

TABLE OF CONTENTS

SECTIONS:

| | | |
|-------------|---------------------------------------|----------|
| I | INTRODUCTION | 3 |
| | 1.1 PURPOSE | |
| | 1.2 PROJECT DESCRIPTION | |
| II. | FLOW VOLUMES | 5 |
| | 2.1 METHODOLOGY | |
| | 2.2 DESIGN CRITERIA | |
| III. | SUMMARY | 7 |

APPENDICES:

| | | |
|--------------------|---|------------|
| APPENDIX A: | VICINITY MAP | 8 |
| APPENDIX B: | REFERENCE RIVERSIDE COUNTY HYDROLOGY MANUAL PLATES | 9 |
| APPENDIX C: | HYDROLOGY CALCULATIONS | 23 |
| | • C.1 RATIONAL METHOD POST DEVELOPMENT CALCULATIONS PER CIVILD | 23 |
| | • C.2 SYNTHETIC UNIT HYDROGRAPH CALCULATIONS PER CIVILD | 64 |
| | • C.3 BASIN SIZING CALCULATIONS PER HYDRAFLOW HYDROGRAPHS EXTENSION FOR AUTODESK CIVIL 3D | 265 |
| | • C.4 SANTIAGO STORM DRAIN LATERAL M3-7 CAPACITY CALCULATIONS PER HYDRAFLOW EXPRESS EXTENSION FOR AUTODESK CIVIL 3D | 323 |
| APPENDIX D: | HYDROLOGY MAPS | 327 |
| APPENDIX E: | BMP SIZING CALCULATIONS | 330 |
| APPENDIX F: | HCOC APPLICABILITY MAP | 342 |

SECTION I - INTRODUCTION

1.1 PURPOSE

This report presents the hydrologic analysis for the proposed development located at the northwest corner of Iris Avenue & Perris Boulevard, in the City of Moreno Valley, County of Riverside, State of California. The main objective of this report was to analyze the post construction “peak” run-off quantities for the proposed development.

1.2 PROJECT DESCRIPTION

The project is located across APNs 485220006, 485220007, 485220008, 485220009, 485220015, 485220043, and 485220044 at the northwest corner of Iris Avenue and Perris Boulevard as shown in Appendix A. The existing 20.4-acre site consists of residential tracts. It generally slopes from northwest to southeast at a gradient of approximately 0.8%. No existing underground storm drain facilities exist near the site that are tributary to the project. The site is bordered by Iris Avenue to the south, Perris Boulevard to the east, Emma Lane to the west, and Santiago Drive to the north. Iris Avenue and Perris Boulevard are existing improved streets. Emma Lane and Santiago Drive are existing dirt roads and are not yet improved.

The developed site will be an apartment complex with a clubhouse and open space. The site will be graded to generally follow the existing condition drainage patterns to minimize adverse effects to the current topography and minimize the use of import soil. Runoff for the onsite area and the southwest portion of Santiago Drive (Subarea 100) will flow through proposed underground storm drains which lead to the proposed detention basin located at the southeast corner of the site. Offsite runoff from Emma Lane (Subarea 200) will also be collected via storm drain and directed to the existing 24” RCP public storm drain (Line “D-1A”) to the west of Emma Lane in Iris Avenue. Offsite runoff for the southeast portion of Santiago Drive (Subarea 300) will flow through gutters to the existing catch basin and storm drain (Lateral “M3-7”) at the southwest corner of Santiago and Perris Boulevard.

The basin and parkway drain will ensure the project detains up to the 100-year stormwater volume exceeding the pre-developed condition while restricting outflow up to the 100-year pre-developed flow rate for the proposed onsite development only. The basin will both detain and infiltrate the project’s onsite runoff as no underground storm drain facilities exist near the site.

The basin will operate as a hybrid: it will detain and infiltrate onsite flows for the storm events specified herein while also acting as an infiltration basin to treat the project’s runoff. While the hybrid basin will be deeper than 5’, it will act as an infiltration basin for only the first 2.8’ of runoff depth as determined in the project WQMP. The basin will only store runoff in excess of this in order to attenuate runoff to the predevelopment condition.

Offsite runoff for Emma will be treated by proposed infiltration trench BMPs located onsite, adjacent to the street right of way. Street runoff will be conveyed to these BMPs through parkway drains sized to treat the water quality volume only. Storm events exceeding this will flow past the infiltration trenches and continue into the proposed underground storm drain.

Infiltration trench BMPs will also be used for the south portions of Santiago west of the California Aqueduct. Parkway drains will also be used to direct runoff to the infiltration trench BMPs onsite. The parkway drain for the southeast portion of Santiago will be sized for water quality volume only, while the parkway drain for the southwest portion of Santiago will be sized for the 100-year storm event as this portion of the street is in a sump condition. Treatment is not feasible for the portion of the street that crosses the aqueduct, as the excavation required for BMPs would risk conflict with the aqueduct. See hydrology map for locations and project WQMP for more information.

A parkway drain will also be used to convey some of the runoff from the basin to Iris Avenue while restricting flow volumes and flow rates to the predevelopment condition. This water will then flow through existing gutters in Iris Avenue and Perris Boulevard and enter the catch basins at the northwest corner of Perris Boulevard and Krameria Avenue. For storm events exceeding the capacity of the parkway drain, an emergency overflow weir structure will allow excess runoff to flow over the parkway drain and sidewalk into Iris Avenue. Please see the Hydrology Map in Appendix D for delineation.

SECTION II - FLOW VOLUMES

2.1 METHODOLOGY

This hydrology study was based on the Riverside County Flood Control and Water Conservation District (RCFC&WCD) Hydrology Manual dated April 1978. This manual allows the use of two methods: the Rational Method and the Synthetic Unit Hydrograph Method.

The Rational Method was used to determine peak flow rates for each tributary area for pipe sizing to ensure that capacity for the 10-year and 100-year storm events were met. The Synthetic Unit Hydrograph Method was used to calculate pre-developed and post-developed runoff volumes and peak flow rates for the 2, 5, 10, and 100-year storm events at durations of 1, 3, 6, and 24 hours.

Basin modeling was performed using the Hydraflow Hydrographs Extension for Autodesk Civil 3D 2019. Synthetic Unit Hydrograph Method storm events were input into the extension to simulate basin depths, volumes, and outlet flow rates for each scenario. Basin modeling also includes losses due to infiltration at a rate of 1.59 inches/hour. This number comes from the 4.76 inches/hour reported by the geotechnical report along with a 3.0 safety factor from the Table 1 Infiltration Testing Requirements of the Riverside County Low Impact Development BMP Design Handbook.

The capacity of storm drain lateral M3-7 in Santiago Drive was also assessed using the Hydraflow Express Extension for Autodesk Civil 3D to account for the additional flows from the street improvements. After calculating the post-developed 100-year flow rate using the Rational Method, this flow rate was added to the 1.78 cfs already assessed by the Rick Engineering Hydrology Study ("TR36760 Line M-3 Extension Sunnymead Master Drainage Plan Revision" dated October 28, 2019). This combined flow rate was then input into the Hydraflow extension to determine the flow depth in the storm drain and ponding width in the street. Outputs are included in Appendix C.4.

Stormwater quality volumes were determined in the project water quality management plan (WQMP). See project WQMP for more information.

Please see Appendix C for Riverside County Approved CivilD Bonadiman Software Calculations as well as basin sizing calculations. See Appendix D: Hydrology Map for an illustration of drainage patterns, tributary sub areas, and storm drain pipes to convey runoff to the onsite basin.

2.2 DESIGN CRITERIA

Rational Method

Design Storm: 10 & 100-year

Soil Type: "B" (assumed for all areas).

Runoff Coefficients: A conservative on-site runoff coefficient of 0.90 was used for calculation of the post-developed runoff.

Synthetic Unit Hydrograph Method

Design Storms: 2, 5, 10, 100 year at 1, 3, 6, 24 hours

Antecedent Moisture Condition (AMC):

I (2 & 5-year)

II (10 & 100-year)

Post-Developed Impervious Calculation

| Type | Area (SF) | Area (AC) | % of Total | % Imp. | Impervious Area (SF) | Impervious Area (AC) | Note |
|-------------------------|----------------|--------------|-------------|--------|----------------------|----------------------|---|
| Residential Apartments | 485,995 | 11.16 | 55% | 80% | 388,796 | 8.9 | 80% impervious from RCFC&WCD Hydrology Manual Plate E-6.3 |
| Open Space | 120,729 | 2.77 | 14% | 0% | 0 | 0.0 | |
| Residential Street & SW | 281,924 | 6.47 | 32% | 100% | 281,924 | 6.5 | |
| TOTAL | 888,648 | 20.40 | 1.00 | | | 15.4 | |

Weighted % Impervious: 75%

SECTION III - SUMMARY

Both the Rational Method and the Synthetic Unit Hydrograph Method were used to evaluate the hydraulic and hydrologic performance of the proposed development using the parameters described in Section 2.2. Peak runoff and storage for the development were calculated and are summarized in the following tables. The results of both calculations show that the proposed basin and storm drains are adequately sized to both convey and detain the runoff in excess of the pre-developed condition for the storm events indicated. Please see Appendices C & D for detailed calculations and locations of facilities.

Please note that Hydromodification and Hydrologic Conditions of Concern (HCOC) criteria do not apply to this project due to the downstream Canyon Lake sump. See the project WQMP for more information.

Rational Method Stormwater Calculations Summary

| Condition | t_c | Q_{100} |
|-----------------------|-----------|-----------|
| Pre-Developed | 21.62 min | 34.75 CFS |
| Post-Developed | | |
| Subarea 100 (Onsite) | 13.66 min | 47.92 CFS |
| Subarea 200 (Offsite) | 16.09 min | 10.74 CFS |
| Subarea 300 (Offsite) | 10.94 min | 1.12 CFS |

Synthetic Unit Hydrograph Method Stormwater Calculations Summary

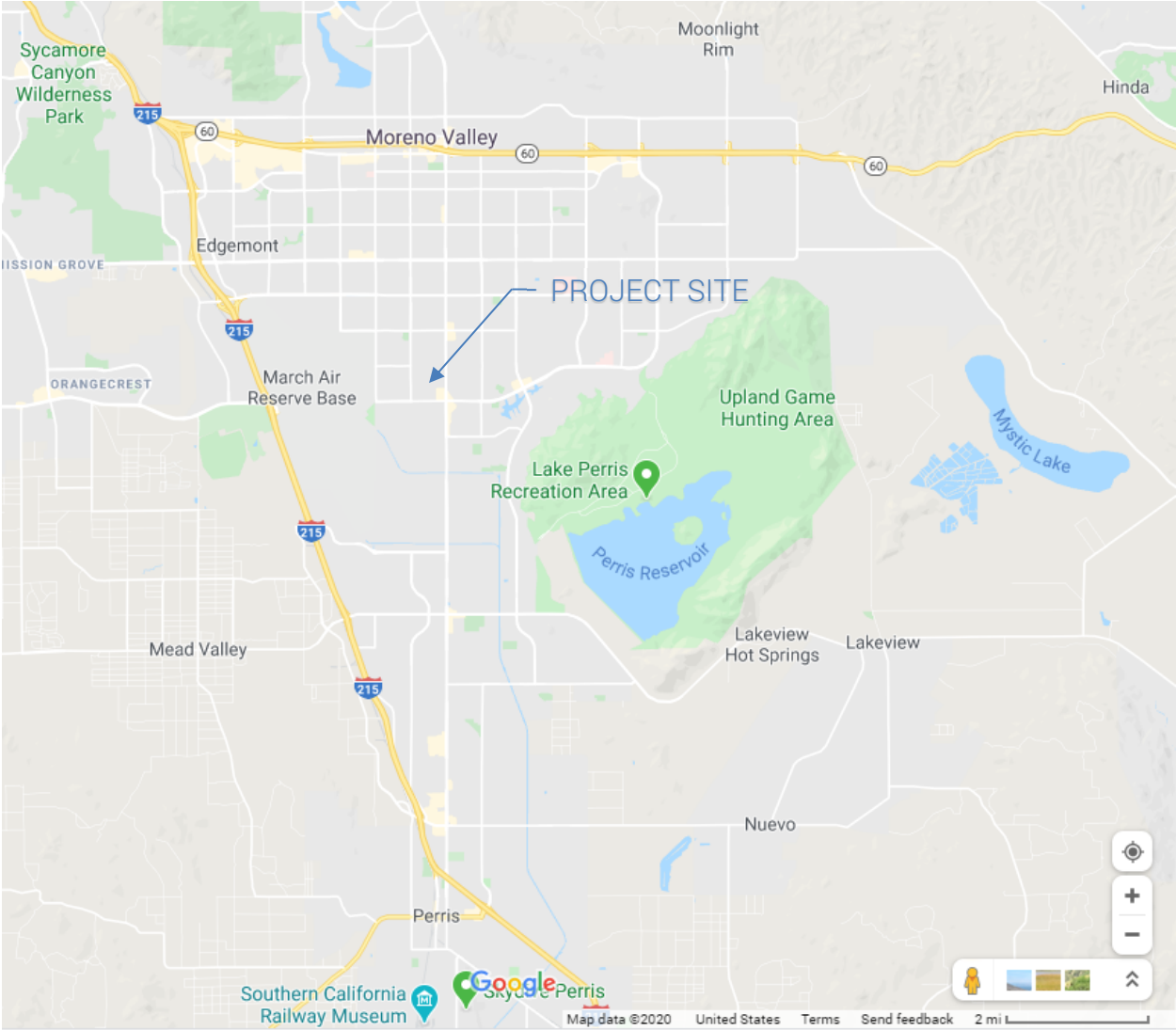
| Condition | $V_{100YR, 24HR}$ | $Q_{100YR, 24HR}$ |
|---|-------------------|-------------------|
| Pre-Developed Runoff | 85,317 CF | 6.67 CFS |
| Post-Developed Runoff (Onsite) entering basin | 208,014 CF | 8.26 CFS |
| Required Basin Parameters: Min. Required Basin Storage Max. Allowable Outflow | 122,697 CF | 6.67 CFS |
| Provided Basin Parameters: Provided Basin Storage Max. Parkway Drain Outflow | 207,989 CF | 5.30 CFS |

Basin Fill Elevation Summary

| Elevation | Note |
|---|--|
| 1509.78 Top of basin | 8.78' deep with 1.04' freeboard |
| 1508.74 100-year water surface elevation | 7.74' deep |
| 1503.80 Maximum Water Quality Treatment Depth | 2.8' deep (21.1-hour drawdown time at 1.59"/hr. infiltration rate) |
| 1501.00 Bottom of Basin | |

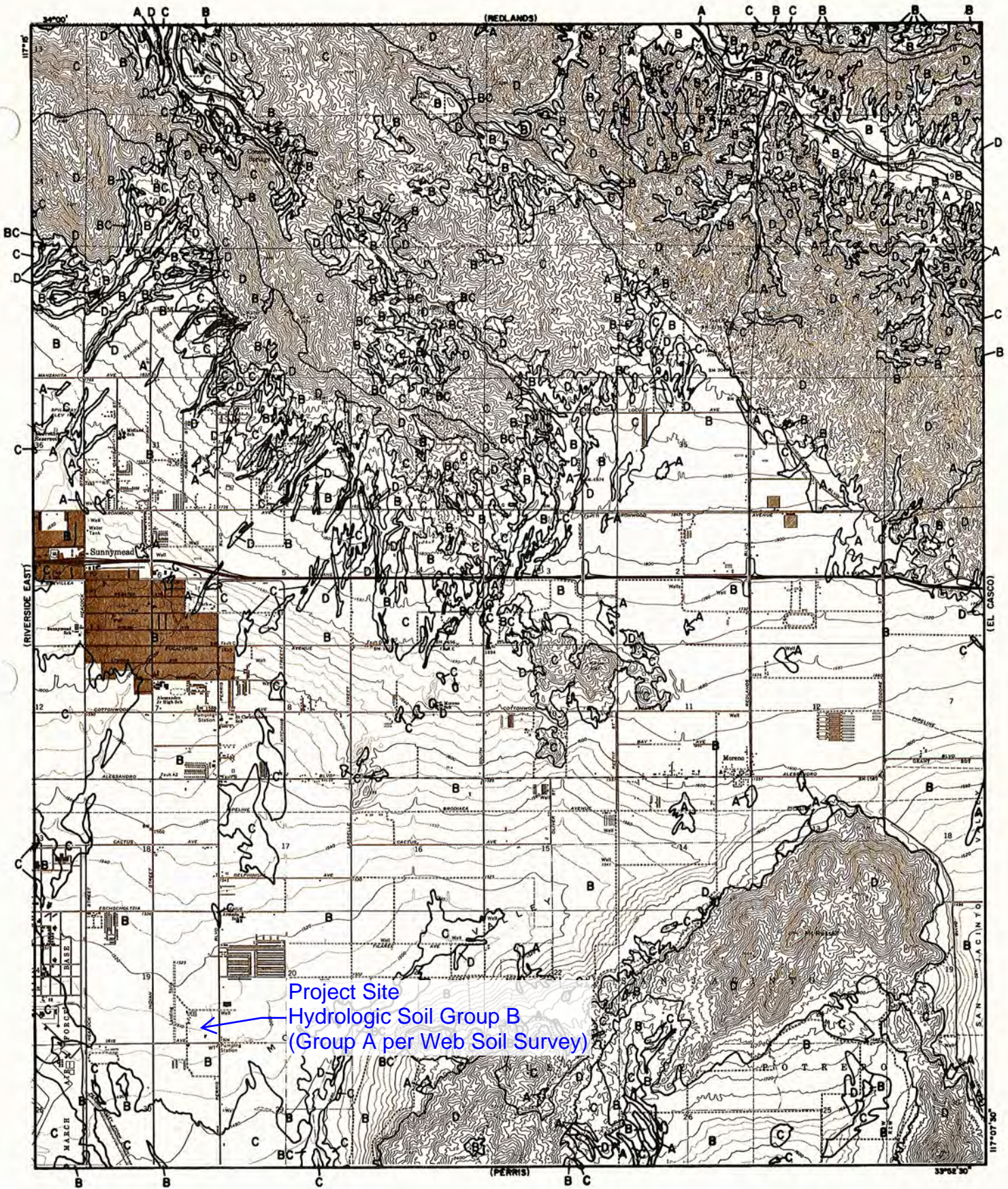
APPENDIX A

Vicinity Map



APPENDIX B

Reference Riverside County Hydrology Manual Plates



LEGEND

— SOILS GROUP BOUNDARY
 A SOILS GROUP DESIGNATION

RCFC & WCD
 HYDROLOGY MANUAL

0 FEET 5000

HYDROLOGIC SOILS GROUP MAP
FOR
SUNNYMEAD

RAINFALL INTENSITY—INCHES PER HOUR

SUNNYMEAD - MORENO

WOODCREST

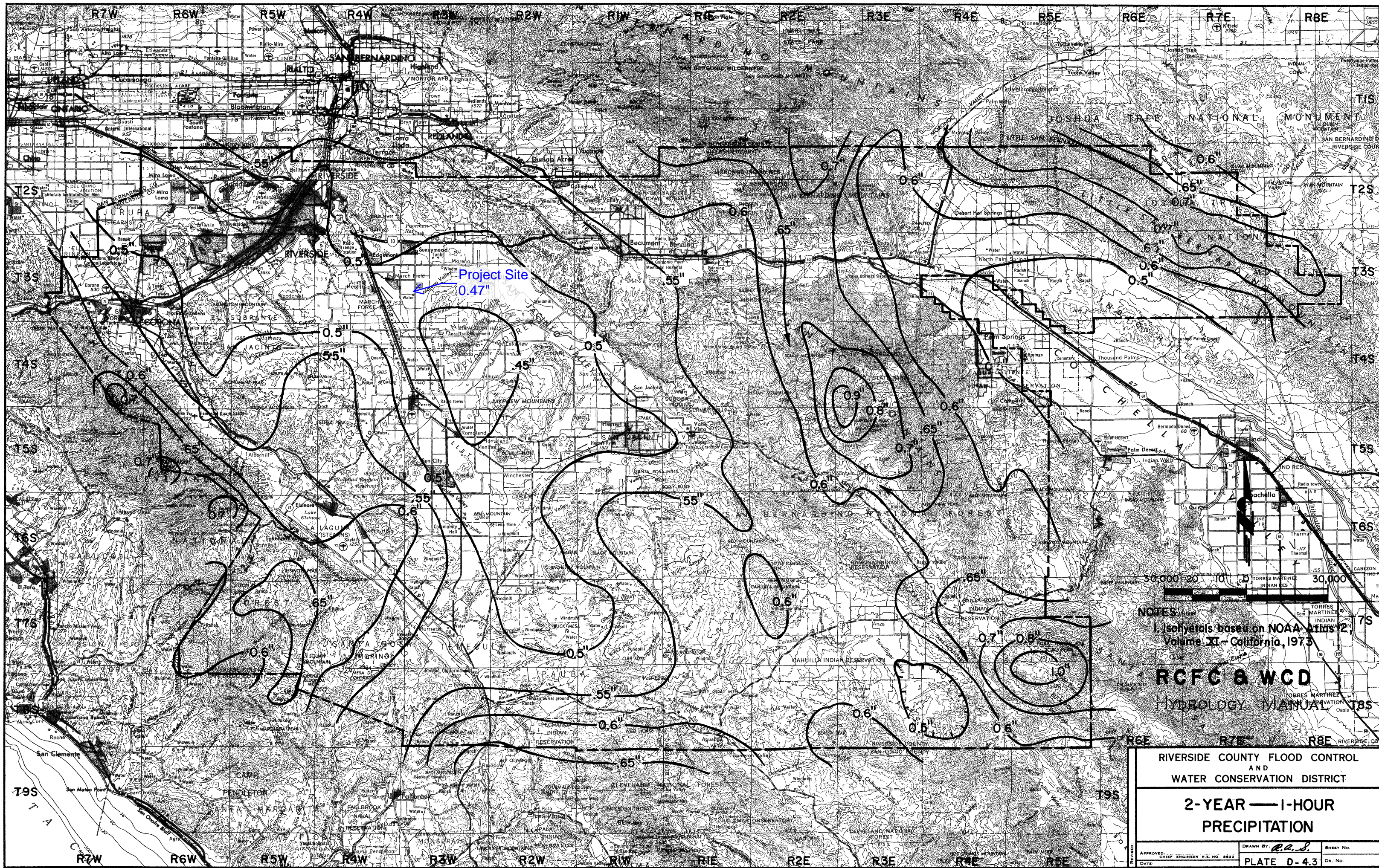
| DURATION MINUTES | FREQUENCY | | DURATION MINUTES | FREQUENCY | |
|---------------------|------------|-------------|---------------------|------------|-------------|
| | 10 YEAR | 100 YEAR | | 10 YEAR | 100 YEAR |
| 5 | 2.84 | 4.16 | 5 | 3.37 | 5.30 |
| 6 | 2.59 | 3.79 | 6 | 3.05 | 4.79 |
| 7 | 2.40 | 3.51 | 7 | 2.80 | 4.40 |
| 8 | 2.25 | 3.29 | 8 | 2.60 | 4.09 |
| 9 | 2.12 | 3.10 | 9 | 2.44 | 3.83 |
| 10 | 2.01 | 2.94 | 10 | 2.30 | 3.62 |
| 11 | 1.92 | 2.80 | 11 | 2.19 | 3.43 |
| 12 | 1.83 | 2.68 | 12 | 2.08 | 3.27 |
| 13 | 1.76 | 2.58 | 13 | 1.99 | 3.13 |
| 14 | 1.70 | 2.48 | 14 | 1.91 | 3.01 |
| 15 | 1.64 | 2.40 | 15 | 1.84 | 2.89 |
| 16 | 1.59 | 2.32 | 16 | 1.78 | 2.79 |
| 17 | 1.54 | 2.25 | 17 | 1.72 | 2.70 |
| 18 | 1.50 | 2.19 | 18 | 1.67 | 2.62 |
| 19 | 1.46 | 2.13 | 19 | 1.62 | 2.54 |
| 20 | 1.42 | 2.08 | 20 | 1.57 | 2.47 |
| 22 | 1.35 | 1.98 | 22 | 1.49 | 2.34 |
| 24 | 1.30 | 1.90 | 24 | 1.42 | 2.23 |
| 26 | 1.25 | 1.82 | 26 | 1.36 | 2.14 |
| 28 | 1.20 | 1.76 | 28 | 1.31 | 2.05 |
| 30 | 1.16 | 1.70 | 30 | 1.26 | 1.98 |
| 32 | 1.12 | 1.64 | 32 | 1.22 | 1.91 |
| 34 | 1.09 | 1.59 | 34 | 1.19 | 1.85 |
| 36 | 1.06 | 1.55 | 36 | 1.14 | 1.79 |
| 38 | 1.03 | 1.51 | 38 | 1.11 | 1.74 |
| 40 | 1.00 | 1.47 | 40 | 1.07 | 1.69 |
| 45 | .95 | 1.39 | 45 | 1.01 | 1.58 |
| 50 | .90 | 1.31 | 50 | .95 | 1.49 |
| 55 | .86 | 1.25 | 55 | .90 | 1.42 |
| 60 | .82 | 1.20 | 60 | .86 | 1.35 |
| 65 | .79 | 1.15 | 65 | .82 | 1.29 |
| 70 | .76 | 1.11 | 70 | .79 | 1.24 |
| 75 | .73 | 1.07 | 75 | .76 | 1.19 |
| 80 | .71 | 1.04 | 80 | .73 | 1.15 |
| 85 | .69 | 1.01 | 85 | .71 | 1.11 |

SLOPE = .500

SLOPE = .550

RCFC & WCD
HYDROLOGY MANUAL

STANDARD
INTENSITY—DURATION
CURVES DATA



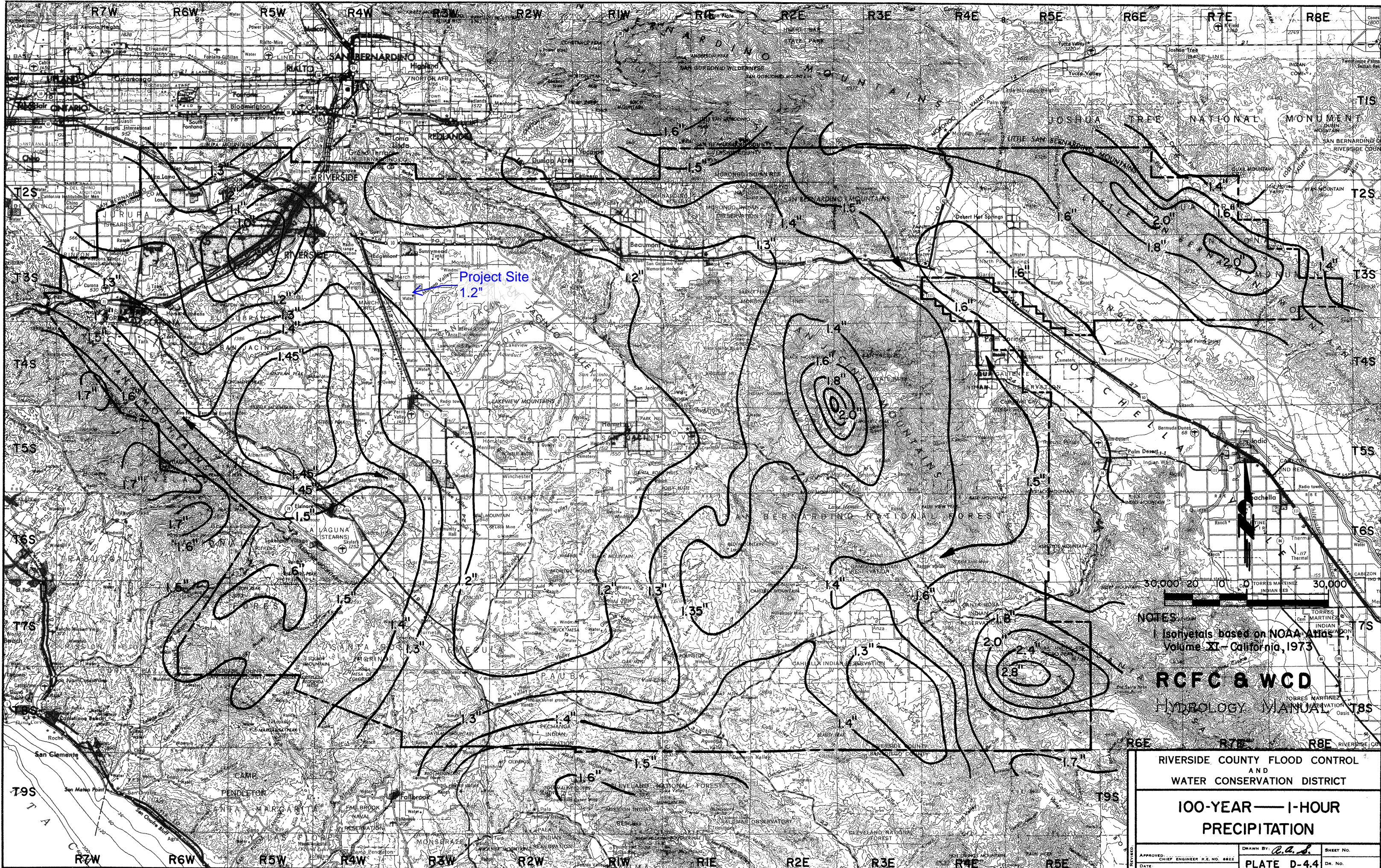
NOTES:
 Isohyets based on NOAA Atlas 2,
 Volume XI - California, 1973



RCFC & WCD
 HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL
 AND
 WATER CONSERVATION DISTRICT
**2-YEAR — 1-HOUR
 PRECIPITATION**

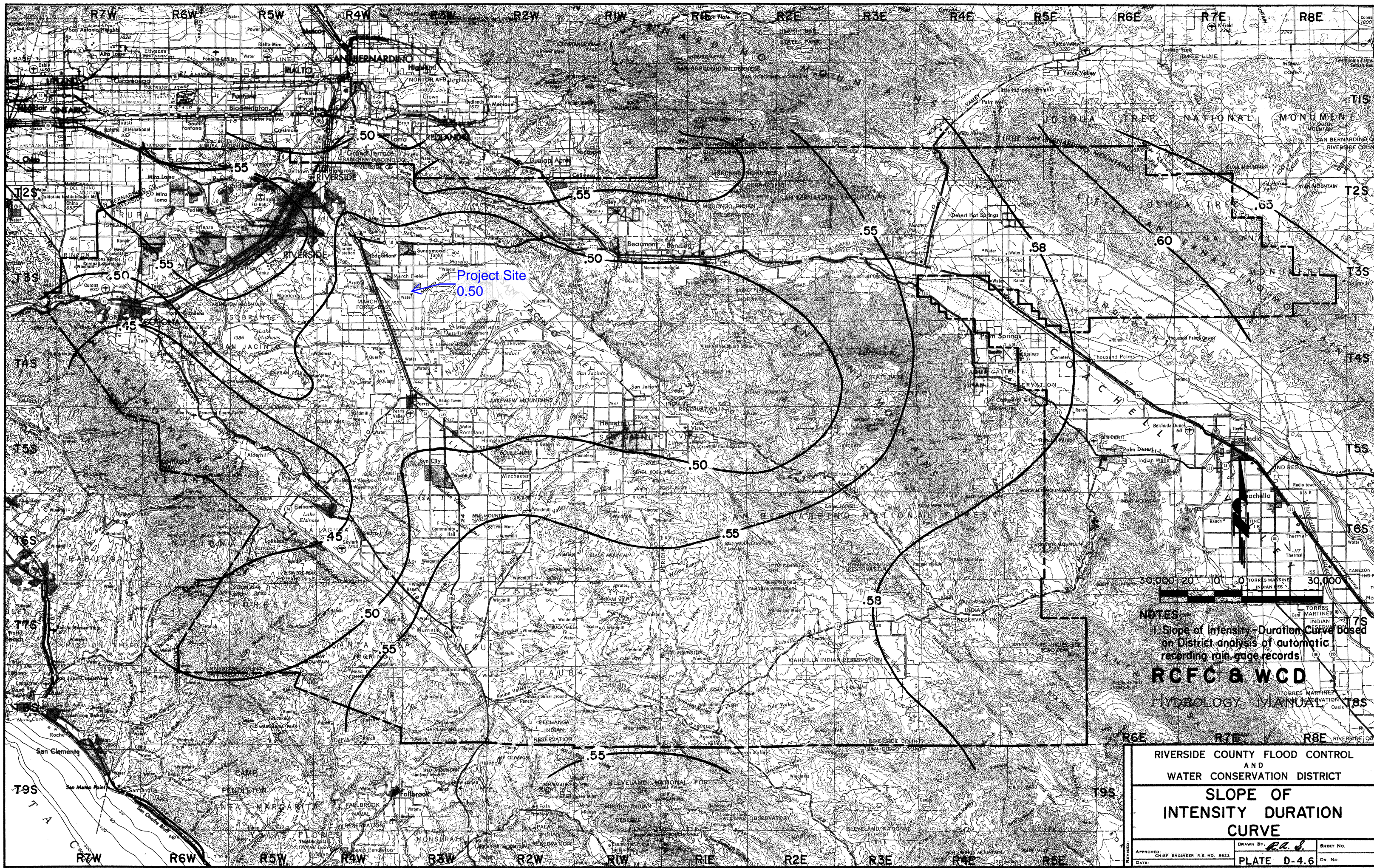
| | | | |
|-----------------|------------------------------|-------------------------|-----------------|
| APPROVED: _____ | CHIEF ENGINEER R.E. NO. 8822 | DRAWN BY: <i>R.L.S.</i> | SHEET NO. _____ |
| DATE: _____ | | PLATE D-4.3 | DR. NO. _____ |



NOTES:
 1 Isohyets based on NOAA Atlas
 Volume XI - California, 1973

RCFC & WCD
 HYDROLOGY MANUAL

| | | |
|--|------------------------------|--------------------------------------|
| RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT | | |
| 100-YEAR — 1-HOUR PRECIPITATION | | |
| APPROVED: DATE | CHIEF ENGINEER P.E. NO. 8822 | DRAWN BY: <i>C.A.S.</i> SHEET NO. |
| DATE | | PLATE D-4.4 DR. NO. |



Project Site
0.50

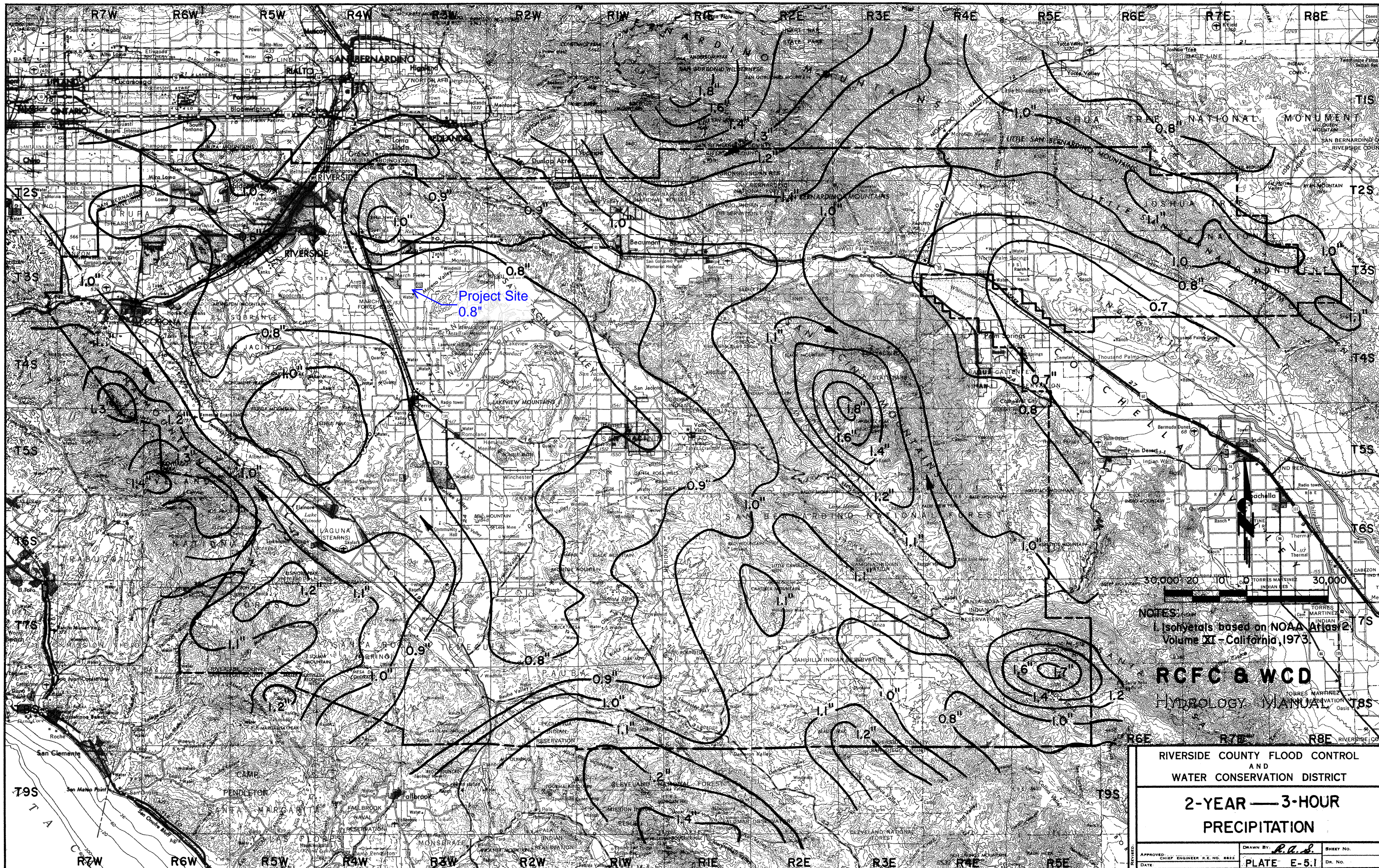


NOTES:
1. Slope of Intensity-Duration Curve Based on District analysis of automatic recording rain gage records.

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
SLOPE OF INTENSITY DURATION CURVE

| | | |
|--|-------------------------|-----------|
| APPROVED: CHIEF ENGINEER P.E. NO. 8822 | DRAWN BY: <i>R.C.S.</i> | SHEET NO. |
| DATE | PLATE D-4.6 | DR. NO. |

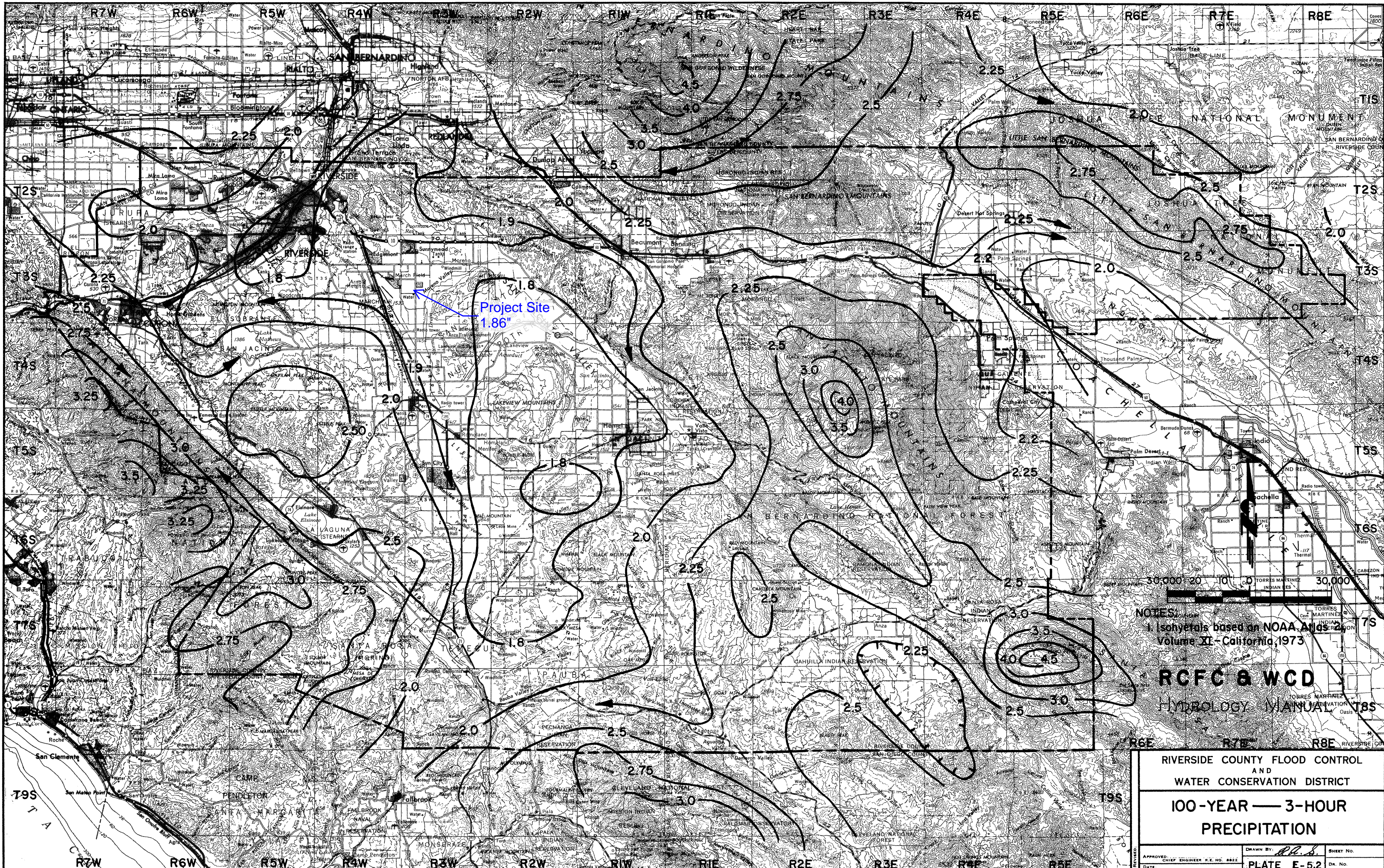


NOTES:
 1. Isohyets based on NOAA Atlas 2,
 Volume XI - California, 1973.

RCFC & WCD
 HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL
 AND
 WATER CONSERVATION DISTRICT
**2-YEAR — 3-HOUR
 PRECIPITATION**

APPROVED: _____ CHIEF ENGINEER R.E. NO. 8822
 DATE: _____
 DRAWN BY: *R.A.S.* SHEET NO. _____
 PLATE E-5.1 DR. NO. _____



Project Site
1.86"

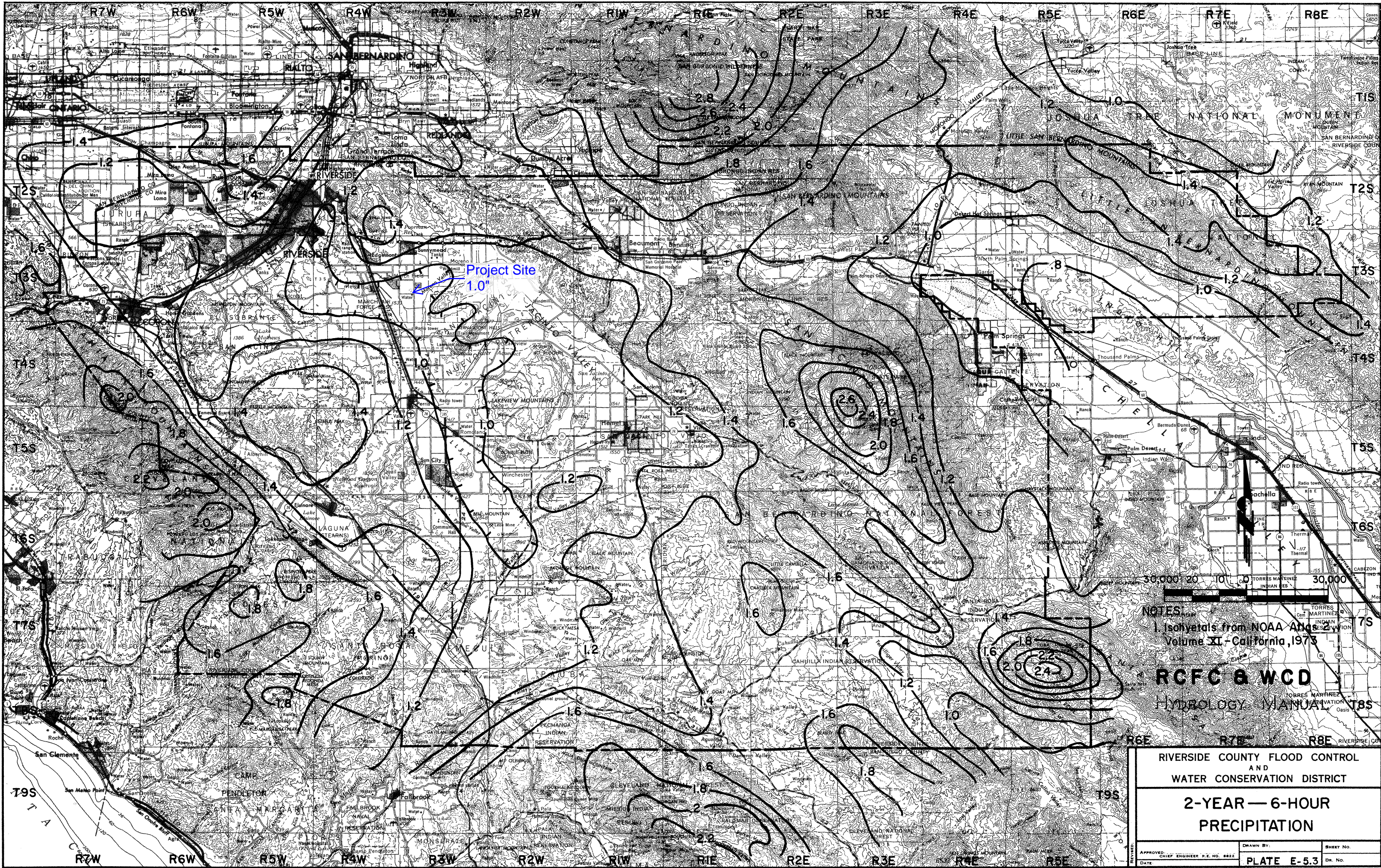


NOTES:
1 Isohyets based on NOAA Atlas 2
Volume XI - California, 1973

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
**100-YEAR — 3-HOUR
PRECIPITATION**

| | | |
|--|----------------------|-----------|
| APPROVED: CHIEF ENGINEER R.E. NO. 8822 | DRAWN BY: <i>RLB</i> | SHEET NO. |
| DATE | PLATE E-5.2 | DR. NO. |



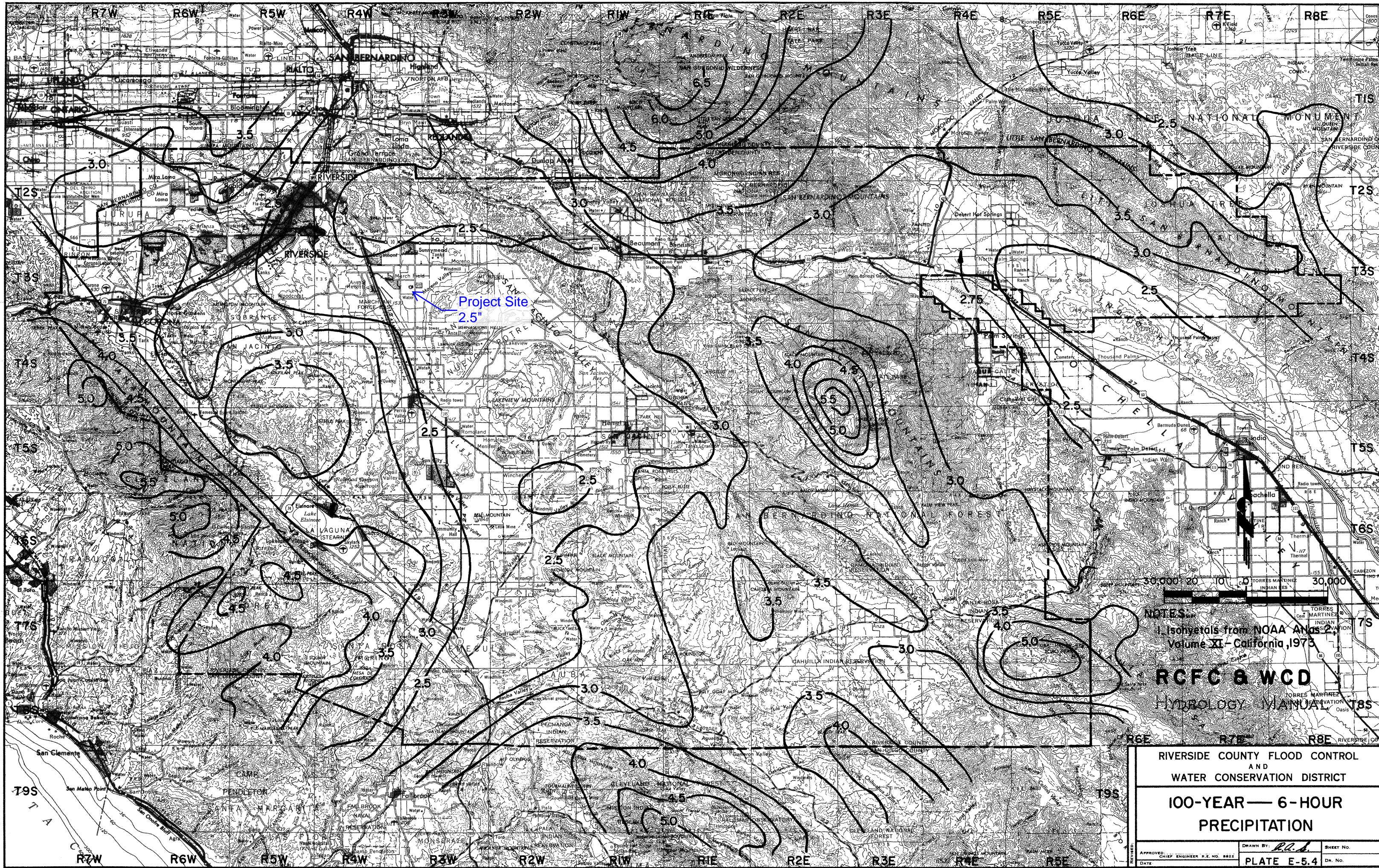
Project Site
1.0'

NOTES
Isohyets from NOAA Atlas-2
Volume XI - California, 1973

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
**2-YEAR — 6-HOUR
PRECIPITATION**

| | | | |
|-----------|------------------------------|-------------|-----------|
| APPROVED: | CHIEF ENGINEER R.E. NO. 8822 | DRAWN BY: | SHEET NO. |
| DATE: | | PLATE E-5.3 | DR. NO. |



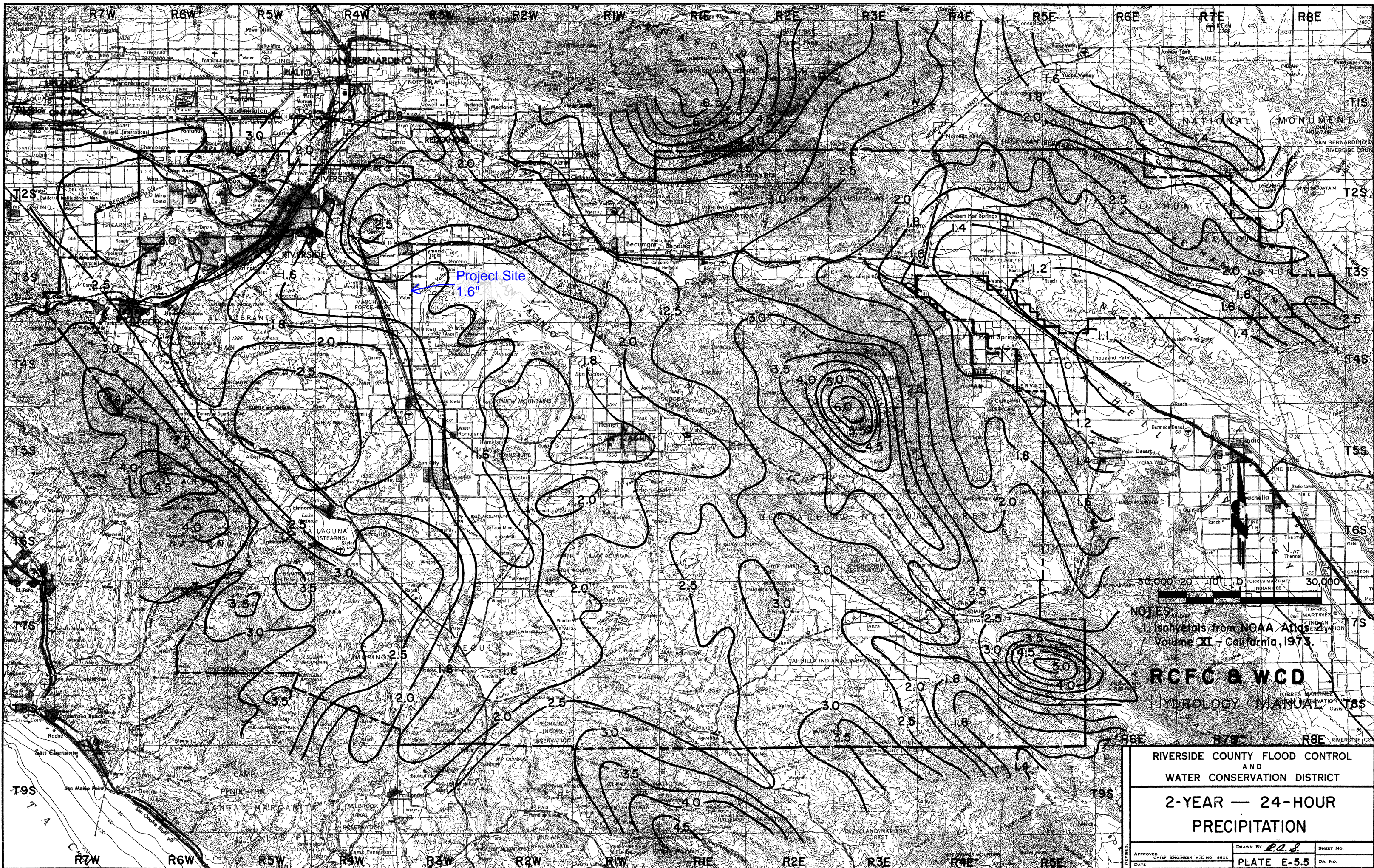
Project Site
2.5"

NOTES:
1. Isohyets from NOAA Atlas 2,
Volume XI - California, 1973

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
**100-YEAR — 6-HOUR
PRECIPITATION**

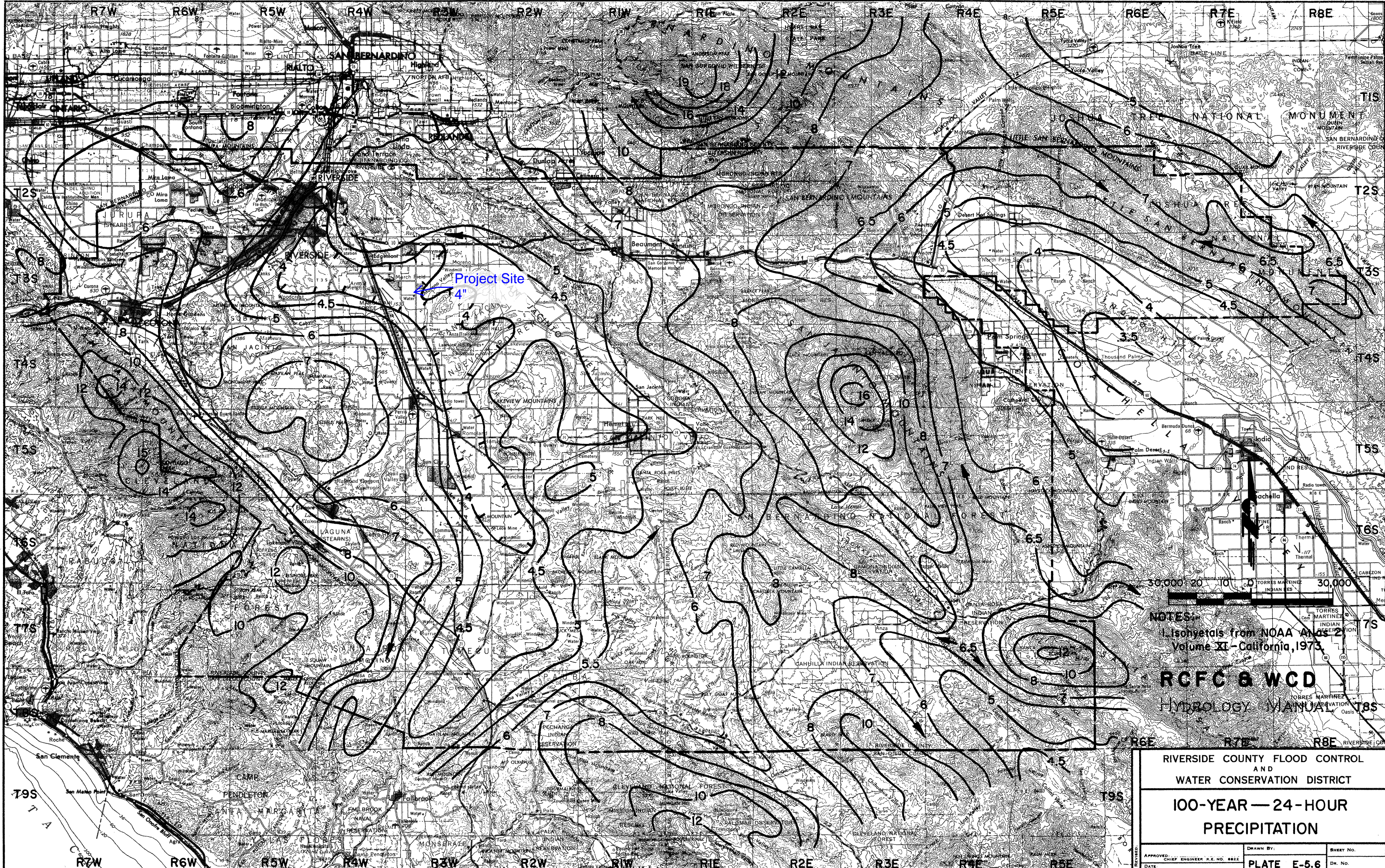
| | | | | |
|----------|------|------------------------------|-------------|-----------|
| APPROVED | DATE | CHIEF ENGINEER P.E. NO. 8822 | DRAWN BY | SHEET NO. |
| | | | PLATE E-5.4 | DR. NO. |



NOTES:
 1. Isohyets from NOAA Atlas 2
 Volume XI - California, 1973.

RCFC & WCD
 HYDROLOGY MANUAL

| | | |
|---|-------------------------|-----------------|
| RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT | | |
| 2-YEAR — 24-HOUR PRECIPITATION | | |
| APPROVED: _____ CHIEF ENGINEER R.E. NO. 8822 | DRAWN BY: <i>R.A.S.</i> | SHEET NO. _____ |
| DATE: _____ | PLATE E-5.5 | DR. NO. _____ |



Project Site
4"

NOTES:
1. Isohyets from NOAA Atlas 2,
Volume XI - California, 1973.

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
**100-YEAR — 24-HOUR
PRECIPITATION**

| | | |
|--|-------------|-----------|
| APPROVED: CHIEF ENGINEER R.E. NO. 8822 | DRAWN BY: | SHEET NO. |
| DATE: | PLATE E-5.6 | DR. NO. |

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

| Cover Type (3) | Quality of Cover (2) | Soil Group | | | |
|---|----------------------|------------|----|----|----|
| | | A | B | C | D |
| <u>NATURAL COVERS -</u> | | | | | |
| Barren (Rockland, eroded and graded land) | | 78 | 86 | 91 | 93 |
| Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak) | Poor | 53 | 70 | 80 | 85 |
| | Fair | 40 | 63 | 75 | 81 |
| | Good | 31 | 57 | 71 | 78 |
| Chaparrel, Narrowleaf (Chamise and redshank) | Poor | 71 | 82 | 88 | 91 |
| | Fair | 55 | 72 | 81 | 86 |
| Grass, Annual or Perennial | Poor | 67 | 78 | 86 | 89 |
| | Fair | 50 | 69 | 79 | 84 |
| | Good | 38 | 61 | 74 | 80 |
| Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass) | Poor | 63 | 77 | 85 | 88 |
| | Fair | 51 | 70 | 80 | 84 |
| | Good | 30 | 58 | 72 | 78 |
| Open Brush (Soft wood shrubs - buckwheat, sage, etc.) | Poor | 62 | 76 | 84 | 88 |
| | Fair | 46 | 66 | 77 | 83 |
| | Good | 41 | 63 | 75 | 81 |
| Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent) | Poor | 45 | 66 | 77 | 83 |
| | Fair | 36 | 60 | 73 | 79 |
| | Good | 28 | 55 | 70 | 77 |
| Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent) | Poor | 57 | 73 | 82 | 86 |
| | Fair | 44 | 65 | 77 | 82 |
| | Good | 33 | 58 | 72 | 79 |
| <u>URBAN COVERS -</u> | | | | | |
| Residential or Commercial Landscaping (Lawn, shrubs, etc.) | Good | 32 | 56 | 69 | 75 |
| Turf (Irrigated and mowed grass) | Poor | 58 | 74 | 83 | 87 |
| | Fair | 44 | 65 | 77 | 82 |
| | Good | 33 | 58 | 72 | 79 |
| <u>AGRICULTURAL COVERS -</u> | | | | | |
| Fallow (Land plowed but not tilled or seeded) | | 76 | 85 | 90 | 92 |

RCFC & WCD
HYDROLOGY MANUAL

**RUNOFF INDEX NUMBERS
FOR
PERVIOUS AREAS**

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

| Cover Type (3) | Quality of Cover (2) | Soil Group | | | |
|---|----------------------|------------|----|----|----|
| | | A | B | C | D |
| <u>AGRICULTURAL COVERS</u> (cont.) - | | | | | |
| Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.) | Poor | 66 | 77 | 85 | 89 |
| | Good | 58 | 72 | 81 | 85 |
| Orchards, Deciduous (Apples, apricots, pears, walnuts, etc.) | See Note 4 | | | | |
| | | | | | |
| Orchards, Evergreen (Citrus, avocados, etc.) | Poor | 57 | 73 | 82 | 86 |
| | Fair | 44 | 65 | 77 | 82 |
| | Good | 33 | 58 | 72 | 79 |
| Pasture, Dryland (Annual grasses) | Poor | 67 | 78 | 86 | 89 |
| | Fair | 50 | 69 | 79 | 84 |
| | Good | 38 | 61 | 74 | 80 |
| Pasture, Irrigated (Legumes and perennial grass) | Poor | 58 | 74 | 83 | 87 |
| | Fair | 44 | 65 | 77 | 82 |
| | Good | 33 | 58 | 72 | 79 |
| Row Crops (Field crops - tomatoes, sugar beets, etc.) | Poor | 72 | 81 | 88 | 91 |
| | Good | 67 | 78 | 85 | 89 |
| Small Grain (Wheat, oats, barley, etc.) | Poor | 65 | 76 | 84 | 88 |
| | Good | 63 | 75 | 83 | 87 |
| Vineyard | See Note 4 | | | | |

Notes:

1. All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.
2. Quality of cover definitions:
 Poor-Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.
 Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.
 Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
3. See Plate C-2 for a detailed description of cover types.
4. Use runoff index numbers based on ground cover type. See discussion under "Cover Type Descriptions" on Plate C-2.
5. Reference Bibliography item 17.

RCFC & WCD
 HYDROLOGY MANUAL

**RUNOFF INDEX NUMBERS
 FOR
 PERVIOUS AREAS**

APPENDIX C.1

Rational Method Post Development Calculations

10YR POST-DEVELOPED (Subarea 100)
Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 08/15/21 File:10YRPOST.out

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

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

Program License Serial Number 6215

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 [Sunnymead-Moreno] area used.
10 year storm 10 minute intensity = 2.010(In/Hr)
10 year storm 60 minute intensity = 0.820(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 0.820(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 101.000 to Point/Station 103.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 432.000(Ft.)
Top (of initial area) elevation = 1515.240(Ft.)
Bottom (of initial area) elevation = 1513.170(Ft.)
Difference in elevation = 2.070(Ft.)
Slope = 0.00479 s(percent)= 0.48
TC = $k(0.323)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 10.649 min.
Rainfall intensity = 1.946(In/Hr) for a 10.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.837
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800

Initial subarea runoff = 3.030(CFS)
Total initial stream area = 1.860(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 103.000 to Point/Station 107.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1508.420(Ft.)
Downstream point/station elevation = 1507.560(Ft.)
Pipe length = 172.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 3.030(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 3.030(CFS)
Normal flow depth in pipe = 8.48(In.)
Flow top width inside pipe = 14.87(In.)
Critical Depth = 8.40(In.)
Pipe flow velocity = 4.24(Ft/s)
Travel time through pipe = 0.68 min.
Time of concentration (TC) = 11.33 min.

++++
Process from Point/Station 171.000 to Point/Station 107.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.836
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 11.33 min.
Rainfall intensity = 1.887(In/Hr) for a 10.0 year storm
Subarea runoff = 0.410(CFS) for 0.260(Ac.)
Total runoff = 3.440(CFS) Total area = 2.120(Ac.)

++++
Process from Point/Station 106.000 to Point/Station 107.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.836
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 11.33 min.
Rainfall intensity = 1.887(In/Hr) for a 10.0 year storm
Subarea runoff = 3.928(CFS) for 2.490(Ac.)
Total runoff = 7.368(CFS) Total area = 4.610(Ac.)

++++
Process from Point/Station 107.000 to Point/Station 111.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1507.560(Ft.)
Downstream point/station elevation = 1506.660(Ft.)
Pipe length = 179.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 7.368(CFS)
Nearest computed pipe diameter = 18.00(In.)
Calculated individual pipe flow = 7.368(CFS)
Normal flow depth in pipe = 13.52(In.)
Flow top width inside pipe = 15.56(In.)
Critical Depth = 12.61(In.)
Pipe flow velocity = 5.18(Ft/s)
Travel time through pipe = 0.58 min.
Time of concentration (TC) = 11.90 min.

++++
Process from Point/Station 110.000 to Point/Station 111.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.835
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 11.90 min.
Rainfall intensity = 1.841(In/Hr) for a 10.0 year storm
Subarea runoff = 1.967(CFS) for 1.280(Ac.)
Total runoff = 9.335(CFS) Total area = 5.890(Ac.)

++++
Process from Point/Station 111.000 to Point/Station 119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1506.660(Ft.)
Downstream point/station elevation = 1506.090(Ft.)
Pipe length = 118.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 9.335(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 9.335(CFS)
Normal flow depth in pipe = 13.98(In.)
Flow top width inside pipe = 19.81(In.)
Critical Depth = 13.63(In.)
Pipe flow velocity = 5.49(Ft/s)
Travel time through pipe = 0.36 min.
Time of concentration (TC) = 12.26 min.

++++
Process from Point/Station 114.000 to Point/Station 119.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.834
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.26 min.
Rainfall intensity = 1.814(In/Hr) for a 10.0 year storm
Subarea runoff = 0.182(CFS) for 0.120(Ac.)
Total runoff = 9.517(CFS) Total area = 6.010(Ac.)

++++
Process from Point/Station 122.000 to Point/Station 119.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.834
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.26 min.
Rainfall intensity = 1.814(In/Hr) for a 10.0 year storm
Subarea runoff = 0.726(CFS) for 0.480(Ac.)
Total runoff = 10.243(CFS) Total area = 6.490(Ac.)

++++
Process from Point/Station 118.000 to Point/Station 119.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.834
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.26 min.
Rainfall intensity = 1.814(In/Hr) for a 10.0 year storm
Subarea runoff = 1.074(CFS) for 0.710(Ac.)
Total runoff = 11.317(CFS) Total area = 7.200(Ac.)

++++
Process from Point/Station 119.000 to Point/Station 127.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1506.090(Ft.)
Downstream point/station elevation = 1505.220(Ft.)
Pipe length = 179.00(Ft.) Manning's N = 0.012

No. of pipes = 1 Required pipe flow = 11.317(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 11.317(CFS)
Normal flow depth in pipe = 16.27(In.)
Flow top width inside pipe = 17.55(In.)
Critical Depth = 15.04(In.)
Pipe flow velocity = 5.66(Ft/s)
Travel time through pipe = 0.53 min.
Time of concentration (TC) = 12.79 min.

++++
Process from Point/Station 126.000 to Point/Station 127.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.833
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.79 min.
Rainfall intensity = 1.776(In/Hr) for a 10.0 year storm
Subarea runoff = 1.080(CFS) for 0.730(Ac.)
Total runoff = 12.398(CFS) Total area = 7.930(Ac.)

++++
Process from Point/Station 127.000 to Point/Station 129.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1505.220(Ft.)
Downstream point/station elevation = 1504.500(Ft.)
Pipe length = 135.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 12.398(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 12.398(CFS)
Normal flow depth in pipe = 17.02(In.)
Flow top width inside pipe = 16.47(In.)
Critical Depth = 15.73(In.)
Pipe flow velocity = 5.94(Ft/s)
Travel time through pipe = 0.38 min.
Time of concentration (TC) = 13.17 min.

++++
Process from Point/Station 130.000 to Point/Station 129.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.833
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00

Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 13.17 min.
Rainfall intensity = 1.750(In/Hr) for a 10.0 year storm
Subarea runoff = 0.641(CFS) for 0.440(Ac.)
Total runoff = 13.039(CFS) Total area = 8.370(Ac.)

++++
Process from Point/Station 130.000 to Point/Station 129.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 8.370(Ac.)
Runoff from this stream = 13.039(CFS)
Time of concentration = 13.17 min.
Rainfall intensity = 1.750(In/Hr)

++++
Process from Point/Station 137.000 to Point/Station 139.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 169.000(Ft.)
Top (of initial area) elevation = 1511.250(Ft.)
Bottom (of initial area) elevation = 1510.410(Ft.)
Difference in elevation = 0.840(Ft.)
Slope = 0.00497 s(percent)= 0.50
TC = $k(0.323)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 7.262 min.
Rainfall intensity = 2.357(In/Hr) for a 10.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.845
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Initial subarea runoff = 1.712(CFS)
Total initial stream area = 0.860(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 139.000 to Point/Station 135.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1505.690(Ft.)
Downstream point/station elevation = 1505.190(Ft.)
Pipe length = 99.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 1.712(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 1.712(CFS)
Normal flow depth in pipe = 6.87(In.)
Flow top width inside pipe = 11.87(In.)
Critical Depth = 6.68(In.)
Pipe flow velocity = 3.68(Ft/s)
Travel time through pipe = 0.45 min.

Time of concentration (TC) = 7.71 min.

++++
Process from Point/Station 134.000 to Point/Station 135.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.843
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 7.71 min.
Rainfall intensity = 2.287(In/Hr) for a 10.0 year storm
Subarea runoff = 1.061(CFS) for 0.550(Ac.)
Total runoff = 2.773(CFS) Total area = 1.410(Ac.)

++++
Process from Point/Station 135.000 to Point/Station 129.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1505.290(Ft.)
Downstream point/station elevation = 1504.500(Ft.)
Pipe length = 139.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 2.773(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 2.773(CFS)
Normal flow depth in pipe = 9.36(In.)
Flow top width inside pipe = 9.94(In.)
Critical Depth = 8.57(In.)
Pipe flow velocity = 4.22(Ft/s)
Travel time through pipe = 0.55 min.
Time of concentration (TC) = 8.26 min.

++++
Process from Point/Station 135.000 to Point/Station 129.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 1.410(Ac.)
Runoff from this stream = 2.773(CFS)
Time of concentration = 8.26 min.
Rainfall intensity = 2.210(In/Hr)
Summary of stream data:

| Stream No. | Flow rate (CFS) | TC (min) | Rainfall Intensity (In/Hr) |
|------------|-----------------|----------|----------------------------|
| 1 | 13.039 | 13.17 | 1.750 |
| 2 | 2.773 | 8.26 | 2.210 |

Largest stream flow has longer time of concentration
Qp = 13.039 + sum of

Qb Ia/Ib
2.773 * 0.792 = 2.196
Qp = 15.236

Total of 2 streams to confluence:
Flow rates before confluence point:
13.039 2.773

Area of streams before confluence:
8.370 1.410

Results of confluence:
Total flow rate = 15.236(CFS)
Time of concentration = 13.166 min.
Effective stream area after confluence = 9.780(Ac.)

++++
Process from Point/Station 129.000 to Point/Station 143.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1504.500(Ft.)
Downstream point/station elevation = 1504.020(Ft.)
Pipe length = 96.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 15.236(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 15.236(CFS)
Normal flow depth in pipe = 17.46(In.)
Flow top width inside pipe = 21.37(In.)
Critical Depth = 16.89(In.)
Pipe flow velocity = 6.22(Ft/s)
Travel time through pipe = 0.26 min.
Time of concentration (TC) = 13.42 min.

++++
Process from Point/Station 142.000 to Point/Station 143.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.832
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 13.42 min.
Rainfall intensity = 1.734(In/Hr) for a 10.0 year storm
Subarea runoff = 1.760(CFS) for 1.220(Ac.)
Total runoff = 16.996(CFS) Total area = 11.000(Ac.)

++++
Process from Point/Station 143.000 to Point/Station 100.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1504.020(Ft.)
Downstream point/station elevation = 1503.000(Ft.)
Pipe length = 204.00(Ft.) Manning's N = 0.012

No. of pipes = 1 Required pipe flow = 16.996(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 16.996(CFS)
Normal flow depth in pipe = 19.27(In.)
Flow top width inside pipe = 19.10(In.)
Critical Depth = 17.83(In.)
Pipe flow velocity = 6.29(Ft/s)
Travel time through pipe = 0.54 min.
Time of concentration (TC) = 13.96 min.

++++
Process from Point/Station 143.000 to Point/Station 100.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 11.000(Ac.)
Runoff from this stream = 16.996(CFS)
Time of concentration = 13.96 min.
Rainfall intensity = 1.700(In/Hr)

++++
Process from Point/Station 108.000 to Point/Station 112.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 436.000(Ft.)
Top (of initial area) elevation = 1517.550(Ft.)
Bottom (of initial area) elevation = 1510.660(Ft.)
Difference in elevation = 6.890(Ft.)
Slope = 0.01580 s(percent)= 1.58
TC = $k(0.323)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 8.419 min.
Rainfall intensity = 2.189(In/Hr) for a 10.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.842
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Initial subarea runoff = 4.680(CFS)
Total initial stream area = 2.540(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 150.000 to Point/Station 112.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.842
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00

Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 8.42 min.
Rainfall intensity = 2.189(In/Hr) for a 10.0 year storm
Subarea runoff = 3.409(CFS) for 1.850(Ac.)
Total runoff = 8.089(CFS) Total area = 4.390(Ac.)

++++
Process from Point/Station 112.000 to Point/Station 124.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1507.100(Ft.)
Downstream point/station elevation = 1506.170(Ft.)
Pipe length = 199.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 8.089(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 8.089(CFS)
Normal flow depth in pipe = 12.82(In.)
Flow top width inside pipe = 20.48(In.)
Critical Depth = 12.65(In.)
Pipe flow velocity = 5.26(Ft/s)
Travel time through pipe = 0.63 min.
Time of concentration (TC) = 9.05 min.

++++
Process from Point/Station 116.000 to Point/Station 124.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.840
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 9.05 min.
Rainfall intensity = 2.111(In/Hr) for a 10.0 year storm
Subarea runoff = 1.774(CFS) for 1.000(Ac.)
Total runoff = 9.864(CFS) Total area = 5.390(Ac.)

++++
Process from Point/Station 128.000 to Point/Station 124.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.840
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 9.05 min.
Rainfall intensity = 2.111(In/Hr) for a 10.0 year storm
Subarea runoff = 0.213(CFS) for 0.120(Ac.)

Total runoff = 10.076(CFS) Total area = 5.510(Ac.)

++++
Process from Point/Station 124.000 to Point/Station 148.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1506.170(Ft.)
Downstream point/station elevation = 1505.080(Ft.)
Pipe length = 217.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 10.076(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 10.076(CFS)
Normal flow depth in pipe = 14.58(In.)
Flow top width inside pipe = 19.35(In.)
Critical Depth = 14.19(In.)
Pipe flow velocity = 5.65(Ft/s)
Travel time through pipe = 0.64 min.
Time of concentration (TC) = 9.69 min.

++++
Process from Point/Station 140.000 to Point/Station 148.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.839
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 9.69 min.
Rainfall intensity = 2.041(In/Hr) for a 10.0 year storm
Subarea runoff = 2.448(CFS) for 1.430(Ac.)
Total runoff = 12.524(CFS) Total area = 6.940(Ac.)

++++
Process from Point/Station 153.000 to Point/Station 148.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.839
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 9.69 min.
Rainfall intensity = 2.041(In/Hr) for a 10.0 year storm
Subarea runoff = 0.291(CFS) for 0.170(Ac.)
Total runoff = 12.816(CFS) Total area = 7.110(Ac.)

++++

Process from Point/Station 148.000 to Point/Station 159.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1505.080(Ft.)
Downstream point/station elevation = 1503.390(Ft.)
Pipe length = 339.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 12.816(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 12.816(CFS)
Normal flow depth in pipe = 15.38(In.)
Flow top width inside pipe = 23.03(In.)
Critical Depth = 15.45(In.)
Pipe flow velocity = 6.03(Ft/s)
Travel time through pipe = 0.94 min.
Time of concentration (TC) = 10.63 min.

++++
Process from Point/Station 158.000 to Point/Station 159.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.837
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 10.63 min.
Rainfall intensity = 1.949(In/Hr) for a 10.0 year storm
Subarea runoff = 1.957(CFS) for 1.200(Ac.)
Total runoff = 14.773(CFS) Total area = 8.310(Ac.)

++++
Process from Point/Station 159.000 to Point/Station 100.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1503.390(Ft.)
Downstream point/station elevation = 1503.000(Ft.)
Pipe length = 65.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 14.773(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 14.773(CFS)
Normal flow depth in pipe = 15.91(In.)
Flow top width inside pipe = 22.69(In.)
Critical Depth = 16.63(In.)
Pipe flow velocity = 6.68(Ft/s)
Travel time through pipe = 0.16 min.
Time of concentration (TC) = 10.79 min.

++++
Process from Point/Station 160.000 to Point/Station 100.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type

Runoff Coefficient = 0.837
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 10.79 min.
Rainfall intensity = 1.934(In/Hr) for a 10.0 year storm
Subarea runoff = 1.424(CFS) for 0.880(Ac.)
Total runoff = 16.197(CFS) Total area = 9.190(Ac.)

++++
Process from Point/Station 159.000 to Point/Station 100.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 9.190(Ac.)
Runoff from this stream = 16.197(CFS)
Time of concentration = 10.79 min.
Rainfall intensity = 1.934(In/Hr)

++++
Process from Point/Station 170.000 to Point/Station 146.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 151.000(Ft.)
Top (of initial area) elevation = 1519.190(Ft.)
Bottom (of initial area) elevation = 1509.100(Ft.)
Difference in elevation = 10.090(Ft.)
Slope = 0.06682 s(percent)= 6.68
TC = $k(0.323)*[(length^3)/(elevation\ change)]^{0.2}$
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration = 5.000 min.
Rainfall intensity = 2.841(In/Hr) for a 10.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.852
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Initial subarea runoff = 1.354(CFS)
Total initial stream area = 0.560(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 146.000 to Point/Station 100.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1504.000(Ft.)
Downstream point/station elevation = 1502.000(Ft.)
Pipe length = 35.25(Ft.) Manning's N = 0.012

No. of pipes = 1 Required pipe flow = 1.354(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 1.354(CFS)
 Normal flow depth in pipe = 4.61(In.)
 Flow top width inside pipe = 5.07(In.)
 Critical depth could not be calculated.
 Pipe flow velocity = 8.38(Ft/s)
 Travel time through pipe = 0.07 min.
 Time of concentration (TC) = 5.07 min.

++++++
 Process from Point/Station 146.000 to Point/Station 100.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 3
 Stream flow area = 0.560(Ac.)
 Runoff from this stream = 1.354(CFS)
 Time of concentration = 5.07 min.
 Rainfall intensity = 2.821(In/Hr)
 Summary of stream data:

| Stream No. | Flow rate (CFS) | TC (min) | Rainfall Intensity (In/Hr) |
|------------|-----------------|----------|----------------------------|
| 1 | 16.996 | 13.96 | 1.700 |
| 2 | 16.197 | 10.79 | 1.934 |
| 3 | 1.354 | 5.07 | 2.821 |

Largest stream flow has longer time of concentration

Qp = 16.996 + sum of
 Qb Ia/Ib
 16.197 * 0.879 = 14.236
 Qb Ia/Ib
 1.354 * 0.603 = 0.816
 Qp = 32.048

Total of 3 streams to confluence:

Flow rates before confluence point:
 16.996 16.197 1.354

Area of streams before confluence:
 11.000 9.190 0.560

Results of confluence:

Total flow rate = 32.048(CFS)
 Time of concentration = 13.964 min.
 Effective stream area after confluence = 20.750(Ac.)
 End of computations, total study area = 20.75 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
 Area averaged RI index number = 56.0

10YR POST-DEVELOPED (Subarea 200)
Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 08/15/21 File:10YRPOST.out

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

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

Program License Serial Number 6215

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 [Sunnymead-Moreno] area used.
10 year storm 10 minute intensity = 2.010(In/Hr)
10 year storm 60 minute intensity = 0.820(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 0.820(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 740.610(Ft.)
Top (of initial area) elevation = 1519.510(Ft.)
Bottom (of initial area) elevation = 1512.790(Ft.)
Difference in elevation = 6.720(Ft.)
Slope = 0.00907 s(percent)= 0.91
TC = $k(0.323)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 11.627 min.
Rainfall intensity = 1.863(In/Hr) for a 10.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.835
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800

Initial subarea runoff = 1.556(CFS)
Total initial stream area = 1.000(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 202.000 to Point/Station 203.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1507.790(Ft.)
Downstream point/station elevation = 1503.250(Ft.)
Pipe length = 518.50(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 1.556(CFS)
Nearest computed pipe diameter = 9.00(In.)
Calculated individual pipe flow = 1.556(CFS)
Normal flow depth in pipe = 6.86(In.)
Flow top width inside pipe = 7.67(In.)
Critical Depth = 6.88(In.)
Pipe flow velocity = 4.31(Ft/s)
Travel time through pipe = 2.00 min.
Time of concentration (TC) = 13.63 min.

++++
Process from Point/Station 204.000 to Point/Station 203.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.832
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 13.63 min.
Rainfall intensity = 1.720(In/Hr) for a 10.0 year storm
Subarea runoff = 0.945(CFS) for 0.660(Ac.)
Total runoff = 2.500(CFS) Total area = 1.660(Ac.)

++++
Process from Point/Station 203.000 to Point/Station 200.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1503.250(Ft.)
Downstream point/station elevation = 1499.680(Ft.)
Pipe length = 714.29(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 2.500(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 2.500(CFS)
Normal flow depth in pipe = 9.04(In.)
Flow top width inside pipe = 10.35(In.)
Critical Depth = 8.13(In.)
Pipe flow velocity = 3.94(Ft/s)
Travel time through pipe = 3.02 min.
Time of concentration (TC) = 16.65 min.
End of computations, total study area = 1.66 (Ac.)

The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.200

Area averaged RI index number = 56.0

10YR PRE-DEVELOPED (Subarea 200)
Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 08/15/21 File:10YRPRE.out

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

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

Program License Serial Number 6215

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 [Sunnymead-Moreno] area used.
10 year storm 10 minute intensity = 2.010(In/Hr)
10 year storm 60 minute intensity = 0.820(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 0.820(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 594.000(Ft.)
Top (of initial area) elevation = 1518.100(Ft.)
Bottom (of initial area) elevation = 1514.000(Ft.)
Difference in elevation = 4.100(Ft.)
Slope = 0.00690 s(percent)= 0.69
 $TC = k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 18.450 min.
Rainfall intensity = 1.479(In/Hr) for a 10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.718
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 78.00
Pervious area fraction = 1.000; Impervious fraction = 0.000

Initial subarea runoff = 7.576(CFS)
Total initial stream area = 7.140(Ac.)
Pervious area fraction = 1.000

++++
Process from Point/Station 202.000 to Point/Station 200.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1514.000(Ft.)
End of natural channel elevation = 1508.400(Ft.)
Length of natural channel = 587.000(Ft.)
Estimated mean flow rate at midpoint of channel = 15.597(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
Velocity(ft/s) = $(7 + 8(q(\text{English Units})^{.352})(\text{slope}^{.5}))$
Velocity using mean channel flow = 2.74(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
Normal channel slope = 0.0095
Corrected/adjusted channel slope = 0.0095
Travel time = 3.57 min. TC = 22.02 min.

Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.704
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 78.00
Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 1.354(In/Hr) for a 10.0 year storm
Subarea runoff = 14.414(CFS) for 15.120(Ac.)
Total runoff = 21.990(CFS) Total area = 22.260(Ac.)
End of computations, total study area = 22.26 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged RI index number = 78.0

100YR POST-DEVELOPED (Subarea 100)
Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 08/15/21 File:100YRPOST.out

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

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

Program License Serial Number 6215

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 [Sunnymead-Moreno] area used.
10 year storm 10 minute intensity = 2.010(In/Hr)
10 year storm 60 minute intensity = 0.820(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 101.000 to Point/Station 103.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 432.000(Ft.)
Top (of initial area) elevation = 1515.240(Ft.)
Bottom (of initial area) elevation = 1513.170(Ft.)
Difference in elevation = 2.070(Ft.)
Slope = 0.00479 s(percent)= 0.48
TC = $k(0.323)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 10.649 min.
Rainfall intensity = 2.848(In/Hr) for a 100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.852
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800

Initial subarea runoff = 4.512(CFS)
Total initial stream area = 1.860(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 103.000 to Point/Station 107.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1508.420(Ft.)
Downstream point/station elevation = 1507.560(Ft.)
Pipe length = 172.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 4.512(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 4.512(CFS)
Normal flow depth in pipe = 11.25(In.)
Flow top width inside pipe = 12.99(In.)
Critical Depth = 10.32(In.)
Pipe flow velocity = 4.57(Ft/s)
Travel time through pipe = 0.63 min.
Time of concentration (TC) = 11.28 min.

++++
Process from Point/Station 171.000 to Point/Station 107.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.851
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 11.28 min.
Rainfall intensity = 2.768(In/Hr) for a 100.0 year storm
Subarea runoff = 0.612(CFS) for 0.260(Ac.)
Total runoff = 5.124(CFS) Total area = 2.120(Ac.)

++++
Process from Point/Station 106.000 to Point/Station 107.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.851
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 11.28 min.
Rainfall intensity = 2.768(In/Hr) for a 100.0 year storm
Subarea runoff = 5.863(CFS) for 2.490(Ac.)
Total runoff = 10.987(CFS) Total area = 4.610(Ac.)

++++
Process from Point/Station 107.000 to Point/Station 111.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1507.560(Ft.)
Downstream point/station elevation = 1506.660(Ft.)
Pipe length = 179.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 10.987(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 10.987(CFS)
Normal flow depth in pipe = 15.61(In.)
Flow top width inside pipe = 18.35(In.)
Critical Depth = 14.81(In.)
Pipe flow velocity = 5.73(Ft/s)
Travel time through pipe = 0.52 min.
Time of concentration (TC) = 11.80 min.

++++
Process from Point/Station 110.000 to Point/Station 111.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.850
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 11.80 min.
Rainfall intensity = 2.706(In/Hr) for a 100.0 year storm
Subarea runoff = 2.944(CFS) for 1.280(Ac.)
Total runoff = 13.930(CFS) Total area = 5.890(Ac.)

++++
Process from Point/Station 111.000 to Point/Station 119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1506.660(Ft.)
Downstream point/station elevation = 1506.090(Ft.)
Pipe length = 118.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 13.930(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 13.930(CFS)
Normal flow depth in pipe = 16.50(In.)
Flow top width inside pipe = 22.25(In.)
Critical Depth = 16.13(In.)
Pipe flow velocity = 6.05(Ft/s)
Travel time through pipe = 0.33 min.
Time of concentration (TC) = 12.12 min.

++++
Process from Point/Station 114.000 to Point/Station 119.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.849
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.12 min.
Rainfall intensity = 2.670(In/Hr) for a 100.0 year storm
Subarea runoff = 0.272(CFS) for 0.120(Ac.)
Total runoff = 14.202(CFS) Total area = 6.010(Ac.)

++++
Process from Point/Station 122.000 to Point/Station 119.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.849
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.12 min.
Rainfall intensity = 2.670(In/Hr) for a 100.0 year storm
Subarea runoff = 1.088(CFS) for 0.480(Ac.)
Total runoff = 15.291(CFS) Total area = 6.490(Ac.)

++++
Process from Point/Station 118.000 to Point/Station 119.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.849
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.12 min.
Rainfall intensity = 2.670(In/Hr) for a 100.0 year storm
Subarea runoff = 1.610(CFS) for 0.710(Ac.)
Total runoff = 16.901(CFS) Total area = 7.200(Ac.)

++++
Process from Point/Station 119.000 to Point/Station 127.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1506.090(Ft.)
Downstream point/station elevation = 1505.220(Ft.)
Pipe length = 179.00(Ft.) Manning's N = 0.012

No. of pipes = 1 Required pipe flow = 16.901(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 16.901(CFS)
Normal flow depth in pipe = 19.45(In.)
Flow top width inside pipe = 18.81(In.)
Critical Depth = 17.79(In.)
Pipe flow velocity = 6.20(Ft/s)
Travel time through pipe = 0.48 min.
Time of concentration (TC) = 12.60 min.

++++
Process from Point/Station 126.000 to Point/Station 127.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.849
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.60 min.
Rainfall intensity = 2.618(In/Hr) for a 100.0 year storm
Subarea runoff = 1.622(CFS) for 0.730(Ac.)
Total runoff = 18.522(CFS) Total area = 7.930(Ac.)

++++
Process from Point/Station 127.000 to Point/Station 129.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1505.220(Ft.)
Downstream point/station elevation = 1504.500(Ft.)
Pipe length = 135.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 18.522(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 18.522(CFS)
Normal flow depth in pipe = 20.53(In.)
Flow top width inside pipe = 16.88(In.)
Critical Depth = 18.58(In.)
Pipe flow velocity = 6.48(Ft/s)
Travel time through pipe = 0.35 min.
Time of concentration (TC) = 12.95 min.

++++
Process from Point/Station 130.000 to Point/Station 129.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.848
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00

Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 12.95 min.
Rainfall intensity = 2.583(In/Hr) for a 100.0 year storm
Subarea runoff = 0.964(CFS) for 0.440(Ac.)
Total runoff = 19.486(CFS) Total area = 8.370(Ac.)

++++
Process from Point/Station 130.000 to Point/Station 129.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 8.370(Ac.)
Runoff from this stream = 19.486(CFS)
Time of concentration = 12.95 min.
Rainfall intensity = 2.583(In/Hr)

++++
Process from Point/Station 137.000 to Point/Station 139.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 169.000(Ft.)
Top (of initial area) elevation = 1511.250(Ft.)
Bottom (of initial area) elevation = 1510.410(Ft.)
Difference in elevation = 0.840(Ft.)
Slope = 0.00497 s(percent)= 0.50
TC = $k(0.323)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 7.262 min.
Rainfall intensity = 3.449(In/Hr) for a 100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.858
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Initial subarea runoff = 2.545(CFS)
Total initial stream area = 0.860(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 139.000 to Point/Station 135.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1505.690(Ft.)
Downstream point/station elevation = 1505.190(Ft.)
Pipe length = 99.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 2.545(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 2.545(CFS)
Normal flow depth in pipe = 9.14(In.)
Flow top width inside pipe = 10.22(In.)
Critical Depth = 8.20(In.)
Pipe flow velocity = 3.97(Ft/s)
Travel time through pipe = 0.42 min.

Time of concentration (TC) = 7.68 min.

++++
Process from Point/Station 134.000 to Point/Station 135.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.857
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 7.68 min.
Rainfall intensity = 3.354(In/Hr) for a 100.0 year storm
Subarea runoff = 1.581(CFS) for 0.550(Ac.)
Total runoff = 4.127(CFS) Total area = 1.410(Ac.)

++++
Process from Point/Station 135.000 to Point/Station 129.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1505.290(Ft.)
Downstream point/station elevation = 1504.500(Ft.)
Pipe length = 139.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 4.127(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 4.127(CFS)
Normal flow depth in pipe = 9.98(In.)
Flow top width inside pipe = 14.15(In.)
Critical Depth = 9.87(In.)
Pipe flow velocity = 4.76(Ft/s)
Travel time through pipe = 0.49 min.
Time of concentration (TC) = 8.17 min.

++++
Process from Point/Station 135.000 to Point/Station 129.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 1.410(Ac.)
Runoff from this stream = 4.127(CFS)
Time of concentration = 8.17 min.
Rainfall intensity = 3.253(In/Hr)
Summary of stream data:

| Stream No. | Flow rate (CFS) | TC (min) | Rainfall Intensity (In/Hr) |
|------------|-----------------|----------|----------------------------|
| 1 | 19.486 | 12.95 | 2.583 |
| 2 | 4.127 | 8.17 | 3.253 |

Largest stream flow has longer time of concentration
Qp = 19.486 + sum of

Qb Ia/Ib
4.127 * 0.794 = 3.277
Qp = 22.763

Total of 2 streams to confluence:
Flow rates before confluence point:
19.486 4.127

Area of streams before confluence:
8.370 1.410

Results of confluence:
Total flow rate = 22.763(CFS)
Time of concentration = 12.951 min.
Effective stream area after confluence = 9.780(Ac.)

++++
Process from Point/Station 129.000 to Point/Station 143.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1504.500(Ft.)
Downstream point/station elevation = 1504.020(Ft.)
Pipe length = 96.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 22.763(CFS)
Nearest computed pipe diameter = 27.00(In.)
Calculated individual pipe flow = 22.763(CFS)
Normal flow depth in pipe = 21.19(In.)
Flow top width inside pipe = 22.19(In.)
Critical Depth = 20.04(In.)
Pipe flow velocity = 6.79(Ft/s)
Travel time through pipe = 0.24 min.
Time of concentration (TC) = 13.19 min.

++++
Process from Point/Station 142.000 to Point/Station 143.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.848
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 13.19 min.
Rainfall intensity = 2.560(In/Hr) for a 100.0 year storm
Subarea runoff = 2.647(CFS) for 1.220(Ac.)
Total runoff = 25.410(CFS) Total area = 11.000(Ac.)

++++
Process from Point/Station 143.000 to Point/Station 100.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1504.020(Ft.)
Downstream point/station elevation = 1503.000(Ft.)
Pipe length = 204.00(Ft.) Manning's N = 0.012

No. of pipes = 1 Required pipe flow = 25.410(CFS)
Nearest computed pipe diameter = 30.00(In.)
Calculated individual pipe flow = 25.410(CFS)
Normal flow depth in pipe = 20.46(In.)
Flow top width inside pipe = 27.94(In.)
Critical Depth = 20.60(In.)
Pipe flow velocity = 7.13(Ft/s)
Travel time through pipe = 0.48 min.
Time of concentration (TC) = 13.66 min.

++++
Process from Point/Station 143.000 to Point/Station 100.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 11.000(Ac.)
Runoff from this stream = 25.410(CFS)
Time of concentration = 13.66 min.
Rainfall intensity = 2.515(In/Hr)

++++
Process from Point/Station 108.000 to Point/Station 112.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 436.000(Ft.)
Top (of initial area) elevation = 1517.550(Ft.)
Bottom (of initial area) elevation = 1510.660(Ft.)
Difference in elevation = 6.890(Ft.)
Slope = 0.01580 s(percent)= 1.58
TC = $k(0.323)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 8.419 min.
Rainfall intensity = 3.204(In/Hr) for a 100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.856
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Initial subarea runoff = 6.962(CFS)
Total initial stream area = 2.540(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 150.000 to Point/Station 112.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.856
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00

Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 8.42 min.
Rainfall intensity = 3.204(In/Hr) for a 100.0 year storm
Subarea runoff = 5.071(CFS) for 1.850(Ac.)
Total runoff = 12.033(CFS) Total area = 4.390(Ac.)

++++
Process from Point/Station 112.000 to Point/Station 124.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1507.100(Ft.)
Downstream point/station elevation = 1506.170(Ft.)
Pipe length = 199.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 12.033(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 12.033(CFS)
Normal flow depth in pipe = 17.72(In.)
Flow top width inside pipe = 15.25(In.)
Critical Depth = 15.50(In.)
Pipe flow velocity = 5.55(Ft/s)
Travel time through pipe = 0.60 min.
Time of concentration (TC) = 9.02 min.

++++
Process from Point/Station 116.000 to Point/Station 124.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.854
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 9.02 min.
Rainfall intensity = 3.096(In/Hr) for a 100.0 year storm
Subarea runoff = 2.645(CFS) for 1.000(Ac.)
Total runoff = 14.679(CFS) Total area = 5.390(Ac.)

++++
Process from Point/Station 128.000 to Point/Station 124.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.854
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 9.02 min.
Rainfall intensity = 3.096(In/Hr) for a 100.0 year storm
Subarea runoff = 0.317(CFS) for 0.120(Ac.)

Total runoff = 14.996(CFS) Total area = 5.510(Ac.)

++++
Process from Point/Station 124.000 to Point/Station 148.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1506.170(Ft.)
Downstream point/station elevation = 1505.080(Ft.)
Pipe length = 217.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 14.996(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 14.996(CFS)
Normal flow depth in pipe = 17.20(In.)
Flow top width inside pipe = 21.63(In.)
Critical Depth = 16.74(In.)
Pipe flow velocity = 6.22(Ft/s)
Travel time through pipe = 0.58 min.
Time of concentration (TC) = 9.60 min.

++++
Process from Point/Station 140.000 to Point/Station 148.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.853
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 9.60 min.
Rainfall intensity = 3.000(In/Hr) for a 100.0 year storm
Subarea runoff = 3.662(CFS) for 1.430(Ac.)
Total runoff = 18.658(CFS) Total area = 6.940(Ac.)

++++
Process from Point/Station 153.000 to Point/Station 148.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.853
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 9.60 min.
Rainfall intensity = 3.000(In/Hr) for a 100.0 year storm
Subarea runoff = 0.435(CFS) for 0.170(Ac.)
Total runoff = 19.093(CFS) Total area = 7.110(Ac.)

++++

Process from Point/Station 148.000 to Point/Station 159.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1505.080(Ft.)
Downstream point/station elevation = 1503.390(Ft.)
Pipe length = 339.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 19.093(CFS)
Nearest computed pipe diameter = 27.00(In.)
Calculated individual pipe flow = 19.093(CFS)
Normal flow depth in pipe = 18.38(In.)
Flow top width inside pipe = 25.18(In.)
Critical Depth = 18.33(In.)
Pipe flow velocity = 6.63(Ft/s)
Travel time through pipe = 0.85 min.
Time of concentration (TC) = 10.45 min.

++++
Process from Point/Station 158.000 to Point/Station 159.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.852
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 10.45 min.
Rainfall intensity = 2.875(In/Hr) for a 100.0 year storm
Subarea runoff = 2.940(CFS) for 1.200(Ac.)
Total runoff = 22.033(CFS) Total area = 8.310(Ac.)

++++
Process from Point/Station 159.000 to Point/Station 100.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1503.390(Ft.)
Downstream point/station elevation = 1503.000(Ft.)
Pipe length = 65.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 22.033(CFS)
Nearest computed pipe diameter = 27.00(In.)
Calculated individual pipe flow = 22.033(CFS)
Normal flow depth in pipe = 19.08(In.)
Flow top width inside pipe = 24.59(In.)
Critical Depth = 19.72(In.)
Pipe flow velocity = 7.33(Ft/s)
Travel time through pipe = 0.15 min.
Time of concentration (TC) = 10.60 min.

++++
Process from Point/Station 160.000 to Point/Station 100.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type

Runoff Coefficient = 0.852
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 10.60 min.
Rainfall intensity = 2.855(In/Hr) for a 100.0 year storm
Subarea runoff = 2.140(CFS) for 0.880(Ac.)
Total runoff = 24.173(CFS) Total area = 9.190(Ac.)

++++
Process from Point/Station 159.000 to Point/Station 100.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 9.190(Ac.)
Runoff from this stream = 24.173(CFS)
Time of concentration = 10.60 min.
Rainfall intensity = 2.855(In/Hr)

++++
Process from Point/Station 170.000 to Point/Station 146.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 151.000(Ft.)
Top (of initial area) elevation = 1519.190(Ft.)
Bottom (of initial area) elevation = 1509.100(Ft.)
Difference in elevation = 10.090(Ft.)
Slope = 0.06682 s(percent)= 6.68
TC = $k(0.323)*[(length^3)/(elevation\ change)]^{0.2}$
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration = 5.000 min.
Rainfall intensity = 4.157(In/Hr) for a 100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.864
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Initial subarea runoff = 2.011(CFS)
Total initial stream area = 0.560(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 146.000 to Point/Station 100.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1504.000(Ft.)
Downstream point/station elevation = 1502.000(Ft.)
Pipe length = 35.25(Ft.) Manning's N = 0.012

No. of pipes = 1 Required pipe flow = 2.011(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 2.011(CFS)
 Normal flow depth in pipe = 4.35(In.)
 Flow top width inside pipe = 8.99(In.)
 Critical Depth = 7.73(In.)
 Pipe flow velocity = 9.52(Ft/s)
 Travel time through pipe = 0.06 min.
 Time of concentration (TC) = 5.06 min.

++++++
 Process from Point/Station 146.000 to Point/Station 100.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 3
 Stream flow area = 0.560(Ac.)
 Runoff from this stream = 2.011(CFS)
 Time of concentration = 5.06 min.
 Rainfall intensity = 4.132(In/Hr)
 Summary of stream data:

| Stream No. | Flow rate (CFS) | TC (min) | Rainfall Intensity (In/Hr) |
|------------|-----------------|----------|----------------------------|
| 1 | 25.410 | 13.66 | 2.515 |
| 2 | 24.173 | 10.60 | 2.855 |
| 3 | 2.011 | 5.06 | 4.132 |

Largest stream flow has longer time of concentration

Qp = 25.410 + sum of

$$Q_b \cdot \frac{I_a}{I_b}$$

$$24.173 * 0.881 = 21.289$$

$$Q_b \cdot \frac{I_a}{I_b}$$

$$2.011 * 0.609 = 1.224$$
 Qp = 47.923

Total of 3 streams to confluence:

Flow rates before confluence point:
 25.410 24.173 2.011

Area of streams before confluence:
 11.000 9.190 0.560

Results of confluence:

Total flow rate = 47.923(CFS)
 Time of concentration = 13.663 min.
 Effective stream area after confluence = 20.750(Ac.)
 End of computations, total study area = 20.75 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
 Area averaged RI index number = 56.0

100YR POST-DEVELOPED (Subarea 200)
Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 08/20/20 File:100YRPOST.out

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

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

Program License Serial Number 6215

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 [Sunnymead-Moreno] area used.
10 year storm 10 minute intensity = 2.010(In/Hr)
10 year storm 60 minute intensity = 0.820(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 740.610(Ft.)
Top (of initial area) elevation = 1519.510(Ft.)
Bottom (of initial area) elevation = 1512.790(Ft.)
Difference in elevation = 6.720(Ft.)
Slope = 0.00907 s(percent)= 0.91
TC = $k(0.323)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 11.627 min.
Rainfall intensity = 2.726(In/Hr) for a 100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.850
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800

Initial subarea runoff = 2.317(CFS)
Total initial stream area = 1.000(Ac.)
Pervious area fraction = 0.200

++++
Process from Point/Station 202.000 to Point/Station 203.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1507.790(Ft.)
Downstream point/station elevation = 1503.250(Ft.)
Pipe length = 518.50(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 2.317(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 2.317(CFS)
Normal flow depth in pipe = 6.98(In.)
Flow top width inside pipe = 11.84(In.)
Critical Depth = 7.81(In.)
Pipe flow velocity = 4.88(Ft/s)
Travel time through pipe = 1.77 min.
Time of concentration (TC) = 13.40 min.

++++
Process from Point/Station 204.000 to Point/Station 203.000
**** SUBAREA FLOW ADDITION ****

APARTMENT subarea type
Runoff Coefficient = 0.847
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800
Time of concentration = 13.40 min.
Rainfall intensity = 2.539(In/Hr) for a 100.0 year storm
Subarea runoff = 1.420(CFS) for 0.660(Ac.)
Total runoff = 3.737(CFS) Total area = 1.660(Ac.)

++++
Process from Point/Station 203.000 to Point/Station 200.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1503.250(Ft.)
Downstream point/station elevation = 1499.680(Ft.)
Pipe length = 714.29(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 3.737(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 3.737(CFS)
Normal flow depth in pipe = 9.74(In.)
Flow top width inside pipe = 14.32(In.)
Critical Depth = 9.38(In.)
Pipe flow velocity = 4.43(Ft/s)
Travel time through pipe = 2.69 min.
Time of concentration (TC) = 16.09 min.
End of computations, total study area = 1.66 (Ac.)

The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.200

Area averaged RI index number = 56.0

100YR PRE-DEVELOPED (Subarea 200)
Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 07/14/20 File:100YRPRE.out

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

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

Program License Serial Number 6215

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 [Sunnymead-Moreno] area used.
10 year storm 10 minute intensity = 2.010(In/Hr)
10 year storm 60 minute intensity = 0.820(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 594.000(Ft.)
Top (of initial area) elevation = 1518.100(Ft.)
Bottom (of initial area) elevation = 1514.000(Ft.)
Difference in elevation = 4.100(Ft.)
Slope = 0.00690 s(percent)= 0.69
TC = $k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 18.450 min.
Rainfall intensity = 2.164(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.767
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 78.00
Pervious area fraction = 1.000; Impervious fraction = 0.000

Initial subarea runoff = 11.847(CFS)
Total initial stream area = 7.140(Ac.)
Pervious area fraction = 1.000

++++
Process from Point/Station 202.000 to Point/Station 200.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1514.000(Ft.)
End of natural channel elevation = 1508.400(Ft.)
Length of natural channel = 587.000(Ft.)
Estimated mean flow rate at midpoint of channel = 24.391(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
Velocity(ft/s) = $(7 + 8(q(\text{English Units})^{.352})(\text{slope}^{.5}))$
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 = 0.0095
Corrected/adjusted channel slope = 0.0095
Travel time = 3.17 min. TC = 21.62 min.

Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.758
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 78.00
Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 1.999(In/Hr) for a 100.0 year storm
Subarea runoff = 22.898(CFS) for 15.120(Ac.)
Total runoff = 34.745(CFS) Total area = 22.260(Ac.)
End of computations, total study area = 22.26 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged RI index number = 78.0

100YR POST-DEVELOPED (Subarea 300)
Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 12/02/21 File:100YRPOST.out

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

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

Program License Serial Number 6215

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 [Sunnymead-Moreno] area used.
10 year storm 10 minute intensity = 2.010(In/Hr)
10 year storm 60 minute intensity = 0.820(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 638.000(Ft.)
Top (of initial area) elevation = 1518.330(Ft.)
Bottom (of initial area) elevation = 1512.490(Ft.)
Difference in elevation = 5.840(Ft.)
Slope = 0.00915 s(percent)= 0.92
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.935 min.
Rainfall intensity = 2.811(In/Hr) for a 100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.851
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.200; Impervious fraction = 0.800

Initial subarea runoff = 1.124(CFS)
Total initial stream area = 0.470(Ac.)
Pervious area fraction = 0.200
End of computations, total study area = 0.47 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.200
Area averaged RI index number = 56.0

APPENDIX C.2

Synthetic Unit Hydrograph Calculations per CivilD

2YR, 1HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPOSTB12.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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] |
|--------------|-----------------|----------------|
| 20.40 | 0.47 | 9.59 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 1.20 | 24.48 |

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.470(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.470(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.470(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 56.0 36.0 0.706 0.750 0.229 1.000 0.229
 Sum (F) = 0.229

Area averaged mean soil loss (F) (In/Hr) = 0.229
 Minimum soil loss rate ((In/Hr)) = 0.115
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.300

 Slope of intensity-duration curve for a 1 hour storm =0.5000

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

 Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | 4.20 | 0.237 (0.229) | 0.071 |
| 2 | 0.17 | 4.30 | 0.242 (0.229) | 0.073 |
| 3 | 0.25 | 5.00 | 0.282 (0.229) | 0.085 |
| 4 | 0.33 | 5.00 | 0.282 (0.229) | 0.085 |
| 5 | 0.42 | 5.80 | 0.327 (0.229) | 0.098 |
| 6 | 0.50 | 6.50 | 0.367 (0.229) | 0.110 |
| 7 | 0.58 | 7.40 | 0.417 (0.229) | 0.125 |
| 8 | 0.67 | 8.60 | 0.485 (0.229) | 0.145 |
| 9 | 0.75 | 12.30 | 0.694 (0.229) | 0.208 |
| 10 | 0.83 | 29.10 | 1.641 (0.229) | 0.492 |
| 11 | 0.92 | 6.80 | 0.383 (0.229) | 0.115 |
| 12 | 1.00 | 5.00 | 0.282 (0.229) | 0.085 |
| (Loss Rate Not Used) | | | | |
| Sum = | 100.0 | | | Sum = 4.2 |
| Flood volume = Effective rainfall | | 0.35(In) | | |
| times area | | 20.4(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft) | | |

Total soil loss = 0.12(In)
 Total soil loss = 0.202(Ac.Ft)
 Total rainfall = 0.47(In)
 Flood volume = 25980.5 Cubic Feet
 Total soil loss = 8817.5 Cubic Feet

 Peak flow rate of this hydrograph = 17.682(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 | 0.0045 | 0.66 | VQ | | | | | |
| 0+10 | 0.0205 | 2.32 | V Q | | | | | |
| 0+15 | 0.0412 | 3.00 | V Q | | | | | |
| 0+20 | 0.0655 | 3.53 | V Q | | | | | |
| 0+25 | 0.0923 | 3.89 | VQ | | | | | |
| 0+30 | 0.1229 | 4.44 | Q | | | | | |
| 0+35 | 0.1575 | 5.04 | Q | | | | | |
| 0+40 | 0.1974 | 5.78 | Q V | | | | | |
| 0+45 | 0.2457 | 7.02 | Q V | | | | | |
| 0+50 | 0.3310 | 12.39 | V Q | | | | | |
| 0+55 | 0.4528 | 17.68 | V Q | | | | | |
| 1+ 0 | 0.5167 | 9.28 | Q | | | | | |
| 1+ 5 | 0.5555 | 5.63 | Q | | | | | |
| 1+10 | 0.5737 | 2.64 | Q | | | | | |
| 1+15 | 0.5842 | 1.52 | Q | | | | | |
| 1+20 | 0.5905 | 0.92 | Q | | | | | |
| 1+25 | 0.5950 | 0.64 | Q | | | | | |
| 1+30 | 0.5960 | 0.15 | Q | | | | | |
| 1+35 | 0.5964 | 0.06 | Q | | | | | |

2YR, 3HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPOSTB32.out

++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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] |
|--------------|-----------------|----------------|
| 20.40 | 0.80 | 16.32 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 1.86 | 37.94 |

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 0.800(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 0.800(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 56.0 36.0 0.706 0.750 0.229 1.000 0.229
 Sum (F) = 0.229

Area averaged mean soil loss (F) (In/Hr) = 0.229
 Minimum soil loss rate ((In/Hr)) = 0.115
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | (0.229) 0.037 | 0.087 |
| 2 | 0.17 | 1.30 | (0.229) 0.037 | 0.087 |
| 3 | 0.25 | 1.10 | (0.229) 0.032 | 0.074 |
| 4 | 0.33 | 1.50 | (0.229) 0.043 | 0.101 |
| 5 | 0.42 | 1.50 | (0.229) 0.043 | 0.101 |
| 6 | 0.50 | 1.80 | (0.229) 0.052 | 0.121 |
| 7 | 0.58 | 1.50 | (0.229) 0.043 | 0.101 |
| 8 | 0.67 | 1.80 | (0.229) 0.052 | 0.121 |
| 9 | 0.75 | 1.80 | (0.229) 0.052 | 0.121 |
| 10 | 0.83 | 1.50 | (0.229) 0.043 | 0.101 |
| 11 | 0.92 | 1.60 | (0.229) 0.046 | 0.108 |
| 12 | 1.00 | 1.80 | (0.229) 0.052 | 0.121 |
| 13 | 1.08 | 2.20 | (0.229) 0.063 | 0.148 |
| 14 | 1.17 | 2.20 | (0.229) 0.063 | 0.148 |
| 15 | 1.25 | 2.20 | (0.229) 0.063 | 0.148 |
| 16 | 1.33 | 2.00 | (0.229) 0.058 | 0.134 |
| 17 | 1.42 | 2.60 | (0.229) 0.075 | 0.175 |
| 18 | 1.50 | 2.70 | (0.229) 0.078 | 0.181 |

| | | | | | | |
|----|------|------|-------|----------------|-------|-------|
| 19 | 1.58 | 2.40 | 0.230 | (0.229) | 0.069 | 0.161 |
| 20 | 1.67 | 2.70 | 0.259 | (0.229) | 0.078 | 0.181 |
| 21 | 1.75 | 3.30 | 0.317 | (0.229) | 0.095 | 0.222 |
| 22 | 1.83 | 3.10 | 0.298 | (0.229) | 0.089 | 0.208 |
| 23 | 1.92 | 2.90 | 0.278 | (0.229) | 0.084 | 0.195 |
| 24 | 2.00 | 3.00 | 0.288 | (0.229) | 0.086 | 0.202 |
| 25 | 2.08 | 3.10 | 0.298 | (0.229) | 0.089 | 0.208 |
| 26 | 2.17 | 4.20 | 0.403 | (0.229) | 0.121 | 0.282 |
| 27 | 2.25 | 5.00 | 0.480 | (0.229) | 0.144 | 0.336 |
| 28 | 2.33 | 3.50 | 0.336 | (0.229) | 0.101 | 0.235 |
| 29 | 2.42 | 6.80 | 0.653 | (0.229) | 0.196 | 0.457 |
| 30 | 2.50 | 7.30 | 0.701 | (0.229) | 0.210 | 0.491 |
| 31 | 2.58 | 8.20 | 0.787 | 0.229 (0.236) | | 0.558 |
| 32 | 2.67 | 5.90 | 0.566 | (0.229) | 0.170 | 0.396 |
| 33 | 2.75 | 2.00 | 0.192 | (0.229) | 0.058 | 0.134 |
| 34 | 2.83 | 1.80 | 0.173 | (0.229) | 0.052 | 0.121 |
| 35 | 2.92 | 1.80 | 0.173 | (0.229) | 0.052 | 0.121 |
| 36 | 3.00 | 0.60 | 0.058 | (0.229) | 0.017 | 0.040 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 6.7

Flood volume = Effective rainfall 0.56(In)
times area 20.4(Ac.)/[(In)/(Ft.)] = 1.0(Ac.Ft)
Total soil loss = 0.24(In)
Total soil loss = 0.407(Ac.Ft)
Total rainfall = 0.80(In)
Flood volume = 41506.7 Cubic Feet
Total soil loss = 17729.6 Cubic Feet

Peak flow rate of this hydrograph = 9.889(CFS)

+++++

3 - H O U R S T O R M
Run off Hydrograph

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 | 0.0024 | 0.35 | VQ | | | | |
| 0+10 | 0.0107 | 1.21 | V Q | | | | |
| 0+15 | 0.0207 | 1.44 | V Q | | | | |
| 0+20 | 0.0313 | 1.54 | V Q | | | | |
| 0+25 | 0.0440 | 1.84 | V Q | | | | |
| 0+30 | 0.0579 | 2.03 | V Q | | | | |
| 0+35 | 0.0732 | 2.21 | V Q | | | | |
| 0+40 | 0.0883 | 2.19 | V Q | | | | |
| 0+45 | 0.1046 | 2.37 | V Q | | | | |
| 0+50 | 0.1208 | 2.35 | V Q | | | | |
| 0+55 | 0.1359 | 2.20 | V Q | | | | |
| 1+ 0 | 0.1516 | 2.27 | V Q | | | | |
| 1+ 5 | 0.1689 | 2.52 | V Q | | | | |
| 1+10 | 0.1883 | 2.82 | V Q | | | | |
| 1+15 | 0.2085 | 2.93 | V Q | | | | |
| 1+20 | 0.2286 | 2.92 | V Q | | | | |
| 1+25 | 0.2490 | 2.97 | VQ | | | | |
| 1+30 | 0.2723 | 3.38 | V Q | | | | |
| 1+35 | 0.2963 | 3.49 | VQ | | | | |

2YR, 6HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPOSTB62.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 1.00 20.40

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 2.50 51.00

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.000(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.000(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|-----------|-------|-------------|------------|------------------|--------|---------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-1 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 36.0 | 0.706 | 0.750 | 0.229 | 1.000 | 0.229 |
| Sum (F) = | | | | | | 0.229 |

Area averaged mean soil loss (F) (In/Hr) = 0.229
 Minimum soil loss rate ((In/Hr)) = 0.115
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| | | Sum = 100.000 | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|--------------------|--------------------|-----------------------|-------------------|-------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 0.50 | (0.229) | 0.018 | 0.042 |
| 2 | 0.17 | 0.60 | (0.229) | 0.022 | 0.050 |
| 3 | 0.25 | 0.60 | (0.229) | 0.022 | 0.050 |
| 4 | 0.33 | 0.60 | (0.229) | 0.022 | 0.050 |
| 5 | 0.42 | 0.60 | (0.229) | 0.022 | 0.050 |
| 6 | 0.50 | 0.70 | (0.229) | 0.025 | 0.059 |
| 7 | 0.58 | 0.70 | (0.229) | 0.025 | 0.059 |
| 8 | 0.67 | 0.70 | (0.229) | 0.025 | 0.059 |
| 9 | 0.75 | 0.70 | (0.229) | 0.025 | 0.059 |
| 10 | 0.83 | 0.70 | (0.229) | 0.025 | 0.059 |
| 11 | 0.92 | 0.70 | (0.229) | 0.025 | 0.059 |
| 12 | 1.00 | 0.80 | (0.229) | 0.029 | 0.067 |
| 13 | 1.08 | 0.80 | (0.229) | 0.029 | 0.067 |
| 14 | 1.17 | 0.80 | (0.229) | 0.029 | 0.067 |
| 15 | 1.25 | 0.80 | (0.229) | 0.029 | 0.067 |
| 16 | 1.33 | 0.80 | (0.229) | 0.029 | 0.067 |
| 17 | 1.42 | 0.80 | (0.229) | 0.029 | 0.067 |
| 18 | 1.50 | 0.80 | (0.229) | 0.029 | 0.067 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 19 | 1.58 | 0.80 | 0.096 | (0.229) | 0.029 | 0.067 |
| 20 | 1.67 | 0.80 | 0.096 | (0.229) | 0.029 | 0.067 |
| 21 | 1.75 | 0.80 | 0.096 | (0.229) | 0.029 | 0.067 |
| 22 | 1.83 | 0.80 | 0.096 | (0.229) | 0.029 | 0.067 |
| 23 | 1.92 | 0.80 | 0.096 | (0.229) | 0.029 | 0.067 |
| 24 | 2.00 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 25 | 2.08 | 0.80 | 0.096 | (0.229) | 0.029 | 0.067 |
| 26 | 2.17 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 27 | 2.25 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 28 | 2.33 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 29 | 2.42 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 30 | 2.50 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 31 | 2.58 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 32 | 2.67 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 33 | 2.75 | 1.00 | 0.120 | (0.229) | 0.036 | 0.084 |
| 34 | 2.83 | 1.00 | 0.120 | (0.229) | 0.036 | 0.084 |
| 35 | 2.92 | 1.00 | 0.120 | (0.229) | 0.036 | 0.084 |
| 36 | 3.00 | 1.00 | 0.120 | (0.229) | 0.036 | 0.084 |
| 37 | 3.08 | 1.00 | 0.120 | (0.229) | 0.036 | 0.084 |
| 38 | 3.17 | 1.10 | 0.132 | (0.229) | 0.040 | 0.092 |
| 39 | 3.25 | 1.10 | 0.132 | (0.229) | 0.040 | 0.092 |
| 40 | 3.33 | 1.10 | 0.132 | (0.229) | 0.040 | 0.092 |
| 41 | 3.42 | 1.20 | 0.144 | (0.229) | 0.043 | 0.101 |
| 42 | 3.50 | 1.30 | 0.156 | (0.229) | 0.047 | 0.109 |
| 43 | 3.58 | 1.40 | 0.168 | (0.229) | 0.050 | 0.118 |
| 44 | 3.67 | 1.40 | 0.168 | (0.229) | 0.050 | 0.118 |
| 45 | 3.75 | 1.50 | 0.180 | (0.229) | 0.054 | 0.126 |
| 46 | 3.83 | 1.50 | 0.180 | (0.229) | 0.054 | 0.126 |
| 47 | 3.92 | 1.60 | 0.192 | (0.229) | 0.058 | 0.134 |
| 48 | 4.00 | 1.60 | 0.192 | (0.229) | 0.058 | 0.134 |
| 49 | 4.08 | 1.70 | 0.204 | (0.229) | 0.061 | 0.143 |
| 50 | 4.17 | 1.80 | 0.216 | (0.229) | 0.065 | 0.151 |
| 51 | 4.25 | 1.90 | 0.228 | (0.229) | 0.068 | 0.160 |
| 52 | 4.33 | 2.00 | 0.240 | (0.229) | 0.072 | 0.168 |
| 53 | 4.42 | 2.10 | 0.252 | (0.229) | 0.076 | 0.176 |
| 54 | 4.50 | 2.10 | 0.252 | (0.229) | 0.076 | 0.176 |
| 55 | 4.58 | 2.20 | 0.264 | (0.229) | 0.079 | 0.185 |
| 56 | 4.67 | 2.30 | 0.276 | (0.229) | 0.083 | 0.193 |
| 57 | 4.75 | 2.40 | 0.288 | (0.229) | 0.086 | 0.202 |
| 58 | 4.83 | 2.40 | 0.288 | (0.229) | 0.086 | 0.202 |
| 59 | 4.92 | 2.50 | 0.300 | (0.229) | 0.090 | 0.210 |
| 60 | 5.00 | 2.60 | 0.312 | (0.229) | 0.094 | 0.218 |
| 61 | 5.08 | 3.10 | 0.372 | (0.229) | 0.112 | 0.260 |
| 62 | 5.17 | 3.60 | 0.432 | (0.229) | 0.130 | 0.302 |
| 63 | 5.25 | 3.90 | 0.468 | (0.229) | 0.140 | 0.328 |
| 64 | 5.33 | 4.20 | 0.504 | (0.229) | 0.151 | 0.353 |
| 65 | 5.42 | 4.70 | 0.564 | (0.229) | 0.169 | 0.395 |
| 66 | 5.50 | 5.60 | 0.672 | (0.229) | 0.202 | 0.470 |
| 67 | 5.58 | 1.90 | 0.228 | (0.229) | 0.068 | 0.160 |
| 68 | 5.67 | 0.90 | 0.108 | (0.229) | 0.032 | 0.076 |
| 69 | 5.75 | 0.60 | 0.072 | (0.229) | 0.022 | 0.050 |
| 70 | 5.83 | 0.50 | 0.060 | (0.229) | 0.018 | 0.042 |
| 71 | 5.92 | 0.30 | 0.036 | (0.229) | 0.011 | 0.025 |
| 72 | 6.00 | 0.20 | 0.024 | (0.229) | 0.007 | 0.017 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 8.4

Flood volume = Effective rainfall 0.70(In)

times area 20.4(Ac.)/[(In)/(Ft.)] = 1.2(Ac.Ft)

Total soil loss = 0.30(In)
 Total soil loss = 0.510(Ac.Ft)
 Total rainfall = 1.00(In)
 Flood volume = 51832.8 Cubic Feet
 Total soil loss = 22214.0 Cubic Feet

 Peak flow rate of this hydrograph = 7.923(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 | 0.0011 | 0.17 | Q | | | | |
| 0+10 | 0.0054 | 0.62 | V Q | | | | |
| 0+15 | 0.0112 | 0.84 | V Q | | | | |
| 0+20 | 0.0175 | 0.92 | V Q | | | | |
| 0+25 | 0.0242 | 0.97 | V Q | | | | |
| 0+30 | 0.0313 | 1.03 | V Q | | | | |
| 0+35 | 0.0391 | 1.13 | V Q | | | | |
| 0+40 | 0.0472 | 1.18 | V Q | | | | |
| 0+45 | 0.0555 | 1.19 | V Q | | | | |
| 0+50 | 0.0637 | 1.20 | V Q | | | | |
| 0+55 | 0.0720 | 1.20 | V Q | | | | |
| 1+ 0 | 0.0805 | 1.24 | V Q | | | | |
| 1+ 5 | 0.0897 | 1.33 | V Q | | | | |
| 1+10 | 0.0990 | 1.35 | V Q | | | | |
| 1+15 | 0.1084 | 1.37 | V Q | | | | |
| 1+20 | 0.1179 | 1.37 | V Q | | | | |
| 1+25 | 0.1273 | 1.38 | VQ | | | | |
| 1+30 | 0.1368 | 1.38 | VQ | | | | |
| 1+35 | 0.1464 | 1.38 | VQ | | | | |
| 1+40 | 0.1559 | 1.38 | Q | | | | |
| 1+45 | 0.1654 | 1.38 | Q | | | | |
| 1+50 | 0.1749 | 1.38 | Q | | | | |
| 1+55 | 0.1844 | 1.38 | QV | | | | |
| 2+ 0 | 0.1942 | 1.42 | QV | | | | |
| 2+ 5 | 0.2043 | 1.47 | QV | | | | |
| 2+10 | 0.2142 | 1.44 | Q V | | | | |
| 2+15 | 0.2246 | 1.51 | QV | | | | |
| 2+20 | 0.2352 | 1.53 | QV | | | | |
| 2+25 | 0.2458 | 1.54 | Q V | | | | |
| 2+30 | 0.2565 | 1.55 | Q V | | | | |
| 2+35 | 0.2672 | 1.55 | Q V | | | | |
| 2+40 | 0.2778 | 1.55 | Q V | | | | |
| 2+45 | 0.2888 | 1.59 | Q V | | | | |
| 2+50 | 0.3003 | 1.67 | Q V | | | | |
| 2+55 | 0.3120 | 1.70 | Q V | | | | |
| 3+ 0 | 0.3238 | 1.71 | Q V | | | | |
| 3+ 5 | 0.3356 | 1.72 | Q V | | | | |
| 3+10 | 0.3477 | 1.76 | Q V | | | | |
| 3+15 | 0.3604 | 1.84 | Q V | | | | |
| 3+20 | 0.3733 | 1.87 | Q V | | | | |
| 3+25 | 0.3865 | 1.92 | Q V | | | | |

| | | | | | | | |
|------|--------|------|---|---|--|--|--|
| 3+30 | 0.4005 | 2.04 | Q | V | | | |
| 3+35 | 0.4156 | 2.19 | Q | V | | | |
| 3+40 | 0.4315 | 2.31 | Q | V | | | |
| 3+45 | 0.4481 | 2.40 | Q | V | | | |
| 3+50 | 0.4653 | 2.50 | Q | V | | | |
| 3+55 | 0.4830 | 2.58 | Q | V | | | |
| 4+ 0 | 0.5015 | 2.68 | Q | V | | | |
| 4+ 5 | 0.5205 | 2.76 | Q | V | | | |
| 4+10 | 0.5404 | 2.89 | Q | V | | | |
| 4+15 | 0.5614 | 3.05 | Q | V | | | |
| 4+20 | 0.5835 | 3.21 | Q | V | | | |
| 4+25 | 0.6067 | 3.37 | Q | V | | | |
| 4+30 | 0.6309 | 3.51 | Q | V | | | |
| 4+35 | 0.6557 | 3.60 | Q | V | | | |
| 4+40 | 0.6815 | 3.74 | Q | V | | | |
| 4+45 | 0.7084 | 3.90 | Q | V | | | |
| 4+50 | 0.7362 | 4.04 | Q | V | | | |
| 4+55 | 0.7646 | 4.12 | Q | V | | | |
| 5+ 0 | 0.7939 | 4.26 | Q | V | | | |
| 5+ 5 | 0.8253 | 4.56 | Q | V | | | |
| 5+10 | 0.8610 | 5.19 | Q | V | | | |
| 5+15 | 0.9014 | 5.87 | Q | V | | | |
| 5+20 | 0.9457 | 6.43 | Q | V | | | |
| 5+25 | 0.9941 | 7.03 | Q | V | | | |
| 5+30 | 1.0487 | 7.92 | Q | V | | | |
| 5+35 | 1.1015 | 7.68 | Q | V | | | |
| 5+40 | 1.1333 | 4.62 | Q | V | | | |
| 5+45 | 1.1530 | 2.86 | Q | V | | | |
| 5+50 | 1.1665 | 1.96 | Q | V | | | |
| 5+55 | 1.1762 | 1.41 | Q | V | | | |
| 6+ 0 | 1.1828 | 0.95 | Q | V | | | |
| 6+ 5 | 1.1869 | 0.59 | Q | V | | | |
| 6+10 | 1.1884 | 0.23 | Q | V | | | |
| 6+15 | 1.1892 | 0.11 | Q | V | | | |
| 6+20 | 1.1896 | 0.06 | Q | V | | | |
| 6+25 | 1.1898 | 0.03 | Q | V | | | |
| 6+30 | 1.1899 | 0.01 | Q | V | | | |
| 6+35 | 1.1899 | 0.01 | Q | V | | | |

2YR, 24HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPOSTB242.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 1.60 32.64

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 4.00 81.60

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.600(In)
Area Averaged 100-Year Rainfall = 4.000(In)

Point rain (area averaged) = 1.600(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.600(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|-----------|-------|-------------|------------|------------------|--------|---------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-1 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 36.0 | 0.706 | 0.750 | 0.229 | 1.000 | 0.229 |
| Sum (F) = | | | | | | 0.229 |

Area averaged mean soil loss (F) (In/Hr) = 0.229
 Minimum soil loss rate ((In/Hr)) = 0.115
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| | | Sum = 100.000 | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|--------------------|--------------------|-----------------------|-------------------|-------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 0.07 | (0.407) | 0.004 | 0.009 |
| 2 | 0.17 | 0.07 | (0.405) | 0.004 | 0.009 |
| 3 | 0.25 | 0.07 | (0.404) | 0.004 | 0.009 |
| 4 | 0.33 | 0.10 | (0.402) | 0.006 | 0.013 |
| 5 | 0.42 | 0.10 | (0.400) | 0.006 | 0.013 |
| 6 | 0.50 | 0.10 | (0.399) | 0.006 | 0.013 |
| 7 | 0.58 | 0.10 | (0.397) | 0.006 | 0.013 |
| 8 | 0.67 | 0.10 | (0.396) | 0.006 | 0.013 |
| 9 | 0.75 | 0.10 | (0.394) | 0.006 | 0.013 |
| 10 | 0.83 | 0.13 | (0.393) | 0.008 | 0.018 |
| 11 | 0.92 | 0.13 | (0.391) | 0.008 | 0.018 |
| 12 | 1.00 | 0.13 | (0.390) | 0.008 | 0.018 |
| 13 | 1.08 | 0.10 | (0.388) | 0.006 | 0.013 |
| 14 | 1.17 | 0.10 | (0.387) | 0.006 | 0.013 |
| 15 | 1.25 | 0.10 | (0.385) | 0.006 | 0.013 |
| 16 | 1.33 | 0.10 | (0.383) | 0.006 | 0.013 |
| 17 | 1.42 | 0.10 | (0.382) | 0.006 | 0.013 |
| 18 | 1.50 | 0.10 | (0.380) | 0.006 | 0.013 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 19 | 1.58 | 0.10 | 0.019 | (0.379) | 0.006 | 0.013 |
| 20 | 1.67 | 0.10 | 0.019 | (0.377) | 0.006 | 0.013 |
| 21 | 1.75 | 0.10 | 0.019 | (0.376) | 0.006 | 0.013 |
| 22 | 1.83 | 0.13 | 0.026 | (0.374) | 0.008 | 0.018 |
| 23 | 1.92 | 0.13 | 0.026 | (0.373) | 0.008 | 0.018 |
| 24 | 2.00 | 0.13 | 0.026 | (0.371) | 0.008 | 0.018 |
| 25 | 2.08 | 0.13 | 0.026 | (0.370) | 0.008 | 0.018 |
| 26 | 2.17 | 0.13 | 0.026 | (0.368) | 0.008 | 0.018 |
| 27 | 2.25 | 0.13 | 0.026 | (0.367) | 0.008 | 0.018 |
| 28 | 2.33 | 0.13 | 0.026 | (0.365) | 0.008 | 0.018 |
| 29 | 2.42 | 0.13 | 0.026 | (0.364) | 0.008 | 0.018 |
| 30 | 2.50 | 0.13 | 0.026 | (0.362) | 0.008 | 0.018 |
| 31 | 2.58 | 0.17 | 0.032 | (0.361) | 0.010 | 0.022 |
| 32 | 2.67 | 0.17 | 0.032 | (0.359) | 0.010 | 0.022 |
| 33 | 2.75 | 0.17 | 0.032 | (0.358) | 0.010 | 0.022 |
| 34 | 2.83 | 0.17 | 0.032 | (0.356) | 0.010 | 0.022 |
| 35 | 2.92 | 0.17 | 0.032 | (0.355) | 0.010 | 0.022 |
| 36 | 3.00 | 0.17 | 0.032 | (0.354) | 0.010 | 0.022 |
| 37 | 3.08 | 0.17 | 0.032 | (0.352) | 0.010 | 0.022 |
| 38 | 3.17 | 0.17 | 0.032 | (0.351) | 0.010 | 0.022 |
| 39 | 3.25 | 0.17 | 0.032 | (0.349) | 0.010 | 0.022 |
| 40 | 3.33 | 0.17 | 0.032 | (0.348) | 0.010 | 0.022 |
| 41 | 3.42 | 0.17 | 0.032 | (0.346) | 0.010 | 0.022 |
| 42 | 3.50 | 0.17 | 0.032 | (0.345) | 0.010 | 0.022 |
| 43 | 3.58 | 0.17 | 0.032 | (0.343) | 0.010 | 0.022 |
| 44 | 3.67 | 0.17 | 0.032 | (0.342) | 0.010 | 0.022 |
| 45 | 3.75 | 0.17 | 0.032 | (0.340) | 0.010 | 0.022 |
| 46 | 3.83 | 0.20 | 0.038 | (0.339) | 0.012 | 0.027 |
| 47 | 3.92 | 0.20 | 0.038 | (0.338) | 0.012 | 0.027 |
| 48 | 4.00 | 0.20 | 0.038 | (0.336) | 0.012 | 0.027 |
| 49 | 4.08 | 0.20 | 0.038 | (0.335) | 0.012 | 0.027 |
| 50 | 4.17 | 0.20 | 0.038 | (0.333) | 0.012 | 0.027 |
| 51 | 4.25 | 0.20 | 0.038 | (0.332) | 0.012 | 0.027 |
| 52 | 4.33 | 0.23 | 0.045 | (0.330) | 0.013 | 0.031 |
| 53 | 4.42 | 0.23 | 0.045 | (0.329) | 0.013 | 0.031 |
| 54 | 4.50 | 0.23 | 0.045 | (0.328) | 0.013 | 0.031 |
| 55 | 4.58 | 0.23 | 0.045 | (0.326) | 0.013 | 0.031 |
| 56 | 4.67 | 0.23 | 0.045 | (0.325) | 0.013 | 0.031 |
| 57 | 4.75 | 0.23 | 0.045 | (0.323) | 0.013 | 0.031 |
| 58 | 4.83 | 0.27 | 0.051 | (0.322) | 0.015 | 0.036 |
| 59 | 4.92 | 0.27 | 0.051 | (0.321) | 0.015 | 0.036 |
| 60 | 5.00 | 0.27 | 0.051 | (0.319) | 0.015 | 0.036 |
| 61 | 5.08 | 0.20 | 0.038 | (0.318) | 0.012 | 0.027 |
| 62 | 5.17 | 0.20 | 0.038 | (0.317) | 0.012 | 0.027 |
| 63 | 5.25 | 0.20 | 0.038 | (0.315) | 0.012 | 0.027 |
| 64 | 5.33 | 0.23 | 0.045 | (0.314) | 0.013 | 0.031 |
| 65 | 5.42 | 0.23 | 0.045 | (0.312) | 0.013 | 0.031 |
| 66 | 5.50 | 0.23 | 0.045 | (0.311) | 0.013 | 0.031 |
| 67 | 5.58 | 0.27 | 0.051 | (0.310) | 0.015 | 0.036 |
| 68 | 5.67 | 0.27 | 0.051 | (0.308) | 0.015 | 0.036 |
| 69 | 5.75 | 0.27 | 0.051 | (0.307) | 0.015 | 0.036 |
| 70 | 5.83 | 0.27 | 0.051 | (0.306) | 0.015 | 0.036 |
| 71 | 5.92 | 0.27 | 0.051 | (0.304) | 0.015 | 0.036 |
| 72 | 6.00 | 0.27 | 0.051 | (0.303) | 0.015 | 0.036 |
| 73 | 6.08 | 0.30 | 0.058 | (0.302) | 0.017 | 0.040 |
| 74 | 6.17 | 0.30 | 0.058 | (0.300) | 0.017 | 0.040 |
| 75 | 6.25 | 0.30 | 0.058 | (0.299) | 0.017 | 0.040 |
| 76 | 6.33 | 0.30 | 0.058 | (0.298) | 0.017 | 0.040 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 77 | 6.42 | 0.30 | 0.058 | (0.296) | 0.017 | 0.040 |
| 78 | 6.50 | 0.30 | 0.058 | (0.295) | 0.017 | 0.040 |
| 79 | 6.58 | 0.33 | 0.064 | (0.294) | 0.019 | 0.045 |
| 80 | 6.67 | 0.33 | 0.064 | (0.292) | 0.019 | 0.045 |
| 81 | 6.75 | 0.33 | 0.064 | (0.291) | 0.019 | 0.045 |
| 82 | 6.83 | 0.33 | 0.064 | (0.290) | 0.019 | 0.045 |
| 83 | 6.92 | 0.33 | 0.064 | (0.288) | 0.019 | 0.045 |
| 84 | 7.00 | 0.33 | 0.064 | (0.287) | 0.019 | 0.045 |
| 85 | 7.08 | 0.33 | 0.064 | (0.286) | 0.019 | 0.045 |
| 86 | 7.17 | 0.33 | 0.064 | (0.284) | 0.019 | 0.045 |
| 87 | 7.25 | 0.33 | 0.064 | (0.283) | 0.019 | 0.045 |
| 88 | 7.33 | 0.37 | 0.070 | (0.282) | 0.021 | 0.049 |
| 89 | 7.42 | 0.37 | 0.070 | (0.280) | 0.021 | 0.049 |
| 90 | 7.50 | 0.37 | 0.070 | (0.279) | 0.021 | 0.049 |
| 91 | 7.58 | 0.40 | 0.077 | (0.278) | 0.023 | 0.054 |
| 92 | 7.67 | 0.40 | 0.077 | (0.277) | 0.023 | 0.054 |
| 93 | 7.75 | 0.40 | 0.077 | (0.275) | 0.023 | 0.054 |
| 94 | 7.83 | 0.43 | 0.083 | (0.274) | 0.025 | 0.058 |
| 95 | 7.92 | 0.43 | 0.083 | (0.273) | 0.025 | 0.058 |
| 96 | 8.00 | 0.43 | 0.083 | (0.272) | 0.025 | 0.058 |
| 97 | 8.08 | 0.50 | 0.096 | (0.270) | 0.029 | 0.067 |
| 98 | 8.17 | 0.50 | 0.096 | (0.269) | 0.029 | 0.067 |
| 99 | 8.25 | 0.50 | 0.096 | (0.268) | 0.029 | 0.067 |
| 100 | 8.33 | 0.50 | 0.096 | (0.267) | 0.029 | 0.067 |
| 101 | 8.42 | 0.50 | 0.096 | (0.265) | 0.029 | 0.067 |
| 102 | 8.50 | 0.50 | 0.096 | (0.264) | 0.029 | 0.067 |
| 103 | 8.58 | 0.53 | 0.102 | (0.263) | 0.031 | 0.072 |
| 104 | 8.67 | 0.53 | 0.102 | (0.262) | 0.031 | 0.072 |
| 105 | 8.75 | 0.53 | 0.102 | (0.260) | 0.031 | 0.072 |
| 106 | 8.83 | 0.57 | 0.109 | (0.259) | 0.033 | 0.076 |
| 107 | 8.92 | 0.57 | 0.109 | (0.258) | 0.033 | 0.076 |
| 108 | 9.00 | 0.57 | 0.109 | (0.257) | 0.033 | 0.076 |
| 109 | 9.08 | 0.63 | 0.122 | (0.255) | 0.036 | 0.085 |
| 110 | 9.17 | 0.63 | 0.122 | (0.254) | 0.036 | 0.085 |
| 111 | 9.25 | 0.63 | 0.122 | (0.253) | 0.036 | 0.085 |
| 112 | 9.33 | 0.67 | 0.128 | (0.252) | 0.038 | 0.090 |
| 113 | 9.42 | 0.67 | 0.128 | (0.251) | 0.038 | 0.090 |
| 114 | 9.50 | 0.67 | 0.128 | (0.249) | 0.038 | 0.090 |
| 115 | 9.58 | 0.70 | 0.134 | (0.248) | 0.040 | 0.094 |
| 116 | 9.67 | 0.70 | 0.134 | (0.247) | 0.040 | 0.094 |
| 117 | 9.75 | 0.70 | 0.134 | (0.246) | 0.040 | 0.094 |
| 118 | 9.83 | 0.73 | 0.141 | (0.245) | 0.042 | 0.099 |
| 119 | 9.92 | 0.73 | 0.141 | (0.243) | 0.042 | 0.099 |
| 120 | 10.00 | 0.73 | 0.141 | (0.242) | 0.042 | 0.099 |
| 121 | 10.08 | 0.50 | 0.096 | (0.241) | 0.029 | 0.067 |
| 122 | 10.17 | 0.50 | 0.096 | (0.240) | 0.029 | 0.067 |
| 123 | 10.25 | 0.50 | 0.096 | (0.239) | 0.029 | 0.067 |
| 124 | 10.33 | 0.50 | 0.096 | (0.238) | 0.029 | 0.067 |
| 125 | 10.42 | 0.50 | 0.096 | (0.236) | 0.029 | 0.067 |
| 126 | 10.50 | 0.50 | 0.096 | (0.235) | 0.029 | 0.067 |
| 127 | 10.58 | 0.67 | 0.128 | (0.234) | 0.038 | 0.090 |
| 128 | 10.67 | 0.67 | 0.128 | (0.233) | 0.038 | 0.090 |
| 129 | 10.75 | 0.67 | 0.128 | (0.232) | 0.038 | 0.090 |
| 130 | 10.83 | 0.67 | 0.128 | (0.231) | 0.038 | 0.090 |
| 131 | 10.92 | 0.67 | 0.128 | (0.230) | 0.038 | 0.090 |
| 132 | 11.00 | 0.67 | 0.128 | (0.228) | 0.038 | 0.090 |
| 133 | 11.08 | 0.63 | 0.122 | (0.227) | 0.036 | 0.085 |
| 134 | 11.17 | 0.63 | 0.122 | (0.226) | 0.036 | 0.085 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 135 | 11.25 | 0.63 | 0.122 | (0.225) | 0.036 | 0.085 |
| 136 | 11.33 | 0.63 | 0.122 | (0.224) | 0.036 | 0.085 |
| 137 | 11.42 | 0.63 | 0.122 | (0.223) | 0.036 | 0.085 |
| 138 | 11.50 | 0.63 | 0.122 | (0.222) | 0.036 | 0.085 |
| 139 | 11.58 | 0.57 | 0.109 | (0.221) | 0.033 | 0.076 |
| 140 | 11.67 | 0.57 | 0.109 | (0.220) | 0.033 | 0.076 |
| 141 | 11.75 | 0.57 | 0.109 | (0.219) | 0.033 | 0.076 |
| 142 | 11.83 | 0.60 | 0.115 | (0.217) | 0.035 | 0.081 |
| 143 | 11.92 | 0.60 | 0.115 | (0.216) | 0.035 | 0.081 |
| 144 | 12.00 | 0.60 | 0.115 | (0.215) | 0.035 | 0.081 |
| 145 | 12.08 | 0.83 | 0.160 | (0.214) | 0.048 | 0.112 |
| 146 | 12.17 | 0.83 | 0.160 | (0.213) | 0.048 | 0.112 |
| 147 | 12.25 | 0.83 | 0.160 | (0.212) | 0.048 | 0.112 |
| 148 | 12.33 | 0.87 | 0.166 | (0.211) | 0.050 | 0.116 |
| 149 | 12.42 | 0.87 | 0.166 | (0.210) | 0.050 | 0.116 |
| 150 | 12.50 | 0.87 | 0.166 | (0.209) | 0.050 | 0.116 |
| 151 | 12.58 | 0.93 | 0.179 | (0.208) | 0.054 | 0.125 |
| 152 | 12.67 | 0.93 | 0.179 | (0.207) | 0.054 | 0.125 |
| 153 | 12.75 | 0.93 | 0.179 | (0.206) | 0.054 | 0.125 |
| 154 | 12.83 | 0.97 | 0.186 | (0.205) | 0.056 | 0.130 |
| 155 | 12.92 | 0.97 | 0.186 | (0.204) | 0.056 | 0.130 |
| 156 | 13.00 | 0.97 | 0.186 | (0.203) | 0.056 | 0.130 |
| 157 | 13.08 | 1.13 | 0.218 | (0.202) | 0.065 | 0.152 |
| 158 | 13.17 | 1.13 | 0.218 | (0.201) | 0.065 | 0.152 |
| 159 | 13.25 | 1.13 | 0.218 | (0.200) | 0.065 | 0.152 |
| 160 | 13.33 | 1.13 | 0.218 | (0.199) | 0.065 | 0.152 |
| 161 | 13.42 | 1.13 | 0.218 | (0.198) | 0.065 | 0.152 |
| 162 | 13.50 | 1.13 | 0.218 | (0.197) | 0.065 | 0.152 |
| 163 | 13.58 | 0.77 | 0.147 | (0.196) | 0.044 | 0.103 |
| 164 | 13.67 | 0.77 | 0.147 | (0.195) | 0.044 | 0.103 |
| 165 | 13.75 | 0.77 | 0.147 | (0.194) | 0.044 | 0.103 |
| 166 | 13.83 | 0.77 | 0.147 | (0.193) | 0.044 | 0.103 |
| 167 | 13.92 | 0.77 | 0.147 | (0.192) | 0.044 | 0.103 |
| 168 | 14.00 | 0.77 | 0.147 | (0.191) | 0.044 | 0.103 |
| 169 | 14.08 | 0.90 | 0.173 | (0.190) | 0.052 | 0.121 |
| 170 | 14.17 | 0.90 | 0.173 | (0.189) | 0.052 | 0.121 |
| 171 | 14.25 | 0.90 | 0.173 | (0.188) | 0.052 | 0.121 |
| 172 | 14.33 | 0.87 | 0.166 | (0.187) | 0.050 | 0.116 |
| 173 | 14.42 | 0.87 | 0.166 | (0.186) | 0.050 | 0.116 |
| 174 | 14.50 | 0.87 | 0.166 | (0.185) | 0.050 | 0.116 |
| 175 | 14.58 | 0.87 | 0.166 | (0.184) | 0.050 | 0.116 |
| 176 | 14.67 | 0.87 | 0.166 | (0.183) | 0.050 | 0.116 |
| 177 | 14.75 | 0.87 | 0.166 | (0.182) | 0.050 | 0.116 |
| 178 | 14.83 | 0.83 | 0.160 | (0.181) | 0.048 | 0.112 |
| 179 | 14.92 | 0.83 | 0.160 | (0.180) | 0.048 | 0.112 |
| 180 | 15.00 | 0.83 | 0.160 | (0.179) | 0.048 | 0.112 |
| 181 | 15.08 | 0.80 | 0.154 | (0.178) | 0.046 | 0.108 |
| 182 | 15.17 | 0.80 | 0.154 | (0.177) | 0.046 | 0.108 |
| 183 | 15.25 | 0.80 | 0.154 | (0.176) | 0.046 | 0.108 |
| 184 | 15.33 | 0.77 | 0.147 | (0.176) | 0.044 | 0.103 |
| 185 | 15.42 | 0.77 | 0.147 | (0.175) | 0.044 | 0.103 |
| 186 | 15.50 | 0.77 | 0.147 | (0.174) | 0.044 | 0.103 |
| 187 | 15.58 | 0.63 | 0.122 | (0.173) | 0.036 | 0.085 |
| 188 | 15.67 | 0.63 | 0.122 | (0.172) | 0.036 | 0.085 |
| 189 | 15.75 | 0.63 | 0.122 | (0.171) | 0.036 | 0.085 |
| 190 | 15.83 | 0.63 | 0.122 | (0.170) | 0.036 | 0.085 |
| 191 | 15.92 | 0.63 | 0.122 | (0.169) | 0.036 | 0.085 |
| 192 | 16.00 | 0.63 | 0.122 | (0.168) | 0.036 | 0.085 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 193 | 16.08 | 0.13 | 0.026 | (0.168) | 0.008 | 0.018 |
| 194 | 16.17 | 0.13 | 0.026 | (0.167) | 0.008 | 0.018 |
| 195 | 16.25 | 0.13 | 0.026 | (0.166) | 0.008 | 0.018 |
| 196 | 16.33 | 0.13 | 0.026 | (0.165) | 0.008 | 0.018 |
| 197 | 16.42 | 0.13 | 0.026 | (0.164) | 0.008 | 0.018 |
| 198 | 16.50 | 0.13 | 0.026 | (0.163) | 0.008 | 0.018 |
| 199 | 16.58 | 0.10 | 0.019 | (0.163) | 0.006 | 0.013 |
| 200 | 16.67 | 0.10 | 0.019 | (0.162) | 0.006 | 0.013 |
| 201 | 16.75 | 0.10 | 0.019 | (0.161) | 0.006 | 0.013 |
| 202 | 16.83 | 0.10 | 0.019 | (0.160) | 0.006 | 0.013 |
| 203 | 16.92 | 0.10 | 0.019 | (0.159) | 0.006 | 0.013 |
| 204 | 17.00 | 0.10 | 0.019 | (0.158) | 0.006 | 0.013 |
| 205 | 17.08 | 0.17 | 0.032 | (0.158) | 0.010 | 0.022 |
| 206 | 17.17 | 0.17 | 0.032 | (0.157) | 0.010 | 0.022 |
| 207 | 17.25 | 0.17 | 0.032 | (0.156) | 0.010 | 0.022 |
| 208 | 17.33 | 0.17 | 0.032 | (0.155) | 0.010 | 0.022 |
| 209 | 17.42 | 0.17 | 0.032 | (0.155) | 0.010 | 0.022 |
| 210 | 17.50 | 0.17 | 0.032 | (0.154) | 0.010 | 0.022 |
| 211 | 17.58 | 0.17 | 0.032 | (0.153) | 0.010 | 0.022 |
| 212 | 17.67 | 0.17 | 0.032 | (0.152) | 0.010 | 0.022 |
| 213 | 17.75 | 0.17 | 0.032 | (0.151) | 0.010 | 0.022 |
| 214 | 17.83 | 0.13 | 0.026 | (0.151) | 0.008 | 0.018 |
| 215 | 17.92 | 0.13 | 0.026 | (0.150) | 0.008 | 0.018 |
| 216 | 18.00 | 0.13 | 0.026 | (0.149) | 0.008 | 0.018 |
| 217 | 18.08 | 0.13 | 0.026 | (0.149) | 0.008 | 0.018 |
| 218 | 18.17 | 0.13 | 0.026 | (0.148) | 0.008 | 0.018 |
| 219 | 18.25 | 0.13 | 0.026 | (0.147) | 0.008 | 0.018 |
| 220 | 18.33 | 0.13 | 0.026 | (0.146) | 0.008 | 0.018 |
| 221 | 18.42 | 0.13 | 0.026 | (0.146) | 0.008 | 0.018 |
| 222 | 18.50 | 0.13 | 0.026 | (0.145) | 0.008 | 0.018 |
| 223 | 18.58 | 0.10 | 0.019 | (0.144) | 0.006 | 0.013 |
| 224 | 18.67 | 0.10 | 0.019 | (0.144) | 0.006 | 0.013 |
| 225 | 18.75 | 0.10 | 0.019 | (0.143) | 0.006 | 0.013 |
| 226 | 18.83 | 0.07 | 0.013 | (0.142) | 0.004 | 0.009 |
| 227 | 18.92 | 0.07 | 0.013 | (0.141) | 0.004 | 0.009 |
| 228 | 19.00 | 0.07 | 0.013 | (0.141) | 0.004 | 0.009 |
| 229 | 19.08 | 0.10 | 0.019 | (0.140) | 0.006 | 0.013 |
| 230 | 19.17 | 0.10 | 0.019 | (0.139) | 0.006 | 0.013 |
| 231 | 19.25 | 0.10 | 0.019 | (0.139) | 0.006 | 0.013 |
| 232 | 19.33 | 0.13 | 0.026 | (0.138) | 0.008 | 0.018 |
| 233 | 19.42 | 0.13 | 0.026 | (0.138) | 0.008 | 0.018 |
| 234 | 19.50 | 0.13 | 0.026 | (0.137) | 0.008 | 0.018 |
| 235 | 19.58 | 0.10 | 0.019 | (0.136) | 0.006 | 0.013 |
| 236 | 19.67 | 0.10 | 0.019 | (0.136) | 0.006 | 0.013 |
| 237 | 19.75 | 0.10 | 0.019 | (0.135) | 0.006 | 0.013 |
| 238 | 19.83 | 0.07 | 0.013 | (0.134) | 0.004 | 0.009 |
| 239 | 19.92 | 0.07 | 0.013 | (0.134) | 0.004 | 0.009 |
| 240 | 20.00 | 0.07 | 0.013 | (0.133) | 0.004 | 0.009 |
| 241 | 20.08 | 0.10 | 0.019 | (0.133) | 0.006 | 0.013 |
| 242 | 20.17 | 0.10 | 0.019 | (0.132) | 0.006 | 0.013 |
| 243 | 20.25 | 0.10 | 0.019 | (0.131) | 0.006 | 0.013 |
| 244 | 20.33 | 0.10 | 0.019 | (0.131) | 0.006 | 0.013 |
| 245 | 20.42 | 0.10 | 0.019 | (0.130) | 0.006 | 0.013 |
| 246 | 20.50 | 0.10 | 0.019 | (0.130) | 0.006 | 0.013 |
| 247 | 20.58 | 0.10 | 0.019 | (0.129) | 0.006 | 0.013 |
| 248 | 20.67 | 0.10 | 0.019 | (0.129) | 0.006 | 0.013 |
| 249 | 20.75 | 0.10 | 0.019 | (0.128) | 0.006 | 0.013 |
| 250 | 20.83 | 0.07 | 0.013 | (0.128) | 0.004 | 0.009 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 251 | 20.92 | 0.07 | 0.013 | (0.127) | 0.004 | 0.009 |
| 252 | 21.00 | 0.07 | 0.013 | (0.127) | 0.004 | 0.009 |
| 253 | 21.08 | 0.10 | 0.019 | (0.126) | 0.006 | 0.013 |
| 254 | 21.17 | 0.10 | 0.019 | (0.126) | 0.006 | 0.013 |
| 255 | 21.25 | 0.10 | 0.019 | (0.125) | 0.006 | 0.013 |
| 256 | 21.33 | 0.07 | 0.013 | (0.125) | 0.004 | 0.009 |
| 257 | 21.42 | 0.07 | 0.013 | (0.124) | 0.004 | 0.009 |
| 258 | 21.50 | 0.07 | 0.013 | (0.124) | 0.004 | 0.009 |
| 259 | 21.58 | 0.10 | 0.019 | (0.123) | 0.006 | 0.013 |
| 260 | 21.67 | 0.10 | 0.019 | (0.123) | 0.006 | 0.013 |
| 261 | 21.75 | 0.10 | 0.019 | (0.122) | 0.006 | 0.013 |
| 262 | 21.83 | 0.07 | 0.013 | (0.122) | 0.004 | 0.009 |
| 263 | 21.92 | 0.07 | 0.013 | (0.122) | 0.004 | 0.009 |
| 264 | 22.00 | 0.07 | 0.013 | (0.121) | 0.004 | 0.009 |
| 265 | 22.08 | 0.10 | 0.019 | (0.121) | 0.006 | 0.013 |
| 266 | 22.17 | 0.10 | 0.019 | (0.120) | 0.006 | 0.013 |
| 267 | 22.25 | 0.10 | 0.019 | (0.120) | 0.006 | 0.013 |
| 268 | 22.33 | 0.07 | 0.013 | (0.120) | 0.004 | 0.009 |
| 269 | 22.42 | 0.07 | 0.013 | (0.119) | 0.004 | 0.009 |
| 270 | 22.50 | 0.07 | 0.013 | (0.119) | 0.004 | 0.009 |
| 271 | 22.58 | 0.07 | 0.013 | (0.119) | 0.004 | 0.009 |
| 272 | 22.67 | 0.07 | 0.013 | (0.118) | 0.004 | 0.009 |
| 273 | 22.75 | 0.07 | 0.013 | (0.118) | 0.004 | 0.009 |
| 274 | 22.83 | 0.07 | 0.013 | (0.118) | 0.004 | 0.009 |
| 275 | 22.92 | 0.07 | 0.013 | (0.117) | 0.004 | 0.009 |
| 276 | 23.00 | 0.07 | 0.013 | (0.117) | 0.004 | 0.009 |
| 277 | 23.08 | 0.07 | 0.013 | (0.117) | 0.004 | 0.009 |
| 278 | 23.17 | 0.07 | 0.013 | (0.116) | 0.004 | 0.009 |
| 279 | 23.25 | 0.07 | 0.013 | (0.116) | 0.004 | 0.009 |
| 280 | 23.33 | 0.07 | 0.013 | (0.116) | 0.004 | 0.009 |
| 281 | 23.42 | 0.07 | 0.013 | (0.116) | 0.004 | 0.009 |
| 282 | 23.50 | 0.07 | 0.013 | (0.116) | 0.004 | 0.009 |
| 283 | 23.58 | 0.07 | 0.013 | (0.115) | 0.004 | 0.009 |
| 284 | 23.67 | 0.07 | 0.013 | (0.115) | 0.004 | 0.009 |
| 285 | 23.75 | 0.07 | 0.013 | (0.115) | 0.004 | 0.009 |
| 286 | 23.83 | 0.07 | 0.013 | (0.115) | 0.004 | 0.009 |
| 287 | 23.92 | 0.07 | 0.013 | (0.115) | 0.004 | 0.009 |
| 288 | 24.00 | 0.07 | 0.013 | (0.115) | 0.004 | 0.009 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 13.4

Flood volume = Effective rainfall 1.12(In)
times area 20.4(Ac.)/[(In)/(Ft.)] = 1.9(Ac.Ft)
Total soil loss = 0.48(In)
Total soil loss = 0.816(Ac.Ft)
Total rainfall = 1.60(In)
Flood volume = 82934.9 Cubic Feet
Total soil loss = 35543.5 Cubic Feet

Peak flow rate of this hydrograph = 3.119(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5 10.0

| | | | |
|------|--------|------|----|
| 0+ 5 | 0.0002 | 0.04 | Q |
| 0+10 | 0.0011 | 0.12 | Q |
| 0+15 | 0.0022 | 0.15 | Q |
| 0+20 | 0.0034 | 0.18 | Q |
| 0+25 | 0.0051 | 0.24 | Q |
| 0+30 | 0.0068 | 0.26 | VQ |
| 0+35 | 0.0086 | 0.26 | VQ |
| 0+40 | 0.0105 | 0.27 | VQ |
| 0+45 | 0.0124 | 0.27 | VQ |
| 0+50 | 0.0144 | 0.29 | VQ |
| 0+55 | 0.0167 | 0.34 | VQ |
| 1+ 0 | 0.0192 | 0.35 | VQ |
| 1+ 5 | 0.0215 | 0.34 | VQ |
| 1+10 | 0.0236 | 0.30 | VQ |
| 1+15 | 0.0256 | 0.29 | VQ |
| 1+20 | 0.0275 | 0.28 | VQ |
| 1+25 | 0.0295 | 0.28 | VQ |
| 1+30 | 0.0314 | 0.28 | VQ |
| 1+35 | 0.0333 | 0.28 | VQ |
| 1+40 | 0.0352 | 0.28 | VQ |
| 1+45 | 0.0371 | 0.28 | VQ |
| 1+50 | 0.0392 | 0.29 | VQ |
| 1+55 | 0.0415 | 0.34 | VQ |
| 2+ 0 | 0.0439 | 0.35 | VQ |
| 2+ 5 | 0.0464 | 0.36 | VQ |
| 2+10 | 0.0489 | 0.36 | Q |
| 2+15 | 0.0514 | 0.37 | Q |
| 2+20 | 0.0539 | 0.37 | Q |
| 2+25 | 0.0565 | 0.37 | Q |
| 2+30 | 0.0590 | 0.37 | Q |
| 2+35 | 0.0617 | 0.39 | Q |
| 2+40 | 0.0646 | 0.43 | Q |
| 2+45 | 0.0677 | 0.45 | Q |
| 2+50 | 0.0708 | 0.45 | Q |
| 2+55 | 0.0740 | 0.46 | Q |
| 3+ 0 | 0.0771 | 0.46 | Q |
| 3+ 5 | 0.0803 | 0.46 | Q |
| 3+10 | 0.0835 | 0.46 | Q |
| 3+15 | 0.0866 | 0.46 | Q |
| 3+20 | 0.0898 | 0.46 | Q |
| 3+25 | 0.0930 | 0.46 | Q |
| 3+30 | 0.0961 | 0.46 | QV |
| 3+35 | 0.0993 | 0.46 | QV |
| 3+40 | 0.1025 | 0.46 | QV |
| 3+45 | 0.1057 | 0.46 | QV |
| 3+50 | 0.1090 | 0.48 | QV |
| 3+55 | 0.1126 | 0.52 | Q |
| 4+ 0 | 0.1163 | 0.54 | Q |
| 4+ 5 | 0.1200 | 0.54 | Q |
| 4+10 | 0.1238 | 0.55 | Q |
| 4+15 | 0.1276 | 0.55 | Q |
| 4+20 | 0.1315 | 0.57 | Q |
| 4+25 | 0.1357 | 0.62 | Q |
| 4+30 | 0.1401 | 0.63 | Q |
| 4+35 | 0.1444 | 0.64 | QV |
| 4+40 | 0.1489 | 0.64 | QV |
| 4+45 | 0.1533 | 0.64 | QV |

| | | | | | | | |
|------|--------|------|-----|--|--|--|--|
| 4+50 | 0.1578 | 0.66 | QV | | | | |
| 4+55 | 0.1627 | 0.71 | QV | | | | |
| 5+ 0 | 0.1677 | 0.72 | QV | | | | |
| 5+ 5 | 0.1724 | 0.69 | QV | | | | |
| 5+10 | 0.1766 | 0.61 | QV | | | | |
| 5+15 | 0.1806 | 0.58 | QV | | | | |
| 5+20 | 0.1847 | 0.59 | QV | | | | |
| 5+25 | 0.1890 | 0.63 | QV | | | | |
| 5+30 | 0.1934 | 0.64 | Q V | | | | |
| 5+35 | 0.1979 | 0.66 | Q V | | | | |
| 5+40 | 0.2027 | 0.70 | Q V | | | | |
| 5+45 | 0.2077 | 0.72 | Q V | | | | |
| 5+50 | 0.2127 | 0.73 | Q V | | | | |
| 5+55 | 0.2177 | 0.73 | Q V | | | | |
| 6+ 0 | 0.2228 | 0.73 | Q V | | | | |
| 6+ 5 | 0.2280 | 0.75 | QV | | | | |
| 6+10 | 0.2335 | 0.80 | QV | | | | |
| 6+15 | 0.2391 | 0.81 | Q V | | | | |
| 6+20 | 0.2447 | 0.82 | Q V | | | | |
| 6+25 | 0.2504 | 0.82 | Q V | | | | |
| 6+30 | 0.2561 | 0.83 | Q V | | | | |
| 6+35 | 0.2619 | 0.85 | Q V | | | | |
| 6+40 | 0.2681 | 0.89 | Q V | | | | |
| 6+45 | 0.2743 | 0.91 | Q V | | | | |
| 6+50 | 0.2806 | 0.91 | Q V | | | | |
| 6+55 | 0.2869 | 0.92 | Q V | | | | |
| 7+ 0 | 0.2932 | 0.92 | Q V | | | | |
| 7+ 5 | 0.2995 | 0.92 | Q V | | | | |
| 7+10 | 0.3059 | 0.92 | Q V | | | | |
| 7+15 | 0.3122 | 0.92 | Q V | | | | |
| 7+20 | 0.3187 | 0.94 | Q V | | | | |
| 7+25 | 0.3255 | 0.98 | Q V | | | | |
| 7+30 | 0.3324 | 1.00 | Q V | | | | |
| 7+35 | 0.3394 | 1.02 | Q V | | | | |
| 7+40 | 0.3468 | 1.07 | Q V | | | | |
| 7+45 | 0.3543 | 1.09 | Q V | | | | |
| 7+50 | 0.3619 | 1.11 | Q V | | | | |
| 7+55 | 0.3699 | 1.16 | Q V | | | | |
| 8+ 0 | 0.3781 | 1.18 | Q V | | | | |
| 8+ 5 | 0.3865 | 1.22 | Q V | | | | |
| 8+10 | 0.3956 | 1.32 | Q V | | | | |
| 8+15 | 0.4048 | 1.35 | Q V | | | | |
| 8+20 | 0.4142 | 1.36 | Q V | | | | |
| 8+25 | 0.4237 | 1.37 | Q V | | | | |
| 8+30 | 0.4332 | 1.38 | Q V | | | | |
| 8+35 | 0.4428 | 1.40 | Q V | | | | |
| 8+40 | 0.4527 | 1.44 | Q V | | | | |
| 8+45 | 0.4628 | 1.46 | Q V | | | | |
| 8+50 | 0.4730 | 1.48 | Q V | | | | |
| 8+55 | 0.4835 | 1.53 | Q V | | | | |
| 9+ 0 | 0.4942 | 1.55 | Q V | | | | |
| 9+ 5 | 0.5052 | 1.59 | Q V | | | | |
| 9+10 | 0.5168 | 1.69 | Q V | | | | |
| 9+15 | 0.5286 | 1.72 | Q V | | | | |
| 9+20 | 0.5406 | 1.75 | Q V | | | | |
| 9+25 | 0.5531 | 1.80 | Q V | | | | |
| 9+30 | 0.5656 | 1.82 | Q V | | | | |
| 9+35 | 0.5783 | 1.85 | Q V | | | | |

| | | | | | | | | |
|-------|--------|------|---|---|--|--|--|--|
| 9+40 | 0.5914 | 1.90 | Q | V | | | | |
| 9+45 | 0.6046 | 1.92 | Q | V | | | | |
| 9+50 | 0.6180 | 1.94 | Q | V | | | | |
| 9+55 | 0.6317 | 1.99 | Q | V | | | | |
| 10+ 0 | 0.6456 | 2.01 | Q | V | | | | |
| 10+ 5 | 0.6586 | 1.89 | Q | V | | | | |
| 10+10 | 0.6695 | 1.59 | Q | V | | | | |
| 10+15 | 0.6798 | 1.49 | Q | V | | | | |
| 10+20 | 0.6897 | 1.44 | Q | V | | | | |
| 10+25 | 0.6995 | 1.42 | Q | V | | | | |
| 10+30 | 0.7091 | 1.40 | Q | V | | | | |
| 10+35 | 0.7193 | 1.48 | Q | V | | | | |
| 10+40 | 0.7310 | 1.69 | Q | V | | | | |
| 10+45 | 0.7432 | 1.77 | Q | V | | | | |
| 10+50 | 0.7556 | 1.80 | Q | V | | | | |
| 10+55 | 0.7681 | 1.82 | Q | V | | | | |
| 11+ 0 | 0.7807 | 1.83 | Q | V | | | | |
| 11+ 5 | 0.7932 | 1.82 | Q | V | | | | |
| 11+10 | 0.8054 | 1.78 | Q | V | | | | |
| 11+15 | 0.8176 | 1.77 | Q | V | | | | |
| 11+20 | 0.8297 | 1.76 | Q | V | | | | |
| 11+25 | 0.8418 | 1.76 | Q | V | | | | |
| 11+30 | 0.8539 | 1.75 | Q | V | | | | |
| 11+35 | 0.8657 | 1.72 | Q | V | | | | |
| 11+40 | 0.8769 | 1.63 | Q | V | | | | |
| 11+45 | 0.8879 | 1.60 | Q | V | | | | |
| 11+50 | 0.8990 | 1.60 | Q | V | | | | |
| 11+55 | 0.9102 | 1.64 | Q | V | | | | |
| 12+ 0 | 0.9216 | 1.65 | Q | V | | | | |
| 12+ 5 | 0.9338 | 1.78 | Q | V | | | | |
| 12+10 | 0.9482 | 2.09 | Q | V | | | | |
| 12+15 | 0.9633 | 2.19 | Q | V | | | | |
| 12+20 | 0.9789 | 2.26 | Q | V | | | | |
| 12+25 | 0.9949 | 2.33 | Q | V | | | | |
| 12+30 | 1.0112 | 2.36 | Q | V | | | | |
| 12+35 | 1.0278 | 2.41 | Q | V | | | | |
| 12+40 | 1.0451 | 2.52 | Q | V | | | | |
| 12+45 | 1.0626 | 2.55 | Q | V | | | | |
| 12+50 | 1.0804 | 2.58 | Q | V | | | | |
| 12+55 | 1.0985 | 2.63 | Q | V | | | | |
| 13+ 0 | 1.1168 | 2.65 | Q | V | | | | |
| 13+ 5 | 1.1357 | 2.75 | Q | V | | | | |
| 13+10 | 1.1562 | 2.98 | Q | V | | | | |
| 13+15 | 1.1773 | 3.05 | Q | V | | | | |
| 13+20 | 1.1985 | 3.09 | Q | V | | | | |
| 13+25 | 1.2199 | 3.11 | Q | V | | | | |
| 13+30 | 1.2414 | 3.12 | Q | V | | | | |
| 13+35 | 1.2616 | 2.93 | Q | V | | | | |
| 13+40 | 1.2784 | 2.45 | Q | V | | | | |
| 13+45 | 1.2942 | 2.29 | Q | V | | | | |
| 13+50 | 1.3095 | 2.22 | Q | V | | | | |
| 13+55 | 1.3245 | 2.18 | Q | V | | | | |
| 14+ 0 | 1.3393 | 2.15 | Q | V | | | | |
| 14+ 5 | 1.3545 | 2.21 | Q | V | | | | |
| 14+10 | 1.3708 | 2.37 | Q | V | | | | |
| 14+15 | 1.3875 | 2.43 | Q | V | | | | |
| 14+20 | 1.4043 | 2.43 | Q | V | | | | |
| 14+25 | 1.4208 | 2.40 | Q | V | | | | |

| | | | | | |
|-------|--------|------|--|---|---|
| 14+30 | 1.4374 | 2.40 | | Q | V |
| 14+35 | 1.4539 | 2.40 | | Q | V |
| 14+40 | 1.4704 | 2.40 | | Q | V |
| 14+45 | 1.4870 | 2.40 | | Q | V |
| 14+50 | 1.5033 | 2.38 | | Q | V |
| 14+55 | 1.5194 | 2.33 | | Q | V |
| 15+ 0 | 1.5354 | 2.32 | | Q | V |
| 15+ 5 | 1.5512 | 2.29 | | Q | V |
| 15+10 | 1.5667 | 2.25 | | Q | V |
| 15+15 | 1.5820 | 2.23 | | Q | V |
| 15+20 | 1.5972 | 2.20 | | Q | V |
| 15+25 | 1.6120 | 2.15 | | Q | V |
| 15+30 | 1.6268 | 2.14 | | Q | V |
| 15+35 | 1.6409 | 2.06 | | Q | V |
| 15+40 | 1.6539 | 1.88 | | Q | V |
| 15+45 | 1.6664 | 1.82 | | Q | V |
| 15+50 | 1.6787 | 1.79 | | Q | V |
| 15+55 | 1.6909 | 1.77 | | Q | V |
| 16+ 0 | 1.7030 | 1.76 | | Q | V |
| 16+ 5 | 1.7133 | 1.49 | | Q | V |
| 16+10 | 1.7189 | 0.82 | | Q | V |
| 16+15 | 1.7230 | 0.60 | | Q | V |
| 16+20 | 1.7265 | 0.50 | | Q | V |
| 16+25 | 1.7296 | 0.45 | | Q | V |
| 16+30 | 1.7324 | 0.41 | | Q | V |
| 16+35 | 1.7350 | 0.37 | | Q | V |
| 16+40 | 1.7371 | 0.31 | | Q | V |
| 16+45 | 1.7391 | 0.29 | | Q | V |
| 16+50 | 1.7411 | 0.29 | | Q | V |
| 16+55 | 1.7430 | 0.28 | | Q | V |
| 17+ 0 | 1.7449 | 0.28 | | Q | V |
| 17+ 5 | 1.7471 | 0.31 | | Q | V |
| 17+10 | 1.7499 | 0.40 | | Q | V |
| 17+15 | 1.7528 | 0.43 | | Q | V |
| 17+20 | 1.7559 | 0.44 | | Q | V |
| 17+25 | 1.7590 | 0.45 | | Q | V |
| 17+30 | 1.7621 | 0.45 | | Q | V |
| 17+35 | 1.7653 | 0.46 | | Q | V |
| 17+40 | 1.7684 | 0.46 | | Q | V |
| 17+45 | 1.7716 | 0.46 | | Q | V |
| 17+50 | 1.7747 | 0.44 | | Q | V |
| 17+55 | 1.7774 | 0.40 | | Q | V |
| 18+ 0 | 1.7800 | 0.38 | | Q | V |
| 18+ 5 | 1.7826 | 0.38 | | Q | V |
| 18+10 | 1.7852 | 0.37 | | Q | V |
| 18+15 | 1.7878 | 0.37 | | Q | V |
| 18+20 | 1.7903 | 0.37 | | Q | V |
| 18+25 | 1.7929 | 0.37 | | Q | V |
| 18+30 | 1.7954 | 0.37 | | Q | V |
| 18+35 | 1.7978 | 0.35 | | Q | V |
| 18+40 | 1.7999 | 0.31 | | Q | V |
| 18+45 | 1.8019 | 0.29 | | Q | V |
| 18+50 | 1.8038 | 0.27 | | Q | V |
| 18+55 | 1.8053 | 0.22 | | Q | V |
| 19+ 0 | 1.8067 | 0.20 | | Q | V |
| 19+ 5 | 1.8081 | 0.21 | | Q | V |
| 19+10 | 1.8099 | 0.25 | | Q | V |
| 19+15 | 1.8117 | 0.26 | | Q | V |

| | | | | |
|-------|--------|------|---|---|
| 19+20 | 1.8137 | 0.29 | Q | V |
| 19+25 | 1.8160 | 0.33 | Q | V |
| 19+30 | 1.8184 | 0.35 | Q | V |
| 19+35 | 1.8207 | 0.34 | Q | V |
| 19+40 | 1.8228 | 0.30 | Q | V |
| 19+45 | 1.8248 | 0.29 | Q | V |
| 19+50 | 1.8266 | 0.27 | Q | V |
| 19+55 | 1.8281 | 0.22 | Q | V |
| 20+ 0 | 1.8295 | 0.20 | Q | V |
| 20+ 5 | 1.8310 | 0.21 | Q | V |
| 20+10 | 1.8327 | 0.25 | Q | V |
| 20+15 | 1.8345 | 0.26 | Q | V |
| 20+20 | 1.8364 | 0.27 | Q | V |
| 20+25 | 1.8383 | 0.27 | Q | V |
| 20+30 | 1.8402 | 0.27 | Q | V |
| 20+35 | 1.8420 | 0.28 | Q | V |
| 20+40 | 1.8439 | 0.28 | Q | V |
| 20+45 | 1.8459 | 0.28 | Q | V |
| 20+50 | 1.8476 | 0.26 | Q | V |
| 20+55 | 1.8491 | 0.21 | Q | V |
| 21+ 0 | 1.8505 | 0.20 | Q | V |
| 21+ 5 | 1.8519 | 0.21 | Q | V |
| 21+10 | 1.8537 | 0.25 | Q | V |
| 21+15 | 1.8555 | 0.26 | Q | V |
| 21+20 | 1.8572 | 0.25 | Q | V |
| 21+25 | 1.8587 | 0.21 | Q | V |
| 21+30 | 1.8600 | 0.20 | Q | V |
| 21+35 | 1.8615 | 0.21 | Q | V |
| 21+40 | 1.8632 | 0.25 | Q | V |
| 21+45 | 1.8650 | 0.26 | Q | V |
| 21+50 | 1.8667 | 0.25 | Q | V |
| 21+55 | 1.8682 | 0.21 | Q | V |
| 22+ 0 | 1.8695 | 0.20 | Q | V |
| 22+ 5 | 1.8710 | 0.21 | Q | V |
| 22+10 | 1.8727 | 0.25 | Q | V |
| 22+15 | 1.8745 | 0.26 | Q | V |
| 22+20 | 1.8763 | 0.25 | Q | V |
| 22+25 | 1.8777 | 0.21 | Q | V |
| 22+30 | 1.8791 | 0.20 | Q | V |
| 22+35 | 1.8804 | 0.19 | Q | V |
| 22+40 | 1.8817 | 0.19 | Q | V |
| 22+45 | 1.8830 | 0.19 | Q | V |
| 22+50 | 1.8842 | 0.19 | Q | V |
| 22+55 | 1.8855 | 0.18 | Q | V |
| 23+ 0 | 1.8868 | 0.18 | Q | V |
| 23+ 5 | 1.8881 | 0.18 | Q | V |
| 23+10 | 1.8893 | 0.18 | Q | V |
| 23+15 | 1.8906 | 0.18 | Q | V |
| 23+20 | 1.8919 | 0.18 | Q | V |
| 23+25 | 1.8931 | 0.18 | Q | V |
| 23+30 | 1.8944 | 0.18 | Q | V |
| 23+35 | 1.8957 | 0.18 | Q | V |
| 23+40 | 1.8969 | 0.18 | Q | V |
| 23+45 | 1.8982 | 0.18 | Q | V |
| 23+50 | 1.8995 | 0.18 | Q | V |
| 23+55 | 1.9008 | 0.18 | Q | V |
| 24+ 0 | 1.9020 | 0.18 | Q | V |
| 24+ 5 | 1.9030 | 0.15 | Q | V |

| | | | | | | | |
|-------|--------|------|---|--|--|--|---|
| 24+10 | 1.9035 | 0.06 | Q | | | | V |
| 24+15 | 1.9037 | 0.03 | Q | | | | V |
| 24+20 | 1.9038 | 0.02 | Q | | | | V |
| 24+25 | 1.9039 | 0.01 | Q | | | | V |
| 24+30 | 1.9039 | 0.01 | Q | | | | V |
| 24+35 | 1.9039 | 0.00 | Q | | | | V |

2YR, 1HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPREA12.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 0.47 9.59

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.20 24.48

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.470(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.470(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.470(In)

Sub-Area Data:

Total soil loss = 0.31(In)
 Total soil loss = 0.528(Ac.Ft)
 Total rainfall = 0.47(In)
 Flood volume = 11797.9 Cubic Feet
 Total soil loss = 23000.1 Cubic Feet

 Peak flow rate of this hydrograph = 13.151(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 | | 0.13 | Q | | | | |
| 0+10 | 0.0041 | | 0.46 | Q | | | | |
| 0+15 | 0.0082 | | 0.60 | Q | | | | |
| 0+20 | 0.0131 | | 0.71 | Q | | | | |
| 0+25 | 0.0185 | | 0.78 | QV | | | | |
| 0+30 | 0.0246 | | 0.89 | Q V | | | | |
| 0+35 | 0.0315 | | 1.01 | Q V | | | | |
| 0+40 | 0.0395 | | 1.16 | Q V | | | | |
| 0+45 | 0.0533 | | 2.01 | Q V | | | | |
| 0+50 | 0.1059 | | 7.63 | | Q | | | |
| 0+55 | 0.1964 | | 13.15 | | | Q | V | |
| 1+ 0 | 0.2311 | | 5.03 | | Q | | | V |
| 1+ 5 | 0.2488 | | 2.58 | Q | | | | V |
| 1+10 | 0.2582 | | 1.36 | Q | | | | V |
| 1+15 | 0.2640 | | 0.84 | Q | | | | V |
| 1+20 | 0.2677 | | 0.53 | Q | | | | V |
| 1+25 | 0.2705 | | 0.42 | Q | | | | V |
| 1+30 | 0.2708 | | 0.03 | Q | | | | V |
| 1+35 | 0.2708 | | 0.01 | Q | | | | V |

2YR, 3HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPREA32.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 0.80 16.32

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.86 37.94

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 0.800(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 0.800(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 78.0 60.6 0.464 0.050 0.443 1.000 0.443
 Sum (F) = 0.443

Area averaged mean soil loss (F) (In/Hr) = 0.443
 Minimum soil loss rate ((In/Hr)) = 0.221
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | (0.443) 0.107 | 0.017 |
| 2 | 0.17 | 1.30 | (0.443) 0.107 | 0.017 |
| 3 | 0.25 | 1.10 | (0.443) 0.091 | 0.015 |
| 4 | 0.33 | 1.50 | (0.443) 0.124 | 0.020 |
| 5 | 0.42 | 1.50 | (0.443) 0.124 | 0.020 |
| 6 | 0.50 | 1.80 | (0.443) 0.149 | 0.024 |
| 7 | 0.58 | 1.50 | (0.443) 0.124 | 0.020 |
| 8 | 0.67 | 1.80 | (0.443) 0.149 | 0.024 |
| 9 | 0.75 | 1.80 | (0.443) 0.149 | 0.024 |
| 10 | 0.83 | 1.50 | (0.443) 0.124 | 0.020 |
| 11 | 0.92 | 1.60 | (0.443) 0.132 | 0.022 |
| 12 | 1.00 | 1.80 | (0.443) 0.149 | 0.024 |
| 13 | 1.08 | 2.20 | (0.443) 0.182 | 0.030 |
| 14 | 1.17 | 2.20 | (0.443) 0.182 | 0.030 |
| 15 | 1.25 | 2.20 | (0.443) 0.182 | 0.030 |
| 16 | 1.33 | 2.00 | (0.443) 0.165 | 0.027 |
| 17 | 1.42 | 2.60 | (0.443) 0.215 | 0.035 |
| 18 | 1.50 | 2.70 | (0.443) 0.223 | 0.036 |

2YR, 6HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPREA62.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 1.00 20.40

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 2.50 51.00

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.000(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.000(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 78.0 60.6 0.464 0.050 0.443 1.000 0.443
 Sum (F) = 0.443

Area averaged mean soil loss (F) (In/Hr) = 0.443
 Minimum soil loss rate ((In/Hr)) = 0.221
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | (0.443) 0.052 | 0.008 |
| 2 | 0.17 | 0.60 | (0.443) 0.062 | 0.010 |
| 3 | 0.25 | 0.60 | (0.443) 0.062 | 0.010 |
| 4 | 0.33 | 0.60 | (0.443) 0.062 | 0.010 |
| 5 | 0.42 | 0.60 | (0.443) 0.062 | 0.010 |
| 6 | 0.50 | 0.70 | (0.443) 0.072 | 0.012 |
| 7 | 0.58 | 0.70 | (0.443) 0.072 | 0.012 |
| 8 | 0.67 | 0.70 | (0.443) 0.072 | 0.012 |
| 9 | 0.75 | 0.70 | (0.443) 0.072 | 0.012 |
| 10 | 0.83 | 0.70 | (0.443) 0.072 | 0.012 |
| 11 | 0.92 | 0.70 | (0.443) 0.072 | 0.012 |
| 12 | 1.00 | 0.80 | (0.443) 0.083 | 0.013 |
| 13 | 1.08 | 0.80 | (0.443) 0.083 | 0.013 |
| 14 | 1.17 | 0.80 | (0.443) 0.083 | 0.013 |
| 15 | 1.25 | 0.80 | (0.443) 0.083 | 0.013 |
| 16 | 1.33 | 0.80 | (0.443) 0.083 | 0.013 |
| 17 | 1.42 | 0.80 | (0.443) 0.083 | 0.013 |
| 18 | 1.50 | 0.80 | (0.443) 0.083 | 0.013 |

| | | | | | | |
|----|------|------|-------|----------|----------|-------|
| 19 | 1.58 | 0.80 | 0.096 | (0.443) | 0.083 | 0.013 |
| 20 | 1.67 | 0.80 | 0.096 | (0.443) | 0.083 | 0.013 |
| 21 | 1.75 | 0.80 | 0.096 | (0.443) | 0.083 | 0.013 |
| 22 | 1.83 | 0.80 | 0.096 | (0.443) | 0.083 | 0.013 |
| 23 | 1.92 | 0.80 | 0.096 | (0.443) | 0.083 | 0.013 |
| 24 | 2.00 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 25 | 2.08 | 0.80 | 0.096 | (0.443) | 0.083 | 0.013 |
| 26 | 2.17 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 27 | 2.25 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 28 | 2.33 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 29 | 2.42 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 30 | 2.50 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 31 | 2.58 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 32 | 2.67 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 33 | 2.75 | 1.00 | 0.120 | (0.443) | 0.103 | 0.017 |
| 34 | 2.83 | 1.00 | 0.120 | (0.443) | 0.103 | 0.017 |
| 35 | 2.92 | 1.00 | 0.120 | (0.443) | 0.103 | 0.017 |
| 36 | 3.00 | 1.00 | 0.120 | (0.443) | 0.103 | 0.017 |
| 37 | 3.08 | 1.00 | 0.120 | (0.443) | 0.103 | 0.017 |
| 38 | 3.17 | 1.10 | 0.132 | (0.443) | 0.114 | 0.018 |
| 39 | 3.25 | 1.10 | 0.132 | (0.443) | 0.114 | 0.018 |
| 40 | 3.33 | 1.10 | 0.132 | (0.443) | 0.114 | 0.018 |
| 41 | 3.42 | 1.20 | 0.144 | (0.443) | 0.124 | 0.020 |
| 42 | 3.50 | 1.30 | 0.156 | (0.443) | 0.134 | 0.022 |
| 43 | 3.58 | 1.40 | 0.168 | (0.443) | 0.144 | 0.024 |
| 44 | 3.67 | 1.40 | 0.168 | (0.443) | 0.144 | 0.024 |
| 45 | 3.75 | 1.50 | 0.180 | (0.443) | 0.155 | 0.025 |
| 46 | 3.83 | 1.50 | 0.180 | (0.443) | 0.155 | 0.025 |
| 47 | 3.92 | 1.60 | 0.192 | (0.443) | 0.165 | 0.027 |
| 48 | 4.00 | 1.60 | 0.192 | (0.443) | 0.165 | 0.027 |
| 49 | 4.08 | 1.70 | 0.204 | (0.443) | 0.175 | 0.029 |
| 50 | 4.17 | 1.80 | 0.216 | (0.443) | 0.186 | 0.030 |
| 51 | 4.25 | 1.90 | 0.228 | (0.443) | 0.196 | 0.032 |
| 52 | 4.33 | 2.00 | 0.240 | (0.443) | 0.206 | 0.034 |
| 53 | 4.42 | 2.10 | 0.252 | (0.443) | 0.217 | 0.035 |
| 54 | 4.50 | 2.10 | 0.252 | (0.443) | 0.217 | 0.035 |
| 55 | 4.58 | 2.20 | 0.264 | (0.443) | 0.227 | 0.037 |
| 56 | 4.67 | 2.30 | 0.276 | (0.443) | 0.237 | 0.039 |
| 57 | 4.75 | 2.40 | 0.288 | (0.443) | 0.248 | 0.040 |
| 58 | 4.83 | 2.40 | 0.288 | (0.443) | 0.248 | 0.040 |
| 59 | 4.92 | 2.50 | 0.300 | (0.443) | 0.258 | 0.042 |
| 60 | 5.00 | 2.60 | 0.312 | (0.443) | 0.268 | 0.044 |
| 61 | 5.08 | 3.10 | 0.372 | (0.443) | 0.320 | 0.052 |
| 62 | 5.17 | 3.60 | 0.432 | (0.443) | 0.371 | 0.060 |
| 63 | 5.25 | 3.90 | 0.468 | (0.443) | 0.402 | 0.066 |
| 64 | 5.33 | 4.20 | 0.504 | (0.443) | 0.433 | 0.071 |
| 65 | 5.42 | 4.70 | 0.564 | 0.443 | (0.485) | 0.121 |
| 66 | 5.50 | 5.60 | 0.672 | 0.443 | (0.578) | 0.229 |
| 67 | 5.58 | 1.90 | 0.228 | (0.443) | 0.196 | 0.032 |
| 68 | 5.67 | 0.90 | 0.108 | (0.443) | 0.093 | 0.015 |
| 69 | 5.75 | 0.60 | 0.072 | (0.443) | 0.062 | 0.010 |
| 70 | 5.83 | 0.50 | 0.060 | (0.443) | 0.052 | 0.008 |
| 71 | 5.92 | 0.30 | 0.036 | (0.443) | 0.031 | 0.005 |
| 72 | 6.00 | 0.20 | 0.024 | (0.443) | 0.021 | 0.003 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 1.9

Flood volume = Effective rainfall 0.15(In)

times area 20.4(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)

Total soil loss = 0.85(In)
 Total soil loss = 1.437(Ac.Ft)
 Total rainfall = 1.00(In)
 Flood volume = 11462.3 Cubic Feet
 Total soil loss = 62584.5 Cubic Feet

 Peak flow rate of this hydrograph = 3.018(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 | 0.0011 | | 0.12 | Q | | | | |
| 0+15 | 0.0022 | | 0.17 | Q | | | | |
| 0+20 | 0.0035 | | 0.18 | Q | | | | |
| 0+25 | 0.0048 | | 0.19 | Q | | | | |
| 0+30 | 0.0063 | | 0.21 | Q | | | | |
| 0+35 | 0.0078 | | 0.23 | QV | | | | |
| 0+40 | 0.0094 | | 0.24 | QV | | | | |
| 0+45 | 0.0111 | | 0.24 | QV | | | | |
| 0+50 | 0.0127 | | 0.24 | QV | | | | |
| 0+55 | 0.0144 | | 0.24 | Q V | | | | |
| 1+ 0 | 0.0161 | | 0.25 | Q V | | | | |
| 1+ 5 | 0.0179 | | 0.27 | QV | | | | |
| 1+10 | 0.0198 | | 0.27 | Q V | | | | |
| 1+15 | 0.0217 | | 0.27 | Q V | | | | |
| 1+20 | 0.0236 | | 0.27 | Q V | | | | |
| 1+25 | 0.0255 | | 0.28 | Q V | | | | |
| 1+30 | 0.0274 | | 0.28 | Q V | | | | |
| 1+35 | 0.0293 | | 0.28 | Q V | | | | |
| 1+40 | 0.0312 | | 0.28 | Q V | | | | |
| 1+45 | 0.0331 | | 0.28 | Q V | | | | |
| 1+50 | 0.0350 | | 0.28 | Q V | | | | |
| 1+55 | 0.0369 | | 0.28 | Q V | | | | |
| 2+ 0 | 0.0388 | | 0.28 | Q V | | | | |
| 2+ 5 | 0.0409 | | 0.29 | Q V | | | | |
| 2+10 | 0.0428 | | 0.29 | Q V | | | | |
| 2+15 | 0.0449 | | 0.30 | Q V | | | | |
| 2+20 | 0.0470 | | 0.31 | Q V | | | | |
| 2+25 | 0.0492 | | 0.31 | Q V | | | | |
| 2+30 | 0.0513 | | 0.31 | Q V | | | | |
| 2+35 | 0.0534 | | 0.31 | Q V | | | | |
| 2+40 | 0.0556 | | 0.31 | Q V | | | | |
| 2+45 | 0.0578 | | 0.32 | Q V | | | | |
| 2+50 | 0.0601 | | 0.33 | Q V | | | | |
| 2+55 | 0.0624 | | 0.34 | Q V | | | | |
| 3+ 0 | 0.0648 | | 0.34 | Q V | | | | |
| 3+ 5 | 0.0671 | | 0.34 | Q V | | | | |
| 3+10 | 0.0695 | | 0.35 | Q V | | | | |
| 3+15 | 0.0721 | | 0.37 | Q V | | | | |
| 3+20 | 0.0747 | | 0.37 | Q V | | | | |
| 3+25 | 0.0773 | | 0.38 | Q V | | | | |

| | | | | | | | |
|------|--------|------|---|---|--|---|---|
| 3+30 | 0.0801 | 0.41 | Q | V | | | |
| 3+35 | 0.0831 | 0.44 | Q | V | | | |
| 3+40 | 0.0863 | 0.46 | Q | V | | | |
| 3+45 | 0.0896 | 0.48 | Q | V | | | |
| 3+50 | 0.0931 | 0.50 | Q | V | | | |
| 3+55 | 0.0966 | 0.52 | Q | V | | | |
| 4+ 0 | 0.1003 | 0.54 | Q | V | | | |
| 4+ 5 | 0.1041 | 0.55 | Q | V | | | |
| 4+10 | 0.1081 | 0.58 | Q | V | | | |
| 4+15 | 0.1123 | 0.61 | Q | V | | | |
| 4+20 | 0.1167 | 0.64 | Q | V | | | |
| 4+25 | 0.1213 | 0.67 | Q | V | | | |
| 4+30 | 0.1262 | 0.70 | Q | V | | | |
| 4+35 | 0.1311 | 0.72 | Q | V | | | |
| 4+40 | 0.1363 | 0.75 | Q | V | | | |
| 4+45 | 0.1417 | 0.78 | Q | V | | | |
| 4+50 | 0.1472 | 0.81 | Q | V | | | |
| 4+55 | 0.1529 | 0.82 | Q | V | | | |
| 5+ 0 | 0.1588 | 0.85 | Q | V | | | |
| 5+ 5 | 0.1651 | 0.91 | Q | V | | | |
| 5+10 | 0.1722 | 1.04 | Q | V | | | |
| 5+15 | 0.1803 | 1.17 | Q | V | | | |
| 5+20 | 0.1891 | 1.29 | Q | V | | | |
| 5+25 | 0.2000 | 1.57 | Q | V | | | |
| 5+30 | 0.2175 | 2.54 | Q | Q | | V | |
| 5+35 | 0.2383 | 3.02 | | Q | | V | |
| 5+40 | 0.2480 | 1.42 | Q | | | V | |
| 5+45 | 0.2536 | 0.80 | Q | | | V | |
| 5+50 | 0.2572 | 0.52 | Q | | | V | |
| 5+55 | 0.2597 | 0.37 | Q | | | V | |
| 6+ 0 | 0.2614 | 0.25 | Q | | | V | |
| 6+ 5 | 0.2625 | 0.16 | Q | | | V | |
| 6+10 | 0.2628 | 0.05 | Q | | | V | |
| 6+15 | 0.2630 | 0.02 | Q | | | V | |
| 6+20 | 0.2631 | 0.01 | Q | | | V | |
| 6+25 | 0.2631 | 0.01 | Q | | | V | |
| 6+30 | 0.2631 | 0.00 | Q | | | V | |
| 6+35 | 0.2631 | 0.00 | Q | | | V | V |

2YR, 24HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPREA242.out

+++++

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

Program License Serial Number 6215

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

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 1.60 32.64

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 4.00 81.60

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.600(In)
Area Averaged 100-Year Rainfall = 4.000(In)

Point rain (area averaged) = 1.600(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.600(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|-----------|-------|-------------|------------|------------------|--------|---------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-1 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 60.6 | 0.464 | 0.050 | 0.443 | 1.000 | 0.443 |
| Sum (F) = | | | | | | 0.443 |

Area averaged mean soil loss (F) (In/Hr) = 0.443
 Minimum soil loss rate ((In/Hr)) = 0.221
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) | |
|--------------------|--------------------|-----------------------|-------------------|----------|----------------------|-------|
| | | | Max | Low | | |
| 1 | 0.08 | 0.07 | 0.013 | (0.785) | 0.011 | 0.002 |
| 2 | 0.17 | 0.07 | 0.013 | (0.782) | 0.011 | 0.002 |
| 3 | 0.25 | 0.07 | 0.013 | (0.779) | 0.011 | 0.002 |
| 4 | 0.33 | 0.10 | 0.019 | (0.776) | 0.017 | 0.003 |
| 5 | 0.42 | 0.10 | 0.019 | (0.773) | 0.017 | 0.003 |
| 6 | 0.50 | 0.10 | 0.019 | (0.770) | 0.017 | 0.003 |
| 7 | 0.58 | 0.10 | 0.019 | (0.767) | 0.017 | 0.003 |
| 8 | 0.67 | 0.10 | 0.019 | (0.764) | 0.017 | 0.003 |
| 9 | 0.75 | 0.10 | 0.019 | (0.761) | 0.017 | 0.003 |
| 10 | 0.83 | 0.13 | 0.026 | (0.758) | 0.022 | 0.004 |
| 11 | 0.92 | 0.13 | 0.026 | (0.755) | 0.022 | 0.004 |
| 12 | 1.00 | 0.13 | 0.026 | (0.752) | 0.022 | 0.004 |
| 13 | 1.08 | 0.10 | 0.019 | (0.749) | 0.017 | 0.003 |
| 14 | 1.17 | 0.10 | 0.019 | (0.746) | 0.017 | 0.003 |
| 15 | 1.25 | 0.10 | 0.019 | (0.743) | 0.017 | 0.003 |
| 16 | 1.33 | 0.10 | 0.019 | (0.740) | 0.017 | 0.003 |
| 17 | 1.42 | 0.10 | 0.019 | (0.737) | 0.017 | 0.003 |
| 18 | 1.50 | 0.10 | 0.019 | (0.734) | 0.017 | 0.003 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 19 | 1.58 | 0.10 | 0.019 | (0.731) | 0.017 | 0.003 |
| 20 | 1.67 | 0.10 | 0.019 | (0.728) | 0.017 | 0.003 |
| 21 | 1.75 | 0.10 | 0.019 | (0.725) | 0.017 | 0.003 |
| 22 | 1.83 | 0.13 | 0.026 | (0.722) | 0.022 | 0.004 |
| 23 | 1.92 | 0.13 | 0.026 | (0.719) | 0.022 | 0.004 |
| 24 | 2.00 | 0.13 | 0.026 | (0.716) | 0.022 | 0.004 |
| 25 | 2.08 | 0.13 | 0.026 | (0.714) | 0.022 | 0.004 |
| 26 | 2.17 | 0.13 | 0.026 | (0.711) | 0.022 | 0.004 |
| 27 | 2.25 | 0.13 | 0.026 | (0.708) | 0.022 | 0.004 |
| 28 | 2.33 | 0.13 | 0.026 | (0.705) | 0.022 | 0.004 |
| 29 | 2.42 | 0.13 | 0.026 | (0.702) | 0.022 | 0.004 |
| 30 | 2.50 | 0.13 | 0.026 | (0.699) | 0.022 | 0.004 |
| 31 | 2.58 | 0.17 | 0.032 | (0.696) | 0.028 | 0.004 |
| 32 | 2.67 | 0.17 | 0.032 | (0.693) | 0.028 | 0.004 |
| 33 | 2.75 | 0.17 | 0.032 | (0.691) | 0.028 | 0.004 |
| 34 | 2.83 | 0.17 | 0.032 | (0.688) | 0.028 | 0.004 |
| 35 | 2.92 | 0.17 | 0.032 | (0.685) | 0.028 | 0.004 |
| 36 | 3.00 | 0.17 | 0.032 | (0.682) | 0.028 | 0.004 |
| 37 | 3.08 | 0.17 | 0.032 | (0.679) | 0.028 | 0.004 |
| 38 | 3.17 | 0.17 | 0.032 | (0.676) | 0.028 | 0.004 |
| 39 | 3.25 | 0.17 | 0.032 | (0.674) | 0.028 | 0.004 |
| 40 | 3.33 | 0.17 | 0.032 | (0.671) | 0.028 | 0.004 |
| 41 | 3.42 | 0.17 | 0.032 | (0.668) | 0.028 | 0.004 |
| 42 | 3.50 | 0.17 | 0.032 | (0.665) | 0.028 | 0.004 |
| 43 | 3.58 | 0.17 | 0.032 | (0.662) | 0.028 | 0.004 |
| 44 | 3.67 | 0.17 | 0.032 | (0.660) | 0.028 | 0.004 |
| 45 | 3.75 | 0.17 | 0.032 | (0.657) | 0.028 | 0.004 |
| 46 | 3.83 | 0.20 | 0.038 | (0.654) | 0.033 | 0.005 |
| 47 | 3.92 | 0.20 | 0.038 | (0.651) | 0.033 | 0.005 |
| 48 | 4.00 | 0.20 | 0.038 | (0.649) | 0.033 | 0.005 |
| 49 | 4.08 | 0.20 | 0.038 | (0.646) | 0.033 | 0.005 |
| 50 | 4.17 | 0.20 | 0.038 | (0.643) | 0.033 | 0.005 |
| 51 | 4.25 | 0.20 | 0.038 | (0.640) | 0.033 | 0.005 |
| 52 | 4.33 | 0.23 | 0.045 | (0.638) | 0.039 | 0.006 |
| 53 | 4.42 | 0.23 | 0.045 | (0.635) | 0.039 | 0.006 |
| 54 | 4.50 | 0.23 | 0.045 | (0.632) | 0.039 | 0.006 |
| 55 | 4.58 | 0.23 | 0.045 | (0.629) | 0.039 | 0.006 |
| 56 | 4.67 | 0.23 | 0.045 | (0.627) | 0.039 | 0.006 |
| 57 | 4.75 | 0.23 | 0.045 | (0.624) | 0.039 | 0.006 |
| 58 | 4.83 | 0.27 | 0.051 | (0.621) | 0.044 | 0.007 |
| 59 | 4.92 | 0.27 | 0.051 | (0.619) | 0.044 | 0.007 |
| 60 | 5.00 | 0.27 | 0.051 | (0.616) | 0.044 | 0.007 |
| 61 | 5.08 | 0.20 | 0.038 | (0.613) | 0.033 | 0.005 |
| 62 | 5.17 | 0.20 | 0.038 | (0.611) | 0.033 | 0.005 |
| 63 | 5.25 | 0.20 | 0.038 | (0.608) | 0.033 | 0.005 |
| 64 | 5.33 | 0.23 | 0.045 | (0.605) | 0.039 | 0.006 |
| 65 | 5.42 | 0.23 | 0.045 | (0.603) | 0.039 | 0.006 |
| 66 | 5.50 | 0.23 | 0.045 | (0.600) | 0.039 | 0.006 |
| 67 | 5.58 | 0.27 | 0.051 | (0.597) | 0.044 | 0.007 |
| 68 | 5.67 | 0.27 | 0.051 | (0.595) | 0.044 | 0.007 |
| 69 | 5.75 | 0.27 | 0.051 | (0.592) | 0.044 | 0.007 |
| 70 | 5.83 | 0.27 | 0.051 | (0.590) | 0.044 | 0.007 |
| 71 | 5.92 | 0.27 | 0.051 | (0.587) | 0.044 | 0.007 |
| 72 | 6.00 | 0.27 | 0.051 | (0.584) | 0.044 | 0.007 |
| 73 | 6.08 | 0.30 | 0.058 | (0.582) | 0.050 | 0.008 |
| 74 | 6.17 | 0.30 | 0.058 | (0.579) | 0.050 | 0.008 |
| 75 | 6.25 | 0.30 | 0.058 | (0.577) | 0.050 | 0.008 |
| 76 | 6.33 | 0.30 | 0.058 | (0.574) | 0.050 | 0.008 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 77 | 6.42 | 0.30 | 0.058 | (0.571) | 0.050 | 0.008 |
| 78 | 6.50 | 0.30 | 0.058 | (0.569) | 0.050 | 0.008 |
| 79 | 6.58 | 0.33 | 0.064 | (0.566) | 0.055 | 0.009 |
| 80 | 6.67 | 0.33 | 0.064 | (0.564) | 0.055 | 0.009 |
| 81 | 6.75 | 0.33 | 0.064 | (0.561) | 0.055 | 0.009 |
| 82 | 6.83 | 0.33 | 0.064 | (0.559) | 0.055 | 0.009 |
| 83 | 6.92 | 0.33 | 0.064 | (0.556) | 0.055 | 0.009 |
| 84 | 7.00 | 0.33 | 0.064 | (0.554) | 0.055 | 0.009 |
| 85 | 7.08 | 0.33 | 0.064 | (0.551) | 0.055 | 0.009 |
| 86 | 7.17 | 0.33 | 0.064 | (0.549) | 0.055 | 0.009 |
| 87 | 7.25 | 0.33 | 0.064 | (0.546) | 0.055 | 0.009 |
| 88 | 7.33 | 0.37 | 0.070 | (0.544) | 0.061 | 0.010 |
| 89 | 7.42 | 0.37 | 0.070 | (0.541) | 0.061 | 0.010 |
| 90 | 7.50 | 0.37 | 0.070 | (0.539) | 0.061 | 0.010 |
| 91 | 7.58 | 0.40 | 0.077 | (0.536) | 0.066 | 0.011 |
| 92 | 7.67 | 0.40 | 0.077 | (0.534) | 0.066 | 0.011 |
| 93 | 7.75 | 0.40 | 0.077 | (0.531) | 0.066 | 0.011 |
| 94 | 7.83 | 0.43 | 0.083 | (0.529) | 0.072 | 0.012 |
| 95 | 7.92 | 0.43 | 0.083 | (0.526) | 0.072 | 0.012 |
| 96 | 8.00 | 0.43 | 0.083 | (0.524) | 0.072 | 0.012 |
| 97 | 8.08 | 0.50 | 0.096 | (0.521) | 0.083 | 0.013 |
| 98 | 8.17 | 0.50 | 0.096 | (0.519) | 0.083 | 0.013 |
| 99 | 8.25 | 0.50 | 0.096 | (0.517) | 0.083 | 0.013 |
| 100 | 8.33 | 0.50 | 0.096 | (0.514) | 0.083 | 0.013 |
| 101 | 8.42 | 0.50 | 0.096 | (0.512) | 0.083 | 0.013 |
| 102 | 8.50 | 0.50 | 0.096 | (0.509) | 0.083 | 0.013 |
| 103 | 8.58 | 0.53 | 0.102 | (0.507) | 0.088 | 0.014 |
| 104 | 8.67 | 0.53 | 0.102 | (0.505) | 0.088 | 0.014 |
| 105 | 8.75 | 0.53 | 0.102 | (0.502) | 0.088 | 0.014 |
| 106 | 8.83 | 0.57 | 0.109 | (0.500) | 0.094 | 0.015 |
| 107 | 8.92 | 0.57 | 0.109 | (0.498) | 0.094 | 0.015 |
| 108 | 9.00 | 0.57 | 0.109 | (0.495) | 0.094 | 0.015 |
| 109 | 9.08 | 0.63 | 0.122 | (0.493) | 0.105 | 0.017 |
| 110 | 9.17 | 0.63 | 0.122 | (0.490) | 0.105 | 0.017 |
| 111 | 9.25 | 0.63 | 0.122 | (0.488) | 0.105 | 0.017 |
| 112 | 9.33 | 0.67 | 0.128 | (0.486) | 0.110 | 0.018 |
| 113 | 9.42 | 0.67 | 0.128 | (0.483) | 0.110 | 0.018 |
| 114 | 9.50 | 0.67 | 0.128 | (0.481) | 0.110 | 0.018 |
| 115 | 9.58 | 0.70 | 0.134 | (0.479) | 0.116 | 0.019 |
| 116 | 9.67 | 0.70 | 0.134 | (0.477) | 0.116 | 0.019 |
| 117 | 9.75 | 0.70 | 0.134 | (0.474) | 0.116 | 0.019 |
| 118 | 9.83 | 0.73 | 0.141 | (0.472) | 0.121 | 0.020 |
| 119 | 9.92 | 0.73 | 0.141 | (0.470) | 0.121 | 0.020 |
| 120 | 10.00 | 0.73 | 0.141 | (0.467) | 0.121 | 0.020 |
| 121 | 10.08 | 0.50 | 0.096 | (0.465) | 0.083 | 0.013 |
| 122 | 10.17 | 0.50 | 0.096 | (0.463) | 0.083 | 0.013 |
| 123 | 10.25 | 0.50 | 0.096 | (0.461) | 0.083 | 0.013 |
| 124 | 10.33 | 0.50 | 0.096 | (0.458) | 0.083 | 0.013 |
| 125 | 10.42 | 0.50 | 0.096 | (0.456) | 0.083 | 0.013 |
| 126 | 10.50 | 0.50 | 0.096 | (0.454) | 0.083 | 0.013 |
| 127 | 10.58 | 0.67 | 0.128 | (0.452) | 0.110 | 0.018 |
| 128 | 10.67 | 0.67 | 0.128 | (0.450) | 0.110 | 0.018 |
| 129 | 10.75 | 0.67 | 0.128 | (0.447) | 0.110 | 0.018 |
| 130 | 10.83 | 0.67 | 0.128 | (0.445) | 0.110 | 0.018 |
| 131 | 10.92 | 0.67 | 0.128 | (0.443) | 0.110 | 0.018 |
| 132 | 11.00 | 0.67 | 0.128 | (0.441) | 0.110 | 0.018 |
| 133 | 11.08 | 0.63 | 0.122 | (0.439) | 0.105 | 0.017 |
| 134 | 11.17 | 0.63 | 0.122 | (0.436) | 0.105 | 0.017 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 135 | 11.25 | 0.63 | 0.122 | (0.434) | 0.105 | 0.017 |
| 136 | 11.33 | 0.63 | 0.122 | (0.432) | 0.105 | 0.017 |
| 137 | 11.42 | 0.63 | 0.122 | (0.430) | 0.105 | 0.017 |
| 138 | 11.50 | 0.63 | 0.122 | (0.428) | 0.105 | 0.017 |
| 139 | 11.58 | 0.57 | 0.109 | (0.426) | 0.094 | 0.015 |
| 140 | 11.67 | 0.57 | 0.109 | (0.424) | 0.094 | 0.015 |
| 141 | 11.75 | 0.57 | 0.109 | (0.422) | 0.094 | 0.015 |
| 142 | 11.83 | 0.60 | 0.115 | (0.419) | 0.099 | 0.016 |
| 143 | 11.92 | 0.60 | 0.115 | (0.417) | 0.099 | 0.016 |
| 144 | 12.00 | 0.60 | 0.115 | (0.415) | 0.099 | 0.016 |
| 145 | 12.08 | 0.83 | 0.160 | (0.413) | 0.138 | 0.022 |
| 146 | 12.17 | 0.83 | 0.160 | (0.411) | 0.138 | 0.022 |
| 147 | 12.25 | 0.83 | 0.160 | (0.409) | 0.138 | 0.022 |
| 148 | 12.33 | 0.87 | 0.166 | (0.407) | 0.143 | 0.023 |
| 149 | 12.42 | 0.87 | 0.166 | (0.405) | 0.143 | 0.023 |
| 150 | 12.50 | 0.87 | 0.166 | (0.403) | 0.143 | 0.023 |
| 151 | 12.58 | 0.93 | 0.179 | (0.401) | 0.154 | 0.025 |
| 152 | 12.67 | 0.93 | 0.179 | (0.399) | 0.154 | 0.025 |
| 153 | 12.75 | 0.93 | 0.179 | (0.397) | 0.154 | 0.025 |
| 154 | 12.83 | 0.97 | 0.186 | (0.395) | 0.160 | 0.026 |
| 155 | 12.92 | 0.97 | 0.186 | (0.393) | 0.160 | 0.026 |
| 156 | 13.00 | 0.97 | 0.186 | (0.391) | 0.160 | 0.026 |
| 157 | 13.08 | 1.13 | 0.218 | (0.389) | 0.187 | 0.030 |
| 158 | 13.17 | 1.13 | 0.218 | (0.387) | 0.187 | 0.030 |
| 159 | 13.25 | 1.13 | 0.218 | (0.385) | 0.187 | 0.030 |
| 160 | 13.33 | 1.13 | 0.218 | (0.383) | 0.187 | 0.030 |
| 161 | 13.42 | 1.13 | 0.218 | (0.381) | 0.187 | 0.030 |
| 162 | 13.50 | 1.13 | 0.218 | (0.379) | 0.187 | 0.030 |
| 163 | 13.58 | 0.77 | 0.147 | (0.377) | 0.127 | 0.021 |
| 164 | 13.67 | 0.77 | 0.147 | (0.375) | 0.127 | 0.021 |
| 165 | 13.75 | 0.77 | 0.147 | (0.373) | 0.127 | 0.021 |
| 166 | 13.83 | 0.77 | 0.147 | (0.371) | 0.127 | 0.021 |
| 167 | 13.92 | 0.77 | 0.147 | (0.370) | 0.127 | 0.021 |
| 168 | 14.00 | 0.77 | 0.147 | (0.368) | 0.127 | 0.021 |
| 169 | 14.08 | 0.90 | 0.173 | (0.366) | 0.149 | 0.024 |
| 170 | 14.17 | 0.90 | 0.173 | (0.364) | 0.149 | 0.024 |
| 171 | 14.25 | 0.90 | 0.173 | (0.362) | 0.149 | 0.024 |
| 172 | 14.33 | 0.87 | 0.166 | (0.360) | 0.143 | 0.023 |
| 173 | 14.42 | 0.87 | 0.166 | (0.358) | 0.143 | 0.023 |
| 174 | 14.50 | 0.87 | 0.166 | (0.357) | 0.143 | 0.023 |
| 175 | 14.58 | 0.87 | 0.166 | (0.355) | 0.143 | 0.023 |
| 176 | 14.67 | 0.87 | 0.166 | (0.353) | 0.143 | 0.023 |
| 177 | 14.75 | 0.87 | 0.166 | (0.351) | 0.143 | 0.023 |
| 178 | 14.83 | 0.83 | 0.160 | (0.349) | 0.138 | 0.022 |
| 179 | 14.92 | 0.83 | 0.160 | (0.348) | 0.138 | 0.022 |
| 180 | 15.00 | 0.83 | 0.160 | (0.346) | 0.138 | 0.022 |
| 181 | 15.08 | 0.80 | 0.154 | (0.344) | 0.132 | 0.022 |
| 182 | 15.17 | 0.80 | 0.154 | (0.342) | 0.132 | 0.022 |
| 183 | 15.25 | 0.80 | 0.154 | (0.340) | 0.132 | 0.022 |
| 184 | 15.33 | 0.77 | 0.147 | (0.339) | 0.127 | 0.021 |
| 185 | 15.42 | 0.77 | 0.147 | (0.337) | 0.127 | 0.021 |
| 186 | 15.50 | 0.77 | 0.147 | (0.335) | 0.127 | 0.021 |
| 187 | 15.58 | 0.63 | 0.122 | (0.334) | 0.105 | 0.017 |
| 188 | 15.67 | 0.63 | 0.122 | (0.332) | 0.105 | 0.017 |
| 189 | 15.75 | 0.63 | 0.122 | (0.330) | 0.105 | 0.017 |
| 190 | 15.83 | 0.63 | 0.122 | (0.328) | 0.105 | 0.017 |
| 191 | 15.92 | 0.63 | 0.122 | (0.327) | 0.105 | 0.017 |
| 192 | 16.00 | 0.63 | 0.122 | (0.325) | 0.105 | 0.017 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 193 | 16.08 | 0.13 | 0.026 | (0.323) | 0.022 | 0.004 |
| 194 | 16.17 | 0.13 | 0.026 | (0.322) | 0.022 | 0.004 |
| 195 | 16.25 | 0.13 | 0.026 | (0.320) | 0.022 | 0.004 |
| 196 | 16.33 | 0.13 | 0.026 | (0.318) | 0.022 | 0.004 |
| 197 | 16.42 | 0.13 | 0.026 | (0.317) | 0.022 | 0.004 |
| 198 | 16.50 | 0.13 | 0.026 | (0.315) | 0.022 | 0.004 |
| 199 | 16.58 | 0.10 | 0.019 | (0.314) | 0.017 | 0.003 |
| 200 | 16.67 | 0.10 | 0.019 | (0.312) | 0.017 | 0.003 |
| 201 | 16.75 | 0.10 | 0.019 | (0.310) | 0.017 | 0.003 |
| 202 | 16.83 | 0.10 | 0.019 | (0.309) | 0.017 | 0.003 |
| 203 | 16.92 | 0.10 | 0.019 | (0.307) | 0.017 | 0.003 |
| 204 | 17.00 | 0.10 | 0.019 | (0.306) | 0.017 | 0.003 |
| 205 | 17.08 | 0.17 | 0.032 | (0.304) | 0.028 | 0.004 |
| 206 | 17.17 | 0.17 | 0.032 | (0.303) | 0.028 | 0.004 |
| 207 | 17.25 | 0.17 | 0.032 | (0.301) | 0.028 | 0.004 |
| 208 | 17.33 | 0.17 | 0.032 | (0.300) | 0.028 | 0.004 |
| 209 | 17.42 | 0.17 | 0.032 | (0.298) | 0.028 | 0.004 |
| 210 | 17.50 | 0.17 | 0.032 | (0.297) | 0.028 | 0.004 |
| 211 | 17.58 | 0.17 | 0.032 | (0.295) | 0.028 | 0.004 |
| 212 | 17.67 | 0.17 | 0.032 | (0.294) | 0.028 | 0.004 |
| 213 | 17.75 | 0.17 | 0.032 | (0.292) | 0.028 | 0.004 |
| 214 | 17.83 | 0.13 | 0.026 | (0.291) | 0.022 | 0.004 |
| 215 | 17.92 | 0.13 | 0.026 | (0.289) | 0.022 | 0.004 |
| 216 | 18.00 | 0.13 | 0.026 | (0.288) | 0.022 | 0.004 |
| 217 | 18.08 | 0.13 | 0.026 | (0.287) | 0.022 | 0.004 |
| 218 | 18.17 | 0.13 | 0.026 | (0.285) | 0.022 | 0.004 |
| 219 | 18.25 | 0.13 | 0.026 | (0.284) | 0.022 | 0.004 |
| 220 | 18.33 | 0.13 | 0.026 | (0.282) | 0.022 | 0.004 |
| 221 | 18.42 | 0.13 | 0.026 | (0.281) | 0.022 | 0.004 |
| 222 | 18.50 | 0.13 | 0.026 | (0.280) | 0.022 | 0.004 |
| 223 | 18.58 | 0.10 | 0.019 | (0.278) | 0.017 | 0.003 |
| 224 | 18.67 | 0.10 | 0.019 | (0.277) | 0.017 | 0.003 |
| 225 | 18.75 | 0.10 | 0.019 | (0.276) | 0.017 | 0.003 |
| 226 | 18.83 | 0.07 | 0.013 | (0.274) | 0.011 | 0.002 |
| 227 | 18.92 | 0.07 | 0.013 | (0.273) | 0.011 | 0.002 |
| 228 | 19.00 | 0.07 | 0.013 | (0.272) | 0.011 | 0.002 |
| 229 | 19.08 | 0.10 | 0.019 | (0.270) | 0.017 | 0.003 |
| 230 | 19.17 | 0.10 | 0.019 | (0.269) | 0.017 | 0.003 |
| 231 | 19.25 | 0.10 | 0.019 | (0.268) | 0.017 | 0.003 |
| 232 | 19.33 | 0.13 | 0.026 | (0.267) | 0.022 | 0.004 |
| 233 | 19.42 | 0.13 | 0.026 | (0.265) | 0.022 | 0.004 |
| 234 | 19.50 | 0.13 | 0.026 | (0.264) | 0.022 | 0.004 |
| 235 | 19.58 | 0.10 | 0.019 | (0.263) | 0.017 | 0.003 |
| 236 | 19.67 | 0.10 | 0.019 | (0.262) | 0.017 | 0.003 |
| 237 | 19.75 | 0.10 | 0.019 | (0.261) | 0.017 | 0.003 |
| 238 | 19.83 | 0.07 | 0.013 | (0.259) | 0.011 | 0.002 |
| 239 | 19.92 | 0.07 | 0.013 | (0.258) | 0.011 | 0.002 |
| 240 | 20.00 | 0.07 | 0.013 | (0.257) | 0.011 | 0.002 |
| 241 | 20.08 | 0.10 | 0.019 | (0.256) | 0.017 | 0.003 |
| 242 | 20.17 | 0.10 | 0.019 | (0.255) | 0.017 | 0.003 |
| 243 | 20.25 | 0.10 | 0.019 | (0.254) | 0.017 | 0.003 |
| 244 | 20.33 | 0.10 | 0.019 | (0.253) | 0.017 | 0.003 |
| 245 | 20.42 | 0.10 | 0.019 | (0.252) | 0.017 | 0.003 |
| 246 | 20.50 | 0.10 | 0.019 | (0.250) | 0.017 | 0.003 |
| 247 | 20.58 | 0.10 | 0.019 | (0.249) | 0.017 | 0.003 |
| 248 | 20.67 | 0.10 | 0.019 | (0.248) | 0.017 | 0.003 |
| 249 | 20.75 | 0.10 | 0.019 | (0.247) | 0.017 | 0.003 |
| 250 | 20.83 | 0.07 | 0.013 | (0.246) | 0.011 | 0.002 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 251 | 20.92 | 0.07 | 0.013 | (0.245) | 0.011 | 0.002 |
| 252 | 21.00 | 0.07 | 0.013 | (0.244) | 0.011 | 0.002 |
| 253 | 21.08 | 0.10 | 0.019 | (0.243) | 0.017 | 0.003 |
| 254 | 21.17 | 0.10 | 0.019 | (0.242) | 0.017 | 0.003 |
| 255 | 21.25 | 0.10 | 0.019 | (0.241) | 0.017 | 0.003 |
| 256 | 21.33 | 0.07 | 0.013 | (0.241) | 0.011 | 0.002 |
| 257 | 21.42 | 0.07 | 0.013 | (0.240) | 0.011 | 0.002 |
| 258 | 21.50 | 0.07 | 0.013 | (0.239) | 0.011 | 0.002 |
| 259 | 21.58 | 0.10 | 0.019 | (0.238) | 0.017 | 0.003 |
| 260 | 21.67 | 0.10 | 0.019 | (0.237) | 0.017 | 0.003 |
| 261 | 21.75 | 0.10 | 0.019 | (0.236) | 0.017 | 0.003 |
| 262 | 21.83 | 0.07 | 0.013 | (0.235) | 0.011 | 0.002 |
| 263 | 21.92 | 0.07 | 0.013 | (0.235) | 0.011 | 0.002 |
| 264 | 22.00 | 0.07 | 0.013 | (0.234) | 0.011 | 0.002 |
| 265 | 22.08 | 0.10 | 0.019 | (0.233) | 0.017 | 0.003 |
| 266 | 22.17 | 0.10 | 0.019 | (0.232) | 0.017 | 0.003 |
| 267 | 22.25 | 0.10 | 0.019 | (0.231) | 0.017 | 0.003 |
| 268 | 22.33 | 0.07 | 0.013 | (0.231) | 0.011 | 0.002 |
| 269 | 22.42 | 0.07 | 0.013 | (0.230) | 0.011 | 0.002 |
| 270 | 22.50 | 0.07 | 0.013 | (0.229) | 0.011 | 0.002 |
| 271 | 22.58 | 0.07 | 0.013 | (0.229) | 0.011 | 0.002 |
| 272 | 22.67 | 0.07 | 0.013 | (0.228) | 0.011 | 0.002 |
| 273 | 22.75 | 0.07 | 0.013 | (0.227) | 0.011 | 0.002 |
| 274 | 22.83 | 0.07 | 0.013 | (0.227) | 0.011 | 0.002 |
| 275 | 22.92 | 0.07 | 0.013 | (0.226) | 0.011 | 0.002 |
| 276 | 23.00 | 0.07 | 0.013 | (0.226) | 0.011 | 0.002 |
| 277 | 23.08 | 0.07 | 0.013 | (0.225) | 0.011 | 0.002 |
| 278 | 23.17 | 0.07 | 0.013 | (0.225) | 0.011 | 0.002 |
| 279 | 23.25 | 0.07 | 0.013 | (0.224) | 0.011 | 0.002 |
| 280 | 23.33 | 0.07 | 0.013 | (0.224) | 0.011 | 0.002 |
| 281 | 23.42 | 0.07 | 0.013 | (0.223) | 0.011 | 0.002 |
| 282 | 23.50 | 0.07 | 0.013 | (0.223) | 0.011 | 0.002 |
| 283 | 23.58 | 0.07 | 0.013 | (0.223) | 0.011 | 0.002 |
| 284 | 23.67 | 0.07 | 0.013 | (0.222) | 0.011 | 0.002 |
| 285 | 23.75 | 0.07 | 0.013 | (0.222) | 0.011 | 0.002 |
| 286 | 23.83 | 0.07 | 0.013 | (0.222) | 0.011 | 0.002 |
| 287 | 23.92 | 0.07 | 0.013 | (0.221) | 0.011 | 0.002 |
| 288 | 24.00 | 0.07 | 0.013 | (0.221) | 0.011 | 0.002 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 2.7

Flood volume = Effective rainfall 0.22(In)
times area 20.4(Ac.)/[((In)/(Ft.))] = 0.4(Ac.Ft)
Total soil loss = 1.38(In)
Total soil loss = 2.339(Ac.Ft)
Total rainfall = 1.60(In)
Flood volume = 16587.0 Cubic Feet
Total soil loss = 101891.5 Cubic Feet

Peak flow rate of this hydrograph = 0.624(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5 10.0

| | | | |
|------|--------|------|-----|
| 0+ 5 | 0.0000 | 0.01 | Q |
| 0+10 | 0.0002 | 0.02 | Q |
| 0+15 | 0.0004 | 0.03 | Q |
| 0+20 | 0.0007 | 0.04 | Q |
| 0+25 | 0.0010 | 0.05 | Q |
| 0+30 | 0.0014 | 0.05 | Q |
| 0+35 | 0.0017 | 0.05 | Q |
| 0+40 | 0.0021 | 0.05 | Q |
| 0+45 | 0.0025 | 0.05 | Q |
| 0+50 | 0.0029 | 0.06 | Q |
| 0+55 | 0.0033 | 0.07 | Q |
| 1+ 0 | 0.0038 | 0.07 | Q |
| 1+ 5 | 0.0043 | 0.07 | Q |
| 1+10 | 0.0047 | 0.06 | Q |
| 1+15 | 0.0051 | 0.06 | Q |
| 1+20 | 0.0055 | 0.06 | Q |
| 1+25 | 0.0059 | 0.06 | Q |
| 1+30 | 0.0063 | 0.06 | Q |
| 1+35 | 0.0067 | 0.06 | Q |
| 1+40 | 0.0070 | 0.06 | Q |
| 1+45 | 0.0074 | 0.06 | Q |
| 1+50 | 0.0078 | 0.06 | Q |
| 1+55 | 0.0083 | 0.07 | Q |
| 2+ 0 | 0.0088 | 0.07 | Q |
| 2+ 5 | 0.0093 | 0.07 | Q |
| 2+10 | 0.0098 | 0.07 | QV |
| 2+15 | 0.0103 | 0.07 | QV |
| 2+20 | 0.0108 | 0.07 | QV |
| 2+25 | 0.0113 | 0.07 | QV |
| 2+30 | 0.0118 | 0.07 | QV |
| 2+35 | 0.0123 | 0.08 | QV |
| 2+40 | 0.0129 | 0.09 | QV |
| 2+45 | 0.0135 | 0.09 | QV |
| 2+50 | 0.0142 | 0.09 | QV |
| 2+55 | 0.0148 | 0.09 | QV |
| 3+ 0 | 0.0154 | 0.09 | QV |
| 3+ 5 | 0.0161 | 0.09 | QV |
| 3+10 | 0.0167 | 0.09 | QV |
| 3+15 | 0.0173 | 0.09 | QV |
| 3+20 | 0.0180 | 0.09 | QV |
| 3+25 | 0.0186 | 0.09 | QV |
| 3+30 | 0.0192 | 0.09 | Q V |
| 3+35 | 0.0199 | 0.09 | Q V |
| 3+40 | 0.0205 | 0.09 | Q V |
| 3+45 | 0.0211 | 0.09 | Q V |
| 3+50 | 0.0218 | 0.10 | Q V |
| 3+55 | 0.0225 | 0.10 | Q V |
| 4+ 0 | 0.0233 | 0.11 | Q V |
| 4+ 5 | 0.0240 | 0.11 | Q V |
| 4+10 | 0.0248 | 0.11 | Q V |
| 4+15 | 0.0255 | 0.11 | Q V |
| 4+20 | 0.0263 | 0.11 | Q V |
| 4+25 | 0.0271 | 0.12 | Q V |
| 4+30 | 0.0280 | 0.13 | Q V |
| 4+35 | 0.0289 | 0.13 | Q V |
| 4+40 | 0.0298 | 0.13 | Q V |
| 4+45 | 0.0307 | 0.13 | Q V |

| | | | | |
|------|--------|------|---|---|
| 4+50 | 0.0316 | 0.13 | Q | V |
| 4+55 | 0.0325 | 0.14 | Q | V |
| 5+ 0 | 0.0335 | 0.14 | Q | V |
| 5+ 5 | 0.0345 | 0.14 | Q | V |
| 5+10 | 0.0353 | 0.12 | Q | V |
| 5+15 | 0.0361 | 0.12 | Q | V |
| 5+20 | 0.0369 | 0.12 | Q | V |
| 5+25 | 0.0378 | 0.13 | Q | V |
| 5+30 | 0.0387 | 0.13 | Q | V |
| 5+35 | 0.0396 | 0.13 | Q | V |
| 5+40 | 0.0405 | 0.14 | Q | V |
| 5+45 | 0.0415 | 0.14 | Q | V |
| 5+50 | 0.0425 | 0.15 | Q | V |
| 5+55 | 0.0435 | 0.15 | Q | V |
| 6+ 0 | 0.0446 | 0.15 | Q | V |
| 6+ 5 | 0.0456 | 0.15 | Q | V |
| 6+10 | 0.0467 | 0.16 | Q | V |
| 6+15 | 0.0478 | 0.16 | Q | V |
| 6+20 | 0.0489 | 0.16 | Q | V |
| 6+25 | 0.0501 | 0.16 | Q | V |
| 6+30 | 0.0512 | 0.17 | Q | V |
| 6+35 | 0.0524 | 0.17 | Q | V |
| 6+40 | 0.0536 | 0.18 | Q | V |
| 6+45 | 0.0549 | 0.18 | Q | V |
| 6+50 | 0.0561 | 0.18 | Q | V |
| 6+55 | 0.0574 | 0.18 | Q | V |
| 7+ 0 | 0.0586 | 0.18 | Q | V |
| 7+ 5 | 0.0599 | 0.18 | Q | V |
| 7+10 | 0.0612 | 0.18 | Q | V |
| 7+15 | 0.0624 | 0.18 | Q | V |
| 7+20 | 0.0637 | 0.19 | Q | V |
| 7+25 | 0.0651 | 0.20 | Q | V |
| 7+30 | 0.0665 | 0.20 | Q | V |
| 7+35 | 0.0679 | 0.20 | Q | V |
| 7+40 | 0.0694 | 0.21 | Q | V |
| 7+45 | 0.0709 | 0.22 | Q | V |
| 7+50 | 0.0724 | 0.22 | Q | V |
| 7+55 | 0.0740 | 0.23 | Q | V |
| 8+ 0 | 0.0756 | 0.24 | Q | V |
| 8+ 5 | 0.0773 | 0.24 | Q | V |
| 8+10 | 0.0791 | 0.26 | Q | V |
| 8+15 | 0.0810 | 0.27 | Q | V |
| 8+20 | 0.0828 | 0.27 | Q | V |
| 8+25 | 0.0847 | 0.27 | Q | V |
| 8+30 | 0.0866 | 0.28 | Q | V |
| 8+35 | 0.0886 | 0.28 | Q | V |
| 8+40 | 0.0905 | 0.29 | Q | V |
| 8+45 | 0.0926 | 0.29 | Q | V |
| 8+50 | 0.0946 | 0.30 | Q | V |
| 8+55 | 0.0967 | 0.31 | Q | V |
| 9+ 0 | 0.0988 | 0.31 | Q | V |
| 9+ 5 | 0.1010 | 0.32 | Q | V |
| 9+10 | 0.1034 | 0.34 | Q | V |
| 9+15 | 0.1057 | 0.34 | Q | V |
| 9+20 | 0.1081 | 0.35 | Q | V |
| 9+25 | 0.1106 | 0.36 | Q | V |
| 9+30 | 0.1131 | 0.36 | Q | V |
| 9+35 | 0.1157 | 0.37 | Q | V |

| | | | | | | | |
|-------|--------|------|---|---|--|--|--|
| 9+40 | 0.1183 | 0.38 | Q | V | | | |
| 9+45 | 0.1209 | 0.38 | Q | V | | | |
| 9+50 | 0.1236 | 0.39 | Q | V | | | |
| 9+55 | 0.1263 | 0.40 | Q | V | | | |
| 10+ 0 | 0.1291 | 0.40 | Q | V | | | |
| 10+ 5 | 0.1317 | 0.38 | Q | V | | | |
| 10+10 | 0.1339 | 0.32 | Q | V | | | |
| 10+15 | 0.1360 | 0.30 | Q | V | | | |
| 10+20 | 0.1379 | 0.29 | Q | V | | | |
| 10+25 | 0.1399 | 0.28 | Q | V | | | |
| 10+30 | 0.1418 | 0.28 | Q | V | | | |
| 10+35 | 0.1439 | 0.30 | Q | V | | | |
| 10+40 | 0.1462 | 0.34 | Q | V | | | |
| 10+45 | 0.1486 | 0.35 | Q | V | | | |
| 10+50 | 0.1511 | 0.36 | Q | V | | | |
| 10+55 | 0.1536 | 0.36 | Q | V | | | |
| 11+ 0 | 0.1561 | 0.37 | Q | V | | | |
| 11+ 5 | 0.1586 | 0.36 | Q | V | | | |
| 11+10 | 0.1611 | 0.36 | Q | V | | | |
| 11+15 | 0.1635 | 0.35 | Q | V | | | |
| 11+20 | 0.1659 | 0.35 | Q | V | | | |
| 11+25 | 0.1684 | 0.35 | Q | V | | | |
| 11+30 | 0.1708 | 0.35 | Q | V | | | |
| 11+35 | 0.1731 | 0.34 | Q | V | | | |
| 11+40 | 0.1754 | 0.33 | Q | V | | | |
| 11+45 | 0.1776 | 0.32 | Q | V | | | |
| 11+50 | 0.1798 | 0.32 | Q | V | | | |
| 11+55 | 0.1820 | 0.33 | Q | V | | | |
| 12+ 0 | 0.1843 | 0.33 | Q | V | | | |
| 12+ 5 | 0.1868 | 0.36 | Q | V | | | |
| 12+10 | 0.1896 | 0.42 | Q | V | | | |
| 12+15 | 0.1927 | 0.44 | Q | V | | | |
| 12+20 | 0.1958 | 0.45 | Q | V | | | |
| 12+25 | 0.1990 | 0.47 | Q | V | | | |
| 12+30 | 0.2022 | 0.47 | Q | V | | | |
| 12+35 | 0.2056 | 0.48 | Q | V | | | |
| 12+40 | 0.2090 | 0.50 | Q | V | | | |
| 12+45 | 0.2125 | 0.51 | Q | V | | | |
| 12+50 | 0.2161 | 0.52 | Q | V | | | |
| 12+55 | 0.2197 | 0.53 | Q | V | | | |
| 13+ 0 | 0.2234 | 0.53 | Q | V | | | |
| 13+ 5 | 0.2271 | 0.55 | Q | V | | | |
| 13+10 | 0.2312 | 0.60 | Q | V | | | |
| 13+15 | 0.2355 | 0.61 | Q | V | | | |
| 13+20 | 0.2397 | 0.62 | Q | V | | | |
| 13+25 | 0.2440 | 0.62 | Q | V | | | |
| 13+30 | 0.2483 | 0.62 | Q | V | | | |
| 13+35 | 0.2523 | 0.59 | Q | V | | | |
| 13+40 | 0.2557 | 0.49 | Q | V | | | |
| 13+45 | 0.2588 | 0.46 | Q | V | | | |
| 13+50 | 0.2619 | 0.44 | Q | V | | | |
| 13+55 | 0.2649 | 0.44 | Q | V | | | |
| 14+ 0 | 0.2679 | 0.43 | Q | V | | | |
| 14+ 5 | 0.2709 | 0.44 | Q | V | | | |
| 14+10 | 0.2742 | 0.47 | Q | V | | | |
| 14+15 | 0.2775 | 0.49 | Q | V | | | |
| 14+20 | 0.2809 | 0.49 | Q | V | | | |
| 14+25 | 0.2842 | 0.48 | Q | V | | | |

| | | | | |
|-------|--------|------|---|---|
| 14+30 | 0.2875 | 0.48 | Q | V |
| 14+35 | 0.2908 | 0.48 | Q | V |
| 14+40 | 0.2941 | 0.48 | Q | V |
| 14+45 | 0.2974 | 0.48 | Q | V |
| 14+50 | 0.3007 | 0.48 | Q | V |
| 14+55 | 0.3039 | 0.47 | Q | V |
| 15+ 0 | 0.3071 | 0.46 | Q | V |
| 15+ 5 | 0.3102 | 0.46 | Q | V |
| 15+10 | 0.3133 | 0.45 | Q | V |
| 15+15 | 0.3164 | 0.45 | Q | V |
| 15+20 | 0.3194 | 0.44 | Q | V |
| 15+25 | 0.3224 | 0.43 | Q | V |
| 15+30 | 0.3254 | 0.43 | Q | V |
| 15+35 | 0.3282 | 0.41 | Q | V |
| 15+40 | 0.3308 | 0.38 | Q | V |
| 15+45 | 0.3333 | 0.36 | Q | V |
| 15+50 | 0.3357 | 0.36 | Q | V |
| 15+55 | 0.3382 | 0.35 | Q | V |
| 16+ 0 | 0.3406 | 0.35 | Q | V |
| 16+ 5 | 0.3427 | 0.30 | Q | V |
| 16+10 | 0.3438 | 0.16 | Q | V |
| 16+15 | 0.3446 | 0.12 | Q | V |
| 16+20 | 0.3453 | 0.10 | Q | V |
| 16+25 | 0.3459 | 0.09 | Q | V |
| 16+30 | 0.3465 | 0.08 | Q | V |
| 16+35 | 0.3470 | 0.07 | Q | V |
| 16+40 | 0.3474 | 0.06 | Q | V |
| 16+45 | 0.3478 | 0.06 | Q | V |
| 16+50 | 0.3482 | 0.06 | Q | V |
| 16+55 | 0.3486 | 0.06 | Q | V |
| 17+ 0 | 0.3490 | 0.06 | Q | V |
| 17+ 5 | 0.3494 | 0.06 | Q | V |
| 17+10 | 0.3500 | 0.08 | Q | V |
| 17+15 | 0.3506 | 0.09 | Q | V |
| 17+20 | 0.3512 | 0.09 | Q | V |
| 17+25 | 0.3518 | 0.09 | Q | V |
| 17+30 | 0.3524 | 0.09 | Q | V |
| 17+35 | 0.3531 | 0.09 | Q | V |
| 17+40 | 0.3537 | 0.09 | Q | V |
| 17+45 | 0.3543 | 0.09 | Q | V |
| 17+50 | 0.3549 | 0.09 | Q | V |
| 17+55 | 0.3555 | 0.08 | Q | V |
| 18+ 0 | 0.3560 | 0.08 | Q | V |
| 18+ 5 | 0.3565 | 0.08 | Q | V |
| 18+10 | 0.3570 | 0.07 | Q | V |
| 18+15 | 0.3576 | 0.07 | Q | V |
| 18+20 | 0.3581 | 0.07 | Q | V |
| 18+25 | 0.3586 | 0.07 | Q | V |
| 18+30 | 0.3591 | 0.07 | Q | V |
| 18+35 | 0.3596 | 0.07 | Q | V |
| 18+40 | 0.3600 | 0.06 | Q | V |
| 18+45 | 0.3604 | 0.06 | Q | V |
| 18+50 | 0.3608 | 0.05 | Q | V |
| 18+55 | 0.3611 | 0.04 | Q | V |
| 19+ 0 | 0.3613 | 0.04 | Q | V |
| 19+ 5 | 0.3616 | 0.04 | Q | V |
| 19+10 | 0.3620 | 0.05 | Q | V |
| 19+15 | 0.3623 | 0.05 | Q | V |

| | | | | |
|-------|--------|------|---|---|
| 19+20 | 0.3627 | 0.06 | Q | V |
| 19+25 | 0.3632 | 0.07 | Q | V |
| 19+30 | 0.3637 | 0.07 | Q | V |
| 19+35 | 0.3641 | 0.07 | Q | V |
| 19+40 | 0.3646 | 0.06 | Q | V |
| 19+45 | 0.3650 | 0.06 | Q | V |
| 19+50 | 0.3653 | 0.05 | Q | V |
| 19+55 | 0.3656 | 0.04 | Q | V |
| 20+ 0 | 0.3659 | 0.04 | Q | V |
| 20+ 5 | 0.3662 | 0.04 | Q | V |
| 20+10 | 0.3665 | 0.05 | Q | V |
| 20+15 | 0.3669 | 0.05 | Q | V |
| 20+20 | 0.3673 | 0.05 | Q | V |
| 20+25 | 0.3677 | 0.05 | Q | V |
| 20+30 | 0.3680 | 0.05 | Q | V |
| 20+35 | 0.3684 | 0.06 | Q | V |
| 20+40 | 0.3688 | 0.06 | Q | V |
| 20+45 | 0.3692 | 0.06 | Q | V |
| 20+50 | 0.3695 | 0.05 | Q | V |
| 20+55 | 0.3698 | 0.04 | Q | V |
| 21+ 0 | 0.3701 | 0.04 | Q | V |
| 21+ 5 | 0.3704 | 0.04 | Q | V |
| 21+10 | 0.3707 | 0.05 | Q | V |
| 21+15 | 0.3711 | 0.05 | Q | V |
| 21+20 | 0.3714 | 0.05 | Q | V |
| 21+25 | 0.3717 | 0.04 | Q | V |
| 21+30 | 0.3720 | 0.04 | Q | V |
| 21+35 | 0.3723 | 0.04 | Q | V |
| 21+40 | 0.3726 | 0.05 | Q | V |
| 21+45 | 0.3730 | 0.05 | Q | V |
| 21+50 | 0.3733 | 0.05 | Q | V |
| 21+55 | 0.3736 | 0.04 | Q | V |
| 22+ 0 | 0.3739 | 0.04 | Q | V |
| 22+ 5 | 0.3742 | 0.04 | Q | V |
| 22+10 | 0.3745 | 0.05 | Q | V |
| 22+15 | 0.3749 | 0.05 | Q | V |
| 22+20 | 0.3753 | 0.05 | Q | V |
| 22+25 | 0.3755 | 0.04 | Q | V |
| 22+30 | 0.3758 | 0.04 | Q | V |
| 22+35 | 0.3761 | 0.04 | Q | V |
| 22+40 | 0.3763 | 0.04 | Q | V |
| 22+45 | 0.3766 | 0.04 | Q | V |
| 22+50 | 0.3768 | 0.04 | Q | V |
| 22+55 | 0.3771 | 0.04 | Q | V |
| 23+ 0 | 0.3774 | 0.04 | Q | V |
| 23+ 5 | 0.3776 | 0.04 | Q | V |
| 23+10 | 0.3779 | 0.04 | Q | V |
| 23+15 | 0.3781 | 0.04 | Q | V |
| 23+20 | 0.3784 | 0.04 | Q | V |
| 23+25 | 0.3786 | 0.04 | Q | V |
| 23+30 | 0.3789 | 0.04 | Q | V |
| 23+35 | 0.3791 | 0.04 | Q | V |
| 23+40 | 0.3794 | 0.04 | Q | V |
| 23+45 | 0.3796 | 0.04 | Q | V |
| 23+50 | 0.3799 | 0.04 | Q | V |
| 23+55 | 0.3802 | 0.04 | Q | V |
| 24+ 0 | 0.3804 | 0.04 | Q | V |
| 24+ 5 | 0.3806 | 0.03 | Q | V |

| | | | | | | | |
|-------|--------|------|---|--|--|--|---|
| 24+10 | 0.3807 | 0.01 | Q | | | | V |
| 24+15 | 0.3807 | 0.01 | Q | | | | V |
| 24+20 | 0.3808 | 0.00 | Q | | | | V |
| 24+25 | 0.3808 | 0.00 | Q | | | | V |
| 24+30 | 0.3808 | 0.00 | Q | | | | V |
| 24+35 | 0.3808 | 0.00 | Q | | | | V |

5YR, 1HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPOSTB15.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 0.47 9.59

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.20 24.48

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.470(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.641(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.641(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 56.0 36.0 0.706 0.750 0.229 1.000 0.229
 Sum (F) = 0.229

Area averaged mean soil loss (F) (In/Hr) = 0.229
 Minimum soil loss rate ((In/Hr)) = 0.115
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

 Slope of intensity-duration curve for a 1 hour storm =0.5000

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

 Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | 4.20 | 0.323 (0.229) | 0.097 |
| 2 | 0.17 | 4.30 | 0.331 (0.229) | 0.099 |
| 3 | 0.25 | 5.00 | 0.385 (0.229) | 0.115 |
| 4 | 0.33 | 5.00 | 0.385 (0.229) | 0.115 |
| 5 | 0.42 | 5.80 | 0.446 (0.229) | 0.134 |
| 6 | 0.50 | 6.50 | 0.500 (0.229) | 0.150 |
| 7 | 0.58 | 7.40 | 0.569 (0.229) | 0.171 |
| 8 | 0.67 | 8.60 | 0.661 (0.229) | 0.198 |
| 9 | 0.75 | 12.30 | 0.946 (0.229) | 0.284 |
| 10 | 0.83 | 29.10 | 2.238 (0.671) | 2.008 |
| 11 | 0.92 | 6.80 | 0.523 (0.229) | 0.157 |
| 12 | 1.00 | 5.00 | 0.385 (0.229) | 0.115 |
| (Loss Rate Not Used) | | | | |
| Sum = | 100.0 | | | Sum = 5.9 |
| Flood volume = Effective rainfall | | 0.49(In) | | |
| times area | | 20.4(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft) | | |

Total soil loss = 0.15(In)
 Total soil loss = 0.257(Ac.Ft)
 Total rainfall = 0.64(In)
 Flood volume = 36282.5 Cubic Feet
 Total soil loss = 11174.9 Cubic Feet

 Peak flow rate of this hydrograph = 25.120(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 | 0.0062 | 0.89 | VQ | | | | | |
| 0+10 | 0.0280 | 3.17 | V Q | | | | | |
| 0+15 | 0.0562 | 4.10 | V Q | | | | | |
| 0+20 | 0.0893 | 4.82 | V Q | | | | | |
| 0+25 | 0.1258 | 5.30 | VQ | | | | | |
| 0+30 | 0.1676 | 6.06 | Q | | | | | |
| 0+35 | 0.2149 | 6.87 | QV | | | | | |
| 0+40 | 0.2692 | 7.89 | Q V | | | | | |
| 0+45 | 0.3366 | 9.79 | Q V | | | | | |
| 0+50 | 0.4589 | 17.76 | | | | VQ | | |
| 0+55 | 0.6319 | 25.12 | | | | | V Q | |
| 1+ 0 | 0.7215 | 13.01 | | | Q | | V | |
| 1+ 5 | 0.7756 | 7.85 | | Q | | | | V |
| 1+10 | 0.8010 | 3.70 | Q | | | | | V |
| 1+15 | 0.8157 | 2.14 | Q | | | | | V |
| 1+20 | 0.8247 | 1.30 | Q | | | | | V |
| 1+25 | 0.8309 | 0.90 | Q | | | | | V |
| 1+30 | 0.8323 | 0.20 | Q | | | | | V |
| 1+35 | 0.8329 | 0.09 | Q | | | | | V |

5YR, 3HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPOSTB35.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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] |
|--------------|-----------------|----------------|
| 20.40 | 0.80 | 16.32 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 1.86 | 37.94 |

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.048(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.048(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|-----------|-------|-------------|------------|------------------|--------|---------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-1 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 36.0 | 0.706 | 0.750 | 0.229 | 1.000 | 0.229 |
| Sum (F) = | | | | | | 0.229 |

Area averaged mean soil loss (F) (In/Hr) = 0.229
 Minimum soil loss rate ((In/Hr)) = 0.115
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

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 | (0.229) 0.049 | 0.114 |
| 2 | 0.17 | 1.30 | (0.229) 0.049 | 0.114 |
| 3 | 0.25 | 1.10 | (0.229) 0.042 | 0.097 |
| 4 | 0.33 | 1.50 | (0.229) 0.057 | 0.132 |
| 5 | 0.42 | 1.50 | (0.229) 0.057 | 0.132 |
| 6 | 0.50 | 1.80 | (0.229) 0.068 | 0.158 |
| 7 | 0.58 | 1.50 | (0.229) 0.057 | 0.132 |
| 8 | 0.67 | 1.80 | (0.229) 0.068 | 0.158 |
| 9 | 0.75 | 1.80 | (0.229) 0.068 | 0.158 |
| 10 | 0.83 | 1.50 | (0.229) 0.057 | 0.132 |
| 11 | 0.92 | 1.60 | (0.229) 0.060 | 0.141 |
| 12 | 1.00 | 1.80 | (0.229) 0.068 | 0.158 |
| 13 | 1.08 | 2.20 | (0.229) 0.083 | 0.194 |
| 14 | 1.17 | 2.20 | (0.229) 0.083 | 0.194 |
| 15 | 1.25 | 2.20 | (0.229) 0.083 | 0.194 |
| 16 | 1.33 | 2.00 | (0.229) 0.075 | 0.176 |
| 17 | 1.42 | 2.60 | (0.229) 0.098 | 0.229 |
| 18 | 1.50 | 2.70 | (0.229) 0.102 | 0.238 |

| | | | | | | |
|----|------|------|-------|----------------|-------|-------|
| 19 | 1.58 | 2.40 | 0.302 | (0.229) | 0.091 | 0.211 |
| 20 | 1.67 | 2.70 | 0.340 | (0.229) | 0.102 | 0.238 |
| 21 | 1.75 | 3.30 | 0.415 | (0.229) | 0.125 | 0.291 |
| 22 | 1.83 | 3.10 | 0.390 | (0.229) | 0.117 | 0.273 |
| 23 | 1.92 | 2.90 | 0.365 | (0.229) | 0.109 | 0.255 |
| 24 | 2.00 | 3.00 | 0.377 | (0.229) | 0.113 | 0.264 |
| 25 | 2.08 | 3.10 | 0.390 | (0.229) | 0.117 | 0.273 |
| 26 | 2.17 | 4.20 | 0.528 | (0.229) | 0.158 | 0.370 |
| 27 | 2.25 | 5.00 | 0.629 | (0.229) | 0.189 | 0.440 |
| 28 | 2.33 | 3.50 | 0.440 | (0.229) | 0.132 | 0.308 |
| 29 | 2.42 | 6.80 | 0.855 | 0.229 (0.257) | | 0.626 |
| 30 | 2.50 | 7.30 | 0.918 | 0.229 (0.275) | | 0.689 |
| 31 | 2.58 | 8.20 | 1.031 | 0.229 (0.309) | | 0.802 |
| 32 | 2.67 | 5.90 | 0.742 | (0.229) | 0.223 | 0.519 |
| 33 | 2.75 | 2.00 | 0.252 | (0.229) | 0.075 | 0.176 |
| 34 | 2.83 | 1.80 | 0.226 | (0.229) | 0.068 | 0.158 |
| 35 | 2.92 | 1.80 | 0.226 | (0.229) | 0.068 | 0.158 |
| 36 | 3.00 | 0.60 | 0.075 | (0.229) | 0.023 | 0.053 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 9.0

Flood volume = Effective rainfall 0.75(In)
times area 20.4(Ac.)/[(In)/(Ft.)] = 1.3(Ac.Ft)
Total soil loss = 0.30(In)
Total soil loss = 0.513(Ac.Ft)
Total rainfall = 1.05(In)
Flood volume = 55279.1 Cubic Feet
Total soil loss = 22341.1 Cubic Feet

Peak flow rate of this hydrograph = 13.855(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 | 0.0031 | 0.45 | Q | | | | |
| 0+10 | 0.0141 | 1.59 | V Q | | | | |
| 0+15 | 0.0271 | 1.89 | V Q | | | | |
| 0+20 | 0.0410 | 2.02 | V Q | | | | |
| 0+25 | 0.0576 | 2.41 | V Q | | | | |
| 0+30 | 0.0759 | 2.66 | V Q | | | | |
| 0+35 | 0.0959 | 2.89 | V Q | | | | |
| 0+40 | 0.1157 | 2.88 | V Q | | | | |
| 0+45 | 0.1370 | 3.11 | V Q | | | | |
| 0+50 | 0.1582 | 3.08 | V Q | | | | |
| 0+55 | 0.1781 | 2.89 | Q | | | | |
| 1+ 0 | 0.1986 | 2.98 | QV | | | | |
| 1+ 5 | 0.2213 | 3.30 | Q | | | | |
| 1+10 | 0.2468 | 3.69 | Q | | | | |
| 1+15 | 0.2732 | 3.83 | QV | | | | |
| 1+20 | 0.2995 | 3.83 | Q V | | | | |
| 1+25 | 0.3263 | 3.89 | Q V | | | | |
| 1+30 | 0.3568 | 4.42 | Q V | | | | |
| 1+35 | 0.3883 | 4.57 | Q V | | | | |

| | | | | | | | | |
|------|--------|-------|---|---|---|---|---|---|
| 1+40 | 0.4194 | 4.51 | Q | V | | | | |
| 1+45 | 0.4534 | 4.95 | Q | V | | | | |
| 1+50 | 0.4911 | 5.48 | Q | V | | | | |
| 1+55 | 0.5286 | 5.44 | Q | V | | | | |
| 2+ 0 | 0.5654 | 5.34 | Q | V | | | | |
| 2+ 5 | 0.6028 | 5.43 | Q | V | | | | |
| 2+10 | 0.6436 | 5.92 | Q | V | | | | |
| 2+15 | 0.6932 | 7.21 | | Q | V | | | |
| 2+20 | 0.7464 | 7.72 | | Q | V | | | |
| 2+25 | 0.8017 | 8.03 | | Q | V | | | |
| 2+30 | 0.8788 | 11.20 | | | Q | V | | |
| 2+35 | 0.9698 | 13.22 | | | | Q | V | |
| 2+40 | 1.0652 | 13.85 | | | | | Q | V |
| 2+45 | 1.1368 | 10.38 | | | Q | | | V |
| 2+50 | 1.1805 | 6.35 | | Q | | | | V |
| 2+55 | 1.2139 | 4.85 | | Q | | | | V |
| 3+ 0 | 1.2402 | 3.83 | | Q | | | | V |
| 3+ 5 | 1.2552 | 2.17 | | Q | | | | V |
| 3+10 | 1.2624 | 1.05 | Q | | | | | V |
| 3+15 | 1.2659 | 0.51 | Q | | | | | V |
| 3+20 | 1.2676 | 0.24 | Q | | | | | V |
| 3+25 | 1.2685 | 0.13 | Q | | | | | V |
| 3+30 | 1.2689 | 0.07 | Q | | | | | V |
| 3+35 | 1.2690 | 0.02 | Q | | | | | V |

5YR, 6HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPOSTB65.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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] |
|--------------|-----------------|----------------|
| 20.40 | 1.00 | 20.40 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 2.50 | 51.00 |

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.351(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.351(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 56.0 36.0 0.706 0.750 0.229 1.000 0.229
 Sum (F) = 0.229

Area averaged mean soil loss (F) (In/Hr) = 0.229
 Minimum soil loss rate ((In/Hr)) = 0.115
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | (0.229) 0.024 | 0.057 |
| 2 | 0.17 | 0.60 | (0.229) 0.029 | 0.068 |
| 3 | 0.25 | 0.60 | (0.229) 0.029 | 0.068 |
| 4 | 0.33 | 0.60 | (0.229) 0.029 | 0.068 |
| 5 | 0.42 | 0.60 | (0.229) 0.029 | 0.068 |
| 6 | 0.50 | 0.70 | (0.229) 0.034 | 0.079 |
| 7 | 0.58 | 0.70 | (0.229) 0.034 | 0.079 |
| 8 | 0.67 | 0.70 | (0.229) 0.034 | 0.079 |
| 9 | 0.75 | 0.70 | (0.229) 0.034 | 0.079 |
| 10 | 0.83 | 0.70 | (0.229) 0.034 | 0.079 |
| 11 | 0.92 | 0.70 | (0.229) 0.034 | 0.079 |
| 12 | 1.00 | 0.80 | (0.229) 0.039 | 0.091 |
| 13 | 1.08 | 0.80 | (0.229) 0.039 | 0.091 |
| 14 | 1.17 | 0.80 | (0.229) 0.039 | 0.091 |
| 15 | 1.25 | 0.80 | (0.229) 0.039 | 0.091 |
| 16 | 1.33 | 0.80 | (0.229) 0.039 | 0.091 |
| 17 | 1.42 | 0.80 | (0.229) 0.039 | 0.091 |
| 18 | 1.50 | 0.80 | (0.229) 0.039 | 0.091 |

| | | | | | | |
|----|------|------|-------|----------------|-------|-------|
| 19 | 1.58 | 0.80 | 0.130 | (0.229) | 0.039 | 0.091 |
| 20 | 1.67 | 0.80 | 0.130 | (0.229) | 0.039 | 0.091 |
| 21 | 1.75 | 0.80 | 0.130 | (0.229) | 0.039 | 0.091 |
| 22 | 1.83 | 0.80 | 0.130 | (0.229) | 0.039 | 0.091 |
| 23 | 1.92 | 0.80 | 0.130 | (0.229) | 0.039 | 0.091 |
| 24 | 2.00 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 25 | 2.08 | 0.80 | 0.130 | (0.229) | 0.039 | 0.091 |
| 26 | 2.17 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 27 | 2.25 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 28 | 2.33 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 29 | 2.42 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 30 | 2.50 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 31 | 2.58 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 32 | 2.67 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 33 | 2.75 | 1.00 | 0.162 | (0.229) | 0.049 | 0.114 |
| 34 | 2.83 | 1.00 | 0.162 | (0.229) | 0.049 | 0.114 |
| 35 | 2.92 | 1.00 | 0.162 | (0.229) | 0.049 | 0.114 |
| 36 | 3.00 | 1.00 | 0.162 | (0.229) | 0.049 | 0.114 |
| 37 | 3.08 | 1.00 | 0.162 | (0.229) | 0.049 | 0.114 |
| 38 | 3.17 | 1.10 | 0.178 | (0.229) | 0.054 | 0.125 |
| 39 | 3.25 | 1.10 | 0.178 | (0.229) | 0.054 | 0.125 |
| 40 | 3.33 | 1.10 | 0.178 | (0.229) | 0.054 | 0.125 |
| 41 | 3.42 | 1.20 | 0.195 | (0.229) | 0.058 | 0.136 |
| 42 | 3.50 | 1.30 | 0.211 | (0.229) | 0.063 | 0.148 |
| 43 | 3.58 | 1.40 | 0.227 | (0.229) | 0.068 | 0.159 |
| 44 | 3.67 | 1.40 | 0.227 | (0.229) | 0.068 | 0.159 |
| 45 | 3.75 | 1.50 | 0.243 | (0.229) | 0.073 | 0.170 |
| 46 | 3.83 | 1.50 | 0.243 | (0.229) | 0.073 | 0.170 |
| 47 | 3.92 | 1.60 | 0.259 | (0.229) | 0.078 | 0.182 |
| 48 | 4.00 | 1.60 | 0.259 | (0.229) | 0.078 | 0.182 |
| 49 | 4.08 | 1.70 | 0.276 | (0.229) | 0.083 | 0.193 |
| 50 | 4.17 | 1.80 | 0.292 | (0.229) | 0.088 | 0.204 |
| 51 | 4.25 | 1.90 | 0.308 | (0.229) | 0.092 | 0.216 |
| 52 | 4.33 | 2.00 | 0.324 | (0.229) | 0.097 | 0.227 |
| 53 | 4.42 | 2.10 | 0.341 | (0.229) | 0.102 | 0.238 |
| 54 | 4.50 | 2.10 | 0.341 | (0.229) | 0.102 | 0.238 |
| 55 | 4.58 | 2.20 | 0.357 | (0.229) | 0.107 | 0.250 |
| 56 | 4.67 | 2.30 | 0.373 | (0.229) | 0.112 | 0.261 |
| 57 | 4.75 | 2.40 | 0.389 | (0.229) | 0.117 | 0.272 |
| 58 | 4.83 | 2.40 | 0.389 | (0.229) | 0.117 | 0.272 |
| 59 | 4.92 | 2.50 | 0.405 | (0.229) | 0.122 | 0.284 |
| 60 | 5.00 | 2.60 | 0.422 | (0.229) | 0.126 | 0.295 |
| 61 | 5.08 | 3.10 | 0.503 | (0.229) | 0.151 | 0.352 |
| 62 | 5.17 | 3.60 | 0.584 | (0.229) | 0.175 | 0.409 |
| 63 | 5.25 | 3.90 | 0.632 | (0.229) | 0.190 | 0.443 |
| 64 | 5.33 | 4.20 | 0.681 | (0.229) | 0.204 | 0.477 |
| 65 | 5.42 | 4.70 | 0.762 | (0.229) | 0.229 | 0.533 |
| 66 | 5.50 | 5.60 | 0.908 | 0.229 (0.272) | | 0.679 |
| 67 | 5.58 | 1.90 | 0.308 | (0.229) | 0.092 | 0.216 |
| 68 | 5.67 | 0.90 | 0.146 | (0.229) | 0.044 | 0.102 |
| 69 | 5.75 | 0.60 | 0.097 | (0.229) | 0.029 | 0.068 |
| 70 | 5.83 | 0.50 | 0.081 | (0.229) | 0.024 | 0.057 |
| 71 | 5.92 | 0.30 | 0.049 | (0.229) | 0.015 | 0.034 |
| 72 | 6.00 | 0.20 | 0.032 | (0.229) | 0.010 | 0.023 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 11.4

Flood volume = Effective rainfall 0.95(In)

times area 20.4(Ac.)/[(In)/(Ft.)] = 1.6(Ac.Ft)

Total soil loss = 0.40(In)
 Total soil loss = 0.683(Ac.Ft)
 Total rainfall = 1.35(In)
 Flood volume = 70308.6 Cubic Feet
 Total soil loss = 29753.5 Cubic Feet

 Peak flow rate of this hydrograph = 10.877(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 | 0.0015 | 0.22 | Q | | | | |
| 0+10 | 0.0073 | 0.83 | VQ | | | | |
| 0+15 | 0.0151 | 1.13 | V Q | | | | |
| 0+20 | 0.0237 | 1.25 | V Q | | | | |
| 0+25 | 0.0327 | 1.31 | V Q | | | | |
| 0+30 | 0.0423 | 1.40 | VQ | | | | |
| 0+35 | 0.0529 | 1.53 | V Q | | | | |
| 0+40 | 0.0638 | 1.59 | V Q | | | | |
| 0+45 | 0.0749 | 1.61 | V Q | | | | |
| 0+50 | 0.0861 | 1.62 | VQ | | | | |
| 0+55 | 0.0973 | 1.63 | VQ | | | | |
| 1+ 0 | 0.1088 | 1.68 | VQ | | | | |
| 1+ 5 | 0.1212 | 1.79 | Q | | | | |
| 1+10 | 0.1338 | 1.83 | Q | | | | |
| 1+15 | 0.1465 | 1.85 | Q | | | | |
| 1+20 | 0.1593 | 1.85 | Q | | | | |
| 1+25 | 0.1721 | 1.86 | QV | | | | |
| 1+30 | 0.1849 | 1.86 | QV | | | | |
| 1+35 | 0.1978 | 1.87 | QV | | | | |
| 1+40 | 0.2106 | 1.87 | Q V | | | | |
| 1+45 | 0.2235 | 1.87 | Q V | | | | |
| 1+50 | 0.2364 | 1.87 | Q V | | | | |
| 1+55 | 0.2492 | 1.87 | Q V | | | | |
| 2+ 0 | 0.2624 | 1.91 | Q V | | | | |
| 2+ 5 | 0.2760 | 1.98 | Q V | | | | |
| 2+10 | 0.2895 | 1.95 | Q V | | | | |
| 2+15 | 0.3035 | 2.04 | Q V | | | | |
| 2+20 | 0.3178 | 2.07 | Q V | | | | |
| 2+25 | 0.3322 | 2.08 | Q V | | | | |
| 2+30 | 0.3466 | 2.09 | Q V | | | | |
| 2+35 | 0.3610 | 2.10 | Q V | | | | |
| 2+40 | 0.3755 | 2.10 | Q V | | | | |
| 2+45 | 0.3902 | 2.15 | Q V | | | | |
| 2+50 | 0.4058 | 2.26 | Q V | | | | |
| 2+55 | 0.4216 | 2.30 | Q V | | | | |
| 3+ 0 | 0.4375 | 2.31 | Q V | | | | |
| 3+ 5 | 0.4535 | 2.32 | Q V | | | | |
| 3+10 | 0.4699 | 2.37 | Q V | | | | |
| 3+15 | 0.4870 | 2.49 | Q V | | | | |
| 3+20 | 0.5044 | 2.53 | Q V | | | | |
| 3+25 | 0.5223 | 2.59 | Q V | | | | |

| | | | | | | | |
|------|--------|-------|---|---|--|--|--|
| 3+30 | 0.5413 | 2.76 | Q | V | | | |
| 3+35 | 0.5616 | 2.96 | Q | V | | | |
| 3+40 | 0.5832 | 3.13 | Q | V | | | |
| 3+45 | 0.6055 | 3.24 | Q | V | | | |
| 3+50 | 0.6288 | 3.38 | Q | V | | | |
| 3+55 | 0.6528 | 3.48 | Q | V | | | |
| 4+ 0 | 0.6777 | 3.63 | Q | V | | | |
| 4+ 5 | 0.7034 | 3.72 | Q | V | | | |
| 4+10 | 0.7303 | 3.91 | Q | V | | | |
| 4+15 | 0.7586 | 4.12 | Q | V | | | |
| 4+20 | 0.7885 | 4.34 | Q | V | | | |
| 4+25 | 0.8199 | 4.56 | Q | V | | | |
| 4+30 | 0.8526 | 4.74 | Q | V | | | |
| 4+35 | 0.8861 | 4.86 | Q | V | | | |
| 4+40 | 0.9209 | 5.06 | Q | V | | | |
| 4+45 | 0.9573 | 5.28 | Q | V | | | |
| 4+50 | 0.9948 | 5.46 | Q | V | | | |
| 4+55 | 1.0332 | 5.57 | Q | V | | | |
| 5+ 0 | 1.0729 | 5.76 | Q | V | | | |
| 5+ 5 | 1.1153 | 6.16 | Q | V | | | |
| 5+10 | 1.1636 | 7.01 | Q | V | | | |
| 5+15 | 1.2181 | 7.93 | Q | V | | | |
| 5+20 | 1.2780 | 8.68 | Q | V | | | |
| 5+25 | 1.3434 | 9.50 | Q | V | | | |
| 5+30 | 1.4183 | 10.88 | Q | V | | | |
| 5+35 | 1.4927 | 10.80 | Q | V | | | |
| 5+40 | 1.5366 | 6.38 | Q | V | | | |
| 5+45 | 1.5637 | 3.93 | Q | V | | | |
| 5+50 | 1.5821 | 2.68 | Q | V | | | |
| 5+55 | 1.5954 | 1.93 | Q | V | | | |
| 6+ 0 | 1.6043 | 1.30 | Q | V | | | |
| 6+ 5 | 1.6100 | 0.81 | Q | V | | | |
| 6+10 | 1.6121 | 0.31 | Q | V | | | |
| 6+15 | 1.6131 | 0.15 | Q | V | | | |
| 6+20 | 1.6136 | 0.08 | Q | V | | | |
| 6+25 | 1.6139 | 0.04 | Q | V | | | |
| 6+30 | 1.6140 | 0.02 | Q | V | | | |
| 6+35 | 1.6141 | 0.01 | Q | V | | | |

5YR, 24HR POST-DEVELOPED

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPOSTB245.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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] |
|--------------|-----------------|----------------|
| 20.40 | 1.60 | 32.64 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 4.00 | 81.60 |

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.600(In)
Area Averaged 100-Year Rainfall = 4.000(In)

Point rain (area averaged) = 2.162(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.162(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 56.0 36.0 0.706 0.750 0.229 1.000 0.229
 Sum (F) = 0.229

Area averaged mean soil loss (F) (In/Hr) = 0.229
 Minimum soil loss rate ((In/Hr)) = 0.115
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | (0.407) 0.005 | 0.012 |
| 2 | 0.17 | 0.07 | (0.405) 0.005 | 0.012 |
| 3 | 0.25 | 0.07 | (0.404) 0.005 | 0.012 |
| 4 | 0.33 | 0.10 | (0.402) 0.008 | 0.018 |
| 5 | 0.42 | 0.10 | (0.400) 0.008 | 0.018 |
| 6 | 0.50 | 0.10 | (0.399) 0.008 | 0.018 |
| 7 | 0.58 | 0.10 | (0.397) 0.008 | 0.018 |
| 8 | 0.67 | 0.10 | (0.396) 0.008 | 0.018 |
| 9 | 0.75 | 0.10 | (0.394) 0.008 | 0.018 |
| 10 | 0.83 | 0.13 | (0.393) 0.010 | 0.024 |
| 11 | 0.92 | 0.13 | (0.391) 0.010 | 0.024 |
| 12 | 1.00 | 0.13 | (0.390) 0.010 | 0.024 |
| 13 | 1.08 | 0.10 | (0.388) 0.008 | 0.018 |
| 14 | 1.17 | 0.10 | (0.387) 0.008 | 0.018 |
| 15 | 1.25 | 0.10 | (0.385) 0.008 | 0.018 |
| 16 | 1.33 | 0.10 | (0.383) 0.008 | 0.018 |
| 17 | 1.42 | 0.10 | (0.382) 0.008 | 0.018 |
| 18 | 1.50 | 0.10 | (0.380) 0.008 | 0.018 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 19 | 1.58 | 0.10 | 0.026 | (0.379) | 0.008 | 0.018 |
| 20 | 1.67 | 0.10 | 0.026 | (0.377) | 0.008 | 0.018 |
| 21 | 1.75 | 0.10 | 0.026 | (0.376) | 0.008 | 0.018 |
| 22 | 1.83 | 0.13 | 0.035 | (0.374) | 0.010 | 0.024 |
| 23 | 1.92 | 0.13 | 0.035 | (0.373) | 0.010 | 0.024 |
| 24 | 2.00 | 0.13 | 0.035 | (0.371) | 0.010 | 0.024 |
| 25 | 2.08 | 0.13 | 0.035 | (0.370) | 0.010 | 0.024 |
| 26 | 2.17 | 0.13 | 0.035 | (0.368) | 0.010 | 0.024 |
| 27 | 2.25 | 0.13 | 0.035 | (0.367) | 0.010 | 0.024 |
| 28 | 2.33 | 0.13 | 0.035 | (0.365) | 0.010 | 0.024 |
| 29 | 2.42 | 0.13 | 0.035 | (0.364) | 0.010 | 0.024 |
| 30 | 2.50 | 0.13 | 0.035 | (0.362) | 0.010 | 0.024 |
| 31 | 2.58 | 0.17 | 0.043 | (0.361) | 0.013 | 0.030 |
| 32 | 2.67 | 0.17 | 0.043 | (0.359) | 0.013 | 0.030 |
| 33 | 2.75 | 0.17 | 0.043 | (0.358) | 0.013 | 0.030 |
| 34 | 2.83 | 0.17 | 0.043 | (0.356) | 0.013 | 0.030 |
| 35 | 2.92 | 0.17 | 0.043 | (0.355) | 0.013 | 0.030 |
| 36 | 3.00 | 0.17 | 0.043 | (0.354) | 0.013 | 0.030 |
| 37 | 3.08 | 0.17 | 0.043 | (0.352) | 0.013 | 0.030 |
| 38 | 3.17 | 0.17 | 0.043 | (0.351) | 0.013 | 0.030 |
| 39 | 3.25 | 0.17 | 0.043 | (0.349) | 0.013 | 0.030 |
| 40 | 3.33 | 0.17 | 0.043 | (0.348) | 0.013 | 0.030 |
| 41 | 3.42 | 0.17 | 0.043 | (0.346) | 0.013 | 0.030 |
| 42 | 3.50 | 0.17 | 0.043 | (0.345) | 0.013 | 0.030 |
| 43 | 3.58 | 0.17 | 0.043 | (0.343) | 0.013 | 0.030 |
| 44 | 3.67 | 0.17 | 0.043 | (0.342) | 0.013 | 0.030 |
| 45 | 3.75 | 0.17 | 0.043 | (0.340) | 0.013 | 0.030 |
| 46 | 3.83 | 0.20 | 0.052 | (0.339) | 0.016 | 0.036 |
| 47 | 3.92 | 0.20 | 0.052 | (0.338) | 0.016 | 0.036 |
| 48 | 4.00 | 0.20 | 0.052 | (0.336) | 0.016 | 0.036 |
| 49 | 4.08 | 0.20 | 0.052 | (0.335) | 0.016 | 0.036 |
| 50 | 4.17 | 0.20 | 0.052 | (0.333) | 0.016 | 0.036 |
| 51 | 4.25 | 0.20 | 0.052 | (0.332) | 0.016 | 0.036 |
| 52 | 4.33 | 0.23 | 0.061 | (0.330) | 0.018 | 0.042 |
| 53 | 4.42 | 0.23 | 0.061 | (0.329) | 0.018 | 0.042 |
| 54 | 4.50 | 0.23 | 0.061 | (0.328) | 0.018 | 0.042 |
| 55 | 4.58 | 0.23 | 0.061 | (0.326) | 0.018 | 0.042 |
| 56 | 4.67 | 0.23 | 0.061 | (0.325) | 0.018 | 0.042 |
| 57 | 4.75 | 0.23 | 0.061 | (0.323) | 0.018 | 0.042 |
| 58 | 4.83 | 0.27 | 0.069 | (0.322) | 0.021 | 0.048 |
| 59 | 4.92 | 0.27 | 0.069 | (0.321) | 0.021 | 0.048 |
| 60 | 5.00 | 0.27 | 0.069 | (0.319) | 0.021 | 0.048 |
| 61 | 5.08 | 0.20 | 0.052 | (0.318) | 0.016 | 0.036 |
| 62 | 5.17 | 0.20 | 0.052 | (0.317) | 0.016 | 0.036 |
| 63 | 5.25 | 0.20 | 0.052 | (0.315) | 0.016 | 0.036 |
| 64 | 5.33 | 0.23 | 0.061 | (0.314) | 0.018 | 0.042 |
| 65 | 5.42 | 0.23 | 0.061 | (0.312) | 0.018 | 0.042 |
| 66 | 5.50 | 0.23 | 0.061 | (0.311) | 0.018 | 0.042 |
| 67 | 5.58 | 0.27 | 0.069 | (0.310) | 0.021 | 0.048 |
| 68 | 5.67 | 0.27 | 0.069 | (0.308) | 0.021 | 0.048 |
| 69 | 5.75 | 0.27 | 0.069 | (0.307) | 0.021 | 0.048 |
| 70 | 5.83 | 0.27 | 0.069 | (0.306) | 0.021 | 0.048 |
| 71 | 5.92 | 0.27 | 0.069 | (0.304) | 0.021 | 0.048 |
| 72 | 6.00 | 0.27 | 0.069 | (0.303) | 0.021 | 0.048 |
| 73 | 6.08 | 0.30 | 0.078 | (0.302) | 0.023 | 0.054 |
| 74 | 6.17 | 0.30 | 0.078 | (0.300) | 0.023 | 0.054 |
| 75 | 6.25 | 0.30 | 0.078 | (0.299) | 0.023 | 0.054 |
| 76 | 6.33 | 0.30 | 0.078 | (0.298) | 0.023 | 0.054 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 77 | 6.42 | 0.30 | 0.078 | (0.296) | 0.023 | 0.054 |
| 78 | 6.50 | 0.30 | 0.078 | (0.295) | 0.023 | 0.054 |
| 79 | 6.58 | 0.33 | 0.086 | (0.294) | 0.026 | 0.061 |
| 80 | 6.67 | 0.33 | 0.086 | (0.292) | 0.026 | 0.061 |
| 81 | 6.75 | 0.33 | 0.086 | (0.291) | 0.026 | 0.061 |
| 82 | 6.83 | 0.33 | 0.086 | (0.290) | 0.026 | 0.061 |
| 83 | 6.92 | 0.33 | 0.086 | (0.288) | 0.026 | 0.061 |
| 84 | 7.00 | 0.33 | 0.086 | (0.287) | 0.026 | 0.061 |
| 85 | 7.08 | 0.33 | 0.086 | (0.286) | 0.026 | 0.061 |
| 86 | 7.17 | 0.33 | 0.086 | (0.284) | 0.026 | 0.061 |
| 87 | 7.25 | 0.33 | 0.086 | (0.283) | 0.026 | 0.061 |
| 88 | 7.33 | 0.37 | 0.095 | (0.282) | 0.029 | 0.067 |
| 89 | 7.42 | 0.37 | 0.095 | (0.280) | 0.029 | 0.067 |
| 90 | 7.50 | 0.37 | 0.095 | (0.279) | 0.029 | 0.067 |
| 91 | 7.58 | 0.40 | 0.104 | (0.278) | 0.031 | 0.073 |
| 92 | 7.67 | 0.40 | 0.104 | (0.277) | 0.031 | 0.073 |
| 93 | 7.75 | 0.40 | 0.104 | (0.275) | 0.031 | 0.073 |
| 94 | 7.83 | 0.43 | 0.112 | (0.274) | 0.034 | 0.079 |
| 95 | 7.92 | 0.43 | 0.112 | (0.273) | 0.034 | 0.079 |
| 96 | 8.00 | 0.43 | 0.112 | (0.272) | 0.034 | 0.079 |
| 97 | 8.08 | 0.50 | 0.130 | (0.270) | 0.039 | 0.091 |
| 98 | 8.17 | 0.50 | 0.130 | (0.269) | 0.039 | 0.091 |
| 99 | 8.25 | 0.50 | 0.130 | (0.268) | 0.039 | 0.091 |
| 100 | 8.33 | 0.50 | 0.130 | (0.267) | 0.039 | 0.091 |
| 101 | 8.42 | 0.50 | 0.130 | (0.265) | 0.039 | 0.091 |
| 102 | 8.50 | 0.50 | 0.130 | (0.264) | 0.039 | 0.091 |
| 103 | 8.58 | 0.53 | 0.138 | (0.263) | 0.042 | 0.097 |
| 104 | 8.67 | 0.53 | 0.138 | (0.262) | 0.042 | 0.097 |
| 105 | 8.75 | 0.53 | 0.138 | (0.260) | 0.042 | 0.097 |
| 106 | 8.83 | 0.57 | 0.147 | (0.259) | 0.044 | 0.103 |
| 107 | 8.92 | 0.57 | 0.147 | (0.258) | 0.044 | 0.103 |
| 108 | 9.00 | 0.57 | 0.147 | (0.257) | 0.044 | 0.103 |
| 109 | 9.08 | 0.63 | 0.164 | (0.255) | 0.049 | 0.115 |
| 110 | 9.17 | 0.63 | 0.164 | (0.254) | 0.049 | 0.115 |
| 111 | 9.25 | 0.63 | 0.164 | (0.253) | 0.049 | 0.115 |
| 112 | 9.33 | 0.67 | 0.173 | (0.252) | 0.052 | 0.121 |
| 113 | 9.42 | 0.67 | 0.173 | (0.251) | 0.052 | 0.121 |
| 114 | 9.50 | 0.67 | 0.173 | (0.249) | 0.052 | 0.121 |
| 115 | 9.58 | 0.70 | 0.182 | (0.248) | 0.054 | 0.127 |
| 116 | 9.67 | 0.70 | 0.182 | (0.247) | 0.054 | 0.127 |
| 117 | 9.75 | 0.70 | 0.182 | (0.246) | 0.054 | 0.127 |
| 118 | 9.83 | 0.73 | 0.190 | (0.245) | 0.057 | 0.133 |
| 119 | 9.92 | 0.73 | 0.190 | (0.243) | 0.057 | 0.133 |
| 120 | 10.00 | 0.73 | 0.190 | (0.242) | 0.057 | 0.133 |
| 121 | 10.08 | 0.50 | 0.130 | (0.241) | 0.039 | 0.091 |
| 122 | 10.17 | 0.50 | 0.130 | (0.240) | 0.039 | 0.091 |
| 123 | 10.25 | 0.50 | 0.130 | (0.239) | 0.039 | 0.091 |
| 124 | 10.33 | 0.50 | 0.130 | (0.238) | 0.039 | 0.091 |
| 125 | 10.42 | 0.50 | 0.130 | (0.236) | 0.039 | 0.091 |
| 126 | 10.50 | 0.50 | 0.130 | (0.235) | 0.039 | 0.091 |
| 127 | 10.58 | 0.67 | 0.173 | (0.234) | 0.052 | 0.121 |
| 128 | 10.67 | 0.67 | 0.173 | (0.233) | 0.052 | 0.121 |
| 129 | 10.75 | 0.67 | 0.173 | (0.232) | 0.052 | 0.121 |
| 130 | 10.83 | 0.67 | 0.173 | (0.231) | 0.052 | 0.121 |
| 131 | 10.92 | 0.67 | 0.173 | (0.230) | 0.052 | 0.121 |
| 132 | 11.00 | 0.67 | 0.173 | (0.228) | 0.052 | 0.121 |
| 133 | 11.08 | 0.63 | 0.164 | (0.227) | 0.049 | 0.115 |
| 134 | 11.17 | 0.63 | 0.164 | (0.226) | 0.049 | 0.115 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 135 | 11.25 | 0.63 | 0.164 | (0.225) | 0.049 | 0.115 |
| 136 | 11.33 | 0.63 | 0.164 | (0.224) | 0.049 | 0.115 |
| 137 | 11.42 | 0.63 | 0.164 | (0.223) | 0.049 | 0.115 |
| 138 | 11.50 | 0.63 | 0.164 | (0.222) | 0.049 | 0.115 |
| 139 | 11.58 | 0.57 | 0.147 | (0.221) | 0.044 | 0.103 |
| 140 | 11.67 | 0.57 | 0.147 | (0.220) | 0.044 | 0.103 |
| 141 | 11.75 | 0.57 | 0.147 | (0.219) | 0.044 | 0.103 |
| 142 | 11.83 | 0.60 | 0.156 | (0.217) | 0.047 | 0.109 |
| 143 | 11.92 | 0.60 | 0.156 | (0.216) | 0.047 | 0.109 |
| 144 | 12.00 | 0.60 | 0.156 | (0.215) | 0.047 | 0.109 |
| 145 | 12.08 | 0.83 | 0.216 | (0.214) | 0.065 | 0.151 |
| 146 | 12.17 | 0.83 | 0.216 | (0.213) | 0.065 | 0.151 |
| 147 | 12.25 | 0.83 | 0.216 | (0.212) | 0.065 | 0.151 |
| 148 | 12.33 | 0.87 | 0.225 | (0.211) | 0.067 | 0.157 |
| 149 | 12.42 | 0.87 | 0.225 | (0.210) | 0.067 | 0.157 |
| 150 | 12.50 | 0.87 | 0.225 | (0.209) | 0.067 | 0.157 |
| 151 | 12.58 | 0.93 | 0.242 | (0.208) | 0.073 | 0.170 |
| 152 | 12.67 | 0.93 | 0.242 | (0.207) | 0.073 | 0.170 |
| 153 | 12.75 | 0.93 | 0.242 | (0.206) | 0.073 | 0.170 |
| 154 | 12.83 | 0.97 | 0.251 | (0.205) | 0.075 | 0.176 |
| 155 | 12.92 | 0.97 | 0.251 | (0.204) | 0.075 | 0.176 |
| 156 | 13.00 | 0.97 | 0.251 | (0.203) | 0.075 | 0.176 |
| 157 | 13.08 | 1.13 | 0.294 | (0.202) | 0.088 | 0.206 |
| 158 | 13.17 | 1.13 | 0.294 | (0.201) | 0.088 | 0.206 |
| 159 | 13.25 | 1.13 | 0.294 | (0.200) | 0.088 | 0.206 |
| 160 | 13.33 | 1.13 | 0.294 | (0.199) | 0.088 | 0.206 |
| 161 | 13.42 | 1.13 | 0.294 | (0.198) | 0.088 | 0.206 |
| 162 | 13.50 | 1.13 | 0.294 | (0.197) | 0.088 | 0.206 |
| 163 | 13.58 | 0.77 | 0.199 | (0.196) | 0.060 | 0.139 |
| 164 | 13.67 | 0.77 | 0.199 | (0.195) | 0.060 | 0.139 |
| 165 | 13.75 | 0.77 | 0.199 | (0.194) | 0.060 | 0.139 |
| 166 | 13.83 | 0.77 | 0.199 | (0.193) | 0.060 | 0.139 |
| 167 | 13.92 | 0.77 | 0.199 | (0.192) | 0.060 | 0.139 |
| 168 | 14.00 | 0.77 | 0.199 | (0.191) | 0.060 | 0.139 |
| 169 | 14.08 | 0.90 | 0.234 | (0.190) | 0.070 | 0.163 |
| 170 | 14.17 | 0.90 | 0.234 | (0.189) | 0.070 | 0.163 |
| 171 | 14.25 | 0.90 | 0.234 | (0.188) | 0.070 | 0.163 |
| 172 | 14.33 | 0.87 | 0.225 | (0.187) | 0.067 | 0.157 |
| 173 | 14.42 | 0.87 | 0.225 | (0.186) | 0.067 | 0.157 |
| 174 | 14.50 | 0.87 | 0.225 | (0.185) | 0.067 | 0.157 |
| 175 | 14.58 | 0.87 | 0.225 | (0.184) | 0.067 | 0.157 |
| 176 | 14.67 | 0.87 | 0.225 | (0.183) | 0.067 | 0.157 |
| 177 | 14.75 | 0.87 | 0.225 | (0.182) | 0.067 | 0.157 |
| 178 | 14.83 | 0.83 | 0.216 | (0.181) | 0.065 | 0.151 |
| 179 | 14.92 | 0.83 | 0.216 | (0.180) | 0.065 | 0.151 |
| 180 | 15.00 | 0.83 | 0.216 | (0.179) | 0.065 | 0.151 |
| 181 | 15.08 | 0.80 | 0.208 | (0.178) | 0.062 | 0.145 |
| 182 | 15.17 | 0.80 | 0.208 | (0.177) | 0.062 | 0.145 |
| 183 | 15.25 | 0.80 | 0.208 | (0.176) | 0.062 | 0.145 |
| 184 | 15.33 | 0.77 | 0.199 | (0.176) | 0.060 | 0.139 |
| 185 | 15.42 | 0.77 | 0.199 | (0.175) | 0.060 | 0.139 |
| 186 | 15.50 | 0.77 | 0.199 | (0.174) | 0.060 | 0.139 |
| 187 | 15.58 | 0.63 | 0.164 | (0.173) | 0.049 | 0.115 |
| 188 | 15.67 | 0.63 | 0.164 | (0.172) | 0.049 | 0.115 |
| 189 | 15.75 | 0.63 | 0.164 | (0.171) | 0.049 | 0.115 |
| 190 | 15.83 | 0.63 | 0.164 | (0.170) | 0.049 | 0.115 |
| 191 | 15.92 | 0.63 | 0.164 | (0.169) | 0.049 | 0.115 |
| 192 | 16.00 | 0.63 | 0.164 | (0.168) | 0.049 | 0.115 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 193 | 16.08 | 0.13 | 0.035 | (0.168) | 0.010 | 0.024 |
| 194 | 16.17 | 0.13 | 0.035 | (0.167) | 0.010 | 0.024 |
| 195 | 16.25 | 0.13 | 0.035 | (0.166) | 0.010 | 0.024 |
| 196 | 16.33 | 0.13 | 0.035 | (0.165) | 0.010 | 0.024 |
| 197 | 16.42 | 0.13 | 0.035 | (0.164) | 0.010 | 0.024 |
| 198 | 16.50 | 0.13 | 0.035 | (0.163) | 0.010 | 0.024 |
| 199 | 16.58 | 0.10 | 0.026 | (0.163) | 0.008 | 0.018 |
| 200 | 16.67 | 0.10 | 0.026 | (0.162) | 0.008 | 0.018 |
| 201 | 16.75 | 0.10 | 0.026 | (0.161) | 0.008 | 0.018 |
| 202 | 16.83 | 0.10 | 0.026 | (0.160) | 0.008 | 0.018 |
| 203 | 16.92 | 0.10 | 0.026 | (0.159) | 0.008 | 0.018 |
| 204 | 17.00 | 0.10 | 0.026 | (0.158) | 0.008 | 0.018 |
| 205 | 17.08 | 0.17 | 0.043 | (0.158) | 0.013 | 0.030 |
| 206 | 17.17 | 0.17 | 0.043 | (0.157) | 0.013 | 0.030 |
| 207 | 17.25 | 0.17 | 0.043 | (0.156) | 0.013 | 0.030 |
| 208 | 17.33 | 0.17 | 0.043 | (0.155) | 0.013 | 0.030 |
| 209 | 17.42 | 0.17 | 0.043 | (0.155) | 0.013 | 0.030 |
| 210 | 17.50 | 0.17 | 0.043 | (0.154) | 0.013 | 0.030 |
| 211 | 17.58 | 0.17 | 0.043 | (0.153) | 0.013 | 0.030 |
| 212 | 17.67 | 0.17 | 0.043 | (0.152) | 0.013 | 0.030 |
| 213 | 17.75 | 0.17 | 0.043 | (0.151) | 0.013 | 0.030 |
| 214 | 17.83 | 0.13 | 0.035 | (0.151) | 0.010 | 0.024 |
| 215 | 17.92 | 0.13 | 0.035 | (0.150) | 0.010 | 0.024 |
| 216 | 18.00 | 0.13 | 0.035 | (0.149) | 0.010 | 0.024 |
| 217 | 18.08 | 0.13 | 0.035 | (0.149) | 0.010 | 0.024 |
| 218 | 18.17 | 0.13 | 0.035 | (0.148) | 0.010 | 0.024 |
| 219 | 18.25 | 0.13 | 0.035 | (0.147) | 0.010 | 0.024 |
| 220 | 18.33 | 0.13 | 0.035 | (0.146) | 0.010 | 0.024 |
| 221 | 18.42 | 0.13 | 0.035 | (0.146) | 0.010 | 0.024 |
| 222 | 18.50 | 0.13 | 0.035 | (0.145) | 0.010 | 0.024 |
| 223 | 18.58 | 0.10 | 0.026 | (0.144) | 0.008 | 0.018 |
| 224 | 18.67 | 0.10 | 0.026 | (0.144) | 0.008 | 0.018 |
| 225 | 18.75 | 0.10 | 0.026 | (0.143) | 0.008 | 0.018 |
| 226 | 18.83 | 0.07 | 0.017 | (0.142) | 0.005 | 0.012 |
| 227 | 18.92 | 0.07 | 0.017 | (0.141) | 0.005 | 0.012 |
| 228 | 19.00 | 0.07 | 0.017 | (0.141) | 0.005 | 0.012 |
| 229 | 19.08 | 0.10 | 0.026 | (0.140) | 0.008 | 0.018 |
| 230 | 19.17 | 0.10 | 0.026 | (0.139) | 0.008 | 0.018 |
| 231 | 19.25 | 0.10 | 0.026 | (0.139) | 0.008 | 0.018 |
| 232 | 19.33 | 0.13 | 0.035 | (0.138) | 0.010 | 0.024 |
| 233 | 19.42 | 0.13 | 0.035 | (0.138) | 0.010 | 0.024 |
| 234 | 19.50 | 0.13 | 0.035 | (0.137) | 0.010 | 0.024 |
| 235 | 19.58 | 0.10 | 0.026 | (0.136) | 0.008 | 0.018 |
| 236 | 19.67 | 0.10 | 0.026 | (0.136) | 0.008 | 0.018 |
| 237 | 19.75 | 0.10 | 0.026 | (0.135) | 0.008 | 0.018 |
| 238 | 19.83 | 0.07 | 0.017 | (0.134) | 0.005 | 0.012 |
| 239 | 19.92 | 0.07 | 0.017 | (0.134) | 0.005 | 0.012 |
| 240 | 20.00 | 0.07 | 0.017 | (0.133) | 0.005 | 0.012 |
| 241 | 20.08 | 0.10 | 0.026 | (0.133) | 0.008 | 0.018 |
| 242 | 20.17 | 0.10 | 0.026 | (0.132) | 0.008 | 0.018 |
| 243 | 20.25 | 0.10 | 0.026 | (0.131) | 0.008 | 0.018 |
| 244 | 20.33 | 0.10 | 0.026 | (0.131) | 0.008 | 0.018 |
| 245 | 20.42 | 0.10 | 0.026 | (0.130) | 0.008 | 0.018 |
| 246 | 20.50 | 0.10 | 0.026 | (0.130) | 0.008 | 0.018 |
| 247 | 20.58 | 0.10 | 0.026 | (0.129) | 0.008 | 0.018 |
| 248 | 20.67 | 0.10 | 0.026 | (0.129) | 0.008 | 0.018 |
| 249 | 20.75 | 0.10 | 0.026 | (0.128) | 0.008 | 0.018 |
| 250 | 20.83 | 0.07 | 0.017 | (0.128) | 0.005 | 0.012 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 251 | 20.92 | 0.07 | 0.017 | (0.127) | 0.005 | 0.012 |
| 252 | 21.00 | 0.07 | 0.017 | (0.127) | 0.005 | 0.012 |
| 253 | 21.08 | 0.10 | 0.026 | (0.126) | 0.008 | 0.018 |
| 254 | 21.17 | 0.10 | 0.026 | (0.126) | 0.008 | 0.018 |
| 255 | 21.25 | 0.10 | 0.026 | (0.125) | 0.008 | 0.018 |
| 256 | 21.33 | 0.07 | 0.017 | (0.125) | 0.005 | 0.012 |
| 257 | 21.42 | 0.07 | 0.017 | (0.124) | 0.005 | 0.012 |
| 258 | 21.50 | 0.07 | 0.017 | (0.124) | 0.005 | 0.012 |
| 259 | 21.58 | 0.10 | 0.026 | (0.123) | 0.008 | 0.018 |
| 260 | 21.67 | 0.10 | 0.026 | (0.123) | 0.008 | 0.018 |
| 261 | 21.75 | 0.10 | 0.026 | (0.122) | 0.008 | 0.018 |
| 262 | 21.83 | 0.07 | 0.017 | (0.122) | 0.005 | 0.012 |
| 263 | 21.92 | 0.07 | 0.017 | (0.122) | 0.005 | 0.012 |
| 264 | 22.00 | 0.07 | 0.017 | (0.121) | 0.005 | 0.012 |
| 265 | 22.08 | 0.10 | 0.026 | (0.121) | 0.008 | 0.018 |
| 266 | 22.17 | 0.10 | 0.026 | (0.120) | 0.008 | 0.018 |
| 267 | 22.25 | 0.10 | 0.026 | (0.120) | 0.008 | 0.018 |
| 268 | 22.33 | 0.07 | 0.017 | (0.120) | 0.005 | 0.012 |
| 269 | 22.42 | 0.07 | 0.017 | (0.119) | 0.005 | 0.012 |
| 270 | 22.50 | 0.07 | 0.017 | (0.119) | 0.005 | 0.012 |
| 271 | 22.58 | 0.07 | 0.017 | (0.119) | 0.005 | 0.012 |
| 272 | 22.67 | 0.07 | 0.017 | (0.118) | 0.005 | 0.012 |
| 273 | 22.75 | 0.07 | 0.017 | (0.118) | 0.005 | 0.012 |
| 274 | 22.83 | 0.07 | 0.017 | (0.118) | 0.005 | 0.012 |
| 275 | 22.92 | 0.07 | 0.017 | (0.117) | 0.005 | 0.012 |
| 276 | 23.00 | 0.07 | 0.017 | (0.117) | 0.005 | 0.012 |
| 277 | 23.08 | 0.07 | 0.017 | (0.117) | 0.005 | 0.012 |
| 278 | 23.17 | 0.07 | 0.017 | (0.116) | 0.005 | 0.012 |
| 279 | 23.25 | 0.07 | 0.017 | (0.116) | 0.005 | 0.012 |
| 280 | 23.33 | 0.07 | 0.017 | (0.116) | 0.005 | 0.012 |
| 281 | 23.42 | 0.07 | 0.017 | (0.116) | 0.005 | 0.012 |
| 282 | 23.50 | 0.07 | 0.017 | (0.116) | 0.005 | 0.012 |
| 283 | 23.58 | 0.07 | 0.017 | (0.115) | 0.005 | 0.012 |
| 284 | 23.67 | 0.07 | 0.017 | (0.115) | 0.005 | 0.012 |
| 285 | 23.75 | 0.07 | 0.017 | (0.115) | 0.005 | 0.012 |
| 286 | 23.83 | 0.07 | 0.017 | (0.115) | 0.005 | 0.012 |
| 287 | 23.92 | 0.07 | 0.017 | (0.115) | 0.005 | 0.012 |
| 288 | 24.00 | 0.07 | 0.017 | (0.115) | 0.005 | 0.012 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 18.2

Flood volume = Effective rainfall 1.51(In)
times area 20.4(Ac.)/[(In)/(Ft.)] = 2.6(Ac.Ft)
Total soil loss = 0.65(In)
Total soil loss = 1.103(Ac.Ft)
Total rainfall = 2.16(In)
Flood volume = 112073.0 Cubic Feet
Total soil loss = 48031.3 Cubic Feet

Peak flow rate of this hydrograph = 4.214(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 | 0.0003 | 0.05 | Q |
| 0+10 | 0.0015 | 0.17 | Q |
| 0+15 | 0.0029 | 0.21 | Q |
| 0+20 | 0.0046 | 0.25 | Q |
| 0+25 | 0.0068 | 0.32 | VQ |
| 0+30 | 0.0092 | 0.34 | VQ |
| 0+35 | 0.0117 | 0.36 | VQ |
| 0+40 | 0.0142 | 0.37 | VQ |
| 0+45 | 0.0167 | 0.37 | VQ |
| 0+50 | 0.0195 | 0.40 | VQ |
| 0+55 | 0.0226 | 0.46 | VQ |
| 1+ 0 | 0.0259 | 0.48 | VQ |
| 1+ 5 | 0.0291 | 0.46 | VQ |
| 1+10 | 0.0319 | 0.41 | VQ |
| 1+15 | 0.0346 | 0.39 | VQ |
| 1+20 | 0.0372 | 0.38 | VQ |
| 1+25 | 0.0398 | 0.38 | VQ |
| 1+30 | 0.0424 | 0.38 | VQ |
| 1+35 | 0.0450 | 0.38 | VQ |
| 1+40 | 0.0476 | 0.37 | VQ |
| 1+45 | 0.0502 | 0.37 | VQ |
| 1+50 | 0.0529 | 0.40 | VQ |
| 1+55 | 0.0561 | 0.46 | VQ |
| 2+ 0 | 0.0593 | 0.48 | VQ |
| 2+ 5 | 0.0627 | 0.49 | VQ |
| 2+10 | 0.0661 | 0.49 | Q |
| 2+15 | 0.0695 | 0.49 | Q |
| 2+20 | 0.0729 | 0.50 | Q |
| 2+25 | 0.0763 | 0.50 | Q |
| 2+30 | 0.0798 | 0.50 | Q |
| 2+35 | 0.0834 | 0.52 | VQ |
| 2+40 | 0.0874 | 0.58 | VQ |
| 2+45 | 0.0915 | 0.60 | VQ |
| 2+50 | 0.0957 | 0.61 | VQ |
| 2+55 | 0.1000 | 0.62 | VQ |
| 3+ 0 | 0.1042 | 0.62 | VQ |
| 3+ 5 | 0.1085 | 0.62 | VQ |
| 3+10 | 0.1128 | 0.62 | VQ |
| 3+15 | 0.1171 | 0.62 | VQ |
| 3+20 | 0.1214 | 0.62 | VQ |
| 3+25 | 0.1256 | 0.62 | VQ |
| 3+30 | 0.1299 | 0.62 | Q |
| 3+35 | 0.1342 | 0.62 | Q |
| 3+40 | 0.1385 | 0.62 | Q |
| 3+45 | 0.1428 | 0.62 | Q |
| 3+50 | 0.1472 | 0.65 | Q |
| 3+55 | 0.1521 | 0.71 | Q |
| 4+ 0 | 0.1571 | 0.73 | Q |
| 4+ 5 | 0.1622 | 0.74 | Q |
| 4+10 | 0.1673 | 0.74 | Q |
| 4+15 | 0.1724 | 0.74 | Q |
| 4+20 | 0.1777 | 0.77 | VQ |
| 4+25 | 0.1834 | 0.83 | VQ |
| 4+30 | 0.1893 | 0.85 | VQ |
| 4+35 | 0.1952 | 0.86 | Q |
| 4+40 | 0.2011 | 0.86 | Q |
| 4+45 | 0.2071 | 0.87 | Q |

| | | | | | | | |
|------|--------|------|------|--|--|--|--|
| 4+50 | 0.2133 | 0.89 | Q | | | | |
| 4+55 | 0.2199 | 0.96 | Q | | | | |
| 5+ 0 | 0.2266 | 0.98 | Q | | | | |
| 5+ 5 | 0.2330 | 0.94 | Q | | | | |
| 5+10 | 0.2387 | 0.82 | Q | | | | |
| 5+15 | 0.2441 | 0.78 | Q | | | | |
| 5+20 | 0.2496 | 0.79 | Q | | | | |
| 5+25 | 0.2554 | 0.85 | Q | | | | |
| 5+30 | 0.2613 | 0.86 | QV | | | | |
| 5+35 | 0.2674 | 0.89 | QV | | | | |
| 5+40 | 0.2739 | 0.95 | QV | | | | |
| 5+45 | 0.2806 | 0.97 | QV | | | | |
| 5+50 | 0.2874 | 0.98 | QV | | | | |
| 5+55 | 0.2942 | 0.99 | QV | | | | |
| 6+ 0 | 0.3010 | 0.99 | QV | | | | |
| 6+ 5 | 0.3080 | 1.02 | Q | | | | |
| 6+10 | 0.3155 | 1.08 | Q | | | | |
| 6+15 | 0.3231 | 1.10 | QV | | | | |
| 6+20 | 0.3307 | 1.11 | QV | | | | |
| 6+25 | 0.3384 | 1.11 | QV | | | | |
| 6+30 | 0.3461 | 1.12 | QV | | | | |
| 6+35 | 0.3539 | 1.14 | QV | | | | |
| 6+40 | 0.3622 | 1.20 | QV | | | | |
| 6+45 | 0.3707 | 1.22 | QV | | | | |
| 6+50 | 0.3792 | 1.23 | QV | | | | |
| 6+55 | 0.3877 | 1.24 | Q V | | | | |
| 7+ 0 | 0.3962 | 1.24 | Q V | | | | |
| 7+ 5 | 0.4048 | 1.24 | Q V | | | | |
| 7+10 | 0.4134 | 1.25 | Q V | | | | |
| 7+15 | 0.4219 | 1.25 | Q V | | | | |
| 7+20 | 0.4307 | 1.27 | QV | | | | |
| 7+25 | 0.4398 | 1.33 | QV | | | | |
| 7+30 | 0.4491 | 1.35 | QV | | | | |
| 7+35 | 0.4586 | 1.38 | Q V | | | | |
| 7+40 | 0.4686 | 1.45 | Q V | | | | |
| 7+45 | 0.4787 | 1.47 | Q V | | | | |
| 7+50 | 0.4891 | 1.50 | QV | | | | |
| 7+55 | 0.4999 | 1.57 | QV | | | | |
| 8+ 0 | 0.5109 | 1.59 | QV | | | | |
| 8+ 5 | 0.5223 | 1.65 | Q V | | | | |
| 8+10 | 0.5345 | 1.78 | QV | | | | |
| 8+15 | 0.5471 | 1.82 | QV | | | | |
| 8+20 | 0.5598 | 1.84 | QV | | | | |
| 8+25 | 0.5725 | 1.85 | QV | | | | |
| 8+30 | 0.5853 | 1.86 | Q V | | | | |
| 8+35 | 0.5983 | 1.89 | Q V | | | | |
| 8+40 | 0.6118 | 1.95 | Q V | | | | |
| 8+45 | 0.6254 | 1.97 | Q V | | | | |
| 8+50 | 0.6392 | 2.00 | QV | | | | |
| 8+55 | 0.6534 | 2.07 | Q V | | | | |
| 9+ 0 | 0.6678 | 2.09 | Q V | | | | |
| 9+ 5 | 0.6826 | 2.15 | Q V | | | | |
| 9+10 | 0.6983 | 2.28 | QV | | | | |
| 9+15 | 0.7143 | 2.32 | Q V | | | | |
| 9+20 | 0.7306 | 2.36 | Q V | | | | |
| 9+25 | 0.7474 | 2.44 | Q V | | | | |
| 9+30 | 0.7643 | 2.46 | Q V | | | | |
| 9+35 | 0.7815 | 2.50 | Q V | | | | |

| | | | | |
|-------|--------|------|---|---|
| 9+40 | 0.7992 | 2.57 | Q | V |
| 9+45 | 0.8171 | 2.59 | Q | V |
| 9+50 | 0.8351 | 2.62 | Q | V |
| 9+55 | 0.8537 | 2.69 | Q | V |
| 10+ 0 | 0.8724 | 2.71 | Q | V |
| 10+ 5 | 0.8900 | 2.56 | Q | V |
| 10+10 | 0.9048 | 2.14 | Q | V |
| 10+15 | 0.9186 | 2.01 | Q | V |
| 10+20 | 0.9320 | 1.95 | Q | V |
| 10+25 | 0.9452 | 1.92 | Q | V |
| 10+30 | 0.9583 | 1.90 | Q | V |
| 10+35 | 0.9721 | 2.00 | Q | V |
| 10+40 | 0.9878 | 2.29 | Q | V |
| 10+45 | 1.0043 | 2.39 | Q | V |
| 10+50 | 1.0210 | 2.43 | Q | V |
| 10+55 | 1.0379 | 2.45 | Q | V |
| 11+ 0 | 1.0549 | 2.47 | Q | V |
| 11+ 5 | 1.0718 | 2.46 | Q | V |
| 11+10 | 1.0884 | 2.41 | Q | V |
| 11+15 | 1.1049 | 2.39 | Q | V |
| 11+20 | 1.1212 | 2.38 | Q | V |
| 11+25 | 1.1376 | 2.37 | Q | V |
| 11+30 | 1.1539 | 2.37 | Q | V |
| 11+35 | 1.1699 | 2.32 | Q | V |
| 11+40 | 1.1850 | 2.20 | Q | V |
| 11+45 | 1.1999 | 2.16 | Q | V |
| 11+50 | 1.2148 | 2.16 | Q | V |
| 11+55 | 1.2300 | 2.22 | Q | V |
| 12+ 0 | 1.2454 | 2.23 | Q | V |
| 12+ 5 | 1.2619 | 2.40 | Q | V |
| 12+10 | 1.2814 | 2.82 | Q | V |
| 12+15 | 1.3018 | 2.96 | Q | V |
| 12+20 | 1.3228 | 3.05 | Q | V |
| 12+25 | 1.3445 | 3.15 | Q | V |
| 12+30 | 1.3664 | 3.19 | Q | V |
| 12+35 | 1.3889 | 3.26 | Q | V |
| 12+40 | 1.4123 | 3.40 | Q | V |
| 12+45 | 1.4360 | 3.44 | Q | V |
| 12+50 | 1.4600 | 3.48 | Q | V |
| 12+55 | 1.4845 | 3.56 | Q | V |
| 13+ 0 | 1.5092 | 3.58 | Q | V |
| 13+ 5 | 1.5347 | 3.71 | Q | V |
| 13+10 | 1.5625 | 4.03 | Q | V |
| 13+15 | 1.5909 | 4.13 | Q | V |
| 13+20 | 1.6196 | 4.17 | Q | V |
| 13+25 | 1.6485 | 4.20 | Q | V |
| 13+30 | 1.6776 | 4.21 | Q | V |
| 13+35 | 1.7048 | 3.96 | Q | V |
| 13+40 | 1.7276 | 3.31 | Q | V |
| 13+45 | 1.7489 | 3.09 | Q | V |
| 13+50 | 1.7696 | 3.00 | Q | V |
| 13+55 | 1.7898 | 2.94 | Q | V |
| 14+ 0 | 1.8098 | 2.91 | Q | V |
| 14+ 5 | 1.8304 | 2.98 | Q | V |
| 14+10 | 1.8524 | 3.20 | Q | V |
| 14+15 | 1.8750 | 3.28 | Q | V |
| 14+20 | 1.8977 | 3.29 | Q | V |
| 14+25 | 1.9200 | 3.25 | Q | V |

| | | | | | |
|-------|--------|------|---|---|---|
| 14+30 | 1.9424 | 3.24 | | Q | V |
| 14+35 | 1.9647 | 3.24 | | Q | V |
| 14+40 | 1.9870 | 3.24 | | Q | V |
| 14+45 | 2.0094 | 3.24 | | Q | V |
| 14+50 | 2.0315 | 3.22 | | Q | V |
| 14+55 | 2.0532 | 3.15 | | Q | V |
| 15+ 0 | 2.0748 | 3.13 | | Q | V |
| 15+ 5 | 2.0962 | 3.10 | | Q | V |
| 15+10 | 2.1171 | 3.04 | | Q | V |
| 15+15 | 2.1378 | 3.01 | | Q | V |
| 15+20 | 2.1584 | 2.98 | | Q | V |
| 15+25 | 2.1784 | 2.91 | | Q | V |
| 15+30 | 2.1983 | 2.89 | | Q | V |
| 15+35 | 2.2175 | 2.78 | | Q | V |
| 15+40 | 2.2349 | 2.53 | | Q | V |
| 15+45 | 2.2518 | 2.45 | | Q | V |
| 15+50 | 2.2685 | 2.42 | | Q | V |
| 15+55 | 2.2849 | 2.39 | | Q | V |
| 16+ 0 | 2.3013 | 2.38 | | Q | V |
| 16+ 5 | 2.3152 | 2.01 | | Q | V |
| 16+10 | 2.3228 | 1.10 | Q | | V |
| 16+15 | 2.3284 | 0.81 | Q | | V |
| 16+20 | 2.3331 | 0.68 | Q | | V |
| 16+25 | 2.3373 | 0.60 | Q | | V |
| 16+30 | 2.3411 | 0.56 | Q | | V |
| 16+35 | 2.3446 | 0.50 | Q | | V |
| 16+40 | 2.3474 | 0.41 | Q | | V |
| 16+45 | 2.3501 | 0.39 | Q | | V |
| 16+50 | 2.3528 | 0.39 | Q | | V |
| 16+55 | 2.3554 | 0.38 | Q | | V |
| 17+ 0 | 2.3580 | 0.38 | Q | | V |
| 17+ 5 | 2.3609 | 0.42 | Q | | V |
| 17+10 | 2.3646 | 0.54 | Q | | V |
| 17+15 | 2.3686 | 0.58 | Q | | V |
| 17+20 | 2.3728 | 0.60 | Q | | V |
| 17+25 | 2.3770 | 0.61 | Q | | V |
| 17+30 | 2.3812 | 0.61 | Q | | V |
| 17+35 | 2.3855 | 0.62 | Q | | V |
| 17+40 | 2.3897 | 0.62 | Q | | V |
| 17+45 | 2.3940 | 0.62 | Q | | V |
| 17+50 | 2.3982 | 0.60 | Q | | V |
| 17+55 | 2.4019 | 0.54 | Q | | V |
| 18+ 0 | 2.4054 | 0.52 | Q | | V |
| 18+ 5 | 2.4089 | 0.51 | Q | | V |
| 18+10 | 2.4124 | 0.51 | Q | | V |
| 18+15 | 2.4159 | 0.50 | Q | | V |
| 18+20 | 2.4193 | 0.50 | Q | | V |
| 18+25 | 2.4228 | 0.50 | Q | | V |
| 18+30 | 2.4262 | 0.50 | Q | | V |
| 18+35 | 2.4295 | 0.47 | Q | | V |
| 18+40 | 2.4323 | 0.41 | Q | | V |
| 18+45 | 2.4350 | 0.39 | Q | | V |
| 18+50 | 2.4375 | 0.36 | Q | | V |
| 18+55 | 2.4396 | 0.30 | Q | | V |
| 19+ 0 | 2.4414 | 0.27 | Q | | V |
| 19+ 5 | 2.4434 | 0.29 | Q | | V |
| 19+10 | 2.4458 | 0.34 | Q | | V |
| 19+15 | 2.4482 | 0.36 | Q | | V |

| | | | | |
|-------|--------|------|---|---|
| 19+20 | 2.4509 | 0.39 | Q | V |
| 19+25 | 2.4540 | 0.45 | Q | V |
| 19+30 | 2.4572 | 0.47 | Q | V |
| 19+35 | 2.4604 | 0.46 | Q | V |
| 19+40 | 2.4632 | 0.41 | Q | V |
| 19+45 | 2.4659 | 0.39 | Q | V |
| 19+50 | 2.4684 | 0.36 | Q | V |
| 19+55 | 2.4704 | 0.30 | Q | V |
| 20+ 0 | 2.4723 | 0.27 | Q | V |
| 20+ 5 | 2.4743 | 0.29 | Q | V |
| 20+10 | 2.4766 | 0.34 | Q | V |
| 20+15 | 2.4791 | 0.36 | Q | V |
| 20+20 | 2.4816 | 0.36 | Q | V |
| 20+25 | 2.4841 | 0.37 | Q | V |
| 20+30 | 2.4867 | 0.37 | Q | V |
| 20+35 | 2.4892 | 0.37 | Q | V |
| 20+40 | 2.4918 | 0.37 | Q | V |
| 20+45 | 2.4944 | 0.37 | Q | V |
| 20+50 | 2.4968 | 0.35 | Q | V |
| 20+55 | 2.4988 | 0.29 | Q | V |
| 21+ 0 | 2.5006 | 0.27 | Q | V |
| 21+ 5 | 2.5026 | 0.29 | Q | V |
| 21+10 | 2.5049 | 0.34 | Q | V |
| 21+15 | 2.5074 | 0.36 | Q | V |
| 21+20 | 2.5097 | 0.34 | Q | V |
| 21+25 | 2.5117 | 0.28 | Q | V |
| 21+30 | 2.5135 | 0.27 | Q | V |
| 21+35 | 2.5155 | 0.28 | Q | V |
| 21+40 | 2.5178 | 0.34 | Q | V |
| 21+45 | 2.5203 | 0.36 | Q | V |
| 21+50 | 2.5226 | 0.34 | Q | V |
| 21+55 | 2.5245 | 0.28 | Q | V |
| 22+ 0 | 2.5264 | 0.27 | Q | V |
| 22+ 5 | 2.5283 | 0.28 | Q | V |
| 22+10 | 2.5307 | 0.34 | Q | V |
| 22+15 | 2.5331 | 0.36 | Q | V |
| 22+20 | 2.5355 | 0.34 | Q | V |
| 22+25 | 2.5374 | 0.28 | Q | V |
| 22+30 | 2.5392 | 0.27 | Q | V |
| 22+35 | 2.5410 | 0.26 | Q | V |
| 22+40 | 2.5428 | 0.26 | Q | V |
| 22+45 | 2.5445 | 0.25 | Q | V |
| 22+50 | 2.5463 | 0.25 | Q | V |
| 22+55 | 2.5480 | 0.25 | Q | V |
| 23+ 0 | 2.5497 | 0.25 | Q | V |
| 23+ 5 | 2.5514 | 0.25 | Q | V |
| 23+10 | 2.5531 | 0.25 | Q | V |
| 23+15 | 2.5548 | 0.25 | Q | V |
| 23+20 | 2.5565 | 0.25 | Q | V |
| 23+25 | 2.5583 | 0.25 | Q | V |
| 23+30 | 2.5600 | 0.25 | Q | V |
| 23+35 | 2.5617 | 0.25 | Q | V |
| 23+40 | 2.5634 | 0.25 | Q | V |
| 23+45 | 2.5651 | 0.25 | Q | V |
| 23+50 | 2.5668 | 0.25 | Q | V |
| 23+55 | 2.5686 | 0.25 | Q | V |
| 24+ 0 | 2.5703 | 0.25 | Q | V |
| 24+ 5 | 2.5717 | 0.20 | Q | V |

| | | | | | | | |
|-------|--------|------|---|--|--|--|---|
| 24+10 | 2.5722 | 0.08 | Q | | | | V |
| 24+15 | 2.5725 | 0.04 | Q | | | | V |
| 24+20 | 2.5727 | 0.02 | Q | | | | V |
| 24+25 | 2.5728 | 0.01 | Q | | | | V |
| 24+30 | 2.5728 | 0.01 | Q | | | | V |
| 24+35 | 2.5728 | 0.00 | Q | | | | V |

5YR, 1HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPREA15.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 0.47 9.59

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.20 24.48

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.470(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.641(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.641(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-1 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 60.6 | 0.464 | 0.050 | 0.443 | 1.000 | 0.443 |
| | | | | | | Sum (F) = 0.443 |

Area averaged mean soil loss (F) (In/Hr) = 0.443
 Minimum soil loss rate ((In/Hr)) = 0.221
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.860

 Slope of intensity-duration curve for a 1 hour storm = 0.5000

Unit Hydrograph
 VALLEY S-Curve

 Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|----------------------|--------------------|-----------------------|-------------------|----------------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 4.20 | 0.323 | (0.443) | 0.278 |
| 2 | 0.17 | 4.30 | 0.331 | (0.443) | 0.284 |
| 3 | 0.25 | 5.00 | 0.385 | (0.443) | 0.331 |
| 4 | 0.33 | 5.00 | 0.385 | (0.443) | 0.331 |
| 5 | 0.42 | 5.80 | 0.446 | (0.443) | 0.384 |
| 6 | 0.50 | 6.50 | 0.500 | (0.443) | 0.430 |
| 7 | 0.58 | 7.40 | 0.569 | 0.443 (0.489) | 0.126 |
| 8 | 0.67 | 8.60 | 0.661 | 0.443 (0.569) | 0.219 |
| 9 | 0.75 | 12.30 | 0.946 | 0.443 (0.813) | 0.503 |
| 10 | 0.83 | 29.10 | 2.238 | 0.443 (1.925) | 1.795 |
| 11 | 0.92 | 6.80 | 0.523 | 0.443 (0.450) | 0.080 |
| 12 | 1.00 | 5.00 | 0.385 | (0.443) | 0.331 |
| (Loss Rate Not Used) | | | | | |
| Sum = 100.0 | | | Sum = 3.1 | | |

Flood volume = Effective rainfall 0.26(In)
 times area 20.4(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)

Total soil loss = 0.38(In)
 Total soil loss = 0.649(Ac.Ft)
 Total rainfall = 0.64(In)
 Flood volume = 19187.9 Cubic Feet
 Total soil loss = 28269.5 Cubic Feet

 Peak flow rate of this hydrograph = 20.306(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 | 0.0012 | | 0.18 | Q | | | | |
| 0+10 | 0.0056 | | 0.63 | Q | | | | |
| 0+15 | 0.0112 | | 0.82 | Q | | | | |
| 0+20 | 0.0179 | | 0.96 | Q | | | | |
| 0+25 | 0.0252 | | 1.06 | QV | | | | |
| 0+30 | 0.0335 | | 1.21 | Q V | | | | |
| 0+35 | 0.0442 | | 1.56 | Q V | | | | |
| 0+40 | 0.0617 | | 2.54 | Q V | | | | |
| 0+45 | 0.0947 | | 4.79 | Q V | | | | |
| 0+50 | 0.1851 | | 13.12 | | VQ | | | |
| 0+55 | 0.3249 | | 20.31 | | | Q V | | |
| 1+ 0 | 0.3786 | | 7.80 | | Q | | V | |
| 1+ 5 | 0.4061 | | 3.99 | | Q | | V | |
| 1+10 | 0.4208 | | 2.14 | Q | | | | V |
| 1+15 | 0.4300 | | 1.33 | Q | | | | V |
| 1+20 | 0.4358 | | 0.84 | Q | | | | V |
| 1+25 | 0.4401 | | 0.63 | Q | | | | V |
| 1+30 | 0.4404 | | 0.04 | Q | | | | V |
| 1+35 | 0.4405 | | 0.02 | Q | | | | V |

5YR, 3HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPREA35.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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] |
|--------------|-----------------|----------------|
| 20.40 | 0.80 | 16.32 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 1.86 | 37.94 |

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.048(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.048(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 78.0 60.6 0.464 0.050 0.443 1.000 0.443
 Sum (F) = 0.443

Area averaged mean soil loss (F) (In/Hr) = 0.443
 Minimum soil loss rate ((In/Hr)) = 0.221
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | (0.443) 0.141 | 0.023 |
| 2 | 0.17 | 1.30 | (0.443) 0.141 | 0.023 |
| 3 | 0.25 | 1.10 | (0.443) 0.119 | 0.019 |
| 4 | 0.33 | 1.50 | (0.443) 0.162 | 0.026 |
| 5 | 0.42 | 1.50 | (0.443) 0.162 | 0.026 |
| 6 | 0.50 | 1.80 | (0.443) 0.195 | 0.032 |
| 7 | 0.58 | 1.50 | (0.443) 0.162 | 0.026 |
| 8 | 0.67 | 1.80 | (0.443) 0.195 | 0.032 |
| 9 | 0.75 | 1.80 | (0.443) 0.195 | 0.032 |
| 10 | 0.83 | 1.50 | (0.443) 0.162 | 0.026 |
| 11 | 0.92 | 1.60 | (0.443) 0.173 | 0.028 |
| 12 | 1.00 | 1.80 | (0.443) 0.195 | 0.032 |
| 13 | 1.08 | 2.20 | (0.443) 0.238 | 0.039 |
| 14 | 1.17 | 2.20 | (0.443) 0.238 | 0.039 |
| 15 | 1.25 | 2.20 | (0.443) 0.238 | 0.039 |
| 16 | 1.33 | 2.00 | (0.443) 0.216 | 0.035 |
| 17 | 1.42 | 2.60 | (0.443) 0.281 | 0.046 |
| 18 | 1.50 | 2.70 | (0.443) 0.292 | 0.048 |

| | | | | | | | | | |
|------|--------|------|---|---|---|---|---|---|--|
| 1+40 | 0.0839 | 0.90 | Q | V | | | | | |
| 1+45 | 0.0907 | 0.99 | Q | V | | | | | |
| 1+50 | 0.0982 | 1.10 | Q | V | | | | | |
| 1+55 | 0.1057 | 1.09 | Q | V | | | | | |
| 2+ 0 | 0.1131 | 1.07 | Q | V | | | | | |
| 2+ 5 | 0.1206 | 1.09 | Q | V | | | | | |
| 2+10 | 0.1290 | 1.23 | Q | V | | | | | |
| 2+15 | 0.1424 | 1.95 | Q | V | | | | | |
| 2+20 | 0.1601 | 2.56 | Q | V | | | | | |
| 2+25 | 0.1812 | 3.07 | Q | V | | | | | |
| 2+30 | 0.2266 | 6.59 | | | V | Q | | | |
| 2+35 | 0.2866 | 8.71 | | | | V | Q | | |
| 2+40 | 0.3511 | 9.37 | | | | V | Q | Q | |
| 2+45 | 0.3936 | 6.16 | | | | Q | V | Q | |
| 2+50 | 0.4141 | 2.98 | | Q | | | V | V | |
| 2+55 | 0.4270 | 1.88 | | Q | | | | V | |
| 3+ 0 | 0.4363 | 1.35 | Q | | | | | V | |
| 3+ 5 | 0.4418 | 0.79 | Q | | | | | V | |
| 3+10 | 0.4446 | 0.41 | Q | | | | | V | |
| 3+15 | 0.4457 | 0.16 | Q | | | | | V | |
| 3+20 | 0.4460 | 0.05 | Q | | | | | V | |
| 3+25 | 0.4462 | 0.03 | Q | | | | | V | |
| 3+30 | 0.4463 | 0.01 | Q | | | | | V | |
| 3+35 | 0.4463 | 0.00 | Q | | | | | V | |

5YR, 6HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPREA65.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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] |
|--------------|-----------------|----------------|
| 20.40 | 1.00 | 20.40 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 2.50 | 51.00 |

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.351(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.351(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
 AMC2 AMC-1 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 78.0 60.6 0.464 0.050 0.443 1.000 0.443
 Sum (F) = 0.443

Area averaged mean soil loss (F) (In/Hr) = 0.443
 Minimum soil loss rate ((In/Hr)) = 0.221
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| Sum = 100.000 | | | Sum= 20.559 |

 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 | (0.443) 0.070 | 0.011 |
| 2 | 0.17 | 0.60 | (0.443) 0.084 | 0.014 |
| 3 | 0.25 | 0.60 | (0.443) 0.084 | 0.014 |
| 4 | 0.33 | 0.60 | (0.443) 0.084 | 0.014 |
| 5 | 0.42 | 0.60 | (0.443) 0.084 | 0.014 |
| 6 | 0.50 | 0.70 | (0.443) 0.098 | 0.016 |
| 7 | 0.58 | 0.70 | (0.443) 0.098 | 0.016 |
| 8 | 0.67 | 0.70 | (0.443) 0.098 | 0.016 |
| 9 | 0.75 | 0.70 | (0.443) 0.098 | 0.016 |
| 10 | 0.83 | 0.70 | (0.443) 0.098 | 0.016 |
| 11 | 0.92 | 0.70 | (0.443) 0.098 | 0.016 |
| 12 | 1.00 | 0.80 | (0.443) 0.112 | 0.018 |
| 13 | 1.08 | 0.80 | (0.443) 0.112 | 0.018 |
| 14 | 1.17 | 0.80 | (0.443) 0.112 | 0.018 |
| 15 | 1.25 | 0.80 | (0.443) 0.112 | 0.018 |
| 16 | 1.33 | 0.80 | (0.443) 0.112 | 0.018 |
| 17 | 1.42 | 0.80 | (0.443) 0.112 | 0.018 |
| 18 | 1.50 | 0.80 | (0.443) 0.112 | 0.018 |

| | | | | | | |
|----|------|------|-------|----------|----------|-------|
| 19 | 1.58 | 0.80 | 0.130 | (0.443) | 0.112 | 0.018 |
| 20 | 1.67 | 0.80 | 0.130 | (0.443) | 0.112 | 0.018 |
| 21 | 1.75 | 0.80 | 0.130 | (0.443) | 0.112 | 0.018 |
| 22 | 1.83 | 0.80 | 0.130 | (0.443) | 0.112 | 0.018 |
| 23 | 1.92 | 0.80 | 0.130 | (0.443) | 0.112 | 0.018 |
| 24 | 2.00 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 25 | 2.08 | 0.80 | 0.130 | (0.443) | 0.112 | 0.018 |
| 26 | 2.17 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 27 | 2.25 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 28 | 2.33 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 29 | 2.42 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 30 | 2.50 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 31 | 2.58 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 32 | 2.67 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 33 | 2.75 | 1.00 | 0.162 | (0.443) | 0.139 | 0.023 |
| 34 | 2.83 | 1.00 | 0.162 | (0.443) | 0.139 | 0.023 |
| 35 | 2.92 | 1.00 | 0.162 | (0.443) | 0.139 | 0.023 |
| 36 | 3.00 | 1.00 | 0.162 | (0.443) | 0.139 | 0.023 |
| 37 | 3.08 | 1.00 | 0.162 | (0.443) | 0.139 | 0.023 |
| 38 | 3.17 | 1.10 | 0.178 | (0.443) | 0.153 | 0.025 |
| 39 | 3.25 | 1.10 | 0.178 | (0.443) | 0.153 | 0.025 |
| 40 | 3.33 | 1.10 | 0.178 | (0.443) | 0.153 | 0.025 |
| 41 | 3.42 | 1.20 | 0.195 | (0.443) | 0.167 | 0.027 |
| 42 | 3.50 | 1.30 | 0.211 | (0.443) | 0.181 | 0.030 |
| 43 | 3.58 | 1.40 | 0.227 | (0.443) | 0.195 | 0.032 |
| 44 | 3.67 | 1.40 | 0.227 | (0.443) | 0.195 | 0.032 |
| 45 | 3.75 | 1.50 | 0.243 | (0.443) | 0.209 | 0.034 |
| 46 | 3.83 | 1.50 | 0.243 | (0.443) | 0.209 | 0.034 |
| 47 | 3.92 | 1.60 | 0.259 | (0.443) | 0.223 | 0.036 |
| 48 | 4.00 | 1.60 | 0.259 | (0.443) | 0.223 | 0.036 |
| 49 | 4.08 | 1.70 | 0.276 | (0.443) | 0.237 | 0.039 |
| 50 | 4.17 | 1.80 | 0.292 | (0.443) | 0.251 | 0.041 |
| 51 | 4.25 | 1.90 | 0.308 | (0.443) | 0.265 | 0.043 |
| 52 | 4.33 | 2.00 | 0.324 | (0.443) | 0.279 | 0.045 |
| 53 | 4.42 | 2.10 | 0.341 | (0.443) | 0.293 | 0.048 |
| 54 | 4.50 | 2.10 | 0.341 | (0.443) | 0.293 | 0.048 |
| 55 | 4.58 | 2.20 | 0.357 | (0.443) | 0.307 | 0.050 |
| 56 | 4.67 | 2.30 | 0.373 | (0.443) | 0.321 | 0.052 |
| 57 | 4.75 | 2.40 | 0.389 | (0.443) | 0.335 | 0.054 |
| 58 | 4.83 | 2.40 | 0.389 | (0.443) | 0.335 | 0.054 |
| 59 | 4.92 | 2.50 | 0.405 | (0.443) | 0.349 | 0.057 |
| 60 | 5.00 | 2.60 | 0.422 | (0.443) | 0.363 | 0.059 |
| 61 | 5.08 | 3.10 | 0.503 | (0.443) | 0.432 | 0.070 |
| 62 | 5.17 | 3.60 | 0.584 | 0.443 | (0.502) | 0.141 |
| 63 | 5.25 | 3.90 | 0.632 | 0.443 | (0.544) | 0.190 |
| 64 | 5.33 | 4.20 | 0.681 | 0.443 | (0.586) | 0.238 |
| 65 | 5.42 | 4.70 | 0.762 | 0.443 | (0.655) | 0.319 |
| 66 | 5.50 | 5.60 | 0.908 | 0.443 | (0.781) | 0.465 |
| 67 | 5.58 | 1.90 | 0.308 | (0.443) | 0.265 | 0.043 |
| 68 | 5.67 | 0.90 | 0.146 | (0.443) | 0.126 | 0.020 |
| 69 | 5.75 | 0.60 | 0.097 | (0.443) | 0.084 | 0.014 |
| 70 | 5.83 | 0.50 | 0.081 | (0.443) | 0.070 | 0.011 |
| 71 | 5.92 | 0.30 | 0.049 | (0.443) | 0.042 | 0.007 |
| 72 | 6.00 | 0.20 | 0.032 | (0.443) | 0.028 | 0.005 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 3.1

Flood volume = Effective rainfall 0.26(In)

times area 20.4(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)

Total soil loss = 1.09(In)
 Total soil loss = 1.854(Ac.Ft)
 Total rainfall = 1.35(In)
 Flood volume = 19282.1 Cubic Feet
 Total soil loss = 80780.0 Cubic Feet

 Peak flow rate of this hydrograph = 6.449(CFS)

+++++

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

 Hydrograph in 5 Minute intervals ((CFS))

| Time(h+m) | Volume | Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|-----------|--------|-------|--------|-----|-----|-----|-----|------|
| 0+ 5 | 0.0003 | | 0.04 | Q | | | | |
| 0+10 | 0.0015 | | 0.17 | Q | | | | |
| 0+15 | 0.0030 | | 0.23 | Q | | | | |
| 0+20 | 0.0047 | | 0.25 | Q | | | | |
| 0+25 | 0.0065 | | 0.26 | VQ | | | | |
| 0+30 | 0.0085 | | 0.28 | VQ | | | | |
| 0+35 | 0.0106 | | 0.31 | VQ | | | | |
| 0+40 | 0.0128 | | 0.32 | Q | | | | |
| 0+45 | 0.0150 | | 0.32 | Q | | | | |
| 0+50 | 0.0172 | | 0.32 | Q | | | | |
| 0+55 | 0.0195 | | 0.33 | Q | | | | |
| 1+ 0 | 0.0218 | | 0.34 | Q | | | | |
| 1+ 5 | 0.0242 | | 0.36 | QV | | | | |
| 1+10 | 0.0268 | | 0.37 | QV | | | | |
| 1+15 | 0.0293 | | 0.37 | QV | | | | |
| 1+20 | 0.0319 | | 0.37 | QV | | | | |
| 1+25 | 0.0344 | | 0.37 | Q V | | | | |
| 1+30 | 0.0370 | | 0.37 | Q V | | | | |
| 1+35 | 0.0396 | | 0.37 | Q V | | | | |
| 1+40 | 0.0421 | | 0.37 | Q V | | | | |
| 1+45 | 0.0447 | | 0.37 | Q V | | | | |
| 1+50 | 0.0473 | | 0.37 | Q V | | | | |
| 1+55 | 0.0498 | | 0.37 | Q V | | | | |
| 2+ 0 | 0.0525 | | 0.38 | Q V | | | | |
| 2+ 5 | 0.0552 | | 0.40 | Q V | | | | |
| 2+10 | 0.0579 | | 0.39 | Q V | | | | |
| 2+15 | 0.0607 | | 0.41 | Q V | | | | |
| 2+20 | 0.0636 | | 0.41 | Q V | | | | |
| 2+25 | 0.0664 | | 0.42 | Q V | | | | |
| 2+30 | 0.0693 | | 0.42 | Q V | | | | |
| 2+35 | 0.0722 | | 0.42 | Q V | | | | |
| 2+40 | 0.0751 | | 0.42 | Q V | | | | |
| 2+45 | 0.0780 | | 0.43 | Q V | | | | |
| 2+50 | 0.0812 | | 0.45 | Q V | | | | |
| 2+55 | 0.0843 | | 0.46 | Q V | | | | |
| 3+ 0 | 0.0875 | | 0.46 | Q V | | | | |
| 3+ 5 | 0.0907 | | 0.46 | Q V | | | | |
| 3+10 | 0.0940 | | 0.47 | Q V | | | | |
| 3+15 | 0.0974 | | 0.50 | Q V | | | | |
| 3+20 | 0.1009 | | 0.51 | Q V | | | | |
| 3+25 | 0.1045 | | 0.52 | Q V | | | | |

| | | | | | | | | | | |
|------|--------|------|---|---|--|--|--|--|--|--|
| 3+30 | 0.1083 | 0.55 | Q | V | | | | | | |
| 3+35 | 0.1123 | 0.59 | Q | V | | | | | | |
| 3+40 | 0.1166 | 0.63 | Q | V | | | | | | |
| 3+45 | 0.1211 | 0.65 | Q | V | | | | | | |
| 3+50 | 0.1258 | 0.68 | Q | V | | | | | | |
| 3+55 | 0.1306 | 0.70 | Q | V | | | | | | |
| 4+ 0 | 0.1355 | 0.73 | Q | V | | | | | | |
| 4+ 5 | 0.1407 | 0.74 | Q | V | | | | | | |
| 4+10 | 0.1461 | 0.78 | Q | V | | | | | | |
| 4+15 | 0.1517 | 0.82 | Q | V | | | | | | |
| 4+20 | 0.1577 | 0.87 | Q | V | | | | | | |
| 4+25 | 0.1640 | 0.91 | Q | V | | | | | | |
| 4+30 | 0.1705 | 0.95 | Q | V | | | | | | |
| 4+35 | 0.1772 | 0.97 | Q | V | | | | | | |
| 4+40 | 0.1842 | 1.01 | Q | V | | | | | | |
| 4+45 | 0.1915 | 1.06 | Q | V | | | | | | |
| 4+50 | 0.1990 | 1.09 | Q | V | | | | | | |
| 4+55 | 0.2066 | 1.11 | Q | V | | | | | | |
| 5+ 0 | 0.2146 | 1.15 | Q | V | | | | | | |
| 5+ 5 | 0.2231 | 1.23 | Q | V | | | | | | |
| 5+10 | 0.2343 | 1.64 | Q | V | | | | | | |
| 5+15 | 0.2521 | 2.58 | Q | V | | | | | | |
| 5+20 | 0.2762 | 3.50 | Q | V | | | | | | |
| 5+25 | 0.3077 | 4.58 | Q | V | | | | | | |
| 5+30 | 0.3507 | 6.25 | Q | V | | | | | | |
| 5+35 | 0.3952 | 6.45 | Q | V | | | | | | |
| 5+40 | 0.4147 | 2.83 | Q | V | | | | | | |
| 5+45 | 0.4255 | 1.57 | Q | V | | | | | | |
| 5+50 | 0.4323 | 1.00 | Q | V | | | | | | |
| 5+55 | 0.4370 | 0.68 | Q | V | | | | | | |
| 6+ 0 | 0.4400 | 0.44 | Q | V | | | | | | |
| 6+ 5 | 0.4418 | 0.27 | Q | V | | | | | | |
| 6+10 | 0.4423 | 0.06 | Q | V | | | | | | |
| 6+15 | 0.4425 | 0.03 | Q | V | | | | | | |
| 6+20 | 0.4426 | 0.02 | Q | V | | | | | | |
| 6+25 | 0.4426 | 0.01 | Q | V | | | | | | |
| 6+30 | 0.4426 | 0.00 | Q | V | | | | | | |
| 6+35 | 0.4427 | 0.00 | Q | V | | | | | | |

5YR, 24HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 2YRPREA245.out

+++++

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

Program License Serial Number 6215

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

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.083 Hr.
Lag time = 5.00 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 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]
20.40 1.60 32.64

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 4.00 81.60

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.600(In)
Area Averaged 100-Year Rainfall = 4.000(In)

Point rain (area averaged) = 2.162(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.162(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|-----------|-------|-------------|------------|------------------|--------|---------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-1 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 60.6 | 0.464 | 0.050 | 0.443 | 1.000 | 0.443 |
| Sum (F) = | | | | | | 0.443 |

Area averaged mean soil loss (F) (In/Hr) = 0.443
 Minimum soil loss rate ((In/Hr)) = 0.221
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 100.040 | 19.212 |
| 2 | 0.167 | 200.080 | 48.406 |
| 3 | 0.250 | 300.120 | 15.629 |
| 4 | 0.333 | 400.160 | 7.060 |
| 5 | 0.417 | 500.200 | 3.973 |
| 6 | 0.500 | 600.240 | 2.574 |
| 7 | 0.583 | 700.280 | 1.599 |
| 8 | 0.667 | 800.320 | 1.547 |
| | | Sum = 100.000 | Sum= 20.559 |

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 | (0.785) 0.015 | 0.002 |
| 2 | 0.17 | 0.07 | (0.782) 0.015 | 0.002 |
| 3 | 0.25 | 0.07 | (0.779) 0.015 | 0.002 |
| 4 | 0.33 | 0.10 | (0.776) 0.022 | 0.004 |
| 5 | 0.42 | 0.10 | (0.773) 0.022 | 0.004 |
| 6 | 0.50 | 0.10 | (0.770) 0.022 | 0.004 |
| 7 | 0.58 | 0.10 | (0.767) 0.022 | 0.004 |
| 8 | 0.67 | 0.10 | (0.764) 0.022 | 0.004 |
| 9 | 0.75 | 0.10 | (0.761) 0.022 | 0.004 |
| 10 | 0.83 | 0.13 | (0.758) 0.030 | 0.005 |
| 11 | 0.92 | 0.13 | (0.755) 0.030 | 0.005 |
| 12 | 1.00 | 0.13 | (0.752) 0.030 | 0.005 |
| 13 | 1.08 | 0.10 | (0.749) 0.022 | 0.004 |
| 14 | 1.17 | 0.10 | (0.746) 0.022 | 0.004 |
| 15 | 1.25 | 0.10 | (0.743) 0.022 | 0.004 |
| 16 | 1.33 | 0.10 | (0.740) 0.022 | 0.004 |
| 17 | 1.42 | 0.10 | (0.737) 0.022 | 0.004 |
| 18 | 1.50 | 0.10 | (0.734) 0.022 | 0.004 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 19 | 1.58 | 0.10 | 0.026 | (0.731) | 0.022 | 0.004 |
| 20 | 1.67 | 0.10 | 0.026 | (0.728) | 0.022 | 0.004 |
| 21 | 1.75 | 0.10 | 0.026 | (0.725) | 0.022 | 0.004 |
| 22 | 1.83 | 0.13 | 0.035 | (0.722) | 0.030 | 0.005 |
| 23 | 1.92 | 0.13 | 0.035 | (0.719) | 0.030 | 0.005 |
| 24 | 2.00 | 0.13 | 0.035 | (0.716) | 0.030 | 0.005 |
| 25 | 2.08 | 0.13 | 0.035 | (0.714) | 0.030 | 0.005 |
| 26 | 2.17 | 0.13 | 0.035 | (0.711) | 0.030 | 0.005 |
| 27 | 2.25 | 0.13 | 0.035 | (0.708) | 0.030 | 0.005 |
| 28 | 2.33 | 0.13 | 0.035 | (0.705) | 0.030 | 0.005 |
| 29 | 2.42 | 0.13 | 0.035 | (0.702) | 0.030 | 0.005 |
| 30 | 2.50 | 0.13 | 0.035 | (0.699) | 0.030 | 0.005 |
| 31 | 2.58 | 0.17 | 0.043 | (0.696) | 0.037 | 0.006 |
| 32 | 2.67 | 0.17 | 0.043 | (0.693) | 0.037 | 0.006 |
| 33 | 2.75 | 0.17 | 0.043 | (0.691) | 0.037 | 0.006 |
| 34 | 2.83 | 0.17 | 0.043 | (0.688) | 0.037 | 0.006 |
| 35 | 2.92 | 0.17 | 0.043 | (0.685) | 0.037 | 0.006 |
| 36 | 3.00 | 0.17 | 0.043 | (0.682) | 0.037 | 0.006 |
| 37 | 3.08 | 0.17 | 0.043 | (0.679) | 0.037 | 0.006 |
| 38 | 3.17 | 0.17 | 0.043 | (0.676) | 0.037 | 0.006 |
| 39 | 3.25 | 0.17 | 0.043 | (0.674) | 0.037 | 0.006 |
| 40 | 3.33 | 0.17 | 0.043 | (0.671) | 0.037 | 0.006 |
| 41 | 3.42 | 0.17 | 0.043 | (0.668) | 0.037 | 0.006 |
| 42 | 3.50 | 0.17 | 0.043 | (0.665) | 0.037 | 0.006 |
| 43 | 3.58 | 0.17 | 0.043 | (0.662) | 0.037 | 0.006 |
| 44 | 3.67 | 0.17 | 0.043 | (0.660) | 0.037 | 0.006 |
| 45 | 3.75 | 0.17 | 0.043 | (0.657) | 0.037 | 0.006 |
| 46 | 3.83 | 0.20 | 0.052 | (0.654) | 0.045 | 0.007 |
| 47 | 3.92 | 0.20 | 0.052 | (0.651) | 0.045 | 0.007 |
| 48 | 4.00 | 0.20 | 0.052 | (0.649) | 0.045 | 0.007 |
| 49 | 4.08 | 0.20 | 0.052 | (0.646) | 0.045 | 0.007 |
| 50 | 4.17 | 0.20 | 0.052 | (0.643) | 0.045 | 0.007 |
| 51 | 4.25 | 0.20 | 0.052 | (0.640) | 0.045 | 0.007 |
| 52 | 4.33 | 0.23 | 0.061 | (0.638) | 0.052 | 0.008 |
| 53 | 4.42 | 0.23 | 0.061 | (0.635) | 0.052 | 0.008 |
| 54 | 4.50 | 0.23 | 0.061 | (0.632) | 0.052 | 0.008 |
| 55 | 4.58 | 0.23 | 0.061 | (0.629) | 0.052 | 0.008 |
| 56 | 4.67 | 0.23 | 0.061 | (0.627) | 0.052 | 0.008 |
| 57 | 4.75 | 0.23 | 0.061 | (0.624) | 0.052 | 0.008 |
| 58 | 4.83 | 0.27 | 0.069 | (0.621) | 0.059 | 0.010 |
| 59 | 4.92 | 0.27 | 0.069 | (0.619) | 0.059 | 0.010 |
| 60 | 5.00 | 0.27 | 0.069 | (0.616) | 0.059 | 0.010 |
| 61 | 5.08 | 0.20 | 0.052 | (0.613) | 0.045 | 0.007 |
| 62 | 5.17 | 0.20 | 0.052 | (0.611) | 0.045 | 0.007 |
| 63 | 5.25 | 0.20 | 0.052 | (0.608) | 0.045 | 0.007 |
| 64 | 5.33 | 0.23 | 0.061 | (0.605) | 0.052 | 0.008 |
| 65 | 5.42 | 0.23 | 0.061 | (0.603) | 0.052 | 0.008 |
| 66 | 5.50 | 0.23 | 0.061 | (0.600) | 0.052 | 0.008 |
| 67 | 5.58 | 0.27 | 0.069 | (0.597) | 0.059 | 0.010 |
| 68 | 5.67 | 0.27 | 0.069 | (0.595) | 0.059 | 0.010 |
| 69 | 5.75 | 0.27 | 0.069 | (0.592) | 0.059 | 0.010 |
| 70 | 5.83 | 0.27 | 0.069 | (0.590) | 0.059 | 0.010 |
| 71 | 5.92 | 0.27 | 0.069 | (0.587) | 0.059 | 0.010 |
| 72 | 6.00 | 0.27 | 0.069 | (0.584) | 0.059 | 0.010 |
| 73 | 6.08 | 0.30 | 0.078 | (0.582) | 0.067 | 0.011 |
| 74 | 6.17 | 0.30 | 0.078 | (0.579) | 0.067 | 0.011 |
| 75 | 6.25 | 0.30 | 0.078 | (0.577) | 0.067 | 0.011 |
| 76 | 6.33 | 0.30 | 0.078 | (0.574) | 0.067 | 0.011 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 77 | 6.42 | 0.30 | 0.078 | (0.571) | 0.067 | 0.011 |
| 78 | 6.50 | 0.30 | 0.078 | (0.569) | 0.067 | 0.011 |
| 79 | 6.58 | 0.33 | 0.086 | (0.566) | 0.074 | 0.012 |
| 80 | 6.67 | 0.33 | 0.086 | (0.564) | 0.074 | 0.012 |
| 81 | 6.75 | 0.33 | 0.086 | (0.561) | 0.074 | 0.012 |
| 82 | 6.83 | 0.33 | 0.086 | (0.559) | 0.074 | 0.012 |
| 83 | 6.92 | 0.33 | 0.086 | (0.556) | 0.074 | 0.012 |
| 84 | 7.00 | 0.33 | 0.086 | (0.554) | 0.074 | 0.012 |
| 85 | 7.08 | 0.33 | 0.086 | (0.551) | 0.074 | 0.012 |
| 86 | 7.17 | 0.33 | 0.086 | (0.549) | 0.074 | 0.012 |
| 87 | 7.25 | 0.33 | 0.086 | (0.546) | 0.074 | 0.012 |
| 88 | 7.33 | 0.37 | 0.095 | (0.544) | 0.082 | 0.013 |
| 89 | 7.42 | 0.37 | 0.095 | (0.541) | 0.082 | 0.013 |
| 90 | 7.50 | 0.37 | 0.095 | (0.539) | 0.082 | 0.013 |
| 91 | 7.58 | 0.40 | 0.104 | (0.536) | 0.089 | 0.015 |
| 92 | 7.67 | 0.40 | 0.104 | (0.534) | 0.089 | 0.015 |
| 93 | 7.75 | 0.40 | 0.104 | (0.531) | 0.089 | 0.015 |
| 94 | 7.83 | 0.43 | 0.112 | (0.529) | 0.097 | 0.016 |
| 95 | 7.92 | 0.43 | 0.112 | (0.526) | 0.097 | 0.016 |
| 96 | 8.00 | 0.43 | 0.112 | (0.524) | 0.097 | 0.016 |
| 97 | 8.08 | 0.50 | 0.130 | (0.521) | 0.112 | 0.018 |
| 98 | 8.17 | 0.50 | 0.130 | (0.519) | 0.112 | 0.018 |
| 99 | 8.25 | 0.50 | 0.130 | (0.517) | 0.112 | 0.018 |
| 100 | 8.33 | 0.50 | 0.130 | (0.514) | 0.112 | 0.018 |
| 101 | 8.42 | 0.50 | 0.130 | (0.512) | 0.112 | 0.018 |
| 102 | 8.50 | 0.50 | 0.130 | (0.509) | 0.112 | 0.018 |
| 103 | 8.58 | 0.53 | 0.138 | (0.507) | 0.119 | 0.019 |
| 104 | 8.67 | 0.53 | 0.138 | (0.505) | 0.119 | 0.019 |
| 105 | 8.75 | 0.53 | 0.138 | (0.502) | 0.119 | 0.019 |
| 106 | 8.83 | 0.57 | 0.147 | (0.500) | 0.126 | 0.021 |
| 107 | 8.92 | 0.57 | 0.147 | (0.498) | 0.126 | 0.021 |
| 108 | 9.00 | 0.57 | 0.147 | (0.495) | 0.126 | 0.021 |
| 109 | 9.08 | 0.63 | 0.164 | (0.493) | 0.141 | 0.023 |
| 110 | 9.17 | 0.63 | 0.164 | (0.490) | 0.141 | 0.023 |
| 111 | 9.25 | 0.63 | 0.164 | (0.488) | 0.141 | 0.023 |
| 112 | 9.33 | 0.67 | 0.173 | (0.486) | 0.149 | 0.024 |
| 113 | 9.42 | 0.67 | 0.173 | (0.483) | 0.149 | 0.024 |
| 114 | 9.50 | 0.67 | 0.173 | (0.481) | 0.149 | 0.024 |
| 115 | 9.58 | 0.70 | 0.182 | (0.479) | 0.156 | 0.025 |
| 116 | 9.67 | 0.70 | 0.182 | (0.477) | 0.156 | 0.025 |
| 117 | 9.75 | 0.70 | 0.182 | (0.474) | 0.156 | 0.025 |
| 118 | 9.83 | 0.73 | 0.190 | (0.472) | 0.164 | 0.027 |
| 119 | 9.92 | 0.73 | 0.190 | (0.470) | 0.164 | 0.027 |
| 120 | 10.00 | 0.73 | 0.190 | (0.467) | 0.164 | 0.027 |
| 121 | 10.08 | 0.50 | 0.130 | (0.465) | 0.112 | 0.018 |
| 122 | 10.17 | 0.50 | 0.130 | (0.463) | 0.112 | 0.018 |
| 123 | 10.25 | 0.50 | 0.130 | (0.461) | 0.112 | 0.018 |
| 124 | 10.33 | 0.50 | 0.130 | (0.458) | 0.112 | 0.018 |
| 125 | 10.42 | 0.50 | 0.130 | (0.456) | 0.112 | 0.018 |
| 126 | 10.50 | 0.50 | 0.130 | (0.454) | 0.112 | 0.018 |
| 127 | 10.58 | 0.67 | 0.173 | (0.452) | 0.149 | 0.024 |
| 128 | 10.67 | 0.67 | 0.173 | (0.450) | 0.149 | 0.024 |
| 129 | 10.75 | 0.67 | 0.173 | (0.447) | 0.149 | 0.024 |
| 130 | 10.83 | 0.67 | 0.173 | (0.445) | 0.149 | 0.024 |
| 131 | 10.92 | 0.67 | 0.173 | (0.443) | 0.149 | 0.024 |
| 132 | 11.00 | 0.67 | 0.173 | (0.441) | 0.149 | 0.024 |
| 133 | 11.08 | 0.63 | 0.164 | (0.439) | 0.141 | 0.023 |
| 134 | 11.17 | 0.63 | 0.164 | (0.436) | 0.141 | 0.023 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 135 | 11.25 | 0.63 | 0.164 | (0.434) | 0.141 | 0.023 |
| 136 | 11.33 | 0.63 | 0.164 | (0.432) | 0.141 | 0.023 |
| 137 | 11.42 | 0.63 | 0.164 | (0.430) | 0.141 | 0.023 |
| 138 | 11.50 | 0.63 | 0.164 | (0.428) | 0.141 | 0.023 |
| 139 | 11.58 | 0.57 | 0.147 | (0.426) | 0.126 | 0.021 |
| 140 | 11.67 | 0.57 | 0.147 | (0.424) | 0.126 | 0.021 |
| 141 | 11.75 | 0.57 | 0.147 | (0.422) | 0.126 | 0.021 |
| 142 | 11.83 | 0.60 | 0.156 | (0.419) | 0.134 | 0.022 |
| 143 | 11.92 | 0.60 | 0.156 | (0.417) | 0.134 | 0.022 |
| 144 | 12.00 | 0.60 | 0.156 | (0.415) | 0.134 | 0.022 |
| 145 | 12.08 | 0.83 | 0.216 | (0.413) | 0.186 | 0.030 |
| 146 | 12.17 | 0.83 | 0.216 | (0.411) | 0.186 | 0.030 |
| 147 | 12.25 | 0.83 | 0.216 | (0.409) | 0.186 | 0.030 |
| 148 | 12.33 | 0.87 | 0.225 | (0.407) | 0.193 | 0.031 |
| 149 | 12.42 | 0.87 | 0.225 | (0.405) | 0.193 | 0.031 |
| 150 | 12.50 | 0.87 | 0.225 | (0.403) | 0.193 | 0.031 |
| 151 | 12.58 | 0.93 | 0.242 | (0.401) | 0.208 | 0.034 |
| 152 | 12.67 | 0.93 | 0.242 | (0.399) | 0.208 | 0.034 |
| 153 | 12.75 | 0.93 | 0.242 | (0.397) | 0.208 | 0.034 |
| 154 | 12.83 | 0.97 | 0.251 | (0.395) | 0.216 | 0.035 |
| 155 | 12.92 | 0.97 | 0.251 | (0.393) | 0.216 | 0.035 |
| 156 | 13.00 | 0.97 | 0.251 | (0.391) | 0.216 | 0.035 |
| 157 | 13.08 | 1.13 | 0.294 | (0.389) | 0.253 | 0.041 |
| 158 | 13.17 | 1.13 | 0.294 | (0.387) | 0.253 | 0.041 |
| 159 | 13.25 | 1.13 | 0.294 | (0.385) | 0.253 | 0.041 |
| 160 | 13.33 | 1.13 | 0.294 | (0.383) | 0.253 | 0.041 |
| 161 | 13.42 | 1.13 | 0.294 | (0.381) | 0.253 | 0.041 |
| 162 | 13.50 | 1.13 | 0.294 | (0.379) | 0.253 | 0.041 |
| 163 | 13.58 | 0.77 | 0.199 | (0.377) | 0.171 | 0.028 |
| 164 | 13.67 | 0.77 | 0.199 | (0.375) | 0.171 | 0.028 |
| 165 | 13.75 | 0.77 | 0.199 | (0.373) | 0.171 | 0.028 |
| 166 | 13.83 | 0.77 | 0.199 | (0.371) | 0.171 | 0.028 |
| 167 | 13.92 | 0.77 | 0.199 | (0.370) | 0.171 | 0.028 |
| 168 | 14.00 | 0.77 | 0.199 | (0.368) | 0.171 | 0.028 |
| 169 | 14.08 | 0.90 | 0.234 | (0.366) | 0.201 | 0.033 |
| 170 | 14.17 | 0.90 | 0.234 | (0.364) | 0.201 | 0.033 |
| 171 | 14.25 | 0.90 | 0.234 | (0.362) | 0.201 | 0.033 |
| 172 | 14.33 | 0.87 | 0.225 | (0.360) | 0.193 | 0.031 |
| 173 | 14.42 | 0.87 | 0.225 | (0.358) | 0.193 | 0.031 |
| 174 | 14.50 | 0.87 | 0.225 | (0.357) | 0.193 | 0.031 |
| 175 | 14.58 | 0.87 | 0.225 | (0.355) | 0.193 | 0.031 |
| 176 | 14.67 | 0.87 | 0.225 | (0.353) | 0.193 | 0.031 |
| 177 | 14.75 | 0.87 | 0.225 | (0.351) | 0.193 | 0.031 |
| 178 | 14.83 | 0.83 | 0.216 | (0.349) | 0.186 | 0.030 |
| 179 | 14.92 | 0.83 | 0.216 | (0.348) | 0.186 | 0.030 |
| 180 | 15.00 | 0.83 | 0.216 | (0.346) | 0.186 | 0.030 |
| 181 | 15.08 | 0.80 | 0.208 | (0.344) | 0.178 | 0.029 |
| 182 | 15.17 | 0.80 | 0.208 | (0.342) | 0.178 | 0.029 |
| 183 | 15.25 | 0.80 | 0.208 | (0.340) | 0.178 | 0.029 |
| 184 | 15.33 | 0.77 | 0.199 | (0.339) | 0.171 | 0.028 |
| 185 | 15.42 | 0.77 | 0.199 | (0.337) | 0.171 | 0.028 |
| 186 | 15.50 | 0.77 | 0.199 | (0.335) | 0.171 | 0.028 |
| 187 | 15.58 | 0.63 | 0.164 | (0.334) | 0.141 | 0.023 |
| 188 | 15.67 | 0.63 | 0.164 | (0.332) | 0.141 | 0.023 |
| 189 | 15.75 | 0.63 | 0.164 | (0.330) | 0.141 | 0.023 |
| 190 | 15.83 | 0.63 | 0.164 | (0.328) | 0.141 | 0.023 |
| 191 | 15.92 | 0.63 | 0.164 | (0.327) | 0.141 | 0.023 |
| 192 | 16.00 | 0.63 | 0.164 | (0.325) | 0.141 | 0.023 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 193 | 16.08 | 0.13 | 0.035 | (0.323) | 0.030 | 0.005 |
| 194 | 16.17 | 0.13 | 0.035 | (0.322) | 0.030 | 0.005 |
| 195 | 16.25 | 0.13 | 0.035 | (0.320) | 0.030 | 0.005 |
| 196 | 16.33 | 0.13 | 0.035 | (0.318) | 0.030 | 0.005 |
| 197 | 16.42 | 0.13 | 0.035 | (0.317) | 0.030 | 0.005 |
| 198 | 16.50 | 0.13 | 0.035 | (0.315) | 0.030 | 0.005 |
| 199 | 16.58 | 0.10 | 0.026 | (0.314) | 0.022 | 0.004 |
| 200 | 16.67 | 0.10 | 0.026 | (0.312) | 0.022 | 0.004 |
| 201 | 16.75 | 0.10 | 0.026 | (0.310) | 0.022 | 0.004 |
| 202 | 16.83 | 0.10 | 0.026 | (0.309) | 0.022 | 0.004 |
| 203 | 16.92 | 0.10 | 0.026 | (0.307) | 0.022 | 0.004 |
| 204 | 17.00 | 0.10 | 0.026 | (0.306) | 0.022 | 0.004 |
| 205 | 17.08 | 0.17 | 0.043 | (0.304) | 0.037 | 0.006 |
| 206 | 17.17 | 0.17 | 0.043 | (0.303) | 0.037 | 0.006 |
| 207 | 17.25 | 0.17 | 0.043 | (0.301) | 0.037 | 0.006 |
| 208 | 17.33 | 0.17 | 0.043 | (0.300) | 0.037 | 0.006 |
| 209 | 17.42 | 0.17 | 0.043 | (0.298) | 0.037 | 0.006 |
| 210 | 17.50 | 0.17 | 0.043 | (0.297) | 0.037 | 0.006 |
| 211 | 17.58 | 0.17 | 0.043 | (0.295) | 0.037 | 0.006 |
| 212 | 17.67 | 0.17 | 0.043 | (0.294) | 0.037 | 0.006 |
| 213 | 17.75 | 0.17 | 0.043 | (0.292) | 0.037 | 0.006 |
| 214 | 17.83 | 0.13 | 0.035 | (0.291) | 0.030 | 0.005 |
| 215 | 17.92 | 0.13 | 0.035 | (0.289) | 0.030 | 0.005 |
| 216 | 18.00 | 0.13 | 0.035 | (0.288) | 0.030 | 0.005 |
| 217 | 18.08 | 0.13 | 0.035 | (0.287) | 0.030 | 0.005 |
| 218 | 18.17 | 0.13 | 0.035 | (0.285) | 0.030 | 0.005 |
| 219 | 18.25 | 0.13 | 0.035 | (0.284) | 0.030 | 0.005 |
| 220 | 18.33 | 0.13 | 0.035 | (0.282) | 0.030 | 0.005 |
| 221 | 18.42 | 0.13 | 0.035 | (0.281) | 0.030 | 0.005 |
| 222 | 18.50 | 0.13 | 0.035 | (0.280) | 0.030 | 0.005 |
| 223 | 18.58 | 0.10 | 0.026 | (0.278) | 0.022 | 0.004 |
| 224 | 18.67 | 0.10 | 0.026 | (0.277) | 0.022 | 0.004 |
| 225 | 18.75 | 0.10 | 0.026 | (0.276) | 0.022 | 0.004 |
| 226 | 18.83 | 0.07 | 0.017 | (0.274) | 0.015 | 0.002 |
| 227 | 18.92 | 0.07 | 0.017 | (0.273) | 0.015 | 0.002 |
| 228 | 19.00 | 0.07 | 0.017 | (0.272) | 0.015 | 0.002 |
| 229 | 19.08 | 0.10 | 0.026 | (0.270) | 0.022 | 0.004 |
| 230 | 19.17 | 0.10 | 0.026 | (0.269) | 0.022 | 0.004 |
| 231 | 19.25 | 0.10 | 0.026 | (0.268) | 0.022 | 0.004 |
| 232 | 19.33 | 0.13 | 0.035 | (0.267) | 0.030 | 0.005 |
| 233 | 19.42 | 0.13 | 0.035 | (0.265) | 0.030 | 0.005 |
| 234 | 19.50 | 0.13 | 0.035 | (0.264) | 0.030 | 0.005 |
| 235 | 19.58 | 0.10 | 0.026 | (0.263) | 0.022 | 0.004 |
| 236 | 19.67 | 0.10 | 0.026 | (0.262) | 0.022 | 0.004 |
| 237 | 19.75 | 0.10 | 0.026 | (0.261) | 0.022 | 0.004 |
| 238 | 19.83 | 0.07 | 0.017 | (0.259) | 0.015 | 0.002 |
| 239 | 19.92 | 0.07 | 0.017 | (0.258) | 0.015 | 0.002 |
| 240 | 20.00 | 0.07 | 0.017 | (0.257) | 0.015 | 0.002 |
| 241 | 20.08 | 0.10 | 0.026 | (0.256) | 0.022 | 0.004 |
| 242 | 20.17 | 0.10 | 0.026 | (0.255) | 0.022 | 0.004 |
| 243 | 20.25 | 0.10 | 0.026 | (0.254) | 0.022 | 0.004 |
| 244 | 20.33 | 0.10 | 0.026 | (0.253) | 0.022 | 0.004 |
| 245 | 20.42 | 0.10 | 0.026 | (0.252) | 0.022 | 0.004 |
| 246 | 20.50 | 0.10 | 0.026 | (0.250) | 0.022 | 0.004 |
| 247 | 20.58 | 0.10 | 0.026 | (0.249) | 0.022 | 0.004 |
| 248 | 20.67 | 0.10 | 0.026 | (0.248) | 0.022 | 0.004 |
| 249 | 20.75 | 0.10 | 0.026 | (0.247) | 0.022 | 0.004 |
| 250 | 20.83 | 0.07 | 0.017 | (0.246) | 0.015 | 0.002 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 251 | 20.92 | 0.07 | 0.017 | (0.245) | 0.015 | 0.002 |
| 252 | 21.00 | 0.07 | 0.017 | (0.244) | 0.015 | 0.002 |
| 253 | 21.08 | 0.10 | 0.026 | (0.243) | 0.022 | 0.004 |
| 254 | 21.17 | 0.10 | 0.026 | (0.242) | 0.022 | 0.004 |
| 255 | 21.25 | 0.10 | 0.026 | (0.241) | 0.022 | 0.004 |
| 256 | 21.33 | 0.07 | 0.017 | (0.241) | 0.015 | 0.002 |
| 257 | 21.42 | 0.07 | 0.017 | (0.240) | 0.015 | 0.002 |
| 258 | 21.50 | 0.07 | 0.017 | (0.239) | 0.015 | 0.002 |
| 259 | 21.58 | 0.10 | 0.026 | (0.238) | 0.022 | 0.004 |
| 260 | 21.67 | 0.10 | 0.026 | (0.237) | 0.022 | 0.004 |
| 261 | 21.75 | 0.10 | 0.026 | (0.236) | 0.022 | 0.004 |
| 262 | 21.83 | 0.07 | 0.017 | (0.235) | 0.015 | 0.002 |
| 263 | 21.92 | 0.07 | 0.017 | (0.235) | 0.015 | 0.002 |
| 264 | 22.00 | 0.07 | 0.017 | (0.234) | 0.015 | 0.002 |
| 265 | 22.08 | 0.10 | 0.026 | (0.233) | 0.022 | 0.004 |
| 266 | 22.17 | 0.10 | 0.026 | (0.232) | 0.022 | 0.004 |
| 267 | 22.25 | 0.10 | 0.026 | (0.231) | 0.022 | 0.004 |
| 268 | 22.33 | 0.07 | 0.017 | (0.231) | 0.015 | 0.002 |
| 269 | 22.42 | 0.07 | 0.017 | (0.230) | 0.015 | 0.002 |
| 270 | 22.50 | 0.07 | 0.017 | (0.229) | 0.015 | 0.002 |
| 271 | 22.58 | 0.07 | 0.017 | (0.229) | 0.015 | 0.002 |
| 272 | 22.67 | 0.07 | 0.017 | (0.228) | 0.015 | 0.002 |
| 273 | 22.75 | 0.07 | 0.017 | (0.227) | 0.015 | 0.002 |
| 274 | 22.83 | 0.07 | 0.017 | (0.227) | 0.015 | 0.002 |
| 275 | 22.92 | 0.07 | 0.017 | (0.226) | 0.015 | 0.002 |
| 276 | 23.00 | 0.07 | 0.017 | (0.226) | 0.015 | 0.002 |
| 277 | 23.08 | 0.07 | 0.017 | (0.225) | 0.015 | 0.002 |
| 278 | 23.17 | 0.07 | 0.017 | (0.225) | 0.015 | 0.002 |
| 279 | 23.25 | 0.07 | 0.017 | (0.224) | 0.015 | 0.002 |
| 280 | 23.33 | 0.07 | 0.017 | (0.224) | 0.015 | 0.002 |
| 281 | 23.42 | 0.07 | 0.017 | (0.223) | 0.015 | 0.002 |
| 282 | 23.50 | 0.07 | 0.017 | (0.223) | 0.015 | 0.002 |
| 283 | 23.58 | 0.07 | 0.017 | (0.223) | 0.015 | 0.002 |
| 284 | 23.67 | 0.07 | 0.017 | (0.222) | 0.015 | 0.002 |
| 285 | 23.75 | 0.07 | 0.017 | (0.222) | 0.015 | 0.002 |
| 286 | 23.83 | 0.07 | 0.017 | (0.222) | 0.015 | 0.002 |
| 287 | 23.92 | 0.07 | 0.017 | (0.221) | 0.015 | 0.002 |
| 288 | 24.00 | 0.07 | 0.017 | (0.221) | 0.015 | 0.002 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 3.6

Flood volume = Effective rainfall 0.30(In)
times area 20.4(Ac.)/[((In)/(Ft.))] = 0.5(Ac.Ft)
Total soil loss = 1.86(In)
Total soil loss = 3.161(Ac.Ft)
Total rainfall = 2.16(In)
Flood volume = 22414.6 Cubic Feet
Total soil loss = 137689.7 Cubic Feet

Peak flow rate of this hydrograph = 0.843(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5 10.0

| | | | |
|------|--------|------|-----|
| 0+ 5 | 0.0001 | 0.01 | Q |
| 0+10 | 0.0003 | 0.03 | Q |
| 0+15 | 0.0006 | 0.04 | Q |
| 0+20 | 0.0009 | 0.05 | Q |
| 0+25 | 0.0014 | 0.06 | Q |
| 0+30 | 0.0018 | 0.07 | Q |
| 0+35 | 0.0023 | 0.07 | Q |
| 0+40 | 0.0028 | 0.07 | Q |
| 0+45 | 0.0033 | 0.07 | Q |
| 0+50 | 0.0039 | 0.08 | Q |
| 0+55 | 0.0045 | 0.09 | Q |
| 1+ 0 | 0.0052 | 0.10 | Q |
| 1+ 5 | 0.0058 | 0.09 | Q |
| 1+10 | 0.0064 | 0.08 | Q |
| 1+15 | 0.0069 | 0.08 | Q |
| 1+20 | 0.0074 | 0.08 | Q |
| 1+25 | 0.0080 | 0.08 | Q |
| 1+30 | 0.0085 | 0.08 | Q |
| 1+35 | 0.0090 | 0.08 | Q |
| 1+40 | 0.0095 | 0.07 | Q |
| 1+45 | 0.0100 | 0.07 | Q |
| 1+50 | 0.0106 | 0.08 | Q |
| 1+55 | 0.0112 | 0.09 | Q |
| 2+ 0 | 0.0119 | 0.10 | Q |
| 2+ 5 | 0.0125 | 0.10 | Q |
| 2+10 | 0.0132 | 0.10 | QV |
| 2+15 | 0.0139 | 0.10 | QV |
| 2+20 | 0.0146 | 0.10 | QV |
| 2+25 | 0.0153 | 0.10 | QV |
| 2+30 | 0.0160 | 0.10 | QV |
| 2+35 | 0.0167 | 0.10 | QV |
| 2+40 | 0.0175 | 0.12 | QV |
| 2+45 | 0.0183 | 0.12 | QV |
| 2+50 | 0.0191 | 0.12 | QV |
| 2+55 | 0.0200 | 0.12 | QV |
| 3+ 0 | 0.0208 | 0.12 | QV |
| 3+ 5 | 0.0217 | 0.12 | QV |
| 3+10 | 0.0226 | 0.12 | QV |
| 3+15 | 0.0234 | 0.12 | QV |
| 3+20 | 0.0243 | 0.12 | QV |
| 3+25 | 0.0251 | 0.12 | QV |
| 3+30 | 0.0260 | 0.12 | Q V |
| 3+35 | 0.0268 | 0.12 | Q V |
| 3+40 | 0.0277 | 0.12 | Q V |
| 3+45 | 0.0286 | 0.12 | Q V |
| 3+50 | 0.0294 | 0.13 | Q V |
| 3+55 | 0.0304 | 0.14 | Q V |
| 4+ 0 | 0.0314 | 0.15 | Q V |
| 4+ 5 | 0.0324 | 0.15 | Q V |
| 4+10 | 0.0335 | 0.15 | Q V |
| 4+15 | 0.0345 | 0.15 | Q V |
| 4+20 | 0.0355 | 0.15 | Q V |
| 4+25 | 0.0367 | 0.17 | Q V |
| 4+30 | 0.0379 | 0.17 | Q V |
| 4+35 | 0.0390 | 0.17 | Q V |
| 4+40 | 0.0402 | 0.17 | Q V |
| 4+45 | 0.0414 | 0.17 | Q V |

| | | | | |
|------|--------|------|---|---|
| 4+50 | 0.0427 | 0.18 | Q | V |
| 4+55 | 0.0440 | 0.19 | Q | V |
| 5+ 0 | 0.0453 | 0.20 | Q | V |
| 5+ 5 | 0.0466 | 0.19 | Q | V |
| 5+10 | 0.0477 | 0.16 | Q | V |
| 5+15 | 0.0488 | 0.16 | Q | V |
| 5+20 | 0.0499 | 0.16 | Q | V |
| 5+25 | 0.0511 | 0.17 | Q | V |
| 5+30 | 0.0523 | 0.17 | Q | V |
| 5+35 | 0.0535 | 0.18 | Q | V |
| 5+40 | 0.0548 | 0.19 | Q | V |
| 5+45 | 0.0561 | 0.19 | Q | V |
| 5+50 | 0.0575 | 0.20 | Q | V |
| 5+55 | 0.0588 | 0.20 | Q | V |
| 6+ 0 | 0.0602 | 0.20 | Q | V |
| 6+ 5 | 0.0616 | 0.20 | Q | V |
| 6+10 | 0.0631 | 0.22 | Q | V |
| 6+15 | 0.0646 | 0.22 | Q | V |
| 6+20 | 0.0661 | 0.22 | Q | V |
| 6+25 | 0.0677 | 0.22 | Q | V |
| 6+30 | 0.0692 | 0.22 | Q | V |
| 6+35 | 0.0708 | 0.23 | Q | V |
| 6+40 | 0.0724 | 0.24 | Q | V |
| 6+45 | 0.0741 | 0.24 | Q | V |
| 6+50 | 0.0758 | 0.25 | Q | V |
| 6+55 | 0.0775 | 0.25 | Q | V |
| 7+ 0 | 0.0792 | 0.25 | Q | V |
| 7+ 5 | 0.0810 | 0.25 | Q | V |
| 7+10 | 0.0827 | 0.25 | Q | V |
| 7+15 | 0.0844 | 0.25 | Q | V |
| 7+20 | 0.0861 | 0.25 | Q | V |
| 7+25 | 0.0880 | 0.27 | Q | V |
| 7+30 | 0.0898 | 0.27 | Q | V |
| 7+35 | 0.0917 | 0.28 | Q | V |
| 7+40 | 0.0937 | 0.29 | Q | V |
| 7+45 | 0.0957 | 0.29 | Q | V |
| 7+50 | 0.0978 | 0.30 | Q | V |
| 7+55 | 0.1000 | 0.31 | Q | V |
| 8+ 0 | 0.1022 | 0.32 | Q | V |
| 8+ 5 | 0.1045 | 0.33 | Q | V |
| 8+10 | 0.1069 | 0.36 | Q | V |
| 8+15 | 0.1094 | 0.36 | Q | V |
| 8+20 | 0.1120 | 0.37 | Q | V |
| 8+25 | 0.1145 | 0.37 | Q | V |
| 8+30 | 0.1171 | 0.37 | Q | V |
| 8+35 | 0.1197 | 0.38 | Q | V |
| 8+40 | 0.1224 | 0.39 | Q | V |
| 8+45 | 0.1251 | 0.39 | Q | V |
| 8+50 | 0.1278 | 0.40 | Q | V |
| 8+55 | 0.1307 | 0.41 | Q | V |
| 9+ 0 | 0.1336 | 0.42 | Q | V |
| 9+ 5 | 0.1365 | 0.43 | Q | V |
| 9+10 | 0.1397 | 0.46 | Q | V |
| 9+15 | 0.1429 | 0.46 | Q | V |
| 9+20 | 0.1461 | 0.47 | Q | V |
| 9+25 | 0.1495 | 0.49 | Q | V |
| 9+30 | 0.1529 | 0.49 | Q | V |
| 9+35 | 0.1563 | 0.50 | Q | V |

| | | | | | | | | |
|-------|--------|------|---|---|--|--|--|--|
| 9+40 | 0.1598 | 0.51 | Q | V | | | | |
| 9+45 | 0.1634 | 0.52 | Q | V | | | | |
| 9+50 | 0.1670 | 0.52 | Q | V | | | | |
| 9+55 | 0.1707 | 0.54 | Q | V | | | | |
| 10+ 0 | 0.1745 | 0.54 | Q | V | | | | |
| 10+ 5 | 0.1780 | 0.51 | Q | V | | | | |
| 10+10 | 0.1810 | 0.43 | Q | V | | | | |
| 10+15 | 0.1837 | 0.40 | Q | V | | | | |
| 10+20 | 0.1864 | 0.39 | Q | V | | | | |
| 10+25 | 0.1890 | 0.38 | Q | V | | | | |
| 10+30 | 0.1917 | 0.38 | Q | V | | | | |
| 10+35 | 0.1944 | 0.40 | Q | V | | | | |
| 10+40 | 0.1976 | 0.46 | Q | V | | | | |
| 10+45 | 0.2009 | 0.48 | Q | V | | | | |
| 10+50 | 0.2042 | 0.49 | Q | V | | | | |
| 10+55 | 0.2076 | 0.49 | Q | V | | | | |
| 11+ 0 | 0.2110 | 0.49 | Q | V | | | | |
| 11+ 5 | 0.2144 | 0.49 | Q | V | | | | |
| 11+10 | 0.2177 | 0.48 | Q | V | | | | |
| 11+15 | 0.2210 | 0.48 | Q | V | | | | |
| 11+20 | 0.2242 | 0.48 | Q | V | | | | |
| 11+25 | 0.2275 | 0.47 | Q | V | | | | |
| 11+30 | 0.2308 | 0.47 | Q | V | | | | |
| 11+35 | 0.2340 | 0.46 | Q | V | | | | |
| 11+40 | 0.2370 | 0.44 | Q | V | | | | |
| 11+45 | 0.2400 | 0.43 | Q | V | | | | |
| 11+50 | 0.2430 | 0.43 | Q | V | | | | |
| 11+55 | 0.2460 | 0.44 | Q | V | | | | |
| 12+ 0 | 0.2491 | 0.45 | Q | V | | | | |
| 12+ 5 | 0.2524 | 0.48 | Q | V | | | | |
| 12+10 | 0.2563 | 0.56 | Q | V | | | | |
| 12+15 | 0.2604 | 0.59 | Q | V | | | | |
| 12+20 | 0.2646 | 0.61 | Q | V | | | | |
| 12+25 | 0.2689 | 0.63 | Q | V | | | | |
| 12+30 | 0.2733 | 0.64 | Q | V | | | | |
| 12+35 | 0.2778 | 0.65 | Q | V | | | | |
| 12+40 | 0.2825 | 0.68 | Q | V | | | | |
| 12+45 | 0.2872 | 0.69 | Q | V | | | | |
| 12+50 | 0.2920 | 0.70 | Q | V | | | | |
| 12+55 | 0.2969 | 0.71 | Q | V | | | | |
| 13+ 0 | 0.3018 | 0.72 | Q | V | | | | |
| 13+ 5 | 0.3069 | 0.74 | Q | V | | | | |
| 13+10 | 0.3125 | 0.81 | Q | V | | | | |
| 13+15 | 0.3182 | 0.83 | Q | V | | | | |
| 13+20 | 0.3239 | 0.83 | Q | V | | | | |
| 13+25 | 0.3297 | 0.84 | Q | V | | | | |
| 13+30 | 0.3355 | 0.84 | Q | V | | | | |
| 13+35 | 0.3410 | 0.79 | Q | V | | | | |
| 13+40 | 0.3455 | 0.66 | Q | V | | | | |
| 13+45 | 0.3498 | 0.62 | Q | V | | | | |
| 13+50 | 0.3539 | 0.60 | Q | V | | | | |
| 13+55 | 0.3580 | 0.59 | Q | V | | | | |
| 14+ 0 | 0.3620 | 0.58 | Q | V | | | | |
| 14+ 5 | 0.3661 | 0.60 | Q | V | | | | |
| 14+10 | 0.3705 | 0.64 | Q | V | | | | |
| 14+15 | 0.3750 | 0.66 | Q | V | | | | |
| 14+20 | 0.3795 | 0.66 | Q | V | | | | |
| 14+25 | 0.3840 | 0.65 | Q | V | | | | |

| | | | | |
|-------|--------|------|---|---|
| 14+30 | 0.3885 | 0.65 | Q | V |
| 14+35 | 0.3929 | 0.65 | Q | V |
| 14+40 | 0.3974 | 0.65 | Q | V |
| 14+45 | 0.4019 | 0.65 | Q | V |
| 14+50 | 0.4063 | 0.64 | Q | V |
| 14+55 | 0.4106 | 0.63 | Q | V |
| 15+ 0 | 0.4150 | 0.63 | Q | V |
| 15+ 5 | 0.4192 | 0.62 | Q | V |
| 15+10 | 0.4234 | 0.61 | Q | V |
| 15+15 | 0.4276 | 0.60 | Q | V |
| 15+20 | 0.4317 | 0.60 | Q | V |
| 15+25 | 0.4357 | 0.58 | Q | V |
| 15+30 | 0.4397 | 0.58 | Q | V |
| 15+35 | 0.4435 | 0.56 | Q | V |
| 15+40 | 0.4470 | 0.51 | Q | V |
| 15+45 | 0.4504 | 0.49 | Q | V |
| 15+50 | 0.4537 | 0.48 | Q | V |
| 15+55 | 0.4570 | 0.48 | Q | V |
| 16+ 0 | 0.4603 | 0.48 | Q | V |
| 16+ 5 | 0.4630 | 0.40 | Q | V |
| 16+10 | 0.4646 | 0.22 | Q | V |
| 16+15 | 0.4657 | 0.16 | Q | V |
| 16+20 | 0.4666 | 0.14 | Q | V |
| 16+25 | 0.4675 | 0.12 | Q | V |
| 16+30 | 0.4682 | 0.11 | Q | V |
| 16+35 | 0.4689 | 0.10 | Q | V |
| 16+40 | 0.4695 | 0.08 | Q | V |
| 16+45 | 0.4700 | 0.08 | Q | V |
| 16+50 | 0.4706 | 0.08 | Q | V |
| 16+55 | 0.4711 | 0.08 | Q | V |
| 17+ 0 | 0.4716 | 0.08 | Q | V |
| 17+ 5 | 0.4722 | 0.08 | Q | V |
| 17+10 | 0.4729 | 0.11 | Q | V |
| 17+15 | 0.4737 | 0.12 | Q | V |
| 17+20 | 0.4746 | 0.12 | Q | V |
| 17+25 | 0.4754 | 0.12 | Q | V |
| 17+30 | 0.4762 | 0.12 | Q | V |
| 17+35 | 0.4771 | 0.12 | Q | V |
| 17+40 | 0.4779 | 0.12 | Q | V |
| 17+45 | 0.4788 | 0.12 | Q | V |
| 17+50 | 0.4796 | 0.12 | Q | V |
| 17+55 | 0.4804 | 0.11 | Q | V |
| 18+ 0 | 0.4811 | 0.10 | Q | V |
| 18+ 5 | 0.4818 | 0.10 | Q | V |
| 18+10 | 0.4825 | 0.10 | Q | V |
| 18+15 | 0.4832 | 0.10 | Q | V |
| 18+20 | 0.4839 | 0.10 | Q | V |
| 18+25 | 0.4846 | 0.10 | Q | V |
| 18+30 | 0.4852 | 0.10 | Q | V |
| 18+35 | 0.4859 | 0.09 | Q | V |
| 18+40 | 0.4865 | 0.08 | Q | V |
| 18+45 | 0.4870 | 0.08 | Q | V |
| 18+50 | 0.4875 | 0.07 | Q | V |
| 18+55 | 0.4879 | 0.06 | Q | V |
| 19+ 0 | 0.4883 | 0.05 | Q | V |
| 19+ 5 | 0.4887 | 0.06 | Q | V |
| 19+10 | 0.4892 | 0.07 | Q | V |
| 19+15 | 0.4896 | 0.07 | Q | V |

| | | | | |
|-------|--------|------|---|---|
| 19+20 | 0.4902 | 0.08 | Q | V |
| 19+25 | 0.4908 | 0.09 | Q | V |
| 19+30 | 0.4914 | 0.09 | Q | V |
| 19+35 | 0.4921 | 0.09 | Q | V |
| 19+40 | 0.4926 | 0.08 | Q | V |
| 19+45 | 0.4932 | 0.08 | Q | V |
| 19+50 | 0.4937 | 0.07 | Q | V |
| 19+55 | 0.4941 | 0.06 | Q | V |
| 20+ 0 | 0.4945 | 0.05 | Q | V |
| 20+ 5 | 0.4949 | 0.06 | Q | V |
| 20+10 | 0.4953 | 0.07 | Q | V |
| 20+15 | 0.4958 | 0.07 | Q | V |
| 20+20 | 0.4963 | 0.07 | Q | V |
| 20+25 | 0.4968 | 0.07 | Q | V |
| 20+30 | 0.4973 | 0.07 | Q | V |
| 20+35 | 0.4978 | 0.07 | Q | V |
| 20+40 | 0.4984 | 0.07 | Q | V |
| 20+45 | 0.4989 | 0.07 | Q | V |
| 20+50 | 0.4994 | 0.07 | Q | V |
| 20+55 | 0.4998 | 0.06 | Q | V |
| 21+ 0 | 0.5001 | 0.05 | Q | V |
| 21+ 5 | 0.5005 | 0.06 | Q | V |
| 21+10 | 0.5010 | 0.07 | Q | V |
| 21+15 | 0.5015 | 0.07 | Q | V |
| 21+20 | 0.5019 | 0.07 | Q | V |
| 21+25 | 0.5023 | 0.06 | Q | V |
| 21+30 | 0.5027 | 0.05 | Q | V |
| 21+35 | 0.5031 | 0.06 | Q | V |
| 21+40 | 0.5036 | 0.07 | Q | V |
| 21+45 | 0.5041 | 0.07 | Q | V |
| 21+50 | 0.5045 | 0.07 | Q | V |
| 21+55 | 0.5049 | 0.06 | Q | V |
| 22+ 0 | 0.5053 | 0.05 | Q | V |
| 22+ 5 | 0.5057 | 0.06 | Q | V |
| 22+10 | 0.5061 | 0.07 | Q | V |
| 22+15 | 0.5066 | 0.07 | Q | V |
| 22+20 | 0.5071 | 0.07 | Q | V |
| 22+25 | 0.5075 | 0.06 | Q | V |
| 22+30 | 0.5078 | 0.05 | Q | V |
| 22+35 | 0.5082 | 0.05 | Q | V |
| 22+40 | 0.5086 | 0.05 | Q | V |
| 22+45 | 0.5089 | 0.05 | Q | V |
| 22+50 | 0.5093 | 0.05 | Q | V |
| 22+55 | 0.5096 | 0.05 | Q | V |
| 23+ 0 | 0.5099 | 0.05 | Q | V |
| 23+ 5 | 0.5103 | 0.05 | Q | V |
| 23+10 | 0.5106 | 0.05 | Q | V |
| 23+15 | 0.5110 | 0.05 | Q | V |
| 23+20 | 0.5113 | 0.05 | Q | V |
| 23+25 | 0.5117 | 0.05 | Q | V |
| 23+30 | 0.5120 | 0.05 | Q | V |
| 23+35 | 0.5123 | 0.05 | Q | V |
| 23+40 | 0.5127 | 0.05 | Q | V |
| 23+45 | 0.5130 | 0.05 | Q | V |
| 23+50 | 0.5134 | 0.05 | Q | V |
| 23+55 | 0.5137 | 0.05 | Q | V |
| 24+ 0 | 0.5141 | 0.05 | Q | V |
| 24+ 5 | 0.5143 | 0.04 | Q | V |

| | | | | | | | |
|-------|--------|------|---|--|--|--|---|
| 24+10 | 0.5144 | 0.02 | Q | | | | V |
| 24+15 | 0.5145 | 0.01 | Q | | | | V |
| 24+20 | 0.5145 | 0.00 | Q | | | | V |
| 24+25 | 0.5146 | 0.00 | Q | | | | V |
| 24+30 | 0.5146 | 0.00 | Q | | | | V |
| 24+35 | 0.5146 | 0.00 | Q | | | | V |

10YR, 1HR POST-DEVELOPED

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPOSTB110.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.023 Hr.
Lag time = 1.40 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 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] |
|--------------|-----------------|----------------|
| 20.40 | 0.47 | 9.59 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 1.20 | 24.48 |

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.470(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.770(In)
 Areal adjustment factor = 99.98 %
 Adjusted average point rain = 0.770(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 56.0 | 0.511 | 0.750 | 0.166 | 1.000 | 0.166 |
| | | | | | | Sum (F) = 0.166 |

Area averaged mean soil loss (F) (In/Hr) = 0.166
 Minimum soil loss rate ((In/Hr)) = 0.083
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

 Slope of intensity-duration curve for a 1 hour storm =0.5000

Unit Hydrograph
 VALLEY S-Curve

 Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 358.046 | 61.957 |
| 2 | 0.167 | 716.092 | 34.126 |
| 3 | 0.250 | 1074.138 | 3.916 |
| | | Sum = 100.000 | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|-----------------------------------|--------------------|-----------------------|-------------------|----------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 4.20 | (0.166) | 0.116 | 0.272 |
| 2 | 0.17 | 4.30 | (0.166) | 0.119 | 0.278 |
| 3 | 0.25 | 5.00 | (0.166) | 0.139 | 0.323 |
| 4 | 0.33 | 5.00 | (0.166) | 0.139 | 0.323 |
| 5 | 0.42 | 5.80 | (0.166) | 0.161 | 0.375 |
| 6 | 0.50 | 6.50 | 0.166 | (0.180) | 0.435 |
| 7 | 0.58 | 7.40 | 0.166 | (0.205) | 0.518 |
| 8 | 0.67 | 8.60 | 0.166 | (0.238) | 0.629 |
| 9 | 0.75 | 12.30 | 0.166 | (0.341) | 0.971 |
| 10 | 0.83 | 29.10 | 0.166 | (0.807) | 2.523 |
| 11 | 0.92 | 6.80 | 0.166 | (0.189) | 0.462 |
| 12 | 1.00 | 5.00 | (0.166) | 0.139 | 0.323 |
| (Loss Rate Not Used) | | | | | |
| Sum = | 100.0 | | | Sum = | 7.4 |
| Flood volume = Effective rainfall | | 0.62(In) | | | |

times area 20.4(Ac.)/[(In)/(Ft.)] = 1.1(Ac.Ft)
 Total soil loss = 0.15(In)
 Total soil loss = 0.256(Ac.Ft)
 Total rainfall = 0.77(In)
 Flood volume = 45873.8 Cubic Feet
 Total soil loss = 11160.0 Cubic Feet

Peak flow rate of this hydrograph = 39.482(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 | 0.0238 | 3.46 | V | Q | | | |
| 0+10 | 0.0614 | 5.45 | V | Q | | | |
| 0+15 | 0.1048 | 6.29 | V | Q | | | |
| 0+20 | 0.1503 | 6.62 | V | Q | | | |
| 0+25 | 0.2007 | 7.31 | | Q | | | |
| 0+30 | 0.2588 | 8.44 | | Q | V | | |
| 0+35 | 0.3273 | 9.95 | | Q | V | | |
| 0+40 | 0.4100 | 12.00 | | Q | V | | |
| 0+45 | 0.5285 | 17.20 | | | Q | V | |
| 0+50 | 0.8004 | 39.48 | | | | V | Q |
| 0+55 | 0.9684 | 24.39 | | | Q | | V |
| 1+ 0 | 1.0331 | 9.40 | | Q | | | V |
| 1+ 5 | 1.0513 | 2.64 | Q | | | | V |
| 1+10 | 1.0531 | 0.26 | Q | | | | V |

10YR, 3HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPOSTB310.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.023 Hr.
Lag time = 1.40 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 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]
20.40 0.80 16.32

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.86 37.94

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.236(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.236(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
|-----------|-------|-------------|------------|------------------|--------|---------|
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 56.0 | 0.511 | 0.750 | 0.166 | 1.000 | 0.166 |
| Sum (F) = | | | | | | 0.166 |

Area averaged mean soil loss (F) (In/Hr) = 0.166
 Minimum soil loss rate ((In/Hr)) = 0.083
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 358.046 | 61.957 |
| 2 | 0.167 | 716.092 | 34.126 |
| 3 | 0.250 | 1074.138 | 3.916 |
| Sum = | | 100.000 | Sum= 20.559 |

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 | (0.166) 0.058 | 0.135 |
| 2 | 0.17 | 1.30 | (0.166) 0.058 | 0.135 |
| 3 | 0.25 | 1.10 | (0.166) 0.049 | 0.114 |
| 4 | 0.33 | 1.50 | (0.166) 0.067 | 0.156 |
| 5 | 0.42 | 1.50 | (0.166) 0.067 | 0.156 |
| 6 | 0.50 | 1.80 | (0.166) 0.080 | 0.187 |
| 7 | 0.58 | 1.50 | (0.166) 0.067 | 0.156 |
| 8 | 0.67 | 1.80 | (0.166) 0.080 | 0.187 |
| 9 | 0.75 | 1.80 | (0.166) 0.080 | 0.187 |
| 10 | 0.83 | 1.50 | (0.166) 0.067 | 0.156 |
| 11 | 0.92 | 1.60 | (0.166) 0.071 | 0.166 |
| 12 | 1.00 | 1.80 | (0.166) 0.080 | 0.187 |
| 13 | 1.08 | 2.20 | (0.166) 0.098 | 0.228 |
| 14 | 1.17 | 2.20 | (0.166) 0.098 | 0.228 |
| 15 | 1.25 | 2.20 | (0.166) 0.098 | 0.228 |
| 16 | 1.33 | 2.00 | (0.166) 0.089 | 0.208 |
| 17 | 1.42 | 2.60 | (0.166) 0.116 | 0.270 |

| | | | | | | | | | |
|------|--------|-------|---|---|---|---|--|--|--|
| 1+35 | 0.4969 | 5.36 | Q | V | | | | | |
| 1+40 | 0.5351 | 5.55 | Q | V | | | | | |
| 1+45 | 0.5801 | 6.54 | Q | V | | | | | |
| 1+50 | 0.6264 | 6.73 | Q | V | V | | | | |
| 1+55 | 0.6703 | 6.37 | Q | V | V | | | | |
| 2+ 0 | 0.7140 | 6.34 | Q | V | V | | | | |
| 2+ 5 | 0.7590 | 6.53 | Q | V | V | | | | |
| 2+10 | 0.8164 | 8.33 | Q | V | V | | | | |
| 2+15 | 0.8908 | 10.80 | Q | Q | V | V | | | |
| 2+20 | 0.9530 | 9.04 | Q | Q | V | V | | | |
| 2+25 | 1.0478 | 13.75 | Q | Q | V | V | | | |
| 2+30 | 1.1710 | 17.89 | Q | Q | V | V | | | |
| 2+35 | 1.3121 | 20.50 | Q | Q | V | V | | | |
| 2+40 | 1.4302 | 17.15 | Q | Q | V | V | | | |
| 2+45 | 1.4886 | 8.47 | Q | Q | V | V | | | |
| 2+50 | 1.5189 | 4.41 | Q | Q | V | V | | | |
| 2+55 | 1.5455 | 3.86 | Q | Q | V | V | | | |
| 3+ 0 | 1.5611 | 2.26 | Q | Q | V | V | | | |
| 3+ 5 | 1.5651 | 0.59 | Q | Q | V | V | | | |
| 3+10 | 1.5655 | 0.05 | Q | Q | V | V | | | |

10YR, 6HR POST-DEVELOPED

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPOSTB610.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.023 Hr.
Lag time = 1.40 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 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] |
|--------------|-----------------|----------------|
| 20.40 | 1.00 | 20.40 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 2.50 | 51.00 |

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.617(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.617(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 56.0 | 0.511 | 0.750 | 0.166 | 1.000 | 0.166 |
| | | | | | | Sum (F) = 0.166 |

Area averaged mean soil loss (F) (In/Hr) = 0.166
 Minimum soil loss rate ((In/Hr)) = 0.083
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 358.046 | 61.957 |
| 2 | 0.167 | 716.092 | 34.126 |
| 3 | 0.250 | 1074.138 | 3.916 |
| Sum = 100.000 | | | Sum= 20.559 |

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 | (0.166) | 0.029 |
| 2 | 0.17 | 0.60 | (0.166) | 0.035 |
| 3 | 0.25 | 0.60 | (0.166) | 0.035 |
| 4 | 0.33 | 0.60 | (0.166) | 0.035 |
| 5 | 0.42 | 0.60 | (0.166) | 0.035 |
| 6 | 0.50 | 0.70 | (0.166) | 0.041 |
| 7 | 0.58 | 0.70 | (0.166) | 0.041 |
| 8 | 0.67 | 0.70 | (0.166) | 0.041 |
| 9 | 0.75 | 0.70 | (0.166) | 0.041 |
| 10 | 0.83 | 0.70 | (0.166) | 0.041 |
| 11 | 0.92 | 0.70 | (0.166) | 0.041 |
| 12 | 1.00 | 0.80 | (0.166) | 0.047 |
| 13 | 1.08 | 0.80 | (0.166) | 0.047 |
| 14 | 1.17 | 0.80 | (0.166) | 0.047 |
| 15 | 1.25 | 0.80 | (0.166) | 0.047 |
| 16 | 1.33 | 0.80 | (0.166) | 0.047 |
| 17 | 1.42 | 0.80 | (0.166) | 0.047 |

| | | | | | | |
|----|------|------|-------|----------|----------|-------|
| 18 | 1.50 | 0.80 | 0.155 | (0.166) | 0.047 | 0.109 |
| 19 | 1.58 | 0.80 | 0.155 | (0.166) | 0.047 | 0.109 |
| 20 | 1.67 | 0.80 | 0.155 | (0.166) | 0.047 | 0.109 |
| 21 | 1.75 | 0.80 | 0.155 | (0.166) | 0.047 | 0.109 |
| 22 | 1.83 | 0.80 | 0.155 | (0.166) | 0.047 | 0.109 |
| 23 | 1.92 | 0.80 | 0.155 | (0.166) | 0.047 | 0.109 |
| 24 | 2.00 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 25 | 2.08 | 0.80 | 0.155 | (0.166) | 0.047 | 0.109 |
| 26 | 2.17 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 27 | 2.25 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 28 | 2.33 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 29 | 2.42 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 30 | 2.50 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 31 | 2.58 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 32 | 2.67 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 33 | 2.75 | 1.00 | 0.194 | (0.166) | 0.058 | 0.136 |
| 34 | 2.83 | 1.00 | 0.194 | (0.166) | 0.058 | 0.136 |
| 35 | 2.92 | 1.00 | 0.194 | (0.166) | 0.058 | 0.136 |
| 36 | 3.00 | 1.00 | 0.194 | (0.166) | 0.058 | 0.136 |
| 37 | 3.08 | 1.00 | 0.194 | (0.166) | 0.058 | 0.136 |
| 38 | 3.17 | 1.10 | 0.213 | (0.166) | 0.064 | 0.149 |
| 39 | 3.25 | 1.10 | 0.213 | (0.166) | 0.064 | 0.149 |
| 40 | 3.33 | 1.10 | 0.213 | (0.166) | 0.064 | 0.149 |
| 41 | 3.42 | 1.20 | 0.233 | (0.166) | 0.070 | 0.163 |
| 42 | 3.50 | 1.30 | 0.252 | (0.166) | 0.076 | 0.177 |
| 43 | 3.58 | 1.40 | 0.272 | (0.166) | 0.081 | 0.190 |
| 44 | 3.67 | 1.40 | 0.272 | (0.166) | 0.081 | 0.190 |
| 45 | 3.75 | 1.50 | 0.291 | (0.166) | 0.087 | 0.204 |
| 46 | 3.83 | 1.50 | 0.291 | (0.166) | 0.087 | 0.204 |
| 47 | 3.92 | 1.60 | 0.310 | (0.166) | 0.093 | 0.217 |
| 48 | 4.00 | 1.60 | 0.310 | (0.166) | 0.093 | 0.217 |
| 49 | 4.08 | 1.70 | 0.330 | (0.166) | 0.099 | 0.231 |
| 50 | 4.17 | 1.80 | 0.349 | (0.166) | 0.105 | 0.244 |
| 51 | 4.25 | 1.90 | 0.369 | (0.166) | 0.111 | 0.258 |
| 52 | 4.33 | 2.00 | 0.388 | (0.166) | 0.116 | 0.272 |
| 53 | 4.42 | 2.10 | 0.407 | (0.166) | 0.122 | 0.285 |
| 54 | 4.50 | 2.10 | 0.407 | (0.166) | 0.122 | 0.285 |
| 55 | 4.58 | 2.20 | 0.427 | (0.166) | 0.128 | 0.299 |
| 56 | 4.67 | 2.30 | 0.446 | (0.166) | 0.134 | 0.312 |
| 57 | 4.75 | 2.40 | 0.466 | (0.166) | 0.140 | 0.326 |
| 58 | 4.83 | 2.40 | 0.466 | (0.166) | 0.140 | 0.326 |
| 59 | 4.92 | 2.50 | 0.485 | (0.166) | 0.146 | 0.340 |
| 60 | 5.00 | 2.60 | 0.505 | (0.166) | 0.151 | 0.353 |
| 61 | 5.08 | 3.10 | 0.602 | 0.166 | (0.180) | 0.436 |
| 62 | 5.17 | 3.60 | 0.699 | 0.166 | (0.210) | 0.533 |
| 63 | 5.25 | 3.90 | 0.757 | 0.166 | (0.227) | 0.591 |
| 64 | 5.33 | 4.20 | 0.815 | 0.166 | (0.244) | 0.649 |
| 65 | 5.42 | 4.70 | 0.912 | 0.166 | (0.274) | 0.746 |
| 66 | 5.50 | 5.60 | 1.087 | 0.166 | (0.326) | 0.921 |
| 67 | 5.58 | 1.90 | 0.369 | (0.166) | 0.111 | 0.258 |
| 68 | 5.67 | 0.90 | 0.175 | (0.166) | 0.052 | 0.122 |
| 69 | 5.75 | 0.60 | 0.116 | (0.166) | 0.035 | 0.081 |
| 70 | 5.83 | 0.50 | 0.097 | (0.166) | 0.029 | 0.068 |
| 71 | 5.92 | 0.30 | 0.058 | (0.166) | 0.017 | 0.041 |
| 72 | 6.00 | 0.20 | 0.039 | (0.166) | 0.012 | 0.027 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 14.0

Flood volume = Effective rainfall 1.17(In)

times area 20.4(Ac.)/[(In)/(Ft.)] = 2.0(Ac.Ft)
 Total soil loss = 0.45(In)
 Total soil loss = 0.759(Ac.Ft)
 Total rainfall = 1.62(In)
 Flood volume = 86689.3 Cubic Feet
 Total soil loss = 33052.7 Cubic Feet

 Peak flow rate of this hydrograph = 17.492(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 | 0.0060 | 0.87 | VQ | | | | |
| 0+10 | 0.0164 | 1.52 | V Q | | | | |
| 0+15 | 0.0279 | 1.67 | V Q | | | | |
| 0+20 | 0.0394 | 1.68 | V Q | | | | |
| 0+25 | 0.0510 | 1.68 | V Q | | | | |
| 0+30 | 0.0637 | 1.85 | V Q | | | | |
| 0+35 | 0.0771 | 1.94 | V Q | | | | |
| 0+40 | 0.0906 | 1.96 | V Q | | | | |
| 0+45 | 0.1040 | 1.96 | VQ | | | | |
| 0+50 | 0.1175 | 1.96 | VQ | | | | |
| 0+55 | 0.1310 | 1.96 | VQ | | | | |
| 1+ 0 | 0.1456 | 2.13 | V Q | | | | |
| 1+ 5 | 0.1609 | 2.22 | VQ | | | | |
| 1+10 | 0.1763 | 2.24 | VQ | | | | |
| 1+15 | 0.1917 | 2.24 | VQ | | | | |
| 1+20 | 0.2071 | 2.24 | Q | | | | |
| 1+25 | 0.2225 | 2.24 | Q | | | | |
| 1+30 | 0.2379 | 2.24 | Q | | | | |
| 1+35 | 0.2533 | 2.24 | QV | | | | |
| 1+40 | 0.2687 | 2.24 | QV | | | | |
| 1+45 | 0.2841 | 2.24 | QV | | | | |
| 1+50 | 0.2995 | 2.24 | Q V | | | | |
| 1+55 | 0.3149 | 2.24 | Q V | | | | |
| 2+ 0 | 0.3315 | 2.41 | Q V | | | | |
| 2+ 5 | 0.3475 | 2.33 | Q V | | | | |
| 2+10 | 0.3642 | 2.42 | Q V | | | | |
| 2+15 | 0.3814 | 2.50 | Q V | | | | |
| 2+20 | 0.3987 | 2.51 | Q V | | | | |
| 2+25 | 0.4161 | 2.51 | Q V | | | | |
| 2+30 | 0.4334 | 2.51 | Q V | | | | |
| 2+35 | 0.4507 | 2.51 | Q V | | | | |
| 2+40 | 0.4680 | 2.51 | Q V | | | | |
| 2+45 | 0.4865 | 2.69 | Q V | | | | |
| 2+50 | 0.5057 | 2.78 | Q V | | | | |
| 2+55 | 0.5249 | 2.79 | Q V | | | | |
| 3+ 0 | 0.5442 | 2.79 | Q V | | | | |
| 3+ 5 | 0.5634 | 2.79 | Q V | | | | |
| 3+10 | 0.5839 | 2.97 | Q V | | | | |
| 3+15 | 0.6049 | 3.06 | Q V | | | | |
| 3+20 | 0.6261 | 3.07 | Q V | | | | |

| | | | | | | | |
|------|--------|-------|---|---|--|--|--|
| 3+25 | 0.6485 | 3.25 | Q | V | | | |
| 3+30 | 0.6727 | 3.51 | Q | V | | | |
| 3+35 | 0.6988 | 3.79 | Q | V | | | |
| 3+40 | 0.7257 | 3.90 | Q | V | | | |
| 3+45 | 0.7538 | 4.08 | Q | V | | | |
| 3+50 | 0.7826 | 4.18 | Q | V | | | |
| 3+55 | 0.8127 | 4.36 | Q | V | | | |
| 4+ 0 | 0.8434 | 4.46 | Q | V | | | |
| 4+ 5 | 0.8753 | 4.64 | Q | V | | | |
| 4+10 | 0.9092 | 4.91 | Q | V | | | |
| 4+15 | 0.9449 | 5.19 | Q | V | | | |
| 4+20 | 0.9826 | 5.47 | Q | V | | | |
| 4+25 | 1.0222 | 5.75 | Q | V | | | |
| 4+30 | 1.0625 | 5.86 | Q | V | | | |
| 4+35 | 1.1041 | 6.04 | Q | V | | | |
| 4+40 | 1.1476 | 6.31 | Q | V | | | |
| 4+45 | 1.1930 | 6.59 | Q | V | | | |
| 4+50 | 1.2391 | 6.69 | Q | V | | | |
| 4+55 | 1.2864 | 6.88 | Q | V | | | |
| 5+ 0 | 1.3357 | 7.15 | Q | V | | | |
| 5+ 5 | 1.3928 | 8.30 | Q | V | | | |
| 5+10 | 1.4626 | 10.13 | Q | V | | | |
| 5+15 | 1.5426 | 11.62 | Q | V | | | |
| 5+20 | 1.6311 | 12.85 | Q | V | | | |
| 5+25 | 1.7312 | 14.54 | Q | V | | | |
| 5+30 | 1.8517 | 17.49 | Q | V | | | |
| 5+35 | 1.9230 | 10.35 | Q | V | | | |
| 5+40 | 1.9513 | 4.11 | Q | V | | | |
| 5+45 | 1.9658 | 2.10 | Q | V | | | |
| 5+50 | 1.9764 | 1.54 | Q | V | | | |
| 5+55 | 1.9837 | 1.06 | Q | V | | | |
| 6+ 0 | 1.9884 | 0.69 | Q | V | | | |
| 6+ 5 | 1.9900 | 0.22 | Q | V | | | |
| 6+10 | 1.9901 | 0.02 | Q | V | | | |

10YR, 24HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPOSTB2410.out

+++++

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

Program License Serial Number 6215

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

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.023 Hr.
Lag time = 1.40 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 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]
20.40 1.60 32.64

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 4.00 81.60

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.600(In)
Area Averaged 100-Year Rainfall = 4.000(In)

Point rain (area averaged) = 2.587(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.587(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 56.0 | 0.511 | 0.750 | 0.166 | 1.000 | 0.166 |
| | | | | | | Sum (F) = 0.166 |

Area averaged mean soil loss (F) (In/Hr) = 0.166
 Minimum soil loss rate ((In/Hr)) = 0.083
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 358.046 | 61.957 |
| 2 | 0.167 | 716.092 | 34.126 |
| 3 | 0.250 | 1074.138 | 3.916 |
| Sum = 100.000 | | | Sum= 20.559 |

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 | (0.294) 0.006 | 0.014 |
| 2 | 0.17 | 0.07 | (0.293) 0.006 | 0.014 |
| 3 | 0.25 | 0.07 | (0.292) 0.006 | 0.014 |
| 4 | 0.33 | 0.10 | (0.291) 0.009 | 0.022 |
| 5 | 0.42 | 0.10 | (0.290) 0.009 | 0.022 |
| 6 | 0.50 | 0.10 | (0.289) 0.009 | 0.022 |
| 7 | 0.58 | 0.10 | (0.287) 0.009 | 0.022 |
| 8 | 0.67 | 0.10 | (0.286) 0.009 | 0.022 |
| 9 | 0.75 | 0.10 | (0.285) 0.009 | 0.022 |
| 10 | 0.83 | 0.13 | (0.284) 0.012 | 0.029 |
| 11 | 0.92 | 0.13 | (0.283) 0.012 | 0.029 |
| 12 | 1.00 | 0.13 | (0.282) 0.012 | 0.029 |
| 13 | 1.08 | 0.10 | (0.281) 0.009 | 0.022 |
| 14 | 1.17 | 0.10 | (0.280) 0.009 | 0.022 |
| 15 | 1.25 | 0.10 | (0.279) 0.009 | 0.022 |
| 16 | 1.33 | 0.10 | (0.277) 0.009 | 0.022 |
| 17 | 1.42 | 0.10 | (0.276) 0.009 | 0.022 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 18 | 1.50 | 0.10 | 0.031 | (0.275) | 0.009 | 0.022 |
| 19 | 1.58 | 0.10 | 0.031 | (0.274) | 0.009 | 0.022 |
| 20 | 1.67 | 0.10 | 0.031 | (0.273) | 0.009 | 0.022 |
| 21 | 1.75 | 0.10 | 0.031 | (0.272) | 0.009 | 0.022 |
| 22 | 1.83 | 0.13 | 0.041 | (0.271) | 0.012 | 0.029 |
| 23 | 1.92 | 0.13 | 0.041 | (0.270) | 0.012 | 0.029 |
| 24 | 2.00 | 0.13 | 0.041 | (0.269) | 0.012 | 0.029 |
| 25 | 2.08 | 0.13 | 0.041 | (0.268) | 0.012 | 0.029 |
| 26 | 2.17 | 0.13 | 0.041 | (0.267) | 0.012 | 0.029 |
| 27 | 2.25 | 0.13 | 0.041 | (0.265) | 0.012 | 0.029 |
| 28 | 2.33 | 0.13 | 0.041 | (0.264) | 0.012 | 0.029 |
| 29 | 2.42 | 0.13 | 0.041 | (0.263) | 0.012 | 0.029 |
| 30 | 2.50 | 0.13 | 0.041 | (0.262) | 0.012 | 0.029 |
| 31 | 2.58 | 0.17 | 0.052 | (0.261) | 0.016 | 0.036 |
| 32 | 2.67 | 0.17 | 0.052 | (0.260) | 0.016 | 0.036 |
| 33 | 2.75 | 0.17 | 0.052 | (0.259) | 0.016 | 0.036 |
| 34 | 2.83 | 0.17 | 0.052 | (0.258) | 0.016 | 0.036 |
| 35 | 2.92 | 0.17 | 0.052 | (0.257) | 0.016 | 0.036 |
| 36 | 3.00 | 0.17 | 0.052 | (0.256) | 0.016 | 0.036 |
| 37 | 3.08 | 0.17 | 0.052 | (0.255) | 0.016 | 0.036 |
| 38 | 3.17 | 0.17 | 0.052 | (0.254) | 0.016 | 0.036 |
| 39 | 3.25 | 0.17 | 0.052 | (0.253) | 0.016 | 0.036 |
| 40 | 3.33 | 0.17 | 0.052 | (0.252) | 0.016 | 0.036 |
| 41 | 3.42 | 0.17 | 0.052 | (0.251) | 0.016 | 0.036 |
| 42 | 3.50 | 0.17 | 0.052 | (0.249) | 0.016 | 0.036 |
| 43 | 3.58 | 0.17 | 0.052 | (0.248) | 0.016 | 0.036 |
| 44 | 3.67 | 0.17 | 0.052 | (0.247) | 0.016 | 0.036 |
| 45 | 3.75 | 0.17 | 0.052 | (0.246) | 0.016 | 0.036 |
| 46 | 3.83 | 0.20 | 0.062 | (0.245) | 0.019 | 0.043 |
| 47 | 3.92 | 0.20 | 0.062 | (0.244) | 0.019 | 0.043 |
| 48 | 4.00 | 0.20 | 0.062 | (0.243) | 0.019 | 0.043 |
| 49 | 4.08 | 0.20 | 0.062 | (0.242) | 0.019 | 0.043 |
| 50 | 4.17 | 0.20 | 0.062 | (0.241) | 0.019 | 0.043 |
| 51 | 4.25 | 0.20 | 0.062 | (0.240) | 0.019 | 0.043 |
| 52 | 4.33 | 0.23 | 0.072 | (0.239) | 0.022 | 0.051 |
| 53 | 4.42 | 0.23 | 0.072 | (0.238) | 0.022 | 0.051 |
| 54 | 4.50 | 0.23 | 0.072 | (0.237) | 0.022 | 0.051 |
| 55 | 4.58 | 0.23 | 0.072 | (0.236) | 0.022 | 0.051 |
| 56 | 4.67 | 0.23 | 0.072 | (0.235) | 0.022 | 0.051 |
| 57 | 4.75 | 0.23 | 0.072 | (0.234) | 0.022 | 0.051 |
| 58 | 4.83 | 0.27 | 0.083 | (0.233) | 0.025 | 0.058 |
| 59 | 4.92 | 0.27 | 0.083 | (0.232) | 0.025 | 0.058 |
| 60 | 5.00 | 0.27 | 0.083 | (0.231) | 0.025 | 0.058 |
| 61 | 5.08 | 0.20 | 0.062 | (0.230) | 0.019 | 0.043 |
| 62 | 5.17 | 0.20 | 0.062 | (0.229) | 0.019 | 0.043 |
| 63 | 5.25 | 0.20 | 0.062 | (0.228) | 0.019 | 0.043 |
| 64 | 5.33 | 0.23 | 0.072 | (0.227) | 0.022 | 0.051 |
| 65 | 5.42 | 0.23 | 0.072 | (0.226) | 0.022 | 0.051 |
| 66 | 5.50 | 0.23 | 0.072 | (0.225) | 0.022 | 0.051 |
| 67 | 5.58 | 0.27 | 0.083 | (0.224) | 0.025 | 0.058 |
| 68 | 5.67 | 0.27 | 0.083 | (0.223) | 0.025 | 0.058 |
| 69 | 5.75 | 0.27 | 0.083 | (0.222) | 0.025 | 0.058 |
| 70 | 5.83 | 0.27 | 0.083 | (0.221) | 0.025 | 0.058 |
| 71 | 5.92 | 0.27 | 0.083 | (0.220) | 0.025 | 0.058 |
| 72 | 6.00 | 0.27 | 0.083 | (0.219) | 0.025 | 0.058 |
| 73 | 6.08 | 0.30 | 0.093 | (0.218) | 0.028 | 0.065 |
| 74 | 6.17 | 0.30 | 0.093 | (0.217) | 0.028 | 0.065 |
| 75 | 6.25 | 0.30 | 0.093 | (0.216) | 0.028 | 0.065 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 76 | 6.33 | 0.30 | 0.093 | (0.215) | 0.028 | 0.065 |
| 77 | 6.42 | 0.30 | 0.093 | (0.214) | 0.028 | 0.065 |
| 78 | 6.50 | 0.30 | 0.093 | (0.213) | 0.028 | 0.065 |
| 79 | 6.58 | 0.33 | 0.103 | (0.212) | 0.031 | 0.072 |
| 80 | 6.67 | 0.33 | 0.103 | (0.211) | 0.031 | 0.072 |
| 81 | 6.75 | 0.33 | 0.103 | (0.210) | 0.031 | 0.072 |
| 82 | 6.83 | 0.33 | 0.103 | (0.210) | 0.031 | 0.072 |
| 83 | 6.92 | 0.33 | 0.103 | (0.209) | 0.031 | 0.072 |
| 84 | 7.00 | 0.33 | 0.103 | (0.208) | 0.031 | 0.072 |
| 85 | 7.08 | 0.33 | 0.103 | (0.207) | 0.031 | 0.072 |
| 86 | 7.17 | 0.33 | 0.103 | (0.206) | 0.031 | 0.072 |
| 87 | 7.25 | 0.33 | 0.103 | (0.205) | 0.031 | 0.072 |
| 88 | 7.33 | 0.37 | 0.114 | (0.204) | 0.034 | 0.080 |
| 89 | 7.42 | 0.37 | 0.114 | (0.203) | 0.034 | 0.080 |
| 90 | 7.50 | 0.37 | 0.114 | (0.202) | 0.034 | 0.080 |
| 91 | 7.58 | 0.40 | 0.124 | (0.201) | 0.037 | 0.087 |
| 92 | 7.67 | 0.40 | 0.124 | (0.200) | 0.037 | 0.087 |
| 93 | 7.75 | 0.40 | 0.124 | (0.199) | 0.037 | 0.087 |
| 94 | 7.83 | 0.43 | 0.135 | (0.198) | 0.040 | 0.094 |
| 95 | 7.92 | 0.43 | 0.135 | (0.197) | 0.040 | 0.094 |
| 96 | 8.00 | 0.43 | 0.135 | (0.196) | 0.040 | 0.094 |
| 97 | 8.08 | 0.50 | 0.155 | (0.196) | 0.047 | 0.109 |
| 98 | 8.17 | 0.50 | 0.155 | (0.195) | 0.047 | 0.109 |
| 99 | 8.25 | 0.50 | 0.155 | (0.194) | 0.047 | 0.109 |
| 100 | 8.33 | 0.50 | 0.155 | (0.193) | 0.047 | 0.109 |
| 101 | 8.42 | 0.50 | 0.155 | (0.192) | 0.047 | 0.109 |
| 102 | 8.50 | 0.50 | 0.155 | (0.191) | 0.047 | 0.109 |
| 103 | 8.58 | 0.53 | 0.166 | (0.190) | 0.050 | 0.116 |
| 104 | 8.67 | 0.53 | 0.166 | (0.189) | 0.050 | 0.116 |
| 105 | 8.75 | 0.53 | 0.166 | (0.188) | 0.050 | 0.116 |
| 106 | 8.83 | 0.57 | 0.176 | (0.187) | 0.053 | 0.123 |
| 107 | 8.92 | 0.57 | 0.176 | (0.187) | 0.053 | 0.123 |
| 108 | 9.00 | 0.57 | 0.176 | (0.186) | 0.053 | 0.123 |
| 109 | 9.08 | 0.63 | 0.197 | (0.185) | 0.059 | 0.138 |
| 110 | 9.17 | 0.63 | 0.197 | (0.184) | 0.059 | 0.138 |
| 111 | 9.25 | 0.63 | 0.197 | (0.183) | 0.059 | 0.138 |
| 112 | 9.33 | 0.67 | 0.207 | (0.182) | 0.062 | 0.145 |
| 113 | 9.42 | 0.67 | 0.207 | (0.181) | 0.062 | 0.145 |
| 114 | 9.50 | 0.67 | 0.207 | (0.180) | 0.062 | 0.145 |
| 115 | 9.58 | 0.70 | 0.217 | (0.180) | 0.065 | 0.152 |
| 116 | 9.67 | 0.70 | 0.217 | (0.179) | 0.065 | 0.152 |
| 117 | 9.75 | 0.70 | 0.217 | (0.178) | 0.065 | 0.152 |
| 118 | 9.83 | 0.73 | 0.228 | (0.177) | 0.068 | 0.159 |
| 119 | 9.92 | 0.73 | 0.228 | (0.176) | 0.068 | 0.159 |
| 120 | 10.00 | 0.73 | 0.228 | (0.175) | 0.068 | 0.159 |
| 121 | 10.08 | 0.50 | 0.155 | (0.174) | 0.047 | 0.109 |
| 122 | 10.17 | 0.50 | 0.155 | (0.174) | 0.047 | 0.109 |
| 123 | 10.25 | 0.50 | 0.155 | (0.173) | 0.047 | 0.109 |
| 124 | 10.33 | 0.50 | 0.155 | (0.172) | 0.047 | 0.109 |
| 125 | 10.42 | 0.50 | 0.155 | (0.171) | 0.047 | 0.109 |
| 126 | 10.50 | 0.50 | 0.155 | (0.170) | 0.047 | 0.109 |
| 127 | 10.58 | 0.67 | 0.207 | (0.169) | 0.062 | 0.145 |
| 128 | 10.67 | 0.67 | 0.207 | (0.169) | 0.062 | 0.145 |
| 129 | 10.75 | 0.67 | 0.207 | (0.168) | 0.062 | 0.145 |
| 130 | 10.83 | 0.67 | 0.207 | (0.167) | 0.062 | 0.145 |
| 131 | 10.92 | 0.67 | 0.207 | (0.166) | 0.062 | 0.145 |
| 132 | 11.00 | 0.67 | 0.207 | (0.165) | 0.062 | 0.145 |
| 133 | 11.08 | 0.63 | 0.197 | (0.165) | 0.059 | 0.138 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 134 | 11.17 | 0.63 | 0.197 | (0.164) | 0.059 | 0.138 |
| 135 | 11.25 | 0.63 | 0.197 | (0.163) | 0.059 | 0.138 |
| 136 | 11.33 | 0.63 | 0.197 | (0.162) | 0.059 | 0.138 |
| 137 | 11.42 | 0.63 | 0.197 | (0.161) | 0.059 | 0.138 |
| 138 | 11.50 | 0.63 | 0.197 | (0.160) | 0.059 | 0.138 |
| 139 | 11.58 | 0.57 | 0.176 | (0.160) | 0.053 | 0.123 |
| 140 | 11.67 | 0.57 | 0.176 | (0.159) | 0.053 | 0.123 |
| 141 | 11.75 | 0.57 | 0.176 | (0.158) | 0.053 | 0.123 |
| 142 | 11.83 | 0.60 | 0.186 | (0.157) | 0.056 | 0.130 |
| 143 | 11.92 | 0.60 | 0.186 | (0.157) | 0.056 | 0.130 |
| 144 | 12.00 | 0.60 | 0.186 | (0.156) | 0.056 | 0.130 |
| 145 | 12.08 | 0.83 | 0.259 | (0.155) | 0.078 | 0.181 |
| 146 | 12.17 | 0.83 | 0.259 | (0.154) | 0.078 | 0.181 |
| 147 | 12.25 | 0.83 | 0.259 | (0.153) | 0.078 | 0.181 |
| 148 | 12.33 | 0.87 | 0.269 | (0.153) | 0.081 | 0.188 |
| 149 | 12.42 | 0.87 | 0.269 | (0.152) | 0.081 | 0.188 |
| 150 | 12.50 | 0.87 | 0.269 | (0.151) | 0.081 | 0.188 |
| 151 | 12.58 | 0.93 | 0.290 | (0.150) | 0.087 | 0.203 |
| 152 | 12.67 | 0.93 | 0.290 | (0.150) | 0.087 | 0.203 |
| 153 | 12.75 | 0.93 | 0.290 | (0.149) | 0.087 | 0.203 |
| 154 | 12.83 | 0.97 | 0.300 | (0.148) | 0.090 | 0.210 |
| 155 | 12.92 | 0.97 | 0.300 | (0.147) | 0.090 | 0.210 |
| 156 | 13.00 | 0.97 | 0.300 | (0.147) | 0.090 | 0.210 |
| 157 | 13.08 | 1.13 | 0.352 | (0.146) | 0.106 | 0.246 |
| 158 | 13.17 | 1.13 | 0.352 | (0.145) | 0.106 | 0.246 |
| 159 | 13.25 | 1.13 | 0.352 | (0.144) | 0.106 | 0.246 |
| 160 | 13.33 | 1.13 | 0.352 | (0.144) | 0.106 | 0.246 |
| 161 | 13.42 | 1.13 | 0.352 | (0.143) | 0.106 | 0.246 |
| 162 | 13.50 | 1.13 | 0.352 | (0.142) | 0.106 | 0.246 |
| 163 | 13.58 | 0.77 | 0.238 | (0.141) | 0.071 | 0.167 |
| 164 | 13.67 | 0.77 | 0.238 | (0.141) | 0.071 | 0.167 |
| 165 | 13.75 | 0.77 | 0.238 | (0.140) | 0.071 | 0.167 |
| 166 | 13.83 | 0.77 | 0.238 | (0.139) | 0.071 | 0.167 |
| 167 | 13.92 | 0.77 | 0.238 | (0.139) | 0.071 | 0.167 |
| 168 | 14.00 | 0.77 | 0.238 | (0.138) | 0.071 | 0.167 |
| 169 | 14.08 | 0.90 | 0.279 | (0.137) | 0.084 | 0.196 |
| 170 | 14.17 | 0.90 | 0.279 | (0.136) | 0.084 | 0.196 |
| 171 | 14.25 | 0.90 | 0.279 | (0.136) | 0.084 | 0.196 |
| 172 | 14.33 | 0.87 | 0.269 | (0.135) | 0.081 | 0.188 |
| 173 | 14.42 | 0.87 | 0.269 | (0.134) | 0.081 | 0.188 |
| 174 | 14.50 | 0.87 | 0.269 | (0.134) | 0.081 | 0.188 |
| 175 | 14.58 | 0.87 | 0.269 | (0.133) | 0.081 | 0.188 |
| 176 | 14.67 | 0.87 | 0.269 | (0.132) | 0.081 | 0.188 |
| 177 | 14.75 | 0.87 | 0.269 | (0.132) | 0.081 | 0.188 |
| 178 | 14.83 | 0.83 | 0.259 | (0.131) | 0.078 | 0.181 |
| 179 | 14.92 | 0.83 | 0.259 | (0.130) | 0.078 | 0.181 |
| 180 | 15.00 | 0.83 | 0.259 | (0.130) | 0.078 | 0.181 |
| 181 | 15.08 | 0.80 | 0.248 | (0.129) | 0.075 | 0.174 |
| 182 | 15.17 | 0.80 | 0.248 | (0.128) | 0.075 | 0.174 |
| 183 | 15.25 | 0.80 | 0.248 | (0.128) | 0.075 | 0.174 |
| 184 | 15.33 | 0.77 | 0.238 | (0.127) | 0.071 | 0.167 |
| 185 | 15.42 | 0.77 | 0.238 | (0.126) | 0.071 | 0.167 |
| 186 | 15.50 | 0.77 | 0.238 | (0.126) | 0.071 | 0.167 |
| 187 | 15.58 | 0.63 | 0.197 | (0.125) | 0.059 | 0.138 |
| 188 | 15.67 | 0.63 | 0.197 | (0.124) | 0.059 | 0.138 |
| 189 | 15.75 | 0.63 | 0.197 | (0.124) | 0.059 | 0.138 |
| 190 | 15.83 | 0.63 | 0.197 | (0.123) | 0.059 | 0.138 |
| 191 | 15.92 | 0.63 | 0.197 | (0.123) | 0.059 | 0.138 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 192 | 16.00 | 0.63 | 0.197 | (0.122) | 0.059 | 0.138 |
| 193 | 16.08 | 0.13 | 0.041 | (0.121) | 0.012 | 0.029 |
| 194 | 16.17 | 0.13 | 0.041 | (0.121) | 0.012 | 0.029 |
| 195 | 16.25 | 0.13 | 0.041 | (0.120) | 0.012 | 0.029 |
| 196 | 16.33 | 0.13 | 0.041 | (0.119) | 0.012 | 0.029 |
| 197 | 16.42 | 0.13 | 0.041 | (0.119) | 0.012 | 0.029 |
| 198 | 16.50 | 0.13 | 0.041 | (0.118) | 0.012 | 0.029 |
| 199 | 16.58 | 0.10 | 0.031 | (0.118) | 0.009 | 0.022 |
| 200 | 16.67 | 0.10 | 0.031 | (0.117) | 0.009 | 0.022 |
| 201 | 16.75 | 0.10 | 0.031 | (0.116) | 0.009 | 0.022 |
| 202 | 16.83 | 0.10 | 0.031 | (0.116) | 0.009 | 0.022 |
| 203 | 16.92 | 0.10 | 0.031 | (0.115) | 0.009 | 0.022 |
| 204 | 17.00 | 0.10 | 0.031 | (0.115) | 0.009 | 0.022 |
| 205 | 17.08 | 0.17 | 0.052 | (0.114) | 0.016 | 0.036 |
| 206 | 17.17 | 0.17 | 0.052 | (0.114) | 0.016 | 0.036 |
| 207 | 17.25 | 0.17 | 0.052 | (0.113) | 0.016 | 0.036 |
| 208 | 17.33 | 0.17 | 0.052 | (0.112) | 0.016 | 0.036 |
| 209 | 17.42 | 0.17 | 0.052 | (0.112) | 0.016 | 0.036 |
| 210 | 17.50 | 0.17 | 0.052 | (0.111) | 0.016 | 0.036 |
| 211 | 17.58 | 0.17 | 0.052 | (0.111) | 0.016 | 0.036 |
| 212 | 17.67 | 0.17 | 0.052 | (0.110) | 0.016 | 0.036 |
| 213 | 17.75 | 0.17 | 0.052 | (0.110) | 0.016 | 0.036 |
| 214 | 17.83 | 0.13 | 0.041 | (0.109) | 0.012 | 0.029 |
| 215 | 17.92 | 0.13 | 0.041 | (0.109) | 0.012 | 0.029 |
| 216 | 18.00 | 0.13 | 0.041 | (0.108) | 0.012 | 0.029 |
| 217 | 18.08 | 0.13 | 0.041 | (0.107) | 0.012 | 0.029 |
| 218 | 18.17 | 0.13 | 0.041 | (0.107) | 0.012 | 0.029 |
| 219 | 18.25 | 0.13 | 0.041 | (0.106) | 0.012 | 0.029 |
| 220 | 18.33 | 0.13 | 0.041 | (0.106) | 0.012 | 0.029 |
| 221 | 18.42 | 0.13 | 0.041 | (0.105) | 0.012 | 0.029 |
| 222 | 18.50 | 0.13 | 0.041 | (0.105) | 0.012 | 0.029 |
| 223 | 18.58 | 0.10 | 0.031 | (0.104) | 0.009 | 0.022 |
| 224 | 18.67 | 0.10 | 0.031 | (0.104) | 0.009 | 0.022 |
| 225 | 18.75 | 0.10 | 0.031 | (0.103) | 0.009 | 0.022 |
| 226 | 18.83 | 0.07 | 0.021 | (0.103) | 0.006 | 0.014 |
| 227 | 18.92 | 0.07 | 0.021 | (0.102) | 0.006 | 0.014 |
| 228 | 19.00 | 0.07 | 0.021 | (0.102) | 0.006 | 0.014 |
| 229 | 19.08 | 0.10 | 0.031 | (0.101) | 0.009 | 0.022 |
| 230 | 19.17 | 0.10 | 0.031 | (0.101) | 0.009 | 0.022 |
| 231 | 19.25 | 0.10 | 0.031 | (0.100) | 0.009 | 0.022 |
| 232 | 19.33 | 0.13 | 0.041 | (0.100) | 0.012 | 0.029 |
| 233 | 19.42 | 0.13 | 0.041 | (0.100) | 0.012 | 0.029 |
| 234 | 19.50 | 0.13 | 0.041 | (0.099) | 0.012 | 0.029 |
| 235 | 19.58 | 0.10 | 0.031 | (0.099) | 0.009 | 0.022 |
| 236 | 19.67 | 0.10 | 0.031 | (0.098) | 0.009 | 0.022 |
| 237 | 19.75 | 0.10 | 0.031 | (0.098) | 0.009 | 0.022 |
| 238 | 19.83 | 0.07 | 0.021 | (0.097) | 0.006 | 0.014 |
| 239 | 19.92 | 0.07 | 0.021 | (0.097) | 0.006 | 0.014 |
| 240 | 20.00 | 0.07 | 0.021 | (0.096) | 0.006 | 0.014 |
| 241 | 20.08 | 0.10 | 0.031 | (0.096) | 0.009 | 0.022 |
| 242 | 20.17 | 0.10 | 0.031 | (0.096) | 0.009 | 0.022 |
| 243 | 20.25 | 0.10 | 0.031 | (0.095) | 0.009 | 0.022 |
| 244 | 20.33 | 0.10 | 0.031 | (0.095) | 0.009 | 0.022 |
| 245 | 20.42 | 0.10 | 0.031 | (0.094) | 0.009 | 0.022 |
| 246 | 20.50 | 0.10 | 0.031 | (0.094) | 0.009 | 0.022 |
| 247 | 20.58 | 0.10 | 0.031 | (0.094) | 0.009 | 0.022 |
| 248 | 20.67 | 0.10 | 0.031 | (0.093) | 0.009 | 0.022 |
| 249 | 20.75 | 0.10 | 0.031 | (0.093) | 0.009 | 0.022 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 250 | 20.83 | 0.07 | 0.021 | (0.092) | 0.006 | 0.014 |
| 251 | 20.92 | 0.07 | 0.021 | (0.092) | 0.006 | 0.014 |
| 252 | 21.00 | 0.07 | 0.021 | (0.092) | 0.006 | 0.014 |
| 253 | 21.08 | 0.10 | 0.031 | (0.091) | 0.009 | 0.022 |
| 254 | 21.17 | 0.10 | 0.031 | (0.091) | 0.009 | 0.022 |
| 255 | 21.25 | 0.10 | 0.031 | (0.091) | 0.009 | 0.022 |
| 256 | 21.33 | 0.07 | 0.021 | (0.090) | 0.006 | 0.014 |
| 257 | 21.42 | 0.07 | 0.021 | (0.090) | 0.006 | 0.014 |
| 258 | 21.50 | 0.07 | 0.021 | (0.090) | 0.006 | 0.014 |
| 259 | 21.58 | 0.10 | 0.031 | (0.089) | 0.009 | 0.022 |
| 260 | 21.67 | 0.10 | 0.031 | (0.089) | 0.009 | 0.022 |
| 261 | 21.75 | 0.10 | 0.031 | (0.089) | 0.009 | 0.022 |
| 262 | 21.83 | 0.07 | 0.021 | (0.088) | 0.006 | 0.014 |
| 263 | 21.92 | 0.07 | 0.021 | (0.088) | 0.006 | 0.014 |
| 264 | 22.00 | 0.07 | 0.021 | (0.088) | 0.006 | 0.014 |
| 265 | 22.08 | 0.10 | 0.031 | (0.087) | 0.009 | 0.022 |
| 266 | 22.17 | 0.10 | 0.031 | (0.087) | 0.009 | 0.022 |
| 267 | 22.25 | 0.10 | 0.031 | (0.087) | 0.009 | 0.022 |
| 268 | 22.33 | 0.07 | 0.021 | (0.087) | 0.006 | 0.014 |
| 269 | 22.42 | 0.07 | 0.021 | (0.086) | 0.006 | 0.014 |
| 270 | 22.50 | 0.07 | 0.021 | (0.086) | 0.006 | 0.014 |
| 271 | 22.58 | 0.07 | 0.021 | (0.086) | 0.006 | 0.014 |
| 272 | 22.67 | 0.07 | 0.021 | (0.086) | 0.006 | 0.014 |
| 273 | 22.75 | 0.07 | 0.021 | (0.085) | 0.006 | 0.014 |
| 274 | 22.83 | 0.07 | 0.021 | (0.085) | 0.006 | 0.014 |
| 275 | 22.92 | 0.07 | 0.021 | (0.085) | 0.006 | 0.014 |
| 276 | 23.00 | 0.07 | 0.021 | (0.085) | 0.006 | 0.014 |
| 277 | 23.08 | 0.07 | 0.021 | (0.084) | 0.006 | 0.014 |
| 278 | 23.17 | 0.07 | 0.021 | (0.084) | 0.006 | 0.014 |
| 279 | 23.25 | 0.07 | 0.021 | (0.084) | 0.006 | 0.014 |
| 280 | 23.33 | 0.07 | 0.021 | (0.084) | 0.006 | 0.014 |
| 281 | 23.42 | 0.07 | 0.021 | (0.084) | 0.006 | 0.014 |
| 282 | 23.50 | 0.07 | 0.021 | (0.084) | 0.006 | 0.014 |
| 283 | 23.58 | 0.07 | 0.021 | (0.083) | 0.006 | 0.014 |
| 284 | 23.67 | 0.07 | 0.021 | (0.083) | 0.006 | 0.014 |
| 285 | 23.75 | 0.07 | 0.021 | (0.083) | 0.006 | 0.014 |
| 286 | 23.83 | 0.07 | 0.021 | (0.083) | 0.006 | 0.014 |
| 287 | 23.92 | 0.07 | 0.021 | (0.083) | 0.006 | 0.014 |
| 288 | 24.00 | 0.07 | 0.021 | (0.083) | 0.006 | 0.014 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 21.7

Flood volume = Effective rainfall 1.81(In)
times area 20.4(Ac.)/[((In)/(Ft.))] = 3.1(Ac.Ft)
Total soil loss = 0.78(In)
Total soil loss = 1.320(Ac.Ft)
Total rainfall = 2.59(In)
Flood volume = 134115.1 Cubic Feet
Total soil loss = 57477.9 Cubic Feet

Peak flow rate of this hydrograph = 5.067(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

| Time(h+m) | Volume | Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|-----------|--------|-------|--------|---|-----|-----|-----|------|
| 0+ 5 | 0.0013 | 0.18 | Q | | | | | |
| 0+10 | 0.0032 | 0.29 | VQ | | | | | |
| 0+15 | 0.0053 | 0.30 | VQ | | | | | |
| 0+20 | 0.0080 | 0.39 | VQ | | | | | |
| 0+25 | 0.0110 | 0.44 | VQ | | | | | |
| 0+30 | 0.0141 | 0.45 | VQ | | | | | |
| 0+35 | 0.0172 | 0.45 | VQ | | | | | |
| 0+40 | 0.0203 | 0.45 | VQ | | | | | |
| 0+45 | 0.0233 | 0.45 | VQ | | | | | |
| 0+50 | 0.0271 | 0.54 | V Q | | | | | |
| 0+55 | 0.0311 | 0.59 | V Q | | | | | |
| 1+ 0 | 0.0352 | 0.60 | V Q | | | | | |
| 1+ 5 | 0.0387 | 0.50 | V Q | | | | | |
| 1+10 | 0.0418 | 0.45 | VQ | | | | | |
| 1+15 | 0.0449 | 0.45 | VQ | | | | | |
| 1+20 | 0.0480 | 0.45 | VQ | | | | | |
| 1+25 | 0.0510 | 0.45 | VQ | | | | | |
| 1+30 | 0.0541 | 0.45 | VQ | | | | | |
| 1+35 | 0.0572 | 0.45 | VQ | | | | | |
| 1+40 | 0.0603 | 0.45 | VQ | | | | | |
| 1+45 | 0.0634 | 0.45 | VQ | | | | | |
| 1+50 | 0.0671 | 0.54 | V Q | | | | | |
| 1+55 | 0.0711 | 0.59 | V Q | | | | | |
| 2+ 0 | 0.0752 | 0.60 | V Q | | | | | |
| 2+ 5 | 0.0794 | 0.60 | VQ | | | | | |
| 2+10 | 0.0835 | 0.60 | VQ | | | | | |
| 2+15 | 0.0876 | 0.60 | VQ | | | | | |
| 2+20 | 0.0917 | 0.60 | VQ | | | | | |
| 2+25 | 0.0958 | 0.60 | VQ | | | | | |
| 2+30 | 0.0999 | 0.60 | VQ | | | | | |
| 2+35 | 0.1046 | 0.69 | VQ | | | | | |
| 2+40 | 0.1097 | 0.74 | VQ | | | | | |
| 2+45 | 0.1148 | 0.75 | VQ | | | | | |
| 2+50 | 0.1200 | 0.75 | VQ | | | | | |
| 2+55 | 0.1251 | 0.75 | VQ | | | | | |
| 3+ 0 | 0.1302 | 0.75 | VQ | | | | | |
| 3+ 5 | 0.1354 | 0.75 | VQ | | | | | |
| 3+10 | 0.1405 | 0.75 | VQ | | | | | |
| 3+15 | 0.1456 | 0.75 | VQ | | | | | |
| 3+20 | 0.1508 | 0.75 | VQ | | | | | |
| 3+25 | 0.1559 | 0.75 | Q | | | | | |
| 3+30 | 0.1610 | 0.75 | Q | | | | | |
| 3+35 | 0.1662 | 0.75 | Q | | | | | |
| 3+40 | 0.1713 | 0.75 | Q | | | | | |
| 3+45 | 0.1764 | 0.75 | Q | | | | | |
| 3+50 | 0.1822 | 0.84 | VQ | | | | | |
| 3+55 | 0.1883 | 0.89 | VQ | | | | | |
| 4+ 0 | 0.1945 | 0.89 | VQ | | | | | |
| 4+ 5 | 0.2006 | 0.89 | VQ | | | | | |
| 4+10 | 0.2068 | 0.89 | VQ | | | | | |
| 4+15 | 0.2129 | 0.89 | VQ | | | | | |
| 4+20 | 0.2197 | 0.99 | VQ | | | | | |
| 4+25 | 0.2269 | 1.04 | V Q | | | | | |
| 4+30 | 0.2341 | 1.04 | VQ | | | | | |
| 4+35 | 0.2412 | 1.04 | VQ | | | | | |
| 4+40 | 0.2484 | 1.04 | VQ | | | | | |

| | | | | | | | |
|------|--------|------|----|----|--|--|--|
| 4+45 | 0.2556 | 1.04 | VQ | | | | |
| 4+50 | 0.2634 | 1.14 | VQ | | | | |
| 4+55 | 0.2716 | 1.19 | VQ | | | | |
| 5+ 0 | 0.2798 | 1.19 | VQ | | | | |
| 5+ 5 | 0.2867 | 1.01 | VQ | | | | |
| 5+10 | 0.2930 | 0.91 | Q | | | | |
| 5+15 | 0.2991 | 0.89 | Q | | | | |
| 5+20 | 0.3059 | 0.99 | Q | | | | |
| 5+25 | 0.3131 | 1.04 | Q | | | | |
| 5+30 | 0.3203 | 1.04 | Q | | | | |
| 5+35 | 0.3281 | 1.14 | Q | | | | |
| 5+40 | 0.3363 | 1.19 | Q | | | | |
| 5+45 | 0.3445 | 1.19 | Q | | | | |
| 5+50 | 0.3527 | 1.19 | Q | | | | |
| 5+55 | 0.3609 | 1.19 | Q | | | | |
| 6+ 0 | 0.3691 | 1.19 | Q | | | | |
| 6+ 5 | 0.3779 | 1.28 | VQ | | | | |
| 6+10 | 0.3871 | 1.34 | Q | | | | |
| 6+15 | 0.3964 | 1.34 | Q | | | | |
| 6+20 | 0.4056 | 1.34 | Q | | | | |
| 6+25 | 0.4148 | 1.34 | Q | | | | |
| 6+30 | 0.4241 | 1.34 | Q | | | | |
| 6+35 | 0.4340 | 1.43 | Q | | | | |
| 6+40 | 0.4442 | 1.48 | Q | | | | |
| 6+45 | 0.4544 | 1.49 | Q | | | | |
| 6+50 | 0.4647 | 1.49 | QV | | | | |
| 6+55 | 0.4750 | 1.49 | QV | | | | |
| 7+ 0 | 0.4852 | 1.49 | QV | | | | |
| 7+ 5 | 0.4955 | 1.49 | QV | | | | |
| 7+10 | 0.5058 | 1.49 | QV | | | | |
| 7+15 | 0.5160 | 1.49 | QV | | | | |
| 7+20 | 0.5269 | 1.58 | Q | | | | |
| 7+25 | 0.5382 | 1.63 | Q | | | | |
| 7+30 | 0.5495 | 1.64 | QV | | | | |
| 7+35 | 0.5614 | 1.73 | QV | | | | |
| 7+40 | 0.5737 | 1.78 | Q | | | | |
| 7+45 | 0.5860 | 1.79 | Q | | | | |
| 7+50 | 0.5989 | 1.88 | Q | | | | |
| 7+55 | 0.6122 | 1.93 | Q | | | | |
| 8+ 0 | 0.6256 | 1.94 | QV | | | | |
| 8+ 5 | 0.6402 | 2.12 | Q | | | | |
| 8+10 | 0.6555 | 2.22 | Q | | | | |
| 8+15 | 0.6709 | 2.24 | Q | | | | |
| 8+20 | 0.6863 | 2.24 | Q | | | | |
| 8+25 | 0.7017 | 2.24 | QV | | | | |
| 8+30 | 0.7171 | 2.24 | QV | | | | |
| 8+35 | 0.7331 | 2.33 | Q | | | | |
| 8+40 | 0.7495 | 2.38 | Q | | | | |
| 8+45 | 0.7659 | 2.38 | Q | | | | |
| 8+50 | 0.7830 | 2.48 | QV | | | | |
| 8+55 | 0.8004 | 2.53 | Q | | | | |
| 9+ 0 | 0.8178 | 2.53 | Q | | | | |
| 9+ 5 | 0.8365 | 2.72 | Q | | | | |
| 9+10 | 0.8560 | 2.82 | | Q | | | |
| 9+15 | 0.8755 | 2.83 | | Q | | | |
| 9+20 | 0.8956 | 2.92 | | Q | | | |
| 9+25 | 0.9161 | 2.97 | | Q | | | |
| 9+30 | 0.9366 | 2.98 | | QV | | | |

| | | | | | |
|-------|--------|------|---|----|---|
| 9+35 | 0.9578 | 3.07 | | Q | |
| 9+40 | 0.9793 | 3.12 | | Q | |
| 9+45 | 1.0008 | 3.13 | | QV | |
| 9+50 | 1.0230 | 3.22 | | QV | |
| 9+55 | 1.0455 | 3.27 | | Q | |
| 10+ 0 | 1.0681 | 3.28 | | Q | |
| 10+ 5 | 1.0863 | 2.63 | Q | V | |
| 10+10 | 1.1019 | 2.28 | Q | V | |
| 10+15 | 1.1173 | 2.24 | Q | V | |
| 10+20 | 1.1327 | 2.24 | Q | V | |
| 10+25 | 1.1481 | 2.24 | Q | V | |
| 10+30 | 1.1635 | 2.24 | Q | V | |
| 10+35 | 1.1821 | 2.70 | Q | V | |
| 10+40 | 1.2024 | 2.95 | Q | V | |
| 10+45 | 1.2229 | 2.98 | Q | V | |
| 10+50 | 1.2435 | 2.98 | Q | V | |
| 10+55 | 1.2640 | 2.98 | Q | V | |
| 11+ 0 | 1.2845 | 2.98 | Q | V | |
| 11+ 5 | 1.3044 | 2.89 | Q | V | |
| 11+10 | 1.3239 | 2.84 | Q | V | |
| 11+15 | 1.3434 | 2.83 | Q | V | |
| 11+20 | 1.3629 | 2.83 | Q | V | |
| 11+25 | 1.3824 | 2.83 | Q | V | |
| 11+30 | 1.4019 | 2.83 | Q | V | |
| 11+35 | 1.4202 | 2.65 | Q | V | |
| 11+40 | 1.4377 | 2.54 | Q | V | |
| 11+45 | 1.4551 | 2.53 | Q | V | |
| 11+50 | 1.4732 | 2.63 | Q | V | |
| 11+55 | 1.4917 | 2.68 | Q | V | |
| 12+ 0 | 1.5101 | 2.68 | Q | V | |
| 12+ 5 | 1.5331 | 3.33 | | Q | V |
| 12+10 | 1.5584 | 3.68 | | Q | V |
| 12+15 | 1.5841 | 3.73 | | Q | V |
| 12+20 | 1.6104 | 3.82 | | Q | V |
| 12+25 | 1.6370 | 3.87 | | Q | V |
| 12+30 | 1.6637 | 3.87 | | Q | V |
| 12+35 | 1.6917 | 4.06 | | Q | V |
| 12+40 | 1.7203 | 4.16 | | Q | V |
| 12+45 | 1.7490 | 4.17 | | Q | V |
| 12+50 | 1.7784 | 4.26 | | Q | V |
| 12+55 | 1.8081 | 4.32 | | Q | V |
| 13+ 0 | 1.8379 | 4.32 | | Q | V |
| 13+ 5 | 1.8708 | 4.78 | | Q | V |
| 13+10 | 1.9055 | 5.04 | | Q | V |
| 13+15 | 1.9404 | 5.07 | | Q | V |
| 13+20 | 1.9753 | 5.07 | | Q | V |
| 13+25 | 2.0102 | 5.07 | | Q | V |
| 13+30 | 2.0451 | 5.07 | | Q | V |
| 13+35 | 2.0730 | 4.05 | | Q | V |
| 13+40 | 2.0971 | 3.49 | | Q | V |
| 13+45 | 2.1207 | 3.43 | | Q | V |
| 13+50 | 2.1443 | 3.43 | | Q | V |
| 13+55 | 2.1679 | 3.43 | | Q | V |
| 14+ 0 | 2.1915 | 3.43 | | Q | V |
| 14+ 5 | 2.2176 | 3.80 | | Q | V |
| 14+10 | 2.2452 | 4.00 | | Q | V |
| 14+15 | 2.2729 | 4.02 | | Q | V |
| 14+20 | 2.3000 | 3.93 | | Q | V |

| | | | | | | | |
|-------|--------|------|---|---|---|--|---|
| 14+25 | 2.3267 | 3.88 | | | Q | | V |
| 14+30 | 2.3534 | 3.87 | | | Q | | V |
| 14+35 | 2.3801 | 3.87 | | | Q | | V |
| 14+40 | 2.4067 | 3.87 | | | Q | | V |
| 14+45 | 2.4334 | 3.87 | | | Q | | V |
| 14+50 | 2.4595 | 3.78 | | | Q | | V |
| 14+55 | 2.4852 | 3.73 | | | Q | | V |
| 15+ 0 | 2.5108 | 3.73 | | | Q | | V |
| 15+ 5 | 2.5358 | 3.63 | | | Q | | V |
| 15+10 | 2.5605 | 3.58 | | | Q | | V |
| 15+15 | 2.5851 | 3.58 | | | Q | | V |
| 15+20 | 2.6091 | 3.48 | | | Q | | V |
| 15+25 | 2.6328 | 3.43 | | | Q | | V |
| 15+30 | 2.6564 | 3.43 | | | Q | | V |
| 15+35 | 2.6774 | 3.06 | | | Q | | V |
| 15+40 | 2.6971 | 2.85 | | | Q | | V |
| 15+45 | 2.7166 | 2.83 | | | Q | | V |
| 15+50 | 2.7361 | 2.83 | | | Q | | V |
| 15+55 | 2.7556 | 2.83 | | | Q | | V |
| 16+ 0 | 2.7751 | 2.83 | | | Q | | V |
| 16+ 5 | 2.7851 | 1.45 | | Q | | | V |
| 16+10 | 2.7898 | 0.68 | Q | | | | V |
| 16+15 | 2.7939 | 0.60 | Q | | | | V |
| 16+20 | 2.7980 | 0.60 | Q | | | | V |
| 16+25 | 2.8021 | 0.60 | Q | | | | V |
| 16+30 | 2.8062 | 0.60 | Q | | | | V |
| 16+35 | 2.8097 | 0.50 | Q | | | | V |
| 16+40 | 2.8128 | 0.45 | Q | | | | V |
| 16+45 | 2.8159 | 0.45 | Q | | | | V |
| 16+50 | 2.8189 | 0.45 | Q | | | | V |
| 16+55 | 2.8220 | 0.45 | Q | | | | V |
| 17+ 0 | 2.8251 | 0.45 | Q | | | | V |
| 17+ 5 | 2.8295 | 0.63 | Q | | | | V |
| 17+10 | 2.8345 | 0.73 | Q | | | | V |
| 17+15 | 2.8396 | 0.75 | Q | | | | V |
| 17+20 | 2.8448 | 0.75 | Q | | | | V |
| 17+25 | 2.8499 | 0.75 | Q | | | | V |
| 17+30 | 2.8550 | 0.75 | Q | | | | V |
| 17+35 | 2.8602 | 0.75 | Q | | | | V |
| 17+40 | 2.8653 | 0.75 | Q | | | | V |
| 17+45 | 2.8704 | 0.75 | Q | | | | V |
| 17+50 | 2.8749 | 0.65 | Q | | | | V |
| 17+55 | 2.8791 | 0.60 | Q | | | | V |
| 18+ 0 | 2.8832 | 0.60 | Q | | | | V |
| 18+ 5 | 2.8873 | 0.60 | Q | | | | V |
| 18+10 | 2.8914 | 0.60 | Q | | | | V |
| 18+15 | 2.8955 | 0.60 | Q | | | | V |
| 18+20 | 2.8996 | 0.60 | Q | | | | V |
| 18+25 | 2.9037 | 0.60 | Q | | | | V |
| 18+30 | 2.9078 | 0.60 | Q | | | | V |
| 18+35 | 2.9113 | 0.50 | Q | | | | V |
| 18+40 | 2.9144 | 0.45 | Q | | | | V |
| 18+45 | 2.9175 | 0.45 | Q | | | | V |
| 18+50 | 2.9199 | 0.35 | Q | | | | V |
| 18+55 | 2.9220 | 0.30 | Q | | | | V |
| 19+ 0 | 2.9241 | 0.30 | Q | | | | V |
| 19+ 5 | 2.9267 | 0.39 | Q | | | | V |
| 19+10 | 2.9298 | 0.44 | Q | | | | V |

| | | | | |
|-------|--------|------|---|---|
| 19+15 | 2.9329 | 0.45 | Q | V |
| 19+20 | 2.9366 | 0.54 | Q | V |
| 19+25 | 2.9406 | 0.59 | Q | V |
| 19+30 | 2.9447 | 0.60 | Q | V |
| 19+35 | 2.9482 | 0.50 | Q | V |
| 19+40 | 2.9513 | 0.45 | Q | V |
| 19+45 | 2.9544 | 0.45 | Q | V |
| 19+50 | 2.9569 | 0.35 | Q | V |
| 19+55 | 2.9589 | 0.30 | Q | V |
| 20+ 0 | 2.9610 | 0.30 | Q | V |
| 20+ 5 | 2.9637 | 0.39 | Q | V |
| 20+10 | 2.9667 | 0.44 | Q | V |
| 20+15 | 2.9698 | 0.45 | Q | V |
| 20+20 | 2.9729 | 0.45 | Q | V |
| 20+25 | 2.9760 | 0.45 | Q | V |
| 20+30 | 2.9790 | 0.45 | Q | V |
| 20+35 | 2.9821 | 0.45 | Q | V |
| 20+40 | 2.9852 | 0.45 | Q | V |
| 20+45 | 2.9883 | 0.45 | Q | V |
| 20+50 | 2.9907 | 0.35 | Q | V |
| 20+55 | 2.9928 | 0.30 | Q | V |
| 21+ 0 | 2.9949 | 0.30 | Q | V |
| 21+ 5 | 2.9976 | 0.39 | Q | V |
| 21+10 | 3.0006 | 0.44 | Q | V |
| 21+15 | 3.0037 | 0.45 | Q | V |
| 21+20 | 3.0061 | 0.35 | Q | V |
| 21+25 | 3.0082 | 0.30 | Q | V |
| 21+30 | 3.0103 | 0.30 | Q | V |
| 21+35 | 3.0130 | 0.39 | Q | V |
| 21+40 | 3.0160 | 0.44 | Q | V |
| 21+45 | 3.0191 | 0.45 | Q | V |
| 21+50 | 3.0215 | 0.35 | Q | V |
| 21+55 | 3.0236 | 0.30 | Q | V |
| 22+ 0 | 3.0257 | 0.30 | Q | V |
| 22+ 5 | 3.0283 | 0.39 | Q | V |
| 22+10 | 3.0314 | 0.44 | Q | V |
| 22+15 | 3.0345 | 0.45 | Q | V |
| 22+20 | 3.0369 | 0.35 | Q | V |
| 22+25 | 3.0390 | 0.30 | Q | V |
| 22+30 | 3.0411 | 0.30 | Q | V |
| 22+35 | 3.0431 | 0.30 | Q | V |
| 22+40 | 3.0452 | 0.30 | Q | V |
| 22+45 | 3.0472 | 0.30 | Q | V |
| 22+50 | 3.0493 | 0.30 | Q | V |
| 22+55 | 3.0513 | 0.30 | Q | V |
| 23+ 0 | 3.0534 | 0.30 | Q | V |
| 23+ 5 | 3.0554 | 0.30 | Q | V |
| 23+10 | 3.0575 | 0.30 | Q | V |
| 23+15 | 3.0595 | 0.30 | Q | V |
| 23+20 | 3.0616 | 0.30 | Q | V |
| 23+25 | 3.0636 | 0.30 | Q | V |
| 23+30 | 3.0657 | 0.30 | Q | V |
| 23+35 | 3.0677 | 0.30 | Q | V |
| 23+40 | 3.0698 | 0.30 | Q | V |
| 23+45 | 3.0718 | 0.30 | Q | V |
| 23+50 | 3.0739 | 0.30 | Q | V |
| 23+55 | 3.0759 | 0.30 | Q | V |
| 24+ 0 | 3.0780 | 0.30 | Q | V |

| | | | | | | | |
|-------|--------|------|---|--|--|--|---|
| 24+ 5 | 3.0788 | 0.11 | Q | | | | V |
| 24+10 | 3.0789 | 0.01 | Q | | | | V |

10YR, 1HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPREA110.out

+++++

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

Program License Serial Number 6215

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

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.047 Hr.
Lag time = 2.79 Min.
25% of lag time = 0.70 Min.
40% of lag time = 1.12 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]
20.40 0.47 9.59

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.20 24.48

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.470(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.770(In)
 Areal adjustment factor = 99.98 %
 Adjusted average point rain = 0.770(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 78.0 | 0.268 | 0.050 | 0.256 | 1.000 | 0.256 |
| | | | | | | Sum (F) = 0.256 |

Area averaged mean soil loss (F) (In/Hr) = 0.256
 Minimum soil loss rate ((In/Hr)) = 0.128
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

 Slope of intensity-duration curve for a 1 hour storm =0.5000

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

 Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 179.023 | 39.529 |
| 2 | 0.167 | 358.046 | 44.857 |
| 3 | 0.250 | 537.069 | 9.704 |
| 4 | 0.333 | 716.092 | 3.987 |
| 5 | 0.417 | 895.115 | 1.923 |
| | | Sum = 100.000 | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|--------------------|--------------------|-----------------------|-------------------|----------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 4.20 | 0.388 | (0.334) | 0.133 |
| 2 | 0.17 | 4.30 | 0.397 | (0.342) | 0.142 |
| 3 | 0.25 | 5.00 | 0.462 | (0.397) | 0.207 |
| 4 | 0.33 | 5.00 | 0.462 | (0.397) | 0.207 |
| 5 | 0.42 | 5.80 | 0.536 | (0.461) | 0.280 |
| 6 | 0.50 | 6.50 | 0.601 | (0.517) | 0.345 |
| 7 | 0.58 | 7.40 | 0.684 | (0.588) | 0.428 |
| 8 | 0.67 | 8.60 | 0.795 | (0.684) | 0.539 |
| 9 | 0.75 | 12.30 | 1.137 | (0.978) | 0.881 |
| 10 | 0.83 | 29.10 | 2.689 | (2.313) | 2.434 |
| 11 | 0.92 | 6.80 | 0.628 | (0.540) | 0.373 |
| 12 | 1.00 | 5.00 | 0.462 | (0.397) | 0.207 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.2
 Flood volume = Effective rainfall 0.51(In)
 times area 20.4(Ac.)/[(In)/(Ft.)] = 0.9(Ac.Ft)
 Total soil loss = 0.26(In)
 Total soil loss = 0.434(Ac.Ft)
 Total rainfall = 0.77(In)
 Flood volume = 38109.2 Cubic Feet
 Total soil loss = 18924.6 Cubic Feet

 Peak flow rate of this hydrograph = 29.486(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 | 0.0074 | 1.08 | VQ | | | | |
| 0+10 | 0.0238 | 2.38 | V Q | | | | |
| 0+15 | 0.0462 | 3.25 | V Q | | | | |
| 0+20 | 0.0736 | 3.98 | V Q | | | | |
| 0+25 | 0.1064 | 4.77 | V Q | | | | |
| 0+30 | 0.1480 | 6.03 | V Q | | | | |
| 0+35 | 0.1995 | 7.48 | Q | | | | |
| 0+40 | 0.2638 | 9.34 | Q | | | | |
| 0+45 | 0.3560 | 13.39 | VQ | | | | |
| 0+50 | 0.5591 | 29.49 | V | | | | Q |
| 0+55 | 0.7510 | 27.86 | V | | | Q | V |
| 1+ 0 | 0.8261 | 10.91 | Q | | | V | V |
| 1+ 5 | 0.8605 | 5.00 | Q | | | | V |
| 1+10 | 0.8721 | 1.68 | Q | | | | V |
| 1+15 | 0.8743 | 0.32 | Q | | | | V |
| 1+20 | 0.8749 | 0.08 | Q | | | | V |

10YR, 3HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPREA310.out

+++++

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

Program License Serial Number 6215

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

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.047 Hr.
Lag time = 2.79 Min.
25% of lag time = 0.70 Min.
40% of lag time = 1.12 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]
20.40 0.80 16.32

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.86 37.94

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.236(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.236(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 78.0 | 0.268 | 0.050 | 0.256 | 1.000 | 0.256 |
| | | | | | | Sum (F) = 0.256 |

Area averaged mean soil loss (F) (In/Hr) = 0.256
 Minimum soil loss rate ((In/Hr)) = 0.128
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 179.023 | 39.529 |
| 2 | 0.167 | 358.046 | 44.857 |
| 3 | 0.250 | 537.069 | 9.704 |
| 4 | 0.333 | 716.092 | 3.987 |
| 5 | 0.417 | 895.115 | 1.923 |
| | | Sum = 100.000 | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|--------------------|--------------------|-----------------------|-------------------|---------------------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 1.30 | 0.193 | (0.256) 0.166 | 0.027 |
| 2 | 0.17 | 1.30 | 0.193 | (0.256) 0.166 | 0.027 |
| 3 | 0.25 | 1.10 | 0.163 | (0.256) 0.140 | 0.023 |
| 4 | 0.33 | 1.50 | 0.222 | (0.256) 0.191 | 0.031 |
| 5 | 0.42 | 1.50 | 0.222 | (0.256) 0.191 | 0.031 |
| 6 | 0.50 | 1.80 | 0.267 | (0.256) 0.230 | 0.037 |
| 7 | 0.58 | 1.50 | 0.222 | (0.256) 0.191 | 0.031 |
| 8 | 0.67 | 1.80 | 0.267 | (0.256) 0.230 | 0.037 |
| 9 | 0.75 | 1.80 | 0.267 | (0.256) 0.230 | 0.037 |
| 10 | 0.83 | 1.50 | 0.222 | (0.256) 0.191 | 0.031 |
| 11 | 0.92 | 1.60 | 0.237 | (0.256) 0.204 | 0.033 |
| 12 | 1.00 | 1.80 | 0.267 | (0.256) 0.230 | 0.037 |
| 13 | 1.08 | 2.20 | 0.326 | 0.256 (0.281) | 0.071 |
| 14 | 1.17 | 2.20 | 0.326 | 0.256 (0.281) | 0.071 |
| 15 | 1.25 | 2.20 | 0.326 | 0.256 (0.281) | 0.071 |

| | | | | | | | | | |
|------|--------|-------|----|---|----|---|---|---|---|
| 1+25 | 0.0959 | 1.67 | QV | | | | | | |
| 1+30 | 0.1135 | 2.55 | VQ | | | | | | |
| 1+35 | 0.1305 | 2.48 | QV | | | | | | |
| 1+40 | 0.1479 | 2.52 | QV | | | | | | |
| 1+45 | 0.1727 | 3.61 | Q | | | | | | |
| 1+50 | 0.2020 | 4.25 | Q | | | | | | |
| 1+55 | 0.2290 | 3.93 | Q | V | | | | | |
| 2+ 0 | 0.2553 | 3.81 | Q | V | | | | | |
| 2+ 5 | 0.2829 | 4.02 | Q | V | | | | | |
| 2+10 | 0.3206 | 5.47 | Q | V | | | | | |
| 2+15 | 0.3755 | 7.97 | | | QV | | | | |
| 2+20 | 0.4279 | 7.60 | | | Q | V | | | |
| 2+25 | 0.4961 | 9.91 | | | | Q | V | | |
| 2+30 | 0.5977 | 14.74 | | | | | V | Q | |
| 2+35 | 0.7172 | 17.35 | | | | | | V | Q |
| 2+40 | 0.8293 | 16.27 | | | | | | Q | V |
| 2+45 | 0.8909 | 8.95 | | | | | | | V |
| 2+50 | 0.9118 | 3.04 | | Q | | | | | V |
| 2+55 | 0.9230 | 1.62 | | Q | | | | | V |
| 3+ 0 | 0.9285 | 0.80 | Q | | | | | | V |
| 3+ 5 | 0.9301 | 0.24 | Q | | | | | | V |
| 3+10 | 0.9306 | 0.07 | Q | | | | | | V |
| 3+15 | 0.9308 | 0.03 | Q | | | | | | V |
| 3+20 | 0.9308 | 0.00 | Q | | | | | | V |

10YR, 6HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPREA610.out

+++++

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

Program License Serial Number 6215

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

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.047 Hr.
Lag time = 2.79 Min.
25% of lag time = 0.70 Min.
40% of lag time = 1.12 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Table with 3 columns: Area(Ac.)[1], Rainfall(In)[2], Weighting[1*2]. Values: 20.40, 1.00, 20.40

100 YEAR Area rainfall data:

Table with 3 columns: Area(Ac.)[1], Rainfall(In)[2], Weighting[1*2]. Values: 20.40, 2.50, 51.00

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.617(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.617(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 78.0 | 0.268 | 0.050 | 0.256 | 1.000 | 0.256 |
| | | | | | | Sum (F) = 0.256 |

Area averaged mean soil loss (F) (In/Hr) = 0.256
 Minimum soil loss rate ((In/Hr)) = 0.128
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 179.023 | 39.529 |
| 2 | 0.167 | 358.046 | 44.857 |
| 3 | 0.250 | 537.069 | 9.704 |
| 4 | 0.333 | 716.092 | 3.987 |
| 5 | 0.417 | 895.115 | 1.923 |
| Sum = 100.000 | | | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) | |
|--------------------|--------------------|-----------------------|-------------------|----------|----------------------|-------|
| | | | Max | Low | | |
| 1 | 0.08 | 0.50 | 0.097 | (0.256) | 0.083 | 0.014 |
| 2 | 0.17 | 0.60 | 0.116 | (0.256) | 0.100 | 0.016 |
| 3 | 0.25 | 0.60 | 0.116 | (0.256) | 0.100 | 0.016 |
| 4 | 0.33 | 0.60 | 0.116 | (0.256) | 0.100 | 0.016 |
| 5 | 0.42 | 0.60 | 0.116 | (0.256) | 0.100 | 0.016 |
| 6 | 0.50 | 0.70 | 0.136 | (0.256) | 0.117 | 0.019 |
| 7 | 0.58 | 0.70 | 0.136 | (0.256) | 0.117 | 0.019 |
| 8 | 0.67 | 0.70 | 0.136 | (0.256) | 0.117 | 0.019 |
| 9 | 0.75 | 0.70 | 0.136 | (0.256) | 0.117 | 0.019 |
| 10 | 0.83 | 0.70 | 0.136 | (0.256) | 0.117 | 0.019 |
| 11 | 0.92 | 0.70 | 0.136 | (0.256) | 0.117 | 0.019 |
| 12 | 1.00 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 13 | 1.08 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 14 | 1.17 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 15 | 1.25 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |

| | | | | | | |
|----|------|------|-------|----------------|-------|-------|
| 16 | 1.33 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 17 | 1.42 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 18 | 1.50 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 19 | 1.58 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 20 | 1.67 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 21 | 1.75 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 22 | 1.83 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 23 | 1.92 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 24 | 2.00 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 25 | 2.08 | 0.80 | 0.155 | (0.256) | 0.133 | 0.022 |
| 26 | 2.17 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 27 | 2.25 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 28 | 2.33 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 29 | 2.42 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 30 | 2.50 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 31 | 2.58 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 32 | 2.67 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 33 | 2.75 | 1.00 | 0.194 | (0.256) | 0.167 | 0.027 |
| 34 | 2.83 | 1.00 | 0.194 | (0.256) | 0.167 | 0.027 |
| 35 | 2.92 | 1.00 | 0.194 | (0.256) | 0.167 | 0.027 |
| 36 | 3.00 | 1.00 | 0.194 | (0.256) | 0.167 | 0.027 |
| 37 | 3.08 | 1.00 | 0.194 | (0.256) | 0.167 | 0.027 |
| 38 | 3.17 | 1.10 | 0.213 | (0.256) | 0.184 | 0.030 |
| 39 | 3.25 | 1.10 | 0.213 | (0.256) | 0.184 | 0.030 |
| 40 | 3.33 | 1.10 | 0.213 | (0.256) | 0.184 | 0.030 |
| 41 | 3.42 | 1.20 | 0.233 | (0.256) | 0.200 | 0.033 |
| 42 | 3.50 | 1.30 | 0.252 | (0.256) | 0.217 | 0.035 |
| 43 | 3.58 | 1.40 | 0.272 | (0.256) | 0.234 | 0.038 |
| 44 | 3.67 | 1.40 | 0.272 | (0.256) | 0.234 | 0.038 |
| 45 | 3.75 | 1.50 | 0.291 | (0.256) | 0.250 | 0.041 |
| 46 | 3.83 | 1.50 | 0.291 | (0.256) | 0.250 | 0.041 |
| 47 | 3.92 | 1.60 | 0.310 | 0.256 (0.267) | | 0.055 |
| 48 | 4.00 | 1.60 | 0.310 | 0.256 (0.267) | | 0.055 |
| 49 | 4.08 | 1.70 | 0.330 | 0.256 (0.284) | | 0.074 |
| 50 | 4.17 | 1.80 | 0.349 | 0.256 (0.300) | | 0.094 |
| 51 | 4.25 | 1.90 | 0.369 | 0.256 (0.317) | | 0.113 |
| 52 | 4.33 | 2.00 | 0.388 | 0.256 (0.334) | | 0.133 |
| 53 | 4.42 | 2.10 | 0.407 | 0.256 (0.350) | | 0.152 |
| 54 | 4.50 | 2.10 | 0.407 | 0.256 (0.350) | | 0.152 |
| 55 | 4.58 | 2.20 | 0.427 | 0.256 (0.367) | | 0.171 |
| 56 | 4.67 | 2.30 | 0.446 | 0.256 (0.384) | | 0.191 |
| 57 | 4.75 | 2.40 | 0.466 | 0.256 (0.400) | | 0.210 |
| 58 | 4.83 | 2.40 | 0.466 | 0.256 (0.400) | | 0.210 |
| 59 | 4.92 | 2.50 | 0.485 | 0.256 (0.417) | | 0.230 |
| 60 | 5.00 | 2.60 | 0.505 | 0.256 (0.434) | | 0.249 |
| 61 | 5.08 | 3.10 | 0.602 | 0.256 (0.517) | | 0.346 |
| 62 | 5.17 | 3.60 | 0.699 | 0.256 (0.601) | | 0.443 |
| 63 | 5.25 | 3.90 | 0.757 | 0.256 (0.651) | | 0.501 |
| 64 | 5.33 | 4.20 | 0.815 | 0.256 (0.701) | | 0.559 |
| 65 | 5.42 | 4.70 | 0.912 | 0.256 (0.784) | | 0.656 |
| 66 | 5.50 | 5.60 | 1.087 | 0.256 (0.934) | | 0.831 |
| 67 | 5.58 | 1.90 | 0.369 | 0.256 (0.317) | | 0.113 |
| 68 | 5.67 | 0.90 | 0.175 | (0.256) | 0.150 | 0.024 |
| 69 | 5.75 | 0.60 | 0.116 | (0.256) | 0.100 | 0.016 |
| 70 | 5.83 | 0.50 | 0.097 | (0.256) | 0.083 | 0.014 |
| 71 | 5.92 | 0.30 | 0.058 | (0.256) | 0.050 | 0.008 |
| 72 | 6.00 | 0.20 | 0.039 | (0.256) | 0.033 | 0.005 |

(Loss Rate Not Used)

10YR, 24HR PRE-DEVELOPED

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPREA2410.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.047 Hr.
Lag time = 2.79 Min.
25% of lag time = 0.70 Min.
40% of lag time = 1.12 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] |
|--------------|-----------------|----------------|
| 20.40 | 1.60 | 32.64 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 4.00 | 81.60 |

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.600(In)
Area Averaged 100-Year Rainfall = 4.000(In)

Point rain (area averaged) = 2.587(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.587(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 78.0 | 0.268 | 0.050 | 0.256 | 1.000 | 0.256 |
| | | | | | | Sum (F) = 0.256 |

Area averaged mean soil loss (F) (In/Hr) = 0.256
 Minimum soil loss rate ((In/Hr)) = 0.128
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 179.023 | 39.529 |
| 2 | 0.167 | 358.046 | 44.857 |
| 3 | 0.250 | 537.069 | 9.704 |
| 4 | 0.333 | 716.092 | 3.987 |
| 5 | 0.417 | 895.115 | 1.923 |
| Sum = 100.000 | | | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|--------------------|--------------------|-----------------------|-------------------|-------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 0.07 | (0.453) | 0.018 | 0.003 |
| 2 | 0.17 | 0.07 | (0.451) | 0.018 | 0.003 |
| 3 | 0.25 | 0.07 | (0.450) | 0.018 | 0.003 |
| 4 | 0.33 | 0.10 | (0.448) | 0.027 | 0.004 |
| 5 | 0.42 | 0.10 | (0.446) | 0.027 | 0.004 |
| 6 | 0.50 | 0.10 | (0.444) | 0.027 | 0.004 |
| 7 | 0.58 | 0.10 | (0.443) | 0.027 | 0.004 |
| 8 | 0.67 | 0.10 | (0.441) | 0.027 | 0.004 |
| 9 | 0.75 | 0.10 | (0.439) | 0.027 | 0.004 |
| 10 | 0.83 | 0.13 | (0.437) | 0.036 | 0.006 |
| 11 | 0.92 | 0.13 | (0.436) | 0.036 | 0.006 |
| 12 | 1.00 | 0.13 | (0.434) | 0.036 | 0.006 |
| 13 | 1.08 | 0.10 | (0.432) | 0.027 | 0.004 |
| 14 | 1.17 | 0.10 | (0.431) | 0.027 | 0.004 |
| 15 | 1.25 | 0.10 | (0.429) | 0.027 | 0.004 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 16 | 1.33 | 0.10 | 0.031 | (0.427) | 0.027 | 0.004 |
| 17 | 1.42 | 0.10 | 0.031 | (0.425) | 0.027 | 0.004 |
| 18 | 1.50 | 0.10 | 0.031 | (0.424) | 0.027 | 0.004 |
| 19 | 1.58 | 0.10 | 0.031 | (0.422) | 0.027 | 0.004 |
| 20 | 1.67 | 0.10 | 0.031 | (0.420) | 0.027 | 0.004 |
| 21 | 1.75 | 0.10 | 0.031 | (0.419) | 0.027 | 0.004 |
| 22 | 1.83 | 0.13 | 0.041 | (0.417) | 0.036 | 0.006 |
| 23 | 1.92 | 0.13 | 0.041 | (0.415) | 0.036 | 0.006 |
| 24 | 2.00 | 0.13 | 0.041 | (0.414) | 0.036 | 0.006 |
| 25 | 2.08 | 0.13 | 0.041 | (0.412) | 0.036 | 0.006 |
| 26 | 2.17 | 0.13 | 0.041 | (0.410) | 0.036 | 0.006 |
| 27 | 2.25 | 0.13 | 0.041 | (0.409) | 0.036 | 0.006 |
| 28 | 2.33 | 0.13 | 0.041 | (0.407) | 0.036 | 0.006 |
| 29 | 2.42 | 0.13 | 0.041 | (0.405) | 0.036 | 0.006 |
| 30 | 2.50 | 0.13 | 0.041 | (0.404) | 0.036 | 0.006 |
| 31 | 2.58 | 0.17 | 0.052 | (0.402) | 0.045 | 0.007 |
| 32 | 2.67 | 0.17 | 0.052 | (0.400) | 0.045 | 0.007 |
| 33 | 2.75 | 0.17 | 0.052 | (0.399) | 0.045 | 0.007 |
| 34 | 2.83 | 0.17 | 0.052 | (0.397) | 0.045 | 0.007 |
| 35 | 2.92 | 0.17 | 0.052 | (0.395) | 0.045 | 0.007 |
| 36 | 3.00 | 0.17 | 0.052 | (0.394) | 0.045 | 0.007 |
| 37 | 3.08 | 0.17 | 0.052 | (0.392) | 0.045 | 0.007 |
| 38 | 3.17 | 0.17 | 0.052 | (0.390) | 0.045 | 0.007 |
| 39 | 3.25 | 0.17 | 0.052 | (0.389) | 0.045 | 0.007 |
| 40 | 3.33 | 0.17 | 0.052 | (0.387) | 0.045 | 0.007 |
| 41 | 3.42 | 0.17 | 0.052 | (0.386) | 0.045 | 0.007 |
| 42 | 3.50 | 0.17 | 0.052 | (0.384) | 0.045 | 0.007 |
| 43 | 3.58 | 0.17 | 0.052 | (0.382) | 0.045 | 0.007 |
| 44 | 3.67 | 0.17 | 0.052 | (0.381) | 0.045 | 0.007 |
| 45 | 3.75 | 0.17 | 0.052 | (0.379) | 0.045 | 0.007 |
| 46 | 3.83 | 0.20 | 0.062 | (0.378) | 0.053 | 0.009 |
| 47 | 3.92 | 0.20 | 0.062 | (0.376) | 0.053 | 0.009 |
| 48 | 4.00 | 0.20 | 0.062 | (0.374) | 0.053 | 0.009 |
| 49 | 4.08 | 0.20 | 0.062 | (0.373) | 0.053 | 0.009 |
| 50 | 4.17 | 0.20 | 0.062 | (0.371) | 0.053 | 0.009 |
| 51 | 4.25 | 0.20 | 0.062 | (0.370) | 0.053 | 0.009 |
| 52 | 4.33 | 0.23 | 0.072 | (0.368) | 0.062 | 0.010 |
| 53 | 4.42 | 0.23 | 0.072 | (0.367) | 0.062 | 0.010 |
| 54 | 4.50 | 0.23 | 0.072 | (0.365) | 0.062 | 0.010 |
| 55 | 4.58 | 0.23 | 0.072 | (0.363) | 0.062 | 0.010 |
| 56 | 4.67 | 0.23 | 0.072 | (0.362) | 0.062 | 0.010 |
| 57 | 4.75 | 0.23 | 0.072 | (0.360) | 0.062 | 0.010 |
| 58 | 4.83 | 0.27 | 0.083 | (0.359) | 0.071 | 0.012 |
| 59 | 4.92 | 0.27 | 0.083 | (0.357) | 0.071 | 0.012 |
| 60 | 5.00 | 0.27 | 0.083 | (0.356) | 0.071 | 0.012 |
| 61 | 5.08 | 0.20 | 0.062 | (0.354) | 0.053 | 0.009 |
| 62 | 5.17 | 0.20 | 0.062 | (0.353) | 0.053 | 0.009 |
| 63 | 5.25 | 0.20 | 0.062 | (0.351) | 0.053 | 0.009 |
| 64 | 5.33 | 0.23 | 0.072 | (0.349) | 0.062 | 0.010 |
| 65 | 5.42 | 0.23 | 0.072 | (0.348) | 0.062 | 0.010 |
| 66 | 5.50 | 0.23 | 0.072 | (0.346) | 0.062 | 0.010 |
| 67 | 5.58 | 0.27 | 0.083 | (0.345) | 0.071 | 0.012 |
| 68 | 5.67 | 0.27 | 0.083 | (0.343) | 0.071 | 0.012 |
| 69 | 5.75 | 0.27 | 0.083 | (0.342) | 0.071 | 0.012 |
| 70 | 5.83 | 0.27 | 0.083 | (0.340) | 0.071 | 0.012 |
| 71 | 5.92 | 0.27 | 0.083 | (0.339) | 0.071 | 0.012 |
| 72 | 6.00 | 0.27 | 0.083 | (0.337) | 0.071 | 0.012 |
| 73 | 6.08 | 0.30 | 0.093 | (0.336) | 0.080 | 0.013 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 74 | 6.17 | 0.30 | 0.093 | (0.334) | 0.080 | 0.013 |
| 75 | 6.25 | 0.30 | 0.093 | (0.333) | 0.080 | 0.013 |
| 76 | 6.33 | 0.30 | 0.093 | (0.331) | 0.080 | 0.013 |
| 77 | 6.42 | 0.30 | 0.093 | (0.330) | 0.080 | 0.013 |
| 78 | 6.50 | 0.30 | 0.093 | (0.328) | 0.080 | 0.013 |
| 79 | 6.58 | 0.33 | 0.103 | (0.327) | 0.089 | 0.014 |
| 80 | 6.67 | 0.33 | 0.103 | (0.325) | 0.089 | 0.014 |
| 81 | 6.75 | 0.33 | 0.103 | (0.324) | 0.089 | 0.014 |
| 82 | 6.83 | 0.33 | 0.103 | (0.323) | 0.089 | 0.014 |
| 83 | 6.92 | 0.33 | 0.103 | (0.321) | 0.089 | 0.014 |
| 84 | 7.00 | 0.33 | 0.103 | (0.320) | 0.089 | 0.014 |
| 85 | 7.08 | 0.33 | 0.103 | (0.318) | 0.089 | 0.014 |
| 86 | 7.17 | 0.33 | 0.103 | (0.317) | 0.089 | 0.014 |
| 87 | 7.25 | 0.33 | 0.103 | (0.315) | 0.089 | 0.014 |
| 88 | 7.33 | 0.37 | 0.114 | (0.314) | 0.098 | 0.016 |
| 89 | 7.42 | 0.37 | 0.114 | (0.312) | 0.098 | 0.016 |
| 90 | 7.50 | 0.37 | 0.114 | (0.311) | 0.098 | 0.016 |
| 91 | 7.58 | 0.40 | 0.124 | (0.310) | 0.107 | 0.017 |
| 92 | 7.67 | 0.40 | 0.124 | (0.308) | 0.107 | 0.017 |
| 93 | 7.75 | 0.40 | 0.124 | (0.307) | 0.107 | 0.017 |
| 94 | 7.83 | 0.43 | 0.135 | (0.305) | 0.116 | 0.019 |
| 95 | 7.92 | 0.43 | 0.135 | (0.304) | 0.116 | 0.019 |
| 96 | 8.00 | 0.43 | 0.135 | (0.302) | 0.116 | 0.019 |
| 97 | 8.08 | 0.50 | 0.155 | (0.301) | 0.134 | 0.022 |
| 98 | 8.17 | 0.50 | 0.155 | (0.300) | 0.134 | 0.022 |
| 99 | 8.25 | 0.50 | 0.155 | (0.298) | 0.134 | 0.022 |
| 100 | 8.33 | 0.50 | 0.155 | (0.297) | 0.134 | 0.022 |
| 101 | 8.42 | 0.50 | 0.155 | (0.295) | 0.134 | 0.022 |
| 102 | 8.50 | 0.50 | 0.155 | (0.294) | 0.134 | 0.022 |
| 103 | 8.58 | 0.53 | 0.166 | (0.293) | 0.142 | 0.023 |
| 104 | 8.67 | 0.53 | 0.166 | (0.291) | 0.142 | 0.023 |
| 105 | 8.75 | 0.53 | 0.166 | (0.290) | 0.142 | 0.023 |
| 106 | 8.83 | 0.57 | 0.176 | (0.289) | 0.151 | 0.025 |
| 107 | 8.92 | 0.57 | 0.176 | (0.287) | 0.151 | 0.025 |
| 108 | 9.00 | 0.57 | 0.176 | (0.286) | 0.151 | 0.025 |
| 109 | 9.08 | 0.63 | 0.197 | (0.285) | 0.169 | 0.028 |
| 110 | 9.17 | 0.63 | 0.197 | (0.283) | 0.169 | 0.028 |
| 111 | 9.25 | 0.63 | 0.197 | (0.282) | 0.169 | 0.028 |
| 112 | 9.33 | 0.67 | 0.207 | (0.280) | 0.178 | 0.029 |
| 113 | 9.42 | 0.67 | 0.207 | (0.279) | 0.178 | 0.029 |
| 114 | 9.50 | 0.67 | 0.207 | (0.278) | 0.178 | 0.029 |
| 115 | 9.58 | 0.70 | 0.217 | (0.276) | 0.187 | 0.030 |
| 116 | 9.67 | 0.70 | 0.217 | (0.275) | 0.187 | 0.030 |
| 117 | 9.75 | 0.70 | 0.217 | (0.274) | 0.187 | 0.030 |
| 118 | 9.83 | 0.73 | 0.228 | (0.272) | 0.196 | 0.032 |
| 119 | 9.92 | 0.73 | 0.228 | (0.271) | 0.196 | 0.032 |
| 120 | 10.00 | 0.73 | 0.228 | (0.270) | 0.196 | 0.032 |
| 121 | 10.08 | 0.50 | 0.155 | (0.269) | 0.134 | 0.022 |
| 122 | 10.17 | 0.50 | 0.155 | (0.267) | 0.134 | 0.022 |
| 123 | 10.25 | 0.50 | 0.155 | (0.266) | 0.134 | 0.022 |
| 124 | 10.33 | 0.50 | 0.155 | (0.265) | 0.134 | 0.022 |
| 125 | 10.42 | 0.50 | 0.155 | (0.263) | 0.134 | 0.022 |
| 126 | 10.50 | 0.50 | 0.155 | (0.262) | 0.134 | 0.022 |
| 127 | 10.58 | 0.67 | 0.207 | (0.261) | 0.178 | 0.029 |
| 128 | 10.67 | 0.67 | 0.207 | (0.260) | 0.178 | 0.029 |
| 129 | 10.75 | 0.67 | 0.207 | (0.258) | 0.178 | 0.029 |
| 130 | 10.83 | 0.67 | 0.207 | (0.257) | 0.178 | 0.029 |
| 131 | 10.92 | 0.67 | 0.207 | (0.256) | 0.178 | 0.029 |

| | | | | | | |
|-----|-------|------|-------|----------------|-------|-------|
| 132 | 11.00 | 0.67 | 0.207 | (0.254) | 0.178 | 0.029 |
| 133 | 11.08 | 0.63 | 0.197 | (0.253) | 0.169 | 0.028 |
| 134 | 11.17 | 0.63 | 0.197 | (0.252) | 0.169 | 0.028 |
| 135 | 11.25 | 0.63 | 0.197 | (0.251) | 0.169 | 0.028 |
| 136 | 11.33 | 0.63 | 0.197 | (0.250) | 0.169 | 0.028 |
| 137 | 11.42 | 0.63 | 0.197 | (0.248) | 0.169 | 0.028 |
| 138 | 11.50 | 0.63 | 0.197 | (0.247) | 0.169 | 0.028 |
| 139 | 11.58 | 0.57 | 0.176 | (0.246) | 0.151 | 0.025 |
| 140 | 11.67 | 0.57 | 0.176 | (0.245) | 0.151 | 0.025 |
| 141 | 11.75 | 0.57 | 0.176 | (0.243) | 0.151 | 0.025 |
| 142 | 11.83 | 0.60 | 0.186 | (0.242) | 0.160 | 0.026 |
| 143 | 11.92 | 0.60 | 0.186 | (0.241) | 0.160 | 0.026 |
| 144 | 12.00 | 0.60 | 0.186 | (0.240) | 0.160 | 0.026 |
| 145 | 12.08 | 0.83 | 0.259 | (0.239) | 0.223 | 0.036 |
| 146 | 12.17 | 0.83 | 0.259 | (0.237) | 0.223 | 0.036 |
| 147 | 12.25 | 0.83 | 0.259 | (0.236) | 0.223 | 0.036 |
| 148 | 12.33 | 0.87 | 0.269 | (0.235) | 0.231 | 0.038 |
| 149 | 12.42 | 0.87 | 0.269 | (0.234) | 0.231 | 0.038 |
| 150 | 12.50 | 0.87 | 0.269 | (0.233) | 0.231 | 0.038 |
| 151 | 12.58 | 0.93 | 0.290 | 0.231 (0.249) | | 0.058 |
| 152 | 12.67 | 0.93 | 0.290 | 0.230 (0.249) | | 0.059 |
| 153 | 12.75 | 0.93 | 0.290 | 0.229 (0.249) | | 0.061 |
| 154 | 12.83 | 0.97 | 0.300 | 0.228 (0.258) | | 0.072 |
| 155 | 12.92 | 0.97 | 0.300 | 0.227 (0.258) | | 0.073 |
| 156 | 13.00 | 0.97 | 0.300 | 0.226 (0.258) | | 0.074 |
| 157 | 13.08 | 1.13 | 0.352 | 0.225 (0.303) | | 0.127 |
| 158 | 13.17 | 1.13 | 0.352 | 0.223 (0.303) | | 0.128 |
| 159 | 13.25 | 1.13 | 0.352 | 0.222 (0.303) | | 0.130 |
| 160 | 13.33 | 1.13 | 0.352 | 0.221 (0.303) | | 0.131 |
| 161 | 13.42 | 1.13 | 0.352 | 0.220 (0.303) | | 0.132 |
| 162 | 13.50 | 1.13 | 0.352 | 0.219 (0.303) | | 0.133 |
| 163 | 13.58 | 0.77 | 0.238 | (0.218) | 0.205 | 0.033 |
| 164 | 13.67 | 0.77 | 0.238 | (0.217) | 0.205 | 0.033 |
| 165 | 13.75 | 0.77 | 0.238 | (0.216) | 0.205 | 0.033 |
| 166 | 13.83 | 0.77 | 0.238 | (0.214) | 0.205 | 0.033 |
| 167 | 13.92 | 0.77 | 0.238 | (0.213) | 0.205 | 0.033 |
| 168 | 14.00 | 0.77 | 0.238 | (0.212) | 0.205 | 0.033 |
| 169 | 14.08 | 0.90 | 0.279 | 0.211 (0.240) | | 0.068 |
| 170 | 14.17 | 0.90 | 0.279 | 0.210 (0.240) | | 0.069 |
| 171 | 14.25 | 0.90 | 0.279 | 0.209 (0.240) | | 0.070 |
| 172 | 14.33 | 0.87 | 0.269 | 0.208 (0.231) | | 0.061 |
| 173 | 14.42 | 0.87 | 0.269 | 0.207 (0.231) | | 0.062 |
| 174 | 14.50 | 0.87 | 0.269 | 0.206 (0.231) | | 0.063 |
| 175 | 14.58 | 0.87 | 0.269 | 0.205 (0.231) | | 0.064 |
| 176 | 14.67 | 0.87 | 0.269 | 0.204 (0.231) | | 0.065 |
| 177 | 14.75 | 0.87 | 0.269 | 0.203 (0.231) | | 0.066 |
| 178 | 14.83 | 0.83 | 0.259 | 0.202 (0.223) | | 0.057 |
| 179 | 14.92 | 0.83 | 0.259 | 0.201 (0.223) | | 0.058 |
| 180 | 15.00 | 0.83 | 0.259 | 0.200 (0.223) | | 0.059 |
| 181 | 15.08 | 0.80 | 0.248 | 0.199 (0.214) | | 0.050 |
| 182 | 15.17 | 0.80 | 0.248 | 0.198 (0.214) | | 0.051 |
| 183 | 15.25 | 0.80 | 0.248 | 0.197 (0.214) | | 0.052 |
| 184 | 15.33 | 0.77 | 0.238 | 0.196 (0.205) | | 0.042 |
| 185 | 15.42 | 0.77 | 0.238 | 0.195 (0.205) | | 0.043 |
| 186 | 15.50 | 0.77 | 0.238 | 0.194 (0.205) | | 0.044 |
| 187 | 15.58 | 0.63 | 0.197 | (0.193) | 0.169 | 0.028 |
| 188 | 15.67 | 0.63 | 0.197 | (0.192) | 0.169 | 0.028 |
| 189 | 15.75 | 0.63 | 0.197 | (0.191) | 0.169 | 0.028 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 190 | 15.83 | 0.63 | 0.197 | (0.190) | 0.169 | 0.028 |
| 191 | 15.92 | 0.63 | 0.197 | (0.189) | 0.169 | 0.028 |
| 192 | 16.00 | 0.63 | 0.197 | (0.188) | 0.169 | 0.028 |
| 193 | 16.08 | 0.13 | 0.041 | (0.187) | 0.036 | 0.006 |
| 194 | 16.17 | 0.13 | 0.041 | (0.186) | 0.036 | 0.006 |
| 195 | 16.25 | 0.13 | 0.041 | (0.185) | 0.036 | 0.006 |
| 196 | 16.33 | 0.13 | 0.041 | (0.184) | 0.036 | 0.006 |
| 197 | 16.42 | 0.13 | 0.041 | (0.183) | 0.036 | 0.006 |
| 198 | 16.50 | 0.13 | 0.041 | (0.182) | 0.036 | 0.006 |
| 199 | 16.58 | 0.10 | 0.031 | (0.181) | 0.027 | 0.004 |
| 200 | 16.67 | 0.10 | 0.031 | (0.180) | 0.027 | 0.004 |
| 201 | 16.75 | 0.10 | 0.031 | (0.179) | 0.027 | 0.004 |
| 202 | 16.83 | 0.10 | 0.031 | (0.178) | 0.027 | 0.004 |
| 203 | 16.92 | 0.10 | 0.031 | (0.177) | 0.027 | 0.004 |
| 204 | 17.00 | 0.10 | 0.031 | (0.177) | 0.027 | 0.004 |
| 205 | 17.08 | 0.17 | 0.052 | (0.176) | 0.045 | 0.007 |
| 206 | 17.17 | 0.17 | 0.052 | (0.175) | 0.045 | 0.007 |
| 207 | 17.25 | 0.17 | 0.052 | (0.174) | 0.045 | 0.007 |
| 208 | 17.33 | 0.17 | 0.052 | (0.173) | 0.045 | 0.007 |
| 209 | 17.42 | 0.17 | 0.052 | (0.172) | 0.045 | 0.007 |
| 210 | 17.50 | 0.17 | 0.052 | (0.171) | 0.045 | 0.007 |
| 211 | 17.58 | 0.17 | 0.052 | (0.170) | 0.045 | 0.007 |
| 212 | 17.67 | 0.17 | 0.052 | (0.170) | 0.045 | 0.007 |
| 213 | 17.75 | 0.17 | 0.052 | (0.169) | 0.045 | 0.007 |
| 214 | 17.83 | 0.13 | 0.041 | (0.168) | 0.036 | 0.006 |
| 215 | 17.92 | 0.13 | 0.041 | (0.167) | 0.036 | 0.006 |
| 216 | 18.00 | 0.13 | 0.041 | (0.166) | 0.036 | 0.006 |
| 217 | 18.08 | 0.13 | 0.041 | (0.165) | 0.036 | 0.006 |
| 218 | 18.17 | 0.13 | 0.041 | (0.165) | 0.036 | 0.006 |
| 219 | 18.25 | 0.13 | 0.041 | (0.164) | 0.036 | 0.006 |
| 220 | 18.33 | 0.13 | 0.041 | (0.163) | 0.036 | 0.006 |
| 221 | 18.42 | 0.13 | 0.041 | (0.162) | 0.036 | 0.006 |
| 222 | 18.50 | 0.13 | 0.041 | (0.161) | 0.036 | 0.006 |
| 223 | 18.58 | 0.10 | 0.031 | (0.161) | 0.027 | 0.004 |
| 224 | 18.67 | 0.10 | 0.031 | (0.160) | 0.027 | 0.004 |
| 225 | 18.75 | 0.10 | 0.031 | (0.159) | 0.027 | 0.004 |
| 226 | 18.83 | 0.07 | 0.021 | (0.158) | 0.018 | 0.003 |
| 227 | 18.92 | 0.07 | 0.021 | (0.158) | 0.018 | 0.003 |
| 228 | 19.00 | 0.07 | 0.021 | (0.157) | 0.018 | 0.003 |
| 229 | 19.08 | 0.10 | 0.031 | (0.156) | 0.027 | 0.004 |
| 230 | 19.17 | 0.10 | 0.031 | (0.155) | 0.027 | 0.004 |
| 231 | 19.25 | 0.10 | 0.031 | (0.155) | 0.027 | 0.004 |
| 232 | 19.33 | 0.13 | 0.041 | (0.154) | 0.036 | 0.006 |
| 233 | 19.42 | 0.13 | 0.041 | (0.153) | 0.036 | 0.006 |
| 234 | 19.50 | 0.13 | 0.041 | (0.152) | 0.036 | 0.006 |
| 235 | 19.58 | 0.10 | 0.031 | (0.152) | 0.027 | 0.004 |
| 236 | 19.67 | 0.10 | 0.031 | (0.151) | 0.027 | 0.004 |
| 237 | 19.75 | 0.10 | 0.031 | (0.150) | 0.027 | 0.004 |
| 238 | 19.83 | 0.07 | 0.021 | (0.150) | 0.018 | 0.003 |
| 239 | 19.92 | 0.07 | 0.021 | (0.149) | 0.018 | 0.003 |
| 240 | 20.00 | 0.07 | 0.021 | (0.148) | 0.018 | 0.003 |
| 241 | 20.08 | 0.10 | 0.031 | (0.148) | 0.027 | 0.004 |
| 242 | 20.17 | 0.10 | 0.031 | (0.147) | 0.027 | 0.004 |
| 243 | 20.25 | 0.10 | 0.031 | (0.146) | 0.027 | 0.004 |
| 244 | 20.33 | 0.10 | 0.031 | (0.146) | 0.027 | 0.004 |
| 245 | 20.42 | 0.10 | 0.031 | (0.145) | 0.027 | 0.004 |
| 246 | 20.50 | 0.10 | 0.031 | (0.145) | 0.027 | 0.004 |
| 247 | 20.58 | 0.10 | 0.031 | (0.144) | 0.027 | 0.004 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 248 | 20.67 | 0.10 | 0.031 | (0.143) | 0.027 | 0.004 |
| 249 | 20.75 | 0.10 | 0.031 | (0.143) | 0.027 | 0.004 |
| 250 | 20.83 | 0.07 | 0.021 | (0.142) | 0.018 | 0.003 |
| 251 | 20.92 | 0.07 | 0.021 | (0.142) | 0.018 | 0.003 |
| 252 | 21.00 | 0.07 | 0.021 | (0.141) | 0.018 | 0.003 |
| 253 | 21.08 | 0.10 | 0.031 | (0.140) | 0.027 | 0.004 |
| 254 | 21.17 | 0.10 | 0.031 | (0.140) | 0.027 | 0.004 |
| 255 | 21.25 | 0.10 | 0.031 | (0.139) | 0.027 | 0.004 |
| 256 | 21.33 | 0.07 | 0.021 | (0.139) | 0.018 | 0.003 |
| 257 | 21.42 | 0.07 | 0.021 | (0.138) | 0.018 | 0.003 |
| 258 | 21.50 | 0.07 | 0.021 | (0.138) | 0.018 | 0.003 |
| 259 | 21.58 | 0.10 | 0.031 | (0.137) | 0.027 | 0.004 |
| 260 | 21.67 | 0.10 | 0.031 | (0.137) | 0.027 | 0.004 |
| 261 | 21.75 | 0.10 | 0.031 | (0.136) | 0.027 | 0.004 |
| 262 | 21.83 | 0.07 | 0.021 | (0.136) | 0.018 | 0.003 |
| 263 | 21.92 | 0.07 | 0.021 | (0.135) | 0.018 | 0.003 |
| 264 | 22.00 | 0.07 | 0.021 | (0.135) | 0.018 | 0.003 |
| 265 | 22.08 | 0.10 | 0.031 | (0.134) | 0.027 | 0.004 |
| 266 | 22.17 | 0.10 | 0.031 | (0.134) | 0.027 | 0.004 |
| 267 | 22.25 | 0.10 | 0.031 | (0.134) | 0.027 | 0.004 |
| 268 | 22.33 | 0.07 | 0.021 | (0.133) | 0.018 | 0.003 |
| 269 | 22.42 | 0.07 | 0.021 | (0.133) | 0.018 | 0.003 |
| 270 | 22.50 | 0.07 | 0.021 | (0.132) | 0.018 | 0.003 |
| 271 | 22.58 | 0.07 | 0.021 | (0.132) | 0.018 | 0.003 |
| 272 | 22.67 | 0.07 | 0.021 | (0.132) | 0.018 | 0.003 |
| 273 | 22.75 | 0.07 | 0.021 | (0.131) | 0.018 | 0.003 |
| 274 | 22.83 | 0.07 | 0.021 | (0.131) | 0.018 | 0.003 |
| 275 | 22.92 | 0.07 | 0.021 | (0.131) | 0.018 | 0.003 |
| 276 | 23.00 | 0.07 | 0.021 | (0.130) | 0.018 | 0.003 |
| 277 | 23.08 | 0.07 | 0.021 | (0.130) | 0.018 | 0.003 |
| 278 | 23.17 | 0.07 | 0.021 | (0.130) | 0.018 | 0.003 |
| 279 | 23.25 | 0.07 | 0.021 | (0.129) | 0.018 | 0.003 |
| 280 | 23.33 | 0.07 | 0.021 | (0.129) | 0.018 | 0.003 |
| 281 | 23.42 | 0.07 | 0.021 | (0.129) | 0.018 | 0.003 |
| 282 | 23.50 | 0.07 | 0.021 | (0.129) | 0.018 | 0.003 |
| 283 | 23.58 | 0.07 | 0.021 | (0.128) | 0.018 | 0.003 |
| 284 | 23.67 | 0.07 | 0.021 | (0.128) | 0.018 | 0.003 |
| 285 | 23.75 | 0.07 | 0.021 | (0.128) | 0.018 | 0.003 |
| 286 | 23.83 | 0.07 | 0.021 | (0.128) | 0.018 | 0.003 |
| 287 | 23.92 | 0.07 | 0.021 | (0.128) | 0.018 | 0.003 |
| 288 | 24.00 | 0.07 | 0.021 | (0.128) | 0.018 | 0.003 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 5.4

Flood volume = Effective rainfall 0.45(In)
times area 20.4(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft)
Total soil loss = 2.14(In)
Total soil loss = 3.637(Ac.Ft)
Total rainfall = 2.59(In)
Flood volume = 33162.5 Cubic Feet
Total soil loss = 158430.5 Cubic Feet

Peak flow rate of this hydrograph = 2.716(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

| Time(h+m) | Volume | Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|-----------|--------|-------|--------|-----|-----|-----|-----|------|
| 0+ 5 | 0.0002 | | 0.02 | Q | | | | |
| 0+10 | 0.0005 | | 0.05 | Q | | | | |
| 0+15 | 0.0009 | | 0.06 | Q | | | | |
| 0+20 | 0.0014 | | 0.07 | Q | | | | |
| 0+25 | 0.0020 | | 0.08 | Q | | | | |
| 0+30 | 0.0026 | | 0.09 | Q | | | | |
| 0+35 | 0.0032 | | 0.09 | Q | | | | |
| 0+40 | 0.0038 | | 0.09 | Q | | | | |
| 0+45 | 0.0044 | | 0.09 | Q | | | | |
| 0+50 | 0.0051 | | 0.10 | Q | | | | |
| 0+55 | 0.0059 | | 0.11 | Q | | | | |
| 1+ 0 | 0.0067 | | 0.12 | Q | | | | |
| 1+ 5 | 0.0074 | | 0.11 | Q | | | | |
| 1+10 | 0.0081 | | 0.09 | Q | | | | |
| 1+15 | 0.0087 | | 0.09 | Q | | | | |
| 1+20 | 0.0093 | | 0.09 | Q | | | | |
| 1+25 | 0.0100 | | 0.09 | Q | | | | |
| 1+30 | 0.0106 | | 0.09 | Q | | | | |
| 1+35 | 0.0112 | | 0.09 | Q | | | | |
| 1+40 | 0.0118 | | 0.09 | Q | | | | |
| 1+45 | 0.0124 | | 0.09 | Q | | | | |
| 1+50 | 0.0131 | | 0.10 | Q | | | | |
| 1+55 | 0.0139 | | 0.11 | Q | | | | |
| 2+ 0 | 0.0147 | | 0.12 | Q | | | | |
| 2+ 5 | 0.0155 | | 0.12 | Q | | | | |
| 2+10 | 0.0163 | | 0.12 | Q | | | | |
| 2+15 | 0.0172 | | 0.12 | Q | | | | |
| 2+20 | 0.0180 | | 0.12 | Q | | | | |
| 2+25 | 0.0188 | | 0.12 | Q | | | | |
| 2+30 | 0.0196 | | 0.12 | QV | | | | |
| 2+35 | 0.0205 | | 0.13 | QV | | | | |
| 2+40 | 0.0215 | | 0.14 | QV | | | | |
| 2+45 | 0.0225 | | 0.15 | QV | | | | |
| 2+50 | 0.0236 | | 0.15 | QV | | | | |
| 2+55 | 0.0246 | | 0.15 | QV | | | | |
| 3+ 0 | 0.0256 | | 0.15 | QV | | | | |
| 3+ 5 | 0.0266 | | 0.15 | QV | | | | |
| 3+10 | 0.0277 | | 0.15 | QV | | | | |
| 3+15 | 0.0287 | | 0.15 | QV | | | | |
| 3+20 | 0.0297 | | 0.15 | QV | | | | |
| 3+25 | 0.0307 | | 0.15 | QV | | | | |
| 3+30 | 0.0318 | | 0.15 | QV | | | | |
| 3+35 | 0.0328 | | 0.15 | QV | | | | |
| 3+40 | 0.0338 | | 0.15 | QV | | | | |
| 3+45 | 0.0349 | | 0.15 | QV | | | | |
| 3+50 | 0.0360 | | 0.16 | QV | | | | |
| 3+55 | 0.0372 | | 0.17 | QV | | | | |
| 4+ 0 | 0.0384 | | 0.18 | Q V | | | | |
| 4+ 5 | 0.0396 | | 0.18 | Q V | | | | |
| 4+10 | 0.0408 | | 0.18 | Q V | | | | |
| 4+15 | 0.0421 | | 0.18 | Q V | | | | |
| 4+20 | 0.0434 | | 0.19 | Q V | | | | |
| 4+25 | 0.0448 | | 0.20 | Q V | | | | |
| 4+30 | 0.0462 | | 0.21 | Q V | | | | |

| | | | |
|------|--------|------|-----|
| 4+35 | 0.0476 | 0.21 | Q V |
| 4+40 | 0.0491 | 0.21 | Q V |
| 4+45 | 0.0505 | 0.21 | Q V |
| 4+50 | 0.0520 | 0.22 | Q V |
| 4+55 | 0.0536 | 0.23 | Q V |
| 5+ 0 | 0.0553 | 0.24 | Q V |
| 5+ 5 | 0.0568 | 0.21 | Q V |
| 5+10 | 0.0580 | 0.19 | Q V |
| 5+15 | 0.0593 | 0.18 | Q V |
| 5+20 | 0.0606 | 0.19 | Q V |
| 5+25 | 0.0620 | 0.20 | Q V |
| 5+30 | 0.0635 | 0.21 | Q V |
| 5+35 | 0.0650 | 0.22 | Q V |
| 5+40 | 0.0666 | 0.23 | Q V |
| 5+45 | 0.0682 | 0.24 | Q V |
| 5+50 | 0.0698 | 0.24 | Q V |
| 5+55 | 0.0715 | 0.24 | Q V |
| 6+ 0 | 0.0731 | 0.24 | Q V |
| 6+ 5 | 0.0749 | 0.25 | Q V |
| 6+10 | 0.0767 | 0.26 | Q V |
| 6+15 | 0.0785 | 0.27 | Q V |
| 6+20 | 0.0803 | 0.27 | Q V |
| 6+25 | 0.0822 | 0.27 | Q V |
| 6+30 | 0.0840 | 0.27 | Q V |
| 6+35 | 0.0860 | 0.28 | Q V |
| 6+40 | 0.0880 | 0.29 | Q V |
| 6+45 | 0.0900 | 0.30 | Q V |
| 6+50 | 0.0921 | 0.30 | Q V |
| 6+55 | 0.0941 | 0.30 | Q V |
| 7+ 0 | 0.0962 | 0.30 | Q V |
| 7+ 5 | 0.0982 | 0.30 | Q V |
| 7+10 | 0.1003 | 0.30 | Q V |
| 7+15 | 0.1023 | 0.30 | Q V |
| 7+20 | 0.1045 | 0.31 | Q V |
| 7+25 | 0.1067 | 0.32 | Q V |
| 7+30 | 0.1089 | 0.33 | Q V |
| 7+35 | 0.1113 | 0.34 | Q V |
| 7+40 | 0.1137 | 0.35 | Q V |
| 7+45 | 0.1162 | 0.36 | Q V |
| 7+50 | 0.1187 | 0.37 | Q V |
| 7+55 | 0.1213 | 0.38 | Q V |
| 8+ 0 | 0.1240 | 0.39 | Q V |
| 8+ 5 | 0.1268 | 0.41 | Q V |
| 8+10 | 0.1298 | 0.44 | Q V |
| 8+15 | 0.1329 | 0.44 | Q V |
| 8+20 | 0.1360 | 0.45 | Q V |
| 8+25 | 0.1390 | 0.45 | Q V |
| 8+30 | 0.1421 | 0.45 | Q V |
| 8+35 | 0.1453 | 0.46 | Q V |
| 8+40 | 0.1485 | 0.47 | Q V |
| 8+45 | 0.1518 | 0.48 | Q V |
| 8+50 | 0.1552 | 0.49 | Q V |
| 8+55 | 0.1586 | 0.50 | Q V |
| 9+ 0 | 0.1621 | 0.50 | Q V |
| 9+ 5 | 0.1658 | 0.53 | Q V |
| 9+10 | 0.1696 | 0.56 | Q V |
| 9+15 | 0.1735 | 0.56 | Q V |
| 9+20 | 0.1774 | 0.58 | Q V |

| | | | | | | | | | |
|-------|--------|------|---|---|--|--|--|--|--|
| 9+25 | 0.1815 | 0.59 | Q | V | | | | | |
| 9+30 | 0.1856 | 0.59 | Q | V | | | | | |
| 9+35 | 0.1898 | 0.61 | Q | V | | | | | |
| 9+40 | 0.1941 | 0.62 | Q | V | | | | | |
| 9+45 | 0.1984 | 0.62 | Q | V | | | | | |
| 9+50 | 0.2027 | 0.64 | Q | V | | | | | |
| 9+55 | 0.2072 | 0.65 | Q | V | | | | | |
| 10+ 0 | 0.2117 | 0.65 | Q | V | | | | | |
| 10+ 5 | 0.2157 | 0.57 | Q | V | | | | | |
| 10+10 | 0.2190 | 0.48 | Q | V | | | | | |
| 10+15 | 0.2221 | 0.46 | Q | V | | | | | |
| 10+20 | 0.2253 | 0.45 | Q | V | | | | | |
| 10+25 | 0.2283 | 0.45 | Q | V | | | | | |
| 10+30 | 0.2314 | 0.45 | Q | V | | | | | |
| 10+35 | 0.2349 | 0.51 | Q | V | | | | | |
| 10+40 | 0.2388 | 0.57 | Q | V | | | | | |
| 10+45 | 0.2429 | 0.59 | Q | V | | | | | |
| 10+50 | 0.2470 | 0.59 | Q | V | | | | | |
| 10+55 | 0.2511 | 0.60 | Q | V | | | | | |
| 11+ 0 | 0.2552 | 0.60 | Q | V | | | | | |
| 11+ 5 | 0.2592 | 0.58 | Q | V | | | | | |
| 11+10 | 0.2631 | 0.57 | Q | V | | | | | |
| 11+15 | 0.2670 | 0.57 | Q | V | | | | | |
| 11+20 | 0.2710 | 0.57 | Q | V | | | | | |
| 11+25 | 0.2749 | 0.57 | Q | V | | | | | |
| 11+30 | 0.2788 | 0.57 | Q | V | | | | | |
| 11+35 | 0.2825 | 0.54 | Q | V | | | | | |
| 11+40 | 0.2860 | 0.52 | Q | V | | | | | |
| 11+45 | 0.2896 | 0.51 | Q | V | | | | | |
| 11+50 | 0.2931 | 0.52 | Q | V | | | | | |
| 11+55 | 0.2968 | 0.53 | Q | V | | | | | |
| 12+ 0 | 0.3005 | 0.53 | Q | V | | | | | |
| 12+ 5 | 0.3047 | 0.62 | Q | V | | | | | |
| 12+10 | 0.3096 | 0.71 | Q | V | | | | | |
| 12+15 | 0.3147 | 0.73 | Q | V | | | | | |
| 12+20 | 0.3199 | 0.75 | Q | V | | | | | |
| 12+25 | 0.3252 | 0.77 | Q | V | | | | | |
| 12+30 | 0.3305 | 0.77 | Q | V | | | | | |
| 12+35 | 0.3370 | 0.94 | Q | V | | | | | |
| 12+40 | 0.3449 | 1.14 | Q | V | | | | | |
| 12+45 | 0.3532 | 1.20 | Q | V | | | | | |
| 12+50 | 0.3623 | 1.33 | Q | V | | | | | |
| 12+55 | 0.3723 | 1.45 | Q | V | | | | | |
| 13+ 0 | 0.3826 | 1.50 | Q | V | | | | | |
| 13+ 5 | 0.3961 | 1.95 | Q | V | | | | | |
| 13+10 | 0.4130 | 2.46 | Q | V | | | | | |
| 13+15 | 0.4308 | 2.58 | Q | V | | | | | |
| 13+20 | 0.4490 | 2.65 | Q | V | | | | | |
| 13+25 | 0.4676 | 2.69 | Q | V | | | | | |
| 13+30 | 0.4863 | 2.72 | Q | V | | | | | |
| 13+35 | 0.4995 | 1.92 | Q | V | | | | | |
| 13+40 | 0.5064 | 1.00 | Q | V | | | | | |
| 13+45 | 0.5120 | 0.81 | Q | V | | | | | |
| 13+50 | 0.5170 | 0.72 | Q | V | | | | | |
| 13+55 | 0.5217 | 0.69 | Q | V | | | | | |
| 14+ 0 | 0.5264 | 0.69 | Q | V | | | | | |
| 14+ 5 | 0.5331 | 0.97 | Q | V | | | | | |
| 14+10 | 0.5420 | 1.30 | Q | V | | | | | |

| | | | | |
|-------|--------|------|---|---|
| 14+15 | 0.5516 | 1.39 | Q | V |
| 14+20 | 0.5609 | 1.35 | Q | V |
| 14+25 | 0.5698 | 1.29 | Q | V |
| 14+30 | 0.5788 | 1.29 | Q | V |
| 14+35 | 0.5878 | 1.31 | Q | V |
| 14+40 | 0.5969 | 1.33 | Q | V |
| 14+45 | 0.6062 | 1.35 | Q | V |
| 14+50 | 0.6150 | 1.28 | Q | V |
| 14+55 | 0.6234 | 1.21 | Q | V |
| 15+ 0 | 0.6317 | 1.21 | Q | V |
| 15+ 5 | 0.6395 | 1.14 | Q | V |
| 15+10 | 0.6469 | 1.06 | Q | V |
| 15+15 | 0.6542 | 1.06 | Q | V |
| 15+20 | 0.6610 | 0.99 | Q | V |
| 15+25 | 0.6673 | 0.91 | Q | V |
| 15+30 | 0.6735 | 0.91 | Q | V |
| 15+35 | 0.6789 | 0.78 | Q | V |
| 15+40 | 0.6831 | 0.62 | Q | V |
| 15+45 | 0.6872 | 0.59 | Q | V |
| 15+50 | 0.6911 | 0.57 | Q | V |
| 15+55 | 0.6950 | 0.57 | Q | V |
| 16+ 0 | 0.6989 | 0.57 | Q | V |
| 16+ 5 | 0.7016 | 0.39 | Q | V |
| 16+10 | 0.7029 | 0.19 | Q | V |
| 16+15 | 0.7039 | 0.15 | Q | V |
| 16+20 | 0.7048 | 0.13 | Q | V |
| 16+25 | 0.7056 | 0.12 | Q | V |
| 16+30 | 0.7064 | 0.12 | Q | V |
| 16+35 | 0.7072 | 0.11 | Q | V |
| 16+40 | 0.7078 | 0.09 | Q | V |
| 16+45 | 0.7084 | 0.09 | Q | V |
| 16+50 | 0.7091 | 0.09 | Q | V |
| 16+55 | 0.7097 | 0.09 | Q | V |
| 17+ 0 | 0.7103 | 0.09 | Q | V |
| 17+ 5 | 0.7111 | 0.11 | Q | V |
| 17+10 | 0.7120 | 0.14 | Q | V |
| 17+15 | 0.7130 | 0.15 | Q | V |
| 17+20 | 0.7141 | 0.15 | Q | V |
| 17+25 | 0.7151 | 0.15 | Q | V |
| 17+30 | 0.7161 | 0.15 | Q | V |
| 17+35 | 0.7171 | 0.15 | Q | V |
| 17+40 | 0.7182 | 0.15 | Q | V |
| 17+45 | 0.7192 | 0.15 | Q | V |
| 17+50 | 0.7201 | 0.14 | Q | V |
| 17+55 | 0.7210 | 0.12 | Q | V |
| 18+ 0 | 0.7218 | 0.12 | Q | V |
| 18+ 5 | 0.7226 | 0.12 | Q | V |
| 18+10 | 0.7235 | 0.12 | Q | V |
| 18+15 | 0.7243 | 0.12 | Q | V |
| 18+20 | 0.7251 | 0.12 | Q | V |
| 18+25 | 0.7259 | 0.12 | Q | V |
| 18+30 | 0.7267 | 0.12 | Q | V |
| 18+35 | 0.7275 | 0.11 | Q | V |
| 18+40 | 0.7281 | 0.09 | Q | V |
| 18+45 | 0.7288 | 0.09 | Q | V |
| 18+50 | 0.7293 | 0.08 | Q | V |
| 18+55 | 0.7297 | 0.06 | Q | V |
| 19+ 0 | 0.7302 | 0.06 | Q | V |

| | | | | |
|-------|--------|------|---|---|
| 19+ 5 | 0.7307 | 0.07 | Q | V |
| 19+10 | 0.7312 | 0.08 | Q | V |
| 19+15 | 0.7319 | 0.09 | Q | V |
| 19+20 | 0.7325 | 0.10 | Q | V |
| 19+25 | 0.7333 | 0.11 | Q | V |
| 19+30 | 0.7341 | 0.12 | Q | V |
| 19+35 | 0.7349 | 0.11 | Q | V |
| 19+40 | 0.7355 | 0.09 | Q | V |
| 19+45 | 0.7362 | 0.09 | Q | V |
| 19+50 | 0.7367 | 0.08 | Q | V |
| 19+55 | 0.7371 | 0.06 | Q | V |
| 20+ 0 | 0.7376 | 0.06 | Q | V |
| 20+ 5 | 0.7381 | 0.07 | Q | V |
| 20+10 | 0.7386 | 0.08 | Q | V |
| 20+15 | 0.7392 | 0.09 | Q | V |
| 20+20 | 0.7399 | 0.09 | Q | V |
| 20+25 | 0.7405 | 0.09 | Q | V |
| 20+30 | 0.7411 | 0.09 | Q | V |
| 20+35 | 0.7417 | 0.09 | Q | V |
| 20+40 | 0.7423 | 0.09 | Q | V |
| 20+45 | 0.7429 | 0.09 | Q | V |
| 20+50 | 0.7435 | 0.08 | Q | V |
| 20+55 | 0.7439 | 0.06 | Q | V |
| 21+ 0 | 0.7443 | 0.06 | Q | V |
| 21+ 5 | 0.7448 | 0.07 | Q | V |
| 21+10 | 0.7454 | 0.08 | Q | V |
| 21+15 | 0.7460 | 0.09 | Q | V |
| 21+20 | 0.7465 | 0.08 | Q | V |
| 21+25 | 0.7470 | 0.06 | Q | V |
| 21+30 | 0.7474 | 0.06 | Q | V |
| 21+35 | 0.7479 | 0.07 | Q | V |
| 21+40 | 0.7485 | 0.08 | Q | V |
| 21+45 | 0.7491 | 0.09 | Q | V |
| 21+50 | 0.7496 | 0.08 | Q | V |
| 21+55 | 0.7501 | 0.06 | Q | V |
| 22+ 0 | 0.7505 | 0.06 | Q | V |
| 22+ 5 | 0.7510 | 0.07 | Q | V |
| 22+10 | 0.7516 | 0.08 | Q | V |
| 22+15 | 0.7522 | 0.09 | Q | V |
| 22+20 | 0.7527 | 0.08 | Q | V |
| 22+25 | 0.7531 | 0.06 | Q | V |
| 22+30 | 0.7536 | 0.06 | Q | V |
| 22+35 | 0.7540 | 0.06 | Q | V |
| 22+40 | 0.7544 | 0.06 | Q | V |
| 22+45 | 0.7548 | 0.06 | Q | V |
| 22+50 | 0.7552 | 0.06 | Q | V |
| 22+55 | 0.7556 | 0.06 | Q | V |
| 23+ 0 | 0.7560 | 0.06 | Q | V |
| 23+ 5 | 0.7564 | 0.06 | Q | V |
| 23+10 | 0.7569 | 0.06 | Q | V |
| 23+15 | 0.7573 | 0.06 | Q | V |
| 23+20 | 0.7577 | 0.06 | Q | V |
| 23+25 | 0.7581 | 0.06 | Q | V |
| 23+30 | 0.7585 | 0.06 | Q | V |
| 23+35 | 0.7589 | 0.06 | Q | V |
| 23+40 | 0.7593 | 0.06 | Q | V |
| 23+45 | 0.7597 | 0.06 | Q | V |
| 23+50 | 0.7601 | 0.06 | Q | V |

| | | | | | | | |
|-------|--------|------|---|--|--|--|---|
| 23+55 | 0.7606 | 0.06 | Q | | | | V |
| 24+ 0 | 0.7610 | 0.06 | Q | | | | V |
| 24+ 5 | 0.7612 | 0.04 | Q | | | | V |
| 24+10 | 0.7613 | 0.01 | Q | | | | V |
| 24+15 | 0.7613 | 0.00 | Q | | | | V |
| 24+20 | 0.7613 | 0.00 | Q | | | | V |

100YR, 1HR POST-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPOSTB1100.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.023 Hr.
Lag time = 1.40 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 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]
20.40 0.47 9.59

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.20 24.48

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.470(In)
Area Averaged 100-Year Rainfall = 1.200(In)

times area 20.4(Ac.)/[(In)/(Ft.)] = 1.8(Ac.Ft)
 Total soil loss = 0.17(In)
 Total soil loss = 0.282(Ac.Ft)
 Total rainfall = 1.20(In)
 Flood volume = 76552.6 Cubic Feet
 Total soil loss = 12293.4 Cubic Feet

 Peak flow rate of this hydrograph = 63.409(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 | 17.5 | 35.0 | 52.5 | 70.0 |
|-----------|--------------|--------|---|------|------|------|------|
| 0+ 5 | 0.0385 | 5.59 | V | Q | | | |
| 0+10 | 0.0995 | 8.85 | V | Q | | | |
| 0+15 | 0.1724 | 10.59 | V | Q | | | |
| 0+20 | 0.2503 | 11.31 | V | Q | | | |
| 0+25 | 0.3389 | 12.86 | | Q | | | |
| 0+30 | 0.4419 | 14.95 | | Q | V | | |
| 0+35 | 0.5618 | 17.41 | | Q | V | | |
| 0+40 | 0.7036 | 20.60 | | Q | V | | |
| 0+45 | 0.9013 | 28.70 | | | Q | V | |
| 0+50 | 1.3380 | 63.41 | | | | V | Q |
| 0+55 | 1.6128 | 39.90 | | | Q | | V |
| 1+ 0 | 1.7230 | 16.01 | | Q | | | V |
| 1+ 5 | 1.7543 | 4.54 | Q | | | | V |
| 1+10 | 1.7574 | 0.45 | Q | | | | V |

100YR, 3HR POST-DEVELOPED

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPOSTB3100.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.023 Hr.
Lag time = 1.40 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 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] |
|--------------|-----------------|----------------|
| 20.40 | 0.80 | 16.32 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 1.86 | 37.94 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.860(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.860(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 56.0 | 0.511 | 0.750 | 0.166 | 1.000 | 0.166 |
| | | | | | | Sum (F) = 0.166 |

Area averaged mean soil loss (F) (In/Hr) = 0.166
 Minimum soil loss rate ((In/Hr)) = 0.083
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 358.046 | 61.957 |
| 2 | 0.167 | 716.092 | 34.126 |
| 3 | 0.250 | 1074.138 | 3.916 |
| Sum = 100.000 | | | Sum= 20.559 |

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 | (0.166) 0.087 | 0.203 |
| 2 | 0.17 | 1.30 | (0.166) 0.087 | 0.203 |
| 3 | 0.25 | 1.10 | (0.166) 0.074 | 0.172 |
| 4 | 0.33 | 1.50 | (0.166) 0.100 | 0.234 |
| 5 | 0.42 | 1.50 | (0.166) 0.100 | 0.234 |
| 6 | 0.50 | 1.80 | (0.166) 0.121 | 0.281 |
| 7 | 0.58 | 1.50 | (0.166) 0.100 | 0.234 |
| 8 | 0.67 | 1.80 | (0.166) 0.121 | 0.281 |
| 9 | 0.75 | 1.80 | (0.166) 0.121 | 0.281 |
| 10 | 0.83 | 1.50 | (0.166) 0.100 | 0.234 |
| 11 | 0.92 | 1.60 | (0.166) 0.107 | 0.250 |
| 12 | 1.00 | 1.80 | (0.166) 0.121 | 0.281 |
| 13 | 1.08 | 2.20 | (0.166) 0.147 | 0.344 |
| 14 | 1.17 | 2.20 | (0.166) 0.147 | 0.344 |
| 15 | 1.25 | 2.20 | (0.166) 0.147 | 0.344 |
| 16 | 1.33 | 2.00 | (0.166) 0.134 | 0.312 |
| 17 | 1.42 | 2.60 | 0.166 (0.174) | 0.414 |

100YR, 6HR POST-DEVELOPED

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPOSTB6100.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.023 Hr.
Lag time = 1.40 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 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] |
|--------------|-----------------|----------------|
| 20.40 | 1.00 | 20.40 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 2.50 | 51.00 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 2.500(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 2.500(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 56.0 | 0.511 | 0.750 | 0.166 | 1.000 | 0.166 |
| | | | | | | Sum (F) = 0.166 |

Area averaged mean soil loss (F) (In/Hr) = 0.166
 Minimum soil loss rate ((In/Hr)) = 0.083
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 358.046 | 61.957 |
| 2 | 0.167 | 716.092 | 34.126 |
| 3 | 0.250 | 1074.138 | 3.916 |
| Sum = 100.000 | | | Sum= 20.559 |

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 | 0.150 | (0.166) 0.045 | 0.105 |
| 2 | 0.17 | 0.180 | (0.166) 0.054 | 0.126 |
| 3 | 0.25 | 0.180 | (0.166) 0.054 | 0.126 |
| 4 | 0.33 | 0.180 | (0.166) 0.054 | 0.126 |
| 5 | 0.42 | 0.180 | (0.166) 0.054 | 0.126 |
| 6 | 0.50 | 0.210 | (0.166) 0.063 | 0.147 |
| 7 | 0.58 | 0.210 | (0.166) 0.063 | 0.147 |
| 8 | 0.67 | 0.210 | (0.166) 0.063 | 0.147 |
| 9 | 0.75 | 0.210 | (0.166) 0.063 | 0.147 |
| 10 | 0.83 | 0.210 | (0.166) 0.063 | 0.147 |
| 11 | 0.92 | 0.210 | (0.166) 0.063 | 0.147 |
| 12 | 1.00 | 0.240 | (0.166) 0.072 | 0.168 |
| 13 | 1.08 | 0.240 | (0.166) 0.072 | 0.168 |
| 14 | 1.17 | 0.240 | (0.166) 0.072 | 0.168 |
| 15 | 1.25 | 0.240 | (0.166) 0.072 | 0.168 |
| 16 | 1.33 | 0.240 | (0.166) 0.072 | 0.168 |
| 17 | 1.42 | 0.240 | (0.166) 0.072 | 0.168 |

| | | | | | | |
|----|------|------|-------|----------|----------|-------|
| 18 | 1.50 | 0.80 | 0.240 | (0.166) | 0.072 | 0.168 |
| 19 | 1.58 | 0.80 | 0.240 | (0.166) | 0.072 | 0.168 |
| 20 | 1.67 | 0.80 | 0.240 | (0.166) | 0.072 | 0.168 |
| 21 | 1.75 | 0.80 | 0.240 | (0.166) | 0.072 | 0.168 |
| 22 | 1.83 | 0.80 | 0.240 | (0.166) | 0.072 | 0.168 |
| 23 | 1.92 | 0.80 | 0.240 | (0.166) | 0.072 | 0.168 |
| 24 | 2.00 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 25 | 2.08 | 0.80 | 0.240 | (0.166) | 0.072 | 0.168 |
| 26 | 2.17 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 27 | 2.25 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 28 | 2.33 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 29 | 2.42 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 30 | 2.50 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 31 | 2.58 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 32 | 2.67 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 33 | 2.75 | 1.00 | 0.300 | (0.166) | 0.090 | 0.210 |
| 34 | 2.83 | 1.00 | 0.300 | (0.166) | 0.090 | 0.210 |
| 35 | 2.92 | 1.00 | 0.300 | (0.166) | 0.090 | 0.210 |
| 36 | 3.00 | 1.00 | 0.300 | (0.166) | 0.090 | 0.210 |
| 37 | 3.08 | 1.00 | 0.300 | (0.166) | 0.090 | 0.210 |
| 38 | 3.17 | 1.10 | 0.330 | (0.166) | 0.099 | 0.231 |
| 39 | 3.25 | 1.10 | 0.330 | (0.166) | 0.099 | 0.231 |
| 40 | 3.33 | 1.10 | 0.330 | (0.166) | 0.099 | 0.231 |
| 41 | 3.42 | 1.20 | 0.360 | (0.166) | 0.108 | 0.252 |
| 42 | 3.50 | 1.30 | 0.390 | (0.166) | 0.117 | 0.273 |
| 43 | 3.58 | 1.40 | 0.420 | (0.166) | 0.126 | 0.294 |
| 44 | 3.67 | 1.40 | 0.420 | (0.166) | 0.126 | 0.294 |
| 45 | 3.75 | 1.50 | 0.450 | (0.166) | 0.135 | 0.315 |
| 46 | 3.83 | 1.50 | 0.450 | (0.166) | 0.135 | 0.315 |
| 47 | 3.92 | 1.60 | 0.480 | (0.166) | 0.144 | 0.336 |
| 48 | 4.00 | 1.60 | 0.480 | (0.166) | 0.144 | 0.336 |
| 49 | 4.08 | 1.70 | 0.510 | (0.166) | 0.153 | 0.357 |
| 50 | 4.17 | 1.80 | 0.540 | (0.166) | 0.162 | 0.378 |
| 51 | 4.25 | 1.90 | 0.570 | 0.166 | (0.171) | 0.404 |
| 52 | 4.33 | 2.00 | 0.600 | 0.166 | (0.180) | 0.434 |
| 53 | 4.42 | 2.10 | 0.630 | 0.166 | (0.189) | 0.464 |
| 54 | 4.50 | 2.10 | 0.630 | 0.166 | (0.189) | 0.464 |
| 55 | 4.58 | 2.20 | 0.660 | 0.166 | (0.198) | 0.494 |
| 56 | 4.67 | 2.30 | 0.690 | 0.166 | (0.207) | 0.524 |
| 57 | 4.75 | 2.40 | 0.720 | 0.166 | (0.216) | 0.554 |
| 58 | 4.83 | 2.40 | 0.720 | 0.166 | (0.216) | 0.554 |
| 59 | 4.92 | 2.50 | 0.750 | 0.166 | (0.225) | 0.584 |
| 60 | 5.00 | 2.60 | 0.780 | 0.166 | (0.234) | 0.614 |
| 61 | 5.08 | 3.10 | 0.930 | 0.166 | (0.279) | 0.764 |
| 62 | 5.17 | 3.60 | 1.080 | 0.166 | (0.324) | 0.914 |
| 63 | 5.25 | 3.90 | 1.170 | 0.166 | (0.351) | 1.004 |
| 64 | 5.33 | 4.20 | 1.260 | 0.166 | (0.378) | 1.094 |
| 65 | 5.42 | 4.70 | 1.410 | 0.166 | (0.423) | 1.244 |
| 66 | 5.50 | 5.60 | 1.680 | 0.166 | (0.504) | 1.514 |
| 67 | 5.58 | 1.90 | 0.570 | 0.166 | (0.171) | 0.404 |
| 68 | 5.67 | 0.90 | 0.270 | (0.166) | 0.081 | 0.189 |
| 69 | 5.75 | 0.60 | 0.180 | (0.166) | 0.054 | 0.126 |
| 70 | 5.83 | 0.50 | 0.150 | (0.166) | 0.045 | 0.105 |
| 71 | 5.92 | 0.30 | 0.090 | (0.166) | 0.027 | 0.063 |
| 72 | 6.00 | 0.20 | 0.060 | (0.166) | 0.018 | 0.042 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 22.6

Flood volume = Effective rainfall 1.89(In)

times area 20.4(Ac.)/[(In)/(Ft.)] = 3.2(Ac.Ft)
 Total soil loss = 0.61(In)
 Total soil loss = 1.044(Ac.Ft)
 Total rainfall = 2.50(In)
 Flood volume = 139656.2 Cubic Feet
 Total soil loss = 45460.8 Cubic Feet

 Peak flow rate of this hydrograph = 28.907(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 | 7.5 | 15.0 | 22.5 | 30.0 |
|-----------|--------------|--------|-----|-----|------|------|------|
| 0+ 5 | 0.0092 | 1.34 | VQ | | | | |
| 0+10 | 0.0254 | 2.34 | V Q | | | | |
| 0+15 | 0.0431 | 2.57 | V Q | | | | |
| 0+20 | 0.0609 | 2.59 | V Q | | | | |
| 0+25 | 0.0788 | 2.59 | V Q | | | | |
| 0+30 | 0.0985 | 2.86 | V Q | | | | |
| 0+35 | 0.1192 | 3.01 | V Q | | | | |
| 0+40 | 0.1400 | 3.02 | V Q | | | | |
| 0+45 | 0.1608 | 3.02 | V Q | | | | |
| 0+50 | 0.1816 | 3.02 | V Q | | | | |
| 0+55 | 0.2025 | 3.02 | V Q | | | | |
| 1+ 0 | 0.2251 | 3.29 | V Q | | | | |
| 1+ 5 | 0.2488 | 3.44 | VQ | | | | |
| 1+10 | 0.2726 | 3.46 | VQ | | | | |
| 1+15 | 0.2964 | 3.46 | VQ | | | | |
| 1+20 | 0.3202 | 3.46 | VQ | | | | |
| 1+25 | 0.3440 | 3.46 | Q | | | | |
| 1+30 | 0.3678 | 3.46 | Q | | | | |
| 1+35 | 0.3916 | 3.46 | Q | | | | |
| 1+40 | 0.4154 | 3.46 | QV | | | | |
| 1+45 | 0.4392 | 3.46 | QV | | | | |
| 1+50 | 0.4630 | 3.46 | QV | | | | |
| 1+55 | 0.4868 | 3.46 | Q V | | | | |
| 2+ 0 | 0.5124 | 3.72 | Q V | | | | |
| 2+ 5 | 0.5373 | 3.60 | Q V | | | | |
| 2+10 | 0.5630 | 3.74 | Q V | | | | |
| 2+15 | 0.5897 | 3.87 | Q V | | | | |
| 2+20 | 0.6164 | 3.89 | Q V | | | | |
| 2+25 | 0.6432 | 3.89 | Q V | | | | |
| 2+30 | 0.6700 | 3.89 | Q V | | | | |
| 2+35 | 0.6968 | 3.89 | Q V | | | | |
| 2+40 | 0.7235 | 3.89 | Q V | | | | |
| 2+45 | 0.7522 | 4.16 | Q V | | | | |
| 2+50 | 0.7818 | 4.30 | Q V | | | | |
| 2+55 | 0.8115 | 4.32 | Q V | | | | |
| 3+ 0 | 0.8413 | 4.32 | Q V | | | | |
| 3+ 5 | 0.8710 | 4.32 | Q V | | | | |
| 3+10 | 0.9026 | 4.59 | Q V | | | | |
| 3+15 | 0.9352 | 4.73 | Q V | | | | |
| 3+20 | 0.9680 | 4.75 | Q V | | | | |

| | | | | | | | | |
|------|--------|-------|---|---|---|--|--|--|
| 3+25 | 1.0025 | 5.02 | Q | V | | | | |
| 3+30 | 1.0399 | 5.43 | Q | V | | | | |
| 3+35 | 1.0803 | 5.87 | Q | V | | | | |
| 3+40 | 1.1219 | 6.03 | Q | V | | | | |
| 3+45 | 1.1654 | 6.31 | Q | V | | | | |
| 3+50 | 1.2099 | 6.46 | Q | V | | | | |
| 3+55 | 1.2563 | 6.75 | Q | V | | | | |
| 4+ 0 | 1.3038 | 6.89 | Q | V | | | | |
| 4+ 5 | 1.3533 | 7.18 | Q | V | | | | |
| 4+10 | 1.4055 | 7.59 | Q | V | | | | |
| 4+15 | 1.4613 | 8.09 | Q | V | | | | |
| 4+20 | 1.5210 | 8.67 | Q | V | | | | |
| 4+25 | 1.5849 | 9.28 | Q | Q | V | | | |
| 4+30 | 1.6505 | 9.52 | Q | Q | V | | | |
| 4+35 | 1.7188 | 9.93 | Q | Q | V | | | |
| 4+40 | 1.7913 | 10.52 | Q | Q | V | | | |
| 4+45 | 1.8680 | 11.14 | Q | Q | V | | | |
| 4+50 | 1.9463 | 11.37 | Q | Q | V | | | |
| 4+55 | 2.0274 | 11.78 | Q | Q | V | | | |
| 5+ 0 | 2.1126 | 12.37 | Q | Q | V | | | |
| 5+ 5 | 2.2125 | 14.52 | Q | Q | V | | | |
| 5+10 | 2.3331 | 17.50 | Q | Q | V | | | |
| 5+15 | 2.4696 | 19.83 | Q | Q | V | | | |
| 5+20 | 2.6193 | 21.72 | Q | Q | V | | | |
| 5+25 | 2.7869 | 24.34 | Q | Q | V | | | |
| 5+30 | 2.9860 | 28.91 | Q | Q | V | | | |
| 5+35 | 3.1015 | 16.78 | Q | Q | V | | | |
| 5+40 | 3.1460 | 6.46 | Q | Q | V | | | |
| 5+45 | 3.1685 | 3.26 | Q | Q | V | | | |
| 5+50 | 3.1848 | 2.37 | Q | Q | V | | | |
| 5+55 | 3.1961 | 1.64 | Q | Q | V | | | |
| 6+ 0 | 3.2035 | 1.06 | Q | Q | V | | | |
| 6+ 5 | 3.2058 | 0.35 | Q | Q | V | | | |
| 6+10 | 3.2061 | 0.03 | Q | Q | V | | | |

100YR, 24HR POST-DEVELOPED

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPOSTB24100.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.023 Hr.
Lag time = 1.40 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 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] |
|--------------|-----------------|----------------|
| 20.40 | 1.60 | 32.64 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|--------------|-----------------|----------------|
| 20.40 | 4.00 | 81.60 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.600(In)
Area Averaged 100-Year Rainfall = 4.000(In)

Point rain (area averaged) = 4.000(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 4.000(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 56.00 0.750
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 56.0 | 56.0 | 0.511 | 0.750 | 0.166 | 1.000 | 0.166 |
| | | | | | | Sum (F) = 0.166 |

Area averaged mean soil loss (F) (In/Hr) = 0.166
 Minimum soil loss rate ((In/Hr)) = 0.083
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.300

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 358.046 | 61.957 |
| 2 | 0.167 | 716.092 | 34.126 |
| 3 | 0.250 | 1074.138 | 3.916 |
| | | Sum = 100.000 | Sum= 20.559 |

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 | (0.294) 0.010 | 0.022 |
| 2 | 0.17 | 0.07 | (0.293) 0.010 | 0.022 |
| 3 | 0.25 | 0.07 | (0.292) 0.010 | 0.022 |
| 4 | 0.33 | 0.10 | (0.291) 0.014 | 0.034 |
| 5 | 0.42 | 0.10 | (0.290) 0.014 | 0.034 |
| 6 | 0.50 | 0.10 | (0.289) 0.014 | 0.034 |
| 7 | 0.58 | 0.10 | (0.287) 0.014 | 0.034 |
| 8 | 0.67 | 0.10 | (0.286) 0.014 | 0.034 |
| 9 | 0.75 | 0.10 | (0.285) 0.014 | 0.034 |
| 10 | 0.83 | 0.13 | (0.284) 0.019 | 0.045 |
| 11 | 0.92 | 0.13 | (0.283) 0.019 | 0.045 |
| 12 | 1.00 | 0.13 | (0.282) 0.019 | 0.045 |
| 13 | 1.08 | 0.10 | (0.281) 0.014 | 0.034 |
| 14 | 1.17 | 0.10 | (0.280) 0.014 | 0.034 |
| 15 | 1.25 | 0.10 | (0.279) 0.014 | 0.034 |
| 16 | 1.33 | 0.10 | (0.277) 0.014 | 0.034 |
| 17 | 1.42 | 0.10 | (0.276) 0.014 | 0.034 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 18 | 1.50 | 0.10 | 0.048 | (0.275) | 0.014 | 0.034 |
| 19 | 1.58 | 0.10 | 0.048 | (0.274) | 0.014 | 0.034 |
| 20 | 1.67 | 0.10 | 0.048 | (0.273) | 0.014 | 0.034 |
| 21 | 1.75 | 0.10 | 0.048 | (0.272) | 0.014 | 0.034 |
| 22 | 1.83 | 0.13 | 0.064 | (0.271) | 0.019 | 0.045 |
| 23 | 1.92 | 0.13 | 0.064 | (0.270) | 0.019 | 0.045 |
| 24 | 2.00 | 0.13 | 0.064 | (0.269) | 0.019 | 0.045 |
| 25 | 2.08 | 0.13 | 0.064 | (0.268) | 0.019 | 0.045 |
| 26 | 2.17 | 0.13 | 0.064 | (0.267) | 0.019 | 0.045 |
| 27 | 2.25 | 0.13 | 0.064 | (0.265) | 0.019 | 0.045 |
| 28 | 2.33 | 0.13 | 0.064 | (0.264) | 0.019 | 0.045 |
| 29 | 2.42 | 0.13 | 0.064 | (0.263) | 0.019 | 0.045 |
| 30 | 2.50 | 0.13 | 0.064 | (0.262) | 0.019 | 0.045 |
| 31 | 2.58 | 0.17 | 0.080 | (0.261) | 0.024 | 0.056 |
| 32 | 2.67 | 0.17 | 0.080 | (0.260) | 0.024 | 0.056 |
| 33 | 2.75 | 0.17 | 0.080 | (0.259) | 0.024 | 0.056 |
| 34 | 2.83 | 0.17 | 0.080 | (0.258) | 0.024 | 0.056 |
| 35 | 2.92 | 0.17 | 0.080 | (0.257) | 0.024 | 0.056 |
| 36 | 3.00 | 0.17 | 0.080 | (0.256) | 0.024 | 0.056 |
| 37 | 3.08 | 0.17 | 0.080 | (0.255) | 0.024 | 0.056 |
| 38 | 3.17 | 0.17 | 0.080 | (0.254) | 0.024 | 0.056 |
| 39 | 3.25 | 0.17 | 0.080 | (0.253) | 0.024 | 0.056 |
| 40 | 3.33 | 0.17 | 0.080 | (0.252) | 0.024 | 0.056 |
| 41 | 3.42 | 0.17 | 0.080 | (0.251) | 0.024 | 0.056 |
| 42 | 3.50 | 0.17 | 0.080 | (0.249) | 0.024 | 0.056 |
| 43 | 3.58 | 0.17 | 0.080 | (0.248) | 0.024 | 0.056 |
| 44 | 3.67 | 0.17 | 0.080 | (0.247) | 0.024 | 0.056 |
| 45 | 3.75 | 0.17 | 0.080 | (0.246) | 0.024 | 0.056 |
| 46 | 3.83 | 0.20 | 0.096 | (0.245) | 0.029 | 0.067 |
| 47 | 3.92 | 0.20 | 0.096 | (0.244) | 0.029 | 0.067 |
| 48 | 4.00 | 0.20 | 0.096 | (0.243) | 0.029 | 0.067 |
| 49 | 4.08 | 0.20 | 0.096 | (0.242) | 0.029 | 0.067 |
| 50 | 4.17 | 0.20 | 0.096 | (0.241) | 0.029 | 0.067 |
| 51 | 4.25 | 0.20 | 0.096 | (0.240) | 0.029 | 0.067 |
| 52 | 4.33 | 0.23 | 0.112 | (0.239) | 0.034 | 0.078 |
| 53 | 4.42 | 0.23 | 0.112 | (0.238) | 0.034 | 0.078 |
| 54 | 4.50 | 0.23 | 0.112 | (0.237) | 0.034 | 0.078 |
| 55 | 4.58 | 0.23 | 0.112 | (0.236) | 0.034 | 0.078 |
| 56 | 4.67 | 0.23 | 0.112 | (0.235) | 0.034 | 0.078 |
| 57 | 4.75 | 0.23 | 0.112 | (0.234) | 0.034 | 0.078 |
| 58 | 4.83 | 0.27 | 0.128 | (0.233) | 0.038 | 0.090 |
| 59 | 4.92 | 0.27 | 0.128 | (0.232) | 0.038 | 0.090 |
| 60 | 5.00 | 0.27 | 0.128 | (0.231) | 0.038 | 0.090 |
| 61 | 5.08 | 0.20 | 0.096 | (0.230) | 0.029 | 0.067 |
| 62 | 5.17 | 0.20 | 0.096 | (0.229) | 0.029 | 0.067 |
| 63 | 5.25 | 0.20 | 0.096 | (0.228) | 0.029 | 0.067 |
| 64 | 5.33 | 0.23 | 0.112 | (0.227) | 0.034 | 0.078 |
| 65 | 5.42 | 0.23 | 0.112 | (0.226) | 0.034 | 0.078 |
| 66 | 5.50 | 0.23 | 0.112 | (0.225) | 0.034 | 0.078 |
| 67 | 5.58 | 0.27 | 0.128 | (0.224) | 0.038 | 0.090 |
| 68 | 5.67 | 0.27 | 0.128 | (0.223) | 0.038 | 0.090 |
| 69 | 5.75 | 0.27 | 0.128 | (0.222) | 0.038 | 0.090 |
| 70 | 5.83 | 0.27 | 0.128 | (0.221) | 0.038 | 0.090 |
| 71 | 5.92 | 0.27 | 0.128 | (0.220) | 0.038 | 0.090 |
| 72 | 6.00 | 0.27 | 0.128 | (0.219) | 0.038 | 0.090 |
| 73 | 6.08 | 0.30 | 0.144 | (0.218) | 0.043 | 0.101 |
| 74 | 6.17 | 0.30 | 0.144 | (0.217) | 0.043 | 0.101 |
| 75 | 6.25 | 0.30 | 0.144 | (0.216) | 0.043 | 0.101 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 76 | 6.33 | 0.30 | 0.144 | (0.215) | 0.043 | 0.101 |
| 77 | 6.42 | 0.30 | 0.144 | (0.214) | 0.043 | 0.101 |
| 78 | 6.50 | 0.30 | 0.144 | (0.213) | 0.043 | 0.101 |
| 79 | 6.58 | 0.33 | 0.160 | (0.212) | 0.048 | 0.112 |
| 80 | 6.67 | 0.33 | 0.160 | (0.211) | 0.048 | 0.112 |
| 81 | 6.75 | 0.33 | 0.160 | (0.210) | 0.048 | 0.112 |
| 82 | 6.83 | 0.33 | 0.160 | (0.210) | 0.048 | 0.112 |
| 83 | 6.92 | 0.33 | 0.160 | (0.209) | 0.048 | 0.112 |
| 84 | 7.00 | 0.33 | 0.160 | (0.208) | 0.048 | 0.112 |
| 85 | 7.08 | 0.33 | 0.160 | (0.207) | 0.048 | 0.112 |
| 86 | 7.17 | 0.33 | 0.160 | (0.206) | 0.048 | 0.112 |
| 87 | 7.25 | 0.33 | 0.160 | (0.205) | 0.048 | 0.112 |
| 88 | 7.33 | 0.37 | 0.176 | (0.204) | 0.053 | 0.123 |
| 89 | 7.42 | 0.37 | 0.176 | (0.203) | 0.053 | 0.123 |
| 90 | 7.50 | 0.37 | 0.176 | (0.202) | 0.053 | 0.123 |
| 91 | 7.58 | 0.40 | 0.192 | (0.201) | 0.058 | 0.134 |
| 92 | 7.67 | 0.40 | 0.192 | (0.200) | 0.058 | 0.134 |
| 93 | 7.75 | 0.40 | 0.192 | (0.199) | 0.058 | 0.134 |
| 94 | 7.83 | 0.43 | 0.208 | (0.198) | 0.062 | 0.146 |
| 95 | 7.92 | 0.43 | 0.208 | (0.197) | 0.062 | 0.146 |
| 96 | 8.00 | 0.43 | 0.208 | (0.196) | 0.062 | 0.146 |
| 97 | 8.08 | 0.50 | 0.240 | (0.196) | 0.072 | 0.168 |
| 98 | 8.17 | 0.50 | 0.240 | (0.195) | 0.072 | 0.168 |
| 99 | 8.25 | 0.50 | 0.240 | (0.194) | 0.072 | 0.168 |
| 100 | 8.33 | 0.50 | 0.240 | (0.193) | 0.072 | 0.168 |
| 101 | 8.42 | 0.50 | 0.240 | (0.192) | 0.072 | 0.168 |
| 102 | 8.50 | 0.50 | 0.240 | (0.191) | 0.072 | 0.168 |
| 103 | 8.58 | 0.53 | 0.256 | (0.190) | 0.077 | 0.179 |
| 104 | 8.67 | 0.53 | 0.256 | (0.189) | 0.077 | 0.179 |
| 105 | 8.75 | 0.53 | 0.256 | (0.188) | 0.077 | 0.179 |
| 106 | 8.83 | 0.57 | 0.272 | (0.187) | 0.082 | 0.190 |
| 107 | 8.92 | 0.57 | 0.272 | (0.187) | 0.082 | 0.190 |
| 108 | 9.00 | 0.57 | 0.272 | (0.186) | 0.082 | 0.190 |
| 109 | 9.08 | 0.63 | 0.304 | (0.185) | 0.091 | 0.213 |
| 110 | 9.17 | 0.63 | 0.304 | (0.184) | 0.091 | 0.213 |
| 111 | 9.25 | 0.63 | 0.304 | (0.183) | 0.091 | 0.213 |
| 112 | 9.33 | 0.67 | 0.320 | (0.182) | 0.096 | 0.224 |
| 113 | 9.42 | 0.67 | 0.320 | (0.181) | 0.096 | 0.224 |
| 114 | 9.50 | 0.67 | 0.320 | (0.180) | 0.096 | 0.224 |
| 115 | 9.58 | 0.70 | 0.336 | (0.180) | 0.101 | 0.235 |
| 116 | 9.67 | 0.70 | 0.336 | (0.179) | 0.101 | 0.235 |
| 117 | 9.75 | 0.70 | 0.336 | (0.178) | 0.101 | 0.235 |
| 118 | 9.83 | 0.73 | 0.352 | (0.177) | 0.106 | 0.246 |
| 119 | 9.92 | 0.73 | 0.352 | (0.176) | 0.106 | 0.246 |
| 120 | 10.00 | 0.73 | 0.352 | (0.175) | 0.106 | 0.246 |
| 121 | 10.08 | 0.50 | 0.240 | (0.174) | 0.072 | 0.168 |
| 122 | 10.17 | 0.50 | 0.240 | (0.174) | 0.072 | 0.168 |
| 123 | 10.25 | 0.50 | 0.240 | (0.173) | 0.072 | 0.168 |
| 124 | 10.33 | 0.50 | 0.240 | (0.172) | 0.072 | 0.168 |
| 125 | 10.42 | 0.50 | 0.240 | (0.171) | 0.072 | 0.168 |
| 126 | 10.50 | 0.50 | 0.240 | (0.170) | 0.072 | 0.168 |
| 127 | 10.58 | 0.67 | 0.320 | (0.169) | 0.096 | 0.224 |
| 128 | 10.67 | 0.67 | 0.320 | (0.169) | 0.096 | 0.224 |
| 129 | 10.75 | 0.67 | 0.320 | (0.168) | 0.096 | 0.224 |
| 130 | 10.83 | 0.67 | 0.320 | (0.167) | 0.096 | 0.224 |
| 131 | 10.92 | 0.67 | 0.320 | (0.166) | 0.096 | 0.224 |
| 132 | 11.00 | 0.67 | 0.320 | (0.165) | 0.096 | 0.224 |
| 133 | 11.08 | 0.63 | 0.304 | (0.165) | 0.091 | 0.213 |

| | | | | | | |
|-----|-------|------|-------|----------------|-------|-------|
| 134 | 11.17 | 0.63 | 0.304 | (0.164) | 0.091 | 0.213 |
| 135 | 11.25 | 0.63 | 0.304 | (0.163) | 0.091 | 0.213 |
| 136 | 11.33 | 0.63 | 0.304 | (0.162) | 0.091 | 0.213 |
| 137 | 11.42 | 0.63 | 0.304 | (0.161) | 0.091 | 0.213 |
| 138 | 11.50 | 0.63 | 0.304 | (0.160) | 0.091 | 0.213 |
| 139 | 11.58 | 0.57 | 0.272 | (0.160) | 0.082 | 0.190 |
| 140 | 11.67 | 0.57 | 0.272 | (0.159) | 0.082 | 0.190 |
| 141 | 11.75 | 0.57 | 0.272 | (0.158) | 0.082 | 0.190 |
| 142 | 11.83 | 0.60 | 0.288 | (0.157) | 0.086 | 0.202 |
| 143 | 11.92 | 0.60 | 0.288 | (0.157) | 0.086 | 0.202 |
| 144 | 12.00 | 0.60 | 0.288 | (0.156) | 0.086 | 0.202 |
| 145 | 12.08 | 0.83 | 0.400 | (0.155) | 0.120 | 0.280 |
| 146 | 12.17 | 0.83 | 0.400 | (0.154) | 0.120 | 0.280 |
| 147 | 12.25 | 0.83 | 0.400 | (0.153) | 0.120 | 0.280 |
| 148 | 12.33 | 0.87 | 0.416 | (0.153) | 0.125 | 0.291 |
| 149 | 12.42 | 0.87 | 0.416 | (0.152) | 0.125 | 0.291 |
| 150 | 12.50 | 0.87 | 0.416 | (0.151) | 0.125 | 0.291 |
| 151 | 12.58 | 0.93 | 0.448 | (0.150) | 0.134 | 0.314 |
| 152 | 12.67 | 0.93 | 0.448 | (0.150) | 0.134 | 0.314 |
| 153 | 12.75 | 0.93 | 0.448 | (0.149) | 0.134 | 0.314 |
| 154 | 12.83 | 0.97 | 0.464 | (0.148) | 0.139 | 0.325 |
| 155 | 12.92 | 0.97 | 0.464 | (0.147) | 0.139 | 0.325 |
| 156 | 13.00 | 0.97 | 0.464 | (0.147) | 0.139 | 0.325 |
| 157 | 13.08 | 1.13 | 0.544 | 0.146 (0.163) | | 0.398 |
| 158 | 13.17 | 1.13 | 0.544 | 0.145 (0.163) | | 0.399 |
| 159 | 13.25 | 1.13 | 0.544 | 0.144 (0.163) | | 0.400 |
| 160 | 13.33 | 1.13 | 0.544 | 0.144 (0.163) | | 0.400 |
| 161 | 13.42 | 1.13 | 0.544 | 0.143 (0.163) | | 0.401 |
| 162 | 13.50 | 1.13 | 0.544 | 0.142 (0.163) | | 0.402 |
| 163 | 13.58 | 0.77 | 0.368 | (0.141) | 0.110 | 0.258 |
| 164 | 13.67 | 0.77 | 0.368 | (0.141) | 0.110 | 0.258 |
| 165 | 13.75 | 0.77 | 0.368 | (0.140) | 0.110 | 0.258 |
| 166 | 13.83 | 0.77 | 0.368 | (0.139) | 0.110 | 0.258 |
| 167 | 13.92 | 0.77 | 0.368 | (0.139) | 0.110 | 0.258 |
| 168 | 14.00 | 0.77 | 0.368 | (0.138) | 0.110 | 0.258 |
| 169 | 14.08 | 0.90 | 0.432 | (0.137) | 0.130 | 0.302 |
| 170 | 14.17 | 0.90 | 0.432 | (0.136) | 0.130 | 0.302 |
| 171 | 14.25 | 0.90 | 0.432 | (0.136) | 0.130 | 0.302 |
| 172 | 14.33 | 0.87 | 0.416 | (0.135) | 0.125 | 0.291 |
| 173 | 14.42 | 0.87 | 0.416 | (0.134) | 0.125 | 0.291 |
| 174 | 14.50 | 0.87 | 0.416 | (0.134) | 0.125 | 0.291 |
| 175 | 14.58 | 0.87 | 0.416 | (0.133) | 0.125 | 0.291 |
| 176 | 14.67 | 0.87 | 0.416 | (0.132) | 0.125 | 0.291 |
| 177 | 14.75 | 0.87 | 0.416 | (0.132) | 0.125 | 0.291 |
| 178 | 14.83 | 0.83 | 0.400 | (0.131) | 0.120 | 0.280 |
| 179 | 14.92 | 0.83 | 0.400 | (0.130) | 0.120 | 0.280 |
| 180 | 15.00 | 0.83 | 0.400 | (0.130) | 0.120 | 0.280 |
| 181 | 15.08 | 0.80 | 0.384 | (0.129) | 0.115 | 0.269 |
| 182 | 15.17 | 0.80 | 0.384 | (0.128) | 0.115 | 0.269 |
| 183 | 15.25 | 0.80 | 0.384 | (0.128) | 0.115 | 0.269 |
| 184 | 15.33 | 0.77 | 0.368 | (0.127) | 0.110 | 0.258 |
| 185 | 15.42 | 0.77 | 0.368 | (0.126) | 0.110 | 0.258 |
| 186 | 15.50 | 0.77 | 0.368 | (0.126) | 0.110 | 0.258 |
| 187 | 15.58 | 0.63 | 0.304 | (0.125) | 0.091 | 0.213 |
| 188 | 15.67 | 0.63 | 0.304 | (0.124) | 0.091 | 0.213 |
| 189 | 15.75 | 0.63 | 0.304 | (0.124) | 0.091 | 0.213 |
| 190 | 15.83 | 0.63 | 0.304 | (0.123) | 0.091 | 0.213 |
| 191 | 15.92 | 0.63 | 0.304 | (0.123) | 0.091 | 0.213 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 192 | 16.00 | 0.63 | 0.304 | (0.122) | 0.091 | 0.213 |
| 193 | 16.08 | 0.13 | 0.064 | (0.121) | 0.019 | 0.045 |
| 194 | 16.17 | 0.13 | 0.064 | (0.121) | 0.019 | 0.045 |
| 195 | 16.25 | 0.13 | 0.064 | (0.120) | 0.019 | 0.045 |
| 196 | 16.33 | 0.13 | 0.064 | (0.119) | 0.019 | 0.045 |
| 197 | 16.42 | 0.13 | 0.064 | (0.119) | 0.019 | 0.045 |
| 198 | 16.50 | 0.13 | 0.064 | (0.118) | 0.019 | 0.045 |
| 199 | 16.58 | 0.10 | 0.048 | (0.118) | 0.014 | 0.034 |
| 200 | 16.67 | 0.10 | 0.048 | (0.117) | 0.014 | 0.034 |
| 201 | 16.75 | 0.10 | 0.048 | (0.116) | 0.014 | 0.034 |
| 202 | 16.83 | 0.10 | 0.048 | (0.116) | 0.014 | 0.034 |
| 203 | 16.92 | 0.10 | 0.048 | (0.115) | 0.014 | 0.034 |
| 204 | 17.00 | 0.10 | 0.048 | (0.115) | 0.014 | 0.034 |
| 205 | 17.08 | 0.17 | 0.080 | (0.114) | 0.024 | 0.056 |
| 206 | 17.17 | 0.17 | 0.080 | (0.114) | 0.024 | 0.056 |
| 207 | 17.25 | 0.17 | 0.080 | (0.113) | 0.024 | 0.056 |
| 208 | 17.33 | 0.17 | 0.080 | (0.112) | 0.024 | 0.056 |
| 209 | 17.42 | 0.17 | 0.080 | (0.112) | 0.024 | 0.056 |
| 210 | 17.50 | 0.17 | 0.080 | (0.111) | 0.024 | 0.056 |
| 211 | 17.58 | 0.17 | 0.080 | (0.111) | 0.024 | 0.056 |
| 212 | 17.67 | 0.17 | 0.080 | (0.110) | 0.024 | 0.056 |
| 213 | 17.75 | 0.17 | 0.080 | (0.110) | 0.024 | 0.056 |
| 214 | 17.83 | 0.13 | 0.064 | (0.109) | 0.019 | 0.045 |
| 215 | 17.92 | 0.13 | 0.064 | (0.109) | 0.019 | 0.045 |
| 216 | 18.00 | 0.13 | 0.064 | (0.108) | 0.019 | 0.045 |
| 217 | 18.08 | 0.13 | 0.064 | (0.107) | 0.019 | 0.045 |
| 218 | 18.17 | 0.13 | 0.064 | (0.107) | 0.019 | 0.045 |
| 219 | 18.25 | 0.13 | 0.064 | (0.106) | 0.019 | 0.045 |
| 220 | 18.33 | 0.13 | 0.064 | (0.106) | 0.019 | 0.045 |
| 221 | 18.42 | 0.13 | 0.064 | (0.105) | 0.019 | 0.045 |
| 222 | 18.50 | 0.13 | 0.064 | (0.105) | 0.019 | 0.045 |
| 223 | 18.58 | 0.10 | 0.048 | (0.104) | 0.014 | 0.034 |
| 224 | 18.67 | 0.10 | 0.048 | (0.104) | 0.014 | 0.034 |
| 225 | 18.75 | 0.10 | 0.048 | (0.103) | 0.014 | 0.034 |
| 226 | 18.83 | 0.07 | 0.032 | (0.103) | 0.010 | 0.022 |
| 227 | 18.92 | 0.07 | 0.032 | (0.102) | 0.010 | 0.022 |
| 228 | 19.00 | 0.07 | 0.032 | (0.102) | 0.010 | 0.022 |
| 229 | 19.08 | 0.10 | 0.048 | (0.101) | 0.014 | 0.034 |
| 230 | 19.17 | 0.10 | 0.048 | (0.101) | 0.014 | 0.034 |
| 231 | 19.25 | 0.10 | 0.048 | (0.100) | 0.014 | 0.034 |
| 232 | 19.33 | 0.13 | 0.064 | (0.100) | 0.019 | 0.045 |
| 233 | 19.42 | 0.13 | 0.064 | (0.100) | 0.019 | 0.045 |
| 234 | 19.50 | 0.13 | 0.064 | (0.099) | 0.019 | 0.045 |
| 235 | 19.58 | 0.10 | 0.048 | (0.099) | 0.014 | 0.034 |
| 236 | 19.67 | 0.10 | 0.048 | (0.098) | 0.014 | 0.034 |
| 237 | 19.75 | 0.10 | 0.048 | (0.098) | 0.014 | 0.034 |
| 238 | 19.83 | 0.07 | 0.032 | (0.097) | 0.010 | 0.022 |
| 239 | 19.92 | 0.07 | 0.032 | (0.097) | 0.010 | 0.022 |
| 240 | 20.00 | 0.07 | 0.032 | (0.096) | 0.010 | 0.022 |
| 241 | 20.08 | 0.10 | 0.048 | (0.096) | 0.014 | 0.034 |
| 242 | 20.17 | 0.10 | 0.048 | (0.096) | 0.014 | 0.034 |
| 243 | 20.25 | 0.10 | 0.048 | (0.095) | 0.014 | 0.034 |
| 244 | 20.33 | 0.10 | 0.048 | (0.095) | 0.014 | 0.034 |
| 245 | 20.42 | 0.10 | 0.048 | (0.094) | 0.014 | 0.034 |
| 246 | 20.50 | 0.10 | 0.048 | (0.094) | 0.014 | 0.034 |
| 247 | 20.58 | 0.10 | 0.048 | (0.094) | 0.014 | 0.034 |
| 248 | 20.67 | 0.10 | 0.048 | (0.093) | 0.014 | 0.034 |
| 249 | 20.75 | 0.10 | 0.048 | (0.093) | 0.014 | 0.034 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 250 | 20.83 | 0.07 | 0.032 | (0.092) | 0.010 | 0.022 |
| 251 | 20.92 | 0.07 | 0.032 | (0.092) | 0.010 | 0.022 |
| 252 | 21.00 | 0.07 | 0.032 | (0.092) | 0.010 | 0.022 |
| 253 | 21.08 | 0.10 | 0.048 | (0.091) | 0.014 | 0.034 |
| 254 | 21.17 | 0.10 | 0.048 | (0.091) | 0.014 | 0.034 |
| 255 | 21.25 | 0.10 | 0.048 | (0.091) | 0.014 | 0.034 |
| 256 | 21.33 | 0.07 | 0.032 | (0.090) | 0.010 | 0.022 |
| 257 | 21.42 | 0.07 | 0.032 | (0.090) | 0.010 | 0.022 |
| 258 | 21.50 | 0.07 | 0.032 | (0.090) | 0.010 | 0.022 |
| 259 | 21.58 | 0.10 | 0.048 | (0.089) | 0.014 | 0.034 |
| 260 | 21.67 | 0.10 | 0.048 | (0.089) | 0.014 | 0.034 |
| 261 | 21.75 | 0.10 | 0.048 | (0.089) | 0.014 | 0.034 |
| 262 | 21.83 | 0.07 | 0.032 | (0.088) | 0.010 | 0.022 |
| 263 | 21.92 | 0.07 | 0.032 | (0.088) | 0.010 | 0.022 |
| 264 | 22.00 | 0.07 | 0.032 | (0.088) | 0.010 | 0.022 |
| 265 | 22.08 | 0.10 | 0.048 | (0.087) | 0.014 | 0.034 |
| 266 | 22.17 | 0.10 | 0.048 | (0.087) | 0.014 | 0.034 |
| 267 | 22.25 | 0.10 | 0.048 | (0.087) | 0.014 | 0.034 |
| 268 | 22.33 | 0.07 | 0.032 | (0.087) | 0.010 | 0.022 |
| 269 | 22.42 | 0.07 | 0.032 | (0.086) | 0.010 | 0.022 |
| 270 | 22.50 | 0.07 | 0.032 | (0.086) | 0.010 | 0.022 |
| 271 | 22.58 | 0.07 | 0.032 | (0.086) | 0.010 | 0.022 |
| 272 | 22.67 | 0.07 | 0.032 | (0.086) | 0.010 | 0.022 |
| 273 | 22.75 | 0.07 | 0.032 | (0.085) | 0.010 | 0.022 |
| 274 | 22.83 | 0.07 | 0.032 | (0.085) | 0.010 | 0.022 |
| 275 | 22.92 | 0.07 | 0.032 | (0.085) | 0.010 | 0.022 |
| 276 | 23.00 | 0.07 | 0.032 | (0.085) | 0.010 | 0.022 |
| 277 | 23.08 | 0.07 | 0.032 | (0.084) | 0.010 | 0.022 |
| 278 | 23.17 | 0.07 | 0.032 | (0.084) | 0.010 | 0.022 |
| 279 | 23.25 | 0.07 | 0.032 | (0.084) | 0.010 | 0.022 |
| 280 | 23.33 | 0.07 | 0.032 | (0.084) | 0.010 | 0.022 |
| 281 | 23.42 | 0.07 | 0.032 | (0.084) | 0.010 | 0.022 |
| 282 | 23.50 | 0.07 | 0.032 | (0.084) | 0.010 | 0.022 |
| 283 | 23.58 | 0.07 | 0.032 | (0.083) | 0.010 | 0.022 |
| 284 | 23.67 | 0.07 | 0.032 | (0.083) | 0.010 | 0.022 |
| 285 | 23.75 | 0.07 | 0.032 | (0.083) | 0.010 | 0.022 |
| 286 | 23.83 | 0.07 | 0.032 | (0.083) | 0.010 | 0.022 |
| 287 | 23.92 | 0.07 | 0.032 | (0.083) | 0.010 | 0.022 |
| 288 | 24.00 | 0.07 | 0.032 | (0.083) | 0.010 | 0.022 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 33.7

Flood volume = Effective rainfall 2.81(In)
times area 20.4(Ac.)/[((In)/(Ft.))] = 4.8(Ac.Ft)
Total soil loss = 1.19(In)
Total soil loss = 2.024(Ac.Ft)
Total rainfall = 4.00(In)
Flood volume = 208047.3 Cubic Feet
Total soil loss = 88148.9 Cubic Feet

Peak flow rate of this hydrograph = 8.258(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

| Time(h+m) | Volume | Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|-----------|--------|-------|--------|---|-----|-----|-----|------|
| 0+ 5 | 0.0020 | 0.29 | VQ | | | | | |
| 0+10 | 0.0050 | 0.44 | VQ | | | | | |
| 0+15 | 0.0082 | 0.46 | VQ | | | | | |
| 0+20 | 0.0123 | 0.60 | V Q | | | | | |
| 0+25 | 0.0170 | 0.68 | V Q | | | | | |
| 0+30 | 0.0218 | 0.69 | V Q | | | | | |
| 0+35 | 0.0266 | 0.69 | V Q | | | | | |
| 0+40 | 0.0313 | 0.69 | V Q | | | | | |
| 0+45 | 0.0361 | 0.69 | V Q | | | | | |
| 0+50 | 0.0418 | 0.83 | V Q | | | | | |
| 0+55 | 0.0481 | 0.91 | V Q | | | | | |
| 1+ 0 | 0.0545 | 0.92 | V Q | | | | | |
| 1+ 5 | 0.0598 | 0.78 | V Q | | | | | |
| 1+10 | 0.0646 | 0.70 | V Q | | | | | |
| 1+15 | 0.0694 | 0.69 | V Q | | | | | |
| 1+20 | 0.0742 | 0.69 | V Q | | | | | |
| 1+25 | 0.0789 | 0.69 | V Q | | | | | |
| 1+30 | 0.0837 | 0.69 | V Q | | | | | |
| 1+35 | 0.0884 | 0.69 | V Q | | | | | |
| 1+40 | 0.0932 | 0.69 | V Q | | | | | |
| 1+45 | 0.0980 | 0.69 | V Q | | | | | |
| 1+50 | 0.1037 | 0.83 | V Q | | | | | |
| 1+55 | 0.1100 | 0.91 | V Q | | | | | |
| 2+ 0 | 0.1163 | 0.92 | V Q | | | | | |
| 2+ 5 | 0.1227 | 0.92 | V Q | | | | | |
| 2+10 | 0.1290 | 0.92 | V Q | | | | | |
| 2+15 | 0.1354 | 0.92 | V Q | | | | | |
| 2+20 | 0.1417 | 0.92 | V Q | | | | | |
| 2+25 | 0.1481 | 0.92 | V Q | | | | | |
| 2+30 | 0.1544 | 0.92 | V Q | | | | | |
| 2+35 | 0.1617 | 1.06 | V Q | | | | | |
| 2+40 | 0.1696 | 1.14 | V Q | | | | | |
| 2+45 | 0.1775 | 1.15 | V Q | | | | | |
| 2+50 | 0.1855 | 1.15 | V Q | | | | | |
| 2+55 | 0.1934 | 1.15 | V Q | | | | | |
| 3+ 0 | 0.2013 | 1.15 | V Q | | | | | |
| 3+ 5 | 0.2093 | 1.15 | V Q | | | | | |
| 3+10 | 0.2172 | 1.15 | V Q | | | | | |
| 3+15 | 0.2251 | 1.15 | V Q | | | | | |
| 3+20 | 0.2331 | 1.15 | V Q | | | | | |
| 3+25 | 0.2410 | 1.15 | V Q | | | | | |
| 3+30 | 0.2489 | 1.15 | V Q | | | | | |
| 3+35 | 0.2569 | 1.15 | V Q | | | | | |
| 3+40 | 0.2648 | 1.15 | V Q | | | | | |
| 3+45 | 0.2727 | 1.15 | V Q | | | | | |
| 3+50 | 0.2817 | 1.29 | V Q | | | | | |
| 3+55 | 0.2911 | 1.37 | V Q | | | | | |
| 4+ 0 | 0.3006 | 1.38 | V Q | | | | | |
| 4+ 5 | 0.3102 | 1.38 | V Q | | | | | |
| 4+10 | 0.3197 | 1.38 | V Q | | | | | |
| 4+15 | 0.3292 | 1.38 | V Q | | | | | |
| 4+20 | 0.3397 | 1.52 | V Q | | | | | |
| 4+25 | 0.3507 | 1.60 | V Q | | | | | |
| 4+30 | 0.3618 | 1.61 | V Q | | | | | |
| 4+35 | 0.3730 | 1.61 | V Q | | | | | |
| 4+40 | 0.3841 | 1.61 | V Q | | | | | |

| | | | | | | | | |
|------|--------|------|---|---|--|--|--|--|
| 4+45 | 0.3952 | 1.61 | V | Q | | | | |
| 4+50 | 0.4073 | 1.76 | V | Q | | | | |
| 4+55 | 0.4199 | 1.83 | V | Q | | | | |
| 5+ 0 | 0.4326 | 1.84 | V | Q | | | | |
| 5+ 5 | 0.4433 | 1.56 | V | Q | | | | |
| 5+10 | 0.4529 | 1.40 | V | Q | | | | |
| 5+15 | 0.4625 | 1.38 | V | Q | | | | |
| 5+20 | 0.4730 | 1.52 | V | Q | | | | |
| 5+25 | 0.4840 | 1.60 | V | Q | | | | |
| 5+30 | 0.4951 | 1.61 | V | Q | | | | |
| 5+35 | 0.5072 | 1.76 | V | Q | | | | |
| 5+40 | 0.5198 | 1.83 | V | Q | | | | |
| 5+45 | 0.5325 | 1.84 | V | Q | | | | |
| 5+50 | 0.5452 | 1.84 | V | Q | | | | |
| 5+55 | 0.5579 | 1.84 | V | Q | | | | |
| 6+ 0 | 0.5706 | 1.84 | V | Q | | | | |
| 6+ 5 | 0.5843 | 1.99 | V | Q | | | | |
| 6+10 | 0.5985 | 2.06 | V | Q | | | | |
| 6+15 | 0.6128 | 2.07 | V | Q | | | | |
| 6+20 | 0.6271 | 2.07 | V | Q | | | | |
| 6+25 | 0.6413 | 2.07 | V | Q | | | | |
| 6+30 | 0.6556 | 2.07 | V | Q | | | | |
| 6+35 | 0.6709 | 2.22 | V | Q | | | | |
| 6+40 | 0.6867 | 2.29 | V | Q | | | | |
| 6+45 | 0.7026 | 2.30 | V | Q | | | | |
| 6+50 | 0.7184 | 2.30 | V | Q | | | | |
| 6+55 | 0.7343 | 2.30 | V | Q | | | | |
| 7+ 0 | 0.7502 | 2.30 | V | Q | | | | |
| 7+ 5 | 0.7660 | 2.30 | V | Q | | | | |
| 7+10 | 0.7819 | 2.30 | V | Q | | | | |
| 7+15 | 0.7978 | 2.30 | V | Q | | | | |
| 7+20 | 0.8146 | 2.45 | V | Q | | | | |
| 7+25 | 0.8320 | 2.53 | V | Q | | | | |
| 7+30 | 0.8494 | 2.53 | V | Q | | | | |
| 7+35 | 0.8679 | 2.68 | V | Q | | | | |
| 7+40 | 0.8869 | 2.76 | V | Q | | | | |
| 7+45 | 0.9059 | 2.76 | V | Q | | | | |
| 7+50 | 0.9259 | 2.91 | V | Q | | | | |
| 7+55 | 0.9465 | 2.99 | V | Q | | | | |
| 8+ 0 | 0.9671 | 2.99 | V | Q | | | | |
| 8+ 5 | 0.9897 | 3.28 | V | Q | | | | |
| 8+10 | 1.0134 | 3.44 | V | Q | | | | |
| 8+15 | 1.0372 | 3.46 | V | Q | | | | |
| 8+20 | 1.0610 | 3.46 | V | Q | | | | |
| 8+25 | 1.0848 | 3.46 | V | Q | | | | |
| 8+30 | 1.1086 | 3.46 | V | Q | | | | |
| 8+35 | 1.1334 | 3.60 | V | Q | | | | |
| 8+40 | 1.1587 | 3.68 | V | Q | | | | |
| 8+45 | 1.1841 | 3.69 | V | Q | | | | |
| 8+50 | 1.2104 | 3.83 | V | Q | | | | |
| 8+55 | 1.2373 | 3.91 | V | Q | | | | |
| 9+ 0 | 1.2643 | 3.92 | V | Q | | | | |
| 9+ 5 | 1.2933 | 4.20 | V | Q | | | | |
| 9+10 | 1.3233 | 4.36 | V | Q | | | | |
| 9+15 | 1.3534 | 4.38 | V | Q | | | | |
| 9+20 | 1.3845 | 4.52 | V | Q | | | | |
| 9+25 | 1.4162 | 4.60 | V | Q | | | | |
| 9+30 | 1.4479 | 4.61 | V | Q | | | | |

| | | | | | | |
|-------|--------|------|----|---|---|--|
| 9+35 | 1.4807 | 4.75 | V | Q | | |
| 9+40 | 1.5139 | 4.83 | V | Q | | |
| 9+45 | 1.5472 | 4.84 | V | Q | | |
| 9+50 | 1.5815 | 4.98 | V | Q | | |
| 9+55 | 1.6164 | 5.06 | V | Q | | |
| 10+ 0 | 1.6513 | 5.07 | V | Q | | |
| 10+ 5 | 1.6793 | 4.07 | V | Q | | |
| 10+10 | 1.7035 | 3.52 | Q | | | |
| 10+15 | 1.7273 | 3.46 | QV | | | |
| 10+20 | 1.7511 | 3.46 | QV | | | |
| 10+25 | 1.7749 | 3.46 | QV | | | |
| 10+30 | 1.7987 | 3.46 | Q | V | | |
| 10+35 | 1.8275 | 4.17 | V | Q | | |
| 10+40 | 1.8589 | 4.56 | V | Q | | |
| 10+45 | 1.8906 | 4.61 | V | Q | | |
| 10+50 | 1.9223 | 4.61 | V | Q | | |
| 10+55 | 1.9541 | 4.61 | V | Q | | |
| 11+ 0 | 1.9858 | 4.61 | V | Q | | |
| 11+ 5 | 2.0166 | 4.46 | V | Q | | |
| 11+10 | 2.0468 | 4.39 | Q | | | |
| 11+15 | 2.0769 | 4.38 | Q | | | |
| 11+20 | 2.1071 | 4.38 | Q | | | |
| 11+25 | 2.1372 | 4.38 | Q | | | |
| 11+30 | 2.1673 | 4.38 | Q | V | | |
| 11+35 | 2.1955 | 4.09 | Q | V | | |
| 11+40 | 2.2226 | 3.93 | Q | V | | |
| 11+45 | 2.2496 | 3.92 | Q | V | | |
| 11+50 | 2.2775 | 4.06 | Q | V | | |
| 11+55 | 2.3060 | 4.14 | Q | V | | |
| 12+ 0 | 2.3346 | 4.15 | Q | V | | |
| 12+ 5 | 2.3700 | 5.15 | V | Q | | |
| 12+10 | 2.4093 | 5.70 | V | Q | | |
| 12+15 | 2.4489 | 5.76 | V | Q | | |
| 12+20 | 2.4896 | 5.90 | V | Q | | |
| 12+25 | 2.5308 | 5.98 | V | Q | | |
| 12+30 | 2.5720 | 5.99 | V | Q | | |
| 12+35 | 2.6152 | 6.28 | V | Q | | |
| 12+40 | 2.6595 | 6.43 | V | Q | | |
| 12+45 | 2.7040 | 6.45 | V | Q | | |
| 12+50 | 2.7494 | 6.59 | V | Q | | |
| 12+55 | 2.7953 | 6.67 | V | Q | | |
| 13+ 0 | 2.8413 | 6.68 | V | Q | | |
| 13+ 5 | 2.8938 | 7.62 | V | | Q | |
| 13+10 | 2.9498 | 8.14 | V | | Q | |
| 13+15 | 3.0064 | 8.21 | V | | Q | |
| 13+20 | 3.0631 | 8.23 | V | | Q | |
| 13+25 | 3.1199 | 8.24 | V | | Q | |
| 13+30 | 3.1767 | 8.26 | V | | Q | |
| 13+35 | 3.2210 | 6.43 | Q | V | | |
| 13+40 | 3.2583 | 5.41 | Q | V | | |
| 13+45 | 3.2948 | 5.30 | Q | V | | |
| 13+50 | 3.3313 | 5.30 | Q | V | | |
| 13+55 | 3.3678 | 5.30 | Q | V | | |
| 14+ 0 | 3.4043 | 5.30 | Q | V | | |
| 14+ 5 | 3.4447 | 5.87 | Q | V | | |
| 14+10 | 3.4873 | 6.18 | Q | V | | |
| 14+15 | 3.5301 | 6.22 | Q | V | | |
| 14+20 | 3.5720 | 6.08 | Q | V | | |

| | | | | | | |
|-------|--------|------|---|---|---|---|
| 14+25 | 3.6133 | 6.00 | | | Q | V |
| 14+30 | 3.6545 | 5.99 | | | Q | V |
| 14+35 | 3.6958 | 5.99 | | | Q | V |
| 14+40 | 3.7370 | 5.99 | | | Q | V |
| 14+45 | 3.7783 | 5.99 | | | Q | V |
| 14+50 | 3.8185 | 5.85 | | | Q | V |
| 14+55 | 3.8583 | 5.77 | | | Q | V |
| 15+ 0 | 3.8979 | 5.76 | | | Q | V |
| 15+ 5 | 3.9366 | 5.62 | | | Q | V |
| 15+10 | 3.9748 | 5.54 | | | Q | V |
| 15+15 | 4.0128 | 5.53 | | | Q | V |
| 15+20 | 4.0499 | 5.39 | | | Q | V |
| 15+25 | 4.0865 | 5.31 | | | Q | V |
| 15+30 | 4.1230 | 5.30 | | | Q | V |
| 15+35 | 4.1555 | 4.73 | | | | V |
| 15+40 | 4.1859 | 4.41 | | Q | | V |
| 15+45 | 4.2161 | 4.38 | | Q | | V |
| 15+50 | 4.2462 | 4.38 | | Q | | V |
| 15+55 | 4.2764 | 4.38 | | Q | | V |
| 16+ 0 | 4.3065 | 4.38 | | Q | | V |
| 16+ 5 | 4.3219 | 2.24 | | Q | | V |
| 16+10 | 4.3292 | 1.06 | Q | | | V |
| 16+15 | 4.3355 | 0.92 | Q | | | V |
| 16+20 | 4.3419 | 0.92 | Q | | | V |
| 16+25 | 4.3482 | 0.92 | Q | | | V |
| 16+30 | 4.3546 | 0.92 | Q | | | V |
| 16+35 | 4.3599 | 0.78 | Q | | | V |
| 16+40 | 4.3648 | 0.70 | Q | | | V |
| 16+45 | 4.3695 | 0.69 | Q | | | V |
| 16+50 | 4.3743 | 0.69 | Q | | | V |
| 16+55 | 4.3790 | 0.69 | Q | | | V |
| 17+ 0 | 4.3838 | 0.69 | Q | | | V |
| 17+ 5 | 4.3905 | 0.98 | Q | | | V |
| 17+10 | 4.3983 | 1.13 | Q | | | V |
| 17+15 | 4.4063 | 1.15 | Q | | | V |
| 17+20 | 4.4142 | 1.15 | Q | | | V |
| 17+25 | 4.4221 | 1.15 | Q | | | V |
| 17+30 | 4.4301 | 1.15 | Q | | | V |
| 17+35 | 4.4380 | 1.15 | Q | | | V |
| 17+40 | 4.4459 | 1.15 | Q | | | V |
| 17+45 | 4.4539 | 1.15 | Q | | | V |
| 17+50 | 4.4608 | 1.01 | Q | | | V |
| 17+55 | 4.4672 | 0.93 | Q | | | V |
| 18+ 0 | 4.4736 | 0.92 | Q | | | V |
| 18+ 5 | 4.4799 | 0.92 | Q | | | V |
| 18+10 | 4.4863 | 0.92 | Q | | | V |
| 18+15 | 4.4926 | 0.92 | Q | | | V |
| 18+20 | 4.4990 | 0.92 | Q | | | V |
| 18+25 | 4.5053 | 0.92 | Q | | | V |
| 18+30 | 4.5117 | 0.92 | Q | | | V |
| 18+35 | 4.5170 | 0.78 | Q | | | V |
| 18+40 | 4.5218 | 0.70 | Q | | | V |
| 18+45 | 4.5266 | 0.69 | Q | | | V |
| 18+50 | 4.5304 | 0.55 | Q | | | V |
| 18+55 | 4.5336 | 0.47 | Q | | | V |
| 19+ 0 | 4.5368 | 0.46 | Q | | | V |
| 19+ 5 | 4.5409 | 0.60 | Q | | | V |
| 19+10 | 4.5456 | 0.68 | Q | | | V |

| | | | | |
|-------|--------|------|---|---|
| 19+15 | 4.5504 | 0.69 | Q | V |
| 19+20 | 4.5561 | 0.83 | Q | V |
| 19+25 | 4.5624 | 0.91 | Q | V |
| 19+30 | 4.5688 | 0.92 | Q | V |
| 19+35 | 4.5741 | 0.78 | Q | V |
| 19+40 | 4.5790 | 0.70 | Q | V |
| 19+45 | 4.5837 | 0.69 | Q | V |
| 19+50 | 4.5875 | 0.55 | Q | V |
| 19+55 | 4.5907 | 0.47 | Q | V |
| 20+ 0 | 4.5939 | 0.46 | Q | V |
| 20+ 5 | 4.5981 | 0.60 | Q | V |
| 20+10 | 4.6028 | 0.68 | Q | V |
| 20+15 | 4.6075 | 0.69 | Q | V |
| 20+20 | 4.6123 | 0.69 | Q | V |
| 20+25 | 4.6170 | 0.69 | Q | V |
| 20+30 | 4.6218 | 0.69 | Q | V |
| 20+35 | 4.6266 | 0.69 | Q | V |
| 20+40 | 4.6313 | 0.69 | Q | V |
| 20+45 | 4.6361 | 0.69 | Q | V |
| 20+50 | 4.6399 | 0.55 | Q | V |
| 20+55 | 4.6431 | 0.47 | Q | V |
| 21+ 0 | 4.6463 | 0.46 | Q | V |
| 21+ 5 | 4.6504 | 0.60 | Q | V |
| 21+10 | 4.6551 | 0.68 | Q | V |
| 21+15 | 4.6599 | 0.69 | Q | V |
| 21+20 | 4.6637 | 0.55 | Q | V |
| 21+25 | 4.6669 | 0.47 | Q | V |
| 21+30 | 4.6701 | 0.46 | Q | V |
| 21+35 | 4.6742 | 0.60 | Q | V |
| 21+40 | 4.6789 | 0.68 | Q | V |
| 21+45 | 4.6837 | 0.69 | Q | V |
| 21+50 | 4.6875 | 0.55 | Q | V |
| 21+55 | 4.6907 | 0.47 | Q | V |
| 22+ 0 | 4.6939 | 0.46 | Q | V |
| 22+ 5 | 4.6980 | 0.60 | Q | V |
| 22+10 | 4.7027 | 0.68 | Q | V |
| 22+15 | 4.7075 | 0.69 | Q | V |
| 22+20 | 4.7113 | 0.55 | Q | V |
| 22+25 | 4.7145 | 0.47 | Q | V |
| 22+30 | 4.7177 | 0.46 | Q | V |
| 22+35 | 4.7208 | 0.46 | Q | V |
| 22+40 | 4.7240 | 0.46 | Q | V |
| 22+45 | 4.7272 | 0.46 | Q | V |
| 22+50 | 4.7304 | 0.46 | Q | V |
| 22+55 | 4.7335 | 0.46 | Q | V |
| 23+ 0 | 4.7367 | 0.46 | Q | V |
| 23+ 5 | 4.7399 | 0.46 | Q | V |
| 23+10 | 4.7430 | 0.46 | Q | V |
| 23+15 | 4.7462 | 0.46 | Q | V |
| 23+20 | 4.7494 | 0.46 | Q | V |
| 23+25 | 4.7526 | 0.46 | Q | V |
| 23+30 | 4.7557 | 0.46 | Q | V |
| 23+35 | 4.7589 | 0.46 | Q | V |
| 23+40 | 4.7621 | 0.46 | Q | V |
| 23+45 | 4.7653 | 0.46 | Q | V |
| 23+50 | 4.7684 | 0.46 | Q | V |
| 23+55 | 4.7716 | 0.46 | Q | V |
| 24+ 0 | 4.7748 | 0.46 | Q | V |

| | | | | | | | |
|-------|--------|------|---|--|--|--|---|
| 24+ 5 | 4.7760 | 0.18 | Q | | | | V |
| 24+10 | 4.7761 | 0.02 | Q | | | | V |

100YR, 1HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPREA1100.out

+++++

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

Program License Serial Number 6215

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

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.047 Hr.
Lag time = 2.79 Min.
25% of lag time = 0.70 Min.
40% of lag time = 1.12 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]
20.40 0.47 9.59

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.20 24.48

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.470(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 1.200(In)
 Areal adjustment factor = 99.98 %
 Adjusted average point rain = 1.200(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 78.0 | 0.268 | 0.050 | 0.256 | 1.000 | 0.256 |
| | | | | | | Sum (F) = 0.256 |

Area averaged mean soil loss (F) (In/Hr) = 0.256
 Minimum soil loss rate ((In/Hr)) = 0.128
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

 Slope of intensity-duration curve for a 1 hour storm =0.5000

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

 Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 179.023 | 39.529 |
| 2 | 0.167 | 358.046 | 44.857 |
| 3 | 0.250 | 537.069 | 9.704 |
| 4 | 0.333 | 716.092 | 3.987 |
| 5 | 0.417 | 895.115 | 1.923 |
| | | Sum = 100.000 | Sum= 20.559 |

 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 | 4.20 | 0.256 (0.520) | 0.349 |
| 2 | 0.17 | 4.30 | 0.256 (0.532) | 0.364 |
| 3 | 0.25 | 5.00 | 0.256 (0.619) | 0.464 |
| 4 | 0.33 | 5.00 | 0.256 (0.619) | 0.464 |
| 5 | 0.42 | 5.80 | 0.256 (0.718) | 0.579 |
| 6 | 0.50 | 6.50 | 0.256 (0.805) | 0.680 |
| 7 | 0.58 | 7.40 | 0.256 (0.916) | 0.810 |
| 8 | 0.67 | 8.60 | 0.256 (1.065) | 0.983 |
| 9 | 0.75 | 12.30 | 0.256 (1.523) | 1.515 |
| 10 | 0.83 | 29.10 | 0.256 (3.603) | 3.934 |
| 11 | 0.92 | 6.80 | 0.256 (0.842) | 0.723 |
| 12 | 1.00 | 5.00 | 0.256 (0.619) | 0.464 |

(Loss Rate Not Used)

100YR, 3HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPREA3100.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.047 Hr.
Lag time = 2.79 Min.
25% of lag time = 0.70 Min.
40% of lag time = 1.12 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]
20.40 0.80 16.32

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 1.86 37.94

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.860(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.860(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 78.0 | 0.268 | 0.050 | 0.256 | 1.000 | 0.256 |
| | | | | | | Sum (F) = 0.256 |

Area averaged mean soil loss (F) (In/Hr) = 0.256
 Minimum soil loss rate ((In/Hr)) = 0.128
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 179.023 | 39.529 |
| 2 | 0.167 | 358.046 | 44.857 |
| 3 | 0.250 | 537.069 | 9.704 |
| 4 | 0.333 | 716.092 | 3.987 |
| 5 | 0.417 | 895.115 | 1.923 |
| | | Sum = 100.000 | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|--------------------|--------------------|-----------------------|-------------------|---------------------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 1.30 | 0.290 | (0.256) 0.250 | 0.041 |
| 2 | 0.17 | 1.30 | 0.290 | (0.256) 0.250 | 0.041 |
| 3 | 0.25 | 1.10 | 0.245 | (0.256) 0.211 | 0.034 |
| 4 | 0.33 | 1.50 | 0.335 | 0.256 (0.288) | 0.079 |
| 5 | 0.42 | 1.50 | 0.335 | 0.256 (0.288) | 0.079 |
| 6 | 0.50 | 1.80 | 0.402 | 0.256 (0.345) | 0.146 |
| 7 | 0.58 | 1.50 | 0.335 | 0.256 (0.288) | 0.079 |
| 8 | 0.67 | 1.80 | 0.402 | 0.256 (0.345) | 0.146 |
| 9 | 0.75 | 1.80 | 0.402 | 0.256 (0.345) | 0.146 |
| 10 | 0.83 | 1.50 | 0.335 | 0.256 (0.288) | 0.079 |
| 11 | 0.92 | 1.60 | 0.357 | 0.256 (0.307) | 0.102 |
| 12 | 1.00 | 1.80 | 0.402 | 0.256 (0.345) | 0.146 |
| 13 | 1.08 | 2.20 | 0.491 | 0.256 (0.422) | 0.235 |
| 14 | 1.17 | 2.20 | 0.491 | 0.256 (0.422) | 0.235 |
| 15 | 1.25 | 2.20 | 0.491 | 0.256 (0.422) | 0.235 |

100YR, 6HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPREA6100.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.047 Hr.
Lag time = 2.79 Min.
25% of lag time = 0.70 Min.
40% of lag time = 1.12 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]
20.40 1.00 20.40

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 2.50 51.00

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 2.500(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 2.500(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 78.0 | 0.268 | 0.050 | 0.256 | 1.000 | 0.256 |
| | | | | | | Sum (F) = 0.256 |

Area averaged mean soil loss (F) (In/Hr) = 0.256
 Minimum soil loss rate ((In/Hr)) = 0.128
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 179.023 | 39.529 |
| 2 | 0.167 | 358.046 | 44.857 |
| 3 | 0.250 | 537.069 | 9.704 |
| 4 | 0.333 | 716.092 | 3.987 |
| 5 | 0.417 | 895.115 | 1.923 |
| Sum = 100.000 | | | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|--------------------|--------------------|-----------------------|-------------------|-------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 0.50 | (0.256) | 0.129 | 0.021 |
| 2 | 0.17 | 0.60 | (0.256) | 0.155 | 0.025 |
| 3 | 0.25 | 0.60 | (0.256) | 0.155 | 0.025 |
| 4 | 0.33 | 0.60 | (0.256) | 0.155 | 0.025 |
| 5 | 0.42 | 0.60 | (0.256) | 0.155 | 0.025 |
| 6 | 0.50 | 0.70 | (0.256) | 0.181 | 0.029 |
| 7 | 0.58 | 0.70 | (0.256) | 0.181 | 0.029 |
| 8 | 0.67 | 0.70 | (0.256) | 0.181 | 0.029 |
| 9 | 0.75 | 0.70 | (0.256) | 0.181 | 0.029 |
| 10 | 0.83 | 0.70 | (0.256) | 0.181 | 0.029 |
| 11 | 0.92 | 0.70 | (0.256) | 0.181 | 0.029 |
| 12 | 1.00 | 0.80 | (0.256) | 0.206 | 0.034 |
| 13 | 1.08 | 0.80 | (0.256) | 0.206 | 0.034 |
| 14 | 1.17 | 0.80 | (0.256) | 0.206 | 0.034 |
| 15 | 1.25 | 0.80 | (0.256) | 0.206 | 0.034 |

| | | | | | | |
|----|------|------|-------|----------------|-------|-------|
| 16 | 1.33 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 17 | 1.42 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 18 | 1.50 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 19 | 1.58 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 20 | 1.67 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 21 | 1.75 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 22 | 1.83 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 23 | 1.92 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 24 | 2.00 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 25 | 2.08 | 0.80 | 0.240 | (0.256) | 0.206 | 0.034 |
| 26 | 2.17 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 27 | 2.25 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 28 | 2.33 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 29 | 2.42 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 30 | 2.50 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 31 | 2.58 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 32 | 2.67 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 33 | 2.75 | 1.00 | 0.300 | 0.256 (0.258) | | 0.044 |
| 34 | 2.83 | 1.00 | 0.300 | 0.256 (0.258) | | 0.044 |
| 35 | 2.92 | 1.00 | 0.300 | 0.256 (0.258) | | 0.044 |
| 36 | 3.00 | 1.00 | 0.300 | 0.256 (0.258) | | 0.044 |
| 37 | 3.08 | 1.00 | 0.300 | 0.256 (0.258) | | 0.044 |
| 38 | 3.17 | 1.10 | 0.330 | 0.256 (0.284) | | 0.074 |
| 39 | 3.25 | 1.10 | 0.330 | 0.256 (0.284) | | 0.074 |
| 40 | 3.33 | 1.10 | 0.330 | 0.256 (0.284) | | 0.074 |
| 41 | 3.42 | 1.20 | 0.360 | 0.256 (0.310) | | 0.104 |
| 42 | 3.50 | 1.30 | 0.390 | 0.256 (0.335) | | 0.134 |
| 43 | 3.58 | 1.40 | 0.420 | 0.256 (0.361) | | 0.164 |
| 44 | 3.67 | 1.40 | 0.420 | 0.256 (0.361) | | 0.164 |
| 45 | 3.75 | 1.50 | 0.450 | 0.256 (0.387) | | 0.194 |
| 46 | 3.83 | 1.50 | 0.450 | 0.256 (0.387) | | 0.194 |
| 47 | 3.92 | 1.60 | 0.480 | 0.256 (0.413) | | 0.224 |
| 48 | 4.00 | 1.60 | 0.480 | 0.256 (0.413) | | 0.224 |
| 49 | 4.08 | 1.70 | 0.510 | 0.256 (0.439) | | 0.254 |
| 50 | 4.17 | 1.80 | 0.540 | 0.256 (0.464) | | 0.284 |
| 51 | 4.25 | 1.90 | 0.570 | 0.256 (0.490) | | 0.314 |
| 52 | 4.33 | 2.00 | 0.600 | 0.256 (0.516) | | 0.344 |
| 53 | 4.42 | 2.10 | 0.630 | 0.256 (0.542) | | 0.374 |
| 54 | 4.50 | 2.10 | 0.630 | 0.256 (0.542) | | 0.374 |
| 55 | 4.58 | 2.20 | 0.660 | 0.256 (0.568) | | 0.404 |
| 56 | 4.67 | 2.30 | 0.690 | 0.256 (0.593) | | 0.434 |
| 57 | 4.75 | 2.40 | 0.720 | 0.256 (0.619) | | 0.464 |
| 58 | 4.83 | 2.40 | 0.720 | 0.256 (0.619) | | 0.464 |
| 59 | 4.92 | 2.50 | 0.750 | 0.256 (0.645) | | 0.494 |
| 60 | 5.00 | 2.60 | 0.780 | 0.256 (0.671) | | 0.524 |
| 61 | 5.08 | 3.10 | 0.930 | 0.256 (0.800) | | 0.674 |
| 62 | 5.17 | 3.60 | 1.080 | 0.256 (0.929) | | 0.824 |
| 63 | 5.25 | 3.90 | 1.170 | 0.256 (1.006) | | 0.914 |
| 64 | 5.33 | 4.20 | 1.260 | 0.256 (1.084) | | 1.004 |
| 65 | 5.42 | 4.70 | 1.410 | 0.256 (1.213) | | 1.154 |
| 66 | 5.50 | 5.60 | 1.680 | 0.256 (1.445) | | 1.424 |
| 67 | 5.58 | 1.90 | 0.570 | 0.256 (0.490) | | 0.314 |
| 68 | 5.67 | 0.90 | 0.270 | (0.256) | 0.232 | 0.038 |
| 69 | 5.75 | 0.60 | 0.180 | (0.256) | 0.155 | 0.025 |
| 70 | 5.83 | 0.50 | 0.150 | (0.256) | 0.129 | 0.021 |
| 71 | 5.92 | 0.30 | 0.090 | (0.256) | 0.077 | 0.013 |
| 72 | 6.00 | 0.20 | 0.060 | (0.256) | 0.052 | 0.008 |

(Loss Rate Not Used)

100YR, 24HR PRE-DEVELOPED

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 08/15/21 File: 100YRPREA24100.out

+++++

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

Program License Serial Number 6215

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

English Units used in output format

Drainage Area = 20.40(Ac.) = 0.032 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.40(Ac.) = 0.032 Sq. Mi.
Length along longest watercourse = 1254.00(Ft.)
Length along longest watercourse measured to centroid = 102.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.019 Mi.
Difference in elevation = 9.10(Ft.)
Slope along watercourse = 38.3158 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.047 Hr.
Lag time = 2.79 Min.
25% of lag time = 0.70 Min.
40% of lag time = 1.12 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]
20.40 1.60 32.64

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
20.40 4.00 81.60

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.600(In)
Area Averaged 100-Year Rainfall = 4.000(In)

Point rain (area averaged) = 4.000(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 4.000(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 20.400 78.00 0.050
 Total Area Entered = 20.40(Ac.)

| | | | | | | |
|------|-------|-------------|------------|------------------|--------|-----------------|
| RI | RI | Infil. Rate | Impervious | Adj. Infil. Rate | Area% | F |
| AMC2 | AMC-2 | (In/Hr) | (Dec.%) | (In/Hr) | (Dec.) | (In/Hr) |
| 78.0 | 78.0 | 0.268 | 0.050 | 0.256 | 1.000 | 0.256 |
| | | | | | | Sum (F) = 0.256 |

Area averaged mean soil loss (F) (In/Hr) = 0.256
 Minimum soil loss rate ((In/Hr)) = 0.128
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.860

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

Unit Hydrograph Data

| Unit time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---------------------------|---------------|-------------------------|--------------------------|
| 1 | 0.083 | 179.023 | 39.529 |
| 2 | 0.167 | 358.046 | 44.857 |
| 3 | 0.250 | 537.069 | 9.704 |
| 4 | 0.333 | 716.092 | 3.987 |
| 5 | 0.417 | 895.115 | 1.923 |
| Sum = 100.000 | | | Sum= 20.559 |

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

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) | | Effective (In/Hr) |
|--------------------|--------------------|-----------------------|-------------------|-------|----------------------|
| | | | Max | Low | |
| 1 | 0.08 | 0.07 | (0.453) | 0.028 | 0.004 |
| 2 | 0.17 | 0.07 | (0.451) | 0.028 | 0.004 |
| 3 | 0.25 | 0.07 | (0.450) | 0.028 | 0.004 |
| 4 | 0.33 | 0.10 | (0.448) | 0.041 | 0.007 |
| 5 | 0.42 | 0.10 | (0.446) | 0.041 | 0.007 |
| 6 | 0.50 | 0.10 | (0.444) | 0.041 | 0.007 |
| 7 | 0.58 | 0.10 | (0.443) | 0.041 | 0.007 |
| 8 | 0.67 | 0.10 | (0.441) | 0.041 | 0.007 |
| 9 | 0.75 | 0.10 | (0.439) | 0.041 | 0.007 |
| 10 | 0.83 | 0.13 | (0.437) | 0.055 | 0.009 |
| 11 | 0.92 | 0.13 | (0.436) | 0.055 | 0.009 |
| 12 | 1.00 | 0.13 | (0.434) | 0.055 | 0.009 |
| 13 | 1.08 | 0.10 | (0.432) | 0.041 | 0.007 |
| 14 | 1.17 | 0.10 | (0.431) | 0.041 | 0.007 |
| 15 | 1.25 | 0.10 | (0.429) | 0.041 | 0.007 |

| | | | | | | |
|----|------|------|-------|----------|-------|-------|
| 16 | 1.33 | 0.10 | 0.048 | (0.427) | 0.041 | 0.007 |
| 17 | 1.42 | 0.10 | 0.048 | (0.425) | 0.041 | 0.007 |
| 18 | 1.50 | 0.10 | 0.048 | (0.424) | 0.041 | 0.007 |
| 19 | 1.58 | 0.10 | 0.048 | (0.422) | 0.041 | 0.007 |
| 20 | 1.67 | 0.10 | 0.048 | (0.420) | 0.041 | 0.007 |
| 21 | 1.75 | 0.10 | 0.048 | (0.419) | 0.041 | 0.007 |
| 22 | 1.83 | 0.13 | 0.064 | (0.417) | 0.055 | 0.009 |
| 23 | 1.92 | 0.13 | 0.064 | (0.415) | 0.055 | 0.009 |
| 24 | 2.00 | 0.13 | 0.064 | (0.414) | 0.055 | 0.009 |
| 25 | 2.08 | 0.13 | 0.064 | (0.412) | 0.055 | 0.009 |
| 26 | 2.17 | 0.13 | 0.064 | (0.410) | 0.055 | 0.009 |
| 27 | 2.25 | 0.13 | 0.064 | (0.409) | 0.055 | 0.009 |
| 28 | 2.33 | 0.13 | 0.064 | (0.407) | 0.055 | 0.009 |
| 29 | 2.42 | 0.13 | 0.064 | (0.405) | 0.055 | 0.009 |
| 30 | 2.50 | 0.13 | 0.064 | (0.404) | 0.055 | 0.009 |
| 31 | 2.58 | 0.17 | 0.080 | (0.402) | 0.069 | 0.011 |
| 32 | 2.67 | 0.17 | 0.080 | (0.400) | 0.069 | 0.011 |
| 33 | 2.75 | 0.17 | 0.080 | (0.399) | 0.069 | 0.011 |
| 34 | 2.83 | 0.17 | 0.080 | (0.397) | 0.069 | 0.011 |
| 35 | 2.92 | 0.17 | 0.080 | (0.395) | 0.069 | 0.011 |
| 36 | 3.00 | 0.17 | 0.080 | (0.394) | 0.069 | 0.011 |
| 37 | 3.08 | 0.17 | 0.080 | (0.392) | 0.069 | 0.011 |
| 38 | 3.17 | 0.17 | 0.080 | (0.390) | 0.069 | 0.011 |
| 39 | 3.25 | 0.17 | 0.080 | (0.389) | 0.069 | 0.011 |
| 40 | 3.33 | 0.17 | 0.080 | (0.387) | 0.069 | 0.011 |
| 41 | 3.42 | 0.17 | 0.080 | (0.386) | 0.069 | 0.011 |
| 42 | 3.50 | 0.17 | 0.080 | (0.384) | 0.069 | 0.011 |
| 43 | 3.58 | 0.17 | 0.080 | (0.382) | 0.069 | 0.011 |
| 44 | 3.67 | 0.17 | 0.080 | (0.381) | 0.069 | 0.011 |
| 45 | 3.75 | 0.17 | 0.080 | (0.379) | 0.069 | 0.011 |
| 46 | 3.83 | 0.20 | 0.096 | (0.378) | 0.083 | 0.013 |
| 47 | 3.92 | 0.20 | 0.096 | (0.376) | 0.083 | 0.013 |
| 48 | 4.00 | 0.20 | 0.096 | (0.374) | 0.083 | 0.013 |
| 49 | 4.08 | 0.20 | 0.096 | (0.373) | 0.083 | 0.013 |
| 50 | 4.17 | 0.20 | 0.096 | (0.371) | 0.083 | 0.013 |
| 51 | 4.25 | 0.20 | 0.096 | (0.370) | 0.083 | 0.013 |
| 52 | 4.33 | 0.23 | 0.112 | (0.368) | 0.096 | 0.016 |
| 53 | 4.42 | 0.23 | 0.112 | (0.367) | 0.096 | 0.016 |
| 54 | 4.50 | 0.23 | 0.112 | (0.365) | 0.096 | 0.016 |
| 55 | 4.58 | 0.23 | 0.112 | (0.363) | 0.096 | 0.016 |
| 56 | 4.67 | 0.23 | 0.112 | (0.362) | 0.096 | 0.016 |
| 57 | 4.75 | 0.23 | 0.112 | (0.360) | 0.096 | 0.016 |
| 58 | 4.83 | 0.27 | 0.128 | (0.359) | 0.110 | 0.018 |
| 59 | 4.92 | 0.27 | 0.128 | (0.357) | 0.110 | 0.018 |
| 60 | 5.00 | 0.27 | 0.128 | (0.356) | 0.110 | 0.018 |
| 61 | 5.08 | 0.20 | 0.096 | (0.354) | 0.083 | 0.013 |
| 62 | 5.17 | 0.20 | 0.096 | (0.353) | 0.083 | 0.013 |
| 63 | 5.25 | 0.20 | 0.096 | (0.351) | 0.083 | 0.013 |
| 64 | 5.33 | 0.23 | 0.112 | (0.349) | 0.096 | 0.016 |
| 65 | 5.42 | 0.23 | 0.112 | (0.348) | 0.096 | 0.016 |
| 66 | 5.50 | 0.23 | 0.112 | (0.346) | 0.096 | 0.016 |
| 67 | 5.58 | 0.27 | 0.128 | (0.345) | 0.110 | 0.018 |
| 68 | 5.67 | 0.27 | 0.128 | (0.343) | 0.110 | 0.018 |
| 69 | 5.75 | 0.27 | 0.128 | (0.342) | 0.110 | 0.018 |
| 70 | 5.83 | 0.27 | 0.128 | (0.340) | 0.110 | 0.018 |
| 71 | 5.92 | 0.27 | 0.128 | (0.339) | 0.110 | 0.018 |
| 72 | 6.00 | 0.27 | 0.128 | (0.337) | 0.110 | 0.018 |
| 73 | 6.08 | 0.30 | 0.144 | (0.336) | 0.124 | 0.020 |

| | | | | | | |
|-----|-------|------|-------|----------------|----------------|-------|
| 74 | 6.17 | 0.30 | 0.144 | (0.334) | 0.124 | 0.020 |
| 75 | 6.25 | 0.30 | 0.144 | (0.333) | 0.124 | 0.020 |
| 76 | 6.33 | 0.30 | 0.144 | (0.331) | 0.124 | 0.020 |
| 77 | 6.42 | 0.30 | 0.144 | (0.330) | 0.124 | 0.020 |
| 78 | 6.50 | 0.30 | 0.144 | (0.328) | 0.124 | 0.020 |
| 79 | 6.58 | 0.33 | 0.160 | (0.327) | 0.138 | 0.022 |
| 80 | 6.67 | 0.33 | 0.160 | (0.325) | 0.138 | 0.022 |
| 81 | 6.75 | 0.33 | 0.160 | (0.324) | 0.138 | 0.022 |
| 82 | 6.83 | 0.33 | 0.160 | (0.323) | 0.138 | 0.022 |
| 83 | 6.92 | 0.33 | 0.160 | (0.321) | 0.138 | 0.022 |
| 84 | 7.00 | 0.33 | 0.160 | (0.320) | 0.138 | 0.022 |
| 85 | 7.08 | 0.33 | 0.160 | (0.318) | 0.138 | 0.022 |
| 86 | 7.17 | 0.33 | 0.160 | (0.317) | 0.138 | 0.022 |
| 87 | 7.25 | 0.33 | 0.160 | (0.315) | 0.138 | 0.022 |
| 88 | 7.33 | 0.37 | 0.176 | (0.314) | 0.151 | 0.025 |
| 89 | 7.42 | 0.37 | 0.176 | (0.312) | 0.151 | 0.025 |
| 90 | 7.50 | 0.37 | 0.176 | (0.311) | 0.151 | 0.025 |
| 91 | 7.58 | 0.40 | 0.192 | (0.310) | 0.165 | 0.027 |
| 92 | 7.67 | 0.40 | 0.192 | (0.308) | 0.165 | 0.027 |
| 93 | 7.75 | 0.40 | 0.192 | (0.307) | 0.165 | 0.027 |
| 94 | 7.83 | 0.43 | 0.208 | (0.305) | 0.179 | 0.029 |
| 95 | 7.92 | 0.43 | 0.208 | (0.304) | 0.179 | 0.029 |
| 96 | 8.00 | 0.43 | 0.208 | (0.302) | 0.179 | 0.029 |
| 97 | 8.08 | 0.50 | 0.240 | (0.301) | 0.206 | 0.034 |
| 98 | 8.17 | 0.50 | 0.240 | (0.300) | 0.206 | 0.034 |
| 99 | 8.25 | 0.50 | 0.240 | (0.298) | 0.206 | 0.034 |
| 100 | 8.33 | 0.50 | 0.240 | (0.297) | 0.206 | 0.034 |
| 101 | 8.42 | 0.50 | 0.240 | (0.295) | 0.206 | 0.034 |
| 102 | 8.50 | 0.50 | 0.240 | (0.294) | 0.206 | 0.034 |
| 103 | 8.58 | 0.53 | 0.256 | (0.293) | 0.220 | 0.036 |
| 104 | 8.67 | 0.53 | 0.256 | (0.291) | 0.220 | 0.036 |
| 105 | 8.75 | 0.53 | 0.256 | (0.290) | 0.220 | 0.036 |
| 106 | 8.83 | 0.57 | 0.272 | (0.289) | 0.234 | 0.038 |
| 107 | 8.92 | 0.57 | 0.272 | (0.287) | 0.234 | 0.038 |
| 108 | 9.00 | 0.57 | 0.272 | (0.286) | 0.234 | 0.038 |
| 109 | 9.08 | 0.63 | 0.304 | (0.285) | 0.261 | 0.043 |
| 110 | 9.17 | 0.63 | 0.304 | (0.283) | 0.261 | 0.043 |
| 111 | 9.25 | 0.63 | 0.304 | (0.282) | 0.261 | 0.043 |
| 112 | 9.33 | 0.67 | 0.320 | (0.280) | 0.275 | 0.045 |
| 113 | 9.42 | 0.67 | 0.320 | (0.279) | 0.275 | 0.045 |
| 114 | 9.50 | 0.67 | 0.320 | (0.278) | 0.275 | 0.045 |
| 115 | 9.58 | 0.70 | 0.336 | 0.276 (0.289) | 0.275 | 0.060 |
| 116 | 9.67 | 0.70 | 0.336 | 0.275 (0.289) | 0.274 (0.289) | 0.061 |
| 117 | 9.75 | 0.70 | 0.336 | 0.274 (0.289) | 0.272 (0.303) | 0.062 |
| 118 | 9.83 | 0.73 | 0.352 | 0.272 (0.303) | 0.271 (0.303) | 0.079 |
| 119 | 9.92 | 0.73 | 0.352 | 0.271 (0.303) | 0.270 (0.303) | 0.081 |
| 120 | 10.00 | 0.73 | 0.352 | 0.270 (0.303) | 0.269 (0.269) | 0.082 |
| 121 | 10.08 | 0.50 | 0.240 | (0.269) | 0.267 (0.267) | 0.034 |
| 122 | 10.17 | 0.50 | 0.240 | (0.267) | 0.266 (0.266) | 0.034 |
| 123 | 10.25 | 0.50 | 0.240 | (0.266) | 0.265 (0.265) | 0.034 |
| 124 | 10.33 | 0.50 | 0.240 | (0.265) | 0.263 (0.263) | 0.034 |
| 125 | 10.42 | 0.50 | 0.240 | (0.263) | 0.262 (0.262) | 0.034 |
| 126 | 10.50 | 0.50 | 0.240 | (0.262) | 0.261 (0.275) | 0.034 |
| 127 | 10.58 | 0.67 | 0.320 | 0.261 (0.275) | 0.260 (0.275) | 0.059 |
| 128 | 10.67 | 0.67 | 0.320 | 0.260 (0.275) | 0.258 (0.275) | 0.060 |
| 129 | 10.75 | 0.67 | 0.320 | 0.258 (0.275) | 0.257 (0.275) | 0.062 |
| 130 | 10.83 | 0.67 | 0.320 | 0.257 (0.275) | 0.256 (0.275) | 0.063 |
| 131 | 10.92 | 0.67 | 0.320 | 0.256 (0.275) | | 0.064 |

| | | | | | | |
|-----|-------|------|-------|----------|----------|-------|
| 132 | 11.00 | 0.67 | 0.320 | 0.254 | (0.275) | 0.065 |
| 133 | 11.08 | 0.63 | 0.304 | 0.253 | (0.261) | 0.051 |
| 134 | 11.17 | 0.63 | 0.304 | 0.252 | (0.261) | 0.052 |
| 135 | 11.25 | 0.63 | 0.304 | 0.251 | (0.261) | 0.053 |
| 136 | 11.33 | 0.63 | 0.304 | 0.250 | (0.261) | 0.054 |
| 137 | 11.42 | 0.63 | 0.304 | 0.248 | (0.261) | 0.056 |
| 138 | 11.50 | 0.63 | 0.304 | 0.247 | (0.261) | 0.057 |
| 139 | 11.58 | 0.57 | 0.272 | (0.246) | 0.234 | 0.038 |
| 140 | 11.67 | 0.57 | 0.272 | (0.245) | 0.234 | 0.038 |
| 141 | 11.75 | 0.57 | 0.272 | (0.243) | 0.234 | 0.038 |
| 142 | 11.83 | 0.60 | 0.288 | 0.242 | (0.248) | 0.046 |
| 143 | 11.92 | 0.60 | 0.288 | 0.241 | (0.248) | 0.047 |
| 144 | 12.00 | 0.60 | 0.288 | 0.240 | (0.248) | 0.048 |
| 145 | 12.08 | 0.83 | 0.400 | 0.239 | (0.344) | 0.161 |
| 146 | 12.17 | 0.83 | 0.400 | 0.237 | (0.344) | 0.163 |
| 147 | 12.25 | 0.83 | 0.400 | 0.236 | (0.344) | 0.164 |
| 148 | 12.33 | 0.87 | 0.416 | 0.235 | (0.358) | 0.181 |
| 149 | 12.42 | 0.87 | 0.416 | 0.234 | (0.358) | 0.182 |
| 150 | 12.50 | 0.87 | 0.416 | 0.233 | (0.358) | 0.183 |
| 151 | 12.58 | 0.93 | 0.448 | 0.231 | (0.385) | 0.217 |
| 152 | 12.67 | 0.93 | 0.448 | 0.230 | (0.385) | 0.218 |
| 153 | 12.75 | 0.93 | 0.448 | 0.229 | (0.385) | 0.219 |
| 154 | 12.83 | 0.97 | 0.464 | 0.228 | (0.399) | 0.236 |
| 155 | 12.92 | 0.97 | 0.464 | 0.227 | (0.399) | 0.237 |
| 156 | 13.00 | 0.97 | 0.464 | 0.226 | (0.399) | 0.238 |
| 157 | 13.08 | 1.13 | 0.544 | 0.225 | (0.468) | 0.319 |
| 158 | 13.17 | 1.13 | 0.544 | 0.223 | (0.468) | 0.321 |
| 159 | 13.25 | 1.13 | 0.544 | 0.222 | (0.468) | 0.322 |
| 160 | 13.33 | 1.13 | 0.544 | 0.221 | (0.468) | 0.323 |
| 161 | 13.42 | 1.13 | 0.544 | 0.220 | (0.468) | 0.324 |
| 162 | 13.50 | 1.13 | 0.544 | 0.219 | (0.468) | 0.325 |
| 163 | 13.58 | 0.77 | 0.368 | 0.218 | (0.316) | 0.150 |
| 164 | 13.67 | 0.77 | 0.368 | 0.217 | (0.316) | 0.151 |
| 165 | 13.75 | 0.77 | 0.368 | 0.216 | (0.316) | 0.152 |
| 166 | 13.83 | 0.77 | 0.368 | 0.214 | (0.316) | 0.154 |
| 167 | 13.92 | 0.77 | 0.368 | 0.213 | (0.316) | 0.155 |
| 168 | 14.00 | 0.77 | 0.368 | 0.212 | (0.316) | 0.156 |
| 169 | 14.08 | 0.90 | 0.432 | 0.211 | (0.372) | 0.221 |
| 170 | 14.17 | 0.90 | 0.432 | 0.210 | (0.372) | 0.222 |
| 171 | 14.25 | 0.90 | 0.432 | 0.209 | (0.372) | 0.223 |
| 172 | 14.33 | 0.87 | 0.416 | 0.208 | (0.358) | 0.208 |
| 173 | 14.42 | 0.87 | 0.416 | 0.207 | (0.358) | 0.209 |
| 174 | 14.50 | 0.87 | 0.416 | 0.206 | (0.358) | 0.210 |
| 175 | 14.58 | 0.87 | 0.416 | 0.205 | (0.358) | 0.211 |
| 176 | 14.67 | 0.87 | 0.416 | 0.204 | (0.358) | 0.212 |
| 177 | 14.75 | 0.87 | 0.416 | 0.203 | (0.358) | 0.213 |
| 178 | 14.83 | 0.83 | 0.400 | 0.202 | (0.344) | 0.198 |
| 179 | 14.92 | 0.83 | 0.400 | 0.201 | (0.344) | 0.199 |
| 180 | 15.00 | 0.83 | 0.400 | 0.200 | (0.344) | 0.200 |
| 181 | 15.08 | 0.80 | 0.384 | 0.199 | (0.330) | 0.185 |
| 182 | 15.17 | 0.80 | 0.384 | 0.198 | (0.330) | 0.186 |
| 183 | 15.25 | 0.80 | 0.384 | 0.197 | (0.330) | 0.187 |
| 184 | 15.33 | 0.77 | 0.368 | 0.196 | (0.316) | 0.172 |
| 185 | 15.42 | 0.77 | 0.368 | 0.195 | (0.316) | 0.173 |
| 186 | 15.50 | 0.77 | 0.368 | 0.194 | (0.316) | 0.174 |
| 187 | 15.58 | 0.63 | 0.304 | 0.193 | (0.261) | 0.111 |
| 188 | 15.67 | 0.63 | 0.304 | 0.192 | (0.261) | 0.112 |
| 189 | 15.75 | 0.63 | 0.304 | 0.191 | (0.261) | 0.113 |

| | | | | | | |
|-----|-------|------|-------|----------|----------|-------|
| 190 | 15.83 | 0.63 | 0.304 | 0.190 | (0.261) | 0.114 |
| 191 | 15.92 | 0.63 | 0.304 | 0.189 | (0.261) | 0.115 |
| 192 | 16.00 | 0.63 | 0.304 | 0.188 | (0.261) | 0.116 |
| 193 | 16.08 | 0.13 | 0.064 | (0.187) | 0.055 | 0.009 |
| 194 | 16.17 | 0.13 | 0.064 | (0.186) | 0.055 | 0.009 |
| 195 | 16.25 | 0.13 | 0.064 | (0.185) | 0.055 | 0.009 |
| 196 | 16.33 | 0.13 | 0.064 | (0.184) | 0.055 | 0.009 |
| 197 | 16.42 | 0.13 | 0.064 | (0.183) | 0.055 | 0.009 |
| 198 | 16.50 | 0.13 | 0.064 | (0.182) | 0.055 | 0.009 |
| 199 | 16.58 | 0.10 | 0.048 | (0.181) | 0.041 | 0.007 |
| 200 | 16.67 | 0.10 | 0.048 | (0.180) | 0.041 | 0.007 |
| 201 | 16.75 | 0.10 | 0.048 | (0.179) | 0.041 | 0.007 |
| 202 | 16.83 | 0.10 | 0.048 | (0.178) | 0.041 | 0.007 |
| 203 | 16.92 | 0.10 | 0.048 | (0.177) | 0.041 | 0.007 |
| 204 | 17.00 | 0.10 | 0.048 | (0.177) | 0.041 | 0.007 |
| 205 | 17.08 | 0.17 | 0.080 | (0.176) | 0.069 | 0.011 |
| 206 | 17.17 | 0.17 | 0.080 | (0.175) | 0.069 | 0.011 |
| 207 | 17.25 | 0.17 | 0.080 | (0.174) | 0.069 | 0.011 |
| 208 | 17.33 | 0.17 | 0.080 | (0.173) | 0.069 | 0.011 |
| 209 | 17.42 | 0.17 | 0.080 | (0.172) | 0.069 | 0.011 |
| 210 | 17.50 | 0.17 | 0.080 | (0.171) | 0.069 | 0.011 |
| 211 | 17.58 | 0.17 | 0.080 | (0.170) | 0.069 | 0.011 |
| 212 | 17.67 | 0.17 | 0.080 | (0.170) | 0.069 | 0.011 |
| 213 | 17.75 | 0.17 | 0.080 | (0.169) | 0.069 | 0.011 |
| 214 | 17.83 | 0.13 | 0.064 | (0.168) | 0.055 | 0.009 |
| 215 | 17.92 | 0.13 | 0.064 | (0.167) | 0.055 | 0.009 |
| 216 | 18.00 | 0.13 | 0.064 | (0.166) | 0.055 | 0.009 |
| 217 | 18.08 | 0.13 | 0.064 | (0.165) | 0.055 | 0.009 |
| 218 | 18.17 | 0.13 | 0.064 | (0.165) | 0.055 | 0.009 |
| 219 | 18.25 | 0.13 | 0.064 | (0.164) | 0.055 | 0.009 |
| 220 | 18.33 | 0.13 | 0.064 | (0.163) | 0.055 | 0.009 |
| 221 | 18.42 | 0.13 | 0.064 | (0.162) | 0.055 | 0.009 |
| 222 | 18.50 | 0.13 | 0.064 | (0.161) | 0.055 | 0.009 |
| 223 | 18.58 | 0.10 | 0.048 | (0.161) | 0.041 | 0.007 |
| 224 | 18.67 | 0.10 | 0.048 | (0.160) | 0.041 | 0.007 |
| 225 | 18.75 | 0.10 | 0.048 | (0.159) | 0.041 | 0.007 |
| 226 | 18.83 | 0.07 | 0.032 | (0.158) | 0.028 | 0.004 |
| 227 | 18.92 | 0.07 | 0.032 | (0.158) | 0.028 | 0.004 |
| 228 | 19.00 | 0.07 | 0.032 | (0.157) | 0.028 | 0.004 |
| 229 | 19.08 | 0.10 | 0.048 | (0.156) | 0.041 | 0.007 |
| 230 | 19.17 | 0.10 | 0.048 | (0.155) | 0.041 | 0.007 |
| 231 | 19.25 | 0.10 | 0.048 | (0.155) | 0.041 | 0.007 |
| 232 | 19.33 | 0.13 | 0.064 | (0.154) | 0.055 | 0.009 |
| 233 | 19.42 | 0.13 | 0.064 | (0.153) | 0.055 | 0.009 |
| 234 | 19.50 | 0.13 | 0.064 | (0.152) | 0.055 | 0.009 |
| 235 | 19.58 | 0.10 | 0.048 | (0.152) | 0.041 | 0.007 |
| 236 | 19.67 | 0.10 | 0.048 | (0.151) | 0.041 | 0.007 |
| 237 | 19.75 | 0.10 | 0.048 | (0.150) | 0.041 | 0.007 |
| 238 | 19.83 | 0.07 | 0.032 | (0.150) | 0.028 | 0.004 |
| 239 | 19.92 | 0.07 | 0.032 | (0.149) | 0.028 | 0.004 |
| 240 | 20.00 | 0.07 | 0.032 | (0.148) | 0.028 | 0.004 |
| 241 | 20.08 | 0.10 | 0.048 | (0.148) | 0.041 | 0.007 |
| 242 | 20.17 | 0.10 | 0.048 | (0.147) | 0.041 | 0.007 |
| 243 | 20.25 | 0.10 | 0.048 | (0.146) | 0.041 | 0.007 |
| 244 | 20.33 | 0.10 | 0.048 | (0.146) | 0.041 | 0.007 |
| 245 | 20.42 | 0.10 | 0.048 | (0.145) | 0.041 | 0.007 |
| 246 | 20.50 | 0.10 | 0.048 | (0.145) | 0.041 | 0.007 |
| 247 | 20.58 | 0.10 | 0.048 | (0.144) | 0.041 | 0.007 |

| | | | | | | |
|-----|-------|------|-------|----------|-------|-------|
| 248 | 20.67 | 0.10 | 0.048 | (0.143) | 0.041 | 0.007 |
| 249 | 20.75 | 0.10 | 0.048 | (0.143) | 0.041 | 0.007 |
| 250 | 20.83 | 0.07 | 0.032 | (0.142) | 0.028 | 0.004 |
| 251 | 20.92 | 0.07 | 0.032 | (0.142) | 0.028 | 0.004 |
| 252 | 21.00 | 0.07 | 0.032 | (0.141) | 0.028 | 0.004 |
| 253 | 21.08 | 0.10 | 0.048 | (0.140) | 0.041 | 0.007 |
| 254 | 21.17 | 0.10 | 0.048 | (0.140) | 0.041 | 0.007 |
| 255 | 21.25 | 0.10 | 0.048 | (0.139) | 0.041 | 0.007 |
| 256 | 21.33 | 0.07 | 0.032 | (0.139) | 0.028 | 0.004 |
| 257 | 21.42 | 0.07 | 0.032 | (0.138) | 0.028 | 0.004 |
| 258 | 21.50 | 0.07 | 0.032 | (0.138) | 0.028 | 0.004 |
| 259 | 21.58 | 0.10 | 0.048 | (0.137) | 0.041 | 0.007 |
| 260 | 21.67 | 0.10 | 0.048 | (0.137) | 0.041 | 0.007 |
| 261 | 21.75 | 0.10 | 0.048 | (0.136) | 0.041 | 0.007 |
| 262 | 21.83 | 0.07 | 0.032 | (0.136) | 0.028 | 0.004 |
| 263 | 21.92 | 0.07 | 0.032 | (0.135) | 0.028 | 0.004 |
| 264 | 22.00 | 0.07 | 0.032 | (0.135) | 0.028 | 0.004 |
| 265 | 22.08 | 0.10 | 0.048 | (0.134) | 0.041 | 0.007 |
| 266 | 22.17 | 0.10 | 0.048 | (0.134) | 0.041 | 0.007 |
| 267 | 22.25 | 0.10 | 0.048 | (0.134) | 0.041 | 0.007 |
| 268 | 22.33 | 0.07 | 0.032 | (0.133) | 0.028 | 0.004 |
| 269 | 22.42 | 0.07 | 0.032 | (0.133) | 0.028 | 0.004 |
| 270 | 22.50 | 0.07 | 0.032 | (0.132) | 0.028 | 0.004 |
| 271 | 22.58 | 0.07 | 0.032 | (0.132) | 0.028 | 0.004 |
| 272 | 22.67 | 0.07 | 0.032 | (0.132) | 0.028 | 0.004 |
| 273 | 22.75 | 0.07 | 0.032 | (0.131) | 0.028 | 0.004 |
| 274 | 22.83 | 0.07 | 0.032 | (0.131) | 0.028 | 0.004 |
| 275 | 22.92 | 0.07 | 0.032 | (0.131) | 0.028 | 0.004 |
| 276 | 23.00 | 0.07 | 0.032 | (0.130) | 0.028 | 0.004 |
| 277 | 23.08 | 0.07 | 0.032 | (0.130) | 0.028 | 0.004 |
| 278 | 23.17 | 0.07 | 0.032 | (0.130) | 0.028 | 0.004 |
| 279 | 23.25 | 0.07 | 0.032 | (0.129) | 0.028 | 0.004 |
| 280 | 23.33 | 0.07 | 0.032 | (0.129) | 0.028 | 0.004 |
| 281 | 23.42 | 0.07 | 0.032 | (0.129) | 0.028 | 0.004 |
| 282 | 23.50 | 0.07 | 0.032 | (0.129) | 0.028 | 0.004 |
| 283 | 23.58 | 0.07 | 0.032 | (0.128) | 0.028 | 0.004 |
| 284 | 23.67 | 0.07 | 0.032 | (0.128) | 0.028 | 0.004 |
| 285 | 23.75 | 0.07 | 0.032 | (0.128) | 0.028 | 0.004 |
| 286 | 23.83 | 0.07 | 0.032 | (0.128) | 0.028 | 0.004 |
| 287 | 23.92 | 0.07 | 0.032 | (0.128) | 0.028 | 0.004 |
| 288 | 24.00 | 0.07 | 0.032 | (0.128) | 0.028 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0

Sum = 13.8

Flood volume = Effective rainfall 1.15(In)
times area 20.4(Ac.)/[((In)/(Ft.))] = 2.0(Ac.Ft)
Total soil loss = 2.85(In)
Total soil loss = 4.841(Ac.Ft)
Total rainfall = 4.00(In)
Flood volume = 85332.2 Cubic Feet
Total soil loss = 210864.0 Cubic Feet

Peak flow rate of this hydrograph = 6.668(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 | 0.0003 | | 0.04 | Q | | | | |
| 0+10 | 0.0008 | | 0.08 | Q | | | | |
| 0+15 | 0.0014 | | 0.09 | Q | | | | |
| 0+20 | 0.0021 | | 0.11 | Q | | | | |
| 0+25 | 0.0030 | | 0.13 | Q | | | | |
| 0+30 | 0.0040 | | 0.14 | Q | | | | |
| 0+35 | 0.0049 | | 0.14 | Q | | | | |
| 0+40 | 0.0059 | | 0.14 | Q | | | | |
| 0+45 | 0.0068 | | 0.14 | Q | | | | |
| 0+50 | 0.0079 | | 0.16 | Q | | | | |
| 0+55 | 0.0091 | | 0.18 | Q | | | | |
| 1+ 0 | 0.0104 | | 0.18 | Q | | | | |
| 1+ 5 | 0.0115 | | 0.17 | Q | | | | |
| 1+10 | 0.0125 | | 0.15 | Q | | | | |
| 1+15 | 0.0135 | | 0.14 | Q | | | | |
| 1+20 | 0.0144 | | 0.14 | Q | | | | |
| 1+25 | 0.0154 | | 0.14 | Q | | | | |
| 1+30 | 0.0163 | | 0.14 | Q | | | | |
| 1+35 | 0.0173 | | 0.14 | Q | | | | |
| 1+40 | 0.0182 | | 0.14 | Q | | | | |
| 1+45 | 0.0192 | | 0.14 | Q | | | | |
| 1+50 | 0.0203 | | 0.16 | Q | | | | |
| 1+55 | 0.0215 | | 0.18 | Q | | | | |
| 2+ 0 | 0.0227 | | 0.18 | Q | | | | |
| 2+ 5 | 0.0240 | | 0.18 | Q | | | | |
| 2+10 | 0.0253 | | 0.18 | Q | | | | |
| 2+15 | 0.0265 | | 0.18 | Q | | | | |
| 2+20 | 0.0278 | | 0.18 | Q | | | | |
| 2+25 | 0.0291 | | 0.18 | Q | | | | |
| 2+30 | 0.0303 | | 0.18 | Q | | | | |
| 2+35 | 0.0317 | | 0.20 | Q | | | | |
| 2+40 | 0.0333 | | 0.22 | Q | | | | |
| 2+45 | 0.0348 | | 0.23 | Q | | | | |
| 2+50 | 0.0364 | | 0.23 | Q | | | | |
| 2+55 | 0.0380 | | 0.23 | Q | | | | |
| 3+ 0 | 0.0396 | | 0.23 | Q | | | | |
| 3+ 5 | 0.0412 | | 0.23 | Q | | | | |
| 3+10 | 0.0428 | | 0.23 | Q | | | | |
| 3+15 | 0.0444 | | 0.23 | Q | | | | |
| 3+20 | 0.0459 | | 0.23 | Q | | | | |
| 3+25 | 0.0475 | | 0.23 | Q | | | | |
| 3+30 | 0.0491 | | 0.23 | QV | | | | |
| 3+35 | 0.0507 | | 0.23 | QV | | | | |
| 3+40 | 0.0523 | | 0.23 | QV | | | | |
| 3+45 | 0.0539 | | 0.23 | QV | | | | |
| 3+50 | 0.0556 | | 0.25 | QV | | | | |
| 3+55 | 0.0574 | | 0.27 | Q | | | | |
| 4+ 0 | 0.0593 | | 0.27 | Q | | | | |
| 4+ 5 | 0.0612 | | 0.28 | Q | | | | |
| 4+10 | 0.0631 | | 0.28 | Q | | | | |
| 4+15 | 0.0650 | | 0.28 | Q | | | | |
| 4+20 | 0.0671 | | 0.29 | Q | | | | |
| 4+25 | 0.0692 | | 0.32 | Q | | | | |
| 4+30 | 0.0714 | | 0.32 | Q | | | | |

| | | | |
|------|--------|------|-----|
| 4+35 | 0.0737 | 0.32 | Q |
| 4+40 | 0.0759 | 0.32 | Q |
| 4+45 | 0.0781 | 0.32 | Q |
| 4+50 | 0.0804 | 0.34 | Q |
| 4+55 | 0.0829 | 0.36 | Q |
| 5+ 0 | 0.0855 | 0.37 | Q |
| 5+ 5 | 0.0877 | 0.33 | Q |
| 5+10 | 0.0897 | 0.29 | Q |
| 5+15 | 0.0917 | 0.28 | Q |
| 5+20 | 0.0937 | 0.30 | Q |
| 5+25 | 0.0959 | 0.32 | Q |
| 5+30 | 0.0981 | 0.32 | QV |
| 5+35 | 0.1004 | 0.34 | QV |
| 5+40 | 0.1029 | 0.36 | QV |
| 5+45 | 0.1054 | 0.37 | QV |
| 5+50 | 0.1080 | 0.37 | QV |
| 5+55 | 0.1105 | 0.37 | QV |
| 6+ 0 | 0.1131 | 0.37 | QV |
| 6+ 5 | 0.1157 | 0.39 | QV |
| 6+10 | 0.1185 | 0.41 | QV |
| 6+15 | 0.1214 | 0.41 | QV |
| 6+20 | 0.1242 | 0.41 | QV |
| 6+25 | 0.1271 | 0.41 | QV |
| 6+30 | 0.1299 | 0.41 | QV |
| 6+35 | 0.1329 | 0.43 | QV |
| 6+40 | 0.1360 | 0.45 | QV |
| 6+45 | 0.1392 | 0.46 | QV |
| 6+50 | 0.1424 | 0.46 | QV |
| 6+55 | 0.1455 | 0.46 | QV |
| 7+ 0 | 0.1487 | 0.46 | Q V |
| 7+ 5 | 0.1519 | 0.46 | Q V |
| 7+10 | 0.1550 | 0.46 | Q V |
| 7+15 | 0.1582 | 0.46 | Q V |
| 7+20 | 0.1615 | 0.48 | Q V |
| 7+25 | 0.1650 | 0.50 | Q V |
| 7+30 | 0.1684 | 0.50 | QV |
| 7+35 | 0.1720 | 0.52 | QV |
| 7+40 | 0.1758 | 0.55 | QV |
| 7+45 | 0.1796 | 0.55 | QV |
| 7+50 | 0.1835 | 0.57 | QV |
| 7+55 | 0.1876 | 0.59 | QV |
| 8+ 0 | 0.1917 | 0.60 | QV |
| 8+ 5 | 0.1961 | 0.63 | Q V |
| 8+10 | 0.2007 | 0.68 | Q V |
| 8+15 | 0.2054 | 0.69 | Q V |
| 8+20 | 0.2102 | 0.69 | Q V |
| 8+25 | 0.2150 | 0.69 | Q V |
| 8+30 | 0.2197 | 0.69 | Q V |
| 8+35 | 0.2246 | 0.71 | Q V |
| 8+40 | 0.2296 | 0.73 | Q V |
| 8+45 | 0.2347 | 0.73 | Q V |
| 8+50 | 0.2399 | 0.75 | QV |
| 8+55 | 0.2452 | 0.78 | Q V |
| 9+ 0 | 0.2506 | 0.78 | Q V |
| 9+ 5 | 0.2562 | 0.82 | Q V |
| 9+10 | 0.2622 | 0.86 | Q V |
| 9+15 | 0.2682 | 0.87 | Q V |
| 9+20 | 0.2743 | 0.89 | Q V |

| | | | | | | |
|-------|--------|------|-----|--|--|--|
| 9+25 | 0.2806 | 0.91 | Q V | | | |
| 9+30 | 0.2869 | 0.92 | Q V | | | |
| 9+35 | 0.2941 | 1.04 | Q V | | | |
| 9+40 | 0.3023 | 1.19 | Q V | | | |
| 9+45 | 0.3108 | 1.24 | Q V | | | |
| 9+50 | 0.3205 | 1.41 | QV | | | |
| 9+55 | 0.3315 | 1.59 | Q | | | |
| 10+ 0 | 0.3428 | 1.65 | Q | | | |
| 10+ 5 | 0.3516 | 1.28 | Q V | | | |
| 10+10 | 0.3574 | 0.84 | Q V | | | |
| 10+15 | 0.3626 | 0.75 | Q V | | | |
| 10+20 | 0.3675 | 0.71 | Q V | | | |
| 10+25 | 0.3723 | 0.69 | Q V | | | |
| 10+30 | 0.3770 | 0.69 | Q V | | | |
| 10+35 | 0.3832 | 0.90 | Q V | | | |
| 10+40 | 0.3911 | 1.15 | Q V | | | |
| 10+45 | 0.3995 | 1.22 | Q V | | | |
| 10+50 | 0.4082 | 1.26 | Q V | | | |
| 10+55 | 0.4171 | 1.30 | Q V | | | |
| 11+ 0 | 0.4263 | 1.33 | Q V | | | |
| 11+ 5 | 0.4347 | 1.22 | Q V | | | |
| 11+10 | 0.4423 | 1.10 | Q V | | | |
| 11+15 | 0.4498 | 1.09 | Q V | | | |
| 11+20 | 0.4574 | 1.11 | Q V | | | |
| 11+25 | 0.4651 | 1.12 | Q V | | | |
| 11+30 | 0.4731 | 1.15 | Q V | | | |
| 11+35 | 0.4800 | 1.01 | Q V | | | |
| 11+40 | 0.4858 | 0.84 | Q V | | | |
| 11+45 | 0.4914 | 0.81 | Q V | | | |
| 11+50 | 0.4973 | 0.85 | Q V | | | |
| 11+55 | 0.5036 | 0.93 | Q V | | | |
| 12+ 0 | 0.5103 | 0.96 | Q V | | | |
| 12+ 5 | 0.5234 | 1.90 | Q V | | | |
| 12+10 | 0.5438 | 2.96 | Q V | | | |
| 12+15 | 0.5659 | 3.21 | VQ | | | |
| 12+20 | 0.5898 | 3.46 | VQ | | | |
| 12+25 | 0.6151 | 3.68 | V Q | | | |
| 12+30 | 0.6408 | 3.73 | VQ | | | |
| 12+35 | 0.6685 | 4.03 | V Q | | | |
| 12+40 | 0.6985 | 4.35 | V Q | | | |
| 12+45 | 0.7291 | 4.44 | V Q | | | |
| 12+50 | 0.7610 | 4.62 | V Q | | | |
| 12+55 | 0.7941 | 4.81 | V Q | | | |
| 13+ 0 | 0.8276 | 4.86 | V Q | | | |
| 13+ 5 | 0.8658 | 5.55 | V Q | | | |
| 13+10 | 0.9093 | 6.32 | V Q | | | |
| 13+15 | 0.9541 | 6.50 | V Q | | | |
| 13+20 | 0.9994 | 6.59 | V Q | | | |
| 13+25 | 1.0452 | 6.64 | V Q | | | |
| 13+30 | 1.0911 | 6.67 | V Q | | | |
| 13+35 | 1.1274 | 5.26 | Q V | | | |
| 13+40 | 1.1525 | 3.66 | Q V | | | |
| 13+45 | 1.1755 | 3.33 | Q V | | | |
| 13+50 | 1.1976 | 3.21 | Q V | | | |
| 13+55 | 1.2194 | 3.16 | Q V | | | |
| 14+ 0 | 1.2413 | 3.18 | Q V | | | |
| 14+ 5 | 1.2669 | 3.73 | Q V | | | |
| 14+10 | 1.2968 | 4.34 | Q V | | | |

| | | | | | | |
|-------|--------|------|---|---|---|---|
| 14+15 | 1.3278 | 4.49 | | | Q | V |
| 14+20 | 1.3583 | 4.43 | | | Q | V |
| 14+25 | 1.3881 | 4.33 | | | Q | V |
| 14+30 | 1.4179 | 4.32 | | | Q | V |
| 14+35 | 1.4478 | 4.33 | | | Q | V |
| 14+40 | 1.4777 | 4.35 | | | Q | V |
| 14+45 | 1.5078 | 4.37 | | | Q | V |
| 14+50 | 1.5371 | 4.26 | | | Q | V |
| 14+55 | 1.5656 | 4.13 | | | Q | V |
| 15+ 0 | 1.5940 | 4.12 | | | Q | V |
| 15+ 5 | 1.6216 | 4.00 | | | Q | V |
| 15+10 | 1.6482 | 3.87 | | | Q | V |
| 15+15 | 1.6748 | 3.86 | | | Q | V |
| 15+20 | 1.7005 | 3.74 | | | Q | V |
| 15+25 | 1.7253 | 3.60 | | | Q | V |
| 15+30 | 1.7500 | 3.59 | | | Q | V |
| 15+35 | 1.7712 | 3.08 | | | Q | V |
| 15+40 | 1.7884 | 2.50 | | Q | Q | V |
| 15+45 | 1.8049 | 2.39 | | Q | Q | V |
| 15+50 | 1.8212 | 2.36 | | Q | Q | V |
| 15+55 | 1.8374 | 2.36 | | Q | Q | V |
| 16+ 0 | 1.8538 | 2.38 | | Q | Q | V |
| 16+ 5 | 1.8642 | 1.52 | | Q | | V |
| 16+10 | 1.8679 | 0.53 | Q | | | V |
| 16+15 | 1.8700 | 0.31 | Q | | | V |
| 16+20 | 1.8716 | 0.23 | Q | | | V |
| 16+25 | 1.8729 | 0.18 | Q | | | V |
| 16+30 | 1.8741 | 0.18 | Q | | | V |
| 16+35 | 1.8753 | 0.17 | Q | | | V |
| 16+40 | 1.8763 | 0.15 | Q | | | V |
| 16+45 | 1.8772 | 0.14 | Q | | | V |
| 16+50 | 1.8782 | 0.14 | Q | | | V |
| 16+55 | 1.8791 | 0.14 | Q | | | V |
| 17+ 0 | 1.8801 | 0.14 | Q | | | V |
| 17+ 5 | 1.8813 | 0.17 | Q | | | V |
| 17+10 | 1.8828 | 0.22 | Q | | | V |
| 17+15 | 1.8843 | 0.22 | Q | | | V |
| 17+20 | 1.8859 | 0.23 | Q | | | V |
| 17+25 | 1.8875 | 0.23 | Q | | | V |
| 17+30 | 1.8891 | 0.23 | Q | | | V |
| 17+35 | 1.8907 | 0.23 | Q | | | V |
| 17+40 | 1.8923 | 0.23 | Q | | | V |
| 17+45 | 1.8938 | 0.23 | Q | | | V |
| 17+50 | 1.8953 | 0.21 | Q | | | V |
| 17+55 | 1.8966 | 0.19 | Q | | | V |
| 18+ 0 | 1.8979 | 0.19 | Q | | | V |
| 18+ 5 | 1.8992 | 0.19 | Q | | | V |
| 18+10 | 1.9005 | 0.18 | Q | | | V |
| 18+15 | 1.9017 | 0.18 | Q | | | V |
| 18+20 | 1.9030 | 0.18 | Q | | | V |
| 18+25 | 1.9043 | 0.18 | Q | | | V |
| 18+30 | 1.9055 | 0.18 | Q | | | V |
| 18+35 | 1.9067 | 0.17 | Q | | | V |
| 18+40 | 1.9077 | 0.15 | Q | | | V |
| 18+45 | 1.9087 | 0.14 | Q | | | V |
| 18+50 | 1.9095 | 0.12 | Q | | | V |
| 18+55 | 1.9102 | 0.10 | Q | | | V |
| 19+ 0 | 1.9108 | 0.09 | Q | | | V |

| | | | | |
|-------|--------|------|---|---|
| 19+ 5 | 1.9116 | 0.11 | Q | V |
| 19+10 | 1.9125 | 0.13 | Q | V |
| 19+15 | 1.9134 | 0.14 | Q | V |
| 19+20 | 1.9145 | 0.16 | Q | V |
| 19+25 | 1.9157 | 0.18 | Q | V |
| 19+30 | 1.9170 | 0.18 | Q | V |
| 19+35 | 1.9181 | 0.17 | Q | V |
| 19+40 | 1.9191 | 0.15 | Q | V |
| 19+45 | 1.9201 | 0.14 | Q | V |
| 19+50 | 1.9209 | 0.12 | Q | V |
| 19+55 | 1.9216 | 0.10 | Q | V |
| 20+ 0 | 1.9222 | 0.09 | Q | V |
| 20+ 5 | 1.9230 | 0.11 | Q | V |
| 20+10 | 1.9239 | 0.13 | Q | V |
| 20+15 | 1.9248 | 0.14 | Q | V |
| 20+20 | 1.9258 | 0.14 | Q | V |
| 20+25 | 1.9267 | 0.14 | Q | V |
| 20+30 | 1.9277 | 0.14 | Q | V |
| 20+35 | 1.9286 | 0.14 | Q | V |
| 20+40 | 1.9296 | 0.14 | Q | V |
| 20+45 | 1.9306 | 0.14 | Q | V |
| 20+50 | 1.9314 | 0.12 | Q | V |
| 20+55 | 1.9321 | 0.10 | Q | V |
| 21+ 0 | 1.9327 | 0.09 | Q | V |
| 21+ 5 | 1.9335 | 0.11 | Q | V |
| 21+10 | 1.9344 | 0.13 | Q | V |
| 21+15 | 1.9353 | 0.14 | Q | V |
| 21+20 | 1.9361 | 0.12 | Q | V |
| 21+25 | 1.9368 | 0.10 | Q | V |
| 21+30 | 1.9375 | 0.09 | Q | V |
| 21+35 | 1.9382 | 0.11 | Q | V |
| 21+40 | 1.9391 | 0.13 | Q | V |
| 21+45 | 1.9401 | 0.14 | Q | V |
| 21+50 | 1.9409 | 0.12 | Q | V |
| 21+55 | 1.9416 | 0.10 | Q | V |
| 22+ 0 | 1.9422 | 0.09 | Q | V |
| 22+ 5 | 1.9430 | 0.11 | Q | V |
| 22+10 | 1.9439 | 0.13 | Q | V |
| 22+15 | 1.9448 | 0.14 | Q | V |
| 22+20 | 1.9457 | 0.12 | Q | V |
| 22+25 | 1.9463 | 0.10 | Q | V |
| 22+30 | 1.9470 | 0.09 | Q | V |
| 22+35 | 1.9476 | 0.09 | Q | V |
| 22+40 | 1.9483 | 0.09 | Q | V |
| 22+45 | 1.9489 | 0.09 | Q | V |
| 22+50 | 1.9495 | 0.09 | Q | V |
| 22+55 | 1.9502 | 0.09 | Q | V |
| 23+ 0 | 1.9508 | 0.09 | Q | V |
| 23+ 5 | 1.9514 | 0.09 | Q | V |
| 23+10 | 1.9521 | 0.09 | Q | V |
| 23+15 | 1.9527 | 0.09 | Q | V |
| 23+20 | 1.9533 | 0.09 | Q | V |
| 23+25 | 1.9540 | 0.09 | Q | V |
| 23+30 | 1.9546 | 0.09 | Q | V |
| 23+35 | 1.9553 | 0.09 | Q | V |
| 23+40 | 1.9559 | 0.09 | Q | V |
| 23+45 | 1.9565 | 0.09 | Q | V |
| 23+50 | 1.9572 | 0.09 | Q | V |

| | | | | | | | |
|-------|--------|------|---|--|--|--|---|
| 23+55 | 1.9578 | 0.09 | Q | | | | V |
| 24+ 0 | 1.9584 | 0.09 | Q | | | | V |
| 24+ 5 | 1.9588 | 0.06 | Q | | | | V |
| 24+10 | 1.9589 | 0.01 | Q | | | | V |
| 24+15 | 1.9589 | 0.01 | Q | | | | V |
| 24+20 | 1.9590 | 0.00 | Q | | | | V |

APPENDIX C.3

Basin Sizing Calculations per Hydraflow Hydrographs Extension for Autodesk Civil 3D

Hydrograph Return Period Recap

Hydroflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

| Hyd. No. | Hydrograph type (origin) | Inflow hyd(s) | Peak Outflow (cfs) | | | | | | | | Hydrograph Description |
|----------|--------------------------|---------------|--------------------|-------|-------|-------|-------|-------|-------|--------|------------------------|
| | | | 1-yr | 2-yr | 3-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr | |
| 1 | Manual | ----- | ----- | 0.620 | ----- | 0.840 | 2.720 | ----- | ----- | 6.670 | A (PRE - ONSITE) 24HR |
| 2 | Manual | ----- | ----- | 3.120 | ----- | 4.210 | 5.070 | ----- | ----- | 8.260 | B (POST - ONSITE) 24HR |
| 3 | Reservoir | 2 | ----- | 0.627 | ----- | 0.705 | 0.763 | ----- | ----- | 5.302 | BASIN 24HR |
| 5 | Manual | ----- | ----- | 3.020 | ----- | 6.450 | 14.52 | ----- | ----- | 25.31 | A (PRE - ONSITE) 6HR |
| 6 | Manual | ----- | ----- | 7.920 | ----- | 10.88 | 17.49 | ----- | ----- | 28.91 | B (POST - ONSITE) 6HR |
| 7 | Reservoir | 6 | ----- | 0.590 | ----- | 0.651 | 0.704 | ----- | ----- | 1.760 | BASIN 6HR |
| 9 | Manual | ----- | ----- | 5.160 | ----- | 9.370 | 17.35 | ----- | ----- | 28.77 | A (PRE - ONSITE) 3HR |
| 10 | Manual | ----- | ----- | 9.890 | ----- | 13.85 | 20.50 | ----- | ----- | 32.57 | B (POST - ONSITE) 3HR |
| 11 | Reservoir | 10 | ----- | 0.566 | ----- | 0.614 | 0.659 | ----- | ----- | 0.782 | BASIN 3HR |
| 13 | Manual | ----- | ----- | 13.15 | ----- | 20.31 | 29.49 | ----- | ----- | 48.86 | A (PRE - ONSITE) 1HR |
| 14 | Manual | ----- | ----- | 17.68 | ----- | 25.12 | 39.48 | ----- | ----- | 63.41 | B (POST - ONSITE) 1HR |
| 15 | Reservoir | 14 | ----- | 0.516 | ----- | 0.555 | 0.592 | ----- | ----- | 0.697 | BASIN 1HR |

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description |
|-------------------------|--------------------------|-----------------|---------------------|--------------------|-----------------------|---------------|------------------------|-------------------------|------------------------|
| 1 | Manual | 0.620 | 5 | 800 | 16,587 | ---- | ---- | ---- | A (PRE - ONSITE) 24HR |
| 2 | Manual | 3.120 | 5 | 810 | 82,923 | ---- | ---- | ---- | B (POST - ONSITE) 24HR |
| 3 | Reservoir | 0.627 | 5 | 975 | 82,897 | 2 | 1504.84 | 53,845 | BASIN 24HR |
| 5 | Manual | 3.020 | 5 | 335 | 11,463 | ---- | ---- | ---- | A (PRE - ONSITE) 6HR |
| 6 | Manual | 7.920 | 5 | 330 | 51,834 | ---- | ---- | ---- | B (POST - ONSITE) 6HR |
| 7 | Reservoir | 0.590 | 5 | 365 | 51,808 | 6 | 1504.22 | 43,604 | BASIN 6HR |
| 9 | Manual | 5.160 | 5 | 160 | 11,733 | ---- | ---- | ---- | A (PRE - ONSITE) 3HR |
| 10 | Manual | 9.890 | 5 | 160 | 41,505 | ---- | ---- | ---- | B (POST - ONSITE) 3HR |
| 11 | Reservoir | 0.566 | 5 | 195 | 41,479 | 10 | 1503.81 | 37,204 | BASIN 3HR |
| 13 | Manual | 13.15 | 5 | 55 | 11,799 | ---- | ---- | ---- | A (PRE - ONSITE) 1HR |
| 14 | Manual | 17.68 | 5 | 55 | 25,977 | ---- | ---- | ---- | B (POST - ONSITE) 1HR |
| 15 | Reservoir | 0.516 | 5 | 85 | 25,952 | 14 | 1502.94 | 24,279 | BASIN 1HR |
| 20200259 Hydrograph.gpw | | | | | Return Period: 2 Year | | | Tuesday, 08 / 17 / 2021 | |

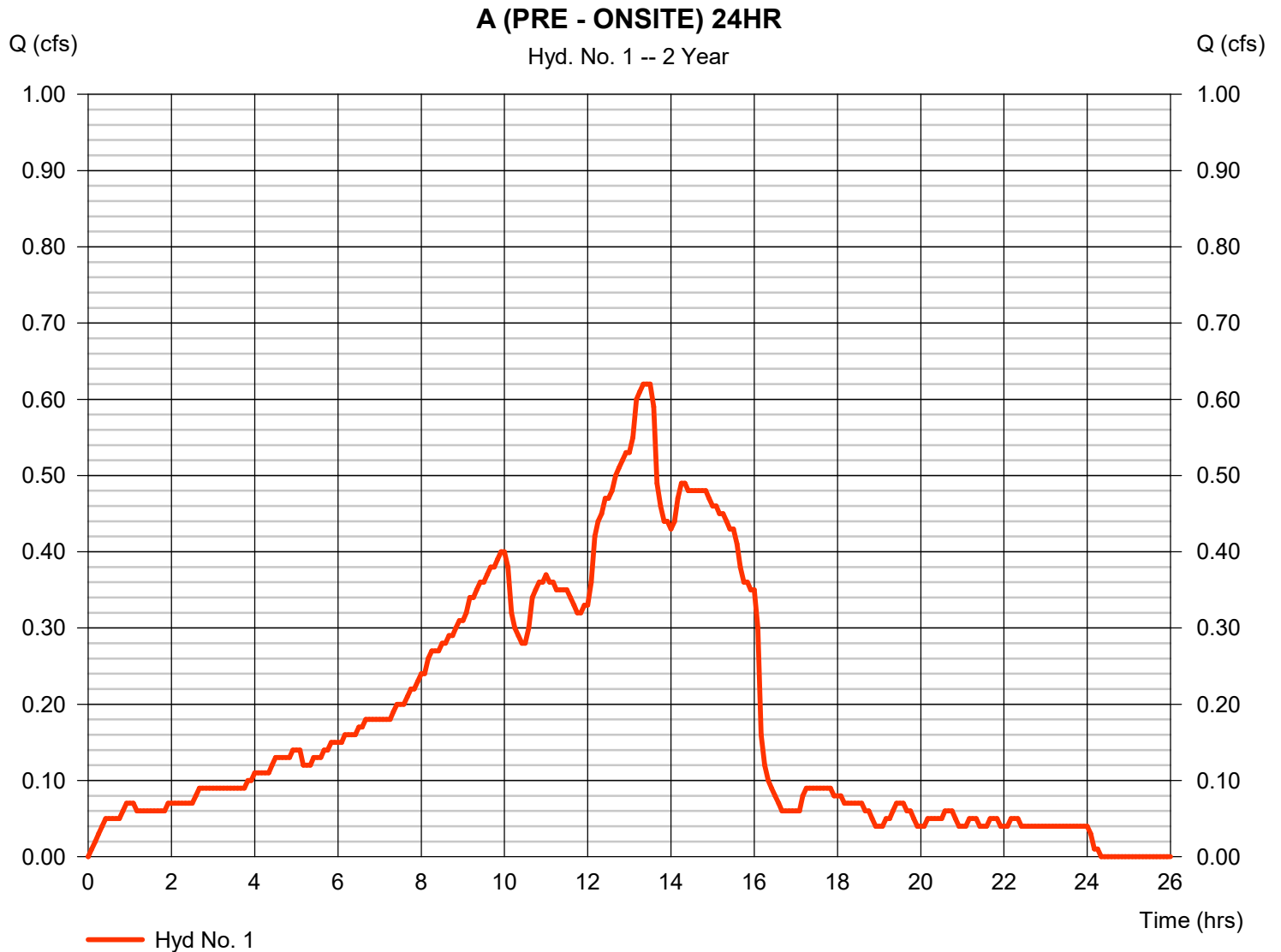
Hydrograph Report

Hyd. No. 1

A (PRE - ONSITE) 24HR

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

Peak discharge = 0.620 cfs
Time to peak = 13.33 hrs
Hyd. volume = 16,587 cuft



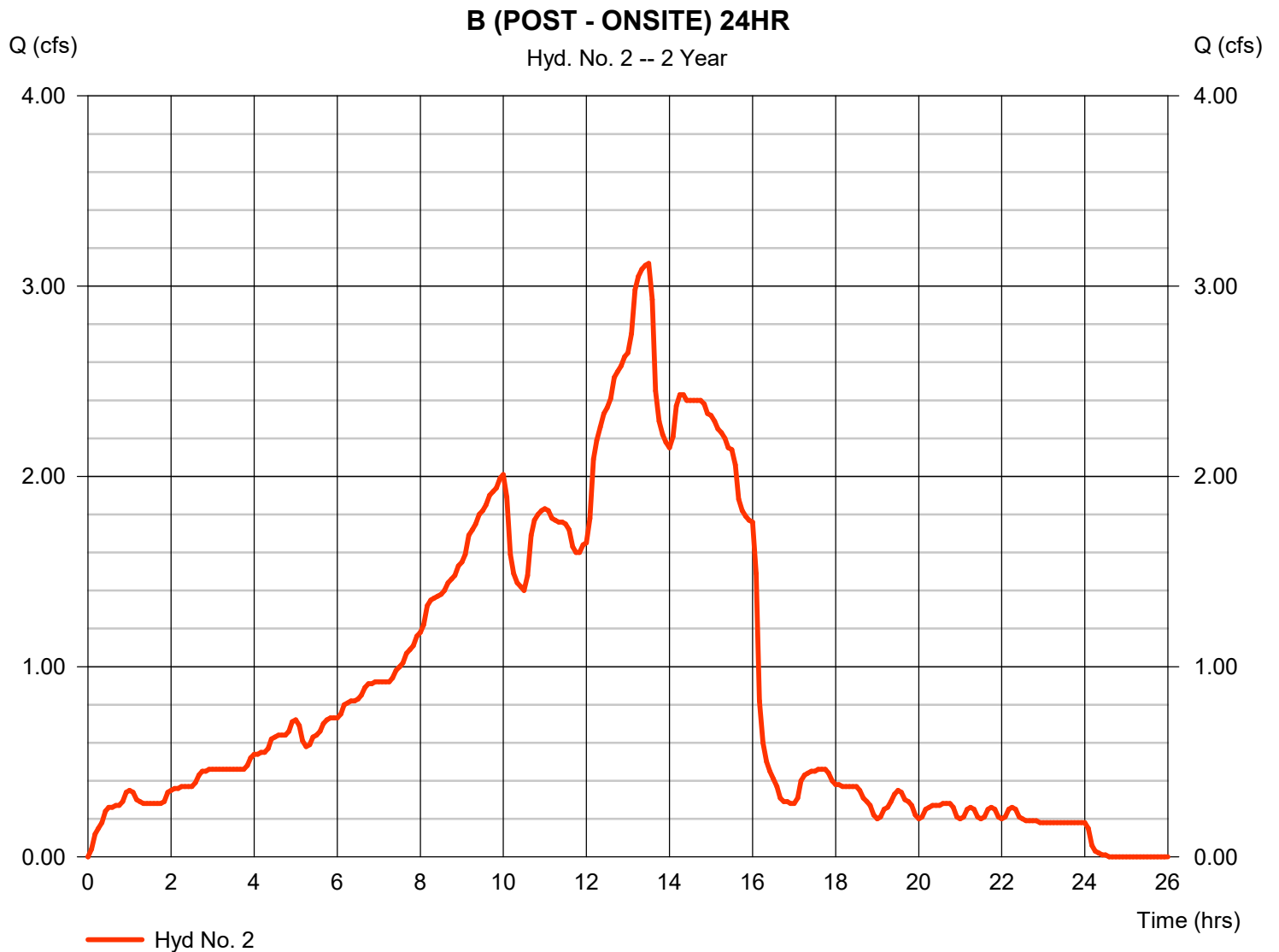
Hydrograph Report

Hyd. No. 2

B (POST - ONSITE) 24HR

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

Peak discharge = 3.120 cfs
Time to peak = 13.50 hrs
Hyd. volume = 82,923 cuft



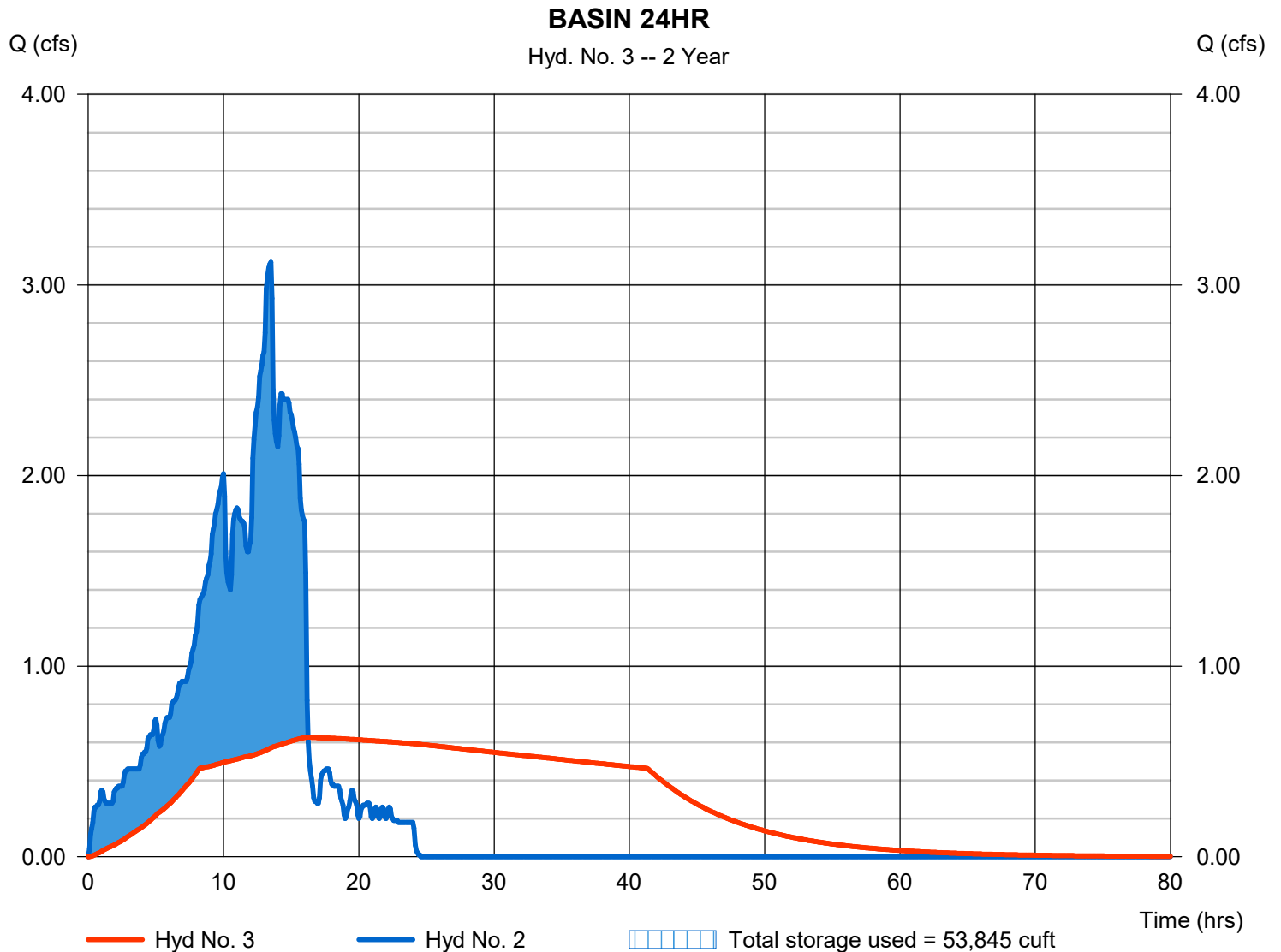
Hydrograph Report

Hyd. No. 3

BASIN 24HR

| | | | |
|-----------------|------------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.627 cfs |
| Storm frequency | = 2 yrs | Time to peak | = 16.25 hrs |
| Time interval | = 5 min | Hyd. volume | = 82,897 cuft |
| Inflow hyd. No. | = 2 - B (POST - ONSITE) 24HR | Max. Elevation | = 1504.84 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 53,845 cuft |

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Pond No. 2 - Basin A WITH Access Road

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1501.00 ft

Stage / Storage Table

| Stage (ft) | Elevation (ft) | Contour area (sqft) | Incr. Storage (cuft) | Total storage (cuft) |
|------------|----------------|---------------------|----------------------|----------------------|
| 0.00 | 1501.00 | 10,982 | 0 | 0 |
| 1.00 | 1502.00 | 12,596 | 11,779 | 11,779 |
| 2.00 | 1503.00 | 14,112 | 13,345 | 25,124 |
| 3.00 | 1504.00 | 15,674 | 14,885 | 40,009 |
| 4.00 | 1505.00 | 17,283 | 16,470 | 56,479 |
| 5.00 | 1506.00 | 18,939 | 18,103 | 74,582 |
| 6.00 | 1507.00 | 20,641 | 19,782 | 94,364 |
| 7.00 | 1508.00 | 22,389 | 21,507 | 115,871 |
| 8.00 | 1509.00 | 24,184 | 23,278 | 139,149 |
| 9.00 | 1510.00 | 26,170 | 25,168 | 164,317 |

Culvert / Orifice Structures

| | [A] | [B] | [C] | [PrfRsr] |
|-----------------|-----------|----------|----------|----------|
| Rise (in) | = 4.00 | Inactive | Inactive | Inactive |
| Span (in) | = 36.00 | 0.00 | 0.00 | 0.00 |
| No. Barrels | = 2 | 0 | 0 | 0 |
| Invert El. (ft) | = 1508.36 | 0.00 | 0.00 | 0.00 |
| Length (ft) | = 36.10 | 0.00 | 0.00 | 0.00 |
| Slope (%) | = 1.00 | 0.00 | 0.00 | n/a |
| N-Value | = .013 | .013 | .013 | n/a |
| Orifice Coeff. | = 0.60 | 0.60 | 0.60 | 0.60 |
| Multi-Stage | = n/a | No | No | No |

Weir Structures

| | [A] | [B] | [C] | [D] |
|----------------|----------------------|----------|----------|----------|
| Crest Len (ft) | = 12.00 | Inactive | Inactive | Inactive |
| Crest El. (ft) | = 1508.90 | 0.00 | 0.00 | 0.00 |
| Weir Coeff. | = 3.33 | 3.33 | 3.33 | 3.33 |
| Weir Type | = Rect | --- | --- | --- |
| Multi-Stage | = No | No | No | No |
| Exfil.(in/hr) | = 1.590 (by Contour) | | | |
| TW Elev. (ft) | = 0.00 | | | |

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

Stage / Storage / Discharge Table

| Stage ft | Storage cuft | Elevation ft | Civ A cfs | Civ B cfs | Civ C cfs | PrfRsr cfs | Wr A cfs | Wr B cfs | Wr C cfs | Wr D cfs | Exfil cfs | User cfs | Total cfs |
|----------|--------------|--------------|-----------|-----------|-----------|------------|----------|----------|----------|----------|-----------|----------|-----------|
| 0.00 | 0 | 1501.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.000 | --- | 0.000 |
| 1.00 | 11,779 | 1502.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.464 | --- | 0.464 |
| 2.00 | 25,124 | 1503.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.519 | --- | 0.519 |
| 3.00 | 40,009 | 1504.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.577 | --- | 0.577 |
| 4.00 | 56,479 | 1505.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.636 | --- | 0.636 |
| 5.00 | 74,582 | 1506.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.697 | --- | 0.697 |
| 6.00 | 94,364 | 1507.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.760 | --- | 0.760 |
| 7.00 | 115,871 | 1508.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.824 | --- | 0.824 |
| 8.00 | 139,149 | 1509.00 | 6.63 ic | --- | --- | --- | 1.26 | --- | --- | --- | 0.890 | --- | 8.779 |
| 9.00 | 164,317 | 1510.00 | 10.77 oc | --- | --- | --- | 46.10 | --- | --- | --- | 0.963 | --- | 57.83 |

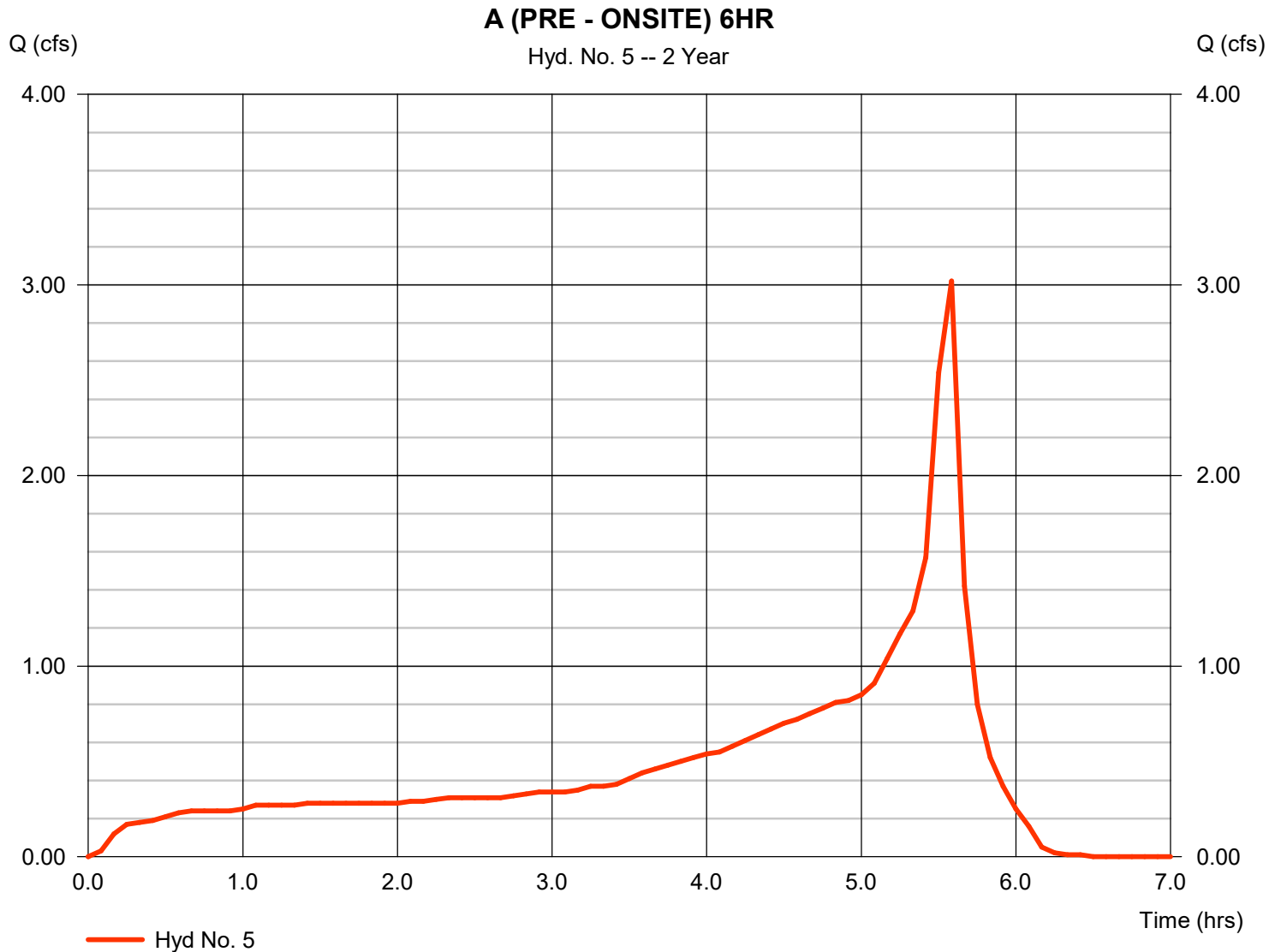
Hydrograph Report

Hyd. No. 5

A (PRE - ONSITE) 6HR

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

Peak discharge = 3.020 cfs
Time to peak = 5.58 hrs
Hyd. volume = 11,463 cuft



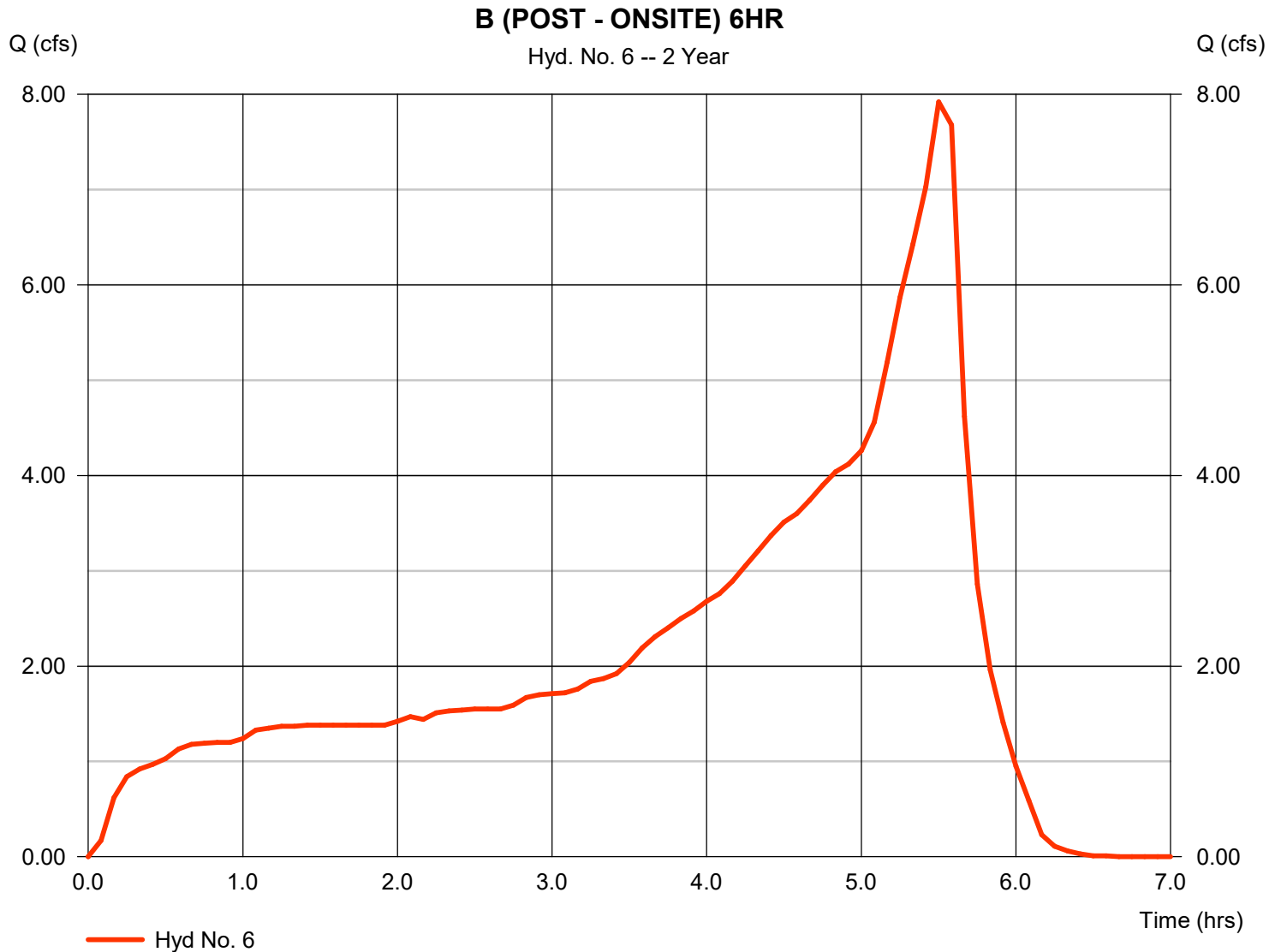
Hydrograph Report

Hyd. No. 6

B (POST - ONSITE) 6HR

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

Peak discharge = 7.920 cfs
Time to peak = 5.50 hrs
Hyd. volume = 51,834 cuft



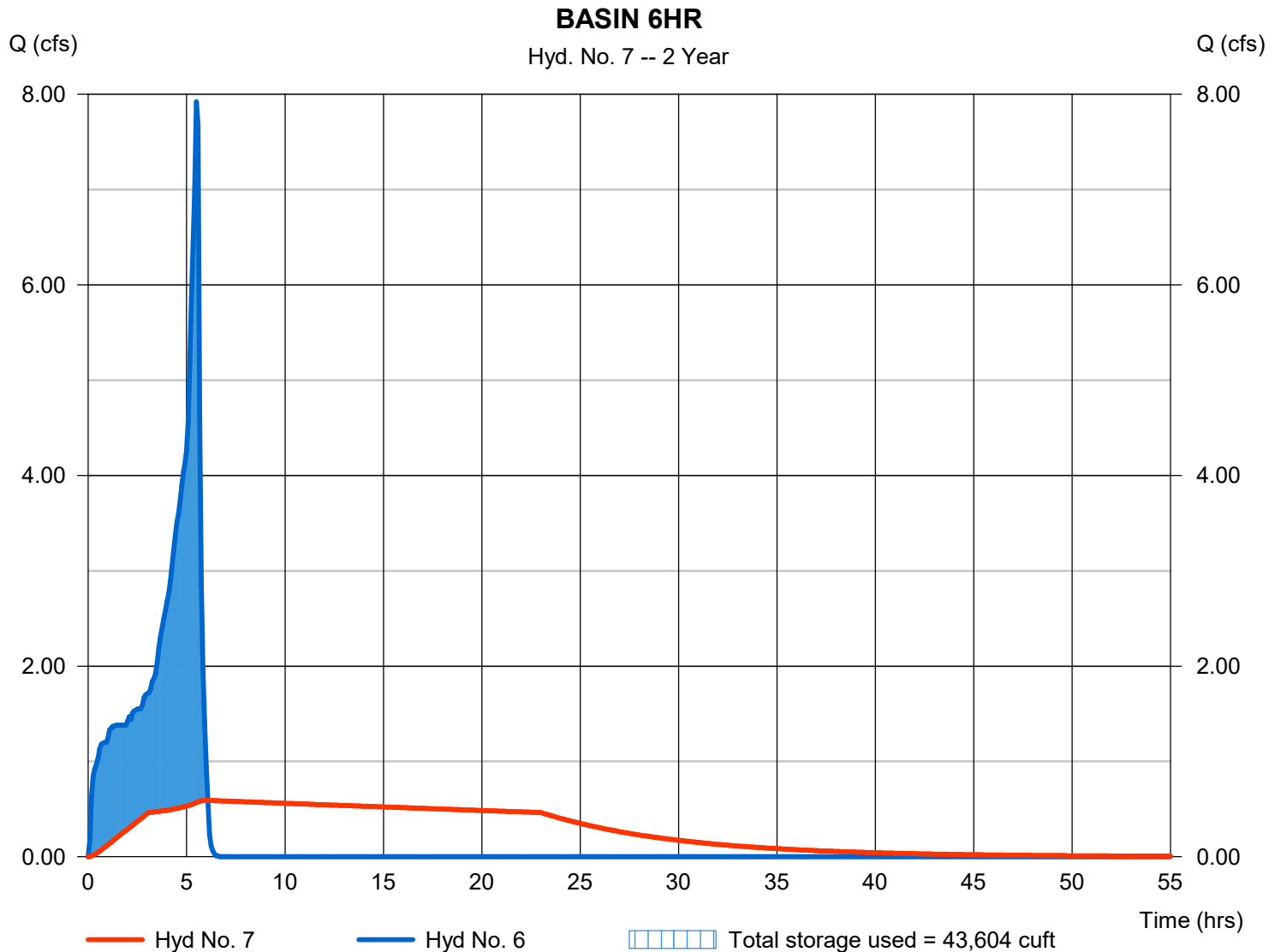
Hydrograph Report

Hyd. No. 7

BASIN 6HR

| | | | |
|-----------------|-----------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.590 cfs |
| Storm frequency | = 2 yrs | Time to peak | = 6.08 hrs |
| Time interval | = 5 min | Hyd. volume | = 51,808 cuft |
| Inflow hyd. No. | = 6 - B (POST - ONSITE) 6HR | Max. Elevation | = 1504.22 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 43,604 cuft |

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Pond No. 2 - Basin A WITH Access Road

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1501.00 ft

Stage / Storage Table

| Stage (ft) | Elevation (ft) | Contour area (sqft) | Incr. Storage (cuft) | Total storage (cuft) |
|------------|----------------|---------------------|----------------------|----------------------|
| 0.00 | 1501.00 | 10,982 | 0 | 0 |
| 1.00 | 1502.00 | 12,596 | 11,779 | 11,779 |
| 2.00 | 1503.00 | 14,112 | 13,345 | 25,124 |
| 3.00 | 1504.00 | 15,674 | 14,885 | 40,009 |
| 4.00 | 1505.00 | 17,283 | 16,470 | 56,479 |
| 5.00 | 1506.00 | 18,939 | 18,103 | 74,582 |
| 6.00 | 1507.00 | 20,641 | 19,782 | 94,364 |
| 7.00 | 1508.00 | 22,389 | 21,507 | 115,871 |
| 8.00 | 1509.00 | 24,184 | 23,278 | 139,149 |
| 9.00 | 1510.00 | 26,170 | 25,168 | 164,317 |

Culvert / Orifice Structures

| | [A] | [B] | [C] | [PrfRsr] |
|-----------------|-----------|----------|----------|----------|
| Rise (in) | = 4.00 | Inactive | Inactive | Inactive |
| Span (in) | = 36.00 | 0.00 | 0.00 | 0.00 |
| No. Barrels | = 2 | 0 | 0 | 0 |
| Invert El. (ft) | = 1508.36 | 0.00 | 0.00 | 0.00 |
| Length (ft) | = 36.10 | 0.00 | 0.00 | 0.00 |
| Slope (%) | = 1.00 | 0.00 | 0.00 | n/a |
| N-Value | = .013 | .013 | .013 | n/a |
| Orifice Coeff. | = 0.60 | 0.60 | 0.60 | 0.60 |
| Multi-Stage | = n/a | No | No | No |

Weir Structures

| | [A] | [B] | [C] | [D] |
|----------------|----------------------|----------|----------|----------|
| Crest Len (ft) | = 12.00 | Inactive | Inactive | Inactive |
| Crest El. (ft) | = 1508.90 | 0.00 | 0.00 | 0.00 |
| Weir Coeff. | = 3.33 | 3.33 | 3.33 | 3.33 |
| Weir Type | = Rect | --- | --- | --- |
| Multi-Stage | = No | No | No | No |
| Exfil.(in/hr) | = 1.590 (by Contour) | | | |
| TW Elev. (ft) | = 0.00 | | | |

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

Stage / Storage / Discharge Table

| Stage ft | Storage cuft | Elevation ft | Civ A cfs | Civ B cfs | Civ C cfs | PrfRsr cfs | Wr A cfs | Wr B cfs | Wr C cfs | Wr D cfs | Exfil cfs | User cfs | Total cfs |
|----------|--------------|--------------|-----------|-----------|-----------|------------|----------|----------|----------|----------|-----------|----------|-----------|
| 0.00 | 0 | 1501.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.000 | --- | 0.000 |
| 1.00 | 11,779 | 1502.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.464 | --- | 0.464 |
| 2.00 | 25,124 | 1503.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.519 | --- | 0.519 |
| 3.00 | 40,009 | 1504.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.577 | --- | 0.577 |
| 4.00 | 56,479 | 1505.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.636 | --- | 0.636 |
| 5.00 | 74,582 | 1506.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.697 | --- | 0.697 |
| 6.00 | 94,364 | 1507.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.760 | --- | 0.760 |
| 7.00 | 115,871 | 1508.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.824 | --- | 0.824 |
| 8.00 | 139,149 | 1509.00 | 6.63 ic | --- | --- | --- | 1.26 | --- | --- | --- | 0.890 | --- | 8.779 |
| 9.00 | 164,317 | 1510.00 | 10.77 oc | --- | --- | --- | 46.10 | --- | --- | --- | 0.963 | --- | 57.83 |

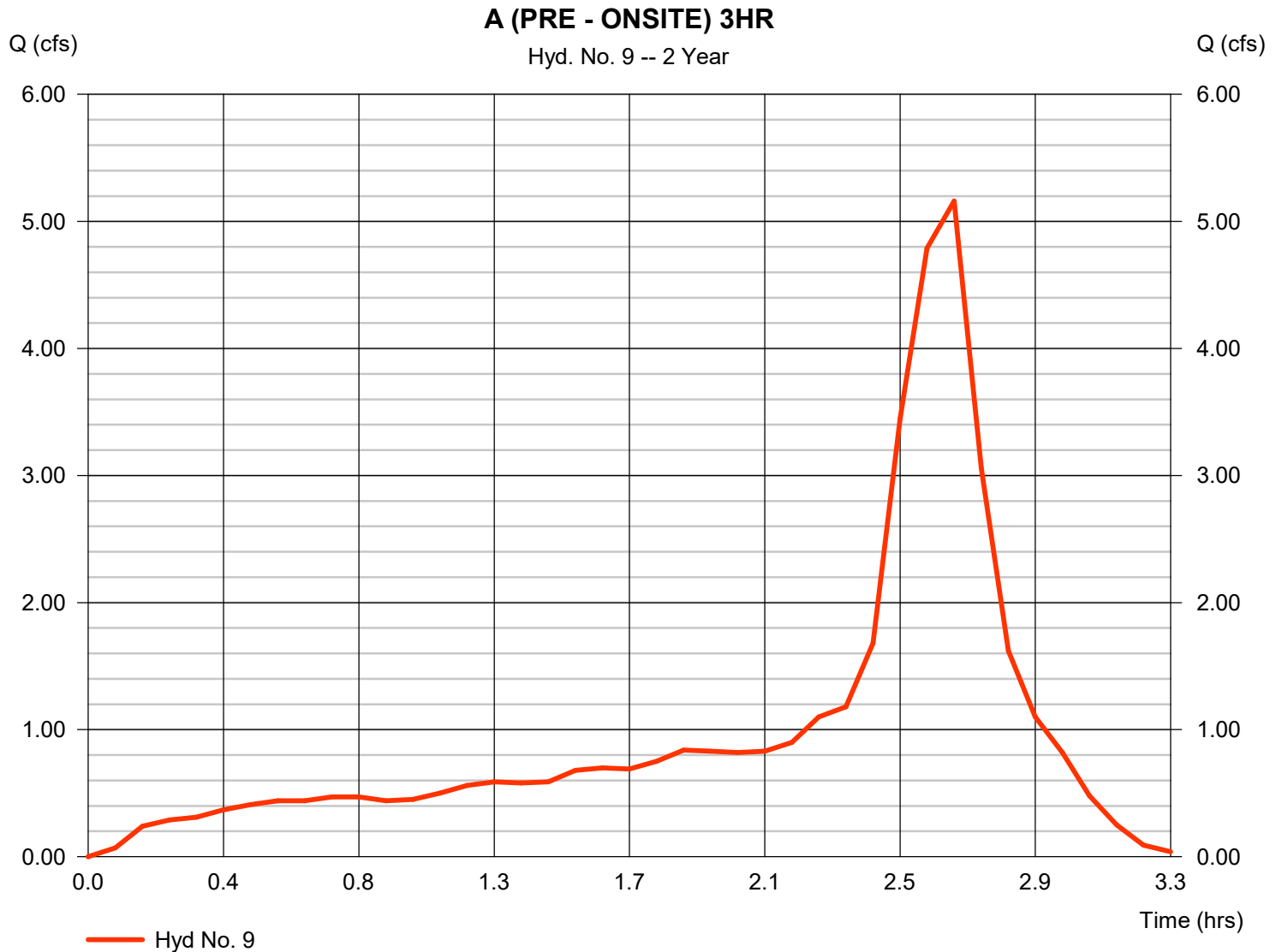
Hydrograph Report

Hyd. No. 9

A (PRE - ONSITE) 3HR

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

Peak discharge = 5.160 cfs
Time to peak = 2.67 hrs
Hyd. volume = 11,733 cuft



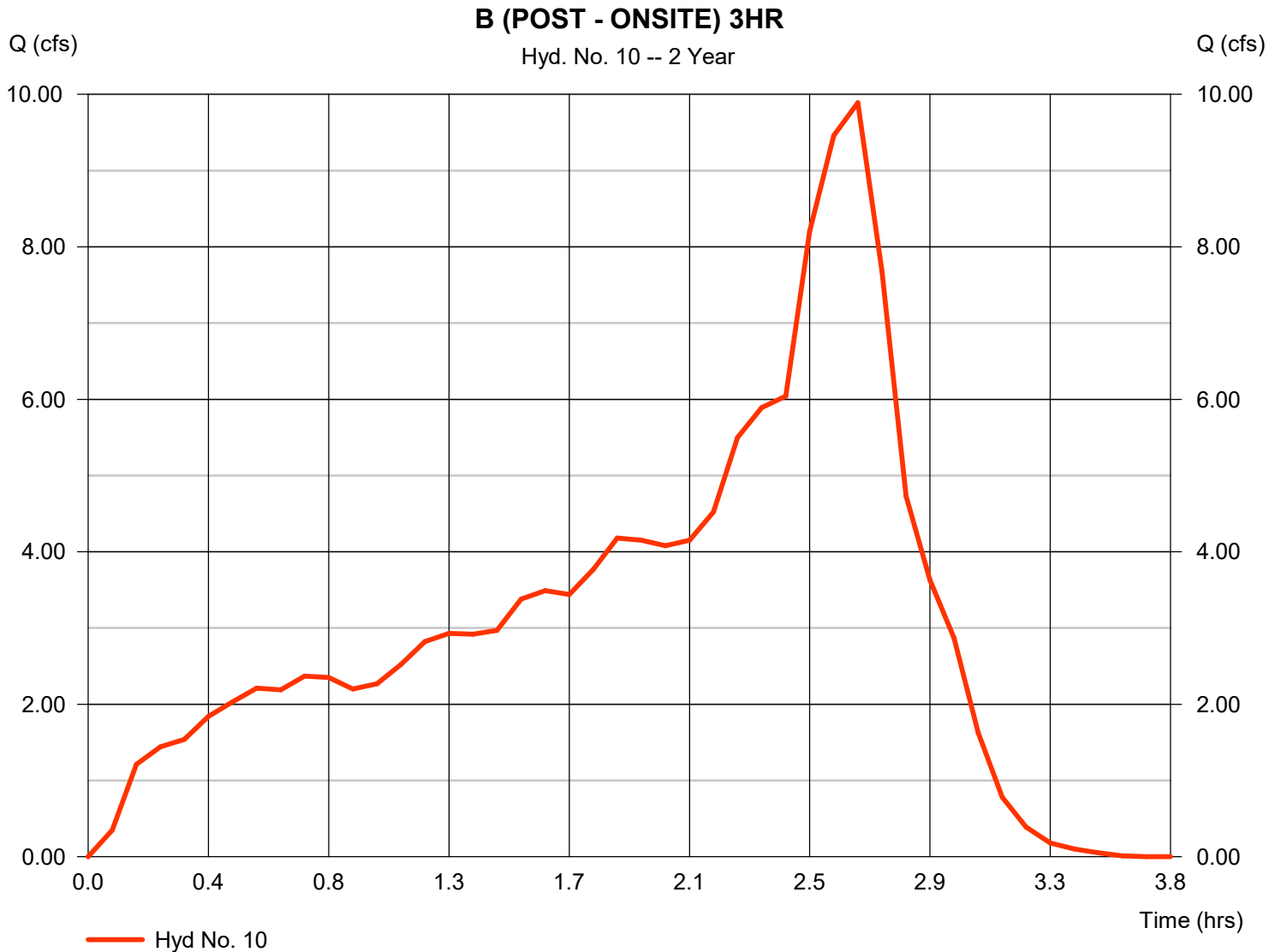
Hydrograph Report

Hyd. No. 10

B (POST - ONSITE) 3HR

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

Peak discharge = 9.890 cfs
Time to peak = 2.67 hrs
Hyd. volume = 41,505 cuft



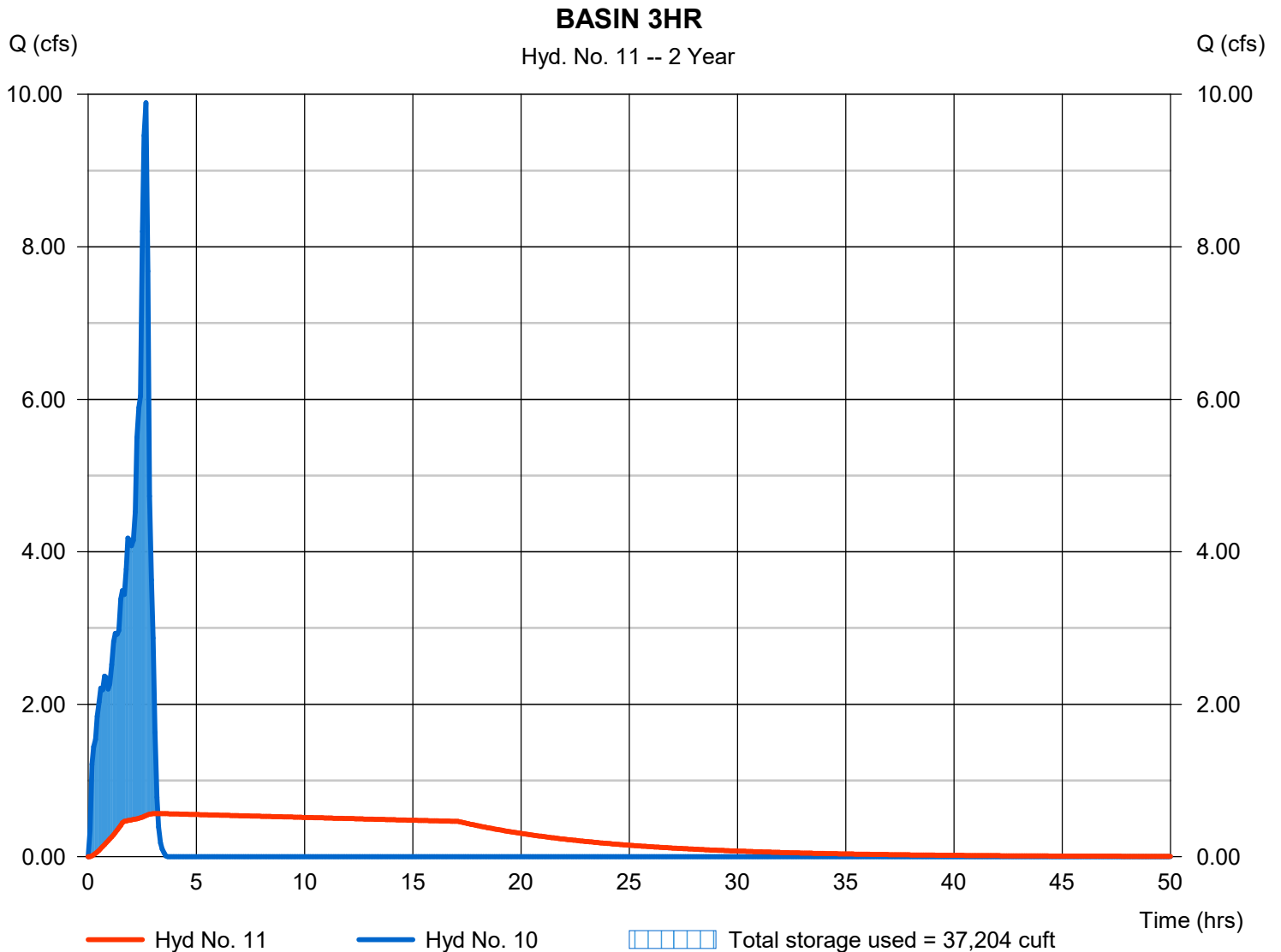
Hydrograph Report

Hyd. No. 11

BASIN 3HR

| | | | |
|-----------------|------------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.566 cfs |
| Storm frequency | = 2 yrs | Time to peak | = 3.25 hrs |
| Time interval | = 5 min | Hyd. volume | = 41,479 cuft |
| Inflow hyd. No. | = 10 - B (POST - ONSITE) 3HR | Max. Elevation | = 1503.81 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 37,204 cuft |

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Pond No. 2 - Basin A WITH Access Road

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1501.00 ft

Stage / Storage Table

| Stage (ft) | Elevation (ft) | Contour area (sqft) | Incr. Storage (cuft) | Total storage (cuft) |
|------------|----------------|---------------------|----------------------|----------------------|
| 0.00 | 1501.00 | 10,982 | 0 | 0 |
| 1.00 | 1502.00 | 12,596 | 11,779 | 11,779 |
| 2.00 | 1503.00 | 14,112 | 13,345 | 25,124 |
| 3.00 | 1504.00 | 15,674 | 14,885 | 40,009 |
| 4.00 | 1505.00 | 17,283 | 16,470 | 56,479 |
| 5.00 | 1506.00 | 18,939 | 18,103 | 74,582 |
| 6.00 | 1507.00 | 20,641 | 19,782 | 94,364 |
| 7.00 | 1508.00 | 22,389 | 21,507 | 115,871 |
| 8.00 | 1509.00 | 24,184 | 23,278 | 139,149 |
| 9.00 | 1510.00 | 26,170 | 25,168 | 164,317 |

Culvert / Orifice Structures

| | [A] | [B] | [C] | [PrfRsr] |
|-----------------|-----------|----------|----------|----------|
| Rise (in) | = 4.00 | Inactive | Inactive | Inactive |
| Span (in) | = 36.00 | 0.00 | 0.00 | 0.00 |
| No. Barrels | = 2 | 0 | 0 | 0 |
| Invert El. (ft) | = 1508.36 | 0.00 | 0.00 | 0.00 |
| Length (ft) | = 36.10 | 0.00 | 0.00 | 0.00 |
| Slope (%) | = 1.00 | 0.00 | 0.00 | n/a |
| N-Value | = .013 | .013 | .013 | n/a |
| Orifice Coeff. | = 0.60 | 0.60 | 0.60 | 0.60 |
| Multi-Stage | = n/a | No | No | No |

Weir Structures

| | [A] | [B] | [C] | [D] |
|----------------|----------------------|----------|----------|----------|
| Crest Len (ft) | = 12.00 | Inactive | Inactive | Inactive |
| Crest El. (ft) | = 1508.90 | 0.00 | 0.00 | 0.00 |
| Weir Coeff. | = 3.33 | 3.33 | 3.33 | 3.33 |
| Weir Type | = Rect | --- | --- | --- |
| Multi-Stage | = No | No | No | No |
| Exfil.(in/hr) | = 1.590 (by Contour) | | | |
| TW Elev. (ft) | = 0.00 | | | |

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

Stage / Storage / Discharge Table

| Stage ft | Storage cuft | Elevation ft | Civ A cfs | Civ B cfs | Civ C cfs | PrfRsr cfs | Wr A cfs | Wr B cfs | Wr C cfs | Wr D cfs | Exfil cfs | User cfs | Total cfs |
|----------|--------------|--------------|-----------|-----------|-----------|------------|----------|----------|----------|----------|-----------|----------|-----------|
| 0.00 | 0 | 1501.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.000 | --- | 0.000 |
| 1.00 | 11,779 | 1502.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.464 | --- | 0.464 |
| 2.00 | 25,124 | 1503.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.519 | --- | 0.519 |
| 3.00 | 40,009 | 1504.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.577 | --- | 0.577 |
| 4.00 | 56,479 | 1505.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.636 | --- | 0.636 |
| 5.00 | 74,582 | 1506.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.697 | --- | 0.697 |
| 6.00 | 94,364 | 1507.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.760 | --- | 0.760 |
| 7.00 | 115,871 | 1508.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.824 | --- | 0.824 |
| 8.00 | 139,149 | 1509.00 | 6.63 ic | --- | --- | --- | 1.26 | --- | --- | --- | 0.890 | --- | 8.779 |
| 9.00 | 164,317 | 1510.00 | 10.77 oc | --- | --- | --- | 46.10 | --- | --- | --- | 0.963 | --- | 57.83 |

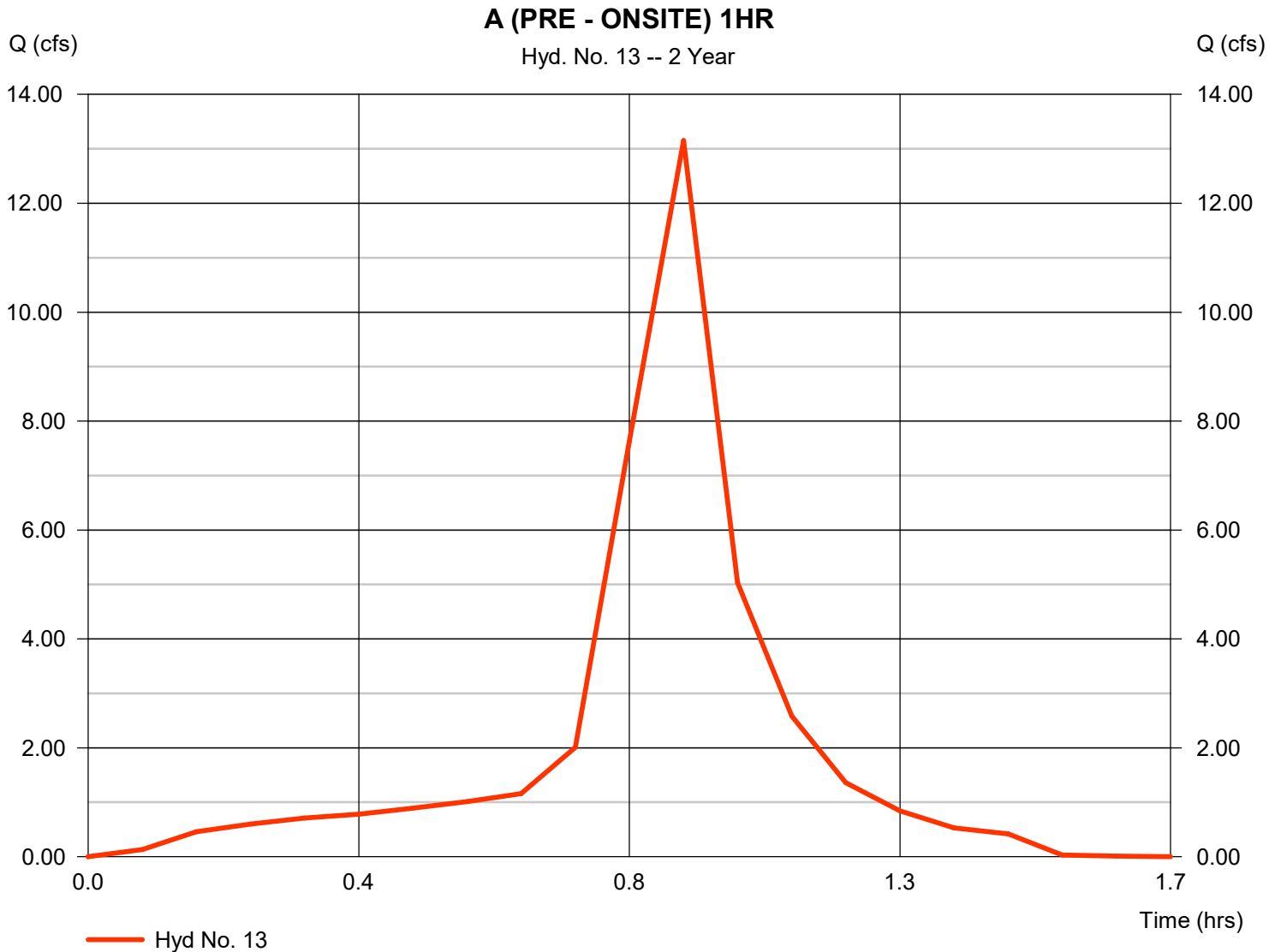
Hydrograph Report

Hyd. No. 13

A (PRE - ONSITE) 1HR

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

Peak discharge = 13.15 cfs
Time to peak = 0.92 hrs
Hyd. volume = 11,799 cuft



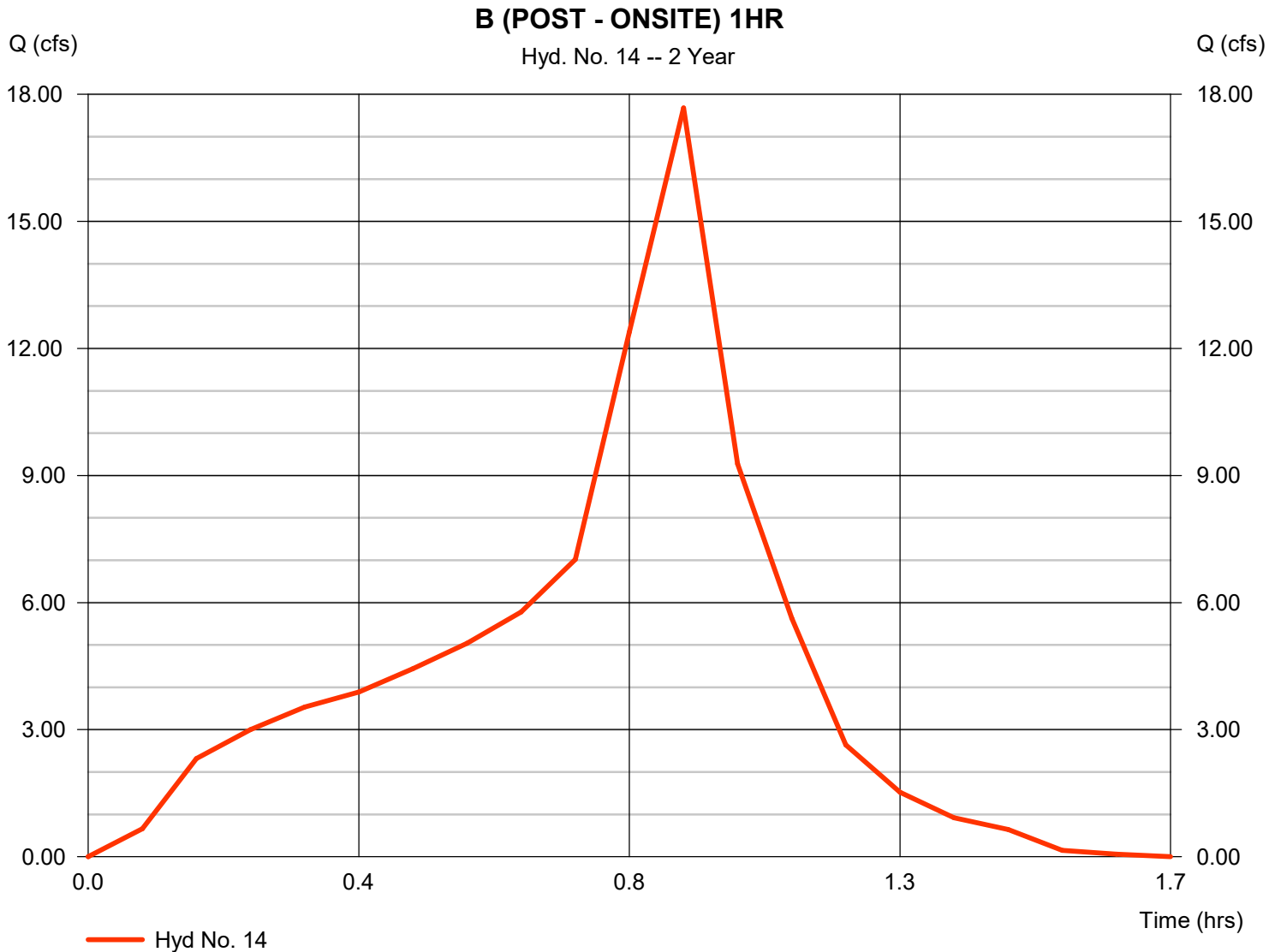
Hydrograph Report

Hyd. No. 14

B (POST - ONSITE) 1HR

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

Peak discharge = 17.68 cfs
Time to peak = 0.92 hrs
Hyd. volume = 25,977 cuft



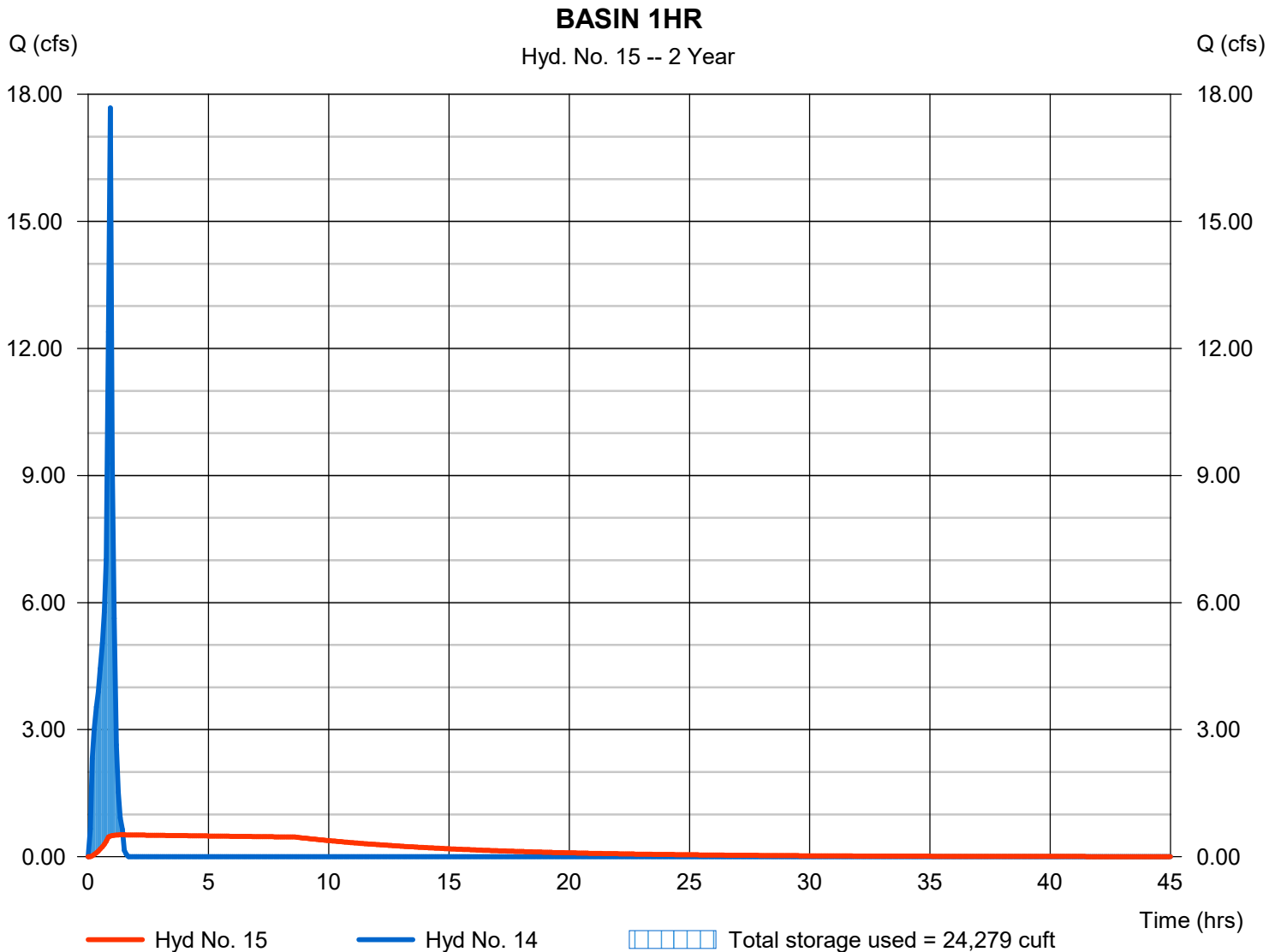
Hydrograph Report

Hyd. No. 15

BASIN 1HR

| | | | |
|-----------------|------------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.516 cfs |
| Storm frequency | = 2 yrs | Time to peak | = 1.42 hrs |
| Time interval | = 5 min | Hyd. volume | = 25,952 cuft |
| Inflow hyd. No. | = 14 - B (POST - ONSITE) 1HR | Max. Elevation | = 1502.94 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 24,279 cuft |

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Pond No. 2 - Basin A WITH Access Road

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1501.00 ft

Stage / Storage Table

| Stage (ft) | Elevation (ft) | Contour area (sqft) | Incr. Storage (cuft) | Total storage (cuft) |
|------------|----------------|---------------------|----------------------|----------------------|
| 0.00 | 1501.00 | 10,982 | 0 | 0 |
| 1.00 | 1502.00 | 12,596 | 11,779 | 11,779 |
| 2.00 | 1503.00 | 14,112 | 13,345 | 25,124 |
| 3.00 | 1504.00 | 15,674 | 14,885 | 40,009 |
| 4.00 | 1505.00 | 17,283 | 16,470 | 56,479 |
| 5.00 | 1506.00 | 18,939 | 18,103 | 74,582 |
| 6.00 | 1507.00 | 20,641 | 19,782 | 94,364 |
| 7.00 | 1508.00 | 22,389 | 21,507 | 115,871 |
| 8.00 | 1509.00 | 24,184 | 23,278 | 139,149 |
| 9.00 | 1510.00 | 26,170 | 25,168 | 164,317 |

Culvert / Orifice Structures

| | [A] | [B] | [C] | [PrfRsr] |
|-----------------|-----------|----------|----------|----------|
| Rise (in) | = 4.00 | Inactive | Inactive | Inactive |
| Span (in) | = 36.00 | 0.00 | 0.00 | 0.00 |
| No. Barrels | = 2 | 0 | 0 | 0 |
| Invert El. (ft) | = 1508.36 | 0.00 | 0.00 | 0.00 |
| Length (ft) | = 36.10 | 0.00 | 0.00 | 0.00 |
| Slope (%) | = 1.00 | 0.00 | 0.00 | n/a |
| N-Value | = .013 | .013 | .013 | n/a |
| Orifice Coeff. | = 0.60 | 0.60 | 0.60 | 0.60 |
| Multi-Stage | = n/a | No | No | No |

Weir Structures

| | [A] | [B] | [C] | [D] |
|----------------|----------------------|----------|----------|----------|
| Crest Len (ft) | = 12.00 | Inactive | Inactive | Inactive |
| Crest El. (ft) | = 1508.90 | 0.00 | 0.00 | 0.00 |
| Weir Coeff. | = 3.33 | 3.33 | 3.33 | 3.33 |
| Weir Type | = Rect | --- | --- | --- |
| Multi-Stage | = No | No | No | No |
| Exfil.(in/hr) | = 1.590 (by Contour) | | | |
| TW Elev. (ft) | = 0.00 | | | |

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

Stage / Storage / Discharge Table

| Stage ft | Storage cuft | Elevation ft | Civ A cfs | Civ B cfs | Civ C cfs | PrfRsr cfs | Wr A cfs | Wr B cfs | Wr C cfs | Wr D cfs | Exfil cfs | User cfs | Total cfs |
|----------|--------------|--------------|-----------|-----------|-----------|------------|----------|----------|----------|----------|-----------|----------|-----------|
| 0.00 | 0 | 1501.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.000 | --- | 0.000 |
| 1.00 | 11,779 | 1502.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.464 | --- | 0.464 |
| 2.00 | 25,124 | 1503.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.519 | --- | 0.519 |
| 3.00 | 40,009 | 1504.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.577 | --- | 0.577 |
| 4.00 | 56,479 | 1505.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.636 | --- | 0.636 |
| 5.00 | 74,582 | 1506.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.697 | --- | 0.697 |
| 6.00 | 94,364 | 1507.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.760 | --- | 0.760 |
| 7.00 | 115,871 | 1508.00 | 0.00 | --- | --- | --- | 0.00 | --- | --- | --- | 0.824 | --- | 0.824 |
| 8.00 | 139,149 | 1509.00 | 6.63 ic | --- | --- | --- | 1.26 | --- | --- | --- | 0.890 | --- | 8.779 |
| 9.00 | 164,317 | 1510.00 | 10.77 oc | --- | --- | --- | 46.10 | --- | --- | --- | 0.963 | --- | 57.83 |

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description | |
|-------------------------|--------------------------|-----------------|---------------------|--------------------|-----------------------|---------------|------------------------|-------------------------|------------------------|--|
| 1 | Manual | 0.840 | 5 | 805 | 22,389 | ----- | ----- | ----- | A (PRE - ONSITE) 24HR | |
| 2 | Manual | 4.210 | 5 | 810 | 112,059 | ----- | ----- | ----- | B (POST - ONSITE) 24HR | |
| 3 | Reservoir | 0.705 | 5 | 980 | 112,034 | 2 | 1506.13 | 77,150 | BASIN 24HR | |
| 5 | Manual | 6.450 | 5 | 335 | 19,287 | ----- | ----- | ----- | A (PRE - ONSITE) 6HR | |
| 6 | Manual | 10.88 | 5 | 330 | 70,317 | ----- | ----- | ----- | B (POST - ONSITE) 6HR | |
| 7 | Reservoir | 0.651 | 5 | 365 | 70,292 | 6 | 1505.25 | 60,953 | BASIN 6HR | |
| 9 | Manual | 9.370 | 5 | 160 | 19,449 | ----- | ----- | ----- | A (PRE - ONSITE) 3HR | |
| 10 | Manual | 13.85 | 5 | 160 | 55,284 | ----- | ----- | ----- | B (POST - ONSITE) 3HR | |
| 11 | Reservoir | 0.614 | 5 | 195 | 55,258 | 10 | 1504.64 | 50,452 | BASIN 3HR | |
| 13 | Manual | 20.31 | 5 | 55 | 19,191 | ----- | ----- | ----- | A (PRE - ONSITE) 1HR | |
| 14 | Manual | 25.12 | 5 | 55 | 36,288 | ----- | ----- | ----- | B (POST - ONSITE) 1HR | |
| 15 | Reservoir | 0.555 | 5 | 85 | 36,263 | 14 | 1503.62 | 34,312 | BASIN 1HR | |
| 20200259 Hydrograph.gpw | | | | | Return Period: 5 Year | | | Tuesday, 08 / 17 / 2021 | | |

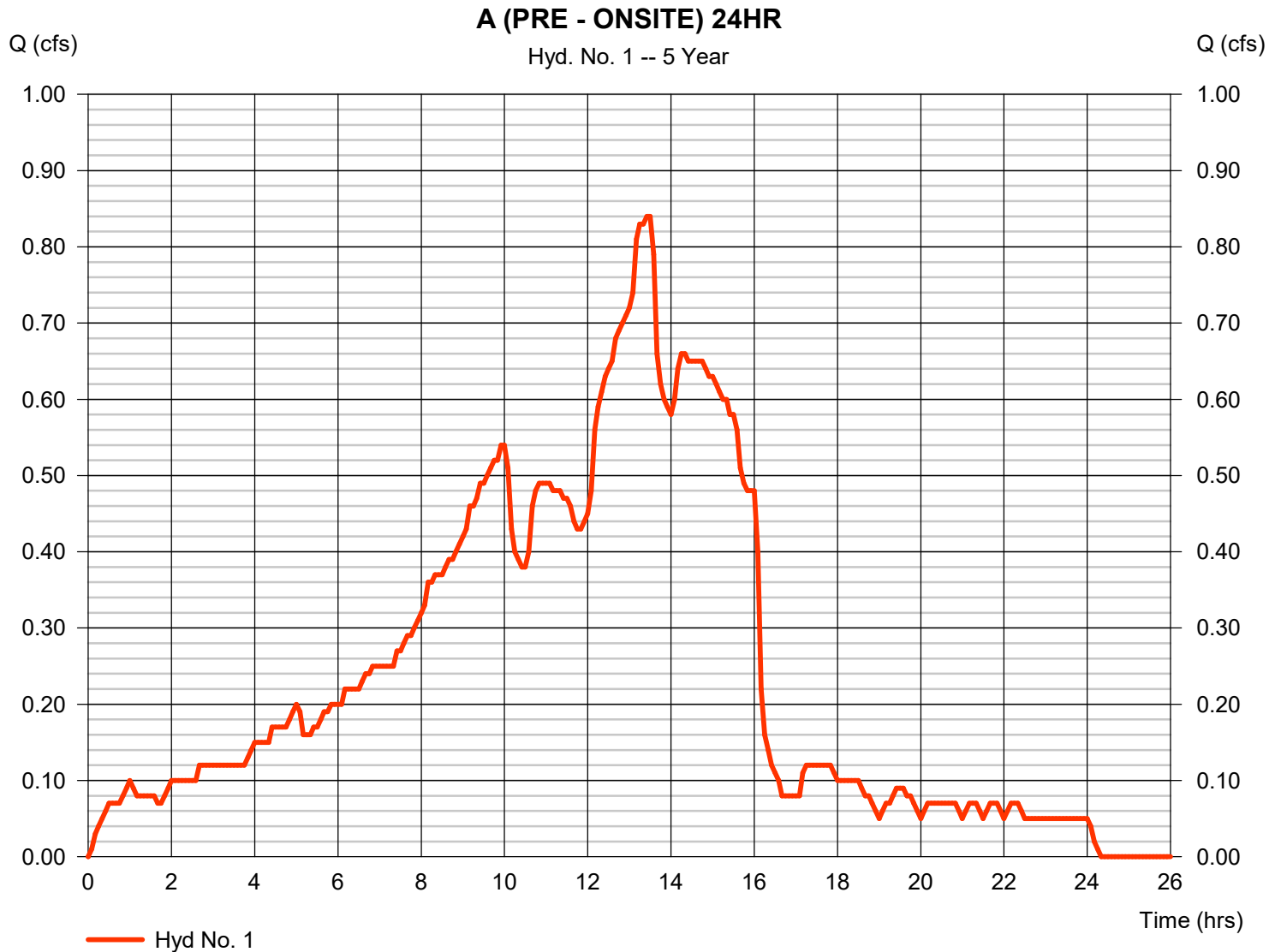
Hydrograph Report

Hyd. No. 1

A (PRE - ONSITE) 24HR

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

Peak discharge = 0.840 cfs
Time to peak = 13.42 hrs
Hyd. volume = 22,389 cuft



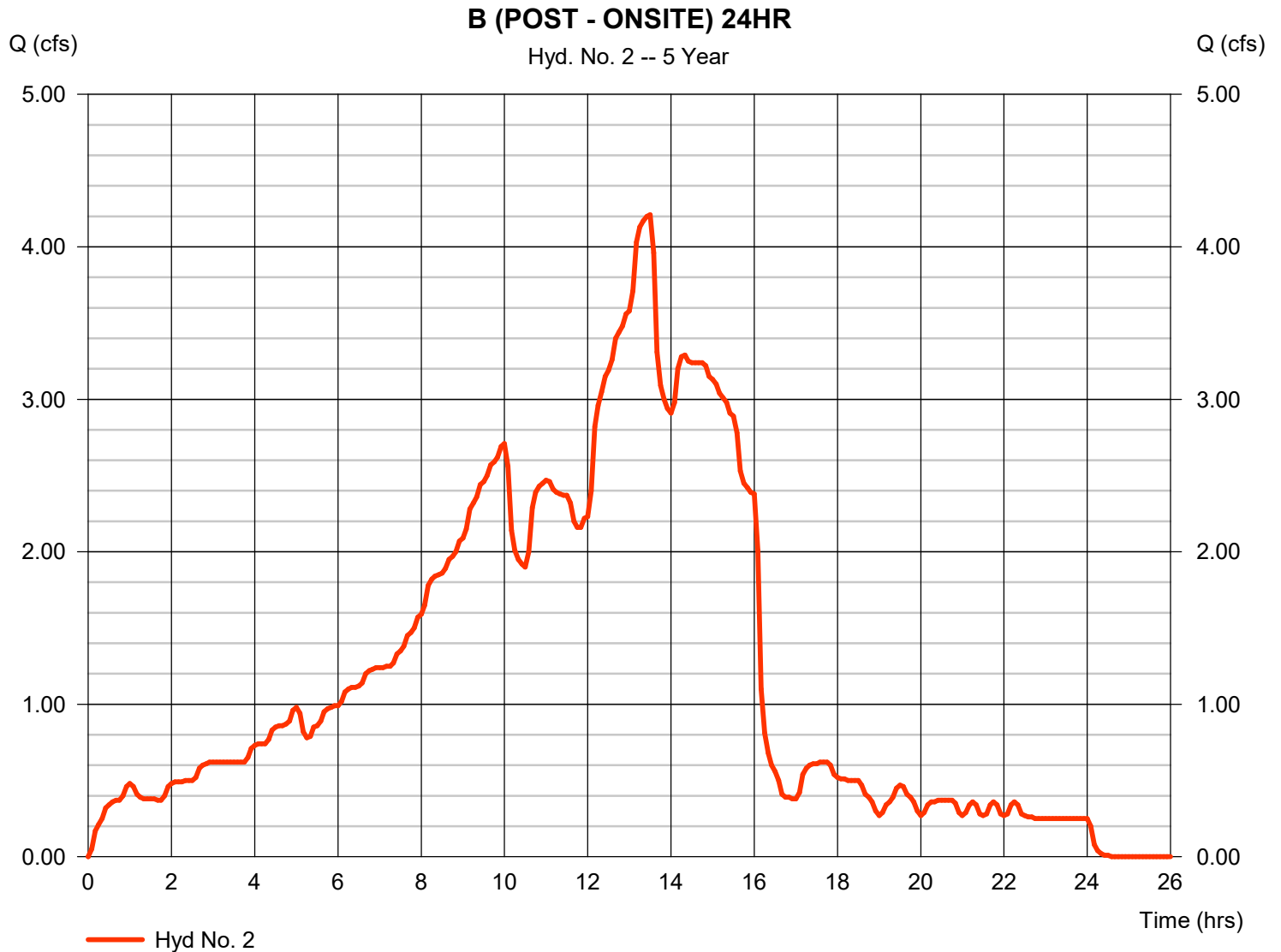
Hydrograph Report

Hyd. No. 2

B (POST - ONSITE) 24HR

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

Peak discharge = 4.210 cfs
Time to peak = 13.50 hrs
Hyd. volume = 112,059 cuft



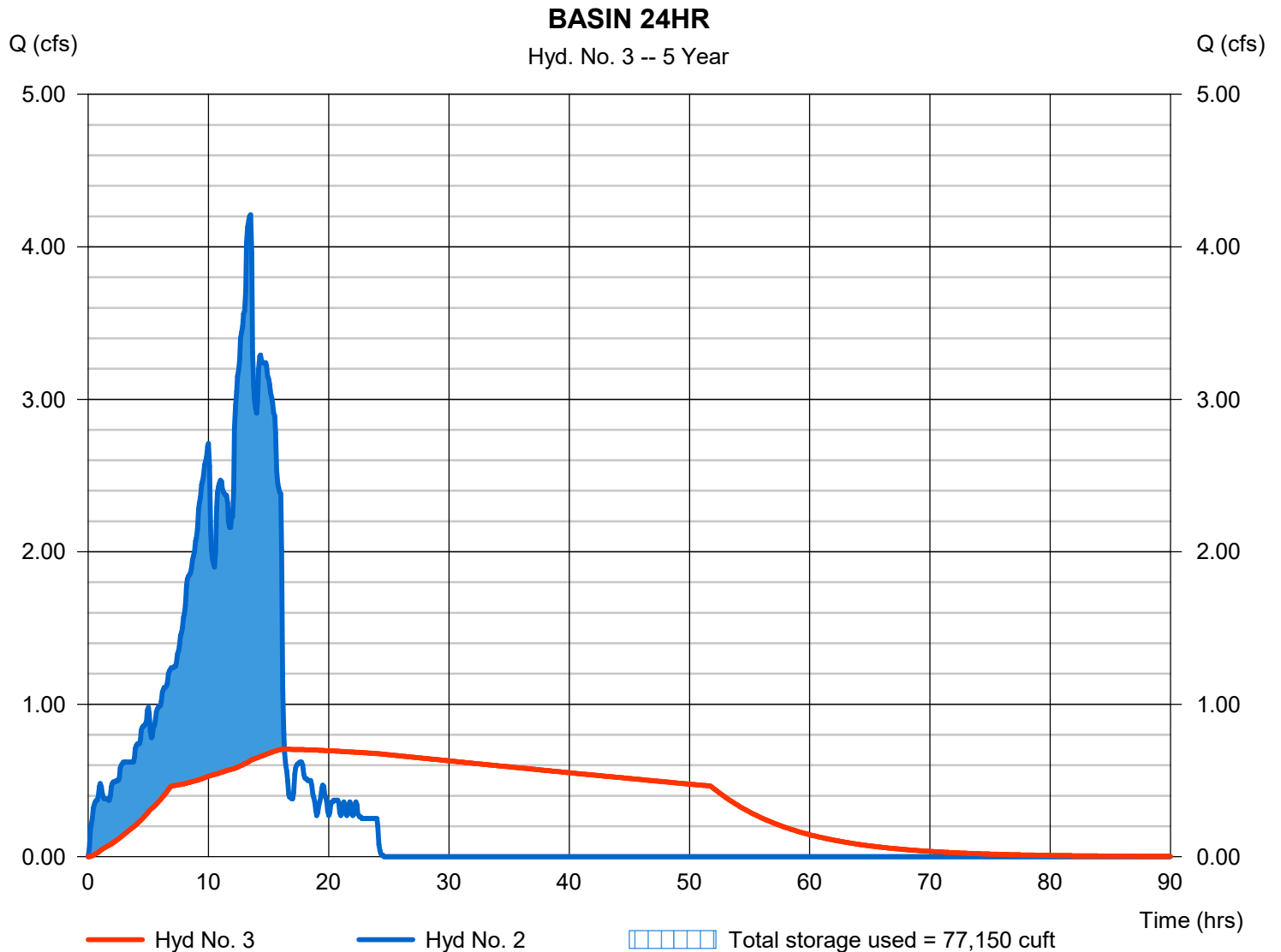
Hydrograph Report

Hyd. No. 3

BASIN 24HR

| | | | |
|-----------------|------------------------------|----------------|----------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.705 cfs |
| Storm frequency | = 5 yrs | Time to peak | = 16.33 hrs |
| Time interval | = 5 min | Hyd. volume | = 112,034 cuft |
| Inflow hyd. No. | = 2 - B (POST - ONSITE) 24HR | Max. Elevation | = 1506.13 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 77,150 cuft |

Storage Indication method used. Outflow includes exfiltration.



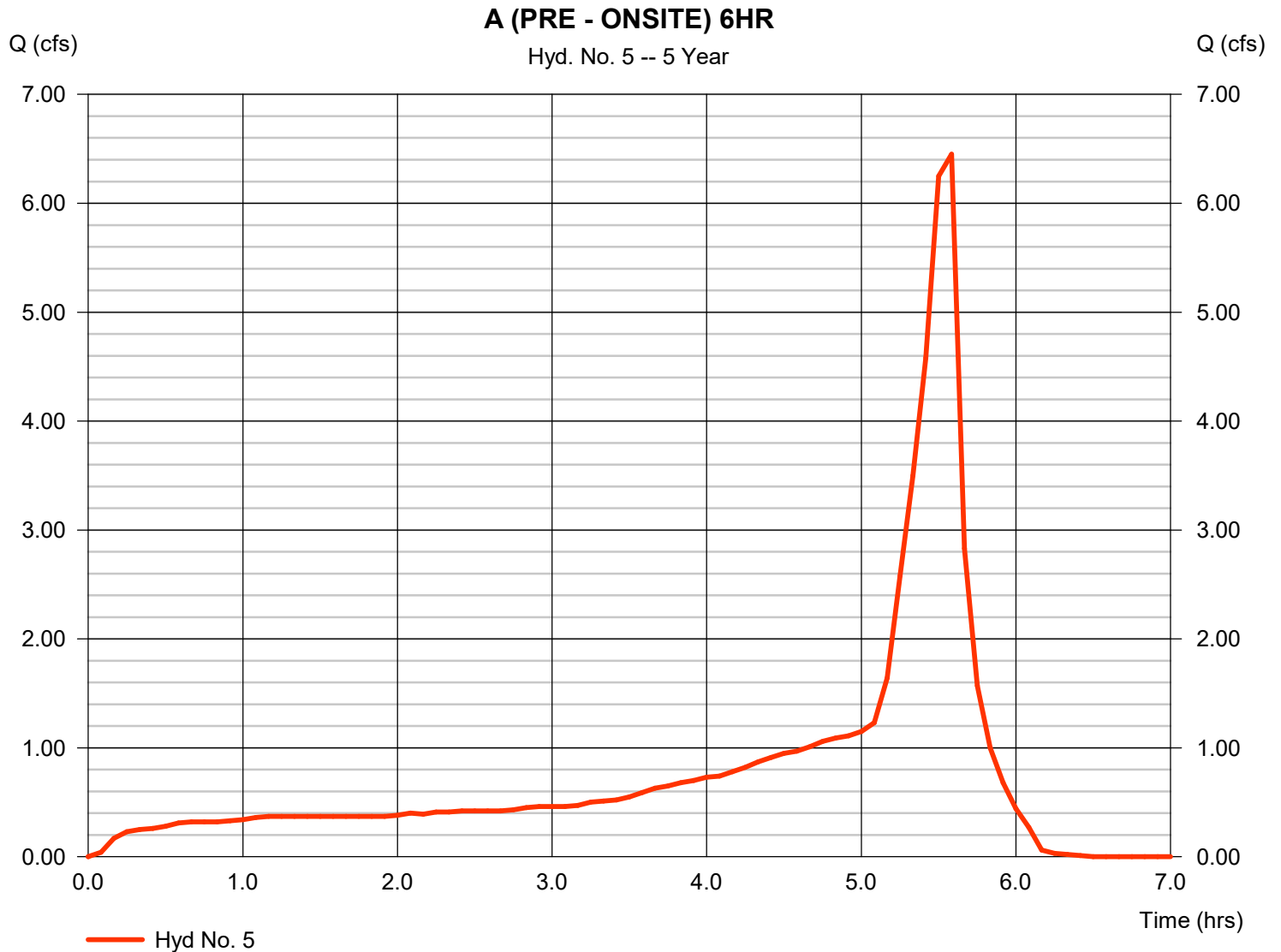
Hydrograph Report

Hyd. No. 5

A (PRE - ONSITE) 6HR

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

Peak discharge = 6.450 cfs
Time to peak = 5.58 hrs
Hyd. volume = 19,287 cuft



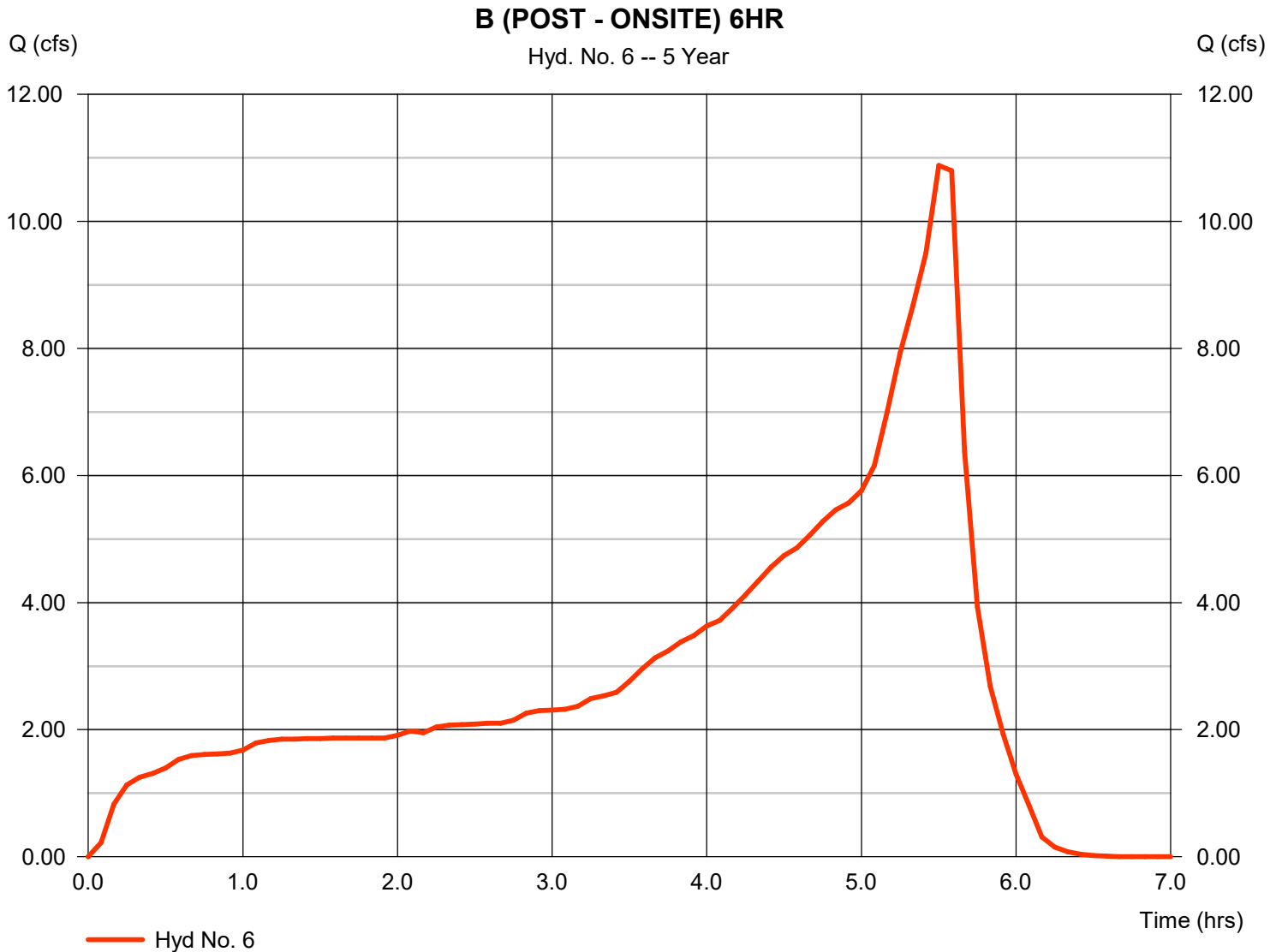
Hydrograph Report

Hyd. No. 6

B (POST - ONSITE) 6HR

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

Peak discharge = 10.88 cfs
Time to peak = 5.50 hrs
Hyd. volume = 70,317 cuft



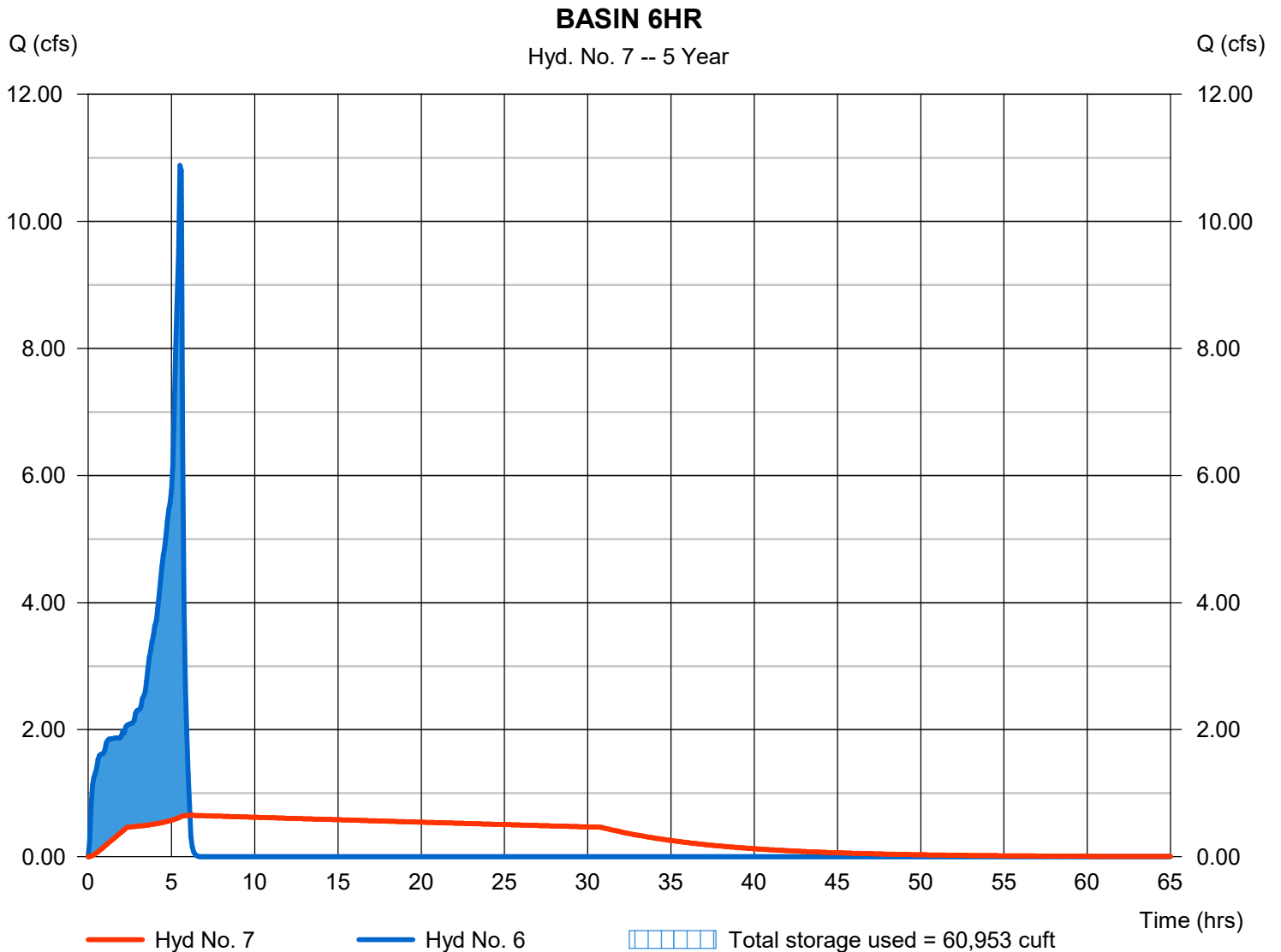
Hydrograph Report

Hyd. No. 7

BASIN 6HR

| | | | |
|-----------------|-----------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.651 cfs |
| Storm frequency | = 5 yrs | Time to peak | = 6.08 hrs |
| Time interval | = 5 min | Hyd. volume | = 70,292 cuft |
| Inflow hyd. No. | = 6 - B (POST - ONSITE) 6HR | Max. Elevation | = 1505.25 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 60,953 cuft |

Storage Indication method used. Outflow includes exfiltration.



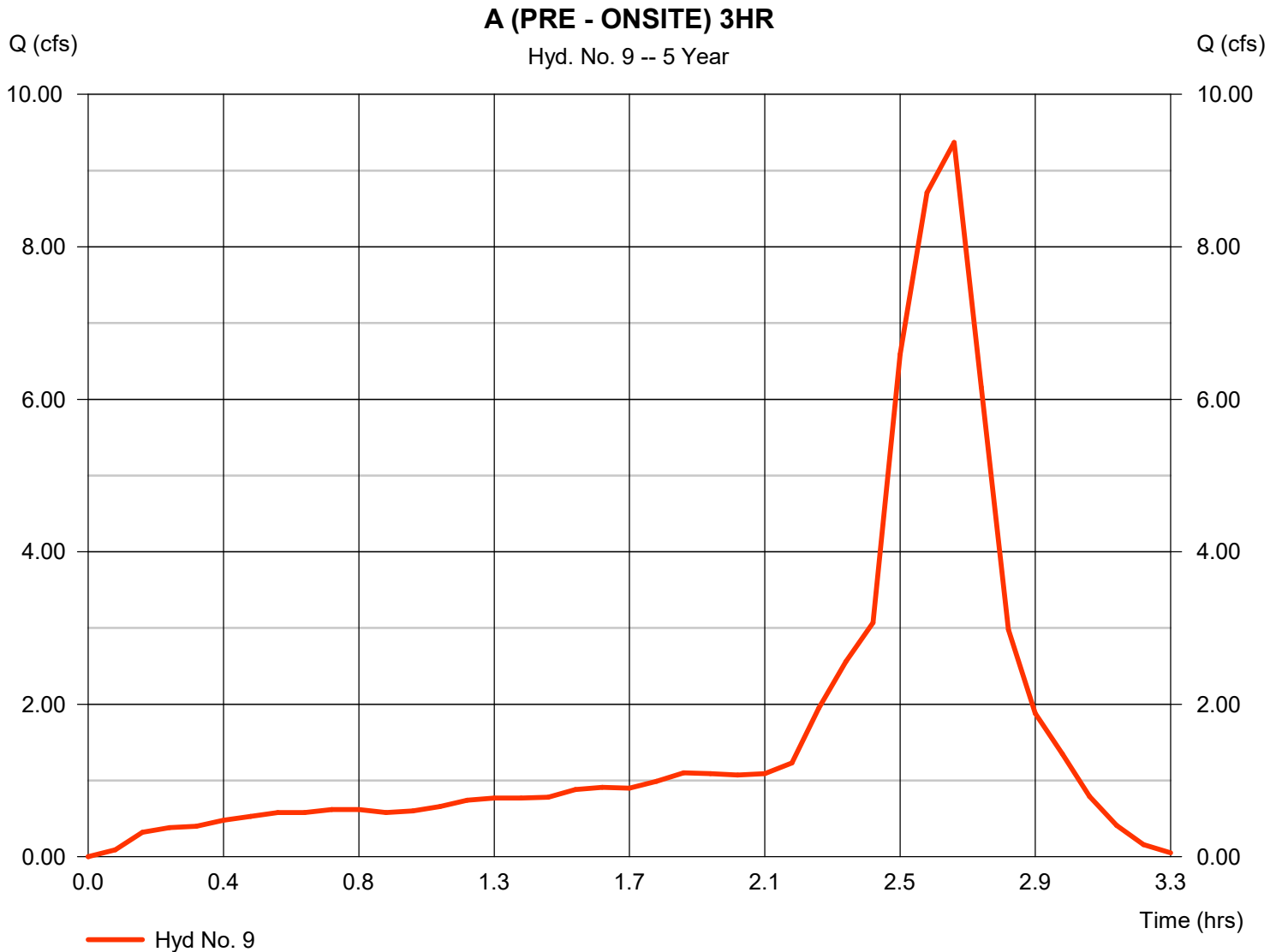
Hydrograph Report

Hyd. No. 9

A (PRE - ONSITE) 3HR

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

Peak discharge = 9.370 cfs
Time to peak = 2.67 hrs
Hyd. volume = 19,449 cuft



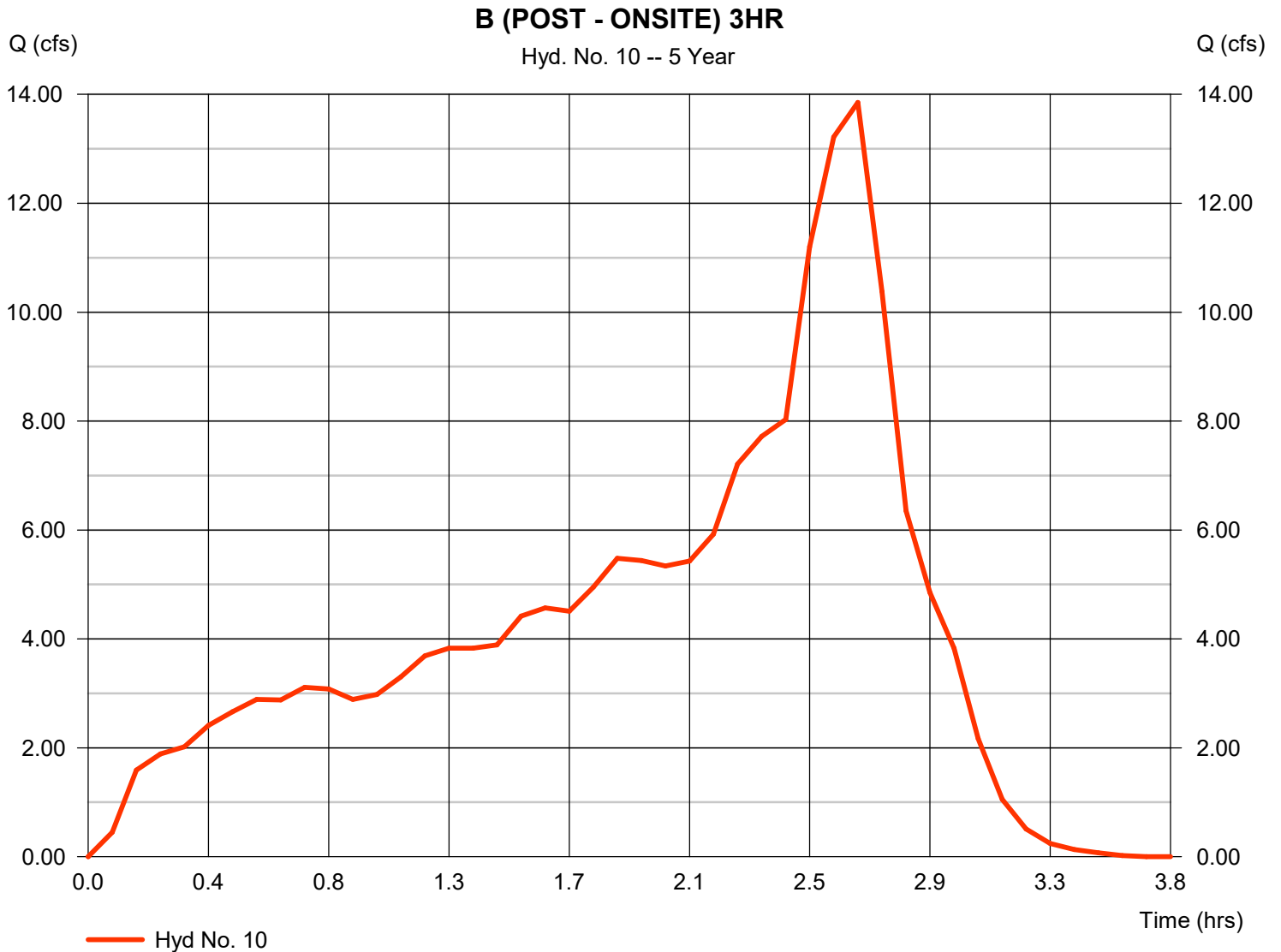
Hydrograph Report

Hyd. No. 10

B (POST - ONSITE) 3HR

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

Peak discharge = 13.85 cfs
Time to peak = 2.67 hrs
Hyd. volume = 55,284 cuft



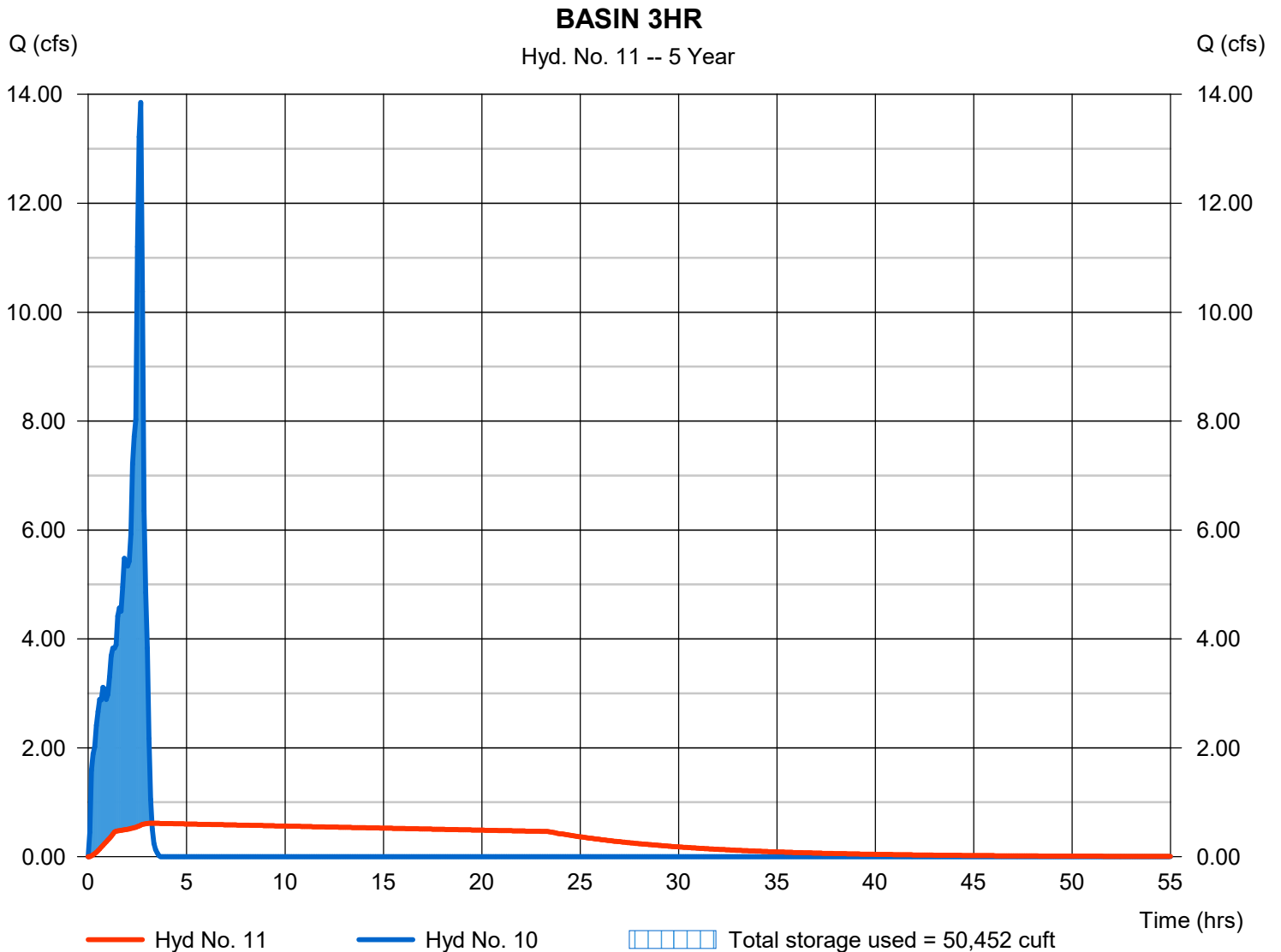
Hydrograph Report

Hyd. No. 11

BASIN 3HR

| | | | |
|-----------------|------------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.614 cfs |
| Storm frequency | = 5 yrs | Time to peak | = 3.25 hrs |
| Time interval | = 5 min | Hyd. volume | = 55,258 cuft |
| Inflow hyd. No. | = 10 - B (POST - ONSITE) 3HR | Max. Elevation | = 1504.64 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 50,452 cuft |

Storage Indication method used. Outflow includes exfiltration.



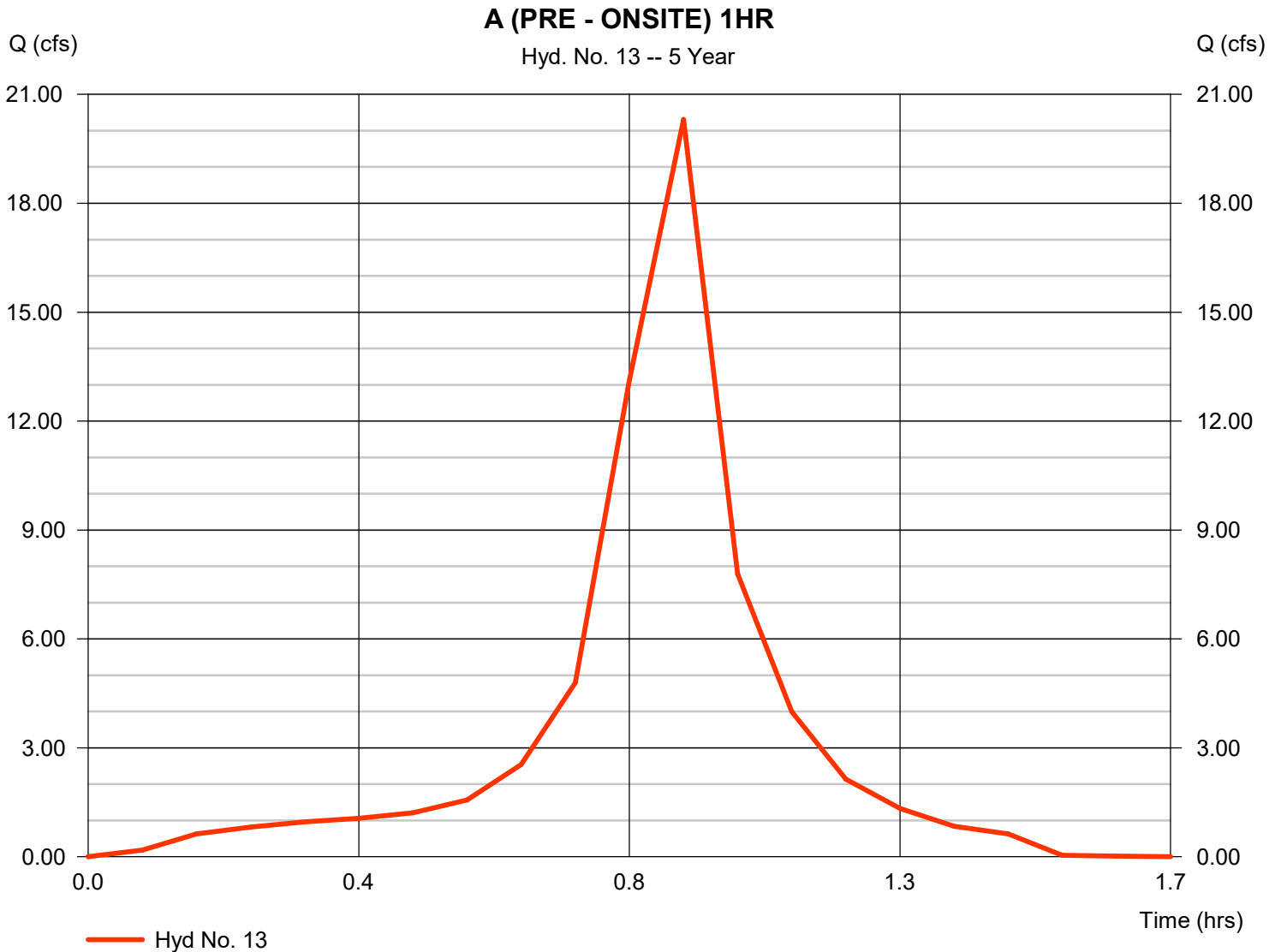
Hydrograph Report

Hyd. No. 13

A (PRE - ONSITE) 1HR

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

Peak discharge = 20.31 cfs
Time to peak = 0.92 hrs
Hyd. volume = 19,191 cuft



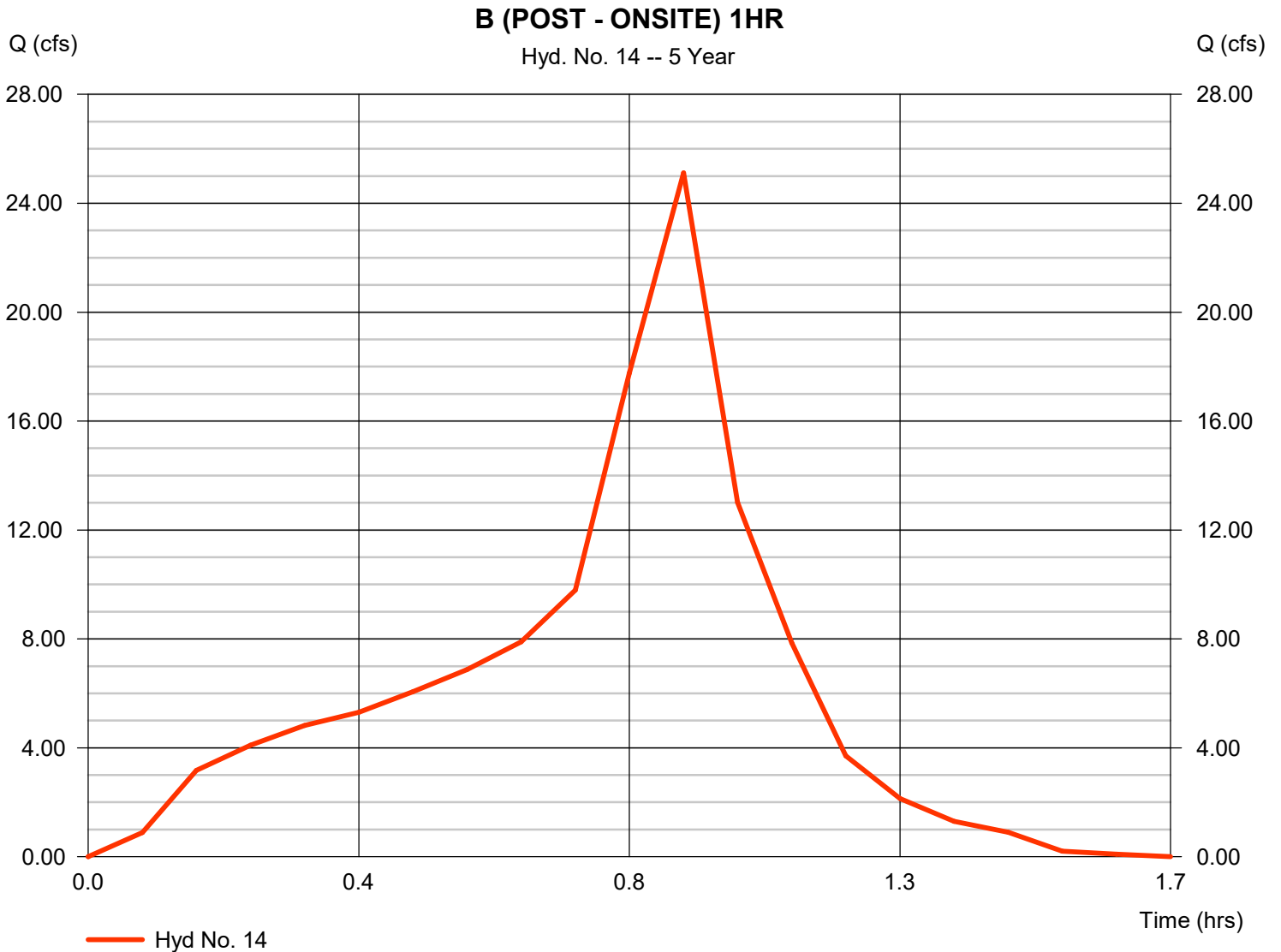
Hydrograph Report

Hyd. No. 14

B (POST - ONSITE) 1HR

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

Peak discharge = 25.12 cfs
Time to peak = 0.92 hrs
Hyd. volume = 36,288 cuft



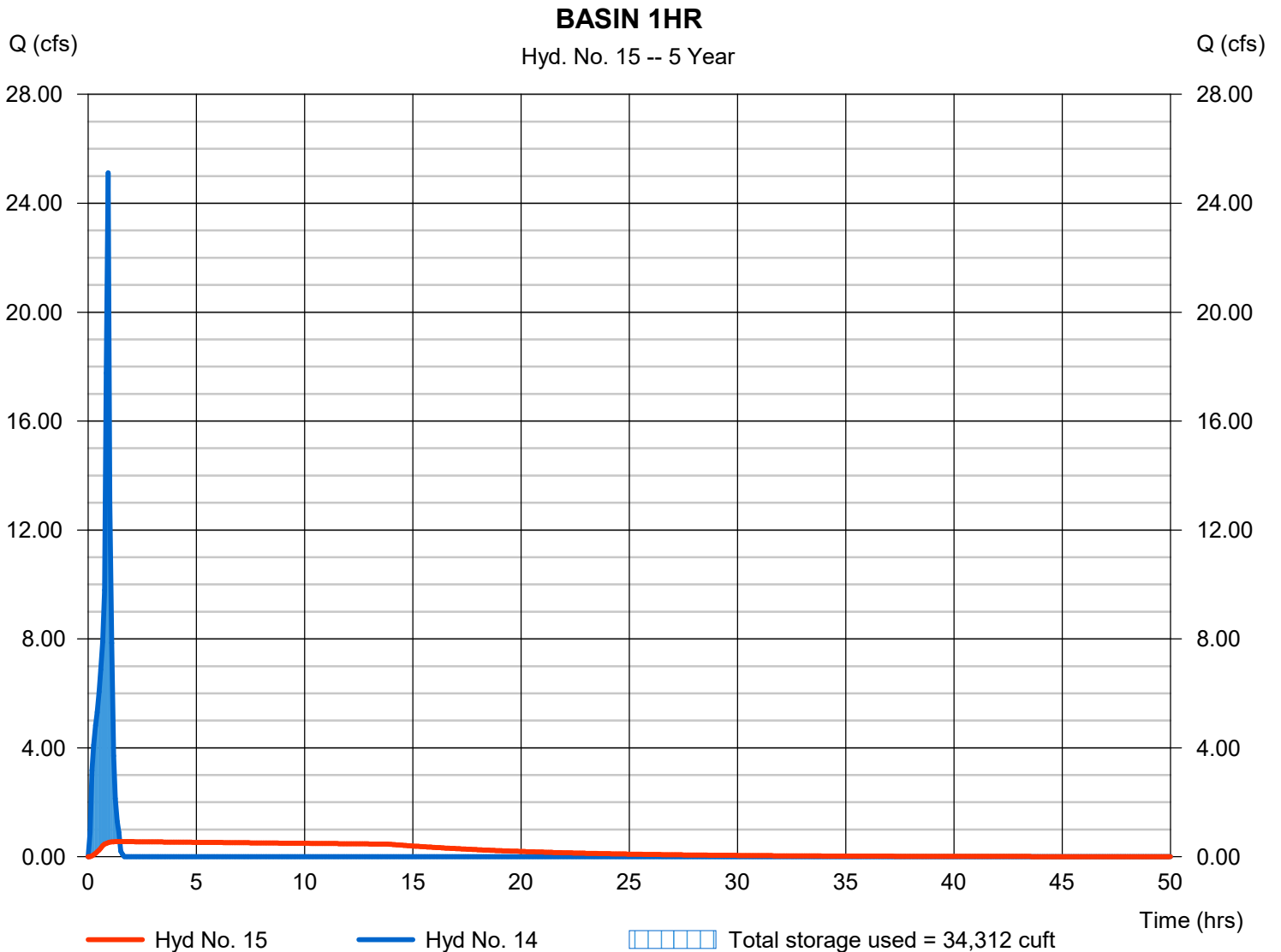
Hydrograph Report

Hyd. No. 15

BASIN 1HR

| | | | |
|-----------------|------------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.555 cfs |
| Storm frequency | = 5 yrs | Time to peak | = 1.42 hrs |
| Time interval | = 5 min | Hyd. volume | = 36,263 cuft |
| Inflow hyd. No. | = 14 - B (POST - ONSITE) 1HR | Max. Elevation | = 1503.62 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 34,312 cuft |

Storage Indication method used. Outflow includes exfiltration.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description |
|-------------------------|--------------------------|-----------------|---------------------|--------------------|------------------------|---------------|------------------------|-------------------------|------------------------|
| 1 | Manual | 2.720 | 5 | 810 | 33,168 | ---- | ---- | ---- | A (PRE - ONSITE) 24HR |
| 2 | Manual | 5.070 | 5 | 795 | 134,172 | ---- | ---- | ---- | B (POST - ONSITE) 24HR |
| 3 | Reservoir | 0.763 | 5 | 970 | 134,147 | 2 | 1507.05 | 95,319 | BASIN 24HR |
| 5 | Manual | 14.52 | 5 | 330 | 41,529 | ---- | ---- | ---- | A (PRE - ONSITE) 6HR |
| 6 | Manual | 17.49 | 5 | 330 | 86,694 | ---- | ---- | ---- | B (POST - ONSITE) 6HR |
| 7 | Reservoir | 0.704 | 5 | 360 | 86,668 | 6 | 1506.11 | 76,792 | BASIN 6HR |
| 9 | Manual | 17.35 | 5 | 155 | 40,545 | ---- | ---- | ---- | A (PRE - ONSITE) 3HR |
| 10 | Manual | 20.50 | 5 | 155 | 68,190 | ---- | ---- | ---- | B (POST - ONSITE) 3HR |
| 11 | Reservoir | 0.659 | 5 | 185 | 68,165 | 10 | 1505.38 | 63,343 | BASIN 3HR |
| 13 | Manual | 29.49 | 5 | 50 | 38,112 | ---- | ---- | ---- | A (PRE - ONSITE) 1HR |
| 14 | Manual | 39.48 | 5 | 50 | 45,867 | ---- | ---- | ---- | B (POST - ONSITE) 1HR |
| 15 | Reservoir | 0.592 | 5 | 70 | 45,841 | 14 | 1504.26 | 44,287 | BASIN 1HR |
| 20200259 Hydrograph.gpw | | | | | Return Period: 10 Year | | | Tuesday, 08 / 17 / 2021 | |

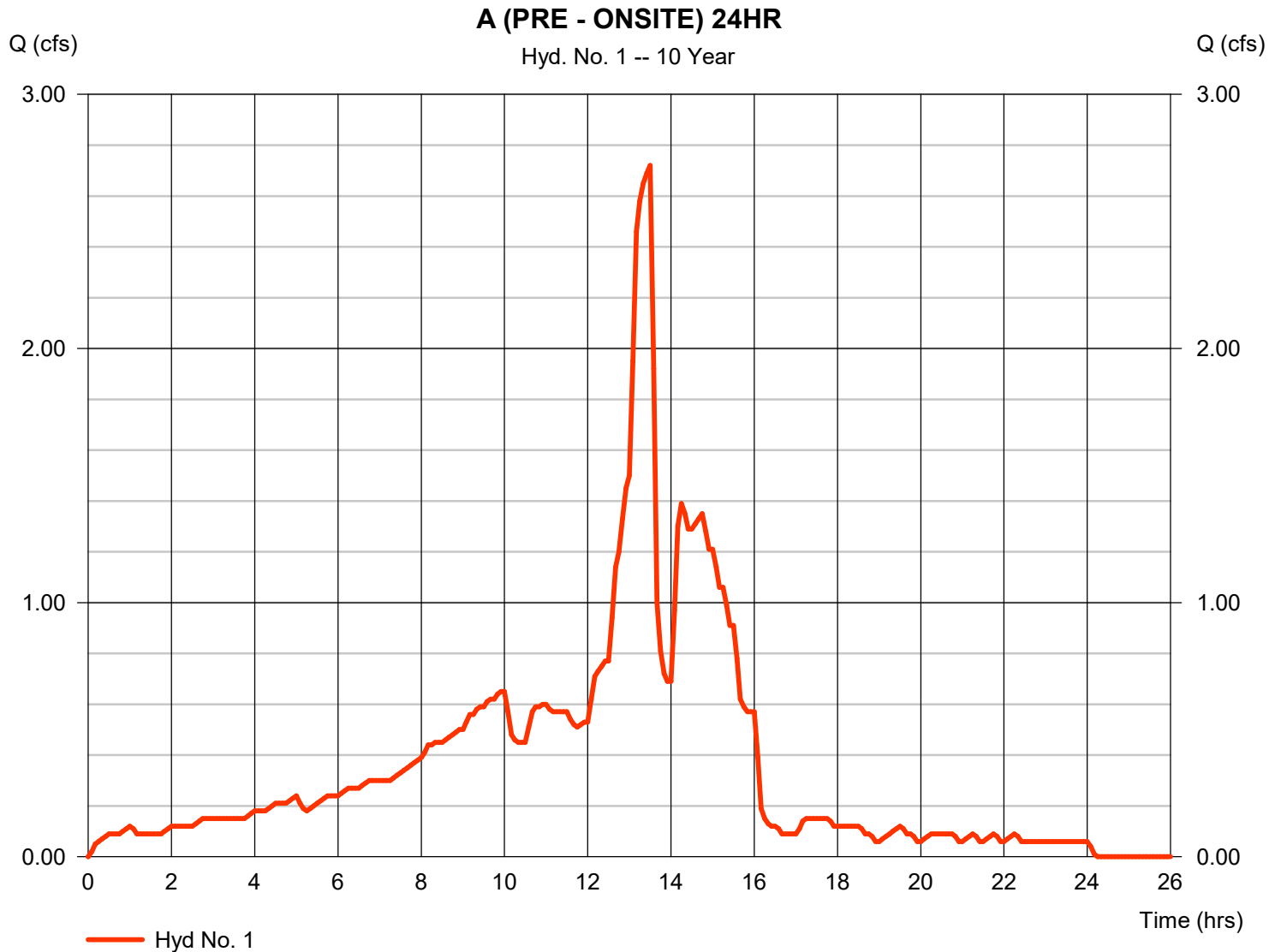
Hydrograph Report

Hyd. No. 1

A (PRE - ONSITE) 24HR

Hydrograph type = Manual
Storm frequency = 10 yrs
Time interval = 5 min

Peak discharge = 2.720 cfs
Time to peak = 13.50 hrs
Hyd. volume = 33,168 cuft



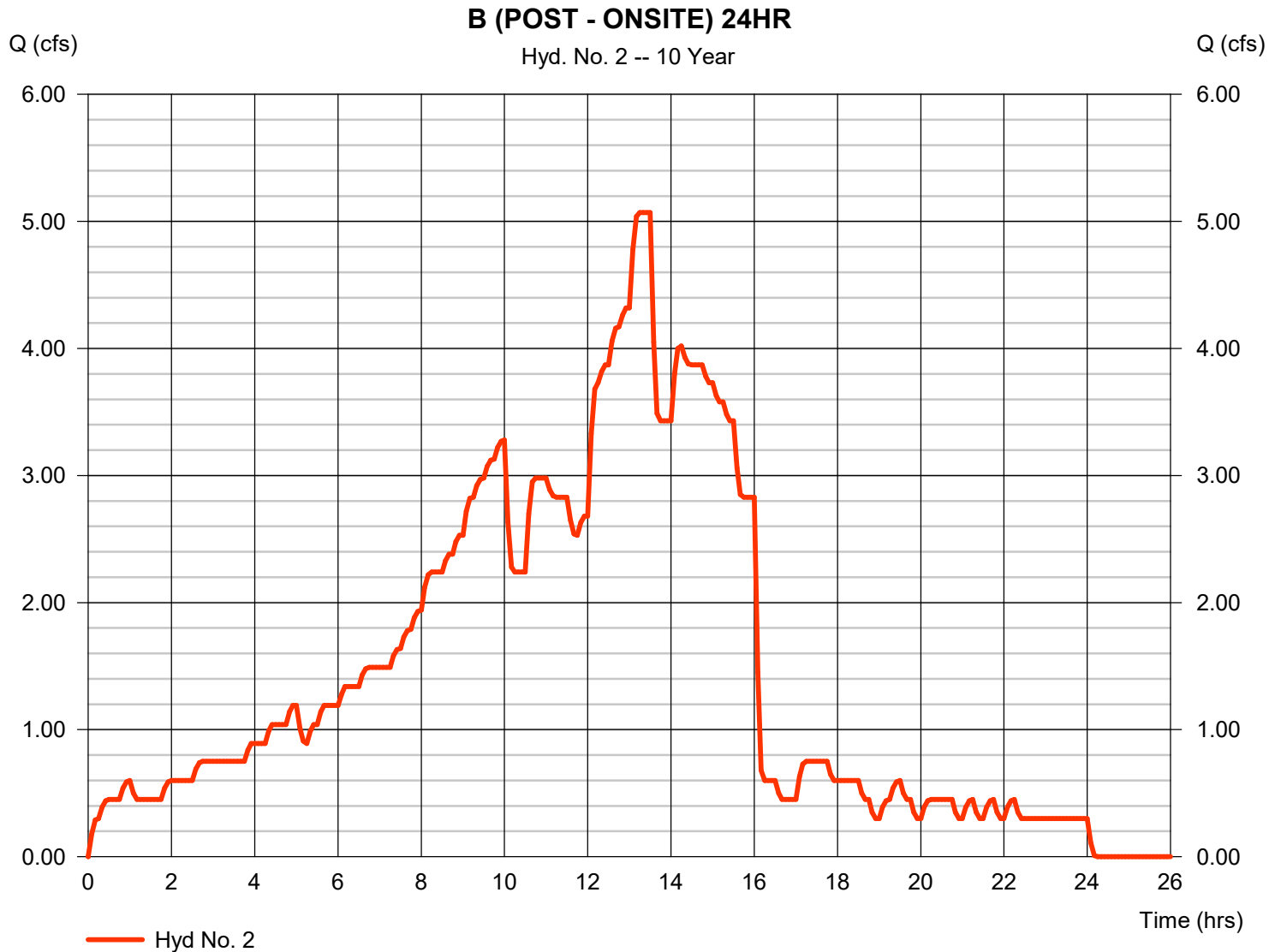
Hydrograph Report

Hyd. No. 2

B (POST - ONSITE) 24HR

Hydrograph type = Manual
Storm frequency = 10 yrs
Time interval = 5 min

Peak discharge = 5.070 cfs
Time to peak = 13.25 hrs
Hyd. volume = 134,172 cuft



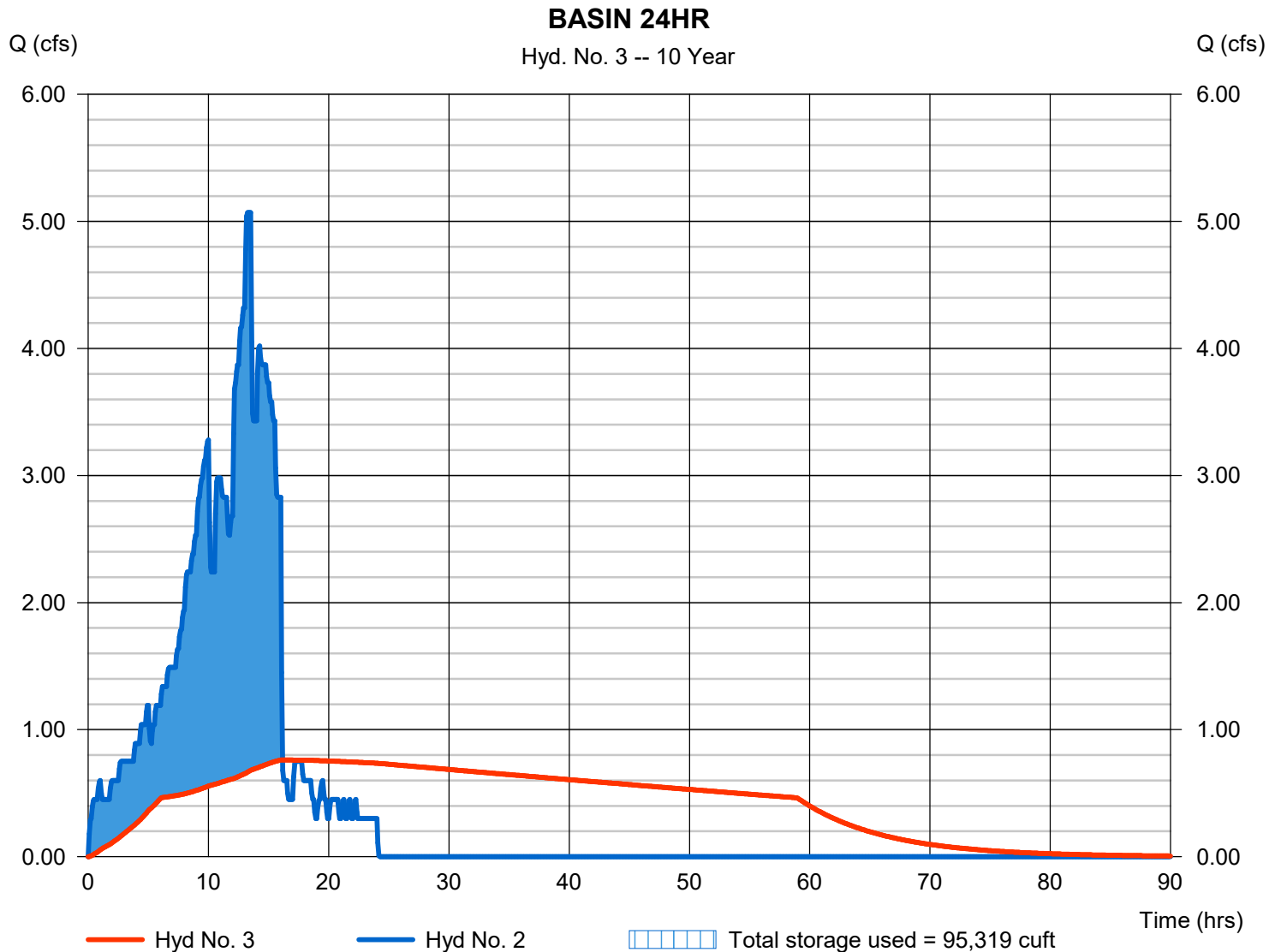
Hydrograph Report

Hyd. No. 3

BASIN 24HR

| | | | |
|-----------------|------------------------------|----------------|----------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.763 cfs |
| Storm frequency | = 10 yrs | Time to peak | = 16.17 hrs |
| Time interval | = 5 min | Hyd. volume | = 134,147 cuft |
| Inflow hyd. No. | = 2 - B (POST - ONSITE) 24HR | Max. Elevation | = 1507.05 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 95,319 cuft |

Storage Indication method used. Outflow includes exfiltration.



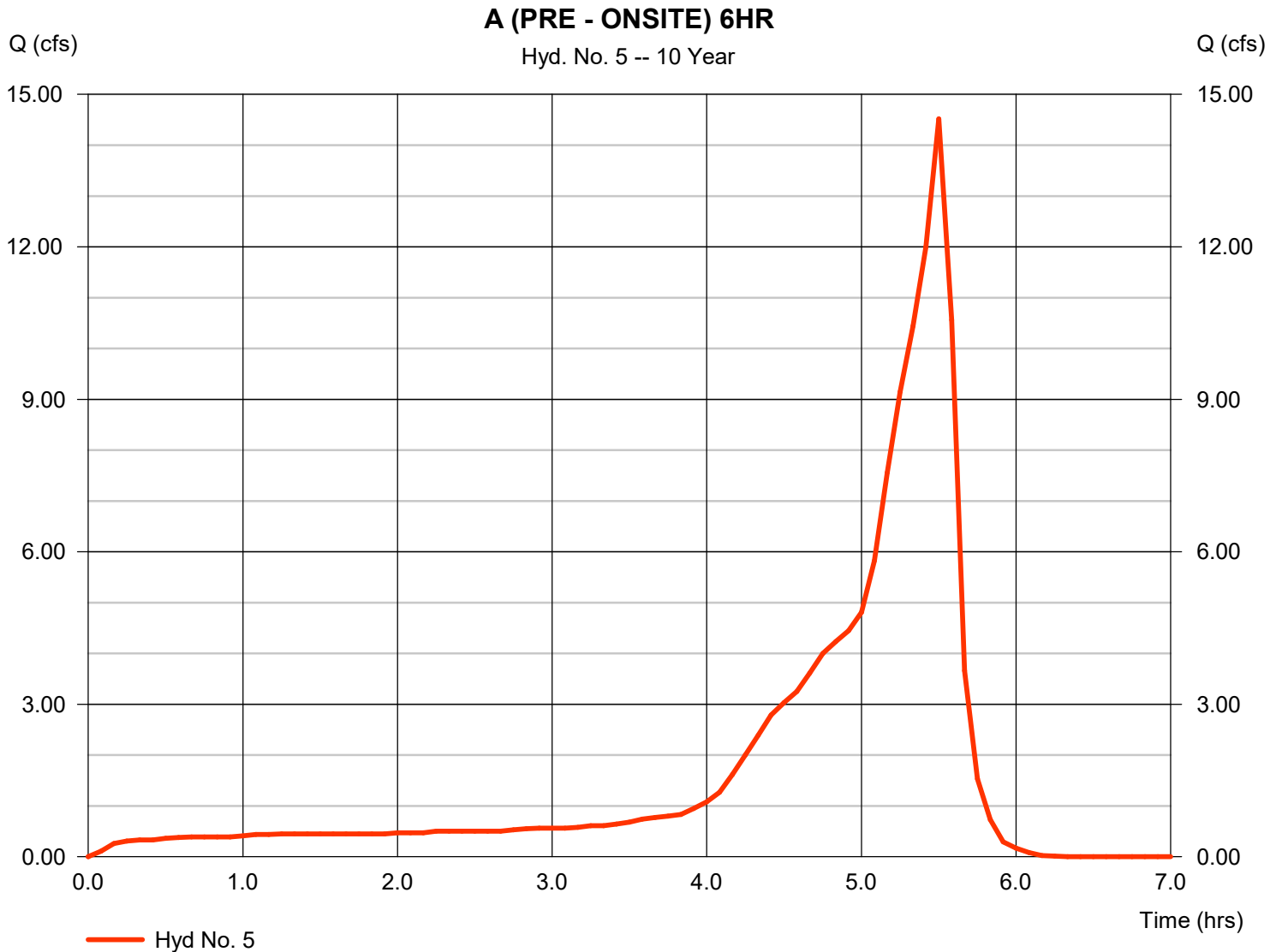
Hydrograph Report

Hyd. No. 5

A (PRE - ONSITE) 6HR

Hydrograph type = Manual
Storm frequency = 10 yrs
Time interval = 5 min

Peak discharge = 14.52 cfs
Time to peak = 5.50 hrs
Hyd. volume = 41,529 cuft



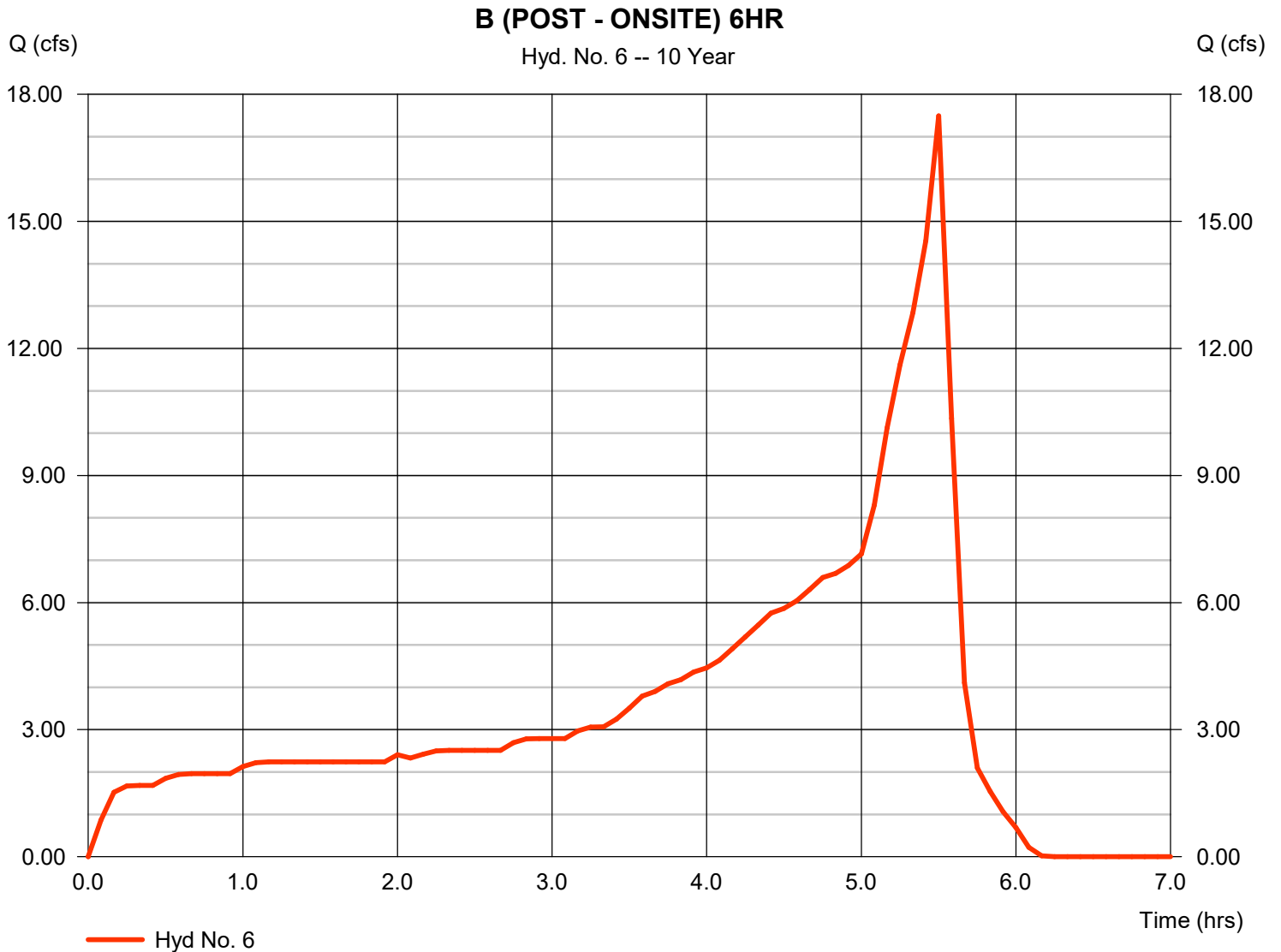
Hydrograph Report

Hyd. No. 6

B (POST - ONSITE) 6HR

Hydrograph type = Manual
Storm frequency = 10 yrs
Time interval = 5 min

Peak discharge = 17.49 cfs
Time to peak = 5.50 hrs
Hyd. volume = 86,694 cuft



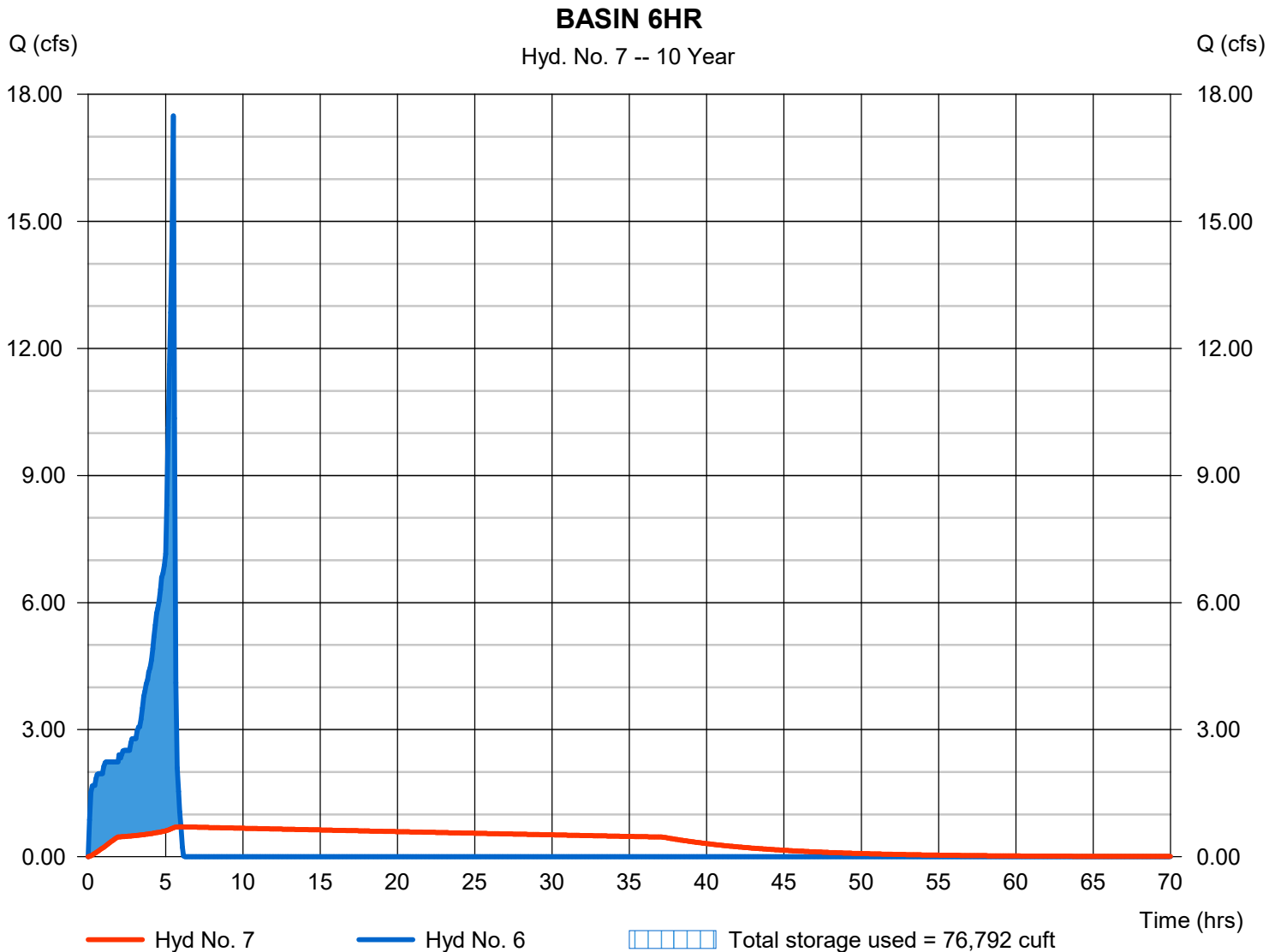
Hydrograph Report

Hyd. No. 7

BASIN 6HR

| | | | |
|-----------------|-----------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.704 cfs |
| Storm frequency | = 10 yrs | Time to peak | = 6.00 hrs |
| Time interval | = 5 min | Hyd. volume | = 86,668 cuft |
| Inflow hyd. No. | = 6 - B (POST - ONSITE) 6HR | Max. Elevation | = 1506.11 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 76,792 cuft |

Storage Indication method used. Outflow includes exfiltration.



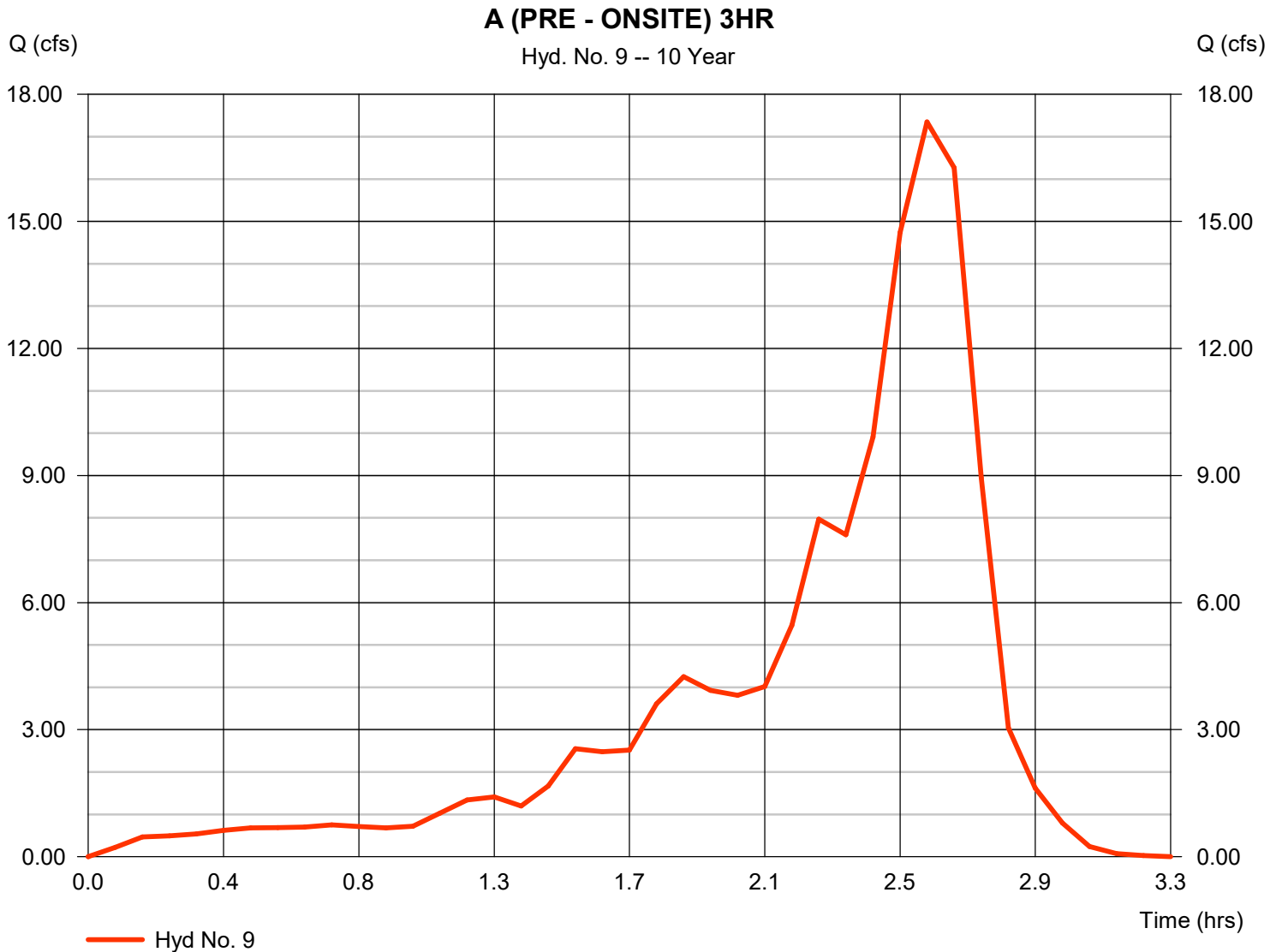
Hydrograph Report

Hyd. No. 9

A (PRE - ONSITE) 3HR

Hydrograph type = Manual
Storm frequency = 10 yrs
Time interval = 5 min

Peak discharge = 17.35 cfs
Time to peak = 2.58 hrs
Hyd. volume = 40,545 cuft



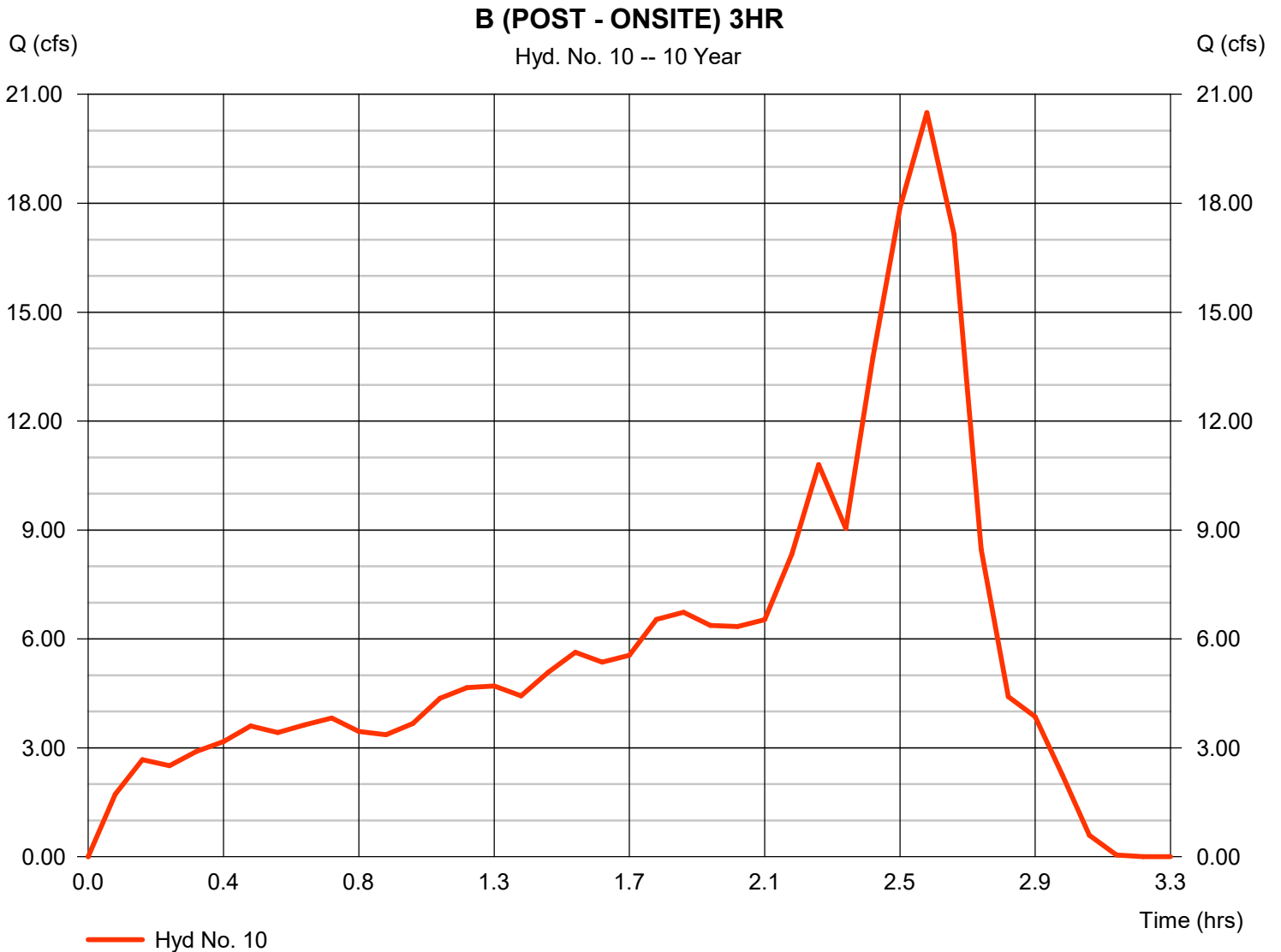
Hydrograph Report

Hyd. No. 10

B (POST - ONSITE) 3HR

Hydrograph type = Manual
Storm frequency = 10 yrs
Time interval = 5 min

Peak discharge = 20.50 cfs
Time to peak = 2.58 hrs
Hyd. volume = 68,190 cuft



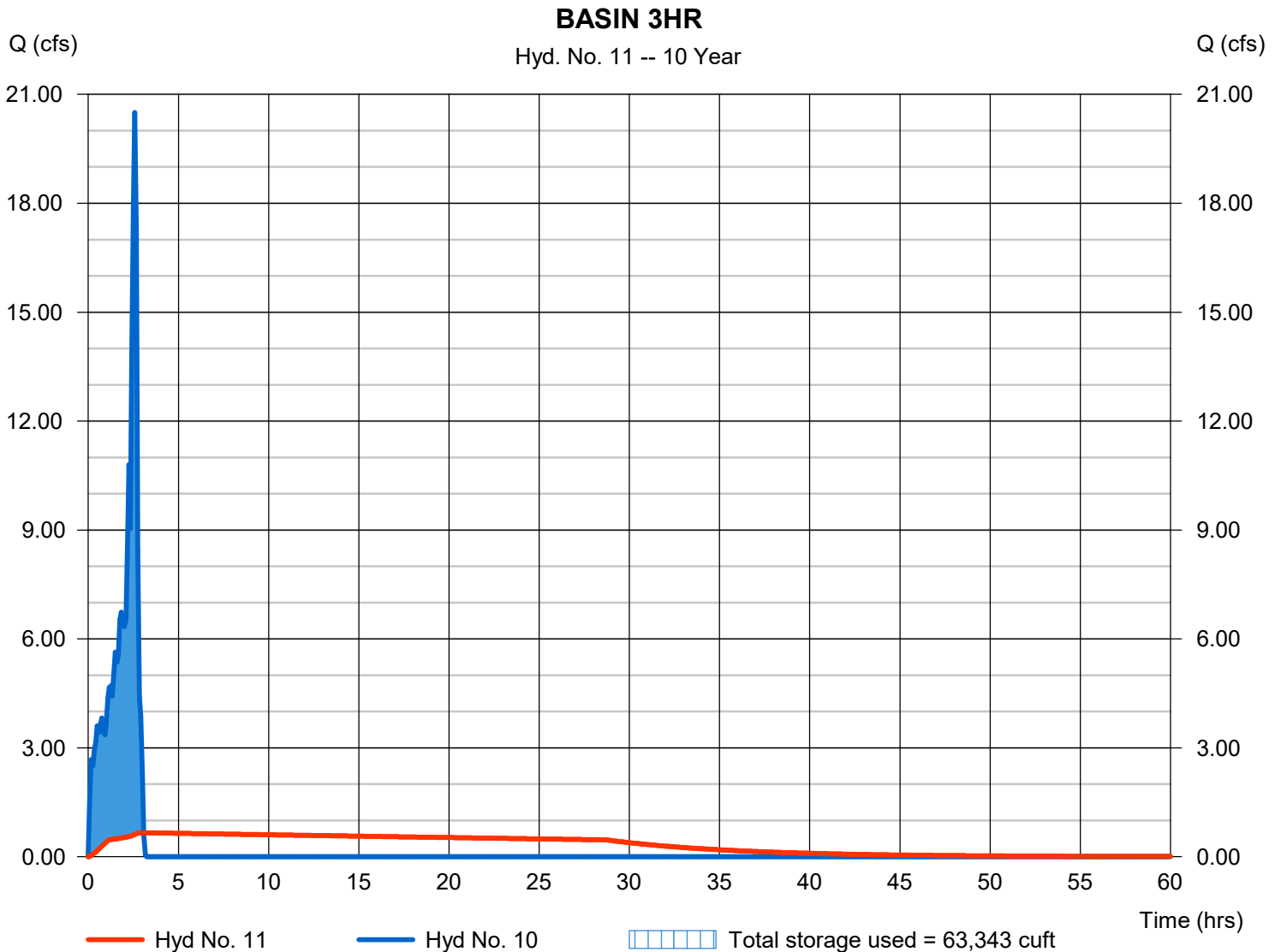
Hydrograph Report

Hyd. No. 11

BASIN 3HR

| | | | |
|-----------------|------------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.659 cfs |
| Storm frequency | = 10 yrs | Time to peak | = 3.08 hrs |
| Time interval | = 5 min | Hyd. volume | = 68,165 cuft |
| Inflow hyd. No. | = 10 - B (POST - ONSITE) 3HR | Max. Elevation | = 1505.38 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 63,343 cuft |

Storage Indication method used. Outflow includes exfiltration.



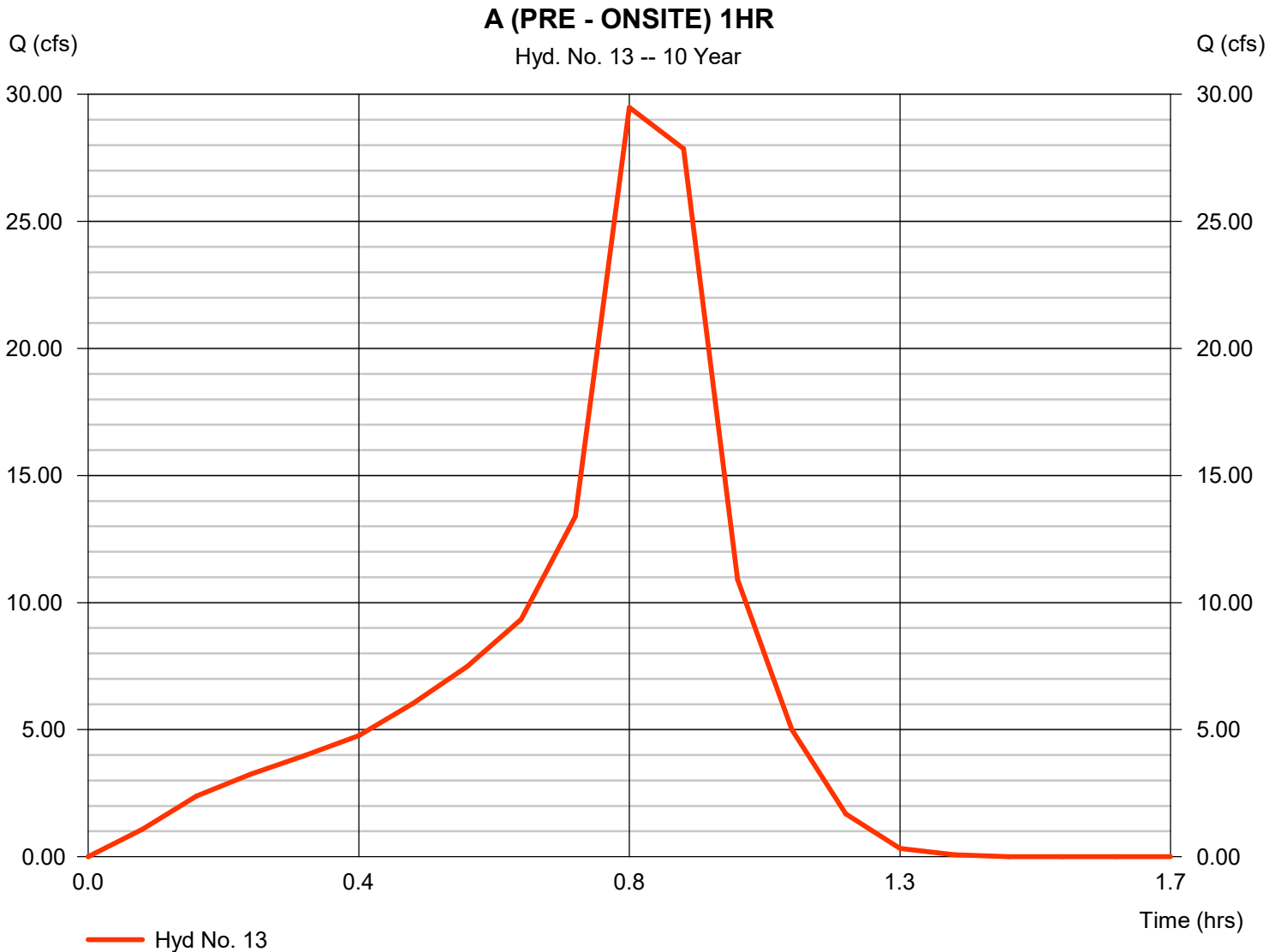
Hydrograph Report

Hyd. No. 13

A (PRE - ONSITE) 1HR

Hydrograph type = Manual
Storm frequency = 10 yrs
Time interval = 5 min

Peak discharge = 29.49 cfs
Time to peak = 0.83 hrs
Hyd. volume = 38,112 cuft



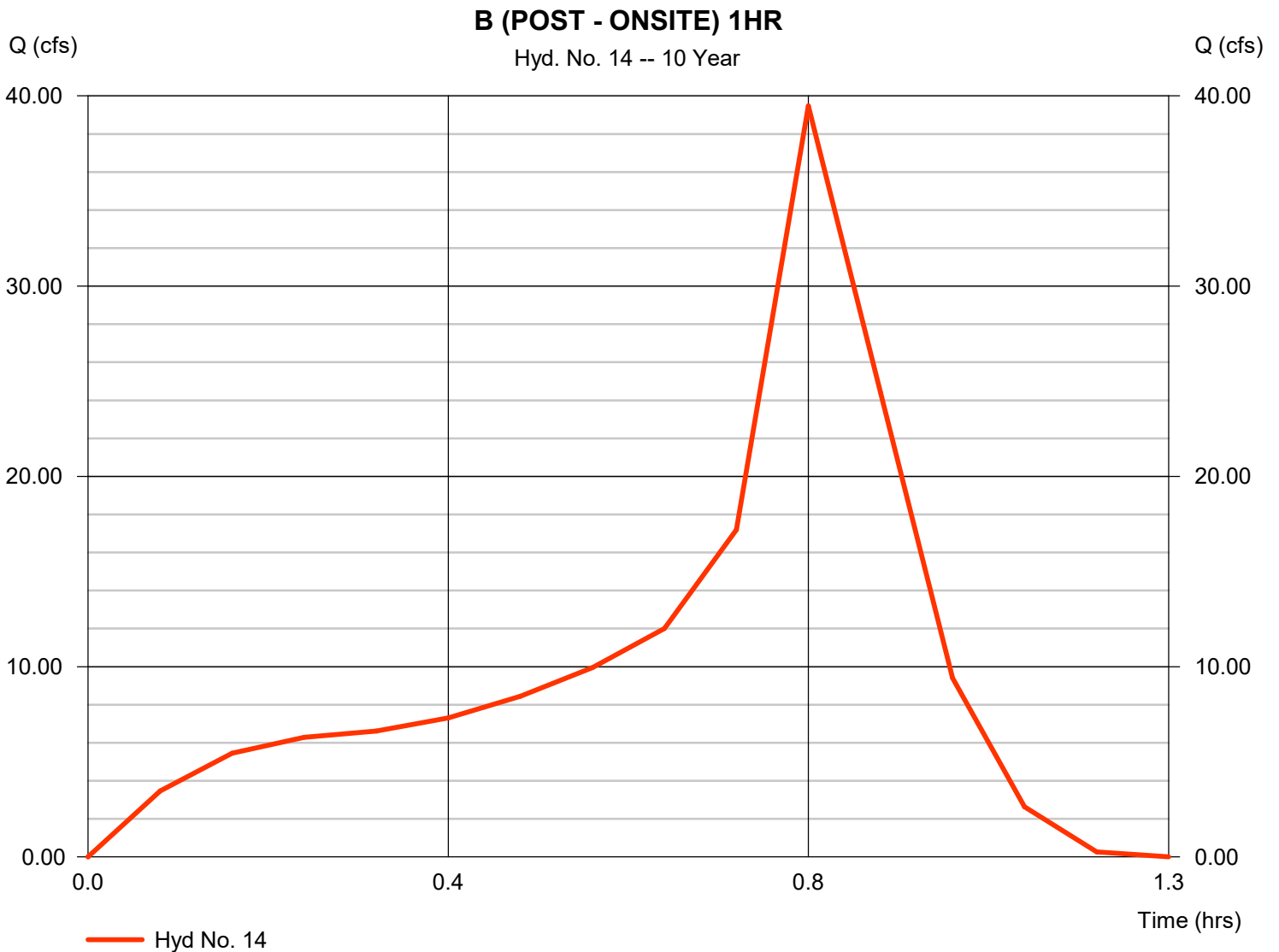
Hydrograph Report

Hyd. No. 14

B (POST - ONSITE) 1HR

Hydrograph type = Manual
Storm frequency = 10 yrs
Time interval = 5 min

Peak discharge = 39.48 cfs
Time to peak = 0.83 hrs
Hyd. volume = 45,867 cuft



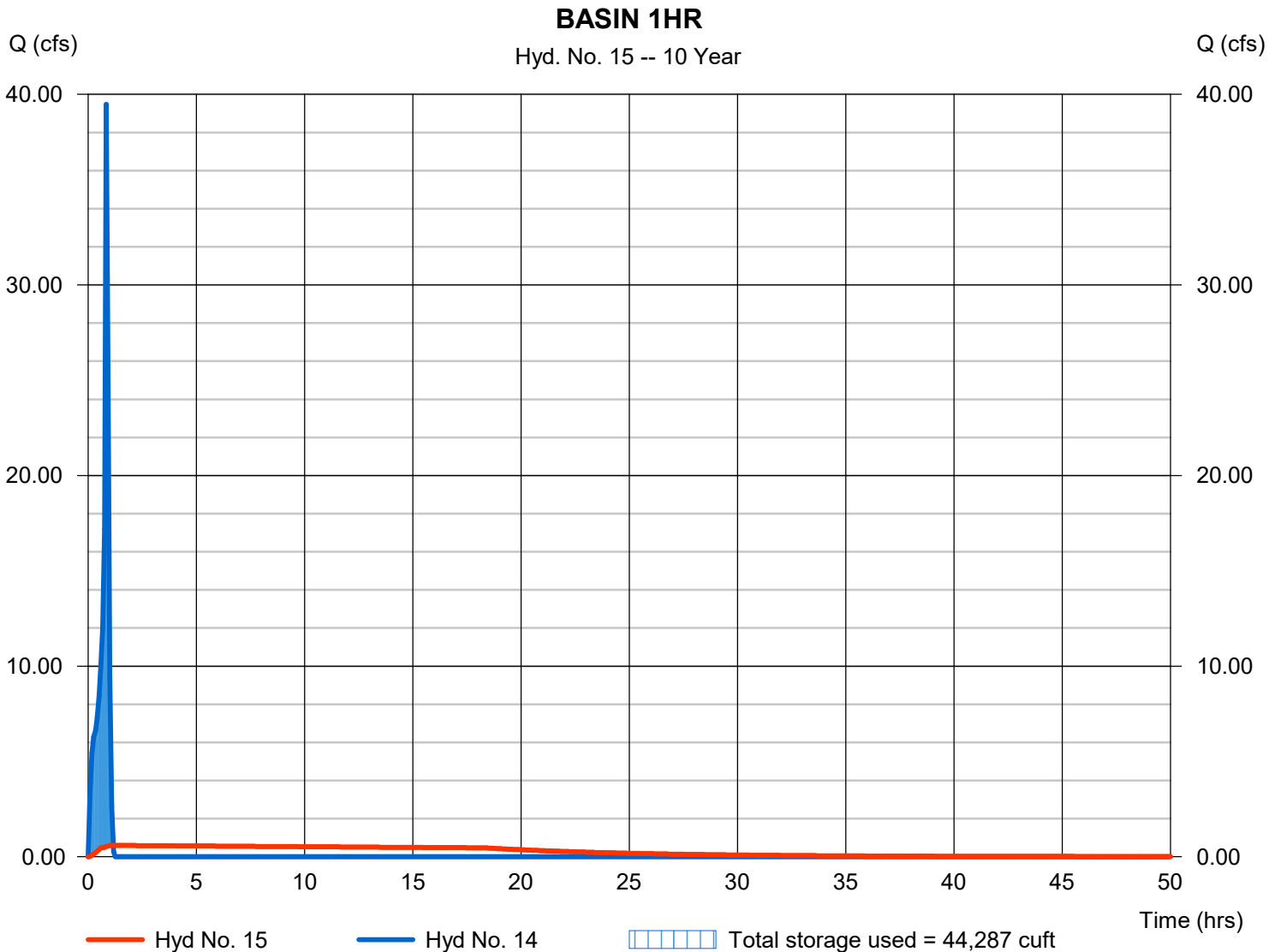
Hydrograph Report

Hyd. No. 15

BASIN 1HR

| | | | |
|-----------------|------------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.592 cfs |
| Storm frequency | = 10 yrs | Time to peak | = 1.17 hrs |
| Time interval | = 5 min | Hyd. volume | = 45,841 cuft |
| Inflow hyd. No. | = 14 - B (POST - ONSITE) 1HR | Max. Elevation | = 1504.26 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 44,287 cuft |

Storage Indication method used. Outflow includes exfiltration.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description | |
|-------------------------|--------------------------|-----------------|---------------------|--------------------|-------------------------|---------------|------------------------|-------------------------|------------------------|--|
| 1 | Manual | 6.670 | 5 | 810 | 85,317 | ---- | ---- | ---- | A (PRE - ONSITE) 24HR | |
| 2 | Manual | 8.260 | 5 | 810 | 208,014 | ---- | ---- | ---- | B (POST - ONSITE) 24HR | |
| 3 | Reservoir | 5.302 | 5 | 930 | 207,989 | 2 | 1508.74 | 133,119 | BASIN 24HR | |
| 5 | Manual | 25.31 | 5 | 330 | 86,619 | ---- | ---- | ---- | A (PRE - ONSITE) 6HR | |
| 6 | Manual | 28.91 | 5 | 330 | 139,665 | ---- | ---- | ---- | B (POST - ONSITE) 6HR | |
| 7 | Reservoir | 1.760 | 5 | 355 | 139,639 | 6 | 1508.48 | 127,083 | BASIN 6HR | |
| 9 | Manual | 28.77 | 5 | 155 | 82,167 | ---- | ---- | ---- | A (PRE - ONSITE) 3HR | |
| 10 | Manual | 32.57 | 5 | 155 | 107,616 | ---- | ---- | ---- | B (POST - ONSITE) 3HR | |
| 11 | Reservoir | 0.782 | 5 | 185 | 107,591 | 10 | 1507.35 | 101,908 | BASIN 3HR | |
| 13 | Manual | 48.86 | 5 | 50 | 69,921 | ---- | ---- | ---- | A (PRE - ONSITE) 1HR | |
| 14 | Manual | 63.41 | 5 | 50 | 76,551 | ---- | ---- | ---- | B (POST - ONSITE) 1HR | |
| 15 | Reservoir | 0.697 | 5 | 70 | 76,526 | 14 | 1506.00 | 74,605 | BASIN 1HR | |
| 20200259 Hydrograph.gpw | | | | | Return Period: 100 Year | | | Tuesday, 08 / 17 / 2021 | | |

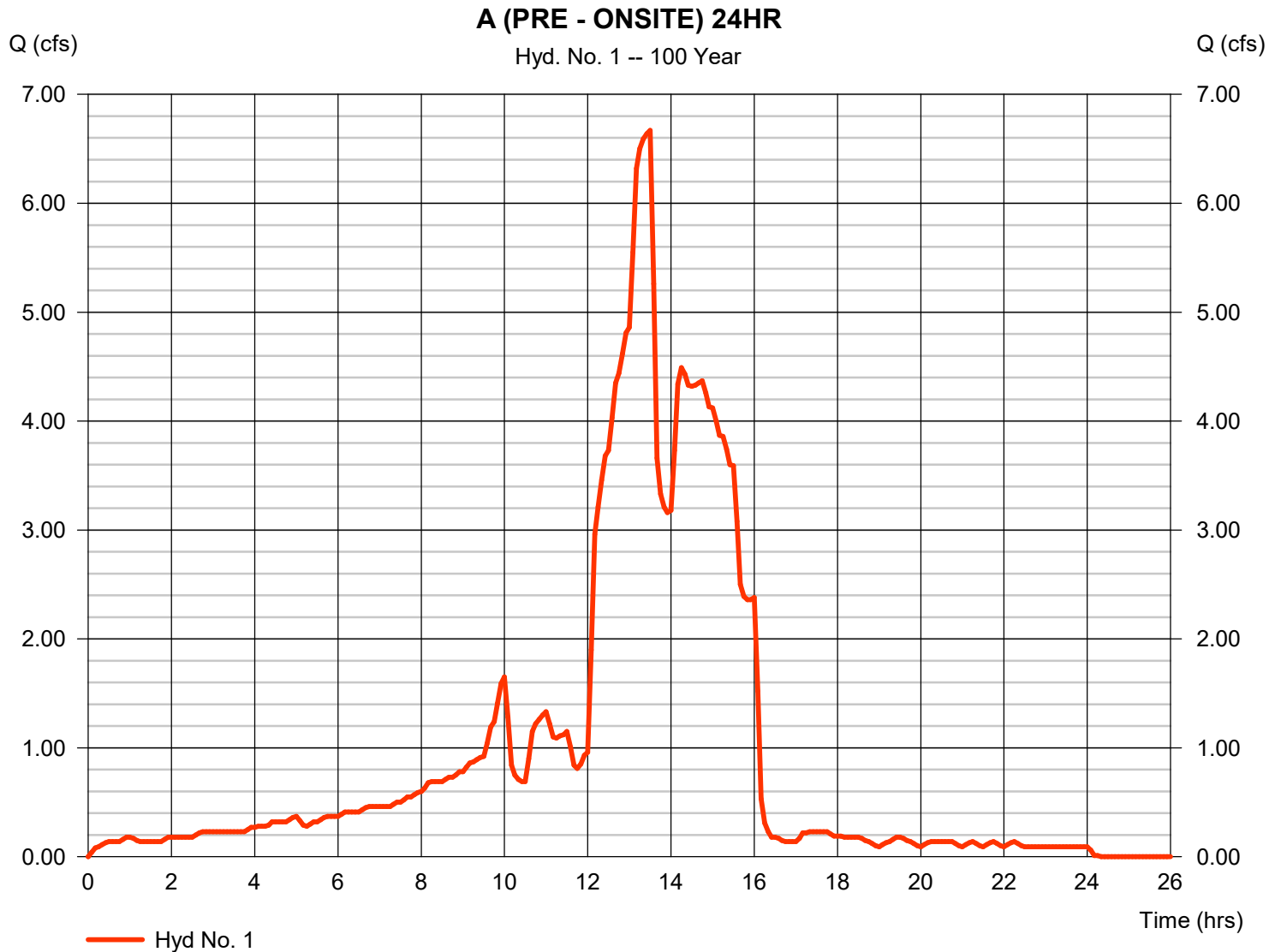
Hydrograph Report

Hyd. No. 1

A (PRE - ONSITE) 24HR

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

Peak discharge = 6.670 cfs
Time to peak = 13.50 hrs
Hyd. volume = 85,317 cuft



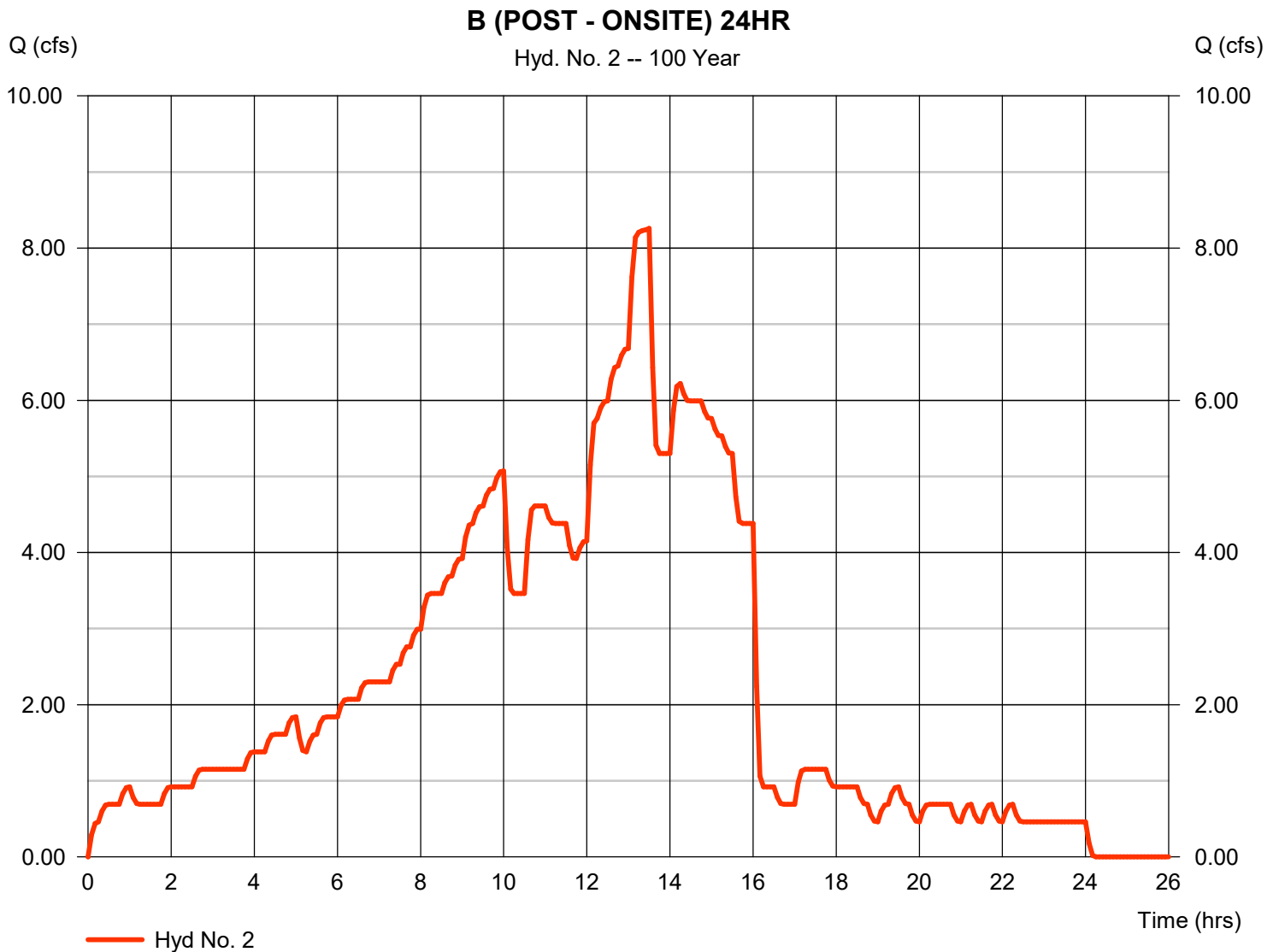
Hydrograph Report

Hyd. No. 2

B (POST - ONSITE) 24HR

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

Peak discharge = 8.260 cfs
Time to peak = 13.50 hrs
Hyd. volume = 208,014 cuft



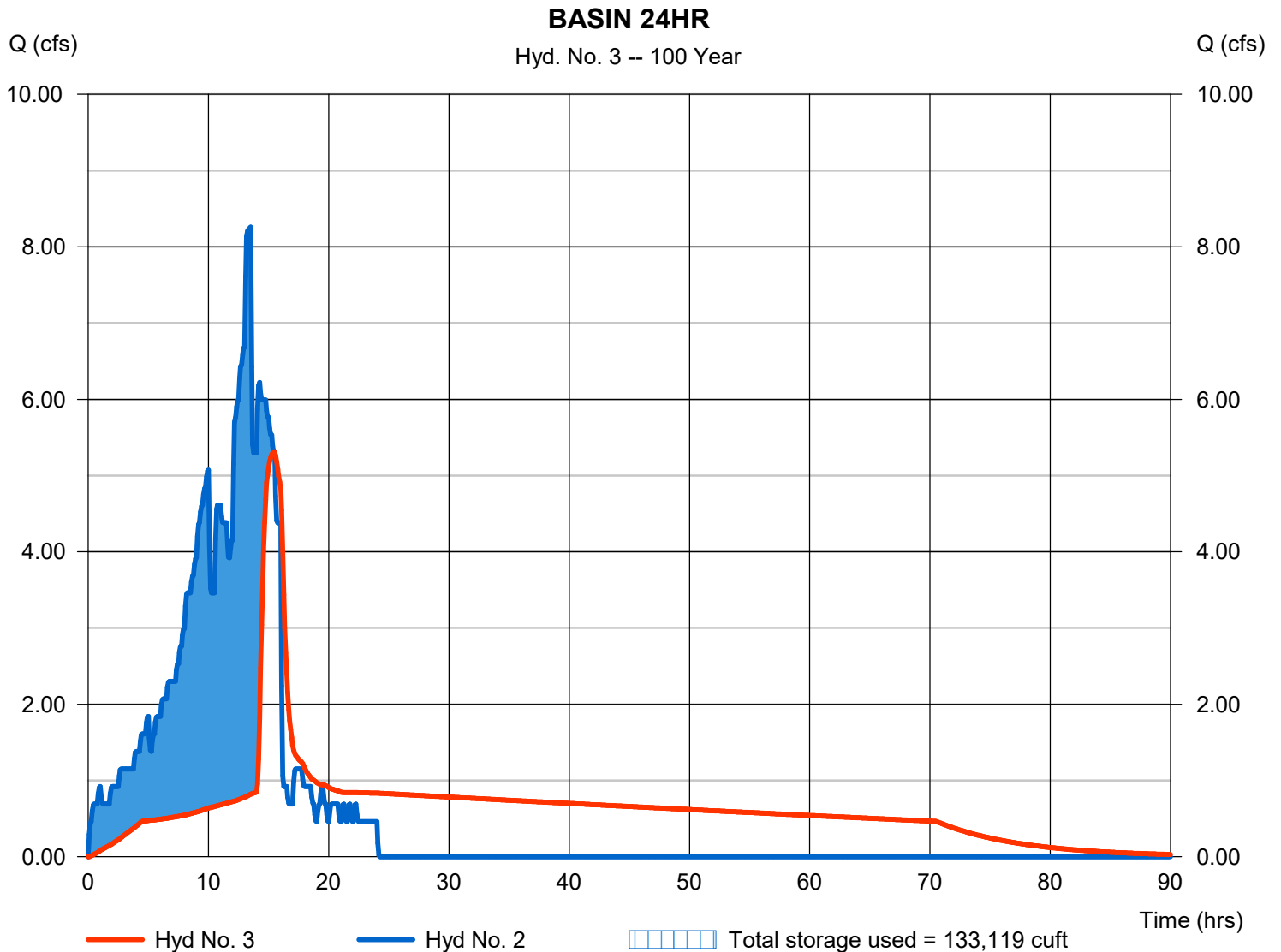
Hydrograph Report

Hyd. No. 3

BASIN 24HR

| | | | |
|-----------------|------------------------------|----------------|----------------|
| Hydrograph type | = Reservoir | Peak discharge | = 5.302 cfs |
| Storm frequency | = 100 yrs | Time to peak | = 15.50 hrs |
| Time interval | = 5 min | Hyd. volume | = 207,989 cuft |
| Inflow hyd. No. | = 2 - B (POST - ONSITE) 24HR | Max. Elevation | = 1508.74 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 133,119 cuft |

Storage Indication method used. Outflow includes exfiltration.



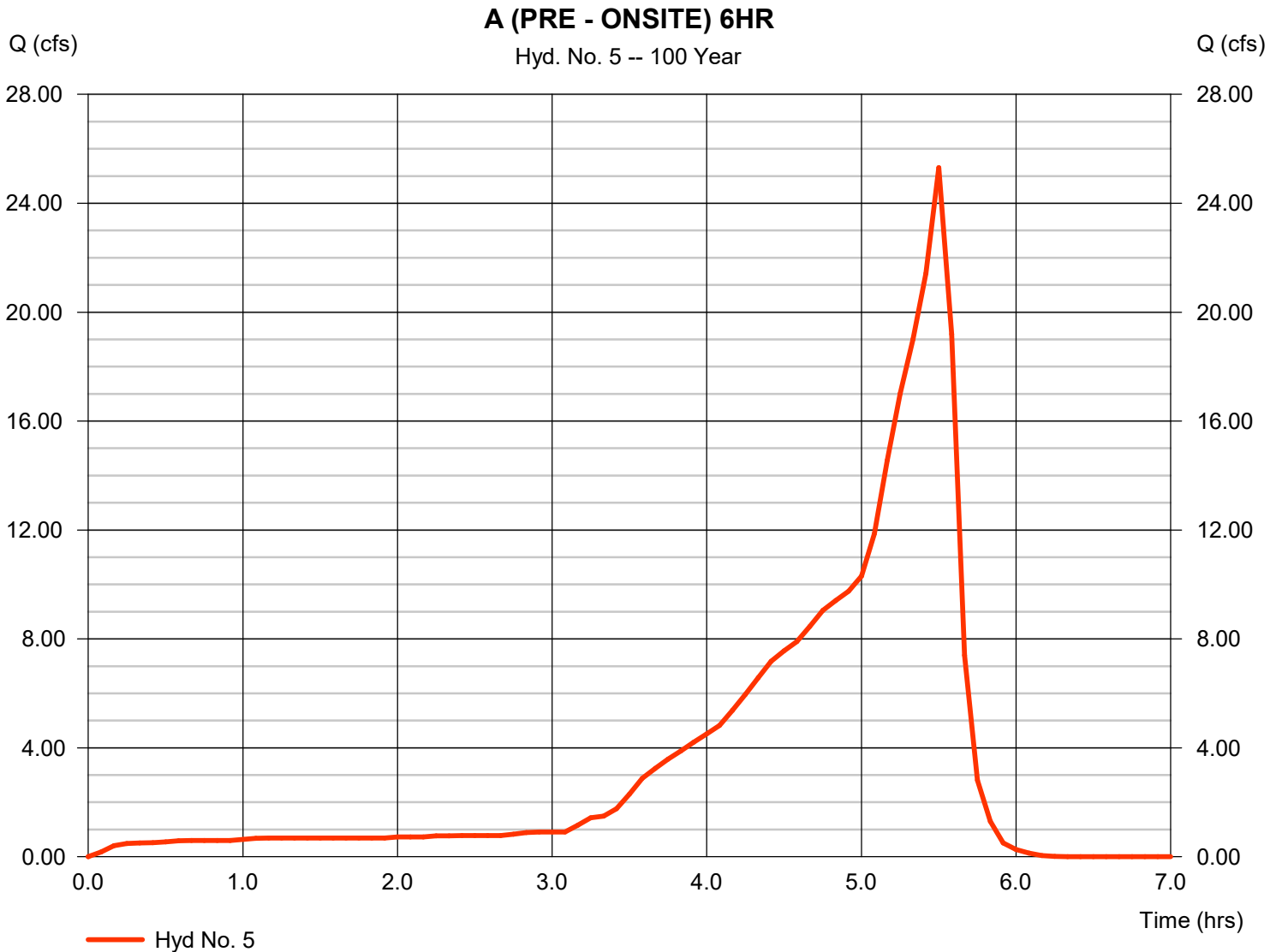
Hydrograph Report

Hyd. No. 5

A (PRE - ONSITE) 6HR

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

Peak discharge = 25.31 cfs
Time to peak = 5.50 hrs
Hyd. volume = 86,619 cuft



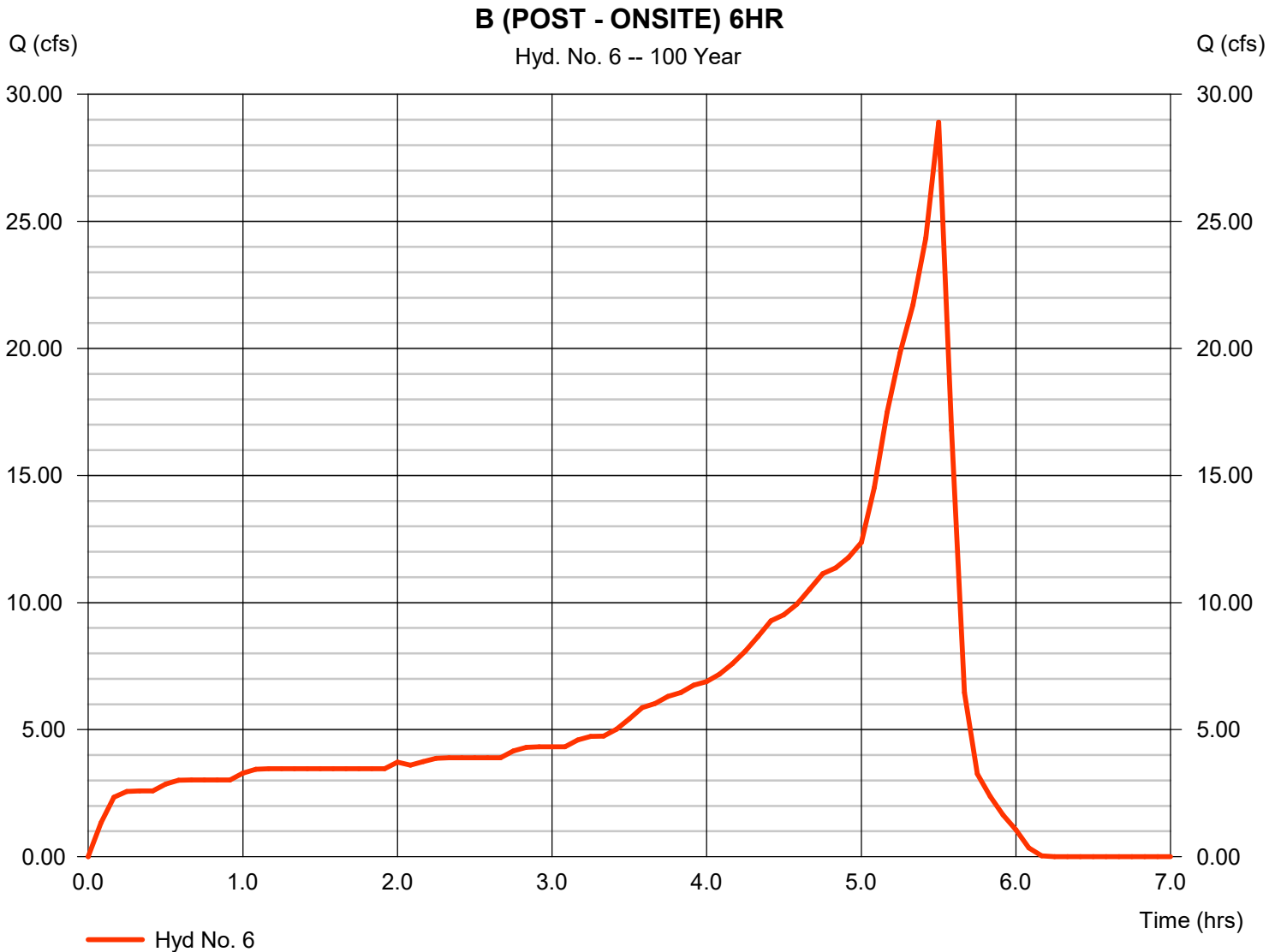
Hydrograph Report

Hyd. No. 6

B (POST - ONSITE) 6HR

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

Peak discharge = 28.91 cfs
Time to peak = 5.50 hrs
Hyd. volume = 139,665 cuft



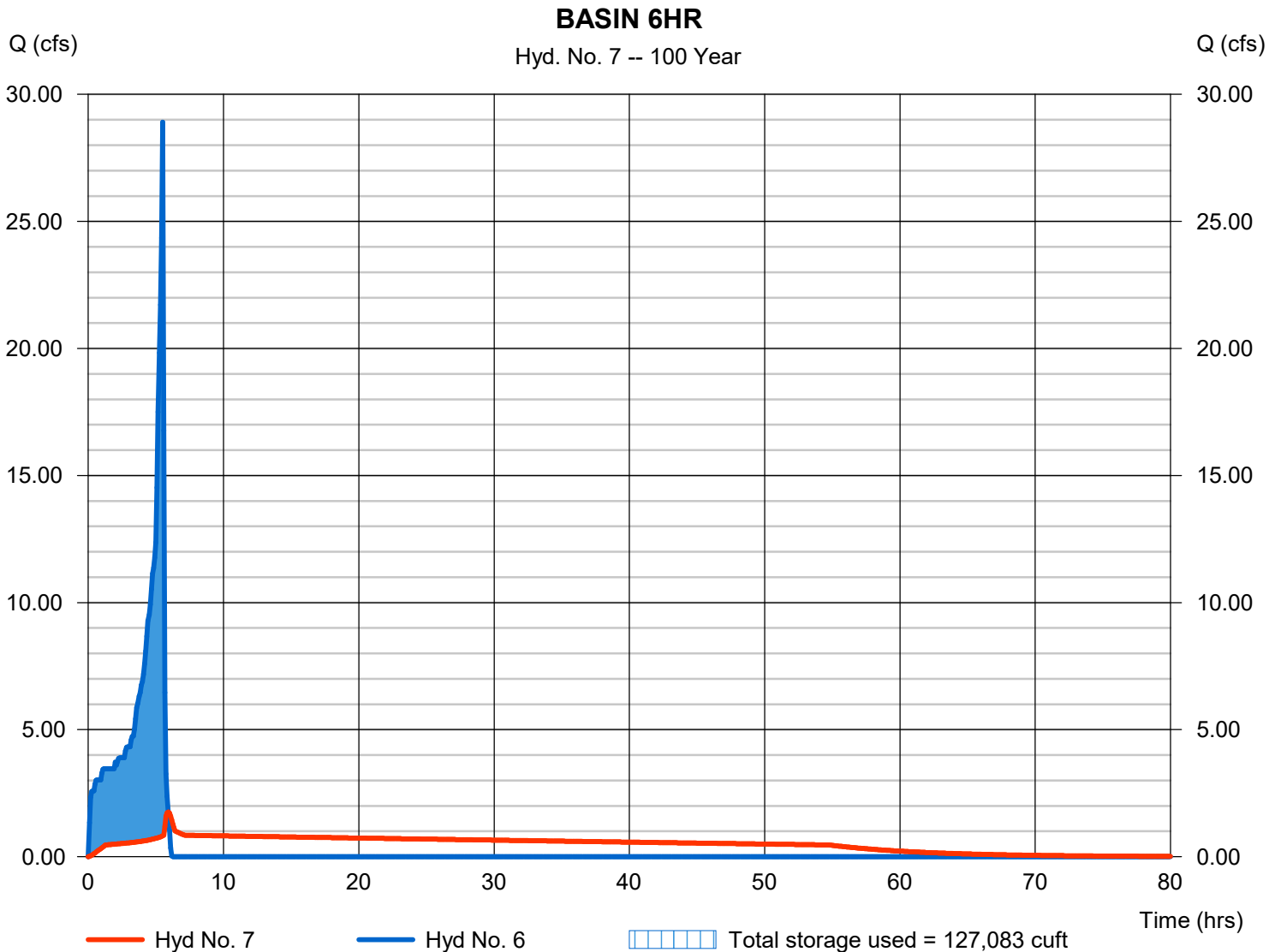
Hydrograph Report

Hyd. No. 7

BASIN 6HR

| | | | |
|-----------------|-----------------------------|----------------|----------------|
| Hydrograph type | = Reservoir | Peak discharge | = 1.760 cfs |
| Storm frequency | = 100 yrs | Time to peak | = 5.92 hrs |
| Time interval | = 5 min | Hyd. volume | = 139,639 cuft |
| Inflow hyd. No. | = 6 - B (POST - ONSITE) 6HR | Max. Elevation | = 1508.48 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 127,083 cuft |

Storage Indication method used. Outflow includes exfiltration.



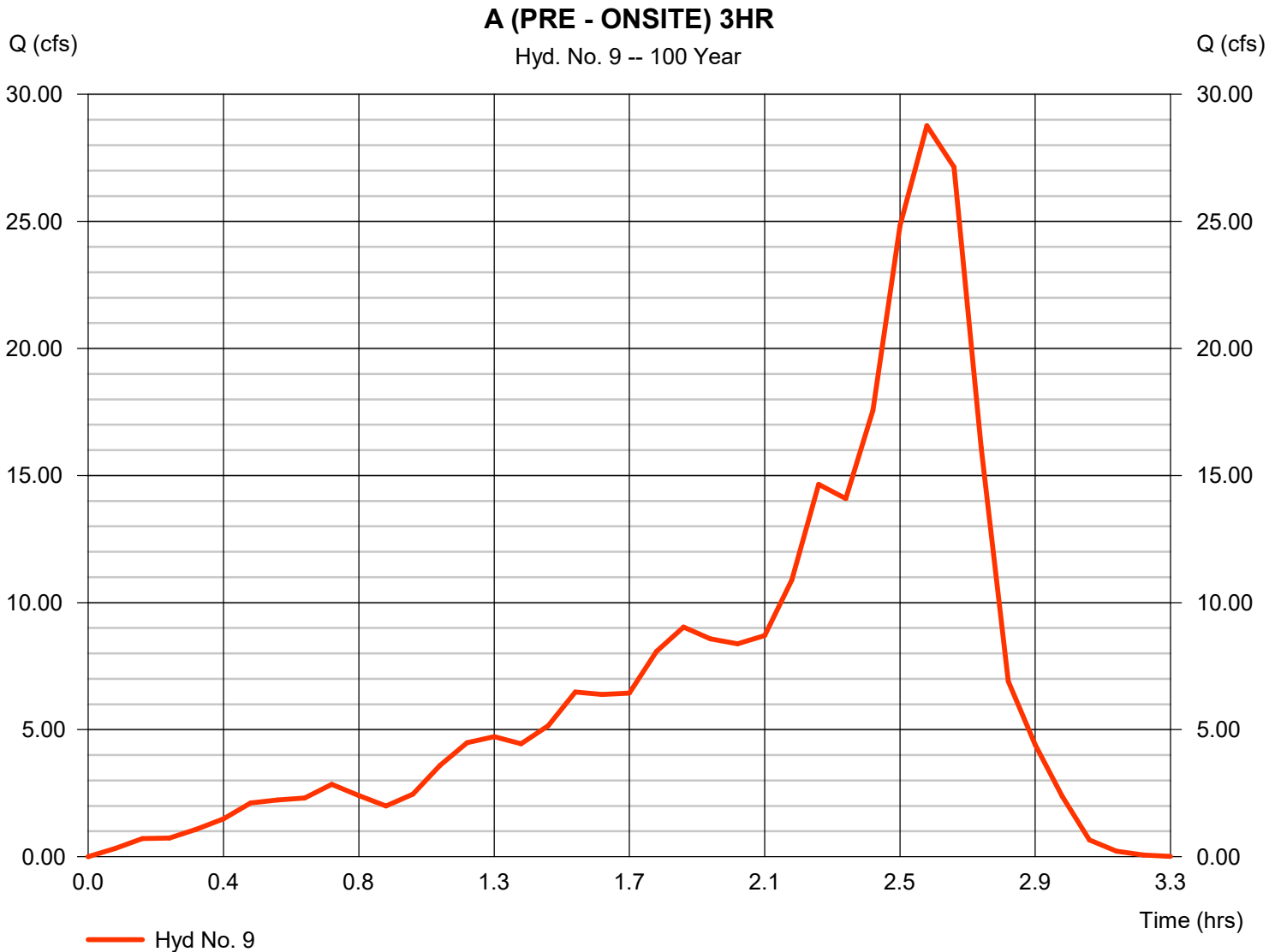
Hydrograph Report

Hyd. No. 9

A (PRE - ONSITE) 3HR

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

Peak discharge = 28.77 cfs
Time to peak = 2.58 hrs
Hyd. volume = 82,167 cuft



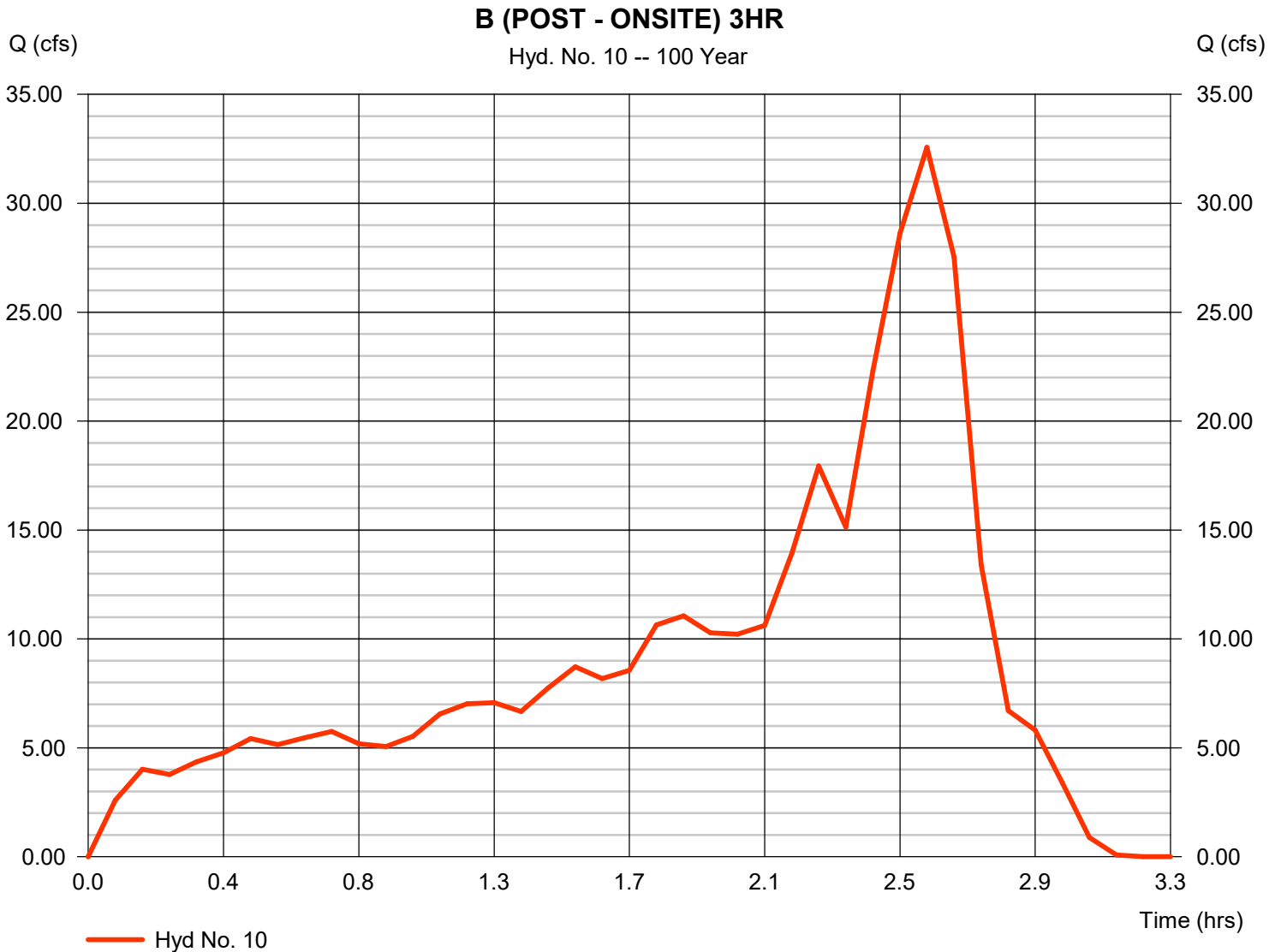
Hydrograph Report

Hyd. No. 10

B (POST - ONSITE) 3HR

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

Peak discharge = 32.57 cfs
Time to peak = 2.58 hrs
Hyd. volume = 107,616 cuft



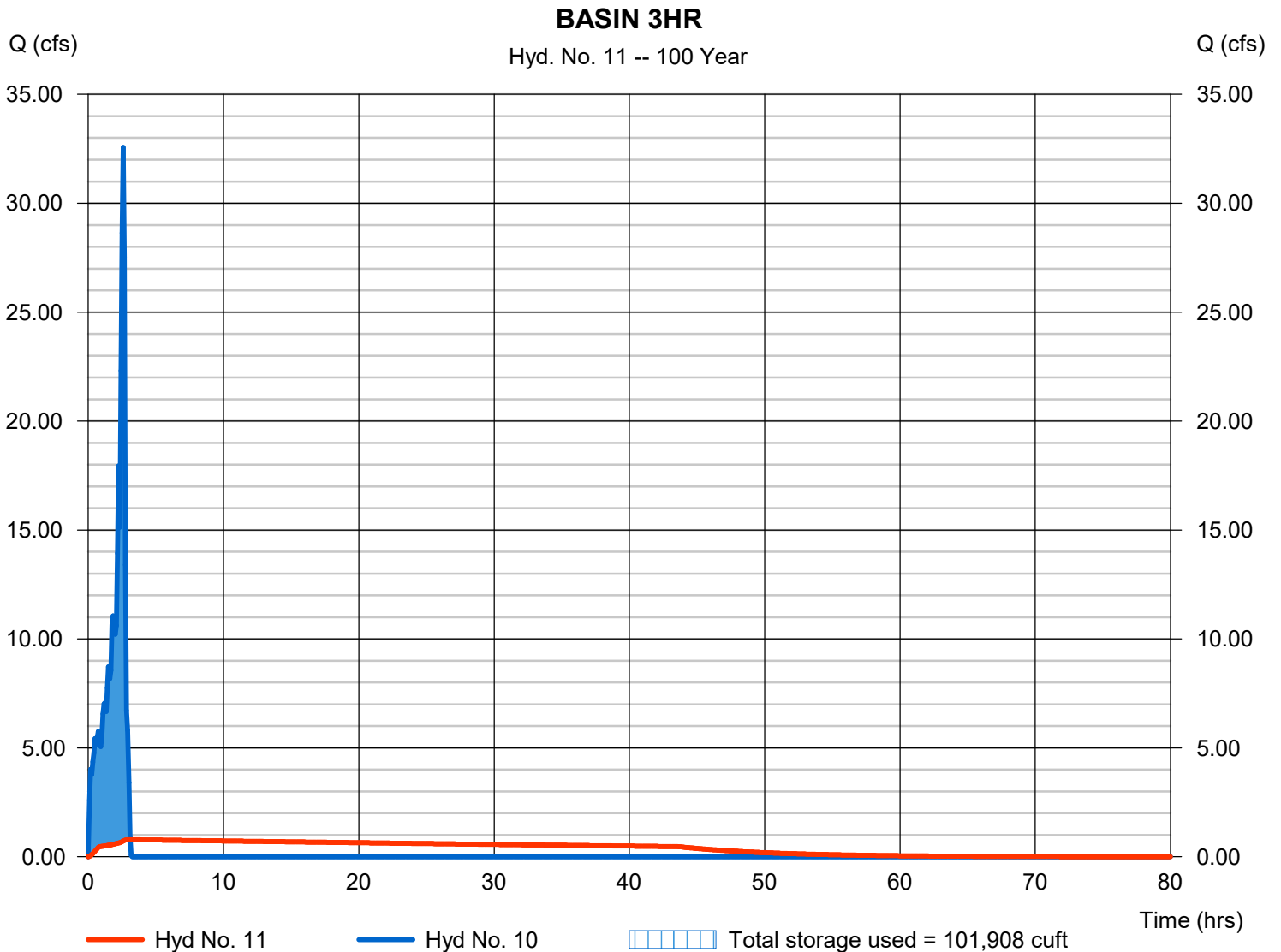
Hydrograph Report

Hyd. No. 11

BASIN 3HR

| | | | |
|-----------------|------------------------------|----------------|----------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.782 cfs |
| Storm frequency | = 100 yrs | Time to peak | = 3.08 hrs |
| Time interval | = 5 min | Hyd. volume | = 107,591 cuft |
| Inflow hyd. No. | = 10 - B (POST - ONSITE) 3HR | Max. Elevation | = 1507.35 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 101,908 cuft |

Storage Indication method used. Outflow includes exfiltration.



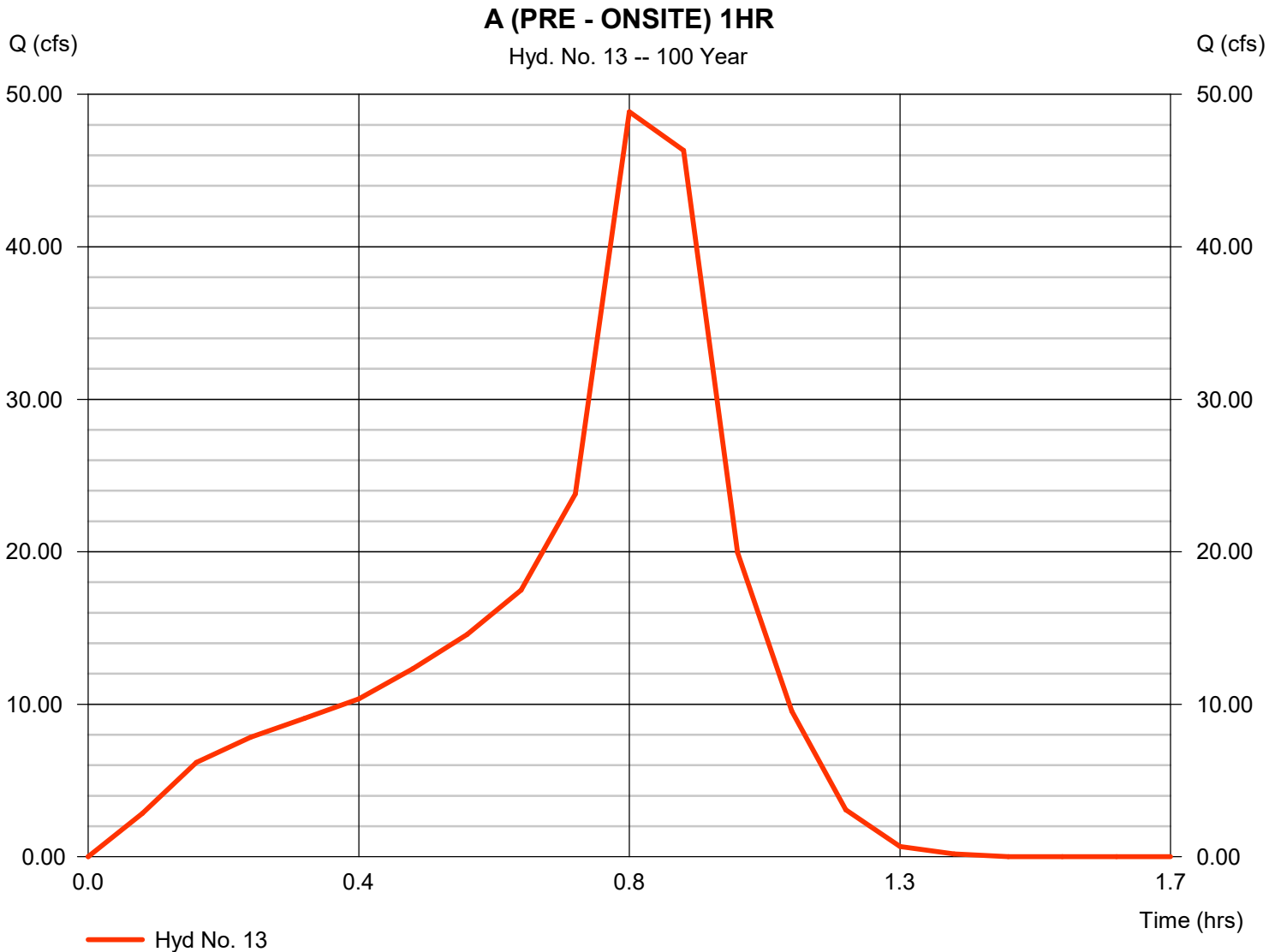
Hydrograph Report

Hyd. No. 13

A (PRE - ONSITE) 1HR

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

Peak discharge = 48.86 cfs
Time to peak = 0.83 hrs
Hyd. volume = 69,921 cuft



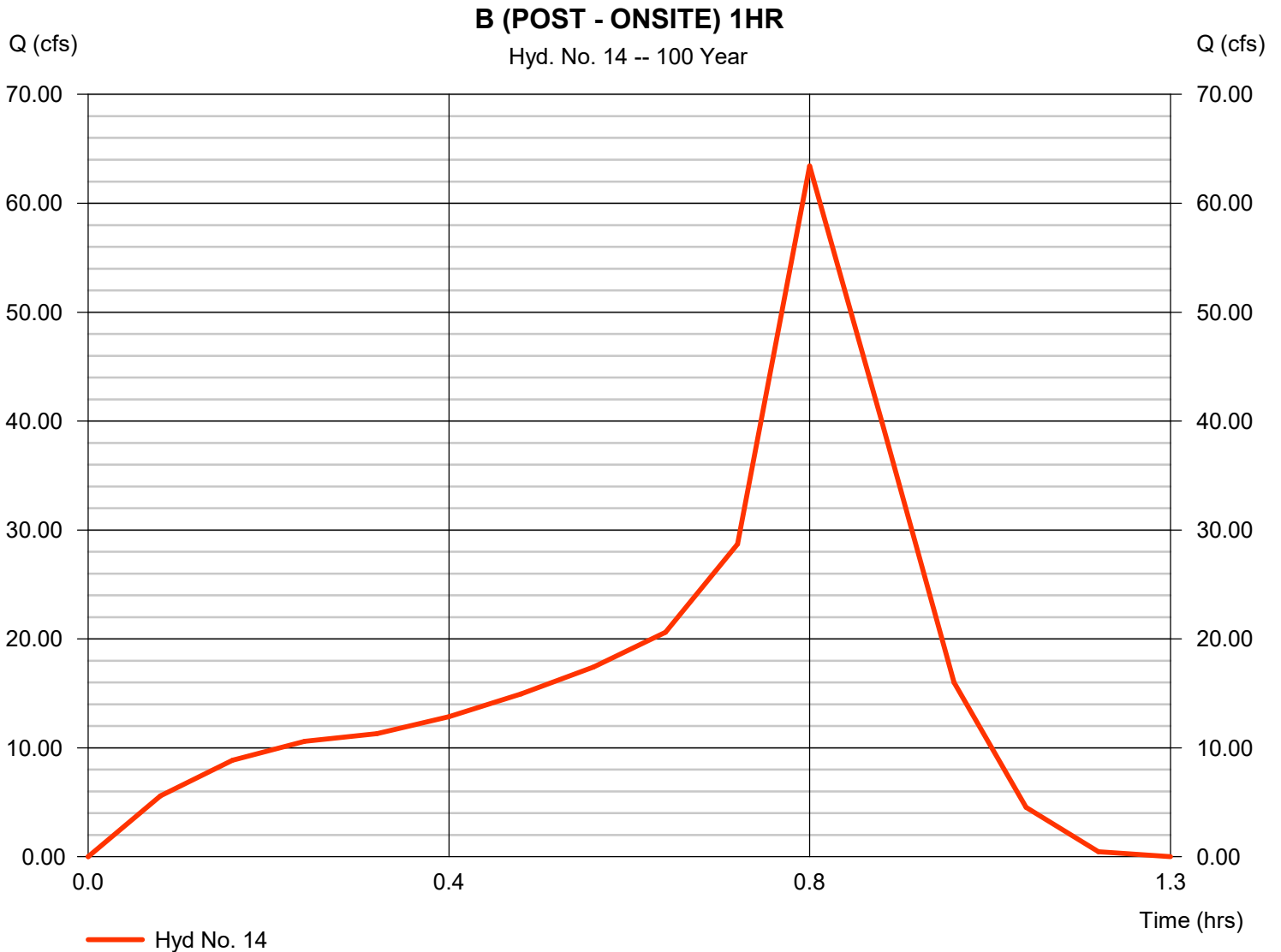
Hydrograph Report

Hyd. No. 14

B (POST - ONSITE) 1HR

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

Peak discharge = 63.41 cfs
Time to peak = 0.83 hrs
Hyd. volume = 76,551 cuft



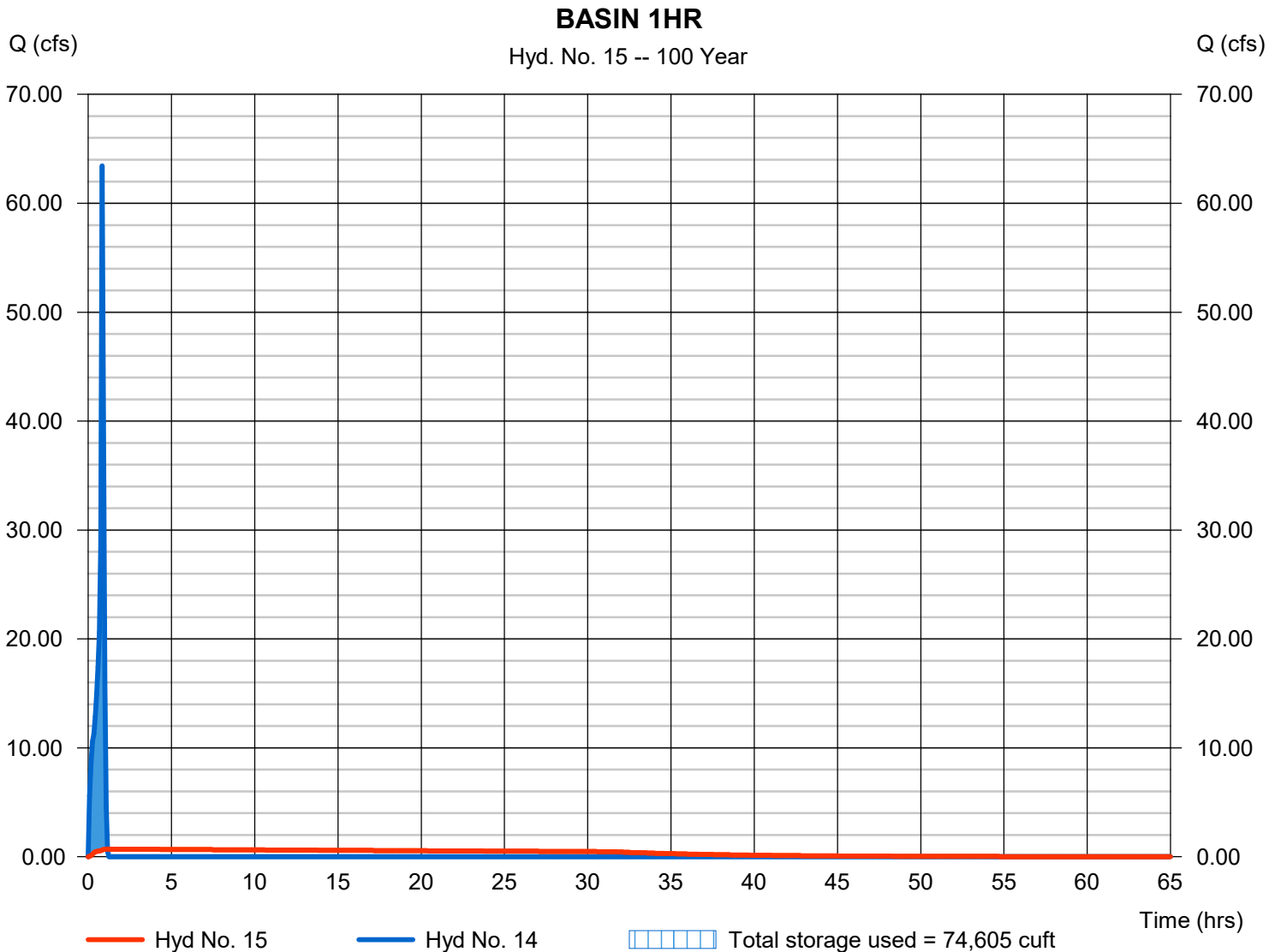
Hydrograph Report

Hyd. No. 15

BASIN 1HR

| | | | |
|-----------------|------------------------------|----------------|---------------|
| Hydrograph type | = Reservoir | Peak discharge | = 0.697 cfs |
| Storm frequency | = 100 yrs | Time to peak | = 1.17 hrs |
| Time interval | = 5 min | Hyd. volume | = 76,526 cuft |
| Inflow hyd. No. | = 14 - B (POST - ONSITE) 1HR | Max. Elevation | = 1506.00 ft |
| Reservoir name | = Basin A WITH Access Road | Max. Storage | = 74,605 cuft |

Storage Indication method used. Outflow includes exfiltration.



APPENDIX C.4

Santiago Storm Drain Lateral M3-7 Capacity Calculations per Hydraflow Express
Extension for Autodesk Civil 3D

Channel Report

LAT M3-7

Circular

Diameter (ft) = 2.00

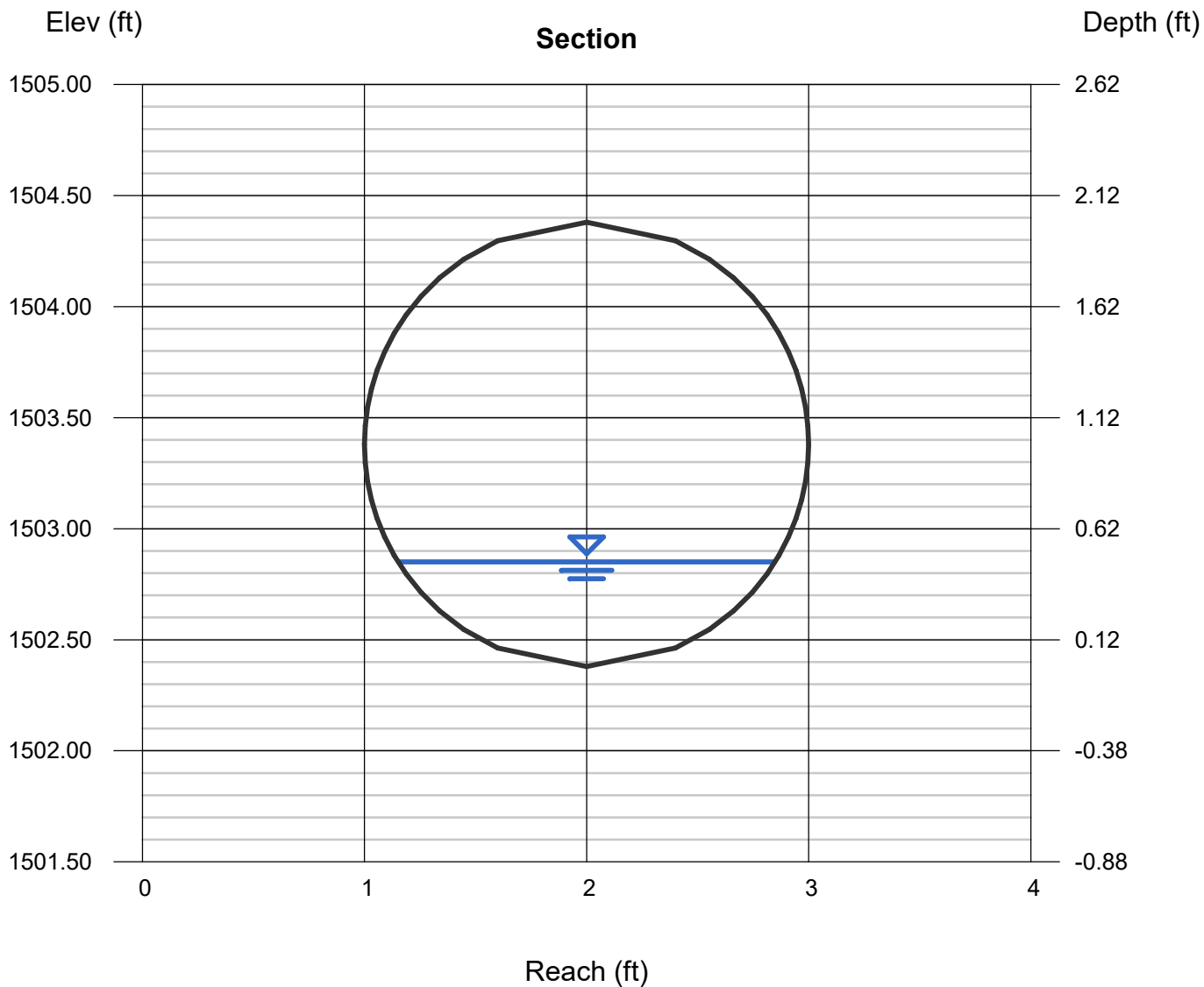
Invert Elev (ft) = 1502.38
Slope (%) = 1.13
N-Value = 0.013

Highlighted

Depth (ft) = 0.47
Q (cfs) = 2.900
Area (sqft) = 0.57
Velocity (ft/s) = 5.12
Wetted Perim (ft) = 2.03
Crit Depth, Yc (ft) = 0.60
Top Width (ft) = 1.70
EGL (ft) = 0.88

Calculations

Compute by: Known Q
Known Q (cfs) = 2.90



Inlet Report

Santiago Lateral M3-7 CB

Curb Inlet

| | |
|--------------------|--------|
| Location | = Sag |
| Curb Length (ft) | = 7.00 |
| Throat Height (in) | = 4.00 |
| Grate Area (sqft) | = -0- |
| Grate Width (ft) | = -0- |
| Grate Length (ft) | = -0- |

Gutter

| | |
|-------------------|---------|
| Slope, Sw (ft/ft) | = 0.083 |
| Slope, Sx (ft/ft) | = 0.020 |
| Local Depr (in) | = 4.00 |
| Gutter Width (ft) | = 4.00 |
| Gutter Slope (%) | = -0- |
| Gutter n-value | = -0- |

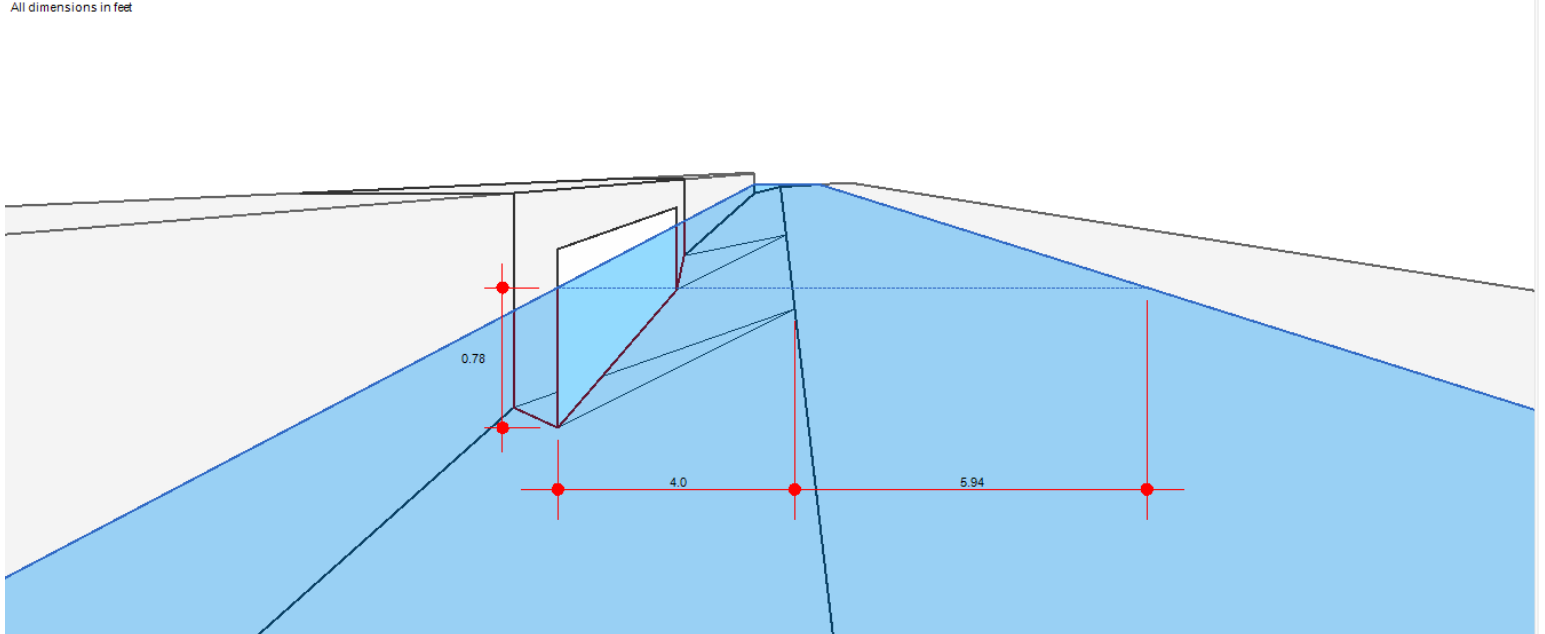
Calculations

| | |
|-------------|---------|
| Compute by: | Known Q |
| Q (cfs) | = 2.90 |

Highlighted

| | |
|---------------------|--------|
| Q Total (cfs) | = 2.90 |
| Q Capt (cfs) | = 2.90 |
| Q Bypass (cfs) | = -0- |
| Depth at Inlet (in) | = 9.41 |
| Efficiency (%) | = 100 |
| Gutter Spread (ft) | = 9.94 |
| Gutter Vel (ft/s) | = -0- |
| Bypass Spread (ft) | = -0- |
| Bypass Depth (in) | = -0- |

All dimensions in feet



Channel Report

LAT M3-7 Gutter Flow before CB

Gutter

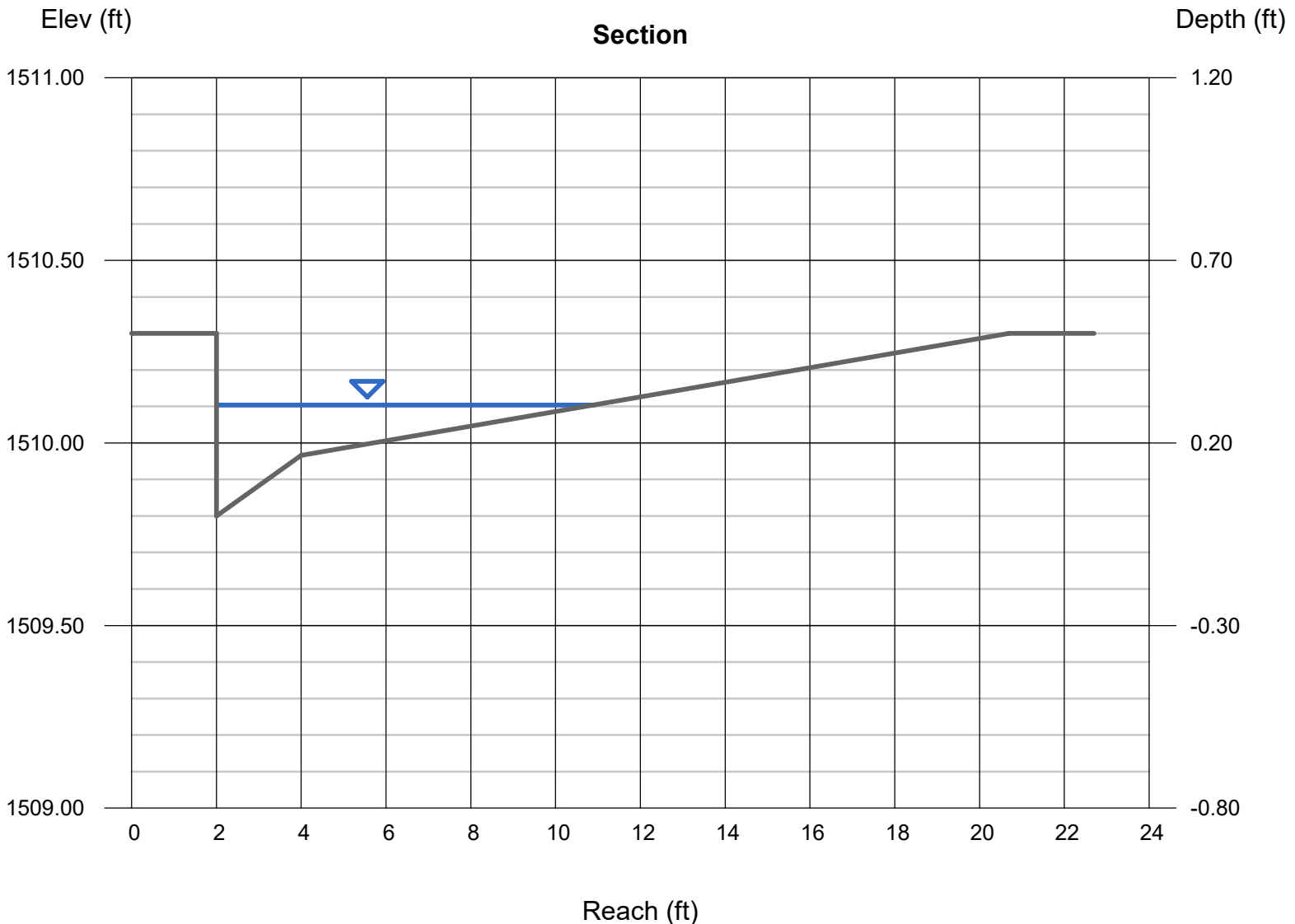
| | |
|----------------------|-----------|
| Cross Sl, Sx (ft/ft) | = 0.020 |
| Cross Sl, Sw (ft/ft) | = 0.083 |
| Gutter Width (ft) | = 2.00 |
| Invert Elev (ft) | = 1509.80 |
| Slope (%) | = 0.96 |
| N-Value | = 0.013 |

Highlighted

| | |
|---------------------|---------|
| Depth (ft) | = 0.30 |
| Q (cfs) | = 2.900 |
| Area (sqft) | = 0.92 |
| Velocity (ft/s) | = 3.16 |
| Wetted Perim (ft) | = 9.21 |
| Crit Depth, Yc (ft) | = 0.36 |
| Spread Width (ft) | = 8.90 |
| EGL (ft) | = 0.46 |

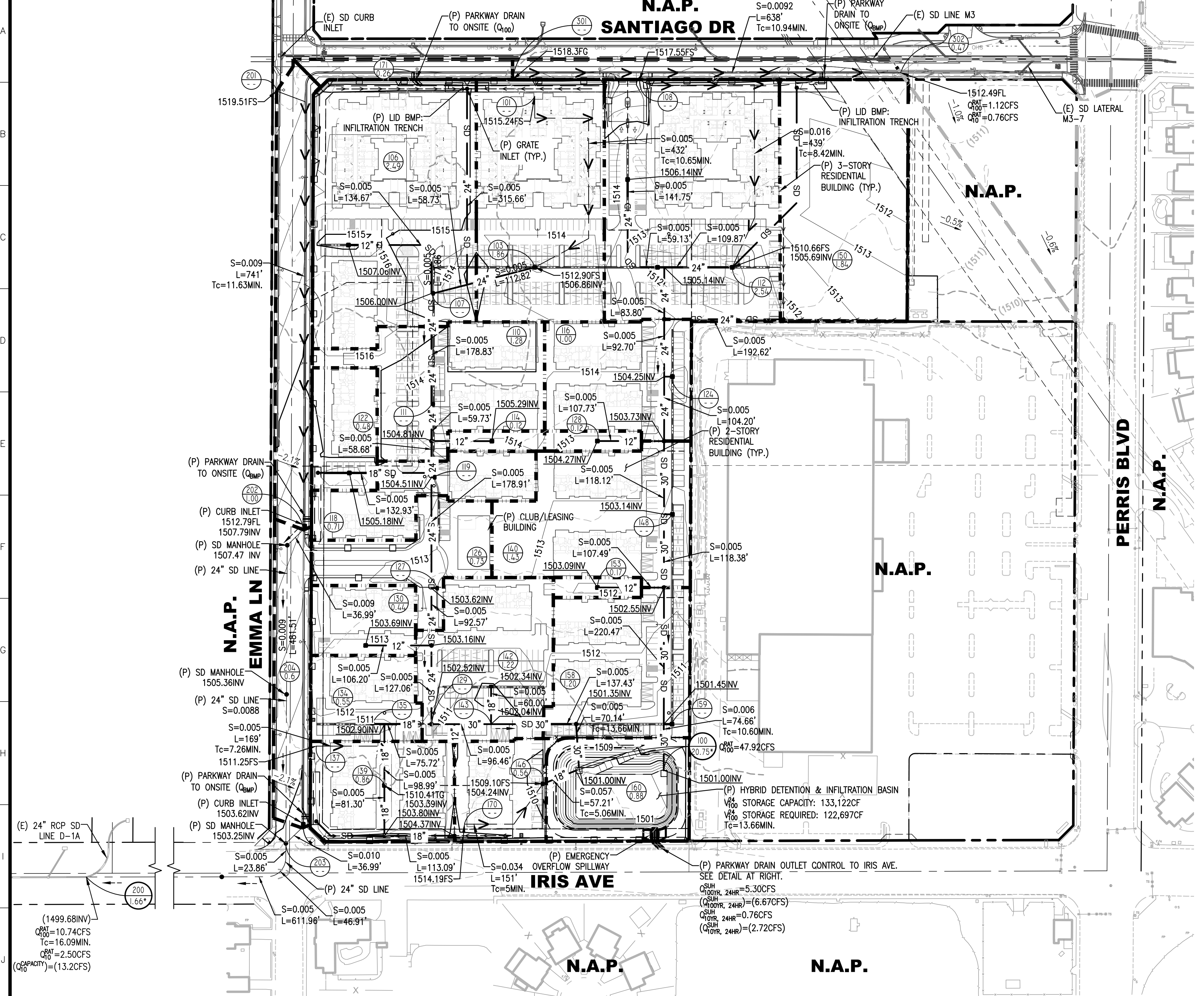
Calculations

| | |
|---------------|---------|
| Compute by: | Known Q |
| Known Q (cfs) | = 2.90 |



APPENDIX D

Hydrology Maps



LEGEND

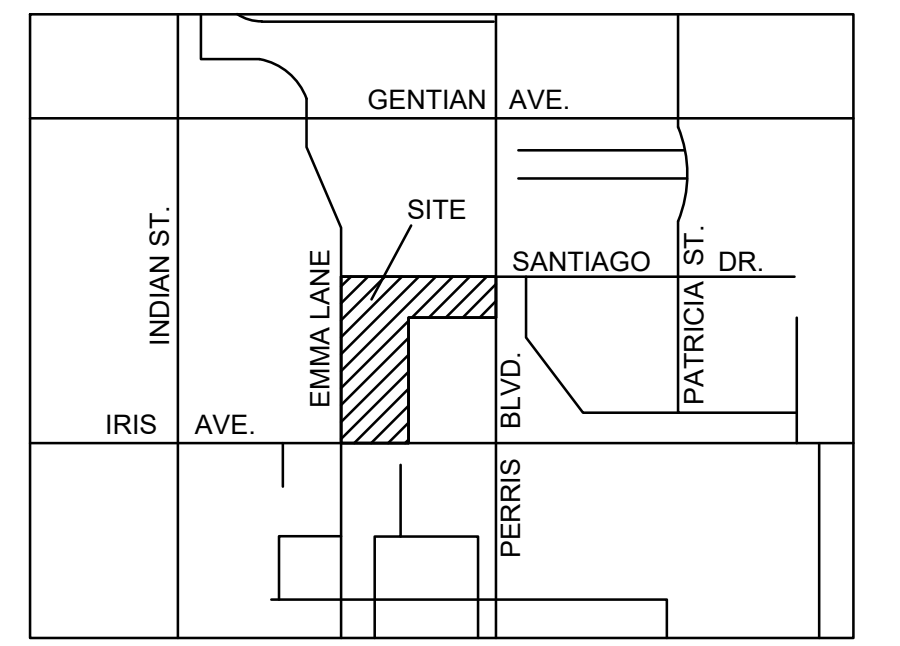
- MAJOR WATERSHED NODE AREA IN ACRES * DENOTES TOTAL AREA
- SUBAREA WATERSHED NODE AREA IN ACRES
- HYDROLOGIC MAJOR WATERSHED BOUNDARY
- HYDROLOGIC SUBAREA WATERSHED BOUNDARY
- FLOWLINE
- STORM PIPE FLOW DIRECTION
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR

AREA QUANTITIES

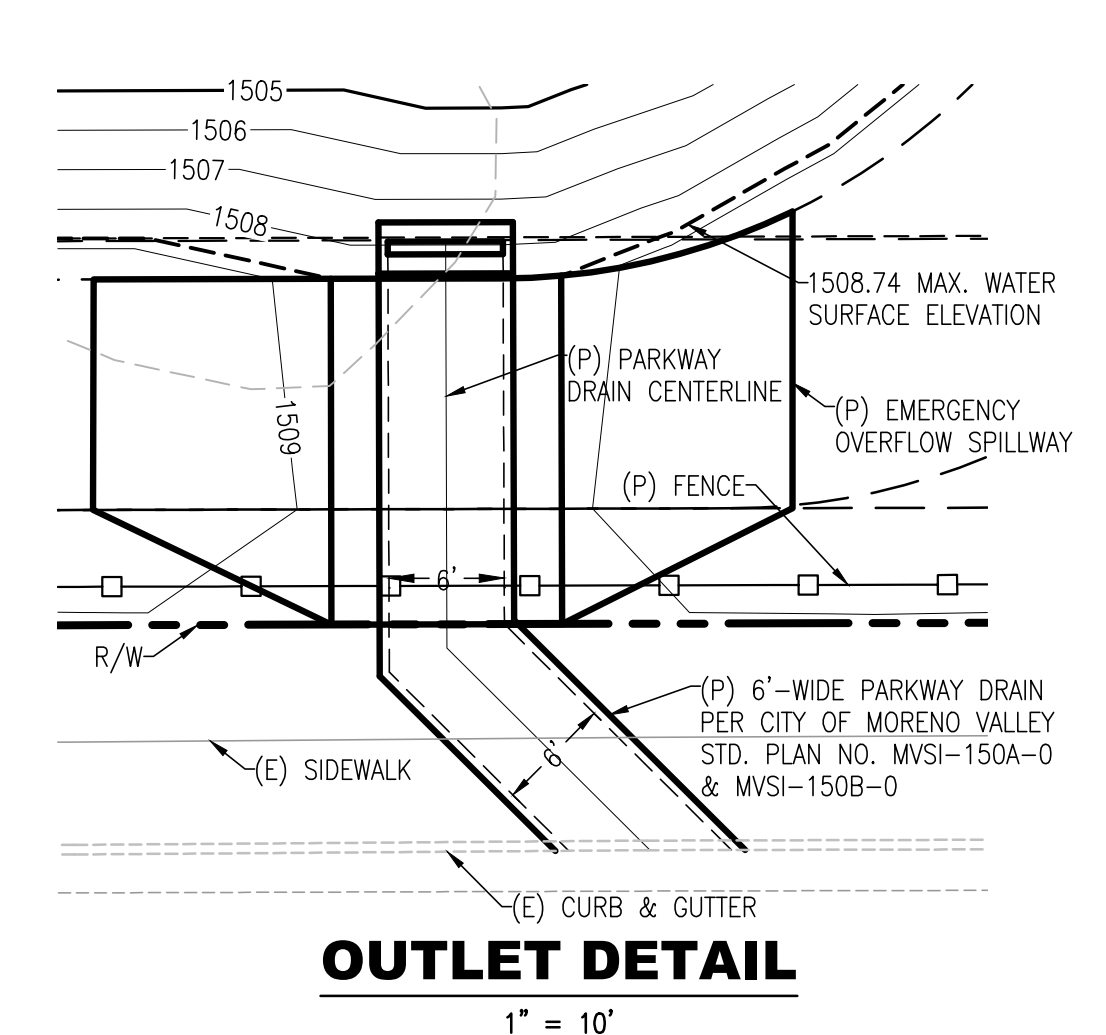
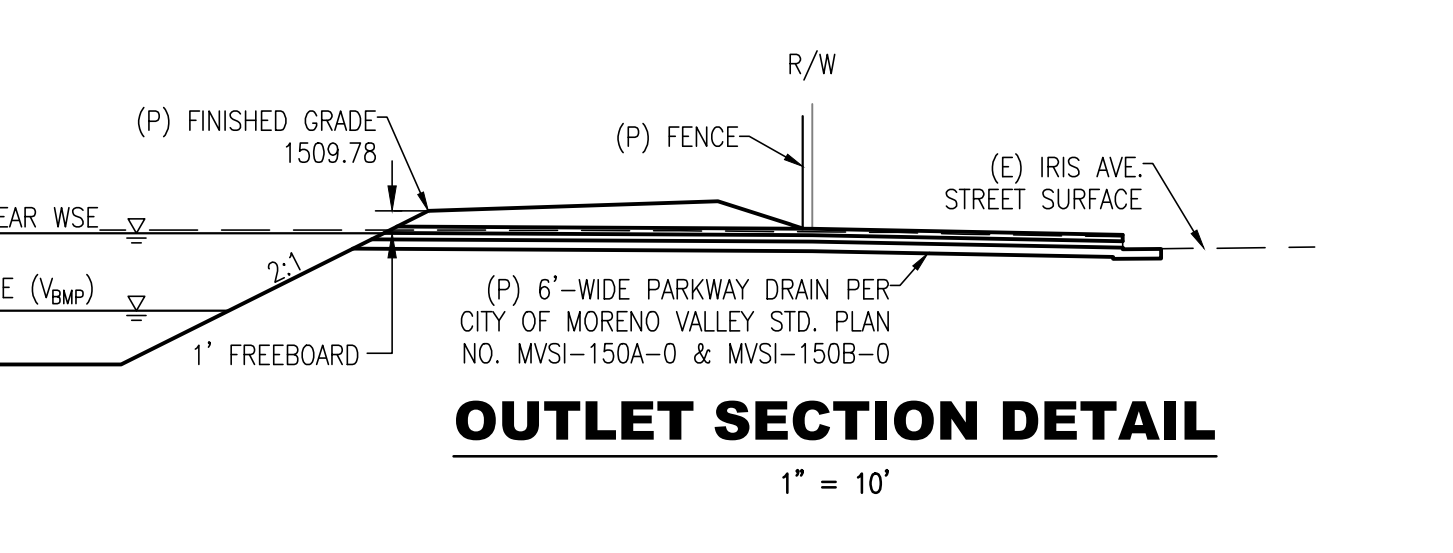
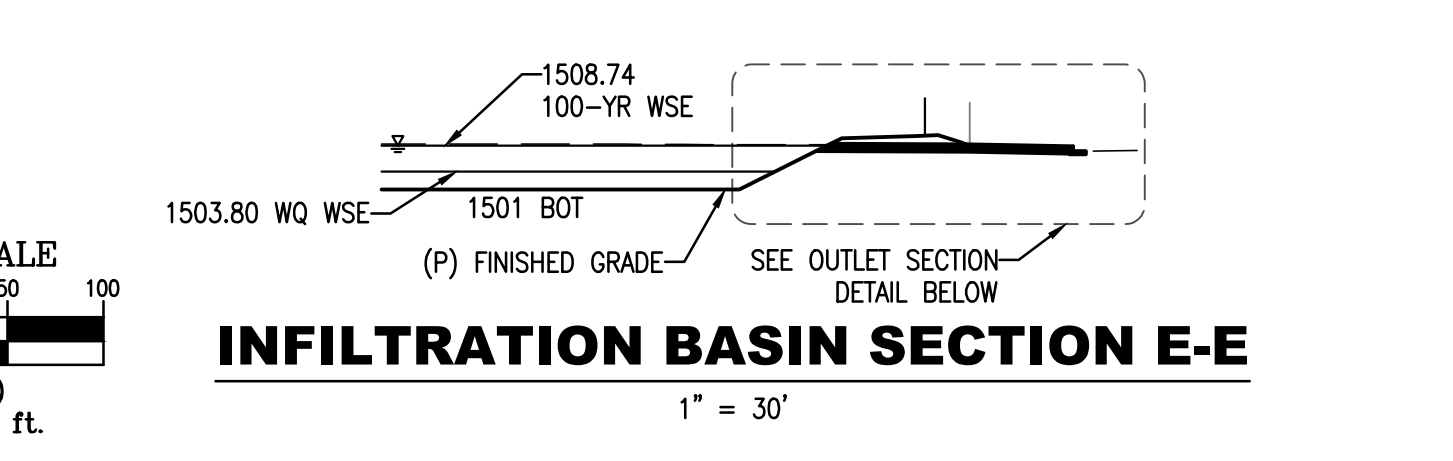
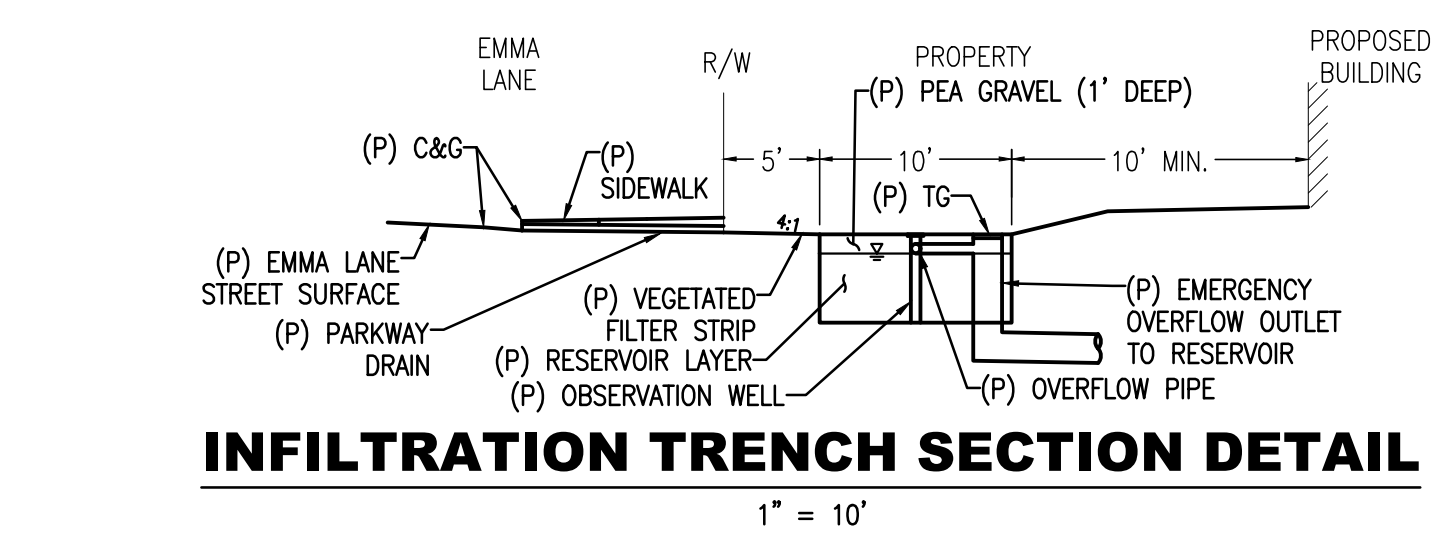
PROJECT AREA: ±998,400 SQ. FT. (22.69 AC)
 ANALYZED DRAINAGE AREA: ±992,700 SQ. FT. (22.79 AC)

NOTE

PROJECT SITE IS LOCATED IN ZONE X AREA OF MINIMAL FLOOD HAZARD AS LOCATED ON FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NUMBER 06065C07656, DATED AUGUST 28, 2008.



SITE LOCATION MAP
NOT TO SCALE



UNDERGROUND SERVICE ALERT
 CALL-TOLL FREE 1-800-227-2600
 TWO WORKING DAYS BEFORE YOU DIG

NOTE: WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.
 THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER CITY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISIONS TO THE PLANS FOR APPROVAL BY THE CITY.

| MARK | BY | DATE | REVISIONS | APPR. | DATE |
|------|----|------|-----------|-------|------|
| | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

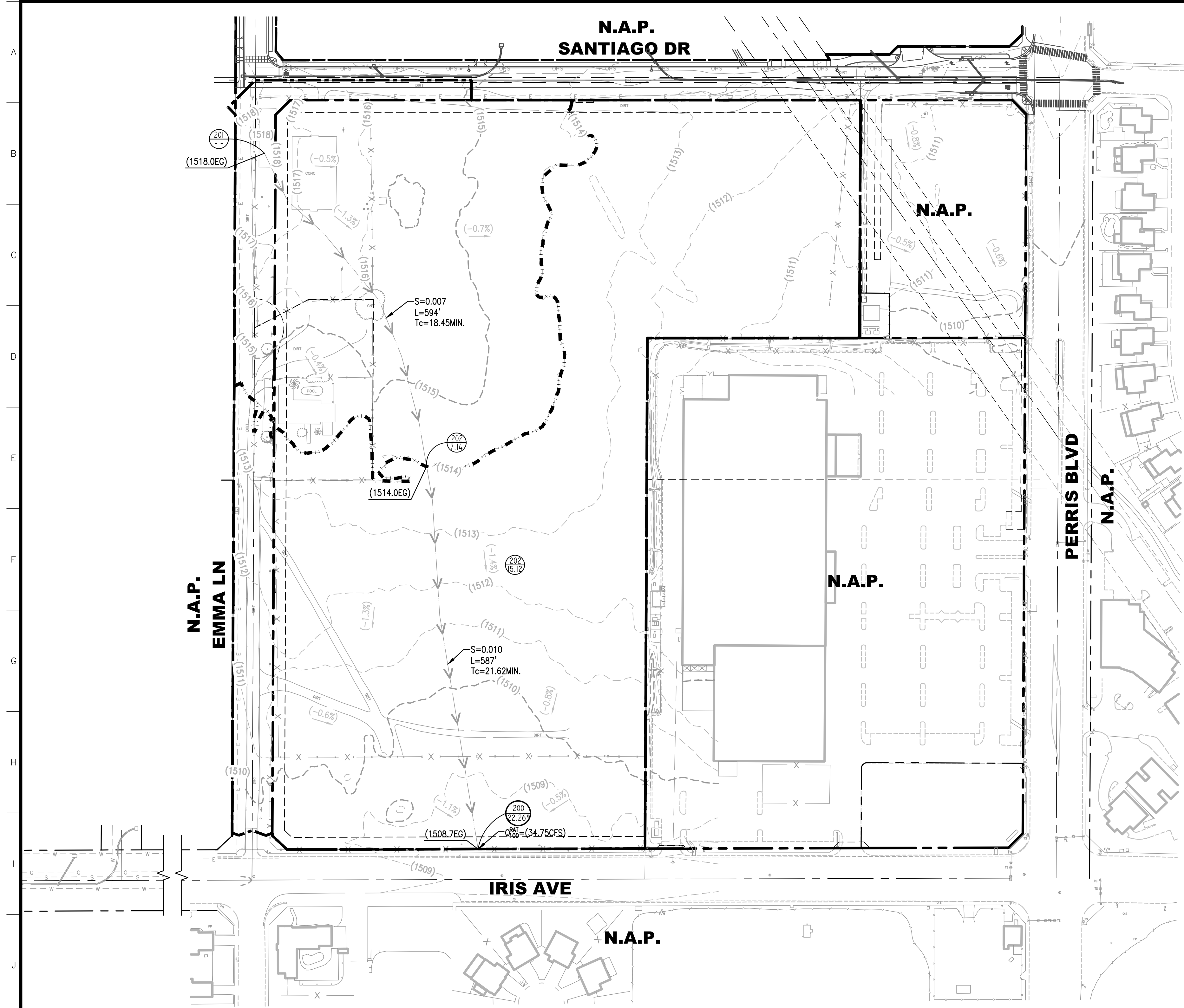
GreenbergFarrow
 30 Executive Park, Suite 100
 Irvine, CA 92614
 t: 949 296 0450 f: 949 296 0479

PREPARED BY: BAHAREH SEHATZADEH RCE C89859, EXP. 06/30/2023

CITY OF MORENO VALLEY
 PERRIS AT PENTECOSTAL
 POST-DEVELOPED HYDROLOGY MAP

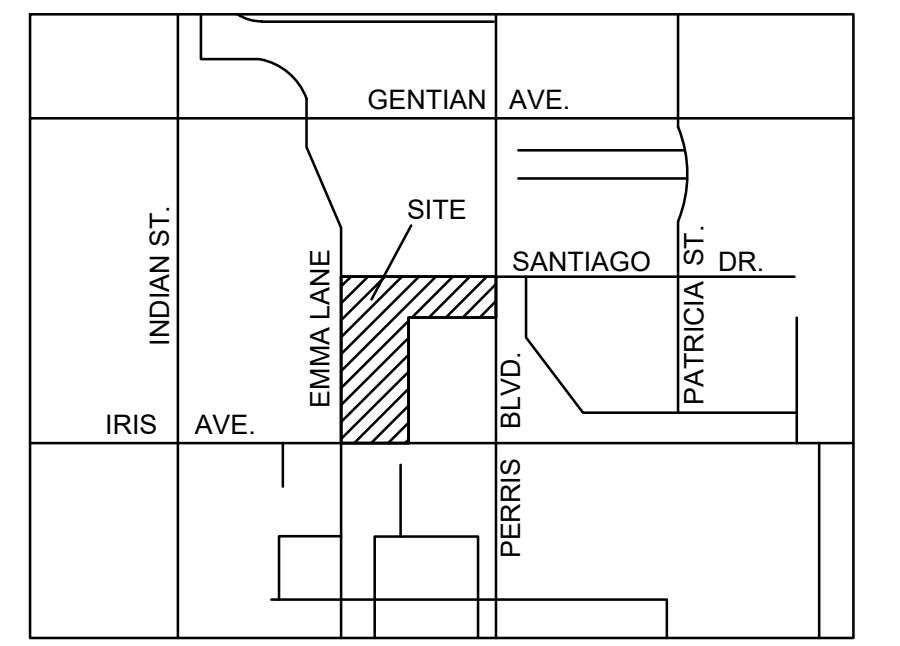
SHEET NO. HYD-01
 OF 1 SHEET

INITIAL DESIGN DATE: 06/05/20
 FOR: W.O. CITY FILE NO.



AREA QUANTITIES

PROJECT AREA: ±998,400 SQ. FT. (22.69 AC)
 ANALYZED DRAINAGE AREA: ±980,800 SQ. FT. (22.52 AC)



SITE LOCATION MAP

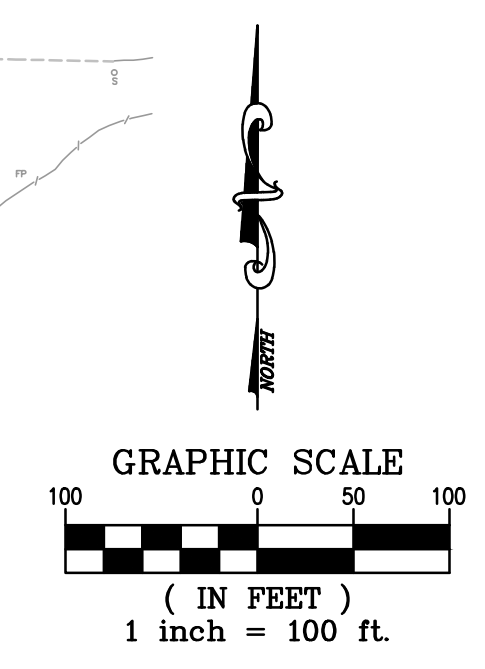
NOT TO SCALE

LEGEND

- MAJOR WATERSHED NODE
AREA IN ACRES
* DENOTES TOTAL AREA
- SUBAREA WATERSHED NODE
AREA IN ACRES
- HYDROLOGIC MAJOR WATERSHED BOUNDARY
- HYDROLOGIC SUBAREA WATERSHED BOUNDARY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR

NOTE

PROJECT SITE IS LOCATED IN ZONE X AREA OF MINIMAL FLOOD HAZARD AS LOCATED ON FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NUMBER 06065C0765G, DATED AUGUST 28, 2008.



UNDERGROUND SERVICE ALERT

CALL-TOLL FREE
1-800-227-2600

TWO WORKING DAYS BEFORE YOU DIG

NOTE:
 WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER CITY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.

| MARK | BY | DATE | REVISIONS | APPR. DATE | CITY |
|------|----|------|-----------|------------|------|
| | | | | | |
| | | | | | |

SEAL-ENGINEER

30 Executive Park, Suite 100
Irvine, CA 92614
t: 949 296 0450 f: 949 296 0479

PREPARED BY:
BAHAREH SEHATZADEH RCE C89859, EXP. 06/30/2023

JOB NO. 20200259.0

BENCHMARK

DATE

CITY OF MORENO VALLEY
 PERRIS AT PENTECOSTAL
 PRE-DEVELOPED HYDROLOGY MAP

INITIAL DESIGN DATE: 06/05/20

FOR: W.O. CITY FILE NO.

SHEET NO.
HYD-02

OF 1 SHEET

APPENDIX E

BMP Sizing Calculations

| Infiltration Basin - Design Procedure (Rev. 03-2012) | | BMP ID | Legend: | Required Entries |
|--|--|--------|-----------------------|------------------------|
| Company Name: Pentacostal LLC | | | | Calculated Cells |
| Designed by: BB | | | County/City Case No.: | Date: 8/17/2021 |
| Design Volume | | | | |
| a) Tributary area (BMP subarea) | | | $A_T =$ | 20.4 acres |
| b) Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 30,752 ft ³ |
| Maximum Depth | | | | |
| a) Infiltration rate | | | $I =$ | 4.76 in/hr |
| b) Factor of Safety (See Table 1, Appendix A: "Infiltration Testing" from this BMP Handbook) | | | $FS =$ | 3 |
| c) Calculate D_1 | $D_1 = \frac{I \text{ (in/hr)} \times 72 \text{ hrs}}{12 \text{ (in/ft)} \times FS}$ | | $D_1 =$ | 9.5 ft |
| d) Enter the depth of freeboard (at least 1 ft) | | | | 1 ft |
| e) Enter depth to historic high ground water (measured from top of basin) | | | | 40 ft |
| f) Enter depth to top of bedrock or impermeable layer (measured from top of basin) | | | | 20 ft |
| g) D_2 is the smaller of: | | | | |
| Depth to groundwater - (10 ft + freeboard) and | | | $D_2 =$ | 14.0 ft |
| Depth to impermeable layer - (5 ft + freeboard) | | | | |
| h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet | | | $D_{MAX} =$ | 9.5 ft |
| Basin Geometry | | | | |
| a) Basin side slopes (no steeper than 4:1) | | | $z =$ | 4 :1 |
| b) Proposed basin depth (excluding freeboard) | | | $d_B =$ | 5 ft |
| c) Minimum bottom surface area of basin ($A_S = V_{BMP}/d_B$) | | | $A_S =$ | 6150 ft ² |
| d) Proposed Design Surface Area | | | $A_D =$ | 10978 ft ² |
| Forebay | | | | |
| a) Forebay volume (minimum 0.5% V_{BMP}) | | | Volume = | 154 ft ³ |
| b) Forebay depth (height of berm/splashwall. 1 foot min.) | | | Depth = | 1 ft |
| c) Forebay surface area (minimum) | | | Area = | 154 ft ² |
| d) Full height notch-type weir | | | Width (W) = | 1.5 in |
| Notes: 2 forebays at 100 SF each for 200 total SF (exceeding 154 SF required) | | | | |

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 Pentecostal LLC Date 8/17/2021
 Designed by BB Case No _____
 Company Project Number/Name 20200259 Perris at Pentecostal

BMP Identification

BMP NAME / ID Infiltration Basin
Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, $D_{85} =$ 0.65 inches
 from the Isohyetal Map in Handbook Appendix E

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) |
|-------------------|------------------------|---------------------------|--------------------------------------|-------------------|---------------------------|-------------------------|---|---------------------------------------|
| DMA-1 Residential | 485995 | Mixed Surface Types | 0.82 | 0.62 | 302911.8 | | | |
| DMA-2 Open Space | 120729 | Ornamental Landscaping | 0.1 | 0.11 | 13335.5 | | | |
| DMA-3 Street | 281924 | Concrete or Asphalt | 1 | 0.89 | 251476.2 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 888648 | | Total | | | 567723.5 | 0.65 | 30751.7 | 54890 |

Notes:

| Infiltration Trench - Design Procedure | | BMP ID | Legend: | Required Entries |
|---|-----------------|--------|-----------------------------|---------------------|
| | | DMA-4 | | Calculated Cells |
| Company Name: | GreenbergFarrow | | Date: | 8/18/2020 |
| Designed by: | BB | | County/City Case No.: | |
| Design Volume | | | | |
| Enter the area tributary to this feature, Max = 10 acres | | | $A_t =$ | 0.26 acres |
| Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 429 ft ³ |
| Calculate Maximum Depth of the Reservoir Layer | | | | |
| Enter Infiltration rate | | | $I =$ | 2.41 in/hr |
| Enter Factor of Safety, FS (unitless) | | | $FS =$ | 10 |
| <i>Obtain from Table 1, Appendix A: "Infiltration Testing" of this BMP Handbook</i> | | | | |
| Calculate D_1 . | | | $D_1 =$ | 3.62 ft |
| $D_1 = \frac{I \text{ (in/hr)} \times 72 \text{ hrs}}{12 \text{ (in/ft)} \times (n/100) \times FS}$ | | | $n =$ | 40 % |
| Enter depth to historic high groundwater mark (measured from finished grade) | | | | 40 ft |
| Enter depth to top of bedrock or impermeable layer (measured from finished grade) | | | | 20 ft |
| D_2 is the smaller of: | | | | |
| Depth to groundwater - 11 ft; & Depth to impermeable layer - 6 ft | | | $D_2 =$ | 14.0 ft |
| D_{MAX} is the smaller value of D_1 and D_2 , must be less than or equal to 8 feet. | | | $D_{MAX} =$ | 3.6 ft |
| Trench Sizing | | | | |
| Enter proposed reservoir layer depth D_R , must be $\leq D_{MAX}$ | | | $D_R =$ | 3.60 ft |
| Calculate the design depth of water, d_w | | | | |
| Design $d_w = (D_R) \times (n/100)$ | | | Design $d_w =$ | 1.44 ft |
| Minimum Surface Area, A_S | | | $A_S =$ | 298 ft ² |
| | | | $A_S = \frac{V_{BMP}}{d_w}$ | |
| Proposed Design Surface Area | | | $A_D =$ | 300 ft ² |
| Minimum Width = $D_R + 1$ foot pea gravel | | | | 4.60 ft |
| Sediment Control Provided? (Use pulldown) | | Yes | | |
| Geotechnical report attached? (Use pulldown) | | Yes | | |

If the trench has been designed correctly, there should be no error messages on the spreadsheet.

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 Pentecostal LLC

Date 8/18/2020

Designed by BB

Case No

Company Project Number/Name 20200259 Perris at Pentecostal

BMP Identification

BMP NAME / ID DMA-4 Infiltration Trench

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} = 0.65 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) |
|-------------|------------------------|---------------------------|--------------------------------------|-------------------|---------------------------|-------------------------|---|---------------------------------------|
| DMA-4 | 11292 | Mixed Surface Types | 0.88 | 0.70 | 7924.6 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | 11292 | | | | 7924.6 | 0.65 | 429.2 | 432 |

Notes:

| Infiltration Trench - Design Procedure | | BMP ID | Legend: | Required Entries |
|---|-----------------|--------|-----------------------|-----------------------|
| | | DMA-5 | | Calculated Cells |
| Company Name: | GreenbergFarrow | | Date: | 8/18/2020 |
| Designed by: | BB | | County/City Case No.: | |
| Design Volume | | | | |
| Enter the area tributary to this feature, Max = 10 acres | | | $A_t =$ | 1.00 acres |
| Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 1,722 ft ³ |
| Calculate Maximum Depth of the Reservoir Layer | | | | |
| Enter Infiltration rate | | | $I =$ | 2.41 in/hr |
| Enter Factor of Safety, FS (unitless) | | | $FS =$ | 10 |
| <i>Obtain from Table 1, Appendix A: "Infiltration Testing" of this BMP Handbook</i> | | | | |
| Calculate D_1 . | | | $D_1 =$ | 3.62 ft |
| $D_1 = \frac{I \text{ (in/hr)} \times 72 \text{ hrs}}{12 \text{ (in/ft)} \times (n/100) \times FS}$ | | | $n =$ | 40 % |
| Enter depth to historic high groundwater mark (measured from finished grade) | | | | 40 ft |
| Enter depth to top of bedrock or impermeable layer (measured from finished grade) | | | | 20 ft |
| D_2 is the smaller of: | | | | |
| Depth to groundwater - 11 ft; & Depth to impermeable layer - 6 ft | | | $D_2 =$ | 14.0 ft |
| D_{MAX} is the smaller value of D_1 and D_2 , must be less than or equal to 8 feet. | | | $D_{MAX} =$ | 3.6 ft |
| Trench Sizing | | | | |
| Enter proposed reservoir layer depth D_R , must be $\leq D_{MAX}$ | | | $D_R =$ | 3.60 ft |
| Calculate the design depth of water, d_w | | | | |
| Design $d_w = (D_R) \times (n/100)$ | | | Design $d_w =$ | 1.44 ft |
| Minimum Surface Area, A_S | | | $A_S =$ | 1,196 ft ² |
| $A_S = \frac{V_{BMP}}{d_w}$ | | | | |
| Proposed Design Surface Area | | | $A_D =$ | 1,200 ft ² |
| Minimum Width = $D_R + 1$ foot pea gravel | | | | 4.60 ft |
| Sediment Control Provided? (Use pulldown) | | Yes | | |
| Geotechnical report attached? (Use pulldown) | | Yes | | |

If the trench has been designed correctly, there should be no error messages on the spreadsheet.

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 **GreenbergFarrow**

Date **8/18/2020**

Designed by **BB**

Case No

Company Project Number/Name **20200259 Perris at Pentecostal**

BMP Identification

BMP NAME / ID **DMA-5 Infiltration Trench**

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

$D_{85} =$ **0.65** 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) |
|-------------|------------------------|---------------------------|--------------------------------------|-------------------|---------------------------|-------------------------|---|---------------------------------------|
| DMA-5 | 43530 | Mixed Surface Types | 0.9 | 0.73 | 31789.2 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | 43530 | | | | 31789.2 | 0.65 | 1721.9 | 1728 |

Notes:

| Infiltration Trench - Design Procedure | | BMP ID | Legend: | Required Entries |
|---|-----------------|--------|-----------------------|-----------------------|
| | | DMA-6 | | Calculated Cells |
| Company Name: | GreenbergFarrow | | Date: | 8/18/2020 |
| Designed by: | BB | | County/City Case No.: | |
| Design Volume | | | | |
| Enter the area tributary to this feature, Max = 10 acres | | | $A_t =$ | 0.66 acres |
| Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 1,181 ft ³ |
| Calculate Maximum Depth of the Reservoir Layer | | | | |
| Enter Infiltration rate | | | $I =$ | 2.41 in/hr |
| Enter Factor of Safety, FS (unitless) | | | $FS =$ | 10 |
| <i>Obtain from Table 1, Appendix A: "Infiltration Testing" of this BMP Handbook</i> | | | | |
| Calculate D_1 . | | | $D_1 =$ | 3.62 ft |
| $D_1 = \frac{I \text{ (in/hr)} \times 72 \text{ hrs}}{12 \text{ (in/ft)} \times (n/100) \times FS}$ | | | $n =$ | 40 % |
| Enter depth to historic high groundwater mark (measured from finished grade) | | | | 40 ft |
| Enter depth to top of bedrock or impermeable layer (measured from finished grade) | | | | 20 ft |
| D_2 is the smaller of: | | | | |
| Depth to groundwater - 11 ft; & Depth to impermeable layer - 6 ft | | | $D_2 =$ | 14.0 ft |
| D_{MAX} is the smaller value of D_1 and D_2 , must be less than or equal to 8 feet. | | | $D_{MAX} =$ | 3.6 ft |
| Trench Sizing | | | | |
| Enter proposed reservoir layer depth D_R , must be $\leq D_{MAX}$ | | | $D_R =$ | 3.60 ft |
| Calculate the design depth of water, d_w | | | | |
| Design $d_w = (D_R) \times (n/100)$ | | | Design $d_w =$ | 1.44 ft |
| Minimum Surface Area, A_S | | | $A_S =$ | 820 ft ² |
| $A_S = \frac{V_{BMP}}{d_w}$ | | | | |
| Proposed Design Surface Area | | | $A_D =$ | 850 ft ² |
| Minimum Width = $D_R + 1$ foot pea gravel | | | | 4.60 ft |
| Sediment Control Provided? (Use pulldown) | | Yes | | |
| Geotechnical report attached? (Use pulldown) | | Yes | | |
| If the trench has been designed correctly, there should be no error messages on the spreadsheet. | | | | |

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 **GreenbergFarrow**

Date **8/18/2020**

Designed by **BB**

Case No

Company Project Number/Name **20200259 Perris at Pentecostal**

BMP Identification

BMP NAME / ID **DMA-6 Infiltration Trench**

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

$D_{85} =$ **0.65** 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) |
|-------------|------------------------|---------------------------|--------------------------------------|-------------------|---------------------------|-------------------------|---|---------------------------------------|
| DMA-6 | 28678 | Mixed Surface Types | 0.92 | 0.76 | 21795.3 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | 28678 | | | | 21795.3 | 0.65 | 1180.6 | 1224 |
| | | Total | | | | | | |

Notes:

| Infiltration Trench - Design Procedure | | BMP ID | Legend: | Required Entries |
|---|-----------------|--------|-----------------------------|---------------------|
| | | DMA-8 | | Calculated Cells |
| Company Name: | Pentecostal LLC | | Date: | 30-Nov |
| Designed by: | BB | | County/City Case No.: | |
| Design Volume | | | | |
| Enter the area tributary to this feature, Max = 10 acres | | | $A_t =$ | 0 acres |
| Enter V_{BMP} determined from Section 2.1 of this Handbook | | | $V_{BMP} =$ | 708 ft ³ |
| Calculate Maximum Depth of the Reservoir Layer | | | | |
| Enter Infiltration rate | | | $I =$ | 2.4 in/hr |
| Enter Factor of Safety, FS (unitless) | | | $FS =$ | 10 |
| <i>Obtain from Table 1, Appendix A: "Infiltration Testing" of this BMP Handbook</i> | | | | |
| Calculate D_1 . | | | $D_1 =$ | 3.62 ft |
| $D_1 = \frac{I \text{ (in/hr)} \times 72 \text{ hrs}}{12 \text{ (in/ft)} \times (n/100) \times FS}$ | | | $n =$ | 40 % |
| Enter depth to historic high groundwater mark (measured from finished grade) | | | | 40 ft |
| Enter depth to top of bedrock or impermeable layer (measured from finished grade) | | | | 20 ft |
| D_2 is the smaller of: | | | | |
| Depth to groundwater - 11 ft; & Depth to impermeable layer - 6 ft | | | $D_2 =$ | 14.0 ft |
| D_{MAX} is the smaller value of D_1 and D_2 , must be less than or equal to 8 feet. | | | $D_{MAX} =$ | 3.6 ft |
| Trench Sizing | | | | |
| Enter proposed reservoir layer depth D_R , must be $\leq D_{MAX}$ | | | $D_R =$ | 3.60 ft |
| Calculate the design depth of water, d_w | | | | |
| Design $d_w = (D_R) \times (n/100)$ | | | Design $d_w =$ | 1.44 ft |
| Minimum Surface Area, A_S | | | $A_S =$ | 492 ft ² |
| | | | $A_S = \frac{V_{BMP}}{d_w}$ | |
| Proposed Design Surface Area | | | $A_D =$ | 500 ft ² |
| Minimum Width = $D_R + 1$ foot pea gravel | | | | 4.60 ft |
| Sediment Control Provided? (Use pulldown) | | Yes | | |
| Geotechnical report attached? (Use pulldown) | | Yes | | |
| If the trench has been designed correctly, there should be no error messages on the spreadsheet. | | | | |

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 **Pentecostal LLC**

Date **11/30/2021**

Designed by **BB**

Case No

Company Project Number/Name **20200259 Perris at Pentecostal**

BMP Identification

BMP NAME / ID **DMA-8 Infiltration Trench**

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

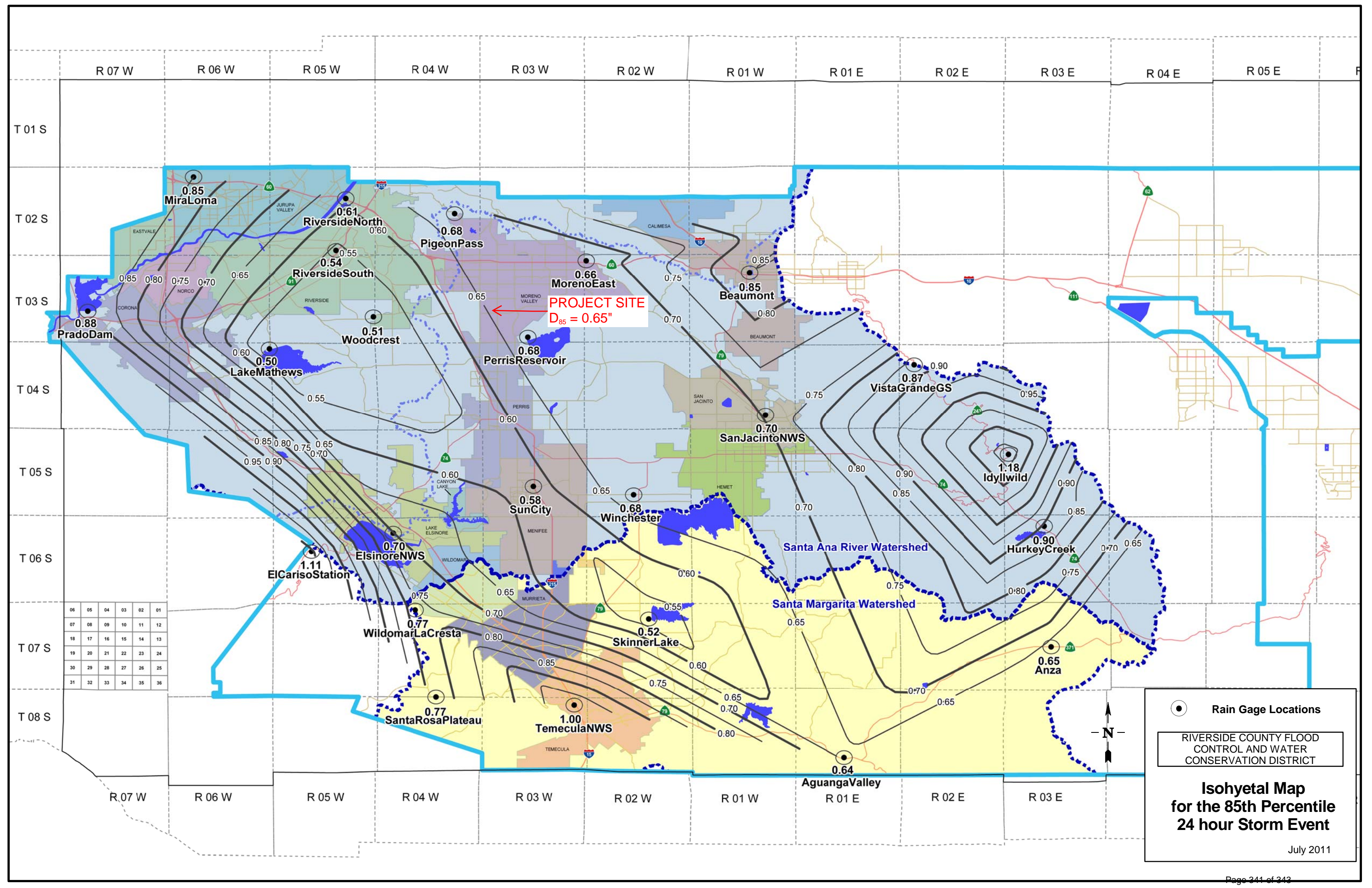
$D_{85} =$ **0.65** inches

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) |
|----------------|------------------------|---------------------------|--------------------------------------|-------------------|---------------------------|-------------------------|---|---------------------------------------|
| DMA-8 Pavement | 14401 | Concrete or Asphalt | 1 | 0.89 | 12845.7 | | | |
| DMA-8 LS | 2110 | Ornamental Landscaping | 0.1 | 0.11 | 233.1 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | 16511 | | Total | | 13078.8 | 0.65 | 708.4 | 720 |

Notes:



R 07 W R 06 W R 05 W R 04 W R 03 W R 02 W R 01 W R 01 E R 02 E R 03 E R 04 E R 05 E

T 01 S
T 02 S
T 03 S
T 04 S
T 05 S
T 06 S
T 07 S
T 08 S

| | | | | | |
|----|----|----|----|----|----|
| 06 | 05 | 04 | 03 | 02 | 01 |
| 07 | 08 | 09 | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

PROJECT SITE
D₈₅ = 0.65"

● Rain Gage Locations

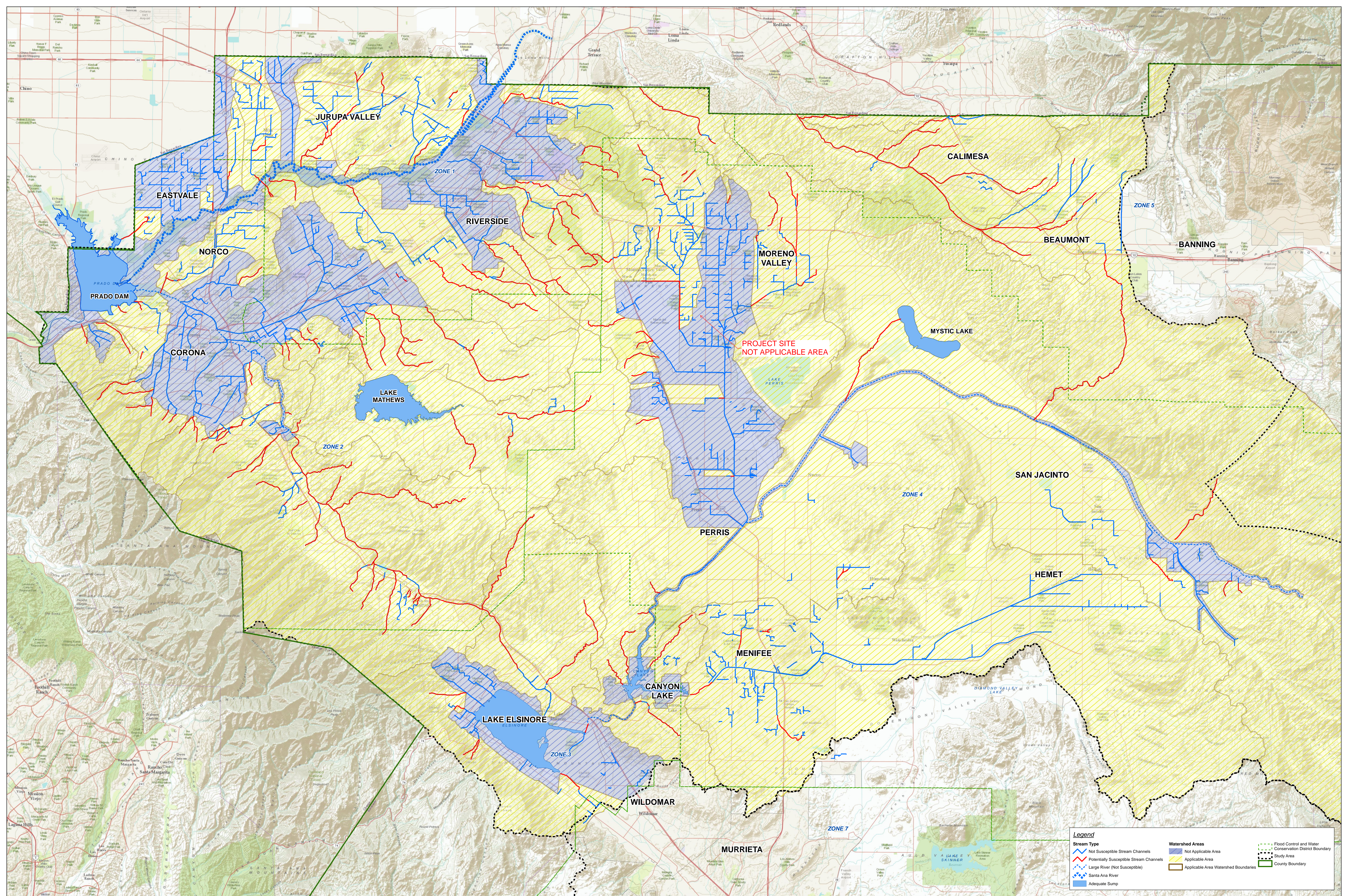
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Isohyetal Map for the 85th Percentile 24 hour Storm Event

July 2011

APPENDIX F

HCOC Applicability Map



Legend

| | | |
|---|--------------------------------------|--|
| Not Susceptible Stream Channels | Not Applicable Area | Flood Control and Water Conservation District Boundary |
| Potentially Susceptible Stream Channels | Applicable Area | Study Area |
| Large River (Not Susceptible) | Applicable Area Watershed Boundaries | County Boundary |
| Santa Ana River | | |
| Adequate Sump | | |