	(0.131)	0.064	0.007
226	18.83	0.07	0.048	(0.130)	0.043	0.005
227	18.92	0.07	0.048	(0.129)	0.043	0.005
228	19.00	0.07	0.048	(0.129)	0.043	0.005
229	19.08	0.10	0.071	(0.128)	0.064	0.007
230	19.17	0.10	0.071	(0.128)	0.064	0.007
231	19.25	0.10	0.071	(0.127)	0.064	0.007
232	19.33	0.13	0.095	(0.126)	0.086	0.010
233	19.42	0.13	0.095	(0.126)	0.086	0.010
234	19.50	0.13	0.095	(0.125)	0.086	0.010
235	19.58	0.10	0.071	(0.125)	0.064	0.007
236	19.67	0.10	0.071	(0.124)	0.064	0.007
237	19.75	0.10	0.071	(0.123)	0.064	0.007
238	19.83	0.07	0.048	(0.123)	0.043	0.005
239	19.92	0.07	0.048	(0.122)	0.043	0.005
240	20.00	0.07	0.048	(0.122)	0.043	0.005
241	20.08	0.10	0.071	(0.121)	0.064	0.007
242	20.17	0.10	0.071	(0.121)	0.064	0.007
243	20.25	0.10	0.071	(0.120)	0.064	0.007
244	20.33	0.10	0.071	(0.120)	0.064	0.007
245	20.42	0.10	0.071	(0.119)	0.064	0.007
246	20.50	0.10	0.071	(0.119)	0.064	0.007
247	20.58	0.10	0.071	(0.118)	0.064	0.007
248	20.67	0.10	0.071	(0.118)	0.064	0.007
249	20.75	0.10	0.071	(0.117)	0.064	0.007
250	20.83	0.07	0.048	(0.117)	0.043	0.005
251	20.92	0.07	0.048	(0.116)	0.043	0.005

```
252  21.00     0.07      0.048       (  0.116)       0.043        0.005
253  21.08     0.10      0.071       (  0.115)       0.064        0.007
254  21.17     0.10      0.071       (  0.115)       0.064        0.007
255  21.25     0.10      0.071       (  0.114)       0.064        0.007
256  21.33     0.07      0.048       (  0.114)       0.043        0.005
257  21.42     0.07      0.048       (  0.114)       0.043        0.005
258  21.50     0.07      0.048       (  0.113)       0.043        0.005
259  21.58     0.10      0.071       (  0.113)       0.064        0.007
260  21.67     0.10      0.071       (  0.112)       0.064        0.007
261  21.75     0.10      0.071       (  0.112)       0.064        0.007
262  21.83     0.07      0.048       (  0.112)       0.043        0.005
263  21.92     0.07      0.048       (  0.111)       0.043        0.005
264  22.00     0.07      0.048       (  0.111)       0.043        0.005
265  22.08     0.10      0.071       (  0.110)       0.064        0.007
266  22.17     0.10      0.071       (  0.110)       0.064        0.007
267  22.25     0.10      0.071       (  0.110)       0.064        0.007
268  22.33     0.07      0.048       (  0.109)       0.043        0.005
269  22.42     0.07      0.048       (  0.109)       0.043        0.005
270  22.50     0.07      0.048       (  0.109)       0.043        0.005
271  22.58     0.07      0.048       (  0.108)       0.043        0.005
272  22.67     0.07      0.048       (  0.108)       0.043        0.005
273  22.75     0.07      0.048       (  0.108)       0.043        0.005
274  22.83     0.07      0.048       (  0.108)       0.043        0.005
275  22.92     0.07      0.048       (  0.107)       0.043        0.005
276  23.00     0.07      0.048       (  0.107)       0.043        0.005
277  23.08     0.07      0.048       (  0.107)       0.043        0.005
278  23.17     0.07      0.048       (  0.106)       0.043        0.005
279  23.25     0.07      0.048       (  0.106)       0.043        0.005
280  23.33     0.07      0.048       (  0.106)       0.043        0.005
281  23.42     0.07      0.048       (  0.106)       0.043        0.005
282  23.50     0.07      0.048       (  0.106)       0.043        0.005
283  23.58     0.07      0.048       (  0.105)       0.043        0.005
284  23.67     0.07      0.048       (  0.105)       0.043        0.005
285  23.75     0.07      0.048       (  0.105)       0.043        0.005
286  23.83     0.07      0.048       (  0.105)       0.043        0.005
287  23.92     0.07      0.048       (  0.105)       0.043        0.005
288  24.00     0.07      0.048       (  0.105)       0.043        0.005
               (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     33.1
      Flood volume = Effective rainfall      2.76(In)
       times area       4.1(Ac.)/[(In)/(Ft.)] =       0.9(Ac.Ft)
      Total soil loss =      3.18(In)
      Total soil loss =     1.077(Ac.Ft)
      Total rainfall =      5.94(In)
      Flood volume =       40626.3 Cubic Feet
      Total soil loss =       46915.6 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      2.569(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       0.0002      0.02  Q         |         |         |         |
   0+15       0.0003      0.02  Q         |         |         |         |
   0+20       0.0005      0.02  Q         |         |         |         |
   0+25       0.0007      0.03  Q         |         |         |         |
   0+30       0.0009      0.03  Q         |         |         |         |
   0+35       0.0011      0.03  Q         |         |         |         |
   0+40       0.0013      0.03  Q         |         |         |         |
   0+45       0.0015      0.03  Q         |         |         |         |
   0+50       0.0017      0.03  Q         |         |         |         |
   0+55       0.0020      0.04  Q         |         |         |         |
   1+ 0       0.0022      0.04  Q         |         |         |         |
   1+ 5       0.0025      0.03  Q         |         |         |         |
```

1+10	0.0027	0.03	Q				
1+15	0.0029	0.03	Q				
1+20	0.0031	0.03	Q				
1+25	0.0033	0.03	Q				
1+30	0.0035	0.03	Q				
1+35	0.0037	0.03	Q				
1+40	0.0039	0.03	Q				
1+45	0.0041	0.03	Q				
1+50	0.0043	0.03	Q				
1+55	0.0046	0.04	Q				
2+ 0	0.0048	0.04	Q				
2+ 5	0.0051	0.04	Q				
2+10	0.0054	0.04	Q				
2+15	0.0056	0.04	Q				
2+20	0.0059	0.04	Q				
2+25	0.0062	0.04	Q				
2+30	0.0064	0.04	Q				
2+35	0.0067	0.04	Q				
2+40	0.0071	0.05	Q				
2+45	0.0074	0.05	Q				
2+50	0.0077	0.05	Q				
2+55	0.0081	0.05	Q				
3+ 0	0.0084	0.05	Q				
3+ 5	0.0087	0.05	Q				
3+10	0.0091	0.05	Q				
3+15	0.0094	0.05	Q				
3+20	0.0097	0.05	Q				
3+25	0.0101	0.05	Q				
3+30	0.0104	0.05	Q				
3+35	0.0107	0.05	Q				
3+40	0.0111	0.05	Q				
3+45	0.0114	0.05	Q				
3+50	0.0118	0.05	Q				
3+55	0.0122	0.06	Q				
4+ 0	0.0126	0.06	Q				
4+ 5	0.0130	0.06	Q				
4+10	0.0134	0.06	Q				
4+15	0.0138	0.06	Q				
4+20	0.0142	0.06	Q				
4+25	0.0147	0.07	Q				
4+30	0.0151	0.07	Q				
4+35	0.0156	0.07	Q				
4+40	0.0161	0.07	Q				
4+45	0.0165	0.07	Q				
4+50	0.0170	0.07	Q				
4+55	0.0176	0.08	Q				
5+ 0	0.0181	0.08	Q				
5+ 5	0.0186	0.07	Q				
5+10	0.0190	0.06	Q				
5+15	0.0194	0.06	Q				
5+20	0.0198	0.06	Q				
5+25	0.0203	0.07	Q				
5+30	0.0208	0.07	Q				
5+35	0.0213	0.07	Q				
5+40	0.0218	0.08	Q				
5+45	0.0223	0.08	Q				
5+50	0.0229	0.08	Q				
5+55	0.0234	0.08	QV				
6+ 0	0.0239	0.08	QV				
6+ 5	0.0245	0.08	QV				
6+10	0.0251	0.09	QV				
6+15	0.0257	0.09	QV				
6+20	0.0263	0.09	QV				
6+25	0.0269	0.09	QV				
6+30	0.0275	0.09	QV				
6+35	0.0281	0.09	QV				
6+40	0.0288	0.10	QV				
6+45	0.0295	0.10	QV				
6+50	0.0301	0.10	QV				
6+55	0.0308	0.10	QV				
7+ 0	0.0315	0.10	QV				

```
 7+ 5       0.0321      0.10  QV        |         |         |         |
 7+10       0.0328      0.10  QV        |         |         |         |
 7+15       0.0335      0.10  QV        |         |         |         |
 7+20       0.0342      0.10  QV        |         |         |         |
 7+25       0.0349      0.11  QV        |         |         |         |
 7+30       0.0356      0.11  QV        |         |         |         |
 7+35       0.0364      0.12  QV        |         |         |         |
 7+40       0.0373      0.13  QV        |         |         |         |
 7+45       0.0382      0.13  QV        |         |         |         |
 7+50       0.0395      0.18  QV        |         |         |         |
 7+55       0.0410      0.23  QV        |         |         |         |
 8+ 0       0.0427      0.24  QV        |         |         |         |
 8+ 5       0.0450      0.33  |Q        |         |         |         |
 8+10       0.0479      0.43  |QV       |         |         |         |
 8+15       0.0510      0.45  |QV       |         |         |         |
 8+20       0.0542      0.46  |QV       |         |         |         |
 8+25       0.0574      0.46  |QV       |         |         |         |
 8+30       0.0606      0.47  |QV       |         |         |         |
 8+35       0.0641      0.51  | Q       |         |         |         |
 8+40       0.0680      0.56  | Q       |         |         |         |
 8+45       0.0720      0.58  | QV      |         |         |         |
 8+50       0.0763      0.63  | QV      |         |         |         |
 8+55       0.0809      0.67  | QV      |         |         |         |
 9+ 0       0.0856      0.69  | QV      |         |         |         |
 9+ 5       0.0910      0.78  |  Q      |         |         |         |
 9+10       0.0970      0.87  |  QV     |         |         |         |
 9+15       0.1031      0.89  |  QV     |         |         |         |
 9+20       0.1097      0.94  |  QV     |         |         |         |
 9+25       0.1165      0.99  |  QV     |         |         |         |
 9+30       0.1234      1.01  |   QV    |         |         |         |
 9+35       0.1307      1.06  |   QV    |         |         |         |
 9+40       0.1383      1.10  |   QV    |         |         |         |
 9+45       0.1460      1.12  |   Q V   |         |         |         |
 9+50       0.1540      1.17  |   Q V   |         |         |         |
 9+55       0.1624      1.21  |   Q V   |         |         |         |
10+ 0       0.1708      1.23  |   Q  V  |         |         |         |
10+ 5       0.1773      0.94  |  Q   V  |         |         |         |
10+10       0.1817      0.64  | Q    V  |         |         |         |
10+15       0.1857      0.58  | Q    V  |         |         |         |
10+20       0.1896      0.57  | Q     V |         |         |         |
10+25       0.1935      0.57  | Q     V |         |         |         |
10+30       0.1975      0.58  | Q     V |         |         |         |
10+35       0.2029      0.79  |  Q    V |         |         |         |
10+40       0.2099      1.01  |   Q    V|         |         |         |
10+45       0.2172      1.06  |   Q    V|         |         |         |
10+50       0.2246      1.08  |   Q    V|         |         |         |
10+55       0.2321      1.08  |   Q    V|         |         |         |
11+ 0       0.2396      1.09  |   Q     V         |         |         |
11+ 5       0.2468      1.05  |   Q     V         |         |         |
11+10       0.2537      1.01  |   Q     V         |         |         |
11+15       0.2607      1.01  |   Q     |V        |         |         |
11+20       0.2676      1.01  |   Q     |V        |         |         |
11+25       0.2746      1.01  |   Q     |V        |         |         |
11+30       0.2815      1.01  |   Q     | V       |         |         |
11+35       0.2880      0.93  |  Q      | V       |         |         |
11+40       0.2938      0.85  |  Q      | V       |         |         |
11+45       0.2996      0.84  |  Q      | V       |         |         |
11+50       0.3057      0.88  |  Q      |  V      |         |         |
11+55       0.3121      0.93  |  Q      |  V      |         |         |
12+ 0       0.3185      0.94  |  Q      |  V      |         |         |
12+ 5       0.3271      1.24  |   Q     |   V     |         |         |
12+10       0.3378      1.55  |     Q   |   V     |         |         |
12+15       0.3489      1.61  |     Q   |   V     |         |         |
12+20       0.3605      1.68  |     Q   |    V    |         |         |
12+25       0.3724      1.73  |     Q   |    V    |         |         |
12+30       0.3844      1.74  |     Q   |     V   |         |         |
12+35       0.3970      1.83  |      Q  |      V  |         |         |
12+40       0.4102      1.92  |      Q  |      V  |         |         |
12+45       0.4236      1.94  |      Q  |       V |         |         |
12+50       0.4374      2.00  |      Q  |       V |         |         |
12+55       0.4515      2.04  |       Q |        V|         |         |
```

```
13+ 0       0.4656      2.06  |       Q |        V|         |         |
13+ 5       0.4813      2.27  |        Q|         V         |         |
13+10       0.4985      2.50  |        Q|         |V        |         |
13+15       0.5160      2.54  |         Q         | V       |         |
13+20       0.5336      2.56  |         Q         | V       |         |
13+25       0.5513      2.57  |         Q         |  V      |         |
13+30       0.5690      2.57  |         Q         |   V     |         |
13+35       0.5835      2.11  |       Q |         |    V    |         |
13+40       0.5947      1.63  |     Q   |         |    V    |         |
13+45       0.6054      1.54  |     Q   |         |    V    |         |
13+50       0.6158      1.51  |     Q   |         |     V   |         |
13+55       0.6262      1.52  |     Q   |         |     V   |         |
14+ 0       0.6367      1.52  |     Q   |         |      V  |         |
14+ 5       0.6484      1.69  |     Q   |         |      V  |         |
14+10       0.6613      1.87  |      Q  |         |       V |         |
14+15       0.6744      1.91  |      Q  |         |       V |         |
14+20       0.6874      1.88  |      Q  |         |        V|         |
14+25       0.7001      1.84  |      Q  |         |         V         |
14+30       0.7127      1.84  |      Q  |         |         V         |
14+35       0.7254      1.84  |      Q  |         |         |V        |
14+40       0.7381      1.84  |      Q  |         |         |V        |
14+45       0.7508      1.85  |      Q  |         |         | V       |
14+50       0.7632      1.81  |      Q  |         |         | V       |
14+55       0.7754      1.77  |      Q  |         |         |  V      |
15+ 0       0.7875      1.76  |      Q  |         |         |  V      |
15+ 5       0.7994      1.72  |     Q   |         |         |   V     |
15+10       0.8109      1.68  |     Q   |         |         |   V     |
15+15       0.8225      1.67  |     Q   |         |         |    V    |
15+20       0.8337      1.63  |     Q   |         |         |    V    |
15+25       0.8447      1.59  |     Q   |         |         |     V   |
15+30       0.8556      1.59  |     Q   |         |         |     V   |
15+35       0.8654      1.42  |    Q    |         |         |      V  |
15+40       0.8740      1.25  |   Q     |         |         |      V  |
15+45       0.8824      1.22  |   Q     |         |         |      V  |
15+50       0.8907      1.21  |   Q     |         |         |       V |
15+55       0.8990      1.21  |   Q     |         |         |       V |
16+ 0       0.9074      1.22  |   Q     |         |         |       V |
16+ 5       0.9123      0.71  | Q       |         |         |        V|
16+10       0.9135      0.17  Q         |         |         |        V|
16+15       0.9140      0.07  Q         |         |         |        V|
16+20       0.9142      0.04  Q         |         |         |        V|
16+25       0.9145      0.04  Q         |         |         |        V|
16+30       0.9148      0.04  Q         |         |         |        V|
16+35       0.9150      0.03  Q         |         |         |        V|
16+40       0.9152      0.03  Q         |         |         |        V|
16+45       0.9154      0.03  Q         |         |         |        V|
16+50       0.9156      0.03  Q         |         |         |        V|
16+55       0.9158      0.03  Q         |         |         |        V|
17+ 0       0.9160      0.03  Q         |         |         |        V|
17+ 5       0.9163      0.04  Q         |         |         |        V|
17+10       0.9166      0.05  Q         |         |         |        V|
17+15       0.9169      0.05  Q         |         |         |        V|
17+20       0.9173      0.05  Q         |         |         |        V|
17+25       0.9176      0.05  Q         |         |         |        V|
17+30       0.9179      0.05  Q         |         |         |        V|
17+35       0.9183      0.05  Q         |         |         |        V|
17+40       0.9186      0.05  Q         |         |         |        V|
17+45       0.9189      0.05  Q         |         |         |        V|
17+50       0.9193      0.04  Q         |         |         |        V|
17+55       0.9195      0.04  Q         |         |         |        V|
18+ 0       0.9198      0.04  Q         |         |         |        V|
18+ 5       0.9201      0.04  Q         |         |         |        V|
18+10       0.9203      0.04  Q         |         |         |        V|
18+15       0.9206      0.04  Q         |         |         |        V|
18+20       0.9209      0.04  Q         |         |         |        V|
18+25       0.9211      0.04  Q         |         |         |        V|
18+30       0.9214      0.04  Q         |         |         |        V|
18+35       0.9216      0.03  Q         |         |         |        V|
18+40       0.9219      0.03  Q         |         |         |        V|
18+45       0.9221      0.03  Q         |         |         |        V|
18+50       0.9222      0.02  Q         |         |         |        V|
```

18+55	0.9224	0.02	Q	|	|	|	V|
19+ 0	0.9225	0.02	Q	|	|	|	V|
19+ 5	0.9227	0.02	Q	|	|	|	V|
19+10	0.9229	0.03	Q	|	|	|	V|
19+15	0.9231	0.03	Q	|	|	|	V|
19+20	0.9233	0.03	Q	|	|	|	V|
19+25	0.9236	0.04	Q	|	|	|	V|
19+30	0.9238	0.04	Q	|	|	|	V|
19+35	0.9241	0.03	Q	|	|	|	V|
19+40	0.9243	0.03	Q	|	|	|	V|
19+45	0.9245	0.03	Q	|	|	|	V|
19+50	0.9246	0.02	Q	|	|	|	V|
19+55	0.9248	0.02	Q	|	|	|	V|
20+ 0	0.9249	0.02	Q	|	|	|	V|
20+ 5	0.9251	0.02	Q	|	|	|	V|
20+10	0.9253	0.03	Q	|	|	|	V|
20+15	0.9255	0.03	Q	|	|	|	V|
20+20	0.9257	0.03	Q	|	|	|	V|
20+25	0.9259	0.03	Q	|	|	|	V|
20+30	0.9261	0.03	Q	|	|	|	V|
20+35	0.9263	0.03	Q	|	|	|	V|
20+40	0.9265	0.03	Q	|	|	|	V|
20+45	0.9267	0.03	Q	|	|	|	V|
20+50	0.9269	0.02	Q	|	|	|	V|
20+55	0.9270	0.02	Q	|	|	|	V|
21+ 0	0.9271	0.02	Q	|	|	|	V|
21+ 5	0.9273	0.02	Q	|	|	|	V|
21+10	0.9275	0.03	Q	|	|	|	V|
21+15	0.9277	0.03	Q	|	|	|	V|
21+20	0.9279	0.02	Q	|	|	|	V|
21+25	0.9280	0.02	Q	|	|	|	V|
21+30	0.9281	0.02	Q	|	|	|	V|
21+35	0.9283	0.02	Q	|	|	|	V|
21+40	0.9285	0.03	Q	|	|	|	V|
21+45	0.9287	0.03	Q	|	|	|	V|
21+50	0.9289	0.02	Q	|	|	|	V|
21+55	0.9290	0.02	Q	|	|	|	V|
22+ 0	0.9291	0.02	Q	|	|	|	V|
22+ 5	0.9293	0.02	Q	|	|	|	V|
22+10	0.9295	0.03	Q	|	|	|	V|
22+15	0.9297	0.03	Q	|	|	|	V|
22+20	0.9299	0.02	Q	|	|	|	V|
22+25	0.9300	0.02	Q	|	|	|	V|
22+30	0.9301	0.02	Q	|	|	|	V|
22+35	0.9303	0.02	Q	|	|	|	V|
22+40	0.9304	0.02	Q	|	|	|	V|
22+45	0.9305	0.02	Q	|	|	|	V|
22+50	0.9307	0.02	Q	|	|	|	V|
22+55	0.9308	0.02	Q	|	|	|	V|
23+ 0	0.9309	0.02	Q	|	|	|	V|
23+ 5	0.9311	0.02	Q	|	|	|	V|
23+10	0.9312	0.02	Q	|	|	|	V|
23+15	0.9313	0.02	Q	|	|	|	V|
23+20	0.9315	0.02	Q	|	|	|	V|
23+25	0.9316	0.02	Q	|	|	|	V|
23+30	0.9318	0.02	Q	|	|	|	V|
23+35	0.9319	0.02	Q	|	|	|	V|
23+40	0.9320	0.02	Q	|	|	|	V|
23+45	0.9322	0.02	Q	|	|	|	V|
23+50	0.9323	0.02	Q	|	|	|	V|
23+55	0.9324	0.02	Q	|	|	|	V|
24+ 0	0.9326	0.02	Q	|	|	|	V|
24+ 5	0.9326	0.01	Q	|	|	|	V|
24+10	0.9326	0.00	Q	|	|	|	V|
24+15	0.9327	0.00	Q	|	|	|	V|

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST2YR1HR12.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 1-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           0.49                 4.98

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           1.40                14.13

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    0.494(In)
Area Averaged 100-Year Rainfall =    1.400(In)

Point rain (area averaged) =    0.494(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.494(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

```
 Total Area Entered =     10.09(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
84.3  69.0      0.373     0.000        0.373       1.000      0.373
                                                 Sum (F) =    0.373
Area averaged mean soil loss (F) (In/Hr) =  0.373
Minimum soil loss rate ((In/Hr)) =  0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      DESERT S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
     1   0.083         54.801          4.670              0.475
     2   0.167        109.602         31.313              3.184
     3   0.250        164.402         28.532              2.901
     4   0.333        219.203         12.223              1.243
     5   0.417        274.004          7.125              0.724
     6   0.500        328.805          4.798              0.488
     7   0.583        383.605          3.202              0.326
     8   0.667        438.406          2.387              0.243
     9   0.750        493.207          1.751              0.178
    10   0.833        548.008          1.266              0.129
    11   0.917        602.808          0.786              0.080
    12   1.000        657.609          0.609              0.062
    13   1.083        712.410          0.650              0.066
    14   1.167        767.211          0.437              0.044
    15   1.250        822.011          0.251              0.026
                                Sum = 100.000   Sum=      10.169
------------------------------------------------------------------------


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

  Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
       (Hr.)  Percent   (In/Hr)         Max    |   Low        (In/Hr)
   1   0.08     4.40      0.261       (  0.373)       0.235        0.026
   2   0.17     4.50      0.267       (  0.373)       0.240        0.027
   3   0.25     5.40      0.320       (  0.373)       0.288        0.032
   4   0.33     5.40      0.320       (  0.373)       0.288        0.032
   5   0.42     5.70      0.338       (  0.373)       0.304        0.034
   6   0.50     6.40      0.379       (  0.373)       0.341        0.038
   7   0.58     7.90      0.468          0.373    (  0.421)        0.096
   8   0.67     9.10      0.539          0.373    (  0.485)        0.167
   9   0.75    12.80      0.759          0.373    (  0.683)        0.386
  10   0.83    25.60      1.517          0.373    (  1.366)        1.145
  11   0.92     7.90      0.468          0.373    (  0.421)        0.096
  12   1.00     4.90      0.290       (  0.373)       0.261        0.029
               (Loss Rate Not Used)
    Sum =     100.0                                   Sum =      2.1
      Flood volume = Effective rainfall      0.18(In)
       times area      10.1(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
      Total soil loss =      0.32(In)
      Total soil loss =     0.268(Ac.Ft)
      Total rainfall =      0.49(In)
      Flood volume =        6430.1 Cubic Feet
      Total soil loss =       11661.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      5.139(CFS)
```

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0007	0.10	Q				
0+15	0.0020	0.18	Q				
0+20	0.0035	0.23	Q				
0+25	0.0053	0.26	Q				
0+30	0.0073	0.29	Q				
0+35	0.0097	0.35	QV				
0+40	0.0138	0.59	QV				
0+45	0.0214	1.10	QV				
0+50	0.0382	2.45	QV				
0+55	0.0736	5.14	VQ				
1+ 0	0.1034	4.32	Q	V			
1+ 5	0.1186	2.21	Q		V		
1+10	0.1277	1.32	Q		V		
1+15	0.1337	0.86	Q		V		
1+20	0.1377	0.59	Q		V		
1+25	0.1406	0.43	Q		V		
1+30	0.1428	0.31	Q		V		
1+35	0.1443	0.22	Q		V		
1+40	0.1453	0.15	Q		V		
1+45	0.1461	0.12	Q		V		
1+50	0.1469	0.11	Q		V		
1+55	0.1473	0.07	Q		V		
2+ 0	0.1476	0.04	Q		V		
2+ 5	0.1476	0.00	Q		V		
2+10	0.1476	0.00	Q			V	

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST2YR3HR32.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 3-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           0.87                 8.78

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           2.22                22.40

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    0.870(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    0.870(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

Total Area Entered = 10.09(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	69.0	0.373	0.000	0.373	1.000	0.373
					Sum (F) =	0.373

Area averaged mean soil loss (F) (In/Hr) = 0.373
Minimum soil loss rate ((In/Hr)) = 0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
			Sum = 100.000 Sum=	10.169

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.136	(0.373)	0.122	0.014
2	0.17	1.30	0.136	(0.373)	0.122	0.014
3	0.25	1.10	0.115	(0.373)	0.103	0.011
4	0.33	1.50	0.157	(0.373)	0.141	0.016
5	0.42	1.50	0.157	(0.373)	0.141	0.016
6	0.50	1.80	0.188	(0.373)	0.169	0.019
7	0.58	1.50	0.157	(0.373)	0.141	0.016
8	0.67	1.80	0.188	(0.373)	0.169	0.019
9	0.75	1.80	0.188	(0.373)	0.169	0.019
10	0.83	1.50	0.157	(0.373)	0.141	0.016
11	0.92	1.60	0.167	(0.373)	0.150	0.017
12	1.00	1.80	0.188	(0.373)	0.169	0.019
13	1.08	2.20	0.230	(0.373)	0.207	0.023
14	1.17	2.20	0.230	(0.373)	0.207	0.023
15	1.25	2.20	0.230	(0.373)	0.207	0.023
16	1.33	2.00	0.209	(0.373)	0.188	0.021
17	1.42	2.60	0.271	(0.373)	0.244	0.027
18	1.50	2.70	0.282	(0.373)	0.254	0.028
19	1.58	2.40	0.251	(0.373)	0.225	0.025
20	1.67	2.70	0.282	(0.373)	0.254	0.028
21	1.75	3.30	0.345	(0.373)	0.310	0.034
22	1.83	3.10	0.324	(0.373)	0.291	0.032
23	1.92	2.90	0.303	(0.373)	0.272	0.030
24	2.00	3.00	0.313	(0.373)	0.282	0.031
25	2.08	3.10	0.324	(0.373)	0.291	0.032

```
26   2.17     4.20      0.438          0.373    (  0.395)        0.066
27   2.25     5.00      0.522          0.373    (  0.470)        0.149
28   2.33     3.50      0.365       (  0.373)       0.329        0.037
29   2.42     6.80      0.710          0.373    (  0.639)        0.337
30   2.50     7.30      0.762          0.373    (  0.686)        0.390
31   2.58     8.20      0.856          0.373    (  0.770)        0.483
32   2.67     5.90      0.616          0.373    (  0.554)        0.243
33   2.75     2.00      0.209       (  0.373)       0.188        0.021
34   2.83     1.80      0.188       (  0.373)       0.169        0.019
35   2.92     1.80      0.188       (  0.373)       0.169        0.019
36   3.00     0.60      0.063       (  0.373)       0.056        0.006
             (Loss Rate Not Used)
   Sum =     100.0                                  Sum =     2.3
      Flood volume = Effective rainfall      0.19(In)
       times area      10.1(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
      Total soil loss =      0.68(In)
      Total soil loss =     0.569(Ac.Ft)
      Total rainfall =      0.87(In)
      Flood volume =        7088.5 Cubic Feet
      Total soil loss =       24775.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      3.353(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
---------------------------------------------------------------------------
  0+ 5       0.0000      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      0.12  Q          |         |         |         |
  0+30       0.0034      0.14  Q          |         |         |         |
  0+35       0.0045      0.15  QV         |         |         |         |
  0+40       0.0056      0.16  QV         |         |         |         |
  0+45       0.0067      0.17  QV         |         |         |         |
  0+50       0.0079      0.17  QV         |         |         |         |
  0+55       0.0091      0.17  Q V        |         |         |         |
  1+ 0       0.0102      0.17  Q V        |         |         |         |
  1+ 5       0.0115      0.18  Q V        |         |         |         |
  1+10       0.0128      0.20  Q  V       |         |         |         |
  1+15       0.0143      0.21  Q  V       |         |         |         |
  1+20       0.0158      0.22  Q  V       |         |         |         |
  1+25       0.0173      0.22  Q   V      |         |         |         |
  1+30       0.0190      0.24  Q   V      |         |         |         |
  1+35       0.0207      0.26  |Q   V      |         |         |         |
  1+40       0.0225      0.26  |Q   V      |         |         |         |
  1+45       0.0244      0.27  |Q   V      |         |         |         |
  1+50       0.0264      0.30  |Q    V     |         |         |         |
  1+55       0.0285      0.31  |Q     V    |         |         |         |
  2+ 0       0.0307      0.31  |Q     V    |         |         |         |
  2+ 5       0.0328      0.31  |Q      V   |         |         |         |
  2+10       0.0351      0.33  |Q      V   |         |         |         |
  2+15       0.0384      0.48  |Q       V  |         |         |         |
  2+20       0.0439      0.80  |  Q      V |         |         |         |
  2+25       0.0499      0.87  |  Q       | V       |         |         |
  2+30       0.0612      1.65  |     Q    |    V    |         |         |
  2+35       0.0796      2.67  |          Q        V|         |         |
  2+40       0.1027      3.35  |          |  Q      |    V    |         |
  2+45       0.1235      3.02  |          | Q       |         V         |
  2+50       0.1366      1.90  |       Q  |         |         |  V      |
  2+55       0.1444      1.14  |    Q     |         |         |    V    |
  3+ 0       0.1500      0.80  |  Q       |         |         |     V   |
  3+ 5       0.1539      0.57  | Q        |         |         |      V  |
  3+10       0.1566      0.39  |Q         |         |         |       V |
```

```
    3+15       0.1585      0.28  |Q        |          |          |       V |
    3+20       0.1598      0.19  Q         |          |          |        V|
    3+25       0.1608      0.14  Q         |          |          |        V|
    3+30       0.1615      0.10  Q         |          |          |        V|
    3+35       0.1621      0.08  Q         |          |          |        V|
    3+40       0.1624      0.05  Q         |          |          |        V|
    3+45       0.1626      0.03  Q         |          |          |        V|
    3+50       0.1627      0.01  Q         |          |          |        V|
    3+55       0.1627      0.00  Q         |          |          |        V|
    4+ 0       0.1627      0.00  Q         |          |          |        V|
    4+ 5       0.1627      0.00  Q         |          |          |        V|
    4+10       0.1627      0.00  Q         |          |          |        V|
-------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST2YR6HR62.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 6-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           1.23                 12.41

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           3.06                 30.88

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.230(In)
Area Averaged 100-Year Rainfall =    3.060(In)

Point rain (area averaged) =    1.230(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.230(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

Total Area Entered = 10.09(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	69.0	0.373	0.000	0.373	1.000	0.373
					Sum (F) =	0.373

Area averaged mean soil loss (F) (In/Hr) = 0.373
Minimum soil loss rate ((In/Hr)) = 0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
		Sum = 100.000	Sum=	10.169

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.074	(0.373)	0.066	0.007
2	0.17	0.60	0.089	(0.373)	0.080	0.009
3	0.25	0.60	0.089	(0.373)	0.080	0.009
4	0.33	0.60	0.089	(0.373)	0.080	0.009
5	0.42	0.60	0.089	(0.373)	0.080	0.009
6	0.50	0.70	0.103	(0.373)	0.093	0.010
7	0.58	0.70	0.103	(0.373)	0.093	0.010
8	0.67	0.70	0.103	(0.373)	0.093	0.010
9	0.75	0.70	0.103	(0.373)	0.093	0.010
10	0.83	0.70	0.103	(0.373)	0.093	0.010
11	0.92	0.70	0.103	(0.373)	0.093	0.010
12	1.00	0.80	0.118	(0.373)	0.106	0.012
13	1.08	0.80	0.118	(0.373)	0.106	0.012
14	1.17	0.80	0.118	(0.373)	0.106	0.012
15	1.25	0.80	0.118	(0.373)	0.106	0.012
16	1.33	0.80	0.118	(0.373)	0.106	0.012
17	1.42	0.80	0.118	(0.373)	0.106	0.012
18	1.50	0.80	0.118	(0.373)	0.106	0.012
19	1.58	0.80	0.118	(0.373)	0.106	0.012
20	1.67	0.80	0.118	(0.373)	0.106	0.012
21	1.75	0.80	0.118	(0.373)	0.106	0.012
22	1.83	0.80	0.118	(0.373)	0.106	0.012
23	1.92	0.80	0.118	(0.373)	0.106	0.012
24	2.00	0.90	0.133	(0.373)	0.120	0.013
25	2.08	0.80	0.118	(0.373)	0.106	0.012

26	2.17	0.90	0.133	(0.373)	0.120	0.013
27	2.25	0.90	0.133	(0.373)	0.120	0.013
28	2.33	0.90	0.133	(0.373)	0.120	0.013
29	2.42	0.90	0.133	(0.373)	0.120	0.013
30	2.50	0.90	0.133	(0.373)	0.120	0.013
31	2.58	0.90	0.133	(0.373)	0.120	0.013
32	2.67	0.90	0.133	(0.373)	0.120	0.013
33	2.75	1.00	0.148	(0.373)	0.133	0.015
34	2.83	1.00	0.148	(0.373)	0.133	0.015
35	2.92	1.00	0.148	(0.373)	0.133	0.015
36	3.00	1.00	0.148	(0.373)	0.133	0.015
37	3.08	1.00	0.148	(0.373)	0.133	0.015
38	3.17	1.10	0.162	(0.373)	0.146	0.016
39	3.25	1.10	0.162	(0.373)	0.146	0.016
40	3.33	1.10	0.162	(0.373)	0.146	0.016
41	3.42	1.20	0.177	(0.373)	0.159	0.018
42	3.50	1.30	0.192	(0.373)	0.173	0.019
43	3.58	1.40	0.207	(0.373)	0.186	0.021
44	3.67	1.40	0.207	(0.373)	0.186	0.021
45	3.75	1.50	0.221	(0.373)	0.199	0.022
46	3.83	1.50	0.221	(0.373)	0.199	0.022
47	3.92	1.60	0.236	(0.373)	0.213	0.024
48	4.00	1.60	0.236	(0.373)	0.213	0.024
49	4.08	1.70	0.251	(0.373)	0.226	0.025
50	4.17	1.80	0.266	(0.373)	0.239	0.027
51	4.25	1.90	0.280	(0.373)	0.252	0.028
52	4.33	2.00	0.295	(0.373)	0.266	0.030
53	4.42	2.10	0.310	(0.373)	0.279	0.031
54	4.50	2.10	0.310	(0.373)	0.279	0.031
55	4.58	2.20	0.325	(0.373)	0.292	0.032
56	4.67	2.30	0.339	(0.373)	0.306	0.034
57	4.75	2.40	0.354	(0.373)	0.319	0.035
58	4.83	2.40	0.354	(0.373)	0.319	0.035
59	4.92	2.50	0.369	(0.373)	0.332	0.037
60	5.00	2.60	0.384	(0.373)	0.345	0.038
61	5.08	3.10	0.458	0.373	(0.412)	0.085
62	5.17	3.60	0.531	0.373	(0.478)	0.159
63	5.25	3.90	0.576	0.373	(0.518)	0.203
64	5.33	4.20	0.620	0.373	(0.558)	0.247
65	5.42	4.70	0.694	0.373	(0.624)	0.321
66	5.50	5.60	0.827	0.373	(0.744)	0.454
67	5.58	1.90	0.280	(0.373)	0.252	0.028
68	5.67	0.90	0.133	(0.373)	0.120	0.013
69	5.75	0.60	0.089	(0.373)	0.080	0.009
70	5.83	0.50	0.074	(0.373)	0.066	0.007
71	5.92	0.30	0.044	(0.373)	0.040	0.004
72	6.00	0.20	0.030	(0.373)	0.027	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 2.6

Flood volume = Effective rainfall 0.21(In)
times area 10.1(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 1.02(In)
Total soil loss = 0.854(Ac.Ft)
Total rainfall = 1.23(In)
Flood volume = 7858.3 Cubic Feet
Total soil loss = 37191.0 Cubic Feet

Peak flow rate of this hydrograph = 2.981(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0002	0.03	Q				

```
0+15      0.0006      0.05  Q          |          |          |          |
0+20      0.0010      0.07  Q          |          |          |          |
0+25      0.0016      0.07  Q          |          |          |          |
0+30      0.0021      0.08  Q          |          |          |          |
0+35      0.0027      0.09  Q          |          |          |          |
0+40      0.0034      0.09  Q          |          |          |          |
0+45      0.0040      0.10  Q          |          |          |          |
0+50      0.0047      0.10  QV         |          |          |          |
0+55      0.0054      0.10  QV         |          |          |          |
1+ 0      0.0061      0.10  QV         |          |          |          |
1+ 5      0.0069      0.11  QV         |          |          |          |
1+10      0.0077      0.11  QV         |          |          |          |
1+15      0.0085      0.12  QV         |          |          |          |
1+20      0.0093      0.12  Q V        |          |          |          |
1+25      0.0101      0.12  Q V        |          |          |          |
1+30      0.0109      0.12  Q V        |          |          |          |
1+35      0.0117      0.12  Q V        |          |          |          |
1+40      0.0126      0.12  Q V        |          |          |          |
1+45      0.0134      0.12  Q V        |          |          |          |
1+50      0.0142      0.12  Q  V       |          |          |          |
1+55      0.0150      0.12  Q  V       |          |          |          |
2+ 0      0.0159      0.12  Q  V       |          |          |          |
2+ 5      0.0167      0.12  Q  V       |          |          |          |
2+10      0.0176      0.13  Q  V       |          |          |          |
2+15      0.0185      0.13  Q   V      |          |          |          |
2+20      0.0194      0.13  Q   V      |          |          |          |
2+25      0.0203      0.13  Q   V      |          |          |          |
2+30      0.0212      0.13  Q   V      |          |          |          |
2+35      0.0221      0.13  Q   V      |          |          |          |
2+40      0.0230      0.13  Q    V     |          |          |          |
2+45      0.0240      0.14  Q    V     |          |          |          |
2+50      0.0249      0.14  Q    V     |          |          |          |
2+55      0.0259      0.14  Q    V     |          |          |          |
3+ 0      0.0269      0.15  Q    V     |          |          |          |
3+ 5      0.0280      0.15  Q     V    |          |          |          |
3+10      0.0290      0.15  Q     V    |          |          |          |
3+15      0.0300      0.15  Q     V    |          |          |          |
3+20      0.0311      0.16  Q     V    |          |          |          |
3+25      0.0323      0.16  Q      V   |          |          |          |
3+30      0.0334      0.17  Q      V   |          |          |          |
3+35      0.0346      0.18  Q      V   |          |          |          |
3+40      0.0360      0.19  Q      V   |          |          |          |
3+45      0.0373      0.20  Q       V  |          |          |          |
3+50      0.0388      0.21  Q       V  |          |          |          |
3+55      0.0402      0.21  Q       V  |          |          |          |
4+ 0      0.0418      0.22  Q        V |          |          |          |
4+ 5      0.0434      0.23  Q        V |          |          |          |
4+10      0.0450      0.24  Q        V |          |          |          |
4+15      0.0467      0.25  |Q        V          |          |          |
4+20      0.0486      0.26  |Q        V          |          |          |
4+25      0.0505      0.28  |Q         |V         |          |          |
4+30      0.0525      0.29  |Q         |V         |          |          |
4+35      0.0545      0.30  |Q         | V        |          |          |
4+40      0.0567      0.31  |Q         | V        |          |          |
4+45      0.0589      0.32  |Q         |  V       |          |          |
4+50      0.0612      0.34  |Q         |  V       |          |          |
4+55      0.0636      0.35  |Q         |   V      |          |          |
5+ 0      0.0661      0.36  |Q         |   V      |          |          |
5+ 5      0.0688      0.39  |Q         |    V     |          |          |
5+10      0.0728      0.58  | Q        |     V    |          |          |
5+15      0.0795      0.98  |  Q       |      V   |          |          |
5+20      0.0893      1.42  |    Q     |        V |          |          |
5+25      0.1020      1.85  |      Q   |          | V        |          |
5+30      0.1186      2.41  |        Q |          |     V    |          |
5+35      0.1391      2.98  |         Q|          |          V          |
5+40      0.1541      2.18  |        Q |          |          |   V      |
5+45      0.1623      1.18  |   Q      |          |          |    V     |
5+50      0.1676      0.77  |  Q       |          |          |      V   |
5+55      0.1713      0.55  | Q        |          |          |      V   |
6+ 0      0.1740      0.39  |Q         |          |          |       V  |
```

6+ 5	0.1760	0.29	|Q	|	|	|	V|
6+10	0.1774	0.20	Q	|	|	|	V|
6+15	0.1784	0.14	Q	|	|	|	V|
6+20	0.1791	0.10	Q	|	|	|	V|
6+25	0.1796	0.08	Q	|	|	|	V|
6+30	0.1800	0.06	Q	|	|	|	V|
6+35	0.1802	0.03	Q	|	|	|	V|
6+40	0.1804	0.02	Q	|	|	|	V|
6+45	0.1804	0.00	Q	|	|	|	V|
6+50	0.1804	0.00	Q	|	|	|	V|
6+55	0.1804	0.00	Q	|	|	|	V|
7+ 0	0.1804	0.00	Q	|	|	|	V|
7+ 5	0.1804	0.00	Q	|	|	|	V|
7+10	0.1804	0.00	Q	|	|	|	V

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST2YR24HR242.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 24-HOUR STORM - EXISTING CONDITION @ NODE 12
------------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           2.25                 22.70

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           5.94                 59.93

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    2.250(In)
Area Averaged 100-Year Rainfall =    5.940(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
 Total Area Entered =     10.09(Ac.)
```

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	69.0	0.373	0.000	0.373	1.000	0.373
					Sum (F) =	0.373

Area averaged mean soil loss (F) (In/Hr) = 0.373
Minimum soil loss rate ((In/Hr)) = 0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
			Sum = 100.000	Sum= 10.169

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.07	0.018	(0.660)		0.016	0.002
2	0.17	0.07	0.018	(0.658)		0.016	0.002
3	0.25	0.07	0.018	(0.655)		0.016	0.002
4	0.33	0.10	0.027	(0.653)		0.024	0.003
5	0.42	0.10	0.027	(0.650)		0.024	0.003
6	0.50	0.10	0.027	(0.648)		0.024	0.003
7	0.58	0.10	0.027	(0.645)		0.024	0.003
8	0.67	0.10	0.027	(0.643)		0.024	0.003
9	0.75	0.10	0.027	(0.640)		0.024	0.003
10	0.83	0.13	0.036	(0.638)		0.032	0.004
11	0.92	0.13	0.036	(0.635)		0.032	0.004
12	1.00	0.13	0.036	(0.633)		0.032	0.004
13	1.08	0.10	0.027	(0.630)		0.024	0.003
14	1.17	0.10	0.027	(0.628)		0.024	0.003
15	1.25	0.10	0.027	(0.625)		0.024	0.003
16	1.33	0.10	0.027	(0.623)		0.024	0.003
17	1.42	0.10	0.027	(0.620)		0.024	0.003
18	1.50	0.10	0.027	(0.618)		0.024	0.003
19	1.58	0.10	0.027	(0.615)		0.024	0.003
20	1.67	0.10	0.027	(0.613)		0.024	0.003
21	1.75	0.10	0.027	(0.610)		0.024	0.003
22	1.83	0.13	0.036	(0.608)		0.032	0.004
23	1.92	0.13	0.036	(0.605)		0.032	0.004
24	2.00	0.13	0.036	(0.603)		0.032	0.004
25	2.08	0.13	0.036	(0.601)		0.032	0.004
26	2.17	0.13	0.036	(0.598)		0.032	0.004
27	2.25	0.13	0.036	(0.596)		0.032	0.004

28	2.33	0.13	0.036	(0.593)	0.032	0.004
29	2.42	0.13	0.036	(0.591)	0.032	0.004
30	2.50	0.13	0.036	(0.588)	0.032	0.004
31	2.58	0.17	0.045	(0.586)	0.040	0.004
32	2.67	0.17	0.045	(0.584)	0.040	0.004
33	2.75	0.17	0.045	(0.581)	0.040	0.004
34	2.83	0.17	0.045	(0.579)	0.040	0.004
35	2.92	0.17	0.045	(0.576)	0.040	0.004
36	3.00	0.17	0.045	(0.574)	0.040	0.004
37	3.08	0.17	0.045	(0.572)	0.040	0.004
38	3.17	0.17	0.045	(0.569)	0.040	0.004
39	3.25	0.17	0.045	(0.567)	0.040	0.004
40	3.33	0.17	0.045	(0.565)	0.040	0.004
41	3.42	0.17	0.045	(0.562)	0.040	0.004
42	3.50	0.17	0.045	(0.560)	0.040	0.004
43	3.58	0.17	0.045	(0.558)	0.040	0.004
44	3.67	0.17	0.045	(0.555)	0.040	0.004
45	3.75	0.17	0.045	(0.553)	0.040	0.004
46	3.83	0.20	0.054	(0.551)	0.049	0.005
47	3.92	0.20	0.054	(0.548)	0.049	0.005
48	4.00	0.20	0.054	(0.546)	0.049	0.005
49	4.08	0.20	0.054	(0.544)	0.049	0.005
50	4.17	0.20	0.054	(0.541)	0.049	0.005
51	4.25	0.20	0.054	(0.539)	0.049	0.005
52	4.33	0.23	0.063	(0.537)	0.057	0.006
53	4.42	0.23	0.063	(0.534)	0.057	0.006
54	4.50	0.23	0.063	(0.532)	0.057	0.006
55	4.58	0.23	0.063	(0.530)	0.057	0.006
56	4.67	0.23	0.063	(0.528)	0.057	0.006
57	4.75	0.23	0.063	(0.525)	0.057	0.006
58	4.83	0.27	0.072	(0.523)	0.065	0.007
59	4.92	0.27	0.072	(0.521)	0.065	0.007
60	5.00	0.27	0.072	(0.518)	0.065	0.007
61	5.08	0.20	0.054	(0.516)	0.049	0.005
62	5.17	0.20	0.054	(0.514)	0.049	0.005
63	5.25	0.20	0.054	(0.512)	0.049	0.005
64	5.33	0.23	0.063	(0.509)	0.057	0.006
65	5.42	0.23	0.063	(0.507)	0.057	0.006
66	5.50	0.23	0.063	(0.505)	0.057	0.006
67	5.58	0.27	0.072	(0.503)	0.065	0.007
68	5.67	0.27	0.072	(0.501)	0.065	0.007
69	5.75	0.27	0.072	(0.498)	0.065	0.007
70	5.83	0.27	0.072	(0.496)	0.065	0.007
71	5.92	0.27	0.072	(0.494)	0.065	0.007
72	6.00	0.27	0.072	(0.492)	0.065	0.007
73	6.08	0.30	0.081	(0.490)	0.073	0.008
74	6.17	0.30	0.081	(0.487)	0.073	0.008
75	6.25	0.30	0.081	(0.485)	0.073	0.008
76	6.33	0.30	0.081	(0.483)	0.073	0.008
77	6.42	0.30	0.081	(0.481)	0.073	0.008
78	6.50	0.30	0.081	(0.479)	0.073	0.008
79	6.58	0.33	0.090	(0.477)	0.081	0.009
80	6.67	0.33	0.090	(0.474)	0.081	0.009
81	6.75	0.33	0.090	(0.472)	0.081	0.009
82	6.83	0.33	0.090	(0.470)	0.081	0.009
83	6.92	0.33	0.090	(0.468)	0.081	0.009
84	7.00	0.33	0.090	(0.466)	0.081	0.009
85	7.08	0.33	0.090	(0.464)	0.081	0.009
86	7.17	0.33	0.090	(0.462)	0.081	0.009
87	7.25	0.33	0.090	(0.460)	0.081	0.009
88	7.33	0.37	0.099	(0.458)	0.089	0.010
89	7.42	0.37	0.099	(0.455)	0.089	0.010
90	7.50	0.37	0.099	(0.453)	0.089	0.010
91	7.58	0.40	0.108	(0.451)	0.097	0.011
92	7.67	0.40	0.108	(0.449)	0.097	0.011
93	7.75	0.40	0.108	(0.447)	0.097	0.011
94	7.83	0.43	0.117	(0.445)	0.105	0.012
95	7.92	0.43	0.117	(0.443)	0.105	0.012
96	8.00	0.43	0.117	(0.441)	0.105	0.012
97	8.08	0.50	0.135	(0.439)	0.121	0.013
98	8.17	0.50	0.135	(0.437)	0.121	0.013

99	8.25	0.50	0.135	(0.435)	0.121	0.013
100	8.33	0.50	0.135	(0.433)	0.121	0.013
101	8.42	0.50	0.135	(0.431)	0.121	0.013
102	8.50	0.50	0.135	(0.429)	0.121	0.013
103	8.58	0.53	0.144	(0.427)	0.130	0.014
104	8.67	0.53	0.144	(0.425)	0.130	0.014
105	8.75	0.53	0.144	(0.423)	0.130	0.014
106	8.83	0.57	0.153	(0.421)	0.138	0.015
107	8.92	0.57	0.153	(0.419)	0.138	0.015
108	9.00	0.57	0.153	(0.417)	0.138	0.015
109	9.08	0.63	0.171	(0.415)	0.154	0.017
110	9.17	0.63	0.171	(0.413)	0.154	0.017
111	9.25	0.63	0.171	(0.411)	0.154	0.017
112	9.33	0.67	0.180	(0.409)	0.162	0.018
113	9.42	0.67	0.180	(0.407)	0.162	0.018
114	9.50	0.67	0.180	(0.405)	0.162	0.018
115	9.58	0.70	0.189	(0.403)	0.170	0.019
116	9.67	0.70	0.189	(0.401)	0.170	0.019
117	9.75	0.70	0.189	(0.399)	0.170	0.019
118	9.83	0.73	0.198	(0.397)	0.178	0.020
119	9.92	0.73	0.198	(0.395)	0.178	0.020
120	10.00	0.73	0.198	(0.393)	0.178	0.020
121	10.08	0.50	0.135	(0.392)	0.121	0.013
122	10.17	0.50	0.135	(0.390)	0.121	0.013
123	10.25	0.50	0.135	(0.388)	0.121	0.013
124	10.33	0.50	0.135	(0.386)	0.121	0.013
125	10.42	0.50	0.135	(0.384)	0.121	0.013
126	10.50	0.50	0.135	(0.382)	0.121	0.013
127	10.58	0.67	0.180	(0.380)	0.162	0.018
128	10.67	0.67	0.180	(0.378)	0.162	0.018
129	10.75	0.67	0.180	(0.377)	0.162	0.018
130	10.83	0.67	0.180	(0.375)	0.162	0.018
131	10.92	0.67	0.180	(0.373)	0.162	0.018
132	11.00	0.67	0.180	(0.371)	0.162	0.018
133	11.08	0.63	0.171	(0.369)	0.154	0.017
134	11.17	0.63	0.171	(0.367)	0.154	0.017
135	11.25	0.63	0.171	(0.366)	0.154	0.017
136	11.33	0.63	0.171	(0.364)	0.154	0.017
137	11.42	0.63	0.171	(0.362)	0.154	0.017
138	11.50	0.63	0.171	(0.360)	0.154	0.017
139	11.58	0.57	0.153	(0.358)	0.138	0.015
140	11.67	0.57	0.153	(0.357)	0.138	0.015
141	11.75	0.57	0.153	(0.355)	0.138	0.015
142	11.83	0.60	0.162	(0.353)	0.146	0.016
143	11.92	0.60	0.162	(0.351)	0.146	0.016
144	12.00	0.60	0.162	(0.350)	0.146	0.016
145	12.08	0.83	0.225	(0.348)	0.202	0.022
146	12.17	0.83	0.225	(0.346)	0.202	0.022
147	12.25	0.83	0.225	(0.344)	0.202	0.022
148	12.33	0.87	0.234	(0.343)	0.211	0.023
149	12.42	0.87	0.234	(0.341)	0.211	0.023
150	12.50	0.87	0.234	(0.339)	0.211	0.023
151	12.58	0.93	0.252	(0.337)	0.227	0.025
152	12.67	0.93	0.252	(0.336)	0.227	0.025
153	12.75	0.93	0.252	(0.334)	0.227	0.025
154	12.83	0.97	0.261	(0.332)	0.235	0.026
155	12.92	0.97	0.261	(0.331)	0.235	0.026
156	13.00	0.97	0.261	(0.329)	0.235	0.026
157	13.08	1.13	0.306	(0.327)	0.275	0.031
158	13.17	1.13	0.306	(0.326)	0.275	0.031
159	13.25	1.13	0.306	(0.324)	0.275	0.031
160	13.33	1.13	0.306	(0.322)	0.275	0.031
161	13.42	1.13	0.306	(0.321)	0.275	0.031
162	13.50	1.13	0.306	(0.319)	0.275	0.031
163	13.58	0.77	0.207	(0.318)	0.186	0.021
164	13.67	0.77	0.207	(0.316)	0.186	0.021
165	13.75	0.77	0.207	(0.314)	0.186	0.021
166	13.83	0.77	0.207	(0.313)	0.186	0.021
167	13.92	0.77	0.207	(0.311)	0.186	0.021
168	14.00	0.77	0.207	(0.309)	0.186	0.021
169	14.08	0.90	0.243	(0.308)	0.219	0.024

170	14.17	0.90	0.243	(0.306)	0.219	0.024
171	14.25	0.90	0.243	(0.305)	0.219	0.024
172	14.33	0.87	0.234	(0.303)	0.211	0.023
173	14.42	0.87	0.234	(0.302)	0.211	0.023
174	14.50	0.87	0.234	(0.300)	0.211	0.023
175	14.58	0.87	0.234	(0.299)	0.211	0.023
176	14.67	0.87	0.234	(0.297)	0.211	0.023
177	14.75	0.87	0.234	(0.296)	0.211	0.023
178	14.83	0.83	0.225	(0.294)	0.202	0.022
179	14.92	0.83	0.225	(0.293)	0.202	0.022
180	15.00	0.83	0.225	(0.291)	0.202	0.022
181	15.08	0.80	0.216	(0.290)	0.194	0.022
182	15.17	0.80	0.216	(0.288)	0.194	0.022
183	15.25	0.80	0.216	(0.287)	0.194	0.022
184	15.33	0.77	0.207	(0.285)	0.186	0.021
185	15.42	0.77	0.207	(0.284)	0.186	0.021
186	15.50	0.77	0.207	(0.282)	0.186	0.021
187	15.58	0.63	0.171	(0.281)	0.154	0.017
188	15.67	0.63	0.171	(0.279)	0.154	0.017
189	15.75	0.63	0.171	(0.278)	0.154	0.017
190	15.83	0.63	0.171	(0.276)	0.154	0.017
191	15.92	0.63	0.171	(0.275)	0.154	0.017
192	16.00	0.63	0.171	(0.274)	0.154	0.017
193	16.08	0.13	0.036	(0.272)	0.032	0.004
194	16.17	0.13	0.036	(0.271)	0.032	0.004
195	16.25	0.13	0.036	(0.269)	0.032	0.004
196	16.33	0.13	0.036	(0.268)	0.032	0.004
197	16.42	0.13	0.036	(0.267)	0.032	0.004
198	16.50	0.13	0.036	(0.265)	0.032	0.004
199	16.58	0.10	0.027	(0.264)	0.024	0.003
200	16.67	0.10	0.027	(0.263)	0.024	0.003
201	16.75	0.10	0.027	(0.261)	0.024	0.003
202	16.83	0.10	0.027	(0.260)	0.024	0.003
203	16.92	0.10	0.027	(0.259)	0.024	0.003
204	17.00	0.10	0.027	(0.257)	0.024	0.003
205	17.08	0.17	0.045	(0.256)	0.040	0.004
206	17.17	0.17	0.045	(0.255)	0.040	0.004
207	17.25	0.17	0.045	(0.253)	0.040	0.004
208	17.33	0.17	0.045	(0.252)	0.040	0.004
209	17.42	0.17	0.045	(0.251)	0.040	0.004
210	17.50	0.17	0.045	(0.250)	0.040	0.004
211	17.58	0.17	0.045	(0.248)	0.040	0.004
212	17.67	0.17	0.045	(0.247)	0.040	0.004
213	17.75	0.17	0.045	(0.246)	0.040	0.004
214	17.83	0.13	0.036	(0.245)	0.032	0.004
215	17.92	0.13	0.036	(0.244)	0.032	0.004
216	18.00	0.13	0.036	(0.242)	0.032	0.004
217	18.08	0.13	0.036	(0.241)	0.032	0.004
218	18.17	0.13	0.036	(0.240)	0.032	0.004
219	18.25	0.13	0.036	(0.239)	0.032	0.004
220	18.33	0.13	0.036	(0.238)	0.032	0.004
221	18.42	0.13	0.036	(0.236)	0.032	0.004
222	18.50	0.13	0.036	(0.235)	0.032	0.004
223	18.58	0.10	0.027	(0.234)	0.024	0.003
224	18.67	0.10	0.027	(0.233)	0.024	0.003
225	18.75	0.10	0.027	(0.232)	0.024	0.003
226	18.83	0.07	0.018	(0.231)	0.016	0.002
227	18.92	0.07	0.018	(0.230)	0.016	0.002
228	19.00	0.07	0.018	(0.229)	0.016	0.002
229	19.08	0.10	0.027	(0.228)	0.024	0.003
230	19.17	0.10	0.027	(0.226)	0.024	0.003
231	19.25	0.10	0.027	(0.225)	0.024	0.003
232	19.33	0.13	0.036	(0.224)	0.032	0.004
233	19.42	0.13	0.036	(0.223)	0.032	0.004
234	19.50	0.13	0.036	(0.222)	0.032	0.004
235	19.58	0.10	0.027	(0.221)	0.024	0.003
236	19.67	0.10	0.027	(0.220)	0.024	0.003
237	19.75	0.10	0.027	(0.219)	0.024	0.003
238	19.83	0.07	0.018	(0.218)	0.016	0.002
239	19.92	0.07	0.018	(0.217)	0.016	0.002
240	20.00	0.07	0.018	(0.216)	0.016	0.002

```
241  20.08     0.10      0.027       (  0.215)       0.024        0.003
242  20.17     0.10      0.027       (  0.214)       0.024        0.003
243  20.25     0.10      0.027       (  0.214)       0.024        0.003
244  20.33     0.10      0.027       (  0.213)       0.024        0.003
245  20.42     0.10      0.027       (  0.212)       0.024        0.003
246  20.50     0.10      0.027       (  0.211)       0.024        0.003
247  20.58     0.10      0.027       (  0.210)       0.024        0.003
248  20.67     0.10      0.027       (  0.209)       0.024        0.003
249  20.75     0.10      0.027       (  0.208)       0.024        0.003
250  20.83     0.07      0.018       (  0.207)       0.016        0.002
251  20.92     0.07      0.018       (  0.206)       0.016        0.002
252  21.00     0.07      0.018       (  0.206)       0.016        0.002
253  21.08     0.10      0.027       (  0.205)       0.024        0.003
254  21.17     0.10      0.027       (  0.204)       0.024        0.003
255  21.25     0.10      0.027       (  0.203)       0.024        0.003
256  21.33     0.07      0.018       (  0.202)       0.016        0.002
257  21.42     0.07      0.018       (  0.202)       0.016        0.002
258  21.50     0.07      0.018       (  0.201)       0.016        0.002
259  21.58     0.10      0.027       (  0.200)       0.024        0.003
260  21.67     0.10      0.027       (  0.199)       0.024        0.003
261  21.75     0.10      0.027       (  0.199)       0.024        0.003
262  21.83     0.07      0.018       (  0.198)       0.016        0.002
263  21.92     0.07      0.018       (  0.197)       0.016        0.002
264  22.00     0.07      0.018       (  0.197)       0.016        0.002
265  22.08     0.10      0.027       (  0.196)       0.024        0.003
266  22.17     0.10      0.027       (  0.195)       0.024        0.003
267  22.25     0.10      0.027       (  0.195)       0.024        0.003
268  22.33     0.07      0.018       (  0.194)       0.016        0.002
269  22.42     0.07      0.018       (  0.194)       0.016        0.002
270  22.50     0.07      0.018       (  0.193)       0.016        0.002
271  22.58     0.07      0.018       (  0.192)       0.016        0.002
272  22.67     0.07      0.018       (  0.192)       0.016        0.002
273  22.75     0.07      0.018       (  0.191)       0.016        0.002
274  22.83     0.07      0.018       (  0.191)       0.016        0.002
275  22.92     0.07      0.018       (  0.190)       0.016        0.002
276  23.00     0.07      0.018       (  0.190)       0.016        0.002
277  23.08     0.07      0.018       (  0.190)       0.016        0.002
278  23.17     0.07      0.018       (  0.189)       0.016        0.002
279  23.25     0.07      0.018       (  0.189)       0.016        0.002
280  23.33     0.07      0.018       (  0.188)       0.016        0.002
281  23.42     0.07      0.018       (  0.188)       0.016        0.002
282  23.50     0.07      0.018       (  0.188)       0.016        0.002
283  23.58     0.07      0.018       (  0.187)       0.016        0.002
284  23.67     0.07      0.018       (  0.187)       0.016        0.002
285  23.75     0.07      0.018       (  0.187)       0.016        0.002
286  23.83     0.07      0.018       (  0.187)       0.016        0.002
287  23.92     0.07      0.018       (  0.186)       0.016        0.002
288  24.00     0.07      0.018       (  0.186)       0.016        0.002
               (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     2.7
      Flood volume = Effective rainfall      0.22(In)
       times area      10.1(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
      Total soil loss =      2.02(In)
      Total soil loss =     1.703(Ac.Ft)
      Total rainfall =      2.25(In)
      Flood volume =        8240.8 Cubic Feet
      Total soil loss =       74167.6 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      0.306(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	0.0001	0.01	Q	|	|	|	|
0+20	0.0002	0.01	Q	|	|	|	|
0+25	0.0004	0.02	Q	|	|	|	|
0+30	0.0005	0.02	Q	|	|	|	|
0+35	0.0007	0.02	Q	|	|	|	|
0+40	0.0008	0.02	Q	|	|	|	|
0+45	0.0010	0.03	Q	|	|	|	|
0+50	0.0012	0.03	Q	|	|	|	|
0+55	0.0014	0.03	Q	|	|	|	|
1+ 0	0.0016	0.03	Q	|	|	|	|
1+ 5	0.0019	0.03	Q	|	|	|	|
1+10	0.0021	0.03	Q	|	|	|	|
1+15	0.0023	0.03	Q	|	|	|	|
1+20	0.0025	0.03	Q	|	|	|	|
1+25	0.0027	0.03	Q	|	|	|	|
1+30	0.0029	0.03	Q	|	|	|	|
1+35	0.0031	0.03	Q	|	|	|	|
1+40	0.0033	0.03	Q	|	|	|	|
1+45	0.0035	0.03	Q	|	|	|	|
1+50	0.0037	0.03	Q	|	|	|	|
1+55	0.0039	0.03	Q	|	|	|	|
2+ 0	0.0041	0.03	Q	|	|	|	|
2+ 5	0.0043	0.03	Q	|	|	|	|
2+10	0.0046	0.04	Q	|	|	|	|
2+15	0.0048	0.04	QV	|	|	|	|
2+20	0.0051	0.04	QV	|	|	|	|
2+25	0.0053	0.04	QV	|	|	|	|
2+30	0.0056	0.04	QV	|	|	|	|
2+35	0.0058	0.04	QV	|	|	|	|
2+40	0.0061	0.04	QV	|	|	|	|
2+45	0.0064	0.04	QV	|	|	|	|
2+50	0.0067	0.04	QV	|	|	|	|
2+55	0.0070	0.04	QV	|	|	|	|
3+ 0	0.0073	0.04	QV	|	|	|	|
3+ 5	0.0076	0.05	QV	|	|	|	|
3+10	0.0079	0.05	QV	|	|	|	|
3+15	0.0082	0.05	QV	|	|	|	|
3+20	0.0085	0.05	QV	|	|	|	|
3+25	0.0089	0.05	QV	|	|	|	|
3+30	0.0092	0.05	QV	|	|	|	|
3+35	0.0095	0.05	Q V	|	|	|	|
3+40	0.0098	0.05	Q V	|	|	|	|
3+45	0.0101	0.05	Q V	|	|	|	|
3+50	0.0104	0.05	Q V	|	|	|	|
3+55	0.0108	0.05	Q V	|	|	|	|
4+ 0	0.0111	0.05	Q V	|	|	|	|
4+ 5	0.0115	0.05	Q V	|	|	|	|
4+10	0.0119	0.05	Q V	|	|	|	|
4+15	0.0122	0.05	Q V	|	|	|	|
4+20	0.0126	0.05	Q V	|	|	|	|
4+25	0.0130	0.06	Q V	|	|	|	|
4+30	0.0134	0.06	Q V	|	|	|	|
4+35	0.0139	0.06	Q V	|	|	|	|
4+40	0.0143	0.06	Q V	|	|	|	|
4+45	0.0147	0.06	Q V	|	|	|	|
4+50	0.0152	0.06	Q V	|	|	|	|
4+55	0.0156	0.07	Q V	|	|	|	|
5+ 0	0.0161	0.07	Q V	|	|	|	|
5+ 5	0.0166	0.07	Q V	|	|	|	|
5+10	0.0170	0.07	Q V	|	|	|	|
5+15	0.0174	0.06	Q V	|	|	|	|
5+20	0.0178	0.06	Q V	|	|	|	|
5+25	0.0183	0.06	Q V	|	|	|	|
5+30	0.0187	0.06	Q V	|	|	|	|
5+35	0.0191	0.06	Q V	|	|	|	|
5+40	0.0196	0.07	Q V	|	|	|	|
5+45	0.0201	0.07	Q V	|	|	|	|
5+50	0.0206	0.07	Q V	|	|	|	|
5+55	0.0210	0.07	Q V	|	|	|	|
6+ 0	0.0215	0.07	Q V	|	|	|	|
6+ 5	0.0220	0.07	Q V	|	|	|	|

```
 6+10       0.0226      0.08  Q   V     |          |          |          |
 6+15       0.0231      0.08  Q   V     |          |          |          |
 6+20       0.0237      0.08  Q    V    |          |          |          |
 6+25       0.0242      0.08  Q    V    |          |          |          |
 6+30       0.0248      0.08  Q    V    |          |          |          |
 6+35       0.0253      0.08  Q    V    |          |          |          |
 6+40       0.0259      0.09  Q    V    |          |          |          |
 6+45       0.0265      0.09  Q    V    |          |          |          |
 6+50       0.0271      0.09  Q    V    |          |          |          |
 6+55       0.0278      0.09  Q    V    |          |          |          |
 7+ 0       0.0284      0.09  Q     V   |          |          |          |
 7+ 5       0.0290      0.09  Q     V   |          |          |          |
 7+10       0.0296      0.09  Q     V   |          |          |          |
 7+15       0.0303      0.09  Q     V   |          |          |          |
 7+20       0.0309      0.09  Q     V   |          |          |          |
 7+25       0.0316      0.09  Q     V   |          |          |          |
 7+30       0.0322      0.10  Q     V   |          |          |          |
 7+35       0.0329      0.10  Q     V   |          |          |          |
 7+40       0.0336      0.10  Q      V  |          |          |          |
 7+45       0.0343      0.11  Q      V  |          |          |          |
 7+50       0.0351      0.11  Q      V  |          |          |          |
 7+55       0.0358      0.11  Q      V  |          |          |          |
 8+ 0       0.0366      0.11  Q      V  |          |          |          |
 8+ 5       0.0374      0.12  Q      V  |          |          |          |
 8+10       0.0383      0.12  Q       V |          |          |          |
 8+15       0.0392      0.13  Q       V |          |          |          |
 8+20       0.0401      0.13  Q       V |          |          |          |
 8+25       0.0410      0.13  Q       V |          |          |          |
 8+30       0.0419      0.13  Q       V |          |          |          |
 8+35       0.0429      0.14  Q        V|          |          |          |
 8+40       0.0438      0.14  Q        V|          |          |          |
 8+45       0.0448      0.14  Q        V|          |          |          |
 8+50       0.0458      0.14  Q        V|          |          |          |
 8+55       0.0468      0.15  Q        V|          |          |          |
 9+ 0       0.0479      0.15  Q         V          |          |          |
 9+ 5       0.0489      0.15  Q         V          |          |          |
 9+10       0.0500      0.16  Q         V          |          |          |
 9+15       0.0512      0.17  Q         V          |          |          |
 9+20       0.0523      0.17  Q         |V         |          |          |
 9+25       0.0535      0.17  Q         |V         |          |          |
 9+30       0.0548      0.18  Q         |V         |          |          |
 9+35       0.0560      0.18  Q         |V         |          |          |
 9+40       0.0573      0.18  Q         | V        |          |          |
 9+45       0.0585      0.19  Q         | V        |          |          |
 9+50       0.0598      0.19  Q         | V        |          |          |
 9+55       0.0612      0.19  Q         | V        |          |          |
10+ 0       0.0625      0.20  Q         |  V       |          |          |
10+ 5       0.0639      0.20  Q         |  V       |          |          |
10+10       0.0651      0.18  Q         |  V       |          |          |
10+15       0.0662      0.16  Q         |  V       |          |          |
10+20       0.0672      0.15  Q         |   V      |          |          |
10+25       0.0682      0.15  Q         |   V      |          |          |
10+30       0.0692      0.14  Q         |   V      |          |          |
10+35       0.0702      0.14  Q         |   V      |          |          |
10+40       0.0713      0.16  Q         |    V     |          |          |
10+45       0.0725      0.17  Q         |    V     |          |          |
10+50       0.0737      0.17  Q         |    V     |          |          |
10+55       0.0749      0.18  Q         |    V     |          |          |
11+ 0       0.0761      0.18  Q         |     V    |          |          |
11+ 5       0.0774      0.18  Q         |     V    |          |          |
11+10       0.0786      0.18  Q         |     V    |          |          |
11+15       0.0798      0.18  Q         |     V    |          |          |
11+20       0.0810      0.17  Q         |      V   |          |          |
11+25       0.0822      0.17  Q         |      V   |          |          |
11+30       0.0834      0.17  Q         |      V   |          |          |
11+35       0.0846      0.17  Q         |      V   |          |          |
11+40       0.0857      0.17  Q         |       V  |          |          |
11+45       0.0869      0.16  Q         |       V  |          |          |
11+50       0.0880      0.16  Q         |       V  |          |          |
11+55       0.0891      0.16  Q         |       V  |          |          |
12+ 0       0.0902      0.16  Q         |        V |          |          |
```

```
12+ 5       0.0914      0.17  Q         |         V|         |         |
12+10       0.0927      0.19  Q         |         V|         |         |
12+15       0.0941      0.21  Q         |         V|         |         |
12+20       0.0955      0.21  Q         |          V         |         |
12+25       0.0971      0.22  Q         |          V         |         |
12+30       0.0986      0.23  Q         |          V         |         |
12+35       0.1002      0.23  Q         |          |V        |         |
12+40       0.1019      0.24  Q         |          |V        |         |
12+45       0.1036      0.25  Q         |          |V        |         |
12+50       0.1053      0.25  Q         |          | V       |         |
12+55       0.1071      0.25  |Q        |          | V       |         |
13+ 0       0.1088      0.26  |Q        |          |  V      |         |
13+ 5       0.1107      0.26  |Q        |          |  V      |         |
13+10       0.1126      0.28  |Q        |          |  V      |         |
13+15       0.1146      0.29  |Q        |          |   V     |         |
13+20       0.1167      0.30  |Q        |          |   V     |         |
13+25       0.1187      0.30  |Q        |          |    V    |         |
13+30       0.1208      0.31  |Q        |          |    V    |         |
13+35       0.1229      0.30  |Q        |          |    V    |         |
13+40       0.1248      0.27  |Q        |          |     V   |         |
13+45       0.1265      0.24  Q         |          |     V   |         |
13+50       0.1281      0.23  Q         |          |      V  |         |
13+55       0.1297      0.23  Q         |          |      V  |         |
14+ 0       0.1312      0.22  Q         |          |      V  |         |
14+ 5       0.1327      0.22  Q         |          |       V |         |
14+10       0.1343      0.23  Q         |          |       V |         |
14+15       0.1359      0.24  Q         |          |       V |         |
14+20       0.1376      0.24  Q         |          |        V|         |
14+25       0.1392      0.24  Q         |          |        V|         |
14+30       0.1409      0.24  Q         |          |        V|         |
14+35       0.1425      0.24  Q         |          |         V         |
14+40       0.1441      0.24  Q         |          |         V         |
14+45       0.1458      0.24  Q         |          |         V         |
14+50       0.1474      0.24  Q         |          |         |V        |
14+55       0.1490      0.23  Q         |          |         |V        |
15+ 0       0.1506      0.23  Q         |          |         |V        |
15+ 5       0.1522      0.23  Q         |          |         | V       |
15+10       0.1538      0.23  Q         |          |         | V       |
15+15       0.1553      0.22  Q         |          |         | V       |
15+20       0.1569      0.22  Q         |          |         |  V      |
15+25       0.1584      0.22  Q         |          |         |  V      |
15+30       0.1598      0.22  Q         |          |         |  V      |
15+35       0.1613      0.21  Q         |          |         |   V     |
15+40       0.1627      0.20  Q         |          |         |   V     |
15+45       0.1640      0.19  Q         |          |         |   V     |
15+50       0.1652      0.18  Q         |          |         |   V     |
15+55       0.1665      0.18  Q         |          |         |    V    |
16+ 0       0.1677      0.18  Q         |          |         |    V    |
16+ 5       0.1689      0.17  Q         |          |         |    V    |
16+10       0.1698      0.13  Q         |          |         |    V    |
16+15       0.1704      0.09  Q         |          |         |     V   |
16+20       0.1708      0.07  Q         |          |         |     V   |
16+25       0.1713      0.06  Q         |          |         |     V   |
16+30       0.1716      0.05  Q         |          |         |     V   |
16+35       0.1719      0.05  Q         |          |         |     V   |
16+40       0.1722      0.04  Q         |          |         |     V   |
16+45       0.1725      0.04  Q         |          |         |     V   |
16+50       0.1727      0.03  Q         |          |         |     V   |
16+55       0.1729      0.03  Q         |          |         |     V   |
17+ 0       0.1731      0.03  Q         |          |         |     V   |
17+ 5       0.1733      0.03  Q         |          |         |     V   |
17+10       0.1736      0.03  Q         |          |         |     V   |
17+15       0.1739      0.04  Q         |          |         |     V   |
17+20       0.1741      0.04  Q         |          |         |     V   |
17+25       0.1744      0.04  Q         |          |         |     V   |
17+30       0.1747      0.04  Q         |          |         |     V   |
17+35       0.1750      0.04  Q         |          |         |      V  |
17+40       0.1754      0.04  Q         |          |         |      V  |
17+45       0.1757      0.05  Q         |          |         |      V  |
17+50       0.1760      0.04  Q         |          |         |      V  |
17+55       0.1763      0.04  Q         |          |         |      V  |
```

18+ 0	0.1765	0.04	Q	|	|	|	V |
18+ 5	0.1768	0.04	Q	|	|	|	V |
18+10	0.1771	0.04	Q	|	|	|	V |
18+15	0.1773	0.04	Q	|	|	|	V |
18+20	0.1776	0.04	Q	|	|	|	V |
18+25	0.1778	0.04	Q	|	|	|	V |
18+30	0.1781	0.04	Q	|	|	|	V |
18+35	0.1783	0.04	Q	|	|	|	V |
18+40	0.1786	0.03	Q	|	|	|	V |
18+45	0.1788	0.03	Q	|	|	|	V |
18+50	0.1790	0.03	Q	|	|	|	V |
18+55	0.1792	0.03	Q	|	|	|	V |
19+ 0	0.1793	0.02	Q	|	|	|	V |
19+ 5	0.1795	0.02	Q	|	|	|	V |
19+10	0.1796	0.02	Q	|	|	|	V |
19+15	0.1798	0.03	Q	|	|	|	V |
19+20	0.1800	0.03	Q	|	|	|	V |
19+25	0.1802	0.03	Q	|	|	|	V |
19+30	0.1804	0.03	Q	|	|	|	V |
19+35	0.1807	0.03	Q	|	|	|	V |
19+40	0.1809	0.03	Q	|	|	|	V |
19+45	0.1811	0.03	Q	|	|	|	V |
19+50	0.1813	0.03	Q	|	|	|	V |
19+55	0.1814	0.02	Q	|	|	|	V |
20+ 0	0.1816	0.02	Q	|	|	|	V |
20+ 5	0.1817	0.02	Q	|	|	|	V |
20+10	0.1819	0.02	Q	|	|	|	V |
20+15	0.1821	0.03	Q	|	|	|	V |
20+20	0.1823	0.03	Q	|	|	|	V |
20+25	0.1824	0.03	Q	|	|	|	V |
20+30	0.1826	0.03	Q	|	|	|	V |
20+35	0.1828	0.03	Q	|	|	|	V |
20+40	0.1830	0.03	Q	|	|	|	V |
20+45	0.1832	0.03	Q	|	|	|	V |
20+50	0.1834	0.03	Q	|	|	|	V |
20+55	0.1835	0.02	Q	|	|	|	V |
21+ 0	0.1837	0.02	Q	|	|	|	V |
21+ 5	0.1838	0.02	Q	|	|	|	V |
21+10	0.1840	0.02	Q	|	|	|	V |
21+15	0.1842	0.03	Q	|	|	|	V |
21+20	0.1843	0.03	Q	|	|	|	V |
21+25	0.1845	0.02	Q	|	|	|	V|
21+30	0.1846	0.02	Q	|	|	|	V|
21+35	0.1848	0.02	Q	|	|	|	V|
21+40	0.1849	0.02	Q	|	|	|	V|
21+45	0.1851	0.03	Q	|	|	|	V|
21+50	0.1853	0.03	Q	|	|	|	V|
21+55	0.1854	0.02	Q	|	|	|	V|
22+ 0	0.1856	0.02	Q	|	|	|	V|
22+ 5	0.1857	0.02	Q	|	|	|	V|
22+10	0.1859	0.02	Q	|	|	|	V|
22+15	0.1861	0.03	Q	|	|	|	V|
22+20	0.1862	0.03	Q	|	|	|	V|
22+25	0.1864	0.02	Q	|	|	|	V|
22+30	0.1865	0.02	Q	|	|	|	V|
22+35	0.1867	0.02	Q	|	|	|	V|
22+40	0.1868	0.02	Q	|	|	|	V|
22+45	0.1869	0.02	Q	|	|	|	V|
22+50	0.1871	0.02	Q	|	|	|	V|
22+55	0.1872	0.02	Q	|	|	|	V|
23+ 0	0.1873	0.02	Q	|	|	|	V|
23+ 5	0.1875	0.02	Q	|	|	|	V|
23+10	0.1876	0.02	Q	|	|	|	V|
23+15	0.1877	0.02	Q	|	|	|	V|
23+20	0.1878	0.02	Q	|	|	|	V|
23+25	0.1880	0.02	Q	|	|	|	V|
23+30	0.1881	0.02	Q	|	|	|	V|
23+35	0.1882	0.02	Q	|	|	|	V|
23+40	0.1883	0.02	Q	|	|	|	V|
23+45	0.1885	0.02	Q	|	|	|	V|
23+50	0.1886	0.02	Q	|	|	|	V|

```
   23+55       0.1887      0.02  Q          |          |          |         V|
   24+ 0       0.1888      0.02  Q          |          |          |         V|
   24+ 5       0.1890      0.02  Q          |          |          |         V|
   24+10       0.1890      0.01  Q          |          |          |         V|
   24+15       0.1891      0.01  Q          |          |          |         V|
   24+20       0.1891      0.00  Q          |          |          |         V|
   24+25       0.1891      0.00  Q          |          |          |         V|
   24+30       0.1892      0.00  Q          |          |          |         V|
   24+35       0.1892      0.00  Q          |          |          |         V|
   24+40       0.1892      0.00  Q          |          |          |         V|
   24+45       0.1892      0.00  Q          |          |          |         V|
   24+50       0.1892      0.00  Q          |          |          |         V|
   24+55       0.1892      0.00  Q          |          |          |         V|
   25+ 0       0.1892      0.00  Q          |          |          |         V|
   25+ 5       0.1892      0.00  Q          |          |          |         V|
   25+10       0.1892      0.00  Q          |          |          |          V
--------------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST10YR1HR110.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 1-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           0.49                 4.98

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           1.40                14.13

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.494(In)
Area Averaged 100-Year Rainfall =    1.400(In)

Point rain (area averaged) =    0.867(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.867(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

Total Area Entered = 10.09(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	84.3	0.195	0.000	0.195	1.000	0.195
					Sum (F) =	0.195

Area averaged mean soil loss (F) (In/Hr) = 0.195
Minimum soil loss rate ((In/Hr)) = 0.097
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.4800

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
		Sum = 100.000	Sum=	10.169

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.458	0.195	(0.412)	0.263
2	0.17	4.50	0.468	0.195	(0.421)	0.273
3	0.25	5.40	0.562	0.195	(0.505)	0.367
4	0.33	5.40	0.562	0.195	(0.505)	0.367
5	0.42	5.70	0.593	0.195	(0.534)	0.398
6	0.50	6.40	0.666	0.195	(0.599)	0.471
7	0.58	7.90	0.822	0.195	(0.739)	0.627
8	0.67	9.10	0.946	0.195	(0.852)	0.751
9	0.75	12.80	1.331	0.195	(1.198)	1.136
10	0.83	25.60	2.662	0.195	(2.396)	2.467
11	0.92	7.90	0.822	0.195	(0.739)	0.627
12	1.00	4.90	0.510	0.195	(0.459)	0.315
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	8.1

Flood volume = Effective rainfall 0.67(In)
times area 10.1(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
Total soil loss = 0.19(In)
Total soil loss = 0.164(Ac.Ft)
Total rainfall = 0.87(In)
Flood volume = 24601.3 Cubic Feet
Total soil loss = 7141.5 Cubic Feet

Peak flow rate of this hydrograph = 13.415(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 5.0 10.0 15.0 20.0
0+ 5	0.0009	0.12	Q
0+10	0.0075	0.97	VQ
0+15	0.0200	1.81	V Q
0+20	0.0369	2.46	V Q
0+25	0.0572	2.95	VQ
0+30	0.0802	3.34	VQ
0+35	0.1070	3.89	Q
0+40	0.1402	4.81	Q
0+45	0.1817	6.04	Q
0+50	0.2408	8.58	Q
0+55	0.3332	13.42	V Q
1+ 0	0.4157	11.97	Q V
1+ 5	0.4679	7.58	Q V
1+10	0.4999	4.65	Q V
1+15	0.5197	2.87	Q V
1+20	0.5330	1.94	Q V
1+25	0.5426	1.39	Q V
1+30	0.5495	1.00	Q V
1+35	0.5544	0.72	Q V
1+40	0.5578	0.49	Q V
1+45	0.5603	0.37	Q V
1+50	0.5624	0.30	Q V
1+55	0.5637	0.20	Q V
2+ 0	0.5645	0.11	Q V
2+ 5	0.5647	0.03	Q V
2+10	0.5648	0.01	Q V

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST10YR3HR310.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 3-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           0.87                 8.78

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           2.22                22.40

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    1.425(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.425(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

Total Area Entered = 10.09(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	84.3	0.195	0.000	0.195	1.000	0.195
					Sum (F) =	0.195

Area averaged mean soil loss (F) (In/Hr) = 0.195
Minimum soil loss rate ((In/Hr)) = 0.097
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
		Sum = 100.000	Sum=	10.169

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.222	0.195	(0.200)	0.027
2	0.17	1.30	0.222	0.195	(0.200)	0.027
3	0.25	1.10	0.188	(0.195)	0.169	0.019
4	0.33	1.50	0.257	0.195	(0.231)	0.062
5	0.42	1.50	0.257	0.195	(0.231)	0.062
6	0.50	1.80	0.308	0.195	(0.277)	0.113
7	0.58	1.50	0.257	0.195	(0.231)	0.062
8	0.67	1.80	0.308	0.195	(0.277)	0.113
9	0.75	1.80	0.308	0.195	(0.277)	0.113
10	0.83	1.50	0.257	0.195	(0.231)	0.062
11	0.92	1.60	0.274	0.195	(0.246)	0.079
12	1.00	1.80	0.308	0.195	(0.277)	0.113
13	1.08	2.20	0.376	0.195	(0.339)	0.181
14	1.17	2.20	0.376	0.195	(0.339)	0.181
15	1.25	2.20	0.376	0.195	(0.339)	0.181
16	1.33	2.00	0.342	0.195	(0.308)	0.147
17	1.42	2.60	0.445	0.195	(0.400)	0.250
18	1.50	2.70	0.462	0.195	(0.416)	0.267
19	1.58	2.40	0.410	0.195	(0.369)	0.216
20	1.67	2.70	0.462	0.195	(0.416)	0.267
21	1.75	3.30	0.564	0.195	(0.508)	0.369
22	1.83	3.10	0.530	0.195	(0.477)	0.335
23	1.92	2.90	0.496	0.195	(0.446)	0.301
24	2.00	3.00	0.513	0.195	(0.462)	0.318
25	2.08	3.10	0.530	0.195	(0.477)	0.335

```
26   2.17     4.20      0.718          0.195    (  0.647)        0.523
27   2.25     5.00      0.855          0.195    (  0.770)        0.660
28   2.33     3.50      0.599          0.195    (  0.539)        0.404
29   2.42     6.80      1.163          0.195    (  1.047)        0.968
30   2.50     7.30      1.249          0.195    (  1.124)        1.054
31   2.58     8.20      1.403          0.195    (  1.262)        1.208
32   2.67     5.90      1.009          0.195    (  0.908)        0.814
33   2.75     2.00      0.342          0.195    (  0.308)        0.147
34   2.83     1.80      0.308          0.195    (  0.277)        0.113
35   2.92     1.80      0.308          0.195    (  0.277)        0.113
36   3.00     0.60      0.103       (  0.195)       0.092        0.010
             (Loss Rate Not Used)
   Sum =     100.0                                  Sum =    10.2
      Flood volume = Effective rainfall      0.85(In)
       times area      10.1(Ac.)/[(In)/(Ft.)] =       0.7(Ac.Ft)
      Total soil loss =      0.57(In)
      Total soil loss =     0.483(Ac.Ft)
      Total rainfall =      1.43(In)
      Flood volume =       31172.5 Cubic Feet
      Total soil loss =       21032.9 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      9.542(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-------------------------------------------------------------------------
  0+ 5       0.0001      0.01  Q          |         |         |         |
  0+10       0.0008      0.10  Q          |         |         |         |
  0+15       0.0020      0.18  Q          |         |         |         |
  0+20       0.0034      0.20  Q          |         |         |         |
  0+25       0.0057      0.33  VQ         |         |         |         |
  0+30       0.0090      0.49  VQ         |         |         |         |
  0+35       0.0137      0.68  V Q        |         |         |         |
  0+40       0.0187      0.72  |VQ        |         |         |         |
  0+45       0.0244      0.82  |V Q       |         |         |         |
  0+50       0.0308      0.94  |V Q       |         |         |         |
  0+55       0.0367      0.85  | VQ       |         |         |         |
  1+ 0       0.0422      0.80  | VQ       |         |         |         |
  1+ 5       0.0488      0.96  | VQ       |         |         |         |
  1+10       0.0576      1.28  |  V Q     |         |         |         |
  1+15       0.0681      1.52  |  V  Q    |         |         |         |
  1+20       0.0792      1.61  |   V Q    |         |         |         |
  1+25       0.0903      1.62  |    VQ    |         |         |         |
  1+30       0.1034      1.90  |    V Q   |         |         |         |
  1+35       0.1187      2.22  |     V Q  |         |         |         |
  1+40       0.1342      2.25  |      V Q |         |         |         |
  1+45       0.1508      2.41  |       VQ |         |         |         |
  1+50       0.1705      2.87  |        V|Q         |         |         |
  1+55       0.1919      3.11  |         V Q        |         |         |
  2+ 0       0.2131      3.08  |          |VQ       |         |         |
  2+ 5       0.2345      3.10  |          | QV      |         |         |
  2+10       0.2573      3.30  |          |  QV     |         |         |
  2+15       0.2851      4.04  |          |    VQ   |         |         |
  2+20       0.3191      4.94  |          |      V Q|         |         |
  2+25       0.3539      5.05  |          |        VQ         |         |
  2+30       0.3985      6.47  |          |          | V  Q   |         |
  2+35       0.4559      8.34  |          |          |    V    |  Q      |
  2+40       0.5217      9.54  |          |          |         V|       Q |
  2+45       0.5830      8.91  |          |          |          | V  Q    |
  2+50       0.6253      6.14  |          |          |   Q      |   V     |
  2+55       0.6524      3.93  |          |    Q     |          |     V   |
  3+ 0       0.6723      2.90  |          |Q         |          |      V  |
  3+ 5       0.6862      2.01  |       Q  |          |          |       V |
  3+10       0.6953      1.33  |    Q     |          |          |       V |
```

3+15	0.7017	0.92	| Q	|	|	V|
3+20	0.7061	0.65	| Q	|	|	V|
3+25	0.7093	0.46	|Q	|	|	V|
3+30	0.7116	0.33	|Q	|	|	V|
3+35	0.7133	0.25	|Q	|	|	V|
3+40	0.7145	0.17	Q	|	|	V|
3+45	0.7151	0.09	Q	|	|	V|
3+50	0.7154	0.04	Q	|	|	V|
3+55	0.7155	0.02	Q	|	|	V|
4+ 0	0.7156	0.01	Q	|	|	V|
4+ 5	0.7156	0.00	Q	|	|	V|
4+10	0.7156	0.00	Q	|	|	V|

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST10YR6HR610.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 6-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           1.23                 12.41

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           3.06                 30.88

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    1.230(In)
Area Averaged 100-Year Rainfall =    3.060(In)

Point rain (area averaged) =    1.983(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.983(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

Total Area Entered = 10.09(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	84.3	0.195	0.000	0.195	1.000	0.195
					Sum (F) =	0.195

Area averaged mean soil loss (F) (In/Hr) = 0.195
Minimum soil loss rate ((In/Hr)) = 0.097
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
		Sum = 100.000	Sum=	10.169

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.119	(0.195)	0.107	0.012
2	0.17	0.60	0.143	(0.195)	0.128	0.014
3	0.25	0.60	0.143	(0.195)	0.128	0.014
4	0.33	0.60	0.143	(0.195)	0.128	0.014
5	0.42	0.60	0.143	(0.195)	0.128	0.014
6	0.50	0.70	0.167	(0.195)	0.150	0.017
7	0.58	0.70	0.167	(0.195)	0.150	0.017
8	0.67	0.70	0.167	(0.195)	0.150	0.017
9	0.75	0.70	0.167	(0.195)	0.150	0.017
10	0.83	0.70	0.167	(0.195)	0.150	0.017
11	0.92	0.70	0.167	(0.195)	0.150	0.017
12	1.00	0.80	0.190	(0.195)	0.171	0.019
13	1.08	0.80	0.190	(0.195)	0.171	0.019
14	1.17	0.80	0.190	(0.195)	0.171	0.019
15	1.25	0.80	0.190	(0.195)	0.171	0.019
16	1.33	0.80	0.190	(0.195)	0.171	0.019
17	1.42	0.80	0.190	(0.195)	0.171	0.019
18	1.50	0.80	0.190	(0.195)	0.171	0.019
19	1.58	0.80	0.190	(0.195)	0.171	0.019
20	1.67	0.80	0.190	(0.195)	0.171	0.019
21	1.75	0.80	0.190	(0.195)	0.171	0.019
22	1.83	0.80	0.190	(0.195)	0.171	0.019
23	1.92	0.80	0.190	(0.195)	0.171	0.019
24	2.00	0.90	0.214	(0.195)	0.193	0.021
25	2.08	0.80	0.190	(0.195)	0.171	0.019

26	2.17	0.90	0.214	(0.195)	0.193	0.021
27	2.25	0.90	0.214	(0.195)	0.193	0.021
28	2.33	0.90	0.214	(0.195)	0.193	0.021
29	2.42	0.90	0.214	(0.195)	0.193	0.021
30	2.50	0.90	0.214	(0.195)	0.193	0.021
31	2.58	0.90	0.214	(0.195)	0.193	0.021
32	2.67	0.90	0.214	(0.195)	0.193	0.021
33	2.75	1.00	0.238	0.195	(0.214)	0.043
34	2.83	1.00	0.238	0.195	(0.214)	0.043
35	2.92	1.00	0.238	0.195	(0.214)	0.043
36	3.00	1.00	0.238	0.195	(0.214)	0.043
37	3.08	1.00	0.238	0.195	(0.214)	0.043
38	3.17	1.10	0.262	0.195	(0.236)	0.067
39	3.25	1.10	0.262	0.195	(0.236)	0.067
40	3.33	1.10	0.262	0.195	(0.236)	0.067
41	3.42	1.20	0.286	0.195	(0.257)	0.091
42	3.50	1.30	0.309	0.195	(0.278)	0.114
43	3.58	1.40	0.333	0.195	(0.300)	0.138
44	3.67	1.40	0.333	0.195	(0.300)	0.138
45	3.75	1.50	0.357	0.195	(0.321)	0.162
46	3.83	1.50	0.357	0.195	(0.321)	0.162
47	3.92	1.60	0.381	0.195	(0.343)	0.186
48	4.00	1.60	0.381	0.195	(0.343)	0.186
49	4.08	1.70	0.404	0.195	(0.364)	0.210
50	4.17	1.80	0.428	0.195	(0.385)	0.233
51	4.25	1.90	0.452	0.195	(0.407)	0.257
52	4.33	2.00	0.476	0.195	(0.428)	0.281
53	4.42	2.10	0.500	0.195	(0.450)	0.305
54	4.50	2.10	0.500	0.195	(0.450)	0.305
55	4.58	2.20	0.523	0.195	(0.471)	0.328
56	4.67	2.30	0.547	0.195	(0.493)	0.352
57	4.75	2.40	0.571	0.195	(0.514)	0.376
58	4.83	2.40	0.571	0.195	(0.514)	0.376
59	4.92	2.50	0.595	0.195	(0.535)	0.400
60	5.00	2.60	0.619	0.195	(0.557)	0.424
61	5.08	3.10	0.738	0.195	(0.664)	0.543
62	5.17	3.60	0.857	0.195	(0.771)	0.662
63	5.25	3.90	0.928	0.195	(0.835)	0.733
64	5.33	4.20	0.999	0.195	(0.899)	0.804
65	5.42	4.70	1.118	0.195	(1.006)	0.923
66	5.50	5.60	1.332	0.195	(1.199)	1.137
67	5.58	1.90	0.452	0.195	(0.407)	0.257
68	5.67	0.90	0.214	(0.195)	0.193	0.021
69	5.75	0.60	0.143	(0.195)	0.128	0.014
70	5.83	0.50	0.119	(0.195)	0.107	0.012
71	5.92	0.30	0.071	(0.195)	0.064	0.007
72	6.00	0.20	0.048	(0.195)	0.043	0.005

(Loss Rate Not Used)

Sum = 100.0 Sum = 11.1

Flood volume = Effective rainfall 0.93(In)
times area 10.1(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft)
Total soil loss = 1.05(In)
Total soil loss = 0.886(Ac.Ft)
Total rainfall = 1.98(In)
Flood volume = 34016.1 Cubic Feet
Total soil loss = 38607.6 Cubic Feet

Peak flow rate of this hydrograph = 8.775(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01	Q	|	|	|	|
0+10	0.0003	0.04	Q	|	|	|	|

```
0+15      0.0009      0.09  Q          |          |          |          |
0+20      0.0017      0.11  Q          |          |          |          |
0+25      0.0025      0.12  Q          |          |          |          |
0+30      0.0034      0.13  Q          |          |          |          |
0+35      0.0044      0.14  Q          |          |          |          |
0+40      0.0054      0.15  Q          |          |          |          |
0+45      0.0065      0.16  Q          |          |          |          |
0+50      0.0076      0.16  Q          |          |          |          |
0+55      0.0087      0.16  Q          |          |          |          |
1+ 0      0.0099      0.17  Q          |          |          |          |
1+ 5      0.0111      0.18  Q          |          |          |          |
1+10      0.0124      0.18  Q          |          |          |          |
1+15      0.0137      0.19  Q          |          |          |          |
1+20      0.0150      0.19  Q          |          |          |          |
1+25      0.0163      0.19  Q          |          |          |          |
1+30      0.0176      0.19  Q          |          |          |          |
1+35      0.0189      0.19  Q          |          |          |          |
1+40      0.0202      0.19  QV         |          |          |          |
1+45      0.0216      0.19  QV         |          |          |          |
1+50      0.0229      0.19  QV         |          |          |          |
1+55      0.0242      0.19  QV         |          |          |          |
2+ 0      0.0256      0.19  QV         |          |          |          |
2+ 5      0.0270      0.20  QV         |          |          |          |
2+10      0.0284      0.20  QV         |          |          |          |
2+15      0.0298      0.21  QV         |          |          |          |
2+20      0.0312      0.21  QV         |          |          |          |
2+25      0.0327      0.21  QV         |          |          |          |
2+30      0.0342      0.21  QV         |          |          |          |
2+35      0.0357      0.22  QV         |          |          |          |
2+40      0.0371      0.22  QV         |          |          |          |
2+45      0.0387      0.23  QV         |          |          |          |
2+50      0.0407      0.30  |QV        |          |          |          |
2+55      0.0432      0.36  |QV        |          |          |          |
3+ 0      0.0459      0.39  |QV        |          |          |          |
3+ 5      0.0486      0.40  |QV        |          |          |          |
3+10      0.0516      0.42  |QV        |          |          |          |
3+15      0.0550      0.51  | Q        |          |          |          |
3+20      0.0590      0.58  | QV       |          |          |          |
3+25      0.0633      0.63  | QV       |          |          |          |
3+30      0.0684      0.73  | QV       |          |          |          |
3+35      0.0746      0.90  |  Q       |          |          |          |
3+40      0.0821      1.09  |   Q      |          |          |          |
3+45      0.0905      1.22  |   Q      |          |          |          |
3+50      0.0998      1.36  |    Q     |          |          |          |
3+55      0.1100      1.48  |    Q     |          |          |          |
4+ 0      0.1211      1.61  |     Q    |          |          |          |
4+ 5      0.1331      1.73  |     Q    |          |          |          |
4+10      0.1459      1.87  |      Q   |          |          |          |
4+15      0.1602      2.06  |       Q  |          |          |          |
4+20      0.1758      2.27  |        Q |          |          |          |
4+25      0.1930      2.49  |        Q |          |          |          |
4+30      0.2117      2.71  |         Q|          |          |          |
4+35      0.2314      2.87  |          |Q         |          |          |
4+40      0.2523      3.03  |          | Q        |          |          |
4+45      0.2746      3.24  |          | Q V      |          |          |
4+50      0.2983      3.45  |          |  Q V     |          |          |
4+55      0.3231      3.60  |          |   Q V    |          |          |
5+ 0      0.3490      3.76  |          |    Q V   |          |          |
5+ 5      0.3767      4.01  |          |     Q  V |          |          |
5+10      0.4082      4.58  |          |       Q V|          |          |
5+15      0.4455      5.41  |          |          |QV        |          |
5+20      0.4883      6.21  |          |          |   QV     |          |
5+25      0.5363      6.97  |          |          |      Q   |          |
5+30      0.5908      7.91  |          |          |         VQ          |
5+35      0.6512      8.78  |          |          |          |  V Q     |
5+40      0.6980      6.79  |          |          |       Q  |    V     |
5+45      0.7252      3.95  |          |    Q     |          |      V   |
5+50      0.7421      2.45  |        Q |          |          |       V  |
5+55      0.7537      1.69  |     Q    |          |          |       V  |
6+ 0      0.7619      1.19  |   Q      |          |          |        V |
```

```
    6+ 5       0.7679      0.86  |  Q      |         |         |        V|
    6+10       0.7721      0.62  | Q       |         |         |        V|
    6+15       0.7751      0.43  |Q        |         |         |        V|
    6+20       0.7772      0.30  |Q        |         |         |        V|
    6+25       0.7787      0.22  Q         |         |         |        V|
    6+30       0.7798      0.16  Q         |         |         |        V|
    6+35       0.7805      0.10  Q         |         |         |        V|
    6+40       0.7808      0.05  Q         |         |         |        V|
    6+45       0.7809      0.01  Q         |         |         |        V|
    6+50       0.7809      0.00  Q         |         |         |        V|
    6+55       0.7809      0.00  Q         |         |         |        V|
    7+ 0       0.7809      0.00  Q         |         |         |        V|
    7+ 5       0.7809      0.00  Q         |         |         |        V|
    7+10       0.7809      0.00  Q         |         |         |         V
-------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST10YR24HR2410.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 24-HOUR STORM - EXISTING CONDITION @ NODE 12
------------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           2.25                 22.70

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           5.94                 59.93

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    2.250(In)
Area Averaged 100-Year Rainfall =    5.940(In)

Point rain (area averaged) =    3.768(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    3.768(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

Total Area Entered = 10.09(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	84.3	0.195	0.000	0.195	1.000	0.195
					Sum (F) =	0.195

Area averaged mean soil loss (F) (In/Hr) = 0.195
Minimum soil loss rate ((In/Hr)) = 0.097
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
		Sum = 100.000	Sum=	10.169

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.030	(0.346)	0.027	0.003
2	0.17	0.07	0.030	(0.344)	0.027	0.003
3	0.25	0.07	0.030	(0.343)	0.027	0.003
4	0.33	0.10	0.045	(0.342)	0.041	0.005
5	0.42	0.10	0.045	(0.340)	0.041	0.005
6	0.50	0.10	0.045	(0.339)	0.041	0.005
7	0.58	0.10	0.045	(0.338)	0.041	0.005
8	0.67	0.10	0.045	(0.336)	0.041	0.005
9	0.75	0.10	0.045	(0.335)	0.041	0.005
10	0.83	0.13	0.060	(0.334)	0.054	0.006
11	0.92	0.13	0.060	(0.332)	0.054	0.006
12	1.00	0.13	0.060	(0.331)	0.054	0.006
13	1.08	0.10	0.045	(0.330)	0.041	0.005
14	1.17	0.10	0.045	(0.328)	0.041	0.005
15	1.25	0.10	0.045	(0.327)	0.041	0.005
16	1.33	0.10	0.045	(0.326)	0.041	0.005
17	1.42	0.10	0.045	(0.325)	0.041	0.005
18	1.50	0.10	0.045	(0.323)	0.041	0.005
19	1.58	0.10	0.045	(0.322)	0.041	0.005
20	1.67	0.10	0.045	(0.321)	0.041	0.005
21	1.75	0.10	0.045	(0.319)	0.041	0.005
22	1.83	0.13	0.060	(0.318)	0.054	0.006
23	1.92	0.13	0.060	(0.317)	0.054	0.006
24	2.00	0.13	0.060	(0.316)	0.054	0.006
25	2.08	0.13	0.060	(0.314)	0.054	0.006

26	2.17	0.13	0.060	(0.313)	0.054	0.006
27	2.25	0.13	0.060	(0.312)	0.054	0.006
28	2.33	0.13	0.060	(0.310)	0.054	0.006
29	2.42	0.13	0.060	(0.309)	0.054	0.006
30	2.50	0.13	0.060	(0.308)	0.054	0.006
31	2.58	0.17	0.075	(0.307)	0.068	0.008
32	2.67	0.17	0.075	(0.305)	0.068	0.008
33	2.75	0.17	0.075	(0.304)	0.068	0.008
34	2.83	0.17	0.075	(0.303)	0.068	0.008
35	2.92	0.17	0.075	(0.302)	0.068	0.008
36	3.00	0.17	0.075	(0.300)	0.068	0.008
37	3.08	0.17	0.075	(0.299)	0.068	0.008
38	3.17	0.17	0.075	(0.298)	0.068	0.008
39	3.25	0.17	0.075	(0.297)	0.068	0.008
40	3.33	0.17	0.075	(0.295)	0.068	0.008
41	3.42	0.17	0.075	(0.294)	0.068	0.008
42	3.50	0.17	0.075	(0.293)	0.068	0.008
43	3.58	0.17	0.075	(0.292)	0.068	0.008
44	3.67	0.17	0.075	(0.291)	0.068	0.008
45	3.75	0.17	0.075	(0.289)	0.068	0.008
46	3.83	0.20	0.090	(0.288)	0.081	0.009
47	3.92	0.20	0.090	(0.287)	0.081	0.009
48	4.00	0.20	0.090	(0.286)	0.081	0.009
49	4.08	0.20	0.090	(0.284)	0.081	0.009
50	4.17	0.20	0.090	(0.283)	0.081	0.009
51	4.25	0.20	0.090	(0.282)	0.081	0.009
52	4.33	0.23	0.106	(0.281)	0.095	0.011
53	4.42	0.23	0.106	(0.280)	0.095	0.011
54	4.50	0.23	0.106	(0.278)	0.095	0.011
55	4.58	0.23	0.106	(0.277)	0.095	0.011
56	4.67	0.23	0.106	(0.276)	0.095	0.011
57	4.75	0.23	0.106	(0.275)	0.095	0.011
58	4.83	0.27	0.121	(0.274)	0.109	0.012
59	4.92	0.27	0.121	(0.272)	0.109	0.012
60	5.00	0.27	0.121	(0.271)	0.109	0.012
61	5.08	0.20	0.090	(0.270)	0.081	0.009
62	5.17	0.20	0.090	(0.269)	0.081	0.009
63	5.25	0.20	0.090	(0.268)	0.081	0.009
64	5.33	0.23	0.106	(0.267)	0.095	0.011
65	5.42	0.23	0.106	(0.265)	0.095	0.011
66	5.50	0.23	0.106	(0.264)	0.095	0.011
67	5.58	0.27	0.121	(0.263)	0.109	0.012
68	5.67	0.27	0.121	(0.262)	0.109	0.012
69	5.75	0.27	0.121	(0.261)	0.109	0.012
70	5.83	0.27	0.121	(0.260)	0.109	0.012
71	5.92	0.27	0.121	(0.259)	0.109	0.012
72	6.00	0.27	0.121	(0.257)	0.109	0.012
73	6.08	0.30	0.136	(0.256)	0.122	0.014
74	6.17	0.30	0.136	(0.255)	0.122	0.014
75	6.25	0.30	0.136	(0.254)	0.122	0.014
76	6.33	0.30	0.136	(0.253)	0.122	0.014
77	6.42	0.30	0.136	(0.252)	0.122	0.014
78	6.50	0.30	0.136	(0.251)	0.122	0.014
79	6.58	0.33	0.151	(0.249)	0.136	0.015
80	6.67	0.33	0.151	(0.248)	0.136	0.015
81	6.75	0.33	0.151	(0.247)	0.136	0.015
82	6.83	0.33	0.151	(0.246)	0.136	0.015
83	6.92	0.33	0.151	(0.245)	0.136	0.015
84	7.00	0.33	0.151	(0.244)	0.136	0.015
85	7.08	0.33	0.151	(0.243)	0.136	0.015
86	7.17	0.33	0.151	(0.242)	0.136	0.015
87	7.25	0.33	0.151	(0.241)	0.136	0.015
88	7.33	0.37	0.166	(0.239)	0.149	0.017
89	7.42	0.37	0.166	(0.238)	0.149	0.017
90	7.50	0.37	0.166	(0.237)	0.149	0.017
91	7.58	0.40	0.181	(0.236)	0.163	0.018
92	7.67	0.40	0.181	(0.235)	0.163	0.018
93	7.75	0.40	0.181	(0.234)	0.163	0.018
94	7.83	0.43	0.196	(0.233)	0.176	0.020
95	7.92	0.43	0.196	(0.232)	0.176	0.020

96	8.00	0.43	0.196	(0.231)	0.176	0.020
97	8.08	0.50	0.226	(0.230)	0.203	0.023
98	8.17	0.50	0.226	(0.229)	0.203	0.023
99	8.25	0.50	0.226	(0.228)	0.203	0.023
100	8.33	0.50	0.226	(0.226)	0.203	0.023
101	8.42	0.50	0.226	(0.225)	0.203	0.023
102	8.50	0.50	0.226	(0.224)	0.203	0.023
103	8.58	0.53	0.241	(0.223)	0.217	0.024
104	8.67	0.53	0.241	(0.222)	0.217	0.024
105	8.75	0.53	0.241	(0.221)	0.217	0.024
106	8.83	0.57	0.256	0.220	(0.231)	0.036
107	8.92	0.57	0.256	0.219	(0.231)	0.037
108	9.00	0.57	0.256	0.218	(0.231)	0.038
109	9.08	0.63	0.286	0.217	(0.258)	0.069
110	9.17	0.63	0.286	0.216	(0.258)	0.070
111	9.25	0.63	0.286	0.215	(0.258)	0.071
112	9.33	0.67	0.301	0.214	(0.271)	0.087
113	9.42	0.67	0.301	0.213	(0.271)	0.088
114	9.50	0.67	0.301	0.212	(0.271)	0.090
115	9.58	0.70	0.317	0.211	(0.285)	0.106
116	9.67	0.70	0.317	0.210	(0.285)	0.107
117	9.75	0.70	0.317	0.209	(0.285)	0.108
118	9.83	0.73	0.332	0.208	(0.298)	0.124
119	9.92	0.73	0.332	0.207	(0.298)	0.125
120	10.00	0.73	0.332	0.206	(0.298)	0.126
121	10.08	0.50	0.226	(0.205)	0.203	0.023
122	10.17	0.50	0.226	(0.204)	0.203	0.023
123	10.25	0.50	0.226	0.203	(0.203)	0.023
124	10.33	0.50	0.226	0.202	(0.203)	0.024
125	10.42	0.50	0.226	0.201	(0.203)	0.025
126	10.50	0.50	0.226	0.200	(0.203)	0.026
127	10.58	0.67	0.301	0.199	(0.271)	0.102
128	10.67	0.67	0.301	0.198	(0.271)	0.103
129	10.75	0.67	0.301	0.197	(0.271)	0.104
130	10.83	0.67	0.301	0.196	(0.271)	0.105
131	10.92	0.67	0.301	0.195	(0.271)	0.106
132	11.00	0.67	0.301	0.194	(0.271)	0.107
133	11.08	0.63	0.286	0.193	(0.258)	0.093
134	11.17	0.63	0.286	0.192	(0.258)	0.094
135	11.25	0.63	0.286	0.191	(0.258)	0.095
136	11.33	0.63	0.286	0.190	(0.258)	0.096
137	11.42	0.63	0.286	0.189	(0.258)	0.097
138	11.50	0.63	0.286	0.188	(0.258)	0.098
139	11.58	0.57	0.256	0.188	(0.231)	0.069
140	11.67	0.57	0.256	0.187	(0.231)	0.070
141	11.75	0.57	0.256	0.186	(0.231)	0.071
142	11.83	0.60	0.271	0.185	(0.244)	0.087
143	11.92	0.60	0.271	0.184	(0.244)	0.087
144	12.00	0.60	0.271	0.183	(0.244)	0.088
145	12.08	0.83	0.377	0.182	(0.339)	0.195
146	12.17	0.83	0.377	0.181	(0.339)	0.196
147	12.25	0.83	0.377	0.180	(0.339)	0.197
148	12.33	0.87	0.392	0.179	(0.353)	0.213
149	12.42	0.87	0.392	0.178	(0.353)	0.213
150	12.50	0.87	0.392	0.177	(0.353)	0.214
151	12.58	0.93	0.422	0.177	(0.380)	0.245
152	12.67	0.93	0.422	0.176	(0.380)	0.246
153	12.75	0.93	0.422	0.175	(0.380)	0.247
154	12.83	0.97	0.437	0.174	(0.393)	0.263
155	12.92	0.97	0.437	0.173	(0.393)	0.264
156	13.00	0.97	0.437	0.172	(0.393)	0.265
157	13.08	1.13	0.512	0.171	(0.461)	0.341
158	13.17	1.13	0.512	0.170	(0.461)	0.342
159	13.25	1.13	0.512	0.170	(0.461)	0.343
160	13.33	1.13	0.512	0.169	(0.461)	0.344
161	13.42	1.13	0.512	0.168	(0.461)	0.345
162	13.50	1.13	0.512	0.167	(0.461)	0.345
163	13.58	0.77	0.347	0.166	(0.312)	0.181
164	13.67	0.77	0.347	0.165	(0.312)	0.181
165	13.75	0.77	0.347	0.164	(0.312)	0.182

166	13.83	0.77	0.347	0.164	(0.312)	0.183
167	13.92	0.77	0.347	0.163	(0.312)	0.184
168	14.00	0.77	0.347	0.162	(0.312)	0.185
169	14.08	0.90	0.407	0.161	(0.366)	0.246
170	14.17	0.90	0.407	0.160	(0.366)	0.247
171	14.25	0.90	0.407	0.159	(0.366)	0.247
172	14.33	0.87	0.392	0.159	(0.353)	0.233
173	14.42	0.87	0.392	0.158	(0.353)	0.234
174	14.50	0.87	0.392	0.157	(0.353)	0.235
175	14.58	0.87	0.392	0.156	(0.353)	0.236
176	14.67	0.87	0.392	0.155	(0.353)	0.236
177	14.75	0.87	0.392	0.155	(0.353)	0.237
178	14.83	0.83	0.377	0.154	(0.339)	0.223
179	14.92	0.83	0.377	0.153	(0.339)	0.224
180	15.00	0.83	0.377	0.152	(0.339)	0.225
181	15.08	0.80	0.362	0.152	(0.326)	0.210
182	15.17	0.80	0.362	0.151	(0.326)	0.211
183	15.25	0.80	0.362	0.150	(0.326)	0.212
184	15.33	0.77	0.347	0.149	(0.312)	0.197
185	15.42	0.77	0.347	0.148	(0.312)	0.198
186	15.50	0.77	0.347	0.148	(0.312)	0.199
187	15.58	0.63	0.286	0.147	(0.258)	0.139
188	15.67	0.63	0.286	0.146	(0.258)	0.140
189	15.75	0.63	0.286	0.145	(0.258)	0.141
190	15.83	0.63	0.286	0.145	(0.258)	0.142
191	15.92	0.63	0.286	0.144	(0.258)	0.142
192	16.00	0.63	0.286	0.143	(0.258)	0.143
193	16.08	0.13	0.060	(0.142)	0.054	0.006
194	16.17	0.13	0.060	(0.142)	0.054	0.006
195	16.25	0.13	0.060	(0.141)	0.054	0.006
196	16.33	0.13	0.060	(0.140)	0.054	0.006
197	16.42	0.13	0.060	(0.140)	0.054	0.006
198	16.50	0.13	0.060	(0.139)	0.054	0.006
199	16.58	0.10	0.045	(0.138)	0.041	0.005
200	16.67	0.10	0.045	(0.137)	0.041	0.005
201	16.75	0.10	0.045	(0.137)	0.041	0.005
202	16.83	0.10	0.045	(0.136)	0.041	0.005
203	16.92	0.10	0.045	(0.135)	0.041	0.005
204	17.00	0.10	0.045	(0.135)	0.041	0.005
205	17.08	0.17	0.075	(0.134)	0.068	0.008
206	17.17	0.17	0.075	(0.133)	0.068	0.008
207	17.25	0.17	0.075	(0.133)	0.068	0.008
208	17.33	0.17	0.075	(0.132)	0.068	0.008
209	17.42	0.17	0.075	(0.131)	0.068	0.008
210	17.50	0.17	0.075	(0.131)	0.068	0.008
211	17.58	0.17	0.075	(0.130)	0.068	0.008
212	17.67	0.17	0.075	(0.129)	0.068	0.008
213	17.75	0.17	0.075	(0.129)	0.068	0.008
214	17.83	0.13	0.060	(0.128)	0.054	0.006
215	17.92	0.13	0.060	(0.127)	0.054	0.006
216	18.00	0.13	0.060	(0.127)	0.054	0.006
217	18.08	0.13	0.060	(0.126)	0.054	0.006
218	18.17	0.13	0.060	(0.126)	0.054	0.006
219	18.25	0.13	0.060	(0.125)	0.054	0.006
220	18.33	0.13	0.060	(0.124)	0.054	0.006
221	18.42	0.13	0.060	(0.124)	0.054	0.006
222	18.50	0.13	0.060	(0.123)	0.054	0.006
223	18.58	0.10	0.045	(0.123)	0.041	0.005
224	18.67	0.10	0.045	(0.122)	0.041	0.005
225	18.75	0.10	0.045	(0.121)	0.041	0.005
226	18.83	0.07	0.030	(0.121)	0.027	0.003
227	18.92	0.07	0.030	(0.120)	0.027	0.003
228	19.00	0.07	0.030	(0.120)	0.027	0.003
229	19.08	0.10	0.045	(0.119)	0.041	0.005
230	19.17	0.10	0.045	(0.119)	0.041	0.005
231	19.25	0.10	0.045	(0.118)	0.041	0.005
232	19.33	0.13	0.060	(0.117)	0.054	0.006
233	19.42	0.13	0.060	(0.117)	0.054	0.006
234	19.50	0.13	0.060	(0.116)	0.054	0.006
235	19.58	0.10	0.045	(0.116)	0.041	0.005

```
236  19.67     0.10      0.045       (  0.115)       0.041        0.005
237  19.75     0.10      0.045       (  0.115)       0.041        0.005
238  19.83     0.07      0.030       (  0.114)       0.027        0.003
239  19.92     0.07      0.030       (  0.114)       0.027        0.003
240  20.00     0.07      0.030       (  0.113)       0.027        0.003
241  20.08     0.10      0.045       (  0.113)       0.041        0.005
242  20.17     0.10      0.045       (  0.112)       0.041        0.005
243  20.25     0.10      0.045       (  0.112)       0.041        0.005
244  20.33     0.10      0.045       (  0.111)       0.041        0.005
245  20.42     0.10      0.045       (  0.111)       0.041        0.005
246  20.50     0.10      0.045       (  0.110)       0.041        0.005
247  20.58     0.10      0.045       (  0.110)       0.041        0.005
248  20.67     0.10      0.045       (  0.109)       0.041        0.005
249  20.75     0.10      0.045       (  0.109)       0.041        0.005
250  20.83     0.07      0.030       (  0.108)       0.027        0.003
251  20.92     0.07      0.030       (  0.108)       0.027        0.003
252  21.00     0.07      0.030       (  0.108)       0.027        0.003
253  21.08     0.10      0.045       (  0.107)       0.041        0.005
254  21.17     0.10      0.045       (  0.107)       0.041        0.005
255  21.25     0.10      0.045       (  0.106)       0.041        0.005
256  21.33     0.07      0.030       (  0.106)       0.027        0.003
257  21.42     0.07      0.030       (  0.106)       0.027        0.003
258  21.50     0.07      0.030       (  0.105)       0.027        0.003
259  21.58     0.10      0.045       (  0.105)       0.041        0.005
260  21.67     0.10      0.045       (  0.104)       0.041        0.005
261  21.75     0.10      0.045       (  0.104)       0.041        0.005
262  21.83     0.07      0.030       (  0.104)       0.027        0.003
263  21.92     0.07      0.030       (  0.103)       0.027        0.003
264  22.00     0.07      0.030       (  0.103)       0.027        0.003
265  22.08     0.10      0.045       (  0.103)       0.041        0.005
266  22.17     0.10      0.045       (  0.102)       0.041        0.005
267  22.25     0.10      0.045       (  0.102)       0.041        0.005
268  22.33     0.07      0.030       (  0.102)       0.027        0.003
269  22.42     0.07      0.030       (  0.101)       0.027        0.003
270  22.50     0.07      0.030       (  0.101)       0.027        0.003
271  22.58     0.07      0.030       (  0.101)       0.027        0.003
272  22.67     0.07      0.030       (  0.100)       0.027        0.003
273  22.75     0.07      0.030       (  0.100)       0.027        0.003
274  22.83     0.07      0.030       (  0.100)       0.027        0.003
275  22.92     0.07      0.030       (  0.100)       0.027        0.003
276  23.00     0.07      0.030       (  0.099)       0.027        0.003
277  23.08     0.07      0.030       (  0.099)       0.027        0.003
278  23.17     0.07      0.030       (  0.099)       0.027        0.003
279  23.25     0.07      0.030       (  0.099)       0.027        0.003
280  23.33     0.07      0.030       (  0.099)       0.027        0.003
281  23.42     0.07      0.030       (  0.098)       0.027        0.003
282  23.50     0.07      0.030       (  0.098)       0.027        0.003
283  23.58     0.07      0.030       (  0.098)       0.027        0.003
284  23.67     0.07      0.030       (  0.098)       0.027        0.003
285  23.75     0.07      0.030       (  0.098)       0.027        0.003
286  23.83     0.07      0.030       (  0.098)       0.027        0.003
287  23.92     0.07      0.030       (  0.098)       0.027        0.003
288  24.00     0.07      0.030       (  0.098)       0.027        0.003
               (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    15.5
      Flood volume = Effective rainfall      1.29(In)
       times area      10.1(Ac.)/[(In)/(Ft.)] =       1.1(Ac.Ft)
      Total soil loss =      2.48(In)
      Total soil loss =     2.084(Ac.Ft)
      Total rainfall =      3.77(In)
      Flood volume =       47248.4 Cubic Feet
      Total soil loss =       90761.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      3.394(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          24 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.02	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.03	Q				
0+30	0.0009	0.04	Q				
0+35	0.0011	0.04	Q				
0+40	0.0014	0.04	Q				
0+45	0.0017	0.04	Q				
0+50	0.0020	0.04	Q				
0+55	0.0024	0.05	Q				
1+ 0	0.0027	0.05	Q				
1+ 5	0.0031	0.06	Q				
1+10	0.0035	0.05	Q				
1+15	0.0038	0.05	Q				
1+20	0.0042	0.05	Q				
1+25	0.0045	0.05	Q				
1+30	0.0048	0.05	Q				
1+35	0.0051	0.05	Q				
1+40	0.0055	0.05	Q				
1+45	0.0058	0.05	Q				
1+50	0.0061	0.05	Q				
1+55	0.0065	0.05	Q				
2+ 0	0.0069	0.06	Q				
2+ 5	0.0073	0.06	Q				
2+10	0.0077	0.06	Q				
2+15	0.0081	0.06	Q				
2+20	0.0085	0.06	Q				
2+25	0.0089	0.06	Q				
2+30	0.0093	0.06	Q				
2+35	0.0097	0.06	Q				
2+40	0.0102	0.07	Q				
2+45	0.0107	0.07	Q				
2+50	0.0112	0.07	Q				
2+55	0.0117	0.07	Q				
3+ 0	0.0122	0.07	Q				
3+ 5	0.0127	0.08	Q				
3+10	0.0133	0.08	Q				
3+15	0.0138	0.08	Q				
3+20	0.0143	0.08	Q				
3+25	0.0148	0.08	Q				
3+30	0.0154	0.08	Q				
3+35	0.0159	0.08	Q				
3+40	0.0164	0.08	Q				
3+45	0.0169	0.08	Q				
3+50	0.0175	0.08	Q				
3+55	0.0180	0.08	Q				
4+ 0	0.0186	0.09	Q				
4+ 5	0.0193	0.09	Q				
4+10	0.0199	0.09	Q				
4+15	0.0205	0.09	Q				
4+20	0.0211	0.09	Q				
4+25	0.0218	0.10	Q				
4+30	0.0225	0.10	Q				
4+35	0.0232	0.10	Q				
4+40	0.0239	0.10	Q				
4+45	0.0246	0.11	Q				
4+50	0.0254	0.11	Q				
4+55	0.0261	0.11	Q				
5+ 0	0.0270	0.12	Q				
5+ 5	0.0278	0.12	QV				
5+10	0.0285	0.11	QV				
5+15	0.0292	0.10	QV				
5+20	0.0299	0.10	QV				
5+25	0.0306	0.10	QV				
5+30	0.0313	0.10	QV				

5+35	0.0320	0.11	QV	|	|	|	|
5+40	0.0328	0.11	QV	|	|	|	|
5+45	0.0336	0.12	QV	|	|	|	|
5+50	0.0344	0.12	QV	|	|	|	|
5+55	0.0353	0.12	QV	|	|	|	|
6+ 0	0.0361	0.12	QV	|	|	|	|
6+ 5	0.0369	0.12	QV	|	|	|	|
6+10	0.0378	0.13	QV	|	|	|	|
6+15	0.0387	0.13	QV	|	|	|	|
6+20	0.0396	0.13	QV	|	|	|	|
6+25	0.0406	0.14	QV	|	|	|	|
6+30	0.0415	0.14	QV	|	|	|	|
6+35	0.0424	0.14	QV	|	|	|	|
6+40	0.0434	0.14	QV	|	|	|	|
6+45	0.0444	0.15	QV	|	|	|	|
6+50	0.0455	0.15	QV	|	|	|	|
6+55	0.0465	0.15	QV	|	|	|	|
7+ 0	0.0475	0.15	QV	|	|	|	|
7+ 5	0.0486	0.15	QV	|	|	|	|
7+10	0.0496	0.15	QV	|	|	|	|
7+15	0.0507	0.15	QV	|	|	|	|
7+20	0.0518	0.15	QV	|	|	|	|
7+25	0.0528	0.16	QV	|	|	|	|
7+30	0.0540	0.16	QV	|	|	|	|
7+35	0.0551	0.17	Q V	|	|	|	|
7+40	0.0563	0.17	Q V	|	|	|	|
7+45	0.0575	0.18	Q V	|	|	|	|
7+50	0.0587	0.18	Q V	|	|	|	|
7+55	0.0600	0.19	Q V	|	|	|	|
8+ 0	0.0614	0.19	Q V	|	|	|	|
8+ 5	0.0627	0.20	Q V	|	|	|	|
8+10	0.0641	0.21	Q V	|	|	|	|
8+15	0.0656	0.22	Q V	|	|	|	|
8+20	0.0671	0.22	Q V	|	|	|	|
8+25	0.0687	0.22	Q V	|	|	|	|
8+30	0.0702	0.23	Q V	|	|	|	|
8+35	0.0718	0.23	Q V	|	|	|	|
8+40	0.0734	0.23	Q V	|	|	|	|
8+45	0.0750	0.24	Q V	|	|	|	|
8+50	0.0767	0.25	Q V	|	|	|	|
8+55	0.0787	0.29	|QV	|	|	|	|
9+ 0	0.0810	0.33	|QV	|	|	|	|
9+ 5	0.0835	0.36	|Q V	|	|	|	|
9+10	0.0867	0.48	|Q V	|	|	|	|
9+15	0.0907	0.58	| QV	|	|	|	|
9+20	0.0951	0.64	| QV	|	|	|	|
9+25	0.1001	0.72	| QV	|	|	|	|
9+30	0.1055	0.79	| Q	|	|	|	|
9+35	0.1113	0.84	| QV	|	|	|	|
9+40	0.1175	0.91	| QV	|	|	|	|
9+45	0.1243	0.98	| QV	|	|	|	|
9+50	0.1314	1.03	| Q	|	|	|	|
9+55	0.1390	1.10	| QV	|	|	|	|
10+ 0	0.1470	1.17	| QV	|	|	|	|
10+ 5	0.1550	1.16	| QV	|	|	|	|
10+10	0.1609	0.85	| Q V	|	|	|	|
10+15	0.1648	0.57	| Q V	|	|	|	|
10+20	0.1679	0.45	|Q V	|	|	|	|
10+25	0.1706	0.39	|Q V	|	|	|	|
10+30	0.1730	0.35	|Q V	|	|	|	|
10+35	0.1756	0.37	|Q V	|	|	|	|
10+40	0.1797	0.59	| Q V	|	|	|	|
10+45	0.1852	0.80	| Q V	|	|	|	|
10+50	0.1914	0.90	| Q V	|	|	|	|
10+55	0.1979	0.95	| Q V	|	|	|	|
11+ 0	0.2047	0.99	| Q V	|	|	|	|
11+ 5	0.2117	1.01	| Q V	|	|	|	|
11+10	0.2185	0.99	| Q V	|	|	|	|
11+15	0.2252	0.96	| Q V	|	|	|	|
11+20	0.2318	0.97	| Q V	|	|	|	|

11+25	0.2385	0.97	Q V				
11+30	0.2452	0.98	Q V				
11+35	0.2519	0.97	Q V				
11+40	0.2580	0.89	Q V				
11+45	0.2636	0.81	Q V				
11+50	0.2690	0.78	Q V				
11+55	0.2746	0.82	Q V				
12+ 0	0.2805	0.86	Q V				
12+ 5	0.2869	0.92	Q V				
12+10	0.2956	1.27	Q V				
12+15	0.3066	1.59	Q |V				
12+20	0.3185	1.74	Q |V				
12+25	0.3314	1.87	Q | V				
12+30	0.3451	1.98	Q | V				
12+35	0.3592	2.05	Q | V				
12+40	0.3743	2.20	Q | V				
12+45	0.3903	2.32	Q| V				
12+50	0.4068	2.39	Q| V				
12+55	0.4239	2.48	Q| V				
13+ 0	0.4415	2.56	Q V				
13+ 5	0.4598	2.64	Q V				
13+10	0.4798	2.92	|Q V				
13+15	0.5016	3.16	| Q V				
13+20	0.5241	3.27	| Q V				
13+25	0.5472	3.34	| Q V				
13+30	0.5705	3.39	| Q |V				
13+35	0.5936	3.35	| Q |V				
13+40	0.6133	2.85	|Q | V				
13+45	0.6298	2.40	Q| | V				
13+50	0.6450	2.21	Q | | V				
13+55	0.6595	2.10	Q | | V				
14+ 0	0.6735	2.04	Q | | V				
14+ 5	0.6875	2.03	Q | | V				
14+10	0.7025	2.19	Q | | V				
14+15	0.7187	2.34	Q| | V				
14+20	0.7352	2.40	Q| | V				
14+25	0.7517	2.39	Q| | V				
14+30	0.7680	2.37	Q| | V				
14+35	0.7844	2.37	Q| | V				
14+40	0.8007	2.38	Q| | V|				
14+45	0.8172	2.38	Q| | V				
14+50	0.8336	2.39	Q| | V				
14+55	0.8498	2.35	Q| | |V				
15+ 0	0.8657	2.31	Q| | |V				
15+ 5	0.8816	2.30	Q| | | V				
15+10	0.8971	2.25	Q | | | V				
15+15	0.9123	2.21	Q | | | V				
15+20	0.9273	2.18	Q | | | V				
15+25	0.9419	2.13	Q | | | V				
15+30	0.9563	2.08	Q | | | V				
15+35	0.9703	2.03	Q | | | V				
15+40	0.9829	1.83	Q | | | V				
15+45	0.9943	1.66	Q | | | V				
15+50	1.0052	1.58	Q | | | V				
15+55	1.0158	1.54	Q | | | V				
16+ 0	1.0263	1.51	Q | | | V				
16+ 5	1.0361	1.43	Q | | | V				
16+10	1.0429	0.98	Q | | | V				
16+15	1.0469	0.58	Q | | | V				
16+20	1.0497	0.40	Q | | | V				
16+25	1.0517	0.30	Q | | | V				
16+30	1.0532	0.23	Q | | | V				
16+35	1.0545	0.18	Q | | | V				
16+40	1.0554	0.14	Q | | | V				
16+45	1.0561	0.11	Q | | | V				
16+50	1.0567	0.09	Q | | | V				
16+55	1.0573	0.08	Q | | | V				
17+ 0	1.0577	0.07	Q | | | V|				
17+ 5	1.0581	0.06	Q | | | V|				
17+10	1.0585	0.06	Q | | | V|				

17+15	1.0590	0.07	Q	|	|	|	V|
17+20	1.0595	0.07	Q	|	|	|	V|
17+25	1.0600	0.07	Q	|	|	|	V|
17+30	1.0605	0.07	Q	|	|	|	V|
17+35	1.0610	0.07	Q	|	|	|	V|
17+40	1.0615	0.07	Q	|	|	|	V|
17+45	1.0620	0.08	Q	|	|	|	V|
17+50	1.0626	0.08	Q	|	|	|	V|
17+55	1.0630	0.07	Q	|	|	|	V|
18+ 0	1.0635	0.07	Q	|	|	|	V|
18+ 5	1.0639	0.06	Q	|	|	|	V|
18+10	1.0644	0.06	Q	|	|	|	V|
18+15	1.0648	0.06	Q	|	|	|	V|
18+20	1.0652	0.06	Q	|	|	|	V|
18+25	1.0657	0.06	Q	|	|	|	V|
18+30	1.0661	0.06	Q	|	|	|	V|
18+35	1.0665	0.06	Q	|	|	|	V|
18+40	1.0669	0.06	Q	|	|	|	V|
18+45	1.0673	0.05	Q	|	|	|	V|
18+50	1.0676	0.05	Q	|	|	|	V|
18+55	1.0679	0.04	Q	|	|	|	V|
19+ 0	1.0682	0.04	Q	|	|	|	V|
19+ 5	1.0684	0.04	Q	|	|	|	V|
19+10	1.0687	0.04	Q	|	|	|	V|
19+15	1.0690	0.04	Q	|	|	|	V|
19+20	1.0693	0.04	Q	|	|	|	V|
19+25	1.0696	0.05	Q	|	|	|	V|
19+30	1.0700	0.05	Q	|	|	|	V|
19+35	1.0704	0.06	Q	|	|	|	V|
19+40	1.0708	0.05	Q	|	|	|	V|
19+45	1.0711	0.05	Q	|	|	|	V|
19+50	1.0714	0.05	Q	|	|	|	V|
19+55	1.0717	0.04	Q	|	|	|	V|
20+ 0	1.0720	0.04	Q	|	|	|	V|
20+ 5	1.0722	0.04	Q	|	|	|	V|
20+10	1.0725	0.04	Q	|	|	|	V|
20+15	1.0728	0.04	Q	|	|	|	V|
20+20	1.0731	0.04	Q	|	|	|	V|
20+25	1.0734	0.04	Q	|	|	|	V|
20+30	1.0737	0.05	Q	|	|	|	V|
20+35	1.0740	0.05	Q	|	|	|	V|
20+40	1.0743	0.05	Q	|	|	|	V|
20+45	1.0746	0.05	Q	|	|	|	V|
20+50	1.0749	0.04	Q	|	|	|	V|
20+55	1.0752	0.04	Q	|	|	|	V|
21+ 0	1.0755	0.04	Q	|	|	|	V|
21+ 5	1.0757	0.03	Q	|	|	|	V|
21+10	1.0760	0.04	Q	|	|	|	V|
21+15	1.0763	0.04	Q	|	|	|	V|
21+20	1.0766	0.04	Q	|	|	|	V|
21+25	1.0768	0.04	Q	|	|	|	V|
21+30	1.0771	0.03	Q	|	|	|	V|
21+35	1.0773	0.03	Q	|	|	|	V|
21+40	1.0776	0.04	Q	|	|	|	V|
21+45	1.0779	0.04	Q	|	|	|	V|
21+50	1.0782	0.04	Q	|	|	|	V|
21+55	1.0784	0.04	Q	|	|	|	V|
22+ 0	1.0787	0.03	Q	|	|	|	V|
22+ 5	1.0789	0.03	Q	|	|	|	V|
22+10	1.0792	0.04	Q	|	|	|	V|
22+15	1.0794	0.04	Q	|	|	|	V|
22+20	1.0797	0.04	Q	|	|	|	V|
22+25	1.0800	0.04	Q	|	|	|	V|
22+30	1.0802	0.03	Q	|	|	|	V|
22+35	1.0805	0.03	Q	|	|	|	V|
22+40	1.0807	0.03	Q	|	|	|	V|
22+45	1.0809	0.03	Q	|	|	|	V|
22+50	1.0811	0.03	Q	|	|	|	V|
22+55	1.0813	0.03	Q	|	|	|	V|
23+ 0	1.0816	0.03	Q	|	|	|	V|

23+ 5	1.0818	0.03	Q	|	|	|	V|
23+10	1.0820	0.03	Q	|	|	|	V|
23+15	1.0822	0.03	Q	|	|	|	V|
23+20	1.0824	0.03	Q	|	|	|	V|
23+25	1.0826	0.03	Q	|	|	|	V|
23+30	1.0828	0.03	Q	|	|	|	V|
23+35	1.0830	0.03	Q	|	|	|	V|
23+40	1.0833	0.03	Q	|	|	|	V|
23+45	1.0835	0.03	Q	|	|	|	V|
23+50	1.0837	0.03	Q	|	|	|	V|
23+55	1.0839	0.03	Q	|	|	|	V|
24+ 0	1.0841	0.03	Q	|	|	|	V|
24+ 5	1.0843	0.03	Q	|	|	|	V|
24+10	1.0844	0.02	Q	|	|	|	V|
24+15	1.0845	0.01	Q	|	|	|	V|
24+20	1.0846	0.01	Q	|	|	|	V|
24+25	1.0846	0.00	Q	|	|	|	V|
24+30	1.0846	0.00	Q	|	|	|	V|
24+35	1.0846	0.00	Q	|	|	|	V|
24+40	1.0847	0.00	Q	|	|	|	V|
24+45	1.0847	0.00	Q	|	|	|	V|
24+50	1.0847	0.00	Q	|	|	|	V|
24+55	1.0847	0.00	Q	|	|	|	V|
25+ 0	1.0847	0.00	Q	|	|	|	V|
25+ 5	1.0847	0.00	Q	|	|	|	V|
25+10	1.0847	0.00	Q	|	|	|	V|

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST100YR1HR1100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 1-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           0.49                 4.98

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           1.40                14.13

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.494(In)
Area Averaged 100-Year Rainfall =    1.400(In)

Point rain (area averaged) =    1.400(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.400(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

```
 Total Area Entered =     10.09(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
84.3  84.3      0.195     0.000        0.195       1.000      0.195
                                                 Sum (F) =   0.195
Area averaged mean soil loss (F) (In/Hr) =  0.195
Minimum soil loss rate ((In/Hr)) =  0.097
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      DESERT S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
     1   0.083         54.801          4.670              0.475
     2   0.167        109.602         31.313              3.184
     3   0.250        164.402         28.532              2.901
     4   0.333        219.203         12.223              1.243
     5   0.417        274.004          7.125              0.724
     6   0.500        328.805          4.798              0.488
     7   0.583        383.605          3.202              0.326
     8   0.667        438.406          2.387              0.243
     9   0.750        493.207          1.751              0.178
    10   0.833        548.008          1.266              0.129
    11   0.917        602.808          0.786              0.080
    12   1.000        657.609          0.609              0.062
    13   1.083        712.410          0.650              0.066
    14   1.167        767.211          0.437              0.044
    15   1.250        822.011          0.251              0.026
                                Sum = 100.000   Sum=      10.169
------------------------------------------------------------------------

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

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
      (Hr.)  Percent   (In/Hr)         Max   |   Low         (In/Hr)
  1   0.08     4.40      0.739          0.195    (  0.665)        0.544
  2   0.17     4.50      0.756          0.195    (  0.680)        0.561
  3   0.25     5.40      0.907          0.195    (  0.816)        0.712
  4   0.33     5.40      0.907          0.195    (  0.816)        0.712
  5   0.42     5.70      0.958          0.195    (  0.862)        0.763
  6   0.50     6.40      1.075          0.195    (  0.968)        0.880
  7   0.58     7.90      1.327          0.195    (  1.194)        1.132
  8   0.67     9.10      1.529          0.195    (  1.376)        1.334
  9   0.75    12.80      2.150          0.195    (  1.935)        1.955
 10   0.83    25.60      4.300          0.195    (  3.870)        4.105
 11   0.92     7.90      1.327          0.195    (  1.194)        1.132
 12   1.00     4.90      0.823          0.195    (  0.741)        0.628
              (Loss Rate Not Used)
    Sum =     100.0                                 Sum =    14.5
      Flood volume = Effective rainfall      1.20(In)
       times area      10.1(Ac.)/[(In)/(Ft.)] =       1.0(Ac.Ft)
      Total soil loss =      0.19(In)
      Total soil loss =     0.164(Ac.Ft)
      Total rainfall =      1.40(In)
      Flood volume =       44131.2 Cubic Feet
      Total soil loss =        7141.5 Cubic Feet
      ---------------------------------------------------------------
       Peak flow rate of this hydrograph =     22.866(CFS)
```

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.0018	0.26	Q				
0+10	0.0156	2.00	V Q				
0+15	0.0411	3.71	V Q				
0+20	0.0749	4.91	V Q				
0+25	0.1148	5.79	V Q				
0+30	0.1594	6.47	V Q				
0+35	0.2104	7.41	VQ				
0+40	0.2718	8.92	VQ				
0+45	0.3471	10.92	VQ				
0+50	0.4507	15.04	V Q				
0+55	0.6081	22.87	V Q				
1+ 0	0.7496	20.54	Q V				
1+ 5	0.8419	13.40	Q			V	
1+10	0.8990	8.29	Q			V	
1+15	0.9339	5.07	Q			V	
1+20	0.9574	3.41	Q			V	
1+25	0.9742	2.44	Q			V	
1+30	0.9863	1.75	Q			V	
1+35	0.9949	1.26	Q			V	
1+40	1.0009	0.87	Q			V	
1+45	1.0053	0.64	Q			V	
1+50	1.0089	0.51	Q			V	
1+55	1.0113	0.35	Q			V	
2+ 0	1.0126	0.20	Q			V	
2+ 5	1.0130	0.06	Q			V	
2+10	1.0131	0.02	Q			V	

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST100YR3HR3100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 3-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           0.87                 8.78

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           2.22                22.40

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    2.220(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.220(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

Total Area Entered = 10.09(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	84.3	0.195	0.000	0.195	1.000	0.195
					Sum (F) =	0.195

Area averaged mean soil loss (F) (In/Hr) = 0.195
Minimum soil loss rate ((In/Hr)) = 0.097
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time	% of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
			Sum = 100.000	Sum= 10.169

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.346	0.195	(0.312)	0.151
2	0.17	1.30	0.346	0.195	(0.312)	0.151
3	0.25	1.10	0.293	0.195	(0.264)	0.098
4	0.33	1.50	0.400	0.195	(0.360)	0.205
5	0.42	1.50	0.400	0.195	(0.360)	0.205
6	0.50	1.80	0.479	0.195	(0.432)	0.285
7	0.58	1.50	0.400	0.195	(0.360)	0.205
8	0.67	1.80	0.479	0.195	(0.432)	0.285
9	0.75	1.80	0.479	0.195	(0.432)	0.285
10	0.83	1.50	0.400	0.195	(0.360)	0.205
11	0.92	1.60	0.426	0.195	(0.384)	0.231
12	1.00	1.80	0.479	0.195	(0.432)	0.285
13	1.08	2.20	0.586	0.195	(0.527)	0.391
14	1.17	2.20	0.586	0.195	(0.527)	0.391
15	1.25	2.20	0.586	0.195	(0.527)	0.391
16	1.33	2.00	0.533	0.195	(0.479)	0.338
17	1.42	2.60	0.693	0.195	(0.623)	0.498
18	1.50	2.70	0.719	0.195	(0.647)	0.524
19	1.58	2.40	0.639	0.195	(0.575)	0.444
20	1.67	2.70	0.719	0.195	(0.647)	0.524
21	1.75	3.30	0.879	0.195	(0.791)	0.684
22	1.83	3.10	0.826	0.195	(0.743)	0.631
23	1.92	2.90	0.773	0.195	(0.695)	0.578
24	2.00	3.00	0.799	0.195	(0.719)	0.604
25	2.08	3.10	0.826	0.195	(0.743)	0.631

```
26   2.17     4.20      1.119          0.195    (  1.007)        0.924
27   2.25     5.00      1.332          0.195    (  1.199)        1.137
28   2.33     3.50      0.932          0.195    (  0.839)        0.737
29   2.42     6.80      1.811          0.195    (  1.630)        1.616
30   2.50     7.30      1.945          0.195    (  1.750)        1.750
31   2.58     8.20      2.184          0.195    (  1.966)        1.989
32   2.67     5.90      1.572          0.195    (  1.415)        1.377
33   2.75     2.00      0.533          0.195    (  0.479)        0.338
34   2.83     1.80      0.479          0.195    (  0.432)        0.285
35   2.92     1.80      0.479          0.195    (  0.432)        0.285
36   3.00     0.60      0.160       (  0.195)       0.144        0.016
             (Loss Rate Not Used)
   Sum =     100.0                                  Sum =    19.7
      Flood volume = Effective rainfall      1.64(In)
       times area      10.1(Ac.)/[(In)/(Ft.)] =       1.4(Ac.Ft)
      Total soil loss =      0.58(In)
      Total soil loss =     0.488(Ac.Ft)
      Total rainfall =      2.22(In)
      Flood volume =       60039.3 Cubic Feet
      Total soil loss =       21268.4 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     15.968(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
---------------------------------------------------------------------------
  0+ 5       0.0005      0.07  Q          |         |         |         |
  0+10       0.0043      0.55  VQ         |         |         |         |
  0+15       0.0110      0.97  VQ         |         |         |         |
  0+20       0.0181      1.04  V Q        |         |         |         |
  0+25       0.0273      1.33  V Q        |         |         |         |
  0+30       0.0389      1.69  |V Q       |         |         |         |
  0+35       0.0530      2.05  |V  Q      |         |         |         |
  0+40       0.0678      2.15  |V  Q      |         |         |         |
  0+45       0.0839      2.33  | V Q      |         |         |         |
  0+50       0.1013      2.53  | V  Q     |         |         |         |
  0+55       0.1178      2.39  |  VQ      |         |         |         |
  1+ 0       0.1339      2.34  |  VQ      |         |         |         |
  1+ 5       0.1517      2.59  |   VQ     |         |         |         |
  1+10       0.1730      3.09  |    VQ    |         |         |         |
  1+15       0.1969      3.47  |    VQ    |         |         |         |
  1+20       0.2218      3.62  |     VQ   |         |         |         |
  1+25       0.2468      3.63  |      Q   |         |         |         |
  1+30       0.2748      4.07  |      VQ  |         |         |         |
  1+35       0.3062      4.56  |       VQ|         |         |         |
  1+40       0.3379      4.61  |        Q|         |         |         |
  1+45       0.3714      4.86  |        QV         |         |         |
  1+50       0.4098      5.57  |         |Q        |         |         |
  1+55       0.4507      5.94  |         |Q V      |         |         |
  2+ 0       0.4913      5.90  |         |Q  V     |         |         |
  2+ 5       0.5323      5.94  |         |Q   V    |         |         |
  2+10       0.5753      6.25  |         | Q   V   |         |         |
  2+15       0.6263      7.40  |         |   Q   V |         |         |
  2+20       0.6869      8.80  |         |      Q V|         |         |
  2+25       0.7487      8.98  |         |      Q  |V        |         |
  2+30       0.8258     11.19  |         |         | QV      |         |
  2+35       0.9228     14.09  |         |         |     V Q |         |
  2+40       1.0328     15.97  |         |         |        V|Q        |
  2+45       1.1360     14.98  |         |         |        Q| V       |
  2+50       1.2094     10.67  |         |         |Q        |    V    |
  2+55       1.2592      7.23  |         |   Q     |         |     V   |
  3+ 0       1.2976      5.56  |         |Q        |         |      V  |
  3+ 5       1.3240      3.84  |      Q  |         |         |       V |
  3+10       1.3409      2.46  |   Q     |         |         |       V |
```

```
    3+15       1.3526      1.70  |  Q      |         |         |        V|
    3+20       1.3608      1.19  | Q       |         |         |        V|
    3+25       1.3666      0.84  |Q        |         |         |        V|
    3+30       1.3708      0.61  |Q        |         |         |        V|
    3+35       1.3739      0.45  Q         |         |         |        V|
    3+40       1.3760      0.31  Q         |         |         |        V|
    3+45       1.3772      0.18  Q         |         |         |        V|
    3+50       1.3778      0.09  Q         |         |         |        V|
    3+55       1.3781      0.04  Q         |         |         |        V|
    4+ 0       1.3783      0.02  Q         |         |         |        V|
    4+ 5       1.3783      0.01  Q         |         |         |        V|
    4+10       1.3783      0.00  Q         |         |         |         V
-------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST100YR6HR6100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 6-HOUR STORM - EXISTING CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           1.23                 12.41

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           3.06                 30.88

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.230(In)
Area Averaged 100-Year Rainfall =    3.060(In)

Point rain (area averaged) =    3.060(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    3.060(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
```

Total Area Entered = 10.09(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	84.3	0.195	0.000	0.195	1.000	0.195
					Sum (F) =	0.195

Area averaged mean soil loss (F) (In/Hr) = 0.195
Minimum soil loss rate ((In/Hr)) = 0.097
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
			Sum = 100.000 Sum=	10.169

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.184	(0.195)		0.165	0.018
2	0.17	0.60	0.220	0.195	(	0.198)	0.025
3	0.25	0.60	0.220	0.195	(	0.198)	0.025
4	0.33	0.60	0.220	0.195	(	0.198)	0.025
5	0.42	0.60	0.220	0.195	(	0.198)	0.025
6	0.50	0.70	0.257	0.195	(	0.231)	0.062
7	0.58	0.70	0.257	0.195	(	0.231)	0.062
8	0.67	0.70	0.257	0.195	(	0.231)	0.062
9	0.75	0.70	0.257	0.195	(	0.231)	0.062
10	0.83	0.70	0.257	0.195	(	0.231)	0.062
11	0.92	0.70	0.257	0.195	(	0.231)	0.062
12	1.00	0.80	0.294	0.195	(	0.264)	0.099
13	1.08	0.80	0.294	0.195	(	0.264)	0.099
14	1.17	0.80	0.294	0.195	(	0.264)	0.099
15	1.25	0.80	0.294	0.195	(	0.264)	0.099
16	1.33	0.80	0.294	0.195	(	0.264)	0.099
17	1.42	0.80	0.294	0.195	(	0.264)	0.099
18	1.50	0.80	0.294	0.195	(	0.264)	0.099
19	1.58	0.80	0.294	0.195	(	0.264)	0.099
20	1.67	0.80	0.294	0.195	(	0.264)	0.099
21	1.75	0.80	0.294	0.195	(	0.264)	0.099
22	1.83	0.80	0.294	0.195	(	0.264)	0.099
23	1.92	0.80	0.294	0.195	(	0.264)	0.099
24	2.00	0.90	0.330	0.195	(	0.297)	0.135
25	2.08	0.80	0.294	0.195	(	0.264)	0.099

26	2.17	0.90	0.330	0.195	(0.297)	0.135	
27	2.25	0.90	0.330	0.195	(0.297)	0.135	
28	2.33	0.90	0.330	0.195	(0.297)	0.135	
29	2.42	0.90	0.330	0.195	(0.297)	0.135	
30	2.50	0.90	0.330	0.195	(0.297)	0.135	
31	2.58	0.90	0.330	0.195	(0.297)	0.135	
32	2.67	0.90	0.330	0.195	(0.297)	0.135	
33	2.75	1.00	0.367	0.195	(0.330)	0.172	
34	2.83	1.00	0.367	0.195	(0.330)	0.172	
35	2.92	1.00	0.367	0.195	(0.330)	0.172	
36	3.00	1.00	0.367	0.195	(0.330)	0.172	
37	3.08	1.00	0.367	0.195	(0.330)	0.172	
38	3.17	1.10	0.404	0.195	(0.364)	0.209	
39	3.25	1.10	0.404	0.195	(0.364)	0.209	
40	3.33	1.10	0.404	0.195	(0.364)	0.209	
41	3.42	1.20	0.441	0.195	(0.397)	0.246	
42	3.50	1.30	0.477	0.195	(0.430)	0.282	
43	3.58	1.40	0.514	0.195	(0.463)	0.319	
44	3.67	1.40	0.514	0.195	(0.463)	0.319	
45	3.75	1.50	0.551	0.195	(0.496)	0.356	
46	3.83	1.50	0.551	0.195	(0.496)	0.356	
47	3.92	1.60	0.587	0.195	(0.529)	0.393	
48	4.00	1.60	0.587	0.195	(0.529)	0.393	
49	4.08	1.70	0.624	0.195	(0.562)	0.429	
50	4.17	1.80	0.661	0.195	(0.595)	0.466	
51	4.25	1.90	0.698	0.195	(0.628)	0.503	
52	4.33	2.00	0.734	0.195	(0.661)	0.539	
53	4.42	2.10	0.771	0.195	(0.694)	0.576	
54	4.50	2.10	0.771	0.195	(0.694)	0.576	
55	4.58	2.20	0.808	0.195	(0.727)	0.613	
56	4.67	2.30	0.845	0.195	(0.760)	0.650	
57	4.75	2.40	0.881	0.195	(0.793)	0.686	
58	4.83	2.40	0.881	0.195	(0.793)	0.686	
59	4.92	2.50	0.918	0.195	(0.826)	0.723	
60	5.00	2.60	0.955	0.195	(0.859)	0.760	
61	5.08	3.10	1.138	0.195	(1.024)	0.943	
62	5.17	3.60	1.322	0.195	(1.190)	1.127	
63	5.25	3.90	1.432	0.195	(1.289)	1.237	
64	5.33	4.20	1.542	0.195	(1.388)	1.347	
65	5.42	4.70	1.726	0.195	(1.553)	1.531	
66	5.50	5.60	2.056	0.195	(1.851)	1.861	
67	5.58	1.90	0.698	0.195	(0.628)	0.503	
68	5.67	0.90	0.330	0.195	(0.297)	0.135	
69	5.75	0.60	0.220	0.195	(0.198)	0.025	
70	5.83	0.50	0.184	(0.195)	0.165	0.018	
71	5.92	0.30	0.110	(0.195)	0.099	0.011	
72	6.00	0.20	0.073	(0.195)	0.066	0.007	

(Loss Rate Not Used)

Sum = 100.0 Sum = 23.0

Flood volume = Effective rainfall 1.91(In)
times area 10.1(Ac.)/[(In)/(Ft.)] = 1.6(Ac.Ft)
Total soil loss = 1.15(In)
Total soil loss = 0.964(Ac.Ft)
Total rainfall = 3.06(In)
Flood volume = 70092.5 Cubic Feet
Total soil loss = 41981.3 Cubic Feet

Peak flow rate of this hydrograph = 14.619(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0001	0.01	Q	|	|	|	|
0+10	0.0005	0.07	Q	|	|	|	|

```
0+15      0.0016      0.15  Q          |          |          |          |
0+20      0.0029      0.19  Q          |          |          |          |
0+25      0.0043      0.21  Q          |          |          |          |
0+30      0.0060      0.24  Q          |          |          |          |
0+35      0.0085      0.37  Q          |          |          |          |
0+40      0.0118      0.48  Q          |          |          |          |
0+45      0.0155      0.53  VQ         |          |          |          |
0+50      0.0194      0.56  VQ         |          |          |          |
0+55      0.0234      0.58  VQ         |          |          |          |
1+ 0      0.0276      0.61  VQ         |          |          |          |
1+ 5      0.0327      0.74  VQ         |          |          |          |
1+10      0.0386      0.86  VQ         |          |          |          |
1+15      0.0449      0.91  |Q         |          |          |          |
1+20      0.0514      0.94  |Q         |          |          |          |
1+25      0.0579      0.96  |Q         |          |          |          |
1+30      0.0646      0.97  |Q         |          |          |          |
1+35      0.0714      0.98  |Q         |          |          |          |
1+40      0.0782      0.99  |Q         |          |          |          |
1+45      0.0851      0.99  |QV        |          |          |          |
1+50      0.0919      1.00  |QV        |          |          |          |
1+55      0.0988      1.00  |QV        |          |          |          |
2+ 0      0.1059      1.02  | Q        |          |          |          |
2+ 5      0.1136      1.12  | Q        |          |          |          |
2+10      0.1214      1.13  | QV       |          |          |          |
2+15      0.1295      1.18  | QV       |          |          |          |
2+20      0.1383      1.27  | QV       |          |          |          |
2+25      0.1473      1.31  | QV       |          |          |          |
2+30      0.1565      1.33  | QV       |          |          |          |
2+35      0.1657      1.35  | Q V      |          |          |          |
2+40      0.1750      1.35  | Q V      |          |          |          |
2+45      0.1845      1.38  | Q V      |          |          |          |
2+50      0.1949      1.50  |  QV      |          |          |          |
2+55      0.2060      1.61  |  Q V     |          |          |          |
3+ 0      0.2174      1.66  |  Q V     |          |          |          |
3+ 5      0.2290      1.69  |  Q V     |          |          |          |
3+10      0.2409      1.73  |  Q V     |          |          |          |
3+15      0.2537      1.86  |  Q  V    |          |          |          |
3+20      0.2673      1.97  |  Q  V    |          |          |          |
3+25      0.2813      2.04  |   Q V    |          |          |          |
3+30      0.2965      2.21  |   Q  V   |          |          |          |
3+35      0.3135      2.47  |   Q  V   |          |          |          |
3+40      0.3325      2.75  |    Q  V  |          |          |          |
3+45      0.3529      2.96  |    Q  V  |          |          |          |
3+50      0.3748      3.18  |     Q  V|          |          |          |
3+55      0.3979      3.36  |     Q  V|          |          |          |
4+ 0      0.4225      3.57  |      Q  V          |          |          |
4+ 5      0.4483      3.75  |      Q  |V         |          |          |
4+10      0.4756      3.97  |      Q  |V         |          |          |
4+15      0.5049      4.26  |       Q | V        |          |          |
4+20      0.5365      4.59  |        Q|  V       |          |          |
4+25      0.5705      4.93  |        Q|   V      |          |          |
4+30      0.6067      5.26  |         Q    V     |          |          |
4+35      0.6446      5.50  |         |Q    V    |          |          |
4+40      0.6842      5.76  |         |Q     V   |          |          |
4+45      0.7260      6.07  |         | Q     V  |          |          |
4+50      0.7701      6.40  |         | Q      V|          |          |
4+55      0.8158      6.63  |         |  Q      V          |          |
5+ 0      0.8632      6.88  |         |  Q      |V         |          |
5+ 5      0.9133      7.27  |         |   Q     | V        |          |
5+10      0.9694      8.15  |         |     Q   |   V      |          |
5+15      1.0343      9.43  |         |       Q |    V     |          |
5+20      1.1078     10.67  |         |         |Q     V   |          |
5+25      1.1893     11.83  |         |         |  Q     V|          |
5+30      1.2808     13.29  |         |         |     Q   |V         |
5+35      1.3815     14.62  |         |         |        Q|   V      |
5+40      1.4611     11.56  |         |         |  Q      |     V    |
5+45      1.5101      7.12  |         |   Q     |         |      V   |
5+50      1.5409      4.46  |       Q |         |         |       V  |
5+55      1.5615      2.99  |    Q    |         |         |       V  |
6+ 0      1.5759      2.09  |   Q     |         |         |        V |
```

```
    6+ 5       1.5863      1.51  |  Q      |         |         |        V|
    6+10       1.5937      1.08  | Q       |         |         |        V|
    6+15       1.5989      0.76  |Q        |         |         |        V|
    6+20       1.6025      0.53  |Q        |         |         |        V|
    6+25       1.6052      0.38  Q         |         |         |        V|
    6+30       1.6071      0.28  Q         |         |         |        V|
    6+35       1.6083      0.17  Q         |         |         |        V|
    6+40       1.6089      0.08  Q         |         |         |        V|
    6+45       1.6090      0.02  Q         |         |         |        V|
    6+50       1.6091      0.01  Q         |         |         |        V|
    6+55       1.6091      0.00  Q         |         |         |        V|
    7+ 0       1.6091      0.00  Q         |         |         |        V|
    7+ 5       1.6091      0.00  Q         |         |         |        V|
    7+10       1.6091      0.00  Q         |         |         |        V|
--------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12EXIST100YR24HR24100.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 24-HOUR STORM - EXISTING CONDITION @ NODE 12
------------------------------------------------------------------------
Drainage Area =      10.09(Ac.)  =      0.016 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      10.09(Ac.)  =      0.016 Sq. Mi.
Length along longest watercourse =    1337.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.253 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     47.3897 Ft./Mi.
Average Manning's 'N' = 0.048
Lag time =    0.152 Hr.
Lag time =     9.12 Min.
25% of lag time =     2.28 Min.
40% of lag time =     3.65 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           2.25                 22.70

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       10.09           5.94                 59.93

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.250(In)
Area Averaged 100-Year Rainfall =    5.940(In)

Point rain (area averaged) =    5.940(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.940(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    10.090           84.30         0.000
 Total Area Entered =     10.09(Ac.)
```

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.3	84.3	0.195	0.000	0.195	1.000	0.195
					Sum (F) =	0.195

Area averaged mean soil loss (F) (In/Hr) = 0.195
Minimum soil loss rate ((In/Hr)) = 0.097
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.801	4.670	0.475
2	0.167	109.602	31.313	3.184
3	0.250	164.402	28.532	2.901
4	0.333	219.203	12.223	1.243
5	0.417	274.004	7.125	0.724
6	0.500	328.805	4.798	0.488
7	0.583	383.605	3.202	0.326
8	0.667	438.406	2.387	0.243
9	0.750	493.207	1.751	0.178
10	0.833	548.008	1.266	0.129
11	0.917	602.808	0.786	0.080
12	1.000	657.609	0.609	0.062
13	1.083	712.410	0.650	0.066
14	1.167	767.211	0.437	0.044
15	1.250	822.011	0.251	0.026
			Sum = 100.000	Sum= 10.169

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.346)	0.043	0.005
2	0.17	0.07	0.048	(0.344)	0.043	0.005
3	0.25	0.07	0.048	(0.343)	0.043	0.005
4	0.33	0.10	0.071	(0.342)	0.064	0.007
5	0.42	0.10	0.071	(0.340)	0.064	0.007
6	0.50	0.10	0.071	(0.339)	0.064	0.007
7	0.58	0.10	0.071	(0.338)	0.064	0.007
8	0.67	0.10	0.071	(0.336)	0.064	0.007
9	0.75	0.10	0.071	(0.335)	0.064	0.007
10	0.83	0.13	0.095	(0.334)	0.086	0.010
11	0.92	0.13	0.095	(0.332)	0.086	0.010
12	1.00	0.13	0.095	(0.331)	0.086	0.010
13	1.08	0.10	0.071	(0.330)	0.064	0.007
14	1.17	0.10	0.071	(0.328)	0.064	0.007
15	1.25	0.10	0.071	(0.327)	0.064	0.007
16	1.33	0.10	0.071	(0.326)	0.064	0.007
17	1.42	0.10	0.071	(0.325)	0.064	0.007
18	1.50	0.10	0.071	(0.323)	0.064	0.007
19	1.58	0.10	0.071	(0.322)	0.064	0.007
20	1.67	0.10	0.071	(0.321)	0.064	0.007
21	1.75	0.10	0.071	(0.319)	0.064	0.007
22	1.83	0.13	0.095	(0.318)	0.086	0.010
23	1.92	0.13	0.095	(0.317)	0.086	0.010
24	2.00	0.13	0.095	(0.316)	0.086	0.010
25	2.08	0.13	0.095	(0.314)	0.086	0.010
26	2.17	0.13	0.095	(0.313)	0.086	0.010
27	2.25	0.13	0.095	(0.312)	0.086	0.010

28	2.33	0.13	0.095	(0.310)	0.086	0.010
29	2.42	0.13	0.095	(0.309)	0.086	0.010
30	2.50	0.13	0.095	(0.308)	0.086	0.010
31	2.58	0.17	0.119	(0.307)	0.107	0.012
32	2.67	0.17	0.119	(0.305)	0.107	0.012
33	2.75	0.17	0.119	(0.304)	0.107	0.012
34	2.83	0.17	0.119	(0.303)	0.107	0.012
35	2.92	0.17	0.119	(0.302)	0.107	0.012
36	3.00	0.17	0.119	(0.300)	0.107	0.012
37	3.08	0.17	0.119	(0.299)	0.107	0.012
38	3.17	0.17	0.119	(0.298)	0.107	0.012
39	3.25	0.17	0.119	(0.297)	0.107	0.012
40	3.33	0.17	0.119	(0.295)	0.107	0.012
41	3.42	0.17	0.119	(0.294)	0.107	0.012
42	3.50	0.17	0.119	(0.293)	0.107	0.012
43	3.58	0.17	0.119	(0.292)	0.107	0.012
44	3.67	0.17	0.119	(0.291)	0.107	0.012
45	3.75	0.17	0.119	(0.289)	0.107	0.012
46	3.83	0.20	0.143	(0.288)	0.128	0.014
47	3.92	0.20	0.143	(0.287)	0.128	0.014
48	4.00	0.20	0.143	(0.286)	0.128	0.014
49	4.08	0.20	0.143	(0.284)	0.128	0.014
50	4.17	0.20	0.143	(0.283)	0.128	0.014
51	4.25	0.20	0.143	(0.282)	0.128	0.014
52	4.33	0.23	0.166	(0.281)	0.150	0.017
53	4.42	0.23	0.166	(0.280)	0.150	0.017
54	4.50	0.23	0.166	(0.278)	0.150	0.017
55	4.58	0.23	0.166	(0.277)	0.150	0.017
56	4.67	0.23	0.166	(0.276)	0.150	0.017
57	4.75	0.23	0.166	(0.275)	0.150	0.017
58	4.83	0.27	0.190	(0.274)	0.171	0.019
59	4.92	0.27	0.190	(0.272)	0.171	0.019
60	5.00	0.27	0.190	(0.271)	0.171	0.019
61	5.08	0.20	0.143	(0.270)	0.128	0.014
62	5.17	0.20	0.143	(0.269)	0.128	0.014
63	5.25	0.20	0.143	(0.268)	0.128	0.014
64	5.33	0.23	0.166	(0.267)	0.150	0.017
65	5.42	0.23	0.166	(0.265)	0.150	0.017
66	5.50	0.23	0.166	(0.264)	0.150	0.017
67	5.58	0.27	0.190	(0.263)	0.171	0.019
68	5.67	0.27	0.190	(0.262)	0.171	0.019
69	5.75	0.27	0.190	(0.261)	0.171	0.019
70	5.83	0.27	0.190	(0.260)	0.171	0.019
71	5.92	0.27	0.190	(0.259)	0.171	0.019
72	6.00	0.27	0.190	(0.257)	0.171	0.019
73	6.08	0.30	0.214	(0.256)	0.192	0.021
74	6.17	0.30	0.214	(0.255)	0.192	0.021
75	6.25	0.30	0.214	(0.254)	0.192	0.021
76	6.33	0.30	0.214	(0.253)	0.192	0.021
77	6.42	0.30	0.214	(0.252)	0.192	0.021
78	6.50	0.30	0.214	(0.251)	0.192	0.021
79	6.58	0.33	0.238	(0.249)	0.214	0.024
80	6.67	0.33	0.238	(0.248)	0.214	0.024
81	6.75	0.33	0.238	(0.247)	0.214	0.024
82	6.83	0.33	0.238	(0.246)	0.214	0.024
83	6.92	0.33	0.238	(0.245)	0.214	0.024
84	7.00	0.33	0.238	(0.244)	0.214	0.024
85	7.08	0.33	0.238	(0.243)	0.214	0.024
86	7.17	0.33	0.238	(0.242)	0.214	0.024
87	7.25	0.33	0.238	(0.241)	0.214	0.024
88	7.33	0.37	0.261	(0.239)	0.235	0.026
89	7.42	0.37	0.261	(0.238)	0.235	0.026
90	7.50	0.37	0.261	(0.237)	0.235	0.026
91	7.58	0.40	0.285	0.236	(0.257)	0.049
92	7.67	0.40	0.285	0.235	(0.257)	0.050
93	7.75	0.40	0.285	0.234	(0.257)	0.051
94	7.83	0.43	0.309	0.233	(0.278)	0.076
95	7.92	0.43	0.309	0.232	(0.278)	0.077
96	8.00	0.43	0.309	0.231	(0.278)	0.078
97	8.08	0.50	0.356	0.230	(0.321)	0.127
98	8.17	0.50	0.356	0.229	(0.321)	0.128

99	8.25	0.50	0.356	0.228	(0.321)	0.129
100	8.33	0.50	0.356	0.226	(0.321)	0.130
101	8.42	0.50	0.356	0.225	(0.321)	0.131
102	8.50	0.50	0.356	0.224	(0.321)	0.132
103	8.58	0.53	0.380	0.223	(0.342)	0.157
104	8.67	0.53	0.380	0.222	(0.342)	0.158
105	8.75	0.53	0.380	0.221	(0.342)	0.159
106	8.83	0.57	0.404	0.220	(0.364)	0.184
107	8.92	0.57	0.404	0.219	(0.364)	0.185
108	9.00	0.57	0.404	0.218	(0.364)	0.186
109	9.08	0.63	0.451	0.217	(0.406)	0.234
110	9.17	0.63	0.451	0.216	(0.406)	0.235
111	9.25	0.63	0.451	0.215	(0.406)	0.236
112	9.33	0.67	0.475	0.214	(0.428)	0.261
113	9.42	0.67	0.475	0.213	(0.428)	0.262
114	9.50	0.67	0.475	0.212	(0.428)	0.263
115	9.58	0.70	0.499	0.211	(0.449)	0.288
116	9.67	0.70	0.499	0.210	(0.449)	0.289
117	9.75	0.70	0.499	0.209	(0.449)	0.290
118	9.83	0.73	0.523	0.208	(0.470)	0.315
119	9.92	0.73	0.523	0.207	(0.470)	0.316
120	10.00	0.73	0.523	0.206	(0.470)	0.317
121	10.08	0.50	0.356	0.205	(0.321)	0.151
122	10.17	0.50	0.356	0.204	(0.321)	0.152
123	10.25	0.50	0.356	0.203	(0.321)	0.153
124	10.33	0.50	0.356	0.202	(0.321)	0.154
125	10.42	0.50	0.356	0.201	(0.321)	0.155
126	10.50	0.50	0.356	0.200	(0.321)	0.156
127	10.58	0.67	0.475	0.199	(0.428)	0.276
128	10.67	0.67	0.475	0.198	(0.428)	0.277
129	10.75	0.67	0.475	0.197	(0.428)	0.278
130	10.83	0.67	0.475	0.196	(0.428)	0.279
131	10.92	0.67	0.475	0.195	(0.428)	0.280
132	11.00	0.67	0.475	0.194	(0.428)	0.281
133	11.08	0.63	0.451	0.193	(0.406)	0.258
134	11.17	0.63	0.451	0.192	(0.406)	0.259
135	11.25	0.63	0.451	0.191	(0.406)	0.260
136	11.33	0.63	0.451	0.190	(0.406)	0.261
137	11.42	0.63	0.451	0.189	(0.406)	0.262
138	11.50	0.63	0.451	0.188	(0.406)	0.263
139	11.58	0.57	0.404	0.188	(0.364)	0.216
140	11.67	0.57	0.404	0.187	(0.364)	0.217
141	11.75	0.57	0.404	0.186	(0.364)	0.218
142	11.83	0.60	0.428	0.185	(0.385)	0.243
143	11.92	0.60	0.428	0.184	(0.385)	0.244
144	12.00	0.60	0.428	0.183	(0.385)	0.245
145	12.08	0.83	0.594	0.182	(0.535)	0.412
146	12.17	0.83	0.594	0.181	(0.535)	0.413
147	12.25	0.83	0.594	0.180	(0.535)	0.414
148	12.33	0.87	0.618	0.179	(0.556)	0.438
149	12.42	0.87	0.618	0.178	(0.556)	0.439
150	12.50	0.87	0.618	0.177	(0.556)	0.440
151	12.58	0.93	0.665	0.177	(0.599)	0.489
152	12.67	0.93	0.665	0.176	(0.599)	0.490
153	12.75	0.93	0.665	0.175	(0.599)	0.490
154	12.83	0.97	0.689	0.174	(0.620)	0.515
155	12.92	0.97	0.689	0.173	(0.620)	0.516
156	13.00	0.97	0.689	0.172	(0.620)	0.517
157	13.08	1.13	0.808	0.171	(0.727)	0.637
158	13.17	1.13	0.808	0.170	(0.727)	0.637
159	13.25	1.13	0.808	0.170	(0.727)	0.638
160	13.33	1.13	0.808	0.169	(0.727)	0.639
161	13.42	1.13	0.808	0.168	(0.727)	0.640
162	13.50	1.13	0.808	0.167	(0.727)	0.641
163	13.58	0.77	0.546	0.166	(0.492)	0.380
164	13.67	0.77	0.546	0.165	(0.492)	0.381
165	13.75	0.77	0.546	0.164	(0.492)	0.382
166	13.83	0.77	0.546	0.164	(0.492)	0.383
167	13.92	0.77	0.546	0.163	(0.492)	0.384
168	14.00	0.77	0.546	0.162	(0.492)	0.385
169	14.08	0.90	0.642	0.161	(0.577)	0.480

170	14.17	0.90	0.642	0.160	(0.577)	0.481
171	14.25	0.90	0.642	0.159	(0.577)	0.482
172	14.33	0.87	0.618	0.159	(0.556)	0.459
173	14.42	0.87	0.618	0.158	(0.556)	0.460
174	14.50	0.87	0.618	0.157	(0.556)	0.461
175	14.58	0.87	0.618	0.156	(0.556)	0.461
176	14.67	0.87	0.618	0.155	(0.556)	0.462
177	14.75	0.87	0.618	0.155	(0.556)	0.463
178	14.83	0.83	0.594	0.154	(0.535)	0.440
179	14.92	0.83	0.594	0.153	(0.535)	0.441
180	15.00	0.83	0.594	0.152	(0.535)	0.442
181	15.08	0.80	0.570	0.152	(0.513)	0.419
182	15.17	0.80	0.570	0.151	(0.513)	0.420
183	15.25	0.80	0.570	0.150	(0.513)	0.420
184	15.33	0.77	0.546	0.149	(0.492)	0.397
185	15.42	0.77	0.546	0.148	(0.492)	0.398
186	15.50	0.77	0.546	0.148	(0.492)	0.399
187	15.58	0.63	0.451	0.147	(0.406)	0.305
188	15.67	0.63	0.451	0.146	(0.406)	0.305
189	15.75	0.63	0.451	0.145	(0.406)	0.306
190	15.83	0.63	0.451	0.145	(0.406)	0.307
191	15.92	0.63	0.451	0.144	(0.406)	0.308
192	16.00	0.63	0.451	0.143	(0.406)	0.308
193	16.08	0.13	0.095	(0.142)	0.086	0.010
194	16.17	0.13	0.095	(0.142)	0.086	0.010
195	16.25	0.13	0.095	(0.141)	0.086	0.010
196	16.33	0.13	0.095	(0.140)	0.086	0.010
197	16.42	0.13	0.095	(0.140)	0.086	0.010
198	16.50	0.13	0.095	(0.139)	0.086	0.010
199	16.58	0.10	0.071	(0.138)	0.064	0.007
200	16.67	0.10	0.071	(0.137)	0.064	0.007
201	16.75	0.10	0.071	(0.137)	0.064	0.007
202	16.83	0.10	0.071	(0.136)	0.064	0.007
203	16.92	0.10	0.071	(0.135)	0.064	0.007
204	17.00	0.10	0.071	(0.135)	0.064	0.007
205	17.08	0.17	0.119	(0.134)	0.107	0.012
206	17.17	0.17	0.119	(0.133)	0.107	0.012
207	17.25	0.17	0.119	(0.133)	0.107	0.012
208	17.33	0.17	0.119	(0.132)	0.107	0.012
209	17.42	0.17	0.119	(0.131)	0.107	0.012
210	17.50	0.17	0.119	(0.131)	0.107	0.012
211	17.58	0.17	0.119	(0.130)	0.107	0.012
212	17.67	0.17	0.119	(0.129)	0.107	0.012
213	17.75	0.17	0.119	(0.129)	0.107	0.012
214	17.83	0.13	0.095	(0.128)	0.086	0.010
215	17.92	0.13	0.095	(0.127)	0.086	0.010
216	18.00	0.13	0.095	(0.127)	0.086	0.010
217	18.08	0.13	0.095	(0.126)	0.086	0.010
218	18.17	0.13	0.095	(0.126)	0.086	0.010
219	18.25	0.13	0.095	(0.125)	0.086	0.010
220	18.33	0.13	0.095	(0.124)	0.086	0.010
221	18.42	0.13	0.095	(0.124)	0.086	0.010
222	18.50	0.13	0.095	(0.123)	0.086	0.010
223	18.58	0.10	0.071	(0.123)	0.064	0.007
224	18.67	0.10	0.071	(0.122)	0.064	0.007
225	18.75	0.10	0.071	(0.121)	0.064	0.007
226	18.83	0.07	0.048	(0.121)	0.043	0.005
227	18.92	0.07	0.048	(0.120)	0.043	0.005
228	19.00	0.07	0.048	(0.120)	0.043	0.005
229	19.08	0.10	0.071	(0.119)	0.064	0.007
230	19.17	0.10	0.071	(0.119)	0.064	0.007
231	19.25	0.10	0.071	(0.118)	0.064	0.007
232	19.33	0.13	0.095	(0.117)	0.086	0.010
233	19.42	0.13	0.095	(0.117)	0.086	0.010
234	19.50	0.13	0.095	(0.116)	0.086	0.010
235	19.58	0.10	0.071	(0.116)	0.064	0.007
236	19.67	0.10	0.071	(0.115)	0.064	0.007
237	19.75	0.10	0.071	(0.115)	0.064	0.007
238	19.83	0.07	0.048	(0.114)	0.043	0.005
239	19.92	0.07	0.048	(0.114)	0.043	0.005
240	20.00	0.07	0.048	(0.113)	0.043	0.005

```
241  20.08     0.10      0.071       (  0.113)       0.064        0.007
242  20.17     0.10      0.071       (  0.112)       0.064        0.007
243  20.25     0.10      0.071       (  0.112)       0.064        0.007
244  20.33     0.10      0.071       (  0.111)       0.064        0.007
245  20.42     0.10      0.071       (  0.111)       0.064        0.007
246  20.50     0.10      0.071       (  0.110)       0.064        0.007
247  20.58     0.10      0.071       (  0.110)       0.064        0.007
248  20.67     0.10      0.071       (  0.109)       0.064        0.007
249  20.75     0.10      0.071       (  0.109)       0.064        0.007
250  20.83     0.07      0.048       (  0.108)       0.043        0.005
251  20.92     0.07      0.048       (  0.108)       0.043        0.005
252  21.00     0.07      0.048       (  0.108)       0.043        0.005
253  21.08     0.10      0.071       (  0.107)       0.064        0.007
254  21.17     0.10      0.071       (  0.107)       0.064        0.007
255  21.25     0.10      0.071       (  0.106)       0.064        0.007
256  21.33     0.07      0.048       (  0.106)       0.043        0.005
257  21.42     0.07      0.048       (  0.106)       0.043        0.005
258  21.50     0.07      0.048       (  0.105)       0.043        0.005
259  21.58     0.10      0.071       (  0.105)       0.064        0.007
260  21.67     0.10      0.071       (  0.104)       0.064        0.007
261  21.75     0.10      0.071       (  0.104)       0.064        0.007
262  21.83     0.07      0.048       (  0.104)       0.043        0.005
263  21.92     0.07      0.048       (  0.103)       0.043        0.005
264  22.00     0.07      0.048       (  0.103)       0.043        0.005
265  22.08     0.10      0.071       (  0.103)       0.064        0.007
266  22.17     0.10      0.071       (  0.102)       0.064        0.007
267  22.25     0.10      0.071       (  0.102)       0.064        0.007
268  22.33     0.07      0.048       (  0.102)       0.043        0.005
269  22.42     0.07      0.048       (  0.101)       0.043        0.005
270  22.50     0.07      0.048       (  0.101)       0.043        0.005
271  22.58     0.07      0.048       (  0.101)       0.043        0.005
272  22.67     0.07      0.048       (  0.100)       0.043        0.005
273  22.75     0.07      0.048       (  0.100)       0.043        0.005
274  22.83     0.07      0.048       (  0.100)       0.043        0.005
275  22.92     0.07      0.048       (  0.100)       0.043        0.005
276  23.00     0.07      0.048       (  0.099)       0.043        0.005
277  23.08     0.07      0.048       (  0.099)       0.043        0.005
278  23.17     0.07      0.048       (  0.099)       0.043        0.005
279  23.25     0.07      0.048       (  0.099)       0.043        0.005
280  23.33     0.07      0.048       (  0.099)       0.043        0.005
281  23.42     0.07      0.048       (  0.098)       0.043        0.005
282  23.50     0.07      0.048       (  0.098)       0.043        0.005
283  23.58     0.07      0.048       (  0.098)       0.043        0.005
284  23.67     0.07      0.048       (  0.098)       0.043        0.005
285  23.75     0.07      0.048       (  0.098)       0.043        0.005
286  23.83     0.07      0.048       (  0.098)       0.043        0.005
287  23.92     0.07      0.048       (  0.098)       0.043        0.005
288  24.00     0.07      0.048       (  0.098)       0.043        0.005
                (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    34.5
      Flood volume = Effective rainfall      2.88(In)
       times area      10.1(Ac.)/[(In)/(Ft.)] =       2.4(Ac.Ft)
      Total soil loss =      3.06(In)
      Total soil loss =     2.575(Ac.Ft)
      Total rainfall =      5.94(In)
      Flood volume =      105382.0 Cubic Feet
      Total soil loss =      112176.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      6.343(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	0.0004	0.03	Q	|	|	|	|
0+20	0.0006	0.04	Q	|	|	|	|
0+25	0.0010	0.05	Q	|	|	|	|
0+30	0.0014	0.06	Q	|	|	|	|
0+35	0.0018	0.06	Q	|	|	|	|
0+40	0.0022	0.07	Q	|	|	|	|
0+45	0.0027	0.07	Q	|	|	|	|
0+50	0.0032	0.07	Q	|	|	|	|
0+55	0.0037	0.08	Q	|	|	|	|
1+ 0	0.0043	0.09	Q	|	|	|	|
1+ 5	0.0049	0.09	Q	|	|	|	|
1+10	0.0055	0.08	Q	|	|	|	|
1+15	0.0061	0.08	Q	|	|	|	|
1+20	0.0066	0.08	Q	|	|	|	|
1+25	0.0071	0.07	Q	|	|	|	|
1+30	0.0076	0.07	Q	|	|	|	|
1+35	0.0081	0.07	Q	|	|	|	|
1+40	0.0086	0.07	Q	|	|	|	|
1+45	0.0091	0.07	Q	|	|	|	|
1+50	0.0096	0.07	Q	|	|	|	|
1+55	0.0102	0.08	Q	|	|	|	|
2+ 0	0.0108	0.09	Q	|	|	|	|
2+ 5	0.0114	0.09	Q	|	|	|	|
2+10	0.0121	0.09	Q	|	|	|	|
2+15	0.0127	0.09	Q	|	|	|	|
2+20	0.0134	0.09	Q	|	|	|	|
2+25	0.0140	0.10	Q	|	|	|	|
2+30	0.0147	0.10	Q	|	|	|	|
2+35	0.0154	0.10	Q	|	|	|	|
2+40	0.0161	0.10	Q	|	|	|	|
2+45	0.0169	0.11	Q	|	|	|	|
2+50	0.0176	0.12	Q	|	|	|	|
2+55	0.0185	0.12	Q	|	|	|	|
3+ 0	0.0193	0.12	Q	|	|	|	|
3+ 5	0.0201	0.12	Q	|	|	|	|
3+10	0.0209	0.12	Q	|	|	|	|
3+15	0.0217	0.12	Q	|	|	|	|
3+20	0.0226	0.12	Q	|	|	|	|
3+25	0.0234	0.12	Q	|	|	|	|
3+30	0.0242	0.12	Q	|	|	|	|
3+35	0.0251	0.12	Q	|	|	|	|
3+40	0.0259	0.12	Q	|	|	|	|
3+45	0.0267	0.12	Q	|	|	|	|
3+50	0.0276	0.12	Q	|	|	|	|
3+55	0.0284	0.13	Q	|	|	|	|
4+ 0	0.0294	0.14	Q	|	|	|	|
4+ 5	0.0303	0.14	Q	|	|	|	|
4+10	0.0313	0.14	Q	|	|	|	|
4+15	0.0323	0.14	Q	|	|	|	|
4+20	0.0333	0.14	Q	|	|	|	|
4+25	0.0343	0.15	Q	|	|	|	|
4+30	0.0354	0.16	Q	|	|	|	|
4+35	0.0366	0.16	Q	|	|	|	|
4+40	0.0377	0.16	Q	|	|	|	|
4+45	0.0388	0.17	Q	|	|	|	|
4+50	0.0400	0.17	Q	|	|	|	|
4+55	0.0412	0.18	Q	|	|	|	|
5+ 0	0.0425	0.18	Q	|	|	|	|
5+ 5	0.0438	0.18	Q	|	|	|	|
5+10	0.0449	0.17	Q	|	|	|	|
5+15	0.0460	0.16	Q	|	|	|	|
5+20	0.0471	0.16	Q	|	|	|	|
5+25	0.0482	0.16	Q	|	|	|	|
5+30	0.0493	0.17	Q	|	|	|	|
5+35	0.0505	0.17	Q	|	|	|	|
5+40	0.0517	0.18	Q	|	|	|	|
5+45	0.0530	0.18	Q	|	|	|	|
5+50	0.0543	0.19	Q	|	|	|	|
5+55	0.0556	0.19	Q	|	|	|	|
6+ 0	0.0569	0.19	Q	|	|	|	|
6+ 5	0.0582	0.19	Q	|	|	|	|

```
 6+10      0.0596      0.20  Q          |          |          |          |
 6+15      0.0610      0.21  QV         |          |          |          |
 6+20      0.0625      0.21  QV         |          |          |          |
 6+25      0.0639      0.21  QV         |          |          |          |
 6+30      0.0654      0.21  QV         |          |          |          |
 6+35      0.0669      0.22  QV         |          |          |          |
 6+40      0.0685      0.22  QV         |          |          |          |
 6+45      0.0701      0.23  QV         |          |          |          |
 6+50      0.0717      0.24  QV         |          |          |          |
 6+55      0.0733      0.24  QV         |          |          |          |
 7+ 0      0.0750      0.24  QV         |          |          |          |
 7+ 5      0.0766      0.24  QV         |          |          |          |
 7+10      0.0783      0.24  QV         |          |          |          |
 7+15      0.0799      0.24  QV         |          |          |          |
 7+20      0.0816      0.24  QV         |          |          |          |
 7+25      0.0833      0.25  QV         |          |          |          |
 7+30      0.0851      0.26  |Q         |          |          |          |
 7+35      0.0869      0.27  |Q         |          |          |          |
 7+40      0.0893      0.35  |Q         |          |          |          |
 7+45      0.0922      0.42  |Q         |          |          |          |
 7+50      0.0954      0.47  |Q         |          |          |          |
 7+55      0.0993      0.57  |VQ        |          |          |          |
 8+ 0      0.1038      0.66  |VQ        |          |          |          |
 8+ 5      0.1088      0.73  |VQ        |          |          |          |
 8+10      0.1151      0.91  |V Q       |          |          |          |
 8+15      0.1225      1.07  | V Q      |          |          |          |
 8+20      0.1304      1.15  | V Q      |          |          |          |
 8+25      0.1387      1.21  | V Q      |          |          |          |
 8+30      0.1473      1.25  | V Q      |          |          |          |
 8+35      0.1562      1.29  | V  Q     |          |          |          |
 8+40      0.1658      1.39  | V  Q     |          |          |          |
 8+45      0.1760      1.48  | V  Q     |          |          |          |
 8+50      0.1866      1.54  |  V  Q    |          |          |          |
 8+55      0.1979      1.65  |  V  Q    |          |          |          |
 9+ 0      0.2099      1.74  |  V  Q    |          |          |          |
 9+ 5      0.2224      1.82  |  V   Q   |          |          |          |
 9+10      0.2362      2.00  |  V    Q  |          |          |          |
 9+15      0.2511      2.17  |   V   Q  |          |          |          |
 9+20      0.2667      2.26  |   V    Q|          |          |          |
 9+25      0.2832      2.39  |   V    Q|          |          |          |
 9+30      0.3004      2.50  |   V    Q|          |          |          |
 9+35      0.3180      2.57  |    V    Q          |          |          |
 9+40      0.3365      2.69  |    V    Q          |          |          |
 9+45      0.3557      2.79  |    V    |Q         |          |          |
 9+50      0.3754      2.85  |     V   |Q         |          |          |
 9+55      0.3958      2.97  |     V   |Q         |          |          |
10+ 0      0.4169      3.07  |     V   | Q        |          |          |
10+ 5      0.4379      3.04  |      V  | Q        |          |          |
10+10      0.4554      2.55  |      V  Q          |          |          |
10+15      0.4699      2.09  |      VQ |          |          |          |
10+20      0.4830      1.91  |      Q  |          |          |          |
10+25      0.4955      1.81  |      QV |          |          |          |
10+30      0.5075      1.74  |     Q V |          |          |          |
10+35      0.5196      1.76  |      QV |          |          |          |
10+40      0.5341      2.11  |       Q |          |          |          |
10+45      0.5509      2.44  |        Q|          |          |          |
10+50      0.5687      2.58  |        VQ          |          |          |
10+55      0.5870      2.66  |        VQ          |          |          |
11+ 0      0.6057      2.72  |         Q          |          |          |
11+ 5      0.6246      2.74  |         Q          |          |          |
11+10      0.6432      2.70  |         Q          |          |          |
11+15      0.6615      2.66  |         Q          |          |          |
11+20      0.6798      2.65  |         QV         |          |          |
11+25      0.6981      2.66  |         QV         |          |          |
11+30      0.7164      2.66  |         QV         |          |          |
11+35      0.7346      2.65  |         Q V        |          |          |
11+40      0.7519      2.51  |         Q V        |          |          |
11+45      0.7682      2.38  |        Q| V        |          |          |
11+50      0.7843      2.33  |        Q| V        |          |          |
11+55      0.8007      2.38  |        Q|  V       |          |          |
12+ 0      0.8175      2.44  |        Q|  V       |          |          |
```

```
12+ 5       0.8350      2.54  |          Q  V      |          |          |
12+10       0.8562      3.08  |          | Q V     |          |          |
12+15       0.8808      3.58  |          |   Q     |          |          |
12+20       0.9071      3.81  |          |   VQ    |          |          |
12+25       0.9347      4.01  |          |    VQ   |          |          |
12+30       0.9634      4.17  |          |    VQ   |          |          |
12+35       0.9930      4.29  |          |     VQ  |          |          |
12+40       1.0240      4.51  |          |     V Q |          |          |
12+45       1.0563      4.70  |          |      VQ |          |          |
12+50       1.0894      4.81  |          |       VQ|          |          |
12+55       1.1235      4.94  |          |       VQ|          |          |
13+ 0       1.1584      5.06  |          |        VQ          |          |
13+ 5       1.1941      5.19  |          |        VQ          |          |
13+10       1.2327      5.61  |          |         V Q        |          |
13+15       1.2740      5.99  |          |          |V Q      |          |
13+20       1.3164      6.16  |          |          |V  Q     |          |
13+25       1.3596      6.27  |          |          | V  Q    |          |
13+30       1.4033      6.34  |          |          |  V Q    |          |
13+35       1.4465      6.27  |          |          |  V Q    |          |
13+40       1.4842      5.48  |          |          |Q  V     |          |
13+45       1.5170      4.76  |          |        Q|    V    |          |
13+50       1.5477      4.46  |          |      Q  |    V    |          |
13+55       1.5772      4.29  |          |      Q  |     V   |          |
14+ 0       1.6059      4.17  |          |     Q   |     V   |          |
14+ 5       1.6345      4.15  |          |     Q   |      V  |          |
14+10       1.6648      4.40  |          |      Q  |      V  |          |
14+15       1.6968      4.64  |          |       Q |       V |          |
14+20       1.7294      4.73  |          |       Q |       V |          |
14+25       1.7618      4.71  |          |       Q |        V|          |
14+30       1.7940      4.68  |          |       Q |        V|          |
14+35       1.8261      4.67  |          |       Q |         V          |
14+40       1.8583      4.67  |          |       Q |         V          |
14+45       1.8905      4.68  |          |       Q |          |V        |
14+50       1.9228      4.68  |          |       Q |          |V        |
14+55       1.9545      4.61  |          |       Q |          | V       |
15+ 0       1.9859      4.55  |          |       Q |          | V       |
15+ 5       2.0171      4.53  |          |       Q |          |  V      |
15+10       2.0477      4.44  |          |      Q  |          |  V      |
15+15       2.0778      4.37  |          |      Q  |          |   V     |
15+20       2.1076      4.33  |          |      Q  |          |   V     |
15+25       2.1368      4.24  |          |     Q   |          |    V    |
15+30       2.1654      4.16  |          |     Q   |          |    V    |
15+35       2.1935      4.08  |          |     Q   |          |     V   |
15+40       2.2194      3.76  |          |    Q    |          |     V   |
15+45       2.2434      3.48  |          |  Q      |          |      V  |
15+50       2.2665      3.35  |          |  Q      |          |      V  |
15+55       2.2891      3.28  |          |  Q      |          |      V  |
16+ 0       2.3114      3.24  |          | Q       |          |       V |
16+ 5       2.3325      3.07  |          | Q       |          |       V |
16+10       2.3469      2.09  |        Q |         |          |       V |
16+15       2.3553      1.21  |   Q      |         |          |       V |
16+20       2.3610      0.83  |  Q       |         |          |        V|
16+25       2.3651      0.60  | Q        |         |          |        V|
16+30       2.3682      0.45  |Q         |         |          |        V|
16+35       2.3706      0.35  |Q         |         |          |        V|
16+40       2.3725      0.26  |Q         |         |          |        V|
16+45       2.3739      0.20  Q          |         |          |        V|
16+50       2.3750      0.16  Q          |         |          |        V|
16+55       2.3759      0.14  Q          |         |          |        V|
17+ 0       2.3767      0.12  Q          |         |          |        V|
17+ 5       2.3774      0.10  Q          |         |          |        V|
17+10       2.3780      0.10  Q          |         |          |        V|
17+15       2.3788      0.10  Q          |         |          |        V|
17+20       2.3795      0.11  Q          |         |          |        V|
17+25       2.3803      0.11  Q          |         |          |        V|
17+30       2.3811      0.12  Q          |         |          |        V|
17+35       2.3819      0.12  Q          |         |          |        V|
17+40       2.3827      0.12  Q          |         |          |        V|
17+45       2.3835      0.12  Q          |         |          |        V|
17+50       2.3844      0.12  Q          |         |          |        V|
17+55       2.3851      0.11  Q          |         |          |        V|
```

18+ 0	2.3859	0.10	Q	|	|	|	V|
18+ 5	2.3866	0.10	Q	|	|	|	V|
18+10	2.3872	0.10	Q	|	|	|	V|
18+15	2.3879	0.10	Q	|	|	|	V|
18+20	2.3886	0.10	Q	|	|	|	V|
18+25	2.3893	0.10	Q	|	|	|	V|
18+30	2.3900	0.10	Q	|	|	|	V|
18+35	2.3906	0.10	Q	|	|	|	V|
18+40	2.3912	0.09	Q	|	|	|	V|
18+45	2.3918	0.08	Q	|	|	|	V|
18+50	2.3923	0.08	Q	|	|	|	V|
18+55	2.3928	0.07	Q	|	|	|	V|
19+ 0	2.3932	0.06	Q	|	|	|	V|
19+ 5	2.3936	0.06	Q	|	|	|	V|
19+10	2.3940	0.06	Q	|	|	|	V|
19+15	2.3945	0.07	Q	|	|	|	V|
19+20	2.3950	0.07	Q	|	|	|	V|
19+25	2.3955	0.08	Q	|	|	|	V|
19+30	2.3961	0.09	Q	|	|	|	V|
19+35	2.3967	0.09	Q	|	|	|	V|
19+40	2.3973	0.08	Q	|	|	|	V|
19+45	2.3978	0.08	Q	|	|	|	V|
19+50	2.3983	0.07	Q	|	|	|	V|
19+55	2.3988	0.07	Q	|	|	|	V|
20+ 0	2.3992	0.06	Q	|	|	|	V|
20+ 5	2.3996	0.06	Q	|	|	|	V|
20+10	2.4000	0.06	Q	|	|	|	V|
20+15	2.4005	0.07	Q	|	|	|	V|
20+20	2.4010	0.07	Q	|	|	|	V|
20+25	2.4014	0.07	Q	|	|	|	V|
20+30	2.4019	0.07	Q	|	|	|	V|
20+35	2.4024	0.07	Q	|	|	|	V|
20+40	2.4029	0.07	Q	|	|	|	V|
20+45	2.4034	0.07	Q	|	|	|	V|
20+50	2.4039	0.07	Q	|	|	|	V|
20+55	2.4043	0.06	Q	|	|	|	V|
21+ 0	2.4047	0.06	Q	|	|	|	V|
21+ 5	2.4051	0.05	Q	|	|	|	V|
21+10	2.4055	0.06	Q	|	|	|	V|
21+15	2.4060	0.07	Q	|	|	|	V|
21+20	2.4065	0.07	Q	|	|	|	V|
21+25	2.4069	0.06	Q	|	|	|	V|
21+30	2.4073	0.06	Q	|	|	|	V|
21+35	2.4076	0.05	Q	|	|	|	V|
21+40	2.4080	0.06	Q	|	|	|	V|
21+45	2.4085	0.07	Q	|	|	|	V|
21+50	2.4090	0.07	Q	|	|	|	V|
21+55	2.4094	0.06	Q	|	|	|	V|
22+ 0	2.4098	0.05	Q	|	|	|	V|
22+ 5	2.4101	0.05	Q	|	|	|	V|
22+10	2.4105	0.06	Q	|	|	|	V|
22+15	2.4110	0.07	Q	|	|	|	V|
22+20	2.4115	0.07	Q	|	|	|	V|
22+25	2.4119	0.06	Q	|	|	|	V|
22+30	2.4123	0.05	Q	|	|	|	V|
22+35	2.4126	0.05	Q	|	|	|	V|
22+40	2.4130	0.05	Q	|	|	|	V|
22+45	2.4133	0.05	Q	|	|	|	V|
22+50	2.4137	0.05	Q	|	|	|	V|
22+55	2.4140	0.05	Q	|	|	|	V|
23+ 0	2.4143	0.05	Q	|	|	|	V|
23+ 5	2.4147	0.05	Q	|	|	|	V|
23+10	2.4150	0.05	Q	|	|	|	V|
23+15	2.4153	0.05	Q	|	|	|	V|
23+20	2.4157	0.05	Q	|	|	|	V|
23+25	2.4160	0.05	Q	|	|	|	V|
23+30	2.4163	0.05	Q	|	|	|	V|
23+35	2.4167	0.05	Q	|	|	|	V|
23+40	2.4170	0.05	Q	|	|	|	V|
23+45	2.4173	0.05	Q	|	|	|	V|
23+50	2.4177	0.05	Q	|	|	|	V|

23+55	2.4180	0.05	Q	|	|	|	V|
24+ 0	2.4183	0.05	Q	|	|	|	V|
24+ 5	2.4187	0.05	Q	|	|	|	V|
24+10	2.4189	0.03	Q	|	|	|	V|
24+15	2.4190	0.02	Q	|	|	|	V|
24+20	2.4191	0.01	Q	|	|	|	V|
24+25	2.4191	0.01	Q	|	|	|	V|
24+30	2.4192	0.01	Q	|	|	|	V|
24+35	2.4192	0.00	Q	|	|	|	V|
24+40	2.4192	0.00	Q	|	|	|	V|
24+45	2.4192	0.00	Q	|	|	|	V|
24+50	2.4192	0.00	Q	|	|	|	V|
24+55	2.4192	0.00	Q	|	|	|	V|
25+ 0	2.4192	0.00	Q	|	|	|	V|
25+ 5	2.4192	0.00	Q	|	|	|	V|
25+10	2.4192	0.00	Q	|	|	|	V|

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP2YR1HR12.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 1-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	0.49	2.58

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	1.40	7.32

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.494(In)
Area Averaged 100-Year Rainfall = 1.400(In)

Point rain (area averaged) = 0.494(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.494(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

```
 Total Area Entered =      5.23(Ac.)


 RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
 AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
 63.5  43.5      0.636     0.785        0.187       1.000      0.187
                                                  Sum (F) =   0.187
 Area averaged mean soil loss (F) (In/Hr) =  0.187
 Minimum soil loss rate ((In/Hr)) =  0.093
 (for 24 hour storm duration)
 Soil low loss rate (decimal) =   0.272
 ------------------------------------------------------------------------
 Slope of intensity-duration curve for a 1 hour storm =0.4800
 ------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      DESERT S-Curve
 ------------------------------------------------------------------------
               Unit Hydrograph Data
 ------------------------------------------------------------------------
 Unit time period   Time % of lag   Distribution   Unit Hydrograph
     (hrs)                          Graph %           (CFS)
 ------------------------------------------------------------------------
     1   0.083        778.970         80.976             4.268
     2   0.167       1557.940         19.024             1.003
                               Sum = 100.000   Sum=       5.271
-------------------------------------------------------------------------


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

  Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
       (Hr.)  Percent   (In/Hr)         Max   |   Low        (In/Hr)
   1   0.08     4.40      0.261       (  0.187)       0.071        0.190
   2   0.17     4.50      0.267       (  0.187)       0.073        0.194
   3   0.25     5.40      0.320       (  0.187)       0.087        0.233
   4   0.33     5.40      0.320       (  0.187)       0.087        0.233
   5   0.42     5.70      0.338       (  0.187)       0.092        0.246
   6   0.50     6.40      0.379       (  0.187)       0.103        0.276
   7   0.58     7.90      0.468       (  0.187)       0.127        0.341
   8   0.67     9.10      0.539       (  0.187)       0.147        0.393
   9   0.75    12.80      0.759          0.187    (  0.206)        0.572
  10   0.83    25.60      1.517          0.187    (  0.413)        1.331
  11   0.92     7.90      0.468       (  0.187)       0.127        0.341
  12   1.00     4.90      0.290       (  0.187)       0.079        0.211
               (Loss Rate Not Used)
     Sum =     100.0                                  Sum =     4.6
    Flood volume = Effective rainfall      0.38(In)
     times area       5.2(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      0.11(In)
    Total soil loss =     0.050(Ac.Ft)
    Total rainfall =      0.49(In)
    Flood volume =        7216.4 Cubic Feet
    Total soil loss =        2161.7 Cubic Feet
    ------------------------------------------------------------------------
     Peak flow rate of this hydrograph =      6.257(CFS)
    ------------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        1 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
    ------------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))

    ------------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0056      0.81  |V Q      |         |         |         |
   0+10       0.0126      1.02  |  VQ     |         |         |         |
   0+15       0.0208      1.19  |   QV    |         |         |         |
```

```
    0+20       0.0293      1.23  |   Q  V  |         |         |         |
    0+25       0.0381      1.28  |    Q   V|         |         |         |
    0+30       0.0479      1.43  |    Q    |V        |         |         |
    0+35       0.0599      1.73  |     Q   |   V     |         |         |
    0+40       0.0738      2.02  |       Q |      V  |         |         |
    0+45       0.0933      2.84  |         |Q        | V       |         |
    0+50       0.1364      6.26  |         |         |    Q    | V       |
    0+55       0.1556      2.79  |         |Q        |         |      V  |
    1+ 0       0.1642      1.25  |   Q     |         |         |        V|
    1+ 5       0.1657      0.21  Q         |         |         |         V
-------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP2YR3HR32.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 3-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	0.87	4.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	2.22	11.61

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.870(In)
Area Averaged 100-Year Rainfall = 2.220(In)

Point rain (area averaged) = 0.870(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.870(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	43.5	0.636	0.785	0.187	1.000	0.187
					Sum (F) =	0.187

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.093
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
		Sum = 100.000	Sum=	5.271

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	1.30	0.136	(0.187)		0.037	0.099
2	0.17	1.30	0.136	(0.187)		0.037	0.099
3	0.25	1.10	0.115	(0.187)		0.031	0.084
4	0.33	1.50	0.157	(0.187)		0.043	0.114
5	0.42	1.50	0.157	(0.187)		0.043	0.114
6	0.50	1.80	0.188	(0.187)		0.051	0.137
7	0.58	1.50	0.157	(0.187)		0.043	0.114
8	0.67	1.80	0.188	(0.187)		0.051	0.137
9	0.75	1.80	0.188	(0.187)		0.051	0.137
10	0.83	1.50	0.157	(0.187)		0.043	0.114
11	0.92	1.60	0.167	(0.187)		0.045	0.122
12	1.00	1.80	0.188	(0.187)		0.051	0.137
13	1.08	2.20	0.230	(0.187)		0.062	0.167
14	1.17	2.20	0.230	(0.187)		0.062	0.167
15	1.25	2.20	0.230	(0.187)		0.062	0.167
16	1.33	2.00	0.209	(0.187)		0.057	0.152
17	1.42	2.60	0.271	(0.187)		0.074	0.198
18	1.50	2.70	0.282	(0.187)		0.077	0.205
19	1.58	2.40	0.251	(0.187)		0.068	0.182
20	1.67	2.70	0.282	(0.187)		0.077	0.205
21	1.75	3.30	0.345	(0.187)		0.094	0.251
22	1.83	3.10	0.324	(0.187)		0.088	0.236
23	1.92	2.90	0.303	(0.187)		0.082	0.220
24	2.00	3.00	0.313	(0.187)		0.085	0.228
25	2.08	3.10	0.324	(0.187)		0.088	0.236
26	2.17	4.20	0.438	(0.187)		0.119	0.319
27	2.25	5.00	0.522	(0.187)		0.142	0.380
28	2.33	3.50	0.365	(0.187)		0.099	0.266
29	2.42	6.80	0.710	0.187	(	0.193)	0.523
30	2.50	7.30	0.762	0.187	(	0.207)	0.576
31	2.58	8.20	0.856	0.187	(	0.233)	0.669
32	2.67	5.90	0.616	(0.187)		0.168	0.448
33	2.75	2.00	0.209	(0.187)		0.057	0.152
34	2.83	1.80	0.188	(0.187)		0.051	0.137
35	2.92	1.80	0.188	(0.187)		0.051	0.137
36	3.00	0.60	0.063	(0.187)		0.017	0.046
		(Loss Rate Not Used)					
Sum =		100.0				Sum =	7.7

```
      Flood volume = Effective rainfall      0.64(In)
       times area       5.2(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
      Total soil loss =      0.23(In)
      Total soil loss =     0.100(Ac.Ft)
      Total rainfall =      0.87(In)
      Flood volume =       12140.3 Cubic Feet
      Total soil loss =        4376.2 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      3.436(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------------
   0+ 5       0.0029      0.42  VQ        |         |         |         |
   0+10       0.0065      0.52  V Q       |         |         |         |
   0+15       0.0096      0.46  |Q        |         |         |         |
   0+20       0.0136      0.57  |VQ       |         |         |         |
   0+25       0.0177      0.60  | Q       |         |         |         |
   0+30       0.0225      0.70  | QV      |         |         |         |
   0+35       0.0268      0.62  | QV      |         |         |         |
   0+40       0.0316      0.70  | Q V     |         |         |         |
   0+45       0.0366      0.72  | Q  V    |         |         |         |
   0+50       0.0409      0.62  | Q  V    |         |         |         |
   0+55       0.0453      0.63  | Q   V   |         |         |         |
   1+ 0       0.0501      0.71  | Q    V  |         |         |         |
   1+ 5       0.0560      0.85  |  Q    V |         |         |         |
   1+10       0.0621      0.88  |  Q    V |         |         |         |
   1+15       0.0681      0.88  |  Q     V|         |         |         |
   1+20       0.0738      0.82  |  Q      V         |         |         |
   1+25       0.0806      1.00  |  Q      |V        |         |         |
   1+30       0.0880      1.07  |   Q     | V       |         |         |
   1+35       0.0948      0.98  |  Q      |  V      |         |         |
   1+40       0.1021      1.06  |   Q     |   V     |         |         |
   1+45       0.1109      1.28  |    Q    |    V    |         |         |
   1+50       0.1196      1.26  |    Q    |      V  |         |         |
   1+55       0.1277      1.18  |   Q     |       V |         |         |
   2+ 0       0.1359      1.19  |   Q     |        V|         |         |
   2+ 5       0.1444      1.23  |   Q     |         V         |         |
   2+10       0.1554      1.60  |     Q   |         | V       |         |
   2+15       0.1688      1.94  |      Q  |         |   V     |         |
   2+20       0.1792      1.52  |     Q   |         |    V    |         |
   2+25       0.1965      2.50  |         Q         |       V |         |
   2+30       0.2170      2.98  |         |Q        |         |V        |
   2+35       0.2407      3.44  |         |  Q      |         |   V     |
   2+40       0.2585      2.59  |         Q         |         |      V  |
   2+45       0.2661      1.10  |   Q     |         |         |       V |
   2+50       0.2711      0.74  | Q       |         |         |       V |
   2+55       0.2761      0.72  | Q       |         |         |        V|
   3+ 0       0.2784      0.33  |Q        |         |         |        V|
   3+ 5       0.2787      0.05  Q         |         |         |         V
---------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE2PROP2YR6HR62.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 6-HOUR STORM - PROPOSED CONDITION @ NODE 2
------------------------------------------------------------------------
Drainage Area =       5.23(Ac.)  =      0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       5.23(Ac.)  =      0.008 Sq. Mi.
Length along longest watercourse =     522.00(Ft.)
Length along longest watercourse measured to centroid =     300.00(Ft.)
Length along longest watercourse =      0.099 Mi.
Length along longest watercourse measured to centroid =      0.057 Mi.
Difference in elevation =       5.00(Ft.)
Slope along watercourse =     50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.26 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        5.23           1.23                 6.43

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        5.23           3.06                16.00

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.230(In)
Area Averaged 100-Year Rainfall =    3.060(In)

Point rain (area averaged) =    1.230(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.230(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     5.230           63.50         0.785
```

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	43.5	0.636	0.785	0.187	1.000	0.187
					Sum (F) =	0.187

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.093
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
		Sum = 100.000	Sum=	5.271

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.074	(0.187)	0.020	0.054
2	0.17	0.60	0.089	(0.187)	0.024	0.064
3	0.25	0.60	0.089	(0.187)	0.024	0.064
4	0.33	0.60	0.089	(0.187)	0.024	0.064
5	0.42	0.60	0.089	(0.187)	0.024	0.064
6	0.50	0.70	0.103	(0.187)	0.028	0.075
7	0.58	0.70	0.103	(0.187)	0.028	0.075
8	0.67	0.70	0.103	(0.187)	0.028	0.075
9	0.75	0.70	0.103	(0.187)	0.028	0.075
10	0.83	0.70	0.103	(0.187)	0.028	0.075
11	0.92	0.70	0.103	(0.187)	0.028	0.075
12	1.00	0.80	0.118	(0.187)	0.032	0.086
13	1.08	0.80	0.118	(0.187)	0.032	0.086
14	1.17	0.80	0.118	(0.187)	0.032	0.086
15	1.25	0.80	0.118	(0.187)	0.032	0.086
16	1.33	0.80	0.118	(0.187)	0.032	0.086
17	1.42	0.80	0.118	(0.187)	0.032	0.086
18	1.50	0.80	0.118	(0.187)	0.032	0.086
19	1.58	0.80	0.118	(0.187)	0.032	0.086
20	1.67	0.80	0.118	(0.187)	0.032	0.086
21	1.75	0.80	0.118	(0.187)	0.032	0.086
22	1.83	0.80	0.118	(0.187)	0.032	0.086
23	1.92	0.80	0.118	(0.187)	0.032	0.086
24	2.00	0.90	0.133	(0.187)	0.036	0.097
25	2.08	0.80	0.118	(0.187)	0.032	0.086
26	2.17	0.90	0.133	(0.187)	0.036	0.097
27	2.25	0.90	0.133	(0.187)	0.036	0.097
28	2.33	0.90	0.133	(0.187)	0.036	0.097
29	2.42	0.90	0.133	(0.187)	0.036	0.097
30	2.50	0.90	0.133	(0.187)	0.036	0.097
31	2.58	0.90	0.133	(0.187)	0.036	0.097
32	2.67	0.90	0.133	(0.187)	0.036	0.097
33	2.75	1.00	0.148	(0.187)	0.040	0.107
34	2.83	1.00	0.148	(0.187)	0.040	0.107
35	2.92	1.00	0.148	(0.187)	0.040	0.107
36	3.00	1.00	0.148	(0.187)	0.040	0.107
37	3.08	1.00	0.148	(0.187)	0.040	0.107
38	3.17	1.10	0.162	(0.187)	0.044	0.118

```
39   3.25     1.10      0.162       (  0.187)       0.044        0.118
40   3.33     1.10      0.162       (  0.187)       0.044        0.118
41   3.42     1.20      0.177       (  0.187)       0.048        0.129
42   3.50     1.30      0.192       (  0.187)       0.052        0.140
43   3.58     1.40      0.207       (  0.187)       0.056        0.150
44   3.67     1.40      0.207       (  0.187)       0.056        0.150
45   3.75     1.50      0.221       (  0.187)       0.060        0.161
46   3.83     1.50      0.221       (  0.187)       0.060        0.161
47   3.92     1.60      0.236       (  0.187)       0.064        0.172
48   4.00     1.60      0.236       (  0.187)       0.064        0.172
49   4.08     1.70      0.251       (  0.187)       0.068        0.183
50   4.17     1.80      0.266       (  0.187)       0.072        0.193
51   4.25     1.90      0.280       (  0.187)       0.076        0.204
52   4.33     2.00      0.295       (  0.187)       0.080        0.215
53   4.42     2.10      0.310       (  0.187)       0.084        0.226
54   4.50     2.10      0.310       (  0.187)       0.084        0.226
55   4.58     2.20      0.325       (  0.187)       0.088        0.236
56   4.67     2.30      0.339       (  0.187)       0.092        0.247
57   4.75     2.40      0.354       (  0.187)       0.096        0.258
58   4.83     2.40      0.354       (  0.187)       0.096        0.258
59   4.92     2.50      0.369       (  0.187)       0.100        0.269
60   5.00     2.60      0.384       (  0.187)       0.104        0.279
61   5.08     3.10      0.458       (  0.187)       0.124        0.333
62   5.17     3.60      0.531       (  0.187)       0.145        0.387
63   5.25     3.90      0.576       (  0.187)       0.157        0.419
64   5.33     4.20      0.620       (  0.187)       0.169        0.451
65   5.42     4.70      0.694          0.187    (  0.189)       0.507
66   5.50     5.60      0.827          0.187    (  0.225)       0.640
67   5.58     1.90      0.280       (  0.187)       0.076        0.204
68   5.67     0.90      0.133       (  0.187)       0.036        0.097
69   5.75     0.60      0.089       (  0.187)       0.024        0.064
70   5.83     0.50      0.074       (  0.187)       0.020        0.054
71   5.92     0.30      0.044       (  0.187)       0.012        0.032
72   6.00     0.20      0.030       (  0.187)       0.008        0.021
             (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    10.8
      Flood volume = Effective rainfall      0.90(In)
       times area       5.2(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
      Total soil loss =      0.33(In)
      Total soil loss =     0.144(Ac.Ft)
      Total rainfall =      1.23(In)
      Flood volume =       17063.4 Cubic Feet
      Total soil loss =        6287.6 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      3.242(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-------------------------------------------------------------------------
  0+ 5       0.0016      0.23  Q         |         |         |         |
  0+10       0.0038      0.33  VQ        |         |         |         |
  0+15       0.0062      0.34  VQ        |         |         |         |
  0+20       0.0085      0.34  VQ        |         |         |         |
  0+25       0.0109      0.34  |Q        |         |         |         |
  0+30       0.0135      0.39  |Q        |         |         |         |
  0+35       0.0163      0.40  |Q        |         |         |         |
  0+40       0.0190      0.40  |Q        |         |         |         |
  0+45       0.0217      0.40  |QV       |         |         |         |
  0+50       0.0245      0.40  |QV       |         |         |         |
  0+55       0.0272      0.40  |QV       |         |         |         |
  1+ 0       0.0302      0.44  |Q V      |         |         |         |
  1+ 5       0.0334      0.45  |Q V      |         |         |         |
  1+10       0.0365      0.45  |Q V      |         |         |         |
  1+15       0.0396      0.45  |Q  V     |         |         |         |
```

```
    1+20       0.0427      0.45  |Q  V     |          |          |          |
    1+25       0.0458      0.45  |Q  V     |          |          |          |
    1+30       0.0490      0.45  |Q   V    |          |          |          |
    1+35       0.0521      0.45  |Q   V    |          |          |          |
    1+40       0.0552      0.45  |Q   V    |          |          |          |
    1+45       0.0583      0.45  |Q   V    |          |          |          |
    1+50       0.0615      0.45  |Q    V   |          |          |          |
    1+55       0.0646      0.45  |Q    V   |          |          |          |
    2+ 0       0.0680      0.50  |Q    V   |          |          |          |
    2+ 5       0.0712      0.46  |Q     V  |          |          |          |
    2+10       0.0747      0.50  |Q     V  |          |          |          |
    2+15       0.0782      0.51  | Q    V  |          |          |          |
    2+20       0.0817      0.51  | Q     V |          |          |          |
    2+25       0.0852      0.51  | Q     V |          |          |          |
    2+30       0.0887      0.51  | Q      V|          |          |          |
    2+35       0.0922      0.51  | Q      V|          |          |          |
    2+40       0.0957      0.51  | Q      V|          |          |          |
    2+45       0.0996      0.56  | Q       V          |          |          |
    2+50       0.1035      0.57  | Q       V          |          |          |
    2+55       0.1074      0.57  | Q       V          |          |          |
    3+ 0       0.1113      0.57  | Q       |V         |          |          |
    3+ 5       0.1152      0.57  | Q       |V         |          |          |
    3+10       0.1194      0.61  | Q       | V        |          |          |
    3+15       0.1237      0.62  | Q       | V        |          |          |
    3+20       0.1280      0.62  | Q       |  V       |          |          |
    3+25       0.1326      0.67  | Q       |  V       |          |          |
    3+30       0.1376      0.73  | Q       |   V      |          |          |
    3+35       0.1430      0.78  |  Q      |   V      |          |          |
    3+40       0.1484      0.79  |  Q      |    V     |          |          |
    3+45       0.1542      0.84  |  Q      |    V     |          |          |
    3+50       0.1601      0.85  |  Q      |     V    |          |          |
    3+55       0.1662      0.90  |  Q      |     V    |          |          |
    4+ 0       0.1725      0.91  |  Q      |      V   |          |          |
    4+ 5       0.1790      0.95  |  Q      |       V  |          |          |
    4+10       0.1860      1.01  |   Q     |       V  |          |          |
    4+15       0.1933      1.07  |   Q     |        V |          |          |
    4+20       0.2011      1.12  |   Q     |         V|          |          |
    4+25       0.2092      1.18  |   Q     |          |V         |          |
    4+30       0.2174      1.19  |   Q     |          | V        |          |
    4+35       0.2259      1.24  |   Q     |          |  V       |          |
    4+40       0.2348      1.29  |    Q    |          |  V       |          |
    4+45       0.2441      1.35  |    Q    |          |   V      |          |
    4+50       0.2534      1.36  |    Q    |          |    V     |          |
    4+55       0.2631      1.41  |    Q    |          |     V    |          |
    5+ 0       0.2732      1.46  |    Q    |          |      V   |          |
    5+ 5       0.2849      1.70  |     Q   |          |       V  |          |
    5+10       0.2986      1.99  |      Q  |          |        V |          |
    5+15       0.3136      2.18  |       Q |          |          | V        |
    5+20       0.3298      2.35  |        Q|          |          |  V       |
    5+25       0.3478      2.62  |         Q          |          |    V     |
    5+30       0.3701      3.24  |          | Q       |          |      V   |
    5+35       0.3806      1.51  |     Q    |         |          |       V  |
    5+40       0.3848      0.62  | Q        |         |          |        V |
    5+45       0.3874      0.37  |Q         |         |          |        V |
    5+50       0.3894      0.29  |Q         |         |          |        V |
    5+55       0.3907      0.19  Q          |         |          |        V |
    6+ 0       0.3916      0.12  Q          |         |          |        V |
    6+ 5       0.3917      0.02  Q          |         |          |         V
---------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP2YR24HR242.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 24-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	2.25	11.77

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	5.94	31.07

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 5.940(In)

Point rain (area averaged) = 2.250(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.250(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	43.5	0.636	0.785	0.187	1.000	0.187
					Sum (F) =	0.187

Area averaged mean soil loss (F) (In/Hr) = 0.127
Minimum soil loss rate ((In/Hr)) = 0.063
(for 24 hour storm duration)
Note: User entry of the f value
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
			Sum = 100.000	Sum= 5.271

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.018	(0.225)	0.005	0.013
2	0.17	0.07	0.018	(0.224)	0.005	0.013
3	0.25	0.07	0.018	(0.223)	0.005	0.013
4	0.33	0.10	0.027	(0.222)	0.007	0.020
5	0.42	0.10	0.027	(0.221)	0.007	0.020
6	0.50	0.10	0.027	(0.221)	0.007	0.020
7	0.58	0.10	0.027	(0.220)	0.007	0.020
8	0.67	0.10	0.027	(0.219)	0.007	0.020
9	0.75	0.10	0.027	(0.218)	0.007	0.020
10	0.83	0.13	0.036	(0.217)	0.010	0.026
11	0.92	0.13	0.036	(0.216)	0.010	0.026
12	1.00	0.13	0.036	(0.215)	0.010	0.026
13	1.08	0.10	0.027	(0.215)	0.007	0.020
14	1.17	0.10	0.027	(0.214)	0.007	0.020
15	1.25	0.10	0.027	(0.213)	0.007	0.020
16	1.33	0.10	0.027	(0.212)	0.007	0.020
17	1.42	0.10	0.027	(0.211)	0.007	0.020
18	1.50	0.10	0.027	(0.210)	0.007	0.020
19	1.58	0.10	0.027	(0.209)	0.007	0.020
20	1.67	0.10	0.027	(0.209)	0.007	0.020
21	1.75	0.10	0.027	(0.208)	0.007	0.020
22	1.83	0.13	0.036	(0.207)	0.010	0.026
23	1.92	0.13	0.036	(0.206)	0.010	0.026
24	2.00	0.13	0.036	(0.205)	0.010	0.026
25	2.08	0.13	0.036	(0.204)	0.010	0.026
26	2.17	0.13	0.036	(0.204)	0.010	0.026
27	2.25	0.13	0.036	(0.203)	0.010	0.026
28	2.33	0.13	0.036	(0.202)	0.010	0.026
29	2.42	0.13	0.036	(0.201)	0.010	0.026
30	2.50	0.13	0.036	(0.200)	0.010	0.026
31	2.58	0.17	0.045	(0.200)	0.012	0.033
32	2.67	0.17	0.045	(0.199)	0.012	0.033
33	2.75	0.17	0.045	(0.198)	0.012	0.033
34	2.83	0.17	0.045	(0.197)	0.012	0.033
35	2.92	0.17	0.045	(0.196)	0.012	0.033
36	3.00	0.17	0.045	(0.195)	0.012	0.033
37	3.08	0.17	0.045	(0.195)	0.012	0.033
38	3.17	0.17	0.045	(0.194)	0.012	0.033
39	3.25	0.17	0.045	(0.193)	0.012	0.033

40	3.33	0.17	0.045	(0.192)	0.012	0.033
41	3.42	0.17	0.045	(0.191)	0.012	0.033
42	3.50	0.17	0.045	(0.191)	0.012	0.033
43	3.58	0.17	0.045	(0.190)	0.012	0.033
44	3.67	0.17	0.045	(0.189)	0.012	0.033
45	3.75	0.17	0.045	(0.188)	0.012	0.033
46	3.83	0.20	0.054	(0.187)	0.015	0.039
47	3.92	0.20	0.054	(0.187)	0.015	0.039
48	4.00	0.20	0.054	(0.186)	0.015	0.039
49	4.08	0.20	0.054	(0.185)	0.015	0.039
50	4.17	0.20	0.054	(0.184)	0.015	0.039
51	4.25	0.20	0.054	(0.183)	0.015	0.039
52	4.33	0.23	0.063	(0.183)	0.017	0.046
53	4.42	0.23	0.063	(0.182)	0.017	0.046
54	4.50	0.23	0.063	(0.181)	0.017	0.046
55	4.58	0.23	0.063	(0.180)	0.017	0.046
56	4.67	0.23	0.063	(0.180)	0.017	0.046
57	4.75	0.23	0.063	(0.179)	0.017	0.046
58	4.83	0.27	0.072	(0.178)	0.020	0.052
59	4.92	0.27	0.072	(0.177)	0.020	0.052
60	5.00	0.27	0.072	(0.177)	0.020	0.052
61	5.08	0.20	0.054	(0.176)	0.015	0.039
62	5.17	0.20	0.054	(0.175)	0.015	0.039
63	5.25	0.20	0.054	(0.174)	0.015	0.039
64	5.33	0.23	0.063	(0.173)	0.017	0.046
65	5.42	0.23	0.063	(0.173)	0.017	0.046
66	5.50	0.23	0.063	(0.172)	0.017	0.046
67	5.58	0.27	0.072	(0.171)	0.020	0.052
68	5.67	0.27	0.072	(0.170)	0.020	0.052
69	5.75	0.27	0.072	(0.170)	0.020	0.052
70	5.83	0.27	0.072	(0.169)	0.020	0.052
71	5.92	0.27	0.072	(0.168)	0.020	0.052
72	6.00	0.27	0.072	(0.167)	0.020	0.052
73	6.08	0.30	0.081	(0.167)	0.022	0.059
74	6.17	0.30	0.081	(0.166)	0.022	0.059
75	6.25	0.30	0.081	(0.165)	0.022	0.059
76	6.33	0.30	0.081	(0.164)	0.022	0.059
77	6.42	0.30	0.081	(0.164)	0.022	0.059
78	6.50	0.30	0.081	(0.163)	0.022	0.059
79	6.58	0.33	0.090	(0.162)	0.024	0.066
80	6.67	0.33	0.090	(0.162)	0.024	0.066
81	6.75	0.33	0.090	(0.161)	0.024	0.066
82	6.83	0.33	0.090	(0.160)	0.024	0.066
83	6.92	0.33	0.090	(0.159)	0.024	0.066
84	7.00	0.33	0.090	(0.159)	0.024	0.066
85	7.08	0.33	0.090	(0.158)	0.024	0.066
86	7.17	0.33	0.090	(0.157)	0.024	0.066
87	7.25	0.33	0.090	(0.156)	0.024	0.066
88	7.33	0.37	0.099	(0.156)	0.027	0.072
89	7.42	0.37	0.099	(0.155)	0.027	0.072
90	7.50	0.37	0.099	(0.154)	0.027	0.072
91	7.58	0.40	0.108	(0.154)	0.029	0.079
92	7.67	0.40	0.108	(0.153)	0.029	0.079
93	7.75	0.40	0.108	(0.152)	0.029	0.079
94	7.83	0.43	0.117	(0.152)	0.032	0.085
95	7.92	0.43	0.117	(0.151)	0.032	0.085
96	8.00	0.43	0.117	(0.150)	0.032	0.085
97	8.08	0.50	0.135	(0.149)	0.037	0.098
98	8.17	0.50	0.135	(0.149)	0.037	0.098
99	8.25	0.50	0.135	(0.148)	0.037	0.098
100	8.33	0.50	0.135	(0.147)	0.037	0.098
101	8.42	0.50	0.135	(0.147)	0.037	0.098
102	8.50	0.50	0.135	(0.146)	0.037	0.098
103	8.58	0.53	0.144	(0.145)	0.039	0.105
104	8.67	0.53	0.144	(0.145)	0.039	0.105
105	8.75	0.53	0.144	(0.144)	0.039	0.105
106	8.83	0.57	0.153	(0.143)	0.042	0.111
107	8.92	0.57	0.153	(0.143)	0.042	0.111
108	9.00	0.57	0.153	(0.142)	0.042	0.111
109	9.08	0.63	0.171	(0.141)	0.047	0.124
110	9.17	0.63	0.171	(0.141)	0.047	0.124

111	9.25	0.63	0.171	(0.140)	0.047	0.124
112	9.33	0.67	0.180	(0.139)	0.049	0.131
113	9.42	0.67	0.180	(0.139)	0.049	0.131
114	9.50	0.67	0.180	(0.138)	0.049	0.131
115	9.58	0.70	0.189	(0.137)	0.051	0.138
116	9.67	0.70	0.189	(0.137)	0.051	0.138
117	9.75	0.70	0.189	(0.136)	0.051	0.138
118	9.83	0.73	0.198	(0.135)	0.054	0.144
119	9.92	0.73	0.198	(0.135)	0.054	0.144
120	10.00	0.73	0.198	(0.134)	0.054	0.144
121	10.08	0.50	0.135	(0.133)	0.037	0.098
122	10.17	0.50	0.135	(0.133)	0.037	0.098
123	10.25	0.50	0.135	(0.132)	0.037	0.098
124	10.33	0.50	0.135	(0.131)	0.037	0.098
125	10.42	0.50	0.135	(0.131)	0.037	0.098
126	10.50	0.50	0.135	(0.130)	0.037	0.098
127	10.58	0.67	0.180	(0.129)	0.049	0.131
128	10.67	0.67	0.180	(0.129)	0.049	0.131
129	10.75	0.67	0.180	(0.128)	0.049	0.131
130	10.83	0.67	0.180	(0.128)	0.049	0.131
131	10.92	0.67	0.180	(0.127)	0.049	0.131
132	11.00	0.67	0.180	(0.126)	0.049	0.131
133	11.08	0.63	0.171	(0.126)	0.047	0.124
134	11.17	0.63	0.171	(0.125)	0.047	0.124
135	11.25	0.63	0.171	(0.124)	0.047	0.124
136	11.33	0.63	0.171	(0.124)	0.047	0.124
137	11.42	0.63	0.171	(0.123)	0.047	0.124
138	11.50	0.63	0.171	(0.123)	0.047	0.124
139	11.58	0.57	0.153	(0.122)	0.042	0.111
140	11.67	0.57	0.153	(0.121)	0.042	0.111
141	11.75	0.57	0.153	(0.121)	0.042	0.111
142	11.83	0.60	0.162	(0.120)	0.044	0.118
143	11.92	0.60	0.162	(0.120)	0.044	0.118
144	12.00	0.60	0.162	(0.119)	0.044	0.118
145	12.08	0.83	0.225	(0.118)	0.061	0.164
146	12.17	0.83	0.225	(0.118)	0.061	0.164
147	12.25	0.83	0.225	(0.117)	0.061	0.164
148	12.33	0.87	0.234	(0.117)	0.064	0.170
149	12.42	0.87	0.234	(0.116)	0.064	0.170
150	12.50	0.87	0.234	(0.115)	0.064	0.170
151	12.58	0.93	0.252	(0.115)	0.069	0.183
152	12.67	0.93	0.252	(0.114)	0.069	0.183
153	12.75	0.93	0.252	(0.114)	0.069	0.183
154	12.83	0.97	0.261	(0.113)	0.071	0.190
155	12.92	0.97	0.261	(0.113)	0.071	0.190
156	13.00	0.97	0.261	(0.112)	0.071	0.190
157	13.08	1.13	0.306	(0.111)	0.083	0.223
158	13.17	1.13	0.306	(0.111)	0.083	0.223
159	13.25	1.13	0.306	(0.110)	0.083	0.223
160	13.33	1.13	0.306	(0.110)	0.083	0.223
161	13.42	1.13	0.306	(0.109)	0.083	0.223
162	13.50	1.13	0.306	(0.109)	0.083	0.223
163	13.58	0.77	0.207	(0.108)	0.056	0.151
164	13.67	0.77	0.207	(0.108)	0.056	0.151
165	13.75	0.77	0.207	(0.107)	0.056	0.151
166	13.83	0.77	0.207	(0.106)	0.056	0.151
167	13.92	0.77	0.207	(0.106)	0.056	0.151
168	14.00	0.77	0.207	(0.105)	0.056	0.151
169	14.08	0.90	0.243	(0.105)	0.066	0.177
170	14.17	0.90	0.243	(0.104)	0.066	0.177
171	14.25	0.90	0.243	(0.104)	0.066	0.177
172	14.33	0.87	0.234	(0.103)	0.064	0.170
173	14.42	0.87	0.234	(0.103)	0.064	0.170
174	14.50	0.87	0.234	(0.102)	0.064	0.170
175	14.58	0.87	0.234	(0.102)	0.064	0.170
176	14.67	0.87	0.234	(0.101)	0.064	0.170
177	14.75	0.87	0.234	(0.101)	0.064	0.170
178	14.83	0.83	0.225	(0.100)	0.061	0.164
179	14.92	0.83	0.225	(0.100)	0.061	0.164
180	15.00	0.83	0.225	(0.099)	0.061	0.164
181	15.08	0.80	0.216	(0.099)	0.059	0.157

182	15.17	0.80	0.216	(0.098)	0.059	0.157
183	15.25	0.80	0.216	(0.098)	0.059	0.157
184	15.33	0.77	0.207	(0.097)	0.056	0.151
185	15.42	0.77	0.207	(0.097)	0.056	0.151
186	15.50	0.77	0.207	(0.096)	0.056	0.151
187	15.58	0.63	0.171	(0.096)	0.047	0.124
188	15.67	0.63	0.171	(0.095)	0.047	0.124
189	15.75	0.63	0.171	(0.095)	0.047	0.124
190	15.83	0.63	0.171	(0.094)	0.047	0.124
191	15.92	0.63	0.171	(0.094)	0.047	0.124
192	16.00	0.63	0.171	(0.093)	0.047	0.124
193	16.08	0.13	0.036	(0.093)	0.010	0.026
194	16.17	0.13	0.036	(0.092)	0.010	0.026
195	16.25	0.13	0.036	(0.092)	0.010	0.026
196	16.33	0.13	0.036	(0.091)	0.010	0.026
197	16.42	0.13	0.036	(0.091)	0.010	0.026
198	16.50	0.13	0.036	(0.090)	0.010	0.026
199	16.58	0.10	0.027	(0.090)	0.007	0.020
200	16.67	0.10	0.027	(0.089)	0.007	0.020
201	16.75	0.10	0.027	(0.089)	0.007	0.020
202	16.83	0.10	0.027	(0.089)	0.007	0.020
203	16.92	0.10	0.027	(0.088)	0.007	0.020
204	17.00	0.10	0.027	(0.088)	0.007	0.020
205	17.08	0.17	0.045	(0.087)	0.012	0.033
206	17.17	0.17	0.045	(0.087)	0.012	0.033
207	17.25	0.17	0.045	(0.086)	0.012	0.033
208	17.33	0.17	0.045	(0.086)	0.012	0.033
209	17.42	0.17	0.045	(0.085)	0.012	0.033
210	17.50	0.17	0.045	(0.085)	0.012	0.033
211	17.58	0.17	0.045	(0.085)	0.012	0.033
212	17.67	0.17	0.045	(0.084)	0.012	0.033
213	17.75	0.17	0.045	(0.084)	0.012	0.033
214	17.83	0.13	0.036	(0.083)	0.010	0.026
215	17.92	0.13	0.036	(0.083)	0.010	0.026
216	18.00	0.13	0.036	(0.083)	0.010	0.026
217	18.08	0.13	0.036	(0.082)	0.010	0.026
218	18.17	0.13	0.036	(0.082)	0.010	0.026
219	18.25	0.13	0.036	(0.081)	0.010	0.026
220	18.33	0.13	0.036	(0.081)	0.010	0.026
221	18.42	0.13	0.036	(0.081)	0.010	0.026
222	18.50	0.13	0.036	(0.080)	0.010	0.026
223	18.58	0.10	0.027	(0.080)	0.007	0.020
224	18.67	0.10	0.027	(0.079)	0.007	0.020
225	18.75	0.10	0.027	(0.079)	0.007	0.020
226	18.83	0.07	0.018	(0.079)	0.005	0.013
227	18.92	0.07	0.018	(0.078)	0.005	0.013
228	19.00	0.07	0.018	(0.078)	0.005	0.013
229	19.08	0.10	0.027	(0.077)	0.007	0.020
230	19.17	0.10	0.027	(0.077)	0.007	0.020
231	19.25	0.10	0.027	(0.077)	0.007	0.020
232	19.33	0.13	0.036	(0.076)	0.010	0.026
233	19.42	0.13	0.036	(0.076)	0.010	0.026
234	19.50	0.13	0.036	(0.076)	0.010	0.026
235	19.58	0.10	0.027	(0.075)	0.007	0.020
236	19.67	0.10	0.027	(0.075)	0.007	0.020
237	19.75	0.10	0.027	(0.075)	0.007	0.020
238	19.83	0.07	0.018	(0.074)	0.005	0.013
239	19.92	0.07	0.018	(0.074)	0.005	0.013
240	20.00	0.07	0.018	(0.074)	0.005	0.013
241	20.08	0.10	0.027	(0.073)	0.007	0.020
242	20.17	0.10	0.027	(0.073)	0.007	0.020
243	20.25	0.10	0.027	(0.073)	0.007	0.020
244	20.33	0.10	0.027	(0.072)	0.007	0.020
245	20.42	0.10	0.027	(0.072)	0.007	0.020
246	20.50	0.10	0.027	(0.072)	0.007	0.020
247	20.58	0.10	0.027	(0.071)	0.007	0.020
248	20.67	0.10	0.027	(0.071)	0.007	0.020
249	20.75	0.10	0.027	(0.071)	0.007	0.020
250	20.83	0.07	0.018	(0.071)	0.005	0.013
251	20.92	0.07	0.018	(0.070)	0.005	0.013
252	21.00	0.07	0.018	(0.070)	0.005	0.013

```
253  21.08     0.10      0.027       (  0.070)       0.007        0.020
254  21.17     0.10      0.027       (  0.069)       0.007        0.020
255  21.25     0.10      0.027       (  0.069)       0.007        0.020
256  21.33     0.07      0.018       (  0.069)       0.005        0.013
257  21.42     0.07      0.018       (  0.069)       0.005        0.013
258  21.50     0.07      0.018       (  0.068)       0.005        0.013
259  21.58     0.10      0.027       (  0.068)       0.007        0.020
260  21.67     0.10      0.027       (  0.068)       0.007        0.020
261  21.75     0.10      0.027       (  0.068)       0.007        0.020
262  21.83     0.07      0.018       (  0.067)       0.005        0.013
263  21.92     0.07      0.018       (  0.067)       0.005        0.013
264  22.00     0.07      0.018       (  0.067)       0.005        0.013
265  22.08     0.10      0.027       (  0.067)       0.007        0.020
266  22.17     0.10      0.027       (  0.067)       0.007        0.020
267  22.25     0.10      0.027       (  0.066)       0.007        0.020
268  22.33     0.07      0.018       (  0.066)       0.005        0.013
269  22.42     0.07      0.018       (  0.066)       0.005        0.013
270  22.50     0.07      0.018       (  0.066)       0.005        0.013
271  22.58     0.07      0.018       (  0.066)       0.005        0.013
272  22.67     0.07      0.018       (  0.065)       0.005        0.013
273  22.75     0.07      0.018       (  0.065)       0.005        0.013
274  22.83     0.07      0.018       (  0.065)       0.005        0.013
275  22.92     0.07      0.018       (  0.065)       0.005        0.013
276  23.00     0.07      0.018       (  0.065)       0.005        0.013
277  23.08     0.07      0.018       (  0.065)       0.005        0.013
278  23.17     0.07      0.018       (  0.064)       0.005        0.013
279  23.25     0.07      0.018       (  0.064)       0.005        0.013
280  23.33     0.07      0.018       (  0.064)       0.005        0.013
281  23.42     0.07      0.018       (  0.064)       0.005        0.013
282  23.50     0.07      0.018       (  0.064)       0.005        0.013
283  23.58     0.07      0.018       (  0.064)       0.005        0.013
284  23.67     0.07      0.018       (  0.064)       0.005        0.013
285  23.75     0.07      0.018       (  0.064)       0.005        0.013
286  23.83     0.07      0.018       (  0.064)       0.005        0.013
287  23.92     0.07      0.018       (  0.063)       0.005        0.013
288  24.00     0.07      0.018       (  0.063)       0.005        0.013
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    19.7
      Flood volume = Effective rainfall      1.64(In)
       times area       5.2(Ac.)/[(In)/(Ft.)] =       0.7(Ac.Ft)
      Total soil loss =      0.61(In)
      Total soil loss =     0.267(Ac.Ft)
      Total rainfall =      2.25(In)
      Flood volume =       31096.9 Cubic Feet
      Total soil loss =       11618.6 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      1.175(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       0.0004      0.06  Q         |         |         |         |
   0+10       0.0009      0.07  Q         |         |         |         |
   0+15       0.0013      0.07  Q         |         |         |         |
   0+20       0.0020      0.10  Q         |         |         |         |
   0+25       0.0027      0.10  Q         |         |         |         |
   0+30       0.0034      0.10  Q         |         |         |         |
   0+35       0.0041      0.10  Q         |         |         |         |
   0+40       0.0049      0.10  Q         |         |         |         |
   0+45       0.0056      0.10  Q         |         |         |         |
   0+50       0.0065      0.13  Q         |         |         |         |
   0+55       0.0074      0.14  Q         |         |         |         |
   1+ 0       0.0084      0.14  Q         |         |         |         |
   1+ 5       0.0091      0.11  Q         |         |         |         |
   1+10       0.0099      0.10  Q         |         |         |         |
```

1+15	0.0106	0.10	Q	|	|	|	|
1+20	0.0113	0.10	Q	|	|	|	|
1+25	0.0120	0.10	Q	|	|	|	|
1+30	0.0127	0.10	Q	|	|	|	|
1+35	0.0134	0.10	Q	|	|	|	|
1+40	0.0141	0.10	Q	|	|	|	|
1+45	0.0149	0.10	Q	|	|	|	|
1+50	0.0158	0.13	Q	|	|	|	|
1+55	0.0167	0.14	Q	|	|	|	|
2+ 0	0.0177	0.14	Q	|	|	|	|
2+ 5	0.0186	0.14	QV	|	|	|	|
2+10	0.0196	0.14	QV	|	|	|	|
2+15	0.0205	0.14	QV	|	|	|	|
2+20	0.0215	0.14	QV	|	|	|	|
2+25	0.0224	0.14	QV	|	|	|	|
2+30	0.0234	0.14	QV	|	|	|	|
2+35	0.0245	0.17	QV	|	|	|	|
2+40	0.0257	0.17	QV	|	|	|	|
2+45	0.0269	0.17	QV	|	|	|	|
2+50	0.0281	0.17	QV	|	|	|	|
2+55	0.0293	0.17	QV	|	|	|	|
3+ 0	0.0305	0.17	QV	|	|	|	|
3+ 5	0.0317	0.17	QV	|	|	|	|
3+10	0.0329	0.17	QV	|	|	|	|
3+15	0.0340	0.17	QV	|	|	|	|
3+20	0.0352	0.17	QV	|	|	|	|
3+25	0.0364	0.17	Q V	|	|	|	|
3+30	0.0376	0.17	Q V	|	|	|	|
3+35	0.0388	0.17	Q V	|	|	|	|
3+40	0.0400	0.17	Q V	|	|	|	|
3+45	0.0412	0.17	Q V	|	|	|	|
3+50	0.0426	0.20	Q V	|	|	|	|
3+55	0.0440	0.21	Q V	|	|	|	|
4+ 0	0.0454	0.21	Q V	|	|	|	|
4+ 5	0.0468	0.21	Q V	|	|	|	|
4+10	0.0483	0.21	Q V	|	|	|	|
4+15	0.0497	0.21	Q V	|	|	|	|
4+20	0.0513	0.24	Q V	|	|	|	|
4+25	0.0530	0.24	Q V	|	|	|	|
4+30	0.0547	0.24	Q V	|	|	|	|
4+35	0.0563	0.24	Q V	|	|	|	|
4+40	0.0580	0.24	Q V	|	|	|	|
4+45	0.0596	0.24	Q V	|	|	|	|
4+50	0.0615	0.27	|Q V	|	|	|	|
4+55	0.0634	0.28	|Q V	|	|	|	|
5+ 0	0.0653	0.28	|Q V	|	|	|	|
5+ 5	0.0668	0.22	Q V	|	|	|	|
5+10	0.0683	0.21	Q V	|	|	|	|
5+15	0.0697	0.21	Q V	|	|	|	|
5+20	0.0713	0.24	Q V	|	|	|	|
5+25	0.0730	0.24	Q V	|	|	|	|
5+30	0.0746	0.24	Q V	|	|	|	|
5+35	0.0765	0.27	|Q V	|	|	|	|
5+40	0.0784	0.28	|Q V	|	|	|	|
5+45	0.0803	0.28	|Q V	|	|	|	|
5+50	0.0822	0.28	|Q V	|	|	|	|
5+55	0.0841	0.28	|Q V	|	|	|	|
6+ 0	0.0860	0.28	|Q V	|	|	|	|
6+ 5	0.0881	0.30	|Q V	|	|	|	|
6+10	0.0903	0.31	|Q V	|	|	|	|
6+15	0.0924	0.31	|Q V	|	|	|	|
6+20	0.0945	0.31	|Q V	|	|	|	|
6+25	0.0967	0.31	|Q V	|	|	|	|
6+30	0.0988	0.31	|Q V	|	|	|	|
6+35	0.1012	0.34	|Q V	|	|	|	|
6+40	0.1035	0.35	|Q V	|	|	|	|
6+45	0.1059	0.35	|Q V	|	|	|	|
6+50	0.1083	0.35	|Q V	|	|	|	|
6+55	0.1107	0.35	|Q V	|	|	|	|
7+ 0	0.1131	0.35	|Q V	|	|	|	|
7+ 5	0.1154	0.35	|Q V	|	|	|	|

```
 7+10       0.1178      0.35  |Q    V   |          |          |          |
 7+15       0.1202      0.35  |Q    V   |          |          |          |
 7+20       0.1228      0.37  |Q    V   |          |          |          |
 7+25       0.1254      0.38  |Q     V  |          |          |          |
 7+30       0.1280      0.38  |Q     V  |          |          |          |
 7+35       0.1308      0.41  |Q     V  |          |          |          |
 7+40       0.1337      0.41  |Q     V  |          |          |          |
 7+45       0.1365      0.41  |Q     V  |          |          |          |
 7+50       0.1396      0.44  |Q     V  |          |          |          |
 7+55       0.1427      0.45  |Q     V  |          |          |          |
 8+ 0       0.1458      0.45  |Q      V |          |          |          |
 8+ 5       0.1492      0.51  | Q     V |          |          |          |
 8+10       0.1528      0.52  | Q     V |          |          |          |
 8+15       0.1564      0.52  | Q     V |          |          |          |
 8+20       0.1599      0.52  | Q     V |          |          |          |
 8+25       0.1635      0.52  | Q      V|          |          |          |
 8+30       0.1671      0.52  | Q      V|          |          |          |
 8+35       0.1708      0.55  | Q      V|          |          |          |
 8+40       0.1747      0.55  | Q      V|          |          |          |
 8+45       0.1785      0.55  | Q      V|          |          |          |
 8+50       0.1825      0.58  | Q       V          |          |          |
 8+55       0.1865      0.59  | Q       V          |          |          |
 9+ 0       0.1906      0.59  | Q       V          |          |          |
 9+ 5       0.1950      0.64  | Q       V          |          |          |
 9+10       0.1995      0.66  | Q       |V         |          |          |
 9+15       0.2040      0.66  | Q       |V         |          |          |
 9+20       0.2087      0.68  | Q       |V         |          |          |
 9+25       0.2135      0.69  | Q       |V         |          |          |
 9+30       0.2183      0.69  | Q       | V        |          |          |
 9+35       0.2232      0.72  | Q       | V        |          |          |
 9+40       0.2282      0.73  | Q       | V        |          |          |
 9+45       0.2332      0.73  | Q       |  V       |          |          |
 9+50       0.2384      0.75  |  Q      |  V       |          |          |
 9+55       0.2436      0.76  |  Q      |  V       |          |          |
10+ 0       0.2489      0.76  |  Q      |  V       |          |          |
10+ 5       0.2528      0.56  | Q       |   V      |          |          |
10+10       0.2563      0.52  | Q       |   V      |          |          |
10+15       0.2599      0.52  | Q       |   V      |          |          |
10+20       0.2635      0.52  | Q       |   V      |          |          |
10+25       0.2670      0.52  | Q       |   V      |          |          |
10+30       0.2706      0.52  | Q       |    V     |          |          |
10+35       0.2751      0.66  | Q       |    V     |          |          |
10+40       0.2799      0.69  | Q       |    V     |          |          |
10+45       0.2846      0.69  | Q       |    V     |          |          |
10+50       0.2894      0.69  | Q       |     V    |          |          |
10+55       0.2942      0.69  | Q       |     V    |          |          |
11+ 0       0.2989      0.69  | Q       |     V    |          |          |
11+ 5       0.3035      0.66  | Q       |      V   |          |          |
11+10       0.3080      0.66  | Q       |      V   |          |          |
11+15       0.3125      0.66  | Q       |      V   |          |          |
11+20       0.3171      0.66  | Q       |      V   |          |          |
11+25       0.3216      0.66  | Q       |       V  |          |          |
11+30       0.3261      0.66  | Q       |       V  |          |          |
11+35       0.3302      0.60  | Q       |       V  |          |          |
11+40       0.3343      0.59  | Q       |       V  |          |          |
11+45       0.3383      0.59  | Q       |       V  |          |          |
11+50       0.3426      0.62  | Q       |        V |          |          |
11+55       0.3468      0.62  | Q       |        V |          |          |
12+ 0       0.3511      0.62  | Q       |        V |          |          |
12+ 5       0.3568      0.82  |  Q      |        V |          |          |
12+10       0.3627      0.86  |  Q      |         V          |          |
12+15       0.3687      0.86  |  Q      |         V          |          |
12+20       0.3748      0.89  |  Q      |          |V        |          |
12+25       0.3810      0.90  |  Q      |          |V        |          |
12+30       0.3872      0.90  |  Q      |          |V        |          |
12+35       0.3938      0.95  |  Q      |          | V       |          |
12+40       0.4004      0.97  |  Q      |          | V       |          |
12+45       0.4071      0.97  |  Q      |          | V       |          |
12+50       0.4139      1.00  |  Q      |          |  V      |          |
12+55       0.4208      1.00  |   Q     |          |  V      |          |
13+ 0       0.4277      1.00  |   Q     |          |  V      |          |
```

```
13+ 5       0.4356      1.14  |   Q     |         |   V     |         |
13+10       0.4437      1.17  |   Q     |         |   V     |         |
13+15       0.4518      1.17  |   Q     |         |    V    |         |
13+20       0.4599      1.17  |   Q     |         |    V    |         |
13+25       0.4680      1.17  |   Q     |         |     V   |         |
13+30       0.4761      1.17  |   Q     |         |     V   |         |
13+35       0.4820      0.87  |  Q      |         |      V  |         |
13+40       0.4875      0.79  |  Q      |         |      V  |         |
13+45       0.4930      0.79  |  Q      |         |      V  |         |
13+50       0.4984      0.79  |  Q      |         |      V  |         |
13+55       0.5039      0.79  |  Q      |         |       V |         |
14+ 0       0.5094      0.79  |  Q      |         |       V |         |
14+ 5       0.5156      0.91  |  Q      |         |       V |         |
14+10       0.5221      0.93  |  Q      |         |        V|         |
14+15       0.5285      0.93  |  Q      |         |        V|         |
14+20       0.5347      0.90  |  Q      |         |        V|         |
14+25       0.5409      0.90  |  Q      |         |         V         |
14+30       0.5471      0.90  |  Q      |         |         V         |
14+35       0.5533      0.90  |  Q      |         |         |V        |
14+40       0.5595      0.90  |  Q      |         |         |V        |
14+45       0.5656      0.90  |  Q      |         |         |V        |
14+50       0.5716      0.87  |  Q      |         |         | V       |
14+55       0.5776      0.86  |  Q      |         |         | V       |
15+ 0       0.5835      0.86  |  Q      |         |         | V       |
15+ 5       0.5893      0.84  |  Q      |         |         |  V      |
15+10       0.5950      0.83  |  Q      |         |         |  V      |
15+15       0.6007      0.83  |  Q      |         |         |  V      |
15+20       0.6062      0.80  |  Q      |         |         |  V      |
15+25       0.6117      0.79  |  Q      |         |         |   V     |
15+30       0.6172      0.79  |  Q      |         |         |   V     |
15+35       0.6219      0.68  | Q       |         |         |   V     |
15+40       0.6264      0.66  | Q       |         |         |    V    |
15+45       0.6309      0.66  | Q       |         |         |    V    |
15+50       0.6355      0.66  | Q       |         |         |    V    |
15+55       0.6400      0.66  | Q       |         |         |    V    |
16+ 0       0.6445      0.66  | Q       |         |         |     V   |
16+ 5       0.6461      0.24  Q         |         |         |     V   |
16+10       0.6471      0.14  Q         |         |         |     V   |
16+15       0.6480      0.14  Q         |         |         |     V   |
16+20       0.6490      0.14  Q         |         |         |     V   |
16+25       0.6499      0.14  Q         |         |         |     V   |
16+30       0.6509      0.14  Q         |         |         |     V   |
16+35       0.6516      0.11  Q         |         |         |     V   |
16+40       0.6524      0.10  Q         |         |         |     V   |
16+45       0.6531      0.10  Q         |         |         |     V   |
16+50       0.6538      0.10  Q         |         |         |     V   |
16+55       0.6545      0.10  Q         |         |         |     V   |
17+ 0       0.6552      0.10  Q         |         |         |     V   |
17+ 5       0.6563      0.16  Q         |         |         |     V   |
17+10       0.6575      0.17  Q         |         |         |     V   |
17+15       0.6587      0.17  Q         |         |         |     V   |
17+20       0.6599      0.17  Q         |         |         |     V   |
17+25       0.6611      0.17  Q         |         |         |      V  |
17+30       0.6623      0.17  Q         |         |         |      V  |
17+35       0.6635      0.17  Q         |         |         |      V  |
17+40       0.6646      0.17  Q         |         |         |      V  |
17+45       0.6658      0.17  Q         |         |         |      V  |
17+50       0.6668      0.14  Q         |         |         |      V  |
17+55       0.6678      0.14  Q         |         |         |      V  |
18+ 0       0.6687      0.14  Q         |         |         |      V  |
18+ 5       0.6697      0.14  Q         |         |         |      V  |
18+10       0.6706      0.14  Q         |         |         |      V  |
18+15       0.6716      0.14  Q         |         |         |      V  |
18+20       0.6725      0.14  Q         |         |         |      V  |
18+25       0.6735      0.14  Q         |         |         |      V  |
18+30       0.6744      0.14  Q         |         |         |      V  |
18+35       0.6752      0.11  Q         |         |         |      V  |
18+40       0.6759      0.10  Q         |         |         |      V  |
18+45       0.6766      0.10  Q         |         |         |      V  |
18+50       0.6772      0.08  Q         |         |         |      V  |
18+55       0.6776      0.07  Q         |         |         |      V  |
```

19+ 0	0.6781	0.07	Q	|	|	|	V |
19+ 5	0.6788	0.10	Q	|	|	|	V |
19+10	0.6795	0.10	Q	|	|	|	V |
19+15	0.6802	0.10	Q	|	|	|	V |
19+20	0.6811	0.13	Q	|	|	|	V |
19+25	0.6821	0.14	Q	|	|	|	V |
19+30	0.6830	0.14	Q	|	|	|	V |
19+35	0.6838	0.11	Q	|	|	|	V |
19+40	0.6845	0.10	Q	|	|	|	V |
19+45	0.6852	0.10	Q	|	|	|	V |
19+50	0.6857	0.08	Q	|	|	|	V |
19+55	0.6862	0.07	Q	|	|	|	V |
20+ 0	0.6867	0.07	Q	|	|	|	V |
20+ 5	0.6873	0.10	Q	|	|	|	V |
20+10	0.6881	0.10	Q	|	|	|	V |
20+15	0.6888	0.10	Q	|	|	|	V |
20+20	0.6895	0.10	Q	|	|	|	V |
20+25	0.6902	0.10	Q	|	|	|	V |
20+30	0.6909	0.10	Q	|	|	|	V |
20+35	0.6916	0.10	Q	|	|	|	V |
20+40	0.6923	0.10	Q	|	|	|	V |
20+45	0.6930	0.10	Q	|	|	|	V |
20+50	0.6936	0.08	Q	|	|	|	V |
20+55	0.6940	0.07	Q	|	|	|	V |
21+ 0	0.6945	0.07	Q	|	|	|	V |
21+ 5	0.6952	0.10	Q	|	|	|	V |
21+10	0.6959	0.10	Q	|	|	|	V |
21+15	0.6966	0.10	Q	|	|	|	V|
21+20	0.6971	0.08	Q	|	|	|	V|
21+25	0.6976	0.07	Q	|	|	|	V|
21+30	0.6981	0.07	Q	|	|	|	V|
21+35	0.6988	0.10	Q	|	|	|	V|
21+40	0.6995	0.10	Q	|	|	|	V|
21+45	0.7002	0.10	Q	|	|	|	V|
21+50	0.7007	0.08	Q	|	|	|	V|
21+55	0.7012	0.07	Q	|	|	|	V|
22+ 0	0.7017	0.07	Q	|	|	|	V|
22+ 5	0.7023	0.10	Q	|	|	|	V|
22+10	0.7030	0.10	Q	|	|	|	V|
22+15	0.7038	0.10	Q	|	|	|	V|
22+20	0.7043	0.08	Q	|	|	|	V|
22+25	0.7048	0.07	Q	|	|	|	V|
22+30	0.7052	0.07	Q	|	|	|	V|
22+35	0.7057	0.07	Q	|	|	|	V|
22+40	0.7062	0.07	Q	|	|	|	V|
22+45	0.7067	0.07	Q	|	|	|	V|
22+50	0.7071	0.07	Q	|	|	|	V|
22+55	0.7076	0.07	Q	|	|	|	V|
23+ 0	0.7081	0.07	Q	|	|	|	V|
23+ 5	0.7086	0.07	Q	|	|	|	V|
23+10	0.7090	0.07	Q	|	|	|	V|
23+15	0.7095	0.07	Q	|	|	|	V|
23+20	0.7100	0.07	Q	|	|	|	V|
23+25	0.7105	0.07	Q	|	|	|	V|
23+30	0.7109	0.07	Q	|	|	|	V|
23+35	0.7114	0.07	Q	|	|	|	V|
23+40	0.7119	0.07	Q	|	|	|	V|
23+45	0.7124	0.07	Q	|	|	|	V|
23+50	0.7128	0.07	Q	|	|	|	V|
23+55	0.7133	0.07	Q	|	|	|	V|
24+ 0	0.7138	0.07	Q	|	|	|	V|
24+ 5	0.7139	0.01	Q	|	|	|	V|

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP10YR1HR110.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 1-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	0.49	2.58

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	1.40	7.32

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.494(In)
Area Averaged 100-Year Rainfall = 1.400(In)

Point rain (area averaged) = 0.867(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.867(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

```
 Total Area Entered =      5.23(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
63.5  63.5      0.432     0.785        0.127       1.000      0.127
                                                 Sum (F) =   0.127
Area averaged mean soil loss (F) (In/Hr) =  0.127
Minimum soil loss rate ((In/Hr)) =  0.063
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.272
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      DESERT S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        778.970         80.976             4.268
    2   0.167       1557.940         19.024             1.003
                              Sum = 100.000   Sum=       5.271
------------------------------------------------------------------------


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

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
      (Hr.)  Percent   (In/Hr)         Max   |   Low         (In/Hr)
  1   0.08     4.40      0.458       (  0.127)       0.124        0.333
  2   0.17     4.50      0.468          0.127    (  0.127)        0.341
  3   0.25     5.40      0.562          0.127    (  0.153)        0.435
  4   0.33     5.40      0.562          0.127    (  0.153)        0.435
  5   0.42     5.70      0.593          0.127    (  0.161)        0.466
  6   0.50     6.40      0.666          0.127    (  0.181)        0.539
  7   0.58     7.90      0.822          0.127    (  0.223)        0.695
  8   0.67     9.10      0.946          0.127    (  0.257)        0.820
  9   0.75    12.80      1.331          0.127    (  0.362)        1.204
 10   0.83    25.60      2.662          0.127    (  0.724)        2.536
 11   0.92     7.90      0.822          0.127    (  0.223)        0.695
 12   1.00     4.90      0.510          0.127    (  0.139)        0.383
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     8.9
      Flood volume = Effective rainfall      0.74(In)
       times area       5.2(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
      Total soil loss =      0.13(In)
      Total soil loss =     0.055(Ac.Ft)
      Total rainfall =      0.87(In)
      Flood volume =       14049.6 Cubic Feet
      Total soil loss =        2404.5 Cubic Feet
      ------------------------------------------------------------------
       Peak flow rate of this hydrograph =     12.036(CFS)
      ------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        1 - H O U R    S T O R M
                   R u n o f f     H y d r o g r a p h
      ------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

      ------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
 ------------------------------------------------------------------------
   0+ 5       0.0098      1.42  |VQ       |         |         |         |
   0+10       0.0221      1.79  | VQ      |         |         |         |
   0+15       0.0373      2.20  |   Q     |         |         |         |
```

```
    0+20       0.0531      2.29  |   Q V   |         |         |         |
    0+25       0.0698      2.43  |   Q   V |         |         |         |
    0+30       0.0888      2.77  |    Q    |V        |         |         |
    0+35       0.1130      3.51  |      Q  |   V     |         |         |
    0+40       0.1419      4.20  |       Q |      V  |         |         |
    0+45       0.1830      5.97  |         |Q        | V       |         |
    0+50       0.2659     12.04  |         |         |   Q     | V       |
    0+55       0.3038      5.51  |         |Q        |         |      V  |
    1+ 0       0.3199      2.33  |   Q     |         |         |        V|
    1+ 5       0.3225      0.38  Q         |         |         |        V|
-------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE2PROP10YR3HR310.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 3-HOUR STORM - PROPOSED CONDITION @ NODE 2
----------------------------------------------------------------------
Drainage Area =       5.23(Ac.)  =      0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       5.23(Ac.)  =      0.008 Sq. Mi.
Length along longest watercourse =     522.00(Ft.)
Length along longest watercourse measured to centroid =     300.00(Ft.)
Length along longest watercourse =      0.099 Mi.
Length along longest watercourse measured to centroid =      0.057 Mi.
Difference in elevation =       5.00(Ft.)
Slope along watercourse =     50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.26 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        5.23           0.87                 4.55

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        5.23           2.22                11.61

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    1.425(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.425(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     5.230           63.50         0.785
```

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	63.5	0.432	0.785	0.127	1.000	0.127
					Sum (F) =	0.127

Area averaged mean soil loss (F) (In/Hr) = 0.127
Minimum soil loss rate ((In/Hr)) = 0.063
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
		Sum = 100.000	Sum=	5.271

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.222	(0.127)	0.060	0.162
2	0.17	1.30	0.222	(0.127)	0.060	0.162
3	0.25	1.10	0.188	(0.127)	0.051	0.137
4	0.33	1.50	0.257	(0.127)	0.070	0.187
5	0.42	1.50	0.257	(0.127)	0.070	0.187
6	0.50	1.80	0.308	(0.127)	0.084	0.224
7	0.58	1.50	0.257	(0.127)	0.070	0.187
8	0.67	1.80	0.308	(0.127)	0.084	0.224
9	0.75	1.80	0.308	(0.127)	0.084	0.224
10	0.83	1.50	0.257	(0.127)	0.070	0.187
11	0.92	1.60	0.274	(0.127)	0.074	0.199
12	1.00	1.80	0.308	(0.127)	0.084	0.224
13	1.08	2.20	0.376	(0.127)	0.102	0.274
14	1.17	2.20	0.376	(0.127)	0.102	0.274
15	1.25	2.20	0.376	(0.127)	0.102	0.274
16	1.33	2.00	0.342	(0.127)	0.093	0.249
17	1.42	2.60	0.445	(0.127)	0.121	0.324
18	1.50	2.70	0.462	(0.127)	0.126	0.336
19	1.58	2.40	0.411	(0.127)	0.112	0.299
20	1.67	2.70	0.462	(0.127)	0.126	0.336
21	1.75	3.30	0.564	0.127	(0.154)	0.438
22	1.83	3.10	0.530	0.127	(0.144)	0.403
23	1.92	2.90	0.496	0.127	(0.135)	0.369
24	2.00	3.00	0.513	0.127	(0.140)	0.386
25	2.08	3.10	0.530	0.127	(0.144)	0.403
26	2.17	4.20	0.718	0.127	(0.195)	0.592
27	2.25	5.00	0.855	0.127	(0.233)	0.728
28	2.33	3.50	0.599	0.127	(0.163)	0.472
29	2.42	6.80	1.163	0.127	(0.316)	1.036
30	2.50	7.30	1.249	0.127	(0.340)	1.122
31	2.58	8.20	1.403	0.127	(0.381)	1.276
32	2.67	5.90	1.009	0.127	(0.274)	0.882
33	2.75	2.00	0.342	(0.127)	0.093	0.249
34	2.83	1.80	0.308	(0.127)	0.084	0.224
35	2.92	1.80	0.308	(0.127)	0.084	0.224
36	3.00	0.60	0.103	(0.127)	0.028	0.075
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	13.5

```
      Flood volume = Effective rainfall      1.13(In)
       times area       5.2(Ac.)/[(In)/(Ft.)] =       0.5(Ac.Ft)
      Total soil loss =      0.30(In)
      Total soil loss =     0.129(Ac.Ft)
      Total rainfall =      1.43(In)
      Flood volume =       21435.7 Cubic Feet
      Total soil loss =        5624.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      6.573(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------
   0+ 5       0.0048      0.69  V Q       |         |         |         |
   0+10       0.0106      0.85  V  Q      |         |         |         |
   0+15       0.0158      0.75  |VQ       |         |         |         |
   0+20       0.0222      0.94  |V Q      |         |         |         |
   0+25       0.0290      0.99  | VQ      |         |         |         |
   0+30       0.0369      1.14  | V Q     |         |         |         |
   0+35       0.0439      1.02  |  VQ     |         |         |         |
   0+40       0.0518      1.14  |   Q     |         |         |         |
   0+45       0.0600      1.18  |   Q     |         |         |         |
   0+50       0.0670      1.02  |   QV    |         |         |         |
   0+55       0.0741      1.04  |   Q V   |         |         |         |
   1+ 0       0.0821      1.16  |   Q V   |         |         |         |
   1+ 5       0.0917      1.39  |    Q V  |         |         |         |
   1+10       0.1017      1.44  |    Q  V |         |         |         |
   1+15       0.1116      1.44  |    Q   V|         |         |         |
   1+20       0.1208      1.34  |    Q   V|         |         |         |
   1+25       0.1321      1.63  |     Q   V         |         |         |
   1+30       0.1442      1.76  |      Q  |V        |         |         |
   1+35       0.1553      1.61  |     Q   | V       |         |         |
   1+40       0.1673      1.74  |     Q   |  V      |         |         |
   1+45       0.1825      2.21  |       Q |   V     |         |         |
   1+50       0.1974      2.16  |       Q |     V   |         |         |
   1+55       0.2110      1.98  |      Q  |      V  |         |         |
   2+ 0       0.2249      2.02  |       Q |       V |         |         |
   2+ 5       0.2394      2.11  |       Q |        V|         |         |
   2+10       0.2596      2.93  |         |Q        |V        |         |
   2+15       0.2851      3.70  |         |   Q     |  V      |         |
   2+20       0.3040      2.75  |         Q         |   V     |         |
   2+25       0.3378      4.90  |         |         Q|      V  |         |
   2+30       0.3779      5.83  |         |          |  Q      V         |
   2+35       0.4232      6.57  |         |          |     Q   |   V     |
   2+40       0.4580      5.05  |         |          Q         |      V  |
   2+45       0.4714      1.95  |      Q  |          |         |       V |
   2+50       0.4797      1.21  |   Q     |          |         |       V |
   2+55       0.4878      1.18  |   Q     |          |         |        V|
   3+ 0       0.4916      0.54  | Q       |          |         |        V|
   3+ 5       0.4921      0.07  Q         |          |         |        V|
----------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP10YR6HR610.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 6-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	1.23	6.43

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	3.06	16.00

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.230(In)
Area Averaged 100-Year Rainfall = 3.060(In)

Point rain (area averaged) = 1.983(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.983(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	63.5	0.432	0.785	0.127	1.000	0.127
					Sum (F) =	0.127

Area averaged mean soil loss (F) (In/Hr) = 0.127
Minimum soil loss rate ((In/Hr)) = 0.063
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
		Sum = 100.000	Sum=	5.271

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.119	(0.127)	0.032	0.087
2	0.17	0.60	0.143	(0.127)	0.039	0.104
3	0.25	0.60	0.143	(0.127)	0.039	0.104
4	0.33	0.60	0.143	(0.127)	0.039	0.104
5	0.42	0.60	0.143	(0.127)	0.039	0.104
6	0.50	0.70	0.167	(0.127)	0.045	0.121
7	0.58	0.70	0.167	(0.127)	0.045	0.121
8	0.67	0.70	0.167	(0.127)	0.045	0.121
9	0.75	0.70	0.167	(0.127)	0.045	0.121
10	0.83	0.70	0.167	(0.127)	0.045	0.121
11	0.92	0.70	0.167	(0.127)	0.045	0.121
12	1.00	0.80	0.190	(0.127)	0.052	0.139
13	1.08	0.80	0.190	(0.127)	0.052	0.139
14	1.17	0.80	0.190	(0.127)	0.052	0.139
15	1.25	0.80	0.190	(0.127)	0.052	0.139
16	1.33	0.80	0.190	(0.127)	0.052	0.139
17	1.42	0.80	0.190	(0.127)	0.052	0.139
18	1.50	0.80	0.190	(0.127)	0.052	0.139
19	1.58	0.80	0.190	(0.127)	0.052	0.139
20	1.67	0.80	0.190	(0.127)	0.052	0.139
21	1.75	0.80	0.190	(0.127)	0.052	0.139
22	1.83	0.80	0.190	(0.127)	0.052	0.139
23	1.92	0.80	0.190	(0.127)	0.052	0.139
24	2.00	0.90	0.214	(0.127)	0.058	0.156
25	2.08	0.80	0.190	(0.127)	0.052	0.139
26	2.17	0.90	0.214	(0.127)	0.058	0.156
27	2.25	0.90	0.214	(0.127)	0.058	0.156
28	2.33	0.90	0.214	(0.127)	0.058	0.156
29	2.42	0.90	0.214	(0.127)	0.058	0.156
30	2.50	0.90	0.214	(0.127)	0.058	0.156
31	2.58	0.90	0.214	(0.127)	0.058	0.156
32	2.67	0.90	0.214	(0.127)	0.058	0.156
33	2.75	1.00	0.238	(0.127)	0.065	0.173
34	2.83	1.00	0.238	(0.127)	0.065	0.173
35	2.92	1.00	0.238	(0.127)	0.065	0.173
36	3.00	1.00	0.238	(0.127)	0.065	0.173
37	3.08	1.00	0.238	(0.127)	0.065	0.173
38	3.17	1.10	0.262	(0.127)	0.071	0.191

```
39   3.25     1.10      0.262       (  0.127)       0.071        0.191
40   3.33     1.10      0.262       (  0.127)       0.071        0.191
41   3.42     1.20      0.286       (  0.127)       0.078        0.208
42   3.50     1.30      0.309       (  0.127)       0.084        0.225
43   3.58     1.40      0.333       (  0.127)       0.091        0.243
44   3.67     1.40      0.333       (  0.127)       0.091        0.243
45   3.75     1.50      0.357       (  0.127)       0.097        0.260
46   3.83     1.50      0.357       (  0.127)       0.097        0.260
47   3.92     1.60      0.381       (  0.127)       0.104        0.277
48   4.00     1.60      0.381       (  0.127)       0.104        0.277
49   4.08     1.70      0.404       (  0.127)       0.110        0.294
50   4.17     1.80      0.428       (  0.127)       0.116        0.312
51   4.25     1.90      0.452       (  0.127)       0.123        0.329
52   4.33     2.00      0.476          0.127    (  0.129)       0.349
53   4.42     2.10      0.500          0.127    (  0.136)       0.373
54   4.50     2.10      0.500          0.127    (  0.136)       0.373
55   4.58     2.20      0.523          0.127    (  0.142)       0.397
56   4.67     2.30      0.547          0.127    (  0.149)       0.420
57   4.75     2.40      0.571          0.127    (  0.155)       0.444
58   4.83     2.40      0.571          0.127    (  0.155)       0.444
59   4.92     2.50      0.595          0.127    (  0.162)       0.468
60   5.00     2.60      0.619          0.127    (  0.168)       0.492
61   5.08     3.10      0.738          0.127    (  0.201)       0.611
62   5.17     3.60      0.857          0.127    (  0.233)       0.730
63   5.25     3.90      0.928          0.127    (  0.252)       0.801
64   5.33     4.20      0.999          0.127    (  0.272)       0.873
65   5.42     4.70      1.118          0.127    (  0.304)       0.991
66   5.50     5.60      1.332          0.127    (  0.362)       1.206
67   5.58     1.90      0.452       (  0.127)       0.123        0.329
68   5.67     0.90      0.214       (  0.127)       0.058        0.156
69   5.75     0.60      0.143       (  0.127)       0.039        0.104
70   5.83     0.50      0.119       (  0.127)       0.032        0.087
71   5.92     0.30      0.071       (  0.127)       0.019        0.052
72   6.00     0.20      0.048       (  0.127)       0.013        0.035
             (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    18.4
     Flood volume = Effective rainfall      1.53(In)
      times area       5.2(Ac.)/[(In)/(Ft.)] =       0.7(Ac.Ft)
     Total soil loss =      0.45(In)
     Total soil loss =     0.197(Ac.Ft)
     Total rainfall =      1.98(In)
     Flood volume =       29073.9 Cubic Feet
     Total soil loss =        8570.2 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      6.143(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         6 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
     ---------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-------------------------------------------------------------------------
  0+ 5       0.0025      0.37  VQ        |         |         |         |
  0+10       0.0062      0.53  V Q       |         |         |         |
  0+15       0.0100      0.55  V Q       |         |         |         |
  0+20       0.0138      0.55  V Q       |         |         |         |
  0+25       0.0175      0.55  |VQ       |         |         |         |
  0+30       0.0218      0.62  |VQ       |         |         |         |
  0+35       0.0262      0.64  |VQ       |         |         |         |
  0+40       0.0306      0.64  |VQ       |         |         |         |
  0+45       0.0350      0.64  | Q       |         |         |         |
  0+50       0.0394      0.64  | Q       |         |         |         |
  0+55       0.0438      0.64  | Q       |         |         |         |
  1+ 0       0.0487      0.71  | Q       |         |         |         |
  1+ 5       0.0538      0.73  | QV      |         |         |         |
  1+10       0.0588      0.73  | QV      |         |         |         |
  1+15       0.0638      0.73  | QV      |         |         |         |
```

```
    1+20       0.0689      0.73  | Q V     |         |         |         |
    1+25       0.0739      0.73  | Q V     |         |         |         |
    1+30       0.0789      0.73  | Q V     |         |         |         |
    1+35       0.0840      0.73  | Q  V    |         |         |         |
    1+40       0.0890      0.73  | Q  V    |         |         |         |
    1+45       0.0940      0.73  | Q  V    |         |         |         |
    1+50       0.0991      0.73  | Q  V    |         |         |         |
    1+55       0.1041      0.73  | Q   V   |         |         |         |
    2+ 0       0.1096      0.80  |  Q  V   |         |         |         |
    2+ 5       0.1148      0.75  | Q   V   |         |         |         |
    2+10       0.1203      0.80  |  Q   V  |         |         |         |
    2+15       0.1260      0.82  |  Q   V  |         |         |         |
    2+20       0.1317      0.82  |  Q   V  |         |         |         |
    2+25       0.1373      0.82  |  Q    V |         |         |         |
    2+30       0.1430      0.82  |  Q    V |         |         |         |
    2+35       0.1487      0.82  |  Q    V |         |         |         |
    2+40       0.1543      0.82  |  Q     V|         |         |         |
    2+45       0.1605      0.90  |  Q     V|         |         |         |
    2+50       0.1668      0.91  |  Q     V|         |         |         |
    2+55       0.1731      0.91  |  Q      V         |         |         |
    3+ 0       0.1794      0.91  |  Q      V         |         |         |
    3+ 5       0.1857      0.91  |  Q      |V        |         |         |
    3+10       0.1925      0.99  |  Q      |V        |         |         |
    3+15       0.1994      1.00  |   Q     |V        |         |         |
    3+20       0.2063      1.00  |   Q     | V       |         |         |
    3+25       0.2137      1.08  |   Q     | V       |         |         |
    3+30       0.2218      1.17  |   Q     |  V      |         |         |
    3+35       0.2305      1.26  |    Q    |  V      |         |         |
    3+40       0.2393      1.28  |    Q    |   V     |         |         |
    3+45       0.2486      1.35  |    Q    |   V     |         |         |
    3+50       0.2580      1.37  |    Q    |    V    |         |         |
    3+55       0.2680      1.44  |    Q    |     V   |         |         |
    4+ 0       0.2780      1.46  |    Q    |     V   |         |         |
    4+ 5       0.2886      1.54  |     Q   |      V  |         |         |
    4+10       0.2998      1.63  |     Q   |      V  |         |         |
    4+15       0.3117      1.72  |     Q   |       V |         |         |
    4+20       0.3242      1.82  |      Q  |        V|         |         |
    4+25       0.3376      1.94  |      Q  |         V         |         |
    4+30       0.3511      1.97  |      Q  |          V        |         |
    4+35       0.3654      2.07  |       Q |          V        |         |
    4+40       0.3805      2.19  |       Q |          | V      |         |
    4+45       0.3964      2.32  |        Q|          |  V     |         |
    4+50       0.4126      2.34  |        Q|          |   V    |         |
    4+55       0.4294      2.44  |        Q|          |    V   |         |
    5+ 0       0.4471      2.57  |         Q          |     V  |         |
    5+ 5       0.4685      3.10  |          | Q       |       V |         |
    5+10       0.4941      3.73  |          |   Q     |        V|         |
    5+15       0.5227      4.15  |          |     Q   |         |V        |
    5+20       0.5539      4.53  |          |       Q |         |  V      |
    5+25       0.5891      5.11  |          |         Q         |    V    |
    5+30       0.6314      6.14  |          |         |   Q     |      V  |
    5+35       0.6494      2.62  |          Q         |         |       V |
    5+40       0.6563      1.00  |  Q       |         |         |        V|
    5+45       0.6604      0.60  | Q        |         |         |        V|
    5+50       0.6637      0.47  |Q         |         |         |        V|
    5+55       0.6658      0.31  |Q         |         |         |        V|
    6+ 0       0.6672      0.20  Q          |         |         |        V|
    6+ 5       0.6674      0.03  Q          |         |         |        V|
---------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP10YR24HR2410.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 24-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	2.25	11.77

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	5.94	31.07

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 5.940(In)

Point rain (area averaged) = 3.768(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.768(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	63.5	0.432	0.785	0.127	1.000	0.127
					Sum (F) =	0.127

Area averaged mean soil loss (F) (In/Hr) = 0.127
Minimum soil loss rate ((In/Hr)) = 0.063
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
			Sum = 100.000 Sum=	5.271

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.030	(0.225)	0.008	0.022
2	0.17	0.07	0.030	(0.224)	0.008	0.022
3	0.25	0.07	0.030	(0.223)	0.008	0.022
4	0.33	0.10	0.045	(0.222)	0.012	0.033
5	0.42	0.10	0.045	(0.221)	0.012	0.033
6	0.50	0.10	0.045	(0.221)	0.012	0.033
7	0.58	0.10	0.045	(0.220)	0.012	0.033
8	0.67	0.10	0.045	(0.219)	0.012	0.033
9	0.75	0.10	0.045	(0.218)	0.012	0.033
10	0.83	0.13	0.060	(0.217)	0.016	0.044
11	0.92	0.13	0.060	(0.216)	0.016	0.044
12	1.00	0.13	0.060	(0.215)	0.016	0.044
13	1.08	0.10	0.045	(0.215)	0.012	0.033
14	1.17	0.10	0.045	(0.214)	0.012	0.033
15	1.25	0.10	0.045	(0.213)	0.012	0.033
16	1.33	0.10	0.045	(0.212)	0.012	0.033
17	1.42	0.10	0.045	(0.211)	0.012	0.033
18	1.50	0.10	0.045	(0.210)	0.012	0.033
19	1.58	0.10	0.045	(0.209)	0.012	0.033
20	1.67	0.10	0.045	(0.209)	0.012	0.033
21	1.75	0.10	0.045	(0.208)	0.012	0.033
22	1.83	0.13	0.060	(0.207)	0.016	0.044
23	1.92	0.13	0.060	(0.206)	0.016	0.044
24	2.00	0.13	0.060	(0.205)	0.016	0.044
25	2.08	0.13	0.060	(0.204)	0.016	0.044
26	2.17	0.13	0.060	(0.204)	0.016	0.044
27	2.25	0.13	0.060	(0.203)	0.016	0.044
28	2.33	0.13	0.060	(0.202)	0.016	0.044
29	2.42	0.13	0.060	(0.201)	0.016	0.044
30	2.50	0.13	0.060	(0.200)	0.016	0.044
31	2.58	0.17	0.075	(0.200)	0.020	0.055
32	2.67	0.17	0.075	(0.199)	0.020	0.055
33	2.75	0.17	0.075	(0.198)	0.020	0.055
34	2.83	0.17	0.075	(0.197)	0.020	0.055
35	2.92	0.17	0.075	(0.196)	0.020	0.055
36	3.00	0.17	0.075	(0.195)	0.020	0.055
37	3.08	0.17	0.075	(0.195)	0.020	0.055
38	3.17	0.17	0.075	(0.194)	0.020	0.055
39	3.25	0.17	0.075	(0.193)	0.020	0.055
40	3.33	0.17	0.075	(0.192)	0.020	0.055

41	3.42	0.17	0.075	(0.191)	0.020	0.055
42	3.50	0.17	0.075	(0.191)	0.020	0.055
43	3.58	0.17	0.075	(0.190)	0.020	0.055
44	3.67	0.17	0.075	(0.189)	0.020	0.055
45	3.75	0.17	0.075	(0.188)	0.020	0.055
46	3.83	0.20	0.090	(0.187)	0.025	0.066
47	3.92	0.20	0.090	(0.187)	0.025	0.066
48	4.00	0.20	0.090	(0.186)	0.025	0.066
49	4.08	0.20	0.090	(0.185)	0.025	0.066
50	4.17	0.20	0.090	(0.184)	0.025	0.066
51	4.25	0.20	0.090	(0.183)	0.025	0.066
52	4.33	0.23	0.106	(0.183)	0.029	0.077
53	4.42	0.23	0.106	(0.182)	0.029	0.077
54	4.50	0.23	0.106	(0.181)	0.029	0.077
55	4.58	0.23	0.106	(0.180)	0.029	0.077
56	4.67	0.23	0.106	(0.180)	0.029	0.077
57	4.75	0.23	0.106	(0.179)	0.029	0.077
58	4.83	0.27	0.121	(0.178)	0.033	0.088
59	4.92	0.27	0.121	(0.177)	0.033	0.088
60	5.00	0.27	0.121	(0.177)	0.033	0.088
61	5.08	0.20	0.090	(0.176)	0.025	0.066
62	5.17	0.20	0.090	(0.175)	0.025	0.066
63	5.25	0.20	0.090	(0.174)	0.025	0.066
64	5.33	0.23	0.106	(0.173)	0.029	0.077
65	5.42	0.23	0.106	(0.173)	0.029	0.077
66	5.50	0.23	0.106	(0.172)	0.029	0.077
67	5.58	0.27	0.121	(0.171)	0.033	0.088
68	5.67	0.27	0.121	(0.170)	0.033	0.088
69	5.75	0.27	0.121	(0.170)	0.033	0.088
70	5.83	0.27	0.121	(0.169)	0.033	0.088
71	5.92	0.27	0.121	(0.168)	0.033	0.088
72	6.00	0.27	0.121	(0.167)	0.033	0.088
73	6.08	0.30	0.136	(0.167)	0.037	0.099
74	6.17	0.30	0.136	(0.166)	0.037	0.099
75	6.25	0.30	0.136	(0.165)	0.037	0.099
76	6.33	0.30	0.136	(0.164)	0.037	0.099
77	6.42	0.30	0.136	(0.164)	0.037	0.099
78	6.50	0.30	0.136	(0.163)	0.037	0.099
79	6.58	0.33	0.151	(0.162)	0.041	0.110
80	6.67	0.33	0.151	(0.162)	0.041	0.110
81	6.75	0.33	0.151	(0.161)	0.041	0.110
82	6.83	0.33	0.151	(0.160)	0.041	0.110
83	6.92	0.33	0.151	(0.159)	0.041	0.110
84	7.00	0.33	0.151	(0.159)	0.041	0.110
85	7.08	0.33	0.151	(0.158)	0.041	0.110
86	7.17	0.33	0.151	(0.157)	0.041	0.110
87	7.25	0.33	0.151	(0.156)	0.041	0.110
88	7.33	0.37	0.166	(0.156)	0.045	0.121
89	7.42	0.37	0.166	(0.155)	0.045	0.121
90	7.50	0.37	0.166	(0.154)	0.045	0.121
91	7.58	0.40	0.181	(0.154)	0.049	0.132
92	7.67	0.40	0.181	(0.153)	0.049	0.132
93	7.75	0.40	0.181	(0.152)	0.049	0.132
94	7.83	0.43	0.196	(0.152)	0.053	0.143
95	7.92	0.43	0.196	(0.151)	0.053	0.143
96	8.00	0.43	0.196	(0.150)	0.053	0.143
97	8.08	0.50	0.226	(0.149)	0.061	0.165
98	8.17	0.50	0.226	(0.149)	0.061	0.165
99	8.25	0.50	0.226	(0.148)	0.061	0.165
100	8.33	0.50	0.226	(0.147)	0.061	0.165
101	8.42	0.50	0.226	(0.147)	0.061	0.165
102	8.50	0.50	0.226	(0.146)	0.061	0.165
103	8.58	0.53	0.241	(0.145)	0.066	0.176
104	8.67	0.53	0.241	(0.145)	0.066	0.176
105	8.75	0.53	0.241	(0.144)	0.066	0.176
106	8.83	0.57	0.256	(0.143)	0.070	0.187
107	8.92	0.57	0.256	(0.143)	0.070	0.187
108	9.00	0.57	0.256	(0.142)	0.070	0.187
109	9.08	0.63	0.286	(0.141)	0.078	0.208
110	9.17	0.63	0.286	(0.141)	0.078	0.208
111	9.25	0.63	0.286	(0.140)	0.078	0.208

112	9.33	0.67	0.301	(	0.139)	0.082	0.219
113	9.42	0.67	0.301	(	0.139)	0.082	0.219
114	9.50	0.67	0.301	(	0.138)	0.082	0.219
115	9.58	0.70	0.317	(	0.137)	0.086	0.230
116	9.67	0.70	0.317	(	0.137)	0.086	0.230
117	9.75	0.70	0.317	(	0.136)	0.086	0.230
118	9.83	0.73	0.332	(	0.135)	0.090	0.241
119	9.92	0.73	0.332	(	0.135)	0.090	0.241
120	10.00	0.73	0.332	(	0.134)	0.090	0.241
121	10.08	0.50	0.226	(	0.133)	0.061	0.165
122	10.17	0.50	0.226	(	0.133)	0.061	0.165
123	10.25	0.50	0.226	(	0.132)	0.061	0.165
124	10.33	0.50	0.226	(	0.131)	0.061	0.165
125	10.42	0.50	0.226	(	0.131)	0.061	0.165
126	10.50	0.50	0.226	(	0.130)	0.061	0.165
127	10.58	0.67	0.301	(	0.129)	0.082	0.219
128	10.67	0.67	0.301	(	0.129)	0.082	0.219
129	10.75	0.67	0.301	(	0.128)	0.082	0.219
130	10.83	0.67	0.301	(	0.128)	0.082	0.219
131	10.92	0.67	0.301	(	0.127)	0.082	0.219
132	11.00	0.67	0.301	(	0.126)	0.082	0.219
133	11.08	0.63	0.286	(	0.126)	0.078	0.208
134	11.17	0.63	0.286	(	0.125)	0.078	0.208
135	11.25	0.63	0.286	(	0.124)	0.078	0.208
136	11.33	0.63	0.286	(	0.124)	0.078	0.208
137	11.42	0.63	0.286	(	0.123)	0.078	0.208
138	11.50	0.63	0.286	(	0.123)	0.078	0.208
139	11.58	0.57	0.256	(	0.122)	0.070	0.187
140	11.67	0.57	0.256	(	0.121)	0.070	0.187
141	11.75	0.57	0.256	(	0.121)	0.070	0.187
142	11.83	0.60	0.271	(	0.120)	0.074	0.198
143	11.92	0.60	0.271	(	0.120)	0.074	0.198
144	12.00	0.60	0.271	(	0.119)	0.074	0.198
145	12.08	0.83	0.377	(	0.118)	0.102	0.274
146	12.17	0.83	0.377	(	0.118)	0.102	0.274
147	12.25	0.83	0.377	(	0.117)	0.102	0.274
148	12.33	0.87	0.392	(	0.117)	0.107	0.285
149	12.42	0.87	0.392	(	0.116)	0.107	0.285
150	12.50	0.87	0.392	(	0.115)	0.107	0.285
151	12.58	0.93	0.422	(	0.115)	0.115	0.307
152	12.67	0.93	0.422		0.114	(0.115)	0.308
153	12.75	0.93	0.422		0.114	(0.115)	0.308
154	12.83	0.97	0.437		0.113	(0.119)	0.324
155	12.92	0.97	0.437		0.113	(0.119)	0.325
156	13.00	0.97	0.437		0.112	(0.119)	0.325
157	13.08	1.13	0.512		0.111	(0.139)	0.401
158	13.17	1.13	0.512		0.111	(0.139)	0.402
159	13.25	1.13	0.512		0.110	(0.139)	0.402
160	13.33	1.13	0.512		0.110	(0.139)	0.403
161	13.42	1.13	0.512		0.109	(0.139)	0.403
162	13.50	1.13	0.512		0.109	(0.139)	0.404
163	13.58	0.77	0.347	(	0.108)	0.094	0.252
164	13.67	0.77	0.347	(	0.108)	0.094	0.252
165	13.75	0.77	0.347	(	0.107)	0.094	0.252
166	13.83	0.77	0.347	(	0.106)	0.094	0.252
167	13.92	0.77	0.347	(	0.106)	0.094	0.252
168	14.00	0.77	0.347	(	0.105)	0.094	0.252
169	14.08	0.90	0.407		0.105	(0.111)	0.302
170	14.17	0.90	0.407		0.104	(0.111)	0.303
171	14.25	0.90	0.407		0.104	(0.111)	0.303
172	14.33	0.87	0.392		0.103	(0.107)	0.289
173	14.42	0.87	0.392		0.103	(0.107)	0.289
174	14.50	0.87	0.392		0.102	(0.107)	0.290
175	14.58	0.87	0.392		0.102	(0.107)	0.290
176	14.67	0.87	0.392		0.101	(0.107)	0.291
177	14.75	0.87	0.392		0.101	(0.107)	0.291
178	14.83	0.83	0.377		0.100	(0.102)	0.277
179	14.92	0.83	0.377		0.100	(0.102)	0.277
180	15.00	0.83	0.377		0.099	(0.102)	0.278
181	15.08	0.80	0.362	(	0.099)	0.098	0.263
182	15.17	0.80	0.362		0.098	(0.098)	0.264

183	15.25	0.80	0.362	0.098	(0.098)	0.264
184	15.33	0.77	0.347	(0.097)	0.094	0.252
185	15.42	0.77	0.347	(0.097)	0.094	0.252
186	15.50	0.77	0.347	(0.096)	0.094	0.252
187	15.58	0.63	0.286	(0.096)	0.078	0.208
188	15.67	0.63	0.286	(0.095)	0.078	0.208
189	15.75	0.63	0.286	(0.095)	0.078	0.208
190	15.83	0.63	0.286	(0.094)	0.078	0.208
191	15.92	0.63	0.286	(0.094)	0.078	0.208
192	16.00	0.63	0.286	(0.093)	0.078	0.208
193	16.08	0.13	0.060	(0.093)	0.016	0.044
194	16.17	0.13	0.060	(0.092)	0.016	0.044
195	16.25	0.13	0.060	(0.092)	0.016	0.044
196	16.33	0.13	0.060	(0.091)	0.016	0.044
197	16.42	0.13	0.060	(0.091)	0.016	0.044
198	16.50	0.13	0.060	(0.090)	0.016	0.044
199	16.58	0.10	0.045	(0.090)	0.012	0.033
200	16.67	0.10	0.045	(0.089)	0.012	0.033
201	16.75	0.10	0.045	(0.089)	0.012	0.033
202	16.83	0.10	0.045	(0.089)	0.012	0.033
203	16.92	0.10	0.045	(0.088)	0.012	0.033
204	17.00	0.10	0.045	(0.088)	0.012	0.033
205	17.08	0.17	0.075	(0.087)	0.020	0.055
206	17.17	0.17	0.075	(0.087)	0.020	0.055
207	17.25	0.17	0.075	(0.086)	0.020	0.055
208	17.33	0.17	0.075	(0.086)	0.020	0.055
209	17.42	0.17	0.075	(0.085)	0.020	0.055
210	17.50	0.17	0.075	(0.085)	0.020	0.055
211	17.58	0.17	0.075	(0.085)	0.020	0.055
212	17.67	0.17	0.075	(0.084)	0.020	0.055
213	17.75	0.17	0.075	(0.084)	0.020	0.055
214	17.83	0.13	0.060	(0.083)	0.016	0.044
215	17.92	0.13	0.060	(0.083)	0.016	0.044
216	18.00	0.13	0.060	(0.083)	0.016	0.044
217	18.08	0.13	0.060	(0.082)	0.016	0.044
218	18.17	0.13	0.060	(0.082)	0.016	0.044
219	18.25	0.13	0.060	(0.081)	0.016	0.044
220	18.33	0.13	0.060	(0.081)	0.016	0.044
221	18.42	0.13	0.060	(0.081)	0.016	0.044
222	18.50	0.13	0.060	(0.080)	0.016	0.044
223	18.58	0.10	0.045	(0.080)	0.012	0.033
224	18.67	0.10	0.045	(0.079)	0.012	0.033
225	18.75	0.10	0.045	(0.079)	0.012	0.033
226	18.83	0.07	0.030	(0.079)	0.008	0.022
227	18.92	0.07	0.030	(0.078)	0.008	0.022
228	19.00	0.07	0.030	(0.078)	0.008	0.022
229	19.08	0.10	0.045	(0.077)	0.012	0.033
230	19.17	0.10	0.045	(0.077)	0.012	0.033
231	19.25	0.10	0.045	(0.077)	0.012	0.033
232	19.33	0.13	0.060	(0.076)	0.016	0.044
233	19.42	0.13	0.060	(0.076)	0.016	0.044
234	19.50	0.13	0.060	(0.076)	0.016	0.044
235	19.58	0.10	0.045	(0.075)	0.012	0.033
236	19.67	0.10	0.045	(0.075)	0.012	0.033
237	19.75	0.10	0.045	(0.075)	0.012	0.033
238	19.83	0.07	0.030	(0.074)	0.008	0.022
239	19.92	0.07	0.030	(0.074)	0.008	0.022
240	20.00	0.07	0.030	(0.074)	0.008	0.022
241	20.08	0.10	0.045	(0.073)	0.012	0.033
242	20.17	0.10	0.045	(0.073)	0.012	0.033
243	20.25	0.10	0.045	(0.073)	0.012	0.033
244	20.33	0.10	0.045	(0.072)	0.012	0.033
245	20.42	0.10	0.045	(0.072)	0.012	0.033
246	20.50	0.10	0.045	(0.072)	0.012	0.033
247	20.58	0.10	0.045	(0.071)	0.012	0.033
248	20.67	0.10	0.045	(0.071)	0.012	0.033
249	20.75	0.10	0.045	(0.071)	0.012	0.033
250	20.83	0.07	0.030	(0.071)	0.008	0.022
251	20.92	0.07	0.030	(0.070)	0.008	0.022
252	21.00	0.07	0.030	(0.070)	0.008	0.022
253	21.08	0.10	0.045	(0.070)	0.012	0.033

254	21.17	0.10	0.045	(0.069)	0.012	0.033
255	21.25	0.10	0.045	(0.069)	0.012	0.033
256	21.33	0.07	0.030	(0.069)	0.008	0.022
257	21.42	0.07	0.030	(0.069)	0.008	0.022
258	21.50	0.07	0.030	(0.068)	0.008	0.022
259	21.58	0.10	0.045	(0.068)	0.012	0.033
260	21.67	0.10	0.045	(0.068)	0.012	0.033
261	21.75	0.10	0.045	(0.068)	0.012	0.033
262	21.83	0.07	0.030	(0.067)	0.008	0.022
263	21.92	0.07	0.030	(0.067)	0.008	0.022
264	22.00	0.07	0.030	(0.067)	0.008	0.022
265	22.08	0.10	0.045	(0.067)	0.012	0.033
266	22.17	0.10	0.045	(0.067)	0.012	0.033
267	22.25	0.10	0.045	(0.066)	0.012	0.033
268	22.33	0.07	0.030	(0.066)	0.008	0.022
269	22.42	0.07	0.030	(0.066)	0.008	0.022
270	22.50	0.07	0.030	(0.066)	0.008	0.022
271	22.58	0.07	0.030	(0.066)	0.008	0.022
272	22.67	0.07	0.030	(0.065)	0.008	0.022
273	22.75	0.07	0.030	(0.065)	0.008	0.022
274	22.83	0.07	0.030	(0.065)	0.008	0.022
275	22.92	0.07	0.030	(0.065)	0.008	0.022
276	23.00	0.07	0.030	(0.065)	0.008	0.022
277	23.08	0.07	0.030	(0.065)	0.008	0.022
278	23.17	0.07	0.030	(0.064)	0.008	0.022
279	23.25	0.07	0.030	(0.064)	0.008	0.022
280	23.33	0.07	0.030	(0.064)	0.008	0.022
281	23.42	0.07	0.030	(0.064)	0.008	0.022
282	23.50	0.07	0.030	(0.064)	0.008	0.022
283	23.58	0.07	0.030	(0.064)	0.008	0.022
284	23.67	0.07	0.030	(0.064)	0.008	0.022
285	23.75	0.07	0.030	(0.064)	0.008	0.022
286	23.83	0.07	0.030	(0.064)	0.008	0.022
287	23.92	0.07	0.030	(0.063)	0.008	0.022
288	24.00	0.07	0.030	(0.063)	0.008	0.022

(Loss Rate Not Used)

Sum = 100.0 Sum = 33.2

Flood volume = Effective rainfall 2.76(In)
times area 5.2(Ac.)/[(In)/(Ft.)] = 1.2(Ac.Ft)
Total soil loss = 1.00(In)
Total soil loss = 0.437(Ac.Ft)
Total rainfall = 3.77(In)
Flood volume = 52479.5 Cubic Feet
Total soil loss = 19056.7 Cubic Feet

Peak flow rate of this hydrograph = 2.129(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	0.0006	0.09	Q	|	|	|	|
0+10	0.0014	0.12	Q	|	|	|	|
0+15	0.0022	0.12	Q	|	|	|	|
0+20	0.0034	0.16	Q	|	|	|	|
0+25	0.0046	0.17	Q	|	|	|	|
0+30	0.0058	0.17	Q	|	|	|	|
0+35	0.0069	0.17	Q	|	|	|	|
0+40	0.0081	0.17	Q	|	|	|	|
0+45	0.0093	0.17	Q	|	|	|	|
0+50	0.0109	0.22	Q	|	|	|	|
0+55	0.0124	0.23	Q	|	|	|	|
1+ 0	0.0140	0.23	Q	|	|	|	|
1+ 5	0.0153	0.18	Q	|	|	|	|
1+10	0.0165	0.17	Q	|	|	|	|
1+15	0.0177	0.17	Q	|	|	|	|

1+20	0.0189	0.17	Q	|	|	|	|
1+25	0.0201	0.17	Q	|	|	|	|
1+30	0.0213	0.17	Q	|	|	|	|
1+35	0.0225	0.17	Q	|	|	|	|
1+40	0.0237	0.17	Q	|	|	|	|
1+45	0.0249	0.17	Q	|	|	|	|
1+50	0.0264	0.22	Q	|	|	|	|
1+55	0.0280	0.23	Q	|	|	|	|
2+ 0	0.0296	0.23	Q	|	|	|	|
2+ 5	0.0312	0.23	QV	|	|	|	|
2+10	0.0328	0.23	QV	|	|	|	|
2+15	0.0344	0.23	QV	|	|	|	|
2+20	0.0360	0.23	QV	|	|	|	|
2+25	0.0376	0.23	QV	|	|	|	|
2+30	0.0392	0.23	QV	|	|	|	|
2+35	0.0411	0.28	|Q	|	|	|	|
2+40	0.0431	0.29	|Q	|	|	|	|
2+45	0.0451	0.29	|Q	|	|	|	|
2+50	0.0470	0.29	|Q	|	|	|	|
2+55	0.0490	0.29	|Q	|	|	|	|
3+ 0	0.0510	0.29	|Q	|	|	|	|
3+ 5	0.0530	0.29	|Q	|	|	|	|
3+10	0.0550	0.29	|Q	|	|	|	|
3+15	0.0570	0.29	|Q	|	|	|	|
3+20	0.0590	0.29	|Q	|	|	|	|
3+25	0.0610	0.29	|QV	|	|	|	|
3+30	0.0630	0.29	|QV	|	|	|	|
3+35	0.0650	0.29	|QV	|	|	|	|
3+40	0.0670	0.29	|QV	|	|	|	|
3+45	0.0690	0.29	|QV	|	|	|	|
3+50	0.0713	0.34	|QV	|	|	|	|
3+55	0.0737	0.35	|QV	|	|	|	|
4+ 0	0.0761	0.35	|QV	|	|	|	|
4+ 5	0.0785	0.35	|QV	|	|	|	|
4+10	0.0808	0.35	|QV	|	|	|	|
4+15	0.0832	0.35	|QV	|	|	|	|
4+20	0.0859	0.39	|QV	|	|	|	|
4+25	0.0887	0.41	|QV	|	|	|	|
4+30	0.0915	0.41	|Q V	|	|	|	|
4+35	0.0943	0.41	|Q V	|	|	|	|
4+40	0.0971	0.41	|Q V	|	|	|	|
4+45	0.0999	0.41	|Q V	|	|	|	|
4+50	0.1030	0.45	|Q V	|	|	|	|
4+55	0.1062	0.46	|Q V	|	|	|	|
5+ 0	0.1094	0.46	|Q V	|	|	|	|
5+ 5	0.1119	0.37	|Q V	|	|	|	|
5+10	0.1143	0.35	|Q V	|	|	|	|
5+15	0.1167	0.35	|Q V	|	|	|	|
5+20	0.1194	0.39	|Q V	|	|	|	|
5+25	0.1222	0.41	|Q V	|	|	|	|
5+30	0.1250	0.41	|Q V	|	|	|	|
5+35	0.1281	0.45	|Q V	|	|	|	|
5+40	0.1313	0.46	|Q V	|	|	|	|
5+45	0.1345	0.46	|Q V	|	|	|	|
5+50	0.1377	0.46	|Q V	|	|	|	|
5+55	0.1409	0.46	|Q V	|	|	|	|
6+ 0	0.1441	0.46	|Q V	|	|	|	|
6+ 5	0.1476	0.51	| Q V	|	|	|	|
6+10	0.1512	0.52	| Q V	|	|	|	|
6+15	0.1547	0.52	| Q V	|	|	|	|
6+20	0.1583	0.52	| Q V	|	|	|	|
6+25	0.1619	0.52	| Q V	|	|	|	|
6+30	0.1655	0.52	| Q V	|	|	|	|
6+35	0.1694	0.57	| Q V	|	|	|	|
6+40	0.1734	0.58	| Q V	|	|	|	|
6+45	0.1774	0.58	| Q V	|	|	|	|
6+50	0.1814	0.58	| Q V	|	|	|	|
6+55	0.1853	0.58	| Q V	|	|	|	|
7+ 0	0.1893	0.58	| Q V	|	|	|	|
7+ 5	0.1933	0.58	| Q V	|	|	|	|
7+10	0.1973	0.58	| Q V	|	|	|	|

7+15	0.2013	0.58	Q V				
7+20	0.2056	0.63	Q V				
7+25	0.2100	0.64	Q V				
7+30	0.2144	0.64	Q V				
7+35	0.2191	0.68	Q V				
7+40	0.2239	0.69	Q V				
7+45	0.2286	0.69	Q V				
7+50	0.2337	0.74	Q V				
7+55	0.2389	0.75	Q V				
8+ 0	0.2441	0.75	Q V				
8+ 5	0.2499	0.85	Q V				
8+10	0.2559	0.87	Q V				
8+15	0.2619	0.87	Q V				
8+20	0.2679	0.87	Q V				
8+25	0.2738	0.87	Q V				
8+30	0.2798	0.87	Q V				
8+35	0.2861	0.91	Q V				
8+40	0.2925	0.93	Q V				
8+45	0.2989	0.93	Q V				
8+50	0.3056	0.97	Q V				
8+55	0.3123	0.98	Q V				
9+ 0	0.3191	0.98	Q V				
9+ 5	0.3265	1.08	Q V				
9+10	0.3341	1.10	Q V				
9+15	0.3417	1.10	Q V				
9+20	0.3496	1.15	Q V				
9+25	0.3575	1.16	Q V				
9+30	0.3655	1.16	Q V				
9+35	0.3738	1.20	Q V				
9+40	0.3822	1.22	Q V				
9+45	0.3905	1.22	Q V				
9+50	0.3992	1.26	Q V				
9+55	0.4080	1.27	Q V				
10+ 0	0.4168	1.27	Q V				
10+ 5	0.4233	0.95	Q V				
10+10	0.4293	0.87	Q V				
10+15	0.4352	0.87	Q V				
10+20	0.4412	0.87	Q V				
10+25	0.4472	0.87	Q V				
10+30	0.4532	0.87	Q V				
10+35	0.4608	1.10	Q V				
10+40	0.4687	1.16	Q V				
10+45	0.4767	1.16	Q V				
10+50	0.4847	1.16	Q V				
10+55	0.4926	1.16	Q V				
11+ 0	0.5006	1.16	Q V				
11+ 5	0.5083	1.11	Q V				
11+10	0.5158	1.10	Q V				
11+15	0.5234	1.10	Q V				
11+20	0.5310	1.10	Q V				
11+25	0.5386	1.10	Q V				
11+30	0.5461	1.10	Q V				
11+35	0.5530	1.01	Q V				
11+40	0.5598	0.98	Q V				
11+45	0.5666	0.98	Q V				
11+50	0.5737	1.03	Q V				
11+55	0.5809	1.04	Q V				
12+ 0	0.5880	1.04	Q V				
12+ 5	0.5975	1.37	Q V				
12+10	0.6074	1.45	Q V				
12+15	0.6174	1.45	Q V				
12+20	0.6277	1.49	Q V				
12+25	0.6380	1.50	Q V				
12+30	0.6484	1.50	Q V				
12+35	0.6594	1.60	Q V				
12+40	0.6706	1.62	Q V				
12+45	0.6818	1.63	Q V				
12+50	0.6934	1.69	Q V				
12+55	0.7052	1.71	Q V				
13+ 0	0.7170	1.71	Q V				
13+ 5	0.7311	2.04	Q V				

```
13+10       0.7456      2.12  |       Q |         |   V     |         |
13+15       0.7602      2.12  |       Q |         |    V    |         |
13+20       0.7749      2.12  |       Q |         |    V    |         |
13+25       0.7895      2.13  |       Q |         |     V   |         |
13+30       0.8042      2.13  |       Q |         |     V   |         |
13+35       0.8144      1.48  |    Q    |         |      V  |         |
13+40       0.8236      1.33  |    Q    |         |      V  |         |
13+45       0.8327      1.33  |    Q    |         |      V  |         |
13+50       0.8419      1.33  |    Q    |         |      V  |         |
13+55       0.8510      1.33  |    Q    |         |       V |         |
14+ 0       0.8602      1.33  |    Q    |         |       V |         |
14+ 5       0.8708      1.54  |     Q   |         |       V |         |
14+10       0.8818      1.60  |     Q   |         |        V|         |
14+15       0.8928      1.60  |     Q   |         |        V|         |
14+20       0.9034      1.54  |     Q   |         |        V|         |
14+25       0.9139      1.52  |     Q   |         |         V         |
14+30       0.9244      1.53  |     Q   |         |         V         |
14+35       0.9350      1.53  |     Q   |         |          |V       |
14+40       0.9455      1.53  |     Q   |         |          |V       |
14+45       0.9561      1.54  |     Q   |         |          |V       |
14+50       0.9663      1.47  |    Q    |         |          | V      |
14+55       0.9763      1.46  |    Q    |         |          | V      |
15+ 0       0.9864      1.46  |    Q    |         |          | V      |
15+ 5       0.9961      1.40  |    Q    |         |          |  V     |
15+10       1.0056      1.39  |    Q    |         |          |  V     |
15+15       1.0152      1.39  |    Q    |         |          |  V     |
15+20       1.0245      1.34  |    Q    |         |          |   V    |
15+25       1.0337      1.33  |    Q    |         |          |   V    |
15+30       1.0428      1.33  |    Q    |         |          |   V    |
15+35       1.0507      1.14  |   Q     |         |          |   V    |
15+40       1.0583      1.10  |   Q     |         |          |    V   |
15+45       1.0658      1.10  |   Q     |         |          |    V   |
15+50       1.0734      1.10  |   Q     |         |          |    V   |
15+55       1.0810      1.10  |   Q     |         |          |    V   |
16+ 0       1.0886      1.10  |   Q     |         |          |     V  |
16+ 5       1.0913      0.40  |Q        |         |          |     V  |
16+10       1.0929      0.23  Q         |         |          |     V  |
16+15       1.0945      0.23  Q         |         |          |     V  |
16+20       1.0961      0.23  Q         |         |          |     V  |
16+25       1.0977      0.23  Q         |         |          |     V  |
16+30       1.0993      0.23  Q         |         |          |     V  |
16+35       1.1005      0.18  Q         |         |          |     V  |
16+40       1.1017      0.17  Q         |         |          |     V  |
16+45       1.1029      0.17  Q         |         |          |     V  |
16+50       1.1041      0.17  Q         |         |          |     V  |
16+55       1.1053      0.17  Q         |         |          |     V  |
17+ 0       1.1065      0.17  Q         |         |          |     V  |
17+ 5       1.1083      0.27  |Q        |         |          |     V  |
17+10       1.1103      0.29  |Q        |         |          |     V  |
17+15       1.1123      0.29  |Q        |         |          |     V  |
17+20       1.1143      0.29  |Q        |         |          |     V  |
17+25       1.1163      0.29  |Q        |         |          |      V |
17+30       1.1183      0.29  |Q        |         |          |      V |
17+35       1.1203      0.29  |Q        |         |          |      V |
17+40       1.1223      0.29  |Q        |         |          |      V |
17+45       1.1243      0.29  |Q        |         |          |      V |
17+50       1.1260      0.24  Q         |         |          |      V |
17+55       1.1275      0.23  Q         |         |          |      V |
18+ 0       1.1291      0.23  Q         |         |          |      V |
18+ 5       1.1307      0.23  Q         |         |          |      V |
18+10       1.1323      0.23  Q         |         |          |      V |
18+15       1.1339      0.23  Q         |         |          |      V |
18+20       1.1355      0.23  Q         |         |          |      V |
18+25       1.1371      0.23  Q         |         |          |      V |
18+30       1.1387      0.23  Q         |         |          |      V |
18+35       1.1400      0.18  Q         |         |          |      V |
18+40       1.1412      0.17  Q         |         |          |      V |
18+45       1.1424      0.17  Q         |         |          |      V |
18+50       1.1432      0.13  Q         |         |          |      V |
18+55       1.1440      0.12  Q         |         |          |      V |
19+ 0       1.1448      0.12  Q         |         |          |       V|
```

19+ 5	1.1460	0.16	Q	|	|	|	V |
19+10	1.1472	0.17	Q	|	|	|	V |
19+15	1.1483	0.17	Q	|	|	|	V |
19+20	1.1499	0.22	Q	|	|	|	V |
19+25	1.1515	0.23	Q	|	|	|	V |
19+30	1.1531	0.23	Q	|	|	|	V |
19+35	1.1543	0.18	Q	|	|	|	V |
19+40	1.1555	0.17	Q	|	|	|	V |
19+45	1.1567	0.17	Q	|	|	|	V |
19+50	1.1576	0.13	Q	|	|	|	V |
19+55	1.1584	0.12	Q	|	|	|	V |
20+ 0	1.1592	0.12	Q	|	|	|	V |
20+ 5	1.1603	0.16	Q	|	|	|	V |
20+10	1.1615	0.17	Q	|	|	|	V |
20+15	1.1627	0.17	Q	|	|	|	V |
20+20	1.1639	0.17	Q	|	|	|	V |
20+25	1.1651	0.17	Q	|	|	|	V |
20+30	1.1663	0.17	Q	|	|	|	V |
20+35	1.1675	0.17	Q	|	|	|	V |
20+40	1.1687	0.17	Q	|	|	|	V |
20+45	1.1699	0.17	Q	|	|	|	V |
20+50	1.1707	0.13	Q	|	|	|	V |
20+55	1.1715	0.12	Q	|	|	|	V |
21+ 0	1.1723	0.12	Q	|	|	|	V |
21+ 5	1.1735	0.16	Q	|	|	|	V |
21+10	1.1746	0.17	Q	|	|	|	V|
21+15	1.1758	0.17	Q	|	|	|	V|
21+20	1.1767	0.13	Q	|	|	|	V|
21+25	1.1775	0.12	Q	|	|	|	V|
21+30	1.1783	0.12	Q	|	|	|	V|
21+35	1.1794	0.16	Q	|	|	|	V|
21+40	1.1806	0.17	Q	|	|	|	V|
21+45	1.1818	0.17	Q	|	|	|	V|
21+50	1.1827	0.13	Q	|	|	|	V|
21+55	1.1835	0.12	Q	|	|	|	V|
22+ 0	1.1843	0.12	Q	|	|	|	V|
22+ 5	1.1854	0.16	Q	|	|	|	V|
22+10	1.1866	0.17	Q	|	|	|	V|
22+15	1.1878	0.17	Q	|	|	|	V|
22+20	1.1887	0.13	Q	|	|	|	V|
22+25	1.1895	0.12	Q	|	|	|	V|
22+30	1.1903	0.12	Q	|	|	|	V|
22+35	1.1911	0.12	Q	|	|	|	V|
22+40	1.1919	0.12	Q	|	|	|	V|
22+45	1.1927	0.12	Q	|	|	|	V|
22+50	1.1935	0.12	Q	|	|	|	V|
22+55	1.1943	0.12	Q	|	|	|	V|
23+ 0	1.1950	0.12	Q	|	|	|	V|
23+ 5	1.1958	0.12	Q	|	|	|	V|
23+10	1.1966	0.12	Q	|	|	|	V|
23+15	1.1974	0.12	Q	|	|	|	V|
23+20	1.1982	0.12	Q	|	|	|	V|
23+25	1.1990	0.12	Q	|	|	|	V|
23+30	1.1998	0.12	Q	|	|	|	V|
23+35	1.2006	0.12	Q	|	|	|	V|
23+40	1.2014	0.12	Q	|	|	|	V|
23+45	1.2022	0.12	Q	|	|	|	V|
23+50	1.2030	0.12	Q	|	|	|	V|
23+55	1.2038	0.12	Q	|	|	|	V|
24+ 0	1.2046	0.12	Q	|	|	|	V|
24+ 5	1.2048	0.02	Q	|	|	|	V

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP100YR1HR1100.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 1-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	0.49	2.58

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	1.40	7.32

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.494(In)
Area Averaged 100-Year Rainfall = 1.400(In)

Point rain (area averaged) = 1.400(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.400(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

```
 Total Area Entered =      5.23(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
63.5  63.5      0.432     0.785        0.127       1.000      0.127
                                                 Sum (F) =   0.127
Area averaged mean soil loss (F) (In/Hr) =  0.127
Minimum soil loss rate ((In/Hr)) =  0.063
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.272
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      DESERT S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        778.970         80.976             4.268
    2   0.167       1557.940         19.024             1.003
                              Sum = 100.000   Sum=       5.271
------------------------------------------------------------------------


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

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
      (Hr.)  Percent   (In/Hr)         Max    |   Low        (In/Hr)
  1   0.08     4.40      0.739          0.127    (  0.201)        0.612
  2   0.17     4.50      0.756          0.127    (  0.206)        0.629
  3   0.25     5.40      0.907          0.127    (  0.247)        0.780
  4   0.33     5.40      0.907          0.127    (  0.247)        0.780
  5   0.42     5.70      0.958          0.127    (  0.260)        0.831
  6   0.50     6.40      1.075          0.127    (  0.292)        0.948
  7   0.58     7.90      1.327          0.127    (  0.361)        1.200
  8   0.67     9.10      1.529          0.127    (  0.416)        1.402
  9   0.75    12.80      2.150          0.127    (  0.585)        2.023
 10   0.83    25.60      4.301          0.127    (  1.170)        4.174
 11   0.92     7.90      1.327          0.127    (  0.361)        1.200
 12   1.00     4.90      0.823          0.127    (  0.224)        0.696
              (Loss Rate Not Used)
    Sum =     100.0                                 Sum =    15.3
      Flood volume = Effective rainfall      1.27(In)
       times area       5.2(Ac.)/[(In)/(Ft.)] =       0.6(Ac.Ft)
      Total soil loss =      0.13(In)
      Total soil loss =     0.055(Ac.Ft)
      Total rainfall =      1.40(In)
      Flood volume =       24169.4 Cubic Feet
      Total soil loss =        2408.2 Cubic Feet
      ------------------------------------------------------------------
       Peak flow rate of this hydrograph =     19.853(CFS)
      ------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        1 - H O U R    S T O R M
                   R u n o f f      H y d r o g r a p h
      ------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

      ------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
----------------------------------------------------------------------
  0+ 5       0.0180      2.61  |V   Q    |         |         |         |
  0+10       0.0407      3.30  | V   Q   |         |         |         |
  0+15       0.0680      3.96  |   V  Q  |         |         |         |
```

```
    0+20       0.0964      4.12  |     V Q |         |         |         |
    0+25       0.1262      4.33  |       QV|         |         |         |
    0+30       0.1598      4.88  |        Q|V        |         |         |
    0+35       0.2017      6.08  |         | Q V     |         |         |
    0+40       0.2512      7.19  |         |   Q   V |         |         |
    0+45       0.3204     10.05  |         |         Q  V      |         |
    0+50       0.4571     19.85  |         |         |         | V      Q|
    0+55       0.5213      9.31  |         |       Q |         |      V  |
    1+ 0       0.5500      4.18  |       Q |         |         |        V|
    1+ 5       0.5549      0.70  |Q        |         |         |         V
-------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP100YR3HR3100.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 3-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	0.87	4.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	2.22	11.61

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.870(In)
Area Averaged 100-Year Rainfall = 2.220(In)

Point rain (area averaged) = 2.220(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.220(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	63.5	0.432	0.785	0.127	1.000	0.127
					Sum (F) =	0.127

Area averaged mean soil loss (F) (In/Hr) = 0.127
Minimum soil loss rate ((In/Hr)) = 0.063
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
		Sum = 100.000	Sum=	5.271

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.346	(0.127)	0.094	0.252
2	0.17	1.30	0.346	(0.127)	0.094	0.252
3	0.25	1.10	0.293	(0.127)	0.080	0.213
4	0.33	1.50	0.400	(0.127)	0.109	0.291
5	0.42	1.50	0.400	(0.127)	0.109	0.291
6	0.50	1.80	0.480	0.127	(0.130)	0.353
7	0.58	1.50	0.400	(0.127)	0.109	0.291
8	0.67	1.80	0.480	0.127	(0.130)	0.353
9	0.75	1.80	0.480	0.127	(0.130)	0.353
10	0.83	1.50	0.400	(0.127)	0.109	0.291
11	0.92	1.60	0.426	(0.127)	0.116	0.310
12	1.00	1.80	0.480	0.127	(0.130)	0.353
13	1.08	2.20	0.586	0.127	(0.159)	0.459
14	1.17	2.20	0.586	0.127	(0.159)	0.459
15	1.25	2.20	0.586	0.127	(0.159)	0.459
16	1.33	2.00	0.533	0.127	(0.145)	0.406
17	1.42	2.60	0.693	0.127	(0.188)	0.566
18	1.50	2.70	0.719	0.127	(0.196)	0.592
19	1.58	2.40	0.639	0.127	(0.174)	0.512
20	1.67	2.70	0.719	0.127	(0.196)	0.592
21	1.75	3.30	0.879	0.127	(0.239)	0.752
22	1.83	3.10	0.826	0.127	(0.225)	0.699
23	1.92	2.90	0.773	0.127	(0.210)	0.646
24	2.00	3.00	0.799	0.127	(0.217)	0.672
25	2.08	3.10	0.826	0.127	(0.225)	0.699
26	2.17	4.20	1.119	0.127	(0.304)	0.992
27	2.25	5.00	1.332	0.127	(0.362)	1.205
28	2.33	3.50	0.932	0.127	(0.254)	0.806
29	2.42	6.80	1.811	0.127	(0.493)	1.685
30	2.50	7.30	1.945	0.127	(0.529)	1.818
31	2.58	8.20	2.184	0.127	(0.594)	2.058
32	2.67	5.90	1.572	0.127	(0.428)	1.445
33	2.75	2.00	0.533	0.127	(0.145)	0.406
34	2.83	1.80	0.480	0.127	(0.130)	0.353
35	2.92	1.80	0.480	0.127	(0.130)	0.353
36	3.00	0.60	0.160	(0.127)	0.043	0.116
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	22.4

```
      Flood volume = Effective rainfall      1.86(In)
       times area       5.2(Ac.)/[(In)/(Ft.)] =       0.8(Ac.Ft)
      Total soil loss =      0.36(In)
      Total soil loss =     0.156(Ac.Ft)
      Total rainfall =      2.22(In)
      Flood volume =       35362.8 Cubic Feet
      Total soil loss =        6782.7 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     10.610(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
 ----------------------------------------------------------------------
   0+ 5       0.0074      1.08  V Q       |         |         |         |
   0+10       0.0166      1.33  V Q       |         |         |         |
   0+15       0.0246      1.16  |VQ       |         |         |         |
   0+20       0.0346      1.46  |VQ       |         |         |         |
   0+25       0.0452      1.53  | VQ      |         |         |         |
   0+30       0.0576      1.80  | VQ      |         |         |         |
   0+35       0.0686      1.60  |  Q      |         |         |         |
   0+40       0.0809      1.80  |  Q      |         |         |         |
   0+45       0.0937      1.86  |  QV     |         |         |         |
   0+50       0.1047      1.60  |  Q V    |         |         |         |
   0+55       0.1159      1.62  |  Q V    |         |         |         |
   1+ 0       0.1284      1.82  |  Q  V   |         |         |         |
   1+ 5       0.1443      2.31  |   Q  V  |         |         |         |
   1+10       0.1610      2.42  |   Q  V  |         |         |         |
   1+15       0.1777      2.42  |   Q   V |         |         |         |
   1+20       0.1928      2.19  |   Q    V|         |         |         |
   1+25       0.2122      2.82  |    Q    V         |         |         |
   1+30       0.2336      3.10  |     Q   |V        |         |         |
   1+35       0.2527      2.78  |    Q    | V       |         |         |
   1+40       0.2737      3.04  |     Q   |  V      |         |         |
   1+45       0.2999      3.81  |      Q  |   V     |         |         |
   1+50       0.3257      3.74  |      Q  |     V   |         |         |
   1+55       0.3495      3.46  |     Q   |      V  |         |         |
   2+ 0       0.3737      3.52  |      Q  |       V |         |         |
   2+ 5       0.3989      3.66  |      Q  |        V|         |         |
   2+10       0.4329      4.94  |        Q|         |V        |         |
   2+15       0.4752      6.14  |         | Q       |  V      |         |
   2+20       0.5073      4.65  |        Q|         |   V     |         |
   2+25       0.5624      8.00  |         |     Q   |      V  |         |
   2+30       0.6275      9.45  |         |       Q |         V         |
   2+35       0.7005     10.61  |         |         |Q        |   V     |
   2+40       0.7572      8.23  |         |     Q   |         |      V  |
   2+45       0.7792      3.18  |     Q   |         |         |       V |
   2+50       0.7923      1.91  |  Q      |         |         |        V|
   2+55       0.8052      1.86  |  Q      |         |         |        V|
   3+ 0       0.8110      0.85  |Q        |         |         |        V|
   3+ 5       0.8118      0.12  Q         |         |         |         V
----------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE2PROP100YR6HR6100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 6-HOUR STORM - PROPOSED CONDITION @ NODE 2
----------------------------------------------------------------------
Drainage Area =       5.23(Ac.)  =      0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       5.23(Ac.)  =      0.008 Sq. Mi.
Length along longest watercourse =     522.00(Ft.)
Length along longest watercourse measured to centroid =     300.00(Ft.)
Length along longest watercourse =      0.099 Mi.
Length along longest watercourse measured to centroid =      0.057 Mi.
Difference in elevation =       5.00(Ft.)
Slope along watercourse =     50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.26 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        5.23           1.23                 6.43

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        5.23           3.06                16.00

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.230(In)
Area Averaged 100-Year Rainfall =    3.060(In)

Point rain (area averaged) =    3.060(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    3.060(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     5.230           63.50         0.785
```

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	63.5	0.432	0.785	0.127	1.000	0.127
					Sum (F) =	0.127

Area averaged mean soil loss (F) (In/Hr) = 0.127
Minimum soil loss rate ((In/Hr)) = 0.063
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
		Sum = 100.000	Sum=	5.271

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.184	(0.127)	0.050	0.134
2	0.17	0.60	0.220	(0.127)	0.060	0.160
3	0.25	0.60	0.220	(0.127)	0.060	0.160
4	0.33	0.60	0.220	(0.127)	0.060	0.160
5	0.42	0.60	0.220	(0.127)	0.060	0.160
6	0.50	0.70	0.257	(0.127)	0.070	0.187
7	0.58	0.70	0.257	(0.127)	0.070	0.187
8	0.67	0.70	0.257	(0.127)	0.070	0.187
9	0.75	0.70	0.257	(0.127)	0.070	0.187
10	0.83	0.70	0.257	(0.127)	0.070	0.187
11	0.92	0.70	0.257	(0.127)	0.070	0.187
12	1.00	0.80	0.294	(0.127)	0.080	0.214
13	1.08	0.80	0.294	(0.127)	0.080	0.214
14	1.17	0.80	0.294	(0.127)	0.080	0.214
15	1.25	0.80	0.294	(0.127)	0.080	0.214
16	1.33	0.80	0.294	(0.127)	0.080	0.214
17	1.42	0.80	0.294	(0.127)	0.080	0.214
18	1.50	0.80	0.294	(0.127)	0.080	0.214
19	1.58	0.80	0.294	(0.127)	0.080	0.214
20	1.67	0.80	0.294	(0.127)	0.080	0.214
21	1.75	0.80	0.294	(0.127)	0.080	0.214
22	1.83	0.80	0.294	(0.127)	0.080	0.214
23	1.92	0.80	0.294	(0.127)	0.080	0.214
24	2.00	0.90	0.330	(0.127)	0.090	0.241
25	2.08	0.80	0.294	(0.127)	0.080	0.214
26	2.17	0.90	0.330	(0.127)	0.090	0.241
27	2.25	0.90	0.330	(0.127)	0.090	0.241
28	2.33	0.90	0.330	(0.127)	0.090	0.241
29	2.42	0.90	0.330	(0.127)	0.090	0.241
30	2.50	0.90	0.330	(0.127)	0.090	0.241
31	2.58	0.90	0.330	(0.127)	0.090	0.241
32	2.67	0.90	0.330	(0.127)	0.090	0.241
33	2.75	1.00	0.367	(0.127)	0.100	0.267
34	2.83	1.00	0.367	(0.127)	0.100	0.267
35	2.92	1.00	0.367	(0.127)	0.100	0.267
36	3.00	1.00	0.367	(0.127)	0.100	0.267
37	3.08	1.00	0.367	(0.127)	0.100	0.267
38	3.17	1.10	0.404	(0.127)	0.110	0.294

39	3.25	1.10	0.404	(0.127)	0.110	0.294
40	3.33	1.10	0.404	(0.127)	0.110	0.294
41	3.42	1.20	0.441	(0.127)	0.120	0.321
42	3.50	1.30	0.477	0.127	(0.130)	0.351
43	3.58	1.40	0.514	0.127	(0.140)	0.387
44	3.67	1.40	0.514	0.127	(0.140)	0.387
45	3.75	1.50	0.551	0.127	(0.150)	0.424
46	3.83	1.50	0.551	0.127	(0.150)	0.424
47	3.92	1.60	0.588	0.127	(0.160)	0.461
48	4.00	1.60	0.588	0.127	(0.160)	0.461
49	4.08	1.70	0.624	0.127	(0.170)	0.497
50	4.17	1.80	0.661	0.127	(0.180)	0.534
51	4.25	1.90	0.698	0.127	(0.190)	0.571
52	4.33	2.00	0.734	0.127	(0.200)	0.608
53	4.42	2.10	0.771	0.127	(0.210)	0.644
54	4.50	2.10	0.771	0.127	(0.210)	0.644
55	4.58	2.20	0.808	0.127	(0.220)	0.681
56	4.67	2.30	0.845	0.127	(0.230)	0.718
57	4.75	2.40	0.881	0.127	(0.240)	0.754
58	4.83	2.40	0.881	0.127	(0.240)	0.754
59	4.92	2.50	0.918	0.127	(0.250)	0.791
60	5.00	2.60	0.955	0.127	(0.260)	0.828
61	5.08	3.10	1.138	0.127	(0.310)	1.011
62	5.17	3.60	1.322	0.127	(0.360)	1.195
63	5.25	3.90	1.432	0.127	(0.390)	1.305
64	5.33	4.20	1.542	0.127	(0.419)	1.415
65	5.42	4.70	1.726	0.127	(0.469)	1.599
66	5.50	5.60	2.056	0.127	(0.559)	1.929
67	5.58	1.90	0.698	0.127	(0.190)	0.571
68	5.67	0.90	0.330	(0.127)	0.090	0.241
69	5.75	0.60	0.220	(0.127)	0.060	0.160
70	5.83	0.50	0.184	(0.127)	0.050	0.134
71	5.92	0.30	0.110	(0.127)	0.030	0.080
72	6.00	0.20	0.073	(0.127)	0.020	0.053

(Loss Rate Not Used)

Sum = 100.0 Sum = 29.8

Flood volume = Effective rainfall 2.48(In)
times area 5.2(Ac.)/[(In)/(Ft.)] = 1.1(Ac.Ft)
Total soil loss = 0.58(In)
Total soil loss = 0.253(Ac.Ft)
Total rainfall = 3.06(In)
Flood volume = 47075.8 Cubic Feet
Total soil loss = 11016.9 Cubic Feet

Peak flow rate of this hydrograph = 9.843(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0039	0.57	V Q				
0+10	0.0096	0.82	V Q				
0+15	0.0154	0.85	V Q				
0+20	0.0212	0.85	V Q				
0+25	0.0270	0.85	|V Q				
0+30	0.0337	0.96	|V Q				
0+35	0.0405	0.99	|V Q				
0+40	0.0473	0.99	|V Q				
0+45	0.0540	0.99	| VQ				
0+50	0.0608	0.99	| VQ				
0+55	0.0676	0.99	| VQ				
1+ 0	0.0752	1.10	| V Q				
1+ 5	0.0830	1.13	| VQ				
1+10	0.0908	1.13	| VQ				
1+15	0.0985	1.13	| VQ				

1+20	0.1063	1.13	VQ				
1+25	0.1141	1.13	Q				
1+30	0.1218	1.13	Q				
1+35	0.1296	1.13	Q				
1+40	0.1374	1.13	QV				
1+45	0.1451	1.13	QV				
1+50	0.1529	1.13	QV				
1+55	0.1607	1.13	QV				
2+ 0	0.1692	1.24	Q V				
2+ 5	0.1772	1.15	Q V				
2+10	0.1857	1.24	Q V				
2+15	0.1945	1.27	Q V				
2+20	0.2032	1.27	Q V				
2+25	0.2119	1.27	Q V				
2+30	0.2207	1.27	Q V				
2+35	0.2294	1.27	Q V				
2+40	0.2381	1.27	Q V				
2+45	0.2477	1.38	Q V				
2+50	0.2574	1.41	Q V				
2+55	0.2671	1.41	Q V				
3+ 0	0.2768	1.41	Q V				
3+ 5	0.2865	1.41	Q V				
3+10	0.2970	1.52	Q V				
3+15	0.3077	1.55	Q V				
3+20	0.3184	1.55	Q V				
3+25	0.3298	1.66	Q V				
3+30	0.3423	1.82	Q V				
3+35	0.3562	2.01	Q V				
3+40	0.3702	2.04	Q V				
3+45	0.3854	2.20	Q V				
3+50	0.4008	2.24	Q V				
3+55	0.4172	2.39	Q V				
4+ 0	0.4340	2.43	Q V				
4+ 5	0.4518	2.59	Q V				
4+10	0.4709	2.78	Q V				
4+15	0.4914	2.97	Q V				
4+20	0.5132	3.17	Q V				
4+25	0.5364	3.36	Q V				
4+30	0.5598	3.40	Q V				
4+35	0.5842	3.55	Q V				
4+40	0.6101	3.75	Q V				
4+45	0.6372	3.94	Q V				
4+50	0.6646	3.98	Q V				
4+55	0.6931	4.14	Q V				
5+ 0	0.7229	4.33	Q V				
5+ 5	0.7584	5.15	Q V				
5+10	0.8005	6.12	Q V				
5+15	0.8471	6.77	Q V				
5+20	0.8978	7.35	Q V				
5+25	0.9546	8.25	Q V				
5+30	1.0224	9.84	Q V				
5+35	1.0525	4.37	Q V				
5+40	1.0635	1.60	Q V				
5+45	1.0699	0.93	Q V				
5+50	1.0749	0.73	Q V				
5+55	1.0782	0.48	Q V				
6+ 0	1.0803	0.31	Q V				
6+ 5	1.0807	0.05	Q V				

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE2PROP100YR24HR24100.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 24-HOUR STORM - PROPOSED CONDITION @ NODE 2

Drainage Area = 5.23(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.23(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 522.00(Ft.)
Length along longest watercourse measured to centroid = 300.00(Ft.)
Length along longest watercourse = 0.099 Mi.
Length along longest watercourse measured to centroid = 0.057 Mi.
Difference in elevation = 5.00(Ft.)
Slope along watercourse = 50.5747 Ft./Mi.
Average Manning's 'N' = 0.007
Lag time = 0.011 Hr.
Lag time = 0.64 Min.
25% of lag time = 0.16 Min.
40% of lag time = 0.26 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	2.25	11.77

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.23	5.94	31.07

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 5.940(In)

Point rain (area averaged) = 5.940(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 5.940(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.230	63.50	0.785

Total Area Entered = 5.23(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.5	63.5	0.432	0.785	0.127	1.000	0.127
					Sum (F) =	0.127

Area averaged mean soil loss (F) (In/Hr) = 0.127
Minimum soil loss rate ((In/Hr)) = 0.063
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.272

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	778.970	80.976	4.268
2	0.167	1557.940	19.024	1.003
			Sum = 100.000 Sum=	5.271

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.225)	0.013	0.035
2	0.17	0.07	0.048	(0.224)	0.013	0.035
3	0.25	0.07	0.048	(0.223)	0.013	0.035
4	0.33	0.10	0.071	(0.222)	0.019	0.052
5	0.42	0.10	0.071	(0.221)	0.019	0.052
6	0.50	0.10	0.071	(0.221)	0.019	0.052
7	0.58	0.10	0.071	(0.220)	0.019	0.052
8	0.67	0.10	0.071	(0.219)	0.019	0.052
9	0.75	0.10	0.071	(0.218)	0.019	0.052
10	0.83	0.13	0.095	(0.217)	0.026	0.069
11	0.92	0.13	0.095	(0.216)	0.026	0.069
12	1.00	0.13	0.095	(0.215)	0.026	0.069
13	1.08	0.10	0.071	(0.215)	0.019	0.052
14	1.17	0.10	0.071	(0.214)	0.019	0.052
15	1.25	0.10	0.071	(0.213)	0.019	0.052
16	1.33	0.10	0.071	(0.212)	0.019	0.052
17	1.42	0.10	0.071	(0.211)	0.019	0.052
18	1.50	0.10	0.071	(0.210)	0.019	0.052
19	1.58	0.10	0.071	(0.209)	0.019	0.052
20	1.67	0.10	0.071	(0.209)	0.019	0.052
21	1.75	0.10	0.071	(0.208)	0.019	0.052
22	1.83	0.13	0.095	(0.207)	0.026	0.069
23	1.92	0.13	0.095	(0.206)	0.026	0.069
24	2.00	0.13	0.095	(0.205)	0.026	0.069
25	2.08	0.13	0.095	(0.204)	0.026	0.069
26	2.17	0.13	0.095	(0.204)	0.026	0.069
27	2.25	0.13	0.095	(0.203)	0.026	0.069
28	2.33	0.13	0.095	(0.202)	0.026	0.069
29	2.42	0.13	0.095	(0.201)	0.026	0.069
30	2.50	0.13	0.095	(0.200)	0.026	0.069
31	2.58	0.17	0.119	(0.200)	0.032	0.086
32	2.67	0.17	0.119	(0.199)	0.032	0.086
33	2.75	0.17	0.119	(0.198)	0.032	0.086
34	2.83	0.17	0.119	(0.197)	0.032	0.086
35	2.92	0.17	0.119	(0.196)	0.032	0.086
36	3.00	0.17	0.119	(0.195)	0.032	0.086
37	3.08	0.17	0.119	(0.195)	0.032	0.086
38	3.17	0.17	0.119	(0.194)	0.032	0.086
39	3.25	0.17	0.119	(0.193)	0.032	0.086
40	3.33	0.17	0.119	(0.192)	0.032	0.086

41	3.42	0.17	0.119	(0.191)	0.032	0.086
42	3.50	0.17	0.119	(0.191)	0.032	0.086
43	3.58	0.17	0.119	(0.190)	0.032	0.086
44	3.67	0.17	0.119	(0.189)	0.032	0.086
45	3.75	0.17	0.119	(0.188)	0.032	0.086
46	3.83	0.20	0.143	(0.187)	0.039	0.104
47	3.92	0.20	0.143	(0.187)	0.039	0.104
48	4.00	0.20	0.143	(0.186)	0.039	0.104
49	4.08	0.20	0.143	(0.185)	0.039	0.104
50	4.17	0.20	0.143	(0.184)	0.039	0.104
51	4.25	0.20	0.143	(0.183)	0.039	0.104
52	4.33	0.23	0.166	(0.183)	0.045	0.121
53	4.42	0.23	0.166	(0.182)	0.045	0.121
54	4.50	0.23	0.166	(0.181)	0.045	0.121
55	4.58	0.23	0.166	(0.180)	0.045	0.121
56	4.67	0.23	0.166	(0.180)	0.045	0.121
57	4.75	0.23	0.166	(0.179)	0.045	0.121
58	4.83	0.27	0.190	(0.178)	0.052	0.138
59	4.92	0.27	0.190	(0.177)	0.052	0.138
60	5.00	0.27	0.190	(0.177)	0.052	0.138
61	5.08	0.20	0.143	(0.176)	0.039	0.104
62	5.17	0.20	0.143	(0.175)	0.039	0.104
63	5.25	0.20	0.143	(0.174)	0.039	0.104
64	5.33	0.23	0.166	(0.173)	0.045	0.121
65	5.42	0.23	0.166	(0.173)	0.045	0.121
66	5.50	0.23	0.166	(0.172)	0.045	0.121
67	5.58	0.27	0.190	(0.171)	0.052	0.138
68	5.67	0.27	0.190	(0.170)	0.052	0.138
69	5.75	0.27	0.190	(0.170)	0.052	0.138
70	5.83	0.27	0.190	(0.169)	0.052	0.138
71	5.92	0.27	0.190	(0.168)	0.052	0.138
72	6.00	0.27	0.190	(0.167)	0.052	0.138
73	6.08	0.30	0.214	(0.167)	0.058	0.156
74	6.17	0.30	0.214	(0.166)	0.058	0.156
75	6.25	0.30	0.214	(0.165)	0.058	0.156
76	6.33	0.30	0.214	(0.164)	0.058	0.156
77	6.42	0.30	0.214	(0.164)	0.058	0.156
78	6.50	0.30	0.214	(0.163)	0.058	0.156
79	6.58	0.33	0.238	(0.162)	0.065	0.173
80	6.67	0.33	0.238	(0.162)	0.065	0.173
81	6.75	0.33	0.238	(0.161)	0.065	0.173
82	6.83	0.33	0.238	(0.160)	0.065	0.173
83	6.92	0.33	0.238	(0.159)	0.065	0.173
84	7.00	0.33	0.238	(0.159)	0.065	0.173
85	7.08	0.33	0.238	(0.158)	0.065	0.173
86	7.17	0.33	0.238	(0.157)	0.065	0.173
87	7.25	0.33	0.238	(0.156)	0.065	0.173
88	7.33	0.37	0.261	(0.156)	0.071	0.190
89	7.42	0.37	0.261	(0.155)	0.071	0.190
90	7.50	0.37	0.261	(0.154)	0.071	0.190
91	7.58	0.40	0.285	(0.154)	0.078	0.208
92	7.67	0.40	0.285	(0.153)	0.078	0.208
93	7.75	0.40	0.285	(0.152)	0.078	0.208
94	7.83	0.43	0.309	(0.152)	0.084	0.225
95	7.92	0.43	0.309	(0.151)	0.084	0.225
96	8.00	0.43	0.309	(0.150)	0.084	0.225
97	8.08	0.50	0.356	(0.149)	0.097	0.259
98	8.17	0.50	0.356	(0.149)	0.097	0.259
99	8.25	0.50	0.356	(0.148)	0.097	0.259
100	8.33	0.50	0.356	(0.147)	0.097	0.259
101	8.42	0.50	0.356	(0.147)	0.097	0.259
102	8.50	0.50	0.356	(0.146)	0.097	0.259
103	8.58	0.53	0.380	(0.145)	0.103	0.277
104	8.67	0.53	0.380	(0.145)	0.103	0.277
105	8.75	0.53	0.380	(0.144)	0.103	0.277
106	8.83	0.57	0.404	(0.143)	0.110	0.294
107	8.92	0.57	0.404	(0.143)	0.110	0.294
108	9.00	0.57	0.404	(0.142)	0.110	0.294
109	9.08	0.63	0.451	(0.141)	0.123	0.329
110	9.17	0.63	0.451	(0.141)	0.123	0.329
111	9.25	0.63	0.451	(0.140)	0.123	0.329

112	9.33	0.67	0.475	(0.139)	0.129	0.346
113	9.42	0.67	0.475	(0.139)	0.129	0.346
114	9.50	0.67	0.475	(0.138)	0.129	0.346
115	9.58	0.70	0.499	(0.137)	0.136	0.363
116	9.67	0.70	0.499	(0.137)	0.136	0.363
117	9.75	0.70	0.499	(0.136)	0.136	0.363
118	9.83	0.73	0.523	0.135	(0.142)	0.387
119	9.92	0.73	0.523	0.135	(0.142)	0.388
120	10.00	0.73	0.523	0.134	(0.142)	0.389
121	10.08	0.50	0.356	(0.133)	0.097	0.259
122	10.17	0.50	0.356	(0.133)	0.097	0.259
123	10.25	0.50	0.356	(0.132)	0.097	0.259
124	10.33	0.50	0.356	(0.131)	0.097	0.259
125	10.42	0.50	0.356	(0.131)	0.097	0.259
126	10.50	0.50	0.356	(0.130)	0.097	0.259
127	10.58	0.67	0.475	(0.129)	0.129	0.346
128	10.67	0.67	0.475	0.129	(0.129)	0.346
129	10.75	0.67	0.475	0.128	(0.129)	0.347
130	10.83	0.67	0.475	0.128	(0.129)	0.348
131	10.92	0.67	0.475	0.127	(0.129)	0.348
132	11.00	0.67	0.475	0.126	(0.129)	0.349
133	11.08	0.63	0.451	(0.126)	0.123	0.329
134	11.17	0.63	0.451	(0.125)	0.123	0.329
135	11.25	0.63	0.451	(0.124)	0.123	0.329
136	11.33	0.63	0.451	(0.124)	0.123	0.329
137	11.42	0.63	0.451	(0.123)	0.123	0.329
138	11.50	0.63	0.451	0.123	(0.123)	0.329
139	11.58	0.57	0.404	(0.122)	0.110	0.294
140	11.67	0.57	0.404	(0.121)	0.110	0.294
141	11.75	0.57	0.404	(0.121)	0.110	0.294
142	11.83	0.60	0.428	(0.120)	0.116	0.311
143	11.92	0.60	0.428	(0.120)	0.116	0.311
144	12.00	0.60	0.428	(0.119)	0.116	0.311
145	12.08	0.83	0.594	0.118	(0.162)	0.476
146	12.17	0.83	0.594	0.118	(0.162)	0.476
147	12.25	0.83	0.594	0.117	(0.162)	0.477
148	12.33	0.87	0.618	0.117	(0.168)	0.501
149	12.42	0.87	0.618	0.116	(0.168)	0.502
150	12.50	0.87	0.618	0.115	(0.168)	0.502
151	12.58	0.93	0.665	0.115	(0.181)	0.550
152	12.67	0.93	0.665	0.114	(0.181)	0.551
153	12.75	0.93	0.665	0.114	(0.181)	0.552
154	12.83	0.97	0.689	0.113	(0.187)	0.576
155	12.92	0.97	0.689	0.113	(0.187)	0.576
156	13.00	0.97	0.689	0.112	(0.187)	0.577
157	13.08	1.13	0.808	0.111	(0.220)	0.696
158	13.17	1.13	0.808	0.111	(0.220)	0.697
159	13.25	1.13	0.808	0.110	(0.220)	0.698
160	13.33	1.13	0.808	0.110	(0.220)	0.698
161	13.42	1.13	0.808	0.109	(0.220)	0.699
162	13.50	1.13	0.808	0.109	(0.220)	0.699
163	13.58	0.77	0.546	0.108	(0.149)	0.438
164	13.67	0.77	0.546	0.108	(0.149)	0.439
165	13.75	0.77	0.546	0.107	(0.149)	0.439
166	13.83	0.77	0.546	0.106	(0.149)	0.440
167	13.92	0.77	0.546	0.106	(0.149)	0.441
168	14.00	0.77	0.546	0.105	(0.149)	0.441
169	14.08	0.90	0.642	0.105	(0.174)	0.537
170	14.17	0.90	0.642	0.104	(0.174)	0.537
171	14.25	0.90	0.642	0.104	(0.174)	0.538
172	14.33	0.87	0.618	0.103	(0.168)	0.515
173	14.42	0.87	0.618	0.103	(0.168)	0.515
174	14.50	0.87	0.618	0.102	(0.168)	0.516
175	14.58	0.87	0.618	0.102	(0.168)	0.516
176	14.67	0.87	0.618	0.101	(0.168)	0.517
177	14.75	0.87	0.618	0.101	(0.168)	0.517
178	14.83	0.83	0.594	0.100	(0.162)	0.494
179	14.92	0.83	0.594	0.100	(0.162)	0.494
180	15.00	0.83	0.594	0.099	(0.162)	0.495
181	15.08	0.80	0.570	0.099	(0.155)	0.472
182	15.17	0.80	0.570	0.098	(0.155)	0.472

183	15.25	0.80	0.570	0.098	(0.155)	0.473
184	15.33	0.77	0.546	0.097	(0.149)	0.449
185	15.42	0.77	0.546	0.097	(0.149)	0.450
186	15.50	0.77	0.546	0.096	(0.149)	0.450
187	15.58	0.63	0.451	0.096	(0.123)	0.356
188	15.67	0.63	0.451	0.095	(0.123)	0.356
189	15.75	0.63	0.451	0.095	(0.123)	0.357
190	15.83	0.63	0.451	0.094	(0.123)	0.357
191	15.92	0.63	0.451	0.094	(0.123)	0.358
192	16.00	0.63	0.451	0.093	(0.123)	0.358
193	16.08	0.13	0.095	(0.093)	0.026	0.069
194	16.17	0.13	0.095	(0.092)	0.026	0.069
195	16.25	0.13	0.095	(0.092)	0.026	0.069
196	16.33	0.13	0.095	(0.091)	0.026	0.069
197	16.42	0.13	0.095	(0.091)	0.026	0.069
198	16.50	0.13	0.095	(0.090)	0.026	0.069
199	16.58	0.10	0.071	(0.090)	0.019	0.052
200	16.67	0.10	0.071	(0.089)	0.019	0.052
201	16.75	0.10	0.071	(0.089)	0.019	0.052
202	16.83	0.10	0.071	(0.089)	0.019	0.052
203	16.92	0.10	0.071	(0.088)	0.019	0.052
204	17.00	0.10	0.071	(0.088)	0.019	0.052
205	17.08	0.17	0.119	(0.087)	0.032	0.086
206	17.17	0.17	0.119	(0.087)	0.032	0.086
207	17.25	0.17	0.119	(0.086)	0.032	0.086
208	17.33	0.17	0.119	(0.086)	0.032	0.086
209	17.42	0.17	0.119	(0.085)	0.032	0.086
210	17.50	0.17	0.119	(0.085)	0.032	0.086
211	17.58	0.17	0.119	(0.085)	0.032	0.086
212	17.67	0.17	0.119	(0.084)	0.032	0.086
213	17.75	0.17	0.119	(0.084)	0.032	0.086
214	17.83	0.13	0.095	(0.083)	0.026	0.069
215	17.92	0.13	0.095	(0.083)	0.026	0.069
216	18.00	0.13	0.095	(0.083)	0.026	0.069
217	18.08	0.13	0.095	(0.082)	0.026	0.069
218	18.17	0.13	0.095	(0.082)	0.026	0.069
219	18.25	0.13	0.095	(0.081)	0.026	0.069
220	18.33	0.13	0.095	(0.081)	0.026	0.069
221	18.42	0.13	0.095	(0.081)	0.026	0.069
222	18.50	0.13	0.095	(0.080)	0.026	0.069
223	18.58	0.10	0.071	(0.080)	0.019	0.052
224	18.67	0.10	0.071	(0.079)	0.019	0.052
225	18.75	0.10	0.071	(0.079)	0.019	0.052
226	18.83	0.07	0.048	(0.079)	0.013	0.035
227	18.92	0.07	0.048	(0.078)	0.013	0.035
228	19.00	0.07	0.048	(0.078)	0.013	0.035
229	19.08	0.10	0.071	(0.077)	0.019	0.052
230	19.17	0.10	0.071	(0.077)	0.019	0.052
231	19.25	0.10	0.071	(0.077)	0.019	0.052
232	19.33	0.13	0.095	(0.076)	0.026	0.069
233	19.42	0.13	0.095	(0.076)	0.026	0.069
234	19.50	0.13	0.095	(0.076)	0.026	0.069
235	19.58	0.10	0.071	(0.075)	0.019	0.052
236	19.67	0.10	0.071	(0.075)	0.019	0.052
237	19.75	0.10	0.071	(0.075)	0.019	0.052
238	19.83	0.07	0.048	(0.074)	0.013	0.035
239	19.92	0.07	0.048	(0.074)	0.013	0.035
240	20.00	0.07	0.048	(0.074)	0.013	0.035
241	20.08	0.10	0.071	(0.073)	0.019	0.052
242	20.17	0.10	0.071	(0.073)	0.019	0.052
243	20.25	0.10	0.071	(0.073)	0.019	0.052
244	20.33	0.10	0.071	(0.072)	0.019	0.052
245	20.42	0.10	0.071	(0.072)	0.019	0.052
246	20.50	0.10	0.071	(0.072)	0.019	0.052
247	20.58	0.10	0.071	(0.071)	0.019	0.052
248	20.67	0.10	0.071	(0.071)	0.019	0.052
249	20.75	0.10	0.071	(0.071)	0.019	0.052
250	20.83	0.07	0.048	(0.071)	0.013	0.035
251	20.92	0.07	0.048	(0.070)	0.013	0.035
252	21.00	0.07	0.048	(0.070)	0.013	0.035
253	21.08	0.10	0.071	(0.070)	0.019	0.052

254	21.17	0.10	0.071	(0.069)	0.019	0.052
255	21.25	0.10	0.071	(0.069)	0.019	0.052
256	21.33	0.07	0.048	(0.069)	0.013	0.035
257	21.42	0.07	0.048	(0.069)	0.013	0.035
258	21.50	0.07	0.048	(0.068)	0.013	0.035
259	21.58	0.10	0.071	(0.068)	0.019	0.052
260	21.67	0.10	0.071	(0.068)	0.019	0.052
261	21.75	0.10	0.071	(0.068)	0.019	0.052
262	21.83	0.07	0.048	(0.067)	0.013	0.035
263	21.92	0.07	0.048	(0.067)	0.013	0.035
264	22.00	0.07	0.048	(0.067)	0.013	0.035
265	22.08	0.10	0.071	(0.067)	0.019	0.052
266	22.17	0.10	0.071	(0.067)	0.019	0.052
267	22.25	0.10	0.071	(0.066)	0.019	0.052
268	22.33	0.07	0.048	(0.066)	0.013	0.035
269	22.42	0.07	0.048	(0.066)	0.013	0.035
270	22.50	0.07	0.048	(0.066)	0.013	0.035
271	22.58	0.07	0.048	(0.066)	0.013	0.035
272	22.67	0.07	0.048	(0.065)	0.013	0.035
273	22.75	0.07	0.048	(0.065)	0.013	0.035
274	22.83	0.07	0.048	(0.065)	0.013	0.035
275	22.92	0.07	0.048	(0.065)	0.013	0.035
276	23.00	0.07	0.048	(0.065)	0.013	0.035
277	23.08	0.07	0.048	(0.065)	0.013	0.035
278	23.17	0.07	0.048	(0.064)	0.013	0.035
279	23.25	0.07	0.048	(0.064)	0.013	0.035
280	23.33	0.07	0.048	(0.064)	0.013	0.035
281	23.42	0.07	0.048	(0.064)	0.013	0.035
282	23.50	0.07	0.048	(0.064)	0.013	0.035
283	23.58	0.07	0.048	(0.064)	0.013	0.035
284	23.67	0.07	0.048	(0.064)	0.013	0.035
285	23.75	0.07	0.048	(0.064)	0.013	0.035
286	23.83	0.07	0.048	(0.064)	0.013	0.035
287	23.92	0.07	0.048	(0.063)	0.013	0.035
288	24.00	0.07	0.048	(0.063)	0.013	0.035

(Loss Rate Not Used)

Sum = 100.0 Sum = 54.8

Flood volume = Effective rainfall 4.57(In)
times area 5.2(Ac.)/[(In)/(Ft.)] = 2.0(Ac.Ft)
Total soil loss = 1.37(In)
Total soil loss = 0.597(Ac.Ft)
Total rainfall = 5.94(In)
Flood volume = 86752.9 Cubic Feet
Total soil loss = 26016.3 Cubic Feet

Peak flow rate of this hydrograph = 3.687(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	0.0010	0.15	Q				
0+10	0.0023	0.18	Q				
0+15	0.0035	0.18	Q				
0+20	0.0053	0.26	VQ				
0+25	0.0072	0.27	VQ				
0+30	0.0091	0.27	VQ				
0+35	0.0109	0.27	VQ				
0+40	0.0128	0.27	VQ				
0+45	0.0147	0.27	VQ				
0+50	0.0171	0.35	VQ				
0+55	0.0196	0.36	VQ				
1+ 0	0.0221	0.36	VQ				
1+ 5	0.0241	0.29	VQ				
1+10	0.0260	0.27	VQ				
1+15	0.0279	0.27	VQ				

1+20	0.0298	0.27	VQ	|	|	|	|
1+25	0.0317	0.27	VQ	|	|	|	|
1+30	0.0336	0.27	VQ	|	|	|	|
1+35	0.0355	0.27	VQ	|	|	|	|
1+40	0.0373	0.27	VQ	|	|	|	|
1+45	0.0392	0.27	VQ	|	|	|	|
1+50	0.0416	0.35	VQ	|	|	|	|
1+55	0.0441	0.36	VQ	|	|	|	|
2+ 0	0.0466	0.36	VQ	|	|	|	|
2+ 5	0.0492	0.36	VQ	|	|	|	|
2+10	0.0517	0.36	|Q	|	|	|	|
2+15	0.0542	0.36	|Q	|	|	|	|
2+20	0.0567	0.36	|Q	|	|	|	|
2+25	0.0592	0.36	|Q	|	|	|	|
2+30	0.0617	0.36	|Q	|	|	|	|
2+35	0.0647	0.44	|Q	|	|	|	|
2+40	0.0679	0.46	|Q	|	|	|	|
2+45	0.0710	0.46	|Q	|	|	|	|
2+50	0.0742	0.46	|Q	|	|	|	|
2+55	0.0773	0.46	|Q	|	|	|	|
3+ 0	0.0804	0.46	|Q	|	|	|	|
3+ 5	0.0836	0.46	|Q	|	|	|	|
3+10	0.0867	0.46	|Q	|	|	|	|
3+15	0.0899	0.46	|Q	|	|	|	|
3+20	0.0930	0.46	|Q	|	|	|	|
3+25	0.0961	0.46	|Q	|	|	|	|
3+30	0.0993	0.46	|Q	|	|	|	|
3+35	0.1024	0.46	|QV	|	|	|	|
3+40	0.1056	0.46	|QV	|	|	|	|
3+45	0.1087	0.46	|QV	|	|	|	|
3+50	0.1124	0.53	| Q	|	|	|	|
3+55	0.1161	0.55	| Q	|	|	|	|
4+ 0	0.1199	0.55	| Q	|	|	|	|
4+ 5	0.1237	0.55	| Q	|	|	|	|
4+10	0.1274	0.55	| Q	|	|	|	|
4+15	0.1312	0.55	| Q	|	|	|	|
4+20	0.1355	0.62	| Q	|	|	|	|
4+25	0.1399	0.64	| Q	|	|	|	|
4+30	0.1443	0.64	| Q	|	|	|	|
4+35	0.1487	0.64	| Q	|	|	|	|
4+40	0.1531	0.64	| QV	|	|	|	|
4+45	0.1575	0.64	| QV	|	|	|	|
4+50	0.1624	0.71	| QV	|	|	|	|
4+55	0.1674	0.73	| QV	|	|	|	|
5+ 0	0.1724	0.73	| QV	|	|	|	|
5+ 5	0.1764	0.58	| QV	|	|	|	|
5+10	0.1802	0.55	| QV	|	|	|	|
5+15	0.1840	0.55	| QV	|	|	|	|
5+20	0.1883	0.62	| QV	|	|	|	|
5+25	0.1927	0.64	| QV	|	|	|	|
5+30	0.1971	0.64	| QV	|	|	|	|
5+35	0.2020	0.71	| Q V	|	|	|	|
5+40	0.2070	0.73	| Q V	|	|	|	|
5+45	0.2120	0.73	| Q V	|	|	|	|
5+50	0.2170	0.73	| Q V	|	|	|	|
5+55	0.2221	0.73	| Q V	|	|	|	|
6+ 0	0.2271	0.73	| Q V	|	|	|	|
6+ 5	0.2326	0.80	| QV	|	|	|	|
6+10	0.2383	0.82	| QV	|	|	|	|
6+15	0.2439	0.82	| QV	|	|	|	|
6+20	0.2496	0.82	| Q V	|	|	|	|
6+25	0.2552	0.82	| Q V	|	|	|	|
6+30	0.2609	0.82	| Q V	|	|	|	|
6+35	0.2671	0.89	| Q V	|	|	|	|
6+40	0.2733	0.91	| Q V	|	|	|	|
6+45	0.2796	0.91	| Q V	|	|	|	|
6+50	0.2859	0.91	| Q V	|	|	|	|
6+55	0.2922	0.91	| Q V	|	|	|	|
7+ 0	0.2985	0.91	| Q V	|	|	|	|
7+ 5	0.3047	0.91	| Q V	|	|	|	|
7+10	0.3110	0.91	| Q V	|	|	|	|

```
 7+15       0.3173      0.91  |  Q  V   |          |          |          |
 7+20       0.3241      0.99  |  Q  V   |          |          |          |
 7+25       0.3310      1.00  |   Q V   |          |          |          |
 7+30       0.3379      1.00  |   Q V   |          |          |          |
 7+35       0.3453      1.08  |   Q V   |          |          |          |
 7+40       0.3529      1.09  |   Q  V  |          |          |          |
 7+45       0.3604      1.09  |   Q  V  |          |          |          |
 7+50       0.3685      1.17  |   Q  V  |          |          |          |
 7+55       0.3766      1.19  |   Q  V  |          |          |          |
 8+ 0       0.3848      1.19  |   Q  V  |          |          |          |
 8+ 5       0.3940      1.33  |    Q V  |          |          |          |
 8+10       0.4034      1.37  |    Q  V |          |          |          |
 8+15       0.4128      1.37  |    Q  V |          |          |          |
 8+20       0.4223      1.37  |    Q  V |          |          |          |
 8+25       0.4317      1.37  |    Q  V |          |          |          |
 8+30       0.4411      1.37  |    Q  V |          |          |          |
 8+35       0.4510      1.44  |    Q   V|          |          |          |
 8+40       0.4611      1.46  |    Q   V|          |          |          |
 8+45       0.4711      1.46  |    Q   V|          |          |          |
 8+50       0.4817      1.53  |     Q  V|          |          |          |
 8+55       0.4924      1.55  |     Q  V|          |          |          |
 9+ 0       0.5031      1.55  |     Q   V          |          |          |
 9+ 5       0.5148      1.70  |     Q   V          |          |          |
 9+10       0.5267      1.73  |     Q   V          |          |          |
 9+15       0.5386      1.73  |     Q   V          |          |          |
 9+20       0.5511      1.81  |      Q  |V         |          |          |
 9+25       0.5636      1.82  |      Q  |V         |          |          |
 9+30       0.5762      1.82  |      Q  |V         |          |          |
 9+35       0.5893      1.90  |      Q  |V         |          |          |
 9+40       0.6025      1.92  |      Q  | V        |          |          |
 9+45       0.6157      1.92  |      Q  | V        |          |          |
 9+50       0.6296      2.02  |       Q | V        |          |          |
 9+55       0.6437      2.05  |       Q | V        |          |          |
10+ 0       0.6578      2.05  |       Q |  V       |          |          |
10+ 5       0.6681      1.50  |    Q    |  V       |          |          |
10+10       0.6775      1.37  |    Q    |  V       |          |          |
10+15       0.6869      1.37  |    Q    |  V       |          |          |
10+20       0.6964      1.37  |    Q    |  V       |          |          |
10+25       0.7058      1.37  |    Q    |   V      |          |          |
10+30       0.7152      1.37  |    Q    |   V      |          |          |
10+35       0.7272      1.74  |     Q   |   V      |          |          |
10+40       0.7397      1.83  |      Q  |   V      |          |          |
10+45       0.7523      1.83  |      Q  |    V     |          |          |
10+50       0.7650      1.83  |      Q  |    V     |          |          |
10+55       0.7776      1.84  |      Q  |    V     |          |          |
11+ 0       0.7903      1.84  |      Q  |    V     |          |          |
11+ 5       0.8024      1.75  |      Q  |     V    |          |          |
11+10       0.8143      1.73  |     Q   |     V    |          |          |
11+15       0.8262      1.73  |     Q   |     V    |          |          |
11+20       0.8382      1.73  |     Q   |     V    |          |          |
11+25       0.8501      1.73  |     Q   |      V   |          |          |
11+30       0.8620      1.73  |     Q   |      V   |          |          |
11+35       0.8730      1.59  |     Q   |      V   |          |          |
11+40       0.8836      1.55  |     Q   |      V   |          |          |
11+45       0.8943      1.55  |     Q   |      V   |          |          |
11+50       0.9055      1.62  |     Q   |       V  |          |          |
11+55       0.9168      1.64  |     Q   |       V  |          |          |
12+ 0       0.9281      1.64  |     Q   |       V  |          |          |
12+ 5       0.9443      2.34  |        Q|       V  |          |          |
12+10       0.9616      2.51  |         Q        V|          |          |
12+15       0.9789      2.51  |         Q        V|          |          |
12+20       0.9969      2.62  |         Q         V          |          |
12+25       1.0151      2.65  |         Q         V          |          |
12+30       1.0334      2.65  |         Q         V          |          |
12+35       1.0530      2.85  |         |Q        |V         |          |
12+40       1.0730      2.90  |         |Q        |V         |          |
12+45       1.0930      2.91  |         |Q        |V         |          |
12+50       1.1138      3.01  |         | Q       | V        |          |
12+55       1.1347      3.04  |         | Q       | V        |          |
13+ 0       1.1557      3.04  |         | Q       |  V       |          |
13+ 5       1.1801      3.55  |         |   Q     |  V       |          |
```

```
13+10       1.2055      3.67  |          |   Q      |   V      |          |
13+15       1.2308      3.68  |          |   Q      |   V      |          |
13+20       1.2561      3.68  |          |   Q      |    V     |          |
13+25       1.2815      3.68  |          |   Q      |    V     |          |
13+30       1.3069      3.69  |          |   Q      |     V    |          |
13+35       1.3246      2.57  |          Q          |     V    |          |
13+40       1.3406      2.31  |         Q|          |     V    |          |
13+45       1.3565      2.32  |         Q|          |      V   |          |
13+50       1.3725      2.32  |         Q|          |      V   |          |
13+55       1.3885      2.32  |         Q|          |      V   |          |
14+ 0       1.4045      2.33  |         Q|          |       V  |          |
14+ 5       1.4233      2.73  |          Q          |       V  |          |
14+10       1.4428      2.83  |          |Q         |       V  |          |
14+15       1.4624      2.84  |          |Q         |        V |          |
14+20       1.4812      2.74  |          Q          |        V |          |
14+25       1.4999      2.72  |          Q          |         V          |
14+30       1.5186      2.72  |          Q          |         V          |
14+35       1.5374      2.72  |          Q          |         V          |
14+40       1.5561      2.72  |          Q          |          |V        |
14+45       1.5749      2.73  |          Q          |          |V        |
14+50       1.5930      2.63  |          Q          |          |V        |
14+55       1.6110      2.61  |          Q          |          | V       |
15+ 0       1.6289      2.61  |          Q          |          | V       |
15+ 5       1.6462      2.51  |          Q          |          |  V      |
15+10       1.6634      2.49  |         Q|          |          |  V      |
15+15       1.6805      2.49  |         Q|          |          |  V      |
15+20       1.6970      2.39  |         Q|          |          |   V     |
15+25       1.7134      2.37  |         Q|          |          |   V     |
15+30       1.7297      2.37  |         Q|          |          |   V     |
15+35       1.7433      1.97  |      Q   |          |          |    V    |
15+40       1.7562      1.88  |      Q   |          |          |    V    |
15+45       1.7692      1.88  |      Q   |          |          |    V    |
15+50       1.7822      1.88  |      Q   |          |          |    V    |
15+55       1.7952      1.89  |      Q   |          |          |     V   |
16+ 0       1.8082      1.89  |      Q   |          |          |     V   |
16+ 5       1.8127      0.65  | Q        |          |          |     V   |
16+10       1.8152      0.36  |Q         |          |          |     V   |
16+15       1.8177      0.36  |Q         |          |          |     V   |
16+20       1.8202      0.36  |Q         |          |          |     V   |
16+25       1.8227      0.36  |Q         |          |          |     V   |
16+30       1.8252      0.36  |Q         |          |          |     V   |
16+35       1.8272      0.29  |Q         |          |          |     V   |
16+40       1.8291      0.27  |Q         |          |          |     V   |
16+45       1.8310      0.27  |Q         |          |          |     V   |
16+50       1.8329      0.27  |Q         |          |          |     V   |
16+55       1.8348      0.27  |Q         |          |          |     V   |
17+ 0       1.8367      0.27  |Q         |          |          |     V   |
17+ 5       1.8396      0.42  |Q         |          |          |     V   |
17+10       1.8427      0.46  |Q         |          |          |      V  |
17+15       1.8459      0.46  |Q         |          |          |      V  |
17+20       1.8490      0.46  |Q         |          |          |      V  |
17+25       1.8521      0.46  |Q         |          |          |      V  |
17+30       1.8553      0.46  |Q         |          |          |      V  |
17+35       1.8584      0.46  |Q         |          |          |      V  |
17+40       1.8616      0.46  |Q         |          |          |      V  |
17+45       1.8647      0.46  |Q         |          |          |      V  |
17+50       1.8673      0.38  |Q         |          |          |      V  |
17+55       1.8698      0.36  |Q         |          |          |      V  |
18+ 0       1.8724      0.36  |Q         |          |          |      V  |
18+ 5       1.8749      0.36  |Q         |          |          |      V  |
18+10       1.8774      0.36  |Q         |          |          |      V  |
18+15       1.8799      0.36  |Q         |          |          |      V  |
18+20       1.8824      0.36  |Q         |          |          |      V  |
18+25       1.8849      0.36  |Q         |          |          |      V  |
18+30       1.8874      0.36  |Q         |          |          |      V  |
18+35       1.8894      0.29  |Q         |          |          |      V  |
18+40       1.8913      0.27  |Q         |          |          |      V  |
18+45       1.8932      0.27  |Q         |          |          |       V |
18+50       1.8946      0.20  Q          |          |          |       V |
18+55       1.8958      0.18  Q          |          |          |       V |
19+ 0       1.8971      0.18  Q          |          |          |       V |
```

19+ 5	1.8989	0.26	|Q	|	|	|	V |
19+10	1.9007	0.27	|Q	|	|	|	V |
19+15	1.9026	0.27	|Q	|	|	|	V |
19+20	1.9050	0.35	|Q	|	|	|	V |
19+25	1.9075	0.36	|Q	|	|	|	V |
19+30	1.9101	0.36	|Q	|	|	|	V |
19+35	1.9121	0.29	|Q	|	|	|	V |
19+40	1.9139	0.27	|Q	|	|	|	V |
19+45	1.9158	0.27	|Q	|	|	|	V |
19+50	1.9172	0.20	Q	|	|	|	V |
19+55	1.9185	0.18	Q	|	|	|	V |
20+ 0	1.9197	0.18	Q	|	|	|	V |
20+ 5	1.9215	0.26	|Q	|	|	|	V |
20+10	1.9234	0.27	|Q	|	|	|	V |
20+15	1.9253	0.27	|Q	|	|	|	V |
20+20	1.9271	0.27	|Q	|	|	|	V |
20+25	1.9290	0.27	|Q	|	|	|	V |
20+30	1.9309	0.27	|Q	|	|	|	V |
20+35	1.9328	0.27	|Q	|	|	|	V |
20+40	1.9347	0.27	|Q	|	|	|	V |
20+45	1.9366	0.27	|Q	|	|	|	V |
20+50	1.9379	0.20	Q	|	|	|	V |
20+55	1.9392	0.18	Q	|	|	|	V |
21+ 0	1.9404	0.18	Q	|	|	|	V |
21+ 5	1.9422	0.26	|Q	|	|	|	V|
21+10	1.9441	0.27	|Q	|	|	|	V|
21+15	1.9460	0.27	|Q	|	|	|	V|
21+20	1.9474	0.20	Q	|	|	|	V|
21+25	1.9486	0.18	Q	|	|	|	V|
21+30	1.9499	0.18	Q	|	|	|	V|
21+35	1.9516	0.26	|Q	|	|	|	V|
21+40	1.9535	0.27	|Q	|	|	|	V|
21+45	1.9554	0.27	|Q	|	|	|	V|
21+50	1.9568	0.20	Q	|	|	|	V|
21+55	1.9580	0.18	Q	|	|	|	V|
22+ 0	1.9593	0.18	Q	|	|	|	V|
22+ 5	1.9611	0.26	|Q	|	|	|	V|
22+10	1.9629	0.27	|Q	|	|	|	V|
22+15	1.9648	0.27	|Q	|	|	|	V|
22+20	1.9662	0.20	Q	|	|	|	V|
22+25	1.9675	0.18	Q	|	|	|	V|
22+30	1.9687	0.18	Q	|	|	|	V|
22+35	1.9700	0.18	Q	|	|	|	V|
22+40	1.9712	0.18	Q	|	|	|	V|
22+45	1.9725	0.18	Q	|	|	|	V|
22+50	1.9737	0.18	Q	|	|	|	V|
22+55	1.9750	0.18	Q	|	|	|	V|
23+ 0	1.9763	0.18	Q	|	|	|	V|
23+ 5	1.9775	0.18	Q	|	|	|	V|
23+10	1.9788	0.18	Q	|	|	|	V|
23+15	1.9800	0.18	Q	|	|	|	V|
23+20	1.9813	0.18	Q	|	|	|	V|
23+25	1.9825	0.18	Q	|	|	|	V|
23+30	1.9838	0.18	Q	|	|	|	V|
23+35	1.9851	0.18	Q	|	|	|	V|
23+40	1.9863	0.18	Q	|	|	|	V|
23+45	1.9876	0.18	Q	|	|	|	V|
23+50	1.9888	0.18	Q	|	|	|	V|
23+55	1.9901	0.18	Q	|	|	|	V|
24+ 0	1.9913	0.18	Q	|	|	|	V|
24+ 5	1.9916	0.03	Q	|	|	|	V|

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE12PROP2YR1HR12.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 1-HOUR STORM - PROPOSED CONDITION @ NODE 12

Drainage Area = 8.79(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.79(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 1211.00(Ft.)
Length along longest watercourse measured to centroid = 520.00(Ft.)
Length along longest watercourse = 0.229 Mi.
Length along longest watercourse measured to centroid = 0.098 Mi.
Difference in elevation = 10.80(Ft.)
Slope along watercourse = 47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time = 0.022 Hr.
Lag time = 1.33 Min.
25% of lag time = 0.33 Min.
40% of lag time = 0.53 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.79	0.49	4.34

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.79	1.40	12.31

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.494(In)
Area Averaged 100-Year Rainfall = 1.400(In)

Point rain (area averaged) = 0.494(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 0.494(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
8.790	69.70	0.900

```
 Total Area Entered =      8.79(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
69.7  50.6      0.565     0.900        0.107       1.000      0.107
                                                 Sum (F) =   0.107
Area averaged mean soil loss (F) (In/Hr) =  0.107
Minimum soil loss rate ((In/Hr)) =  0.054
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.180
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                       DESERT S-Curve
------------------------------------------------------------------------
                Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        376.272         63.186              5.597
    2   0.167        752.544         34.250              3.034
    3   0.250       1128.816          2.564              0.227
                              Sum = 100.000   Sum=       8.859
------------------------------------------------------------------------

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

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
      (Hr.)  Percent   (In/Hr)          Max   |   Low        (In/Hr)
  1   0.08     4.40      0.261       (  0.107)       0.047        0.214
  2   0.17     4.50      0.267       (  0.107)       0.048        0.219
  3   0.25     5.40      0.320       (  0.107)       0.058        0.262
  4   0.33     5.40      0.320       (  0.107)       0.058        0.262
  5   0.42     5.70      0.338       (  0.107)       0.061        0.277
  6   0.50     6.40      0.379       (  0.107)       0.068        0.311
  7   0.58     7.90      0.468       (  0.107)       0.084        0.384
  8   0.67     9.10      0.539       (  0.107)       0.097        0.442
  9   0.75    12.80      0.759          0.107    (  0.137)        0.651
 10   0.83    25.60      1.517          0.107    (  0.273)        1.410
 11   0.92     7.90      0.468       (  0.107)       0.084        0.384
 12   1.00     4.90      0.290       (  0.107)       0.052        0.238
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     5.1
      Flood volume = Effective rainfall      0.42(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
      Total soil loss =      0.07(In)
      Total soil loss =     0.053(Ac.Ft)
      Total rainfall =      0.49(In)
      Flood volume =       13442.2 Cubic Feet
      Total soil loss =        2319.0 Cubic Feet
      ------------------------------------------------------------------
       Peak flow rate of this hydrograph =      9.974(CFS)
      ------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         1 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
      ------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

      ------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------
   0+ 5       0.0082      1.20  |V  Q     |         |         |         |
   0+10       0.0212      1.87  | V    Q  |         |         |         |
```

```
    0+15       0.0362      2.18  |   V   Q |         |         |         |
    0+20       0.0521      2.32  |     V  Q|         |         |         |
    0+25       0.0687      2.41  |       VQ|         |         |         |
    0+30       0.0869      2.64  |         QV        |         |         |
    0+35       0.1087      3.16  |         | Q V     |         |         |
    0+40       0.1342      3.71  |         |   Q  V  |         |         |
    0+45       0.1692      5.08  |         |         QV        |         |
    0+50       0.2379      9.97  |         |         |         V        Q|
    0+55       0.2832      6.58  |         |         |     Q   |     V   |
    1+ 0       0.3026      2.82  |         |Q        |         |        V|
    1+ 5       0.3082      0.81  |  Q      |         |         |        V|
    1+10       0.3086      0.05  Q         |         |         |         V
-------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP2YR3HR32.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 3-HOUR STORM - PROPOSED CONDITION @ NODE 12
------------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           0.87                 7.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           2.22                19.51

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    0.870(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    0.870(In)

Sub-Area Data:
```

```
Area(Ac.)          Runoff Index    Impervious %
     8.790            69.70          0.900
 Total Area Entered =      8.79(Ac.)


RI    RI    Infil. Rate Impervious   Adj. Infil. Rate  Area%      F
AMC2 AMC-1      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
69.7  50.6       0.565     0.900         0.107        1.000       0.107
                                                    Sum (F) =     0.107
Area averaged mean soil loss (F) (In/Hr) =  0.107
Minimum soil loss rate ((In/Hr)) =  0.054
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.180
------------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                       DESERT S-Curve
------------------------------------------------------------------------
                Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                           Graph %           (CFS)
------------------------------------------------------------------------
     1   0.083        376.272         63.186              5.597
     2   0.167        752.544         34.250              3.034
     3   0.250       1128.816          2.564              0.227
                                Sum = 100.000   Sum=       8.859
------------------------------------------------------------------------
```

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.136	(0.107)	0.024	0.111
2	0.17	1.30	0.136	(0.107)	0.024	0.111
3	0.25	1.10	0.115	(0.107)	0.021	0.094
4	0.33	1.50	0.157	(0.107)	0.028	0.128
5	0.42	1.50	0.157	(0.107)	0.028	0.128
6	0.50	1.80	0.188	(0.107)	0.034	0.154
7	0.58	1.50	0.157	(0.107)	0.028	0.128
8	0.67	1.80	0.188	(0.107)	0.034	0.154
9	0.75	1.80	0.188	(0.107)	0.034	0.154
10	0.83	1.50	0.157	(0.107)	0.028	0.128
11	0.92	1.60	0.167	(0.107)	0.030	0.137
12	1.00	1.80	0.188	(0.107)	0.034	0.154
13	1.08	2.20	0.230	(0.107)	0.041	0.188
14	1.17	2.20	0.230	(0.107)	0.041	0.188
15	1.25	2.20	0.230	(0.107)	0.041	0.188
16	1.33	2.00	0.209	(0.107)	0.038	0.171
17	1.42	2.60	0.271	(0.107)	0.049	0.223
18	1.50	2.70	0.282	(0.107)	0.051	0.231
19	1.58	2.40	0.251	(0.107)	0.045	0.205
20	1.67	2.70	0.282	(0.107)	0.051	0.231
21	1.75	3.30	0.345	(0.107)	0.062	0.282
22	1.83	3.10	0.324	(0.107)	0.058	0.265
23	1.92	2.90	0.303	(0.107)	0.054	0.248
24	2.00	3.00	0.313	(0.107)	0.056	0.257
25	2.08	3.10	0.324	(0.107)	0.058	0.265
26	2.17	4.20	0.438	(0.107)	0.079	0.360
27	2.25	5.00	0.522	(0.107)	0.094	0.428
28	2.33	3.50	0.365	(0.107)	0.066	0.300
29	2.42	6.80	0.710	0.107	(0.128)	0.602
30	2.50	7.30	0.762	0.107	(0.137)	0.655
31	2.58	8.20	0.856	0.107	(0.154)	0.749
32	2.67	5.90	0.616	0.107	(0.111)	0.508
33	2.75	2.00	0.209	(0.107)	0.038	0.171

```
34   2.83     1.80      0.188       (  0.107)       0.034        0.154
35   2.92     1.80      0.188       (  0.107)       0.034        0.154
36   3.00     0.60      0.063       (  0.107)       0.011        0.051
             (Loss Rate Not Used)
   Sum =     100.0                                   Sum =     8.7
      Flood volume = Effective rainfall      0.72(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       0.5(Ac.Ft)
      Total soil loss =      0.15(In)
      Total soil loss =     0.109(Ac.Ft)
      Total rainfall =      0.87(In)
      Flood volume =       23028.4 Cubic Feet
      Total soil loss =        4730.2 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      6.317(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
---------------------------------------------------------------------------
  0+ 5       0.0043      0.62  V Q       |         |         |         |
  0+10       0.0109      0.96  V  Q      |         |         |         |
  0+15       0.0170      0.89  |V Q      |         |         |         |
  0+20       0.0241      1.03  |V  Q     |         |         |         |
  0+25       0.0319      1.13  | V Q     |         |         |         |
  0+30       0.0408      1.28  |  V Q    |         |         |         |
  0+35       0.0491      1.22  |  VQ     |         |         |         |
  0+40       0.0580      1.29  |   VQ    |         |         |         |
  0+45       0.0674      1.36  |    Q    |         |         |         |
  0+50       0.0758      1.22  |   QV    |         |         |         |
  0+55       0.0840      1.19  |   Q V   |         |         |         |
  1+ 0       0.0930      1.31  |    Q V  |         |         |         |
  1+ 5       0.1037      1.55  |     QV  |         |         |         |
  1+10       0.1151      1.66  |     Q V |         |         |         |
  1+15       0.1266      1.67  |     Q  V|         |         |         |
  1+20       0.1375      1.57  |     Q   V         |         |         |
  1+25       0.1499      1.81  |      Q  |V        |         |         |
  1+30       0.1638      2.01  |       Q | V       |         |         |
  1+35       0.1769      1.90  |      Q  |  V      |         |         |
  1+40       0.1904      1.97  |      Q  |   V     |         |         |
  1+45       0.2065      2.33  |        Q|    V    |         |         |
  1+50       0.2230      2.40  |        Q|     V   |         |         |
  1+55       0.2386      2.26  |        Q|       V |         |         |
  2+ 0       0.2541      2.25  |        Q|        V|         |         |
  2+ 5       0.2701      2.32  |        Q|         V         |         |
  2+10       0.2899      2.88  |         |Q        |V        |         |
  2+15       0.3143      3.55  |         |   Q     |  V      |         |
  2+20       0.3354      3.06  |         | Q       |    V    |         |
  2+25       0.3656      4.38  |         |      Q  |      V  |         |
  2+30       0.4039      5.56  |         |         | Q       V         |
  2+35       0.4474      6.32  |         |         |    Q    |  V      |
  2+40       0.4837      5.27  |         |         |Q        |     V   |
  2+45       0.5021      2.67  |         Q         |         |      V  |
  2+50       0.5124      1.50  |    Q    |         |         |       V |
  2+55       0.5218      1.37  |    Q    |         |         |        V|
  3+ 0       0.5273      0.79  |  Q      |         |         |        V|
  3+ 5       0.5286      0.19  Q         |         |         |        V|
  3+10       0.5287      0.01  Q         |         |         |         V
---------------------------------------------------------------------------
```

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE12PROP2YR6HR62.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 6-HOUR STORM - PROPOSED CONDITION @ NODE 12

Drainage Area = 8.79(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.79(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 1211.00(Ft.)
Length along longest watercourse measured to centroid = 520.00(Ft.)
Length along longest watercourse = 0.229 Mi.
Length along longest watercourse measured to centroid = 0.098 Mi.
Difference in elevation = 10.80(Ft.)
Slope along watercourse = 47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time = 0.022 Hr.
Lag time = 1.33 Min.
25% of lag time = 0.33 Min.
40% of lag time = 0.53 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.79	1.23	10.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.79	3.06	26.90

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.230(In)
Area Averaged 100-Year Rainfall = 3.060(In)

Point rain (area averaged) = 1.230(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.230(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
8.790	69.70	0.900

Total Area Entered = 8.79(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
69.7	50.6	0.565	0.900	0.107	1.000	0.107
					Sum (F) =	0.107

Area averaged mean soil loss (F) (In/Hr) = 0.107
Minimum soil loss rate ((In/Hr)) = 0.054
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	376.272	63.186	5.597
2	0.167	752.544	34.250	3.034
3	0.250	1128.816	2.564	0.227
		Sum = 100.000	Sum=	8.859

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.074	(0.107)	0.013	0.061
2	0.17	0.60	0.089	(0.107)	0.016	0.073
3	0.25	0.60	0.089	(0.107)	0.016	0.073
4	0.33	0.60	0.089	(0.107)	0.016	0.073
5	0.42	0.60	0.089	(0.107)	0.016	0.073
6	0.50	0.70	0.103	(0.107)	0.019	0.085
7	0.58	0.70	0.103	(0.107)	0.019	0.085
8	0.67	0.70	0.103	(0.107)	0.019	0.085
9	0.75	0.70	0.103	(0.107)	0.019	0.085
10	0.83	0.70	0.103	(0.107)	0.019	0.085
11	0.92	0.70	0.103	(0.107)	0.019	0.085
12	1.00	0.80	0.118	(0.107)	0.021	0.097
13	1.08	0.80	0.118	(0.107)	0.021	0.097
14	1.17	0.80	0.118	(0.107)	0.021	0.097
15	1.25	0.80	0.118	(0.107)	0.021	0.097
16	1.33	0.80	0.118	(0.107)	0.021	0.097
17	1.42	0.80	0.118	(0.107)	0.021	0.097
18	1.50	0.80	0.118	(0.107)	0.021	0.097
19	1.58	0.80	0.118	(0.107)	0.021	0.097
20	1.67	0.80	0.118	(0.107)	0.021	0.097
21	1.75	0.80	0.118	(0.107)	0.021	0.097
22	1.83	0.80	0.118	(0.107)	0.021	0.097
23	1.92	0.80	0.118	(0.107)	0.021	0.097
24	2.00	0.90	0.133	(0.107)	0.024	0.109
25	2.08	0.80	0.118	(0.107)	0.021	0.097
26	2.17	0.90	0.133	(0.107)	0.024	0.109
27	2.25	0.90	0.133	(0.107)	0.024	0.109
28	2.33	0.90	0.133	(0.107)	0.024	0.109
29	2.42	0.90	0.133	(0.107)	0.024	0.109
30	2.50	0.90	0.133	(0.107)	0.024	0.109
31	2.58	0.90	0.133	(0.107)	0.024	0.109
32	2.67	0.90	0.133	(0.107)	0.024	0.109
33	2.75	1.00	0.148	(0.107)	0.027	0.121
34	2.83	1.00	0.148	(0.107)	0.027	0.121
35	2.92	1.00	0.148	(0.107)	0.027	0.121
36	3.00	1.00	0.148	(0.107)	0.027	0.121
37	3.08	1.00	0.148	(0.107)	0.027	0.121

```
38   3.17     1.10      0.162       (  0.107)       0.029        0.133
39   3.25     1.10      0.162       (  0.107)       0.029        0.133
40   3.33     1.10      0.162       (  0.107)       0.029        0.133
41   3.42     1.20      0.177       (  0.107)       0.032        0.145
42   3.50     1.30      0.192       (  0.107)       0.035        0.157
43   3.58     1.40      0.207       (  0.107)       0.037        0.169
44   3.67     1.40      0.207       (  0.107)       0.037        0.169
45   3.75     1.50      0.221       (  0.107)       0.040        0.182
46   3.83     1.50      0.221       (  0.107)       0.040        0.182
47   3.92     1.60      0.236       (  0.107)       0.043        0.194
48   4.00     1.60      0.236       (  0.107)       0.043        0.194
49   4.08     1.70      0.251       (  0.107)       0.045        0.206
50   4.17     1.80      0.266       (  0.107)       0.048        0.218
51   4.25     1.90      0.280       (  0.107)       0.050        0.230
52   4.33     2.00      0.295       (  0.107)       0.053        0.242
53   4.42     2.10      0.310       (  0.107)       0.056        0.254
54   4.50     2.10      0.310       (  0.107)       0.056        0.254
55   4.58     2.20      0.325       (  0.107)       0.058        0.266
56   4.67     2.30      0.339       (  0.107)       0.061        0.278
57   4.75     2.40      0.354       (  0.107)       0.064        0.290
58   4.83     2.40      0.354       (  0.107)       0.064        0.290
59   4.92     2.50      0.369       (  0.107)       0.066        0.303
60   5.00     2.60      0.384       (  0.107)       0.069        0.315
61   5.08     3.10      0.458       (  0.107)       0.082        0.375
62   5.17     3.60      0.531       (  0.107)       0.096        0.436
63   5.25     3.90      0.576       (  0.107)       0.104        0.472
64   5.33     4.20      0.620          0.107    (  0.112)       0.512
65   5.42     4.70      0.694          0.107    (  0.125)       0.586
66   5.50     5.60      0.827          0.107    (  0.149)       0.719
67   5.58     1.90      0.280       (  0.107)       0.050        0.230
68   5.67     0.90      0.133       (  0.107)       0.024        0.109
69   5.75     0.60      0.089       (  0.107)       0.016        0.073
70   5.83     0.50      0.074       (  0.107)       0.013        0.061
71   5.92     0.30      0.044       (  0.107)       0.008        0.036
72   6.00     0.20      0.030       (  0.107)       0.005        0.024
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    12.2
      Flood volume = Effective rainfall      1.01(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       0.7(Ac.Ft)
      Total soil loss =      0.22(In)
      Total soil loss =     0.158(Ac.Ft)
      Total rainfall =      1.23(In)
      Flood volume =       32348.4 Cubic Feet
      Total soil loss =        6896.9 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      5.923(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-------------------------------------------------------------------------
  0+ 5       0.0023      0.34  VQ        |         |         |         |
  0+10       0.0064      0.59  V Q       |         |         |         |
  0+15       0.0108      0.64  V Q       |         |         |         |
  0+20       0.0152      0.64  V Q       |         |         |         |
  0+25       0.0197      0.64  |VQ       |         |         |         |
  0+30       0.0246      0.71  |VQ       |         |         |         |
  0+35       0.0297      0.75  |VQ       |         |         |         |
  0+40       0.0349      0.75  |V Q      |         |         |         |
  0+45       0.0401      0.75  | VQ      |         |         |         |
  0+50       0.0452      0.75  | VQ      |         |         |         |
  0+55       0.0504      0.75  | VQ      |         |         |         |
  1+ 0       0.0561      0.82  |  Q      |         |         |         |
  1+ 5       0.0619      0.86  |  Q      |         |         |         |
  1+10       0.0679      0.86  |  Q      |         |         |         |
```

1+15	0.0738	0.86	Q				
1+20	0.0797	0.86	QV				
1+25	0.0856	0.86	QV				
1+30	0.0915	0.86	QV				
1+35	0.0974	0.86	Q V				
1+40	0.1033	0.86	Q V				
1+45	0.1092	0.86	Q V				
1+50	0.1151	0.86	Q V				
1+55	0.1210	0.86	Q V				
2+ 0	0.1274	0.93	Q V				
2+ 5	0.1336	0.89	Q V				
2+10	0.1400	0.93	Q V				
2+15	0.1466	0.96	Q V				
2+20	0.1533	0.97	Q V				
2+25	0.1599	0.97	Q V				
2+30	0.1666	0.97	Q V				
2+35	0.1732	0.97	Q V				
2+40	0.1799	0.97	Q V				
2+45	0.1870	1.03	Q V				
2+50	0.1943	1.07	Q V				
2+55	0.2017	1.07	Q V				
3+ 0	0.2091	1.07	Q V				
3+ 5	0.2165	1.07	Q V				
3+10	0.2244	1.14	Q V				
3+15	0.2325	1.18	Q V				
3+20	0.2406	1.18	Q V				
3+25	0.2492	1.25	Q V				
3+30	0.2585	1.35	Q V				
3+35	0.2686	1.46	Q V				
3+40	0.2789	1.50	Q V				
3+45	0.2897	1.57	Q V				
3+50	0.3008	1.61	Q V				
3+55	0.3123	1.68	Q V				
4+ 0	0.3241	1.71	Q V				
4+ 5	0.3364	1.78	Q V				
4+10	0.3494	1.89	Q V				
4+15	0.3631	2.00	Q V				
4+20	0.3776	2.10	Q V				
4+25	0.3928	2.21	Q V				
4+30	0.4083	2.25	Q V				
4+35	0.4243	2.32	Q V				
4+40	0.4410	2.42	Q V				
4+45	0.4585	2.53	Q V				
4+50	0.4762	2.57	Q V				
4+55	0.4944	2.64	Q V				
5+ 0	0.5133	2.75	Q V				
5+ 5	0.5348	3.13	Q V				
5+10	0.5600	3.65	Q V				
5+15	0.5879	4.05	Q V				
5+20	0.6182	4.40	Q V				
5+25	0.6522	4.95	Q V				
5+30	0.6930	5.92	Q V				
5+35	0.7179	3.60	Q V				
5+40	0.7280	1.47	Q V				
5+45	0.7334	0.79	Q V				
5+50	0.7374	0.58	Q V				
5+55	0.7402	0.40	Q V				
6+ 0	0.7420	0.26	Q V				
6+ 5	0.7426	0.08	Q V				
6+10	0.7426	0.01	Q V				

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP2YR24HR242.out


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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
2-YR @ 24-HOUR STORM - PROPOSED CONDITION @ NODE 12
------------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           2.25                 19.78

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           5.94                 52.21

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    2.250(In)
Area Averaged 100-Year Rainfall =    5.940(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
```

```
Area(Ac.)         Runoff Index   Impervious %
     8.790           69.70         0.900
 Total Area Entered =      8.79(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
69.7  50.6      0.565     0.900        0.107       1.000      0.107
                                                 Sum (F) =    0.107
Area averaged mean soil loss (F) (In/Hr) =  0.107
Minimum soil loss rate ((In/Hr)) =  0.054
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.180
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      DESERT S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        376.272         63.186              5.597
    2   0.167        752.544         34.250              3.034
    3   0.250       1128.816          2.564              0.227
                               Sum = 100.000   Sum=       8.859
------------------------------------------------------------------------
```

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.018	(0.190)	0.003	0.015
2	0.17	0.07	0.018	(0.190)	0.003	0.015
3	0.25	0.07	0.018	(0.189)	0.003	0.015
4	0.33	0.10	0.027	(0.188)	0.005	0.022
5	0.42	0.10	0.027	(0.188)	0.005	0.022
6	0.50	0.10	0.027	(0.187)	0.005	0.022
7	0.58	0.10	0.027	(0.186)	0.005	0.022
8	0.67	0.10	0.027	(0.185)	0.005	0.022
9	0.75	0.10	0.027	(0.185)	0.005	0.022
10	0.83	0.13	0.036	(0.184)	0.006	0.030
11	0.92	0.13	0.036	(0.183)	0.006	0.030
12	1.00	0.13	0.036	(0.182)	0.006	0.030
13	1.08	0.10	0.027	(0.182)	0.005	0.022
14	1.17	0.10	0.027	(0.181)	0.005	0.022
15	1.25	0.10	0.027	(0.180)	0.005	0.022
16	1.33	0.10	0.027	(0.180)	0.005	0.022
17	1.42	0.10	0.027	(0.179)	0.005	0.022
18	1.50	0.10	0.027	(0.178)	0.005	0.022
19	1.58	0.10	0.027	(0.177)	0.005	0.022
20	1.67	0.10	0.027	(0.177)	0.005	0.022
21	1.75	0.10	0.027	(0.176)	0.005	0.022
22	1.83	0.13	0.036	(0.175)	0.006	0.030
23	1.92	0.13	0.036	(0.175)	0.006	0.030
24	2.00	0.13	0.036	(0.174)	0.006	0.030
25	2.08	0.13	0.036	(0.173)	0.006	0.030
26	2.17	0.13	0.036	(0.172)	0.006	0.030
27	2.25	0.13	0.036	(0.172)	0.006	0.030
28	2.33	0.13	0.036	(0.171)	0.006	0.030
29	2.42	0.13	0.036	(0.170)	0.006	0.030
30	2.50	0.13	0.036	(0.170)	0.006	0.030
31	2.58	0.17	0.045	(0.169)	0.008	0.037
32	2.67	0.17	0.045	(0.168)	0.008	0.037
33	2.75	0.17	0.045	(0.168)	0.008	0.037

34	2.83	0.17	0.045	(0.167)	0.008	0.037
35	2.92	0.17	0.045	(0.166)	0.008	0.037
36	3.00	0.17	0.045	(0.166)	0.008	0.037
37	3.08	0.17	0.045	(0.165)	0.008	0.037
38	3.17	0.17	0.045	(0.164)	0.008	0.037
39	3.25	0.17	0.045	(0.163)	0.008	0.037
40	3.33	0.17	0.045	(0.163)	0.008	0.037
41	3.42	0.17	0.045	(0.162)	0.008	0.037
42	3.50	0.17	0.045	(0.161)	0.008	0.037
43	3.58	0.17	0.045	(0.161)	0.008	0.037
44	3.67	0.17	0.045	(0.160)	0.008	0.037
45	3.75	0.17	0.045	(0.159)	0.008	0.037
46	3.83	0.20	0.054	(0.159)	0.010	0.044
47	3.92	0.20	0.054	(0.158)	0.010	0.044
48	4.00	0.20	0.054	(0.157)	0.010	0.044
49	4.08	0.20	0.054	(0.157)	0.010	0.044
50	4.17	0.20	0.054	(0.156)	0.010	0.044
51	4.25	0.20	0.054	(0.155)	0.010	0.044
52	4.33	0.23	0.063	(0.155)	0.011	0.052
53	4.42	0.23	0.063	(0.154)	0.011	0.052
54	4.50	0.23	0.063	(0.153)	0.011	0.052
55	4.58	0.23	0.063	(0.153)	0.011	0.052
56	4.67	0.23	0.063	(0.152)	0.011	0.052
57	4.75	0.23	0.063	(0.151)	0.011	0.052
58	4.83	0.27	0.072	(0.151)	0.013	0.059
59	4.92	0.27	0.072	(0.150)	0.013	0.059
60	5.00	0.27	0.072	(0.150)	0.013	0.059
61	5.08	0.20	0.054	(0.149)	0.010	0.044
62	5.17	0.20	0.054	(0.148)	0.010	0.044
63	5.25	0.20	0.054	(0.148)	0.010	0.044
64	5.33	0.23	0.063	(0.147)	0.011	0.052
65	5.42	0.23	0.063	(0.146)	0.011	0.052
66	5.50	0.23	0.063	(0.146)	0.011	0.052
67	5.58	0.27	0.072	(0.145)	0.013	0.059
68	5.67	0.27	0.072	(0.144)	0.013	0.059
69	5.75	0.27	0.072	(0.144)	0.013	0.059
70	5.83	0.27	0.072	(0.143)	0.013	0.059
71	5.92	0.27	0.072	(0.142)	0.013	0.059
72	6.00	0.27	0.072	(0.142)	0.013	0.059
73	6.08	0.30	0.081	(0.141)	0.015	0.066
74	6.17	0.30	0.081	(0.141)	0.015	0.066
75	6.25	0.30	0.081	(0.140)	0.015	0.066
76	6.33	0.30	0.081	(0.139)	0.015	0.066
77	6.42	0.30	0.081	(0.139)	0.015	0.066
78	6.50	0.30	0.081	(0.138)	0.015	0.066
79	6.58	0.33	0.090	(0.137)	0.016	0.074
80	6.67	0.33	0.090	(0.137)	0.016	0.074
81	6.75	0.33	0.090	(0.136)	0.016	0.074
82	6.83	0.33	0.090	(0.136)	0.016	0.074
83	6.92	0.33	0.090	(0.135)	0.016	0.074
84	7.00	0.33	0.090	(0.134)	0.016	0.074
85	7.08	0.33	0.090	(0.134)	0.016	0.074
86	7.17	0.33	0.090	(0.133)	0.016	0.074
87	7.25	0.33	0.090	(0.133)	0.016	0.074
88	7.33	0.37	0.099	(0.132)	0.018	0.081
89	7.42	0.37	0.099	(0.131)	0.018	0.081
90	7.50	0.37	0.099	(0.131)	0.018	0.081
91	7.58	0.40	0.108	(0.130)	0.019	0.089
92	7.67	0.40	0.108	(0.130)	0.019	0.089
93	7.75	0.40	0.108	(0.129)	0.019	0.089
94	7.83	0.43	0.117	(0.128)	0.021	0.096
95	7.92	0.43	0.117	(0.128)	0.021	0.096
96	8.00	0.43	0.117	(0.127)	0.021	0.096
97	8.08	0.50	0.135	(0.127)	0.024	0.111
98	8.17	0.50	0.135	(0.126)	0.024	0.111
99	8.25	0.50	0.135	(0.125)	0.024	0.111
100	8.33	0.50	0.135	(0.125)	0.024	0.111
101	8.42	0.50	0.135	(0.124)	0.024	0.111

102	8.50	0.50	0.135	(0.124)	0.024	0.111
103	8.58	0.53	0.144	(0.123)	0.026	0.118
104	8.67	0.53	0.144	(0.122)	0.026	0.118
105	8.75	0.53	0.144	(0.122)	0.026	0.118
106	8.83	0.57	0.153	(0.121)	0.028	0.125
107	8.92	0.57	0.153	(0.121)	0.028	0.125
108	9.00	0.57	0.153	(0.120)	0.028	0.125
109	9.08	0.63	0.171	(0.120)	0.031	0.140
110	9.17	0.63	0.171	(0.119)	0.031	0.140
111	9.25	0.63	0.171	(0.118)	0.031	0.140
112	9.33	0.67	0.180	(0.118)	0.032	0.148
113	9.42	0.67	0.180	(0.117)	0.032	0.148
114	9.50	0.67	0.180	(0.117)	0.032	0.148
115	9.58	0.70	0.189	(0.116)	0.034	0.155
116	9.67	0.70	0.189	(0.116)	0.034	0.155
117	9.75	0.70	0.189	(0.115)	0.034	0.155
118	9.83	0.73	0.198	(0.115)	0.036	0.162
119	9.92	0.73	0.198	(0.114)	0.036	0.162
120	10.00	0.73	0.198	(0.113)	0.036	0.162
121	10.08	0.50	0.135	(0.113)	0.024	0.111
122	10.17	0.50	0.135	(0.112)	0.024	0.111
123	10.25	0.50	0.135	(0.112)	0.024	0.111
124	10.33	0.50	0.135	(0.111)	0.024	0.111
125	10.42	0.50	0.135	(0.111)	0.024	0.111
126	10.50	0.50	0.135	(0.110)	0.024	0.111
127	10.58	0.67	0.180	(0.110)	0.032	0.148
128	10.67	0.67	0.180	(0.109)	0.032	0.148
129	10.75	0.67	0.180	(0.109)	0.032	0.148
130	10.83	0.67	0.180	(0.108)	0.032	0.148
131	10.92	0.67	0.180	(0.108)	0.032	0.148
132	11.00	0.67	0.180	(0.107)	0.032	0.148
133	11.08	0.63	0.171	(0.106)	0.031	0.140
134	11.17	0.63	0.171	(0.106)	0.031	0.140
135	11.25	0.63	0.171	(0.105)	0.031	0.140
136	11.33	0.63	0.171	(0.105)	0.031	0.140
137	11.42	0.63	0.171	(0.104)	0.031	0.140
138	11.50	0.63	0.171	(0.104)	0.031	0.140
139	11.58	0.57	0.153	(0.103)	0.028	0.125
140	11.67	0.57	0.153	(0.103)	0.028	0.125
141	11.75	0.57	0.153	(0.102)	0.028	0.125
142	11.83	0.60	0.162	(0.102)	0.029	0.133
143	11.92	0.60	0.162	(0.101)	0.029	0.133
144	12.00	0.60	0.162	(0.101)	0.029	0.133
145	12.08	0.83	0.225	(0.100)	0.040	0.184
146	12.17	0.83	0.225	(0.100)	0.040	0.184
147	12.25	0.83	0.225	(0.099)	0.040	0.184
148	12.33	0.87	0.234	(0.099)	0.042	0.192
149	12.42	0.87	0.234	(0.098)	0.042	0.192
150	12.50	0.87	0.234	(0.098)	0.042	0.192
151	12.58	0.93	0.252	(0.097)	0.045	0.207
152	12.67	0.93	0.252	(0.097)	0.045	0.207
153	12.75	0.93	0.252	(0.096)	0.045	0.207
154	12.83	0.97	0.261	(0.096)	0.047	0.214
155	12.92	0.97	0.261	(0.095)	0.047	0.214
156	13.00	0.97	0.261	(0.095)	0.047	0.214
157	13.08	1.13	0.306	(0.094)	0.055	0.251
158	13.17	1.13	0.306	(0.094)	0.055	0.251
159	13.25	1.13	0.306	(0.093)	0.055	0.251
160	13.33	1.13	0.306	(0.093)	0.055	0.251
161	13.42	1.13	0.306	(0.092)	0.055	0.251
162	13.50	1.13	0.306	(0.092)	0.055	0.251
163	13.58	0.77	0.207	(0.092)	0.037	0.170
164	13.67	0.77	0.207	(0.091)	0.037	0.170
165	13.75	0.77	0.207	(0.091)	0.037	0.170
166	13.83	0.77	0.207	(0.090)	0.037	0.170
167	13.92	0.77	0.207	(0.090)	0.037	0.170
168	14.00	0.77	0.207	(0.089)	0.037	0.170
169	14.08	0.90	0.243	(0.089)	0.044	0.199

170	14.17	0.90	0.243	(0.088)	0.044	0.199
171	14.25	0.90	0.243	(0.088)	0.044	0.199
172	14.33	0.87	0.234	(0.087)	0.042	0.192
173	14.42	0.87	0.234	(0.087)	0.042	0.192
174	14.50	0.87	0.234	(0.087)	0.042	0.192
175	14.58	0.87	0.234	(0.086)	0.042	0.192
176	14.67	0.87	0.234	(0.086)	0.042	0.192
177	14.75	0.87	0.234	(0.085)	0.042	0.192
178	14.83	0.83	0.225	(0.085)	0.040	0.184
179	14.92	0.83	0.225	(0.084)	0.040	0.184
180	15.00	0.83	0.225	(0.084)	0.040	0.184
181	15.08	0.80	0.216	(0.083)	0.039	0.177
182	15.17	0.80	0.216	(0.083)	0.039	0.177
183	15.25	0.80	0.216	(0.083)	0.039	0.177
184	15.33	0.77	0.207	(0.082)	0.037	0.170
185	15.42	0.77	0.207	(0.082)	0.037	0.170
186	15.50	0.77	0.207	(0.081)	0.037	0.170
187	15.58	0.63	0.171	(0.081)	0.031	0.140
188	15.67	0.63	0.171	(0.081)	0.031	0.140
189	15.75	0.63	0.171	(0.080)	0.031	0.140
190	15.83	0.63	0.171	(0.080)	0.031	0.140
191	15.92	0.63	0.171	(0.079)	0.031	0.140
192	16.00	0.63	0.171	(0.079)	0.031	0.140
193	16.08	0.13	0.036	(0.078)	0.006	0.030
194	16.17	0.13	0.036	(0.078)	0.006	0.030
195	16.25	0.13	0.036	(0.078)	0.006	0.030
196	16.33	0.13	0.036	(0.077)	0.006	0.030
197	16.42	0.13	0.036	(0.077)	0.006	0.030
198	16.50	0.13	0.036	(0.077)	0.006	0.030
199	16.58	0.10	0.027	(0.076)	0.005	0.022
200	16.67	0.10	0.027	(0.076)	0.005	0.022
201	16.75	0.10	0.027	(0.075)	0.005	0.022
202	16.83	0.10	0.027	(0.075)	0.005	0.022
203	16.92	0.10	0.027	(0.075)	0.005	0.022
204	17.00	0.10	0.027	(0.074)	0.005	0.022
205	17.08	0.17	0.045	(0.074)	0.008	0.037
206	17.17	0.17	0.045	(0.073)	0.008	0.037
207	17.25	0.17	0.045	(0.073)	0.008	0.037
208	17.33	0.17	0.045	(0.073)	0.008	0.037
209	17.42	0.17	0.045	(0.072)	0.008	0.037
210	17.50	0.17	0.045	(0.072)	0.008	0.037
211	17.58	0.17	0.045	(0.072)	0.008	0.037
212	17.67	0.17	0.045	(0.071)	0.008	0.037
213	17.75	0.17	0.045	(0.071)	0.008	0.037
214	17.83	0.13	0.036	(0.071)	0.006	0.030
215	17.92	0.13	0.036	(0.070)	0.006	0.030
216	18.00	0.13	0.036	(0.070)	0.006	0.030
217	18.08	0.13	0.036	(0.070)	0.006	0.030
218	18.17	0.13	0.036	(0.069)	0.006	0.030
219	18.25	0.13	0.036	(0.069)	0.006	0.030
220	18.33	0.13	0.036	(0.069)	0.006	0.030
221	18.42	0.13	0.036	(0.068)	0.006	0.030
222	18.50	0.13	0.036	(0.068)	0.006	0.030
223	18.58	0.10	0.027	(0.068)	0.005	0.022
224	18.67	0.10	0.027	(0.067)	0.005	0.022
225	18.75	0.10	0.027	(0.067)	0.005	0.022
226	18.83	0.07	0.018	(0.067)	0.003	0.015
227	18.92	0.07	0.018	(0.066)	0.003	0.015
228	19.00	0.07	0.018	(0.066)	0.003	0.015
229	19.08	0.10	0.027	(0.066)	0.005	0.022
230	19.17	0.10	0.027	(0.065)	0.005	0.022
231	19.25	0.10	0.027	(0.065)	0.005	0.022
232	19.33	0.13	0.036	(0.065)	0.006	0.030
233	19.42	0.13	0.036	(0.064)	0.006	0.030
234	19.50	0.13	0.036	(0.064)	0.006	0.030
235	19.58	0.10	0.027	(0.064)	0.005	0.022
236	19.67	0.10	0.027	(0.064)	0.005	0.022
237	19.75	0.10	0.027	(0.063)	0.005	0.022

```
238  19.83     0.07      0.018       (  0.063)       0.003        0.015
239  19.92     0.07      0.018       (  0.063)       0.003        0.015
240  20.00     0.07      0.018       (  0.062)       0.003        0.015
241  20.08     0.10      0.027       (  0.062)       0.005        0.022
242  20.17     0.10      0.027       (  0.062)       0.005        0.022
243  20.25     0.10      0.027       (  0.062)       0.005        0.022
244  20.33     0.10      0.027       (  0.061)       0.005        0.022
245  20.42     0.10      0.027       (  0.061)       0.005        0.022
246  20.50     0.10      0.027       (  0.061)       0.005        0.022
247  20.58     0.10      0.027       (  0.061)       0.005        0.022
248  20.67     0.10      0.027       (  0.060)       0.005        0.022
249  20.75     0.10      0.027       (  0.060)       0.005        0.022
250  20.83     0.07      0.018       (  0.060)       0.003        0.015
251  20.92     0.07      0.018       (  0.060)       0.003        0.015
252  21.00     0.07      0.018       (  0.059)       0.003        0.015
253  21.08     0.10      0.027       (  0.059)       0.005        0.022
254  21.17     0.10      0.027       (  0.059)       0.005        0.022
255  21.25     0.10      0.027       (  0.059)       0.005        0.022
256  21.33     0.07      0.018       (  0.058)       0.003        0.015
257  21.42     0.07      0.018       (  0.058)       0.003        0.015
258  21.50     0.07      0.018       (  0.058)       0.003        0.015
259  21.58     0.10      0.027       (  0.058)       0.005        0.022
260  21.67     0.10      0.027       (  0.058)       0.005        0.022
261  21.75     0.10      0.027       (  0.057)       0.005        0.022
262  21.83     0.07      0.018       (  0.057)       0.003        0.015
263  21.92     0.07      0.018       (  0.057)       0.003        0.015
264  22.00     0.07      0.018       (  0.057)       0.003        0.015
265  22.08     0.10      0.027       (  0.057)       0.005        0.022
266  22.17     0.10      0.027       (  0.056)       0.005        0.022
267  22.25     0.10      0.027       (  0.056)       0.005        0.022
268  22.33     0.07      0.018       (  0.056)       0.003        0.015
269  22.42     0.07      0.018       (  0.056)       0.003        0.015
270  22.50     0.07      0.018       (  0.056)       0.003        0.015
271  22.58     0.07      0.018       (  0.056)       0.003        0.015
272  22.67     0.07      0.018       (  0.055)       0.003        0.015
273  22.75     0.07      0.018       (  0.055)       0.003        0.015
274  22.83     0.07      0.018       (  0.055)       0.003        0.015
275  22.92     0.07      0.018       (  0.055)       0.003        0.015
276  23.00     0.07      0.018       (  0.055)       0.003        0.015
277  23.08     0.07      0.018       (  0.055)       0.003        0.015
278  23.17     0.07      0.018       (  0.055)       0.003        0.015
279  23.25     0.07      0.018       (  0.054)       0.003        0.015
280  23.33     0.07      0.018       (  0.054)       0.003        0.015
281  23.42     0.07      0.018       (  0.054)       0.003        0.015
282  23.50     0.07      0.018       (  0.054)       0.003        0.015
283  23.58     0.07      0.018       (  0.054)       0.003        0.015
284  23.67     0.07      0.018       (  0.054)       0.003        0.015
285  23.75     0.07      0.018       (  0.054)       0.003        0.015
286  23.83     0.07      0.018       (  0.054)       0.003        0.015
287  23.92     0.07      0.018       (  0.054)       0.003        0.015
288  24.00     0.07      0.018       (  0.054)       0.003        0.015
               (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    22.1
      Flood volume = Effective rainfall      1.84(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       1.4(Ac.Ft)
      Total soil loss =      0.40(In)
      Total soil loss =     0.297(Ac.Ft)
      Total rainfall =      2.25(In)
      Flood volume =       58868.7 Cubic Feet
      Total soil loss =       12922.4 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      2.224(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	0.0006	0.08	Q				
0+10	0.0014	0.13	Q				
0+15	0.0023	0.13	Q				
0+20	0.0035	0.17	Q				
0+25	0.0049	0.19	Q				
0+30	0.0062	0.20	Q				
0+35	0.0076	0.20	Q				
0+40	0.0089	0.20	Q				
0+45	0.0103	0.20	Q				
0+50	0.0119	0.24	Q				
0+55	0.0137	0.26	VQ				
1+ 0	0.0155	0.26	VQ				
1+ 5	0.0170	0.22	Q				
1+10	0.0184	0.20	Q				
1+15	0.0197	0.20	Q				
1+20	0.0211	0.20	Q				
1+25	0.0224	0.20	Q				
1+30	0.0238	0.20	Q				
1+35	0.0251	0.20	Q				
1+40	0.0265	0.20	Q				
1+45	0.0278	0.20	Q				
1+50	0.0295	0.24	Q				
1+55	0.0313	0.26	VQ				
2+ 0	0.0331	0.26	VQ				
2+ 5	0.0349	0.26	|Q				
2+10	0.0367	0.26	|Q				
2+15	0.0385	0.26	|Q				
2+20	0.0403	0.26	|Q				
2+25	0.0421	0.26	|Q				
2+30	0.0439	0.26	|Q				
2+35	0.0460	0.30	|Q				
2+40	0.0482	0.33	|Q				
2+45	0.0505	0.33	|Q				
2+50	0.0527	0.33	|Q				
2+55	0.0550	0.33	|Q				
3+ 0	0.0572	0.33	|Q				
3+ 5	0.0595	0.33	|Q				
3+10	0.0617	0.33	|Q				
3+15	0.0640	0.33	|Q				
3+20	0.0662	0.33	|Q				
3+25	0.0685	0.33	|QV				
3+30	0.0707	0.33	|QV				
3+35	0.0730	0.33	|QV				
3+40	0.0752	0.33	|QV				
3+45	0.0775	0.33	|QV				
3+50	0.0800	0.37	|QV				
3+55	0.0827	0.39	|QV				
4+ 0	0.0854	0.39	|QV				
4+ 5	0.0881	0.39	|QV				
4+10	0.0908	0.39	|QV				
4+15	0.0935	0.39	|QV				
4+20	0.0965	0.43	|QV				
4+25	0.0997	0.46	|QV				
4+30	0.1028	0.46	|Q V				
4+35	0.1060	0.46	|Q V				
4+40	0.1091	0.46	|Q V				
4+45	0.1123	0.46	|Q V				
4+50	0.1157	0.50	|Q V				
4+55	0.1193	0.52	| QV				
5+ 0	0.1229	0.52	| QV				
5+ 5	0.1259	0.44	|Q V				
5+10	0.1287	0.40	|Q V				
5+15	0.1314	0.39	|Q V				
5+20	0.1344	0.43	|Q V				

5+25	0.1375	0.46	|Q V |	|	|	|
5+30	0.1407	0.46	|Q V |	|	|	|
5+35	0.1441	0.50	|Q V |	|	|	|
5+40	0.1477	0.52	| Q V |	|	|	|
5+45	0.1513	0.52	| Q V |	|	|	|
5+50	0.1549	0.52	| Q V |	|	|	|
5+55	0.1585	0.52	| Q V |	|	|	|
6+ 0	0.1621	0.52	| Q V |	|	|	|
6+ 5	0.1660	0.56	| Q V |	|	|	|
6+10	0.1700	0.59	| Q V |	|	|	|
6+15	0.1741	0.59	| Q V |	|	|	|
6+20	0.1781	0.59	| Q V |	|	|	|
6+25	0.1822	0.59	| Q V |	|	|	|
6+30	0.1863	0.59	| Q V |	|	|	|
6+35	0.1906	0.63	| Q V |	|	|	|
6+40	0.1951	0.65	| Q V |	|	|	|
6+45	0.1996	0.65	| Q V |	|	|	|
6+50	0.2041	0.65	| Q V |	|	|	|
6+55	0.2086	0.65	| Q V |	|	|	|
7+ 0	0.2131	0.65	| Q V |	|	|	|
7+ 5	0.2176	0.65	| Q V |	|	|	|
7+10	0.2221	0.65	| Q V |	|	|	|
7+15	0.2266	0.65	| Q V |	|	|	|
7+20	0.2314	0.70	| Q V |	|	|	|
7+25	0.2364	0.72	| Q V |	|	|	|
7+30	0.2413	0.72	| Q V |	|	|	|
7+35	0.2465	0.76	| Q V |	|	|	|
7+40	0.2519	0.78	| Q V |	|	|	|
7+45	0.2573	0.78	| Q V |	|	|	|
7+50	0.2630	0.83	| Q V |	|	|	|
7+55	0.2689	0.85	| Q V |	|	|	|
8+ 0	0.2747	0.85	| Q V |	|	|	|
8+ 5	0.2812	0.93	| Q V |	|	|	|
8+10	0.2879	0.98	| Q V |	|	|	|
8+15	0.2947	0.98	| Q V |	|	|	|
8+20	0.3014	0.98	| Q V |	|	|	|
8+25	0.3082	0.98	| Q V|	|	|	|
8+30	0.3149	0.98	| Q V|	|	|	|
8+35	0.3220	1.02	| Q V|	|	|	|
8+40	0.3292	1.04	| Q V|	|	|	|
8+45	0.3364	1.05	| Q V|	|	|	|
8+50	0.3439	1.09	| Q V |	|	|	|
8+55	0.3515	1.11	| Q V |	|	|	|
9+ 0	0.3592	1.11	| Q V |	|	|	|
9+ 5	0.3674	1.19	| Q V |	|	|	|
9+10	0.3759	1.24	| Q |V |	|	|	|
9+15	0.3845	1.24	| Q |V |	|	|	|
9+20	0.3933	1.28	| Q |V |	|	|	|
9+25	0.4023	1.31	| Q |V |	|	|	|
9+30	0.4113	1.31	| Q | V |	|	|	|
9+35	0.4206	1.35	| Q | V |	|	|	|
9+40	0.4301	1.37	| Q | V |	|	|	|
9+45	0.4395	1.37	| Q | V |	|	|	|
9+50	0.4493	1.41	| Q | V |	|	|	|
9+55	0.4592	1.44	| Q | V |	|	|	|
10+ 0	0.4691	1.44	| Q | V |	|	|	|
10+ 5	0.4770	1.15	| Q | V |	|	|	|
10+10	0.4839	0.99	| Q | V |	|	|	|
10+15	0.4906	0.98	| Q | V |	|	|	|
10+20	0.4974	0.98	| Q | V |	|	|	|
10+25	0.5041	0.98	| Q | V |	|	|	|
10+30	0.5109	0.98	| Q | V |	|	|	|
10+35	0.5191	1.19	| Q | V |	|	|	|
10+40	0.5280	1.30	| Q | V |	|	|	|
10+45	0.5370	1.31	| Q | V |	|	|	|
10+50	0.5460	1.31	| Q | V |	|	|	|
10+55	0.5550	1.31	| Q | V |	|	|	|
11+ 0	0.5641	1.31	| Q | V |	|	|	|

11+ 5	0.5728	1.27	| Q |	V |	|	|
11+10	0.5814	1.24	| Q |	V |	|	|
11+15	0.5899	1.24	| Q |	V |	|	|
11+20	0.5985	1.24	| Q |	V |	|	|
11+25	0.6070	1.24	| Q |	V |	|	|
11+30	0.6156	1.24	| Q |	V |	|	|
11+35	0.6236	1.16	| Q |	V |	|	|
11+40	0.6313	1.12	| Q |	V |	|	|
11+45	0.6389	1.11	| Q |	V |	|	|
11+50	0.6469	1.15	| Q |	V|	|	|
11+55	0.6550	1.18	| Q |	V|	|	|
12+ 0	0.6631	1.18	| Q |	V|	|	|
12+ 5	0.6732	1.47	| Q |	V|	|	|
12+10	0.6843	1.62	| Q |	V |	|	|
12+15	0.6956	1.64	| Q |	V |	|	|
12+20	0.7072	1.68	| Q |	V |	|	|
12+25	0.7189	1.70	| Q |	|V |	|	|
12+30	0.7306	1.70	| Q |	|V |	|	|
12+35	0.7429	1.78	| Q |	|V |	|	|
12+40	0.7554	1.83	| Q |	| V |	|	|
12+45	0.7681	1.83	| Q |	| V |	|	|
12+50	0.7810	1.87	| Q |	| V |	|	|
12+55	0.7940	1.90	| Q |	| V |	|	|
13+ 0	0.8071	1.90	| Q |	| V |	|	|
13+ 5	0.8216	2.10	| Q |	| V |	|	|
13+10	0.8368	2.22	| Q |	| V |	|	|
13+15	0.8521	2.22	| Q |	| V |	|	|
13+20	0.8674	2.22	| Q |	| V |	|	|
13+25	0.8828	2.22	| Q |	| V |	|	|
13+30	0.8981	2.22	| Q |	| V |	|	|
13+35	0.9103	1.77	| Q |	| V |	|	|
13+40	0.9208	1.52	| Q |	| V |	|	|
13+45	0.9311	1.50	| Q |	| V |	|	|
13+50	0.9415	1.50	| Q |	| V |	|	|
13+55	0.9518	1.50	| Q |	| V |	|	|
14+ 0	0.9622	1.50	| Q |	| V |	|	|
14+ 5	0.9737	1.67	| Q |	| V |	|	|
14+10	0.9858	1.76	| Q |	| V|	|	|
14+15	0.9980	1.77	| Q |	| V|	|	|
14+20	1.0099	1.72	| Q |	| V|	|	|
14+25	1.0216	1.70	| Q |	| V |	|	|
14+30	1.0333	1.70	| Q |	| V |	|	|
14+35	1.0450	1.70	| Q |	| V |	|	|
14+40	1.0567	1.70	| Q |	| |V |	|	|
14+45	1.0684	1.70	| Q |	| |V |	|	|
14+50	1.0799	1.66	| Q |	| |V |	|	|
14+55	1.0911	1.64	| Q |	| | V |	|	|
15+ 0	1.1024	1.64	| Q |	| | V |	|	|
15+ 5	1.1134	1.59	| Q |	| | V |	|	|
15+10	1.1242	1.57	| Q |	| | V |	|	|
15+15	1.1350	1.57	| Q |	| | V |	|	|
15+20	1.1455	1.53	| Q |	| | V |	|	|
15+25	1.1559	1.51	| Q |	| | V |	|	|
15+30	1.1663	1.50	| Q |	| | V |	|	|
15+35	1.1755	1.34	| Q |	| | V |	|	|
15+40	1.1841	1.25	| Q |	| | V |	|	|
15+45	1.1927	1.24	| Q |	| | V |	|	|
15+50	1.2012	1.24	| Q |	| | V |	|	|
15+55	1.2098	1.24	| Q |	| | V |	|	|
16+ 0	1.2183	1.24	| Q |	| | V |	|	|
16+ 5	1.2226	0.62	| Q |	| | V |	|	|
16+10	1.2246	0.29	|Q |	| | V |	|	|
16+15	1.2264	0.26	|Q |	| | V |	|	|
16+20	1.2282	0.26	|Q |	| | V |	|	|
16+25	1.2300	0.26	|Q |	| | V |	|	|
16+30	1.2318	0.26	|Q |	| | V |	|	|
16+35	1.2333	0.22	Q |	| | V |	|	|
16+40	1.2347	0.20	Q |	| | V |	|	|

16+45	1.2360	0.20	Q	|	|	|	V |
16+50	1.2374	0.20	Q	|	|	|	V |
16+55	1.2387	0.20	Q	|	|	|	V |
17+ 0	1.2401	0.20	Q	|	|	|	V |
17+ 5	1.2420	0.28	|Q	|	|	|	V |
17+10	1.2442	0.32	|Q	|	|	|	V |
17+15	1.2465	0.33	|Q	|	|	|	V |
17+20	1.2487	0.33	|Q	|	|	|	V |
17+25	1.2510	0.33	|Q	|	|	|	V |
17+30	1.2532	0.33	|Q	|	|	|	V |
17+35	1.2555	0.33	|Q	|	|	|	V |
17+40	1.2578	0.33	|Q	|	|	|	V |
17+45	1.2600	0.33	|Q	|	|	|	V |
17+50	1.2620	0.29	|Q	|	|	|	V |
17+55	1.2638	0.26	|Q	|	|	|	V |
18+ 0	1.2656	0.26	|Q	|	|	|	V |
18+ 5	1.2674	0.26	|Q	|	|	|	V |
18+10	1.2692	0.26	|Q	|	|	|	V |
18+15	1.2710	0.26	|Q	|	|	|	V |
18+20	1.2728	0.26	|Q	|	|	|	V |
18+25	1.2746	0.26	|Q	|	|	|	V |
18+30	1.2764	0.26	|Q	|	|	|	V |
18+35	1.2779	0.22	Q	|	|	|	V |
18+40	1.2793	0.20	Q	|	|	|	V |
18+45	1.2806	0.20	Q	|	|	|	V |
18+50	1.2817	0.15	Q	|	|	|	V |
18+55	1.2826	0.13	Q	|	|	|	V |
19+ 0	1.2835	0.13	Q	|	|	|	V |
19+ 5	1.2847	0.17	Q	|	|	|	V |
19+10	1.2860	0.19	Q	|	|	|	V |
19+15	1.2874	0.20	Q	|	|	|	V |
19+20	1.2890	0.24	Q	|	|	|	V |
19+25	1.2908	0.26	|Q	|	|	|	V |
19+30	1.2926	0.26	|Q	|	|	|	V |
19+35	1.2941	0.22	Q	|	|	|	V |
19+40	1.2955	0.20	Q	|	|	|	V |
19+45	1.2968	0.20	Q	|	|	|	V |
19+50	1.2979	0.15	Q	|	|	|	V |
19+55	1.2988	0.13	Q	|	|	|	V |
20+ 0	1.2997	0.13	Q	|	|	|	V |
20+ 5	1.3009	0.17	Q	|	|	|	V |
20+10	1.3023	0.19	Q	|	|	|	V |
20+15	1.3036	0.20	Q	|	|	|	V |
20+20	1.3050	0.20	Q	|	|	|	V |
20+25	1.3063	0.20	Q	|	|	|	V |
20+30	1.3077	0.20	Q	|	|	|	V |
20+35	1.3090	0.20	Q	|	|	|	V |
20+40	1.3104	0.20	Q	|	|	|	V |
20+45	1.3117	0.20	Q	|	|	|	V |
20+50	1.3128	0.15	Q	|	|	|	V |
20+55	1.3137	0.13	Q	|	|	|	V |
21+ 0	1.3146	0.13	Q	|	|	|	V |
21+ 5	1.3158	0.17	Q	|	|	|	V |
21+10	1.3171	0.19	Q	|	|	|	V |
21+15	1.3185	0.20	Q	|	|	|	V|
21+20	1.3195	0.15	Q	|	|	|	V|
21+25	1.3205	0.13	Q	|	|	|	V|
21+30	1.3214	0.13	Q	|	|	|	V|
21+35	1.3225	0.17	Q	|	|	|	V|
21+40	1.3239	0.19	Q	|	|	|	V|
21+45	1.3252	0.20	Q	|	|	|	V|
21+50	1.3263	0.15	Q	|	|	|	V|
21+55	1.3272	0.13	Q	|	|	|	V|
22+ 0	1.3281	0.13	Q	|	|	|	V|
22+ 5	1.3293	0.17	Q	|	|	|	V|
22+10	1.3306	0.19	Q	|	|	|	V|
22+15	1.3320	0.20	Q	|	|	|	V|
22+20	1.3331	0.15	Q	|	|	|	V|

22+25	1.3340	0.13	Q	|	|	|	V|
22+30	1.3349	0.13	Q	|	|	|	V|
22+35	1.3358	0.13	Q	|	|	|	V|
22+40	1.3367	0.13	Q	|	|	|	V|
22+45	1.3376	0.13	Q	|	|	|	V|
22+50	1.3385	0.13	Q	|	|	|	V|
22+55	1.3394	0.13	Q	|	|	|	V|
23+ 0	1.3403	0.13	Q	|	|	|	V|
23+ 5	1.3412	0.13	Q	|	|	|	V|
23+10	1.3421	0.13	Q	|	|	|	V|
23+15	1.3430	0.13	Q	|	|	|	V|
23+20	1.3439	0.13	Q	|	|	|	V|
23+25	1.3448	0.13	Q	|	|	|	V|
23+30	1.3457	0.13	Q	|	|	|	V|
23+35	1.3466	0.13	Q	|	|	|	V|
23+40	1.3475	0.13	Q	|	|	|	V|
23+45	1.3484	0.13	Q	|	|	|	V|
23+50	1.3493	0.13	Q	|	|	|	V|
23+55	1.3502	0.13	Q	|	|	|	V|
24+ 0	1.3511	0.13	Q	|	|	|	V|
24+ 5	1.3514	0.05	Q	|	|	|	V|
24+10	1.3514	0.00	Q	|	|	|	V|

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP10YR1HR110.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 1-HOUR STORM - PROPOSED CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           0.49                 4.34

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           1.40                12.31

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.494(In)
Area Averaged 100-Year Rainfall =    1.400(In)

Point rain (area averaged) =    0.867(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.867(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.790           69.70         0.900
```

```
 Total Area Entered =      8.79(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.7  69.7      0.365     0.900        0.069        1.000      0.069
                                                  Sum (F) =    0.069
Area averaged mean soil loss (F) (In/Hr) =  0.107
Minimum soil loss rate ((In/Hr)) =  0.054
(for 24 hour storm duration)
Note: User entry of the f value
Soil low loss rate (decimal) =   0.180
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                       DESERT S-Curve
------------------------------------------------------------------------
                Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.083        376.272         63.186             5.597
    2   0.167        752.544         34.250             3.034
    3   0.250       1128.816          2.564             0.227
                                Sum = 100.000   Sum=      8.859
------------------------------------------------------------------------


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

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
      (Hr.)  Percent   (In/Hr)          Max   |   Low         (In/Hr)
  1   0.08     4.40      0.458       (  0.107)       0.082        0.375
  2   0.17     4.50      0.468       (  0.107)       0.084        0.384
  3   0.25     5.40      0.562       (  0.107)       0.101        0.461
  4   0.33     5.40      0.562       (  0.107)       0.101        0.461
  5   0.42     5.70      0.593       (  0.107)       0.107        0.486
  6   0.50     6.40      0.666          0.107    (  0.120)        0.558
  7   0.58     7.90      0.822          0.107    (  0.148)        0.714
  8   0.67     9.10      0.946          0.107    (  0.170)        0.839
  9   0.75    12.80      1.331          0.107    (  0.240)        1.224
 10   0.83    25.60      2.662          0.107    (  0.479)        2.555
 11   0.92     7.90      0.822          0.107    (  0.148)        0.714
 12   1.00     4.90      0.510       (  0.107)       0.092        0.418
               (Loss Rate Not Used)
    Sum =     100.0                                  Sum =      9.2
      Flood volume = Effective rainfall      0.77(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       0.6(Ac.Ft)
      Total soil loss =      0.10(In)
      Total soil loss =     0.074(Ac.Ft)
      Total rainfall =      0.87(In)
      Flood volume =       24431.1 Cubic Feet
      Total soil loss =        3222.3 Cubic Feet
      ------------------------------------------------------------------
       Peak flow rate of this hydrograph =     18.214(CFS)
      ------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
----------------------------------------------------------------------
  0+ 5       0.0145      2.10  |V  Q     |         |         |         |
```

```
    0+10       0.0371      3.29  | V   Q   |         |         |         |
    0+15       0.0635      3.83  |   V  Q  |         |         |         |
    0+20       0.0915      4.06  |     V Q |         |         |         |
    0+25       0.1206      4.22  |       Q |         |         |         |
    0+30       0.1530      4.71  |        QV         |         |         |
    0+35       0.1930      5.80  |         |Q V      |         |         |
    0+40       0.2411      6.99  |         |  Q   V  |         |         |
    0+45       0.3070      9.56  |         |        Q|V        |         |
    0+50       0.4324     18.21  |         |         |         V     Q   |
    0+55       0.5153     12.03  |         |         |   Q     |     V   |
    1+ 0       0.5504      5.09  |         Q         |         |        V|
    1+ 5       0.5602      1.43  | Q       |         |         |        V|
    1+10       0.5609      0.09  Q         |         |         |        V|
---------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP10YR3HR310.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 3-HOUR STORM - PROPOSED CONDITION @ NODE 12
------------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           0.87                 7.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           2.22                19.51

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    1.425(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.425(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.790           69.70         0.900
```

Total Area Entered = 8.79(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
69.7	69.7	0.365	0.900	0.069	1.000	0.069
					Sum (F) =	0.069

Area averaged mean soil loss (F) (In/Hr) = 0.069
Minimum soil loss rate ((In/Hr)) = 0.035
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	376.272	63.186	5.597
2	0.167	752.544	34.250	3.034
3	0.250	1128.816	2.564	0.227
			Sum = 100.000	Sum= 8.859

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.222	(0.069)	0.040	0.182
2	0.17	1.30	0.222	(0.069)	0.040	0.182
3	0.25	1.10	0.188	(0.069)	0.034	0.154
4	0.33	1.50	0.257	(0.069)	0.046	0.210
5	0.42	1.50	0.257	(0.069)	0.046	0.210
6	0.50	1.80	0.308	(0.069)	0.055	0.252
7	0.58	1.50	0.257	(0.069)	0.046	0.210
8	0.67	1.80	0.308	(0.069)	0.055	0.252
9	0.75	1.80	0.308	(0.069)	0.055	0.252
10	0.83	1.50	0.257	(0.069)	0.046	0.210
11	0.92	1.60	0.274	(0.069)	0.049	0.224
12	1.00	1.80	0.308	(0.069)	0.055	0.252
13	1.08	2.20	0.376	(0.069)	0.068	0.309
14	1.17	2.20	0.376	(0.069)	0.068	0.309
15	1.25	2.20	0.376	(0.069)	0.068	0.309
16	1.33	2.00	0.342	(0.069)	0.062	0.281
17	1.42	2.60	0.445	0.069	(0.080)	0.375
18	1.50	2.70	0.462	0.069	(0.083)	0.392
19	1.58	2.40	0.410	0.069	(0.074)	0.341
20	1.67	2.70	0.462	0.069	(0.083)	0.392
21	1.75	3.30	0.564	0.069	(0.102)	0.495
22	1.83	3.10	0.530	0.069	(0.095)	0.461
23	1.92	2.90	0.496	0.069	(0.089)	0.427
24	2.00	3.00	0.513	0.069	(0.092)	0.444
25	2.08	3.10	0.530	0.069	(0.095)	0.461
26	2.17	4.20	0.718	0.069	(0.129)	0.649
27	2.25	5.00	0.855	0.069	(0.154)	0.786
28	2.33	3.50	0.599	0.069	(0.108)	0.529
29	2.42	6.80	1.163	0.069	(0.209)	1.094
30	2.50	7.30	1.249	0.069	(0.225)	1.179
31	2.58	8.20	1.403	0.069	(0.252)	1.333
32	2.67	5.90	1.009	0.069	(0.182)	0.940
33	2.75	2.00	0.342	(0.069)	0.062	0.281
34	2.83	1.80	0.308	(0.069)	0.055	0.252
35	2.92	1.80	0.308	(0.069)	0.055	0.252
36	3.00	0.60	0.103	(0.069)	0.018	0.084

(Loss Rate Not Used)

```
   Sum =     100.0                                    Sum =    15.0
      Flood volume = Effective rainfall      1.25(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       0.9(Ac.Ft)
      Total soil loss =      0.18(In)
      Total soil loss =     0.130(Ac.Ft)
      Total rainfall =      1.43(In)
      Flood volume =       39801.1 Cubic Feet
      Total soil loss =        5678.4 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     11.294(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
 ----------------------------------------------------------------------
   0+ 5       0.0070      1.02  V Q       |         |         |         |
   0+10       0.0179      1.57  V  Q      |         |         |         |
   0+15       0.0279      1.46  |VQ       |         |         |         |
   0+20       0.0395      1.69  |V Q      |         |         |         |
   0+25       0.0523      1.85  | VQ      |         |         |         |
   0+30       0.0668      2.10  | V Q     |         |         |         |
   0+35       0.0805      1.99  |  Q      |         |         |         |
   0+40       0.0950      2.11  |   Q     |         |         |         |
   0+45       0.1104      2.23  |   Q     |         |         |         |
   0+50       0.1242      2.00  |   QV    |         |         |         |
   0+55       0.1376      1.95  |  Q  V   |         |         |         |
   1+ 0       0.1524      2.14  |   Q V   |         |         |         |
   1+ 5       0.1699      2.55  |    Q V  |         |         |         |
   1+10       0.1886      2.72  |    Q  V |         |         |         |
   1+15       0.2075      2.73  |    Q   V|         |         |         |
   1+20       0.2252      2.58  |    Q   V|         |         |         |
   1+25       0.2460      3.02  |     Q   V         |         |         |
   1+30       0.2695      3.40  |     Q   |V        |         |         |
   1+35       0.2914      3.19  |     Q   | V       |         |         |
   1+40       0.3143      3.32  |     Q   |  V      |         |         |
   1+45       0.3421      4.04  |       Q |   V     |         |         |
   1+50       0.3709      4.17  |       Q |     V   |         |         |
   1+55       0.3977      3.90  |      Q  |      V  |         |         |
   2+ 0       0.4245      3.88  |      Q  |       V |         |         |
   2+ 5       0.4522      4.02  |       Q |        V|         |         |
   2+10       0.4876      5.13  |         Q         |V        |         |
   2+15       0.5322      6.48  |         | Q       |  V      |         |
   2+20       0.5700      5.50  |         Q         |   V     |         |
   2+25       0.6245      7.91  |         |    Q    |      V  |         |
   2+30       0.6937     10.04  |         |         Q         V         |
   2+35       0.7715     11.29  |         |         | Q       |  V      |
   2+40       0.8374      9.58  |         |        Q|         |     V   |
   2+45       0.8700      4.73  |         Q|        |         |       V |
   2+50       0.8870      2.48  |   Q     |         |         |       V |
   2+55       0.9025      2.24  |   Q     |         |         |        V|
   3+ 0       0.9114      1.30  | Q       |         |         |        V|
   3+ 5       0.9136      0.31  Q         |         |         |        V|
   3+10       0.9137      0.02  Q         |         |         |         V
----------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP10YR6HR610.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 6-HOUR STORM - PROPOSED CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           1.23                 10.81

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           3.06                 26.90

STORM EVENT (YEAR) =   10.00
Area Averaged 2-Year Rainfall =    1.230(In)
Area Averaged 100-Year Rainfall =    3.060(In)

Point rain (area averaged) =    1.983(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.983(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.790           69.70         0.900
```

Total Area Entered = 8.79(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
69.7	69.7	0.365	0.900	0.069	1.000	0.069
					Sum (F) =	0.069

Area averaged mean soil loss (F) (In/Hr) = 0.069
Minimum soil loss rate ((In/Hr)) = 0.035
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	376.272	63.186	5.597
2	0.167	752.544	34.250	3.034
3	0.250	1128.816	2.564	0.227
		Sum = 100.000	Sum=	8.859

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.119	(0.069)	0.021	0.098
2	0.17	0.60	0.143	(0.069)	0.026	0.117
3	0.25	0.60	0.143	(0.069)	0.026	0.117
4	0.33	0.60	0.143	(0.069)	0.026	0.117
5	0.42	0.60	0.143	(0.069)	0.026	0.117
6	0.50	0.70	0.167	(0.069)	0.030	0.137
7	0.58	0.70	0.167	(0.069)	0.030	0.137
8	0.67	0.70	0.167	(0.069)	0.030	0.137
9	0.75	0.70	0.167	(0.069)	0.030	0.137
10	0.83	0.70	0.167	(0.069)	0.030	0.137
11	0.92	0.70	0.167	(0.069)	0.030	0.137
12	1.00	0.80	0.190	(0.069)	0.034	0.156
13	1.08	0.80	0.190	(0.069)	0.034	0.156
14	1.17	0.80	0.190	(0.069)	0.034	0.156
15	1.25	0.80	0.190	(0.069)	0.034	0.156
16	1.33	0.80	0.190	(0.069)	0.034	0.156
17	1.42	0.80	0.190	(0.069)	0.034	0.156
18	1.50	0.80	0.190	(0.069)	0.034	0.156
19	1.58	0.80	0.190	(0.069)	0.034	0.156
20	1.67	0.80	0.190	(0.069)	0.034	0.156
21	1.75	0.80	0.190	(0.069)	0.034	0.156
22	1.83	0.80	0.190	(0.069)	0.034	0.156
23	1.92	0.80	0.190	(0.069)	0.034	0.156
24	2.00	0.90	0.214	(0.069)	0.039	0.176
25	2.08	0.80	0.190	(0.069)	0.034	0.156
26	2.17	0.90	0.214	(0.069)	0.039	0.176
27	2.25	0.90	0.214	(0.069)	0.039	0.176
28	2.33	0.90	0.214	(0.069)	0.039	0.176
29	2.42	0.90	0.214	(0.069)	0.039	0.176
30	2.50	0.90	0.214	(0.069)	0.039	0.176
31	2.58	0.90	0.214	(0.069)	0.039	0.176
32	2.67	0.90	0.214	(0.069)	0.039	0.176
33	2.75	1.00	0.238	(0.069)	0.043	0.195
34	2.83	1.00	0.238	(0.069)	0.043	0.195
35	2.92	1.00	0.238	(0.069)	0.043	0.195
36	3.00	1.00	0.238	(0.069)	0.043	0.195
37	3.08	1.00	0.238	(0.069)	0.043	0.195

```
38   3.17     1.10      0.262       (  0.069)       0.047        0.215
39   3.25     1.10      0.262       (  0.069)       0.047        0.215
40   3.33     1.10      0.262       (  0.069)       0.047        0.215
41   3.42     1.20      0.286       (  0.069)       0.051        0.234
42   3.50     1.30      0.309       (  0.069)       0.056        0.254
43   3.58     1.40      0.333       (  0.069)       0.060        0.273
44   3.67     1.40      0.333       (  0.069)       0.060        0.273
45   3.75     1.50      0.357       (  0.069)       0.064        0.293
46   3.83     1.50      0.357       (  0.069)       0.064        0.293
47   3.92     1.60      0.381       (  0.069)       0.069        0.312
48   4.00     1.60      0.381       (  0.069)       0.069        0.312
49   4.08     1.70      0.404          0.069    (  0.073)        0.335
50   4.17     1.80      0.428          0.069    (  0.077)        0.359
51   4.25     1.90      0.452          0.069    (  0.081)        0.383
52   4.33     2.00      0.476          0.069    (  0.086)        0.406
53   4.42     2.10      0.500          0.069    (  0.090)        0.430
54   4.50     2.10      0.500          0.069    (  0.090)        0.430
55   4.58     2.20      0.523          0.069    (  0.094)        0.454
56   4.67     2.30      0.547          0.069    (  0.099)        0.478
57   4.75     2.40      0.571          0.069    (  0.103)        0.502
58   4.83     2.40      0.571          0.069    (  0.103)        0.502
59   4.92     2.50      0.595          0.069    (  0.107)        0.525
60   5.00     2.60      0.619          0.069    (  0.111)        0.549
61   5.08     3.10      0.738          0.069    (  0.133)        0.668
62   5.17     3.60      0.857          0.069    (  0.154)        0.787
63   5.25     3.90      0.928          0.069    (  0.167)        0.859
64   5.33     4.20      0.999          0.069    (  0.180)        0.930
65   5.42     4.70      1.118          0.069    (  0.201)        1.049
66   5.50     5.60      1.332          0.069    (  0.240)        1.263
67   5.58     1.90      0.452          0.069    (  0.081)        0.383
68   5.67     0.90      0.214       (  0.069)       0.039        0.176
69   5.75     0.60      0.143       (  0.069)       0.026        0.117
70   5.83     0.50      0.119       (  0.069)       0.021        0.098
71   5.92     0.30      0.071       (  0.069)       0.013        0.059
72   6.00     0.20      0.048       (  0.069)       0.009        0.039
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    20.5
      Flood volume = Effective rainfall      1.71(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       1.2(Ac.Ft)
      Total soil loss =      0.28(In)
      Total soil loss =     0.203(Ac.Ft)
      Total rainfall =      1.98(In)
      Flood volume =       54408.8 Cubic Feet
      Total soil loss =        8858.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     10.469(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0038      0.55  VQ        |         |         |         |
  0+10       0.0103      0.95  VQ        |         |         |         |
  0+15       0.0174      1.03  V Q       |         |         |         |
  0+20       0.0246      1.04  V Q       |         |         |         |
  0+25       0.0317      1.04  |VQ       |         |         |         |
  0+30       0.0396      1.15  |VQ       |         |         |         |
  0+35       0.0479      1.21  |VQ       |         |         |         |
  0+40       0.0563      1.21  |VQ       |         |         |         |
  0+45       0.0646      1.21  | Q       |         |         |         |
  0+50       0.0729      1.21  | Q       |         |         |         |
  0+55       0.0813      1.21  | Q       |         |         |         |
  1+ 0       0.0904      1.32  | Q       |         |         |         |
  1+ 5       0.0999      1.38  | QV      |         |         |         |
  1+10       0.1094      1.38  | QV      |         |         |         |
```

1+15	0.1189	1.38	QV
1+20	0.1284	1.38	Q V
1+25	0.1380	1.38	Q V
1+30	0.1475	1.38	Q V
1+35	0.1570	1.38	Q V
1+40	0.1666	1.38	Q V
1+45	0.1761	1.38	Q V
1+50	0.1856	1.38	Q V
1+55	0.1951	1.38	Q V
2+ 0	0.2054	1.49	Q V
2+ 5	0.2154	1.44	Q V
2+10	0.2257	1.50	Q V
2+15	0.2364	1.55	Q V
2+20	0.2471	1.56	Q V
2+25	0.2578	1.56	Q V
2+30	0.2685	1.56	Q V
2+35	0.2792	1.56	Q V
2+40	0.2900	1.56	Q V
2+45	0.3014	1.67	Q V
2+50	0.3133	1.72	Q V
2+55	0.3252	1.73	Q V
3+ 0	0.3371	1.73	Q V
3+ 5	0.3490	1.73	Q V
3+10	0.3617	1.84	Q V
3+15	0.3748	1.90	Q V
3+20	0.3879	1.90	Q V
3+25	0.4017	2.01	Q V
3+30	0.4167	2.18	Q V
3+35	0.4329	2.35	Q V
3+40	0.4496	2.42	Q V
3+45	0.4670	2.53	Q V
3+50	0.4848	2.59	Q V
3+55	0.5035	2.70	Q V
4+ 0	0.5225	2.76	Q V
4+ 5	0.5424	2.90	Q V
4+10	0.5638	3.10	Q V
4+15	0.5865	3.31	Q V
4+20	0.6108	3.52	Q V
4+25	0.6365	3.73	Q V
4+30	0.6627	3.81	Q V
4+35	0.6899	3.95	Q V
4+40	0.7185	4.15	Q V
4+45	0.7485	4.36	Q V
4+50	0.7791	4.44	Q V
4+55	0.8107	4.58	Q V
5+ 0	0.8436	4.79	Q V
5+ 5	0.8817	5.53	Q V
5+10	0.9269	6.56	Q V
5+15	0.9775	7.35	Q V
5+20	1.0326	7.99	Q V
5+25	1.0938	8.89	Q V
5+30	1.1659	10.47	Q V
5+35	1.2087	6.22	Q V
5+40	1.2255	2.43	Q V
5+45	1.2342	1.28	Q V
5+50	1.2407	0.94	Q V
5+55	1.2452	0.65	Q V
6+ 0	1.2481	0.42	Q V
6+ 5	1.2490	0.13	Q V
6+10	1.2491	0.01	Q V

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 06/21/19 File: NODE12PROP10YR24HR2410.out

++

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

Program License Serial Number 6406

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

English Units used in output format

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
10-YR @ 24-HOUR STORM - PROPOSED CONDITION @ NODE 12

Drainage Area = 8.79(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.79(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 1211.00(Ft.)
Length along longest watercourse measured to centroid = 520.00(Ft.)
Length along longest watercourse = 0.229 Mi.
Length along longest watercourse measured to centroid = 0.098 Mi.
Difference in elevation = 10.80(Ft.)
Slope along watercourse = 47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time = 0.022 Hr.
Lag time = 1.33 Min.
25% of lag time = 0.33 Min.
40% of lag time = 0.53 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.79	2.25	19.78

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.79	5.94	52.21

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 5.940(In)

Point rain (area averaged) = 3.768(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.768(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
8.790	69.70	0.900

Total Area Entered = 8.79(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
69.7	69.7	0.365	0.900	0.069	1.000	0.069
					Sum (F) =	0.069

Area averaged mean soil loss (F) (In/Hr) = 0.069
Minimum soil loss rate ((In/Hr)) = 0.035
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	376.272	63.186	5.597
2	0.167	752.544	34.250	3.034
3	0.250	1128.816	2.564	0.227
			Sum = 100.000	Sum= 8.859

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.030	(0.123)	0.005	0.025
2	0.17	0.07	0.030	(0.123)	0.005	0.025
3	0.25	0.07	0.030	(0.122)	0.005	0.025
4	0.33	0.10	0.045	(0.122)	0.008	0.037
5	0.42	0.10	0.045	(0.121)	0.008	0.037
6	0.50	0.10	0.045	(0.121)	0.008	0.037
7	0.58	0.10	0.045	(0.120)	0.008	0.037
8	0.67	0.10	0.045	(0.120)	0.008	0.037
9	0.75	0.10	0.045	(0.119)	0.008	0.037
10	0.83	0.13	0.060	(0.119)	0.011	0.049
11	0.92	0.13	0.060	(0.118)	0.011	0.049
12	1.00	0.13	0.060	(0.118)	0.011	0.049
13	1.08	0.10	0.045	(0.117)	0.008	0.037
14	1.17	0.10	0.045	(0.117)	0.008	0.037
15	1.25	0.10	0.045	(0.116)	0.008	0.037
16	1.33	0.10	0.045	(0.116)	0.008	0.037
17	1.42	0.10	0.045	(0.116)	0.008	0.037
18	1.50	0.10	0.045	(0.115)	0.008	0.037
19	1.58	0.10	0.045	(0.115)	0.008	0.037
20	1.67	0.10	0.045	(0.114)	0.008	0.037
21	1.75	0.10	0.045	(0.114)	0.008	0.037
22	1.83	0.13	0.060	(0.113)	0.011	0.049
23	1.92	0.13	0.060	(0.113)	0.011	0.049
24	2.00	0.13	0.060	(0.112)	0.011	0.049
25	2.08	0.13	0.060	(0.112)	0.011	0.049
26	2.17	0.13	0.060	(0.111)	0.011	0.049
27	2.25	0.13	0.060	(0.111)	0.011	0.049
28	2.33	0.13	0.060	(0.110)	0.011	0.049
29	2.42	0.13	0.060	(0.110)	0.011	0.049
30	2.50	0.13	0.060	(0.110)	0.011	0.049
31	2.58	0.17	0.075	(0.109)	0.014	0.062
32	2.67	0.17	0.075	(0.109)	0.014	0.062
33	2.75	0.17	0.075	(0.108)	0.014	0.062
34	2.83	0.17	0.075	(0.108)	0.014	0.062
35	2.92	0.17	0.075	(0.107)	0.014	0.062
36	3.00	0.17	0.075	(0.107)	0.014	0.062
37	3.08	0.17	0.075	(0.106)	0.014	0.062
38	3.17	0.17	0.075	(0.106)	0.014	0.062
39	3.25	0.17	0.075	(0.106)	0.014	0.062

40	3.33	0.17	0.075	(0.105)	0.014	0.062
41	3.42	0.17	0.075	(0.105)	0.014	0.062
42	3.50	0.17	0.075	(0.104)	0.014	0.062
43	3.58	0.17	0.075	(0.104)	0.014	0.062
44	3.67	0.17	0.075	(0.103)	0.014	0.062
45	3.75	0.17	0.075	(0.103)	0.014	0.062
46	3.83	0.20	0.090	(0.103)	0.016	0.074
47	3.92	0.20	0.090	(0.102)	0.016	0.074
48	4.00	0.20	0.090	(0.102)	0.016	0.074
49	4.08	0.20	0.090	(0.101)	0.016	0.074
50	4.17	0.20	0.090	(0.101)	0.016	0.074
51	4.25	0.20	0.090	(0.100)	0.016	0.074
52	4.33	0.23	0.106	(0.100)	0.019	0.087
53	4.42	0.23	0.106	(0.100)	0.019	0.087
54	4.50	0.23	0.106	(0.099)	0.019	0.087
55	4.58	0.23	0.106	(0.099)	0.019	0.087
56	4.67	0.23	0.106	(0.098)	0.019	0.087
57	4.75	0.23	0.106	(0.098)	0.019	0.087
58	4.83	0.27	0.121	(0.097)	0.022	0.099
59	4.92	0.27	0.121	(0.097)	0.022	0.099
60	5.00	0.27	0.121	(0.097)	0.022	0.099
61	5.08	0.20	0.090	(0.096)	0.016	0.074
62	5.17	0.20	0.090	(0.096)	0.016	0.074
63	5.25	0.20	0.090	(0.095)	0.016	0.074
64	5.33	0.23	0.106	(0.095)	0.019	0.087
65	5.42	0.23	0.106	(0.094)	0.019	0.087
66	5.50	0.23	0.106	(0.094)	0.019	0.087
67	5.58	0.27	0.121	(0.094)	0.022	0.099
68	5.67	0.27	0.121	(0.093)	0.022	0.099
69	5.75	0.27	0.121	(0.093)	0.022	0.099
70	5.83	0.27	0.121	(0.092)	0.022	0.099
71	5.92	0.27	0.121	(0.092)	0.022	0.099
72	6.00	0.27	0.121	(0.092)	0.022	0.099
73	6.08	0.30	0.136	(0.091)	0.024	0.111
74	6.17	0.30	0.136	(0.091)	0.024	0.111
75	6.25	0.30	0.136	(0.090)	0.024	0.111
76	6.33	0.30	0.136	(0.090)	0.024	0.111
77	6.42	0.30	0.136	(0.090)	0.024	0.111
78	6.50	0.30	0.136	(0.089)	0.024	0.111
79	6.58	0.33	0.151	(0.089)	0.027	0.124
80	6.67	0.33	0.151	(0.088)	0.027	0.124
81	6.75	0.33	0.151	(0.088)	0.027	0.124
82	6.83	0.33	0.151	(0.088)	0.027	0.124
83	6.92	0.33	0.151	(0.087)	0.027	0.124
84	7.00	0.33	0.151	(0.087)	0.027	0.124
85	7.08	0.33	0.151	(0.086)	0.027	0.124
86	7.17	0.33	0.151	(0.086)	0.027	0.124
87	7.25	0.33	0.151	(0.086)	0.027	0.124
88	7.33	0.37	0.166	(0.085)	0.030	0.136
89	7.42	0.37	0.166	(0.085)	0.030	0.136
90	7.50	0.37	0.166	(0.084)	0.030	0.136
91	7.58	0.40	0.181	(0.084)	0.033	0.148
92	7.67	0.40	0.181	(0.084)	0.033	0.148
93	7.75	0.40	0.181	(0.083)	0.033	0.148
94	7.83	0.43	0.196	(0.083)	0.035	0.161
95	7.92	0.43	0.196	(0.083)	0.035	0.161
96	8.00	0.43	0.196	(0.082)	0.035	0.161
97	8.08	0.50	0.226	(0.082)	0.041	0.185
98	8.17	0.50	0.226	(0.081)	0.041	0.185
99	8.25	0.50	0.226	(0.081)	0.041	0.185
100	8.33	0.50	0.226	(0.081)	0.041	0.185
101	8.42	0.50	0.226	(0.080)	0.041	0.185
102	8.50	0.50	0.226	(0.080)	0.041	0.185
103	8.58	0.53	0.241	(0.079)	0.043	0.198
104	8.67	0.53	0.241	(0.079)	0.043	0.198
105	8.75	0.53	0.241	(0.079)	0.043	0.198
106	8.83	0.57	0.256	(0.078)	0.046	0.210
107	8.92	0.57	0.256	(0.078)	0.046	0.210
108	9.00	0.57	0.256	(0.078)	0.046	0.210
109	9.08	0.63	0.286	(0.077)	0.052	0.235
110	9.17	0.63	0.286	(0.077)	0.052	0.235

111	9.25	0.63	0.286	(0.077)	0.052	0.235
112	9.33	0.67	0.301	(0.076)	0.054	0.247
113	9.42	0.67	0.301	(0.076)	0.054	0.247
114	9.50	0.67	0.301	(0.075)	0.054	0.247
115	9.58	0.70	0.317	(0.075)	0.057	0.260
116	9.67	0.70	0.317	(0.075)	0.057	0.260
117	9.75	0.70	0.317	(0.074)	0.057	0.260
118	9.83	0.73	0.332	(0.074)	0.060	0.272
119	9.92	0.73	0.332	(0.074)	0.060	0.272
120	10.00	0.73	0.332	(0.073)	0.060	0.272
121	10.08	0.50	0.226	(0.073)	0.041	0.185
122	10.17	0.50	0.226	(0.073)	0.041	0.185
123	10.25	0.50	0.226	(0.072)	0.041	0.185
124	10.33	0.50	0.226	(0.072)	0.041	0.185
125	10.42	0.50	0.226	(0.072)	0.041	0.185
126	10.50	0.50	0.226	(0.071)	0.041	0.185
127	10.58	0.67	0.301	(0.071)	0.054	0.247
128	10.67	0.67	0.301	(0.070)	0.054	0.247
129	10.75	0.67	0.301	(0.070)	0.054	0.247
130	10.83	0.67	0.301	(0.070)	0.054	0.247
131	10.92	0.67	0.301	(0.069)	0.054	0.247
132	11.00	0.67	0.301	(0.069)	0.054	0.247
133	11.08	0.63	0.286	(0.069)	0.052	0.235
134	11.17	0.63	0.286	(0.068)	0.052	0.235
135	11.25	0.63	0.286	(0.068)	0.052	0.235
136	11.33	0.63	0.286	(0.068)	0.052	0.235
137	11.42	0.63	0.286	(0.067)	0.052	0.235
138	11.50	0.63	0.286	(0.067)	0.052	0.235
139	11.58	0.57	0.256	(0.067)	0.046	0.210
140	11.67	0.57	0.256	(0.066)	0.046	0.210
141	11.75	0.57	0.256	(0.066)	0.046	0.210
142	11.83	0.60	0.271	(0.066)	0.049	0.222
143	11.92	0.60	0.271	(0.065)	0.049	0.222
144	12.00	0.60	0.271	(0.065)	0.049	0.222
145	12.08	0.83	0.377	0.065	(0.068)	0.312
146	12.17	0.83	0.377	0.064	(0.068)	0.312
147	12.25	0.83	0.377	0.064	(0.068)	0.313
148	12.33	0.87	0.392	0.064	(0.071)	0.328
149	12.42	0.87	0.392	0.063	(0.071)	0.328
150	12.50	0.87	0.392	0.063	(0.071)	0.329
151	12.58	0.93	0.422	0.063	(0.076)	0.359
152	12.67	0.93	0.422	0.063	(0.076)	0.359
153	12.75	0.93	0.422	0.062	(0.076)	0.360
154	12.83	0.97	0.437	0.062	(0.079)	0.375
155	12.92	0.97	0.437	0.062	(0.079)	0.375
156	13.00	0.97	0.437	0.061	(0.079)	0.376
157	13.08	1.13	0.512	0.061	(0.092)	0.451
158	13.17	1.13	0.512	0.061	(0.092)	0.452
159	13.25	1.13	0.512	0.060	(0.092)	0.452
160	13.33	1.13	0.512	0.060	(0.092)	0.452
161	13.42	1.13	0.512	0.060	(0.092)	0.453
162	13.50	1.13	0.512	0.059	(0.092)	0.453
163	13.58	0.77	0.347	0.059	(0.062)	0.288
164	13.67	0.77	0.347	0.059	(0.062)	0.288
165	13.75	0.77	0.347	0.059	(0.062)	0.288
166	13.83	0.77	0.347	0.058	(0.062)	0.288
167	13.92	0.77	0.347	0.058	(0.062)	0.289
168	14.00	0.77	0.347	0.058	(0.062)	0.289
169	14.08	0.90	0.407	0.057	(0.073)	0.350
170	14.17	0.90	0.407	0.057	(0.073)	0.350
171	14.25	0.90	0.407	0.057	(0.073)	0.350
172	14.33	0.87	0.392	0.056	(0.071)	0.335
173	14.42	0.87	0.392	0.056	(0.071)	0.336
174	14.50	0.87	0.392	0.056	(0.071)	0.336
175	14.58	0.87	0.392	0.056	(0.071)	0.336
176	14.67	0.87	0.392	0.055	(0.071)	0.337
177	14.75	0.87	0.392	0.055	(0.071)	0.337
178	14.83	0.83	0.377	0.055	(0.068)	0.322
179	14.92	0.83	0.377	0.054	(0.068)	0.322
180	15.00	0.83	0.377	0.054	(0.068)	0.323
181	15.08	0.80	0.362	0.054	(0.065)	0.308

182	15.17	0.80	0.362	0.054	(0.065)	0.308
183	15.25	0.80	0.362	0.053	(0.065)	0.308
184	15.33	0.77	0.347	0.053	(0.062)	0.294
185	15.42	0.77	0.347	0.053	(0.062)	0.294
186	15.50	0.77	0.347	0.053	(0.062)	0.294
187	15.58	0.63	0.286	(0.052)	0.052	0.235
188	15.67	0.63	0.286	(0.052)	0.052	0.235
189	15.75	0.63	0.286	(0.052)	0.052	0.235
190	15.83	0.63	0.286	0.051	(0.052)	0.235
191	15.92	0.63	0.286	0.051	(0.052)	0.235
192	16.00	0.63	0.286	0.051	(0.052)	0.235
193	16.08	0.13	0.060	(0.051)	0.011	0.049
194	16.17	0.13	0.060	(0.050)	0.011	0.049
195	16.25	0.13	0.060	(0.050)	0.011	0.049
196	16.33	0.13	0.060	(0.050)	0.011	0.049
197	16.42	0.13	0.060	(0.050)	0.011	0.049
198	16.50	0.13	0.060	(0.049)	0.011	0.049
199	16.58	0.10	0.045	(0.049)	0.008	0.037
200	16.67	0.10	0.045	(0.049)	0.008	0.037
201	16.75	0.10	0.045	(0.049)	0.008	0.037
202	16.83	0.10	0.045	(0.048)	0.008	0.037
203	16.92	0.10	0.045	(0.048)	0.008	0.037
204	17.00	0.10	0.045	(0.048)	0.008	0.037
205	17.08	0.17	0.075	(0.048)	0.014	0.062
206	17.17	0.17	0.075	(0.047)	0.014	0.062
207	17.25	0.17	0.075	(0.047)	0.014	0.062
208	17.33	0.17	0.075	(0.047)	0.014	0.062
209	17.42	0.17	0.075	(0.047)	0.014	0.062
210	17.50	0.17	0.075	(0.047)	0.014	0.062
211	17.58	0.17	0.075	(0.046)	0.014	0.062
212	17.67	0.17	0.075	(0.046)	0.014	0.062
213	17.75	0.17	0.075	(0.046)	0.014	0.062
214	17.83	0.13	0.060	(0.046)	0.011	0.049
215	17.92	0.13	0.060	(0.045)	0.011	0.049
216	18.00	0.13	0.060	(0.045)	0.011	0.049
217	18.08	0.13	0.060	(0.045)	0.011	0.049
218	18.17	0.13	0.060	(0.045)	0.011	0.049
219	18.25	0.13	0.060	(0.044)	0.011	0.049
220	18.33	0.13	0.060	(0.044)	0.011	0.049
221	18.42	0.13	0.060	(0.044)	0.011	0.049
222	18.50	0.13	0.060	(0.044)	0.011	0.049
223	18.58	0.10	0.045	(0.044)	0.008	0.037
224	18.67	0.10	0.045	(0.043)	0.008	0.037
225	18.75	0.10	0.045	(0.043)	0.008	0.037
226	18.83	0.07	0.030	(0.043)	0.005	0.025
227	18.92	0.07	0.030	(0.043)	0.005	0.025
228	19.00	0.07	0.030	(0.043)	0.005	0.025
229	19.08	0.10	0.045	(0.042)	0.008	0.037
230	19.17	0.10	0.045	(0.042)	0.008	0.037
231	19.25	0.10	0.045	(0.042)	0.008	0.037
232	19.33	0.13	0.060	(0.042)	0.011	0.049
233	19.42	0.13	0.060	(0.042)	0.011	0.049
234	19.50	0.13	0.060	(0.041)	0.011	0.049
235	19.58	0.10	0.045	(0.041)	0.008	0.037
236	19.67	0.10	0.045	(0.041)	0.008	0.037
237	19.75	0.10	0.045	(0.041)	0.008	0.037
238	19.83	0.07	0.030	(0.041)	0.005	0.025
239	19.92	0.07	0.030	(0.040)	0.005	0.025
240	20.00	0.07	0.030	(0.040)	0.005	0.025
241	20.08	0.10	0.045	(0.040)	0.008	0.037
242	20.17	0.10	0.045	(0.040)	0.008	0.037
243	20.25	0.10	0.045	(0.040)	0.008	0.037
244	20.33	0.10	0.045	(0.040)	0.008	0.037
245	20.42	0.10	0.045	(0.039)	0.008	0.037
246	20.50	0.10	0.045	(0.039)	0.008	0.037
247	20.58	0.10	0.045	(0.039)	0.008	0.037
248	20.67	0.10	0.045	(0.039)	0.008	0.037
249	20.75	0.10	0.045	(0.039)	0.008	0.037
250	20.83	0.07	0.030	(0.039)	0.005	0.025
251	20.92	0.07	0.030	(0.038)	0.005	0.025
252	21.00	0.07	0.030	(0.038)	0.005	0.025

```
253  21.08     0.10      0.045       (  0.038)       0.008        0.037
254  21.17     0.10      0.045       (  0.038)       0.008        0.037
255  21.25     0.10      0.045       (  0.038)       0.008        0.037
256  21.33     0.07      0.030       (  0.038)       0.005        0.025
257  21.42     0.07      0.030       (  0.038)       0.005        0.025
258  21.50     0.07      0.030       (  0.037)       0.005        0.025
259  21.58     0.10      0.045       (  0.037)       0.008        0.037
260  21.67     0.10      0.045       (  0.037)       0.008        0.037
261  21.75     0.10      0.045       (  0.037)       0.008        0.037
262  21.83     0.07      0.030       (  0.037)       0.005        0.025
263  21.92     0.07      0.030       (  0.037)       0.005        0.025
264  22.00     0.07      0.030       (  0.037)       0.005        0.025
265  22.08     0.10      0.045       (  0.037)       0.008        0.037
266  22.17     0.10      0.045       (  0.036)       0.008        0.037
267  22.25     0.10      0.045       (  0.036)       0.008        0.037
268  22.33     0.07      0.030       (  0.036)       0.005        0.025
269  22.42     0.07      0.030       (  0.036)       0.005        0.025
270  22.50     0.07      0.030       (  0.036)       0.005        0.025
271  22.58     0.07      0.030       (  0.036)       0.005        0.025
272  22.67     0.07      0.030       (  0.036)       0.005        0.025
273  22.75     0.07      0.030       (  0.036)       0.005        0.025
274  22.83     0.07      0.030       (  0.036)       0.005        0.025
275  22.92     0.07      0.030       (  0.035)       0.005        0.025
276  23.00     0.07      0.030       (  0.035)       0.005        0.025
277  23.08     0.07      0.030       (  0.035)       0.005        0.025
278  23.17     0.07      0.030       (  0.035)       0.005        0.025
279  23.25     0.07      0.030       (  0.035)       0.005        0.025
280  23.33     0.07      0.030       (  0.035)       0.005        0.025
281  23.42     0.07      0.030       (  0.035)       0.005        0.025
282  23.50     0.07      0.030       (  0.035)       0.005        0.025
283  23.58     0.07      0.030       (  0.035)       0.005        0.025
284  23.67     0.07      0.030       (  0.035)       0.005        0.025
285  23.75     0.07      0.030       (  0.035)       0.005        0.025
286  23.83     0.07      0.030       (  0.035)       0.005        0.025
287  23.92     0.07      0.030       (  0.035)       0.005        0.025
288  24.00     0.07      0.030       (  0.035)       0.005        0.025
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    37.7
      Flood volume = Effective rainfall      3.14(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       2.3(Ac.Ft)
      Total soil loss =      0.63(In)
      Total soil loss =     0.461(Ac.Ft)
      Total rainfall =      3.77(In)
      Flood volume =      100131.4 Cubic Feet
      Total soil loss =       20097.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      4.014(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       0.0010      0.14  Q         |         |         |         |
   0+10       0.0024      0.21  Q         |         |         |         |
   0+15       0.0039      0.22  Q         |         |         |         |
   0+20       0.0059      0.29  VQ        |         |         |         |
   0+25       0.0082      0.33  VQ        |         |         |         |
   0+30       0.0104      0.33  VQ        |         |         |         |
   0+35       0.0127      0.33  VQ        |         |         |         |
   0+40       0.0150      0.33  VQ        |         |         |         |
   0+45       0.0172      0.33  VQ        |         |         |         |
   0+50       0.0200      0.40  VQ        |         |         |         |
   0+55       0.0230      0.44  VQ        |         |         |         |
   1+ 0       0.0260      0.44  VQ        |         |         |         |
   1+ 5       0.0285      0.37  VQ        |         |         |         |
   1+10       0.0308      0.33  VQ        |         |         |         |
```

1+15	0.0331	0.33	VQ	|	|	|	|
1+20	0.0353	0.33	VQ	|	|	|	|
1+25	0.0376	0.33	VQ	|	|	|	|
1+30	0.0398	0.33	VQ	|	|	|	|
1+35	0.0421	0.33	VQ	|	|	|	|
1+40	0.0444	0.33	VQ	|	|	|	|
1+45	0.0466	0.33	VQ	|	|	|	|
1+50	0.0494	0.40	VQ	|	|	|	|
1+55	0.0524	0.44	VQ	|	|	|	|
2+ 0	0.0554	0.44	VQ	|	|	|	|
2+ 5	0.0584	0.44	|Q	|	|	|	|
2+10	0.0614	0.44	|Q	|	|	|	|
2+15	0.0644	0.44	|Q	|	|	|	|
2+20	0.0675	0.44	|Q	|	|	|	|
2+25	0.0705	0.44	|Q	|	|	|	|
2+30	0.0735	0.44	|Q	|	|	|	|
2+35	0.0770	0.51	|VQ	|	|	|	|
2+40	0.0807	0.54	|VQ	|	|	|	|
2+45	0.0845	0.55	|VQ	|	|	|	|
2+50	0.0883	0.55	|VQ	|	|	|	|
2+55	0.0921	0.55	|VQ	|	|	|	|
3+ 0	0.0958	0.55	|VQ	|	|	|	|
3+ 5	0.0996	0.55	|VQ	|	|	|	|
3+10	0.1034	0.55	|VQ	|	|	|	|
3+15	0.1072	0.55	|VQ	|	|	|	|
3+20	0.1109	0.55	|VQ	|	|	|	|
3+25	0.1147	0.55	|VQ	|	|	|	|
3+30	0.1185	0.55	| Q	|	|	|	|
3+35	0.1222	0.55	| Q	|	|	|	|
3+40	0.1260	0.55	| Q	|	|	|	|
3+45	0.1298	0.55	| Q	|	|	|	|
3+50	0.1340	0.62	| Q	|	|	|	|
3+55	0.1385	0.65	| Q	|	|	|	|
4+ 0	0.1431	0.66	| Q	|	|	|	|
4+ 5	0.1476	0.66	| Q	|	|	|	|
4+10	0.1521	0.66	| Q	|	|	|	|
4+15	0.1566	0.66	| Q	|	|	|	|
4+20	0.1616	0.73	| Q	|	|	|	|
4+25	0.1669	0.76	| VQ	|	|	|	|
4+30	0.1722	0.77	| VQ	|	|	|	|
4+35	0.1775	0.77	| Q	|	|	|	|
4+40	0.1828	0.77	| Q	|	|	|	|
4+45	0.1880	0.77	| Q	|	|	|	|
4+50	0.1938	0.84	| Q	|	|	|	|
4+55	0.1998	0.87	| Q	|	|	|	|
5+ 0	0.2058	0.88	| Q	|	|	|	|
5+ 5	0.2109	0.74	| QV	|	|	|	|
5+10	0.2155	0.66	| QV	|	|	|	|
5+15	0.2200	0.66	| QV	|	|	|	|
5+20	0.2250	0.73	| QV	|	|	|	|
5+25	0.2303	0.76	| QV	|	|	|	|
5+30	0.2356	0.77	| QV	|	|	|	|
5+35	0.2413	0.84	| QV	|	|	|	|
5+40	0.2473	0.87	| QV	|	|	|	|
5+45	0.2534	0.88	| QV	|	|	|	|
5+50	0.2594	0.88	| QV	|	|	|	|
5+55	0.2654	0.88	| QV	|	|	|	|
6+ 0	0.2715	0.88	| QV	|	|	|	|
6+ 5	0.2780	0.95	| QV	|	|	|	|
6+10	0.2848	0.98	| QV	|	|	|	|
6+15	0.2916	0.99	| Q V	|	|	|	|
6+20	0.2983	0.99	| Q V	|	|	|	|
6+25	0.3051	0.99	| Q V	|	|	|	|
6+30	0.3119	0.99	| Q V	|	|	|	|
6+35	0.3192	1.06	| QV	|	|	|	|
6+40	0.3267	1.09	| QV	|	|	|	|
6+45	0.3343	1.10	| QV	|	|	|	|
6+50	0.3418	1.10	| QV	|	|	|	|
6+55	0.3493	1.10	| Q V	|	|	|	|
7+ 0	0.3569	1.10	| Q V	|	|	|	|
7+ 5	0.3644	1.10	| Q V	|	|	|	|

```
 7+10       0.3720      1.10  |   Q V   |         |         |         |
 7+15       0.3795      1.10  |   Q V   |         |         |         |
 7+20       0.3875      1.16  |   Q V   |         |         |         |
 7+25       0.3958      1.20  |   Q V   |         |         |         |
 7+30       0.4041      1.20  |   Q  V  |         |         |         |
 7+35       0.4129      1.27  |    Q V  |         |         |         |
 7+40       0.4219      1.31  |    Q V  |         |         |         |
 7+45       0.4310      1.31  |    Q V  |         |         |         |
 7+50       0.4405      1.38  |    Q V  |         |         |         |
 7+55       0.4503      1.42  |    Q V  |         |         |         |
 8+ 0       0.4601      1.42  |    Q  V |         |         |         |
 8+ 5       0.4709      1.56  |     Q V |         |         |         |
 8+10       0.4821      1.64  |     Q V |         |         |         |
 8+15       0.4935      1.64  |     Q V |         |         |         |
 8+20       0.5048      1.64  |     Q V |         |         |         |
 8+25       0.5161      1.64  |     Q V |         |         |         |
 8+30       0.5274      1.64  |     Q  V|         |         |         |
 8+35       0.5392      1.71  |     Q  V|         |         |         |
 8+40       0.5513      1.75  |     Q  V|         |         |         |
 8+45       0.5633      1.75  |      Q V|         |         |         |
 8+50       0.5759      1.82  |      Q  V         |         |         |
 8+55       0.5887      1.86  |      Q  V         |         |         |
 9+ 0       0.6015      1.86  |      Q  V         |         |         |
 9+ 5       0.6153      2.00  |       Q V         |         |         |
 9+10       0.6296      2.08  |       Q V         |         |         |
 9+15       0.6439      2.08  |       Q |V        |         |         |
 9+20       0.6587      2.15  |       Q |V        |         |         |
 9+25       0.6738      2.19  |       Q |V        |         |         |
 9+30       0.6889      2.19  |       Q |V        |         |         |
 9+35       0.7044      2.26  |        Q| V        |         |         |
 9+40       0.7203      2.30  |        Q| V        |         |         |
 9+45       0.7361      2.30  |        Q| V        |         |         |
 9+50       0.7524      2.37  |        Q|  V       |         |         |
 9+55       0.7690      2.41  |        Q|  V       |         |         |
10+ 0       0.7856      2.41  |        Q|  V       |         |         |
10+ 5       0.7989      1.93  |       Q |  V       |         |         |
10+10       0.8103      1.66  |     Q   |   V      |         |         |
10+15       0.8216      1.64  |     Q   |   V      |         |         |
10+20       0.8330      1.64  |     Q   |   V      |         |         |
10+25       0.8443      1.64  |     Q   |   V      |         |         |
10+30       0.8556      1.64  |     Q   |   V      |         |         |
10+35       0.8693      1.99  |      Q  |    V     |         |         |
10+40       0.8843      2.18  |       Q |    V     |         |         |
10+45       0.8994      2.19  |       Q |    V     |         |         |
10+50       0.9145      2.19  |       Q |    V     |         |         |
10+55       0.9295      2.19  |       Q |     V    |         |         |
11+ 0       0.9446      2.19  |       Q |     V    |         |         |
11+ 5       0.9592      2.12  |       Q |     V    |         |         |
11+10       0.9736      2.08  |       Q |     V    |         |         |
11+15       0.9879      2.08  |       Q |      V   |         |         |
11+20       1.0023      2.08  |       Q |      V   |         |         |
11+25       1.0166      2.08  |       Q |      V   |         |         |
11+30       1.0309      2.08  |       Q |      V   |         |         |
11+35       1.0443      1.94  |      Q  |       V  |         |         |
11+40       1.0572      1.87  |      Q  |       V  |         |         |
11+45       1.0700      1.86  |      Q  |       V  |         |         |
11+50       1.0833      1.93  |      Q  |       V  |         |         |
11+55       1.0969      1.97  |      Q  |        V |         |         |
12+ 0       1.1104      1.97  |      Q  |        V |         |         |
12+ 5       1.1275      2.47  |        Q|        V |         |         |
12+10       1.1464      2.75  |         Q        V |         |         |
12+15       1.1655      2.77  |         |Q        V         |         |
12+20       1.1852      2.86  |         |Q        V         |         |
12+25       1.2052      2.91  |         |Q        V         |         |
12+30       1.2252      2.91  |         |Q        |V        |         |
12+35       1.2465      3.08  |         | Q       |V        |         |
12+40       1.2684      3.18  |         | Q       | V       |         |
12+45       1.2903      3.19  |         | Q       | V       |         |
12+50       1.3129      3.28  |         |  Q      | V       |         |
12+55       1.3358      3.32  |         |  Q      |  V      |         |
13+ 0       1.3587      3.33  |         |  Q      |  V      |         |
```

```
13+ 5       1.3845      3.75  |          |    Q     |   V      |          |
13+10       1.4120      3.99  |          |    Q     |   V      |          |
13+15       1.4396      4.01  |          |     Q    |    V     |          |
13+20       1.4672      4.01  |          |     Q    |    V     |          |
13+25       1.4948      4.01  |          |     Q    |     V    |          |
13+30       1.5225      4.01  |          |     Q    |     V    |          |
13+35       1.5437      3.09  |          | Q        |     V    |          |
13+40       1.5616      2.59  |          Q          |      V   |          |
13+45       1.5791      2.55  |          Q          |      V   |          |
13+50       1.5967      2.56  |          Q          |      V   |          |
13+55       1.6144      2.56  |          Q          |       V  |          |
14+ 0       1.6320      2.56  |          Q          |       V  |          |
14+ 5       1.6520      2.90  |          |Q         |       V  |          |
14+10       1.6732      3.09  |          | Q        |        V|          |
14+15       1.6946      3.10  |          | Q        |        V|          |
14+20       1.7154      3.02  |          | Q        |        V|          |
14+25       1.7359      2.98  |          |Q         |         V          |
14+30       1.7564      2.98  |          |Q         |         V          |
14+35       1.7769      2.98  |          |Q         |         V          |
14+40       1.7975      2.98  |          |Q         |          |V        |
14+45       1.8180      2.98  |          |Q         |          |V        |
14+50       1.8380      2.90  |          |Q         |          |V        |
14+55       1.8577      2.86  |          |Q         |          | V       |
15+ 0       1.8774      2.86  |          |Q         |          | V       |
15+ 5       1.8965      2.78  |          |Q         |          |  V      |
15+10       1.9153      2.73  |          Q          |          |  V      |
15+15       1.9341      2.73  |          Q          |          |  V      |
15+20       1.9524      2.65  |          Q          |          |  V      |
15+25       1.9703      2.61  |          Q          |          |   V     |
15+30       1.9883      2.61  |          Q          |          |   V     |
15+35       2.0040      2.27  |         Q|          |          |   V     |
15+40       2.0184      2.09  |        Q |          |          |    V    |
15+45       2.0327      2.08  |        Q |          |          |    V    |
15+50       2.0471      2.08  |        Q |          |          |    V    |
15+55       2.0614      2.08  |        Q |          |          |    V    |
16+ 0       2.0758      2.09  |        Q |          |          |     V   |
16+ 5       2.0830      1.04  |   Q      |          |          |     V   |
16+10       2.0863      0.48  |Q         |          |          |     V   |
16+15       2.0893      0.44  |Q         |          |          |     V   |
16+20       2.0923      0.44  |Q         |          |          |     V   |
16+25       2.0953      0.44  |Q         |          |          |     V   |
16+30       2.0983      0.44  |Q         |          |          |     V   |
16+35       2.1009      0.37  |Q         |          |          |     V   |
16+40       2.1032      0.33  |Q         |          |          |     V   |
16+45       2.1054      0.33  |Q         |          |          |     V   |
16+50       2.1077      0.33  |Q         |          |          |     V   |
16+55       2.1100      0.33  |Q         |          |          |     V   |
17+ 0       2.1122      0.33  |Q         |          |          |     V   |
17+ 5       2.1154      0.47  |Q         |          |          |     V   |
17+10       2.1192      0.54  | Q        |          |          |     V   |
17+15       2.1229      0.55  | Q        |          |          |     V   |
17+20       2.1267      0.55  | Q        |          |          |      V  |
17+25       2.1305      0.55  | Q        |          |          |      V  |
17+30       2.1343      0.55  | Q        |          |          |      V  |
17+35       2.1380      0.55  | Q        |          |          |      V  |
17+40       2.1418      0.55  | Q        |          |          |      V  |
17+45       2.1456      0.55  | Q        |          |          |      V  |
17+50       2.1489      0.48  |Q         |          |          |      V  |
17+55       2.1519      0.44  |Q         |          |          |      V  |
18+ 0       2.1549      0.44  |Q         |          |          |      V  |
18+ 5       2.1579      0.44  |Q         |          |          |      V  |
18+10       2.1610      0.44  |Q         |          |          |      V  |
18+15       2.1640      0.44  |Q         |          |          |      V  |
18+20       2.1670      0.44  |Q         |          |          |      V  |
18+25       2.1700      0.44  |Q         |          |          |      V  |
18+30       2.1730      0.44  |Q         |          |          |      V  |
18+35       2.1756      0.37  |Q         |          |          |      V  |
18+40       2.1779      0.33  |Q         |          |          |      V  |
18+45       2.1801      0.33  |Q         |          |          |      V  |
18+50       2.1819      0.26  |Q         |          |          |      V  |
18+55       2.1834      0.22  Q          |          |          |      V  |
```

19+ 0	2.1849	0.22	Q				V
19+ 5	2.1869	0.29	|Q				V
19+10	2.1892	0.33	|Q				V
19+15	2.1914	0.33	|Q				V
19+20	2.1942	0.40	|Q				V
19+25	2.1972	0.44	|Q				V
19+30	2.2002	0.44	|Q				V
19+35	2.2027	0.37	|Q				V
19+40	2.2050	0.33	|Q				V
19+45	2.2073	0.33	|Q				V
19+50	2.2091	0.26	|Q				V
19+55	2.2106	0.22	Q				V
20+ 0	2.2121	0.22	Q				V
20+ 5	2.2141	0.29	|Q				V
20+10	2.2163	0.33	|Q				V
20+15	2.2186	0.33	|Q				V
20+20	2.2209	0.33	|Q				V
20+25	2.2231	0.33	|Q				V
20+30	2.2254	0.33	|Q				V
20+35	2.2276	0.33	|Q				V
20+40	2.2299	0.33	|Q				V
20+45	2.2322	0.33	|Q				V
20+50	2.2340	0.26	|Q				V
20+55	2.2355	0.22	Q				V
21+ 0	2.2370	0.22	Q				V
21+ 5	2.2390	0.29	|Q				V
21+10	2.2412	0.33	|Q				V
21+15	2.2435	0.33	|Q				V
21+20	2.2453	0.26	|Q				V
21+25	2.2468	0.22	Q				V
21+30	2.2483	0.22	Q				V
21+35	2.2503	0.29	|Q				V
21+40	2.2525	0.33	|Q				V
21+45	2.2548	0.33	|Q				V
21+50	2.2566	0.26	|Q				V
21+55	2.2581	0.22	Q				V
22+ 0	2.2596	0.22	Q				V
22+ 5	2.2616	0.29	|Q				V
22+10	2.2639	0.33	|Q				V
22+15	2.2661	0.33	|Q				V
22+20	2.2679	0.26	|Q				V
22+25	2.2694	0.22	Q				V
22+30	2.2709	0.22	Q				V
22+35	2.2725	0.22	Q				V
22+40	2.2740	0.22	Q				V
22+45	2.2755	0.22	Q				V
22+50	2.2770	0.22	Q				V
22+55	2.2785	0.22	Q				V
23+ 0	2.2800	0.22	Q				V
23+ 5	2.2815	0.22	Q				V
23+10	2.2830	0.22	Q				V
23+15	2.2845	0.22	Q				V
23+20	2.2860	0.22	Q				V
23+25	2.2875	0.22	Q				V
23+30	2.2891	0.22	Q				V
23+35	2.2906	0.22	Q				V
23+40	2.2921	0.22	Q				V
23+45	2.2936	0.22	Q				V
23+50	2.2951	0.22	Q				V
23+55	2.2966	0.22	Q				V
24+ 0	2.2981	0.22	Q				V
24+ 5	2.2987	0.08	Q				V
24+10	2.2987	0.01	Q				V

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP100YR1HR1100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 1-HOUR STORM - PROPOSED CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           0.49                 4.34

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           1.40                12.31

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.494(In)
Area Averaged 100-Year Rainfall =    1.400(In)

Point rain (area averaged) =    1.400(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.400(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.790           69.70         0.900
```

```
 Total Area Entered =      8.79(Ac.)


 RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
 AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
 69.7  69.7      0.365     0.900        0.069       1.000      0.069
                                                  Sum (F) =   0.069
 Area averaged mean soil loss (F) (In/Hr) =  0.069
 Minimum soil loss rate ((In/Hr)) =  0.035
 (for 24 hour storm duration)
 Soil low loss rate (decimal) =   0.180
 ------------------------------------------------------------------------
 Slope of intensity-duration curve for a 1 hour storm =0.4800
 ------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      DESERT S-Curve
 ------------------------------------------------------------------------
               Unit Hydrograph Data
 ------------------------------------------------------------------------
 Unit time period   Time % of lag   Distribution   Unit Hydrograph
     (hrs)                          Graph %           (CFS)
 ------------------------------------------------------------------------
     1   0.083        376.272         63.186              5.597
     2   0.167        752.544         34.250              3.034
     3   0.250       1128.816          2.564              0.227
                               Sum = 100.000   Sum=       8.859
------------------------------------------------------------------------


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

  Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
       (Hr.)  Percent   (In/Hr)         Max   |   Low         (In/Hr)
   1   0.08     4.40      0.739          0.069    (  0.133)        0.670
   2   0.17     4.50      0.756          0.069    (  0.136)        0.687
   3   0.25     5.40      0.907          0.069    (  0.163)        0.838
   4   0.33     5.40      0.907          0.069    (  0.163)        0.838
   5   0.42     5.70      0.958          0.069    (  0.172)        0.888
   6   0.50     6.40      1.075          0.069    (  0.194)        1.006
   7   0.58     7.90      1.327          0.069    (  0.239)        1.258
   8   0.67     9.10      1.529          0.069    (  0.275)        1.459
   9   0.75    12.80      2.150          0.069    (  0.387)        2.081
  10   0.83    25.60      4.300          0.069    (  0.774)        4.231
  11   0.92     7.90      1.327          0.069    (  0.239)        1.258
  12   1.00     4.90      0.823          0.069    (  0.148)        0.754
               (Loss Rate Not Used)
     Sum =     100.0                                  Sum =    16.0
       Flood volume = Effective rainfall      1.33(In)
        times area       8.8(Ac.)/[(In)/(Ft.)] =       1.0(Ac.Ft)
       Total soil loss =      0.07(In)
       Total soil loss =     0.051(Ac.Ft)
       Total rainfall =      1.40(In)
       Flood volume =       42453.0 Cubic Feet
       Total soil loss =        2214.3 Cubic Feet
       ------------------------------------------------------------------
        Peak flow rate of this hydrograph =     30.344(CFS)
       ------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
       ------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

       ------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0       10.0      20.0      30.0      40.0
 ----------------------------------------------------------------------
   0+ 5       0.0258      3.75  |V Q      |         |         |         |
   0+10       0.0663      5.88  | V  Q    |         |         |         |
```

```
    0+15       0.1140      6.93  |   V Q   |         |         |         |
    0+20       0.1649      7.39  |     VQ  |         |         |         |
    0+25       0.2180      7.71  |      QV |         |         |         |
    0+30       0.2767      8.52  |       Q |V        |         |         |
    0+35       0.3476     10.30  |         Q   V     |         |         |
    0+40       0.4318     12.22  |         | Q    V  |         |         |
    0+45       0.5445     16.37  |         |     Q   | V       |         |
    0+50       0.7535     30.34  |         |         |         Q         |
    0+55       0.8937     20.36  |         |         Q         |     V   |
    1+ 0       0.9557      9.00  |        Q|         |         |        V|
    1+ 5       0.9734      2.57  | Q       |         |         |        V|
    1+10       0.9746      0.17  Q         |         |         |         V
-------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP100YR3HR3100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 3-HOUR STORM - PROPOSED CONDITION @ NODE 12
------------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           0.87                 7.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           2.22                19.51

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.870(In)
Area Averaged 100-Year Rainfall =    2.220(In)

Point rain (area averaged) =    2.220(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.220(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.790           69.70         0.900
```

Total Area Entered = 8.79(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
69.7	69.7	0.365	0.900	0.069	1.000	0.069
					Sum (F) =	0.069

Area averaged mean soil loss (F) (In/Hr) = 0.069
Minimum soil loss rate ((In/Hr)) = 0.035
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	376.272	63.186	5.597
2	0.167	752.544	34.250	3.034
3	0.250	1128.816	2.564	0.227
		Sum = 100.000	Sum=	8.859

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.346	(0.069)	0.062	0.284
2	0.17	1.30	0.346	(0.069)	0.062	0.284
3	0.25	1.10	0.293	(0.069)	0.053	0.240
4	0.33	1.50	0.400	0.069	(0.072)	0.330
5	0.42	1.50	0.400	0.069	(0.072)	0.330
6	0.50	1.80	0.480	0.069	(0.086)	0.410
7	0.58	1.50	0.400	0.069	(0.072)	0.330
8	0.67	1.80	0.480	0.069	(0.086)	0.410
9	0.75	1.80	0.480	0.069	(0.086)	0.410
10	0.83	1.50	0.400	0.069	(0.072)	0.330
11	0.92	1.60	0.426	0.069	(0.077)	0.357
12	1.00	1.80	0.480	0.069	(0.086)	0.410
13	1.08	2.20	0.586	0.069	(0.105)	0.517
14	1.17	2.20	0.586	0.069	(0.105)	0.517
15	1.25	2.20	0.586	0.069	(0.105)	0.517
16	1.33	2.00	0.533	0.069	(0.096)	0.463
17	1.42	2.60	0.693	0.069	(0.125)	0.623
18	1.50	2.70	0.719	0.069	(0.129)	0.650
19	1.58	2.40	0.639	0.069	(0.115)	0.570
20	1.67	2.70	0.719	0.069	(0.129)	0.650
21	1.75	3.30	0.879	0.069	(0.158)	0.810
22	1.83	3.10	0.826	0.069	(0.149)	0.756
23	1.92	2.90	0.773	0.069	(0.139)	0.703
24	2.00	3.00	0.799	0.069	(0.144)	0.730
25	2.08	3.10	0.826	0.069	(0.149)	0.756
26	2.17	4.20	1.119	0.069	(0.201)	1.049
27	2.25	5.00	1.332	0.069	(0.240)	1.263
28	2.33	3.50	0.932	0.069	(0.168)	0.863
29	2.42	6.80	1.811	0.069	(0.326)	1.742
30	2.50	7.30	1.945	0.069	(0.350)	1.875
31	2.58	8.20	2.184	0.069	(0.393)	2.115
32	2.67	5.90	1.572	0.069	(0.283)	1.502
33	2.75	2.00	0.533	0.069	(0.096)	0.463
34	2.83	1.80	0.480	0.069	(0.086)	0.410
35	2.92	1.80	0.480	0.069	(0.086)	0.410
36	3.00	0.60	0.160	(0.069)	0.029	0.131
		(Loss Rate Not Used)				

```
   Sum =     100.0                                    Sum =    24.2
      Flood volume = Effective rainfall      2.02(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       1.5(Ac.Ft)
      Total soil loss =      0.20(In)
      Total soil loss =     0.148(Ac.Ft)
      Total rainfall =      2.22(In)
      Flood volume =       64379.5 Cubic Feet
      Total soil loss =        6452.9 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     17.933(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
 ------------------------------------------------------------------------
   0+ 5       0.0110      1.59  V  Q      |         |         |         |
   0+10       0.0278      2.45  V   Q     |         |         |         |
   0+15       0.0435      2.27  |V  Q     |         |         |         |
   0+20       0.0617      2.64  |V   Q    |         |         |         |
   0+25       0.0817      2.91  | V  Q    |         |         |         |
   0+30       0.1049      3.37  | V   Q   |         |         |         |
   0+35       0.1268      3.17  |  V  Q   |         |         |         |
   0+40       0.1501      3.39  |   V Q   |         |         |         |
   0+45       0.1750      3.62  |   V  Q  |         |         |         |
   0+50       0.1970      3.19  |    VQ   |         |         |         |
   0+55       0.2183      3.09  |    VQ   |         |         |         |
   1+ 0       0.2421      3.45  |     Q   |         |         |         |
   1+ 5       0.2712      4.22  |      VQ |         |         |         |
   1+10       0.3025      4.56  |       VQ|         |         |         |
   1+15       0.3341      4.58  |        Q|         |         |         |
   1+20       0.3635      4.28  |       QV|         |         |         |
   1+25       0.3981      5.01  |         Q         |         |         |
   1+30       0.4369      5.64  |         |Q        |         |         |
   1+35       0.4734      5.31  |         Q V       |         |         |
   1+40       0.5114      5.52  |         |Q V      |         |         |
   1+45       0.5572      6.64  |         |  Q V    |         |         |
   1+50       0.6043      6.84  |         |  Q  V   |         |         |
   1+55       0.6485      6.42  |         | Q    V  |         |         |
   2+ 0       0.6925      6.39  |         | Q     V |         |         |
   2+ 5       0.7380      6.61  |         |  Q     V|         |         |
   2+10       0.7955      8.34  |         |     Q   |V        |         |
   2+15       0.8673     10.43  |         |         Q  V      |         |
   2+20       0.9286      8.90  |         |      Q  |    V    |         |
   2+25       1.0158     12.66  |         |         |    Q V  |         |
   2+30       1.1259     15.99  |         |         |         VQ        |
   2+35       1.2494     17.93  |         |         |         |  V Q    |
   2+40       1.3545     15.26  |         |         |         Q     V   |
   2+45       1.4071      7.64  |         |    Q    |         |       V |
   2+50       1.4350      4.04  |       Q |         |         |       V |
   2+55       1.4601      3.65  |      Q  |         |         |        V|
   3+ 0       1.4744      2.07  |   Q     |         |         |        V|
   3+ 5       1.4777      0.49  Q         |         |         |        V|
   3+10       1.4779      0.03  Q         |         |         |        V|
------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP100YR6HR6100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 6-HOUR STORM - PROPOSED CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           1.23                 10.81

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           3.06                 26.90

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.230(In)
Area Averaged 100-Year Rainfall =    3.060(In)

Point rain (area averaged) =    3.060(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    3.060(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.790           69.70         0.900
```

Total Area Entered = 8.79(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
69.7	69.7	0.365	0.900	0.069	1.000	0.069
					Sum (F) =	0.069

Area averaged mean soil loss (F) (In/Hr) = 0.069
Minimum soil loss rate ((In/Hr)) = 0.035
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	376.272	63.186	5.597
2	0.167	752.544	34.250	3.034
3	0.250	1128.816	2.564	0.227
			Sum = 100.000	Sum= 8.859

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.184	(0.069)	0.033	0.151
2	0.17	0.60	0.220	(0.069)	0.040	0.181
3	0.25	0.60	0.220	(0.069)	0.040	0.181
4	0.33	0.60	0.220	(0.069)	0.040	0.181
5	0.42	0.60	0.220	(0.069)	0.040	0.181
6	0.50	0.70	0.257	(0.069)	0.046	0.211
7	0.58	0.70	0.257	(0.069)	0.046	0.211
8	0.67	0.70	0.257	(0.069)	0.046	0.211
9	0.75	0.70	0.257	(0.069)	0.046	0.211
10	0.83	0.70	0.257	(0.069)	0.046	0.211
11	0.92	0.70	0.257	(0.069)	0.046	0.211
12	1.00	0.80	0.294	(0.069)	0.053	0.241
13	1.08	0.80	0.294	(0.069)	0.053	0.241
14	1.17	0.80	0.294	(0.069)	0.053	0.241
15	1.25	0.80	0.294	(0.069)	0.053	0.241
16	1.33	0.80	0.294	(0.069)	0.053	0.241
17	1.42	0.80	0.294	(0.069)	0.053	0.241
18	1.50	0.80	0.294	(0.069)	0.053	0.241
19	1.58	0.80	0.294	(0.069)	0.053	0.241
20	1.67	0.80	0.294	(0.069)	0.053	0.241
21	1.75	0.80	0.294	(0.069)	0.053	0.241
22	1.83	0.80	0.294	(0.069)	0.053	0.241
23	1.92	0.80	0.294	(0.069)	0.053	0.241
24	2.00	0.90	0.330	(0.069)	0.059	0.271
25	2.08	0.80	0.294	(0.069)	0.053	0.241
26	2.17	0.90	0.330	(0.069)	0.059	0.271
27	2.25	0.90	0.330	(0.069)	0.059	0.271
28	2.33	0.90	0.330	(0.069)	0.059	0.271
29	2.42	0.90	0.330	(0.069)	0.059	0.271
30	2.50	0.90	0.330	(0.069)	0.059	0.271
31	2.58	0.90	0.330	(0.069)	0.059	0.271
32	2.67	0.90	0.330	(0.069)	0.059	0.271
33	2.75	1.00	0.367	(0.069)	0.066	0.301
34	2.83	1.00	0.367	(0.069)	0.066	0.301
35	2.92	1.00	0.367	(0.069)	0.066	0.301
36	3.00	1.00	0.367	(0.069)	0.066	0.301
37	3.08	1.00	0.367	(0.069)	0.066	0.301

```
38   3.17     1.10      0.404          0.069    (  0.073)        0.335
39   3.25     1.10      0.404          0.069    (  0.073)        0.335
40   3.33     1.10      0.404          0.069    (  0.073)        0.335
41   3.42     1.20      0.441          0.069    (  0.079)        0.371
42   3.50     1.30      0.477          0.069    (  0.086)        0.408
43   3.58     1.40      0.514          0.069    (  0.093)        0.445
44   3.67     1.40      0.514          0.069    (  0.093)        0.445
45   3.75     1.50      0.551          0.069    (  0.099)        0.481
46   3.83     1.50      0.551          0.069    (  0.099)        0.481
47   3.92     1.60      0.588          0.069    (  0.106)        0.518
48   4.00     1.60      0.588          0.069    (  0.106)        0.518
49   4.08     1.70      0.624          0.069    (  0.112)        0.555
50   4.17     1.80      0.661          0.069    (  0.119)        0.592
51   4.25     1.90      0.698          0.069    (  0.126)        0.628
52   4.33     2.00      0.734          0.069    (  0.132)        0.665
53   4.42     2.10      0.771          0.069    (  0.139)        0.702
54   4.50     2.10      0.771          0.069    (  0.139)        0.702
55   4.58     2.20      0.808          0.069    (  0.145)        0.738
56   4.67     2.30      0.845          0.069    (  0.152)        0.775
57   4.75     2.40      0.881          0.069    (  0.159)        0.812
58   4.83     2.40      0.881          0.069    (  0.159)        0.812
59   4.92     2.50      0.918          0.069    (  0.165)        0.849
60   5.00     2.60      0.955          0.069    (  0.172)        0.885
61   5.08     3.10      1.138          0.069    (  0.205)        1.069
62   5.17     3.60      1.322          0.069    (  0.238)        1.252
63   5.25     3.90      1.432          0.069    (  0.258)        1.363
64   5.33     4.20      1.542          0.069    (  0.278)        1.473
65   5.42     4.70      1.726          0.069    (  0.311)        1.656
66   5.50     5.60      2.056          0.069    (  0.370)        1.987
67   5.58     1.90      0.698          0.069    (  0.126)        0.628
68   5.67     0.90      0.330       (  0.069)       0.059        0.271
69   5.75     0.60      0.220       (  0.069)       0.040        0.181
70   5.83     0.50      0.184       (  0.069)       0.033        0.151
71   5.92     0.30      0.110       (  0.069)       0.020        0.090
72   6.00     0.20      0.073       (  0.069)       0.013        0.060
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    32.5
      Flood volume = Effective rainfall      2.71(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       2.0(Ac.Ft)
      Total soil loss =      0.35(In)
      Total soil loss =     0.257(Ac.Ft)
      Total rainfall =      3.06(In)
      Flood volume =       86440.1 Cubic Feet
      Total soil loss =       11194.5 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     16.490(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0058      0.84  VQ        |         |         |         |
  0+10       0.0159      1.47  V Q       |         |         |         |
  0+15       0.0269      1.59  V  Q      |         |         |         |
  0+20       0.0379      1.60  V  Q      |         |         |         |
  0+25       0.0490      1.60  V  Q      |         |         |         |
  0+30       0.0611      1.77  |V Q      |         |         |         |
  0+35       0.0740      1.86  |V Q      |         |         |         |
  0+40       0.0868      1.87  |V Q      |         |         |         |
  0+45       0.0997      1.87  | VQ      |         |         |         |
  0+50       0.1126      1.87  | VQ      |         |         |         |
  0+55       0.1254      1.87  | VQ      |         |         |         |
  1+ 0       0.1395      2.04  | V Q     |         |         |         |
  1+ 5       0.1541      2.13  |  VQ     |         |         |         |
  1+10       0.1688      2.13  |  VQ     |         |         |         |
```

```
    1+15       0.1835      2.13  |  VQ     |         |         |         |
    1+20       0.1982      2.13  |  VQ     |         |         |         |
    1+25       0.2129      2.13  |   Q     |         |         |         |
    1+30       0.2276      2.13  |   Q     |         |         |         |
    1+35       0.2423      2.13  |   Q     |         |         |         |
    1+40       0.2570      2.13  |   QV    |         |         |         |
    1+45       0.2717      2.13  |   QV    |         |         |         |
    1+50       0.2864      2.13  |   QV    |         |         |         |
    1+55       0.3011      2.13  |   Q V   |         |         |         |
    2+ 0       0.3170      2.30  |   Q V   |         |         |         |
    2+ 5       0.3323      2.23  |   Q V   |         |         |         |
    2+10       0.3483      2.31  |   Q  V  |         |         |         |
    2+15       0.3647      2.39  |   Q  V  |         |         |         |
    2+20       0.3813      2.40  |   Q  V  |         |         |         |
    2+25       0.3978      2.40  |   Q   V |         |         |         |
    2+30       0.4144      2.40  |   Q   V |         |         |         |
    2+35       0.4309      2.40  |   Q   V |         |         |         |
    2+40       0.4475      2.40  |   Q    V|         |         |         |
    2+45       0.4652      2.57  |    Q   V|         |         |         |
    2+50       0.4835      2.66  |    Q   V|         |         |         |
    2+55       0.5019      2.67  |    Q    V         |         |         |
    3+ 0       0.5202      2.67  |    Q    V         |         |         |
    3+ 5       0.5386      2.67  |    Q    V         |         |         |
    3+10       0.5583      2.86  |    Q    |V        |         |         |
    3+15       0.5787      2.96  |    Q    |V        |         |         |
    3+20       0.5991      2.96  |    Q    | V       |         |         |
    3+25       0.6209      3.17  |     Q   | V       |         |         |
    3+30       0.6449      3.49  |     Q   |  V      |         |         |
    3+35       0.6712      3.81  |      Q  |  V      |         |         |
    3+40       0.6983      3.93  |      Q  |   V     |         |         |
    3+45       0.7268      4.15  |       Q |   V     |         |         |
    3+50       0.7562      4.26  |       Q |    V    |         |         |
    3+55       0.7870      4.47  |       Q |    V    |         |         |
    4+ 0       0.8185      4.58  |        Q|     V   |         |         |
    4+ 5       0.8516      4.80  |        Q|      V  |         |         |
    4+10       0.8868      5.11  |         Q      V  |         |         |
    4+15       0.9243      5.44  |         Q       V |         |         |
    4+20       0.9640      5.77  |         |Q       V|         |         |
    4+25       1.0059      6.09  |         | Q       V         |         |
    4+30       1.0487      6.21  |         | Q       |V        |         |
    4+35       1.0930      6.42  |         | Q       | V       |         |
    4+40       1.1394      6.74  |         |  Q      | V       |         |
    4+45       1.1881      7.07  |         |   Q     |  V      |         |
    4+50       1.2376      7.19  |         |   Q     |   V     |         |
    4+55       1.2885      7.40  |         |   Q     |    V    |         |
    5+ 0       1.3417      7.72  |         |    Q    |      V  |         |
    5+ 5       1.4028      8.87  |         |      Q  |       V |         |
    5+10       1.4748     10.46  |         |         Q        V|         |
    5+15       1.5552     11.68  |         |          |  Q      |V        |
    5+20       1.6425     12.67  |         |          |    Q    |  V      |
    5+25       1.7393     14.06  |         |          |       Q |    V    |
    5+30       1.8529     16.49  |         |          |         | Q    V  |
    5+35       1.9212      9.93  |         |         Q|         |      V  |
    5+40       1.9479      3.88  |      Q  |          |         |        V|
    5+45       1.9615      1.98  |  Q      |          |         |        V|
    5+50       1.9715      1.45  | Q       |          |         |        V|
    5+55       1.9784      1.00  | Q       |          |         |        V|
    6+ 0       1.9829      0.65  |Q        |          |         |        V|
    6+ 5       1.9843      0.20  Q         |          |         |        V|
    6+10       1.9844      0.01  Q         |          |         |        V|
-------------------------------------------------------------------------
```

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

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
              Study date  06/21/19 File: NODE12PROP100YR24HR24100.out

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

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


Program License Serial Number 6406

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

 English Units used in output format



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

TENTATIVE PARCEL MAP NO. 37550
AT SOUTHEAST OF LAKE STREET ELSINORE, CA
100-YR @ 24-HOUR STORM - PROPOSED CONDITION @ NODE 12
----------------------------------------------------------------------
Drainage Area =       8.79(Ac.)  =      0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.79(Ac.)  =      0.014 Sq. Mi.
Length along longest watercourse =    1211.00(Ft.)
Length along longest watercourse measured to centroid =     520.00(Ft.)
Length along longest watercourse =      0.229 Mi.
Length along longest watercourse measured to centroid =      0.098 Mi.
Difference in elevation =      10.80(Ft.)
Slope along watercourse =     47.0884 Ft./Mi.
Average Manning's 'N' = 0.008
Lag time =    0.022 Hr.
Lag time =     1.33 Min.
25% of lag time =     0.33 Min.
40% of lag time =     0.53 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           2.25                 19.78

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.79           5.94                 52.21

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.250(In)
Area Averaged 100-Year Rainfall =    5.940(In)

Point rain (area averaged) =    5.940(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.940(In)

Sub-Area Data:
```

```
Area(Ac.)         Runoff Index   Impervious %
     8.790           69.70         0.900
 Total Area Entered =      8.79(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
69.7  69.7      0.365     0.900        0.069       1.000      0.069
                                                 Sum (F) =    0.069
Area averaged mean soil loss (F) (In/Hr) =  0.069
Minimum soil loss rate ((In/Hr)) =  0.035
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.180
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      DESERT S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
     1   0.083        376.272         63.186              5.597
     2   0.167        752.544         34.250              3.034
     3   0.250       1128.816          2.564              0.227
                               Sum = 100.000   Sum=       8.859
------------------------------------------------------------------------
```

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.048	(0.123)	0.009	0.039
2	0.17	0.07	0.048	(0.123)	0.009	0.039
3	0.25	0.07	0.048	(0.122)	0.009	0.039
4	0.33	0.10	0.071	(0.122)	0.013	0.058
5	0.42	0.10	0.071	(0.121)	0.013	0.058
6	0.50	0.10	0.071	(0.121)	0.013	0.058
7	0.58	0.10	0.071	(0.120)	0.013	0.058
8	0.67	0.10	0.071	(0.120)	0.013	0.058
9	0.75	0.10	0.071	(0.119)	0.013	0.058
10	0.83	0.13	0.095	(0.119)	0.017	0.078
11	0.92	0.13	0.095	(0.118)	0.017	0.078
12	1.00	0.13	0.095	(0.118)	0.017	0.078
13	1.08	0.10	0.071	(0.117)	0.013	0.058
14	1.17	0.10	0.071	(0.117)	0.013	0.058
15	1.25	0.10	0.071	(0.116)	0.013	0.058
16	1.33	0.10	0.071	(0.116)	0.013	0.058
17	1.42	0.10	0.071	(0.116)	0.013	0.058
18	1.50	0.10	0.071	(0.115)	0.013	0.058
19	1.58	0.10	0.071	(0.115)	0.013	0.058
20	1.67	0.10	0.071	(0.114)	0.013	0.058
21	1.75	0.10	0.071	(0.114)	0.013	0.058
22	1.83	0.13	0.095	(0.113)	0.017	0.078
23	1.92	0.13	0.095	(0.113)	0.017	0.078
24	2.00	0.13	0.095	(0.112)	0.017	0.078
25	2.08	0.13	0.095	(0.112)	0.017	0.078
26	2.17	0.13	0.095	(0.111)	0.017	0.078
27	2.25	0.13	0.095	(0.111)	0.017	0.078
28	2.33	0.13	0.095	(0.110)	0.017	0.078
29	2.42	0.13	0.095	(0.110)	0.017	0.078
30	2.50	0.13	0.095	(0.110)	0.017	0.078
31	2.58	0.17	0.119	(0.109)	0.021	0.097
32	2.67	0.17	0.119	(0.109)	0.021	0.097
33	2.75	0.17	0.119	(0.108)	0.021	0.097

34	2.83	0.17	0.119	(0.108)	0.021	0.097
35	2.92	0.17	0.119	(0.107)	0.021	0.097
36	3.00	0.17	0.119	(0.107)	0.021	0.097
37	3.08	0.17	0.119	(0.106)	0.021	0.097
38	3.17	0.17	0.119	(0.106)	0.021	0.097
39	3.25	0.17	0.119	(0.106)	0.021	0.097
40	3.33	0.17	0.119	(0.105)	0.021	0.097
41	3.42	0.17	0.119	(0.105)	0.021	0.097
42	3.50	0.17	0.119	(0.104)	0.021	0.097
43	3.58	0.17	0.119	(0.104)	0.021	0.097
44	3.67	0.17	0.119	(0.103)	0.021	0.097
45	3.75	0.17	0.119	(0.103)	0.021	0.097
46	3.83	0.20	0.143	(0.103)	0.026	0.117
47	3.92	0.20	0.143	(0.102)	0.026	0.117
48	4.00	0.20	0.143	(0.102)	0.026	0.117
49	4.08	0.20	0.143	(0.101)	0.026	0.117
50	4.17	0.20	0.143	(0.101)	0.026	0.117
51	4.25	0.20	0.143	(0.100)	0.026	0.117
52	4.33	0.23	0.166	(0.100)	0.030	0.136
53	4.42	0.23	0.166	(0.100)	0.030	0.136
54	4.50	0.23	0.166	(0.099)	0.030	0.136
55	4.58	0.23	0.166	(0.099)	0.030	0.136
56	4.67	0.23	0.166	(0.098)	0.030	0.136
57	4.75	0.23	0.166	(0.098)	0.030	0.136
58	4.83	0.27	0.190	(0.097)	0.034	0.156
59	4.92	0.27	0.190	(0.097)	0.034	0.156
60	5.00	0.27	0.190	(0.097)	0.034	0.156
61	5.08	0.20	0.143	(0.096)	0.026	0.117
62	5.17	0.20	0.143	(0.096)	0.026	0.117
63	5.25	0.20	0.143	(0.095)	0.026	0.117
64	5.33	0.23	0.166	(0.095)	0.030	0.136
65	5.42	0.23	0.166	(0.094)	0.030	0.136
66	5.50	0.23	0.166	(0.094)	0.030	0.136
67	5.58	0.27	0.190	(0.094)	0.034	0.156
68	5.67	0.27	0.190	(0.093)	0.034	0.156
69	5.75	0.27	0.190	(0.093)	0.034	0.156
70	5.83	0.27	0.190	(0.092)	0.034	0.156
71	5.92	0.27	0.190	(0.092)	0.034	0.156
72	6.00	0.27	0.190	(0.092)	0.034	0.156
73	6.08	0.30	0.214	(0.091)	0.038	0.175
74	6.17	0.30	0.214	(0.091)	0.038	0.175
75	6.25	0.30	0.214	(0.090)	0.038	0.175
76	6.33	0.30	0.214	(0.090)	0.038	0.175
77	6.42	0.30	0.214	(0.090)	0.038	0.175
78	6.50	0.30	0.214	(0.089)	0.038	0.175
79	6.58	0.33	0.238	(0.089)	0.043	0.195
80	6.67	0.33	0.238	(0.088)	0.043	0.195
81	6.75	0.33	0.238	(0.088)	0.043	0.195
82	6.83	0.33	0.238	(0.088)	0.043	0.195
83	6.92	0.33	0.238	(0.087)	0.043	0.195
84	7.00	0.33	0.238	(0.087)	0.043	0.195
85	7.08	0.33	0.238	(0.086)	0.043	0.195
86	7.17	0.33	0.238	(0.086)	0.043	0.195
87	7.25	0.33	0.238	(0.086)	0.043	0.195
88	7.33	0.37	0.261	(0.085)	0.047	0.214
89	7.42	0.37	0.261	(0.085)	0.047	0.214
90	7.50	0.37	0.261	(0.084)	0.047	0.214
91	7.58	0.40	0.285	(0.084)	0.051	0.234
92	7.67	0.40	0.285	(0.084)	0.051	0.234
93	7.75	0.40	0.285	(0.083)	0.051	0.234
94	7.83	0.43	0.309	(0.083)	0.056	0.253
95	7.92	0.43	0.309	(0.083)	0.056	0.253
96	8.00	0.43	0.309	(0.082)	0.056	0.253
97	8.08	0.50	0.356	(0.082)	0.064	0.292
98	8.17	0.50	0.356	(0.081)	0.064	0.292
99	8.25	0.50	0.356	(0.081)	0.064	0.292
100	8.33	0.50	0.356	(0.081)	0.064	0.292
101	8.42	0.50	0.356	(0.080)	0.064	0.292

102	8.50	0.50	0.356	(0.080)	0.064	0.292
103	8.58	0.53	0.380	(0.079)	0.068	0.312
104	8.67	0.53	0.380	(0.079)	0.068	0.312
105	8.75	0.53	0.380	(0.079)	0.068	0.312
106	8.83	0.57	0.404	(0.078)	0.073	0.331
107	8.92	0.57	0.404	(0.078)	0.073	0.331
108	9.00	0.57	0.404	(0.078)	0.073	0.331
109	9.08	0.63	0.451	0.077	(0.081)	0.374
110	9.17	0.63	0.451	0.077	(0.081)	0.375
111	9.25	0.63	0.451	0.077	(0.081)	0.375
112	9.33	0.67	0.475	0.076	(0.086)	0.399
113	9.42	0.67	0.475	0.076	(0.086)	0.399
114	9.50	0.67	0.475	0.075	(0.086)	0.400
115	9.58	0.70	0.499	0.075	(0.090)	0.424
116	9.67	0.70	0.499	0.075	(0.090)	0.424
117	9.75	0.70	0.499	0.074	(0.090)	0.425
118	9.83	0.73	0.523	0.074	(0.094)	0.449
119	9.92	0.73	0.523	0.074	(0.094)	0.449
120	10.00	0.73	0.523	0.073	(0.094)	0.449
121	10.08	0.50	0.356	(0.073)	0.064	0.292
122	10.17	0.50	0.356	(0.073)	0.064	0.292
123	10.25	0.50	0.356	(0.072)	0.064	0.292
124	10.33	0.50	0.356	(0.072)	0.064	0.292
125	10.42	0.50	0.356	(0.072)	0.064	0.292
126	10.50	0.50	0.356	(0.071)	0.064	0.292
127	10.58	0.67	0.475	0.071	(0.086)	0.404
128	10.67	0.67	0.475	0.070	(0.086)	0.405
129	10.75	0.67	0.475	0.070	(0.086)	0.405
130	10.83	0.67	0.475	0.070	(0.086)	0.405
131	10.92	0.67	0.475	0.069	(0.086)	0.406
132	11.00	0.67	0.475	0.069	(0.086)	0.406
133	11.08	0.63	0.451	0.069	(0.081)	0.383
134	11.17	0.63	0.451	0.068	(0.081)	0.383
135	11.25	0.63	0.451	0.068	(0.081)	0.383
136	11.33	0.63	0.451	0.068	(0.081)	0.384
137	11.42	0.63	0.451	0.067	(0.081)	0.384
138	11.50	0.63	0.451	0.067	(0.081)	0.384
139	11.58	0.57	0.404	0.067	(0.073)	0.337
140	11.67	0.57	0.404	0.066	(0.073)	0.337
141	11.75	0.57	0.404	0.066	(0.073)	0.338
142	11.83	0.60	0.428	0.066	(0.077)	0.362
143	11.92	0.60	0.428	0.065	(0.077)	0.362
144	12.00	0.60	0.428	0.065	(0.077)	0.363
145	12.08	0.83	0.594	0.065	(0.107)	0.529
146	12.17	0.83	0.594	0.064	(0.107)	0.530
147	12.25	0.83	0.594	0.064	(0.107)	0.530
148	12.33	0.87	0.618	0.064	(0.111)	0.554
149	12.42	0.87	0.618	0.063	(0.111)	0.554
150	12.50	0.87	0.618	0.063	(0.111)	0.555
151	12.58	0.93	0.665	0.063	(0.120)	0.602
152	12.67	0.93	0.665	0.063	(0.120)	0.603
153	12.75	0.93	0.665	0.062	(0.120)	0.603
154	12.83	0.97	0.689	0.062	(0.124)	0.627
155	12.92	0.97	0.689	0.062	(0.124)	0.627
156	13.00	0.97	0.689	0.061	(0.124)	0.628
157	13.08	1.13	0.808	0.061	(0.145)	0.747
158	13.17	1.13	0.808	0.061	(0.145)	0.747
159	13.25	1.13	0.808	0.060	(0.145)	0.747
160	13.33	1.13	0.808	0.060	(0.145)	0.748
161	13.42	1.13	0.808	0.060	(0.145)	0.748
162	13.50	1.13	0.808	0.059	(0.145)	0.748
163	13.58	0.77	0.546	0.059	(0.098)	0.487
164	13.67	0.77	0.546	0.059	(0.098)	0.488
165	13.75	0.77	0.546	0.059	(0.098)	0.488
166	13.83	0.77	0.546	0.058	(0.098)	0.488
167	13.92	0.77	0.546	0.058	(0.098)	0.489
168	14.00	0.77	0.546	0.058	(0.098)	0.489
169	14.08	0.90	0.642	0.057	(0.115)	0.584

170	14.17	0.90	0.642	0.057	(0.115)	0.584
171	14.25	0.90	0.642	0.057	(0.115)	0.585
172	14.33	0.87	0.618	0.056	(0.111)	0.561
173	14.42	0.87	0.618	0.056	(0.111)	0.562
174	14.50	0.87	0.618	0.056	(0.111)	0.562
175	14.58	0.87	0.618	0.056	(0.111)	0.562
176	14.67	0.87	0.618	0.055	(0.111)	0.562
177	14.75	0.87	0.618	0.055	(0.111)	0.563
178	14.83	0.83	0.594	0.055	(0.107)	0.539
179	14.92	0.83	0.594	0.054	(0.107)	0.540
180	15.00	0.83	0.594	0.054	(0.107)	0.540
181	15.08	0.80	0.570	0.054	(0.103)	0.516
182	15.17	0.80	0.570	0.054	(0.103)	0.517
183	15.25	0.80	0.570	0.053	(0.103)	0.517
184	15.33	0.77	0.546	0.053	(0.098)	0.493
185	15.42	0.77	0.546	0.053	(0.098)	0.494
186	15.50	0.77	0.546	0.053	(0.098)	0.494
187	15.58	0.63	0.451	0.052	(0.081)	0.399
188	15.67	0.63	0.451	0.052	(0.081)	0.399
189	15.75	0.63	0.451	0.052	(0.081)	0.400
190	15.83	0.63	0.451	0.051	(0.081)	0.400
191	15.92	0.63	0.451	0.051	(0.081)	0.400
192	16.00	0.63	0.451	0.051	(0.081)	0.400
193	16.08	0.13	0.095	(0.051)	0.017	0.078
194	16.17	0.13	0.095	(0.050)	0.017	0.078
195	16.25	0.13	0.095	(0.050)	0.017	0.078
196	16.33	0.13	0.095	(0.050)	0.017	0.078
197	16.42	0.13	0.095	(0.050)	0.017	0.078
198	16.50	0.13	0.095	(0.049)	0.017	0.078
199	16.58	0.10	0.071	(0.049)	0.013	0.058
200	16.67	0.10	0.071	(0.049)	0.013	0.058
201	16.75	0.10	0.071	(0.049)	0.013	0.058
202	16.83	0.10	0.071	(0.048)	0.013	0.058
203	16.92	0.10	0.071	(0.048)	0.013	0.058
204	17.00	0.10	0.071	(0.048)	0.013	0.058
205	17.08	0.17	0.119	(0.048)	0.021	0.097
206	17.17	0.17	0.119	(0.047)	0.021	0.097
207	17.25	0.17	0.119	(0.047)	0.021	0.097
208	17.33	0.17	0.119	(0.047)	0.021	0.097
209	17.42	0.17	0.119	(0.047)	0.021	0.097
210	17.50	0.17	0.119	(0.047)	0.021	0.097
211	17.58	0.17	0.119	(0.046)	0.021	0.097
212	17.67	0.17	0.119	(0.046)	0.021	0.097
213	17.75	0.17	0.119	(0.046)	0.021	0.097
214	17.83	0.13	0.095	(0.046)	0.017	0.078
215	17.92	0.13	0.095	(0.045)	0.017	0.078
216	18.00	0.13	0.095	(0.045)	0.017	0.078
217	18.08	0.13	0.095	(0.045)	0.017	0.078
218	18.17	0.13	0.095	(0.045)	0.017	0.078
219	18.25	0.13	0.095	(0.044)	0.017	0.078
220	18.33	0.13	0.095	(0.044)	0.017	0.078
221	18.42	0.13	0.095	(0.044)	0.017	0.078
222	18.50	0.13	0.095	(0.044)	0.017	0.078
223	18.58	0.10	0.071	(0.044)	0.013	0.058
224	18.67	0.10	0.071	(0.043)	0.013	0.058
225	18.75	0.10	0.071	(0.043)	0.013	0.058
226	18.83	0.07	0.048	(0.043)	0.009	0.039
227	18.92	0.07	0.048	(0.043)	0.009	0.039
228	19.00	0.07	0.048	(0.043)	0.009	0.039
229	19.08	0.10	0.071	(0.042)	0.013	0.058
230	19.17	0.10	0.071	(0.042)	0.013	0.058
231	19.25	0.10	0.071	(0.042)	0.013	0.058
232	19.33	0.13	0.095	(0.042)	0.017	0.078
233	19.42	0.13	0.095	(0.042)	0.017	0.078
234	19.50	0.13	0.095	(0.041)	0.017	0.078
235	19.58	0.10	0.071	(0.041)	0.013	0.058
236	19.67	0.10	0.071	(0.041)	0.013	0.058
237	19.75	0.10	0.071	(0.041)	0.013	0.058

```
238  19.83     0.07      0.048       (  0.041)       0.009        0.039
239  19.92     0.07      0.048       (  0.040)       0.009        0.039
240  20.00     0.07      0.048       (  0.040)       0.009        0.039
241  20.08     0.10      0.071       (  0.040)       0.013        0.058
242  20.17     0.10      0.071       (  0.040)       0.013        0.058
243  20.25     0.10      0.071       (  0.040)       0.013        0.058
244  20.33     0.10      0.071       (  0.040)       0.013        0.058
245  20.42     0.10      0.071       (  0.039)       0.013        0.058
246  20.50     0.10      0.071       (  0.039)       0.013        0.058
247  20.58     0.10      0.071       (  0.039)       0.013        0.058
248  20.67     0.10      0.071       (  0.039)       0.013        0.058
249  20.75     0.10      0.071       (  0.039)       0.013        0.058
250  20.83     0.07      0.048       (  0.039)       0.009        0.039
251  20.92     0.07      0.048       (  0.038)       0.009        0.039
252  21.00     0.07      0.048       (  0.038)       0.009        0.039
253  21.08     0.10      0.071       (  0.038)       0.013        0.058
254  21.17     0.10      0.071       (  0.038)       0.013        0.058
255  21.25     0.10      0.071       (  0.038)       0.013        0.058
256  21.33     0.07      0.048       (  0.038)       0.009        0.039
257  21.42     0.07      0.048       (  0.038)       0.009        0.039
258  21.50     0.07      0.048       (  0.037)       0.009        0.039
259  21.58     0.10      0.071       (  0.037)       0.013        0.058
260  21.67     0.10      0.071       (  0.037)       0.013        0.058
261  21.75     0.10      0.071       (  0.037)       0.013        0.058
262  21.83     0.07      0.048       (  0.037)       0.009        0.039
263  21.92     0.07      0.048       (  0.037)       0.009        0.039
264  22.00     0.07      0.048       (  0.037)       0.009        0.039
265  22.08     0.10      0.071       (  0.037)       0.013        0.058
266  22.17     0.10      0.071       (  0.036)       0.013        0.058
267  22.25     0.10      0.071       (  0.036)       0.013        0.058
268  22.33     0.07      0.048       (  0.036)       0.009        0.039
269  22.42     0.07      0.048       (  0.036)       0.009        0.039
270  22.50     0.07      0.048       (  0.036)       0.009        0.039
271  22.58     0.07      0.048       (  0.036)       0.009        0.039
272  22.67     0.07      0.048       (  0.036)       0.009        0.039
273  22.75     0.07      0.048       (  0.036)       0.009        0.039
274  22.83     0.07      0.048       (  0.036)       0.009        0.039
275  22.92     0.07      0.048       (  0.035)       0.009        0.039
276  23.00     0.07      0.048       (  0.035)       0.009        0.039
277  23.08     0.07      0.048       (  0.035)       0.009        0.039
278  23.17     0.07      0.048       (  0.035)       0.009        0.039
279  23.25     0.07      0.048       (  0.035)       0.009        0.039
280  23.33     0.07      0.048       (  0.035)       0.009        0.039
281  23.42     0.07      0.048       (  0.035)       0.009        0.039
282  23.50     0.07      0.048       (  0.035)       0.009        0.039
283  23.58     0.07      0.048       (  0.035)       0.009        0.039
284  23.67     0.07      0.048       (  0.035)       0.009        0.039
285  23.75     0.07      0.048       (  0.035)       0.009        0.039
286  23.83     0.07      0.048       (  0.035)       0.009        0.039
287  23.92     0.07      0.048       (  0.035)       0.009        0.039
288  24.00     0.07      0.048       (  0.035)       0.009        0.039
               (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    61.3
      Flood volume = Effective rainfall      5.11(In)
       times area       8.8(Ac.)/[(In)/(Ft.)] =       3.7(Ac.Ft)
      Total soil loss =      0.83(In)
      Total soil loss =     0.607(Ac.Ft)
      Total rainfall =      5.94(In)
      Flood volume =      163079.3 Cubic Feet
      Total soil loss =       26449.1 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      6.632(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	0.0015	0.22	Q				
0+10	0.0038	0.34	VQ				
0+15	0.0062	0.35	VQ				
0+20	0.0093	0.45	VQ				
0+25	0.0129	0.51	V Q				
0+30	0.0164	0.52	V Q				
0+35	0.0200	0.52	V Q				
0+40	0.0236	0.52	V Q				
0+45	0.0271	0.52	V Q				
0+50	0.0315	0.63	V Q				
0+55	0.0362	0.69	V Q				
1+ 0	0.0409	0.69	V Q				
1+ 5	0.0449	0.58	V Q				
1+10	0.0485	0.52	V Q				
1+15	0.0521	0.52	V Q				
1+20	0.0557	0.52	V Q				
1+25	0.0592	0.52	V Q				
1+30	0.0628	0.52	V Q				
1+35	0.0664	0.52	V Q				
1+40	0.0700	0.52	V Q				
1+45	0.0735	0.52	V Q				
1+50	0.0778	0.63	V Q				
1+55	0.0826	0.69	V Q				
2+ 0	0.0873	0.69	V Q				
2+ 5	0.0921	0.69	V Q				
2+10	0.0968	0.69	|VQ				
2+15	0.1016	0.69	|VQ				
2+20	0.1063	0.69	|VQ				
2+25	0.1111	0.69	|VQ				
2+30	0.1159	0.69	|VQ				
2+35	0.1214	0.80	|V Q				
2+40	0.1273	0.86	|V Q				
2+45	0.1332	0.86	|V Q				
2+50	0.1392	0.86	|V Q				
2+55	0.1451	0.86	|V Q				
3+ 0	0.1511	0.86	|V Q				
3+ 5	0.1570	0.86	|V Q				
3+10	0.1630	0.86	|V Q				
3+15	0.1689	0.86	|V Q				
3+20	0.1749	0.86	|V Q				
3+25	0.1808	0.86	|V Q				
3+30	0.1868	0.86	|V Q				
3+35	0.1927	0.86	| VQ				
3+40	0.1986	0.86	| VQ				
3+45	0.2046	0.86	| VQ				
3+50	0.2113	0.97	| VQ				
3+55	0.2184	1.03	| V Q				
4+ 0	0.2255	1.04	| V Q				
4+ 5	0.2327	1.04	| V Q				
4+10	0.2398	1.04	| V Q				
4+15	0.2469	1.04	| V Q				
4+20	0.2548	1.15	| V Q				
4+25	0.2631	1.20	| V Q				
4+30	0.2714	1.21	| V Q				
4+35	0.2798	1.21	| V Q				
4+40	0.2881	1.21	| VQ				
4+45	0.2964	1.21	| VQ				
4+50	0.3055	1.32	| V Q				
4+55	0.3150	1.38	| V Q				
5+ 0	0.3245	1.38	| V Q				
5+ 5	0.3325	1.16	| VQ				
5+10	0.3397	1.04	| VQ				
5+15	0.3468	1.04	| VQ				
5+20	0.3547	1.15	| VQ				

5+25	0.3630	1.20	VQ				
5+30	0.3713	1.21	VQ				
5+35	0.3804	1.32	VQ				
5+40	0.3899	1.38	VQ				
5+45	0.3994	1.38	VQ				
5+50	0.4089	1.38	VQ				
5+55	0.4184	1.38	VQ				
6+ 0	0.4280	1.38	VQ				
6+ 5	0.4382	1.49	VQ				
6+10	0.4489	1.55	V Q				
6+15	0.4596	1.55	V Q				
6+20	0.4703	1.55	VQ				
6+25	0.4810	1.55	VQ				
6+30	0.4917	1.55	VQ				
6+35	0.5032	1.66	VQ				
6+40	0.5150	1.72	VQ				
6+45	0.5269	1.73	VQ				
6+50	0.5388	1.73	VQ				
6+55	0.5507	1.73	VQ				
7+ 0	0.5626	1.73	Q				
7+ 5	0.5745	1.73	Q				
7+10	0.5864	1.73	Q				
7+15	0.5983	1.73	Q				
7+20	0.6109	1.84	VQ				
7+25	0.6240	1.90	VQ				
7+30	0.6371	1.90	VQ				
7+35	0.6509	2.01	V Q				
7+40	0.6651	2.07	VQ				
7+45	0.6794	2.07	VQ				
7+50	0.6944	2.18	VQ				
7+55	0.7099	2.24	VQ				
8+ 0	0.7253	2.24	VQ				
8+ 5	0.7423	2.46	V Q				
8+10	0.7601	2.58	V Q				
8+15	0.7779	2.59	V Q				
8+20	0.7957	2.59	V Q				
8+25	0.8136	2.59	V Q				
8+30	0.8314	2.59	V Q				
8+35	0.8500	2.70	VQ				
8+40	0.8690	2.76	V|Q				
8+45	0.8880	2.76	V|Q				
8+50	0.9078	2.87	V|Q				
8+55	0.9280	2.93	V|Q				
9+ 0	0.9482	2.94	VQ				
9+ 5	0.9701	3.18	V Q				
9+10	0.9929	3.31	V Q				
9+15	1.0157	3.32	V Q				
9+20	1.0396	3.46	|V Q				
9+25	1.0639	3.53	|V Q				
9+30	1.0883	3.54	|V Q				
9+35	1.1136	3.68	|V Q				
9+40	1.1395	3.75	| V Q				
9+45	1.1654	3.76	| V Q				
9+50	1.1922	3.90	| V Q				
9+55	1.2196	3.97	| V Q				
10+ 0	1.2470	3.98	| V Q				
10+ 5	1.2684	3.10	| QV				
10+10	1.2865	2.63	Q V				
10+15	1.3043	2.59	Q V				
10+20	1.3222	2.59	Q V				
10+25	1.3400	2.59	Q V				
10+30	1.3578	2.59	Q V				
10+35	1.3800	3.22	| Q V				
10+40	1.4045	3.56	| QV				
10+45	1.4292	3.59	| QV				
10+50	1.4540	3.59	| QV				
10+55	1.4787	3.60	| QV				
11+ 0	1.5035	3.60	| Q V				

```
11+ 5       1.5274      3.47  |          |  Q  V   |          |          |
11+10       1.5508      3.40  |          |  Q  V   |          |          |
11+15       1.5742      3.40  |          |  Q  V   |          |          |
11+20       1.5976      3.40  |          |  Q   V  |          |          |
11+25       1.6210      3.40  |          |  Q   V  |          |          |
11+30       1.6445      3.41  |          |  Q   V  |          |          |
11+35       1.6661      3.14  |          | Q    V  |          |          |
11+40       1.6868      3.00  |          | Q     V |          |          |
11+45       1.7074      2.99  |          |Q      V |          |          |
11+50       1.7290      3.13  |          | Q     V |          |          |
11+55       1.7510      3.20  |          | Q     V |          |          |
12+ 0       1.7732      3.21  |          | Q     V |          |          |
12+ 5       1.8017      4.15  |          |     Q  V|          |          |
12+10       1.8338      4.65  |          |       QV|          |          |
12+15       1.8661      4.70  |          |       QV|          |          |
12+20       1.8994      4.83  |          |        QV          |          |
12+25       1.9332      4.91  |          |        QV          |          |
12+30       1.9670      4.91  |          |        Q|V         |          |
12+35       2.0027      5.18  |          |         QV         |          |
12+40       2.0394      5.33  |          |          |Q        |          |
12+45       2.0762      5.34  |          |          |QV       |          |
12+50       2.1140      5.48  |          |          |QV       |          |
12+55       2.1522      5.55  |          |          | Q       |          |
13+ 0       2.1905      5.56  |          |          | QV      |          |
13+ 5       2.2334      6.23  |          |          |  VQ     |          |
13+10       2.2789      6.59  |          |          |   V Q   |          |
13+15       2.3245      6.62  |          |          |   V Q   |          |
13+20       2.3701      6.63  |          |          |    VQ   |          |
13+25       2.4158      6.63  |          |          |    VQ   |          |
13+30       2.4614      6.63  |          |          |     Q   |          |
13+35       2.4971      5.17  |          |         Q     V   |          |
13+40       2.5272      4.38  |          |      Q  |      V  |          |
13+45       2.5570      4.32  |          |      Q  |      V  |          |
13+50       2.5868      4.33  |          |      Q  |      V  |          |
13+55       2.6166      4.33  |          |      Q  |      V  |          |
14+ 0       2.6464      4.33  |          |      Q  |       V |          |
14+ 5       2.6800      4.87  |          |        Q|       V |          |
14+10       2.7155      5.16  |          |         Q        V|          |
14+15       2.7512      5.18  |          |         Q        V|          |
14+20       2.7860      5.05  |          |         Q        V|          |
14+25       2.8203      4.98  |          |        Q|         V          |
14+30       2.8546      4.98  |          |        Q|         V          |
14+35       2.8889      4.98  |          |        Q|         V          |
14+40       2.9232      4.98  |          |        Q|          |V        |
14+45       2.9575      4.99  |          |        Q|          |V        |
14+50       2.9910      4.86  |          |        Q|          |V        |
14+55       3.0239      4.79  |          |        Q|          | V       |
15+ 0       3.0569      4.78  |          |        Q|          | V       |
15+ 5       3.0889      4.65  |          |       Q |          |  V      |
15+10       3.1205      4.58  |          |       Q |          |  V      |
15+15       3.1520      4.58  |          |       Q |          |  V      |
15+20       3.1827      4.45  |          |      Q  |          |   V     |
15+25       3.2128      4.38  |          |      Q  |          |   V     |
15+30       3.2430      4.38  |          |      Q  |          |   V     |
15+35       3.2695      3.85  |          |    Q    |          |   V     |
15+40       3.2940      3.56  |          |   Q     |          |    V    |
15+45       3.3184      3.54  |          |   Q     |          |    V    |
15+50       3.3428      3.54  |          |   Q     |          |    V    |
15+55       3.3672      3.55  |          |   Q     |          |    V    |
16+ 0       3.3917      3.55  |          |   Q     |          |     V   |
16+ 5       3.4037      1.74  |     Q    |         |          |     V   |
16+10       3.4089      0.76  |  Q       |         |          |     V   |
16+15       3.4137      0.69  | Q        |         |          |     V   |
16+20       3.4184      0.69  | Q        |         |          |     V   |
16+25       3.4232      0.69  | Q        |         |          |     V   |
16+30       3.4279      0.69  | Q        |         |          |     V   |
16+35       3.4320      0.58  | Q        |         |          |     V   |
16+40       3.4356      0.52  | Q        |         |          |     V   |
```

16+45	3.4391	0.52	Q				V
16+50	3.4427	0.52	Q				V
16+55	3.4463	0.52	Q				V
17+ 0	3.4498	0.52	Q				V
17+ 5	3.4549	0.74	Q				V
17+10	3.4608	0.85	Q				V
17+15	3.4667	0.86	Q				V
17+20	3.4727	0.86	Q				V
17+25	3.4786	0.86	Q				V
17+30	3.4846	0.86	Q				V
17+35	3.4905	0.86	Q				V
17+40	3.4965	0.86	Q				V
17+45	3.5024	0.86	Q				V
17+50	3.5076	0.75	Q				V
17+55	3.5124	0.70	Q				V
18+ 0	3.5171	0.69	Q				V
18+ 5	3.5219	0.69	Q				V
18+10	3.5267	0.69	Q				V
18+15	3.5314	0.69	Q				V
18+20	3.5362	0.69	Q				V
18+25	3.5409	0.69	Q				V
18+30	3.5457	0.69	Q				V
18+35	3.5497	0.58	Q				V
18+40	3.5533	0.52	Q				V
18+45	3.5569	0.52	Q				V
18+50	3.5597	0.41	Q				V
18+55	3.5621	0.35	Q				V
19+ 0	3.5645	0.35	Q				V
19+ 5	3.5676	0.45	Q				V
19+10	3.5711	0.51	Q				V
19+15	3.5747	0.52	Q				V
19+20	3.5790	0.63	Q				V
19+25	3.5837	0.69	Q				V
19+30	3.5885	0.69	Q				V
19+35	3.5925	0.58	Q				V
19+40	3.5961	0.52	Q				V
19+45	3.5997	0.52	Q				V
19+50	3.6025	0.41	Q				V
19+55	3.6049	0.35	Q				V
20+ 0	3.6073	0.35	Q				V
20+ 5	3.6104	0.45	Q				V
20+10	3.6139	0.51	Q				V
20+15	3.6175	0.52	Q				V
20+20	3.6211	0.52	Q				V
20+25	3.6246	0.52	Q				V
20+30	3.6282	0.52	Q				V
20+35	3.6318	0.52	Q				V
20+40	3.6353	0.52	Q				V
20+45	3.6389	0.52	Q				V
20+50	3.6417	0.41	Q				V
20+55	3.6441	0.35	Q				V
21+ 0	3.6465	0.35	Q				V
21+ 5	3.6496	0.45	Q				V
21+10	3.6532	0.51	Q				V
21+15	3.6568	0.52	Q				V
21+20	3.6596	0.41	Q				V
21+25	3.6620	0.35	Q				V
21+30	3.6644	0.35	Q				V
21+35	3.6675	0.45	Q				V
21+40	3.6710	0.51	Q				V
21+45	3.6746	0.52	Q				V
21+50	3.6774	0.41	Q				V
21+55	3.6798	0.35	Q				V
22+ 0	3.6822	0.35	Q				V
22+ 5	3.6853	0.45	Q				V
22+10	3.6889	0.51	Q				V
22+15	3.6924	0.52	Q				V
22+20	3.6952	0.41	Q				V

22+25	3.6977	0.35	|Q	|	|	|	V|
22+30	3.7000	0.35	|Q	|	|	|	V|
22+35	3.7024	0.35	|Q	|	|	|	V|
22+40	3.7048	0.35	|Q	|	|	|	V|
22+45	3.7072	0.35	|Q	|	|	|	V|
22+50	3.7096	0.35	|Q	|	|	|	V|
22+55	3.7119	0.35	|Q	|	|	|	V|
23+ 0	3.7143	0.35	|Q	|	|	|	V|
23+ 5	3.7167	0.35	|Q	|	|	|	V|
23+10	3.7191	0.35	|Q	|	|	|	V|
23+15	3.7214	0.35	|Q	|	|	|	V|
23+20	3.7238	0.35	|Q	|	|	|	V|
23+25	3.7262	0.35	|Q	|	|	|	V|
23+30	3.7286	0.35	|Q	|	|	|	V|
23+35	3.7310	0.35	|Q	|	|	|	V|
23+40	3.7333	0.35	|Q	|	|	|	V|
23+45	3.7357	0.35	|Q	|	|	|	V|
23+50	3.7381	0.35	|Q	|	|	|	V|
23+55	3.7405	0.35	|Q	|	|	|	V|
24+ 0	3.7428	0.35	|Q	|	|	|	V|
24+ 5	3.7437	0.13	Q	|	|	|	V|
24+10	3.7438	0.01	Q	|	|	|	V|

Appendix 8: Source Control

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ A. **On-site storm drain inlets**	☒ **Locations of inlets.**	☒ **Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.**	☒ **Maintain and periodically repaint or replace inlet markings.** ☒ **Provide stormwater pollution prevention information to new site owners, lessees, or operators.** ☒ **See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** ☒ **Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."**
☐ B. **Interior floor drains and elevator shaft sump pumps**		☐ **State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.**	☐ **Inspect and maintain drains to prevent blockages and overflow.**
☒ C. **Interior parking garages**		☒ **State that parking garage floor drains will be plumbed to the sanitary sewer.**	☒ **Inspect and maintain drains to prevent blockages and overflow.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ D1. **Need for future indoor & structural pest control**		☐ **Note building design features that discourage entry of pests.**	☐ **Provide Integrated Pest Management information to owners, lessees, and operators.**
☒ D2. **Landscape/ Outdoor Pesticide Use**	☒ **Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.** ☐ **Show self-retaining landscape areas, if any.** ☒ **Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)**	**State that final landscape plans will accomplish all of the following.** ☒ **Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.** ☒ **Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.** ☒ **Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.** ☒ **Consider using pest-resistant plants, especially adjacent to hardscape.** **To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.**	☒ **Maintain landscaping using minimum or no pesticides.** ☒ **See applicable operational BMPs in "What you should know for…..Landscape and Gardening"** at http://rcflood.org/stormwater/**Error! Hyperlink reference not valid.** ☒ **Provide IPM information to new owners, lessees and operators.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ E. **Pools, spas, ponds, decorative fountains, and other water features.**	☐ **Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)**	**If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.**	☐ **See applicable operational BMPs in** "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
☒ F. **Food service**	☒ **For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment.** ☒ **On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.**	☒ **Describe the location and features of the designated cleaning area.** ☒ **Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.**	☒ **See the brochure, "**The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ **Provide this brochure to new site owners, lessees, and operators.**
☒ G. **Refuse areas**	☒ **Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas.** ☒ **If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area.** ☒ **Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.**	☒ **State how site refuse will be handled and provide supporting detail to what is shown on plans.** ☒ **State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.**	☒ **State how the following will be implemented:** **Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ H. **Industrial processes.**	❑ **Show process area.**	❑ **If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."**	❑ **See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ I. **Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)**	❑ **Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.** ❑ **Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.** ❑ **Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.**	**Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.** **Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:** ▪ **Hazardous Waste Generation** ▪ **Hazardous Materials Release Response and Inventory** ▪ **California Accidental Release (CalARP)** ▪ **Aboveground Storage Tank** ▪ **Uniform Fire Code Article 80 Section 103(b) & (c) 1991** ▪ **Underground Storage Tank** **www.cchealth.org/groups/hazmat/**	❑ **See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ J. **Vehicle and Equipment Cleaning**	☒ **Show on drawings as appropriate:** **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	☐ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.**	**Describe operational measures to implement the following (if applicable):** ☒ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ☐ **Car dealerships and similar may rinse cars with water only.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ K. **Vehicle/Equipment Repair and Maintenance**	❑ **Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.** ❑ **Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.** ❑ **Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.**	❑ **State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.** ❑ **State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.** ❑ **State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.**	**In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:** ❑ **No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.** ❑ **No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.** ❑ **No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.** Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ L. **Fuel Dispensing Areas**	☒ **Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.** ☒ **Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.**		☒ **The property owner shall dry sweep the fueling area routinely.** ☒ **See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

[6] **The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ M. **Loading Docks**	❑ **Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer.** ❑ **Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.** ❑ **Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.**		❑ **Move loaded and unloaded items indoors as soon as possible.** ❑ **See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ N. **Fire Sprinkler Test Water**		☒ **Provide a means to drain fire sprinkler test water to the sanitary sewer.**	☒ **See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**
O. **Miscellaneous Drain or Wash Water or Other Sources** ☐ **Boiler drain lines** ☐ **Condensate drain lines** ☐ **Rooftop equipment** ☐ **Drainage sumps** ☐ **Roofing, gutters, and trim.** ☐ **Other sources**		☐ **Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.** ☐ **Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.** ☐ **Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.** ☐ **Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.** ☐ **Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.** **Include controls for other sources as specified by local reviewer.**	

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ P. **Plazas, sidewalks, and parking lots.**			☒ **Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.**

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanism

Operation and Maintenance Responsibility Plan

The owner of the property, Lake Street Properties, LP. shall be responsible for funding, inspecting, and maintaining all improvements onsite.

Maintenance and inspection activities for the identified BMPs will be performed as indicated on the enclosed BMP Maintenance Responsibility/Frequency Matrix. The owner shall be responsible for all maintenance and inspection responsibilities for all improvements located within the limits of the project.

BMP	RESPONSIBILITY	BMP START DATE	FREQUENCY
Education for Property Owners, Operators, Tenants, Occupants, or Employees	Owner	Upon completion of project.	Information to be provided to employees/contractors upon hire and tenants upon lease signing. Owner to insure that all staff/employees and contractors be given a copy of the latest environmental awareness education materials provided by the County of Riverside to inform them of the impacts of dumping oil, paints, solvents or other potentially harmful chemicals into the storm drain; the proper use and management of fertilizers, pesticides and herbicides in landscaping and gardening practices; the impacts of littering and improper watering.
Activity Restrictions	Owner	Upon completion of project.	Continuous. Within the storage facility's lease agreement, language shall be included to identify surface water quality protection required of the tenants. Surface water quality activities shall also be conducted in conformance with the Water Quality Management Plan as it relates to operation of the gas facility and the storage facility.
Irrigation System and Landscape Maintenance	Owner	Upon completion of project.	Monthly during regular maintenance, manage landscaping in accordance with the City of Lake Elsinore Water Conservation Ordinance and with the State of California Department of Pesticides management guidelines for use of fertilizers and pesticides. Verify that runoff minimizing landscape design continues to function by checking that water sensors are functioning properly, that irrigation heads are adjusted properly to eliminate overspray to hardscape areas, and to verify that irrigation timing and cycle lengths are adjusted in accordance with water demands, given time of year, weather and day or night time temperatures.
Common Area Litter Control	Owner	Upon completion of project.	Daily inspection of trash receptacles to ensure that lids are closed and pick up any excess trash on the ground, noting trash disposal violations by tenants or employees and reporting the violations to the owner for investigation.

BMP	RESPONSIBILITY	BMP START DATE	FREQUENCY
Street Sweeping	Owner	Upon completion of project.	All project drive aisles and exposed parking and travel areas shall be swept on a weekly basis to minimize the potential for offsite transport of pollutants.
Drainage Facility Inspection and Maintenance	Owner	Upon completion of project.	Post construction, all drainage improvements located within the project site shall be private improvements, to be maintained by the owner. Drainage facility inspection and maintenance activities will be done on a regular basis (quarterly), and prior to the storm season, no later than October 1st of each year.
Storm Drain System Signage	Owner	Upon completion of project.	Yearly. Storm drain stencils or signage prohibiting dumping and discharge of materials ("No Dumping – Drains to Ocean") shall be provided adjacent to each of the project's proposed inlets. The stencils shall be inspected and restenciled as needed to maintain legibility.
Fueling Areas	Owner	Upon completion of project.	Continuous. The project's fueling area located at northwest portion of the site shall be paved with Portland cement concrete (or equivalent smooth impervious surface), precluded from run-on, covered with an overhanging roof structure that is, at minimum, equal in size to the fueling dispensing area. The cover must not drain onto the dispensing area and any downspouts must be routed to prevent drainage across the fueling pad. Spilled fuel and leaks shall be cleaned up immediately.
Air/Water Supply Drainage		Upon completion of project.	
Trash Storage Areas	Owner	Upon completion of project.	Daily. Trash enclosure areas shall be paved, covered and precluded from rain, run-on and runoff. Drainage from any adjoining roofs and pavements shall be diverted around facility. Perimeter walls shall be installed and dumpster lid provided to prevent offsite transport of trash. Surrounding area shall be kept clean, with all leaks and over-spilled materials clean up as soon as possible. Trash shall be emptied on a weekly basis (at minimum) and as needed.

BMP	RESPONSIBILITY	BMP START DATE	FREQUENCY
Vehicle and Equipment Wash Areas	Owner	Upon completion of project.	Daily with use. Wash areas shall be self-contained or covered with roof/overhang. All drainage from wash areas may be directed to the sanitary sewer system with prior approval from the sewer agency. Area shall be equipped with clarifier or other pre-treatment device.
Wash Water for Food Preparation Areas	Owner	Upon completion of project.	Daily with use. Wash water from food preparation areas (anticipated for service mart facility) shall be prohibited from discharging to the storm drain system All wash water shall be disposed to the sanitary sewer system.
Subsurface Infiltration BMP (Stormtrap or approved equal)	Owner	Upon completion of project.	Inspect for standing water after storm events. Clean out pre-treatment area as needed for sediment and trash/debris. After significant storm events, semi-annual and as needed.

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

STORMTRAP MAINTENANCE MANUAL

1. Introduction

Regular inspections are recommended to ensure that the system is functioning as designed. Please call your Authorized StormTrap Representative if you have questions in regards to the inspection and maintenance of the StormTrap system. Prior to entry into any underground storm sewer or underground detention systems, appropriate OSHA and local safety regulations and guidelines should be followed.

2. Inspection Schedules for Municipalities

StormTrap Stormwater Management Systems are recommended for inspection whenever the upstream and downstream catch basins and stormwater pipes of the stormwater collection system are inspected or maintained. This will economize the cost of the inspection if it is done at the same time the Municipal crews are visiting the area.

3. Inspection Schedules for Private Development

StormTrap Stormwater Mangement Systems, for a private development, are recommended for inspection after each major storm water event. At a minimum, until a cleaning schedule can be established, an annual inspection is recommended. If inspected on an annual basis, the inspection should be conducted before the stormwater season begins to be sure that everything is functioning properly for the upcoming storm season.

4. Inspection Process

Inspections should be done such that at least 2-3 days has lapsed since the most recent rain event to allow for draining. Visually inspect the system at all manhole locations. Utilizing a sediment pole, measure and document the amount of silt at each manhole location (Figure 1). Inspect each pipe opening to ensure that the silt level or any foreign objects are not blocking the pipes. Be sure to inspect the outlet pipe(s) because this is typically the smallest

pipe in the system. It is common that most of the larger materials will be collected upstream of the system in catch basins, and it is therefore important at time of inspections to check these structures for large trash or blockages.

Remove any blockages if you can during the inspection process only if you can do so safely from the top of the system without entering into the system**. Do not go into the system under any circumstances** without proper ventilation equipment and training. Pass any information requiring action onto the appropriate maintenance personnel if you cannot remove the blockages from above during the inspection process. Be sure to describe the location of each manhole and the type of material that needs to be removed.

The sediment level of the system should also be measured and recorded during the inspection process. Recording the sediment level at each manhole is very important in order get a history of sediment that can be graphed over time (i.e. years) in order to estimate when the system will need to be maintained next. It is also important to keep these records to verify that the inspection process was actually performed if anyone asks for your records in the future.

The sediment level in the underground detention system can be determined from the outside of the system by opening up all the manholes and using a sediment pole to measure the amount of sediment at each location. Force the stick to the bottom of the system and then remove it and measure the amount of sediment at that location. Again, do not go into the system under any circumstances without proper ventilation equipment and training.

5. When to Clean the System

Any blockages should be safely removed as soon as practical so that the Stormwater detention system will fill and drain properly before the next stormwater event.

The Dry Detention System should be completely cleaned whenever the sediment occupies more than 10% to 15% of the originally designed system's volume. The Wet Detention System should be cleaned when the sediment occupies more than 30% or 1/3rd of the originally designed system's volume. NOTE: Check with your municipality in regards to

cleaning criteria, as the allowable sediment before cleaning may be more or less then described above.

6. How to Clean the StormTrap

The system should be completely cleaned back to 100% of the originally designed storage volume whenever the above sediment levels have been reached. Be sure to wait at least 3 days after a stormwater event to be sure that the system is completely drained (if it is a Dry Detention System), and all of the sediments have settled to the bottom of the system (if it is a Wet Detention System).

Do not enter the System unless you are properly trained, equipped, and qualified to enter a confined space as identified by local occupational safety and health regulations.

There are many maintenance companies that are in business to help you clean your underground stormwater detention systems and water quality units. Please call your StormTrap representative for referrals in your area.

A. Dry Detention System Cleaning

Maintenance is typically performed using a vacuum truck. Sediment should be flushed towards a vacuum hose for thorough removal. For a Dry Detention System, remove the manhole cover at the top of the system and lower a vacuum hose into one of the rows of the StormTrap system. Open up the manhole at the opposite end of the StormTrap and use sewer jetting equipment to force water in the same row from one end of the StormTrap row to the opposite side. The rows of the StormTrap are completely open in one contiguous channel from one end to the other for easy cleaning.

Place the vacuum hose and the sewer jetting equipment in the next row and repeat the process until all of the rows have been cleaned.

When finished, replace all covers that were removed and dispose of the collected material properly.

B. Wet Detention System Cleaning

If the system was designed to maintain a permanent pool of water, floatables and any oil should be removed in a separate procedure prior to the removal of all sediment.

The floatable trash is removed first by using a bucket strainer to capture and remove any floating debris.

The floatable oils are then removed off the top of the water by using the vacuum truck to suck off any floatable fluids and liquids.

The next step is to use the vacuum truck to gently remove the clarified water above the sediment layer.

The final step is to clean the sediment for each row as described above in the paragraph "A. Dry Detention System Cleaning". For smaller systems, the vacuum truck can remove all of the sediment in the basin without using the sewer jetting equipment because of the smaller space.

7. Inspection Reports

Proof of these inspections is the responsibility of the property owner. All inspection reports and data should be kept on site or at a location where they will be accessible for years in the future. Some municipalities require these inspection and cleaning reports to be forwarded to the proper governmental permitting agency on an annual basis.

Refer to your local and national regulations for any additional maintenance requirements and schedules not contained herein. Inspections should be a part of your standard operating procedure.

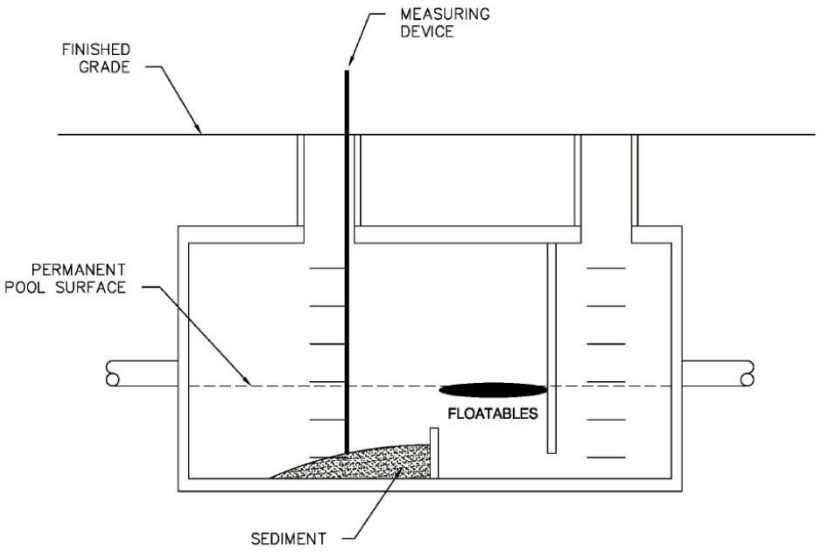


Figure 1. During inspection, measure the distance from finished grade to the top of the sediment inside the system.

Sample inspection and maintenance log

Date	Depth of Sediment	Accumulated Trash	Maintenance Performed	Maintenance Personnel	Comments
2/5/2012	3”	None	Sediment Removal/Vac	B. Johnson	

PHONE 815 941 4549
FAX 331 318 5347
WEB www.stormtrap.com
EMAIL info@stormtrap.com
1287 Windham Parkway
Romeoville, Illinois 60446

Adopt a pet from your local animal shelter or adoption centers at pet stores. A variety of animals, from purebred tomixe d breed are waiting for loving arms and good homes. Consider volunteering at your local animal shelters. Volunteers, donations, food, newspapers, old towels and linens are needed to help the animals.



RIVERSIDE COUNTY
ANIMAL SHELTER LOCATIONS:

BLYTHE
16450 West Hobson Way
Blythe, CA 92225
760-921-7857

HEMET
800 South Sanderson
Hemet, CA 92545
909 925-8025

INDIO
45-355 Van Buren
Indio, CA 92201
760-347-2319

RIVERSIDE
5950 Wilderness Avenue
Riverside, CA 92504
909-358-7387

FOR ALL OTHER AREAS
CALL 1-888-636-7387

Riverside County gratefully acknowledges the City of Los Angeles Stormwater Program for the design concept of this brochure.

What's the Scoop?



TIPS FOR A HEALTHY PET AND A HEALTHIER ENVIRONMENT

CREATE A HEALTHY ENVIRONMENT in and around your home by following these simple pet practices. Your pet, family and neighbors will appreciate their clean comfortable surroundings.

HOUSEHOLD PETS

We all love our pets, but pet waste is a subject everyone likes to avoid. Pet waste left on trails, sidewalks, streets, and grassy areas is immediately flushed into the nearest waterway when it rains. Even if you can't see water near you, the rain or waste water WASHES all that PET WASTE and BACTERIA INTO THE STORMDRAIN, where it travels to your neighborhood creek or lake untreated. These animal droppings also contain nutrients that can promote the growth of algae, if they enter our streams and lakes. The risk of STORMWATER CONTAMINATION INCREASES, if pet wastes is allowed to accumulate in animal pen areas or left on sidewalks, streets, or driveways where runoff can carry them to storm sewers.

Some of the DISEASES THAT CAN SPREAD from pet waste are:
Campylobacteriosis — a bacterial infection that causes diarrhea in humans.
Salmonellosis — the most common bacterial infection transmitted to humans from animals.
Toxocarisis — roundworms transmitted from animals to humans.

Flies and other pest insects can also increase when pet waste is disposed of improperly, becoming a nuisance and adding yet another vector for disease transmission.

WHAT CAN YOU DO?

- SCOOP up pet waste and flush it down the toilet.
- NEVER DUMP pet waste into a storm drain or catch basin.
- USE the complimentary BAGS or mutt mitts offered in dispensers at local parks.
- CARRY EXTRA BAGS when walking your dog and make them available to other pet owners who are without.
- TEACH CHILDREN how to properly clean up after a pet.
- TELL FRIENDS AND NEIGHBORS about the ill effects of animal waste on the environment. Encourage them to clean up after pets.

Did You Know . . .
that Californians illegally dump about 80 million gallons of motor oil each year?

Many communities have "Scoop the Poop" laws that govern pet waste cleanup. Some of these laws specifically require anyone who walks an animal off of their property to carry a bag, shovel, or scooper. Any waste left by the animal must be cleaned up immediately. CALL YOUR LOCAL CODE ENFORCEMENT OFFICER to find out more about pet waste regulations.

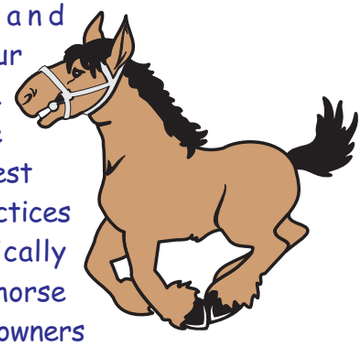


Pets are only one of the many fixtures of suburban America that add to water pollution. Lawn fertilizers, rinse water from driveways and motor oil commonly end up in streams and lakes. **CALL 1-800-506-2555 FOR HOUSEHOLD HAZARDOUS WASTE COLLECTION LOCATION AND DATES.** Maintain your automobile to avoid leaks. Dispose of used vehicle fluids properly. Your pets can be poisoned if they ingest gas, oil or antifreeze that drips onto the pavement or is stored in open containers.

NEVER HOSE VEHICLE FLUIDS into the street or gutter. USE ABSORBENT MATERIALS such as cat litter to clean-up spills. SWEEP UP used absorbent materials and place in the trash.

HORSES AND LIVESTOCK

Fortunate enough to own a horse or livestock? You, too, can play a part in protecting and cleaning up our water resources. The following are a few simple Best Management Practices (BMPs) specifically designed for horse owners and landowners with horses.



- STORE your manure properly. Do not store unprotected piles of manure in places where runoff may enter streams, or flood waters may wash the manure away. Place a cover or tarp over the pile to keep rainwater out.
- CHECK with your local conservation district to design manure storage facilities to protect water quality. These structures usually consist of a concrete pad to protect ground water and a short wall on one or two sides to make manure handling easier.
- TRY composting – A vegetative cover placed around buildings or on steeper slopes can help minimize erosion and absorb nutrients while improving the appearance of your property. In addition, avoid costlier erosion controls, vegetative covers will provide animals with better traction during wet or icy conditions.



- KEEP animals out of steams – Designed stream crossings provide a safe, easy way for horses and livestock to ford streams. Fencing encourages the use of the crossing instead of the streambed to navigate streams. This will allow vegetation to stabilize stream banks and reduce sediment pollution.
- MOW pastures to proper height, six inches is typically recommended.
- Material STORAGE SAFETY TIPS – Many of the chemicals found in barns require careful handling and proper disposal. When using these chemicals, be certain to follow these common sense guidelines:
  - Buy only what you need.
  - Treat spills of hoof oils like fuel spill. Use kitty litter to soak up the oil and dispose in a tightly sealed plastic bag.
  - Store pesticides in a locked, dry, well-ventilated area.
  - Protect stored fertilizer and pesticides from rain and surface water.

Call 1-800-506-2555 to locate your local conservation district to find out what to do with your current backyard manure pile, how to re-establish a healthy pasture, what to do about weeds, and what grasses grow best in your soils.

Thank you for doing your part to protect your watershed, the environment, and the equestrian way of life in your community!



After the Storm

A Citizen's Guide to Understanding Stormwater



For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

United States Environmental Protection Agency

EPA 833-B-03-002

January 2003

Internet Address (URL) • HTTP://www.epa.gov
Recycled/Recyclable • Printed With Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

THE YEAR OF CLEAN WATER
Celebration + Recommitment

What is stormwater runoff?



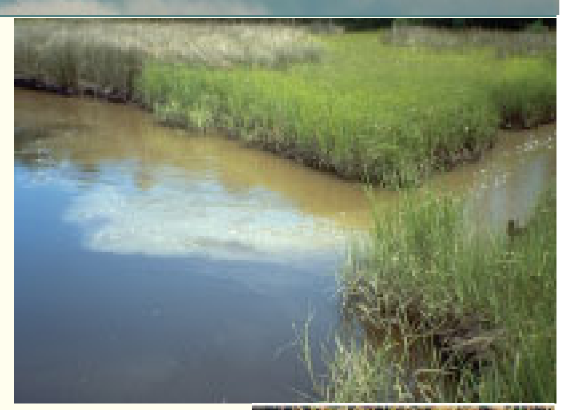
Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?



Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution



Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.



- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.



Stormwater Pollution Solutions



Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care



Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Septic systems



Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Auto care



Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Pet waste



Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.



Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.



Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.



Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.



Commercial

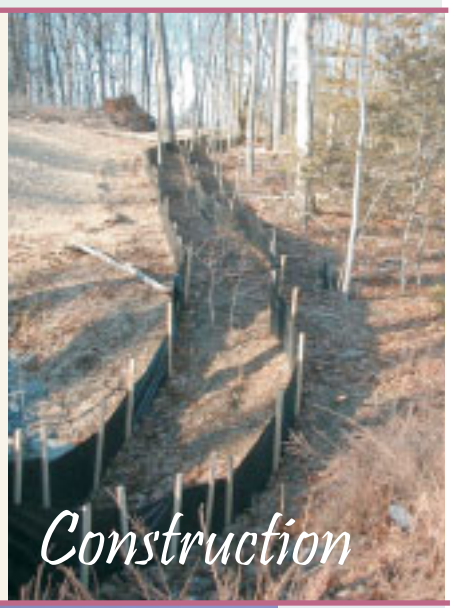
Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Construction

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.





Agriculture

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.



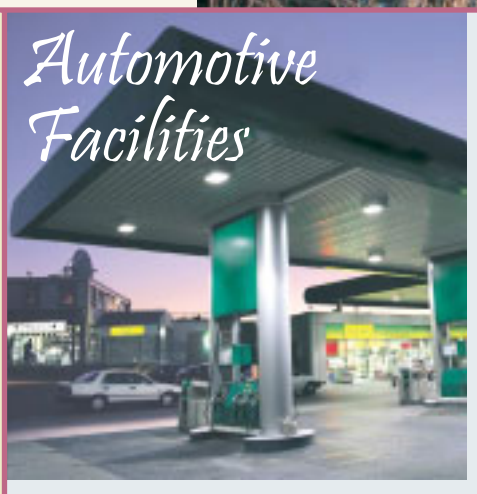
- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.



Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.



Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

AUTO MAINTENANCE



Oil and grease from cars, asbestos worn from brake linings, zinc from tires, and toxics from spilled fluids often make their way into the San Bernardino County storm drain system and DO NOT GET TREATED before reaching the Santa Ana River. These wastes pollute our drinking water, and make our waters unhealthy and unsafe for people and wildlife.

Follow these practices to help prevent stormwater pollution...

Cleanin' Work Sites...



Avoid hosing down your garage floor and driveway; instead, sweep regularly. Also, use non-toxic cleaning products. A water and baking soda mixture works great on removing corrosion from battery terminals and cleaning chrome; mix the soda with a mild, biodegradable dishwashing soap to clean wheels and tires. Additionally, a mixture of white vinegar or lemon juice with water can be used to clean windows.

Spills...

Avoid accidental spills by using a drip pan and funnel when draining or pouring fluids. Be ready for unexpected spills by preparing and using spill containment and cleanup kits. Kits should include safety equipment and cleanup materials such as kitty litter, sawdust or cornmeal. Furthermore, prevent leaks from stored vehicles by draining gas, hydraulic oil, and transmission, brake & radiator fluid. To report serious spills, call 1-800-33-TOXIC.

Recycling...

The law requires people to recycle motor oil and lead acid batteries. REMEMBER: Never dump them down storm drains. Other items which can be recycled include oil filters, antifreeze, cleaning solutions, hydraulic & transmission fluids, metal scraps, water-based paints, and used tires. For recycling information, call 386-8401.

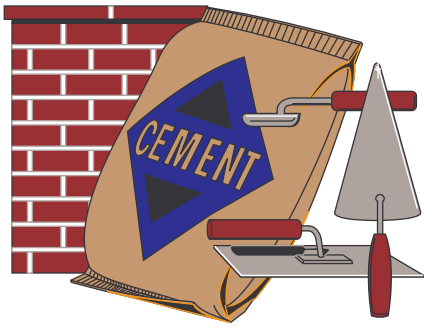
Washin' Vehicles...

Take vehicles to a washing facility to prevent oil & grease, suspended solids and other toxics from washing into our storm drains. Otherwise, use bermed wash areas to prevent contact with stormwater. Discharge wash water to sewer only after contacting local sewer authority to find out if pretreatment is required. At home, vehicles should be washed on the lawn, which can absorb unwanted runoff.



For more information, call your city's stormwater representative

FRESH CONCRETE & MORTAR APPLICATION



Cement, cement wash, gravel, asphalt, solvents, and motor oil from fresh concrete and mortar activities often make their way into the San Bernardino County storm drain system and DO NOT GET TREATED before reaching the Santa Ana River. These wastes pollute our drinking water, and make our waters unhealthy and unsafe for people and wildlife.

Follow these practices to help prevent stormwater pollution...

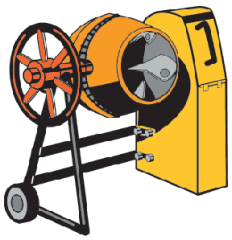
General Business Practices...

Schedule excavation and grading work during dry weather, and in case it rains, prevent materials from contacting stormwater by storing them under cover. Also, secure open bags of cement to keep wind-blown cement powder away from streets, gutters and storm drains.



During Construction...

Prevent mortar and cement from entering the storm drains by placing erosion controls (i.e., berms or temporary vegetation) down-slope to capture runoff. When breaking up paving, be sure to pick up all pieces and recycle them at a crushing company; small amounts of excess dry concrete, grout and mortar can be disposed of in the trash. Setup small mixers on tarps or heavy drop cloths to allow for easy cleanup of debris. REMEMBER: Never bury waste material -- recycle or dispose of it as hazardous waste. Call 386-8401 for recycling and disposal information.

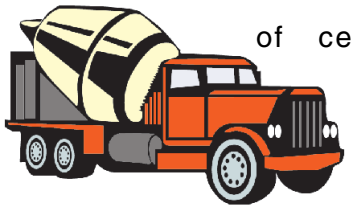


Handling Materials & Wastes...

Minimize wastes when ordering materials by ordering only the amounts needed to complete the job. Whenever possible, use recycled or recyclable materials. Recycle broken asphalt, concrete, wood, and cleared vegetation. Unrecyclable materials must be taken to an appropriate landfill or disposed of as hazardous waste. For recycling and disposal information, call 386-8401.

Cleaning up...

When cleaning up after driveway or sidewalk construction, wash concrete dust onto designated dirt areas, not down the driveway or into the street or storm drain. Also, wash out concrete mixers and equipment only in specified wash-out areas, where the water flows into containment ponds. Cement washwater can be recycled by pumping it back into cement mixers for reuse. REMEMBER: Never dispose of cement washout into driveways, streets, gutters, storm drains or drainage ditches.



For more information, call your city's stormwater representative

For Information:

For more information on the General Industrial Storm Water Permit contact:

State Water Resources Control Board (SWRCB)
(916) 657-1146 or www.swrcb.ca.gov/ or, at your Regional Water Quality Control Board (RWQCB).

Santa Ana Region (8)
California Tower
3737 Main Street, Ste. 500
Riverside, CA 92501-3339
(909) 782-4130

San Diego Region (9)
9771 Clairemont Mesa Blvd., Ste. A
San Diego, CA 92124
(619) 467-2952

Colorado River Basin Region (7)
73-720 Fred Waring Dr., Ste. 100
Palm Desert, CA 92260
(760) 346-7491

SPILL RESPONSE AGENCY:
HAZ-MAT: (909) 358-5055
HAZARDOUS WASTE DISPOSAL: (909) 358-5055
RECYCLING INFORMATION: 1-800-366-SAVE
TO REPORT ILLEGAL DUMPING OR A CLOGGED STORM DRAIN: 1-800-506-2555

To order additional brochures or to obtain information on other pollution prevention activities, call:
(909) 955-1111.

StormWater
CleanWater
PROTECTION PROGRAM

Riverside County gratefully acknowledges the State Water Quality Control Board and the American Public Works Association, Storm Water Quality Task Force for the information provided in this brochure.

DID YOU KNOW . . .

YOUR FACILITY MAY NEED A STORM WATER PERMIT?



Many industrial facilities and manufacturing operations must obtain coverage under the Industrial Activities Storm Water General Permit

FIND OUT IF YOUR FACILITY MUST OBTAIN A PERMIT

StormWater Pollution . . . What you should know

Riverside County has two drainage systems - sanitary sewers and storm drains. The storm drain system is designed to help prevent flooding by carrying excess rainwater away from streets. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our waterways.

Unlike sanitary sewers, storm drains are not connected to a treatment plant - they flow directly to our local streams, rivers and lakes.



In recent years, awareness of the need to protect water quality has increased. As a result, federal, state, and local programs have been established to reduce polluted stormwater discharges to our waterways. The emphasis of these programs is to prevent stormwater pollution since it's much easier, and less costly, than cleaning up "after the fact."

National Pollutant Discharge Elimination System (NPDES)

In 1987, the Federal Clean Water Act was amended to establish a framework for regulating industrial stormwater discharges under the NPDES permit program. In California, NPDES permits are issued by the State Water Resources Control Board (SWRCB) and the nine (9) Regional Water Quality Control Boards (RWQCB). In general, certain industrial facilities and manufacturing operations must obtain coverage under the Industrial Activities Storm Water General Permit if the type of facilities or operations falls into one of the several categories described in this brochure.

How Do I Know If I Need A Permit?

Following are ***general descriptions*** of the industry categories types that are regulated by the Industrial Activities Storm Water General Permit. Contact your local Region Water Quality Control Board to determine if your facility/operation requires coverage under the Permit.

➜ Facilities such as cement manufacturing; feedlots; fertilizer manufacturing; petroleum refining; phosphate manufacturing; steam electric power generation; coal mining; mineral mining and processing; ore mining and dressing; and asphalt emulsion;

➜ Facilities classified as lumber and wood products (except wood kitchen cabinets); pulp, paper, and paperboard mills; chemical producers (except some pharmaceutical and biological products); petroleum and coal products; leather production and products; stone, clay and glass products; primary metal industries; fabricated structural metal; ship and boat building and repairing;

➜ Active or inactive mining operations and oil and gas exploration, production, processing, or treatment operations;

➜ Hazardous waste treatment, storage, or disposal facilities;

➜ Landfills, land application sites and open dumps that receive or have received any industrial waste; unless there is a new overlying land use such as a golf course, park, etc., and there is no discharge associated with the landfill;

➜ Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards;

➜ Steam electric power generating facilities, facilities that generate steam for electric power by combustion;

➜ Transportation facilities that have vehicle maintenance shops, fueling facilities, equipment cleaning operations, or airport deicing operations. This includes school bus maintenance facilities operated by a school district;

➜ Sewage treatment facilities;

➜ Facilities that have areas where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water.

How do I obtain coverage under the Industrial Activities Storm Water General Permit?

Obtain a permit application package from your local Regional Water Quality Control Board listed on the back of this brochure or the State Water Resources Control Board (SWRCB). Submit a completed Notice of Intent (NOI) form, site map and the appropriate fee ($250 or $500) to the SWRCB. Facilities must submit an NOI thirty (30) days prior to beginning operation. Once you submit the NOI, the State Board will send you a letter acknowledging receipt of your NOI and will assign your facility a waste discharge identification number (WDID No.). You will also receive an annual fee billing. These billings should roughly coincide with the date the State Board processed your original NOI submittal.

What are the requirements of the Industrial Activities Storm Water General Permit?

The basic requirements of the Permit are:

1. The facility must eliminate any non-stormwater discharges or obtain a separate permit for such discharges.

2. The facility must develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must identify sources of pollutants that may be exposed to stormwater. Once the sources of pollutants have been identified, the facility operator must develop and implement Best Management Practices (BMPs) to minimize or prevent polluted runoff.

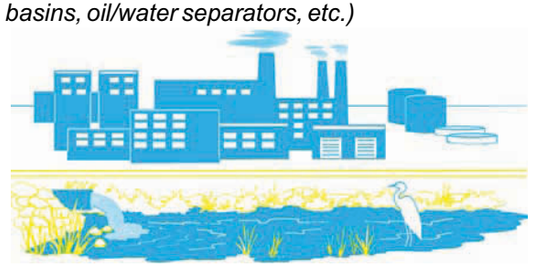
   Guidance in preparing a SWPPP is available from a document prepared by the California Storm Water Quality Task Force called the California Storm Water Best Management Practice Handbook.

3. The facility must develop and implement a Monitoring Program that includes conducting visual observations and collecting samples of the facility's storm water discharges associated with industrial activity. The General Permit requires that the analysis be conducted by a laboratory that is certified by the State of California.

4. The facility must submit to the Regional Board, every July 1, an annual report that includes the results of its monitoring program.

A Non-Storm Water Discharge is... *any discharge to a storm drain system that is not composed entirely of storm water. The following non-storm water discharges are authorized by the General Permit: fire hydrant flushing; potable water sources, including potable water related to the operation, maintenance, or testing of potable water systems; drinking fountain water; atmospheric condensates including refrigeration, air conditioning, and compressor condensate; irrigation drainage; landscape watering; springs; non-contaminated ground water; foundation or footing drainage; and sea water infiltration where the sea waters are discharged back into the sea water source.*

A BMP is . . . *a technique, process, activity, or structure used to reduce the pollutant content of a storm water discharge. BMPs may include simple, non-structural methods such as good housekeeping, staff training and preventive maintenance. Additionally, BMPs may include structural modifications such as the installation of berms, canopies or treatment control (e.g. setting basins, oil/water separators, etc.)*



WARNING*: There are significant penalties for non-compliance: a minimum fine of $5,000 for failing to obtain permit coverage, and, up to $10,000 per day, per violation plus $10 per gallon of discharge in excess of 1,000 gallons.*

Adopt a pet from your local animal shelter or adoption centers at pet stores. A variety of animals, from purebred tomixe d breed are waiting for loving arms and good homes. Consider volunteering at your local animal shelters. Volunteers, donations, food, newspapers, old towels and linens are needed to help the animals.



RIVERSIDE COUNTY
ANIMAL SHELTER LOCATIONS:

BLYTHE
16450 West Hobson Way
Blythe, CA 92225
760-921-7857

HEMET
800 South Sanderson
Hemet, CA 92545
909 925-8025

INDIO
45-355 Van Buren
Indio, CA 92201
760-347-2319

RIVERSIDE
5950 Wilderness Avenue
Riverside, CA 92504
909-358-7387

FOR ALL OTHER AREAS
CALL 1-888-636-7387

Riverside County gratefully acknowledges the City of Los Angeles Stormwater Program for the design concept of this brochure.

What's the Scoop?



TIPS FOR A HEALTHY PET AND A HEALTHIER ENVIRONMENT

CREATE A HEALTHY ENVIRONMENT in and around your home by following these simple pet practices. Your pet, family and neighbors will appreciate their clean comfortable surroundings.

HOUSEHOLD PETS

We all love our pets, but pet waste is a subject everyone likes to avoid. Pet waste left on trails, sidewalks, streets, and grassy areas is immediately flushed into the nearest waterway when it rains. Even if you can't see water near you, the rain or waste water WASHES all that PET WASTE and BACTERIA INTO THE STORMDRAIN, where it travels to your neighborhood creek or lake untreated. These animal droppings also contain nutrients that can promote the growth of algae, if they enter our streams and lakes. The risk of STORMWATER CONTAMINATION INCREASES, if pet wastes is allowed to accumulate in animal pen areas or left on sidewalks, streets, or driveways where runoff can carry them to storm sewers.

Some of the DISEASES THAT CAN SPREAD from pet waste are:
Campylobacteriosis — a bacterial infection that causes diarrhea in humans.
Salmonellosis — the most common bacterial infection transmitted to humans from animals.
Toxocarisis — roundworms transmitted from animals to humans.

Flies and other pest insects can also increase when pet waste is disposed of improperly, becoming a nuisance and adding yet another vector for disease transmission.

WHAT CAN YOU DO?

- SCOOP up pet waste and flush it down the toilet.
- NEVER DUMP pet waste into a storm drain or catch basin.
- USE the complimentary BAGS or mutt mitts offered in dispensers at local parks.
- CARRY EXTRA BAGS when walking your dog and make them available to other pet owners who are without.
- TEACH CHILDREN how to properly clean up after a pet.
- TELL FRIENDS AND NEIGHBORS about the ill effects of animal waste on the environment. Encourage them to clean up after pets.

Did You Know . . .
that Californians illegally dump about 80 million gallons of motor oil each year?

Many communities have "Scoop the Poop" laws that govern pet waste cleanup. Some of these laws specifically require anyone who walks an animal off of their property to carry a bag, shovel, or scooper. Any waste left by the animal must be cleaned up immediately. CALL YOUR LOCAL CODE ENFORCEMENT OFFICER to find out more about pet waste regulations.

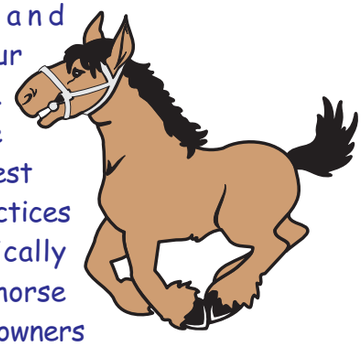


Pets are only one of the many fixtures of suburban America that add to water pollution. Lawn fertilizers, rinse water from driveways and motor oil commonly end up in streams and lakes. **CALL 1-800-506-2555 FOR HOUSEHOLD HAZARDOUS WASTE COLLECTION LOCATION AND DATES.** Maintain your automobile to avoid leaks. Dispose of used vehicle fluids properly. Your pets can be poisoned if they ingest gas, oil or antifreeze that drips onto the pavement or is stored in open containers.

NEVER HOSE VEHICLE FLUIDS into the street or gutter. USE ABSORBENT MATERIALS such as cat litter to clean-up spills. SWEEP UP used absorbent materials and place in the trash.

HORSES AND LIVESTOCK

Fortunate enough to own a horse or livestock? You, too, can play a part in protecting and cleaning up our water resources. The following are a few simple Best Management Practices (BMPs) specifically designed for horse owners and landowners with horses.



- STORE your manure properly. Do not store unprotected piles of manure in places where runoff may enter streams, or flood waters may wash the manure away. Place a cover or tarp over the pile to keep rainwater out.
- CHECK with your local conservation district to design manure storage facilities to protect water quality. These structures usually consist of a concrete pad to protect ground water and a short wall on one or two sides to make manure handling easier.
- TRY composting – A vegetative cover placed around buildings or on steeper slopes can help minimize erosion and absorb nutrients while improving the appearance of your property. In addition, avoid costlier erosion controls, vegetative covers will provide animals with better traction during wet or icy conditions.



- KEEP animals out of steams – Designed stream crossings provide a safe, easy way for horses and livestock to ford streams. Fencing encourages the use of the crossing instead of the streambed to navigate streams. This will allow vegetation to stabilize stream banks and reduce sediment pollution.
- MOW pastures to proper height, six inches is typically recommended.
- Material STORAGE SAFETY TIPS – Many of the chemicals found in barns require careful handling and proper disposal. When using these chemicals, be certain to follow these common sense guidelines:
  - Buy only what you need.
  - Treat spills of hoof oils like fuel spill. Use kitty litter to soak up the oil and dispose in a tightly sealed plastic bag.
  - Store pesticides in a locked, dry, well-ventilated area.
  - Protect stored fertilizer and pesticides from rain and surface water.

Call 1-800-506-2555 to locate your local conservation district to find out what to do with your current backyard manure pile, how to re-establish a healthy pasture, what to do about weeds, and what grasses grow best in your soils.

Thank you for doing your part to protect your watershed, the environment, and the equestrian way of life in your community!



Helpful telephone numbers and links:

Riverside County Water Agencies

City of Banning	(951) 922-3130
City of Beaumont/Cherry Valley	(951) 845-9581
City of Blythe	(760) 922-6161
City of Coachella	(760) 398-3502
City of Corona	(951) 736-2263
City of Hemet	(951) 765-3710
City of Norco	(951) 270 5607
City of Riverside Public Works	(951) 351-6140
City of San Jacinto	(951) 654-4041
Coachella Valley Water District	(760) 398-2651
Desert Water Agency (Palm Springs)	(760) 323-4971
Eastern Municipal Water District	(951) 928-3777
Elsinore Valley Municipal Water District	(951) 674 3146
Elsinore Water District	(951) 674-2168
Farm Mutual Water Company	(951) 244-4198
Idyllwild Water District	(951) 659-2143
Indio Water Authority	(760) 391-4129
Jurupa Community Services District	(951) 685-7434
Lee Lake Water	(951) 658-3241
Mission Springs Water	(760) 329-6448
Rancho California Water District	(951) 296-6900
Ripley, CSA #62	(760) 922-4951
Riverside Co. Service Area #51	(760) 227-3203
Rubidoux Community Services District	(951) 684-7580
Valley Sanitary District	(760) 347-2356
Western Municipal Water District	(951) 789-5000
Yucaipa Valley Water District	(909) 797-5117

REPORT ILLEGAL STORM DRAIN DISPOSAL

1-800-506-2555 or e-mail us at
fcnpdes@rcflood.org

- Riverside County Flood Control and Water Conservation District
  www.rcflood.org

Online resources include:

- California Storm Water Quality Association
  www.casqa.org
- State Water Resources Control Board
  www.waterboards.ca.gov
- Power Washers of North America
  www.thepwna.org

Stormwater Pollution

What you should know for...

Outdoor Cleaning Activities and Professional Mobile Service Providers



Storm drain pollution prevention information for:

- Car Washing / Mobile Detailers
- Window and Carpet Cleaners
- Power Washers
- Waterproofers / Street Sweepers
- Equipment cleaners or degreasers and all mobile service providers

Do you know where street flows actually go?

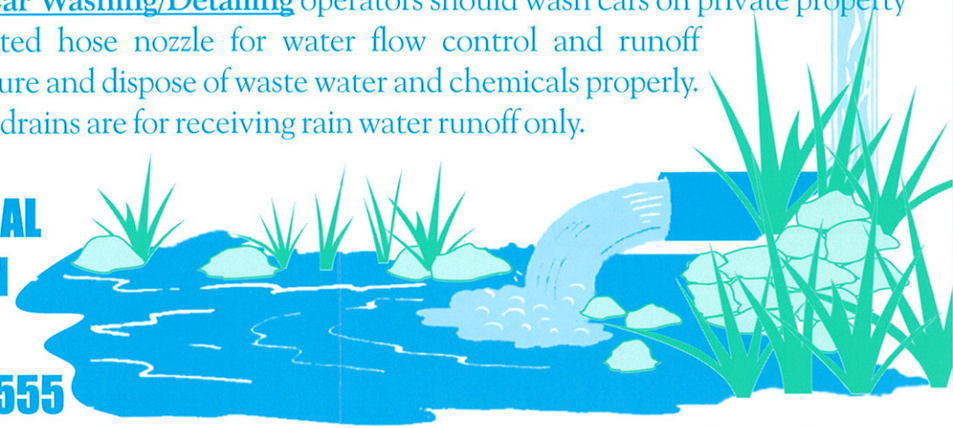
Storm drains are NOT connected to sanitary sewer systems and treatment plants!



The primary purpose of storm drains is to carry rain water away from developed areas to prevent flooding. Pollutants discharged to storm drains are transported directly into rivers, lakes and streams. Soaps, degreasers, automotive fluids, litter and a host of materials are washed off buildings, sidewalks, plazas and parking areas. Vehicles and equipment must be properly managed to prevent the pollution of local waterways.

Unintentional spills by mobile service operators can flow into storm drains and pollute our waterways. **Avoid mishaps.** *Always* have a **Spill Response Kit** on hand to clean up unintentional spills. Only emergency **Mechanical** repairs should be done in City streets, using drip pans for spills. **Plumbing** should be done on private property. Always store chemicals in a leak-proof container and keep covered when not in use. **Window/Power Washing** waste water shouldn't be released into the streets, but should be disposed of in a sanitary sewer, landscaped area or in the soil. Soiled **Carpet Cleaning** wash water should be filtered before being discharged into the sanitary sewer. Dispose of all filter debris properly. **Car Washing/Detailing** operators should wash cars on private property and use a regulated hose nozzle for water flow control and runoff prevention. Capture and dispose of waste water and chemicals properly. Remember, storm drains are for receiving rain water runoff only.

REPORT ILLEGAL STORM DRAIN DISPOSAL 1-800-506-2555



Help Protect Our Waterways!

Use these guidelines for Outdoor Cleaning Activities and Wash Water Disposal

Did you know that disposing of pollutants into the street, gutter, storm drain or body of water is *PROHIBITED* by law and can result in stiff penalties?

Best Management Practices

Waste wash water from Mechanics, Plumbers, Window/Power Washers, Carpet Cleaners, Car Washing and Mobile Detailing activities may contain significant quantities of motor oil, grease, chemicals, dirt, detergents, brake pad dust, litter and other materials.

Best Management Practices, or BMPs as they are known, are guides to prevent pollutants from entering the storm drains. ***Each of us*** can do our part to keep storm water clean by using the suggested BMPs below:

Simple solutions for both light and heavy duty jobs:

Do...consider dry cleaning methods first such as a mop, broom, rag or wire brush. Always keep a spill response kit on site.

Do...prepare the work area before power cleaning by using sand bags, rubber mats, vacuum booms, containment pads or temporary berms to keep wash water away from the gutters and storm drains.

Do...use vacuums or other machines to remove and collect loose debris or litter before applying water.

Do...obtain the property owner's permission to dispose of ***small amounts*** of power washing waste water on to landscaped, gravel or unpaved surfaces.

Do...check your local sanitary sewer agency's policies on wash water disposal regulations before disposing wash water to the sewer. (See list on reverse side)

Do...be aware that if discharging to landscape areas, soapy wash water may damage landscaping. Residual wash water may remain on paved surfaces to evaporate. Sweep up solid residuals and dispose of properly. Vacuum booms are another option for capturing and collecting wash water.

Do...check to see if local ordinances prevent certain activities.

Do not let...wash or waste water from sidewalk, plaza or building cleaning go into a street or storm drain.



Report illegal storm drain disposal,
Call Toll Free
1-800-506-2555

Using Cleaning Agents

Try using biodegradable/phosphate-free products. They are easier on the environment, but don't confuse them for being toxic free. Soapy water entering the storm drain system can impact the delicate aquatic environment.



When cleaning surfaces with a ***high-pressure washer*** or ***steam cleaner***, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning can loosen additional material that can contaminate local waterways.

Think Water Conservation

Minimize water use by using high pressure, low volume nozzles. Be sure to check all hoses for leaks. Water is a precious resource, don't let it flow freely and be sure to shut it off in between uses.

Screening Wash Water

Conduct thorough dry cleanup before washing exterior surfaces, such as buildings and decks ***with loose paint***, sidewalks or plaza areas. Keep debris from entering the storm drain after cleaning by first passing the wash water through a "20 mesh" or finer screen to catch the solid materials, then dispose of the mesh in a refuse container. Do not let the remaining wash water enter a street, gutter or storm drain.

Drain Inlet Protection & Collection of Wash Water

- Prior to any washing, block all storm drains with an impervious barrier such as sandbags or berms, or seal the storm drain with plugs or other appropriate materials.
- Create a containment area with berms and traps or take advantage of a low spot to keep wash water contained.
- Wash vehicles and equipment on grassy or gravel areas so that the wash water can seep into the ground.
- Pump or vacuum up all wash water in the contained area.

Concrete/Coring/Saw Cutting and Drilling Projects

Protect any down-gradient inlet by using dry activity techniques whenever possible. If water is used, minimize the amount of water used during the coring/drilling or saw cutting process. Place a barrier of sandbags and/or absorbent berms to protect the storm drain inlet or watercourse. Use a shovel or wet vacuum to remove the residue from the pavement. Do not wash residue or particulate matter into a storm drain inlet or watercourse.

For Information:

Local Sewering Agencies in Riverside County:

City of Beaumont	(909) 769-8520
Belair Homeowners Association	(909) 277-1414
City of Banning	(909) 922-3130
City of Blythe	(760) 922-6161
City of Coachella	(760) 391-5008
Coachella Valley Water District	(760) 398-2651
City of Corona	(909) 736-2259
Desert Center, CSA #51	(760) 227-3203
Eastern Municipal Water District	(909) 928-3777
Elsinore Valley MWD	(909) 674-3146
Farm Mutual Water Company	(909) 244-4198
Idyllwild Water District	(909) 659-2143
Jurupa Community Services Dist.	(909) 685-7434
Lake Hemet MWD	(909) 658-3241
Lee Lake Water District	(909) 277-1414
March Air Force Base	(909) 656-7000
Mission Springs Water District	(760) 329-6448
City of Palm Springs	(760) 323-8242
Rancho Caballero	(909) 780-9272
Rancho California Water Dist.	(909) 676-4101
Ripley, CSA #62	(760) 922-4909
Rubidoux Community Services Dist.	(909) 684-7580
City of Riverside	(909) 782-5341
Silent Valley Club, Inc	(909) 849-4501
Valley Sanitary District	(760) 347-2356
Western Municipal Water District	(909) 780-4170

Spill Response Agency:
Haz-Mat: (909) 358-5055
Hazardous Waste Disposal: (909) 358-5055
To Report Illegal Dumping or a Clogged Storm Drain: 1-800-506-2555

StormWater CleanWater
PROTECTION PROGRAM

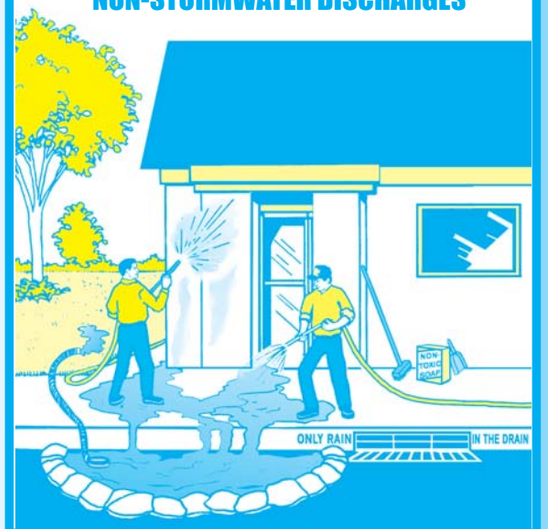
Riverside County gratefully acknowledges the Bay Area Stormwater Management Agencies Association and the Cleaning Equipment Trade Association for information provided in this brochure.

StormWater Pollution

What you should know for...

OUTDOOR CLEANING ACTIVITIES

NON-STORMWATER DISCHARGES



GUIDELINES for disposal of washwater from:

- Sidewalk, plaza or parking lot cleaning
- Vehicle washing or detailing
- Building exterior cleaning
- Waterproofing
- Equipment cleaning or degreasing

Do you know . . . where the water should go?



Riverside County has two drainage systems - sanitary sewers and storm drains. The storm drain system is designed to prevent flooding by carrying excess rainwater away from streets. . . it's not designed to be a waste disposal system. Since the storm drain system does not provide for water treatment, it often serves the unintended function of transporting pollutants directly to our waterways.

Unlike sanitary sewers, storm drains are not connected to a treatment plant - they flow directly to our local streams, rivers and lakes.

Non-stormwater discharges such as washwater generated from outdoor cleaning projects often transport harmful pollutants into storm drains and our local waterways. Polluted runoff contaminates local waterways and poses a threat to groundwater resources.

Soaps, degreasers, automotive fluids, litter, and a host of other materials washed off buildings, sidewalks, plazas, parking areas, vehicles, and equipment can all pollute our waterways.

The Cities and County of Riverside StormWater/CleanWater Protection Program

Since preventing pollution is much easier, and less costly than cleaning up "after the fact," the Cities and County of Riverside StormWater/CleanWater Protection Program informs residents and businesses of pollution prevention activities such as those described in this pamphlet.

The Cities and County of Riverside have adopted ordinances for stormwater management and discharge control. In accordance with state and federal law, these local stormwater ordinances **prohibit** the discharge of wastes into the storm drain system or local surface waters. This includes non-stormwater discharges containing oil, grease, detergents, degreasers, trash, or other waste materials.



PLEASE NOTE: The discharge of pollutants into the street, gutters, storm drain system, or waterways - without a Regional Water Quality Control Board permit or waiver - is ***strictly prohibited*** by local ordinances and state and federal law.

Help Protect Our Waterways!

Use These Guidelines For Outdoor Cleaning Activities and Washwater Disposal

DO . . . Dispose of **small amounts** of **washwater from cleaning building exteriors, sidewalks, or plazas** onto landscaped or unpaved surfaces provided you have the owner's permission and the discharge will not cause flooding or nuisance problems, or flow into a storm drain.

DO NOT . . . Discharge **large amounts** of these types of washwater onto landscaped areas or soil where water may run to a street or storm drain. Wastewater from exterior cleaning may be pumped to a sewer line with specific permission from the local sewering agency.

DO . . . Check with your local sewering agency's policies and requirements concerning waste water disposal. **Water from many outdoor cleaning activities** may be acceptable for disposal to the sewer system. See the list on the back of this flyer for phone numbers of the sewering agencies in your area.

DO NOT . . . Pour **hazardous wastes** or toxic materials into the storm drain or sewer system . . . properly dispose of it instead. When in doubt, contact the local sewering agency! The agency will tell you what types of liquid wastes can be accepted.

DO . . . Understand that **water (without soap) used to remove dust from clean vehicles** may be discharged to a street or storm drain. **Washwater from sidewalk, plaza, and building surface cleaning** may go into a street or storm drain if ALL of the following conditions are met:

1) The surface being washed is free of residual oil stains, debris and similar pollutants by using dry cleanup methods (sweeping, and cleaning any oil or chemical spills with rags or other absorbent materials before using water).
2) Washing is done with water only - no soap or other cleaning materials.
3) You have not used the water to remove paint from surfaces during cleaning.

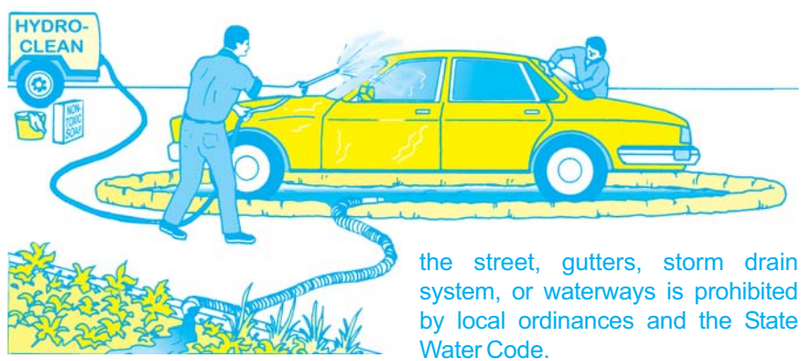
DO NOT . . . Dispose of water containing **soap or any other type of cleaning agent** into a storm drain or water body. This is a direct violation of state and/or local regulations. Because **wastewater from cleaning parking areas or roadways** normally contains metallic brake pad dust, oil and other automotive fluids, it should never be discharged to a street, gutter, or storm drain.

DO . . . Understand that **mobile auto detailers** should divert washwater to landscaped or dirt areas. Note: Be aware that soapy washwater may adversely affect landscaping; consult with the property owner. Residual washwater may remain on paved surfaces to evaporate; sweep up any remaining residue. If there is sufficient water volume to reach the storm drain, collect the runoff and obtain permission to pump it into the sanitary sewer. Follow local sewering agency's requirements for disposal.

DO NOT . . . Dispose of left over cleaning agents into the gutter, storm drain or sanitary sewer.

Regarding Cleaning Agents:

If you must use soap, use biodegradable/phosphate free cleaners. Avoid use of petroleum based cleaning products. Although the use of nontoxic cleaning products is strongly encouraged, ***do*** understand that these products can still degrade water quality and, therefore, the discharge of these products into



the street, gutters, storm drain system, or waterways is prohibited by local ordinances and the State Water Code.

Note: When cleaning surfaces with a high pressure washer or steam cleaning methods, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning, as compared to the use of a low pressure hose, can remove additional materials that can contaminate local waterways.

Other Tips to Help Protect Our Water . . .

Screening Wash Water

A thorough dry cleanup before washing (without soap) surfaces such as building exteriors and decks without loose paint, sidewalks, or plaza areas, *should be sufficient to protect storm drains.* **However**, if any debris (solids) could enter storm drains or remain in the gutter or street after cleaning, washwater should first pass through a "20 mesh" or finer screen to catch the solid material, which should then be disposed of in the trash.

Drain Inlet Protection/ Containing & Collecting Wash Water

- Sand bags can be used to create a barrier around storm drain inlets.
- Plugs or rubber mats can be used to temporarily seal storm drain openings.
- You can also use vacuum booms, containment pads, or temporary berms to keep wash water away from the street, gutter, or storm drain.

Equipment and Supplies

Special materials such as absorbents, storm drain plugs and seals, small sump pumps, and vacuum booms are available from many vendors. For more information check catalogs such as New Pig (800-468-4647), Lab Safety Supply (800-356-0783), C&H (800-558-9966), and W.W. Grainger (800-994-9174); or call the Cleaning Equipment Trade Association (800-441-0111) or the Power Washers of North America (800-393-PWNA).



PAINTING

Paints, solvents, adhesives, and toxic chemicals from painting operations often make their way into the San Bernardino County storm drain system and DO NOT GET TREATED before reaching the Santa Ana River. These wastes pollute our drinking water, and make our waters unhealthy and unsafe for people and wildlife.

Follow these practices to help prevent stormwater pollution...

General Business Practices...

Keep all paint products and wastes away from the street, gutter, and storm drains. Reuse paint thinner by setting used thinner aside in a closed, labeled jar to settle out paint particles, and then pouring off the clear liquid for future use. Wrap dried paint residue in newspaper and dispose of it in the trash.

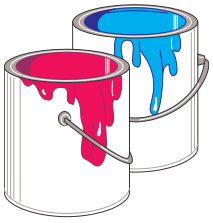
Water-Based Paints...

Purchase water-based paints whenever possible. Look for products labeled “latex” or “clean up with water.”

Recycle or Reuse Paints...

Recycle/reuse leftover paint by using it for touch-ups, or by giving it to someone who can use it, such as a theatre group, school, city or other community organization. If you’re unable to give it away, contact 386-8401 for information on hazardous waste pick-up.

Paint Cleanup...



Avoid cleaning brushes and rinsing paint containers in a street, gutter, or storm drain. For water-based paints, “brush out” as much paint as possible and and rinse in the sink. For oil-based paints, “brush out” as much paint as possible, clean with thinner, and then filter and reuse thinner or solvent.

Paint Removal...

Chemical paint stripping residue, chips & dust from marine paints, and paints containing lead or tributyl tin are hazardous wastes. For disposal information, call 386-8401. Also, when stripping or cleaning building exteriors with high-pressure water, block storm drains and divert the washwater onto a designated dirt area. Check with your local wastewater treatment authority to find out if you can collect building cleaning water and discharge it to the sewer.



For more information, call your city’s stormwater representative

Helpful telephone numbers and links:

Riverside County Water Agencies:

City of Banning	(951) 922-3130
City of Beaumont	(951) 769-8520
City of Blythe	(760) 922-6161
City of Coachella	(760) 398-3502
Coachella Valley Water District	(760) 398-2651
City of Corona	(951) 736-2259
Desert Center, CSA #51	(760) 227-3203
Eastern Municipal Water District	(951) 928-3777
Elsinore Valley MWD	(951) 674-3146
Farm Mutual Water Company	(951) 244-4198
City of Hemet	(951) 765-3712
Idyllwild Water District	(951) 659-2143
Jurupa Community Services District	(951) 360-8795
Lake Hemet MWD	(951) 658-3241
Lee Lake Water District	(951) 277-1414
March Air Force Base	(951) 656-7000
Mission Springs Water District	(760) 329-6448
City of Palm Springs	(760) 323-8253
Rancho Caballero	(951) 780-9272
Rancho California Water District	(951) 296-6900
Ripley, CSA #62	(760) 922-4951
City of Riverside	(951) 351-6170
Rubidoux Community Services District	(951) 684-7580
Silent Valley Club, Inc	(951) 849-4501
Valley Sanitary District	(760) 347-2356
Western Municipal Water District	(951) 789-5000
Yucaipa Valley Water District	(909) 797-5117

CALL 1-800-506-2555 to:

- Report clogged storm drains or illegal storm drain disposal from residential, industrial, construction and commercial sites into public streets, storm drains and/or water bodies.
- Find out about our various storm drain pollution prevention materials.
- Locate the dates and times of Household Hazardous Waste (HHW) Collection Event.
- Request adult, neighborhood, or classroom presentations.
- Locate other County environmental services.
- Receive grasscycling information and composting workshop information.

Or visit our (Riverside County Flood Control District website at:
www.floodcontrol.co.riverside.ca.us

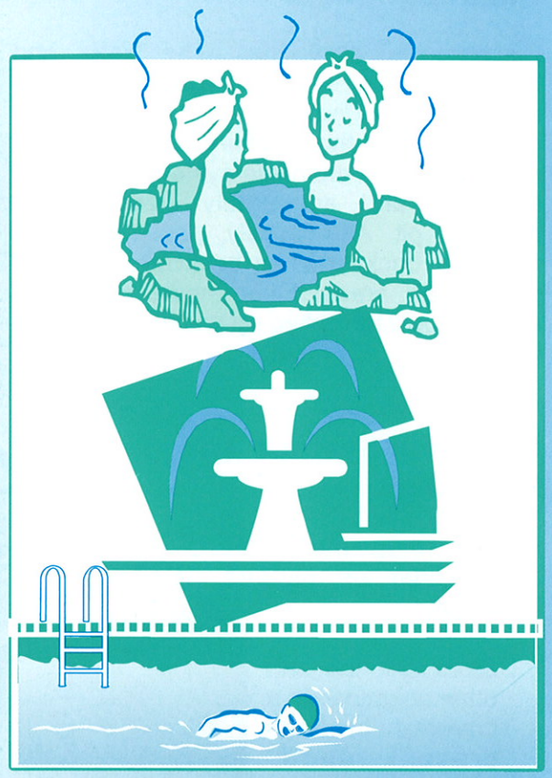
Other links to additional storm drain pollution information:

- County of Riverside Environmental Health:
  www.rivcoeh.org
- California State Water Resource Conservation Board:
  www.swrcb.ca.gov/stormwtr/links.html
- California Water Quality Task Force:
  www.cabmphandbooks.com/
- United State Environmental Protection Agency (EPA):
  www.epa.gov/opptintr/p2home/programs/busprc.htm
  (compliance assistance information)

Riverside County Only Rain in the Storm Drain Pollution Protection Program gratefully acknowledges the Bay Area Stormwater Management Agencies Association and the Cleaning Equipment Trade Association for information provided in this brochure.

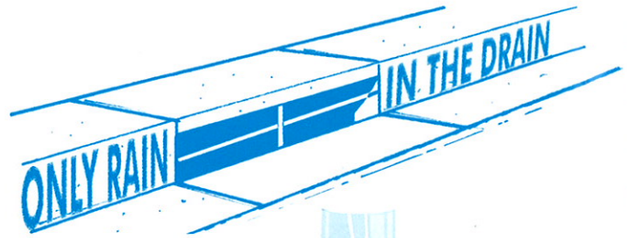
StormWater Pollution

What you should know for...



Swimming Pool, Jacuzzi and Fountain Maintenance

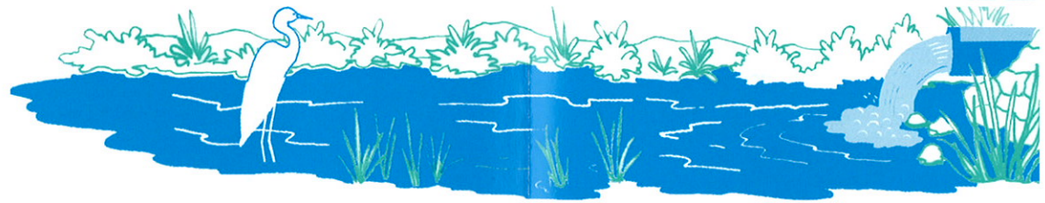
Do you know . . . where the water actually goes?



Storm Drains are not connected to sanitary sewer systems and treatment plants!

The primary purpose of storm drains is to carry rain water away from developed areas to prevent flooding. Untreated storm water and the pollutants it carries flow directly into rivers, lakes, and streams. Wastewater from residential swimming pools, jacuzzis, fishponds, and fountains often contain chemicals used for sanitizing or cleansing purposes. Toxic chemicals (such as chlorine or copper-based algaecides) can damage the environment when wastewater is allowed to flow into our local rivers, lakes, and streams by way of the storm drain system. Each of us can do our part to help clean our water, and that adds up to a pollution solution.

The Cities and County of Riverside have adopted ordinances for storm drain pollution management to maintain discharge control and prevent illegal storm drain discharge. In accordance with state and federal law, these local storm water ordinances prohibit the discharge of pollutants into the storm drain system or local surface waters. The Only Rain in the Storm Drain Pollution Program informs residents and businesses of storm drain pollution prevention activities such as those described in this brochure.



PLEASE NOTE: The discharge of pollutants into the street, gutters, storm drain system, or waterways – without a Regional Water Quality Control board permit or waiver – is strictly prohibited by local ordinances and state and federal law.

Do Your Part to Protect Our Waterways!

Use These Guidelines For Proper Draining of Your Swimming Pool, Jacuzzi and Fountain Water

Discharge Regulations



Requirements for pool draining may differ from city to city. Check with your water agency to see if disposal to the sanitary sewer line is allowed for pool discharges (see reverse side for Riverside County water purveyors).

If sewer discharge is allowed, a hose can be run from your swimming pool pump to the washing machine drain or a sink or bathtub. If sewer discharge is not allowed, or if your house is served by a septic tank, review the options presented below.

Discharge Options

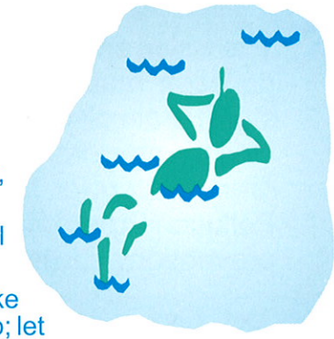
If your local sewer agency will not accept pool water into their system, or if you are on a septic tank system, follow these guidelines:

1. Reduce or eliminate solids (e.g., debris, leaves or dirt) in the pool water.
2. Allow the chemicals in the pool water to dissipate. This could take up to seven (7) days depending on the time of year. Create a co-op; let your neighbor share your pool while theirs is being prepared for draining, then use their pool while yours is being drained. Chlorinated water should not be discharged into the storm drain or surface waters. This includes large pools such as community swimming pools or spas.
3. When the pool water is free of all chemicals (verify by a home pool water test kit) drain pool water to landscaped areas, lawns, yards, or any areas that will absorb the water.
4. You may have to drain the pool water over a period of a few days to allow the landscape areas to absorb most of the water.
5. Control the flow of the draining pool water to prevent soil erosion. Do not allow sediment to enter the street, gutter or storm drain.
6. Avoid discharging pool water into the street and storm drain system. Water runoff that enters the street can pick up motor oil, pet waste, trash and other pollutants, eventually carrying them into the storm drain system and local surface waters.

Refinishing Pool Surfaces

If you are resurfacing your pool, or resurfacing the pool patio area, be sure to hose down mixers, tools and trailers in a dirt area where rinse water won't flow into the street, gutter or storm drain. Local storm water ordinances strictly prohibit the discharge of pollutants into the storm drain system.

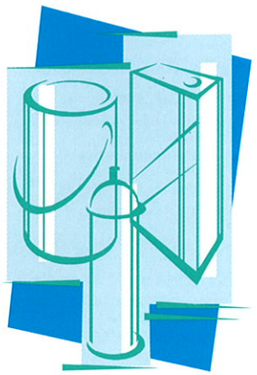
Residues from acid washing and similar activities require special handling. Never discharge low or high pH wastewater into the street, gutter or storm drain.



Cleaning Filters

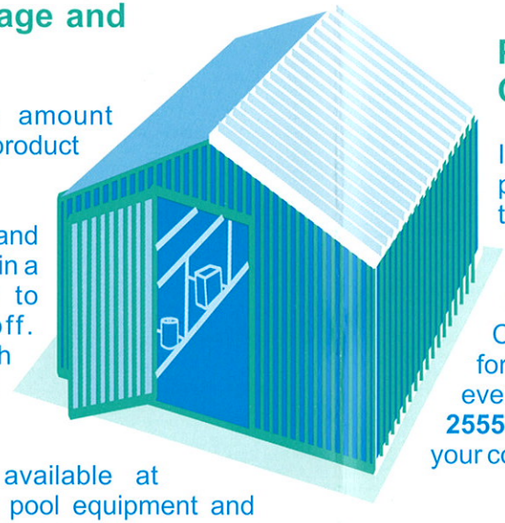
Discharge of pool filter rinse water and backflush to a stream, ditch, or storm drain is prohibited. Backflush from pool filters must be discharged to the sanitary sewer, on-site septic tank and drainfield system (if properly designed and adequately sized), or a seepage pit. Alternatively, pool filter rinse water and backwash may be diverted to dirt or landscaped areas. Filter media and other solids should be picked up and disposed of in the trash.

Algaecides



Avoid using copper-based algaecides unless absolutely necessary. Control algae with chlorine, organic polymers or other alternatives to copper-based pool chemicals. Copper is a heavy metal that can be toxic to aquatic life.

Chemical Storage and Handling



- Use only the amount indicated on product labels.
- Store chlorine and other chemicals in a covered area to prevent runoff. Keep out of reach of children and pets.
- Chlorine kits, available at retail swimming pool equipment and supply stores, should be used to monitor the chlorine and pH levels.
- Chlorine and other pool chemicals should never be allowed to flow into the gutter or the storm drain system.

Proper Disposal of Pool Chemicals

If you need to dispose of unwanted pool chemicals, first try giving them to a neighbor with a pool. If that doesn't work, bring unwanted pool chemicals to a Household Hazardous Waste (HHW) Collection Event. There's no cost for bringing HHW items to collection events - it's FREE! Call **1-800-506-2555** for a schedule of HHW events in your community.

NEVER put unused chemicals into the trash, onto the ground or down a storm drain.

Appendix 11: Operation and Maintenance Responsibility Plan