# Hydrology Report

for

# TR 38921

Located in the City of Riverside
County of Riverside
APN: 136-220-016

Prepared For:

Warmington
RESIDENTIAL

3090 Pullman Street
Costa Mesa, CA 92626

Prepared by:

adkan
ENGINEERS

6879 Airport Drive
Riverside, CA 92504
Tel (951) 688-0241
Fax (951) 688-0599

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adkan ENGINEERS
CIVIL ENGINEERING • SURVEYING • PLANNING
6879 AIRPORT DRIVE, RIVERSIDE, CA 92504
Tel: 951.688.0241 • Fax: 951.688.0599
www.adkan.com

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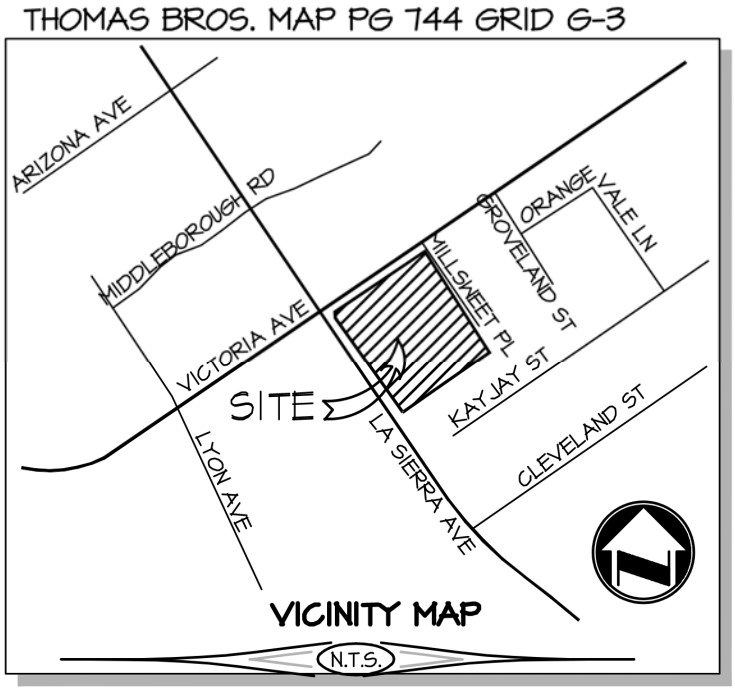
## 1. Purpose

The purpose of this study is to substantiate the hydrology design of Tract 38921 for the purposes of Entitlement Approval. Adkan Engineers has prepared this study to ensure that adequate size and proper operation of drainage facilities are incorporated into the Post-Development project site.

## 2. Project Description

Tract 38921 is located in the City of Riverside at the northeast corner of Victoria Avenue and La Sierra Avenue. The planned development will consist of 49 single family residential lots and 2 open space lots on 7.9+/- acres. The site will treat the 2 year 24 hour storm event through the use of an infiltration basin with an additional gravel layer beneath it. Since site flows are tributary to the Arizona Channel, all other storm events (5, 10 & 100 year) are not required to be analyzed.

### A. Vicinity Map




## 3. Pre-Development Hydrology

The site is currently a functioning orange grove and there are no existing storm drain facilities on site. Onsite runoff sheet flows to the south west corner of Millsweet Place and Victoria Ave to an existing drop inlet structure that feeds site flows to City SD tributary to the Arizona Channel.

## 4. Post-Development Hydrology

Onsite flows are being directed towards the north east corner via a series of gutters throughout the project site. Surface flows in these proposed gutters will be captured via drop inlets and conveyed via an onsite storm drain

system to an infiltration basin located in the north east corner of the site. The infiltration basin will have an additional gravel layer beneath to mitigate the 2 year 24 hour storm flows.

| Basin Storage Volume Calculations | |
|---|---|
| Infiltration Basin Bottom Area (sf) | 3674 |
| Basin Top Area (sf) | 4899 |
| Depth of Basin (ft) | 2.5 |
| Open Basin Volume Provided (cf) | 10716 |
| Rock Storage depth (ft) | 4.6 |
| Rock Storage Volume (40% void) (cf) | 6755 |
| Total Flood Volume Stored | **17472** |
| | |
| Ex. 2-yr 24-hr Storm Volume (cf) | 8233 |
| Prop. 2-yr 24-hr Storm Volume (cf) | 26528 |
| Allowable 2-yr 24-hr Storm Volume (mitigated to 110% of existing) (cf) | **9056** |
| | |
| Prop. 2-yr 24-hr Storm Volume (cf) | 26528 |
| Total Flood Volume Stored | 17472 |
| Remaining Storm Volume | **9056** |

## 5. Method of Analysis

The site hydrology was based upon Riverside County Flood Control and Water Conversation District Hydrology Manual, from which pertinent soil and rainfall information was obtained.

Storm flows were determined by the "RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM", Riverside County Flood Control & Water Conservation District 1978 Hydrology Manual, produced by Bondamin Engineering.

The site was also analyzed by the "SYNTHETIC UNIT HYDROLOGY METHOD COMPUTER PROGRAM", Riverside County Flood Control & Water Conservation District 1978 Hydrology Manual, produced by Bondamin Engineering.

## 6. Conclusion

The hydrologic calculations provided herein substantiate the design of the Post-Development project and indicate the following:

- The Post-Development facilities demonstrate the ability to limit flow discharge from the project site to no greater than 110% of the pre-development 2-year peak flow.

Since site flows are tributary to the Arizona Channel, no other storm events need to be mitigated/analyzed.

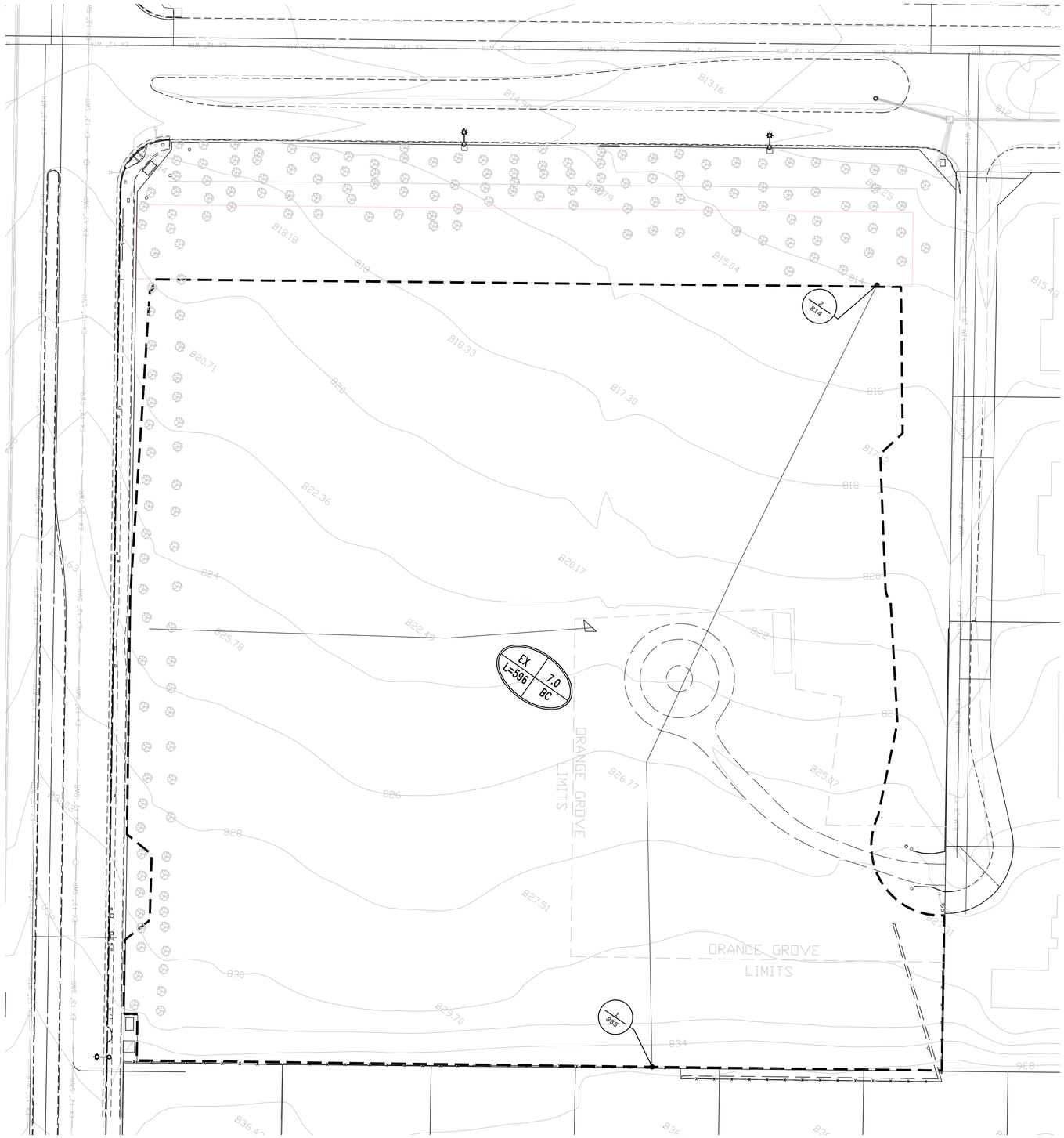
Therefore, it is our conclusion this project **does not** negatively impact the local community or watershed goals.

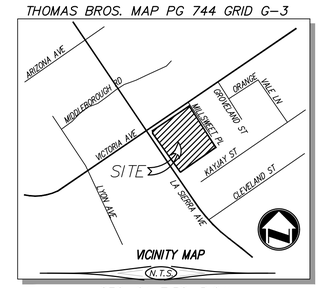
# Section 1

## Pre-Development Unit Hydrograph

IN THE COMMUNITY OF WINCHESTER, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

# PRE DEVELOPMENT UNIT HYDROGRAPH




SEC. 24 T.3S. R.6W

0 20 40 80 120 160

SCALE: 1" = 40'


PLANS PREPARED BY:
adkan ENGINEERS
Civil Engineering • Surveying • Planning
6879 Airport Drive, Riverside, CA 92504
Tel:(951) 688-0241 • Fax:(951) 688-0599

```
        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  02/22/24 File: EX2YR242.out

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


Program License Serial Number 5006

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

 English Units used in output format



-------------------------------------------------------------------
-------------------------------------------------------------------
Drainage Area =       7.00(Ac.)  =      0.011 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       7.00(Ac.)  =      0.011 Sq. Mi.
Length along longest watercourse =     596.00(Ft.)
Length along longest watercourse measured to centroid =     300.00(Ft.)
Length along longest watercourse =      0.113 Mi.
Length along longest watercourse measured to centroid =      0.057 Mi.
Difference in elevation =      26.00(Ft.)
Slope along watercourse =    230.3356 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.038 Hr.
Lag time =     2.26 Min.
25% of lag time =     0.56 Min.
40% of lag time =     0.90 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        7.00           1.80                 12.60

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        7.00           6.00                 42.00

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    6.000(In)

Point rain (area averaged) =    1.800(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.800(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     7.000           72.00         0.100
 Total Area Entered =      7.00(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
72.0  53.4      0.537     0.100        0.489       1.000      0.489
                                                  Sum (F) =   0.489
Area averaged mean soil loss (F) (In/Hr) =  0.489
Minimum soil loss rate ((In/Hr)) =  0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.820
-------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      VALLEY S-Curve
-------------------------------------------------------------------
               Unit Hydrograph Data
-------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                           Graph %           (CFS)
```

| | | | | | |
|---|---|---|---|---|---|
| 1 | 0.083 | 221.634 | 46.905 | | 3.309 |
| 2 | 0.167 | 443.269 | 41.886 | | 2.955 |
| 3 | 0.250 | 664.903 | 7.981 | | 0.563 |
| 4 | 0.333 | 886.537 | 3.228 | | 0.228 |
| | | | Sum = 100.000 | Sum= | 7.055 |

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 | 0.014 | ( 0.867) | 0.012 | 0.003 |
| 2 | 0.17 | 0.07 | 0.014 | ( 0.863) | 0.012 | 0.003 |
| 3 | 0.25 | 0.07 | 0.014 | ( 0.860) | 0.012 | 0.003 |
| 4 | 0.33 | 0.10 | 0.022 | ( 0.857) | 0.018 | 0.004 |
| 5 | 0.42 | 0.10 | 0.022 | ( 0.853) | 0.018 | 0.004 |
| 6 | 0.50 | 0.10 | 0.022 | ( 0.850) | 0.018 | 0.004 |
| 7 | 0.58 | 0.10 | 0.022 | ( 0.847) | 0.018 | 0.004 |
| 8 | 0.67 | 0.10 | 0.022 | ( 0.843) | 0.018 | 0.004 |
| 9 | 0.75 | 0.10 | 0.022 | ( 0.840) | 0.018 | 0.004 |
| 10 | 0.83 | 0.13 | 0.029 | ( 0.837) | 0.024 | 0.005 |
| 11 | 0.92 | 0.13 | 0.029 | ( 0.834) | 0.024 | 0.005 |
| 12 | 1.00 | 0.13 | 0.029 | ( 0.830) | 0.024 | 0.005 |
| 13 | 1.08 | 0.10 | 0.022 | ( 0.827) | 0.018 | 0.004 |
| 14 | 1.17 | 0.10 | 0.022 | ( 0.824) | 0.018 | 0.004 |
| 15 | 1.25 | 0.10 | 0.022 | ( 0.820) | 0.018 | 0.004 |
| 16 | 1.33 | 0.10 | 0.022 | ( 0.817) | 0.018 | 0.004 |
| 17 | 1.42 | 0.10 | 0.022 | ( 0.814) | 0.018 | 0.004 |
| 18 | 1.50 | 0.10 | 0.022 | ( 0.811) | 0.018 | 0.004 |
| 19 | 1.58 | 0.10 | 0.022 | ( 0.807) | 0.018 | 0.004 |
| 20 | 1.67 | 0.10 | 0.022 | ( 0.804) | 0.018 | 0.004 |
| 21 | 1.75 | 0.10 | 0.022 | ( 0.801) | 0.018 | 0.004 |
| 22 | 1.83 | 0.13 | 0.029 | ( 0.798) | 0.024 | 0.005 |
| 23 | 1.92 | 0.13 | 0.029 | ( 0.795) | 0.024 | 0.005 |
| 24 | 2.00 | 0.13 | 0.029 | ( 0.791) | 0.024 | 0.005 |
| 25 | 2.08 | 0.13 | 0.029 | ( 0.788) | 0.024 | 0.005 |
| 26 | 2.17 | 0.13 | 0.029 | ( 0.785) | 0.024 | 0.005 |
| 27 | 2.25 | 0.13 | 0.029 | ( 0.782) | 0.024 | 0.005 |
| 28 | 2.33 | 0.13 | 0.029 | ( 0.779) | 0.024 | 0.005 |
| 29 | 2.42 | 0.13 | 0.029 | ( 0.775) | 0.024 | 0.005 |
| 30 | 2.50 | 0.13 | 0.029 | ( 0.772) | 0.024 | 0.005 |
| 31 | 2.58 | 0.17 | 0.036 | ( 0.769) | 0.030 | 0.006 |
| 32 | 2.67 | 0.17 | 0.036 | ( 0.766) | 0.030 | 0.006 |
| 33 | 2.75 | 0.17 | 0.036 | ( 0.763) | 0.030 | 0.006 |
| 34 | 2.83 | 0.17 | 0.036 | ( 0.760) | 0.030 | 0.006 |
| 35 | 2.92 | 0.17 | 0.036 | ( 0.756) | 0.030 | 0.006 |
| 36 | 3.00 | 0.17 | 0.036 | ( 0.753) | 0.030 | 0.006 |
| 37 | 3.08 | 0.17 | 0.036 | ( 0.750) | 0.030 | 0.006 |
| 38 | 3.17 | 0.17 | 0.036 | ( 0.747) | 0.030 | 0.006 |
| 39 | 3.25 | 0.17 | 0.036 | ( 0.744) | 0.030 | 0.006 |
| 40 | 3.33 | 0.17 | 0.036 | ( 0.741) | 0.030 | 0.006 |
| 41 | 3.42 | 0.17 | 0.036 | ( 0.738) | 0.030 | 0.006 |
| 42 | 3.50 | 0.17 | 0.036 | ( 0.735) | 0.030 | 0.006 |
| 43 | 3.58 | 0.17 | 0.036 | ( 0.732) | 0.030 | 0.006 |
| 44 | 3.67 | 0.17 | 0.036 | ( 0.729) | 0.030 | 0.006 |
| 45 | 3.75 | 0.17 | 0.036 | ( 0.726) | 0.030 | 0.006 |
| 46 | 3.83 | 0.20 | 0.043 | ( 0.722) | 0.035 | 0.008 |
| 47 | 3.92 | 0.20 | 0.043 | ( 0.719) | 0.035 | 0.008 |
| 48 | 4.00 | 0.20 | 0.043 | ( 0.716) | 0.035 | 0.008 |
| 49 | 4.08 | 0.20 | 0.043 | ( 0.713) | 0.035 | 0.008 |
| 50 | 4.17 | 0.20 | 0.043 | ( 0.710) | 0.035 | 0.008 |
| 51 | 4.25 | 0.20 | 0.043 | ( 0.707) | 0.035 | 0.008 |
| 52 | 4.33 | 0.23 | 0.050 | ( 0.704) | 0.041 | 0.009 |
| 53 | 4.42 | 0.23 | 0.050 | ( 0.701) | 0.041 | 0.009 |
| 54 | 4.50 | 0.23 | 0.050 | ( 0.698) | 0.041 | 0.009 |
| 55 | 4.58 | 0.23 | 0.050 | ( 0.695) | 0.041 | 0.009 |
| 56 | 4.67 | 0.23 | 0.050 | ( 0.692) | 0.041 | 0.009 |
| 57 | 4.75 | 0.23 | 0.050 | ( 0.689) | 0.041 | 0.009 |
| 58 | 4.83 | 0.27 | 0.058 | ( 0.686) | 0.047 | 0.010 |
| 59 | 4.92 | 0.27 | 0.058 | ( 0.683) | 0.047 | 0.010 |
| 60 | 5.00 | 0.27 | 0.058 | ( 0.680) | 0.047 | 0.010 |
| 61 | 5.08 | 0.20 | 0.043 | ( 0.677) | 0.035 | 0.008 |
| 62 | 5.17 | 0.20 | 0.043 | ( 0.674) | 0.035 | 0.008 |
| 63 | 5.25 | 0.20 | 0.043 | ( 0.672) | 0.035 | 0.008 |
| 64 | 5.33 | 0.23 | 0.050 | ( 0.669) | 0.041 | 0.009 |
| 65 | 5.42 | 0.23 | 0.050 | ( 0.666) | 0.041 | 0.009 |
| 66 | 5.50 | 0.23 | 0.050 | ( 0.663) | 0.041 | 0.009 |
| 67 | 5.58 | 0.27 | 0.058 | ( 0.660) | 0.047 | 0.010 |
| 68 | 5.67 | 0.27 | 0.058 | ( 0.657) | 0.047 | 0.010 |
| 69 | 5.75 | 0.27 | 0.058 | ( 0.654) | 0.047 | 0.010 |
| 70 | 5.83 | 0.27 | 0.058 | ( 0.651) | 0.047 | 0.010 |
| 71 | 5.92 | 0.27 | 0.058 | ( 0.648) | 0.047 | 0.010 |
| 72 | 6.00 | 0.27 | 0.058 | ( 0.645) | 0.047 | 0.010 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 73 | 6.08 | 0.30 | 0.065 | ( 0.643) | 0.053 | 0.012 |
| 74 | 6.17 | 0.30 | 0.065 | ( 0.640) | 0.053 | 0.012 |
| 75 | 6.25 | 0.30 | 0.065 | ( 0.637) | 0.053 | 0.012 |
| 76 | 6.33 | 0.30 | 0.065 | ( 0.634) | 0.053 | 0.012 |
| 77 | 6.42 | 0.30 | 0.065 | ( 0.631) | 0.053 | 0.012 |
| 78 | 6.50 | 0.30 | 0.065 | ( 0.628) | 0.053 | 0.012 |
| 79 | 6.58 | 0.33 | 0.072 | ( 0.626) | 0.059 | 0.013 |
| 80 | 6.67 | 0.33 | 0.072 | ( 0.623) | 0.059 | 0.013 |
| 81 | 6.75 | 0.33 | 0.072 | ( 0.620) | 0.059 | 0.013 |
| 82 | 6.83 | 0.33 | 0.072 | ( 0.617) | 0.059 | 0.013 |
| 83 | 6.92 | 0.33 | 0.072 | ( 0.614) | 0.059 | 0.013 |
| 84 | 7.00 | 0.33 | 0.072 | ( 0.612) | 0.059 | 0.013 |
| 85 | 7.08 | 0.33 | 0.072 | ( 0.609) | 0.059 | 0.013 |
| 86 | 7.17 | 0.33 | 0.072 | ( 0.606) | 0.059 | 0.013 |
| 87 | 7.25 | 0.33 | 0.072 | ( 0.603) | 0.059 | 0.013 |
| 88 | 7.33 | 0.37 | 0.079 | ( 0.600) | 0.065 | 0.014 |
| 89 | 7.42 | 0.37 | 0.079 | ( 0.598) | 0.065 | 0.014 |
| 90 | 7.50 | 0.37 | 0.079 | ( 0.595) | 0.065 | 0.014 |
| 91 | 7.58 | 0.40 | 0.086 | ( 0.592) | 0.071 | 0.016 |
| 92 | 7.67 | 0.40 | 0.086 | ( 0.589) | 0.071 | 0.016 |
| 93 | 7.75 | 0.40 | 0.086 | ( 0.587) | 0.071 | 0.016 |
| 94 | 7.83 | 0.43 | 0.094 | ( 0.584) | 0.077 | 0.017 |
| 95 | 7.92 | 0.43 | 0.094 | ( 0.581) | 0.077 | 0.017 |
| 96 | 8.00 | 0.43 | 0.094 | ( 0.579) | 0.077 | 0.017 |
| 97 | 8.08 | 0.50 | 0.108 | ( 0.576) | 0.089 | 0.019 |
| 98 | 8.17 | 0.50 | 0.108 | ( 0.573) | 0.089 | 0.019 |
| 99 | 8.25 | 0.50 | 0.108 | ( 0.571) | 0.089 | 0.019 |
| 100 | 8.33 | 0.50 | 0.108 | ( 0.568) | 0.089 | 0.019 |
| 101 | 8.42 | 0.50 | 0.108 | ( 0.565) | 0.089 | 0.019 |
| 102 | 8.50 | 0.50 | 0.108 | ( 0.563) | 0.089 | 0.019 |
| 103 | 8.58 | 0.53 | 0.115 | ( 0.560) | 0.094 | 0.021 |
| 104 | 8.67 | 0.53 | 0.115 | ( 0.557) | 0.094 | 0.021 |
| 105 | 8.75 | 0.53 | 0.115 | ( 0.555) | 0.094 | 0.021 |
| 106 | 8.83 | 0.57 | 0.122 | ( 0.552) | 0.100 | 0.022 |
| 107 | 8.92 | 0.57 | 0.122 | ( 0.550) | 0.100 | 0.022 |
| 108 | 9.00 | 0.57 | 0.122 | ( 0.547) | 0.100 | 0.022 |
| 109 | 9.08 | 0.63 | 0.137 | ( 0.544) | 0.112 | 0.025 |
| 110 | 9.17 | 0.63 | 0.137 | ( 0.542) | 0.112 | 0.025 |
| 111 | 9.25 | 0.63 | 0.137 | ( 0.539) | 0.112 | 0.025 |
| 112 | 9.33 | 0.67 | 0.144 | ( 0.537) | 0.118 | 0.026 |
| 113 | 9.42 | 0.67 | 0.144 | ( 0.534) | 0.118 | 0.026 |
| 114 | 9.50 | 0.67 | 0.144 | ( 0.531) | 0.118 | 0.026 |
| 115 | 9.58 | 0.70 | 0.151 | ( 0.529) | 0.124 | 0.027 |
| 116 | 9.67 | 0.70 | 0.151 | ( 0.526) | 0.124 | 0.027 |
| 117 | 9.75 | 0.70 | 0.151 | ( 0.524) | 0.124 | 0.027 |
| 118 | 9.83 | 0.73 | 0.158 | ( 0.521) | 0.130 | 0.029 |
| 119 | 9.92 | 0.73 | 0.158 | ( 0.519) | 0.130 | 0.029 |
| 120 | 10.00 | 0.73 | 0.158 | ( 0.516) | 0.130 | 0.029 |
| 121 | 10.08 | 0.50 | 0.108 | ( 0.514) | 0.089 | 0.019 |
| 122 | 10.17 | 0.50 | 0.108 | ( 0.511) | 0.089 | 0.019 |
| 123 | 10.25 | 0.50 | 0.108 | ( 0.509) | 0.089 | 0.019 |
| 124 | 10.33 | 0.50 | 0.108 | ( 0.506) | 0.089 | 0.019 |
| 125 | 10.42 | 0.50 | 0.108 | ( 0.504) | 0.089 | 0.019 |
| 126 | 10.50 | 0.50 | 0.108 | ( 0.501) | 0.089 | 0.019 |
| 127 | 10.58 | 0.67 | 0.144 | ( 0.499) | 0.118 | 0.026 |
| 128 | 10.67 | 0.67 | 0.144 | ( 0.497) | 0.118 | 0.026 |
| 129 | 10.75 | 0.67 | 0.144 | ( 0.494) | 0.118 | 0.026 |
| 130 | 10.83 | 0.67 | 0.144 | ( 0.492) | 0.118 | 0.026 |
| 131 | 10.92 | 0.67 | 0.144 | ( 0.489) | 0.118 | 0.026 |
| 132 | 11.00 | 0.67 | 0.144 | ( 0.487) | 0.118 | 0.026 |
| 133 | 11.08 | 0.63 | 0.137 | ( 0.485) | 0.112 | 0.025 |
| 134 | 11.17 | 0.63 | 0.137 | ( 0.482) | 0.112 | 0.025 |
| 135 | 11.25 | 0.63 | 0.137 | ( 0.480) | 0.112 | 0.025 |
| 136 | 11.33 | 0.63 | 0.137 | ( 0.477) | 0.112 | 0.025 |
| 137 | 11.42 | 0.63 | 0.137 | ( 0.475) | 0.112 | 0.025 |
| 138 | 11.50 | 0.63 | 0.137 | ( 0.473) | 0.112 | 0.025 |
| 139 | 11.58 | 0.57 | 0.122 | ( 0.470) | 0.100 | 0.022 |
| 140 | 11.67 | 0.57 | 0.122 | ( 0.468) | 0.100 | 0.022 |
| 141 | 11.75 | 0.57 | 0.122 | ( 0.466) | 0.100 | 0.022 |
| 142 | 11.83 | 0.60 | 0.130 | ( 0.463) | 0.106 | 0.023 |
| 143 | 11.92 | 0.60 | 0.130 | ( 0.461) | 0.106 | 0.023 |
| 144 | 12.00 | 0.60 | 0.130 | ( 0.459) | 0.106 | 0.023 |
| 145 | 12.08 | 0.83 | 0.180 | ( 0.456) | 0.148 | 0.032 |
| 146 | 12.17 | 0.83 | 0.180 | ( 0.454) | 0.148 | 0.032 |
| 147 | 12.25 | 0.83 | 0.180 | ( 0.452) | 0.148 | 0.032 |
| 148 | 12.33 | 0.87 | 0.187 | ( 0.450) | 0.154 | 0.034 |
| 149 | 12.42 | 0.87 | 0.187 | ( 0.447) | 0.154 | 0.034 |
| 150 | 12.50 | 0.87 | 0.187 | ( 0.445) | 0.154 | 0.034 |
| 151 | 12.58 | 0.93 | 0.202 | ( 0.443) | 0.165 | 0.036 |
| 152 | 12.67 | 0.93 | 0.202 | ( 0.441) | 0.165 | 0.036 |
| 153 | 12.75 | 0.93 | 0.202 | ( 0.438) | 0.165 | 0.036 |
| 154 | 12.83 | 0.97 | 0.209 | ( 0.436) | 0.171 | 0.038 |
| 155 | 12.92 | 0.97 | 0.209 | ( 0.434) | 0.171 | 0.038 |
| 156 | 13.00 | 0.97 | 0.209 | ( 0.432) | 0.171 | 0.038 |
| 157 | 13.08 | 1.13 | 0.245 | ( 0.430) | 0.201 | 0.044 |
| 158 | 13.17 | 1.13 | 0.245 | ( 0.427) | 0.201 | 0.044 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 159 | 13.25 | 1.13 | 0.245 | ( 0.425) | 0.201 | 0.044 |
| 160 | 13.33 | 1.13 | 0.245 | ( 0.423) | 0.201 | 0.044 |
| 161 | 13.42 | 1.13 | 0.245 | ( 0.421) | 0.201 | 0.044 |
| 162 | 13.50 | 1.13 | 0.245 | ( 0.419) | 0.201 | 0.044 |
| 163 | 13.58 | 0.77 | 0.166 | ( 0.417) | 0.136 | 0.030 |
| 164 | 13.67 | 0.77 | 0.166 | ( 0.415) | 0.136 | 0.030 |
| 165 | 13.75 | 0.77 | 0.166 | ( 0.412) | 0.136 | 0.030 |
| 166 | 13.83 | 0.77 | 0.166 | ( 0.410) | 0.136 | 0.030 |
| 167 | 13.92 | 0.77 | 0.166 | ( 0.408) | 0.136 | 0.030 |
| 168 | 14.00 | 0.77 | 0.166 | ( 0.406) | 0.136 | 0.030 |
| 169 | 14.08 | 0.90 | 0.194 | ( 0.404) | 0.159 | 0.035 |
| 170 | 14.17 | 0.90 | 0.194 | ( 0.402) | 0.159 | 0.035 |
| 171 | 14.25 | 0.90 | 0.194 | ( 0.400) | 0.159 | 0.035 |
| 172 | 14.33 | 0.87 | 0.187 | ( 0.398) | 0.154 | 0.034 |
| 173 | 14.42 | 0.87 | 0.187 | ( 0.396) | 0.154 | 0.034 |
| 174 | 14.50 | 0.87 | 0.187 | ( 0.394) | 0.154 | 0.034 |
| 175 | 14.58 | 0.87 | 0.187 | ( 0.392) | 0.154 | 0.034 |
| 176 | 14.67 | 0.87 | 0.187 | ( 0.390) | 0.154 | 0.034 |
| 177 | 14.75 | 0.87 | 0.187 | ( 0.388) | 0.154 | 0.034 |
| 178 | 14.83 | 0.83 | 0.180 | ( 0.386) | 0.148 | 0.032 |
| 179 | 14.92 | 0.83 | 0.180 | ( 0.384) | 0.148 | 0.032 |
| 180 | 15.00 | 0.83 | 0.180 | ( 0.382) | 0.148 | 0.032 |
| 181 | 15.08 | 0.80 | 0.173 | ( 0.380) | 0.142 | 0.031 |
| 182 | 15.17 | 0.80 | 0.173 | ( 0.378) | 0.142 | 0.031 |
| 183 | 15.25 | 0.80 | 0.173 | ( 0.376) | 0.142 | 0.031 |
| 184 | 15.33 | 0.77 | 0.166 | ( 0.374) | 0.136 | 0.030 |
| 185 | 15.42 | 0.77 | 0.166 | ( 0.372) | 0.136 | 0.030 |
| 186 | 15.50 | 0.77 | 0.166 | ( 0.370) | 0.136 | 0.030 |
| 187 | 15.58 | 0.63 | 0.137 | ( 0.368) | 0.112 | 0.025 |
| 188 | 15.67 | 0.63 | 0.137 | ( 0.367) | 0.112 | 0.025 |
| 189 | 15.75 | 0.63 | 0.137 | ( 0.365) | 0.112 | 0.025 |
| 190 | 15.83 | 0.63 | 0.137 | ( 0.363) | 0.112 | 0.025 |
| 191 | 15.92 | 0.63 | 0.137 | ( 0.361) | 0.112 | 0.025 |
| 192 | 16.00 | 0.63 | 0.137 | ( 0.359) | 0.112 | 0.025 |
| 193 | 16.08 | 0.13 | 0.029 | ( 0.357) | 0.024 | 0.005 |
| 194 | 16.17 | 0.13 | 0.029 | ( 0.355) | 0.024 | 0.005 |
| 195 | 16.25 | 0.13 | 0.029 | ( 0.354) | 0.024 | 0.005 |
| 196 | 16.33 | 0.13 | 0.029 | ( 0.352) | 0.024 | 0.005 |
| 197 | 16.42 | 0.13 | 0.029 | ( 0.350) | 0.024 | 0.005 |
| 198 | 16.50 | 0.13 | 0.029 | ( 0.348) | 0.024 | 0.005 |
| 199 | 16.58 | 0.10 | 0.022 | ( 0.346) | 0.018 | 0.004 |
| 200 | 16.67 | 0.10 | 0.022 | ( 0.345) | 0.018 | 0.004 |
| 201 | 16.75 | 0.10 | 0.022 | ( 0.343) | 0.018 | 0.004 |
| 202 | 16.83 | 0.10 | 0.022 | ( 0.341) | 0.018 | 0.004 |
| 203 | 16.92 | 0.10 | 0.022 | ( 0.339) | 0.018 | 0.004 |
| 204 | 17.00 | 0.10 | 0.022 | ( 0.338) | 0.018 | 0.004 |
| 205 | 17.08 | 0.17 | 0.036 | ( 0.336) | 0.030 | 0.006 |
| 206 | 17.17 | 0.17 | 0.036 | ( 0.334) | 0.030 | 0.006 |
| 207 | 17.25 | 0.17 | 0.036 | ( 0.333) | 0.030 | 0.006 |
| 208 | 17.33 | 0.17 | 0.036 | ( 0.331) | 0.030 | 0.006 |
| 209 | 17.42 | 0.17 | 0.036 | ( 0.329) | 0.030 | 0.006 |
| 210 | 17.50 | 0.17 | 0.036 | ( 0.328) | 0.030 | 0.006 |
| 211 | 17.58 | 0.17 | 0.036 | ( 0.326) | 0.030 | 0.006 |
| 212 | 17.67 | 0.17 | 0.036 | ( 0.324) | 0.030 | 0.006 |
| 213 | 17.75 | 0.17 | 0.036 | ( 0.323) | 0.030 | 0.006 |
| 214 | 17.83 | 0.13 | 0.029 | ( 0.321) | 0.024 | 0.005 |
| 215 | 17.92 | 0.13 | 0.029 | ( 0.320) | 0.024 | 0.005 |
| 216 | 18.00 | 0.13 | 0.029 | ( 0.318) | 0.024 | 0.005 |
| 217 | 18.08 | 0.13 | 0.029 | ( 0.316) | 0.024 | 0.005 |
| 218 | 18.17 | 0.13 | 0.029 | ( 0.315) | 0.024 | 0.005 |
| 219 | 18.25 | 0.13 | 0.029 | ( 0.313) | 0.024 | 0.005 |
| 220 | 18.33 | 0.13 | 0.029 | ( 0.312) | 0.024 | 0.005 |
| 221 | 18.42 | 0.13 | 0.029 | ( 0.310) | 0.024 | 0.005 |
| 222 | 18.50 | 0.13 | 0.029 | ( 0.309) | 0.024 | 0.005 |
| 223 | 18.58 | 0.10 | 0.022 | ( 0.307) | 0.018 | 0.004 |
| 224 | 18.67 | 0.10 | 0.022 | ( 0.306) | 0.018 | 0.004 |
| 225 | 18.75 | 0.10 | 0.022 | ( 0.304) | 0.018 | 0.004 |
| 226 | 18.83 | 0.07 | 0.014 | ( 0.303) | 0.012 | 0.003 |
| 227 | 18.92 | 0.07 | 0.014 | ( 0.301) | 0.012 | 0.003 |
| 228 | 19.00 | 0.07 | 0.014 | ( 0.300) | 0.012 | 0.003 |
| 229 | 19.08 | 0.10 | 0.022 | ( 0.299) | 0.018 | 0.004 |
| 230 | 19.17 | 0.10 | 0.022 | ( 0.297) | 0.018 | 0.004 |
| 231 | 19.25 | 0.10 | 0.022 | ( 0.296) | 0.018 | 0.004 |
| 232 | 19.33 | 0.13 | 0.029 | ( 0.294) | 0.024 | 0.005 |
| 233 | 19.42 | 0.13 | 0.029 | ( 0.293) | 0.024 | 0.005 |
| 234 | 19.50 | 0.13 | 0.029 | ( 0.292) | 0.024 | 0.005 |
| 235 | 19.58 | 0.10 | 0.022 | ( 0.290) | 0.018 | 0.004 |
| 236 | 19.67 | 0.10 | 0.022 | ( 0.289) | 0.018 | 0.004 |
| 237 | 19.75 | 0.10 | 0.022 | ( 0.288) | 0.018 | 0.004 |
| 238 | 19.83 | 0.07 | 0.014 | ( 0.286) | 0.012 | 0.003 |
| 239 | 19.92 | 0.07 | 0.014 | ( 0.285) | 0.012 | 0.003 |
| 240 | 20.00 | 0.07 | 0.014 | ( 0.284) | 0.012 | 0.003 |
| 241 | 20.08 | 0.10 | 0.022 | ( 0.283) | 0.018 | 0.004 |
| 242 | 20.17 | 0.10 | 0.022 | ( 0.281) | 0.018 | 0.004 |
| 243 | 20.25 | 0.10 | 0.022 | ( 0.280) | 0.018 | 0.004 |
| 244 | 20.33 | 0.10 | 0.022 | ( 0.279) | 0.018 | 0.004 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 245 | 20.42 | 0.10 | 0.022 | ( 0.278) | 0.018 | 0.004 |
| 246 | 20.50 | 0.10 | 0.022 | ( 0.277) | 0.018 | 0.004 |
| 247 | 20.58 | 0.10 | 0.022 | ( 0.275) | 0.018 | 0.004 |
| 248 | 20.67 | 0.10 | 0.022 | ( 0.274) | 0.018 | 0.004 |
| 249 | 20.75 | 0.10 | 0.022 | ( 0.273) | 0.018 | 0.004 |
| 250 | 20.83 | 0.07 | 0.014 | ( 0.272) | 0.012 | 0.003 |
| 251 | 20.92 | 0.07 | 0.014 | ( 0.271) | 0.012 | 0.003 |
| 252 | 21.00 | 0.07 | 0.014 | ( 0.270) | 0.012 | 0.003 |
| 253 | 21.08 | 0.10 | 0.022 | ( 0.269) | 0.018 | 0.004 |
| 254 | 21.17 | 0.10 | 0.022 | ( 0.268) | 0.018 | 0.004 |
| 255 | 21.25 | 0.10 | 0.022 | ( 0.267) | 0.018 | 0.004 |
| 256 | 21.33 | 0.07 | 0.014 | ( 0.266) | 0.012 | 0.003 |
| 257 | 21.42 | 0.07 | 0.014 | ( 0.265) | 0.012 | 0.003 |
| 258 | 21.50 | 0.07 | 0.014 | ( 0.264) | 0.012 | 0.003 |
| 259 | 21.58 | 0.10 | 0.022 | ( 0.263) | 0.018 | 0.004 |
| 260 | 21.67 | 0.10 | 0.022 | ( 0.262) | 0.018 | 0.004 |
| 261 | 21.75 | 0.10 | 0.022 | ( 0.261) | 0.018 | 0.004 |
| 262 | 21.83 | 0.07 | 0.014 | ( 0.260) | 0.012 | 0.003 |
| 263 | 21.92 | 0.07 | 0.014 | ( 0.259) | 0.012 | 0.003 |
| 264 | 22.00 | 0.07 | 0.014 | ( 0.258) | 0.012 | 0.003 |
| 265 | 22.08 | 0.10 | 0.022 | ( 0.257) | 0.018 | 0.004 |
| 266 | 22.17 | 0.10 | 0.022 | ( 0.256) | 0.018 | 0.004 |
| 267 | 22.25 | 0.10 | 0.022 | ( 0.256) | 0.018 | 0.004 |
| 268 | 22.33 | 0.07 | 0.014 | ( 0.255) | 0.012 | 0.003 |
| 269 | 22.42 | 0.07 | 0.014 | ( 0.254) | 0.012 | 0.003 |
| 270 | 22.50 | 0.07 | 0.014 | ( 0.253) | 0.012 | 0.003 |
| 271 | 22.58 | 0.07 | 0.014 | ( 0.253) | 0.012 | 0.003 |
| 272 | 22.67 | 0.07 | 0.014 | ( 0.252) | 0.012 | 0.003 |
| 273 | 22.75 | 0.07 | 0.014 | ( 0.251) | 0.012 | 0.003 |
| 274 | 22.83 | 0.07 | 0.014 | ( 0.251) | 0.012 | 0.003 |
| 275 | 22.92 | 0.07 | 0.014 | ( 0.250) | 0.012 | 0.003 |
| 276 | 23.00 | 0.07 | 0.014 | ( 0.249) | 0.012 | 0.003 |
| 277 | 23.08 | 0.07 | 0.014 | ( 0.249) | 0.012 | 0.003 |
| 278 | 23.17 | 0.07 | 0.014 | ( 0.248) | 0.012 | 0.003 |
| 279 | 23.25 | 0.07 | 0.014 | ( 0.248) | 0.012 | 0.003 |
| 280 | 23.33 | 0.07 | 0.014 | ( 0.247) | 0.012 | 0.003 |
| 281 | 23.42 | 0.07 | 0.014 | ( 0.247) | 0.012 | 0.003 |
| 282 | 23.50 | 0.07 | 0.014 | ( 0.246) | 0.012 | 0.003 |
| 283 | 23.58 | 0.07 | 0.014 | ( 0.246) | 0.012 | 0.003 |
| 284 | 23.67 | 0.07 | 0.014 | ( 0.245) | 0.012 | 0.003 |
| 285 | 23.75 | 0.07 | 0.014 | ( 0.245) | 0.012 | 0.003 |
| 286 | 23.83 | 0.07 | 0.014 | ( 0.245) | 0.012 | 0.003 |
| 287 | 23.92 | 0.07 | 0.014 | ( 0.245) | 0.012 | 0.003 |
| 288 | 24.00 | 0.07 | 0.014 | ( 0.245) | 0.012 | 0.003 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.9

Flood volume = Effective rainfall 0.32(In)
times area 7.0(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 1.48(In)
Total soil loss = 0.861(Ac.Ft)
Total rainfall = 1.80(In)
Flood volume = 8232.7 Cubic Feet
Total soil loss = 37504.6 Cubic Feet

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Peak flow rate of this hydrograph = 0.311(CFS)

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

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Hydrograph in 5 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|---|---|---|---|---|---|---|---|
| 0+ 5 | 0.0001 | 0.01 | Q | \| | \| | \| | \| |
| 0+10 | 0.0002 | 0.02 | Q | \| | \| | \| | \| |
| 0+15 | 0.0003 | 0.02 | Q | \| | \| | \| | \| |
| 0+20 | 0.0004 | 0.02 | Q | \| | \| | \| | \| |
| 0+25 | 0.0006 | 0.03 | Q | \| | \| | \| | \| |
| 0+30 | 0.0008 | 0.03 | Q | \| | \| | \| | \| |
| 0+35 | 0.0010 | 0.03 | Q | \| | \| | \| | \| |
| 0+40 | 0.0012 | 0.03 | Q | \| | \| | \| | \| |
| 0+45 | 0.0014 | 0.03 | Q | \| | \| | \| | \| |
| 0+50 | 0.0016 | 0.03 | Q | \| | \| | \| | \| |
| 0+55 | 0.0018 | 0.04 | Q | \| | \| | \| | \| |
| 1+ 0 | 0.0021 | 0.04 | Q | \| | \| | \| | \| |
| 1+ 5 | 0.0023 | 0.03 | Q | \| | \| | \| | \| |
| 1+10 | 0.0025 | 0.03 | Q | \| | \| | \| | \| |
| 1+15 | 0.0027 | 0.03 | Q | \| | \| | \| | \| |
| 1+20 | 0.0029 | 0.03 | Q | \| | \| | \| | \| |
| 1+25 | 0.0031 | 0.03 | Q | \| | \| | \| | \| |
| 1+30 | 0.0033 | 0.03 | Q | \| | \| | \| | \| |
| 1+35 | 0.0035 | 0.03 | Q | \| | \| | \| | \| |
| 1+40 | 0.0037 | 0.03 | Q | \| | \| | \| | \| |
| 1+45 | 0.0038 | 0.03 | Q | \| | \| | \| | \| |

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1+50        0.0041      0.03  Q          |          |          |          |
1+55        0.0043      0.04  Q          |          |          |          |
2+ 0        0.0046      0.04  Q          |          |          |          |
2+ 5        0.0048      0.04  QV         |          |          |          |
2+10        0.0051      0.04  QV         |          |          |          |
2+15        0.0053      0.04  QV         |          |          |          |
2+20        0.0056      0.04  QV         |          |          |          |
2+25        0.0058      0.04  QV         |          |          |          |
2+30        0.0061      0.04  QV         |          |          |          |
2+35        0.0063      0.04  QV         |          |          |          |
2+40        0.0067      0.04  QV         |          |          |          |
2+45        0.0070      0.05  QV         |          |          |          |
2+50        0.0073      0.05  QV         |          |          |          |
2+55        0.0076      0.05  QV         |          |          |          |
3+ 0        0.0079      0.05  QV         |          |          |          |
3+ 5        0.0082      0.05  QV         |          |          |          |
3+10        0.0085      0.05  QV         |          |          |          |
3+15        0.0089      0.05  QV         |          |          |          |
3+20        0.0092      0.05  QV         |          |          |          |
3+25        0.0095      0.05  Q V        |          |          |          |
3+30        0.0098      0.05  Q V        |          |          |          |
3+35        0.0101      0.05  Q V        |          |          |          |
3+40        0.0104      0.05  Q V        |          |          |          |
3+45        0.0107      0.05  Q V        |          |          |          |
3+50        0.0111      0.05  Q V        |          |          |          |
3+55        0.0115      0.05  Q V        |          |          |          |
4+ 0        0.0118      0.05  Q V        |          |          |          |
4+ 5        0.0122      0.05  Q V        |          |          |          |
4+10        0.0126      0.05  Q V        |          |          |          |
4+15        0.0130      0.05  Q V        |          |          |          |
4+20        0.0134      0.06  Q V        |          |          |          |
4+25        0.0138      0.06  Q V        |          |          |          |
4+30        0.0143      0.06  Q  V       |          |          |          |
4+35        0.0147      0.06  Q  V       |          |          |          |
4+40        0.0151      0.06  Q  V       |          |          |          |
4+45        0.0156      0.06  Q  V       |          |          |          |
4+50        0.0160      0.07  Q  V       |          |          |          |
4+55        0.0165      0.07  Q  V       |          |          |          |
5+ 0        0.0170      0.07  Q  V       |          |          |          |
5+ 5        0.0175      0.06  Q  V       |          |          |          |
5+10        0.0179      0.06  Q  V       |          |          |          |
5+15        0.0183      0.06  Q  V       |          |          |          |
5+20        0.0187      0.06  Q  V       |          |          |          |
5+25        0.0191      0.06  Q   V      |          |          |          |
5+30        0.0195      0.06  Q   V      |          |          |          |
5+35        0.0200      0.07  Q   V      |          |          |          |
5+40        0.0205      0.07  Q   V      |          |          |          |
5+45        0.0210      0.07  Q   V      |          |          |          |
5+50        0.0215      0.07  Q   V      |          |          |          |
5+55        0.0220      0.07  Q   V      |          |          |          |
6+ 0        0.0225      0.07  Q   V      |          |          |          |
6+ 5        0.0231      0.08  Q   V      |          |          |          |
6+10        0.0236      0.08  Q   V      |          |          |          |
6+15        0.0242      0.08  Q    V     |          |          |          |
6+20        0.0248      0.08  Q    V     |          |          |          |
6+25        0.0253      0.08  Q    V     |          |          |          |
6+30        0.0259      0.08  Q    V     |          |          |          |
6+35        0.0265      0.09  Q    V     |          |          |          |
6+40        0.0271      0.09  Q    V     |          |          |          |
6+45        0.0277      0.09  Q    V     |          |          |          |
6+50        0.0284      0.09  Q     V    |          |          |          |
6+55        0.0290      0.09  Q     V    |          |          |          |
7+ 0        0.0296      0.09  Q     V    |          |          |          |
7+ 5        0.0303      0.09  Q     V    |          |          |          |
7+10        0.0309      0.09  Q     V    |          |          |          |
7+15        0.0315      0.09  Q     V    |          |          |          |
7+20        0.0322      0.10  Q     V    |          |          |          |
7+25        0.0329      0.10  Q     V    |          |          |          |
7+30        0.0336      0.10  Q      V   |          |          |          |
7+35        0.0343      0.10  Q      V   |          |          |          |
7+40        0.0350      0.11  Q      V   |          |          |          |
7+45        0.0358      0.11  Q      V   |          |          |          |
7+50        0.0366      0.11  Q      V   |          |          |          |
7+55        0.0374      0.12  Q      V   |          |          |          |
8+ 0        0.0382      0.12  Q       V  |          |          |          |
8+ 5        0.0391      0.13  Q       V  |          |          |          |
8+10        0.0400      0.14  Q       V  |          |          |          |
8+15        0.0409      0.14  Q       V  |          |          |          |
8+20        0.0419      0.14  Q       V  |          |          |          |
8+25        0.0428      0.14  Q        V|          |          |          |
8+30        0.0438      0.14  Q        V|          |          |          |
8+35        0.0448      0.14  Q        V|          |          |          |
8+40        0.0458      0.15  Q        V|          |          |          |
8+45        0.0468      0.15  Q        V|          |          |          |
8+50        0.0478      0.15  Q         V         |          |          |
8+55        0.0489      0.15  Q         V         |          |          |
```

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 9+ 0      0.0499      0.16  Q          V          |          |          |
 9+ 5      0.0511      0.16  Q          V          |          |          |
 9+10      0.0522      0.17  Q          |V         |          |          |
 9+15      0.0534      0.17  Q          |V         |          |          |
 9+20      0.0547      0.18  Q          |V         |          |          |
 9+25      0.0559      0.18  Q          |V         |          |          |
 9+30      0.0572      0.18  Q          | V        |          |          |
 9+35      0.0585      0.19  Q          | V        |          |          |
 9+40      0.0598      0.19  Q          | V        |          |          |
 9+45      0.0611      0.19  Q          | V        |          |          |
 9+50      0.0625      0.20  Q          |  V       |          |          |
 9+55      0.0638      0.20  Q          |  V       |          |          |
10+ 0      0.0652      0.20  Q          |  V       |          |          |
10+ 5      0.0664      0.17  Q          |   V      |          |          |
10+10      0.0674      0.14  Q          |   V      |          |          |
10+15      0.0683      0.14  Q          |   V      |          |          |
10+20      0.0693      0.14  Q          |   V      |          |          |
10+25      0.0702      0.14  Q          |   V      |          |          |
10+30      0.0712      0.14  Q          |    V     |          |          |
10+35      0.0723      0.16  Q          |    V     |          |          |
10+40      0.0735      0.18  Q          |    V     |          |          |
10+45      0.0747      0.18  Q          |    V     |          |          |
10+50      0.0760      0.18  Q          |     V    |          |          |
10+55      0.0773      0.18  Q          |     V    |          |          |
11+ 0      0.0785      0.18  Q          |     V    |          |          |
11+ 5      0.0798      0.18  Q          |     V    |          |          |
11+10      0.0810      0.17  Q          |      V   |          |          |
11+15      0.0822      0.17  Q          |      V   |          |          |
11+20      0.0834      0.17  Q          |      V   |          |          |
11+25      0.0846      0.17  Q          |      V   |          |          |
11+30      0.0858      0.17  Q          |       V  |          |          |
11+35      0.0869      0.17  Q          |       V  |          |          |
11+40      0.0880      0.16  Q          |       V  |          |          |
11+45      0.0891      0.16  Q          |       V  |          |          |
11+50      0.0902      0.16  Q          |        V|          |          |
11+55      0.0913      0.16  Q          |        V|          |          |
12+ 0      0.0924      0.16  Q          |        V|          |          |
12+ 5      0.0938      0.19  Q          |        V|          |          |
12+10      0.0953      0.22  Q          |         V          |          |
12+15      0.0968      0.23  Q          |         V          |          |
12+20      0.0984      0.23  Q          |         V          |          |
12+25      0.1001      0.24  Q          |         |V         |          |
12+30      0.1017      0.24  Q          |         |V         |          |
12+35      0.1034      0.25  Q          |         |V         |          |
12+40      0.1052      0.25  |Q         |         | V        |          |
12+45      0.1069      0.26  |Q         |         | V        |          |
12+50      0.1087      0.26  |Q         |         |  V       |          |
12+55      0.1105      0.26  |Q         |         |  V       |          |
13+ 0      0.1124      0.26  |Q         |         |  V       |          |
13+ 5      0.1143      0.29  |Q         |         |   V      |          |
13+10      0.1164      0.31  |Q         |         |   V      |          |
13+15      0.1186      0.31  |Q         |         |    V     |          |
13+20      0.1207      0.31  |Q         |         |    V     |          |
13+25      0.1229      0.31  |Q         |         |     V    |          |
13+30      0.1250      0.31  |Q         |         |     V    |          |
13+35      0.1268      0.26  |Q         |         |     V    |          |
13+40      0.1283      0.22  Q          |         |      V   |          |
13+45      0.1298      0.21  Q          |         |      V   |          |
13+50      0.1313      0.21  Q          |         |      V   |          |
13+55      0.1327      0.21  Q          |         |       V  |          |
14+ 0      0.1342      0.21  Q          |         |       V  |          |
14+ 5      0.1357      0.23  Q          |         |       V  |          |
14+10      0.1374      0.24  Q          |         |        V|          |
14+15      0.1391      0.25  Q          |         |        V|          |
14+20      0.1408      0.24  Q          |         |        V|          |
14+25      0.1424      0.24  Q          |         |         V          |
14+30      0.1440      0.24  Q          |         |         V          |
14+35      0.1457      0.24  Q          |         |         V          |
14+40      0.1473      0.24  Q          |         |         |V         |
14+45      0.1490      0.24  Q          |         |         |V         |
14+50      0.1506      0.23  Q          |         |         |V         |
14+55      0.1521      0.23  Q          |         |         | V        |
15+ 0      0.1537      0.23  Q          |         |         | V        |
15+ 5      0.1553      0.22  Q          |         |         | V        |
15+10      0.1568      0.22  Q          |         |         |  V       |
15+15      0.1583      0.22  Q          |         |         |  V       |
15+20      0.1598      0.22  Q          |         |         |  V       |
15+25      0.1612      0.21  Q          |         |         |   V      |
15+30      0.1627      0.21  Q          |         |         |   V      |
15+35      0.1640      0.19  Q          |         |         |   V      |
15+40      0.1652      0.18  Q          |         |         |   V      |
15+45      0.1665      0.17  Q          |         |         |    V     |
15+50      0.1677      0.17  Q          |         |         |    V     |
15+55      0.1688      0.17  Q          |         |         |    V     |
16+ 0      0.1700      0.17  Q          |         |         |    V     |
16+ 5      0.1708      0.11  Q          |         |         |     V    |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+10 | 0.1712 | 0.05 | Q | | | | V |
| 16+15 | 0.1714 | 0.04 | Q | | | | V |
| 16+20 | 0.1717 | 0.04 | Q | | | | V |
| 16+25 | 0.1719 | 0.04 | Q | | | | V |
| 16+30 | 0.1722 | 0.04 | Q | | | | V |
| 16+35 | 0.1724 | 0.03 | Q | | | | V |
| 16+40 | 0.1726 | 0.03 | Q | | | | V |
| 16+45 | 0.1728 | 0.03 | Q | | | | V |
| 16+50 | 0.1730 | 0.03 | Q | | | | V |
| 16+55 | 0.1732 | 0.03 | Q | | | | V |
| 17+ 0 | 0.1734 | 0.03 | Q | | | | V |
| 17+ 5 | 0.1736 | 0.04 | Q | | | | V |
| 17+10 | 0.1739 | 0.04 | Q | | | | V |
| 17+15 | 0.1742 | 0.05 | Q | | | | V |
| 17+20 | 0.1745 | 0.05 | Q | | | | V |
| 17+25 | 0.1749 | 0.05 | Q | | | | V |
| 17+30 | 0.1752 | 0.05 | Q | | | | V |
| 17+35 | 0.1755 | 0.05 | Q | | | | V |
| 17+40 | 0.1758 | 0.05 | Q | | | | V |
| 17+45 | 0.1761 | 0.05 | Q | | | | V |
| 17+50 | 0.1764 | 0.04 | Q | | | | V |
| 17+55 | 0.1767 | 0.04 | Q | | | | V |
| 18+ 0 | 0.1769 | 0.04 | Q | | | | V |
| 18+ 5 | 0.1772 | 0.04 | Q | | | | V |
| 18+10 | 0.1774 | 0.04 | Q | | | | V |
| 18+15 | 0.1777 | 0.04 | Q | | | | V |
| 18+20 | 0.1779 | 0.04 | Q | | | | V |
| 18+25 | 0.1782 | 0.04 | Q | | | | V |
| 18+30 | 0.1784 | 0.04 | Q | | | | V |
| 18+35 | 0.1787 | 0.03 | Q | | | | V |
| 18+40 | 0.1789 | 0.03 | Q | | | | V |
| 18+45 | 0.1790 | 0.03 | Q | | | | V |
| 18+50 | 0.1792 | 0.02 | Q | | | | V |
| 18+55 | 0.1793 | 0.02 | Q | | | | V |
| 19+ 0 | 0.1795 | 0.02 | Q | | | | V |
| 19+ 5 | 0.1796 | 0.02 | Q | | | | V |
| 19+10 | 0.1798 | 0.03 | Q | | | | V |
| 19+15 | 0.1800 | 0.03 | Q | | | | V |
| 19+20 | 0.1802 | 0.03 | Q | | | | V |
| 19+25 | 0.1805 | 0.04 | Q | | | | V |
| 19+30 | 0.1807 | 0.04 | Q | | | | V |
| 19+35 | 0.1809 | 0.03 | Q | | | | V |
| 19+40 | 0.1811 | 0.03 | Q | | | | V |
| 19+45 | 0.1813 | 0.03 | Q | | | | V |
| 19+50 | 0.1815 | 0.02 | Q | | | | V |
| 19+55 | 0.1816 | 0.02 | Q | | | | V |
| 20+ 0 | 0.1817 | 0.02 | Q | | | | V |
| 20+ 5 | 0.1819 | 0.02 | Q | | | | V |
| 20+10 | 0.1821 | 0.03 | Q | | | | V |
| 20+15 | 0.1823 | 0.03 | Q | | | | V |
| 20+20 | 0.1824 | 0.03 | Q | | | | V |
| 20+25 | 0.1826 | 0.03 | Q | | | | V |
| 20+30 | 0.1828 | 0.03 | Q | | | | V |
| 20+35 | 0.1830 | 0.03 | Q | | | | V |
| 20+40 | 0.1832 | 0.03 | Q | | | | V |
| 20+45 | 0.1834 | 0.03 | Q | | | | V |
| 20+50 | 0.1835 | 0.02 | Q | | | | V |
| 20+55 | 0.1837 | 0.02 | Q | | | | V |
| 21+ 0 | 0.1838 | 0.02 | Q | | | | V |
| 21+ 5 | 0.1840 | 0.02 | Q | | | | V |
| 21+10 | 0.1841 | 0.03 | Q | | | | V |
| 21+15 | 0.1843 | 0.03 | Q | | | | V |
| 21+20 | 0.1845 | 0.02 | Q | | | | V |
| 21+25 | 0.1846 | 0.02 | Q | | | | V |
| 21+30 | 0.1848 | 0.02 | Q | | | | V |
| 21+35 | 0.1849 | 0.02 | Q | | | | V |
| 21+40 | 0.1851 | 0.03 | Q | | | | V |
| 21+45 | 0.1853 | 0.03 | Q | | | | V |
| 21+50 | 0.1854 | 0.02 | Q | | | | V |
| 21+55 | 0.1856 | 0.02 | Q | | | | V |
| 22+ 0 | 0.1857 | 0.02 | Q | | | | V |
| 22+ 5 | 0.1859 | 0.02 | Q | | | | V |
| 22+10 | 0.1860 | 0.03 | Q | | | | V |
| 22+15 | 0.1862 | 0.03 | Q | | | | V |
| 22+20 | 0.1864 | 0.02 | Q | | | | V |
| 22+25 | 0.1865 | 0.02 | Q | | | | V |
| 22+30 | 0.1866 | 0.02 | Q | | | | V |
| 22+35 | 0.1868 | 0.02 | Q | | | | V |
| 22+40 | 0.1869 | 0.02 | Q | | | | V |
| 22+45 | 0.1870 | 0.02 | Q | | | | V |
| 22+50 | 0.1871 | 0.02 | Q | | | | V |
| 22+55 | 0.1873 | 0.02 | Q | | | | V |
| 23+ 0 | 0.1874 | 0.02 | Q | | | | V |
| 23+ 5 | 0.1875 | 0.02 | Q | | | | V |
| 23+10 | 0.1877 | 0.02 | Q | | | | V |
| 23+15 | 0.1878 | 0.02 | Q | | | | V |

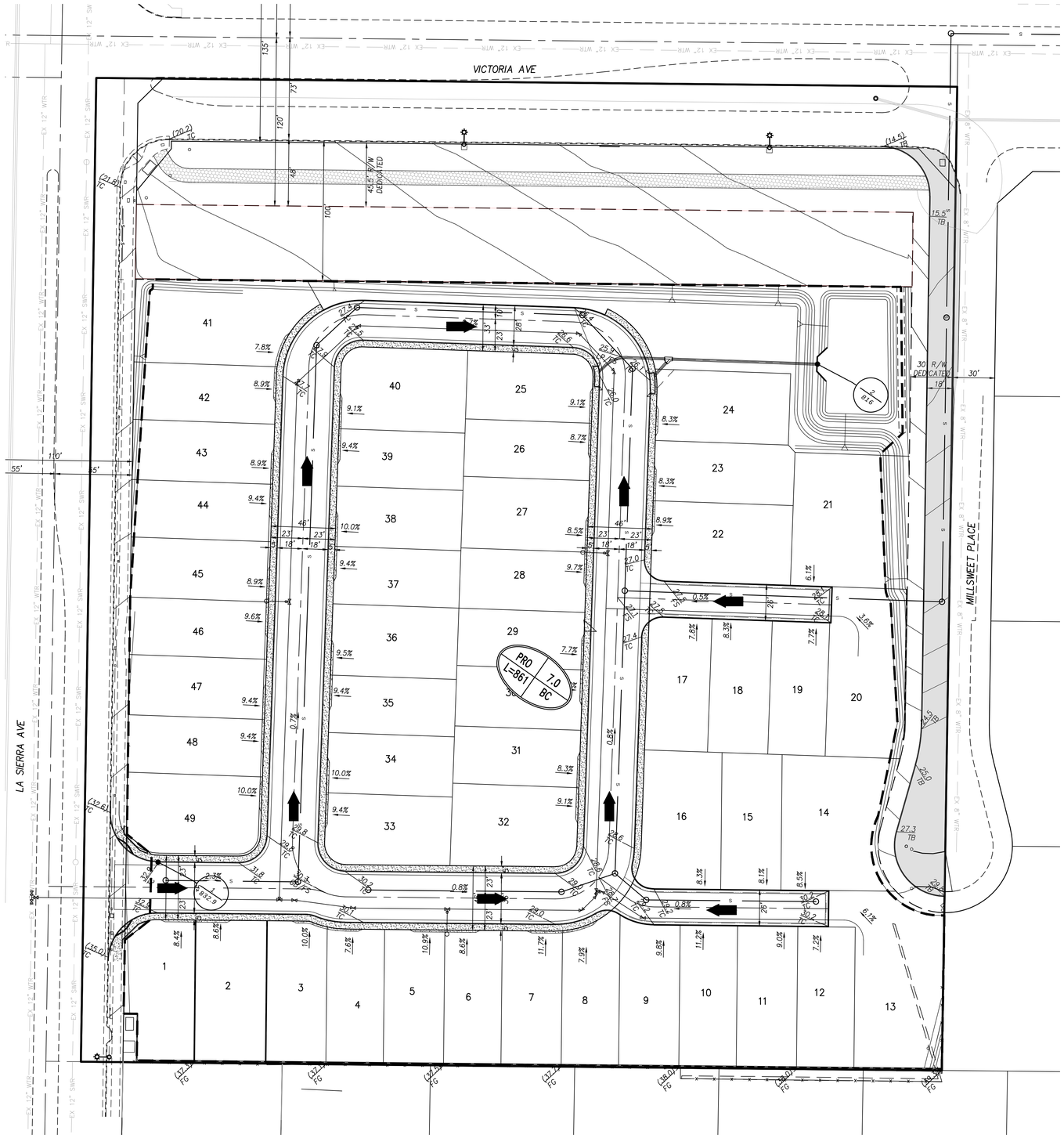
```
   23+20       0.1879      0.02  Q          |          |          |        v|
   23+25       0.1880      0.02  Q          |          |          |        v|
   23+30       0.1882      0.02  Q          |          |          |        v|
   23+35       0.1883      0.02  Q          |          |          |        v|
   23+40       0.1884      0.02  Q          |          |          |        v|
   23+45       0.1885      0.02  Q          |          |          |        v|
   23+50       0.1887      0.02  Q          |          |          |        v|
   23+55       0.1888      0.02  Q          |          |          |        v|
   24+ 0       0.1889      0.02  Q          |          |          |        v|
   24+ 5       0.1890      0.01  Q          |          |          |        v|
   24+10       0.1890      0.00  Q          |          |          |        v|
   24+15       0.1890      0.00  Q          |          |          |        v|
-----------------------------------------------------------------------
```

# Section 2

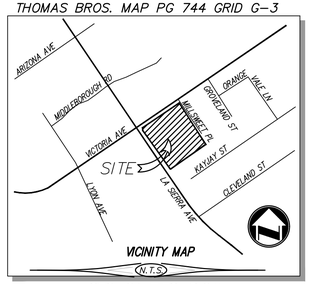
## Post-Development Unit Hydrograph

IN THE COMMUNITY OF WINCHESTER, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

# POST DEVELOPMENT UNIT HYDROGRAPH




THOMAS BROS. MAP PG 744 GRID G-3




SEC. 24 T.3S. R.6W


PLANS PREPARED BY:
adkan ENGINEERS
Civil Engineering • Surveying • Planning
6879 Airport Drive, Riverside, CA 92504
Tel:(951) 688-0241 • Fax:(951) 688-0599

```
        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  02/22/24 File: 2YR242.out

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


Program License Serial Number 5006

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

 English Units used in output format



-------------------------------------------------------------------
-------------------------------------------------------------------
Drainage Area =       7.00(Ac.)  =      0.011 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       7.00(Ac.)  =      0.011 Sq. Mi.
Length along longest watercourse =     861.00(Ft.)
Length along longest watercourse measured to centroid =     430.00(Ft.)
Length along longest watercourse =      0.163 Mi.
Length along longest watercourse measured to centroid =      0.081 Mi.
Difference in elevation =      16.90(Ft.)
Slope along watercourse =    103.6376 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.029 Hr.
Lag time =     1.73 Min.
25% of lag time =     0.43 Min.
40% of lag time =     0.69 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        7.00           1.80                 12.60

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        7.00           6.00                 42.00

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    6.000(In)

Point rain (area averaged) =    1.800(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.800(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     7.000           69.00         0.600
 Total Area Entered =      7.00(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
69.0  49.8      0.574     0.600        0.264       1.000      0.264
                                                  Sum (F) =   0.264
Area averaged mean soil loss (F) (In/Hr) =  0.264
Minimum soil loss rate ((In/Hr)) =  0.132
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.420
-------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      VALLEY S-Curve
-------------------------------------------------------------------
               Unit Hydrograph Data
-------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                           Graph %           (CFS)
```

| | | | | |
|---|---|---|---|---|
| 1 | 0.083 | 288.833 | 55.504 | 3.916 |
| 2 | 0.167 | 577.666 | 37.752 | 2.663 |
| 3 | 0.250 | 866.500 | 6.744 | 0.476 |
| | | | Sum = 100.000 Sum= | 7.055 |

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 | 0.014 | ( 0.468) | 0.006 | 0.008 |
| 2 | 0.17 | 0.07 | 0.014 | ( 0.466) | 0.006 | 0.008 |
| 3 | 0.25 | 0.07 | 0.014 | ( 0.464) | 0.006 | 0.008 |
| 4 | 0.33 | 0.10 | 0.022 | ( 0.463) | 0.009 | 0.013 |
| 5 | 0.42 | 0.10 | 0.022 | ( 0.461) | 0.009 | 0.013 |
| 6 | 0.50 | 0.10 | 0.022 | ( 0.459) | 0.009 | 0.013 |
| 7 | 0.58 | 0.10 | 0.022 | ( 0.457) | 0.009 | 0.013 |
| 8 | 0.67 | 0.10 | 0.022 | ( 0.455) | 0.009 | 0.013 |
| 9 | 0.75 | 0.10 | 0.022 | ( 0.454) | 0.009 | 0.013 |
| 10 | 0.83 | 0.13 | 0.029 | ( 0.452) | 0.012 | 0.017 |
| 11 | 0.92 | 0.13 | 0.029 | ( 0.450) | 0.012 | 0.017 |
| 12 | 1.00 | 0.13 | 0.029 | ( 0.448) | 0.012 | 0.017 |
| 13 | 1.08 | 0.10 | 0.022 | ( 0.447) | 0.009 | 0.013 |
| 14 | 1.17 | 0.10 | 0.022 | ( 0.445) | 0.009 | 0.013 |
| 15 | 1.25 | 0.10 | 0.022 | ( 0.443) | 0.009 | 0.013 |
| 16 | 1.33 | 0.10 | 0.022 | ( 0.441) | 0.009 | 0.013 |
| 17 | 1.42 | 0.10 | 0.022 | ( 0.439) | 0.009 | 0.013 |
| 18 | 1.50 | 0.10 | 0.022 | ( 0.438) | 0.009 | 0.013 |
| 19 | 1.58 | 0.10 | 0.022 | ( 0.436) | 0.009 | 0.013 |
| 20 | 1.67 | 0.10 | 0.022 | ( 0.434) | 0.009 | 0.013 |
| 21 | 1.75 | 0.10 | 0.022 | ( 0.433) | 0.009 | 0.013 |
| 22 | 1.83 | 0.13 | 0.029 | ( 0.431) | 0.012 | 0.017 |
| 23 | 1.92 | 0.13 | 0.029 | ( 0.429) | 0.012 | 0.017 |
| 24 | 2.00 | 0.13 | 0.029 | ( 0.427) | 0.012 | 0.017 |
| 25 | 2.08 | 0.13 | 0.029 | ( 0.426) | 0.012 | 0.017 |
| 26 | 2.17 | 0.13 | 0.029 | ( 0.424) | 0.012 | 0.017 |
| 27 | 2.25 | 0.13 | 0.029 | ( 0.422) | 0.012 | 0.017 |
| 28 | 2.33 | 0.13 | 0.029 | ( 0.420) | 0.012 | 0.017 |
| 29 | 2.42 | 0.13 | 0.029 | ( 0.419) | 0.012 | 0.017 |
| 30 | 2.50 | 0.13 | 0.029 | ( 0.417) | 0.012 | 0.017 |
| 31 | 2.58 | 0.17 | 0.036 | ( 0.415) | 0.015 | 0.021 |
| 32 | 2.67 | 0.17 | 0.036 | ( 0.414) | 0.015 | 0.021 |
| 33 | 2.75 | 0.17 | 0.036 | ( 0.412) | 0.015 | 0.021 |
| 34 | 2.83 | 0.17 | 0.036 | ( 0.410) | 0.015 | 0.021 |
| 35 | 2.92 | 0.17 | 0.036 | ( 0.408) | 0.015 | 0.021 |
| 36 | 3.00 | 0.17 | 0.036 | ( 0.407) | 0.015 | 0.021 |
| 37 | 3.08 | 0.17 | 0.036 | ( 0.405) | 0.015 | 0.021 |
| 38 | 3.17 | 0.17 | 0.036 | ( 0.403) | 0.015 | 0.021 |
| 39 | 3.25 | 0.17 | 0.036 | ( 0.402) | 0.015 | 0.021 |
| 40 | 3.33 | 0.17 | 0.036 | ( 0.400) | 0.015 | 0.021 |
| 41 | 3.42 | 0.17 | 0.036 | ( 0.398) | 0.015 | 0.021 |
| 42 | 3.50 | 0.17 | 0.036 | ( 0.397) | 0.015 | 0.021 |
| 43 | 3.58 | 0.17 | 0.036 | ( 0.395) | 0.015 | 0.021 |
| 44 | 3.67 | 0.17 | 0.036 | ( 0.393) | 0.015 | 0.021 |
| 45 | 3.75 | 0.17 | 0.036 | ( 0.392) | 0.015 | 0.021 |
| 46 | 3.83 | 0.20 | 0.043 | ( 0.390) | 0.018 | 0.025 |
| 47 | 3.92 | 0.20 | 0.043 | ( 0.388) | 0.018 | 0.025 |
| 48 | 4.00 | 0.20 | 0.043 | ( 0.387) | 0.018 | 0.025 |
| 49 | 4.08 | 0.20 | 0.043 | ( 0.385) | 0.018 | 0.025 |
| 50 | 4.17 | 0.20 | 0.043 | ( 0.384) | 0.018 | 0.025 |
| 51 | 4.25 | 0.20 | 0.043 | ( 0.382) | 0.018 | 0.025 |
| 52 | 4.33 | 0.23 | 0.050 | ( 0.380) | 0.021 | 0.029 |
| 53 | 4.42 | 0.23 | 0.050 | ( 0.379) | 0.021 | 0.029 |
| 54 | 4.50 | 0.23 | 0.050 | ( 0.377) | 0.021 | 0.029 |
| 55 | 4.58 | 0.23 | 0.050 | ( 0.375) | 0.021 | 0.029 |
| 56 | 4.67 | 0.23 | 0.050 | ( 0.374) | 0.021 | 0.029 |
| 57 | 4.75 | 0.23 | 0.050 | ( 0.372) | 0.021 | 0.029 |
| 58 | 4.83 | 0.27 | 0.058 | ( 0.371) | 0.024 | 0.033 |
| 59 | 4.92 | 0.27 | 0.058 | ( 0.369) | 0.024 | 0.033 |
| 60 | 5.00 | 0.27 | 0.058 | ( 0.367) | 0.024 | 0.033 |
| 61 | 5.08 | 0.20 | 0.043 | ( 0.366) | 0.018 | 0.025 |
| 62 | 5.17 | 0.20 | 0.043 | ( 0.364) | 0.018 | 0.025 |
| 63 | 5.25 | 0.20 | 0.043 | ( 0.363) | 0.018 | 0.025 |
| 64 | 5.33 | 0.23 | 0.050 | ( 0.361) | 0.021 | 0.029 |
| 65 | 5.42 | 0.23 | 0.050 | ( 0.359) | 0.021 | 0.029 |
| 66 | 5.50 | 0.23 | 0.050 | ( 0.358) | 0.021 | 0.029 |
| 67 | 5.58 | 0.27 | 0.058 | ( 0.356) | 0.024 | 0.033 |
| 68 | 5.67 | 0.27 | 0.058 | ( 0.355) | 0.024 | 0.033 |
| 69 | 5.75 | 0.27 | 0.058 | ( 0.353) | 0.024 | 0.033 |
| 70 | 5.83 | 0.27 | 0.058 | ( 0.352) | 0.024 | 0.033 |
| 71 | 5.92 | 0.27 | 0.058 | ( 0.350) | 0.024 | 0.033 |
| 72 | 6.00 | 0.27 | 0.058 | ( 0.349) | 0.024 | 0.033 |
| 73 | 6.08 | 0.30 | 0.065 | ( 0.347) | 0.027 | 0.038 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 74 | 6.17 | 0.30 | 0.065 | ( 0.345) | 0.027 | 0.038 |
| 75 | 6.25 | 0.30 | 0.065 | ( 0.344) | 0.027 | 0.038 |
| 76 | 6.33 | 0.30 | 0.065 | ( 0.342) | 0.027 | 0.038 |
| 77 | 6.42 | 0.30 | 0.065 | ( 0.341) | 0.027 | 0.038 |
| 78 | 6.50 | 0.30 | 0.065 | ( 0.339) | 0.027 | 0.038 |
| 79 | 6.58 | 0.33 | 0.072 | ( 0.338) | 0.030 | 0.042 |
| 80 | 6.67 | 0.33 | 0.072 | ( 0.336) | 0.030 | 0.042 |
| 81 | 6.75 | 0.33 | 0.072 | ( 0.335) | 0.030 | 0.042 |
| 82 | 6.83 | 0.33 | 0.072 | ( 0.333) | 0.030 | 0.042 |
| 83 | 6.92 | 0.33 | 0.072 | ( 0.332) | 0.030 | 0.042 |
| 84 | 7.00 | 0.33 | 0.072 | ( 0.330) | 0.030 | 0.042 |
| 85 | 7.08 | 0.33 | 0.072 | ( 0.329) | 0.030 | 0.042 |
| 86 | 7.17 | 0.33 | 0.072 | ( 0.327) | 0.030 | 0.042 |
| 87 | 7.25 | 0.33 | 0.072 | ( 0.326) | 0.030 | 0.042 |
| 88 | 7.33 | 0.37 | 0.079 | ( 0.324) | 0.033 | 0.046 |
| 89 | 7.42 | 0.37 | 0.079 | ( 0.323) | 0.033 | 0.046 |
| 90 | 7.50 | 0.37 | 0.079 | ( 0.321) | 0.033 | 0.046 |
| 91 | 7.58 | 0.40 | 0.086 | ( 0.320) | 0.036 | 0.050 |
| 92 | 7.67 | 0.40 | 0.086 | ( 0.318) | 0.036 | 0.050 |
| 93 | 7.75 | 0.40 | 0.086 | ( 0.317) | 0.036 | 0.050 |
| 94 | 7.83 | 0.43 | 0.094 | ( 0.315) | 0.039 | 0.054 |
| 95 | 7.92 | 0.43 | 0.094 | ( 0.314) | 0.039 | 0.054 |
| 96 | 8.00 | 0.43 | 0.094 | ( 0.312) | 0.039 | 0.054 |
| 97 | 8.08 | 0.50 | 0.108 | ( 0.311) | 0.045 | 0.063 |
| 98 | 8.17 | 0.50 | 0.108 | ( 0.310) | 0.045 | 0.063 |
| 99 | 8.25 | 0.50 | 0.108 | ( 0.308) | 0.045 | 0.063 |
| 100 | 8.33 | 0.50 | 0.108 | ( 0.307) | 0.045 | 0.063 |
| 101 | 8.42 | 0.50 | 0.108 | ( 0.305) | 0.045 | 0.063 |
| 102 | 8.50 | 0.50 | 0.108 | ( 0.304) | 0.045 | 0.063 |
| 103 | 8.58 | 0.53 | 0.115 | ( 0.302) | 0.048 | 0.067 |
| 104 | 8.67 | 0.53 | 0.115 | ( 0.301) | 0.048 | 0.067 |
| 105 | 8.75 | 0.53 | 0.115 | ( 0.300) | 0.048 | 0.067 |
| 106 | 8.83 | 0.57 | 0.122 | ( 0.298) | 0.051 | 0.071 |
| 107 | 8.92 | 0.57 | 0.122 | ( 0.297) | 0.051 | 0.071 |
| 108 | 9.00 | 0.57 | 0.122 | ( 0.295) | 0.051 | 0.071 |
| 109 | 9.08 | 0.63 | 0.137 | ( 0.294) | 0.057 | 0.079 |
| 110 | 9.17 | 0.63 | 0.137 | ( 0.293) | 0.057 | 0.079 |
| 111 | 9.25 | 0.63 | 0.137 | ( 0.291) | 0.057 | 0.079 |
| 112 | 9.33 | 0.67 | 0.144 | ( 0.290) | 0.060 | 0.084 |
| 113 | 9.42 | 0.67 | 0.144 | ( 0.288) | 0.060 | 0.084 |
| 114 | 9.50 | 0.67 | 0.144 | ( 0.287) | 0.060 | 0.084 |
| 115 | 9.58 | 0.70 | 0.151 | ( 0.286) | 0.064 | 0.088 |
| 116 | 9.67 | 0.70 | 0.151 | ( 0.284) | 0.064 | 0.088 |
| 117 | 9.75 | 0.70 | 0.151 | ( 0.283) | 0.064 | 0.088 |
| 118 | 9.83 | 0.73 | 0.158 | ( 0.282) | 0.067 | 0.092 |
| 119 | 9.92 | 0.73 | 0.158 | ( 0.280) | 0.067 | 0.092 |
| 120 | 10.00 | 0.73 | 0.158 | ( 0.279) | 0.067 | 0.092 |
| 121 | 10.08 | 0.50 | 0.108 | ( 0.277) | 0.045 | 0.063 |
| 122 | 10.17 | 0.50 | 0.108 | ( 0.276) | 0.045 | 0.063 |
| 123 | 10.25 | 0.50 | 0.108 | ( 0.275) | 0.045 | 0.063 |
| 124 | 10.33 | 0.50 | 0.108 | ( 0.273) | 0.045 | 0.063 |
| 125 | 10.42 | 0.50 | 0.108 | ( 0.272) | 0.045 | 0.063 |
| 126 | 10.50 | 0.50 | 0.108 | ( 0.271) | 0.045 | 0.063 |
| 127 | 10.58 | 0.67 | 0.144 | ( 0.269) | 0.060 | 0.084 |
| 128 | 10.67 | 0.67 | 0.144 | ( 0.268) | 0.060 | 0.084 |
| 129 | 10.75 | 0.67 | 0.144 | ( 0.267) | 0.060 | 0.084 |
| 130 | 10.83 | 0.67 | 0.144 | ( 0.266) | 0.060 | 0.084 |
| 131 | 10.92 | 0.67 | 0.144 | ( 0.264) | 0.060 | 0.084 |
| 132 | 11.00 | 0.67 | 0.144 | ( 0.263) | 0.060 | 0.084 |
| 133 | 11.08 | 0.63 | 0.137 | ( 0.262) | 0.057 | 0.079 |
| 134 | 11.17 | 0.63 | 0.137 | ( 0.260) | 0.057 | 0.079 |
| 135 | 11.25 | 0.63 | 0.137 | ( 0.259) | 0.057 | 0.079 |
| 136 | 11.33 | 0.63 | 0.137 | ( 0.258) | 0.057 | 0.079 |
| 137 | 11.42 | 0.63 | 0.137 | ( 0.256) | 0.057 | 0.079 |
| 138 | 11.50 | 0.63 | 0.137 | ( 0.255) | 0.057 | 0.079 |
| 139 | 11.58 | 0.57 | 0.122 | ( 0.254) | 0.051 | 0.071 |
| 140 | 11.67 | 0.57 | 0.122 | ( 0.253) | 0.051 | 0.071 |
| 141 | 11.75 | 0.57 | 0.122 | ( 0.251) | 0.051 | 0.071 |
| 142 | 11.83 | 0.60 | 0.130 | ( 0.250) | 0.054 | 0.075 |
| 143 | 11.92 | 0.60 | 0.130 | ( 0.249) | 0.054 | 0.075 |
| 144 | 12.00 | 0.60 | 0.130 | ( 0.248) | 0.054 | 0.075 |
| 145 | 12.08 | 0.83 | 0.180 | ( 0.246) | 0.076 | 0.104 |
| 146 | 12.17 | 0.83 | 0.180 | ( 0.245) | 0.076 | 0.104 |
| 147 | 12.25 | 0.83 | 0.180 | ( 0.244) | 0.076 | 0.104 |
| 148 | 12.33 | 0.87 | 0.187 | ( 0.243) | 0.079 | 0.109 |
| 149 | 12.42 | 0.87 | 0.187 | ( 0.242) | 0.079 | 0.109 |
| 150 | 12.50 | 0.87 | 0.187 | ( 0.240) | 0.079 | 0.109 |
| 151 | 12.58 | 0.93 | 0.202 | ( 0.239) | 0.085 | 0.117 |
| 152 | 12.67 | 0.93 | 0.202 | ( 0.238) | 0.085 | 0.117 |
| 153 | 12.75 | 0.93 | 0.202 | ( 0.237) | 0.085 | 0.117 |
| 154 | 12.83 | 0.97 | 0.209 | ( 0.236) | 0.088 | 0.121 |
| 155 | 12.92 | 0.97 | 0.209 | ( 0.234) | 0.088 | 0.121 |
| 156 | 13.00 | 0.97 | 0.209 | ( 0.233) | 0.088 | 0.121 |
| 157 | 13.08 | 1.13 | 0.245 | ( 0.232) | 0.103 | 0.142 |
| 158 | 13.17 | 1.13 | 0.245 | ( 0.231) | 0.103 | 0.142 |
| 159 | 13.25 | 1.13 | 0.245 | ( 0.230) | 0.103 | 0.142 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 160 | 13.33 | 1.13 | 0.245 | ( 0.228) | 0.103 | 0.142 |
| 161 | 13.42 | 1.13 | 0.245 | ( 0.227) | 0.103 | 0.142 |
| 162 | 13.50 | 1.13 | 0.245 | ( 0.226) | 0.103 | 0.142 |
| 163 | 13.58 | 0.77 | 0.166 | ( 0.225) | 0.070 | 0.096 |
| 164 | 13.67 | 0.77 | 0.166 | ( 0.224) | 0.070 | 0.096 |
| 165 | 13.75 | 0.77 | 0.166 | ( 0.223) | 0.070 | 0.096 |
| 166 | 13.83 | 0.77 | 0.166 | ( 0.222) | 0.070 | 0.096 |
| 167 | 13.92 | 0.77 | 0.166 | ( 0.220) | 0.070 | 0.096 |
| 168 | 14.00 | 0.77 | 0.166 | ( 0.219) | 0.070 | 0.096 |
| 169 | 14.08 | 0.90 | 0.194 | ( 0.218) | 0.082 | 0.113 |
| 170 | 14.17 | 0.90 | 0.194 | ( 0.217) | 0.082 | 0.113 |
| 171 | 14.25 | 0.90 | 0.194 | ( 0.216) | 0.082 | 0.113 |
| 172 | 14.33 | 0.87 | 0.187 | ( 0.215) | 0.079 | 0.109 |
| 173 | 14.42 | 0.87 | 0.187 | ( 0.214) | 0.079 | 0.109 |
| 174 | 14.50 | 0.87 | 0.187 | ( 0.213) | 0.079 | 0.109 |
| 175 | 14.58 | 0.87 | 0.187 | ( 0.212) | 0.079 | 0.109 |
| 176 | 14.67 | 0.87 | 0.187 | ( 0.210) | 0.079 | 0.109 |
| 177 | 14.75 | 0.87 | 0.187 | ( 0.209) | 0.079 | 0.109 |
| 178 | 14.83 | 0.83 | 0.180 | ( 0.208) | 0.076 | 0.104 |
| 179 | 14.92 | 0.83 | 0.180 | ( 0.207) | 0.076 | 0.104 |
| 180 | 15.00 | 0.83 | 0.180 | ( 0.206) | 0.076 | 0.104 |
| 181 | 15.08 | 0.80 | 0.173 | ( 0.205) | 0.073 | 0.100 |
| 182 | 15.17 | 0.80 | 0.173 | ( 0.204) | 0.073 | 0.100 |
| 183 | 15.25 | 0.80 | 0.173 | ( 0.203) | 0.073 | 0.100 |
| 184 | 15.33 | 0.77 | 0.166 | ( 0.202) | 0.070 | 0.096 |
| 185 | 15.42 | 0.77 | 0.166 | ( 0.201) | 0.070 | 0.096 |
| 186 | 15.50 | 0.77 | 0.166 | ( 0.200) | 0.070 | 0.096 |
| 187 | 15.58 | 0.63 | 0.137 | ( 0.199) | 0.057 | 0.079 |
| 188 | 15.67 | 0.63 | 0.137 | ( 0.198) | 0.057 | 0.079 |
| 189 | 15.75 | 0.63 | 0.137 | ( 0.197) | 0.057 | 0.079 |
| 190 | 15.83 | 0.63 | 0.137 | ( 0.196) | 0.057 | 0.079 |
| 191 | 15.92 | 0.63 | 0.137 | ( 0.195) | 0.057 | 0.079 |
| 192 | 16.00 | 0.63 | 0.137 | ( 0.194) | 0.057 | 0.079 |
| 193 | 16.08 | 0.13 | 0.029 | ( 0.193) | 0.012 | 0.017 |
| 194 | 16.17 | 0.13 | 0.029 | ( 0.192) | 0.012 | 0.017 |
| 195 | 16.25 | 0.13 | 0.029 | ( 0.191) | 0.012 | 0.017 |
| 196 | 16.33 | 0.13 | 0.029 | ( 0.190) | 0.012 | 0.017 |
| 197 | 16.42 | 0.13 | 0.029 | ( 0.189) | 0.012 | 0.017 |
| 198 | 16.50 | 0.13 | 0.029 | ( 0.188) | 0.012 | 0.017 |
| 199 | 16.58 | 0.10 | 0.022 | ( 0.187) | 0.009 | 0.013 |
| 200 | 16.67 | 0.10 | 0.022 | ( 0.186) | 0.009 | 0.013 |
| 201 | 16.75 | 0.10 | 0.022 | ( 0.185) | 0.009 | 0.013 |
| 202 | 16.83 | 0.10 | 0.022 | ( 0.184) | 0.009 | 0.013 |
| 203 | 16.92 | 0.10 | 0.022 | ( 0.183) | 0.009 | 0.013 |
| 204 | 17.00 | 0.10 | 0.022 | ( 0.182) | 0.009 | 0.013 |
| 205 | 17.08 | 0.17 | 0.036 | ( 0.181) | 0.015 | 0.021 |
| 206 | 17.17 | 0.17 | 0.036 | ( 0.181) | 0.015 | 0.021 |
| 207 | 17.25 | 0.17 | 0.036 | ( 0.180) | 0.015 | 0.021 |
| 208 | 17.33 | 0.17 | 0.036 | ( 0.179) | 0.015 | 0.021 |
| 209 | 17.42 | 0.17 | 0.036 | ( 0.178) | 0.015 | 0.021 |
| 210 | 17.50 | 0.17 | 0.036 | ( 0.177) | 0.015 | 0.021 |
| 211 | 17.58 | 0.17 | 0.036 | ( 0.176) | 0.015 | 0.021 |
| 212 | 17.67 | 0.17 | 0.036 | ( 0.175) | 0.015 | 0.021 |
| 213 | 17.75 | 0.17 | 0.036 | ( 0.174) | 0.015 | 0.021 |
| 214 | 17.83 | 0.13 | 0.029 | ( 0.173) | 0.012 | 0.017 |
| 215 | 17.92 | 0.13 | 0.029 | ( 0.173) | 0.012 | 0.017 |
| 216 | 18.00 | 0.13 | 0.029 | ( 0.172) | 0.012 | 0.017 |
| 217 | 18.08 | 0.13 | 0.029 | ( 0.171) | 0.012 | 0.017 |
| 218 | 18.17 | 0.13 | 0.029 | ( 0.170) | 0.012 | 0.017 |
| 219 | 18.25 | 0.13 | 0.029 | ( 0.169) | 0.012 | 0.017 |
| 220 | 18.33 | 0.13 | 0.029 | ( 0.168) | 0.012 | 0.017 |
| 221 | 18.42 | 0.13 | 0.029 | ( 0.168) | 0.012 | 0.017 |
| 222 | 18.50 | 0.13 | 0.029 | ( 0.167) | 0.012 | 0.017 |
| 223 | 18.58 | 0.10 | 0.022 | ( 0.166) | 0.009 | 0.013 |
| 224 | 18.67 | 0.10 | 0.022 | ( 0.165) | 0.009 | 0.013 |
| 225 | 18.75 | 0.10 | 0.022 | ( 0.164) | 0.009 | 0.013 |
| 226 | 18.83 | 0.07 | 0.014 | ( 0.164) | 0.006 | 0.008 |
| 227 | 18.92 | 0.07 | 0.014 | ( 0.163) | 0.006 | 0.008 |
| 228 | 19.00 | 0.07 | 0.014 | ( 0.162) | 0.006 | 0.008 |
| 229 | 19.08 | 0.10 | 0.022 | ( 0.161) | 0.009 | 0.013 |
| 230 | 19.17 | 0.10 | 0.022 | ( 0.160) | 0.009 | 0.013 |
| 231 | 19.25 | 0.10 | 0.022 | ( 0.160) | 0.009 | 0.013 |
| 232 | 19.33 | 0.13 | 0.029 | ( 0.159) | 0.012 | 0.017 |
| 233 | 19.42 | 0.13 | 0.029 | ( 0.158) | 0.012 | 0.017 |
| 234 | 19.50 | 0.13 | 0.029 | ( 0.158) | 0.012 | 0.017 |
| 235 | 19.58 | 0.10 | 0.022 | ( 0.157) | 0.009 | 0.013 |
| 236 | 19.67 | 0.10 | 0.022 | ( 0.156) | 0.009 | 0.013 |
| 237 | 19.75 | 0.10 | 0.022 | ( 0.155) | 0.009 | 0.013 |
| 238 | 19.83 | 0.07 | 0.014 | ( 0.155) | 0.006 | 0.008 |
| 239 | 19.92 | 0.07 | 0.014 | ( 0.154) | 0.006 | 0.008 |
| 240 | 20.00 | 0.07 | 0.014 | ( 0.153) | 0.006 | 0.008 |
| 241 | 20.08 | 0.10 | 0.022 | ( 0.153) | 0.009 | 0.013 |
| 242 | 20.17 | 0.10 | 0.022 | ( 0.152) | 0.009 | 0.013 |
| 243 | 20.25 | 0.10 | 0.022 | ( 0.151) | 0.009 | 0.013 |
| 244 | 20.33 | 0.10 | 0.022 | ( 0.151) | 0.009 | 0.013 |
| 245 | 20.42 | 0.10 | 0.022 | ( 0.150) | 0.009 | 0.013 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 246 | 20.50 | 0.10 | 0.022 | ( 0.149) | 0.009 | 0.013 |
| 247 | 20.58 | 0.10 | 0.022 | ( 0.149) | 0.009 | 0.013 |
| 248 | 20.67 | 0.10 | 0.022 | ( 0.148) | 0.009 | 0.013 |
| 249 | 20.75 | 0.10 | 0.022 | ( 0.148) | 0.009 | 0.013 |
| 250 | 20.83 | 0.07 | 0.014 | ( 0.147) | 0.006 | 0.008 |
| 251 | 20.92 | 0.07 | 0.014 | ( 0.146) | 0.006 | 0.008 |
| 252 | 21.00 | 0.07 | 0.014 | ( 0.146) | 0.006 | 0.008 |
| 253 | 21.08 | 0.10 | 0.022 | ( 0.145) | 0.009 | 0.013 |
| 254 | 21.17 | 0.10 | 0.022 | ( 0.145) | 0.009 | 0.013 |
| 255 | 21.25 | 0.10 | 0.022 | ( 0.144) | 0.009 | 0.013 |
| 256 | 21.33 | 0.07 | 0.014 | ( 0.143) | 0.006 | 0.008 |
| 257 | 21.42 | 0.07 | 0.014 | ( 0.143) | 0.006 | 0.008 |
| 258 | 21.50 | 0.07 | 0.014 | ( 0.142) | 0.006 | 0.008 |
| 259 | 21.58 | 0.10 | 0.022 | ( 0.142) | 0.009 | 0.013 |
| 260 | 21.67 | 0.10 | 0.022 | ( 0.141) | 0.009 | 0.013 |
| 261 | 21.75 | 0.10 | 0.022 | ( 0.141) | 0.009 | 0.013 |
| 262 | 21.83 | 0.07 | 0.014 | ( 0.140) | 0.006 | 0.008 |
| 263 | 21.92 | 0.07 | 0.014 | ( 0.140) | 0.006 | 0.008 |
| 264 | 22.00 | 0.07 | 0.014 | ( 0.139) | 0.006 | 0.008 |
| 265 | 22.08 | 0.10 | 0.022 | ( 0.139) | 0.009 | 0.013 |
| 266 | 22.17 | 0.10 | 0.022 | ( 0.138) | 0.009 | 0.013 |
| 267 | 22.25 | 0.10 | 0.022 | ( 0.138) | 0.009 | 0.013 |
| 268 | 22.33 | 0.07 | 0.014 | ( 0.138) | 0.006 | 0.008 |
| 269 | 22.42 | 0.07 | 0.014 | ( 0.137) | 0.006 | 0.008 |
| 270 | 22.50 | 0.07 | 0.014 | ( 0.137) | 0.006 | 0.008 |
| 271 | 22.58 | 0.07 | 0.014 | ( 0.136) | 0.006 | 0.008 |
| 272 | 22.67 | 0.07 | 0.014 | ( 0.136) | 0.006 | 0.008 |
| 273 | 22.75 | 0.07 | 0.014 | ( 0.136) | 0.006 | 0.008 |
| 274 | 22.83 | 0.07 | 0.014 | ( 0.135) | 0.006 | 0.008 |
| 275 | 22.92 | 0.07 | 0.014 | ( 0.135) | 0.006 | 0.008 |
| 276 | 23.00 | 0.07 | 0.014 | ( 0.135) | 0.006 | 0.008 |
| 277 | 23.08 | 0.07 | 0.014 | ( 0.134) | 0.006 | 0.008 |
| 278 | 23.17 | 0.07 | 0.014 | ( 0.134) | 0.006 | 0.008 |
| 279 | 23.25 | 0.07 | 0.014 | ( 0.134) | 0.006 | 0.008 |
| 280 | 23.33 | 0.07 | 0.014 | ( 0.133) | 0.006 | 0.008 |
| 281 | 23.42 | 0.07 | 0.014 | ( 0.133) | 0.006 | 0.008 |
| 282 | 23.50 | 0.07 | 0.014 | ( 0.133) | 0.006 | 0.008 |
| 283 | 23.58 | 0.07 | 0.014 | ( 0.133) | 0.006 | 0.008 |
| 284 | 23.67 | 0.07 | 0.014 | ( 0.133) | 0.006 | 0.008 |
| 285 | 23.75 | 0.07 | 0.014 | ( 0.132) | 0.006 | 0.008 |
| 286 | 23.83 | 0.07 | 0.014 | ( 0.132) | 0.006 | 0.008 |
| 287 | 23.92 | 0.07 | 0.014 | ( 0.132) | 0.006 | 0.008 |
| 288 | 24.00 | 0.07 | 0.014 | ( 0.132) | 0.006 | 0.008 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 12.5

Flood volume = Effective rainfall 1.04(In)
times area 7.0(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
Total soil loss = 0.76(In)
Total soil loss = 0.441(Ac.Ft)
Total rainfall = 1.80(In)
Flood volume = 26527.7 Cubic Feet
Total soil loss = 19209.7 Cubic Feet

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Peak flow rate of this hydrograph = 1.002(CFS)

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

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Hydrograph in 5 Minute intervals ((CFS))

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| 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 | 0.0006 | 0.05 | Q | \| | \| | \| | \| |
| 0+15 | 0.0010 | 0.06 | Q | \| | \| | \| | \| |
| 0+20 | 0.0015 | 0.08 | Q | \| | \| | \| | \| |
| 0+25 | 0.0021 | 0.09 | Q | \| | \| | \| | \| |
| 0+30 | 0.0027 | 0.09 | Q | \| | \| | \| | \| |
| 0+35 | 0.0033 | 0.09 | Q | \| | \| | \| | \| |
| 0+40 | 0.0040 | 0.09 | Q | \| | \| | \| | \| |
| 0+45 | 0.0046 | 0.09 | Q | \| | \| | \| | \| |
| 0+50 | 0.0053 | 0.10 | Q | \| | \| | \| | \| |
| 0+55 | 0.0061 | 0.12 | Q | \| | \| | \| | \| |
| 1+ 0 | 0.0069 | 0.12 | Q | \| | \| | \| | \| |
| 1+ 5 | 0.0076 | 0.10 | Q | \| | \| | \| | \| |
| 1+10 | 0.0082 | 0.09 | Q | \| | \| | \| | \| |
| 1+15 | 0.0088 | 0.09 | Q | \| | \| | \| | \| |
| 1+20 | 0.0094 | 0.09 | Q | \| | \| | \| | \| |
| 1+25 | 0.0100 | 0.09 | Q | \| | \| | \| | \| |
| 1+30 | 0.0106 | 0.09 | Q | \| | \| | \| | \| |
| 1+35 | 0.0113 | 0.09 | Q | \| | \| | \| | \| |
| 1+40 | 0.0119 | 0.09 | Q | \| | \| | \| | \| |
| 1+45 | 0.0125 | 0.09 | Q | \| | \| | \| | \| |
| 1+50 | 0.0132 | 0.10 | Q | \| | \| | \| | \| |

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1+55      0.0140      0.12  Q          |          |          |          |
2+ 0      0.0148      0.12  Q          |          |          |          |
2+ 5      0.0156      0.12  QV         |          |          |          |
2+10      0.0164      0.12  QV         |          |          |          |
2+15      0.0172      0.12  QV         |          |          |          |
2+20      0.0181      0.12  QV         |          |          |          |
2+25      0.0189      0.12  QV         |          |          |          |
2+30      0.0197      0.12  QV         |          |          |          |
2+35      0.0206      0.13  QV         |          |          |          |
2+40      0.0216      0.15  QV         |          |          |          |
2+45      0.0226      0.15  QV         |          |          |          |
2+50      0.0236      0.15  QV         |          |          |          |
2+55      0.0247      0.15  QV         |          |          |          |
3+ 0      0.0257      0.15  QV         |          |          |          |
3+ 5      0.0267      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  Q V        |          |          |          |
3+30      0.0318      0.15  Q V        |          |          |          |
3+35      0.0328      0.15  Q V        |          |          |          |
3+40      0.0338      0.15  Q V        |          |          |          |
3+45      0.0348      0.15  Q V        |          |          |          |
3+50      0.0359      0.16  Q V        |          |          |          |
3+55      0.0371      0.17  Q V        |          |          |          |
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      0.0420      0.18  Q V        |          |          |          |
4+20      0.0433      0.19  Q V        |          |          |          |
4+25      0.0447      0.20  Q V        |          |          |          |
4+30      0.0462      0.21  Q  V       |          |          |          |
4+35      0.0476      0.21  Q  V       |          |          |          |
4+40      0.0490      0.21  Q  V       |          |          |          |
4+45      0.0504      0.21  Q  V       |          |          |          |
4+50      0.0520      0.22  Q  V       |          |          |          |
4+55      0.0536      0.23  Q  V       |          |          |          |
5+ 0      0.0552      0.24  Q  V       |          |          |          |
5+ 5      0.0566      0.20  Q  V       |          |          |          |
5+10      0.0578      0.18  Q  V       |          |          |          |
5+15      0.0591      0.18  Q  V       |          |          |          |
5+20      0.0604      0.19  Q  V       |          |          |          |
5+25      0.0618      0.20  Q   V      |          |          |          |
5+30      0.0632      0.21  Q   V      |          |          |          |
5+35      0.0647      0.22  Q   V      |          |          |          |
5+40      0.0664      0.23  Q   V      |          |          |          |
5+45      0.0680      0.24  Q   V      |          |          |          |
5+50      0.0696      0.24  Q   V      |          |          |          |
5+55      0.0712      0.24  Q   V      |          |          |          |
6+ 0      0.0729      0.24  Q   V      |          |          |          |
6+ 5      0.0746      0.25  |Q  V       |          |          |          |
6+10      0.0764      0.26  |Q   V      |          |          |          |
6+15      0.0782      0.27  |Q   V      |          |          |          |
6+20      0.0801      0.27  |Q   V      |          |          |          |
6+25      0.0819      0.27  |Q   V      |          |          |          |
6+30      0.0837      0.27  |Q   V      |          |          |          |
6+35      0.0857      0.28  |Q   V      |          |          |          |
6+40      0.0877      0.29  |Q   V      |          |          |          |
6+45      0.0897      0.29  |Q   V      |          |          |          |
6+50      0.0917      0.29  |Q    V     |          |          |          |
6+55      0.0938      0.29  |Q    V     |          |          |          |
7+ 0      0.0958      0.29  |Q    V     |          |          |          |
7+ 5      0.0978      0.29  |Q    V     |          |          |          |
7+10      0.0998      0.29  |Q    V     |          |          |          |
7+15      0.1019      0.29  |Q    V     |          |          |          |
7+20      0.1040      0.31  |Q    V     |          |          |          |
7+25      0.1062      0.32  |Q    V     |          |          |          |
7+30      0.1085      0.32  |Q     V    |          |          |          |
7+35      0.1108      0.34  |Q     V    |          |          |          |
7+40      0.1132      0.35  |Q     V    |          |          |          |
7+45      0.1157      0.35  |Q     V    |          |          |          |
7+50      0.1182      0.37  |Q     V    |          |          |          |
7+55      0.1209      0.38  |Q     V    |          |          |          |
8+ 0      0.1235      0.38  |Q      V   |          |          |          |
8+ 5      0.1264      0.42  |Q      V   |          |          |          |
8+10      0.1294      0.44  |Q      V   |          |          |          |
8+15      0.1324      0.44  |Q      V   |          |          |          |
8+20      0.1355      0.44  |Q      V   |          |          |          |
8+25      0.1385      0.44  |Q       V|          |          |          |
8+30      0.1416      0.44  |Q       V|          |          |          |
8+35      0.1447      0.46  |Q       V|          |          |          |
8+40      0.1479      0.47  |Q       V|          |          |          |
8+45      0.1512      0.47  |Q       V|          |          |          |
8+50      0.1546      0.49  |Q        V          |          |          |
8+55      0.1580      0.50  |Q         V         |          |          |
9+ 0      0.1614      0.50  | Q        V         |          |          |
```

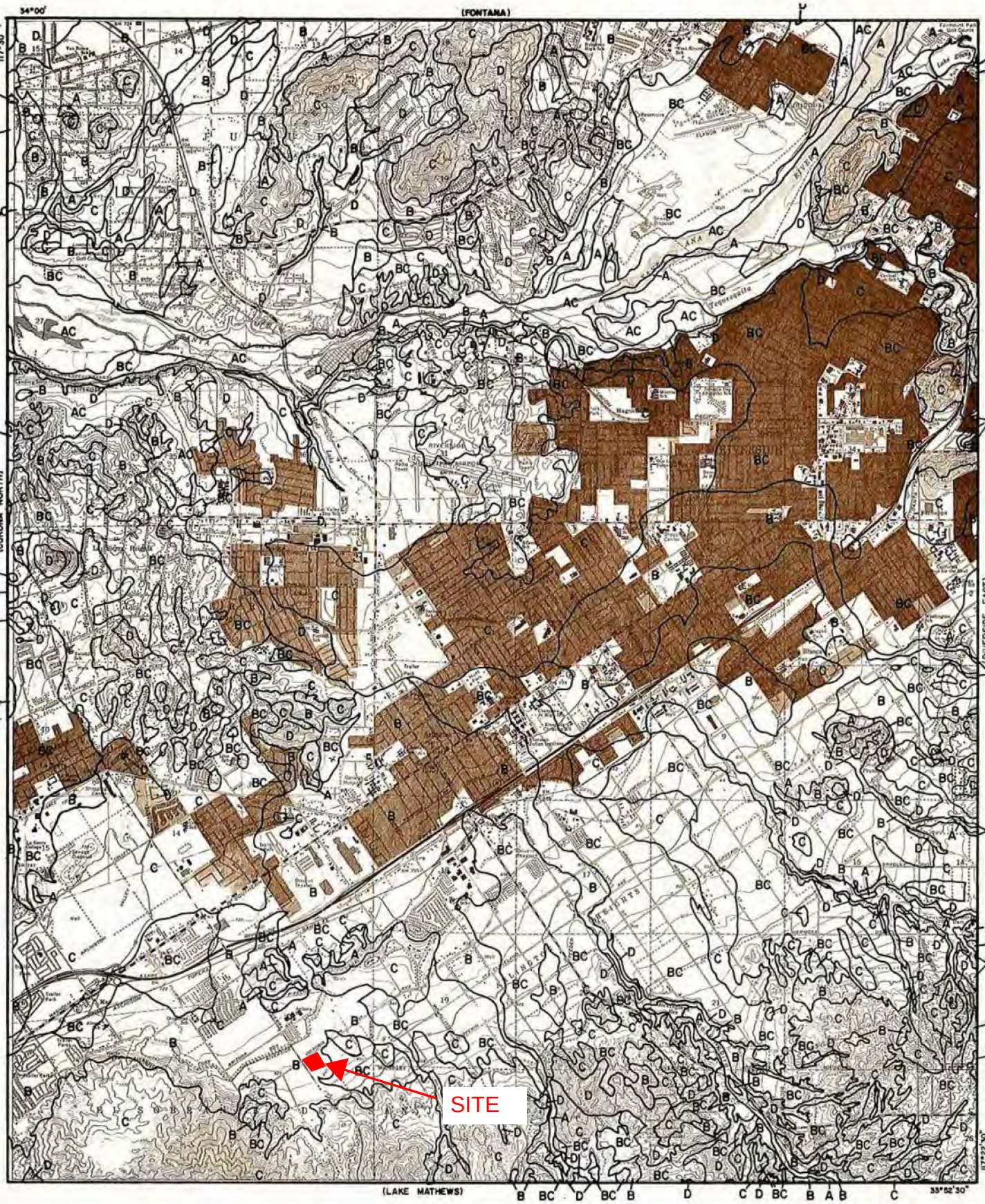
```
 9+ 5       0.1651      0.53  | Q       V         |         |         |
 9+10       0.1689      0.56  | Q       |V        |         |         |
 9+15       0.1728      0.56  | Q       |V        |         |         |
 9+20       0.1768      0.58  | Q       |V        |         |         |
 9+25       0.1808      0.59  | Q       |V        |         |         |
 9+30       0.1849      0.59  | Q       | V       |         |         |
 9+35       0.1891      0.61  | Q       | V       |         |         |
 9+40       0.1933      0.62  | Q       | V       |         |         |
 9+45       0.1976      0.62  | Q       | V       |         |         |
 9+50       0.2019      0.64  | Q       |  V      |         |         |
 9+55       0.2064      0.65  | Q       |  V      |         |         |
10+ 0       0.2109      0.65  | Q       |  V      |         |         |
10+ 5       0.2145      0.53  | Q       |   V     |         |         |
10+10       0.2177      0.46  |Q        |   V     |         |         |
10+15       0.2207      0.44  |Q        |   V     |         |         |
10+20       0.2238      0.44  |Q        |   V     |         |         |
10+25       0.2268      0.44  |Q        |   V     |         |         |
10+30       0.2299      0.44  |Q        |    V    |         |         |
10+35       0.2335      0.52  | Q       |    V    |         |         |
10+40       0.2375      0.58  | Q       |    V    |         |         |
10+45       0.2415      0.59  | Q       |    V    |         |         |
10+50       0.2456      0.59  | Q       |     V   |         |         |
10+55       0.2496      0.59  | Q       |     V   |         |         |
11+ 0       0.2537      0.59  | Q       |     V   |         |         |
11+ 5       0.2576      0.57  | Q       |     V   |         |         |
11+10       0.2615      0.56  | Q       |      V  |         |         |
11+15       0.2654      0.56  | Q       |      V  |         |         |
11+20       0.2692      0.56  | Q       |      V  |         |         |
11+25       0.2731      0.56  | Q       |      V  |         |         |
11+30       0.2769      0.56  | Q       |       V |         |         |
11+35       0.2806      0.53  | Q       |       V |         |         |
11+40       0.2841      0.51  | Q       |       V |         |         |
11+45       0.2875      0.50  | Q       |       V |         |         |
11+50       0.2911      0.52  | Q       |        V|         |         |
11+55       0.2947      0.53  | Q       |        V|         |         |
12+ 0       0.2984      0.53  | Q       |        V|         |         |
12+ 5       0.3028      0.65  | Q       |        V|         |         |
12+10       0.3078      0.72  | Q       |         V         |         |
12+15       0.3129      0.74  | Q       |         V         |         |
12+20       0.3180      0.75  |  Q      |         V         |         |
12+25       0.3233      0.76  |  Q      |          |V       |         |
12+30       0.3286      0.77  |  Q      |          |V       |         |
12+35       0.3341      0.80  |  Q      |          |V       |         |
12+40       0.3397      0.82  |  Q      |          | V      |         |
12+45       0.3454      0.83  |  Q      |          | V      |         |
12+50       0.3512      0.84  |  Q      |          |  V     |         |
12+55       0.3571      0.85  |  Q      |          |  V     |         |
13+ 0       0.3630      0.85  |  Q      |          |  V     |         |
13+ 5       0.3694      0.94  |  Q      |          |   V    |         |
13+10       0.3763      0.99  |  Q      |          |   V    |         |
13+15       0.3832      1.00  |   Q     |          |    V   |         |
13+20       0.3901      1.00  |   Q     |          |    V   |         |
13+25       0.3970      1.00  |   Q     |          |     V  |         |
13+30       0.4039      1.00  |   Q     |          |     V  |         |
13+35       0.4095      0.82  |  Q      |          |     V  |         |
13+40       0.4144      0.70  | Q       |          |      V |         |
13+45       0.4190      0.68  | Q       |          |      V |         |
13+50       0.4237      0.68  | Q       |          |      V |         |
13+55       0.4284      0.68  | Q       |          |       V|         |
14+ 0       0.4330      0.68  | Q       |          |       V|         |
14+ 5       0.4382      0.74  | Q       |          |       V|         |
14+10       0.4436      0.79  |  Q      |          |        V|        |
14+15       0.4491      0.80  |  Q      |          |        V|        |
14+20       0.4544      0.78  |  Q      |          |        V|        |
14+25       0.4597      0.77  |  Q      |          |         V        |
14+30       0.4650      0.77  |  Q      |          |         V        |
14+35       0.4703      0.77  |  Q      |          |         V        |
14+40       0.4756      0.77  |  Q      |          |          |V      |
14+45       0.4808      0.77  |  Q      |          |          |V      |
14+50       0.4860      0.75  | Q       |          |          |V      |
14+55       0.4911      0.74  | Q       |          |          | V     |
15+ 0       0.4962      0.74  | Q       |          |          | V     |
15+ 5       0.5011      0.72  | Q       |          |          | V     |
15+10       0.5060      0.71  | Q       |          |          |  V    |
15+15       0.5109      0.71  | Q       |          |          |  V    |
15+20       0.5156      0.69  | Q       |          |          |  V    |
15+25       0.5203      0.68  | Q       |          |          |   V   |
15+30       0.5250      0.68  | Q       |          |          |   V   |
15+35       0.5292      0.61  | Q       |          |          |   V   |
15+40       0.5331      0.57  | Q       |          |          |    V  |
15+45       0.5370      0.56  | Q       |          |          |    V  |
15+50       0.5408      0.56  | Q       |          |          |    V  |
15+55       0.5447      0.56  | Q       |          |          |    V  |
16+ 0       0.5486      0.56  | Q       |          |          |     V |
16+ 5       0.5507      0.31  |Q        |          |          |     V |
16+10       0.5517      0.15  Q         |          |          |     V |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+15 | 0.5525 | 0.12 | Q | \| | \| | \| | V \| |
| 16+20 | 0.5534 | 0.12 | Q | \| | \| | \| | V \| |
| 16+25 | 0.5542 | 0.12 | Q | \| | \| | \| | V \| |
| 16+30 | 0.5550 | 0.12 | Q | \| | \| | \| | V \| |
| 16+35 | 0.5557 | 0.10 | Q | \| | \| | \| | V \| |
| 16+40 | 0.5563 | 0.09 | Q | \| | \| | \| | V \| |
| 16+45 | 0.5569 | 0.09 | Q | \| | \| | \| | V \| |
| 16+50 | 0.5575 | 0.09 | Q | \| | \| | \| | V \| |
| 16+55 | 0.5581 | 0.09 | Q | \| | \| | \| | V \| |
| 17+ 0 | 0.5587 | 0.09 | Q | \| | \| | \| | V \| |
| 17+ 5 | 0.5596 | 0.12 | Q | \| | \| | \| | V \| |
| 17+10 | 0.5606 | 0.14 | Q | \| | \| | \| | V \| |
| 17+15 | 0.5616 | 0.15 | Q | \| | \| | \| | V \| |
| 17+20 | 0.5626 | 0.15 | Q | \| | \| | \| | V \| |
| 17+25 | 0.5636 | 0.15 | Q | \| | \| | \| | V \| |
| 17+30 | 0.5646 | 0.15 | Q | \| | \| | \| | V \| |
| 17+35 | 0.5656 | 0.15 | Q | \| | \| | \| | V \| |
| 17+40 | 0.5667 | 0.15 | Q | \| | \| | \| | V \| |
| 17+45 | 0.5677 | 0.15 | Q | \| | \| | \| | V \| |
| 17+50 | 0.5686 | 0.13 | Q | \| | \| | \| | V \| |
| 17+55 | 0.5694 | 0.12 | Q | \| | \| | \| | V \| |
| 18+ 0 | 0.5702 | 0.12 | Q | \| | \| | \| | V \| |
| 18+ 5 | 0.5710 | 0.12 | Q | \| | \| | \| | V \| |
| 18+10 | 0.5718 | 0.12 | Q | \| | \| | \| | V \| |
| 18+15 | 0.5726 | 0.12 | Q | \| | \| | \| | V \| |
| 18+20 | 0.5735 | 0.12 | Q | \| | \| | \| | V \| |
| 18+25 | 0.5743 | 0.12 | Q | \| | \| | \| | V \| |
| 18+30 | 0.5751 | 0.12 | Q | \| | \| | \| | V \| |
| 18+35 | 0.5758 | 0.10 | Q | \| | \| | \| | V \| |
| 18+40 | 0.5764 | 0.09 | Q | \| | \| | \| | V \| |
| 18+45 | 0.5770 | 0.09 | Q | \| | \| | \| | V \| |
| 18+50 | 0.5775 | 0.07 | Q | \| | \| | \| | V \| |
| 18+55 | 0.5779 | 0.06 | Q | \| | \| | \| | V \| |
| 19+ 0 | 0.5783 | 0.06 | Q | \| | \| | \| | V \| |
| 19+ 5 | 0.5789 | 0.08 | Q | \| | \| | \| | V \| |
| 19+10 | 0.5794 | 0.09 | Q | \| | \| | \| | V \| |
| 19+15 | 0.5801 | 0.09 | Q | \| | \| | \| | V \| |
| 19+20 | 0.5808 | 0.10 | Q | \| | \| | \| | V \| |
| 19+25 | 0.5816 | 0.12 | Q | \| | \| | \| | V \| |
| 19+30 | 0.5824 | 0.12 | Q | \| | \| | \| | V \| |
| 19+35 | 0.5831 | 0.10 | Q | \| | \| | \| | V \| |
| 19+40 | 0.5837 | 0.09 | Q | \| | \| | \| | V \| |
| 19+45 | 0.5843 | 0.09 | Q | \| | \| | \| | V \| |
| 19+50 | 0.5848 | 0.07 | Q | \| | \| | \| | V \| |
| 19+55 | 0.5852 | 0.06 | Q | \| | \| | \| | V \| |
| 20+ 0 | 0.5856 | 0.06 | Q | \| | \| | \| | V \| |
| 20+ 5 | 0.5862 | 0.08 | Q | \| | \| | \| | V \| |
| 20+10 | 0.5868 | 0.09 | Q | \| | \| | \| | V \| |
| 20+15 | 0.5874 | 0.09 | Q | \| | \| | \| | V \| |
| 20+20 | 0.5880 | 0.09 | Q | \| | \| | \| | V \| |
| 20+25 | 0.5886 | 0.09 | Q | \| | \| | \| | V \| |
| 20+30 | 0.5892 | 0.09 | Q | \| | \| | \| | V \| |
| 20+35 | 0.5898 | 0.09 | Q | \| | \| | \| | V \| |
| 20+40 | 0.5904 | 0.09 | Q | \| | \| | \| | V \| |
| 20+45 | 0.5910 | 0.09 | Q | \| | \| | \| | V \| |
| 20+50 | 0.5915 | 0.07 | Q | \| | \| | \| | V \| |
| 20+55 | 0.5919 | 0.06 | Q | \| | \| | \| | V \| |
| 21+ 0 | 0.5923 | 0.06 | Q | \| | \| | \| | V \| |
| 21+ 5 | 0.5929 | 0.08 | Q | \| | \| | \| | V \| |
| 21+10 | 0.5935 | 0.09 | Q | \| | \| | \| | V \| |
| 21+15 | 0.5941 | 0.09 | Q | \| | \| | \| | V\| |
| 21+20 | 0.5946 | 0.07 | Q | \| | \| | \| | V\| |
| 21+25 | 0.5950 | 0.06 | Q | \| | \| | \| | V\| |
| 21+30 | 0.5954 | 0.06 | Q | \| | \| | \| | V\| |
| 21+35 | 0.5959 | 0.08 | Q | \| | \| | \| | V\| |
| 21+40 | 0.5965 | 0.09 | Q | \| | \| | \| | V\| |
| 21+45 | 0.5971 | 0.09 | Q | \| | \| | \| | V\| |
| 21+50 | 0.5976 | 0.07 | Q | \| | \| | \| | V\| |
| 21+55 | 0.5980 | 0.06 | Q | \| | \| | \| | V\| |
| 22+ 0 | 0.5984 | 0.06 | Q | \| | \| | \| | V\| |
| 22+ 5 | 0.5989 | 0.08 | Q | \| | \| | \| | V\| |
| 22+10 | 0.5995 | 0.09 | Q | \| | \| | \| | V\| |
| 22+15 | 0.6002 | 0.09 | Q | \| | \| | \| | V\| |
| 22+20 | 0.6007 | 0.07 | Q | \| | \| | \| | V\| |
| 22+25 | 0.6011 | 0.06 | Q | \| | \| | \| | V\| |
| 22+30 | 0.6015 | 0.06 | Q | \| | \| | \| | V\| |
| 22+35 | 0.6019 | 0.06 | Q | \| | \| | \| | V\| |
| 22+40 | 0.6023 | 0.06 | Q | \| | \| | \| | V\| |
| 22+45 | 0.6027 | 0.06 | Q | \| | \| | \| | V\| |
| 22+50 | 0.6031 | 0.06 | Q | \| | \| | \| | V\| |
| 22+55 | 0.6035 | 0.06 | Q | \| | \| | \| | V\| |
| 23+ 0 | 0.6039 | 0.06 | Q | \| | \| | \| | V\| |
| 23+ 5 | 0.6043 | 0.06 | Q | \| | \| | \| | V\| |
| 23+10 | 0.6047 | 0.06 | Q | \| | \| | \| | V\| |
| 23+15 | 0.6051 | 0.06 | Q | \| | \| | \| | V\| |
| 23+20 | 0.6055 | 0.06 | Q | \| | \| | \| | V\| |

```
   23+25       0.6059      0.06  Q          |          |          |         v|
   23+30       0.6063      0.06  Q          |          |          |         v|
   23+35       0.6068      0.06  Q          |          |          |         v|
   23+40       0.6072      0.06  Q          |          |          |         v|
   23+45       0.6076      0.06  Q          |          |          |         v|
   23+50       0.6080      0.06  Q          |          |          |         v|
   23+55       0.6084      0.06  Q          |          |          |         v|
   24+ 0       0.6088      0.06  Q          |          |          |         v|
   24+ 5       0.6090      0.03  Q          |          |          |         v|
   24+10       0.6090      0.00  Q          |          |          |         v|
----------------------------------------------------------------------------
```

# Section 3

## Riverside County Plates




**LEGEND**

—— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

**RCFC & WCD**

HYDROLOGY MANUAL

N

0 FEET 5000

# HYDROLOGIC SOILS GROUP MAP FOR RIVERSIDE—WEST

B

PLATE C-1.15

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 |
|---|---|---|---|---|---|
| NATURAL COVERS - | | | | | |
| 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 |
| URBAN COVERS - | | | | | |
| Residential or Commercial Landscaping (Lawn, shrubs, etc.) | Good | 32 | 56 | 69 | 75 |
| Turf (Irrigated and mowed grass) | Poor | 58 | 74 | 83 | 87 |
| | Fair | 44 | 65 | 77 | 82 |
| | Good | 33 | 58 | 72 | 79 |
| AGRICULTURAL COVERS - | | | | | |
| Fallow (Land plowed but not tilled or seeded) | | 76 | 85 | 90 | 92 |

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RUNOFF INDEX NUMBERS FOR PERVIOUS AREA

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

| Cover Type (3) | Quality of Cover (2) | Soil Group A | B | C | D |
|---|---|---|---|---|---|
| AGRICULTURAL COVERS (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.

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HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREA

## ACTUAL IMPERVIOUS COVER

| Land Use (1) | Range-Percent | Recommended Value For Average Conditions-Percent(2) |
|---|---|---|
| Natural or Agriculture | 0 - 10 | 0 |
| Single Family Residential: (3) | | |
| 40,000 S. F. (1 Acre) Lots | 10 - 25 | 20 |
| 20,000 S. F. (½ Acre) Lots | 30 - 45 | 40 |
| 7,200 - 10,000 S. F. Lots | 45 - 55 | 50 |
| Multiple Family Residential: | | |
| Condominiums | 45 - 70 | 65 |
| Apartments | 65 - 90 | 80 |
| Mobile Home Park | 60 - 85 | 75 |
| Commercial, Downtown Business or Industrial | 80 -100 | 90 |

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

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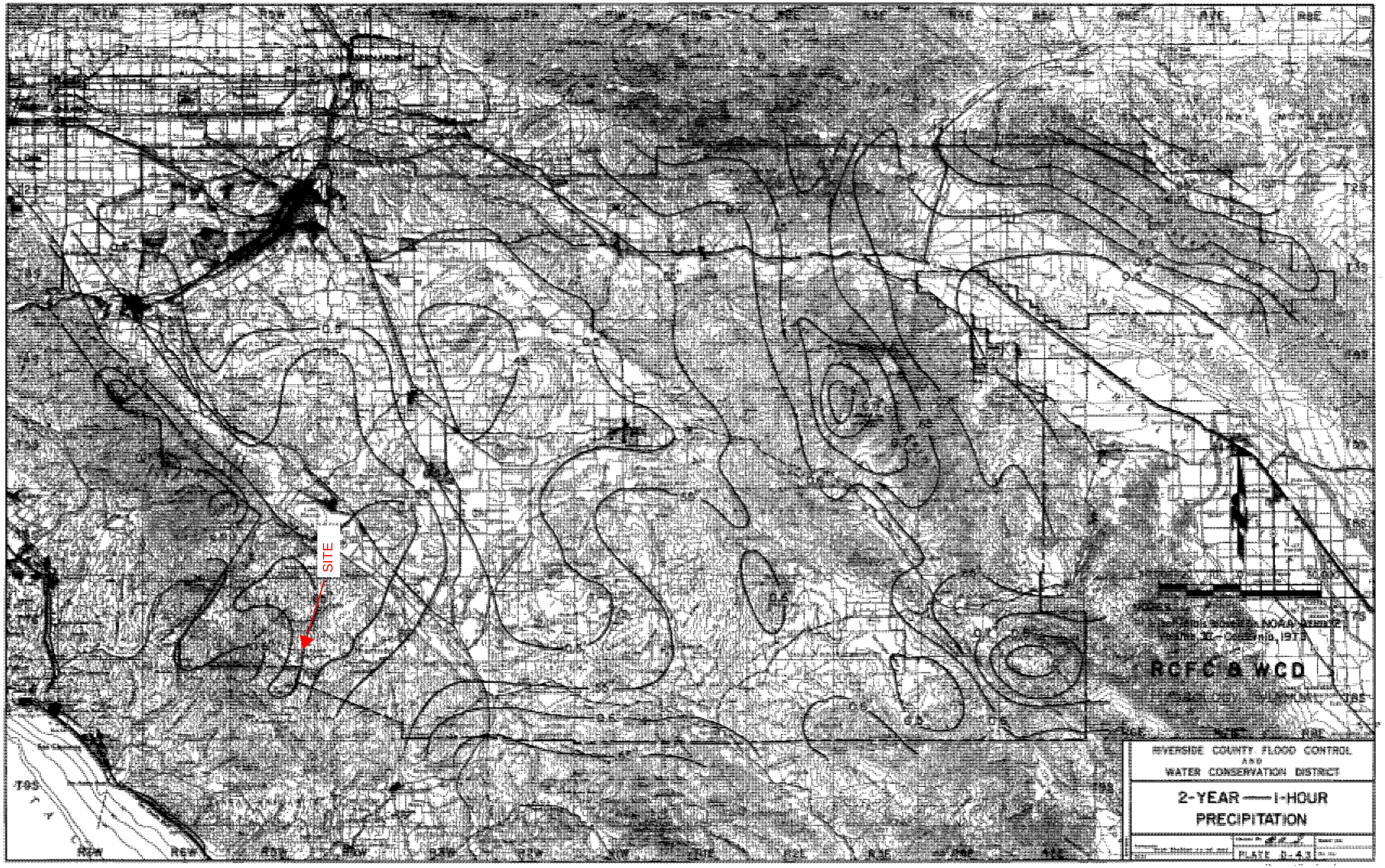
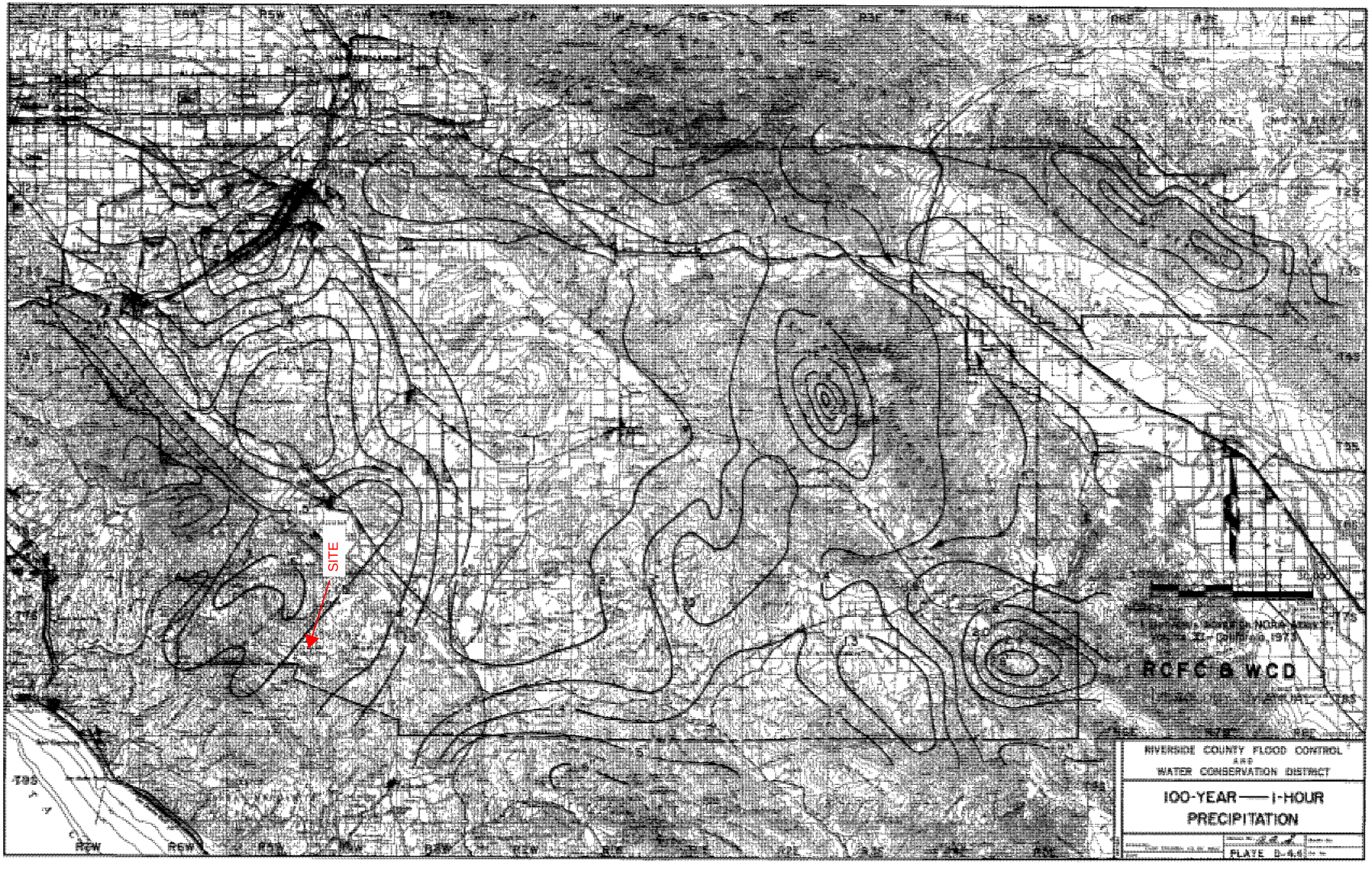
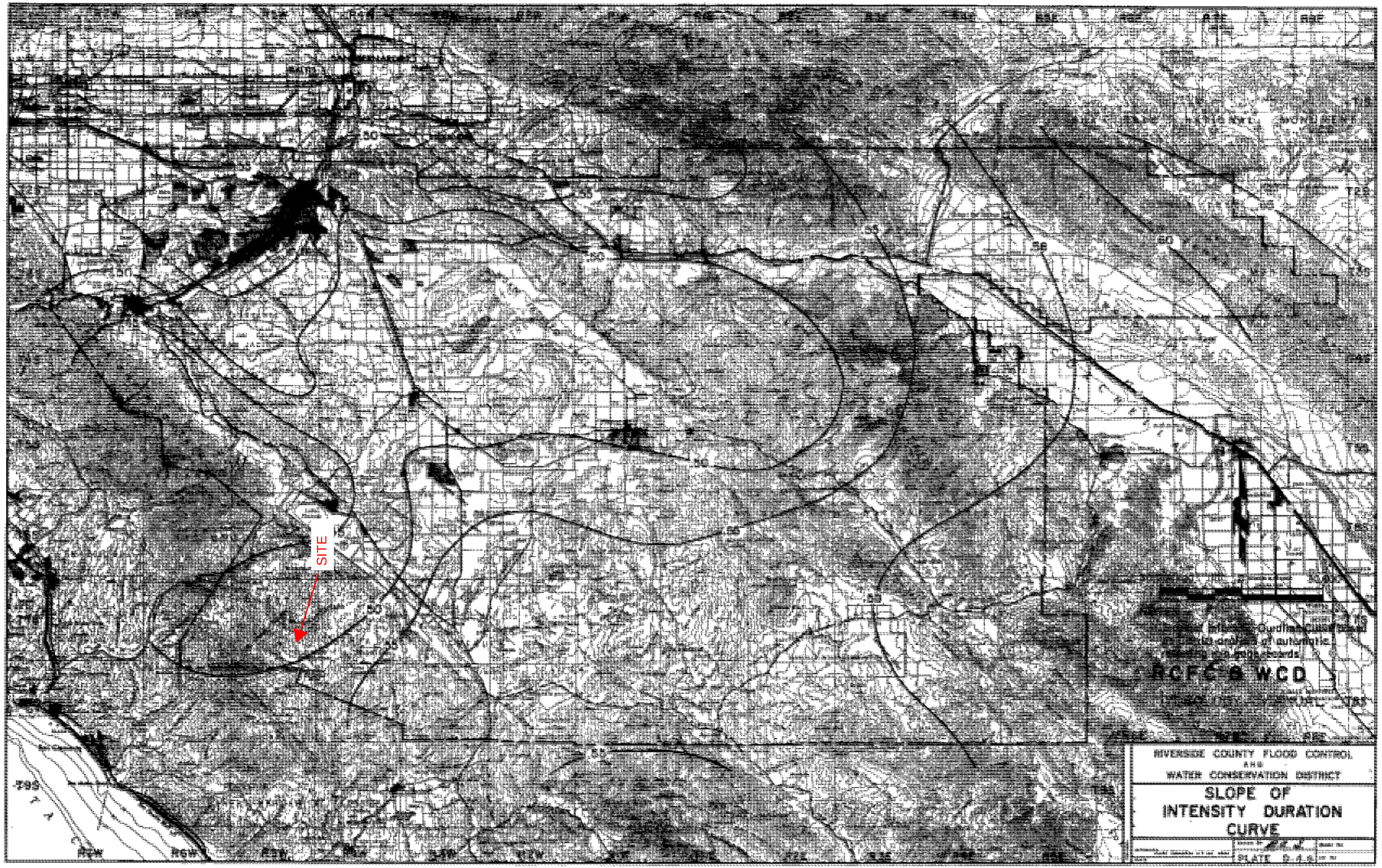
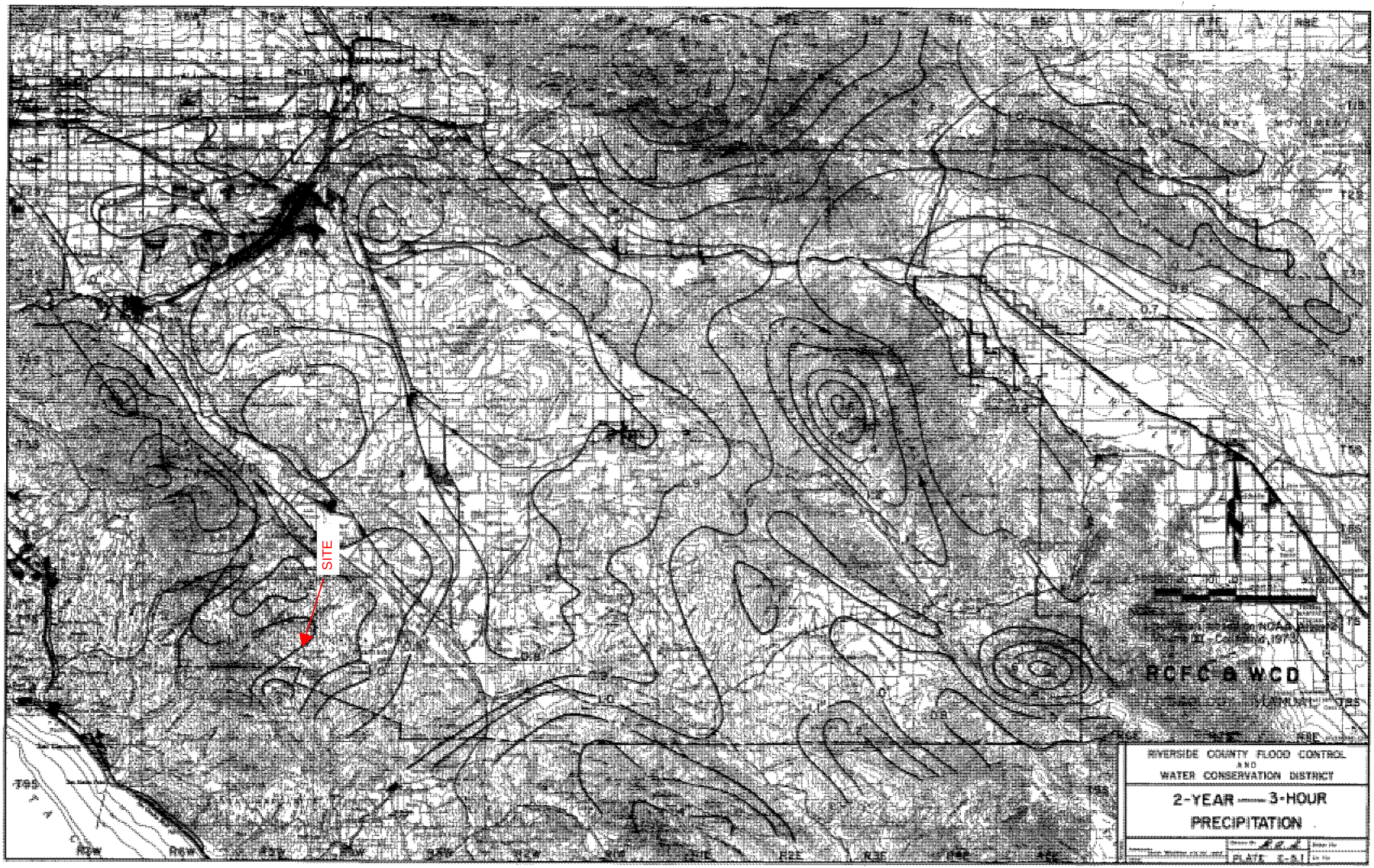
IMPERVIOUS COVER FOR DEVELOPED AREAS


SITE
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
2-YEAR — 1-HOUR
PRECIPITATION
PLATE D-4.3


SITE
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 1-HOUR
PRECIPITATION
PLATE D-4.6


SITE
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
SLOPE OF
INTENSITY DURATION
CURVE
PLATE D-4.6


SITE
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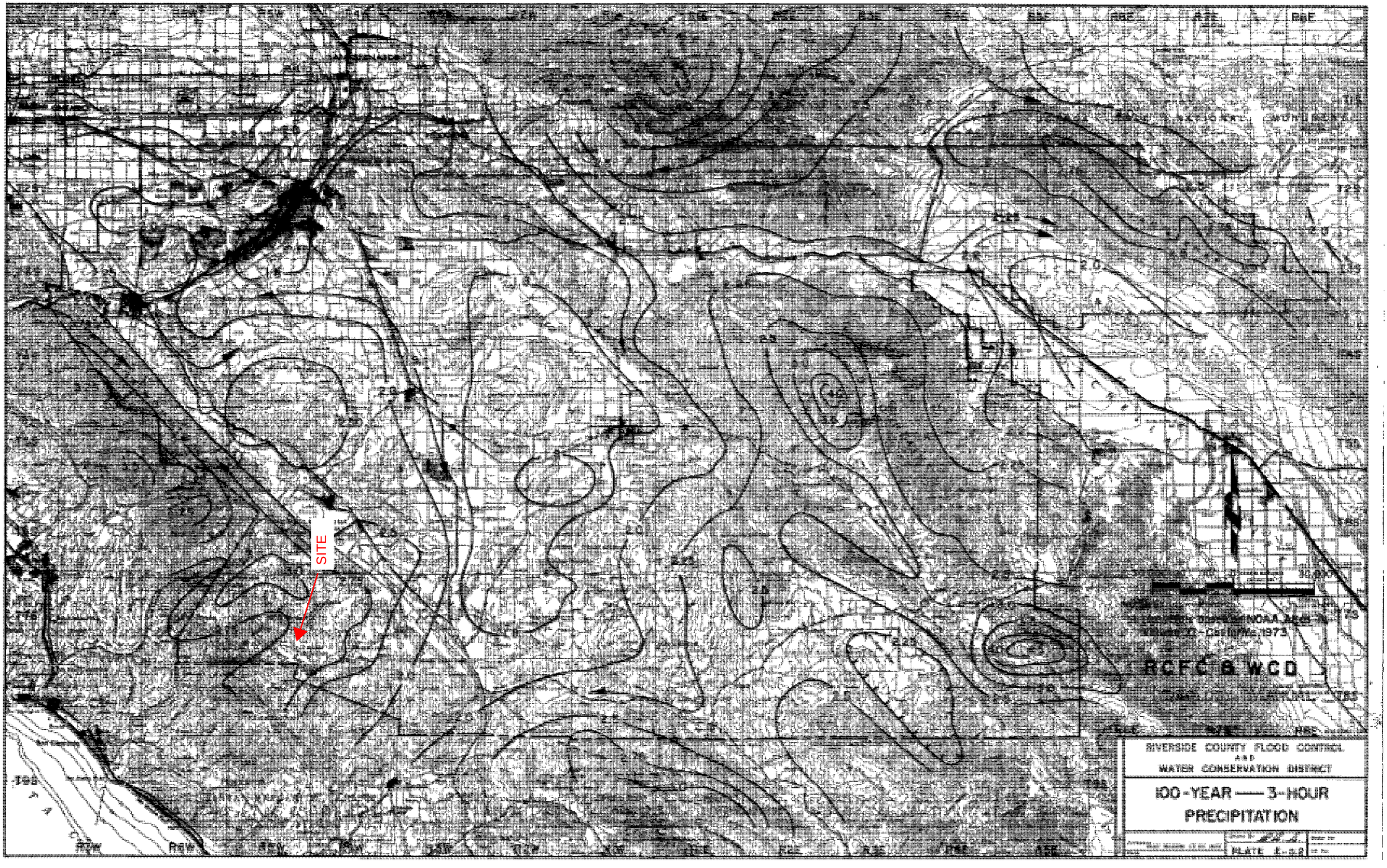
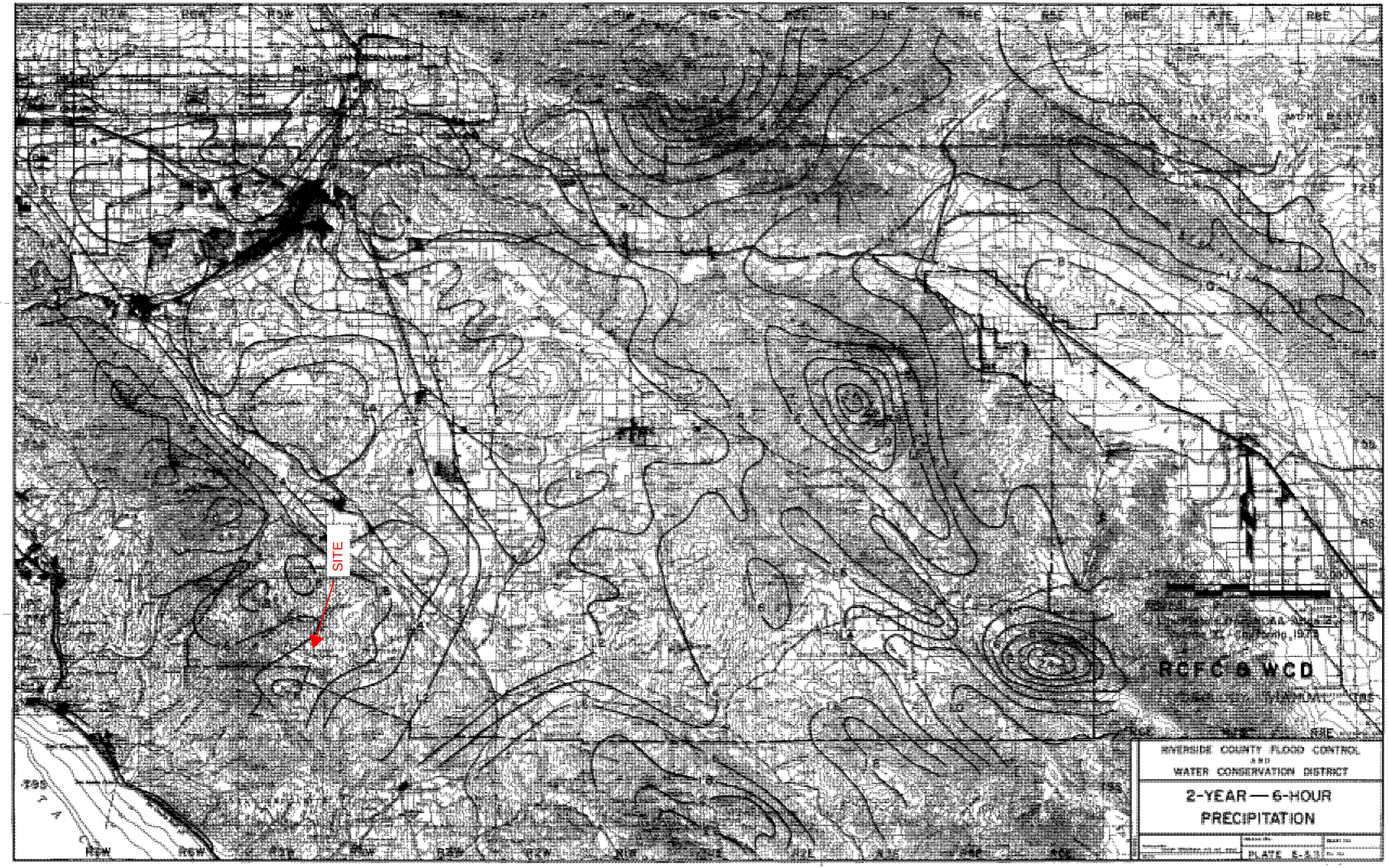
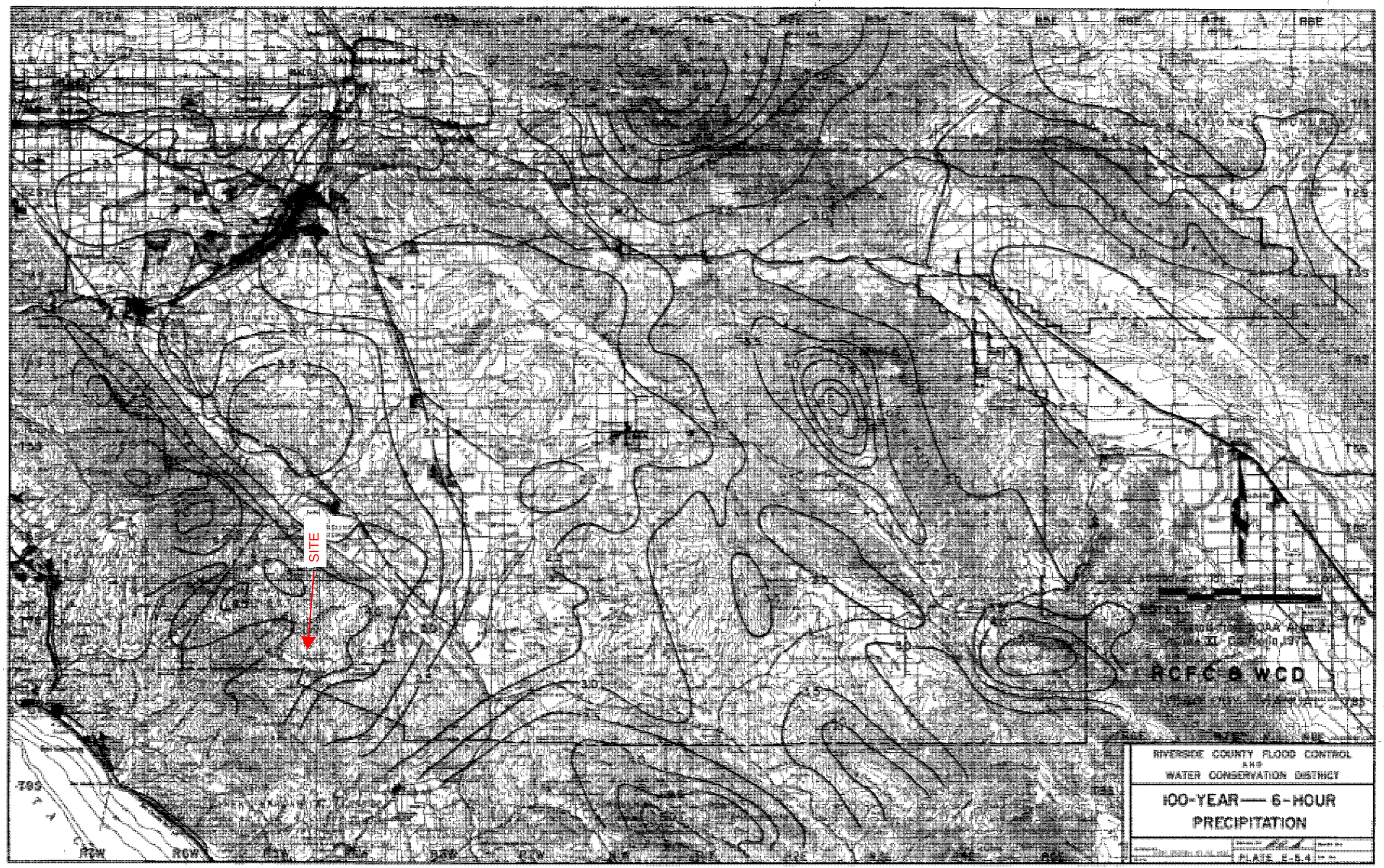
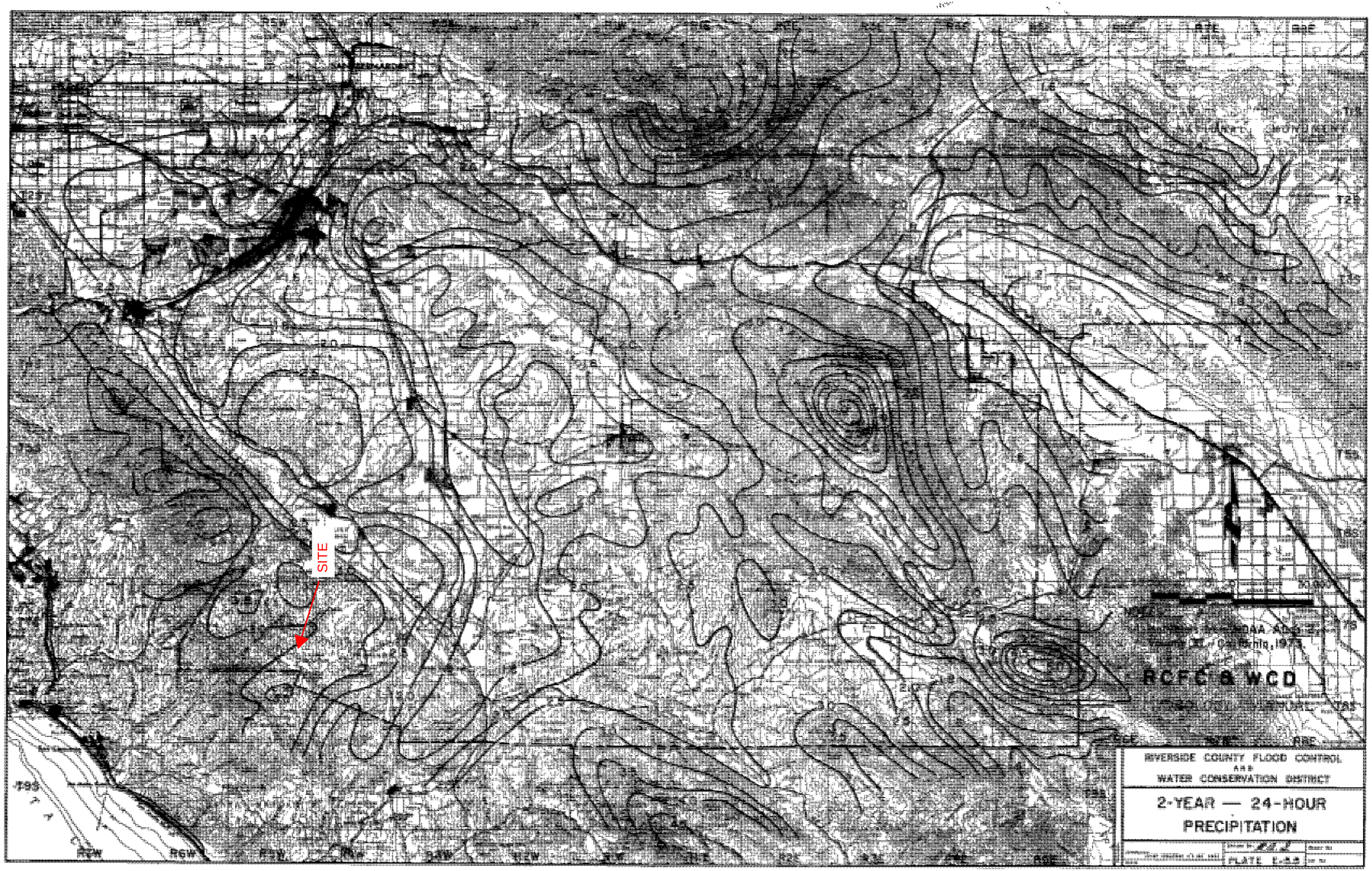
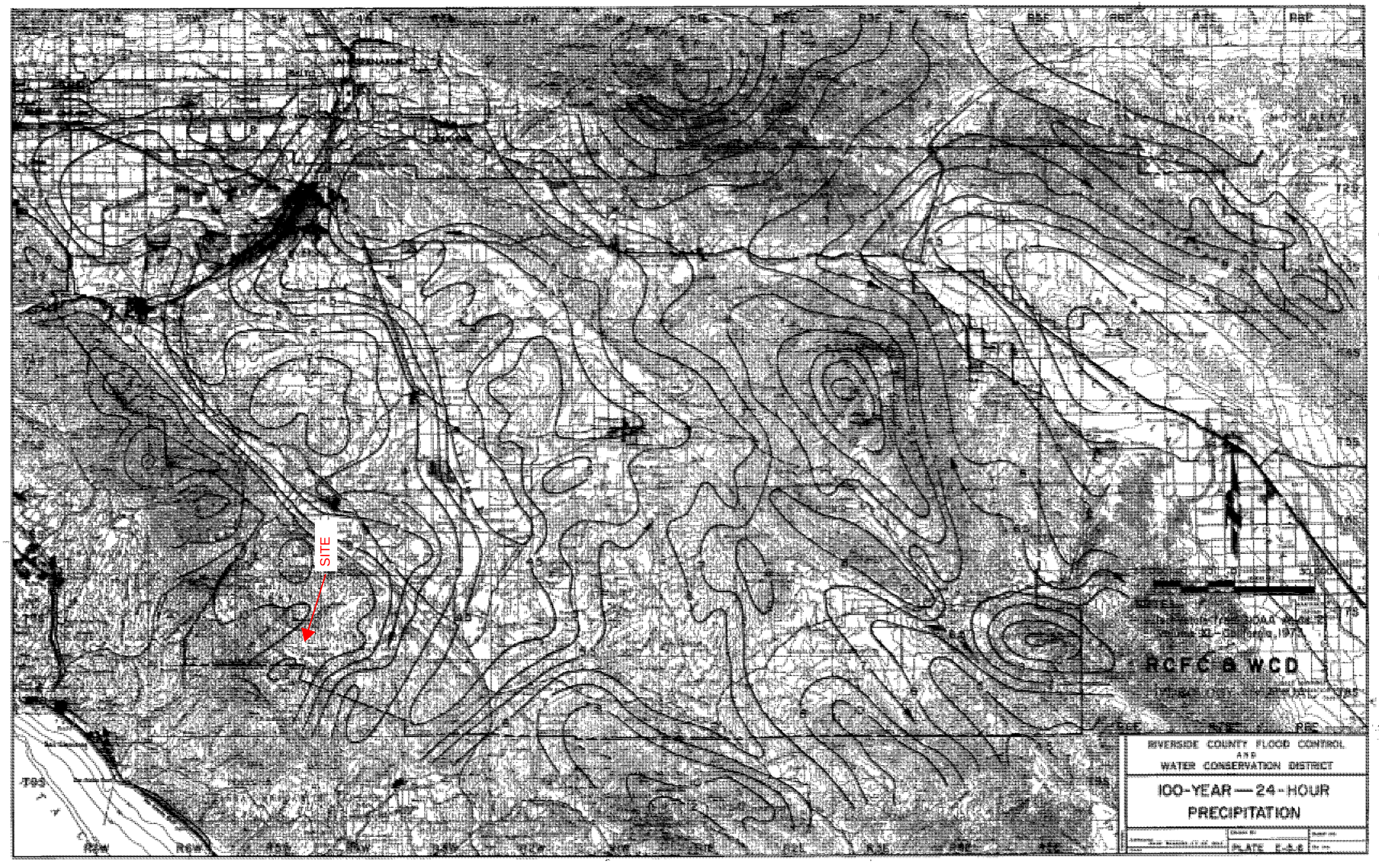
AND
WATER CONSERVATION DISTRICT
2-YEAR — 3-HOUR
PRECIPITATION


SITE
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 3-HOUR
PRECIPITATION
PLATE E-3.2


SITE
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
2-YEAR — 6-HOUR
PRECIPITATION
PLATE


SITE
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 6-HOUR
PRECIPITATION
PLATE E-5.4


SITE
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
2-YEAR — 24-HOUR
PRECIPITATION
PLATE E-2.3


SITE
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 24-HOUR
PRECIPITATION
PLATE